NAV-TV

INTERFACING THE FUTURE

Barracuda

Video in Motion for select '07-'11 GM vehicles
NTV-KIT211

Overview

The NAV-TV Barracuda adds Video in Motion, Navigation control in motion, forced *factory* camera and front camera add-on (only if factory camera equipped) to select 2007-2011 GM vehicles equipped with 29-BIT GM-LAN radios.

Kit Contents

Plug & Play T-Harness
NTV-HAR123

GPS Antenna Extension
NTV-CAB037

Barracuda Module
NTV-ASY166

USB Cable (updates)
NTV-CAB009

GPS Antenna Relay
NTV-ASY165
(not required for Cadillac)

Barracuda pin out

PIN #	Description	Color
1	12v (+) Constant	Red
2	--NOT USED--	White
3	--NOT USED--	Pink
4	--NOT USED--	Orange
5	RX (FLIR Control)	Brown
6	RCA Signal (+) (Radio Side)	White
7	RCA SHEILD (common)	Gray
8	VSS (Radio Side)	Brown
9	GM-LAN (Radio Side)	Green
10	Ground (-)	Black
11	12v (+) OUT (for forced CAM)	Blue
12	Programmable OUTPUT A	White/Blue
13	Programmable OUTPUT B	White/Orange
14	TX (FLIR Control)	Brown/Red
15	RCA Signal (+) *INPUT (front cam)*	Red
16	RCA Signal (+) *INPUT (rear cam)*	White
17	VSS (Vehicle Side)	Blue
18	GM-LAN (Vehicle Side)	Purple

18	17	16	15	14	13	12	11	10
9	8	7	6	5	4	3	2	1

Wire side view

Radio Removal (Escalade)

1. Using a soft plastic pry tool, remove the trim panel on the passenger side just over the glove compartment. This will allow removal of radio trim.
2. Gently pry up on center console trim, and disconnect cigarette lighter plug.
3. Remove the trim panel around the radio and HVAC controls to expose radio mounting.
4. Remove the 6) 7mm screws.
5. Remove the radio. Once the radio is removed, unplug the radio and set to the side.

Radio Removal (Full size SUV & Trucks)

1. Using a soft plastic pry tool, remove the trim panel from around the radio and HVAC.
2. Remove the 4) 7mm screws holding the radio in place.
3. Remove the radio. Once the radio is removed, unplug the radio and set to the side.

Barracuda Installation

1. After the radio has been removed, locate the factory **brown and black plugs** that match those found on the provided **Plug & Play T-Harness** and connect them securely to the female side.

NOTE: Do not install the GPS antenna relay for Cadillac Escalade vehicles.

2. On the provided **GPS Antenna Relay**, splice the **black wire** to a ground (-) source and connect the **red wire** to **OUTPUT A** (white/blue wire) from the Barracuda module's harness. This wire will be labeled.

Note: Be sure to program 'OUTPUT A' to 'Antenna Interrupt' so that the GPS antenna signal is separated when VIM is active. (See Programming)
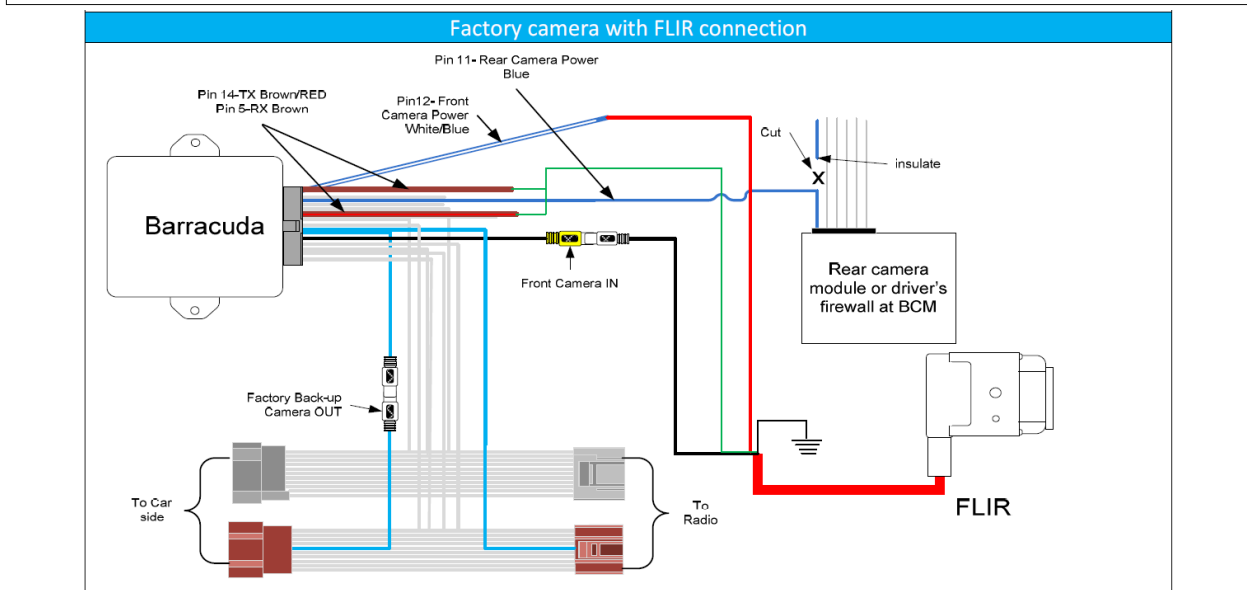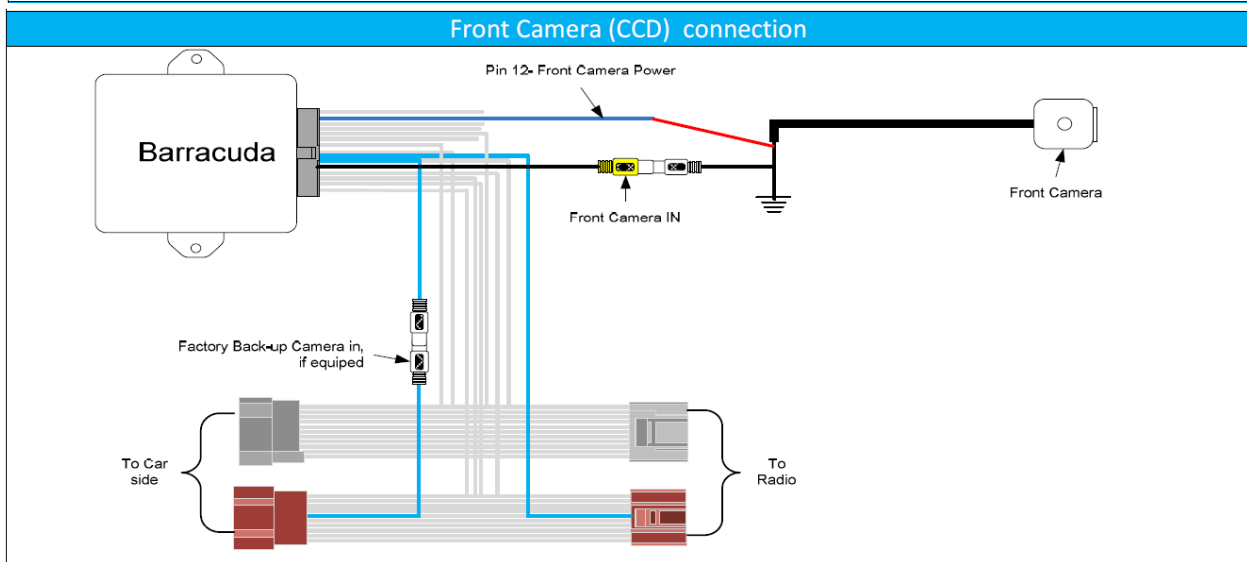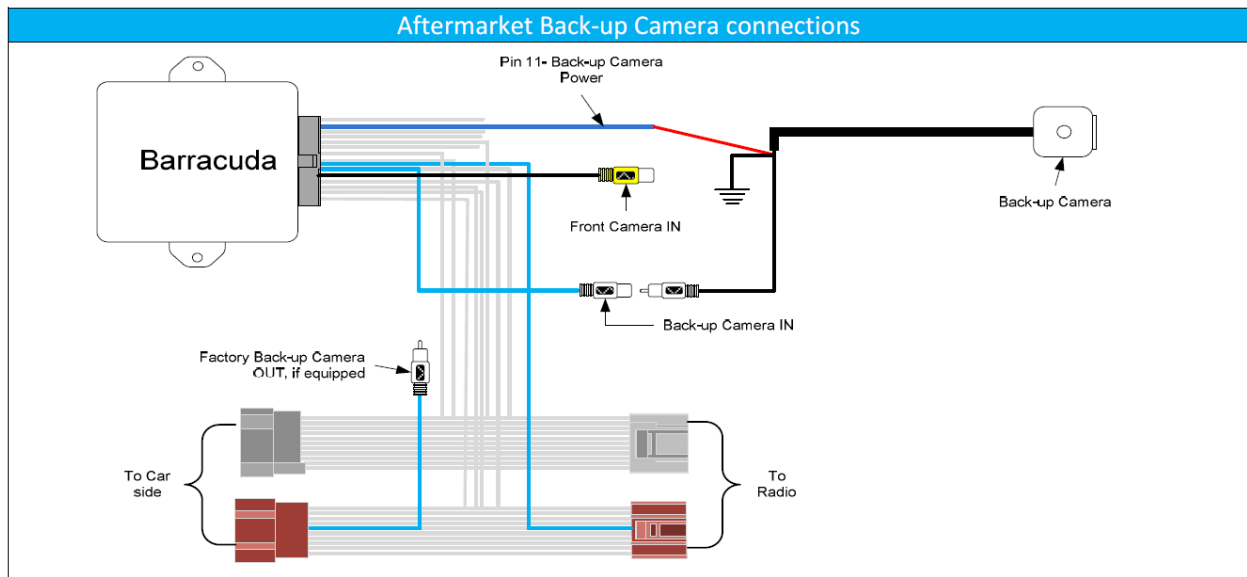
3. Locate the factory GPS antenna cable (usually blue) and connect it to the **turquoise connector** on the provided **GPS Antenna Relay**.

4. Connect the provided **GPS Antenna Extension** to the **yellow connector** of the **GPS Antenna Relay**, and the free end back to the radio.

5. If not adding any additional cameras, keep both the **black RCA's** connected together, otherwise you will *lose the factory rear camera image*.
6. **If forced factory rear camera (viewing camera image at any time) is desired:**
   a. Locate the factory **rear camera module** (usually under pass seat or rear section of vehicle) or **BCM** (usually mounted near the drivers firewall)
   b. Locate the **blue reverse 12v wire** which runs to the camera module, **cut it in half**
   c. Extend the **Blue wire (PIN 12)** from the Barracuda's main harness to the camera module/BCM
   d. Connect the Barracuda's **Blue wire** to the **camera module side** of the cut wire
   e. *Insulate the other end of the cut wire to prevent a short!*

7. **If adding an additional front camera,** the RCA's must be connected differently than step 5 (See the diagrams on page 5 for visual aid). Power for the front camera can be connected to **OUTPUT B** (white/orange wire). **Be certain to program OUTPUT B for 'Front Camera'** if using white/orange wire.

8. Connect the Barracuda module to the 18-pin plug located on the **Plug & Play T-Harness**.
9. Proceed to **Barracuda Programming** (page 6).

Aftermarket Back-up Camera connections

Pin 11- Back-up Camera Power

Barracuda

Front Camera IN

Back-up Camera

Back-up Camera IN

Factory Back-up Camera OUT, if equipped

To Car side

To Radio

Front Camera (CCD) connection

Pin 12- Front Camera Power

Barracuda

Front Camera IN

Front Camera

Factory Back-up Camera in, if equiped

To Car side

To Radio

Factory camera with FLIR connection

Pin 14-TX Brown/RED
Pin 5-RX Brown

Pin 11- Rear Camera Power
Blue

Pin12- Front Camera Power White/Blue

Cut

insulate

Barracuda

X

Front Camera IN

Rear camera module or driver's firewall at BCM

Factory Back-up Camera OUT

To Car side

To Radio

FLIR

Agreement: End user agrees to use this product in compliance with all State and Federal laws. NAV-TV Corp. would not be held liable for misuse of its product. If you do not agree, please discontinue use immediately and return product to place of purchase. This product is intended for off-road use and passenger entertainment only.

Forced Factory Rear Camera connection (optional)

Barracuda Programming
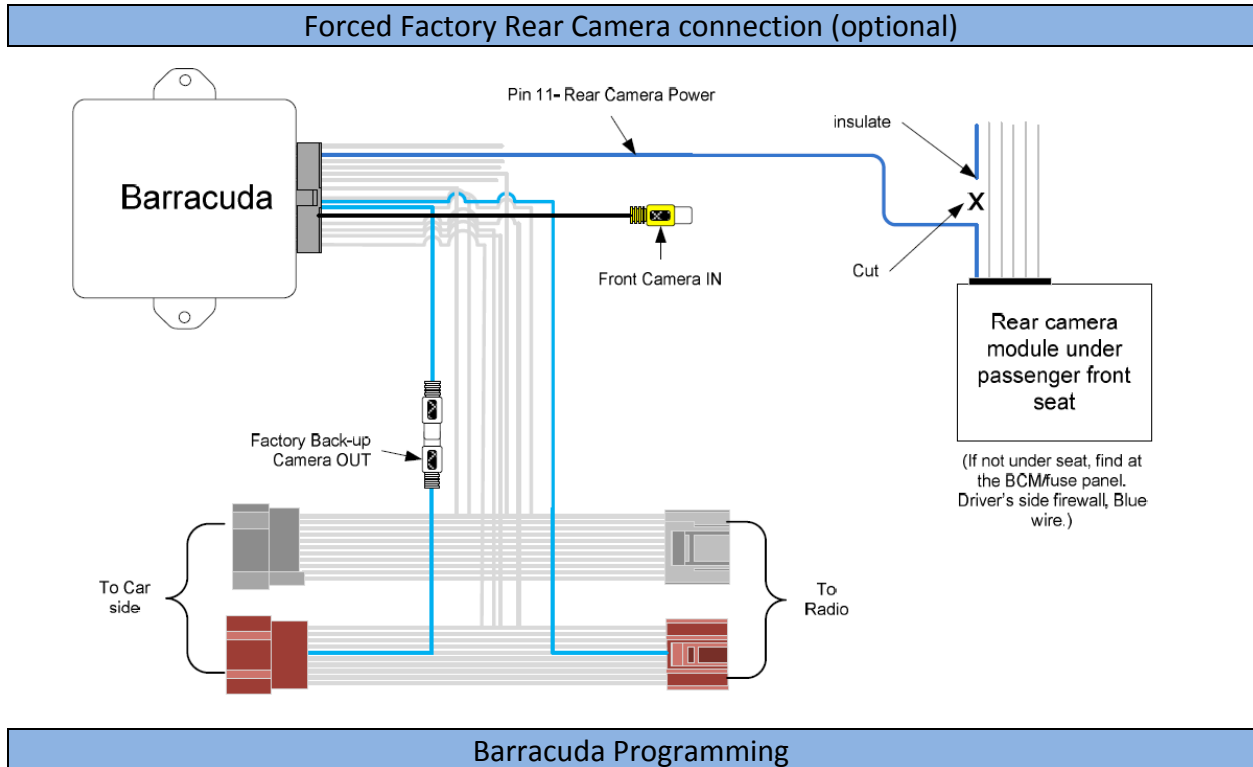
The Barracuda Settings Menu supports GM's 4 Line, 2 Line, and 1 Line instrument cluster displays. To access the Barracuda Settings Menu, press and hold the left arrow mirror button for 2 seconds.

The following instructions will appear on the instrument cluster display.

a. Use the remote mirror **Down** "↓" key to cycle through the features (VIM, CIM, etc.).

b. Use the remote mirror **Right** "→" key to change the current setting for the selected feature.

c. Use the remote mirror **Left** "←" key to exit the menu.

The module stores your selection(s) into memory upon exiting the menu.

NOTE 1: Menu items 9, 10, and 11 are only available if you have item 8, FRONT CAMERA, set to FLIR.

Please verify the following settings before starting, paying special attention to Radio Type, connected accessories and Antenna interrupt:

1. RADIO TYPE = *CADILLAC*

2. VIM DEFAULT = *OFF*

3. BEEP = *ON*

4. CIM TIMEOUT = *1 MIN*

5. PROGRAMMABLE OUTPUT A = *ACCESSORY*

6. PROGRAMMABLE OUTPUT B = *ACCESSORY*

7. FORCE REAR CAM = *OFF*

8. FRONT CAM = *OFF*

1. **RADIO TYPE:** Used to accommodate the different configurations of stock GM radios.
  CADILLAC: Select this when vehicle is a Cadillac.
  CHEVROLET: Select this when vehicle is a Chevrolet.
  GMC: Select this when vehicle is a GMC.
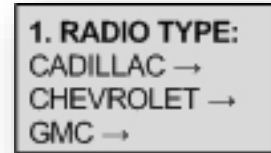
NOTE 2: When either Chevrolet or GMC is selected, turning VIM ON also enables the Control in Motion features. However, when Control in Motion is turned on, **VIM is not enabled.**

2. **VIM DEFAULT:** Stores the default setting for Video In Motion.
  ON: VIM is Always ON until the user turns it off.
  OFF: VIM is Always OFF until the user turns it on**. (Recommended)**
 LAST STATE: Instructs the module to store the last state VIM was set when the car was turned off.
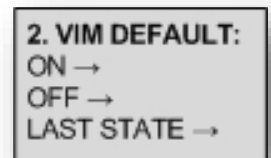
NOTE 3: To enable VIM in Chevrolet or GMC vehicles select "ANT. INTERRUPT" for the programmable Output A or B, connected to the external antenna relay board.

3. **BEEP:** Enables or disables the audible tones the Barracuda uses to signal the user a state has changed.
  ON: Audible beeps, generated by the Barracuda, are ON.
  OFF: Audible beeps, generated by the Barracuda, are OFF.

4. **CIM TIMEOUT:** Sets the amount of time that CIM stays active after being turned on.
1 MIN: Control in Motion is enabled for 1 Minute.
5 MIN: Control in Motion is enabled for 5 Minutes.
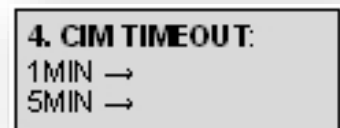
Programming continues on next page...

5. and 6. **PROG. OUTPUT A and B:** Two +12V DC outputs controlled by the Up and Down mirror buttons, or automatically.

NOTE 4: The Barracuda menu for PROG OUTPUT A and B are identical. They operate independently of each other, but can share the same control button (Up/Down).

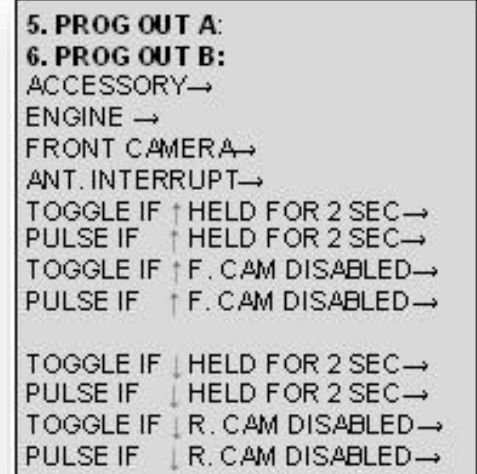   **Accessory:** +12V is output from port A or B when the Accessory power is on.

      Engine: +12V is output from port A or B when the Engine is on.

      Front Camera: Provides +12V DC to the Front camera, when installed and enabled.

      Ant. Interrupt: Select Antenna Interrupt to enable VIM in Chevrolet or GMC vehicles.

      Toggle if "Up Arrow" is held for 2 seconds: Press and Hold "UP Arrow" for 2 seconds turns on/off +12V output from port A or B.

      Pulse if "Up Arrow" is held for 2 seconds: Press and Hold "Up Arrow" for 2 seconds enables a +12V pulse for 300ms.

```
5. PROG OUT A:
6. PROG OUT B:
ACCESSORY→
ENGINE →
FRONT CAMERA→
ANT. INTERRUPT→
TOGGLE IF ↑HELD FOR 2 SEC→
PULSE IF  ↑HELD FOR 2 SEC→
TOGGLE IF ↑F.CAM DISABLED→
PULSE IF  ↑F.CAM DISABLED→

TOGGLE IF ↓HELD FOR 2 SEC→
PULSE IF  ↓HELD FOR 2 SEC→
TOGGLE IF ↓R.CAM DISABLED→
PULSE IF  ↓R.CAM DISABLED→
```

NOTE 5: Select "FRONT CAMERA" for the programmable output connected to the camera and select "ANT. INTERRUPT" for the output connected to the external relay board.

7. **FORCE REAR CAMERA:** Enables/disables Forced Rear Camera mode and the Rear Camera output on pin 11. Selecting OFF disables the forced rear camera function.

      OFF: Disables force rear camera.

   ON: Enables Force Rear Camera. The Down Arrow key will activate/deactivate the rear camera image.

```
7. FORCE REAR CAMERA
OFF →
ON →
```

NOTE: In order to use this function with the factory camera, pin 11 of the Barracuda needs to be connected to the Rear Camera Module (see Page 8.) This is not necessary for an aftermarket camera.

8. **FRONT CAMERA:** This option enables Front camera support. If a front camera (regular or FLIR) is to be controlled then select Front Camera = ON or FLIR. The default setting is Front Camera = OFF.

      OFF: No front camera.

      ON: Used when a front camera is being installed.

      FLIR: FLIR camera present.

```
8. FRONT CAMERA:
OFF →
ON →
FLIR→
```
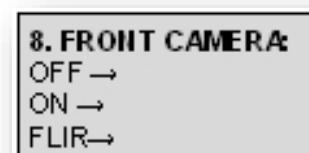
NOTE 6: Front Camera OFF disables the Front camera function.
NOTE 7: Select "FRONT CAMERA" for the Programmable Output A or B that will provide power to the camera (see 5 & 6).

NOTE 8: Selecting "FLIR" enables menu items 9, 10, and 11. If not selected, then the settings Menu cycles back to item 1, RADIO TYPE, after item 8.

NOTE 9: FLIR Camera communication requires Pin 5 and Pin 14 of the Barracuda Wire Harness to be tied together and connected the controller wire of the FLIR Harness. (See diagram below.)

9. *FLIR ZOOM:* 2X zoom is available for the FLIR camera and can be set as follows:
 *Always OFF:* Zoom is normally disabled.
  Always ON: Zoom is always on.
  On High Beam: Zoom on when high beams are active.
  On High Beam or > 20MPH: Zoom is enabled on High Beam or when the speed is greater than 20MPH. The zoom function turns off at 15MPH.
  On High Beam or > 40MPH: Zoom is enabled on High Beam or when the speed is greater than 40MPH. The zoom function turns off at 30MPH.
  On High Beam or > 60MPH: Zoom is enabled on High Beam or when the speed is greater than 60MPH. The zoom function turns off at 50MPH.


```
9. FLIR ZOOM:
ALWAYS OFF →
ALWAYS ON →
ON HIGH BEAM →
ON HIGH BEAM OR > 20MPH →
ON HIGH BEAM OR > 40MPH →
ON HIGH BEAM OR > 60MPH
```
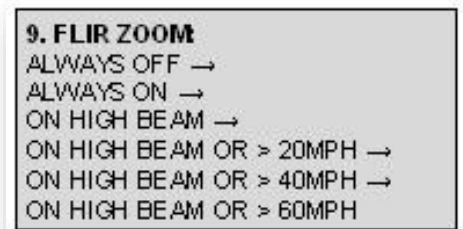
10. *FLIR COLORS:* The Barracuda module allows you to modify the colors the FLIR camera outputs to the radio LCD.
  White Hot: Black and white image, with White indicating hot.
  Black Hot: Black and white image with Black indicating hot.
  Sepia: Brown and black image.
  Rainbow: Color image with Red indicating hot.

```
10. FLIR COLOR:
WHITE HOT →
BLACK HOT →
SEPIA →
RAINBOW→
```

11. *FLIR MOUNT:* The FLIR Camera can be mounted 1 of 2 ways, upright or up-side down. This setting allows you to configure the image on the screen to the mounted position of the FLIR camera.
  Normal: Select when the FLIR camera is physically mounted right side up.
  Inverted: Select when the FLIR camera is physically mounted upside down.

```
11. FLIR MOUNT:
NORMAL→
INVERTED→
```

Barracuda Operation

All Functions of the Barracuda are controlled through the vehicle's power mirror direction pad. The Barracuda controls are only available when the left and right mirror buttons are NOT selected (LEDs OFF). Example: if the Left Mirror button is illuminated, press the illuminated Left Mirror button again to turn the LED off.

Video In Motion: Momentarily pressing the left arrow will enable/disable video in motion. This function will allow the user to view DVD video or AUX video (if available) while the vehicle is in motion.

Control In Motion: Momentarily pressing right arrow will enable/disable Control in motion. Control in Motion allows the user to access radio functions that are normally blocked while the vehicle is moving.
Note: When activated, Control in Motion (CIM) will remain ON for 1 or 5 minutes (user selectable) and then deactivate itself.

Forced Rear Camera: Momentarily pressing down arrow enables/disables forced rear camera (if applicable). This will allow the user to view the back-up camera video regardless of speed or gear.
*Requires Factory Rear Camera, Dealer programming of Radio for Rear Camera, OR NAV-TV GMLANCAM module for compatible radios. See Glove Compartment for a silver sticker with one of the following markings UV8, UV9, UVA, or UVB to determine radio compatibility.

Front Camera: Momentarily pressing up arrow enables/disables front camera (if applicable). This will allow the user to view the front camera video regardless of speed or gear.
*Requires Factory Rear Camera, Dealer programming of Radio for Rear Camera, OR NAV-TV GMLANCAM module for compatible radios. See Glove Compartment for a silver sticker with one of the following markings UV8, UV9, UVA, or UVB to determine radio compatibility.

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