GIS-403
FORM AND BEHAVIOR SPECIFICATION

FACEPLATE RADIO INFOTAINMENT HMI

Release 1.7

April 2, 2014

Revision History

Date	Version	Update Note	Author
Jun. 21, 2013	V1.4	• Last Release from GMNA	GMNA
Dec. 02, 2013	V1.5	• HMI QnA is applied. (GMK Info <-> Humax HMI/SW) • SWC Key • OnStar • Vehicle Setting • Menu Tree • Apple Siri • Driving School	Jin Kim (GM) <With Boil Kim (Humax)>
Jan. 29, 2014	V1.6	• Errors (# of 18) are cleared by DRE review. • NGF Menu Tree(IA) is applied. (Appendix I) • RBDS is applied. (Appendix II) - RBDS is being the step of devolvement . • Zoom Bubble is applied. (Appendix III) • Revised the T.O.D mode display by QAP issue. - Added the (Date) Format on the Set Date in the menu • HMI QnA is applied. (GMK Info <-> Humax HMI/SW)	Jin Kim <With Boil Kim (Humax)>
Feb.27.2014	V1.61	• Temporary Release for solving the GMK/ESIM issues - Chapter 5.19.13 PREVIOUS / FAST REVERSE TRANSPORT CONTROLS : Changed the condition of Previous Song Play (10sec → 5sec) - Chapter 12.4 CONNECTING TO ONSTAR : Added the rule of text display - Added the Arabic Layout Guide (Appendix III) - Added the Volume Control (1.1.7 Rotating power knob (Volume), 1.2 STEERING WHEEL CONTROL HARDWARE)	Jin Kim <With Boil Kim (Humax)>

Revision History

Date	Version	Update Note	Author
April. 2, 2014	V1.7	• Combined the document GIS-403 V1.4 and GIS-403 V1.61 - GIS-403 V1.4 had been made by GMNA - GIS-403 V1.61 had been made by GMNA with Humax • Marked the changed/added figure & description which is V1.61 document as Red Color.	Jin Kim <With Boil Kim (Humax)>

Figure 1.1.1 - FM Now Playing - uplevel faceplate configuration (example)

1.1 Overview

1.1.1 Radio

The Radio button cycles through the radio bands AM, FM, and DAB in sequential order.

- Exceptions>
  On the menu or FAV Page or Media/Phone Mode,
  If the user presses the <RADIO>key,
  system should be gone to the latest RADIO Band/Freq.

1.1.2 Media

The Media button cycles through the media sources USB (mass storage device or media players such as an iPod), SD, AUX, and Bluetooth Devices.

1.1.3 Seek Next/ Seek Previous

The arrows will perform seeking between strong stations in broadcast sources and tracking next and previous in media sources.

- Exceptions>
  If the user presses the < - > key which means preset number on the seeking, system should be recalled/tuned the preset number.

1.1.4 Fav

Cycles through the users favorites in sets of four. This button is located next to the preset buttons along the bottom of the display.

1.1.5 Back

Allows the user to go back incrementally within a list hierarchy or return to the Now Playing screen.

1.1.6 power

Turns the radio on and off.

- Power Key is operation as Mute On/Off when short pressing .

- Exceptions>
  If Mute is On by Power Key,
  this activation will be applied all of source(including TA) before un-mute or volume-up by the user.

1.1.7 rotating power knob (Volume)

Adjusts the volume incrementally on the radio.

- Rotating power knob on the operating mode,
  Volume is immediately decreased/increased per each step rotating.

- Exceptions >
  During the Volume decrement changes in current Volume are fundamentally possible by the User. However it is not allowed to increment the volume above the calculated volume limit.

1.1.8 Menu

Enters in a source specific list of menu items from any now playing screen. In list views, the menu button acts as an enter press and selects items.

1.1.9 Rotating the menu knob

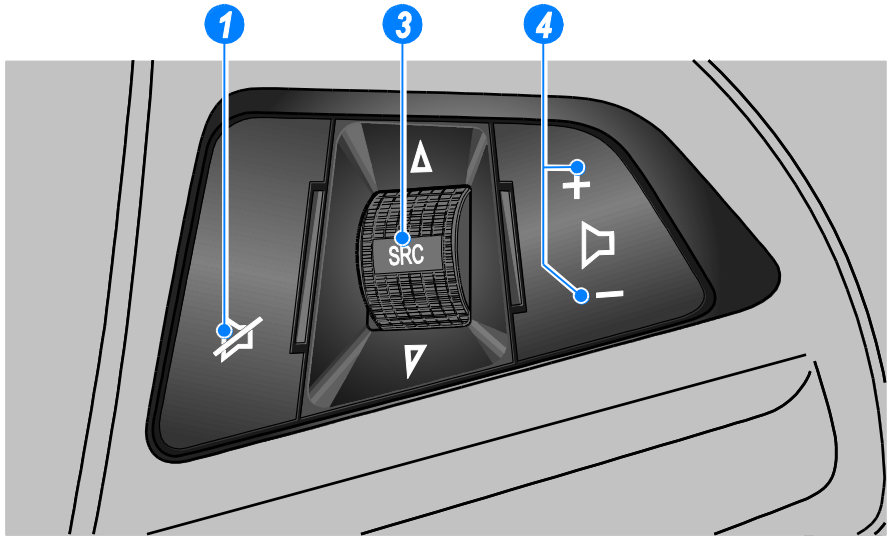
In broadcast now playing screens rotating the menu knob will tune. In list screens rotating the menu knob will scroll the highlight through list items.
EU radios will bring up a strong station list when the menu knob is rotated.

1.1.10 Phone (2.1 F – uplevel system only)

Enters the user into the phone application screens.

1.1.11 Tone (2.0F – Base system only)

Enters the user into the tone settings screen.
Note: Only available in base faceplated radio version.



SWC (Case1)

BUTTONS

1. Mute/Hang up button
3. Source [▽SRC△] button/dial (wheel)
4. Volume Up/ Down buttons

1.2 Steering Wheel Control Hardware

1.2.1 ACTION ON PRESS (Case1)

(1) Mute/Hang up button

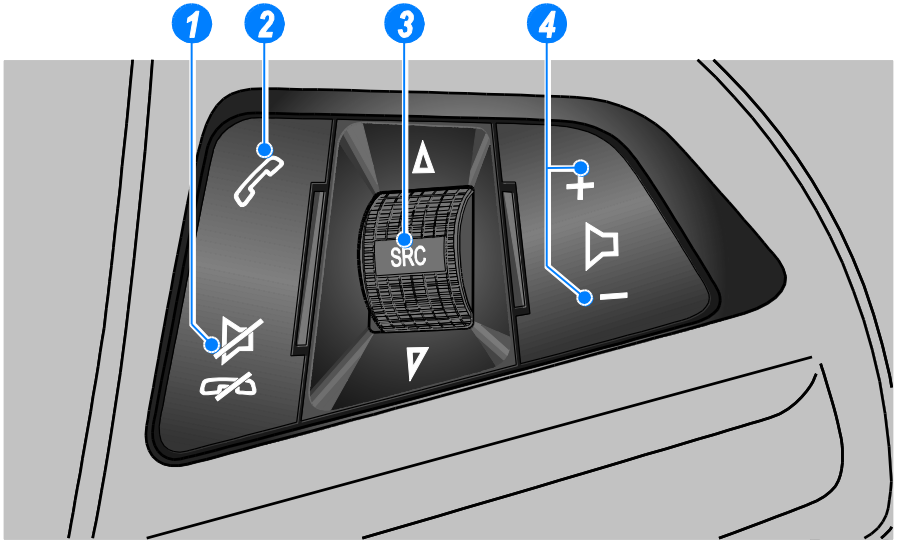
- Press the button in any music play mode to turn the mute function on and off. In engaged mode, you can press this button to reject calls to finish the call.

(3) Source [▽SRC△] button/dial (wheel)

- Press the button to select a sound play mode.
- Turn the dial to change the registered radio stations or change the music being played.

(4) Volume buttons

- Press the + button to increase the volume, immediately.
- Press the - button to decrease the volume , immediately.



SWC (Case2)

BUTTONS

1. Mute/Hang up button
2. Call button
3. Source [▽SRC△] button/dial (wheel)
4. Volume Up/ Down buttons

1.2 Steering Wheel Control Hardware

1.2.2 ACTION ON PRESS (Case2)

(1) Mute/Hang up button

- Press the button in any music play mode to turn the mute function on and off. In engaged mode, you can press this button to reject calls to finish the call.

(2) Call Button

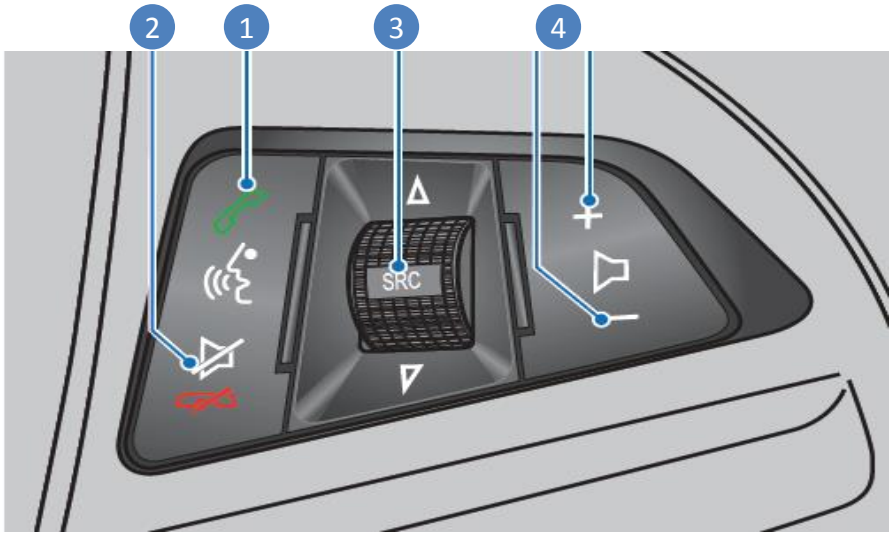
- Press the button to answer the call or enter the re-dial selection mode.
- Hold down the button to enter the dialed call log or to move back and forth from hands-free mode and private call mode during a call.

(3) Source [▽SRC△] button/dial (wheel)

- Press the button to select a sound play mode.
- Turn the dial to change the registered radio stations or change the music being played.

(4) Volume buttons

- Press the + button to increase the volume , immediately.
- Press the - button to decrease the volume , immediately.



SWC (Case3)

BUTTONS

1. Phone and push to talk (PTT)
2. Mute/Hang up button
3. Source [▽SRC△] button/dial (wheel)
4. Volume Up/ Down buttons

1.2 Steering Wheel Control Hardware

1.2.3 ACTION ON PRESS (Case3)

(1) Mute/Hang up button

- Press the button in any music play mode to turn the mute function on and off. In engaged mode, you can press this button to reject calls to finish the call.
- When Siri was activated,
  this key (Short Press)should be cancel the Siri

(2) Phone and push to talk (PTT)

- Press the button to answer the call or enter the re-dial selection mode.
- Press and Hold the button to enter the siri (Voice Command))

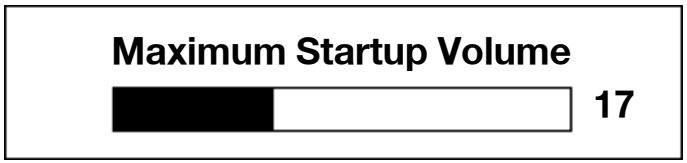
(3) Source [▽SRC△] button/dial (wheel)

- Press the button to select a sound play mode.
- Turn the dial to change the registered radio stations or change the music being played.

(4) Volume buttons

- Press the + button to increase the volume , immediately.
- Press the - button to decrease the volume , immediately.

Figure 2.1.1 - Maximum Startup Volume setting screen



2.1.1 Press and Hold

Users can Press and Hold certain faceplate switches elements to perform specific functions such as to store a favorite or fast seek.
Details of Press and Hold gestures, including specific hold durations for an action to be executed, are described in the application sections where they are used.
A Press and Hold is performed by pressing a switch with a finger and holding that location for longer than 1000-1500 ms. The hold duration is calibratable with a default setting of 1250 ms.

2.1.2 Rotate

Users can rotate the rotary-push knob to perform such functions as tuning the radio or scrolling lists.

2.1.3 Volume

Users adjust the volume of the audio system, phone, etc. by rotating the volume knob on the faceplate.

2.1.4 Maximum Startup Volume

This setting is found in the audio menus and titled “Maximum Startup Volume”.
The maximum startup volume is the volume that the system will be decreased to at startup, if the volume was above this set level at shutdown. If the volume is at or below this volume at shutdown, the user’s previously set volume level will be retained.
This setting is adjusted by using the tune knob while in the max startup volume view as shown in Figure 2.1.1. It will have a lower limit threshold as defined by the radio calibrations..

Figure 2.1.2 - Audio Playback Volume

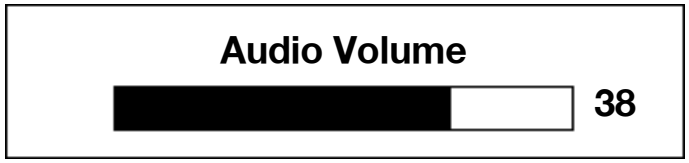


Figure 2.1.2 - Audio Playback Volume

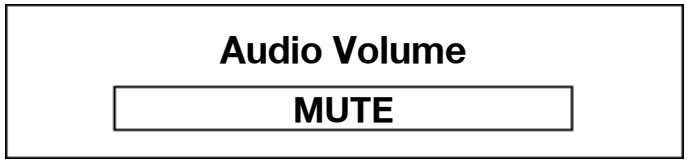
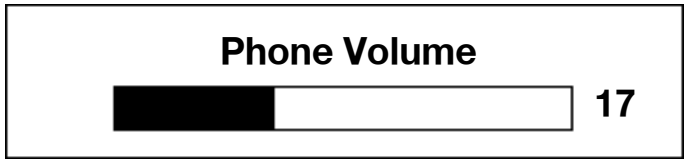


Figure 2.1.2 - Audio Playback Volume



2.1.5 Audio Playback Volume

The main audio channel plays broadcast audio and media playback audio, referred to here as Audio Playback Volume. Users can use the volume control on the faceplate to adjust the Audio Volume through the full range of volume settings from 0 to Max (e.g., 63 steps).

When the volume is set to zero, it is not considered as equivalent to mute mode.

If the user attempts to adjust volume while the system is muted, the view shown in Figure 2.1.3 is shown. The details of placing the system in mute mode is found in section 2.1.8.

2.1.6 Phone Volume

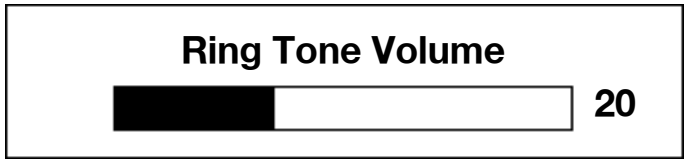
The phone audio channel plays the phone and advisor phone audio. Users can use the volume control on the faceplate to adjust the Phone Volume while in an active phone call through the range of volume settings from a zero to Max (e.g., through volume steps 0-63).

There is a minimum startup volume each time the phone audio channel is sourced. The emergency phone audio channel plays the emergency phone audio. This is different from the normal phone audio channel in that it has a defined minimum volume setting below which the users can not go and its minimum startup volume is different (i.e., greater than the phone audio channel startup volume).

Figure 2.1.5 – System mute mode by short press of volume button

Figure 2.1.6 – Off Mode with clean Screen

Figure 2.1.7 - Ring Tone Volume



2.1.7 Ring Tone Volume

The Ring Tone audio channel plays the audio associated with the following:

• incoming call ring tones.

Users can use the volume control on the faceplate to adjust the Ring Tone Volume while the Ring Tone is being played through the range of volume settings from a defined minimum to Max.

2.1.8 Power On/OFF Behavior

A single press of the power button will mute the audio while displaying a mute symbol in the status area. A press and hold will turn the system off and display the clean screen as shown in the wireframe.

This full screen is shown when the user powers off the Infotainment system (only shown when the vehicle is powered on).

- T.O.D(Time of Date)

  1) Key Input

  If the user presses the <POWER>key, System should be ON.
  it also should be operated by SWC : <Source> key

  - Exception : If system is ON,
    the status of mute(Volume) should be returned to the un-mute .

  2) Source Input (USB, SD, AUX, B/T)

  If the some source is connected/inputted on the T.O.D,
  System should be waked up/operated the mode as plug and play.
  But, If this connection/Input is un-connected/removed,
  System should be gone to the T.O.D Mode.

  (However, If the user operates to change the source/mode,
  System should not be gone to the T.O.D Mode.)

3) Interrupt B/T Phone, Message
When incoming(with text message), outgoing call is occurred,
System should be waked up/operated this interrupt action.
Also, if this interrupt action will be ended,
System should be gone to the T.O.D Mode.)

4) Traffic Alert
On the T.O.D Mode,
System ignores/does not process this Interrupt.

5) HVAC Control
If the user controls the HVAC, System should be displayed/control the HVAC.

If no event which is user's control is occurred during 5sec,
System should be gone to the T.O.D Mode .

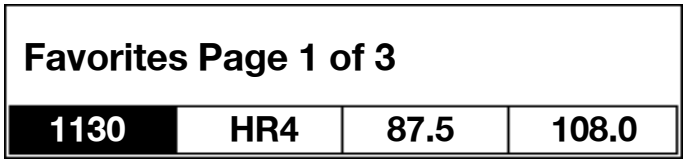
2.1.9 Font

- No Fonts
  On the RDS/DAB Now Playing or Media Now playing or Phonebook name/ address/etc.,
  If system does not have these mode's meta data(Unicode),
  System should be displayed "*".

3. FAVORITES

Figure 3.1.1 - Favorites inactive during now playing

Figure 3.1.2 - Favorites revealed after FAV button pressed



3.1 Favorites Area Elements

The Favorites region contains all the Favorites that have been stored by the user. The purpose of the Favorites Area is for quick access to a user preset item by pressing the desired Favorite buttons. The favorites are accessed by pressing the FAV button on the faceplate.

3.1.1 Storage Limit

The maximum number of Favorites that a user can store is 24.

3.1.2 Empty Favorites

Favorites spaces without stored information are shown as outlined boxes with the number position of the Favorite (1 through 24) indicating to the user that a Favorites may be stored in that location.
The tuner Silverbox may have default Favorites calibrated to it. When these defaults are calibrated to zero, the Favorite for this location should be shown as empty.

3.1.3 Active Favorite Indication

An active Favorite will be shown as active through color coding / shading.

3.1.4 Favorites Bar

The Favorites bar serves as the separation between the Favorites region and the remaining display area.

3. FAVORITES

Figure 3.1.3 - Favorites active view with favorite indication

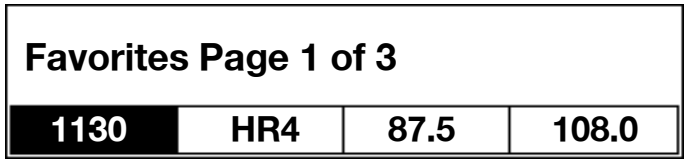


Figure 3.1.4

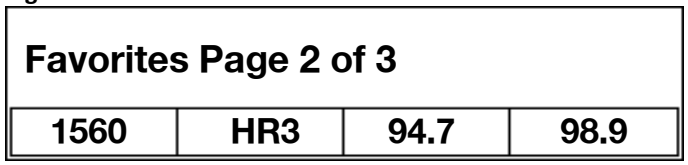
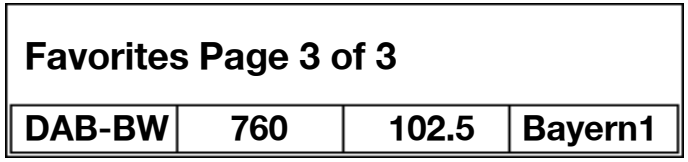


Figure 3.1.5



3.1.5 Page Indicator

Since there may be many pages (up to 6) of stored Favorites, a text indication is provided to indicate where the current Favorites page is relative to the dynamic total number of Favorites pages that the user has available. The page indication is determined by the most recently selected favorite. If this information is not available, the favorites page view defaults to page 1.

3.1.6 Paging Through Additional Favorites

The user pages through all of their stored Favorites by using the FAV button on the faceplate. When paging forward and the end of the stored Favorites is reached, a row of empty Favorites is displayed to allow the user to save additional Favorites.
The next page forward by the user causes the list to wrap to the beginning of the Favorites list. The user may also set a fixed number of favorites pages to be visible in the Settings, in which case, the favorites list will wrap after the set favorite page number has been reached.
The favorite highlight can also be moved between favorite pages by using the rotary menu knob.
For example, if the user rotates the menu knob, the highlight moves from ‘Plnt Rock’ on page 1 to ‘1560’ on page2.
Note: by using the FAV button the faceplate there is no highlight used unless the active station is on the selected page or a user selects a new favorite for the page in view.

3.1.7 Favorites – Selecting

A Favorite is selected by tapping on the desired Favorite button in the Favorites Area of the faceplate. The station associated with that Favorite is then tuned. It is not required to display the favorites under this scenario. However, if the user is viewing the favorites screen and selects a new station, the station selected is tuned and the favorites view is still active for 5 seconds (calibrateable).

- A Favorite is selected by tapping on the desired Favorite button in the Favorites Area of the faceplate. The station associated with that Favorite is then tuned. It is not required to display the favorites under this scenario.

However, if the user is viewing the favorites screen and selects a new station, the station selected is directly tuned.

- On the Radio Now playing Mode,
  If the user selects the < - > key which means preset number.
  System should be tuned the preset number of
  latest favorite page.

  Exception > If system does not memorized the latest favorite page,
  System should be tuned the preset number
  of favorite 1st page by pressing the <-> Key.

3.1.8 REMOVED

3.1.9 Storing Favorites

Items can be stored as Favorites by press and holding for the standard press and hold timing, on a desired Favorite location within the Favorites region. Feedback is provided to the user once the favorite is successfully stored in the form of a beep.
If a Favorite already exists in this location, the new information will overwrite the previously stored Favorite.
Performing a press and hold on the Favorites in a non-Audio application or list view will do nothing.
If no selection is made, the favorites timeout after 5 seconds (calibrateable). If a selection is made, the favorite stored is highlighted and the favorites region minimizes dismisses to the previous view after 5 seconds (calibrateable).

Figure 3.1.6

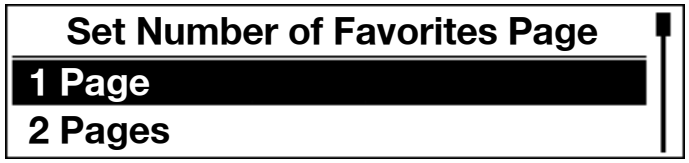
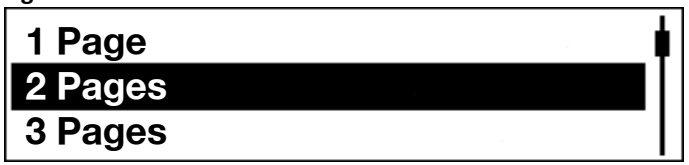


Figure 3.1.7



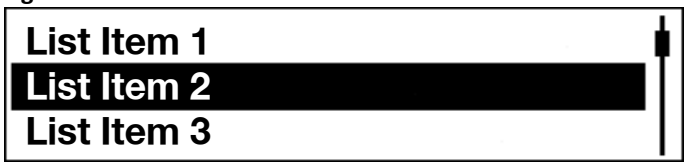
3.1.10 Setting The Number of Favorites Pages Shown

The user is able to set the number of Favorites pages that are accessed through this setting. When selected from the menu, a list of available pages to select via the scroll knob is displayed.

This setting is reflected in the favorites page indication text the next time the favorites are displayed as shown in figure 3.1.3.

Figure 4.1.1 - Enter state of list view

Figure 4.1.2 - Scroll state of list view



4.1 Lists

Users interact with Lists in a number of applications run by the system. This section describes the major elements and behaviors common in all Lists displayed by the system. Elements and behaviors that are unique to a specific application's Lists are described in that application's sections in this Form and Behavior Specification.

4.1.1 List Elements

The following describes the major elements that may or may not be displayed as part of a List, depending on the specific application's use of Lists.
List elements include:

- List Header
- List Items
- Scroll Bar/Position Indicator

4.1.2 List Items

Each row in a list contains the List Item (e.g., contact name; song title). A List Item can be a single line of text. The number of List Items displays is dependent on the content of the list/sub-list. For example, a single List Item may be displayed when there is only a single Album or Song associated with the higher-level List Item selected. Hundreds or even thousands of List Items may be displayed when there is such content for a given list such as All Songs from a connected device.
List Items are selectable by highlighting the desired List Item by rotating the knob on the faceplate. Tapping the knob when a particular List Item is highlighted displays the associated sub-list (e.g., list of songs associated with the album name tapped) or performs an action associated with the List Item selected (e.g., start playback of a song; display an edit screen for the List Item; etc.). The action is performed "on release" when tapping.

4.1.3 Display of Long Text Information in List Items

When a List Item contains variable text that may be longer than the available viewing area in a List Item, it does the following:

• Truncation - if the text string is too long to fit with Smart Truncation in the viewable area, the text string is truncated and ellipses (...) are added at the point where the text string was cut off.

4.1.4 List header Behavior

The initial view shown for a list includes the list header which essentially defines the type of list that is being viewed (e.g. FM Stations). This is shown regardless of whether the list is displayed from rotating the tune knob (for EU station lists) or from a menu button press (eg. Artists list)

Once the user begins turning the knob to interact with the list, the header is removed and all three available lines are used for the list items as shown in figures 4.1.1. and 4.1.2.

If 2 or less items are available in a list, the header will remain visible.

Figure 4.1.3 - List Indicator Icon example

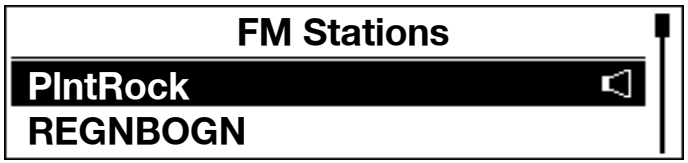
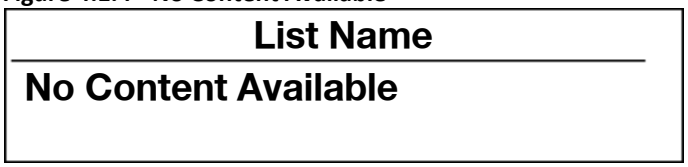


Figure 4.1.4 - No Content Available



4.1.5 List Indicator Icons

Indicator Icons may be displayed on List Items; for example, a “Now Playing” icon showing that a radio station in a list is currently tuned.
Indicator Icons are visible at all times when the list is displayed.

4.1.6 No Content Available

If the user has selected a list that happens to be empty, such as a media, intellitext, or contact list that has no content or information available, the list is shown empty with a single list item that says “No Content Available”. This list item cannot be highlighted or selected.

Figure 4.2.1 -

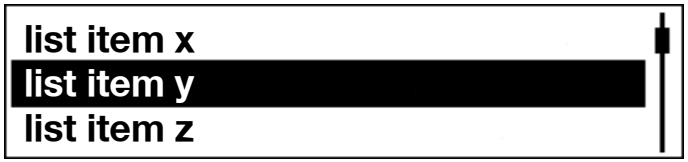


Figure 4.2.2 -

Figure 4.2.3 -

4.2 List Gestures

The following describes the gestures that may or may not be operationalized as part of a list, depending on the specific application's use of lists.
List Gestures include:

- Scroll
- Tap
- Press and Hold

4.2.1 Scroll

Users rotate the rotary-push knob on the faceplate to scroll List Items. The highlight bar moves down when the knob is rotated clockwise and stops moving at the last list item displayed and then the list scrolls begins scrolling up behind the highlight bar until the end of the list is reached.
When the list end is reached, the last list item is displayed at the bottom of the list and the highlight bar moves down to the bottom. An additional rotation of the knob in the clockwise direction wraps the list to the beginning and the highlight bar is now shown at the top of the list. When rotating counter-clockwise, the highlight bar stops at the list item at the top and the list begins scrolling down until the start of the list is reached. When the start of the list is reached, the first list item is displayed at the top and the highlight bar is in the top position. An additional rotation of the knob in the counter-clockwise direction wraps the list to the end and the highlight bar is shown at the bottom of the list.

When reaching the end (or start) of the list while scrolling, the highlight bar will pause for 1 sec (calibratable between 250 msecs and 2000 msecs) ignoring additional inputs from the rotary encoder and the system will play an auditory alert / beep. After the pause duration has elapsed, the system will register the next rotary input in the same direction as the cue to animate the list to the next page and move the highlight bar to top (or bottom). During the list animation, any rotary encoder inputs are ignored. When the animation is complete and the highlight bar is positioned in its new start location, rotary inputs are again responded to according to the description above.

4.2.2 Tap

Users tap the rotary-push knob on the faceplate to perform desired functions associated with the List Item currently highlighted.

4.2.3 Press and Hold

Users can Press and Hold the rotary-push knob on the faceplate to perform desired functions associated with the List Item currently highlighted. Details of Press and Hold gestures are described in the appropriate application sections where they are used.
A Press and Hold is performed by pressing and holding the rotary-push knob for longer than 1000-1500 ms.
The hold duration is calibratable and is defined in detail in the application sections where such Press and Hold gestures are enabled.

4.3 List Interaction Behaviors

The following describes the interaction behaviors that may or may not be operationalized as part of a given list, depending on the specific application's use of lists.
List Interaction Behaviors include:

- Wrapping
- List History
- List Views

4.3.1 Wrapping

Lists can wrap from start to finish or vice versa. The method for wrapping a list is to be at the end or start of the list and continue rotating the knob in the direction to wrap the list past the last item (or first item) in the list. The scroll highlight will go to the top (or bottom depending direction of wrap) and continue scrolling. Lists wrap only when the list is longer than what can be displayed on the single screen (e.g., more than 3 List Items).

4.3.2 List History

When navigating list hierarchies or navigating between screens and lists, the system maintains a "history" of the list position that was last displayed when the given list was last viewed/displayed. The "List History" aids the user in situations such as when backtracking up a station or media search hierarchy; when returning to a station/ media list from a now playing screen; or when returning to a Contacts List in the phone application from another screen. The list history is cleared after ignition cycles.

5. BROADCAST SOURCES

Figure 5-1. AM Radio Intro View

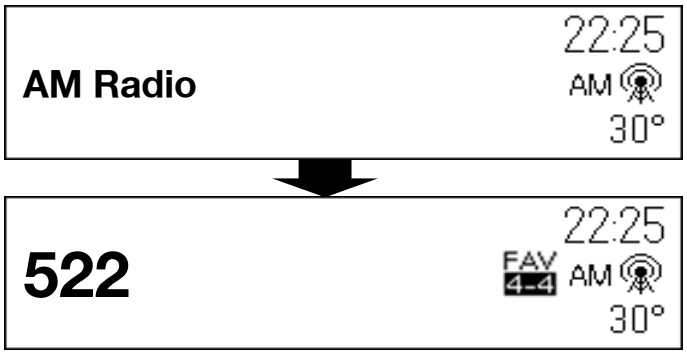


Figure 5-2. FM Radio Intro View

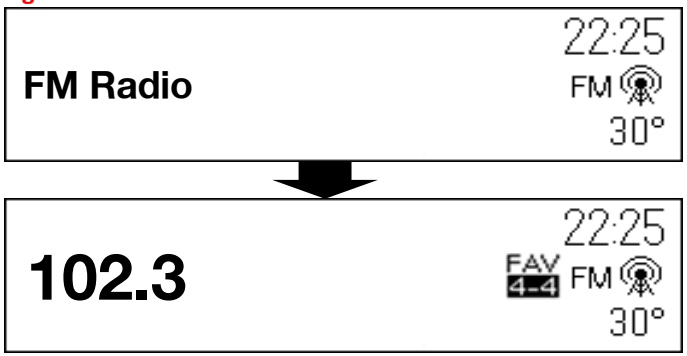
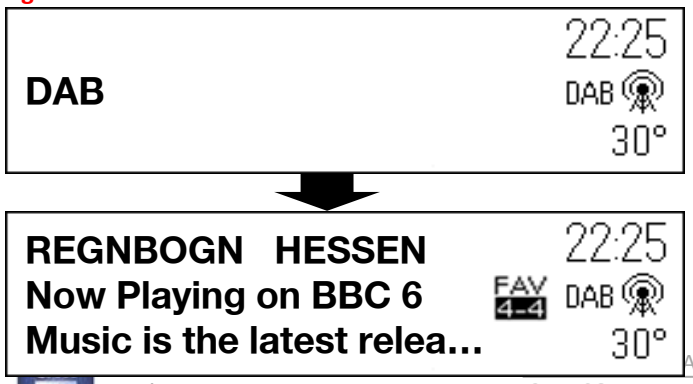


Figure 5-3. DAB Radio Intro View



AM/FM Broadcast sources

The following section describes the data elements and functions for AM/FM broadcast audio sources.
The Now Playing screens for these sources contain the data elements dependent on the broadcast audio source.

- When the user changes Radio mode/Band by pressing the <Radio>key, system displays radio intro view firstly as left figure.

Figure 5.1.1 -

5.1 AM View

AM view should contain:

- AM icon
- Frequency (in larger font style)
- Time of Day and Outside Temperature
- FAV Label
- Mute icon
- Driving School
  (If Driving School is on,
  Speed is displayed on the location/instead of outside template.)

5. BROADCAST SOURCES

Figure 5.2.1 - generic RDS layout example

Figure 5.2.2 - EU RDS example

Figure 5.2.3 -

Figure 5.2.4 - FM w/o RDS now playing view

5.2 FM Now Playing Views

- PSN in line 1 (EU radios)
- RDS Text in line 1 and 2 using smart truncation
- FM icon
- Frequency centered with larger font (non EU radios)
- Time of Day and Outside Temperature
  - FAV Label
  - [TP] icon
  - Mute icon
  - Driving School
    (If Driving School is on,
    Speed is displayed on the location/instead of outside template.)

European RDS implementations will display the station's PSN without the frequency information in line 1. Otherwise, the station frequency is displayed as shown in figure 5.2.4.

If there is more content than will fit in the line field, the information will page a single time at a rate of 5 seconds per field. After the pagination is completed, the first part of the text will be shown with ellipsis as shown in the figure.

Lines 2 and 3 are for RDS text information. RDS text is placed on Line 2 and, if necessary, wraps to Line 3 using the smart truncation method as defined in the DAB source section of this document.

If text overflows the space provided in Lines 2 and 3, the information will page (clearing Lines 2 and 3), with the overflow text starting again in Line 2.

If an RDS text update occurs during the paging, the fields are cleared and the new information is displayed, beginning in Line 2.

Figure 5.3.1 – Figure Removed

Figure 5.3.2 - Sourcing a media device (specific example)

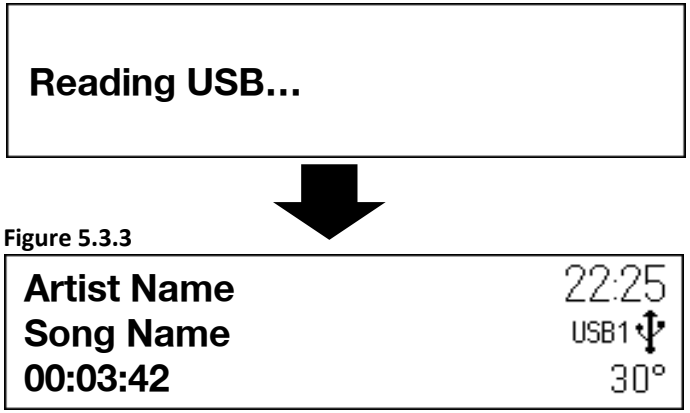


Figure 5.3.3

5.3 Changing Audio Source Using Faceplate

The user may also press the RADIO or MEDIA buttons on the faceplate multiple times to rotate through audio sources. The audio source is immediately changed upon each press of the faceplate button.

RADIO presses rotate the user through broadcast sources. MEDIA presses rotate the user through available media sources.

The order of rotation for broadcast sources is AM ->FM ->DAB->AM...

The order of the media source flow is USB1->USB2->SD->BT->AUX->USB1...for 2.1F systems.

The order of the media source flow is USB -> AUX -> USB for 2.0F systems.

When the user selects a new media source, the display will initially show the friendly device name in the text field as shown . After a timeout of 5 seconds (calibrateable) the display will be updated to reflect the applicable metadata.

In situations where there is no friendly name, the system displays Unknown Device as the device name and then times out to the now playing view.

Figure 5.3.4 -

Figure 5.3.5 -

5.3.1 Media Source Flow – Skipping Sources With No Device Connected Or Disc Inserted

Sources that do not have a connected device will be skipped as users press the MEDIA button provided there are two or more media devices connected.

5.3.2 Media Button Behavior With No Available Media Sources

Scenarios where there is no available media present will display the pop-up shown in Figure 5.3.4 for the base (2.0F) system when the user selects the MEDIA button while in broadcast source mode. The currently sourced audio will continue to be heard while this pop-up is displayed.

The pop-up in figure 5.3.5 is shown for the uplevel (2.1F) system and also provides options to pair or manage Bluetooth devices as discussed in the phone section of this document.

Figure 5.3.6 - Base Faceplate

Figure 5.3.7 - Uplevel faceplate view

Figure 5.3.8 - US B/SD sources

Figure 5.3.9 - AUX Input devices

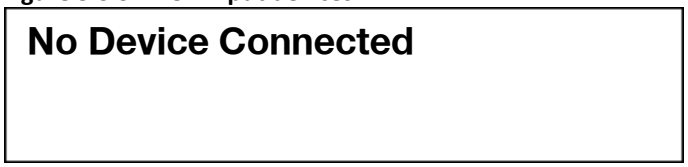
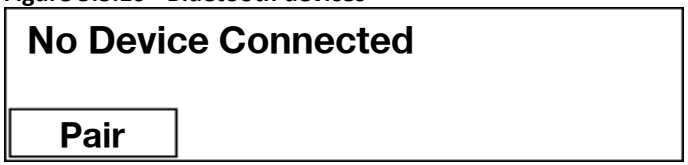


Figure 5.3.10 - Bluetooth devices



5.3.3 Media Button Behavior With 1 Available Media Source

Scenarios where there is a single media source present will display the pop-up shown in Figure 5.3.6 (or figure 5.3.7 for uplevel systems) when the user selects the MEDIA button and is currently listening to the only media source. The currently sourced media audio will continue to be heard while this pop-up is displayed.

Pressing the MEDIA button from broadcast mode when there is only 1 media source available will always take the user to the only available media source.

If the single media source is disconnected while it is the active screen, the screens defined in figures 5.3.8 through 5.3.10 will be shown for the appropriate source mode. For instance, if an AUX device is ejected, the No Device Connected screen would be displayed until the user selects another source or inserts another device.

5.3.4 Disconnecting Active Sources

When the active media source is disconnected in situations where there are 2 or more media sources present, the system will display the screens shown in figures 5.3.8 through 5.3.10 and keep the user in that mode until they reconnect.

5.3.5 Soft Key Behavior in No Media Pop-ups

The soft-keys associated with the no media views behave as follows:

Dismiss -> this option returns the user to the previously viewed screen

Pair -> this option takes the user to the Bluetooth pairing screens as defined in phone section 6.1.7.

If the user elects to add a device via the Pair soft-key and press the BACK button, the view in Figure 5.3.10 will be displayed.

5.4 Broadcast Seek Up/Down

The faceplate contains two switches for seeking to the next or previous station or channel in broadcast modes.

5.4.1 AM/FM Seek

In AM/FM audio sources, tapping on the Seek Up or Down switch tunes the radio to the next or previous 'strong signal' station as determined by the tuner. The frequency field is updated during this process until the tuner has found an acceptably strong station. This applies to non-RDS based systems.

5.4.2 Fast Seek (AM/FM)

If the user presses and holds on either Seek Up or Down button, the display shows the frequency/channel/ PSN changing at a rate of 5 frequency steps/channels/ PSN per second until they release their finger. After the release, the system stops on the current channel or frequency (if a strong signal station only) displayed or tunes to the next strong signal station in the direction of the fast seeking.

5.4.3 Seek Operation With One Strong Station

If the user is tuned to the only available strong station in the broadcast band and the user performs a seek operation, the tuner will scan the entire band. If no other strong stations are found the tuner will perform a second pass of the band at a lower signal threshold. The frequency information on the display will continue to update as the tuner performs the seek function.

5.4.4 Seek Operation With Zero Strong Stations

If the user is tuned to a broadcast band with no strong signal stations available and the user performs a seek operation, the tuner will scan the entire band. If no strong stations are found the tuner will perform a second pass of the band at a lower signal threshold. The frequency information on the display will continue to update as the tuner performs the seek function.

Figure 5.4.1 -

Figure 5.4.2 -

Figure 5.4.3 -

5.4.5 EU FM RDS Seek

In the FM RDS source for single tuner EU radios, tapping on the Seek Up or Down switch initially will display a Tuning screen for 2 seconds (calibrateable) while the next station available in the FM memory is tuned. The text “Tuning” is displayed in line 2 of the metadata during this time.

Once the available station is tuned in, the display is updated with the FM now playing view.

If the user tunes to an RDS station for which the PSN is unavailable, the display will show the frequency for that station until the PSN is available.

5.4.6 EU FM RDS Seek Behavior with TP On

When TP is ON in the menu, seeks will only include TP supported stations or stations with EON-TA support.
When TP is OFF in the menu, seeks will include all available stations from the tuner.

Figure 5.4.4 -

Figure 5.4.5 -

Figure 5.4.6 -

5.4.8 EU RDS – TP Off to On interaction

If TP is currently set to OFF in the vehicle and the user switches TP to ON from the FM menu, then the system will initiate a TP search in order to tune to the strongest available TP station. This search is initiated only if the user is not tuned a TP supported station.

Essentially, once the user has turned TP ON, audio is muted, and a search is enabled. An intermediate screen will be shown during a search with the words “TP search” in the metadata field. After the station is tuned, audio is restored and the RDS now playing view is shown.

If the TP setting is toggled ON from a source menu other than FM, the tuner will perform a background scan for a TP supported station while remaining in the current source mode. Please refer to the RDS TP Status section which describes the remaining details for handling traffic alerts while in other source modes.

If the tuner discovers a traffic alert already in progress after the user toggles TP to the ON state from a non-FM source menu, the alert will be ignored.

5.5 Broadcast Manual Tuning

The faceplate contains a rotary-push knob that is used for a multitude of functions associated with the Infotainment system.

When listening to a broadcast audio source, rotating the knob tunes to a different frequency or station for AM/ FM.

FM RDS and DAB tuning in EU radios via the tune knob is handled in a later section.

→ If user rotates the <Menu>knob,
system acts as below.
1) AM : Act to tune the freq. as manual tune.
2) FM

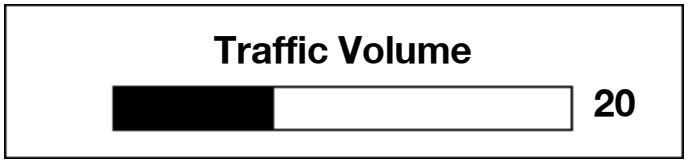
without RDS/RBDS	With RDS	With RBDS
Freq. Tune (Manual Tune)	Station List	Station List

3) DAM : Act the station list

5.5.1 AM/FM Tuning

In the AM/FM sources when the Now Playing screen is displayed, rotating the knob tunes the radio one frequency or channel/station step up or down for each detent of rotation. When the end of the frequency/ channel spectrum is reached, the tuning wraps to the beginning or end of the frequency spectrum depending on the direction of tuning.

Figure 5.6.1 -



5.6 RDS Traffic Volume Setting

Traffic alert volume can be adjusted by simply turning the volume up or down while the alert is playing. The system will store this setting for future traffic alerts.

The default traffic volume will be set according to GIS 302.

If the user is currently listening to a source at a higher volume than the TA volume setting, then the TA will play back at the current source volume setting.

If the user is currently listening to a source at a lower volume than the TA volume setting, then the TA will play at the volume set by the user for traffic.

Once an alert is completed, the system volume returns to its previously set level prior to the traffic alert.

If the user sets the traffic alert volume to zero during an alert, the next traffic alert will arrive at the minimum connection volume level as defined in GIS 302.

If the user selects a station that supports Traffic Programming and a Traffic Announcement is already in progress, then the radio will not increase the volume for this traffic announcement.

The same process will apply to DAB Announcements.

- During TA the audio mode is switch to vocal frequency range (VOICE)
  - user is still allowed to change TONE settings during TA, but next upcoming TA shall be played with ATC VOICE again

Figure 5.6.2 -

5.6.1 RDS Traffic Program (TP) Status

In FM-RDS broadcast mode or any other audio source mode, the Traffic Program status indicator can be shown in one of four different states depending on whether the user has TP set On or Off and whether or not a station supports Traffic Programming.

	TP ON	TP OFF
Station supports TP	**[TP]**	**TP**
No station TP support	**[ ]**	*blank*

As shown in the flow to the left, the user has TP set to ON and the station supports Traffic Programming. When the tuner detects a traffic alert, the Traffic Alert will show while the traffic announcement begins playing and the user can choose to dismiss it.

If the user was in a source other than FM, the Traffic Alert would display as the alert begins playing. Playback will be paused and the audio will change to the traffic message. Once the traffic alert is completed or dismissed by the user during playback, the audio will switch back to the previous source mode.

If the user switches stations or sources during a Traffic Alert, the current TA will be cancelled and the system will respond to the user interaction.
Users that have RDS ON/OFF set to OFF will be automatically placed in RDS ON mode if they configure TP on.

Figure 5.6.3

Figure 5.6.4

5.6.2 RDS Traffic Alert Pop-Up

If the user has set Traffic Programming to the ON state in the FM menu, the user will receive Traffic Alert Pop-Ups during audio listening in any mode.

As the flow on the left shows, the pop-up will occupy the full screen with a Dismiss option highlighted by default for the alert.
Please see the pop-up widget for further pop-up framework details.

If the user is currently tuned to a TP station, all traffic alerts will be initiated from the current station and not from other TP supported stations. Users must be tuned to a TP station or a non-TP station that supports EONTA's to receive traffic alerts.

If the user tunes to the middle of an active TA (e.g. vehicle startup), the Traffic Alert pop-up should not be displayed. Additionally, if the tuner detects a TA already in progress and the active source is not FM, then the TA is ignored.

Exceptions>

- On TA,
  If user inserts the USB/SD device to the media box, system ignores to reading the USB/SD.
  In other words, system should be act TA continuously.
  If the user changes the TA Status to the media mode, System should cancel to operate TA on this TA event.

- On TA,
  If the phone which means incoming/outgoing call is occurred, system should act call.
  If the above phone event is ended, system should go back latest radio mode.
  (This means that TA event is canceled.)

5.6.3 RDS PTY 31 Alert Pop-Up

PTY 31 alerts are high priority broadcast pop-ups that are to be handled in the same manner as normal RDS traffic alert pop-ups.
However, these alert pop-ups will always be played regardless of the TP ON/OFF setting.

5.7 Broadcast Audio Menu

The rotary-push knob is also used to call up and operate specific broadcast audio source menus. When listening to a broadcast audio source with the “Now Playing” screen displayed, pressing the knob displays a menu list tailored to the current broadcast audio source. Menu options are highlighted by rotating the knob and selected by pressing the knob.
Access to vehicle settings is also available from all menus.
The system remembers the last menu option selected or highlighted (within each source) and highlights that menu option upon recall of that menu.

5.7.1 AM Audio Menu

Pressing the knob while the AM “Now Playing” screen is displayed shows the AM Menu list in the following order:

- Time & Date
- Tone Settings
- Station List
- Auto Volume
- Update Station List
- Set Number of Favorites Page
- Maximum Startup Volume
- Vehicle Settings

Figure 5.7.1

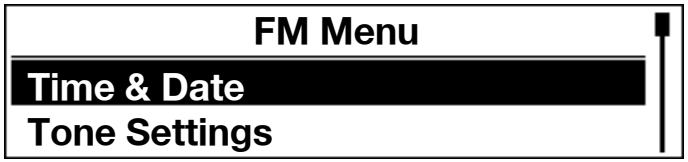


Figure 5.7.2

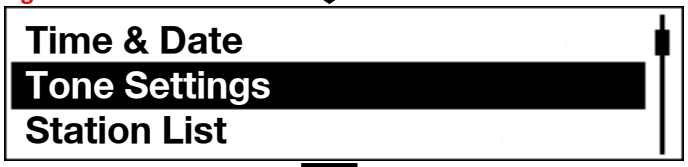


Figure 5.7.3

Figure 5.7.4

Figure 5.7.5

5.7.2 FM Audio Menu (Non RDS Regions)

Pressing the knob while the FM "Now Playing" screen is displayed shows the FM Menu list in the following order:

- Time & Date
- Tone Settings
- Station List
- Auto Volume
- Update Station List
- Set Number of Favorites Page
- Maximum Startup Volume
- Vehicle Settings

5.7.3 FM Audio Menu (EU Radios)

Pressing the knob while the FM "Now Playing" screen is displayed shows the FM Menu list for european radios in the following order:

- Time & Date
- Tone Settings
- Traffic Program (TP) - On/Off Toggle
- Update Station List
- Auto Volume
- Manual Tuning
- RDS - On/Off
- Region - On/Off Toggle
- Categories
- Set Number of Favorites Page
- Maximum Startup Volume
- Vehicle Settings

Figure 5.10.1 - strong station list

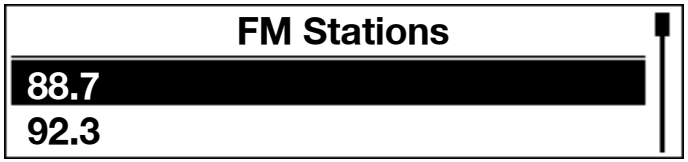


Figure 5.10.2 - strong station list cont'd

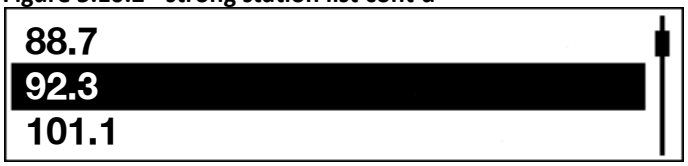


Figure 5.10.3 - manual tuning list

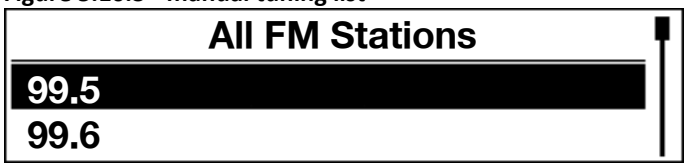


Figure 5.10.4 - manual tuning list cont'd

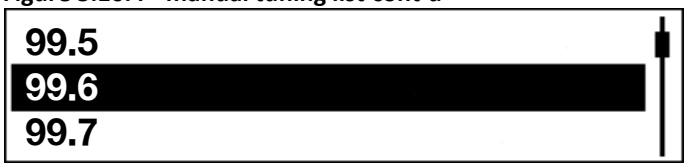
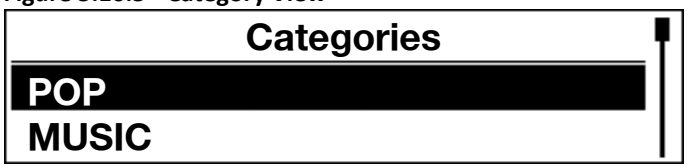


Figure 5.10.5 - Category View



5.8 FM Manual Tuning Option (EU Radios)

When users select the Manual Tuning option from the FM menu, they will be presented a list of all the FM station frequencies from lowest to highest frequency as shown in figures 5.10.3 and 5.10.4.

5.9 Multiple Digits After Decimal Point

For regions that broadcast stations with more than one digit after the decimal point (e.g. - Thailand), the display will behave as follows:
When the tuned station contains a zero in the hundredths column (e.g. 97.10), the display should read 97.1.
When the tune station contains a non-zero number in the hundredths column, the display should show both digits (e.g. 97.15).

5.10 Station List & Categories

A list of strong stations as determined by the tuner is displayed when users select the "Station List" option from broadcast audio menu.
When categories is selected from the FM menu, the list contains category names associated with the broadcast source. Selecting a given category name displays a list of stations associated with that category. Selecting a station from the list and pressing the knob tunes the radio to that frequency and returns to the corresponding "Now Playing" screen.

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US - HMI	US GMNA	Europe/Aus-tralian - HMI	Europe DAB/FM RDS & Australian RDS
Pop(Stations)	Adult Hits (7) Top 40 (9) Oldies Music (11) Nostalgia (13) College (23)	POP	Pop Music (10)
ROCK (Stations)	Rock (5) Classic Rock (6) Soft Rock (8) Soft (12) R&B (16) Soft R&B (17)	MUSIC	Easy Listening (12) Other Music (15) Jazz Music (24) Country Music (25) National Music (26) Oldies Music (27) Folk Music (28)
TALK (Stations)	News (1) Information (2) Sports (3) Talk (4) Language (18) Religious Talk (20) Personality (21) Public (22) Weather (29)	CLASSIC	Light Classical (13) Serious Classical (14)
COUNTRY (Stations)	Country Music (10)	INFORMATION	News (1) Current Affairs (2) Information (3) Sport (4) Education (5) Drama (6) Culture (7) Science (8) Varied (9) Weather/Meteorology (16) Finance/Business (17) Children's Programs (18) Social Affairs (19) Religion (20) Phone In (21) Travel (22) Leisure (23) Documentary (29)
CLASSICAL (Stations)	Classical (15)	ROCK	Rock Music (11)
JAZZ (Stations)	Jazz Music (14)	ALL	All RDS stations that are broadcasting a PTY - Non PTY stations are not listed here
ALL (Stations)	All RDS PTY & Non PTY stn's Religious Music (19)		

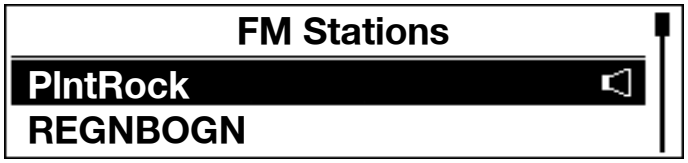
The list header for category based stations is the category name followed by the word stations (e.g. Rock Stations). The list header for All Strong Stations will be shown as either FM Stations or AM Stations as shown.
The system remembers the last category name selected or highlighted and highlights that category name upon recall of the Category List.

For EU radios, the PSN can be dynamically updated in the station list as provided by the broadcast station as calibrated by the tuner.

The categories to be presented to the user for the European market RDS implementations are as follows: Pop, Music, Classic, Information, Rock, and All. The separate program types that make up the supercategories for both regions are defined in the PTY table as shown.

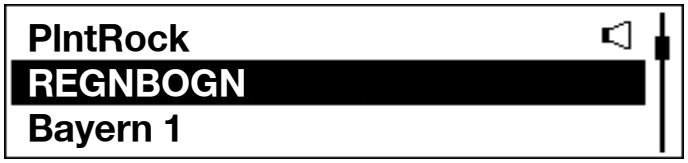
For AM and FM, the category list is built by scanning the band and building the list of categories and associated stations. This scan is done whenever the radio is not tuned to an AM or FM audio source. The scan can also be forced to happen while listening to an AM or FM audio source by selecting the "Update Station List" from the menu.

Figure 5.10.6



user turns knob one detent

Figure 5.10.7



user presses to select station

Figure 5.10.8

Figure 5.10.9

5.10.1 FM RDS EU Station List & Tuning

The FM RDS station list in European countries is generated by the tuner using attibutes from the PI code. This list is accessed by rotating the knob to display a list of stations as provided by the tuner. In order to select a station, the user presses the knob to tune the radio to that station and the display returns to the corresponding “Now Playing” screen.

For single tuner radios, the intermediate tuning screen is shown for 2 seconds prior to returning to the “Now Playing” view.

The list is sorted by RDS stations in order of signal strength and followed by non-RDS stations grouped at the end of the list. The exact ordering of the list with respect to signal strength and other RDS attributes is determined by the tuner.

For EU radios, the PSN can be dynamically updated in the station list as provided by the broadcast station as calibrated by the tuner.

Stations that support traffic programming are denoted with the letters TP at the far right of the list entry regardless of the TP on/off menu setting. In addition, non-TP stations that support EON-TA are also denoted with a TP in the list. In cases where the currently playing icon and TP station indicator are both applicable, the TP indicator will take precedence and be displayed.

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Figure 5.10.10

Figure 5.10.11

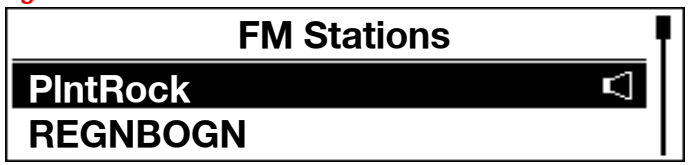


Figure 5.10.12

Any station can be selected from the list regardless of whether TP is on or off. The TP status for the station selected is shown in the status region.

When a selection is made from a station list or favorite, the user will see the intermediate "Tuning" screen for 2 seconds as defined previously. If the tuner cannot find the station, a search of the AF list is first done followed by a band scan at which time a station list update is also performed. In this scenario, audio is muted and the PSN or frequency is shown in line 1 and "Tuning" is shown in line 2. A cancel button soft-key is also made available at this point of the process.

After the tuner performs the band scan and the station is still not available, it is tuned, the frequency is displayed and the user hears static. For either system, the user will have to select another station manually when they receive an unavailable station.

- In case that system has the station info(RDS PS),
  The Figure 5.10.12 is displayed when tuning.

- In case of else,
  the Figure 5.10.8 is displayed when tuning.

Figure 5.10.13

5.10.2 Update Station List

Users can select the Update Station List option from the More menu to enable a station list refresh thus adding all available stations and/or DAB multicasts to the list. Categories are added during this scan as well. This update can take anywhere from 2 -5 minutes in general, therefore the system will allow the user to cancel out of an update while it is processing.

During a station list update, the user can use the media sources in the system. If the user selects a broadcast source during the update, the wireframe shown in Figure 5.10.13 will be shown.

The seek/tune button functionality and menu button will be inactive and the cancel soft-key replaces the favorites for AM/FM/DAB sources.

When users press any inactive buttons in this mode, the system will display the pop-up, “Action not supported during station list update”.

To stop the station list update, the user can press the cancel button soft-key. If the user is in a media source view and presses the RADIO button, they will be returned to the Updating Station List view shown in Figure 5.10.13 if the station list update is still active. Otherwise, they will be taken to the Now Playing view for the last tuned station of the last active broadcast source mode.

Exception>
If user presses the <Cancel>key,
System recover the previous station DB and display previous viewing mode(latest Radio now playing)

5.10.3 Returning From A Station List Update

After a manual station list update is completed, the user is returned to the last selected station prior to the user selecting the update option from the menu.
If the user is listening to another source mode when the station list update has completed, they will not be returned to the AM or FM broadcast mode.

5.10.4 RDS Off Behavior For EU Radios

When RDS is turned OFF from the menu on an EU radio, the system applies this setting to the currently tuned station only. This will cause the RDS text to be switched off, the alternate frequency feature will not function, and the frequency will be displayed in place of the PSN. However, PSN's will still be applied when the user selects the station list browser.

Figure 5.11.1

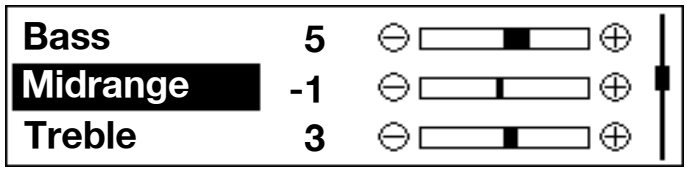


Figure 5.11.2

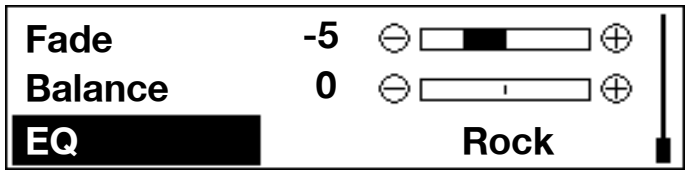
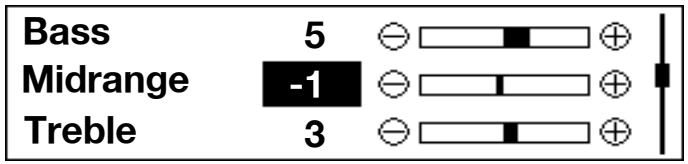


Figure 5.11.3



5.11 Tone Settings

The following tone settings are displayed when users select the “Tone Settings” option from any audio source menu:

- Bass
- Midrange
- Treble
- Fade
- Balance
- EQ (e.g., Rock, Pop, etc.)

Once tone settings are made, they are globally set across all different sources.

For tone settings there is no imtermediate header for this “list”. Users highlight the desired tone setting option and press the knob to be able to change its current value. Turning the knob will change the tone setting value and be reflected on the display in the bar graphic.

When the user has finished adjusting a setting, he/she presses the knob to store the new setting and return to the Tone Settings option list.

The range of all tone settings are from -12 to +12 detent settings.

The EQ option allows users to select from predefined tone settings and will cycle through the following types as users adjust the setting by turning the knob:

Pop
Rock
Country
Jazz
Talk
Classical
Custom

The tone settings are also visually depicted in the x-y coordinate graphic to the right of the individual settings as shown in the wireframes.

Figure 5.12.1

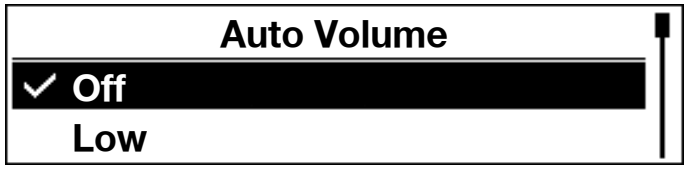


Figure 5.12.2

5.12 Auto Volume

Auto Volume adjusts the volume of the audio based on the speed or ambient noise of the vehicle. The following Auto Volume settings are displayed when users select the “Auto Volume” option:

- Off
- Low
- Medium-Low
- Medium
- Medium-High
- High

The current Auto Volume setting is shown as active in the list (e.g., a check mark, etc.).

Alternatively, certain vehicles may be equipped with the Bose AudioPilot system. In these cases, the Auto Volume main menu item is replaced with the Bose AudioPilot setting. This is an on/off toggle list entry.

When “Off” is selected, Auto Volume does not function.
When “Low” is selected, Auto Volume uses a lower range volume curve to adjust volume with vehicle speed changes.
When “Medium” is selected, a middle range volume curve is used to adjust the audio volume with changes in vehicle speed.
When “High” is selected, a more aggressive volume curve is used to adjust the audio volume with changes in vehicle speed.
Medium-Low and Medium-High will adjust Auto Volume to approximately the range between low to medium and medium to high respectively.

Figure 5.13.1

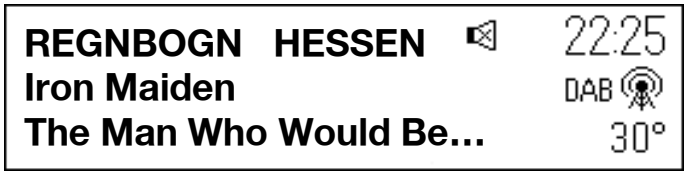


Figure 5.13.2

5.13 DA B Now Playing View

The following information is shown on the DAB now playing view:

- Station Label (eg, BBC 6 Music) - listed first in line 1
- Ensemble Label (eg, BBC NATL)
- Graphic
- DAB Text - Program Information

An 8 character service label and an 8 character ensemble label will be used.

- FAV Label
- [TP] icon
- Mute icon
- Driving School
  (If Driving School is on,
  Speed is displayed on the location/instead of outside template.)

5.13.1 DA B Metadata

The DAB radio fields are shown in the following order and if there is more content than will fit in the area of lines 2 and 3, they page a single time at a rate of 5 seconds per field:
Line 1: DAB Station Label and Ensemble Label
Line 2: Dynamic Label Text
Line 3: Dynamic Label Text continued

For dynamic label plus scenarios, lines 2 and 3 are displayed as follows when available from broadcast:
Line 2: Artist Info
Line 3: Song Info

When DAB signal information has been detected, the metadata fields will be updated on the display to show the information. The information and formatting displayed with dynamic label text will vary based on the broadcaster's provided information and formatting.
DAB text should not be displayed until is received in its entirety.

Figure 5.13.3

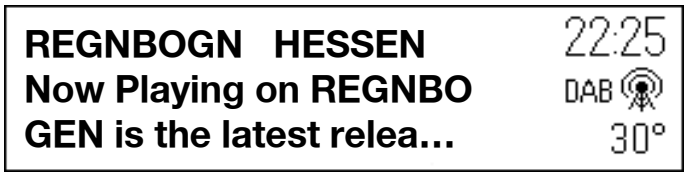


Figure 5.13.4

Figure 5.13.5

When tuned to a DAB + station, the default text displayed for the user will be the dynamic label plus variant for artist and song only. No other variations of DL+ will be displayed. When this is not available from the broadcaster, the text fields will be populated with the standard dynamic label text.

5.13.2 Paging And Truncation of DA B Text

The three wireframes shown to the left describe how the text fields of lines 2 and 3 of the metadata should be paged using smart truncation (i.e. not breaking up words in the middle between line 2 and 3) when there is more information than can be fit in the alotted space.

For example, if the complete broadcasted text were the phrase, “Now Playing on BBC 6 Music is the latest release from Radiohead entitled Give Up The Ghost from the album The King Of Limbs”, the information would page a single time as shown. The final view after pagination is shown in figure 5.1.13.5.

5.13.3 DA B Graphics

The graphics region will contain a graphic with the letters DAB or DAB+ incorporated into the graphics region based on the broadcast mode. For DMB broadcasts, the DMB logo will be shown in the graphics field.

Figure 5.13.6

Figure 5.13.7

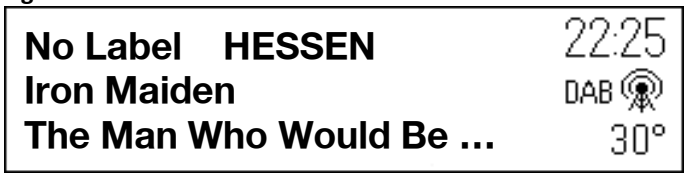


Figure 5.13.8

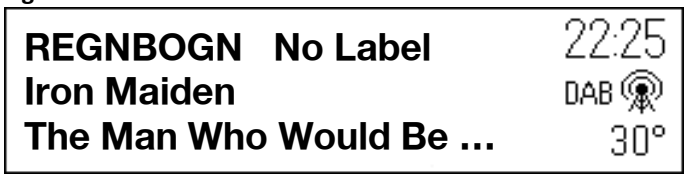
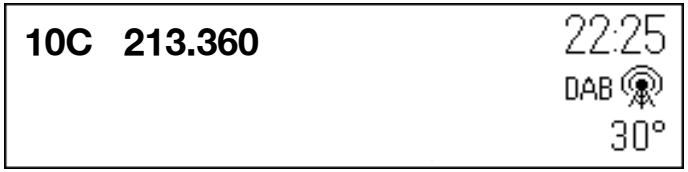


Figure 5.13.9 - no station label or ensemble label view



5.13.4 DA B Views without Station or Ensemble Labels

Instances where there is either no station label, no ensemble label, or neither station and ensemble labels will be handled as follows:

When there is no station information available but the ensemble is known, the station field will be replaced with the text “No Label” as shown.

When there is no ensemble information available but the station label is known, the ensemble field will be replaced with the text “No Label” as shown.

When there is no station or ensemble information available, the display will show the block number and frequency in the now playing view as shown in Figure 5.13.9

Figure 5.14.1

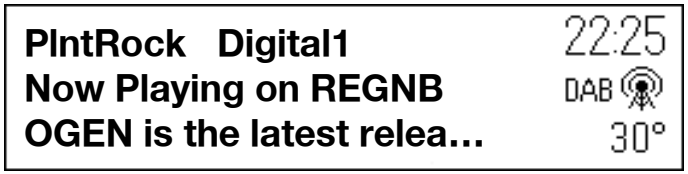


Figure 5.14.2 - tuning screen used when changing ensembles (also known as the intermediate tuning screen)

Figure 5.14.3

5.14 Seeking In DA B

The Now Playing screen supports the ability to seek up and down to the next available DAB station - as stored in the tuner 'strong station' list.

5.14.1 Seek Mode

In DAB, tapping on the Seek Up or Down button tunes the radio to the next or previous station of the current ensemble when available - based on the tuner supplied DAB strong station list. The updated metadata is then reflected on the display without any intermediate tuning screen.

If the next or previous station is located in another ensemble, then the first or last receivable strong station of that ensemble is tuned, regardless of whether the ensemble and its associated services were part of the original strong station list. If intermediate strong ensembles are located, then they are added to the strong station list along with their services.

In this use case, a tuning message is displayed for a minimum of 2 seconds (calibrateable) as shown in the wireframe flow to the left.

5.14.2 Press and Hold Seek Button

When the user presses and holds on either seek arrow button, audio is muted and the metadata changes to show the station and ensemble labels changing at a rate of 3 steps per second (calibrateable) until they release their finger. After the release, the system stops on the next strong signal station in the direction of the fast seeking and the DAB text will be updated.

Once the button is released and the tuner has to tune to the next receivable ensemble to find a strong station, HMI will display the intermediate tuning screen for a minimum of 2 seconds (calibrateable).

5.14.3 Seek Operation With One Strong Station

If the user is tuned to the only available station in the tuner's station list and performs a SEEK operation, the tuner will scan the entire band and be returned to the original station currently tuned. The intermediate tuning screen will be shown during the search.

Figure 5.14.4 - No DA B Stations Available

5.14.4 Seek Operation With Zero Strong Stations

If the user is in the DAB source mode and there are no strong signal stations available, the tuner will scan the entire band a single time on a SEEK operation and be returned to the original station currently tuned. The intermediate tuning screen will be shown during the search.
Once the scan is completed, the display will show No DAB Stations Available in the metadata field.

Figure 5.15.1

Figure 5.15.2

User selects station from list using enter button on tune knob

Figure 5.15.3

5.15 DA B Station Lists

The station list is accessed by turning the tune knob on the faceplate. A list of strong DAB stations will appear with the currently tuned station visually indicated in the station list. Please refer to the list widget section for further list handling details.

5.15.1 Information Displayed

The list shown is provided to the HMI by the tuner. Two pieces of information are shown for each line item. An 8 character service label and an 8 character ensemble label will be used. Based on character sizes, some services or ensemble labels could be truncated within their text entry box templates. These labels can be dynamically updated in the station list as provided by broadcast as calibrated by the tuner.

5.15.2 Selecting New Station

Once the desired station is found in the list, the user can press the menu/tune knob to tune to that station and be returned to the now playing view.
When the beginning or end of the station list is reached, the tuning wraps to the beginning or end of the list depending on the direction of tuning.

Figure 5.15.4 - Station Not Available view

5.15.3 Selecting An Unavailable Station

When a station that is selected from either variant of the station list is not available, the user returns to the now playing view and the first line of dynamic label text will show Station Not Available and the second line will be blank. The station and ensemble selected will be shown in the top line of the metadata field. If a selection was made from the manual tuning list, the channel label and frequency will be shown in top line of the metadata.

When the user selects a station that is not available from a favorite preset, the now playing view is updated with the station and ensemble label selected shown in line 1 of the metadata and Station Not Available is shown in line 2.

Figure 5.15.5 -

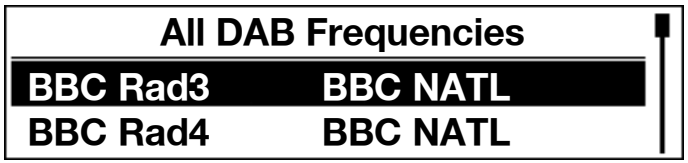
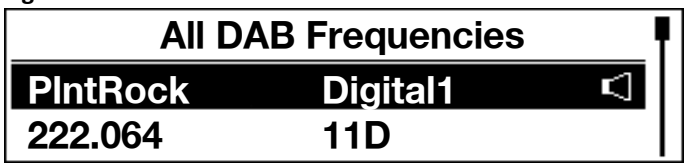


Figure 5.15.6 -

Figure 5.15.7 -



5.15.4 Manual Tuning (See DA B Menu)

The Manual Tuning list entry in the DAB Menu can be selected to provide the user access to the internal tuner station list. The tuner internal station list (i.e., all theoretically available stations) is arranged in order of channel labels (i.e. 5A, 5B,...13D and LA, LB,...LP if L-Band set to ON mode).

Once the desired frequency is found in the list, the user can press the menu/tune knob to tune to that frequency and return to the now playing view. If an active ensemble is available on that frequency, all metadata will be updated on the now playing view. The next time the user accesses the manual tuning list (by going back into the menu and selecting manual tuning from the list), the stations available for the selected ensemble will expand out and be displayed in the list in the location formerly populated by the channel label and frequency.

In the example wireframes shown, the user has selected ensemble 11C. Figure 5.15.7 shows the result the next time the manual tuning list is selected from the DAB menu and displayed. In this case, ensemble 11C has updated to ensemble label “Digital1” and the associated station labels are also shown.

5.16 DA B Categories

If the user selects Categories from the DAB Menu, they will be taken to the categories list for DAB. The list contains category names associated with DAB stations. Selecting a given category name displays a list of stations for that category. Selecting a station from the list tunes the radio to that station and returns the display to the “Now Playing” view.

DAB categories behave exactly as defined for FM-RDS categories except for the information presented in the category station list. In DAB, the station label and ensemble label will be shown in the list.

5.17 DA B Menu

When the user presses the faceplate menu button, the list of settings or additional features for DAB are shown. Users can browse the list by turning the rotary knob and select an item by pressing the knob.

The contents and order of the DAB menu are as follows:

- Time & Date
- Tone Settings
- Traffic Program (TP) - On/Off Toggle
- Update Station List
- Auto Volume
- Manual Tuning
- Categories
- DAB Announcements
- DAB to DAB Linking - On/Off Toggle
- DAB to FM Linking - On/Off Toggle
- L Band - On/Off Toggle
- Intellitext
- Set Number of Favorite Pages
- Maximum Startup Volume
- Vehicle Settings

Figure 5.17.1

5.17.1 DA B to DA B linking

When users have DAB to DAB linking set to the ON state and the currently tuned DAB station weakens and falls below a certain threshold, the tuner will attempt to link to the same station if it is available on another ensemble.

During this process an intermediate screen is shown to inform the user that DAB to DAB linking is taking place. Once completed, the screen updates to the Now Playing view for the new ensemble.

If the tuner is unable to find the DAB station on another ensemble after searching the entire band a single time, it will attempt a DAB to FM link. If this is unsuccessful, the dynamic label information will be replaced with Station Not Available.

Figure 5.17.2

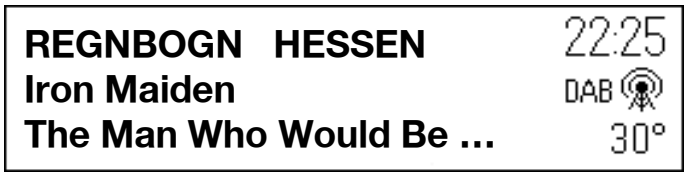


Figure 5.17.3

5.17.2 DA B to FM linking

When users have DAB to FM linking set to the ON state and the currently tuned DAB station weakens and falls below a certain threshold, the tuner will attempt to link to the FM variant of the service provided DAB to DAB linking is either OFF or has failed.

Once the linking is completed, the screen updates to the Now Playing screen with the FM metadata for the tuned station and the ensemble label field is replaced with the text “DAB - FM” as shown in Figure 5.17.3 to indicate DAB to FM following is active.
Note that there is no switching by the tuner to FM source mode for this feature. Therefore, should the user perform a SEEK operation, the tuner will perform this operation in terms of the DAB source mode as defined.

When DAB to FM linking is active and the FM RDS station weakens and the pi code is undeterminable, the tuner switches back to the DAB metadata for the tuned station and Station Not Available is displayed in line 2 of the metadata.

In cases where DAB-FM is active and the broadcaster changes the content such that it does not match the original DAB broadcast, the system will behave based on the RDS region setting. If the user has region set to ON, then stay with the current broadcast content. If region is OFF, then allow switching to occur which means a different broadcast may be heard.

Figure 5.17.4

5.17.3 L Band – On/Off Toggle

When users toggle the L Band to the ON state, DAB will broaden its seek/tune and station list functionality to include the LA to LW frequency blocks.

5.17.4 DA B Announcements

The user can select DAB Announcements from the menu to select which types of announcements that they would like to hear while in the vehicle. This is accomplished by pressing the list entry of interest to toggle it on or off.

DAB announcements are only provided when in DAB mode and only occur from any station in the currently tuned ensemble.

DAB Announcements are presented to the user as shown in Figure 5.17.4. Dismissing the announcement will either tune back to the station the user was listening to prior to the announcement or simply clear the pop-up and remain tuned to the station broadcasting the announcement.

The DAB alarm announcement is set to ON by default and is not user selectable from the announcements menu.
If a DAB alarm type announcement occurs, any other pending or current announcements are interrupted and the DAB alarm is presented.
A PTY 31 RDS alert shall not be cancelled by any DAB announcement.

Figure 5.17.5

Figure 5.17.6

Figure 5.17.7

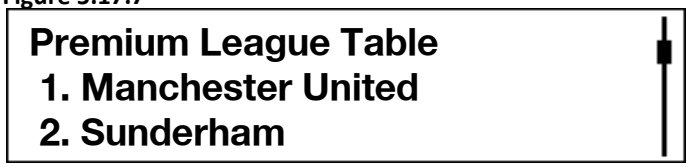


Figure 5.17.8

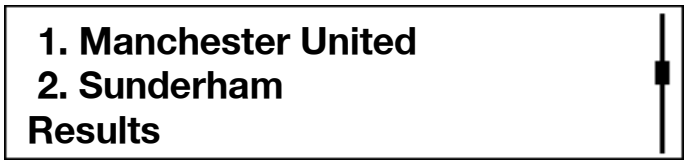


Figure 5.17.9

5.17.5 Intellitext

The intellitext feature is selected from the DAB menu. This feature allows the user to see specially broadcast text providing information such as sports scores, headline news, and others.

The basic broadcast format for intellitext is a Menu to Submenu to Data format. This section provides an example of how the user interface should function and appear to the user.

Once the user selects intellitext from the menu, they will be shown the main intellitext menu which provides the main categories the user can select for viewing as shown in Figure 5.17.5.

In the example shown, the user selects football and is provided standings and results for the football category in a list format as shown.

In this example, Football serves as the Menu and Premium League Table and Results serve as the Submenu items. The data is represented under each submenu in an indented manner. This is determined from the information provided through the broadcaster's dynamic label text.

By pressing the back button, the user can return to the main Intellitext menu and select the news category or press back again to return to the DAB menu.

Figure 5.17.10

Exceptions>
If there is no intellitext info when user selects some info,
system displays the pop-up(“No Received Intellitext”)
as the figure 5.17.10 and then go to the latest Radio Now Playing.

5.18 Broadcast Audio Favorites

Broadcast audio stations for AM, FM, and DAB can be stored as Favorites. Users must first tune to a desired frequency or channel. Next, they press and hold the desired Favorites button (1-4) on the faceplate to store that station in the selected location on the Favorites Page displayed.

For AM/FM favorites, the system stores and displays the frequency in the selected Favorites tab.

FM RDS and DAB stations in Europe will store the station PSN or service label in the favorites tab. If PSN or station label is not available, the frequency is stored for RDS and the block number (eg. 12B) is stored for DAB.

The favorite names are blind truncated per the favorites widget of this document.

When a Favorites button is tapped for a broadcast Favorite, the system tunes to that station or channel and the display shows the corresponding “Now Playing” screen unless specified otherwise elsewhere in this document.

Figure 5.19.1 -figure removed

Figure 5.19.2 - figure removed

Figure 5.19.3 - Aux Input Now playing view

Figure 5.19.4 - Bluetooth AVRC P 1.0 Now playing view

Figure 5.19.5 - BT AVRC P 1.3 Now playing view

5.19 Media Sources

The following section describes the data elements and functions for media-based audio sources for the base and uplevel faceplated radios.

5.19.1 Media Now Playing Screen

The Now Playing screens for media-based audio contain the following data elements, depending on the media source.

5.19.2 Removed

5.19.3 AUX Now Playing

- "AUX Input"
- AUX Graphic

5.19.4 Bluetooth Audio Now Playing

- "Bluetooth Music" (i.e., for AVRCP 1.0)
- BT Graphic

or

- Artist Name (i.e., for AVRCP 1.3 and higher)
- Song Title (i.e., for AVRCP 1.3 and higher)
- Song Title (i.e., for AVRCP 1.3 and higher)
- BT Graphic

Figure 5.19.6 - USB/SD now playing view

Figure 5.19.7 - iPod now playing view

Figure 5.19.8 - folder/file view

5.19.5 US B/SD Now Playing
- Artist Name (if Metadata available)
- Song Title (if Metadata available)
- Folder Name / File Name (if Metadata not available)
- USB/SD Graphic

5.19.6 iPod (US B connection)
- Artist Name
- Song Title
- iPod Graphic

5.19.7 Removed

5.19.8 Audiobook Now Playing
- Audiobook Name
- Chapter Title
- Graphic

5.19.9 Podcast Now Playing
- Podcast Name (if Metadata available)
- Podcast Episode Name (if Metadata available)
- Graphic

5.19.10 Handling of Non-Metadata Cases

In cases where there is no available metadata for the selected artist for indexed sources, the artist field will be populated with “No Artist Info”. In cases where there is no song info, the filename will be displayed in the song field.

5.19.11 List Handling of Incomplete ID 3 Tags

If the user’s device contains incomplete ID3 tag information for a music type file (e.g. - missing album or genre metadata), the system will first attempt to determine the missing metadata from the filename. After this step, the filename will be used in the songs filter mode list alphabetically. Podcasts and audiobooks will also attempt to use the filename for the relevant metadata information. If this fails, the system should use the filename alphabetically in the applicable filter mode category.

5.19.12 Next / Fast Forward Transport Controls

Tapping the Seek Up switch on the faceplate skips to the next track/song in playback order.

A long press on the same key causes playback of the song to fast forward at the rate of 5-15x playback (TBD, calibratable). Fast-forward playback can continue into the next track/song in playback order.

During press and hold, the fast forward function stops when the user releases their finger from the soft-key button and playback resumes.

5.19.13 Previous / Fast Reverse Transport Controls

Tapping the Seek Down switch on the faceplate skips to the beginning of the current track/song. However, if less than 5 seconds has elapsed since the start of the current track/song, the system skips to the beginning of the previous track/song in playback order.

A long press on the same key causes playback of the song to fast reverse at the rate of 5-15x playback (TBD, calibratable). Fast-reverse playback can continue into the next track/song in playback order.

Fast-reverse playback can continue into the previous track/song in playback order. During press and hold, the fast reverse function stops when the user releases their finger from the soft-key button and playback resumes.

Figure 5.19.9 - shuffle icon

5.19.14 Shuffle

Shuffle mode can be initiated via an on/off toggle from any media source menu that supports this mode. Shuffle is not globally set across all sources when activated.

In USB, SD, or iPod playback, Shuffle functionality is dependent on the filter mode for song playback (e.g., album, artist, genre). As filter modes change for the present source, the shuffle setting is retained. Returning to the menu and selecting shuffle to the OFF setting exits Shuffle mode and the tracks/songs are played in normal playback order based on the filter mode.

Enabling Shuffle continues playing the current song selection through its completion versus performing an immediate shuffle advance. The same applies for disabling Shuffle.

When shuffle is enabled, the now playing view contains a shuffle status icon as shown in Figure 5.19.9. Please see status widget section for ordering of all status icons.

Shuffle Off Cases

(1) Selected the Shuffle OFF in the menu.

(2) Removed/Disconnected the media source which is shuffle on.

(3) Selected(press the menu knob) a song which is not current song on the playlist

When in shuffle mode, a song will not repeat until all songs for the selected filter mode have been played back provided there are no more than 128 songs available. When the media associated with a filter has been completed, shuffle playback will repeat for that filter mode.
For larger media lists, a minimum of 128 songs must be played back before a duplicate song can be replayed in shuffle mode. The shuffle mode setting in the vehicle is to be retained whenever mass storage or database type devices are left in the vehicle over ignition cycles.
If USB/SD mass storage devices are removed from the vehicle, the shuffle setting is cleared. If database type devices such as iPod's are removed, the shuffle setting of the device when returned to vehicle is to be used upon reconnect.

5.19.15 Unsupported Media

In scenarios where the connected device(s) contains only unsupported file formats or only invalid media, the system displays the pop-up, "No supported data found on device".
Unsupported files are never shown in media lists.
For example, if there are playable files on the device, then the unsupported files are not shown along with the playable content.

Otherwise, the No Media Found message as shown in figure 5.3.8 in the metadata is displayed for USB/SD sources when no media or files are found on the connected device.

5.20 Tune knob behavior in media modes

When listening to certain media sources, rotating the knob on the faceplate displays the filtered media list for that source.

For instance,
When the user rotates the <Menu> Knob on media now playing,
System filters down from current play folder/category.
The currently playing media is graphically highlighted in the list.

Users highlight a desired media item by rotating the knob and select the media to begin playback by pressing the knob. The system begins playback of the selected media and the system returns to the Now Playing screen.

These lists are persistent views, so the user must press the select knob once more on the highlighted track or press the back button to return to the “Now Playing” screen.

The following list defines the behavior for each source:

AUX -- no action taken
USB/SD/iPod -- media list or folder view based on latest filter
BT use case 1 -- no action taken
BT use case 2 -- no action taken
BT use case 3 -- media list based on latest filter (reference section 5.24.3 for details)
BT use case 4 -- display folder structure of device (reference section 5.24.4 - 5.24.6 for details)

Exceptions>
If the user presses the <SEEK>key on the Playlist,
system plays a previous/next song
from current song on the Playlist.

- Order of playlist : System sorts the ascending power
of ABC song name

Also,
Highlight and Now Playing icon are dynamically located to
the new selected file by <SEEK>key at same time.

5.21 Media Menu

The rotary-push knob is also used to call up and operate specific media source menus. When listening to a media-based audio source with the “Now Playing” screen displayed, pressing the knob displays a menu list tailored to the current media source. Menu options are highlighted by rotating the knob and selected by pressing the knob.

The system remembers the last menu option selected or highlighted and highlights that menu option upon recall of that menu.

Access to the vehicle settings menus is also provided from the media menus.

5.21.1 Removed

5.21.2 AUX Media Menu

Pressing the knob while the AUX “Now Playing” screen is displayed shows the AUX Menu list:

- Time & Date
- Tone Settings
- Traffic Program (TP) - On/Off Toggle (EU)
- Auto Volume
- Maximum Startup Volume
- Vehicle Settings

5.21.3 Bluetooth Audio Media Menu

Pressing the knob while the Bluetooth Audio “Now Playing” screen is displayed shows the Bluetooth Audio Menu list:

- Time & Date
- Browse “Device Friendly Name” (BT AVRCP 1.4 only)
- Shuffle - On/Off (if supported by device)
- Manage Bluetooth Devices
- Tone Settings
- Traffic Program (TP) - On/Off Toggle (EU)
- Auto Volume
- Maximum Startup Volume
- Vehicle Settings

No browse option required in menu for 1.0 and 1.3 AVRCP devices

5.21.4 US B/SD Media Menu (2.1F MCR System)

Pressing the knob while the USB/SD “Now Playing” screen is displayed shows the USB Menu list:

- Time & Date
- Browse “Device Friendly Name”
- Folder View (not applicable for media players, such as iPod)
- Shuffle - On/Off
- Tone Settings
- Traffic Program (TP) - On/Off Toggle (EU)
- Auto Volume
- Maximum Startup Volume
- Vehicle Settings

5.21.5 iPod Media Menu

Pressing the knob while the iPod “Now Playing” screen is displayed shows the iPod Menu list:

- Time & Date
- Browse “Device Friendly Name”
- Shuffle - On/Off
- Tone Settings
- Traffic Program (TP) - On/Off Toggle (EU)
- Auto Volume
- Maximum Startup Volume
- Vehicle Settings

For all applicable media device menus, the device friendly name will be used along with the Browse list entry as shown in the wireframes.

5.21.6 US B/SD Media Menu (2.0F – US R System)

Pressing the knob while the USB/SD “Now Playing” screen is displayed shows the USB Menu list:

- Time & Date
- Browse “Device Friendly Name” - when selected for the USR system, the directory structure of the device is shown since this system does not support indexing
- Shuffle - On/Off
- Tone Settings
- Traffic Program (TP) - On/Off Toggle (EU)
- Auto Volume
- Maximum Startup Volume
- Vehicle Settings

Figure 5.22.1

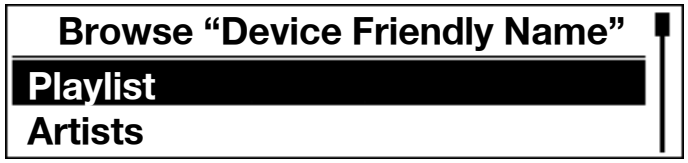


Figure 5.22.2 - user selected artists filter

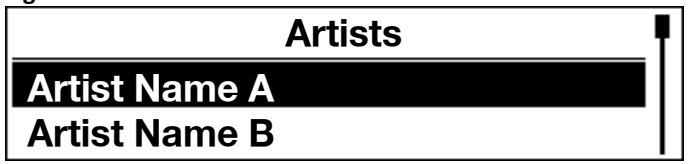
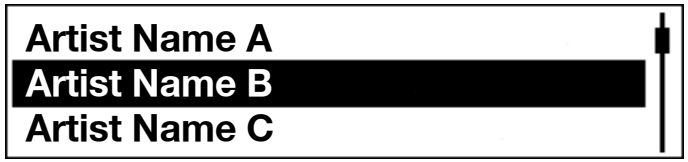


Figure 5.22.3 - user browsing artists filter



5.22 Browse Media

A list of browse names (e.g., Genre, Artist, Album, Song, Playlist, etc.) (depending on MCR or USR option)is displayed when users select the Browse “Device Friendly Name” option from a USB, SD, or iPod media source menu. Selecting a given name displays a list of additional browse names and/or songs associated with that search name. Selecting a song from the list starts playback of that song and returns to the corresponding “Now Playing” screen. Users highlight the desired browse name or song by rotating the knob and select it by pressing the knob.

A long press of the knob when highlighting a browse name begins playback of songs associated with the browse name selected. For example, if the browse name was the artist “Rolling Stones”, a long press of the knob when “Rolling Stones” was highlighted would begin playback of songs by the Rolling Stones and the system would display the “Now Playing” screen. This same functionality can be achieved by selecting the All option at the top of a media list. Playback of a filtered media list is to be repeated when the filter has played back all of its selections regardless of the starting point in the filtered list (e.g. when a playlist is started from the middle of its list of tracks). The filter list is retained over ignition cycles.

When pressing the MENU button (i.e., knob) from the “Now Playing” screen, the user will begin from the top level media menu as shown in Figure 5.22.1.

When the user selects the Browse option from the menu, each of the previously selected filters for the currently playing content will highlight as the user drills down through the sub-menus. So if Artists was selected at the top level menu, the next entry into Browse Device Friendly Name would have artists highlighted as well as each of the previously selected sub-menus.

Re-entering the browse media mode should show the users currently playing item in its current filter mode. These filters should be held over source changes and ignition cycles. If the device is removed these filters should be erased. If no previous browse history exists folder should be chosen as the default.

5.22.1 Browse Media – Indexed Sources (2.1F MCR)

Some media sources have an accessible media index on the user's device (e.g., iPod) and the 2.1F MCR option radios can index certain devices (e.g., USB memory stick, SD card, AVRCP 1.4+ device, etc.). For these media sources, users browse the content via a typical filter list:

Playlists
- Playlist Names
- Song Titles

Artists
- Artist Names
- Album Names
- Song Titles

Albums
- Album Names
- Song Titles

Songs
- Song Titles

Genres
- Genre Names
- Artist Names
- Album Names
- Song Titles

Podcasts
- Podcast Titles
- Episode Titles

Audio Books
- AudioBook Titles
- Chapter Titles / Track Titles

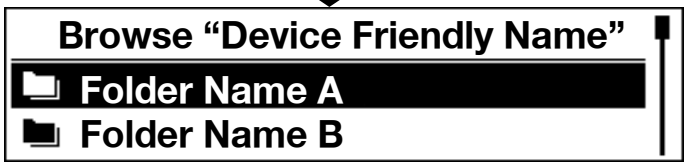
Composers
- Composer Names
- Album Names
- Song Titles

Videos (audio playback only)
- Video Titles
- Video Episode Titles

Figure 5.22.4

Figure 5.22.5

Figure 5.22.6



5.22.5 Browse Media – Non-Indexed Sources (2.0F USR)

Some media sources have their files arranged in a directory structure that will not be indexed (e.g., USB memory stick; SD memory card;). For these media sources, users navigate the content via the devices directory structure by selecting the Browse “Friendly Device Name” menu option - the system is not required to alphabetize the list.

Root Directory
- Folder A
- Song A
- ...
- Song Z
- Folder B
- ...
- Folder Z
  - Sub-directory
    - Folder A
    - Folder A
    - Song A
    - ...
    - Song Z
    - Folder B
    - ...
    - Folder Z
      - Sub-sub-directory
        - Folder A
        - Folder B
        - ...
        - Folder Z

The system supports up to TBD directories deep. Pressing the BACK button moves up one level in the in the directory hierarchy. A long press of BACK returns to the top level in the directory hierarchy (i.e., Root).

Figure 5.23.1

Figure 5.23.2

Figure 5.23.3

5.23 Media Indexing (MCR Option)

Indexing may supported for a maximum of 6,000 songs. Upon insertion of a brand new USB or SD card, the radio will determine the number of files on the connected device as well as establish a folder view of the directory structure of the device as it is indexing. A device i.d. will also be established to be used in recalculating checksums when devices are removed and/or re-inserted.

As shown in the wireframe flow to the left, if the user plugs in a new device while they are in the "No Media Found" view of the active source, the hardware determines the first available file for playback while the figure 5.23.1 "Reading USB…" view is shown.

The now playing view with complete Artist/Song metadata for the first file found is then displayed as that track's audio begins playing.
It is also applied MTP Device Inserted.

Feedback during indexing is provided to the user in the elapsed time field. The elapsed time text field will state "Device Indexing...." with the trailing ellipsis turning on and off to indicate that indexing is occurring and processing. Once indexing is complete, the elapsed time is shown from that point forward.

5. BROADCAST SOURCES

Figure 5.23.4

Figure 5.23.5

Figure 5.23.6

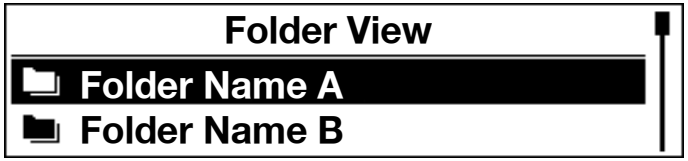
In most scenarios, however, users will first have to source newly connected devices since they will be transitioning from a different source mode. Therefore, they will always be shown the now playing view with the metadata (Artist/Song/Album info) for the first available file after the device friendly name view. Please see wireframe flow in figures 5.23.4 through 5.23.6.

Figure 5.23.7

Figure 5.23.8

Figure 5.23.9

Figure 5.23.10



5.23.1 Folder View

The folder view is shown when selected from the menu for the selected media source. Folder view represents the directory structure of the connected device. It is always available for any connected device regardless of the media indexing limit.

This list is updated in real-time every 15 seconds (calibrateable) while this view is being displayed and the hardware is processing the directory structure of the connected device.

Users may select content that already appears in the list for playback from this view while it continues to update.

Define > Folder DB Hierarchy : 1depth folder structure

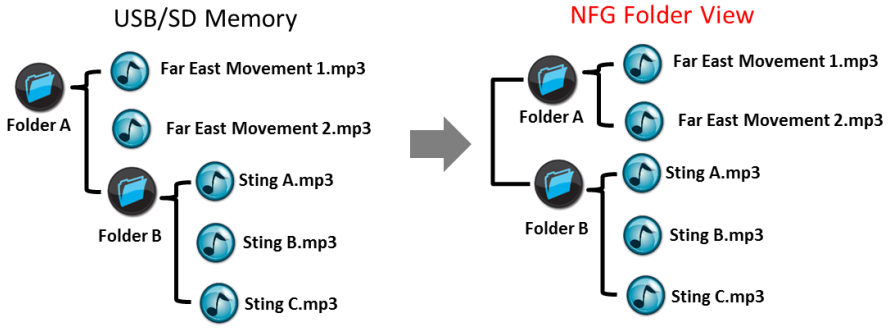


Figure 5.23.11

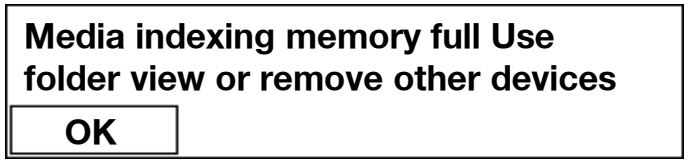
5.23.2 Browsing Device Not Available Until Indexing Completed

Browsing is not supported until indexing is completed for the connected device.

If the user selects browse from the menu, a pop-up will be displayed informing them that the feature is not currently available. Please see figure 5.23.11 for this popup's details.

After the pop-up times out or is dismissed, the now playing view is shown.

Figure 5.23.12



5.23.3 Media Indexing Limit Reached

The pop-up shown in figure 5.23.12 is required when the user attempts to connect devices which cause the indexing memory to be exceeded. For example, if two devices are connected presently, and content from a third device causes the index limit to be exceeded, this pop-up will be displayed the next time Browse device is selected from the menu provided the directory structure has been processed and the content that could be indexed is completed for the device.

This also applies when a single device with greater than 6,000 songs is connected.

This pop-up is shown a single time only. If a device is removed and the memory limit is no longer exceeded, the next unique occurrence of the indexing limit being full will cause the pop-up to be displayed again.

5.23.4 Other Media Indexing Use Cases

6,000 songs will be indexed in a first-in, first-out basis across 2 USB ports and 1 SD port.

If less than the 6,000 song total exists across all 3 devices, then the individual device id's should be remembered such that if the device is modified and reconnected, it can be quickly re-indexed. If another device is connected prior to re-connecting the old device, that device's memory info will be lost and will be considered a new device next time it is connected.
However, if all 3 devices are not changed and reconnected they should not be re-indexed.

If a fourth stick is connected and the indexing limit is not full, then the device is indexed and added to memory.
If one of the original three devices is connected under these circumstances, it should not have to be re-indexed.

For new devices connected that cause the indexing limit to be reached, the entire folder view can still be used for such a device. The system should attempt to partially index the connected device by order of the file structure of the device.

Figure 5.24.1 - BT AVRC P 1.0 Now Playing View

5.24 Bluetooth Devices

There are a number of Bluetooth devices in the field that do not support all Bluetooth features possible based on the level of AVRCP supported. Because of this issue, this specification will breakdown three separate use cases for Bluetooth audio streaming.
Use cases where there are two bluetooth audio players connected to the system, the system will always play the last used device. When a new device is paired to the system, playback should continue from the last known location the device was in prior to pairing to the vehicle.
There will be certain AVRCP 1.0 and 1.3 devices that require the user to start playback from the device itself when they are first sourced to the system. For all Bluetooth audio players, if the user shuts the device off, the system will stay in Bluetooth source mode until the users connects another BT device or changes applications or sources.

- BT AVRCP Ver 1.0 : Now Playing view is displayed as “Bluetooth Music”

- BT AVRCP Ver 1.0 Over : Now playing View is displayed
ID3tag – Artist name and song name Only.

5.24.1 Use Case 1 – No Metadata Support

AVRCP 1.0 Bluetooth devices do not support metadata. Not all devices in this scenario will be able to support all possible transport controls. A fully supported device will allow for previous and next track functionality via the faceplate controls.
In the event the user presses on a non active transport button on the faceplate, the system will be unable to respond to the user input and the system will display the pop-up message, “Action not supported by this device”.
Media indexing will not be possible in this scenario. Users must also pick up the device itself to search audio content in this case.

Figure 5.24.2 - BT AVRC P 1.3 Now Playing View

5.24.2 Use Case 2 – Metadata Support for Current

Bluetooth AVRCP 1.3 Bluetooth devices support metadata for the current track selection only. Media indexing will not be possible in this scenario. Not all devices in this scenario will be able to support all possible transport controls or the elapsed time. A fully supported device will enable previous track, next track, and shuffle. In the event the user taps on a non active transport button, the system will display the pop-up message, “Action not supported by this device”.

5.24.3 Use Case 3 – Metadata and Transport Control

Support AVRCP 1.4 Bluetooth devices will support metadata and transport control availability. Media indexing is supported under these Bluetooth protocols.
The above use cases should be determined by what the Bluetooth manager reports to the connectivity module such as transport controls available.

5.24.4 Bluetooth Use Case 4

Certain 1.4 devices can be further defined as database unaware and database aware devices and the system handling of these devices is discussed in this section.

5.24.5 Database Unaware Players

For 1.4 devices that are database unaware players, the system will treat these exactly as use case 2/AVRCP 1.3 players.

Figure 5.24.3 - Action not supported by device pop-up

5.24.6 Database Aware Players

For 1.4 devices that are database aware players, the system supports the browsing feature of these devices. The browsing capability of these devices is exactly like a MP3 CD. The system will not index these devices, but users will be able to navigate the content via the device's directory structure.

5.24.7 Transport Control Handling For under AVRCP 1.4

Under AVRCP 1.4 devices are not able to control the <Menu>knob as showing the playlist .

In case of above,
the system will display the "Action not supported by this device" pop-up.

Figure 6.2.1 - Phone Home View

6.1 Phone Home Screen

The phone application has a "home" screen where users access the different Bluetooth phone functions. To access the Phone Home screen users press the Phone button on the faceplate. When viewing the Phone Home Screen, the user can select the various functions of the phone screen by scrolling and selecting with the rotary knob.

6.2 Faceplate Controls

When a call is not active, pressing the Phone button on the faceplate displays the Phone Home Screen. If the Phone Home view is already displayed, pressing Phone button on the faceplate does not change the display.
When a call is active and any other screen than the Active Call screen is displayed, pressing the Phone button on the faceplate displays the Active Call screen.
When the Active Call view is shown, pressing the Phone button on the faceplate displays the Phone Home Screen. The user can press the back button or the Phone button to return to the active call screen from the Phone Home view.
When there is an incoming call, user can answer the phone by pressing the Phone button on the faceplate. The Active Call view is then displayed.

Figure 6.2.2 - Phone Home View

6.2.1 Phone Functions List

The Phone Home Screen displays all available phone functions shown in the following list.

- Recent Calls
- Contacts
- Keypad
- Bluetooth Devices

The list is dynamic depending on the capabilities of the connected phone. For example, if contacts list is not supported or available, it is removed from the function list.

6.2.2 Phone Status Information

The Phone Home screen has a title bar at the top that displays phone status information. The status information includes:

- device friendly name of the outgoing source (Unknown if device friendly name from device is blank),
- battery strength of the outgoing source - the icon will have six different states ranging from level 0 for minimum battery charge to level 5 for maximum battery charge,
- signal strength of the outgoing source - the icon will have six different states ranging from level 0 for no reception to level 5 for maximum reception.,
- roaming status of the outgoing source, and

Figure 6.2.3 - Phone view with no phones connected

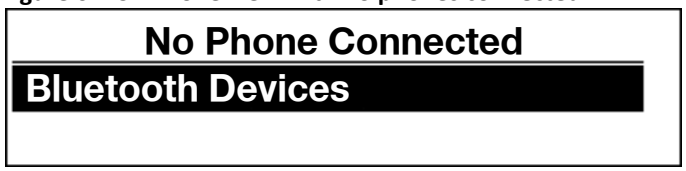
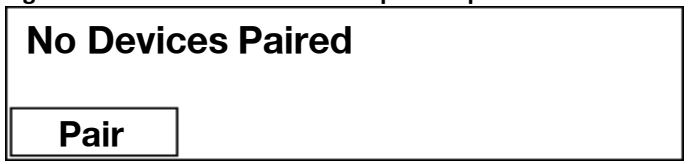


Figure 6.2.4 - Phone view with no phones paired



When no phone source is connected, the status region displays “No Phone Connected” in place of outgoing source name and no phone status icons. When a Bluetooth phone device is not connected, no icon is shown.
A single list item called Bluetooth Devices is shown in this scenario. This allows users to access the paired phones list.

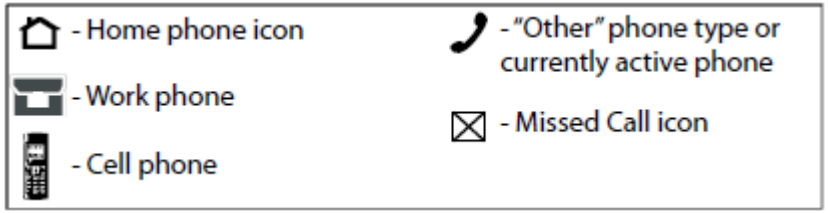
6.2.3 No Bluetooth Phone Device Paired

When a Bluetooth phone has not been paired to the vehicle and the user accesses the Phone Home page, the Bluetooth source view is shown with No Devices Paired shown. The user may to a new Bluetooth device.

Figure 6.3.1 - Figure Removed

Figure 6.3.2 - Figure Removed

Figure 6.3.3 - phone icons legend - reference only



6.3 Recent Calls

The user may select Recent Calls from the phone function list for the Recent Calls list to be displayed. When phonebook is not available from the current Bluetooth device, recent calls list is not available so the Recent Calls button is not available in the phone function list.

6.3.1 Recent Calls View

When users select "Recent Calls" from the Phone Home Screen, the Recent Calls list is a submenu displayed in order of Missed, Received, and Sent calls as shown in section 6.3.4

Once an option is selected, each call listed contains the following informational elements:

• the first name and last name of the caller, if available from the Contact List, else the phone number for the incoming or outgoing call:

• an icon indicating which phone the call was made to or received from (if available from the Contact List). Subscripts are used when more than 1 phone is associated with that type of phone, where supported by the phone)

The date is shown for all calls. The date is provided by the Bluetooth device and in the same format as the Bluetooth device. When the date is not provided by the Bluetooth device, the date is not shown for each call.

Figure 6.3.4

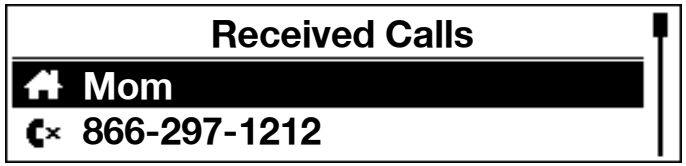


Figure 6.3.5

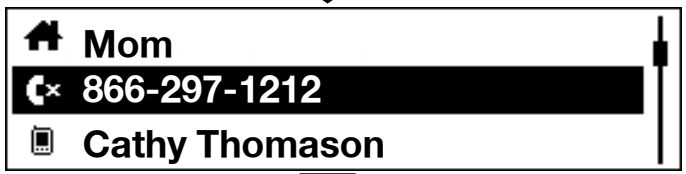


Figure 6.3.6

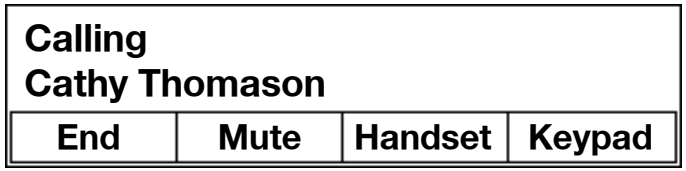
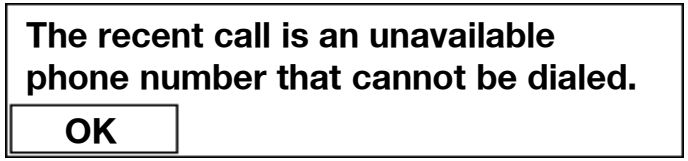


Figure 6.3.7



If the phone number is unknown (i.e. restricted, unknown, unavailable), the word Unavailable is shown.

6.3.2 Initiating Call from Recent Calls

The user rotates the knob on the faceplate to highlight the desired call. The user presses the knob to begin calling that number. While making the connection, the system displays the Active Call screen with “Calling” indication until the call is connected then the active call view is shown. The initiation of the call to the current outgoing sourced Bluetooth phone will be delayed 3 seconds (calibratible) time to give the user a chance to end the call in the case it was inadvertently initiated.
When the call is ended, the recent calls view is shown and is updated with this outgoing call at the top of the list. The recent calls list will be dynamically updated with any calls that are incoming, outgoing, or missed. For example, if the user is in a call and ignores a call waiting alert, this list is updated with the missed call.

6.3.3 Unavailable Number from Recent Calls

An unavailable recent call can not be called since the phone number is unknown. If the user attempts to call from an unavailable number, a message is displayed.

Extension > Unavailable Number from Phone

On the contacts,
If contacts dose not have any phone number, name and etc., it should not be displayed.

Figure 6.3.8

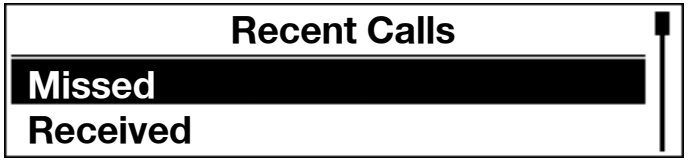
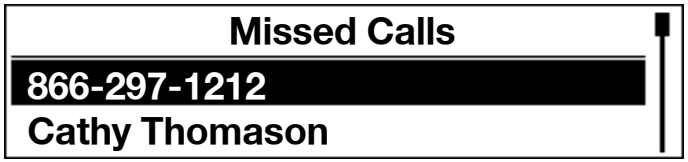


Figure 6.3.9



6.3.4 Recent Calls Combined List Not Available from Source

A Bluetooth device may not provide a combined recent calls list. In this case, the recent calls list displays an intermediate menu containing missed calls, received calls, and sent calls.

The header title states the type of recent call list (missed, received, sent) once selected.

6.3.5 Missed Icon Not Required in Missed Calls List

If the missed calls option is selected from the recent calls list, the missed call icon is not required in this list view.

Figure 6.4.1

Figure 6.4.2

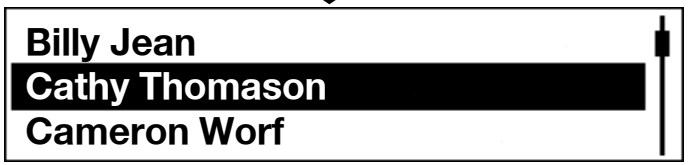
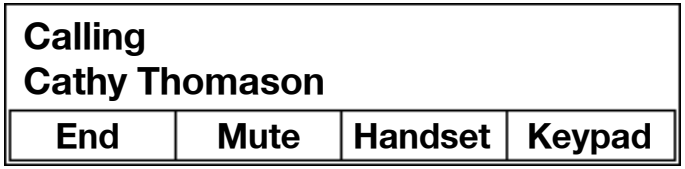


Figure 6.4.3



6.4 Contacts

6.4.1 Contacts List View

When users select “Contacts” from the Phone Home Screen, the Contacts list for the connected phone is displayed. The contact list shown reflects the contact information in the current outgoing phone source sorted the same as in the Bluetooth device if known, otherwise, in alphabetical order by first name. Typically, the contact or POI name is shown in the list but if a name has not been entered, it will be the first data entered for the contact.

If there are no contacts for that contact source or phonebook is not available from the current Bluetooth device, the blank list with “No Content Available” text shown in the first position of the list under the header as defined in the Lists section.

6.4.2 Initiate Call from Contact List

The user rotates the knob on the faceplate to highlight the desired contact. The user presses and holds the knob to begin calling that contact. If that contact has more than one number stored, the preferred number is called. If that contact does not have a preferred number, the first phone number populated is called.

While making the connection, the system displays the “Calling” Active Call screen. The initiation of the call to the current outgoing sourced Bluetooth phone will be delayed 3 seconds (calibrate-able) time to give the user a chance to end the call in the case it was inadvertently initiated.

Figure 6.4.4

Figure 6.4.5

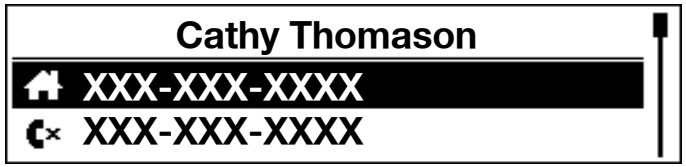


Figure 6.4.6

Figure 6.4.7

6.4.3 View Contact Details from Contact List

The user rotates the knob on the faceplate to highlight the desired contact. The user presses the knob (short press) to view the details for that contact. The Contact Details view is shown.

6.4.4 Contacts Detail

The user may select a contact from the contacts list view for the contact details to be displayed.
The contact details display the v-card data for that contact. The name is shown in the title . The phone numbers are listed in the following order:

1. Preferred (maximum of one)
2. Mobile (maximum of two)
3. Home (maximum of two)
4. Work (maximum of two)
5. Other (maximum of two)

Each line may be truncated based upon the region size and font size. The user may return to the contacts list by pressing the Back button on the faceplate.

6.4.5 Initiate Call from Contact Details

The user rotates the knob on the faceplate to highlight the desired phone number to call. The user presses the knob to initiate the call. While making the connection, the system displays the “Calling” Active Call screen.

6.4.6 Intermediate Contacts Download in Process

In edge cases where the contacts list is not immediately available from the device, an intermediate screen may be displayed informing the user that the contact list is being generated. See figure 6.4.7 for details.

Figure 6.5.1

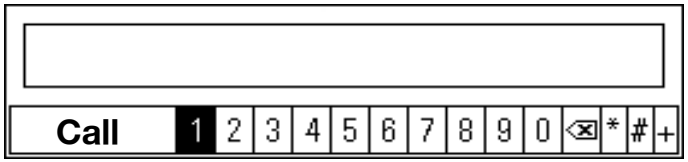


Figure 6.5.2

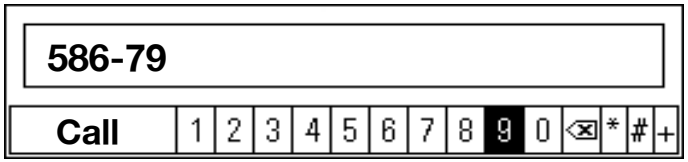
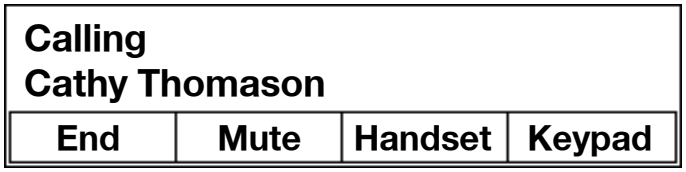


Figure 6.5.3



6.5 Keypad View

When users select “Keypad” from the Phone Home Screen, a phone dialer keypad is displayed. Users rotate the knob to highlight the desired digit to dial and press the knob to select it. As the user continues to rotate the knob when the end of the keypad is reached, it continues full circle around the keypad.

Digits are displayed in the digit field as they are entered. The call key is not active until the user has input a digit.

Once user has entered the desired phone number, the user presses the soft key corresponding to Call to begin calling that number. While making the connection, the system displays the Active Call screen.

Should users make a mistake while entering a phone number, they rotate the knob to highlight the Delete function and press the knob to delete the last digit entered.

Pressing and holding the knob for the standard time while the Delete function is highlighted clears the entire digit field.

If the user has entered digits and presses the Back button on the faceplate, the entered digits are cleared and the Phone Home Page is shown.

The initiation of the call to the current outgoing sourced Bluetooth phone will be delayed 3 seconds (calibratible) time to give the user a chance to end the call in the case it was inadvertently initiated.

When the call is ended, the keypad view is shown with the digits entry field cleared. The digits entry field is also cleared with ignition cycle and if the user enters digits then initiates the call by other means such as recent call or contacts.

Figure 6.6.1 - active call

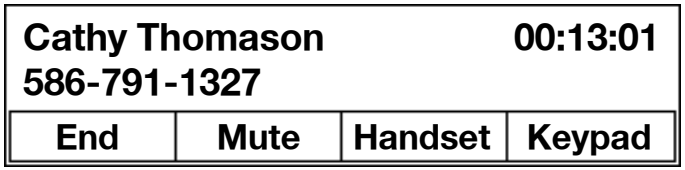
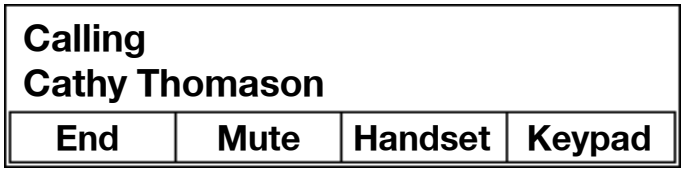


Figure 6.6.2 - connecting call view



6.6 Active Call View

The Active Call Screen displays information relevant to an active phone call. This information includes:

• the first name and last name of the caller (if available from the Contact List); or the phone number for the incoming or outgoing call (unless unavailable); and

• an icon indicating which phone the call was made to or received from (if available from the Contact List);and

• the call timer showing the elapsed time for the call in the format of HH:MM:SS as provided by the Phone

• functions, controlled by the faceplate soft key buttons, for End, Mute / Unmute Microphone. Handset / handsfree, and Keypad. When the call has been initiated prior to the Bluetooth device being connected to the vehicle, the Call Timer value as provided by the Phone is from the time the Bluetooth device has been connected to the vehicle. The Phone provides indication that the call was in process so the Call Timer value is displayed with an indicator that the call time has been longer (i.e., plus sign).

6.6.1 Connecting Call

When the user initiates a call by any means (i.e. recent call list, contact list, etc.), the Active Call Screen shows that the phone is in the process of connecting the call. Once the connection is made as determined with the Bluetooth device call setup successful trigger, this “Calling...” indication is no longer displayed and the call timer is shown.

Figure 6.6.3

If there is no network service, a popup is displayed to notify the user at the time of initiating a call. The user is not able to make a call but can view recent calls, contacts, and sources.
A popup is displayed when an outgoing call is initiated by the user but is interrupted, cancelled, or timed out.

6.6.2 Ending Call

When a current call ends while the Active Call Screen is displayed, the Active Call Screen shows that the call has ended while continuing to be displayed for 3 seconds. The Call Timer stops and flashes at the rate of 4Hz. After the 3 seconds has elapsed, the system returns to the previous screen displayed prior to displaying the Active Call Screen (e.g., the Contact Details screen or the Now Playing screen).

6.6.3 End Button

Users end an active phone call by tapping the soft-key (i.e., the Favorites button) directly below the display labeled “End”. When a call is ended, the system returns to displaying the screen prior to making the call or answering an incoming call.

6.6.4 Mute / Unmute Button

Users mute the vehicle microphone while in an active call by tapping the soft-key (i.e., the Favorites button) directly below the display labeled “Mute”. If the microphone is muted, the label changes to “Unmute” and tapping the soft-key unmutes the vehicle’s microphone.

6.6.5 Handset / Hands-free Button

Users can switch from hands-free mode to the phone handset by tapping the soft-key (i.e., the Favorites button) directly below the display labeled “Handset”. If the phone call for the active phone source is taking place on the handset, the label changes to “Hands-free”. Tapping the soft-key now returns the phone conversation to hands-free mode. Handsfree is default when a call is initiated.

If there is an issue and the call is not transferred to handsfree or handset as the user requested, a message is displayed notifying the user that the transfer did not occur. The user may tap Retry to attempt the transfer again.

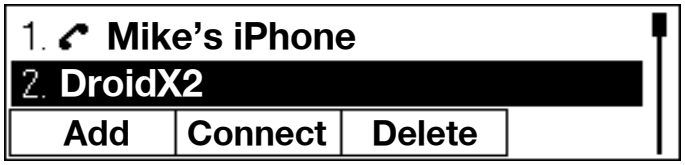
6.6.6 Hold Button

TBD

6.6.7 Initiating a Call from Bluetooth Device

The user may initiate a call from the Bluetooth device. If the current view is not the phone application, there are no changes to the display. If the current view is the phone application or the user selects the phone application after the call is initiated through the Bluetooth device, the In Call View is shown. The user may switch the call to handsfree from this view.

Figure 6.7.1



6.7 Bluetooth Devices View

When users select "Devices" from the Phone Home Screen, the Bluetooth Device list is displayed.

6.7.1 Bluetooth Device List

The list contains the device friendly name of all Bluetooth devices that have been paired with the system. If the device friendly name received is blank, Unknown is displayed.

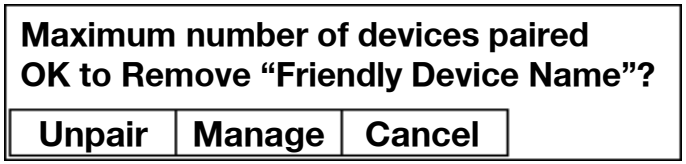
The Bluetooth Device list is divided into devices that are connected to the system and the remaining devices that are not currently connected to the system. There is a visual indicator showing the outgoing source for making calls.

Only the connected phone is capable of receiving calls using the system. Phones that are not connected are unable to make or receive calls using the system until they have been 'connected'.

6.7.2 Bluetooth Device Functions

The Bluetooth Device List view provides the user the ability to add (pair) a device, delete a device, and connect a device.

Figure 6.7.2



6.7.3 Maximum Bluetooth Devices

The vehicle is limited to having five Bluetooth devices paired to it. If the vehicle already has five devices paired and the user requests to add a device, the device that has not been used for the longest time will be unpair and the newly added device will be connected.
Please see figure 6.7.2 for view required for this scenario.

6.7.4 Removed

Figure 6.7.3

6.7.5 Connect an in Vehicle Paired But Not Connected Device

The user may want an in vehicle not currently connected device to be connected. To connect an in vehicle not connected device, the user rotates the knob on the faceplate to highlight the desired device to be connected.
The device must be in the vehicle. When the desired device is highlighted, the user presses the soft key on the faceplate labeled Connect.

The newly connected device becomes the outgoing phone source if it is a phone device.

If the Bluetooth device is unable to be connected, a message is displayed as shown in figure 6.7.3. The user may cancel or retry connecting to that device. If the user taps retry, the device source list is shown until the device is connected. If the user takes no action, the pop-up will auto dismiss and the user will be returned to the Bluetooth devices list view.

Figure 6.8.1

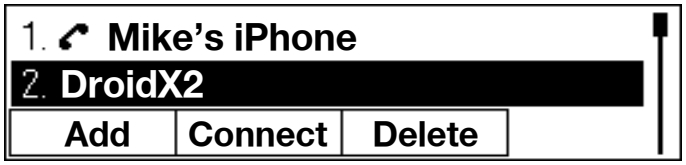


Figure 6.8.2 - Pairing discoverable mode

6.8 Adding a New Bluetooth Device

The user may pair a Bluetooth device to the vehicle as long as there is not an active phone call. There is no action upon pressing the Add button in the phone list view during a call.

The user taps the soft-key (i.e., the Favorites button) directly below the display labeled "Add" to add a new bluetooth device as shown in figure 6.8.1.

The vehicle enters a discoverable mode for a Bluetooth device to find it. The display provides basic instructions for the user to initiate pairing on the Bluetooth device and provides the Vehicle Friendly Name.

The user may tap the soft-key (i.e., the Favorites button) directly below the display labeled "Cancel" to abort the pairing process and return to the Bluetooth Devices list.

For Legacy method devices that require PIN entry prior to being able to determine the pairing method, this view is shown all through the pairing process until pairing is successful, or pairing unsuccessful, or connection is lost. At this point, the appropriate message is shown.

Figure 6.8.3 - pairing in process pop-up

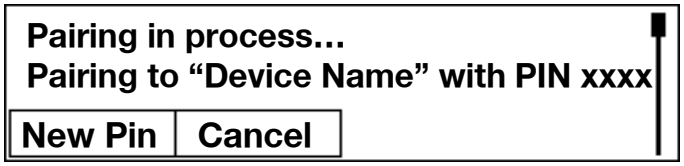
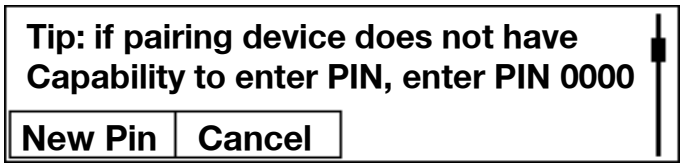


Figure 6.8.4 - scrolled down view of pairing pop-up



6.8.1 For Legacy Pairing Method

Once the pairing process is initiated on the Bluetooth device and the device communicates that it is using legacy pairing method, the device friendly name and the PIN is shown. The user enters the PIN on the Bluetooth device. The activity indicator (denoted as in media indexing with ellipsis that turn on and off) is shown until the pairing process is complete (successful or aborted).
The user has the option to abort the pairing process by pressing the soft-key labeled Cancel and the display returns to the Bluetooth device list.
The user may press the soft-key labeled Retry to return to the previous view.

6.8.2 For Secure Simple Pairing – Numeric Comparison Method

Once the pairing process is initiated on the Bluetooth device and it is secure simple pairing numeric comparison method, the device friendly name and the PIN is shown. The user compares the PIN displayed in this view with the PIN displayed on the Bluetooth device. If it matches, the user presses the soft-key directly below the display labeled Pair. This view, without the match question and Pair button is displayed until the pairing is completed successfully.
If it does not match, the user presses the soft-key directly below the display labeled Cancel. The pairing process is cancelled. The Bluetooth Device list view is shown.
The user may re-initiate the pairing process.

6.8.3 For Secure Simple Pairing – Just Works Method

Once the pairing process is initiated on the Bluetooth device and it is secure simple pairing just works method, the device friendly name is shown. A view to confirm the pairing with the device friendly name is displayed. The user may tap Pair to initiate the pairing.
The device friendly name is shown until the pairing process is complete. The user may press the soft-key directly below the display labeled “Cancel” to abort the pairing process and return to the Bluetooth Device List.

6.8.4 Pairing Completed Successfully

Once the Bluetooth device is successfully paired, notification is displayed on the view the user may press soft key labeled OK or press faceplate menu knob or press faceplate Back button. The Device List view, is shown with the newly paired device in the list. The device is automatically connected and becomes the outgoing phone source, when it is a phone.

6.8.5 Removed

6.8.6 Removed

6.8.7 Removed

6.8.8 Removed

6.8.9 Removed

6.8.10 Removed

6.8.11 Bluetooth Device Pairing Timeout

When a Bluetooth device is not detected within a certain amount of time, a message is displayed. The user may retry (reconfigurable preset) and the system will go to discoverable mode again. The user may press cancel, to return to the Bluetooth Device List view.

6.8.12 Bluetooth Device Connection Lost

When a Bluetooth device connection is lost during the pairing process, a message is displayed. The user may retry (reconfigurable preset) and the system will go discoverable mode again. The user may press cancel, to return to the Bluetooth Device List view.

6.8.13 Bluetooth Device Pairing Unsuccessful

When a Bluetooth device pairing process is unsuccessful due to an authentication error or incorrect PIN, or key missing, a message is displayed. The user may retry (reconfigurable preset) and, for secure simple pairing, the system will go to discoverable mode again. For legacy pairing method, tapping retry goes to enter PIN view. The user may tap cancel, to return to add new device view.

6.8.11 Bluetooth Device Pairing Timeout

When a Bluetooth device is not detected within a certain amount of time, a message is displayed. The user may retry (reconfigurable preset) and the system will go to discoverable mode again. The user may press cancel, to return to the Bluetooth Device List view.

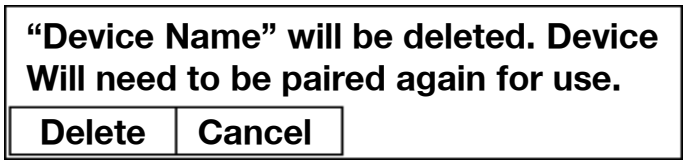
6.8.12 Bluetooth Device Connection Lost

When a Bluetooth device connection is lost during the pairing process, a message is displayed. The user may retry (reconfigurable preset) and the system will go discoverable mode again. The user may press cancel, to return to the Bluetooth Device List view.

6.8.13 Bluetooth Device Pairing Unsuccessful

When a Bluetooth device pairing process is unsuccessful due to an authentication error or incorrect PIN, or key missing, a message is displayed. The user may retry (reconfigurable preset) and, for secure simple pairing, the system will go to discoverable mode again. For legacy pairing method, tapping retry goes to enter PIN view. The user may tap cancel, to return to add new device view.

Figure 6.9.1 – delete device confirmation pop-up



6.9 Deleting a Paired Bluetooth Phone

The user deletes (i.e., unpairs) any paired phone in the list by rotating the knob on the faceplate to highlight the desired device to be the deleted (unpaired).
The user then presses the soft-key (i.e., the Favorites button) directly below the display labeled “Delete”.
A message is displayed for users to confirm or cancel deletion of the phone source. If deletion is confirmed, the deleted phone source is removed from the list and the Bluetooth Phone Source list is updated accordingly.

6.9.1 Deleting Connected Device

The user may delete a currently connected device, if the device has no active call. If there is another device in the vehicle but not connected, the system will automatically connect that device and become the outgoing phone source if it’s a phone. If there is more than one device in the vehicle that is not connected, the same type of device that was most recently used will be connected else, the most recently used (not the same type device) will be connected.

6.9.2 Removed

6.9.3 Removed

6.9.4 Outgoing Phone Source Last Mode

The phone source that was the last outgoing phone source is retained so that the next ignition cycle, if that phone device is connected, it is the outgoing phone source. If that phone device is not connected, the next most recently used phone that is connected is the outgoing phone source.

Figure 6.10.1

Figure 6.10.2 - Active call view

6.10 Incoming Call Alerts

An Incoming Call Alert message is displayed whenever there is an incoming call on a connected phone. There are two type of Incoming Call Alerts: (1) Incoming Call (user is not on an active call) and (2) Call Waiting Call (user is on an active call). The alert replaces whatever screen was previously displayed.

6.10.1 Incoming Call Information

The Bluetooth device will pass the incoming call phone number and the HMI checks if the phone number matches a contacts in the contacts list. If the incoming call is from a phone number stored in the Contact List for the connected phone, the first and last name is displayed. If the incoming call is from a phone number that is not in the Contact List, only the phone number is displayed. If the incoming call is from an unknown, restricted, or unavailable phone number, Unknown is displayed.

6.10.2 Answer / Switch To Button

Users answer an incoming call by tapping the soft-key (i.e., the Favorites button) directly below the display labeled “Answer” or “Switch”. Answering a call this way extinguishes the alert, stops the ringtone, and displays the Active Call Screen.

6.10.3 Ignore Button

Users can ignore an incoming call by tapping the soft-key (i.e., the Favorites button) directly below the display labeled “Ignore”. An ignored call is sent to voice mail, ringtone stops, and the alert is extinguished, returning the display to the previous screen prior to the alert.

6.10.4 Removed

6.10.5 Incoming Call Ended

When the user accepts an incoming call, the phone full view is displayed. If the phone full view is still displayed when the call is ended, it is displayed for a calibratible length of time and then reverts to the display that was active when the incoming call was received.

6.10.6 No Action with Incoming Call

If the call is not ignored or answered prior to transferring to voice mail, the alert will extinguish returning to previous view prior to the alert and ringtone stops.

6.10.7 Audio with Incoming Call Alert

With an incoming call alert, the ringtone is played . The ringtone continues until the call is answered, ignored, or goes to voice mail. If the request for the ringtone is denied, an alert tone is requested. With a call waiting alert from the same phone device, the network alert tone indicating call waiting is played and will direct the user to the visual alert on the display. With call waiting alert from another connected phone device, since another call is active on the phone audio channel, an alert tone is played to direct the user to the visual alert on the display.

6.10.8 Incoming Call Alert when OnStar Call Active (If Equipped with OnStar)

When an OnStar call is active and there is an incoming call on the Bluetooth device, an alert is shown. The user may answer the incoming call through the vehicle but it will hang up the OnStar call. The user may also tap ignore, take no action, or answer on the Bluetooth device handset as with other incoming or call waiting alert.

6.10.9 Incoming Call when Call Waiting Active

If two calls are already active (call waiting mode), a call waiting alert is not displayed. The call will show up as a missed call.

6.10.10 REMOVED

6.10.11 Incoming OnStar Personal Call (If Equipped with OnStar)

With an OnStar incoming call, the information is shown as a message and the audio channel switches to the OnStar ringtone. The message shows the incoming caller information that is available along with the OnStar icon. The OnStar symbol (calibratible) may be different based upon the region. If there is no symbol for a region, a generic icon is used. The user may select ignore or answer for the incoming call. If there is an active Bluetooth call when the OnStar personal call is incoming, if the OnStar call is answered, the Bluetooth call is transferred to private mode on the handset.
If ignore is chosen, the ringtone stops and the alert is extinguished.
If answer is chosen, the alert is extinguished and the On-Star Active Call view is shown. If the user performs no action, the alert extinguishes after the call is hung up by OnStar and the ringtone stops.

6.10.12 Incoming OnStar Advisor Call(If Equipped with OnStar)

With an OnStar incoming call from an advisor, the information is shown as a message and the audio channel switches to the OnStar ringtone. The alert shows the incoming call is from the OnStar Advisor along with the OnStar icon. The OnStar symbol (calibratible) may be different based upon the region. If there is no symbol for a region, a generic icon is used. The user may dismiss the alert or it will autodismiss.

Figure 6.10.3

6.10.13 Call Ended Alert

When in an active phone call, if call is ended while the system is displaying any other view than the Active Call screen, the Call Ended message is displayed. The call may be ended by the person on the other end of the line hangs up, through the Bluetooth handheld device, or service connection is lost . The message replaces whatever screen was being displayed. Call Information is displayed along with a stopped, flashing Call Timer for 3 seconds (calibratable) and then the system displays the previous screen. Screen returns to the display to the previous screen prior to the message after 5 seconds. Users can re-dial the caller (e.g., if the phone call was dropped) before the time out by tapping the soft-key (i.e., the Favorites button) directly below the display labeled “Redial”. Similarly, a call ended message is shown when an OnStar call is ended, if OnStar is equipped. Please see figure 6.10.3.

6.10.14 Call Not Connected

A message is displayed when an outgoing call is initiated by the user but is interrupted, canceled, or timed out. The user may redial the phone number by pressing redial soft key. This will return to the same calling view (with recent calls list, contacts, keypad, etc) that was shown when call was originally initiated. The message will dismiss to the previous screen in 5 seconds. This message is also displayed when an outgoing OnStar personal call is initiated by the user but is interrupted, canceled, or timed out.

6.11.2 OnStar Call Active and Incoming Bluetooth Call – Interaction from Center Stack (If Equipped with OnStar)

When Onstar has a current call active and a connected Bluetooth phone has an incoming call, the incoming call alert is displayed. Users can accept the incoming Bluetooth phone call through the center stack display and controls, and the OnStar call will be ended.
Users can ignore the incoming Bluetooth phone call through the center stack display and controls, and the OnStar call will continue. If the call is not ignored or answered prior to transferring to voice mail, the display is returned to its previous screen; the OnStar call is continued.

6.11.3 Bluetooth Phone Call Active and OnStar Requests Emergency Call or Auto Accepted OnStar Advisor Call (If Equipped with OnStar)

When the Bluetooth phone has an active, hands-free call and OnStar requests an emergency call (e.g., airbag is deployed) or an automatically accepted OnStar Advisor call, the Bluetooth phone call is transferred to private mode on the handset and the emergency call / auto accepted OnStar Advisor call is initiated. If the Bluetooth call is still active in private mode when the OnStar Emergency Call or Auto Accepted OnStar Advisor Call has ended, the Bluetooth call is transferred back to handsfree mode.

6.11.4 OnStar and Bluetooth Phone Interactions (If Equipped with OnStar)

OnStar and Bluetooth Phone interactions are based upon the state of an OnStar call and a Bluetooth Phone call as described in the following sub paragraphs.
When an OnStar call is active, the OnStar Active Call view is shown when in the phone section. The phone number and remaining minutes are shown. This may be blank until the information is provided. The OnStar icon will be shown for level 2, 3 and 4. The OnStar icon will not be shown for level 1.
The end soft-key allows the user to end the active call. When this is pressed, the active call will disconnect and call ended will be displayed as described in the Call Ended section.

6.11.5 OnStar Call Active (If Equipped with OnStar)

When OnStar has a current call active or an emergency call active or an advisor call active, the Bluetooth phone is only available in private mode from the handset for making a call. A Bluetooth phone call can not be initiated through the system interface. OnStar Call Active is shown in the phone status region of phone screens

6.11.6 Bluetooth Phone Call Active and OnStar Personal Call or Advisor Call is Requested (If Equipped with OnStar)

When the Bluetooth phone has an active, hands-free call and users request an OnStar Personal Call or Advisor Call by pressing the OnStar buttons, the Bluetooth call is transferred to private mode and OnStar personal call or advisory call is initiated. If the Bluetooth call is still active in private mode when the OnStar personal call or advisory call has ended, the Bluetooth call is transferred back to handsfree mode.

6.11.7 Bluetooth Phone Call Active and Incoming OnStar Call (If Equipped with OnStar)

When the Bluetooth phone has an active, hands-free call and OnStar has an incoming non-emergency phone call, the OnStar incoming call message is displayed. Users can accept the incoming OnStar call and the Bluetooth phone call is transferred to private mode on the handset or users can ignore the incoming OnStar call and the Bluetooth phone is continued. If the call is not ignored or answered, the message time out returning the display to its previous screen. If the Bluetooth call is still active in private mode when the OnStar personal call or advisory call has ended, the Bluetooth call is transferred back to handsfree mode.

6.11.8 OnStar Call Active with Incoming Bluetooth Call – Interaction from Bluetooth Phone Handset (If Equipped with OnStar)

When OnStar has a current call active and Bluetooth phone has an incoming call, the user may use the Bluetooth phone to accept or ignore the call. If the call is accepted or ignored on the Bluetooth handset, the message is no longer displayed and the OnStar call continues in vehicle. If the user accepted the call on the Bluetooth handset, it is only available in private mode from the handset.

6.11.9 OnStar Emergency Call View

An Onstar Emergency Call is initiated from a crash or from the user pressing the red cross button. There is an indication when it is connecting and then when it is connected. There is not a means for the user to end an OnStar Emergency Call that was initiated from a crash. The End button is shown when the emergency call was initiated by the user pressing the red cross button. If a Bluetooth call is active at the time of an Emergency Call Connecting, the Bluetooth call is transferred to handset.

6.11.10 OnStar Advisor Call View (If Equipped with OnStar)

An Onstar Advisor Call is initiated from the user pressing the blue button. There is an indication when it is connecting and then when it is connected. The user may end the call by pressing the End soft key.

6.11.11 Emergency Call Not Connected (If Equipped with OnStar)

A message is displayed when an Emergency call is initiated by the user using the red cross button but is interrupted, canceled, or timed out. The message will timeout after 5 seconds. The user may redial the Emergency call by tapping the redial button. This will return to the Emergency Call Connecting view.

6.11.12 OnStar Advisor Call Not Connected

A message is displayed when an OnStar advisor call is initiated by the user but is interrupted, canceled, or timed out. The message will timeout after 5s. The user may redial the OnStar advisor call by tapping the redial button. This will return to the OnStar Advisor Call connecting view.

6.11.13 Display a Phone Number

A phone number is displayed in the case of Redial. The Number is shown and the OnStar regional brand text string calibration is used where OnStar is shown in wireframe.

6.11.14 Phone Calling Unavailable

When initiating a phone call is unavailable due to an unconnected Bluetooth phone source or Local Phone system state has expired after ignition off, the phone screens will visually show which features are not available to the user.

6.11.15 Removed

6.11.16 Removed

6.11.17 Removed

6.12 Entering / Exiting Vehicle with Bluetooth

6.12.1 Entering Vehicle with Active Bluetooth Phone Call

When the user starts the vehicle (ignition on) with an active call on a previously paired Bluetooth device, the vehicle connects the Bluetooth device and shows a message to the user that the call may be switched to handsfree. When the phone is connected and able to be switched to handsfree, a message is displayed. The Bluetooth device has to be connected and the speakers and microphone active prior to allowing the switch to handsfree.

The user may press the softkey on the faceplate labeled “Handsfree” to switch to handsfree mode. The user may press the softkey button on the faceplate labeled dismiss to do nothing and remain in privacy mode. The message times out after 5s.

6.12.2 Exiting Vehicle with Active Bluetooth Phone Call

The user may switch to handset upon exiting the vehicle. When the user turns off ignition with an active Bluetooth phone call, the display changes to the active call view as long as there has been no inputs by the user on the current view for TBD time (calibratible). Otherwise, the In Call view is delayed until no activity for TBD time (calibratible). If the user will be exiting the vehicle with an active Bluetooth phone call, the user may tap handset to transfer the call to private mode. The user can continue the call on the handset and exit the vehicle. If the user exits the vehicle with the Bluetooth device without transferring the call to handset, the call will automatically be switched to handset (private mode) once the Bluetooth device is out of range and no longer connected.

6.12.3 User Remains in Vehicle with Ignition Off Door Opens

The user may turn ignition off, remain in vehicle, and on the handsfree active phone call. With ignition off, the active call view is displayed as described in previous section. The user may tap the Switch to Handset Now. When user taps the Switch to Handset, the switching to handset message is shown until the transfer is complete. Then the active call view is displayed, with Handsfree not available. This view is displayed until the Local Phone system state expires.

6.12.4 Bluetooth Available Through OnStar Only

Bluetooth phone may not be available in some vehicle configurations except through OnStar. In this case, there is only phone call capability on the Bluetooth device.

6.13 Phone Number Format By Region

The phone number format throughout the Form and Behavior is based upon North America. The following define the phone number format by region.

6.13.1 North America

For North America region, the following strategy is used when displaying a phone number:
When there are seven digits, the format is XXX-XXXX.
When there is ten digits, the format is XXX-XXX-XXXX
When there is eleven digits and the first digit is a “1”, the format is 1-XXX-XXX-XXXX When there is eleven digits and the first digit is not a “1”, the phone number is displayed with no hyphens. When there are less then seven digits, or there are eight or nine digits, or there are more than eleven digits, the phone number is displayed with no hyphens.

6.13.2 Korea

For Korea, the following strategy is used when displaying a phone number.
If first digit is not a 0 and number of digits is greater than four, then one hyphen prior to last four: XXX-XXXX
If first digit is not a 0 and number of digits is four or less, then no hyphens: XXXX, XXX, XX, X
If first digit is a 0 and the second digit is not a 2 and number of digits is at least eight, then one hyphen prior to last four digits and one hyphen after the first three digits: 0XX-XXXX-XXXX or 0XX-XXX-XXXX or 0XX-XX-XXXX or 0XX-X-XXXX

If first digit is a 0 and the second digits is not a 2 and number of digits is less than eight and more than three, then one hyphen after the first three digits: 0XX-XXXX, 0XX-XXX, 0XX-XX, 0XX-X. If first digit is a 0 and the second digit is not a 2 and the number of digits is three, no hyphens: 0XX If first two digits are 02 and the number of digits is at least seven, then one hyphen prior to last four digits and one hyphen after the first two digits (02): 02-XXXXXXXX or 02-XXX-XXXX or 02-XX-XXXX or 02-XXXXX. If first two digits are 02 and the number of digits is less than seven and more than two, then one hyphen after the first two digits (02): 02-XXXX, 02-XXX, 02-XX, 02-X. If the first digit is a 0 and the number of digits is two or less, no hyphens: 0X

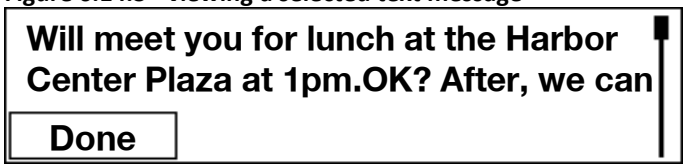
6.13.3 All Other Regions

For all other regions such as China, Europe, and Middle East, there are no hyphens shown when displaying a phone number. These regions have an open numbering plan so a common strategy for placement of hyphens is not possible.

Figure 6.14.1 - Incoming Text View

Figure 6.14.2 - Incoming Text no contact info

Figure 6.14.3 - viewing a selected text message



6.14 Incoming Text Messages

An Incoming Text Message Alert is displayed whenever there is a new text message from a connected phone and text message alerts are turned on in settings.
When the incoming text is from a phone number in the Contacts list, the first and last name are displayed.
When the incoming text is from a phone number that is not in the Contact lists, the phone number is displayed.
Upon notification of the incoming text, all information may not be immediately available so the alert is displayed at the time all the information is available.

6.14.1 View Button

Users can view the entire message by tapping the softkey (i.e., the Favorites button) directly below the display labeled “View”. The detail message screen is now displayed.

6.14.2 Dismiss Button

Users can dismiss the new text alert by tapping the softkey (i.e., the Favorites button) directly below the display labeled “Dismiss”. Dismissing the alert returns the display to the previous screen prior to the text alert.

6.14.3 No Action or Responded To From SWC

If no soft-key is selected before the alert time-outs, the alert is extinguished returning the display to its previous screen.
If the alert is responded to using the steering wheel controls and cluster display, the alert is extinguished returning the center stack display to its previous screen.
Note: this feature is only supported where the architecture supports messaging for the cluster buttons.

6.14.4 Audio with new text alerts

With a New Text Message alert, the Text Message alert audio is played. The audio alert is played until the user either presses view, dismiss, or the alert times out.
The alert tone is provided if the device receiving the text can support the tone using A2DP.

6.14.5 Done Button

When the user is finished viewing a text message, the DONE button can be pressed and the user will be returned to the previous screen prior to receiving the text.

6.14.6 Text Messages Option In Phone Home Screen (Removed)

7. VEHICLE SETTINGS

Table 7. CAL List

CAL	Supported Lang.
$01 = North America	US
	Canadian French
	Spanish
$02 = Europe	German
	Italian
	Swedish
	French
	Spanish
	Dutch
	Portuguese
	Norwegian
	Finnish
	Danish
	Greek
	Polish
	Turkish
	UK
	Russian
	Bulgarian
	Croatian
	Czech
	Hungarian
	Rumanian
	Slovak
	Slovenian
	Ukrainian
	Serbian
	Uzbek
$03 = Latin America	US
	Spanish
	Maxican Spanish
	Brazilian
$04 = Africa	UK
	US
	French
$05 = Middle East	US
	Arabic
$06 = Australia/New Zealand	UK

CAL	Supported Lang.
$07 = China	US
	Chinese
$09 = Korea	US
	Korean
$0A = India	US
$0B = Singapore	US
	Chinese
$0C = Malaysia	UK
$0D = Taiwan	Chinese
	US
$0E = Mexico	US
	Maxican Spanish
$0F = Russia	German
	Italian
	Swedish
	French
	Spanish
	Dutch
	Portuguese
	Norwegian
	Finnish
	Danish
	Greek
	Polish
	Turkish
	UK
	Russian
	Bulgarian
	Croatian
	Czech
	Hungarian
	Rumanian
	Slovak
	Slovenian
	Ukrainian
	Serbian
	Uzbek
$10 = Thailiand	US
	thai

Vehicle Setting Menu Tree is displayed by CAL DATA.

Menu Tree naming has 2cases.

- **Case1 > US English and the other languages**
- **Case2 > UK English and the other languages**

This is also selected by CAL DATA as left table.

Table 7. 2 Menu Tree(1)

Depth1	Depth 2 - NGF US(Case1)	Depth 2 - NGF UK(Case2)	Setting Value - NGF US(Case1)	Setting Value - NGF UK(Case2)
Climate and Air Quality	Auto Fan Max Speed	Auto Fan Max Speed	Low	Low
			Medium	Medium
			High	High
	Air Conditioning Mode	Climate control mode	Off	Off
			On	On
			Last Setting	Last Setting
	Air Quailty Sensor	Automatic Air Recirculation	Off	Off
			Low Sensitivity	Low Sensitivity
			High Sensitivity	High Sensitivity
	Pollution Control	Pollution Control	Off	Off
			On	On
	Auto Compartment Zone Temp	Temperature Zone at start	Single Zone	Single Zone
			Dual Zone	Dual Zone
			Last Setting	Last Setting
	Auto Cooled Seats	Auto Cooled Seats	Off	Off
			On	On
	Auto Heated Heats	Auto Heated Heats	Off	Off
			On	On
	Rear Zone Temp	Rear zone temperature	Rear Off	Rear Zone off
			Rear Mimic Front	Rear climate zone linked
			Rear Last Known	Rear zone last setting
	Auto Defog	Auto Demist	Off	Off
			On	On
	Auto Rear Defog	Auto Rear Demist	Off	Off
			On	On
	Elevated Idle	Elevated Idle	Off	Off
			On	On
	Engine Assisted Heating	Engine Assisted Heating	At Colde Outside Temperatures	At Colde Outside Temperatures
			At Very Cold Outside Temp	At Very Cold Outside Temperatures
	Engine Assisted Heating Plugged In	Engine Assisted Heating Plugged In	Off	Off
			On	On
	Ionizer	Ionizer	Off	Off
			On	On
	Auto Air Distribution	Auto Air Distribution	Direct Airflow	Direct Airflow
			Diffuse Airflow	Diffuse Airflow

Table 7. 2 Menu Tree(2)

Depth1	Depth 2 - NGF US(Case1)	Depth 2 - NGF UK(Case2)	Setting Value - NGF US(Case1)	Setting Value - NGF UK(Case2)
Collision / Detection System	Pedestrian Friendly Alert	Pedestrian Friendly Alert	Off	Off
			On	On
	Alert Type	Alert Type	Beeps	Beeps
			Safety Alert Seat	Safety Alert Seat
	Forward Collision Alert	Forward Collision Alert	Off	Off
			On	On
	Auto Collision Preparation	Collision Preparation	Off	
			Alert	Alert
			Alert and Brake	Alert and Brake
	Park assist	Park assist	Off	Off
			On	On
	Park assist	Park assist	Off	Off
			On	On
			On With Towbar Attached	On with towbar attached
	Rear Cross Traffic Alert	Rear Cross Traffic Alert	Off	Off
			On	On
	Go Notifier	Resume Cruise Alert	Off	Off
			On	On
	Side Blind Zone Alert	Side Blind Zone Alert	Off	Off
			On	On
	24GHz Radars	24 GHz radars	Off	Off
			On	On
	Lane Change Alert	Lane Change Alert	Off	Off
			On	On
	Seat Belt Tightening	Seat Belt Pre-tightening	Low	Low
			Normal	Normal
			Performance	Performance
			Locked	Locked
	Driver Drowsiness Detection	Driver Drowsiness Detection	Off	Off
			On	On

Table 7. 2 Menu Tree(3)

Depth1	Depth 2 - NGF US(Case1)	Depth 2 - NGF UK(Case2)	Setting Value - NGF US(Case1)	Setting Value - NGF UK(Case2)
Comfort and Convenience	Auto Memory Recall	Auto Memory Recall	Off	Off
			On	On
	Auto Memory Recall	Auto Memory Recall	Off	Off
			On - Driver Door Open	On - Driver Door Open
			On - At Ingnition On	On - At Ingnition On
	Easy Exit Driver Seat	Easy Exit Driver Seat	Off	Off
			On	On
	Easy Exit Steering Column	Easy Exit Steering Column	Off	Off
			On - Column Up	Column Up
	Easy Exit Steering Column	Easy Exit Steering Column	Off	Off
			On - Column In	Column In
			On - Column Up	Column Up
			On - Column In and Up	Column In and Up
	Easy Exit Options	Easy Exit Options	Off	Off
			On	On
	Chime Volume	Chime volume		
	Reverse Tilt Mirror	Auto mirror tilt in reverse	Off	Off
			On - Driver and Passenger	On - Driver and Passenger
	Reverse Tilt Mirror	Auto mirror tilt in reverse	Off	Off
			On - Driver and Passenger	On - Driver and Passenger
			On - Driver	On - Driver
			On - Passenger	On - Passenger
	Auto Mirror Folding	Comf. closing mirror fold	Off	Off
			On	On
	Personalization by Driver	Personalization by Driver	Off	Off
			On	On
	Rain Sense Wipers	Rain Sense Wipers	Disabled	Disabled
			Enabled	Enabled
	Auto Wipe in Reverse Gear	Rear auto wipe in reverse	Off	Off
			On	On

Table 7. 2 Menu Tree(4)

Depth1	Depth 2 - NGF US(Case1)	Depth 2 - NGF UK(Case2)	Setting Value - NGF US(Case1)	Setting Value - NGF UK(Case2)
Driving Mode	Steering	Steering	Auto	Auto
			City	City
	Suspention	Suspention	Auto	Auto
			City	City
	Traction	Traction	Auto	Auto
			City	City
Energy	Charge Port Door Release Pop-up	Charge Port Door Release Pop-up	Off	Off
			On	On
	Energy Summary Pop-up	Energy Summary Pop-up	Off	Off
			On	On
	Charge Status Feedback	Charge Status Feedback	Off	Off
			Horn Chirps	Horn Chirps
	Charge Cord Theft Alert	Charge Cord Theft Alert	Off	Off
			On	On
	Charge Power Loss Alert	Charge Power Loss Alert	Off	Off
			On	On
	ECO Indicator	ECO Indicator	Off	Off
			On	On

Table 7. 2 Menu Tree(5)

Depth1	Depth 2 - NGF US(Case1)	Depth 2 - NGF UK(Case2)	Setting Value - NGF US(Case1)	Setting Value - NGF UK(Case2)
Lighting	Vehicle Locator Lights	Exterior lighting by unlocking	Off	Off
			On	On
	Exit Lighting	Duration upon exit of vehicle	Off	Off
			30 Seconds	30 Seconds
			60 Seconds	60 Seconds
			120 Seconds	120 Seconds
	Left or Right Hand Traffic	Left or Right Hand Traffic	Left Hand Traffic	Left Hand Traffic
			Right Hand Traffic	Right Hand Traffic
	Left or Right Hand Traffic	Left or Right Hand Traffic	Left Hand Traffic	Left Hand Traffic
			Right Hand Traffic	Right Hand Traffic
			Automatic(GPS)	Automatic(GPS)
	Auto High Beam	Auto High Beam	Off	Off
			On	On
	Auto High Beam	Auto High Beam	Off	Off
			Normal Sensitivity	Normal Sensitivity
			Low Sensitivity	Low Sensitivity
	Adapter High Beam	Adapter High Beam	Off	Off
			On	On
	Adapter High Beam	Adapter High Beam	Off	Off
			Normal Sensitivity	Normal Sensitivity
			Low Sensitivity	Low Sensitivity
	Adapter Forward Lighting	Adapter Forward Lighting	Off	Off
			Corner and Curve Lighting	Corner and Curve Lighting
	Adapter Forward Lighting	Adapter Forward Lighting	Off	Off
			Corner and Curve Lighting	Corner and Curve Lighting
			Inteligent Light Distribution	Inteligent Light Distribution
	Adapter Forward Lighting	Adapter Forward Lighting	Off	Off
			Corner and Curve Lighting	Corner and Curve Lighting
			Inteligent Light Distribution	Inteligent Light Distribution
			GPS Assistance	GPS Assistance
	Daytime Tail Lights	Daytime Tail Lights	Off	Off
			On	On

Table 7. 2 Menu Tree(6)

Depth1	Depth 2 - NGF US(Case1)	Depth 2 - NGF UK(Case2)	Setting Value - NGF US(Case1)	Setting Value - NGF UK(Case2)
Power Door Locks	Unlocked Door Anti Lock Out	Stop door lock if door open	Off	Off
			On	On
	Auto door lock	Auto Door Lock	Off	Off
			On	On
	Auto door unlock	Auto door unlock	Off	Off
			Driver Door	Driver door
			All Doors	All Doors
	Auto door unlock	Auto door unlock	Off	Off
			Driver Door	Driver door
			All Doors	All Doors
	Delayed Door Lock	Delayed Door Lock	Off	Off
			On	On

Table 7. 2 Menu Tree(7)

Depth1	Depth 2 - NGF US(Case1)	Depth 2 - NGF UK(Case2)	Setting Value - NGF US(Case1)	Setting Value - NGF UK(Case2)
Remote Lock, Unlock, Start	Remote Unlock Light Feedback	Remote Unlock Feedback	Off	Off
			Flash Lights	Flash Lights
	Remote Lock Feedback	Remote lock feedback	Lights Only	Lights only
			Lights and Horn	Lights and Horn
			Horn Only	Horn Only
			Off	Off
	Remote Door Unlock	Remote Door Unlock	Driver Door	Driver door
			All Doors	All Doors
	Remote Start	Vehicle Remote Start	Off	Off
			On	On
	Remote Start Auto Cool Seats	Remote Start Auto Cool Seats	Off	Off
			On	On
	Remote Start Auto Cool Seats	Remote Start Auto Cool Seats	Off	Off
			On - Driver and Passenger	On - Driver and Passenger
			On - Driver	On - Driver
	Remote Start Auto Heat Seats	Warm seats at remote start	Off	Off
			On	On
	Remote Start Auto Heat Seats	Warm seats at remote start	Off	Off
			On - Driver and Passenger	On - Driver and Passenger
			On - Driver	On - Driver
	Remote Window Operation	Remote Window Operation	Off	Off
			On	On
	Passive Door Unlock	Passive Door Unlock	Driver Door Only	Driver Door Only
			All Doors	All Doors
	Passive Door Lock	Passive Door Lock	Off	Off
			On	On
			On With Horn Chirp	Horn On Passive door Lock
	Remote Left in Vehicle Reminder	Remote Left in Vehicle Alarm	Off	Off
			On	On
	Sliding Door Selection	Unlock Sliding Door	Courtesy	Courtesy
			Security	Security

Table 7. 2 Menu Tree(8)

Depth1	Depth 2 - NGF US(Case1)	Depth 2 - NGF UK(Case2)	Setting Value - NGF US(Case1)	Setting Value - NGF UK(Case2)
Sport Mode Setting	HVAC Remote Start Setting	HVAC Remote Start Setting	Automatic	Automatic
			Last Setting	Last Setting
	Sport Mode Back Lighting	Swap backlight colour main instr.	Off	Off
			On	On
	Powertrain Performance	Sport powertrain performance	Normal Off	Normal Off
			Sport	Sport
	Speed Scale Illumination	Speed Scale Illumination	Full	Full
			Partial	Partial
Return to Factory Settings				
Valet Mode				

Exceptions>

Driving School is located on the vehicle settings.

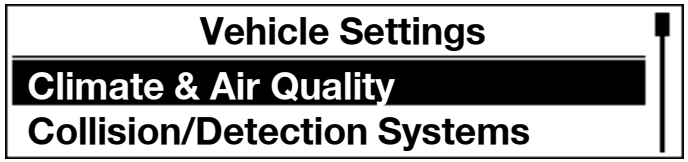
But this is displayed by CAL DATA (D2XX Model / some region only supported)

The user selects the driving school On/Off.

If the driving school is set On, All of Now playing viewing is displayed the vehicle speed as below image.

(the speed unit (mph or Km/h) is also chosen by CAL DATA.)

Figure 7.1.1 - Vehicle Settings menu



7.1 Main Settings View

The vehicle settings submenus can be accessed from most menus in the system. It is located at the bottom of every menu, such as the FM menu.

When selected from a source menu, a list of vehicle settings is displayed.

The Settings Application contains global settings for the vehicle. The various settings consist of the following areas in the following order as detailed in this chapter:

Climate & Air Quality
Collision/Detection System
Comfort & Convenience
Driving Mode
Energy
Languages
Lighting
Power Door Locks
Remote Lock, Unlock, & Start
Return to Factory Settings
Software Information
Time & Date (also shown in all audio menus)
Valet Mode

Time & Date, Bluetooth, and Radio Settings are found under the main menu of the appropriate source modes.

Figure 7.4.1 - Vehicle Settings menu

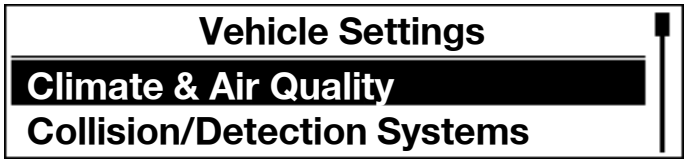


Figure 7.4.2 - Vehicle Settings menu

Figure 7.4.3

7.2 Vehicle Settings Menus

The Vehicle Settings are structured in a menu-list structure. Menu options are highlighted by rotating the faceplate knob and selected by pressing the knob. Pressing the BACK switch on the faceplate will bring the user up one level in the Settings menu.

7.3 Vehicle Settings Category Items

The top level within the Vehicle Settings menu is the main vehicle categories.
Each category contains groups of settings with related functionality. The category and settings structures are intended to be compatible with the Global A vehicle electrical architecture.

7.4 Vehicle Settings Menu Items

Within each vehicle category the individually related settings items are grouped together, as shown in “Figure 7.4.3”.
Individual settings are selected by rotating the faceplate knob and selected by pressing the knob. Selecting an individual setting will present the setting selection screen specific to that setting.

Figure 7.6.1 - Settings Selection

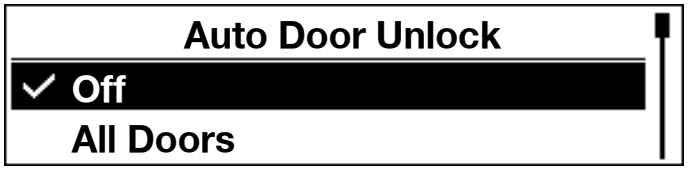
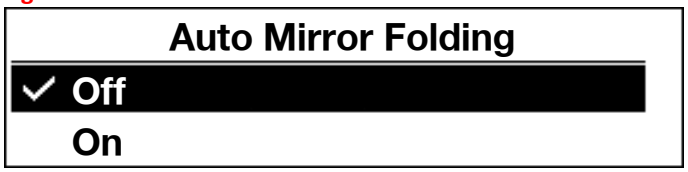


Figure 7.6.2 -



7.5 Setting Selection Screen

Every available vehicle setting will have its own setting selection screen, with the options listed for that setting, as provided by the Global A FU Class Interface for vehicle modules with customization options.

Options that only have an ON / OFF option still have a setting selection screen. Examples are shown in “Figure 7.6.1 and 7.6.2.

A setting is made by rotating the faceplate knob and set by pressing the knob. The set indicator moves to indicate the newly selected setting. The system remains in the current setting selection screen until the user selects a different screen from the faceplate.

7.6 Unused Category Labels

In the case where a category has no available sub-items due to vehicle configuration (e.g. Driving Mode, Sport Mode, Hybrid, etc.), the category label should be dynamically removed from the list view.

Figure 7.7.1 - Valet mode entry screen

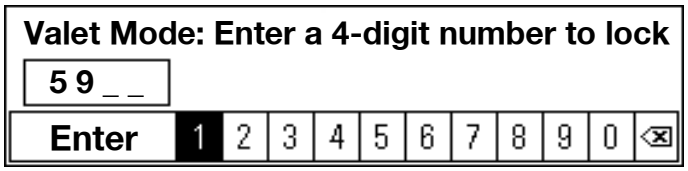


Figure 7.7.2 - valet mode insufficient digits pop-up

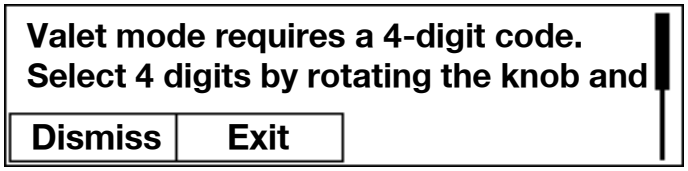
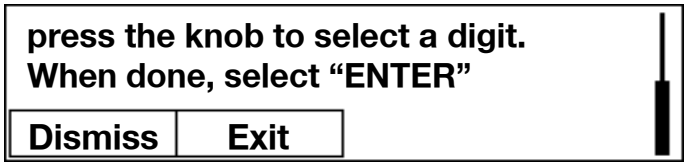


Figure 7.7.3 - valet mode insufficient digits pop-up (continued)



7.7 Valet Mode

Valet Mode within the Settings application provides the user the option to lock out the Infotainment system and place other vehicle systems into Valet Mode, using a user-set 4-digit combination, functioning similar to a hotel safe.

Pressing the BACK switch on the faceplate will bring the user back to the Settings menu and clear any digits in the entry field.

7.7.1 Valet Mode Combination Entry Screen (lock)

When Valet Mode is selected from the settings menu list, the screen displays a numeric entry prompting the user to select a 4-digit valet mode code. The user enters a 4-digit code of their choosing using the rotary control and selects digits by pressing the knob. The user selects “ENTER” when complete via the rotary knob or soft-key.

Selecting “DEL” during entry deletes one digit or pressing and holding “DEL” for the standard press and hold timing to clear all entered digits.

If fewer than four digits are entered and ENTER is selected, a pop-up will be presented to the user describing the need for four digits, with the options to DISMISS the pop-up or EXIT the Valet Mode entry screen.

Figure 7.7.4 - Valet mode confirmation

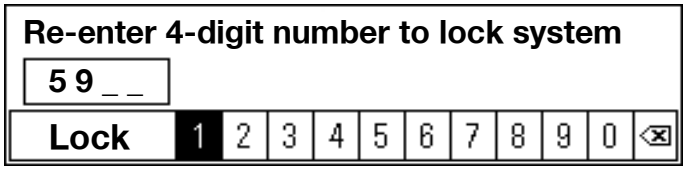
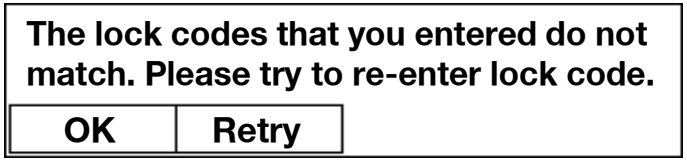


Figure 7.7.5 - valet lock codes do not match pop-up



To confirm that the user has correctly entered the code of their choosing, the system then displays a code confirmation screen, requiring the user to enter their code a second time, and press “LOCK” when complete. The user is again able to use the backspace in the confirmation to delete one digit (press) or to clear all digits (hold).

If the user does not enter the same code in the code confirmation screen, the system presents the user with the “Codes Do Not Match” popup (see “Figure 7.7.5”). Pressing “Retry” from this popup will take the user to the code confirmation screen. Pressing OK will take the user to the Settings Menu showing the Valet Mode option, allowing the user to start over.

Upon successfully entering a 4-digit code and choosing “LOCK”, the combination will flash the combination for 3 seconds at a 1 hertz rate and then switch to the System Locked display.

Figure 7.7.6 - Valet mode Active

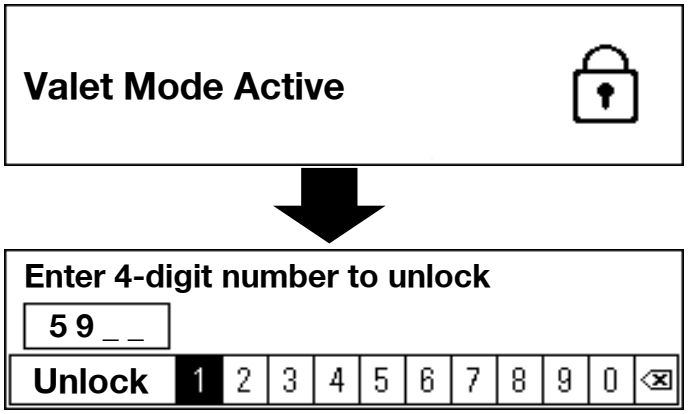
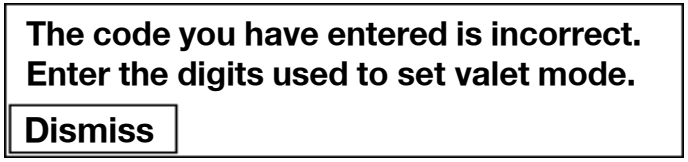


Figure 7.7.7 - valet lock codes do not match pop-up



7.7.2 Valet Mode System Locked Screen

When the system is locked in Valet Mode,
the screen displays the locked Viewing as figure 7.7.6

If the user presses/rotates any key/knob,
the screen displays a numeric entry prompting the user to enter
the 4-digit valet mode unlock code.
The user enters a 4-digit code of their choosing using the wrap-around rotary control and selects digits by pressing the knob.

The user selects “Unlock” when complete via the rotary knob or soft-key. Selecting “DEL” during entry deletes one digit or pressing and holding “DEL” for the standard press and hold timing to clear all entered digits.
If fewer than four digits are entered or the incorrect combination is entered, a pop-up will be presented to the user detailing the error, with the option to DISMISS the pop-up.

Upon successfully entering the 4-digit code and choosing “UNLOCK”, the system will release Valet Mode and return the user to the last used screen. For the case where a user has locked the system and does not remember their lock code, there is a CPID provided such that a dealer is able to override the lock code and unlock the system.

When the System Locked screen is displayed, all functions (other than the rotary knob and UNLOCK soft-key) are locked out (this includes the visual screens, as well as the main audio). All Alerts and Pop-ups should be suppressed when Valet Mode is enabled. Vehicle chime functions remain enabled.

The HVAC fan speed pop-up and OnStar advisor audio functions (if equipped) are not disabled and may be displayed.

When in Valet Mode the volume control can still be adjusted by the user for OnStar phone (VG_PHONE) and OnStar emergency phone (VG_EMERGENCY_ PHONE) usage, if applicable.

Additionally, when valet mode is turned on, the system will shut down Bluetooth and disconnect all devices. When valet mode is successfully turned off, the system will enable Bluetooth and reconnect all previously connected devices.

Figure 7.8.1 -

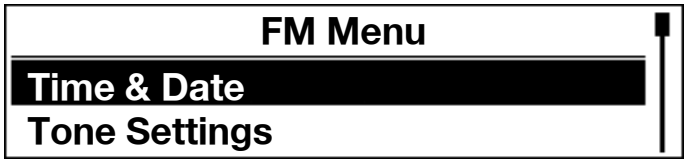
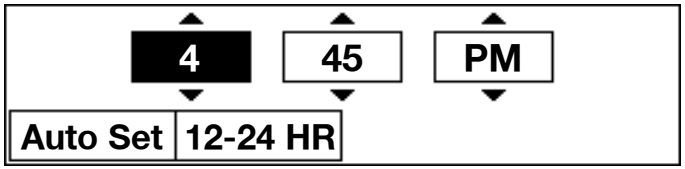


Figure 7.8.2 -

Figure 7.8.3 -



7.8 Time And Date Settings

The Time and Date Setting within the Settings application provides a method for setting the clock shown in the CenterStack display. Pressing the BACK switch on the faceplate will bring the user back to the Settings menu.

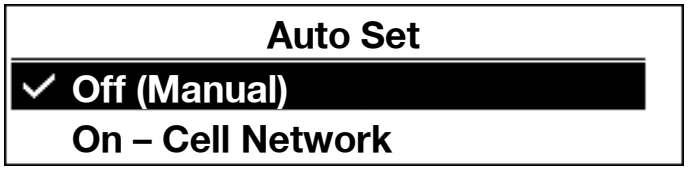
7.8.1 Set Time Screen

The Set Time screen has individual entries for HOURS, MINUTES, and AM/PM. Each of the entries is adjusted by rotating the faceplate knob when the desired entry is selected (clockwise increments, counter-clockwise decrements). The actual system time does not update until this screen is exited.

When entering the Set Time screen, the HOURS setting is selected. The user is able to advance to the next entry by pressing the knob--after the AM/PM entry is selected and the user presses the knob, the system time is updated and the user is returned to the Settings menu. If the vehicle is calibrated to a 24 hour clock, the AM/PM setting option is not shown and the screen exits after pressing the knob on the set MINUTES. (The user is able to toggle between 12 and 24 hour mode via the 12-24 HR mode softkey.)

The user is able to exit the Set Time screen through multiple methods: BACK button, pressing the knob on the AM/PM entry, or any other valid button on the faceplate that invokes a screen change. Regardless of the exit method, the system time is updated to whatever the user has adjusted in the Set Time screen.

Figure 7.8.4 -



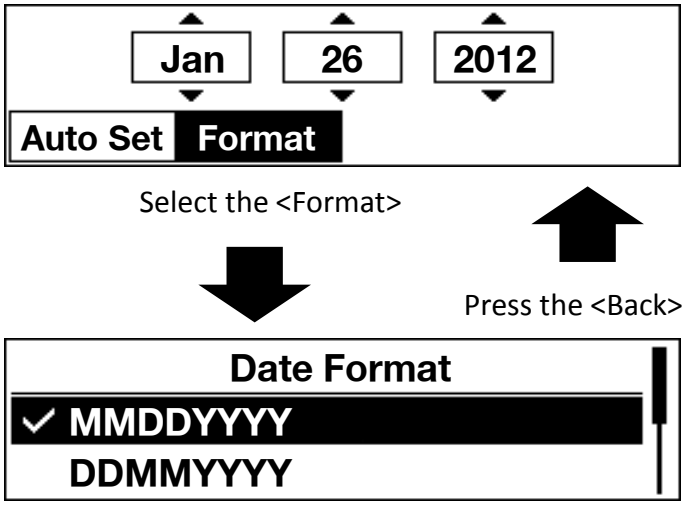
All regions will display AM/PM (English characters) in the Set Time screen if 12-hour mode is selected, regardless of Language Selection.

All regions will display a colon ":" for the minute/hour separator in both 12 and 24 hour mode. No leading zeroes should be shown in the hours field in both 12 and 24 hour mode (minutes field should show leading zero, when appropriate).

The system is able to provide Auto Set functionality for the Time. The system indicates Auto Set On by displaying the Auto Set indicator soft-key as the selected state. Tapping on the Auto Set button will bring up the Auto Set menu where the user can select an Auto Set On source or manually turn Auto Set Off. The menu should display only those sources calibrated as available.

The user is able to manually set a time, regardless if Auto Set is enabled or disabled, however, If Auto Set was enabled and the user adjusts the time, the system will be set to Manual mode (Note: In this case, the system must first change the system time mode to Manual and then send the time set by the user).

Figure 7.8.5 -



7.8.2 Set Date Screen

The Set Date screen has individual entries for MONTHS, DAYS, and YEARS. Each of the entries is adjusted by rotating the faceplate knob when the desired entry is selected (clockwise increments, counter-clockwise decrements). The actual system date does not update until this screen is exited. When entering the Set Date screen, the MONTH setting is selected. The user is able to advance to the next entry by pressing the knob--after the YEARS entry is selected and the user presses the knob, the system date is updated and the user is returned to the Settings menu.
The user is able to exit the Set Date screen through multiple methods: BACK button, pressing the knob on the YEARS entry, or any other valid button on the faceplate that invokes a screen change. Regardless of the exit method, the system date is updated to whatever the user has adjusted in the Set Date screen. The system is able to provide Auto Set functionality for the Date.

The system indicates Auto Set On by displaying the Auto Set indicator soft-key as the selected state. Tapping on the Auto Set button will bring up the Auto Set menu where the user can select an Auto Set On source or manually turn Auto Set Off. The menu should display only those sources calibrated as available.

The user is able to manually set a date, regardless if Auto Set is enabled or disabled, however, If Auto Set was enabled and the user adjusts the date, the system will be set to Manual mode
(Note: In this case, the system must first change the system date mode to Manual and then send the date set by the user).

- Date Format List : If the user presses the <Format>Key.
  MMDDYYYY
  DDMMYYYY
  YYYYMMDD

Enum	Language	separator	DDMMYYYY	MMDDYYYY	YYYYMMDD
0	US English	slash		11/20/2008	
1	German	dot	20.11.2008		
2	Italian	slash	20/11/2008		
3	Swedish	hyphen			2008-11-20
4	French	slash	20/11/2008		
5	Spanish	slash	20/11/2008		
6	Dutch	hyphen	20-11-2008		
7	Portuguese	slash	20/11/2008		
8	Norwegian	hyphen			2008-11-20
9	Finnish	dot	20.11.2008		
10	Danish	hyphen	20-11-2008		
11	Greek	slash	20/11/2008		
12	Japanese	hyphen			2008-11-20
13	Std. Chinese	hyphen			2008-11-20
14	Polish	dot	20.11.2008		
15	Turkish	slash	20/11/2008		
16	Korean	slash			2008/11/20
17	Trad. Chinese	hyphen			2008-11-20
18	UK English	slash	20/11/2008		
19	Arabic	slash	20/11/2008 ٢٠/١١/٢٠٠٨		
20	Hungarian	dot			2008.11.20
21	Czech	hyphen	20-11-2008		
22	Slovak	dot	20.11.2008		
23	Russian	dot	20.11.2008		
	Brazilian	slash	20/11/2008		
	Bulgarian	dot	20.11.2008		
	Romanian	dot	20.11.2008		
	Slovenian	dot	20.11.2008		
	Croatian	dot	20.11.2008		
	Ukrainian	dot	20.11.2008		
	Estonian	dot	20.11.2008		
	Latvian	dot	20.11.2008		
	Lithuanian	hyphen			2008-11-20

Figure 7.8.6 - Date Format Table

7.8.3 Date Format

The user set language setting for the system will determine the date format that will be displayed, including both the separator character (slash, dot or hyphen) and the MONTH / DAY / YEAR ordering. The date is displayed according to the blue highlighted information shown in “Figure 7.8.6”.

A leading zero for month and day shall be used for the numeric version for all languages even though some countries do not use this as standard. This is to reduce complexity. The year shall always be four digits to reduce ambiguity.

Note: For Arabic, the date format is the Little Endian form (DDMMYYYY), as shown in the table. However, due to the direction of the Arabic text, the DD starts on the Right and ends with the YYYY on the left. The correctly displayed translated view is shown in the table.

7.9 Settings Menus for Vehicle Settings

The following lists depicts the superset of Settings for vehicle settings found in faceplate radio systems. The information reflects the desired order and preferred text to be shown on the display.

Not all settings apply to all system levels and vehicle configurations.

For system configurations (vehicle and Infotainment) that do not support a listed feature, the menu item/ sub-menu should not be shown.

While this represents the superset of features, with preferred order and text, the system should be architected such that items can easily be removed (hidden) from the menu structure, placed in a different location within the menu, and renamed, based on usability testing during development.

7.9.1 Vehicle Settings Spec Format

For each of the following sections, the main section number (eg, 7.9.2) will represent the main option under the vehicle settings menu. Listed under each of these sections will be the submenu list items available for those main vehicle settings. Please refer to sections 7.2 through 7.5 for wireframe examples.

Duplicate items in a settings menu are noted as “based on calibration” to indicate one or the other is presented in the menu depending on the vehicle calibrations file.

7.9.2 Driving Mode Menus

Engine Sound Management (Menu Header)
- Auto
- City
- Off

Steering
- Auto (mode selector)
- Eco
- City

7.9.3 Climate and Air Quality Settings

Auto Fan Max Speed (Menu Header)
- Low
- Medium
- High

Air Conditioning Mode
- Off
- On
- Last Setting

Air Quality Sensor
- Off
- Low Sensitivity
- High Sensitivity

Pollution Control
- Off
- On

Auto Compartment Zone Temp
- Single Zone
- Dual Zone
- Last Setting

Auto Cooled Seats
- Off
- On

Auto Heated Seats
- Off
- On

Rear Zone Temp
- Rear Off
- Rear Mimic Front
- Rear Last Known
Auto Defog
- Off
- On
Auto Rear Defog
- Off
- On
Elevated Idle
- Off
- On
Engine Assisted Heating
- At Cold Outside Temperatures
- At Very Cold Outside Temperatures
Engine Assisted Heating Plugged In
- Off
- On

7.9.4 Collision/Detection Systems

Pedestrian Friendly Alert
- Off
- On

Alert Type
- Beeps
- Safety Alert Seat

Forward Collision Alert
- Off
- On

Auto Collision Preparation
- Off
- Alert
- Alert & Brake

Park Assist
- Off
- On

Rear Cross Traffic Alert
- Off
- On

Go Notifier
- Off
- On

Side Blind Zone Alert
- Off
- On

Lane Change Alert
- Off
- On

Seat Belt Tightening
- Low
- Normal
- Performance
- Locked

7.9.5 Comfort and Convenience

Auto Memory Recall
- Off
- On

Easy Exit Driver Seat (shown when EXIT button NOT available)
- Off
- On

Easy Exit Steering Column (shown when EXIT button NOT available for tilt/telescoping steering wheel)
- Off
- On - Column In
- On - Column Up
- On - Column In & Up

Easy Exit Steering Column (shown when EXIT button NOT available for tilt steering wheel)
- Off
- On - Column Up

Chime Volume
- Variable Volume Setting

Note: The variable volume setting selection is on a 63-level volume curve. Minimum and Maximum thresholds.

Reverse Tilt Mirror
- Off
- On

Auto Mirror Folding
- Off
- On

Personalization by Driver
- Off
- On

Rain Sense Wipers
- Disabled
- Enabled

Auto Wipe in Reverse Gear
- Off
- On

7.9.6 Energy

Charge Port Door Release Pop-up
- Off
- On

Energy Summary Pop-up
- Off
- On

Charge Status Feedback
- Off
- Horn Chirps

Charge Cord Theft Alert
- Off
- On

Charge Power Loss Alert
- Off
- On

ECO Indicator
- Off
- On

7.9.7 Lighting

Vehicle Locator Lights
- Off
- On

Exit Lighting
- Off
- 30 Seconds
- 60 Seconds
- 120 Seconds

Left or Right Hand Traffic (Note: default for Left hand Traffic country of sale)
- Left Hand Traffic
- Right Hand Traffic

Auto High Beam (based on calibration)
- Off
- On

Auto High Beam (based on calibration)
- Off
- Normal Sensitivity
- Low Sensitivity

Daytime Tail Lights
- Off
- On

7.9.8 Power Door Locks

Unlocked Door Anti Lock Out
- Off
- On

Auto Door Lock
- Off
- On

Auto Door Unlock
- Off
- All Doors
- Driver Door

Delayed Door Lock
- Off
- On

7.9.9 Remote Lock, Unlock, Start

Remote Unlock Light Feedback
- Off
- Flash Lights

Remote Lock Feedback
- Off
- Lights and Horn
- Lights Only
- Horn Only

Remote Door Unlock
- All Doors
- Driver Door

Relock Remotely Unlocked Doors
- Off
- On

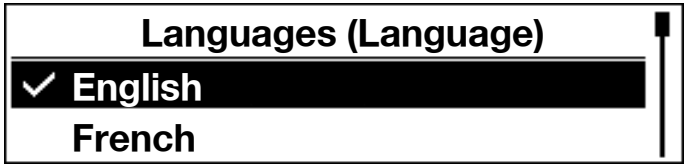
Remote Start
- Off
- On

Remote Start Auto Cool Seats (based on calibration)
- Off
- On

Remote Start Auto Cool Seats (based on calibration)
- Off
- On - Driver & Passenger
- On - Driver

Remote Start Auto Heat Seats (based on calibration)
- Off
- On
Remote Start Auto Heat Seats (based on calibration)
- Off
- On - Driver & Passenger
- On - Driver
Remote Window Operation
- Off
- On
Passive Door Unlock
- All Doors
- Driver Door Only
Passive Door Lock
- On
- On with Horn Chirp
- On
Remote Left in Vehicle Reminder
- Off
- On

Figure 7.9.1 -



7.9.10 Languages

The Language Setting from the main Settings Menu level allows the user to set the Language for the system. The languages displayed to the customer are calibrated to show only those languages available for the region where the vehicle is sold.

The list of available languages shown are the available Display Languages (for the given region as defined within the component specific CTS). The system only shows a single language list and selection. When the user selects a language, the system internally sets this selected language for the display's language.

Note: The "Language" list selection in the main settings list and the list header in the Language setting appears in the chosen display language followed by the English form "(Language)" (e.g. when set to French the system displays "Langue (Language)"). When set to English, the system will show "Language (Language)".

For the displayed system languages, each language is always shown in its mother tongue, regardless of display language chosen (e.g. when set to English, the system still displays "Spanish" as "Español"). This is accomplished entirely within the text translation tables.

7.9.11 Unable to Render Fonts

If the font cannot be rendered by the system, the use of asterisks is acceptable.

Figure 8.1.1 -

Figure 8.1.2 -

Figure 8.1.3 -

8.1 Pop-up Widget

The Pop-ups Widget in the Base system is used to present:
• Time critical, asynchronous information to the user that requires attention or input from the user
• Information to the user in response to some interaction that the user has just performed

Unless specified differently in an application, Pop-ups are presented to the user as a full screen information window. When present, Pop-ups take screen priority, with the exception of Safety displays (e.g. Rear Vision Camera).

The Pop-up window will have no transparency, allowing no underlying information to be visible.

Pop-ups contain at least one dismiss soft-key, but may have several dismiss options, based on the pop-up. Typically, the leftmost soft-key will be highlighted by default. For pop-up messages where only one soft-key is used, the soft-key is highlighted by default.

These dismiss options are defined within the individual application sections of this document.

Refer to individual application sections for more details.

8.1.1 Auto Dismiss

Pop-ups are always set to auto-dismiss to avoid forcing the user to respond to the given information. In order to offer the user time to read the presented information, pop-ups will auto-dismiss in 10 seconds (calibratable), if not explicitly dismissed by the user. In certain cases, a pop-up may remain persistent when an outside stimulus is present and immediately dismiss when the stimulus is removed (e.g., if Incoming Phone Call rolls into voicemail, RDS Traffic Announcement (Europe only), or PTY31 Alert (Europe only)).

8.1.2 User Interaction Outside of Pop-up Soft-Keys

Whenever a pop-up or alert is displayed in the 4.2" display, all faceplate and steering wheel control inputs are ignored (including the Favorite softkeys that are not associated with the pop-up/alert actions) with the following exceptions:

1. The Volume controls (both from the faceplate and the SWC) are allowed; the pop-up/alert continues to be displayed and the volume is adjusted in the background without showing a volume status pane.

2. The Power button on the faceplate is allowed and will mute the system with a short press and "power down" the system with a long press (i.e,. go to "clean screen").

Figure 8.1.4 -

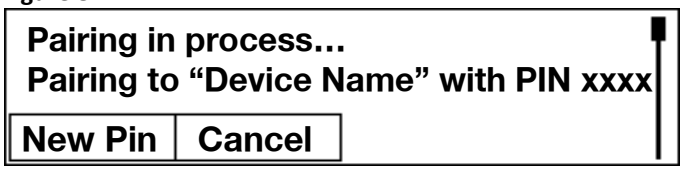
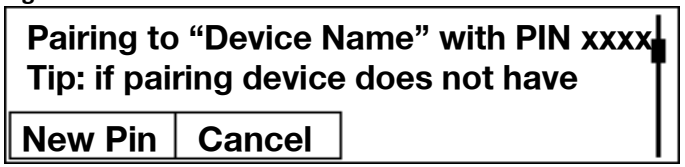


Figure 8.1.5 -



3. The Mute button on the SWC is allowed and will mute/unmute the system; the pop-up/alert continues to be displayed.

4. The TUNE/MENU Rotary-push knob allows the remainder of the pop-up to be scrolled if it does not fit in the 2 lines of text assigned. A scroll bar is present in these scenarios and each detent of rotation of the rotary knob moves one line down the pop-up for clockwise rotation and one line up in the counter clockwise direction.

8.1.3 Back button behavior in pop-ups

The back button may be used to dismiss a popup. When the popup appears, the user may press the BACK button on the faceplate. The popup is dismissed and acts the same as if it was auto dismissed. If there is a popup defined in an application without auto dismiss capability, the BACK button has no functionality and the button input is ignored.

8.1.4 Delayed Dismiss Soft-Key Presentation

When a pop-up is activated for the display, the Pop-up Title and Pop-up Detail will immediately be displayed with the Pop-up Audio Prompt. The display of the dismissal buttons is suspended for 1500 msec (calibratable) to prevent the user from inadvertently dismissing the pop-up in an unintended fashion.

8.1.5 Pop-up Queuing

If a pop-up is currently displayed and a pop-up of the same or lower priority is triggered, the newly triggered pop-up display will be queued for presenting to the user once the higher priority pop-up(s) is dismissed.

If a pop-up is currently displayed and a pop-up higher priority is triggered, the newly triggered, higher priority pop-up display and audio will be immediately conveyed to the user. The previously displayed pop-up becomes queued for display again after the higher priority display is dismissed. The auto dismiss timer is reset when the original pop-up is again displayed.

Multiple pop-ups can become queued. If this happens, they are presented to the user in the following sorted sequence: pop-up priority (high to low) then pop-up trigger sequence (oldest to newest).

9. STATUS WIDGET

Figure 9.1.1 - FM and DA B Status Area

Figure 9.1.2 - Media Sources Status Area

9.1.1 Status Widget

The Status widget is shown across the upper portion of every screen in the interface with the exception of a list view, when the system is powered on.

This information resides to the left of the time status.

For AUDIO sources, the following status icons could be displayed depending on system settings or user actions:

TP status (excluding AM)
Audio muted
Shuffle mode active (Media sources only)

For PHONE sources, the following status icons could be displayed depending on system settings or user actions:
Bluetooth status

Battery strength of the outgoing source
Signal strength of the outgoing source
Roaming status of the outgoing source

Please see the phone section for more detailed usage of these icons.

Audio source icons are not required in phone views.

Phone icons are not required in audio views.

Figure 10.1.1 - Fan Speed Pop-up

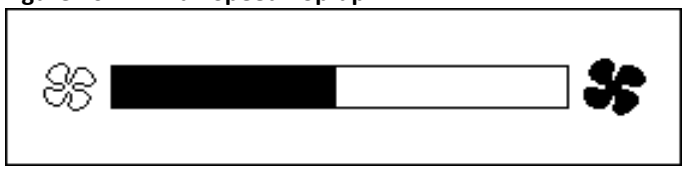
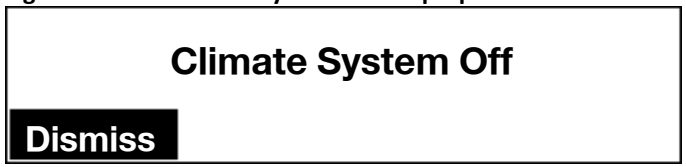


Figure 10.1.2 - Climate System OFF Pop-up



10.1.1 Fan Speed Pop-up

If the HVAC faceplate does not contain visual feedback of the fan speed, a pop-up showing the fan speed can be displayed. This pop-up can calibrated on or off as needed by vehicle platform.

10.1.2 HVAC System Off Pop-up

The pop-up shown in figure 10.1.2 is to be displayed when users have turned off the HVAC system via the faceplate controls.

Voice Command Popup

11.1 CONNECTING

- When there's the PTT press-and-Hold interaction on the SWC or the HOME button on the iPhone is press- and hold, Siri will be activated.
- After Siri is activated, then Siri pop up will be displayed.
- The Siri "double ring" must be heard whenever a Siri session is initiated except RVC, OnStar or incoming call mode. During the RVC mode, Siri is activated with only beep sound without the activated popup. When RVC mode is finished, then Siri activated popup should be displayed on previous mode screen.
- Siri mode is terminated in such cases;
  - When tapping the cancel button on the siri operation popup
  - When pressing the mute key on the SWC
  - In case of pressing the home button on the iPhone

1) Main Menu at the Hands-Free Calling Menu in OnStar

Conditions	Mode	1depth	2depth	3depth	4depth	5depth	GUI Elements	Option Values
Normal 	OnStar Main Menu	Hands-Free Calling	Call	Call Nametag	[Say the Nametag]	(Enter Number (Said Nametag Number) Pop-up)	Action Item	
					Cancel		Action Item	
				New Number		(Enter Number Pop-up)	Action Item	
				Cancel			Action Item	
			Directory	List			Action Item	
				Store		(Enter Number Pop-up)	Action Item	
				Delete	[Say the Nametag]		Action Item	
					Delete All Nametags	(Selective Pop-up)	Message Item	Yes, No
					Cancel		Action Item	
				Delete All Nametags		(Selective Pop-up)	Message Item	Yes, No
				Store Last Number		(Enter Number Pop-up)	Action Item	
				Cancel			Action Item	
			Redial			(Enter Number(Redial) Pop-up)	Action Item	
			Store			(Enter Number Pop-up)	Action Item	
			Minutes	Verify			Action Item	
				Add			Action Item	
				Cancel			Action Item	
			Cancel				Action Item	

(Continue)

1) Main Menu at the Hands-Free Calling Menu in OnStar

Conditions	Mode	1depth	2depth	3depth	4depth	5depth	GUI Elements	Option Values
Normal 	OnStar Main Menu	Turn-by-Turn Directions	Plan Route	[Say the nametag]			Action Item	
				Cancel			Action Item	
			Directory	List			Action Item	
				Store			Action Item	
				Delete	[Say the Nametag]		Action Item	
					Delete All Nametags	(Selective Pop-up)	Message Item	Yes, No
					Cancel		Action Item	
				Delete All Nametags		(Selective Pop-up)	Message Item	Yes, No
				Cancel			Action Item	
			Store Destination				Action Item	
			Cancel				Action Item	
		OnStar Info	Messages				Action Item	
			Minutes	Verify			Action Item	
				Add			Action Item	
				Cancel			Action Item	
			My Number			(Enter Number (My Number) Pop-up)	Action Item	
			Cancel				Action Item	
		Virtual Advisor					Action Item	
		Cancel					Action Item	
Normal 	Connnecting to Onstar						Action Item	
Normal 	Connnecting to Onstar Emergency						Action Item	

2) On TBT Mode, If the end-user presses the <Menu> Knob

Conditions	Mode	1depth	2depth	3depth	4depth	5depth	GUI Elements	Option Values
TBT Mode, <Menu>Knob	Turn-by-Turn Menu	Repeat					Action Item	
		Route Preview					Action Item	
		Destination Information					Action Item	
		Cancel Route Directions					Action Item	
		Mute Directions					Selective Item	OFF, ON

3) On TBT Mode, If the end-user presses the <Hands-Free Calling> Key and goes to the Turn by Turn Directions

Conditions	Mode	1depth	2depth	3depth	4depth	5depth	GUI Elements	Option Values
TBT Mode, <Hands-Free Calling> Key 	Turn-by-Turn Menu	Cancel Route					Action Item	
		Get My Destination					Action Item	
		Route Preview					Action Item	
		Mute Directions					Action Item	(Mute/Unmute)
		Store Destination					Action Item	
		Cancel					Action Item	

GM NGF Entry Radio Features – OnStar Only (End-user's View)

	Keys		User Gesture	Conditions				
				NGF Mode (Not OnStar)	OnStar TTS-ing (*)	OnStar Menu (Hands Free Calling, TBT Menu etc.)	TBT Mode	Incoming/Dialing/Outgoing (with OnStar / Emergency)
Faceplate Key	<POWER/Mute/Vol>		|Short Press|↓↑	N/A (Refer to the GIS-403)	X	X	Mute(B/G Audio Only)	X
			|Long Press|↓		X	X	Power Off(TOD Mode)	X
			|Rotate| ^		Volume_Control			Volume_Control
	<RADIO>		|Short Press|↓↑		X	X	Radio Band Toggle (TBT B/G(**))	X
	<MEDIA>		|Short Press|↓↑		X	X	Media Mode Toggle (TBT B/G)	X
	<|◄◄ ►►|>		|Short Press|↓↑		X	X	B/G Radio or Media Trick (TBT On)	X
			|Long Press|↓		X	X		X
	<PHONE>		|Short Press|↓↑		X	X	Go to the Phone Mode (TBT B/G)	X
	<BACK>		|Short Press|↓↑		X	Back / Cancel_Control	Radio/Media/Phone <-> TBT Mode Toggle	X
	<FAV>		|Short Press|↓↑		X	X	On the Radio, Fav list	X
	<->		|Short Press|↓↑		X	X	On the Radio, Preset	Soft button
	<->		|Short Press|↓↑		X	X		
	<->		|Short Press|↓↑		X	X		
	<->		|Short Press|↓↑		X	X		
	<->		|Short Press|↓↑		X	X		
	<Menu>		|Short Press|↓↑		X	Confirm	Go to the TBT Menu	X
			|Rotate| ^		X	Highlight Move_Control	X	X
OnStar Key	<Hands Free Calling>		|Short Press|↓↑	Go to the OnStar Hands-Free Calling Menu	Exit the OnStar Hands-Free Calling Menu		Go to the OnStar Hands-Free Calling Menu	Call Ended (Exit the OnStar Hands-Free Calling Menu)
	<OnStar>		|Short Press|↓↑	Connect to the OnStar				Current Call Ended (Connect to the OnStar)
	<Emergency>		|Short Press|↓↑	Connect to the Emergency OnStar				Current Call Ended (Connect to the Emergency OnStar)
SWC Key	2.0F	<Vol Up/Donw>	|Short Press|↓↑	N/A (Refer to the GIS-403)	Volume_Control			
		<Source>	|Short Press|↓↑		X	Confirm	Radio Band/Media Source Toggle (B/G TBT On)	X
		<Source Up>	|Up|↓		X	Highlight Move Up_Control	B/G Radio or Media Trick (TBT On)	X (TBD : 다자콜 Swap 처리)
		<Source Down>	|Down|↓		X	Highlight Move Down_Control		X (TBD : 다자콜 Swap 처리)
		<Mute>	|Short Press|↓↑		X	X	Mute(B/G Audio Only)	Mic Mute/Unmute
	2.1F	<Mute/Hang up>	|Short Press|↓↑		X	X		Current Call Ended / (Incoming Call) Decline
	2.1F	<Phone>	|Short Press|↓↑		X	X	Go to the Phone Mode (TBT B/G)	(Incoming Call) Accpet
	Beyond 2.1F (TBD)	<Phone/SR>	|Short Press|↓↑		X	X	1) Normal Case : Go to the Phone Mode (TBT B/G) 2) Siri Active Case : Siri Cancel	(Incoming Call) Accpet
			|Long Press|↓		X	X	Siri Active	X

(*) TTS-ing : text to speech on the OnStar Menu Triggering / (**) B/G : Background Playing

OnStar Buttons

BUTTONS

1. Hands-Free Calling
2. OnStar
3. Emergency

12.1 BUTTON BEHAVIOR

12.1.1 Room Mirror (OnStar Module) Input Key

(1) Hands-Free Calling Button

Hands-Free Calling, Turn By Turn Directions, OnStar Info, Cancel

(2) OnStar Button

Contact to the OnStar Advisor.(The OnStar Advisor will service their feature plan.)

(3) Emergency Button

Contact to the OnStar Emergency Advisor.

12.1.2 Room Mirror (OnStar Module) Status LED- 1EA

(1) Solid Green

The OnStar system is ready to make calls

(2) Flashing Green (1times)

When the end-user is on a call.

(3) Red

Indicates a problem

(4) No Light

Indicates your OnStar subscription is not active or has expired and is not functional.

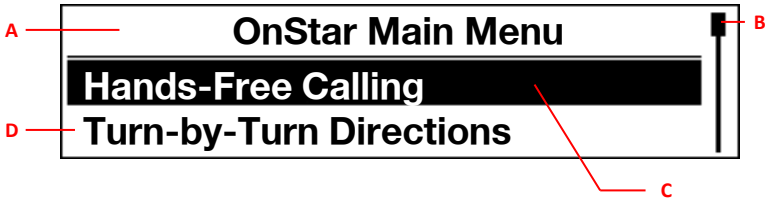
12.1.3 MIC(Input)/Speaker(Output)

(1) Speech Recognition

By pressing the OnStar Module <Hands-Free Calling>key, the end-user can operate the OnStar features.

(2) Speech synthesis (TTS)

The OnStar Module services/provides system reaction(with user interaction) by speech synthesis



OnStar Main Menu

12.2 OnStar MAIN MENU

12.2.1. LAYOUT

When the end-user press the OnStar Module <Hand-Free Calling> Key, The Radio System displays this Graphic Layout.

- A – 'Title' is displayed the fixed name on the top line.
- B – 'Scroll Bar'
- C – 'Highlight'
- D – 'List Item' has two lines or three lines which is variable text.

12.2.1. EXCEPTIONS

- If the USB Memory/AUX Input is inserted or the Bluetooth is connected on the OnStar Main Menu Mode, The Radio and OnStar System continuously operate as OnStar Main Menu Mode.
- However, When the OnStar Main Menu Mode is exited, the Radio system should be operated by the latest triggering.

12.2.3 OnStar MAIN MENU KEY FUNCTION

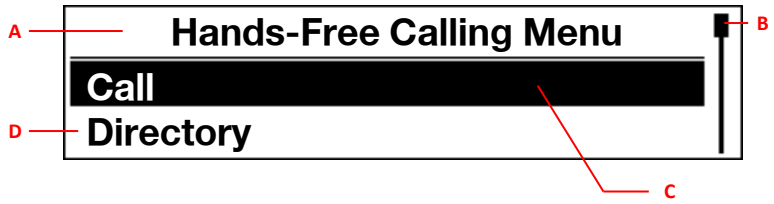
Interfaces		User Gesture	System Reaction
OnStar Module Key	<Hands-Free Calling> Key	|Short Press|↓↑	Case1> Radio/Multimedia/TOD/Settings Mode : Go to the OnStar Main Menu Mode. Case2> OnStar Main Menu Mode : Go to the previous Mode. (Exit the OnStar Main Menu Mode.)
	<OnStar> Key	|Short Press|↓↑	Case> OnStar Main Menu Mode (Any Hierarchy) : Go to the Connecting to OnStar Mode.
	<Emergency> Key	|Short Press|↓↑	Case> OnStar Main Menu Mode (Any Hierarchy) : Go to the Connecting to OnStar Emergency Mode.
Radio Faceplate Key	<Volume> Knob	|Rotate|	Case> OnStar Main Menu Mode (Any Hierarchy) : The Volume OSD is dynamically displayed/adjusted. (Tim-Out = 2~3sec)
	<Menu/Tune> Knob	|Rotate|	Case> OnStar Main Menu Mode (Any Hierarchy) : The Highlight is moved by rotating the knob.
	<Menu/Tune> Key	|Short Press|↓↑	Case> OnStar Main Menu Mode (Any Hierarchy) : The focused List Item is entered to the sub-hierarchy. Or the focused Action Item is acted.
	<Back> Key	|Short Press|↓↑	Case1> OnStar Main Menu Mode (Top Menu) : Go to the previous Mode. (Exit the OnStar Main Menu Mode.) Case2> OnStar Main Menu Mode (Sub-hierarchy Menu) : Go to the previous menu or depend on OnStar Module System. Case3> OnStar Main Menu Mode (When some of Hands-Free function is acted) : Depended on OnStar Module System.

(Continue)

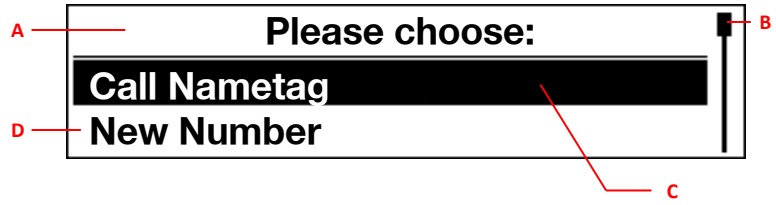
(*) TTS-ing : text to speech on the OnStar Menu Triggering / **(**)** B/G : Background Playing

12.2.3 OnStar MAIN MENU KEY FUNCTION

Interfaces			User Gesture	System Reaction
Steering Wheel Control	2.0F	<Vol Up/Down>	|Short Press|↓↑	Case> OnStar Main Menu Mode (Any Hierarchy) : The Volume OSD is dynamically displayed/adjusted. (Tim-Out = 2~3sec)
			|Long Press|↓	
		<Source>	|Short Press|↓↑	Confirm(OK) on the OnStar Menu list
		<Source Up/Down>	|Push Up/Down|↓↑	Highlight Move Once Up/Down on the OnStar Menu list
		<Source Up/Down>	|Long Push Up/Down|↓	Highlight Move Once Up/Down every 250ms on the OnStar Menu
		<Mute>	|Short Press|↓↑	N/A
	2.1F	<Mute/Hang Up>	|Short Press|↓↑	N/A
		<Phone>	|Short Press|↓↑	N/A
	Beyond 2.1F	<Phone/SR>	|Short Press|↓↑	N/A
			|Long Press|↓	N/A
Speech Command	Voice			Out of Range (Refer to the web site : https://www.onstar.com/web/portal/howtouseonstar)



Hans- Free Calling



Call

12.2.4 HANDS-FREE CALLING

12.2.4.1. LAYOUT

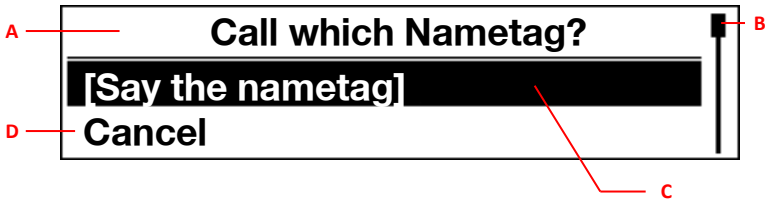
When the end-user press the OnStar Module <Hand-Free Calling> Key, The Radio System displays this Graphic Layout.

- Index A – 'Title' is displayed the fixed name on the top line.
- Index B – 'Scroll Bar'
- Index C – 'Highlight'
- Index D – 'List Item' has two lines or three lines which is variable text.

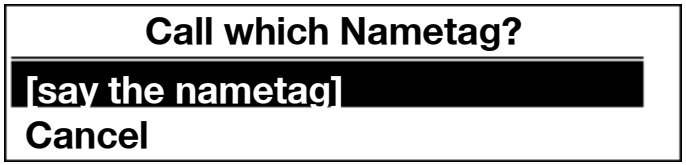
12.2.4.2 CALL

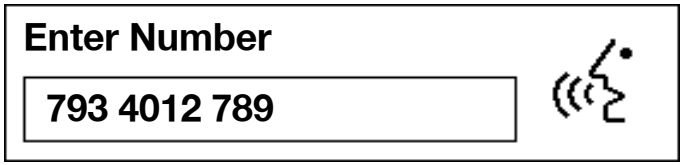
- Index A – 'Title' is displayed the fixed name on the top line.
- Index B – 'Scroll Bar'
- Index C – 'Highlight'
- Index D – 'List Item' has two lines or three lines which is variable text.

If the end-user selects the Cancel or says "Cancel", System goes to the OnStar Main Menu.



Call Nametag



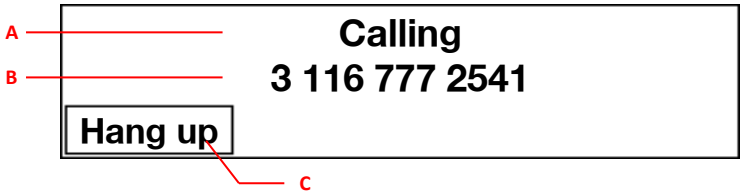


Reaction of [Say the nametag]

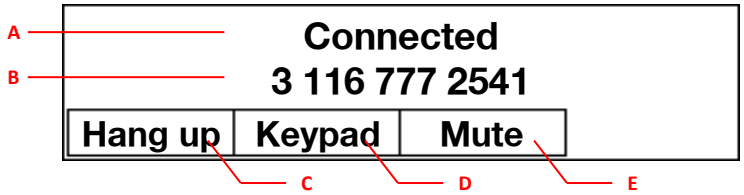
12.2.4.2.1 CALL NAMETAG

- If the end-user says the corrective some word which is stored the phone number nametag in the OnStar Module(System), the radio should dial to the nametag's phone. (After Action, refer to the following 'Calling', 'Connected' and 'Call Ended')

- If the end-user selects the Cancel or says "Cancel", System goes to the OnStar Main Menu.



Calling



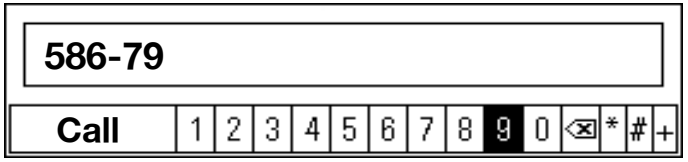
Connected

12.2.4.2.1.1 CALLING

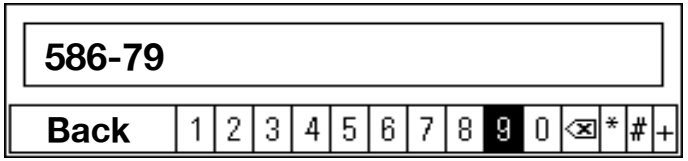
- When the end-user call someone by the some actions(say the name tag, new number, redial), the calling OSD is displayed and dialing by the OnStar 3G Module.
  - ✓ Index A – 'Title' is displayed the fixed name on the top line.
  - ✓ Index B – 'Info Item' is Spoken (Inputted) Number
  - ✓ Index C – 'Soft Button' is Hang Up
- When the OnStar 3G Module is dialing, this Graphic Layout is displayed.
- The end-user can hang up this calling by the soft button –Index C.(If the hang up is done, OnStar is exited and system shows and plays the latest system mode.)
- If the calling is connected, system displays next 'Connected' menu and connect the target number.

12.2.4.2.1.2 CONNECTED

- If the calling is connected, the connected OSD is displayed
- When the OnStar 3G Module is connected, the above - Graphic Layout is displayed.
- The end-user can hang up this calling by the soft button –Index C. (If the hang up is done, OnStar is exited and system shows and plays the latest system mode.) Then end-user can change the Keypad Mode by the soft button – Index D. (Refer to 'Keypad' menu)
- The end-user can do the toggling – which is MIC mute <-> MIC un-mute – by the soft button – Index E.



Multi-dial keypad

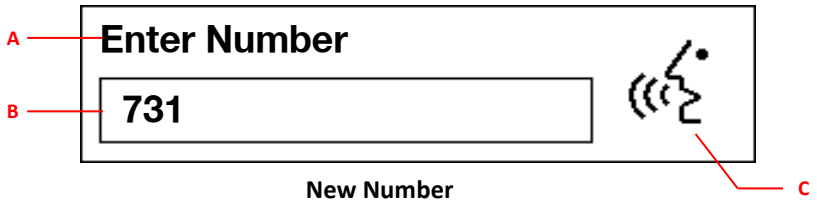


Only Keypad

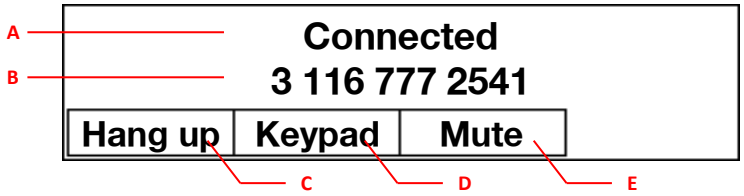
12.2.4.2.1.3 KEYPAD

12.2.4.2.1.4 CALL ENDED

- If the hang up is done, OnStar is exited and system shows and plays the latest system mode.



New Number



Connected

12.2.4.2.2 NEW NUMBER

- The OnStar System recognize the spoken number for dialing.

12.2.4.2.2.1 CONNECTED

- If the calling is connected, the connected OSD is displayed.
- When the OnStar 3G Module is connected, the bottom - Graphic Layout is displayed.
- The end-user can hang up this calling by the soft button – Index C. (If the hang up is done, OnStar is exited and system shows and plays the latest system mode.)
- Then end-user can change the Keypad Mode by the soft button – Index D. (Refer to the following 'Keypad' menu)
- The end-user can do the toggling – which is MIC mute <-> MIC un-mute – by the soft button – Index E.

12.2.4.2.2.2 KEYPAD

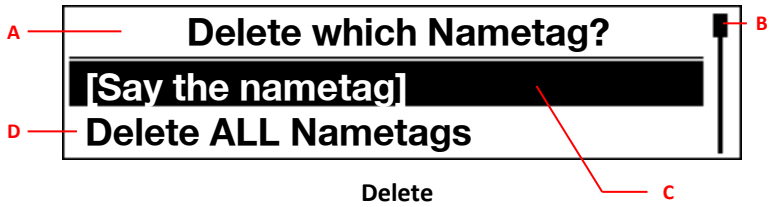
- Refer to the '12.3.2.1.3 KEYPAD (TBD)' on the previous page.

12.2.4.2.2.3 CALL ENDED

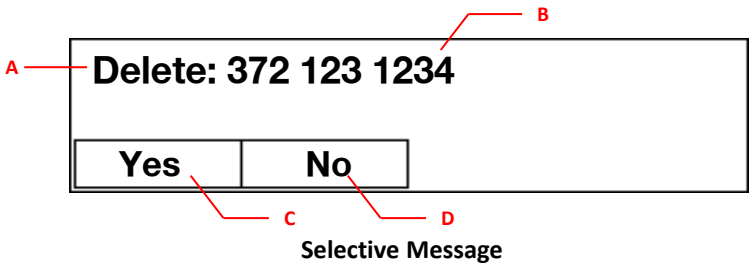
- If the hang up is done, OnStar is exited and system shows and plays the latest system mode.

Directory

Store



Delete



Selective Message

12.2.4.3 DIRECTORY

12.2.4.3.1 LIST

- If the end-user selects the [List] or says “List”, the System speaks the stored nametags.

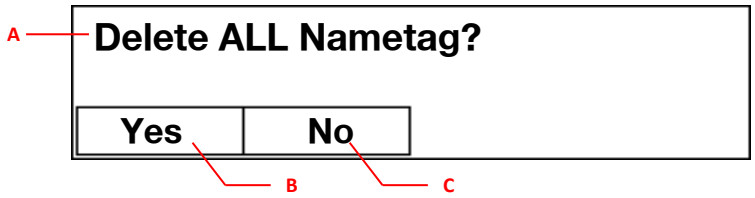
12.2.4.3.2 STORE

- The OnStar System recognizes the spoken number and save the nametag for voicing.(If the Store is completed, the system go to the OnStar Main Menu.)

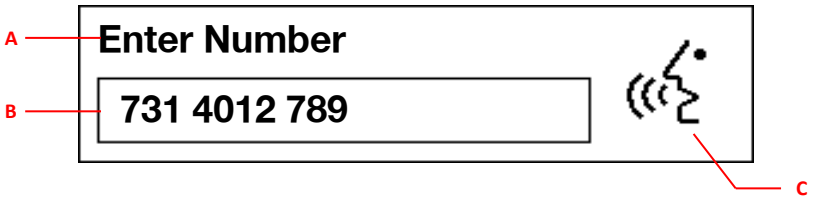
12.2.4.3.3 DELETE

12.2.4.3.3.1 SAY THE NAME TAG

- If the end-user says the corrective some words which are stored the phone number nametag in the OnStar Module(System), the system asks the end-user about the nametag’s number for deleting as below.
- **[Selective Message]**
  - ✓ The end-user can delete the nametag number by the [Yes] button or Voice “Yes”.
  - ✓ The end-user can cancel to delete the nametag number by the [No] button or Voice “No”.
  - ✓ The action - which is [Yes] or [No] – is completed, the system go to the OnStar Main Menu.



Delete ALL Nametags



Store Last Number

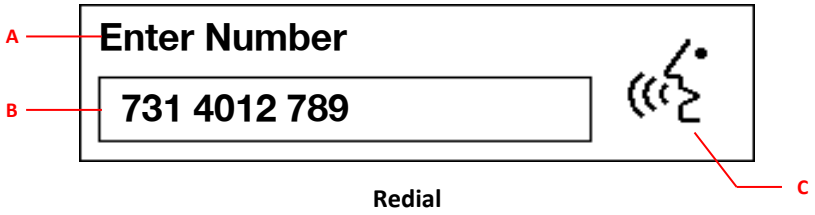
12.2.4.3.3.2 DELETE ALL NAMETAGS

- The end-user can delete the nametag number by the [Yes] button or Voice “Yes”.
- The end-user can cancel to delete the nametag number by the [No] button or Voice “No”.
- The action - which is [Yes] or [No] – is completed, the system go to the OnStar Main Menu.

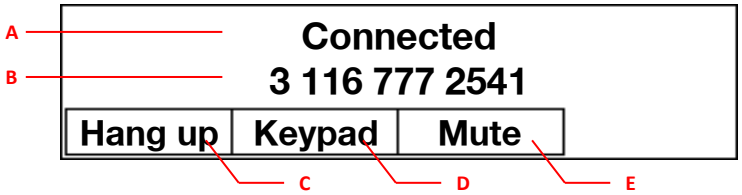
12.2.4.3.3.3 STORE LAST NUMBER

- The OnStar/Radio System display the last number for storing. (The end-user should say the nametag for save the last number.)
- The action is completed, the system go to the OnStar Main Menu.

12.2.4.3.3.4 CANCEL



Redial



Connected

12.2.4.4 REDIAL

- The OnStar/Radio System display the last number for re-dialing.

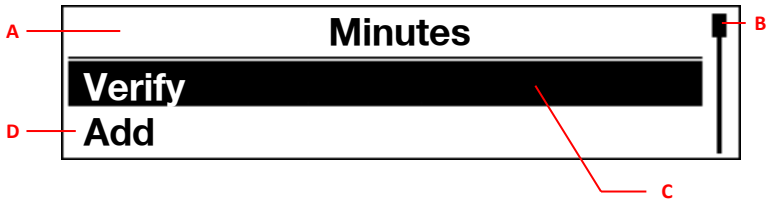
12.2.4.4.1 CONNECTED

- When the OnStar 3G Module is connected, the above - Graphic Layout is displayed.
- The end-user can hang up this calling by the soft button – Index C.(If the hang up is done, OnStar is exited and system shows and plays the latest system mode.)
- Then end-user can change the Keypad Mode by the soft button – Index D.(Refer to the following 'Keypad' menu)
- The end-user can do the toggling – which is MIC mute <-> MIC un-mute – by the soft button – Index E.

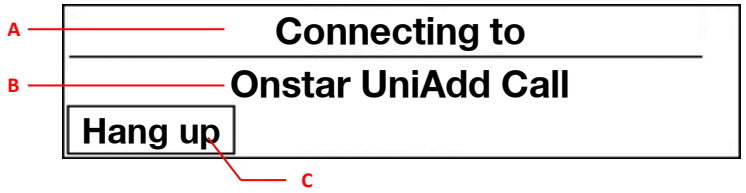
12.2.4.4.2 KEYPAD

12.2.4.4.3 CALL ENDED

- If the hang up is done, OnStar is exited and system shows and plays the latest system mode.



Minutes



Add

12.2.4.5 STORE

- The OnStar System recognizes the spoken number and save the nametag for voicing.(If the Store is completed, the system go to the OnStar Main Menu.)

12.2.4.6 MINUTES

- This function is for verifying(checking)/adding the right of Onstar service

12.2.4.6.1 VERIFY

- After Speak Speech synthesis (TTS), System goes to the OnStar Main Menu.

12.2.4.6.2 ADD

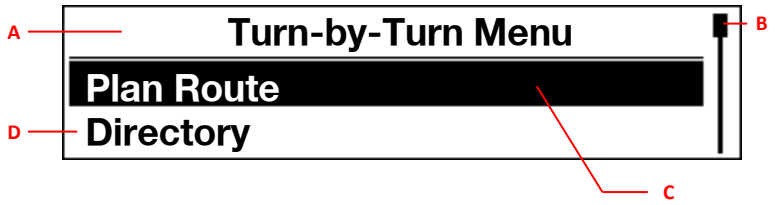
- The end-user can hang up this calling by the soft button – Index C. (If the hang up is done, OnStar is exited and system shows and plays the latest system mode.)

12.2.4.6.3 CANCEL

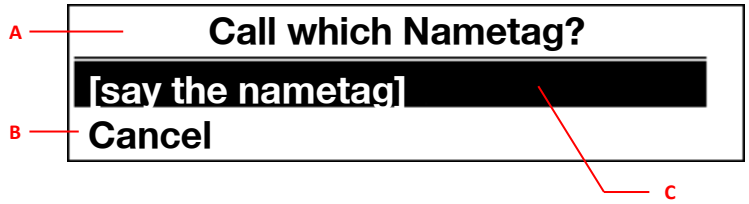
- If the end-user selects the [Cancel] or says “Cancel”, System goes to the OnStar Main Menu.

12.2.4.7 CANCEL

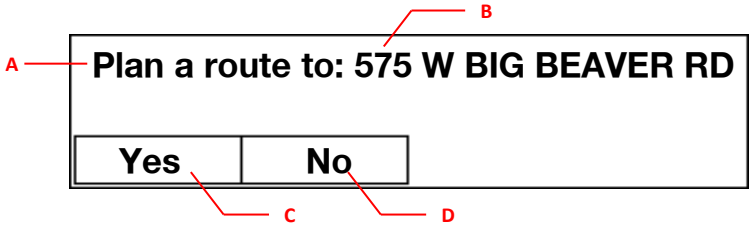
- If the end-user selects the [Cancel] or says “Cancel”, System goes to the OnStar Main Menu.



Turn-by- turn Menu



Plan Route



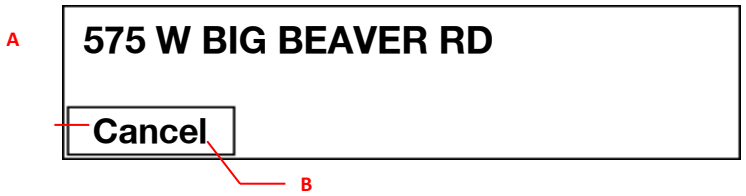
Selective Message

12.2.5 TURN-BY-TURN DIRECTIONS

- The OnStar System recognizes the spoken number and save the nametag for voicing.(If the Store is completed, the system go to the OnStar Main Menu.)

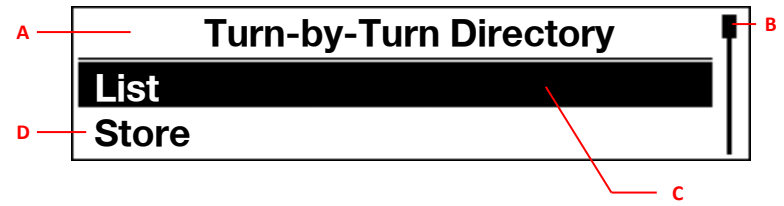
12.2.5.1 PLAN ROUTE

- If the end-user speaks the corrective nametag which is saved on the OnStar System, the system displays the bottom Graphic Layout-1> Selective Message.
- If the end-user selects the [Cancel] or says “Cancel”, System goes to the OnStar Main Menu.
- **[Selective Message]**
  - ✓ The end-user can set the plan route by the [Yes] button or Voice “Yes”.
    - ▪ After Yes, System starts to calculate the TBT data and show the next below Graphic Layout -2> Calculation.
  - ✓ The end-user can cancel the plan route by the [No] button or Voice “No”.
    - ▪ After No, the system cancels the plan route and then goes to the OnStar Main Menu.

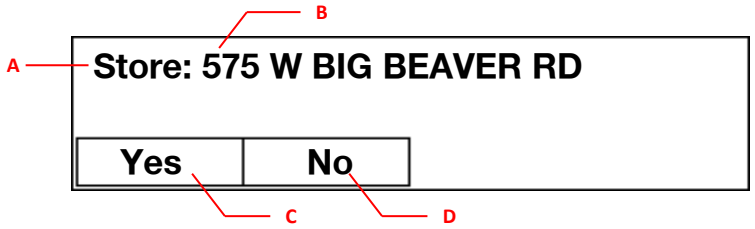


Calculation

- **[Calculation]**
  - ✓ After the calculation is completed, System starts the TBT mode(Refer to the Chapter 3.2.1.1 TBT Mode)
  - ✓ If the end-user selects the [Cancel], System goes to the OnStar Main Menu.



Directory



Selective Message

12.2.5.2 DIRECTORY

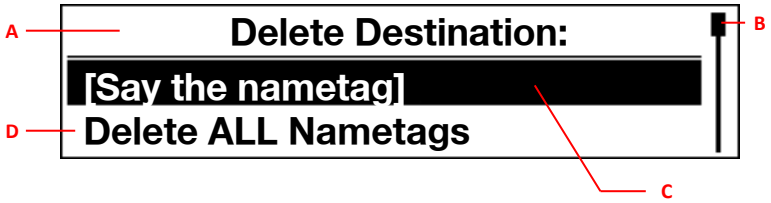
12.2.5.2.1 LIST

- If the end-user selects the [List] or says “List”, the System speaks the stored nametags.

12.2.5.2.2 STORE

- This store function is for save the nametag which is the set plan route’s address. (If there does not have the set plan route which had been lastly set by OnStar Service Center, the end-user can not set this function)
- If the end-user selects the [Store] or says “Store”, the System speaks the stored address which had been lastly set by OnStar Service Center And then System displays the below Graphic Layout-1> Selective Message, after the end-user say the nametag
- **[Selective Message]**
  - ✓ The end-user can set the store by the [Yes] button or Voice “Yes”.
    - After Yes, System save the nametag and go to the OnStar Main Menu.
  - ✓ The end-user can cancel the store by the [No] button or Voice “No”.
    - After No, the system cancels to save the nametag and then go to the OnStar Main Menu.

12.2.5.2.3 DELETE



Delete

12.2.5.2.3.1 [SAY THE NAMETAG]

- If the end-user says the corrective some words which are stored the address nametag in the OnStar Module(System), the system asks the end-user about the nametag's number for deleting.
- The end-user can delete the nametag Address by the [Yes] button or Voice "Yes".
- The end-user can cancel to delete the nametag Address by the [No] button or Voice "No".
- The action - which is [Yes] or [No] – is completed, the system go to the OnStar Main Menu.

12.2.5.2.3.2 DELETE ALL NAMETAGS

12.2.5.2.3.3 CANCEL

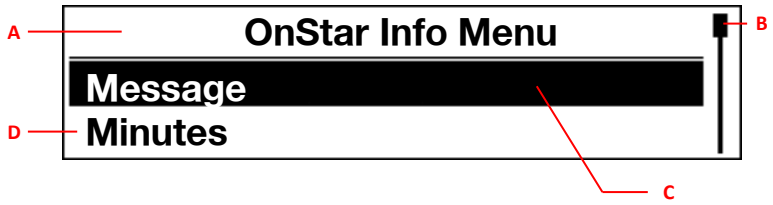
12.2.5.2.4 DELETE ALL NAMETAGS

12.2.5.2.5 CANCEL

12.2.5.3 STORE DESTINATION

12.2.5.4 CANCEL

If the end-user selects the [Cancel] or says "Cancel", System goes to the OnStar Main Menu.



OnStar Info

12.2.6 ONSTAR INFO

12.2.6.1 MESSAGE

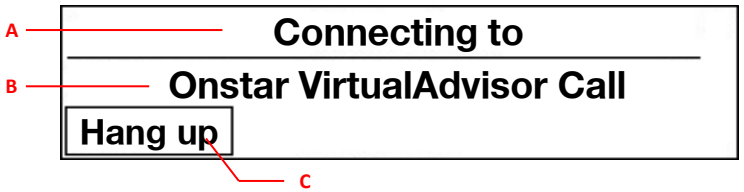
12.2.6.2 MINUTES

12.2.6.3 MY NUMBER

- The OnStar/Radio System display the My Car Phone Number for knowing to the end-user.

12.2.6.4 CANCEL

- If the end-user selects the [Cancel] or says “Cancel”, System goes to the OnStar Main Menu.



Virtual OnStar Info

12.2.7 VIRTUAL ADVISOR

- The end-user can hang up this calling by the soft button – Index C. (If the hang up is done, OnStar is exited and system shows and plays the latest system mode.)

- Index B – text is displayed a variable by OnStar Module(Hardware) as below.

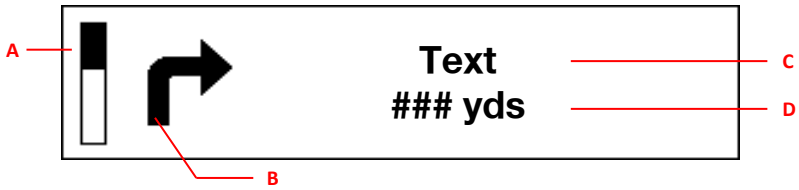
  - "Onstar" & "OnStar Value ID" & "Call"
  - OnStar Value ID

Values
0 - collision
1 - emergency
2 - roadsideAssistance
3 - virtualAdvisor
4 - unitAdd
5 - vehicleDataUpload
6 - enrollment
7 - occinitiated

  - for example,
    If OnStar Value ID = 1,
    Index B is displayed as ("Onstar collision Call")

12.2.8 CANCEL

- If the end-user selects the [Cancel] or says "Cancel", System goes to the OnStar Main Menu.



TBT Mode

12.3 TBT MODE

- When the TBT mode is operated, the background Radio/Media is also streamed/played.(When the TBT voice event-guide is spoken every event, TBT voice should be more upper volume level than the background audio.)
- The Index A is not always displayed.(By the OnStar system, it is displayed to need)
- The Index C, D is displayed by OnStar System.(Additionally, the Index D is not always displayed. It is also displayed to need by the OnStar System.)
- The Index D – measures(Km or Miles) is chose by the vehicle's calibration data.
- The table of the next page describes the key function on this mode or on the related situations.
- It is depended on the H/W audio tuning. (This is for end-user's ear recognition regarding TBT voice event-guide.)

12.3.1 EXCEPTIONS

- If the USB Memory/AUX Input is inserted or the Bluetooth is connected on the TBT Mode, the Radio system should do the plug&play as background playing.
- The incoming call / Outgoing Call should be called on TBT Mode. However, TBT Voice event-guide should be spoken/guided as mixed.
- hen the incoming call / Outgoing Call is active, the faceplate <Back> key is not operated as Toggle Mode (Phone Mode <-> TBT Mode). At this situation, <Back> Key should be operated as GIS-403 Phone Mode.
- If the vehicle is "off" -> "On" on the forward or background TBT Mode, TBT Mode should be operated continuously.

12.3.2 OnStar TBT Mode KEY FUNCTION

Interfaces		User Gesture	System Reaction
OnStar Module Key	<Hands-Free Calling> Key	|Short Press|↓↑	Case1> Radio/Multimedia/TOD/Settings Mode : Go to the OnStar Main Menu Mode. Case2> TBT Mode : Go to the OnStar Main Menu Mode. Case3> OnStar Main Menu Mode : Exit the OnStar Main Menu(Any Hierarchy) / Go to the latest Mode (TBT Mode or Radio/Multimedia/TOD/Setting Mode)
	<OnStar> Key	|Short Press|↓↑	Case1> Radio/Multimedia/TOD/Settings Mode : Go to the connecting to OnStar (with B/G TBT) Case2> TBT Mode : Go to the connecting to OnStar (with B/G TBT) Case> Connecting/Connected to OnStar : N/A
	<Emergency> Key	|Short Press|↓↑	Case1> Radio/Multimedia/TOD/Settings Mode : Go to the connecting to OnStar Emergency(with B/G TBT) Case2> TBT Mode : Go to the connecting to OnStar Emergency(with B/G TBT) Case> Connecting/Connected to OnStar Emergency : N/A

(Continue)

12.3.2 OnStar TBT Mode KEY FUNCTION

Interfaces		User Gesture	System Reaction
Radio Faceplate Key	<Volume> Knob	|Rotate|	Case> TBT Mode (with B/G Radio/Media) : The Volume OSD is dynamically displayed/adjusted both B/G Radio/Media and TBT Voice event-guide. (Tim-Out = 2~3sec)
	<Menu/Tune> Knob	|Rotate|	Case1> TBT Mode : N/A Case2> TBT Menu Mode / OnStar Main Menu Mode : Move the highlight
	<Menu/Tune> Key	|Short Press|↓↑	Case1> TBT Mode : Go to the TBT Menu Case2> TBT Menu Mode / OnStar Main Menu Mode : Confirm(OK)
	<Back> Key	|Short Press|↓↑	Case1> Forward TBT Mode, Background Radio/Media Mode : The background Radio/Media Mode should be forward. / The background should be TBT Mode (If the background mode is TOD, N/A(Continuously TBT Mode)) Case2> Forward Radio/Media Mode, Background TBT : The background TBT Mode should be forward. / The background should be Radio/Media Mode Case3> OnStar Main Menu Mode (Top Menu) : Go to the previous Mode. (Exit the OnStar Main Menu Mode.) Case4> OnStar Main Menu Mode (Sub-hierarchy Menu) : Go to the previous menu or depend on OnStar Module System. Case5> OnStar Main Menu Mode (When some of Hands-Free function is acted) : Depended on OnStar Module System.

(Continue)

12.3.2 OnStar TBT Mode KEY FUNCTION

Interfaces			User Gesture	System Reaction
Steering Wheel Control	2.0F	<Vol Up/Down>	|Short Press|↓↑	Case> TBT Mode (with B/G Radio/Media) : The Volume OSD is dynamically displayed/adjusted both B/G Radio/Media and TBT Voice event-guide. (Tim-Out = 2~3sec)
			|Long Press|↓	
		<Source>	|Short Press|↓↑	Case1> TBT Mode (with B/G Radio/Media) – Change the B/G Radio Band or Media Source (Refer to the GIS-403) Case2> TBT Menu Mode / OnStar Main Menu Mode : Confirm(OK)
		<Source Up/Down>	|Push Up/Down|↓↑	Case1> TBT Mode (with B/G Radio/Media) : Trick the B/G Radio station or Media file (Refer to the GIS-403) Case2> TBT Menu Mode / OnStar Main Menu Mode : Highlight Move Once Up/Down on the OnStar Menu list
		<Source Up/Down>	|Long Push Up/Down|↓	Case1> TBT Mode (with B/G Radio/Media) : Trick the B/G Radio station or Media file (Refer to the GIS-403) Case2> TBT Menu Mode / OnStar Main Menu Mode : Highlight Move Once Up/Down every 250ms on the OnStar Menu
		<Mute>	|Short Press|↓↑	Case1> Forward TBT Mode, Background Radio/Media Mode : Mute the Radio/Media Audio Only Case2> Forward Radio/Media Mode, Background TBT Mode : Mute the Radio/Media Audio Only Case3> TBT Menu Mode / OnStar Main Menu Mode : N/A

(Continue)

12.3.2 OnStar TBT Mode KEY FUNCTION

Interfaces			User Gesture	System Reaction
	2.1F	<Mute/Hang Up>	|Short Press|↓↑	Case1> Forward TBT Mode, Background Radio/Media Mode : Mute the Radio/Media Audio Only Case2> Forward Radio/Media Mode, Background TBT Mode : Mute the Radio/Media Audio Only Case3> Incoming Call/Connected Call (with B/G TBT) : Decline/Hang-up a Call Case4> TBT Menu Mode / OnStar Main Menu Mode : N/A
		<Phone>	|Short Press|↓↑	Case > TBT Mode : Go to the Phone Menu with B/G TBT (Refer to the GIS-403) Case2> Incoming Call (with B/G TBT) : Accept a Call Case3> TBT Menu Mode / OnStar Main Menu Mode : N/A
	Beyond 2.1F	<Phone/SR>	|Short Press|↓↑	Case > TBT Mode : Go to the Phone Menu with B/G TBT (Refer to the GIS-403) Case2> Incoming Call (with B/G TBT) : Accept a Call Case3> TBT Menu Mode / OnStar Main Menu Mode : N/A
			|Long Press|↓	Case 1> TBT Mode : If Siri(Over iOS 4S) is connected, Siri is Active. Case2> TBT Menu Mode / OnStar Main Menu Mode : N/A

12.3.3 TBT MENU

TBT Menu #1 (By Pressing the <Menu> Knob)

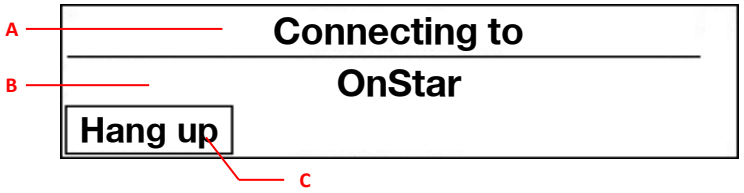
- If the end-user pressing the <Menu> Knob on the TBT Mode, TBT Menu #1 is displayed as the below table

Conditions	Mode	1depth	2depth	3depth	4depth	5depth	GUI Elements	Option Values
TBT Mode, <Menu>Knob	Turn-by-Turn Menu	Repeat					Action Item	
		Route Preview					Action Item	
		Destination Information					Action Item	
		Cancel Route Directions					Action Item	
		Mute Directions					Selective Item	OFF, ON

TBT Menu #2 (By pressing the <Hands-Free Calling> key and going to the Turn by Turn Directions)

- If the end-user pressing the <Hands-Free Calling> key and going to the Turn by Turn Directions on the TBT Mode, TBT Menu #2 is displayed as the below table

Conditions	Mode	1depth	2depth	3depth	4depth	5depth	GUI Elements	Option Values
TBT Mode, <Hands-Free Calling> Key 	Turn-by-Turn Menu	Cancel Route					Action Item	
		Get My Destination					Action Item	
		Route Preview					Action Item	
		Mute Directions					Action Item	(Mute/Unmute)
		Store Destination					Action Item	
		Cancel					Action Item	



Connecting to OnStar

12.4 CONNECTING TO ONSTAR

- The end-user can hang up this calling by the soft button – Index C. (If the hang up is done, OnStar is exited and system shows and plays the latest system mode.)

- The table on the next page describes the key function on this mode or on the related situations.

- Index B – text is displayed a variable by OnStar Module(Hardware) : OnStar or OnStar Emergency

12.4.1 EXCEPTIONS

- If the USB Memory/AUX Input is inserted or the Bluetooth is connected on the OnStar Main Menu Mode, The Radio and OnStar System continuously operate as OnStar Main Menu Mode.

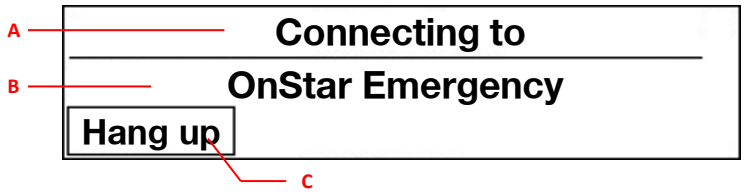
- However, When the OnStar Main Menu Mode is exited, the Radio system should be operated by the latest triggering

12.4.2 CONNECTING TO ONSTAR KEY FUNCTION

Interfaces			User Gesture	System Reaction
OnStar Module Key	<Hands-Free Calling> Key		|Short Press|↓↑	Case> Connecting/Connected to OnStar : End of Call and Go to the previous mode.
	<OnStar> Key		|Short Press|↓↑	Case> Connecting/Connected to OnStar N/A
	<Emergency> Key		|Short Press|↓↑	Case> Connecting/Connected to OnStar : N/A
Radio Faceplate Key	<Volume> Knob		|Rotate|	Case> Connecting/Connected to OnStar : The Volume OSD is dynamically displayed/adjusted. (Tim-Out = 2~3sec)
	<Menu/Tune> Knob		|Rotate|	Case> Connecting/Connected to OnStar : N/A
	<Menu/Tune> Key		|Short Press|↓↑	Case> Connecting/Connected to OnStar : N/A
	<Back> Key		|Short Press|↓↑	Case> Connecting/Connected to OnStar : N/A
Steering Wheel Control	2.0F	<Vol Up/ Down>	|Short Press|↓↑	Case> Connecting/Connected to OnStar : The Volume OSD is dynamically displayed/adjusted. (Tim-Out = 2~3sec)
			|Long Press|↓	
		<Source>	|Short Press|↓↑	Case> Connecting/Connected to OnStar :N/A
		<Source Up/Down>	|Push Up/Down|↓↑	
		<Source Up/Down>	|Long Push Up/Down|↓	
		<Mute>	|Short Press|↓↑	N/A
	2.1F	<Mute/Hang Up>	|Short Press|↓↑	Case> Connecting/Connected to OnStar :Hang-up
		<Phone>	|Short Press|↓↑	N/A
	Beyond 2.1F	<Phone/ SR>	|Short Press|↓↑	N/A
			|Long Press|↓	N/A

12.4.2 CONNECTING TO ONSTAR KEY FUNCTION

Interfaces			User Gesture	System Reaction
OnStar Module Key	<Hands-Free Calling> Key		|Short Press|↓↑	Case> Connecting/Connected to OnStar : End of Call and Go to the previous mode.
	<OnStar> Key		|Short Press|↓↑	Case> Connecting/Connected to OnStar N/A
	<Emergency> Key		|Short Press|↓↑	Case> Connecting/Connected to OnStar : N/A
Radio Faceplate Key	<Volume> Knob		|Rotate|	Case> Connecting/Connected to OnStar : The Volume OSD is dynamically displayed/adjusted. (Tim-Out = 2~3sec)
	<Menu/Tune> Knob		|Rotate|	Case> Connecting/Connected to OnStar : N/A
	<Menu/Tune> Key		|Short Press|↓↑	Case> Connecting/Connected to OnStar : N/A
	<Back> Key		|Short Press|↓↑	Case> Connecting/Connected to OnStar : N/A
Steering Wheel Control	2.0F	<Vol Up/ Down>	|Short Press|↓↑	Case> Connecting/Connected to OnStar : The Volume OSD is dynamically displayed/adjusted. (Tim-Out = 2~3sec)
			|Long Press|↓	
		<Source>	|Short Press|↓↑	Case> Connecting/Connected to OnStar :N/A
		<Source Up/Down>	|Push Up/Down|↓↑	
		<Source Up/Down>	|Long Push Up/Down|↓	
		<Mute>	|Short Press|↓↑	N/A
	2.1F	<Mute/Hang Up>	|Short Press|↓↑	Case> Connecting/Connected to OnStar :Hang-up
		<Phone>	|Short Press|↓↑	N/A
	Beyond 2.1F	<Phone/ SR>	|Short Press|↓↑	N/A
			|Long Press|↓	N/A



Connecting to OnStar Emergency

12.5 CONNECTING TO ONSTAR EMERGENCY

- The end-user can hang up this calling by the soft button – Index C. (If the hang up is done, OnStar is exited and system shows and plays the latest system mode.)
- The table of next page describes the key function on this mode or on the related situations.

12.5.1 CONNECTING TO ONSTAR EMERGENCY KEY FUNCTION

Interfaces			User Gesture	System Reaction
OnStar Module Key	<Hands-Free Calling> Key		|Short Press|↓↑	Case> Connecting/Connected to OnStar Emergency : End of Call and Go to the previous mode.
	<OnStar> Key		|Short Press|↓↑	Case> Connecting/Connected to OnStar Emergency N/A
	<Emergency> Key		|Short Press|↓↑	Case> Connecting/Connected to OnStar Emergency : N/A
Radio Faceplate Key	<Volume> Knob		|Rotate|	Case> Connecting/Connected to OnStar Emergency : The Volume OSD is dynamically displayed/adjusted. (Tim-Out = 2~3sec)
	<Menu/Tune> Knob		|Rotate|	Case> Connecting/Connected to OnStar Emergency : N/A
	<Menu/Tune> Key		|Short Press|↓↑	Case> Connecting/Connected to OnStar Emergency : N/A
	<Back> Key		|Short Press|↓↑	Case> Connecting/Connected to OnStar Emergency : N/A
Steering Wheel Control	SWC Case1	<Vol Up/Down>	|Short Press|↓↑	Case> Connecting/Connected to OnStar Emergency : The Volume OSD is dynamically displayed/adjusted. (Tim-Out = 2~3sec)
			|Long Press|↓	
		<Source>	|Short Press|↓↑	Case> Connecting/Connected to OnStar Emergency :N/A
		<Source Up/Down>	|Push Up/Down|↓↑	
		<Source Up/Down>	|Long Push Up/Down|↓	
		<Mute>	|Short Press|↓↑	N/A
	SWC Case2	<Mute/Hang Up>	|Short Press|↓↑	Case> Connecting/Connected to OnStar Emergency :Hang-up
		<Phone>	|Short Press|↓↑	N/A
	SWC Case3	<Phone/SR>	|Short Press|↓↑	N/A
			|Long Press|↓	N/A

Appendix I
(NGF Menu Tree)

Appendix I - NGF

FM Radio(1)

Menu Depth / Menu No	Depth 1st	Depth 2nd	Depth 3rd	Depth 4th	Option Value	Default Value
FM	Traffic Program (TP)				On, Off	Off
	Update Stations List				Cancel	
	Manual Tuning				87.5 ~ 108.0	93.5
	RDS				On, Off	On
	Region				On, Off	Off
	Categories	POP				
		MUSIC	Pop Music (10)			
			Easy Listening (12)			
			Other Music (15)			
			Jazz Music (24)			
			Country Music (25)			
			National Music (26)			
			Oldies Music (27)			
		CLASSICAL	Folk Music (28)			
			Light Classical (13)			
		INFORMATION	Serious Classical (14)			
			News (1)			
			Current Affairs (2)			
			Information (3)			
			Sport (4)			
			Education (5)			
			Drama (6)			
			Culture (7)			
			Science (8)			
			Varied (9)			
			Weather/Meteorology (16)			
			Finance/Business (17)			
			Children's Programs (18)			
			Social Affairs (19)			
			Religion (20)			
			Phone In (21)			
			Travel (22)			
			Leisure (23)			
		ROCK	Documentary (29)			
		ALL	Rock Music (11)			
	Set Number of Favorites Pages				1Page	6pages
					2Pages	
					3Pages	
					4Pages	
					5Pages	
					6Pages	

In case of vehicle menu,
See the chapter 7. Vehicle Menu Tree

FM Radio(2)

Menu Depth / Menu No	Depth 1st	Depth 2nd	Depth 3rd	Depth 4th	Option Value	Default Value
FM	Configure	Time & Date	Set Time	Set time	(01 ~ 12) : (00 ~ 59) : (AM or PM)	12:00 AM
					(00 ~ 23) : (00 : 59)	
				Auto Set	Off (Manual)	Off (Manual)
					On-Cell Network	
					On-RDS	
				12-24 HR	12hr or 24hr	12hr
			Set Date	Set date	(Jan ~ Dec) (1 ~31) (2012 ~2099)	Apr 19 2013
				Auto Set	Off (Manual)	Off (Manual)
					On-Cell Network	
					On-RDS	
				Format	MMDDYYYY	MMDDYYYY
					DDMMYYYY	
					YYYYMMDD	
		Tone Settings	Bass		(-12~+12 Level Control)	0
			Midrange		(-12~+12 Level Control)	
			Treble		(-12~+12 Level Control)	
			Fade		(-12~+12 Level Control)	
			Balance		(-12~+12 Level Control)	
			EQ		Custom	Custom
					Pop	
					Rock	
					Country	
					Jazz	
					Talk	
					Classical	
		Auto Volume			Off	Low
					Low	
					Medium-Low	
					Medium	
					Medium-High	
					High	
		Maximum Startup Volume			17 ~ 51	24

In case of vehicle menu,
See the chapter 7. Vehicle Menu Tree

Appendix I - NGF

AM Radio

Menu Depth / Menu No	Depth 1st	Depth 2nd	Depth 3rd	Depth 4th	Option Value	Default Value
AM	Stations List				522	522
	Update Stations List	Update AM station list				
		Cancel				
	Set Number Of Favorites Pages				1Page	6Pages
					2Pages	
					3Pages	
					4Pages	
					5Pages	
					6Pages	
	Configure	Time & Date	Set Time	Set time	(01 ~ 12) : (00 ~ 59) : (AM or PM)	12:00 AM
					(00 ~ 23) : (00 : 59)	
				Auto Set	Off (Manual)	Off (Manual)
					On-Cell Network	
					On-RDS	
				12-24 HR	12hr or 24hr	12hr
			Set Date	Set date	(Jan ~ Dec) (1 ~31) (2012 ~2099)	Apr 19 2013
				Auto Set	Off (Manual)	Off (Manual)
					On-Cell Network	
					On-RDS	
				Format	MMDDYYYY	MMDDYYYY
					DDMMYYYY	
					YYYYMMDD	
		Tone Settings	Bass		(-12~+12 Level Control)	0
			Midrange		(-12~+12 Level Control)	
			Treble		(-12~+12 Level Control)	
			Fade		(-12~+12 Level Control)	
			Balance		(-12~+12 Level Control)	
			EQ		Pop	Custom
					Rock	
					Country	
					Jazz	
					Talk	
					Classical	
					Custom	
		Auto Volume Control			Off	Low
					Low	
					Medium-Low	
					Medium	
					Medium-High	
					High	
		Maximum Startup Volume			17~51	24

In case of vehicle menu,
See the chapter 7. Vehicle Menu Tree

In case of vehicle menu,
See the chapter 7. Vehicle Menu Tree

DAB

Menu No \ Menu Depth	Depth 1st	Depth 2nd	Depth 3rd	Depth 4th	Option Value	Default Value
DAB	Traffic Program (TP)				On, Off	Off
	Update Stations List					
	Manual Tuning					
	Categories				Information	Information
					Pop	
					Rock	
					Classical	
					Music	
					All	
	DAB Announcements				News	
					Weather	
					Sports	
					Finance	
					Travel	
					Event	
					Special	
					Radio info	
					Warning	
					Traffic	
					Alarm	
	DAB to DAB Linking				On, Off	On
	DAB to FM Linking				On, Off	On
	L Band				On, Off	On
	Intellitext					
	Set Number Of Audio Favorites Pages				1Page	6Pages
					2Pages	
					3Pages	
					4Pages	
					5Pages	
					6Pages	
	Configure	Time and Date	Set Time	Set time	(01 ~ 12) : (00 ~ 59) : (AM or PM)	12:00 AM
					(00 ~ 23) : (00 : 59)	
				Auto Set	Off (Manual)	Off (Manual)
					On-Cell Network	
					On-RDS	
				12-24 HR	12hr or 24hr	12hr
			Set Date	Set date	(Jan ~ Dec) (1 ~31) (2012 ~2099)	Apr 19 2013
				Auto Set	Off (Manual)	Off (Manual)
					On-Cell Network	
					On-RDS	
				Format	MMDDYYYY	MMDDYYYY
					DDMMYYYY	
					YYYYMMDD	
		Tone Settings	Bass		(-12~+12 Level Control)	0
			Midrange		(-12~+12 Level Control)	
			Treble		(-12~+12 Level Control)	
			Fade		(-12~+12 Level Control)	
			Balance		(-12~+12 Level Control)	
			EQ		Pop	Custom
					Rock	
					Country	
					Jazz	
					Talk	
					Classical	
					Custom	
		Auto Volume Control			Off	Low
					Low	
					Medium-Low	
					Medium	
					Medium-High	
					High	
		Maximum Startup Volume			17~51	24

Appendix I - NGF

USB/iPod

Menu Depth / Menu No	Depth 1st	Depth 2nd	Depth 3rd	Depth 4th	Option Value	Default Value
USB/iPod	Browse "Device Friendly Name"	Playlists	Playlist Names			
		Artists	Artist Names			
		Albums	Album Names			
		Songs	Song Titles			
		Genres	Genre Names			
		Podcasts	Podcast Titles			
		Audio Books	AudioBook Titles			
		Composers	Composer Names			
	Shuffle Songs				Off, On	Off
	Traffic Program (TP)				On, Off	Off
	Configure	Time & Date	Set Time	Set time	(01 ~ 12) : (00 ~ 59) : (AM or PM)	12:00 AM
					(00 ~ 23) : (00 : 59)	
				Auto Set	Off (Manual)	Off (Manual)
					On-Cell Network	
					On-RDS	
				12-24 HR	12hr or 24hr	12hr
			Set Date	Set date	(Jan ~ Dec) (1 ~31) (2012 ~2099)	Apr 19 2013
				Auto Set	Off (Manual)	Off (Manual)
					On-Cell Network	
					On-RDS	
				Format	MMDDYYYY	MMDDYYYY
					DDMMYYYY	
					YYYYMMDD	
		Tone Settings	Bass		(-12~+12 Level Control)	0
			Midrange		(-12~+12 Level Control)	
			Treble		(-12~+12 Level Control)	
			Fade		(-12~+12 Level Control)	
			Balance		(-12~+12 Level Control)	
			EQ		Pop	Custom
					Rock	
					Country	
					Jazz	
					Talk	
					Classical	
					Custom	
		Auto Volume			Off	Low
					Low	
					Medium-Low	
					Medium	
					Medium-High	
					High	
		Maximum Startup Volume			17~51	24

In case of vehicle menu,
See the chapter 7. Vehicle Menu Tree

Appendix I - NGF

AUX

Menu Depth / Menu No	Depth 1st	Depth 2nd	Depth 3rd	Depth 4th	Option Value	Default Value
AUX	Traffic Program (TP)				On, Off	Off
	Configure	Time & Date	Set Time	Set time	(01 ~ 12) : (00 ~ 59) : (AM or PM)	12:00 AM
					(00 ~ 23) : (00 : 59)	
				Auto Set	Off (Manual)	Off (Manual)
					On-Cell Network	
					On-RDS	
				12-24 HR	12hr or 24hr	12hr
			Set Date	Set date	(Jan ~ Dec) (1 ~31) (2012 ~2099)	Apr 19 2013
				Auto Set	Off (Manual)	Off (Manual)
					On-Cell Network	
					On-RDS	
				Format	MMDDYYYY	MMDDYYYY
					DDMMYYYY	
					YYYYMMDD	
		Tone Settings	Bass		(-12~+12 Level Control)	0
			Midrange		(-12~+12 Level Control)	
			Treble		(-12~+12 Level Control)	
			Fade		(-12~+12 Level Control)	
			Balance		(-12~+12 Level Control)	
			EQ		Pop	Custom
					Rock	
					Country	
					Jazz	
					Talk	
					Classical	
					Custom	
		Auto Volume			Off	Low
					Low	
					Medium-Low	
					Medium	
					Medium-High	
					High	
		Maximum Startup Volume			17~51	24

In case of vehicle menu,
See the chapter 7. Vehicle Menu Tree

Bluetooth Music

Menu Depth / Menu No	Depth 1st	Depth 2nd	Depth 3rd	Depth 4th	Option Value	Default Value
Bluetooth Music	Shuffle songs				Off, On	
	Manage Bluetooth Devices	Bluetooth Devices List				
		Add	New Pin		0~9	0000
			Cancel			
		Disconnect or Connect				
		Delete			Delete or cancel	
	Traffic Program (TP)				On, Off	Off
	Configure	Time & Date	Set Time	Set time	(01 ~ 12) : (00 ~ 59) : (AM or PM)	12:00 AM
					(00 ~ 23) : (00 : 59)	
				Auto Set	Off (Manual)	Off (Manual)
					On-Cell Network	
					On-RDS	
				12-24 HR	12hr or 24hr	12hr
			Set Date	Set date	(Jan ~ Dec) (1 ~31) (2012 ~2099)	Apr 19 2013
				Auto Set	Off (Manual)	Off (Manual)
					On-Cell Network	
					On-RDS	
				Format	MMDDYYYY	MMDDYYYY
					DDMMYYYY	
					YYYYMMDD	
		Tone Settings	Bass		(-12~+12 Level Control)	0
			Midrange		(-12~+12 Level Control)	
			Treble		(-12~+12 Level Control)	
			Fade		(-12~+12 Level Control)	
			Balance		(-12~+12 Level Control)	
			EQ		Pop	Custom
					Rock	
					Country	
					Jazz	
					Talk	
					Classical	
					Custom	
		Auto Volume			Off	Low
					Low	
					Medium-Low	
					Medium	
					Medium-High	
					High	
		Maximum Startup Volume			17~51	24

In case of vehicle menu,
See the chapter 7. Vehicle Menu Tree

Bluetooth Phone

Menu Depth / Menu No	Depth 1st	Depth 2nd	Depth 3rd	Depth 4th	Option Value	Default Value
Phone Connected	Recent Calls	Missed				
		Received				
		Sent				
	Contacts					
	Keypad					
	Bluetooth Devices	Bluetooth Devices List				
		Add	New pin		0~9	0000
			Cancel			
		Disconnect				
		Delete			Delete or cancel	
Phone Disconnected	Bluetooth Devices	Bluetooth Devices List				
		Add	New pin		0~9	0000
			Cancel			
		Connect				
		Delete			Delete or cancel	

In case of vehicle menu,
See the chapter 7. Vehicle Menu Tree

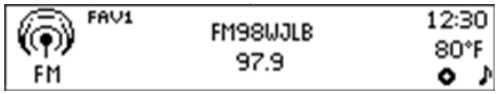
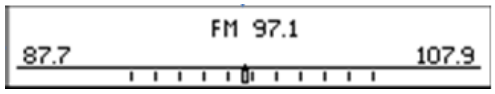
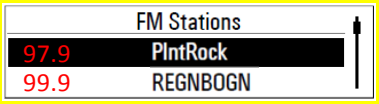
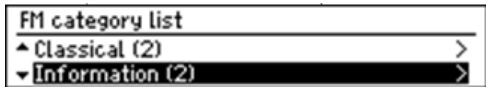
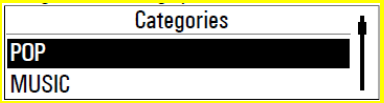
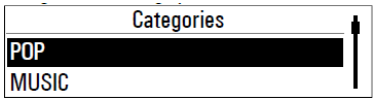
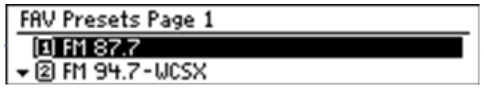
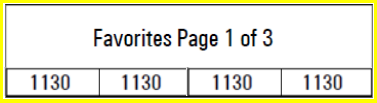
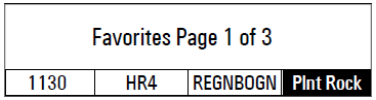
RBDS

Menu Depth / Menu No	Depth 1st	Depth 2nd	Depth 3rd	Depth 4th	Option Value	Default Value
RBDS (North America)	Stations List					
	Update Stations List					
	Categories				Rock	Information
					Talk	
					Country	
					Classical	
					Jazz	
					ALL FM	
	Set Number Of Audio Favorites Pages				1Page	6Pages
					2Pages	
					3Pages	
					4Pages	
					5Pages	
					6Pages	
	Configure	Time and Date	Set time	Auto Set	Off (Manual)	Off (Manual)
					On-Cell Network	
				12-24 HR	12hr or 24hr	12hr
				Set time	(01 ~ 12) : (00 ~ 59) : (AM or PM)	12:00 AM
					(00 ~ 23) : (00 : 59)	
			Set Date	Set date	(Jan ~ Dec) (1 ~31) (2012 ~2099)	Apr 19 2013
				Auto Set	Off (Manual)	Off (Manual)
					On-Cell Network	
				Format	MMDDYYYY	MMDDYYYY
					DDMMYYYY	
					YYYYMMDD	
		Tone Settings	Bass		(-12~+12 Level Control)	0
			Midrange		(-12~+12 Level Control)	
			Treble		(-12~+12 Level Control)	
			Fade		(-12~+12 Level Control)	
			Balance		(-12~+12 Level Control)	
			EQ		Pop	Custom
					Rock	
					Country	
					Jazz	
					Talk	
					Classical	
					Custom	
		Auto Volume Control			Off	Low
					Low	
					Medium-Low	
					Medium	
					Medium-High	
					High	
		Maximum Startup Volume			17~51	24

In case of vehicle menu,
See the chapter 7. Vehicle Menu Tree

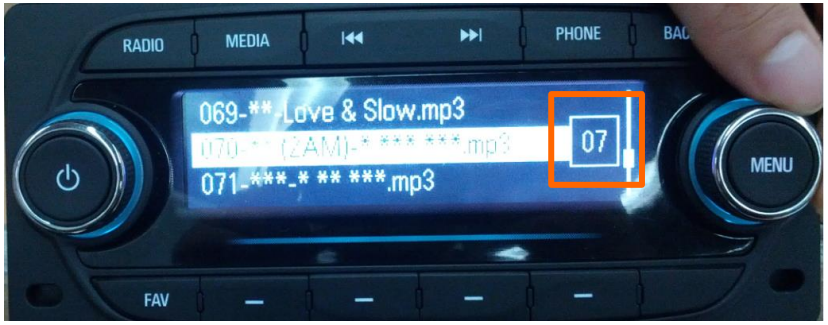
Appendix II (RBDS)

Appendix II - RBDS

		GSV - RBDS (As Is)	NGF - RBDS (To Be)	Remark : NGF RDS
Now Playing	HMI			
	Supported Features (RBDS/RDS)	* PS Name : 8 characters with Frequency Label * RBDS Meta Data : Toggling by the <Info> key	* Frequency Label + PS Name : 8 characters (If the RBDS SI does not have the info of PS Name, NGF displays only the Frequency Label.) * RBDS Meta Data : 2lines	* PS Name : 8 characters Only * RDS Meta Data : 2lines * {TP}icon * Pop-up 1) TP Update 2) Traffic Alert
Rotate <Enter> Knob	HMI			 **Direct Manual Tuning** **(Station List locates on the Menu)**
	Supported Features (RBDS/RDS)	* Dynamic Tune (Freq.)	* Frequency Label + PS Name : 8 characters (If the RBDS SI does not have the info of PS Name, NGF displays only the Frequency Label.)	
Category List	HMI			
	Supported Features (RBDS/RDS)	* 1depth Hierarchy Category List : Rock, Talk, Country, Classical, Jazz, All FM	* 1depth Hierarchy Category List : Rock, Talk, Country, Classical, Jazz, All FM	* 2depth Hierarchy Category List : See the GIS-403 V1.4 Page 44
Favourite Page	HMI			
	Supported Features (RBDS/RDS)	* Frequency Label with PS Name	* Frequency Label Only	* Frequency Label OR PS Name
Remark (Total Supported Features)		* PS Name * RBDS Meta Data * Category List	* PS Name * RBDS Meta Data * Category List	* PS Name * RDS Meta Data * Category List * AF (Region) * TP / TP Search * TA * RDS Time

Appendix III (Zoom Bubble : USB/SD Only)

Appendix III – Zoom Bubble USB/SD Only



- **Zoom Bubble Applied Scope**
  - USB, SD : Over 20EA Folders, Files at least in the folder view and playlist.

  - Zoom Bubble Triggering Action : Rotate the <Menu> Knob to 7step within 1sec.

  - Zoom bubble Time out Condition
    1) Normal : Time out 3sec
    2) Key Interrupt
    3) Device Removed/Interrupt

  - Zoom Bubble Jump Algorithm
    1) 20EA ~ 499EA Folders/Files : On Activation, Jump to 10Folders/Files by rotating the 1step of <Menu>

    2) 500EA ~ 6000EA Folder/File : On Activation, Jump to 50Folders/Files by rotating the 1step of <Menu>

  - the method of display – Zoom Bubble.
    1) See the attached picture.

    2) Latin, Number, Extended Character's Folder/File name
    : Left(2character folder/File Name, Center Align in the box)

    3) Korean, Thai
    : Left(1character Folder/File Name, Center align in the box)

    4) Arabic
    : Right(1character Folder/File Name, Center align in the box)

Appendix III
(Arabic Layout Guide)

Appendix V – Arabic Layout Guide

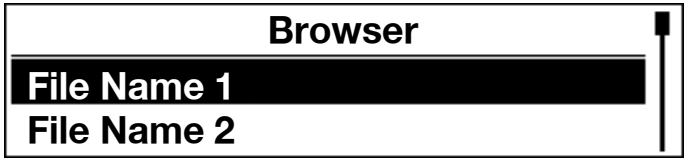


Figure. Universal GUI Layout (List)

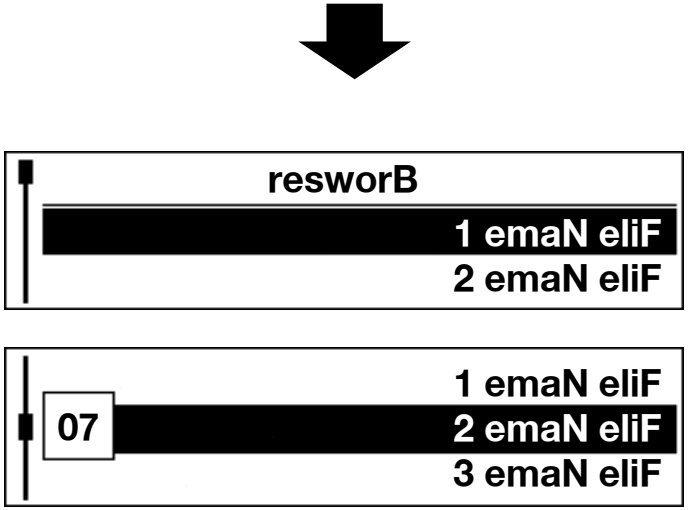


Figure. Arabic GUI Layout
(List item is only applied as reversed against universal GUI)

- **Arabic Layout Guide**
  - All of GUI, should be followed the universal GUI Layout.

  - However,
    If the user set the language of Arabic,
    List Item of GUI is only revered left/right against
    universal GUI layout
    like left the Image.

Regulatory

FCC ID: YRN-HAGM1006

This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:

(1) This device may not cause harmful interference,
And (2) this device must accept any interference received,
Including interference that may cause undesired operation

A user's manual for the product should include the following statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The following statement must be included as a CAUTION statement in manuals to alert users of FCC RF exposure compliance:

To satisfy FCC RF Exposure requirements for mobile and base station transmission devices, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during operation. To ensure compliance, operation at closer than this distance is not recommended.

The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.