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ADAS

New Technology ADAS Theory

MODULE GOAL	Provide you with new technology featured on Seltos, K5, Stinger, Sorento and Carnival.
MODULE OBJECTIVE	After completing this module, you will be able to describe ADAS components and features, including: <ul style="list-style-type: none">• Front view camera• Front radar sensor• Rear corner radar sensors
REQUIRED MATERIALS	To complete this module, you will need the following items: <ul style="list-style-type: none">• Technician Guide
TIME TO COMPLETE	Approximately: 30 minutes



ADVANCED DRIVER ASSISTANCE SYSTEMS (ADAS)

Kia Advanced Driver Assistance Systems (ADAS) warn or assist the driver (with vehicle control if necessary) by analyzing driving behavior based on data about surroundings sent by vehicle sensors, including:

- Front view camera
- Front radar sensor
- Rear corner radar sensors

Kia sometimes refers to ADAS as "DRIVE WISE."

Systems ending in "A" (Assist) provide warning and perform partial control, such as FCA, LKA, and RCCA.

Systems ending in "W" (Warning) only provide warning, such as FCW, LDW, and RCCW.

				Carnival	Sorento	Seltos	K5
Front View Camera	LFA	Lane Following Assist	Keeps the vehicle in lane center on all roads	X	X	X	X
	DAW	Driver Attention Warning	Detects and warns driver distraction (driving patterns)	X	X	X	X
	HBA	High Beam Assist	Adjusts the high/low beams adaptive to the brightness in the front	X	X	X	X
	ISLA	Intelligent Speed Limit Assist	Assists setting and changing the SCC speed	X	-	-	-
	LDW	Lane Departure Warning	Warns when the vehicle begins to move out of the lane	X	X	LDA	LDA
LKA	Lane Keeping Assist	Applies steering intervention when the vehicle is moving out of the lane	X	X	LKA-L/R	LKA - L	
Front View Camera and Front Radar	FCA	Forward Collision-avoidance Assist	Applies emergency braking against a potential frontal collision	X	X	Camera only	Camera only
	HDA	Highway Driving Assist	Maintains distance from vehicles & keeps vehicle in lane center	X	X	X	X
	FCA-JT	FCA – Junction Turning	Performs braking control to prevent collision with oncoming vehicles when turning left	-	-	-	X
Front Radar	NSCC-C	Navigation-based Smart Cruise Control-Curve	Automatically decelerates in curved roads	X	X	X	X
	SCC w/S&G	Smart Cruise Control with Stop & Go	Maintains the distance from other vehicles & stop and go	X	X	X	X
Rear Radar	BCW	Blind-spot Collision Warning	Warns of a vehicle approaching from the rear	X	X	X	X
	SEA	Safe Exit Assist	Warns of a vehicle approaching from the rear-corner during passenger exit	X	X	X	X
	RCCA	Rear Cross-traffic Collision-avoidance Assist	Applies emergency braking against a potential collision with oncoming cross-traffic while reversing out of a parking spot	X	X	X	X
	RCCW	Rear Cross-traffic Collision Warning	Warns of a collision risk with oncoming cross-traffic while reversing out of a parking spot	X	X	X	X
Rear Radar and Front View Camera	BCA	Blind-spot Collision-avoidance Assist-Rear	Applies differential braking against a potential rear corner collision	X	X	X	X

ADAS FUNCTIONS

Instructor Note:

ISLA is only available on the Carnival.

FCA-JT is only available on the K5.

This chart shows ADAS functions available on the Carnival, Sorento, Seltos, and K5. These functions are similar to other Kia models, and use the same inputs: front view camera, front radar sensor, and rear corner radar sensors.

Most functions are controlled by signals from one sensor, but a few use the front view camera and the front radar sensor (aka "Camera Fusion"). BCA uses the front view camera and the rear corner radar sensors.

This module describes the sensors and their associated functions.



FRONT CAMERA SENSOR

Instructor Note:

Applies to all models

There are many ADAS features available on the Carnival, Sorento, Seltos, and K5. Some of these features rely on input from the front camera sensor, and include:

LFA	Lane Following Assist
DAW	Driver Attention Warning
HBA	High Beam Assist
ISLA	Intelligent Speed Limit Assist
LDW	Lane Departure Warning
LKA	Lane Keeping Assist

These ADAS functions will be discussed on the next few pages.



LANE FOLLOWING ASSIST (LFA)

Instructor Note:

On older models, Smart Cruise Control must be set before LFA can function. In newer models, LFA can be turned on independently using the separate LFA switch

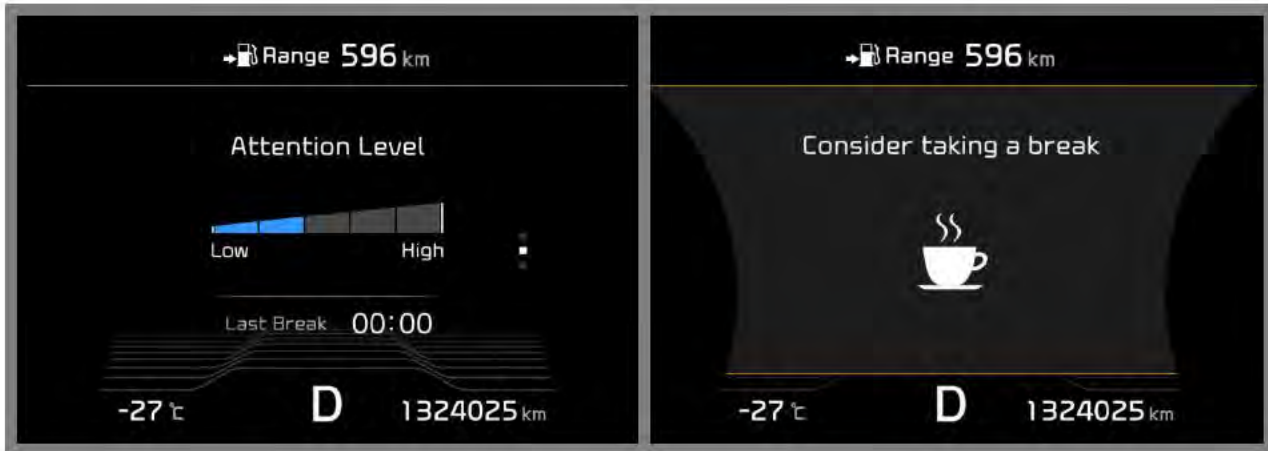
LFA performs steering control to keep the vehicle in the middle of the lane. It is activated if:

- The LFA switch is ON
- Vehicle speed is over 0 mph
- Either lane marker is detected

The vehicle is kept in the middle based on virtual lane markings.

If both lane markings are not detected: Preceding vehicle tracking control takes place, like Highway Driving Assist (HDA).

Preceding vehicle path-following control: When detecting a vehicle ahead when both lanes are not recognized.



DRIVER ATTENTION WARNING (DAW)

DAW detects careless driving patterns and encourages the driver to rest. Activation conditions:

- USM settings (no separate switch available)
- Vehicle speed above 0 mph (conventional models: 60 mph and above)

Conditions that automatically reset the attention level:

- Engine turned OFF and ON again
- Vehicle stationary for 10 minutes with engine ON
- Driver's seatbelt is not fastened, and a door is open (engine On and vehicle stationary)

Lane keeping failure	Unintended lane crossing	Over steering	Under steering
high lateral position variation	Lane crossing	Too large steering pattern variations	Steering grip weakened
0.5 Level Down		1 Level Down	



HIGH BEAM ASSIST (HBA)

High Beam Assist allows the headlamps to be placed in high beam mode, and automatically dim to low beams when:

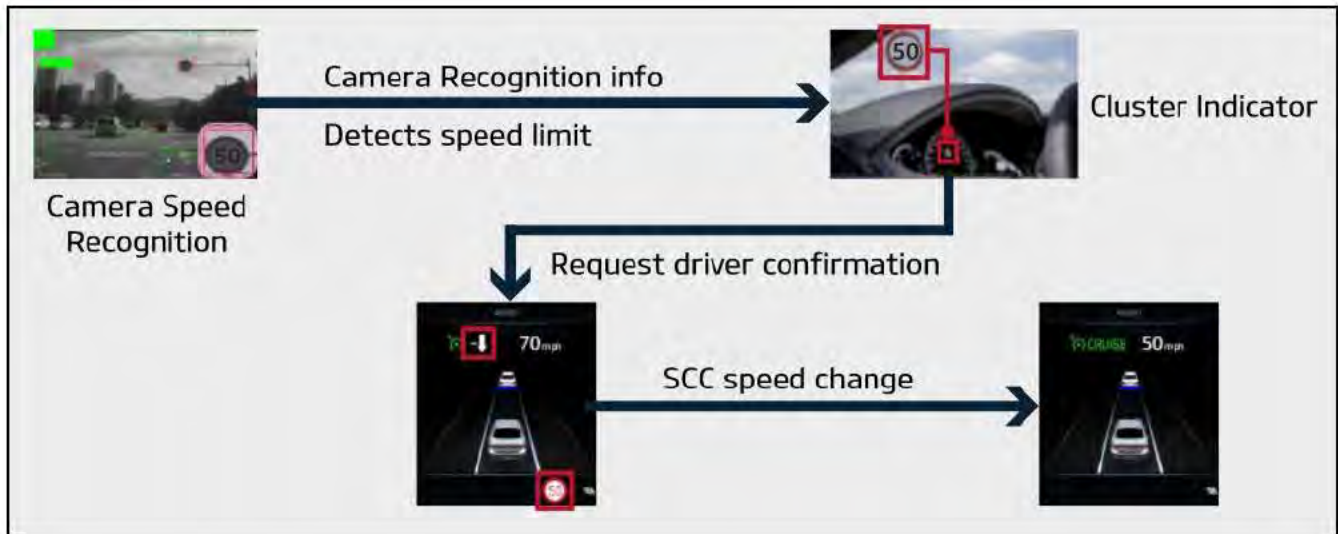
Instructor Note:

High beam control occurs whether fog lamps are ON or OFF.

- Preceding taillights or brake lights are detected
- Headlamps of oncoming vehicles or streetlights are detected

The system will be active when:

- Headlamps are in AUTO position
- High beams are ON
- Vehicle speed is above 24 mph
- Surroundings are dark



INTELLIGENT SPEED LIMIT ASSIST (ISLA)

ISLA automatically sets and changes SCC speed by detecting speed limit signs. This function uses speed limit sign data provided by the front view camera and navigation (if equipped). USM turns the function ON or OFF.

Instructor Note:

Carnival and Sorento only

The front camera detects speed limit and supplemental signs. The navigation provides vehicle speed, navigation speed limit, road type, and on-ramps/off-ramps.

When the ignition is turned ON, the previously used mode is maintained.

The system will operate with only the front camera input if navigation information is not received.



LANE DEPARTURE WARNING (LDW)

LDW warns the driver when the vehicle is departing the lane without the turn signals ON. This function works above 36 mph, and if at least one lane marker is detected. The driver warning is a vibration through the steering wheel.

In newer models, LDW/LKA can only be turned ON or OFF using a separate switch. Other models use the USM settings menu. This function is known as LDA on Seltos and K5.



LANE KEEPING ASSIST (LKA)

The front camera sensor is an input for LKA, which helps prevent lane departure and provides a degree of lane centering. The force that LKA applies to the steering wheel is increased from 2.5 Nm to 3.0 Nm, so it can be clearly felt when holding the wheel.

If the driver removes their hand from the steering wheel, LKA will generate a warning message for 4 seconds. If the steering wheel remains unattended it will again activate a message and sound.

LKA prevents lane departure, while LFA is a convenience feature that helps keep the vehicle in the center of the lane.



FRONT VIEW CAMERA CALIBRATION

When the front camera is replaced, Variant Coding configures the sensor for the right model and year.

There are two methods for setting variant coding:

- The preferred method is **"Backup and Import"**
- If that is not possible, variant coding can be retrieved from KGIS using the VIN and entered directly

Use the SST Target and KDS to calibrate the camera.

Adjust the target following the Repair Manual and KDS, including:

- Front/back tilt
- Left/right tilt
- Left/right twist
- Height from ground
- Distance from vehicle



FRONT VIEW CAMERA AND FRONT RADAR




Instructor Note:
This is known as "Camera Fusion" or "Sensor Fusion"

There are many ADAS features available on the Carnival, Sorento, Seltos, and K5. Some of these features rely on input from the front camera sensor and the front radar sensor including:

FCA	Forward Collision-avoidance Assist
HDA	Highway Driving Assist
FCA-JT	FCA – Junction Turning

When both the front radar and front camera are used it is called "Camera Fusion" or "Sensor Fusion".

These ADAS functions will be discussed on the next few pages.

Category	Stage 1 (warning)	Stage 2 (partial braking)	Stage 3 (full braking)
Visual warning			
Auditory warning	Repeating alarm sound (8 Hz)	Repeating alarm sound (8 Hz)	Continuous alarm sound
Control details	Warning + preparation for braking	Warning + braking at 0.4 g	Warning + braking at 1 g

FORWARD COLLISION-AVOIDANCE ASSIST (FCA)

FCA provides a driver warning through the cluster and performs ESC emergency braking if the front radar or camera sensor anticipates a collision with an object in front. After an emergency stop, ESC braking force is maintained for about 2 seconds. After 2 seconds, press the brake pedal to maintain braking.

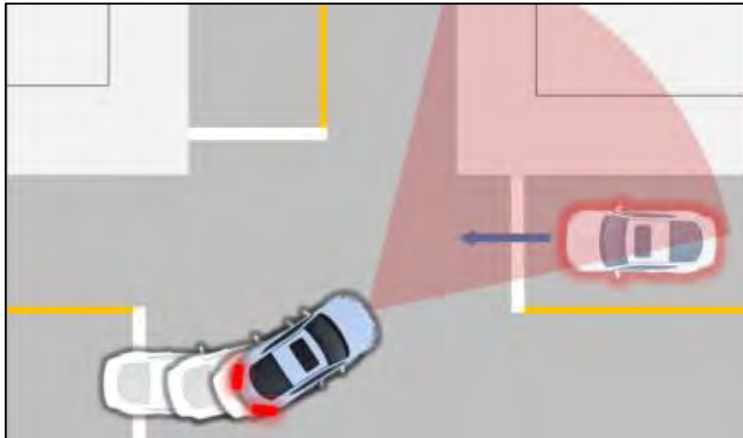
Seltos and K5 use camera only, so cyclists cannot be detected.



HIGHWAY DRIVING ASSIST (HDA)

HDA maintains a set distance from the vehicle in front and keeps the vehicle in the center of the lane. The HDA function is a camera fusion operation. SCC is controlled by the front radar and LFA is controlled by the front view camera. These two functions are integrated into the HDA function. Highway data is provided by the navigation system.

This system operates when the HDA function is turned ON in USM settings and LFA is turned ON by pressing the switch.



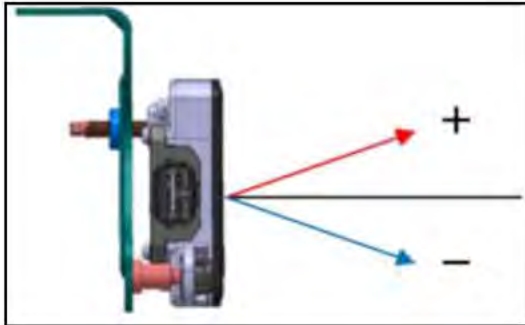
FCA — JUNCTION TURNING (FCA-JT)

FCA-JT is a sub-feature of FCA and offers collision-avoidance against oncoming traffic while turning. This function applies the brakes when detecting a risk of collision with an oncoming vehicle in the next lane during a left turn at a junction (intersection).

FCA-JT is available for a limited range of speeds only as it can pose a greater risk to the driver at other speeds. For FCA-JT to operate:

- FCA ON
- Left turn indicator ON
- Vehicle speed at 6-18 mph
- Oncoming vehicle speed at 18-42 mph

FCA and FCA-JT are both OFF if FCA OFF or ESC OFF is selected. This function is only available on K5 and Carnival.



FRONT RADAR

There are many ADAS features available on Carnival, Sorento, Seltos, and K5. Some of these features rely on input from the front radar sensor, including:

NSCC-C	Navigation-based Smart Cruise Control-Curve
SCC w/S&G	Smart Cruise Control with Stop & Go

These ADAS functions will be discussed on the next few pages.



NAVIGATION-BASED SMART CRUISE CONTROL- CURVE (NSCC-C)

NSCC-C automatically decelerates the vehicle on curved highways using navigation data. This function works if **the radius of curvature \leq approximately 1,000 yards**, and automatically adjusts deceleration for the situation.

NSCC-C will operate if SCC is set and the feature is turned ON in the USM menu. There is no dedicated switch. When the system is ON, **the "AUTO" lamp changes from white to green.**



**SMART CRUISE CONTROL
WITH STOP & GO
(SCC W/ S&G)**

SSC with Stop and Go maintains the distance from other vehicles in traffic. This function uses front radar to target the preceding vehicle. If SCC alone cannot stop the vehicle, FCA may be used, and the maximum braking intervention is 0.3 G (1.0 G with FCA).

One-touch SCC ON means that Driving assist button + Set → Driving assist button immediately starts SCC.

[Front radar installation angle check/calibration (FCA/SCC)]

[Checking the vertical angle error]

1. Check the label on the back of the radar unit to view the last two digits of the lot number (QQ).
2. Enter the last two digits in the code input field and press the [OK] button.

DATA MATRIX

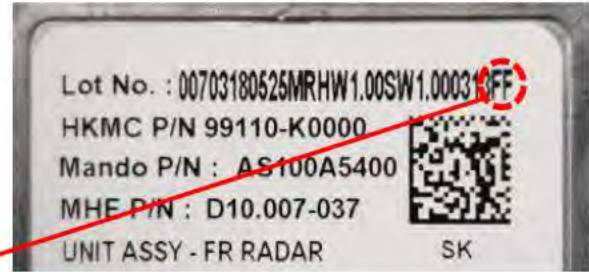
Lot No. : PFFFFMMBMMML2000099450003N00

HKMC P/N : 96400-J6000

Mando P/N : AS100A4300

MHE P/N FXX.XXX-XX

Enter FF



FRONT RADAR CALIBRATION

When the front radar sensor is replaced:

1. Use KDS to enter the VIN directly to set variant coding
2. Enter the two-digit QQ code found on the radar sensor label to set the radar sensor's deviation value.
3. Adjust the vertical angle to match the result value shown on KDS
4. Perform driving relearn

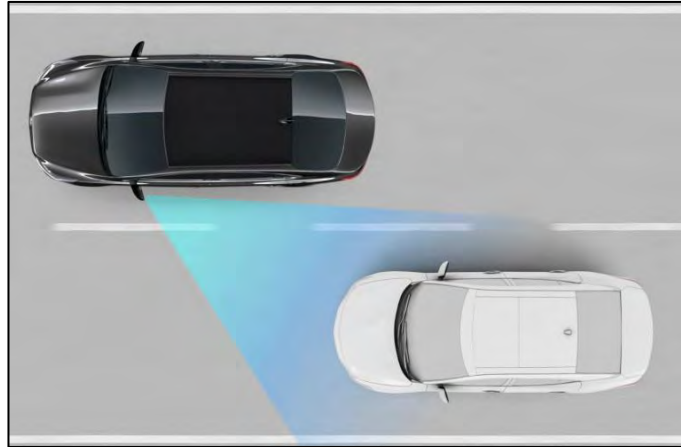


REAR RADAR

There are many ADAS features available on the Carnival, Sorento, Seltos, and K5. Some of these features rely on input from the front camera sensor, and include:

BCW	Blind-spot Collision Warning
BCA	Blind-spot Collision Assist
SEA	Safe Exit Assist
RCCA	Rear Cross-traffic Collision-avoidance Assist
RCCW	Rear Cross-traffic Collision Warning

These ADAS functions will be discussed on the next few pages.



BLIND-SPOT COLLISION WARNING (BCW)

BCW warns the driver of a vehicle approaching from the rear by using signals from the rear corner radar sensors.

The following conditions are necessary for BCW to operate:

- Vehicle speed is above 18 mph
- System is ON

BCW provides the first or second warning, depending on whether a turn signal is on.

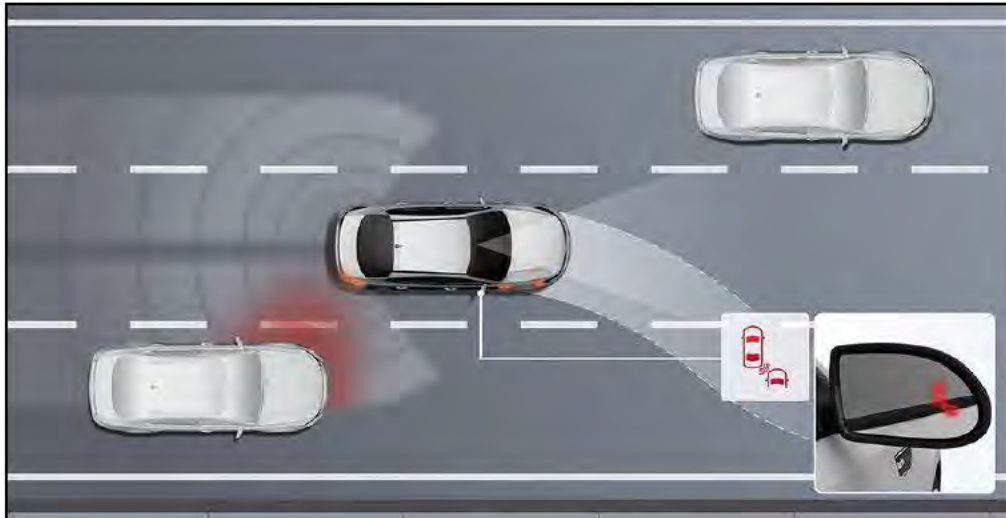
1st warning (when a vehicle approaches):

- Side mirror warning lights come ON

2nd warning (when a vehicle approaches and turn signal is ON):

- Side mirror warning light blinks
- Auditory warning is generated

The system option is enabled by the BCW/BCA switch or USM settings, depending on how vehicle is equipped.



BLIND-SPOT COLLISION ASSIST (BCA)

BCA applies differential braking against possible rear corner collisions. BCA operates based on data from the rear-corner radar sensors and receives additional data from the front view camera to verify if a lane departure occurs.

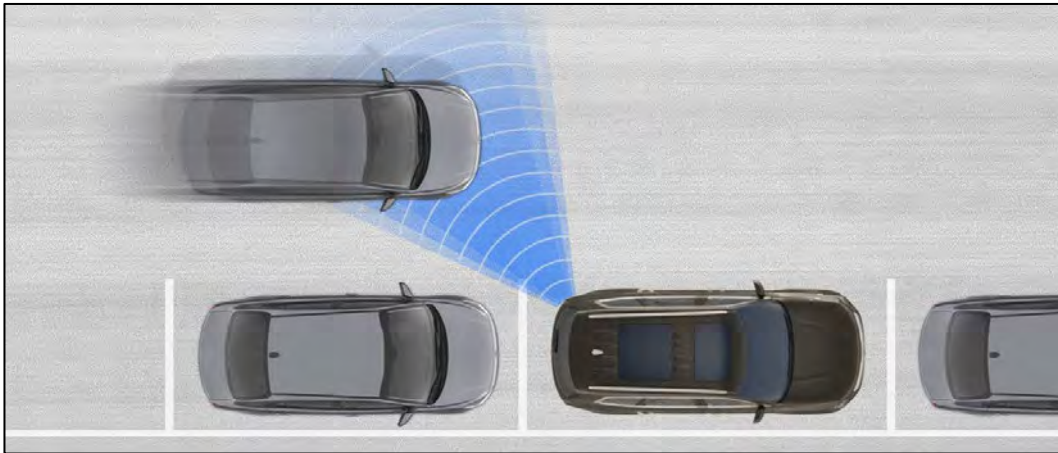
The following conditions are necessary for BCA to operate:

- Vehicle speed is above 36 mph
- System is ON
- Vehicle is deviating from the lane

BCA performs these actions:

- Auditory/visual: side mirrors + cluster
- ESC differential braking: 0.2 G

The system option is enabled by the BCW/BCA switch or USM settings, depending on how vehicle is equipped.



SAFE EXIT ASSIST (SEA)

SEA warns of a vehicle approaching from the rear corner during passenger exit when the door is opened. SEA activates when:

- Host vehicle is stopped
- Vehicle is approaching at 3 to 48 mph
- Time to collision is approximately 3 seconds

If a door open signal is received, the cluster displays a warning message and an auditory warning is generated. This control lasts for 10 minutes after IG OFF.

Note that the SEA function is turned off if theft warning mode is turned on. The SEA function can be activated by configuring USM settings.



Warning

Braking

REAR CROSS-TRAFFIC COLLISION-AVOIDANCE ASSIST (RCCA)

RCCA applies emergency braking against a potential collision with oncoming cross-traffic while backing out of a parking spot

RCCA applies brakes within 1 second to collision and keeps the vehicle immobile for 2 seconds.

RCCA can be turned ON/OFF from the AVN screen.

REAR CROSS-TRAFFIC COLLISION WARNING (RCCW)

RCCW warns of a collision risk with oncoming cross-traffic while backing out of a parking spot.

RCCW warns within 3 seconds to collision while backing out of a parking spot below 6 mph.

RCCW can be turned ON/OFF from the AVN screen.



REAR RADAR CALIBRATION When a rear radar sensor is replaced:

There are two methods for setting variant coding:

- Backup and Import (preferred)
- Direct entry

Calibration takes 30 seconds, and once started, the process cannot be stopped.

The installation angle must be re-measured after significant structural repairs.

**PROGRESS CHECK
QUESTIONS**

**PAGE 92
Answer: B**

1. A windshield has been replaced and the front camera reinstalled. What needs to be done to ensure proper operation?
 - A. Variant Coding
 - B. Camera Calibration with Target
 - C. Both A and B
 - D. Neither A nor B

**PAGE 93
Answer: D**

2. Forward Collision-avoidance Assist (FCA), Highway Driving Assist (HDA), and Forward Collision-avoidance-Junction Turning (FCA-JT) rely on what input?
 - A. Front Camera
 - B. Front Radar
 - C. Rear Radar
 - D. Both Front Camera and Front Radar

**PAGE 93
Answer: C**

3. When an ADAS function uses both the Front Camera and Front Radar inputs it is known as what?
 - A. Dual Control
 - B. Drive Wise
 - C. Sensor Fusion
 - D. Safety Sentinel

**PAGE 100
Answer: D**

4. When calibrating the front radar, the last two characters (QQ Code) of the radar sensor Lot Number are used by KDS to:
 - A. Cross check the VIN
 - B. Allow Variant Coding
 - C. Submit a warranty reimbursement claim
 - D. Allow KDS to provide a vertical angle specification for adjustment

**PAGE 101
Answer: C**

5. Safe Exit Assist (SEA) and Rear Cross-traffic Collision Warning (RCCW) rely on what input?
 - A. Front Camera
 - B. Front Radar
 - C. Rear Radar
 - D. Both Front Camera and Front Radar

2021 Seltos

PRODUCT REFERENCE GUIDE

 INTRODUCTION

 MODEL OVERVIEW

 SPECIFICATIONS

 ACCESSORIES

 WALKAROUND

 FEATURES

 UVO

 DRIVER ASSIST

 DELIVERY

 COMPETITION

V07 – July 1, 2020

2021 Seltos SX shown

INTRODUCTION

The Entry CUV Reinvented and Redefined

The all new 2021 Kia Seltos combines emotion, design, cutting-edge technology and intelligent use of cabin space making it a stand-out in the entry CUV segment. Positioned between the Soul and Sportage, Seltos will be the newest AWD available in the Kia family for the segment.

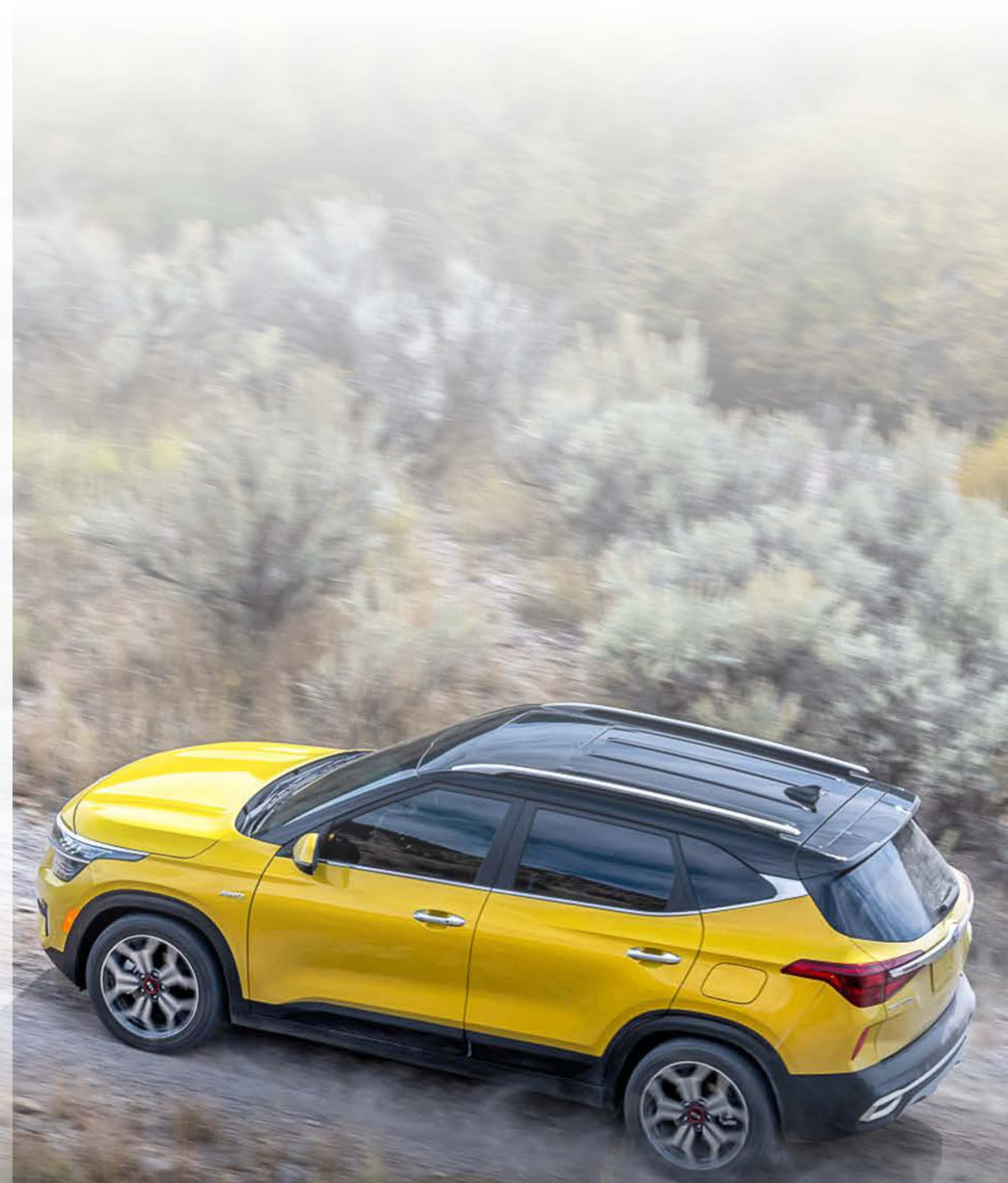
Stile and versatility both come standard on the 5-passenger 2021 Seltos. All trim levels boast a strong exterior stance with a refined front fascia and a sleek, ultra-compact design. A dynamic profile accentuated by stylish alloy wheels, the cabin is equally as impressive, offering an available SuperSonic interior with 7-inch Thin Film Transistor (TFT) color LCD screens as well as the flexibility of standard 60/40 split folding rear seats with a two-step reclining function. Cassette, rear air vents, a dual USB charging port are also available on the EX and SX trims.

Performance is always on tap thanks to the two engine options. LX and S 2.0L and EX trim levels come with the 2.0L 4-cylinder MPi Atkinson cycle 16V DOHC with Dual VVT engine paired with an intelligent Variable Transmission (VT). The sporty S 1.6T and well-appointed SX benefit from a 1.6L 4-cylinder GDI Turbo Gamma 16V DOHC with Dual CVT engine and 7-speed dual clutch transmission (DCT). For enhanced capability, the Dynamic Drive Control (DDC) system with Lock Mode is standard on LX, EX, S 1.6T and SX trim levels. The system is available on S 2.0L.

Next-generation technology is available throughout the 2021 Seltos. Available features include a best-in-class 10.25-inch touchscreen display with UVO InK™, a Bose Premium Audio Multi-Beam™ that allows two phones to be simultaneously connected or added, convenience awards like a power window and Mood Lighting with six themes and eight lighting options that beat with the music.

Seltos offers the latest Advanced Driver Assistance Systems (ADAS) as well as standard features like Rear Occupant Alert (ROA) and a Rear View Monitor with Parking Guidance (RVM w/ PG). Available features include Lane Departure Warning (LDW), Lane Keeping Assist (LKA), Driver Attention Warning (DAW), Forward Collision Avoidance Assist (FCA), Blind Spot Collision Avoidance Assist (BSA) with Rear Cross-Traffic Collision Avoidance Assist (RCCA), High Beam Assist (HBA) and Safe Exit Assist (SEA).

Seltos also offers Remote Start, the Smart Key, and Teletop, which is standard on the EX and SX trims. It allows owners to start the engine and remote control the interior lighting from the key fob. That way, the cabin is comfortable before occupants enter.



2021 Seltos SX shown

MODEL OVERVIEW

Model Codes & Pricing

TRIM	ENGINE	TRANSMISSION	DRIVE	HORSEPOWER (HP)/ TORQUE (LB -FT)	EPA-ESTIMATED FUEL ECONOMY CITY/ HIGHWAY COMBINED MPG)	MSRP
LX	2.0L 4 cyl MPI A ki son Nu 6V DOHC w/ Dual CVVT	6 speed V rabe Transmission (IVT)	AWD	146 132	27 31/29	\$21 990
S 2.0L	2.0L 4 cyl MPI A ki son Nu 6V DOHC w/ Dual CVVT	6 speed V rabe Transmission (IVT)	FWD	146 132	29 34/31	\$21 990
EX	2.0L 4 cyl MPI A ki son Nu 6V DOHC w/ Dual CVVT	6 speed V rabe Transmission (IVT)	AWD	146 132	27 31/29	\$25 290
S 1.6T	1.6L 4 cyl GDI Turbo Gamma 16V DOHC w/ Dual VVT	7 speed Dual Clutch Transmission (DCT)	AWD	175 195	25 30/27	\$25 490
SX	1.6L 4 cyl GDI Turbo Gamma 16V DOHC w/ Dual VVT	7 speed Dual Clutch Transmission (DCT)	AWD	175 195	25 30/27	\$27 890

MODEL OVERVIEW

Package Codes & Pricing

TRIM	PACKAGE CODE	MSRP
S 2.0L AWD	AWD	\$23,490 <small>not including the standard features</small>
SX Sunr. of Package	ROK	\$700

Packages and options in the Features section are also

Color Options





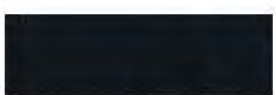



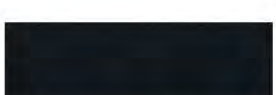





Exte rior C lo s¹

In er or Co ors¹

	LX	S 2 0L/S 1 6T	EX	SX	SX SUNROOF PACKAGE
	LOTH	CL TH AND SO INO EAT ERE TE RIMM D	SO INO EAT ERET E RIMM D	OF NO L ATHE ETTE TR MMED	OF NO LE THER TTE TR MMED
Black Che ry (9H)	Bl ck (WK)	Back W)	Back W)	G ay (WK)	Bl ck (WK) N/A
Snow Wh te Pe rl SWP)	Bl ck (WK)	Back W)	Back W)	G ay (WK)	Bl ck (WK) N/A
Ste l Gray KLG)	Bl ck (WK)	Back W)	Back W)	G ay (WK)	Bl ck (WK) Gray WK)
Grav y G ay (KDG)	N/A	Back W)	Back W)	G ay (WK)	Bl ck (WK) Gray WK)
M rs Ora ge (M3R)	N/A	Back W)	N A	N A	Bl ck (WK) N/A
Nept ne lue B3A)	Bl ck (WK)	Back W)	Back W)	G ay (WK)	Bl ck (WK) Gray WK)
Dark Oc an Blue BU3)	N/A	N A	Back W)	N A	Gray WK) N/A
Sta brght el ow (B4Y)	N/A	N A	N A	N A	Bl ck (WK) Gray WK)

C orma c es rea l se pp oxm ton Cl rmay ar due opit r p od c in

Color Options (Continued)

Exte ior C lo s ¹	In er or Co ors ¹								
	LX	S 2 0L/S 1 6T		EX		SX		SX SUNROOF PACKAGE	
	LOTH	LOTH AND OF NO LE THE ETTE TR MMED		OF NO LE THE ETTE TR MMED		S F NO LEA HER TTE TR MMED		S F NO LEA HER TTE TR MMED	
 Cl ar Whi e/D rk Oce n Bue (GA4)	N/A	 Bl ck (WK)		N/A	N/A	 la k (WK)	N A	N A	N A
 Bl ck Che ry Dark Oc an Bl e (GA5)	N/A	N/A		N/A	N/A	 la k (WK)	 G ay (WK)	N A	N A
 Bl ck Che ry Sta brght elow (GA7)	N/A	 Bl ck (WK)		N/A	N/A	 la k (WK)	 G ay (WK)	N A	N A
 Bl ck Che ry Cl ar Whi e (GAG)	N/A	 Bl ck (WK)		N/A	N/A	 la k (WK)	 G ay (WK)	N A	N A

C orma c es rea l se pp oxm ton Cl rmay ar due op i tr p od c i n

Trims & Packages

SELTOS LX

Key St nda d eat res on t e el os LX ncude

- 2.0L 4 c lnder MP Atk ns n Nu 16V DOHC wi h D al CVVT
- nte i ent Va ia le T ansms son (VT)
- E ec rc Power S eer ng (PS)
- Dr ve Mode See t Sys em
- dle St p nd Go SG sy tem
- Dynamax® al wheel d i e ys em
- 17 n h loy wheels wi h 15/5 R17 tres
- Back g i e ni h
- Tnted g a s
- Rear rvacy g a s
- Pr je tor B am He dlgh s
- Au o On Off Hea lgh s
- Rear pol r w th L D CHMSL Cen er H gh Mo nt St p ig t)
- Power wndows wi h dr ver s ne ouch au o own
- 3.5 nch Th n F m T ans s or (T T) i st ument pan l wi h tr p computer
- Remote key ess ntry
- Rear V ew Mon tor w th Pa ki g G id nce RVM w/ PG)
- Power d or l cks
- 60 40 sp it f ld ng 2nd row sea s
- Dua 12V power ou l ts
- USB
- Day ni ht re rvew m r or
- AM/FM/MP3 6 pea er aud o sys em
- Sup ort or App e Car Pay® and And o d uto M sma tph ne i teg at on (w r le s Andr id Au o/A ple C r Pay ava abe in Oct ber 202)
- 8 nch t uch s reen dsp ay
- Mul i *Bl eto th*® Conne t v ty (hone aud o st eam ng) a low ng two phone onne tons sm l aneo sy
- W el ss And o d A to and App e Ca Play Ava abe Octo er 2020)
- Vo ce Rec gn t on (v a And o d A to M App e Car la ® (ia *Bl eto th*® for Phon ® on y N A for An ro d™)
- Cr i e ont ol
- A r cond to ing
- Body co or power dj st ble e te ior m r ors
- Rear O cupa t Al rt ROA)
- Anti o k B ake Sy tem ABS) El ct on c Sta i ty Con rol ESC) Tr ct on Con ro Sys em (TC) H l sta t Ass st ont ol (HAC) and Downh l Br ke Con rol (DB)
- Dual ro t a rbags ro t seat moun ed s de a rba s and s de cu ta n a rba s
- T re Pr ssu e Mo i or ng Sy tem (TPMS)

Trims & Packages

SELTOS S 2 0L

Key s anda d fea ur s n d d t on to or n l a e of LX) n c u d e

- Back g i e w t h LED p o i o n n g h t
- F o n t f o g g h t s
- B o d y c o o r p w r a d u s t b l e h a t e d e t e i r m r o r s w i h LED t u r n i g a l s
- LED d a y m e r n n n g l g h s
- LED t i l g h s
- C h o m e b l l n e
- R o o f a l s
- T w o o n e r o f (o t o n a)
- C o t h n d O F N O e a h e r t t e t i m m e d s e a s
- L e t h e r w r a p e d s t e r n g w h e e l n d s h f t k o b
- 2 w a y h e d r e t a d u s m e t
- R e a r e n t r a r m r s t
- F o w a r d C o i i n A v i d n c e A s s s t P e d (F C A P e d)
- L a e K e p n g A s s s t (L K)
- L a e D p a r u r e W a r i n g (L D W)
- D r v r A t t n t o n W r n n g (D A W)
- L a e o l o w n g A s s s t (L A)
- H g h B e a m A s s t (H B A)
- D e e t s

Dyn ma ® a l w h e e l d i e y s e m

SELTOS S 2 0L OPT IONS & PACKAGES

S A l l w h e l r v e A W D) M R P 23 90 n t o a l n c u d n g t e t a n a r d f a t u e s

- Dynamax® a l w e e l d i v e y s t m
- H e a e d f o n t s a t s

Trims & Packages

SELTOS S 1.6T

Key standard features in addition to the standard features of S 2.0L AWD include:

- 1.6L 4-cylinder GDI Turbo-charged 16V DOHC with Dual CVT
- 7-speed dual-clutch transmission (DCT)
- 18-inch alloy wheels with 35/4 R18 tires
- Blind Spot Monitor (BSM) with Rear Cross-Traffic Collision Avoidance Assist (RCCA)

Trims & Packages

SELTOS EX

Key St nda d eat res in ad i i n o r in pa e f S 2 0L AWD) ncude

- 17 n h loy wheels
- Power it si e unr of
- SOF NO le the et e r mmed s ats
- 10 way p w radus abe r vers s at wi h ower l m ar sup ort
- Power w ndows wi h dr ver s ne ouch au o up down Ch ome nt r or door and es
- Push Bu ton S art w th Smart ey
- Remote S art us ng the Sma t key f b
- Ful Auomat c Cima e ont ol w th au o de ogg r
- Rear ir ents
- Lumi ated v s r van ty mi ror
- F ont se tba k ock ts
- LED nte i r lgh i g
- F ont 12V power o t et and USB
- Rear U B
- Wi eess pho e ha ger he f
- Bi d Spot ols on vodan e A sst Rear BCA R) wi h R ar Cr ss Tr ff c Co i i n Av id nce As i t (CCA)
- Hgh Beam A sst HBA)

Trims & Packages

SELTOS SX

Key St nda d eat res in ad i i n o r in pa e f EX) ncude

- 1.6L 4 c linder GD Tu boch rged Gamma 16V D HC w th Dual CVVT
- 7 speed dual l tch t ansm ss on (CT)
- 18 n h wh els
- LED hea lgh s
- LED f g ghts
- Chrome xte i r door h ndes
- Two one ro f opt on
- UVO l nk
- 10.25 n h ouch s re nds lay
- S r usXM®
- Bose Prem um Au io
- Nav ga i n
- Voce Re ogn t on
- Mood L ght ng w th 6 hemes and 8 g ow pt ons
- Sup rv s on nst ument pa el w th 7 nch Th n F m T ans s or (T T) co or L D cr en
- Au o d m m ng re rvew m r or
- H ghway Dr v ng Ass st (HDA)
- Fo ward Co i i n Av id nce Ass st Cy le (FCA Cyc)

- El ct on c Par ing B ake w i h Auto Ho d
 - Rem te St rt s ng the Smart ey fob
 - Safe E it A s st SEA)
 - High Be m As i t (H A)
 - Del tes
- S nro f

SELTOS SX OPTIONS & PACKAGES

SX Sunr of Pa kage MSRP \$700

- Power s nroof
 - De etes
- Two one ro f opt on



SPECIFICATIONS

ENGINE & DRIVETRAIN	LX S 2.0L EX	S 1.6T SX
Type	2.0L 4-cyl MPI Atkinson Nu	1.6L 4-cyl GDI Turbocharged Gamma
Valve Gear	DOHC w/ Dual CVVT	DOHC w/ Dual VVT
Engine Material	Aluminum Block and Head	Aluminum Block and Head
Displacement (cc)	1999	1591
Compression Ratio	12.5:1	10:1
Horsepower (hp @ rpm)	166 @ 6000	175 @ 6000
Torque (lb-ft @ rpm)	128 @ 4000	195 @ 1500 - 4500
Fuel Tank Capacity (gallon)	13.2	TBD
Fuel Requirement	Regular Unleaded	Regular unleaded
Fuel Delivery	Multi-Point Injection (MPI)	Gasoline Direct Injection (GDI)
Transmission	6-speed Variable Transmission (I/T)	7-speed Dual Clutch Transmission (DCT)



SPECIFICATIONS

EPA	2.0L 4-CYL MPI ATK NSON NU		1.6L 4-CYL GDI TURBO GAMMA
	FWD	AWD	AWD
MPG (City Highway/ Combined)	29/31 /31	29/31 /31	25/31 /27
BODY & CHASSIS	SPECIFICATIONS		
Layou t	Front Engine, front wheel Drive, r Fully Active All wheel Drive (AWD)		
Body Type	Steel Unibody		
Front Suspension	MacPherson Strut		
Rear Suspension	Couple Torsion Beam Axle (CTBA) (FWD) Multi-link (AWD)		
Steering Type	Electric Power Steering (EPS)		
Turning Radius (Curb to Curb ft)	5.3		
BRAKES	SPECIFICATIONS		
Type	Power-assisted Brakes w/ ABS & EBD		
Front	15 in Ventilated Disc (S 2.0L FWD) 16 in Disc (LX S 2.0L AWD EX S 1.6T & SX)		
Rear	14 in Solid Disc (S 2.0L FWD) 15 in Disc (X S 2.0L AWD EX S 1.6T & SX)		
WHEELS	TIRES	RECOMMENDED INFLATION PRESSURE (FRONT/REAR PSI)	
17 in Alloy Wheels	215/55R17	TBD	
17 in Alloy Wheels (B Type)	215/55R17	TBD	
18 in Alloy Wheels	235/55R18	TBD	



SPECIFICATIONS

EXTER OR DIMENS ONS	SPECIF CAT ONS
Wh el ase (n)	103 5
Leng h (n)	172 0
Tra k (f on /r ar in)	62 0/62 4
Wdth in)	70 9
Hei ht (n)	63 6 w/o Roof Ra s) / 64 2 w/ Roof Ra s)
Grou d Ce ran e n)	7 3

EXTER OR DIMENS ONS	SPECIF CAT ONS
Sea ing C pac ty	5
Head oom f ont re r n)	40 0/38 4 (w/o S nro f) 38 5/38 4 (w/ S nroo)
Shou der R om fr nt rear n)	55 5/54 7
Leg oom f ont re r n)	41 4/37 1
Hip Room (ron / ear in)	53 5/52 8
Pass nger V lume (u ft)	TBD
Car o Vo ume cu t)	26 6 Rear S at Upr gh) / 62 8 (Re r Seat F ld d)

CAPAC TIES	SPECIF CAT ONS
Curb We ght (bs)	2 48 3 317

ACCESSORIES

AESTHETIC

- Sportsos

CONVENIENCE

- Ashcyp
- Crossbars
- Dual USB charger
- Auto dimming rearview mirror
- Front fog light kit
- Hitch mounted Bike Rack
(NTE Set s has no towing capacity
Hitch mounted accessories will require
installation of factory hitch with no
towing capacity)
- Illuminated door sill plates
- nteorlghng
- Liftstyehtch
(NTE Set s has no towing capacity
Hitch mounted accessories will require
installation of factory hitch with no
towing capacity)
- Mighty mounts
- Phone holder kit
- Puddle lights
- Remote tailgate
- Roof rack
- Roof rack
- Roof rack attachment
- Roof rack/sow attachment
- Smart key fob **[B]**
- Universal connector

PROTECTION/SECURITY

- Car mat
- Car protector
- Car organizer
- Car tray
- Door pocket
- First aid kit
- Floor mats carpet
- Hood deflector
- Hood film
- Mud guards
- Seabackmatcar
- Roadside assistance kit **[A]**
- Wheel locks **[C]**
- All weather floor mats
- Severe weather kit
- Water roof rack covers
- Windshield sun shade



All accessories are available at your local dealership or online at kia.com



WALKAROUND



FRONT END

- Refined front fascia with Kia signature Tiger Nose grille and slim headlights
- Available LED lighting provides unique visual signature above front grille
- Available LED headlights
- Available LED roof fog lights
- Available 18-inch alloy wheels



UNDER THE HOOD

- 146 hp 2.0L 4-cylinder MPI Atkinson Nu 16V DOHC with Dual CVT and Intelligent Variable Valve Timing (i-VTEC)
- Available 150-hp 1.6L 4-cylinder GDI Turbo Gamma 1.6V DOHC with Dual CVT and 7-speed dual-clutch transmission (DCT)
- Available Dynamax® All-wheel drive system
- AWD LOCK Mode standard on All-wheel drive (AWD) models
- Driver control of 4-wheel disc brakes with 4-wheel Anti-lock Brake System (ABS) let on brake force distribution (EBD) Traction Control System (TC) Electronic stability control (ESC) and Hill Start Assist Control (HAC)



WALKAROUND



DRIVER S SIDE

- Ava abe wo t ne roof w th ch ome tr m on he D plar a d el l ne
- Ava abe 10 way power d i er s seat n lu es 2 way power umbar s ppo t
- Ava abe eated f ont se ts
- Ava abe OFINO eat ere te tr mm d ea s
- Ava abe upe r i i n ns rument anel w th 7 n h T in Flm ran i tor TFT) ol r LCD sc een
- Ava abe wr le s phone c arg r sh lf
- Ava abe UVO i k
- Ava abe R mo e Sta t u i g he Smart k y ob
- Stan ard 17 in h l o y wheel a a la le 18 i ch w ee s
- Rear V ew Mon or w i h ark ng Gu dan e (VM w/ PG) Rear O cupa t Ale t ROA) Ava abe Sm rt C ui e ont ol w th St p & Go SCC w/ &G) ane Kee ing A si t LKA) Lane De ar ure Warn ng (LDW) Fo w rd Col s on War ing (FCW) Dr ver tt nt on W rn ng DAW) B nd pot Co i i n Av id nce As ist Re r BCA R) w th Rear ross T af ic C l s on A oi nce As i t RCCA) Fo w rd Co i ion Avo da ce Ass st ed (CA Pe) nd orwa d Col s on v o dan e A sst Cyce FCA yc)



WALKAROUND



2021 Seltos SX shown

REAR

- Dual muffler design provides sporty appearance
- Rear spoiler with LED Center High Mount Stop Light (CHMSL)
- Available LED taillights
- Up to 62.8 cubic feet of cargo volume (second row seats folded down)



REAR PASSENGER

- 60/40 split folding second row seats
- Available rear air vent and USB charging port
- Second row seats with reclining and folding functions



FRONT PASSENGER

- Available Sound Connected Mode Lighting
- Six standard bags
- Available power windows
- Available dual 12V power outlets
- Available fully automatic climate control
- Multi-Bluetooth® Connectivity allowing two phone connections simultaneously
- Available 10.25-inch touchscreen display



FEATURES

S Standard | O Optional | N/A Not Available

	LX	S 2 0L	EX	S 1 6T	SX
STYLING					
Glo s Bl ck Fro t Gr le	S	S	S	S	S
Body o or Ex er or Door H nd es	S	S	S	S	N A
Chrome Ac ent Ex er or Do r Hand es	N A	N/A	N A	N/A	S
17 n A oy Wh els (215 55R17 Tre)	S	S	S	N/A	N A
18 n A oy Wh els (235 45R18 Tre)	N A	N/A	N A	S	S
Power Tl /S de Sunr of	N A	N/A	S	N/A	O
PERFORMANCE					
2 L 4 cyl MPI A k nson Nu 16V DOHC w/ D al CVVT	S	S	S	N/A	N A
1 6L 4 cyl GDI urb cha ged Gamma 16V DOHC w/ Dual VVT	N A	N/A	N A	S	S
In el ge t Var ab e Tr nsmi s on (VT)	S	S	S	N/A	N A
7 sp ed Dual Cut h ran m ss on (DCT)	N A	N/A	N A	S	S
Dynamax® All whe l dr ve sy tem	S	O w AWD	S	S	S
M cPhe son S rut F ont Su pens on	S	S	S	S	S
Coup e To s on eam A le (TBA) Rear uspe s on	N A	S	N A	N/A	N A
M l i nk Rear S pen i n	S	O w AWD	S	S	S
Ste l Un body Co st uct on	S	S	S	S	S
El ct ic P w r Ste r ng (EPS)	S	S	S	S	S
Power 4 whe l D sc Bra es w/ ABS	S	S	S	S	S



FEATURES

S Standard | O Optional | N/A Not Available

	LX	S 2 0L	EX	S 1 6T	SX
LIGHTING & INSTRUMENTAT ON					
Pro ec or Beam Head ghts	S	S	S	S	N A
LED Head i hts	N A	N/A	N A	N/A	S
Auto On/O f Head ghts	S	S	S	S	S
Body o or Power Ad us ab e Ext r or Mi ro s	S	S	S	S	S
Body o or Hea ed Power A j sta le Ex er or M rr rs w/ LED Tu n Si nas	N A	S	S	S	S
LED Ta l L ghts	N A	S	S	S	S
Var ab e l te m t ent F ont Win sh e d W pers	S	S	S	S	S
Supe v s on In tr me t Pane w 7 n T in Fim ran i tor TFT) Co or LCD Sc een	N A	N/A	N A	N/A	S
LED Front & Re r Read ng Lamps	N A	N/A	S	N/A	S
Sound Co nec ed M od Li ht ng w/6 Themes and 8 Gow On y Opt ons	N A	N/A	N A	N/A	S



FEATURES

S Standard | O Optional | N/A Not Available

	LX	S 2 0L	EX	S 1 6T	SX
AUD IO & INFOTAINMENT					
AM FM/MP3	S	S	S	S	S
Si i sXM® /HD Radio™	N A	N/A	N A	N/A	S
6 speaker System	S	S	S	S	N A
Bose Premium Audio w/ 8 Speakers	N A	N/A	N A	N/A	S
Bluetooth® Wireless Technology	S	S	S	S	S
Multi Bluetooth® Connectivity	S	S	S	S	S
Support for Android Auto™ and Apple CarPlay® (wireless Android Auto App available from October 2020)	S	S	S	S	S
UVO Link	N A	N/A	N A	N/A	S
Navigation	N A	N/A	N A	N/A	S
8" Touch Screen Color Display	S	S	S	S	N A
10.5" Touch Screen Color Display	N A	N/A	N A	N/A	S
Embedded Modem for Vehicle Communications w/ UVO Telematics System	N A	N/A	N A	N/A	S
USB	S	S	S	S	S
Wireless Phone Charger Shelf	N A	N/A	S	N/A	S
Subwoofer	N A	N/A	N A	N/A	S



FEATURES

S Standard | O Optional | N/A Not Available

	LX	S 2 0L	EX	S 1 6T	SX
COMFORT & CONVEN ENCE					
Full Aut m t c emper tu e ont ol	N A	N/A	S	N/A	S
Rear Se t Vents	N A	N/A	S	N/A	S
Power Fr nt W nd ws w/ One to ch Auto up/ own	N A	N/A	S	N/A	S
Power Door ocks w/ Two urn En ry Sy tem	S	S	S	S	S
Remote K yl ss Ent y w/ la m	S	S	S	S	S
Push But on St rt w/ Smart K y	N A	N/A	S	N/A	S
Remote St rt si g he Smart Key F b	N A	N/A	S	N/A	S
Ste r ng whe l mou ted Co tr ls	S	S	S	S	S
Cruise Co tr l	S	S	S	S	S
Cent r Con ole w/ Arm est & Sto age	S	S	S	S	S
Fo d away Re r Cent r Armre t w Dual Cup Ho d rs	N A	S	S	S	S
Front eat Re r Map P cke s	N A	N/A	S	N/A	S
Auto dimmi g R arv ew Mi ror	N A	N/A	N A	N/A	S
Front 2V ower Out et 1X)	N A	N/A	S	N/A	S
Front 2V ower Out et 2X)	S	S	N A	S	N A
I um na ed Vi or Van ty M rr rs	N A	N/A	S	N/A	S
UV r duc ng So ar Co tr l Gl ss (W ndsh e d & ront D ors)	N A	N/A	S	N/A	S
Ti t & Te esc png tee i g ol mn	S	S	S	S	S



FEATURES

S Standard | O Optional | N/A Not Available

	LX	S 2 0L	EX	S 1 6T	SX
COMFORT & CONVEN ENCE (CONT NUED)					
El ct on c Par ing B ake w/ Auto ho d	N A	N/A	N A	N/A	S
ADVANCED DRIVER ASSISTANCE SYSTEMS					
Lane Dep rt re W rn ng (LDW)	N A	S	S	S	S
Lane Kee ing A sst (LKA)	N A	S	S	S	S
Dr ver A ten i n Wa ni g (D W)	N A	S	S	S	S
Forwa d Co lson Avo dan e A sst Cyce (FCA C c)	N A	N/A	N A	N/A	S
Forwa d Co lson Avo dan e A sst Ped (FCA P d)	N A	S	S	S	S
Rear Oc upant A e t (ROA)	S	S	S	S	S
Safe E it A si t (SEA)	N A	N/A	N A	N/A	S
Bl nd Spot Co i i n Av id nce As ist Re r (BCA R) w/ Re r Cro s Tra f c Co lson Avo dan e Assst (RCC)	N A	N/A	S	S	S
Sm rt C ui e ont ol w/ S op & Go (SCC w/ S&G)	N A	N/A	N A	N/A	S
Hig w yD i i g A sst (HDA)	N A	N/A	N A	N/A	S
Lane Fo owi g A sst (LFA)	N A	S	S	S	S
High Be m As i t (H A)	N A	S	S	S	S



FEATURES

S Standard | O Optional | N/A Not Available

	LX	S 2 0L	EX	S 1 6T	SX
SEATING & INTERIOR					
5 passenger Seating	S	S	S	S	S
6 way Manual Adjustable Driver's Seat	S	S	N/A	S	N/A
10 way Power Adjustable Driver's Seat w/ Power Lumbar Support	N/A	N/A	S	N/A	S
4 way Adjustable Front Passenger's Seat	S	S	S	S	S
Heated Front Seats	N/A	Only AWD	S	S	S
Driver Height Adjuster	S	S	S	S	S
60/40 Split Folding Rear Seats	S	S	S	S	S
Interior Door Handles w/ Side Chrome Accents	N/A	S	S	S	S
Leather-wrapped Steering Wheel & Shift Knob	N/A	S	S	S	S
SAFETY & SECURITY					
Tire Pressure Monitoring System (TPMS)	S	S	S	S	S
Dual Front Advanced Air Bags	S	S	S	S	S
Dual Front Seat-mounted Side Air Bags	S	S	S	S	S
Full-length Side Curtain Air Bags	S	S	S	S	S
Electronic Stability Control (ESC)	S	S	S	S	S
Four-wheel Anti-lock Brake System (ABS)	S	S	S	S	S
Hill Start Assist Control (HSA)	S	S	S	S	S
Impact absorbing Seating Column	S	S	S	S	S



FEATURES

S Standard | O Optional | N/A Not Available

	LX	S 2 0L	EX	S 1 6T	SX
SAFETY & SECUR TY (CONTINUED)					
Lower An hors & Te hers or CHI ren (ATCH) S stem	S	S	S	S	S
Fro t Seat Be t P eten i ners	S	S	S	S	S
3 po nt S at Be ts f r AI Seat ng Po i i ns	S	S	S	S	S
PACKAGES & OPT IONS					
S 2 0L AI wheel d i e Pac age Dynamax® All whe l r ve sys em and Hea ed F ont Sea s	N A	O	N A	N/A	N A
Sunr of Pa kage Power Sun oof	N A	N/A	N A	N/A	O

UVO link OVERVIEW

Introducing UVO to Customers

The available UVO link system and mobile app is part of Kia's suite of information and telematics that changes the way Kia owners interact with their vehicles. Integrating UVO through the needs analysis and vehicle preparation provides an exciting opportunity when working with customers.

Payment in the customer's preferred currency and the equipment to enable which UVO features to highlight. For example, parents of new drivers may be interested in My Car Zone and emergency response features, and individuals who intend to purchase a vehicle may appreciate the Find My Car feature.

CONVENIENCE

- **My Car Zone** allows the Kia owner with UVO link to set and deactivate locations if the owner or another driver brakes one of the owner's preset limits or maximum speed geographic boundaries (navigation required) or curfew.
- **Find My Car** allows Kia owners with UVO link to locate their vehicle due to the map function on the Kia Access with UVO link app or assist in finding their way back to their Kia vehicle.

EMERGENCY RESPONSE FEATURES

- **911 Connect** can automatically dial 911 emergency services in the event that an air bag deploys (equipment activation).
- **Roadside assistance** and check-up services are a simple press of a button away.

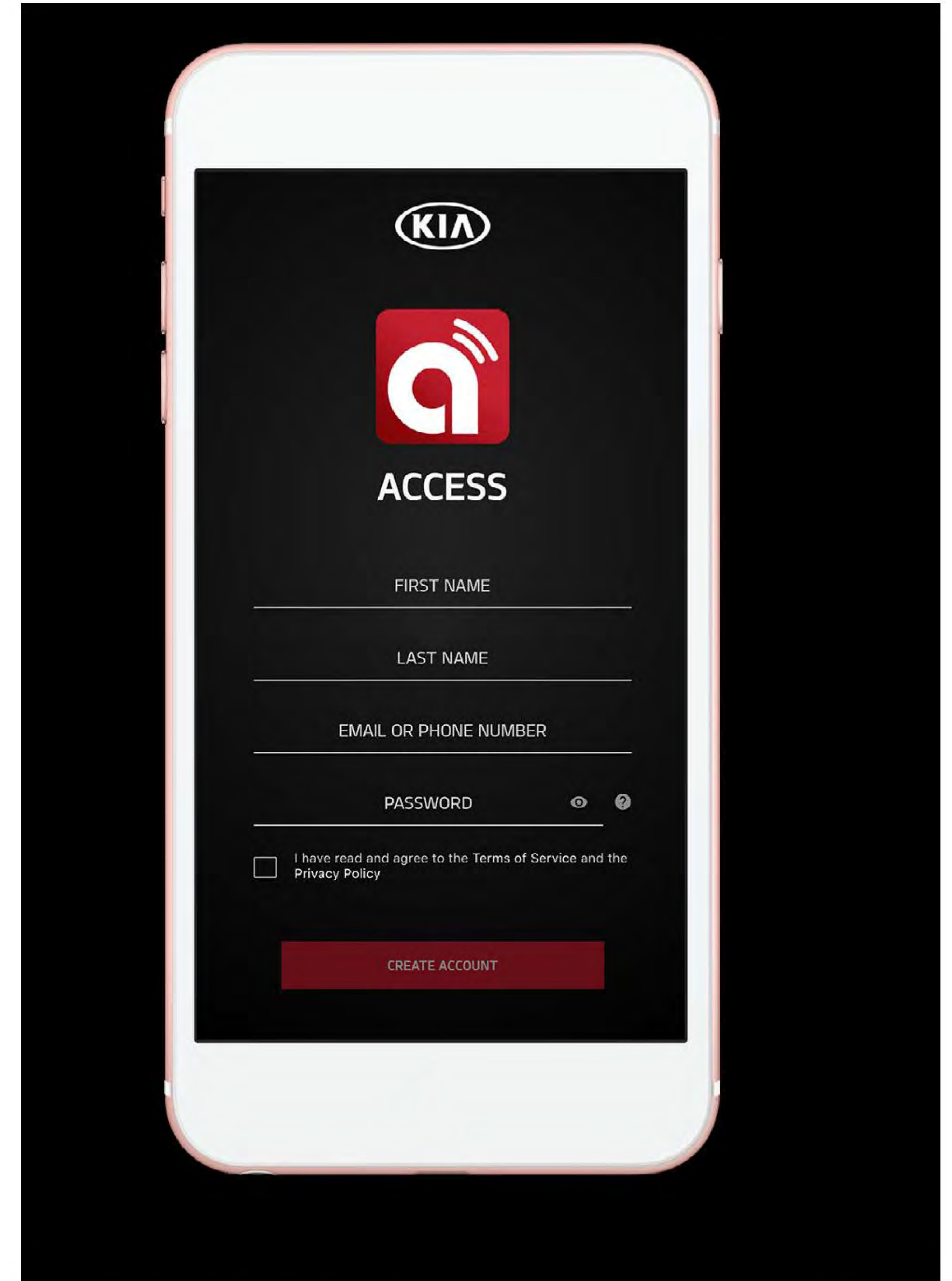
VEHICLE DIGNOSTICS*

- Vehicles with UVO link automatically run diagnostic checks on the vehicle when the engine is started to identify certain maintenance issues. This is used to notify owners and use UVO link via the head unit or Kia Access with UVO link app) to schedule a service appointment with their preferred partner.

REMOTE* ACCESS

- Owners can use Kia Access with UVO link app or the Kia owner's website to access a vehicle remotely.

Note: For more information, please refer to KGS (KDealer > Services > Vehicle > KGS > Check here for online > GIS > Quick Link).



UVO link

Registration Steps

In order to register to use UVO Link, owners must complete the registration process. It is essential that you help your customer with this process during vehicle delivery. To register a UVO account and activate UVO Link with the customer's vehicle, follow these steps on the right.

REVIEW RESOURCES

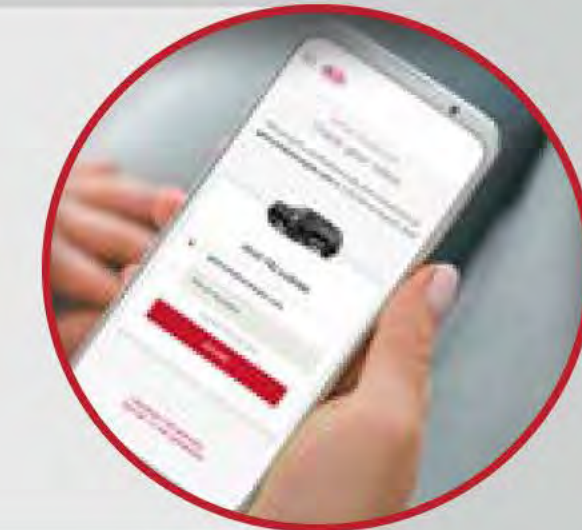
- www.kia.com (owner's tab)
- [Kia Owners Website \(www.kia.com\)](http://Kia Owners Website (www.kia.com)
- KGS KDealer > [Available View All](#) > KGS > [Click here to continue to KGS > Quick links](#)
- [Features and Functions Guides Owners Manuals](#)
- To contact the UVO call center call 1 844 886 941
- Be sure to complete the required UVO training program to learn more about this technology.



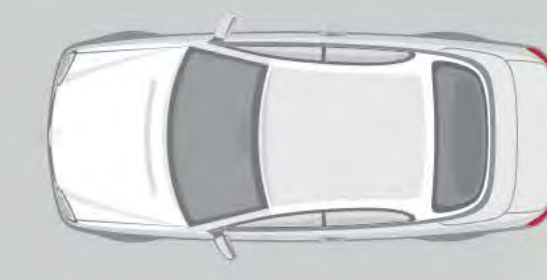
1 Download the Kia Access with UVO link app from your preferred app store. Launch the app and register/create an account.

Connect our car using our VIN. You can usually find your VIN on the side of the driver seat door. Request a verification code to activate UVO.

2

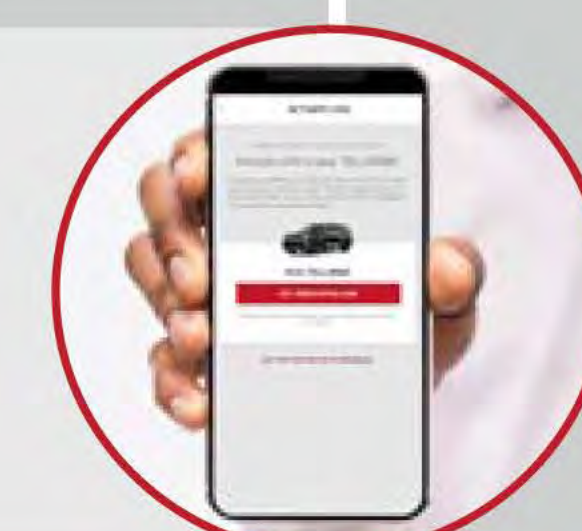


3 Now on your car's Head Unit, select Activate UVO and choose the ready-to-use mode option for the vehicle function code you received.



See the relevant reference code on your mobile device.

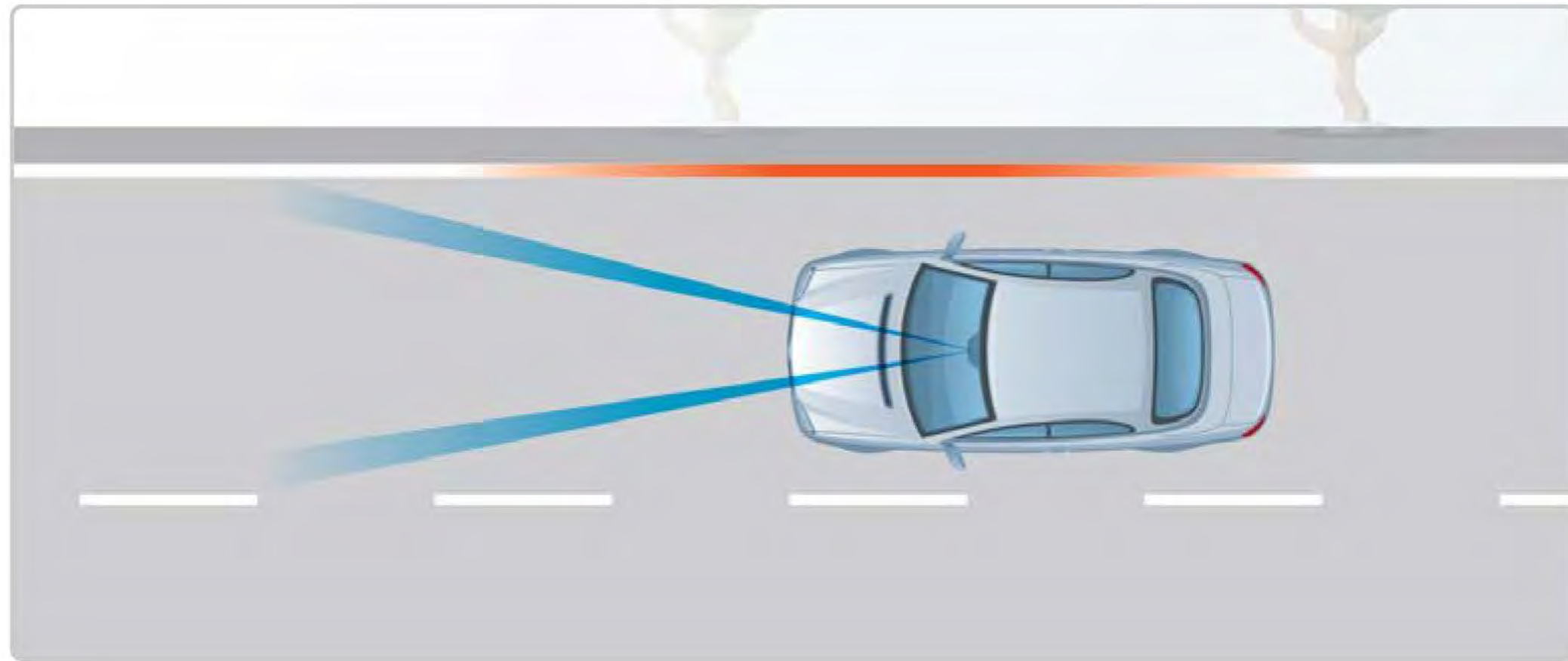
4



NOTE Messages are not to scale and are for illustrative purposes only.

DRIVER ASSIST

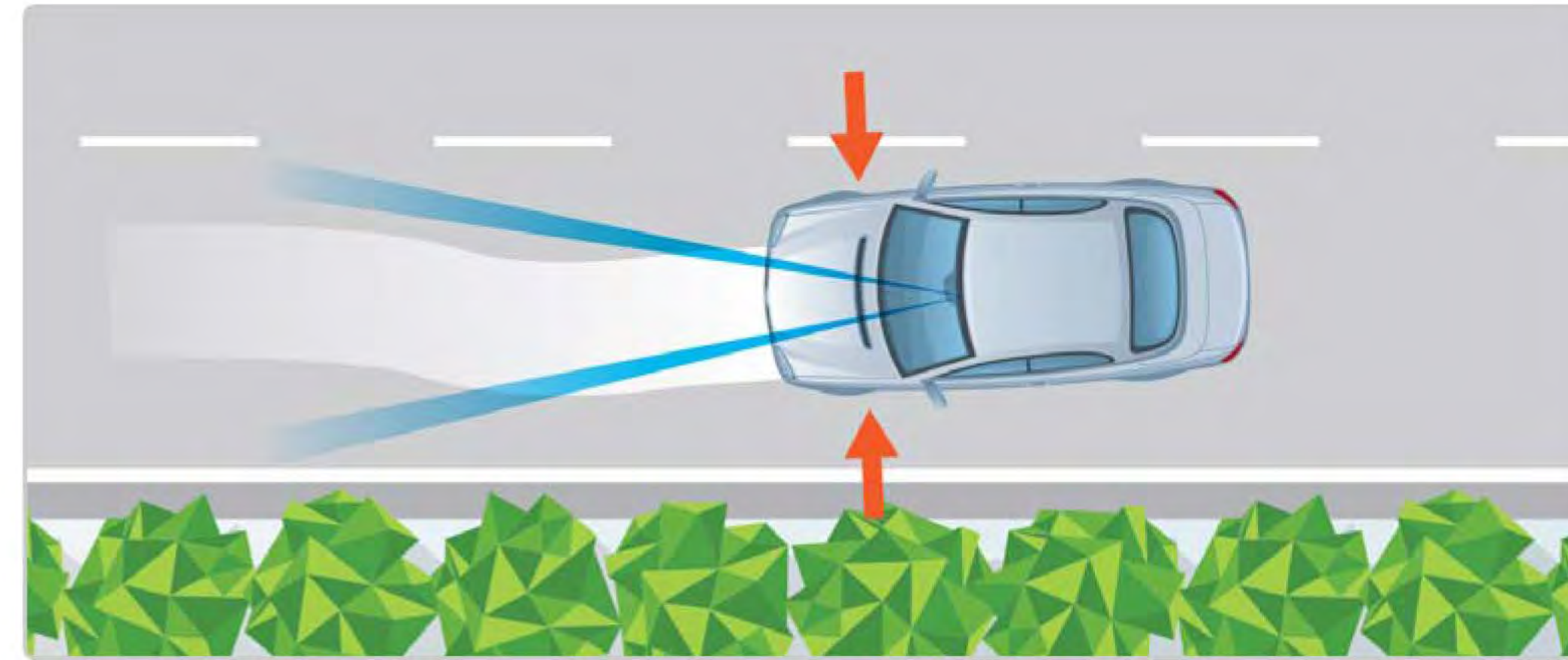
Kia offers a wide variety of Advanced Driver Assistance Systems (ADAS) with an overview of the various ADAS features and functions that Kia offers with its standard available on the 2021 Seltos. **Note: Images are not to scale and are shown for illustrative purposes only.**



LANE DEPARTURE WARNING* (LDW)

Standard S 2.0L EX S 1.6T and SX

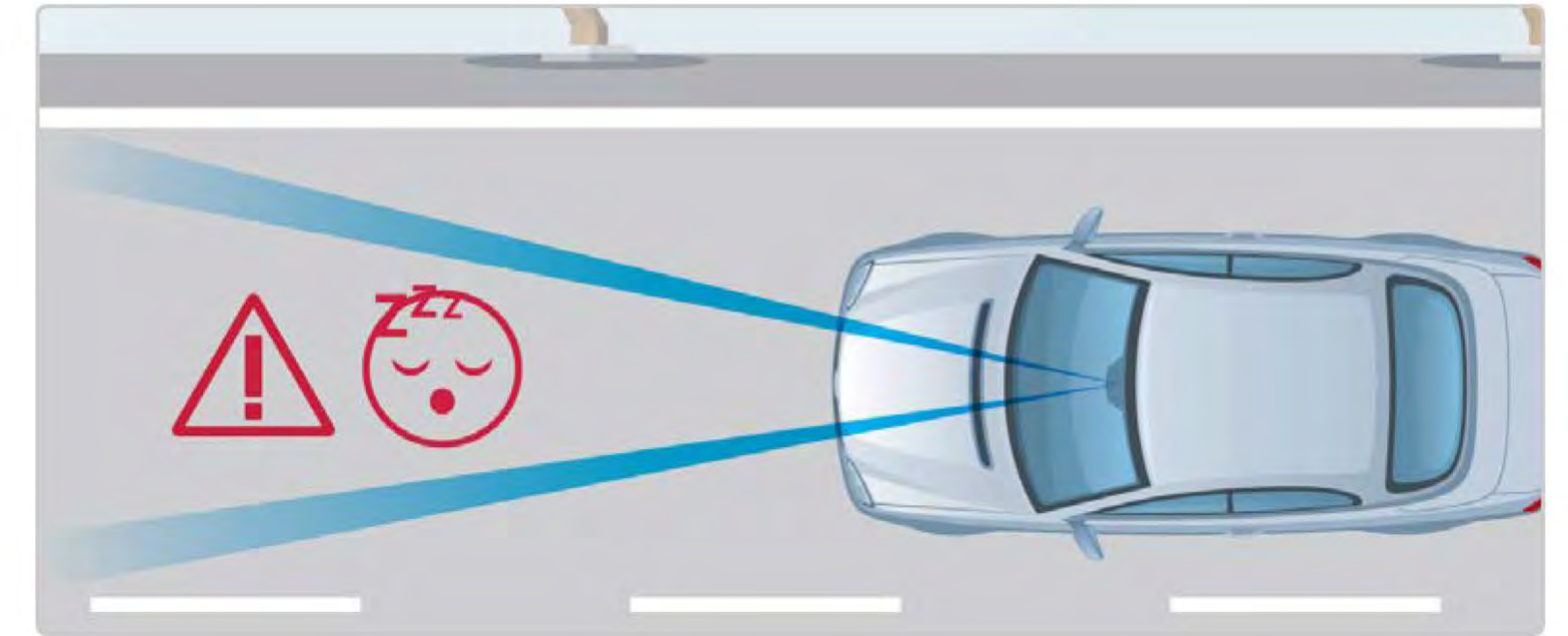
Designed to alert the driver if the system detects that the vehicle is about to depart from its current lane without a turn signal.



LANE KEEPING ASSIST* (LKA)

Standard S 2.0L EX S 1.6T and SX

Builds on LDW by applying steering inputs in certain circumstances to help bring the vehicle back into the lane.



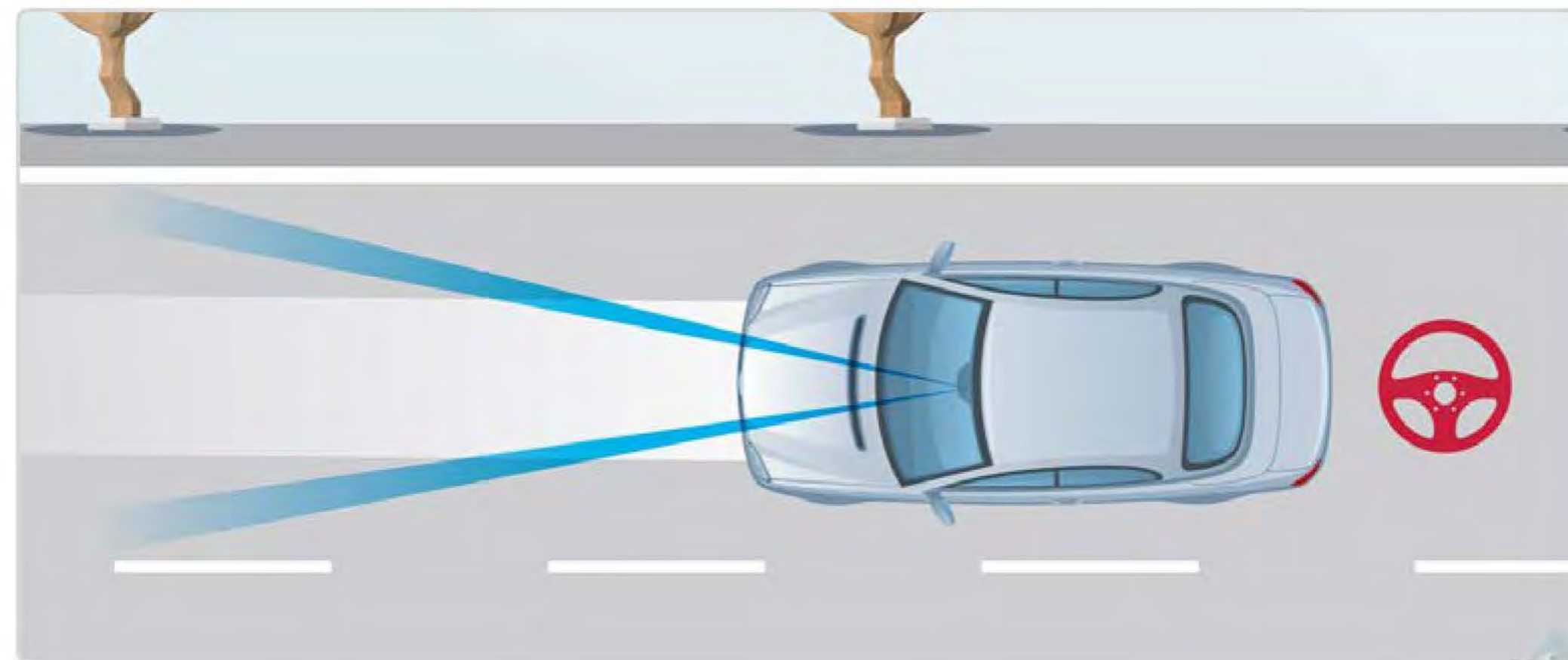
DRIVER ATTENTION WARNING* (DAW)

Standard S 2.0L EX S 1.6T and SX

Designed to monitor a number of vehicle and driver inputs and can alert the driver if it detects inattentive driving practices.

DRIVER ASSIST

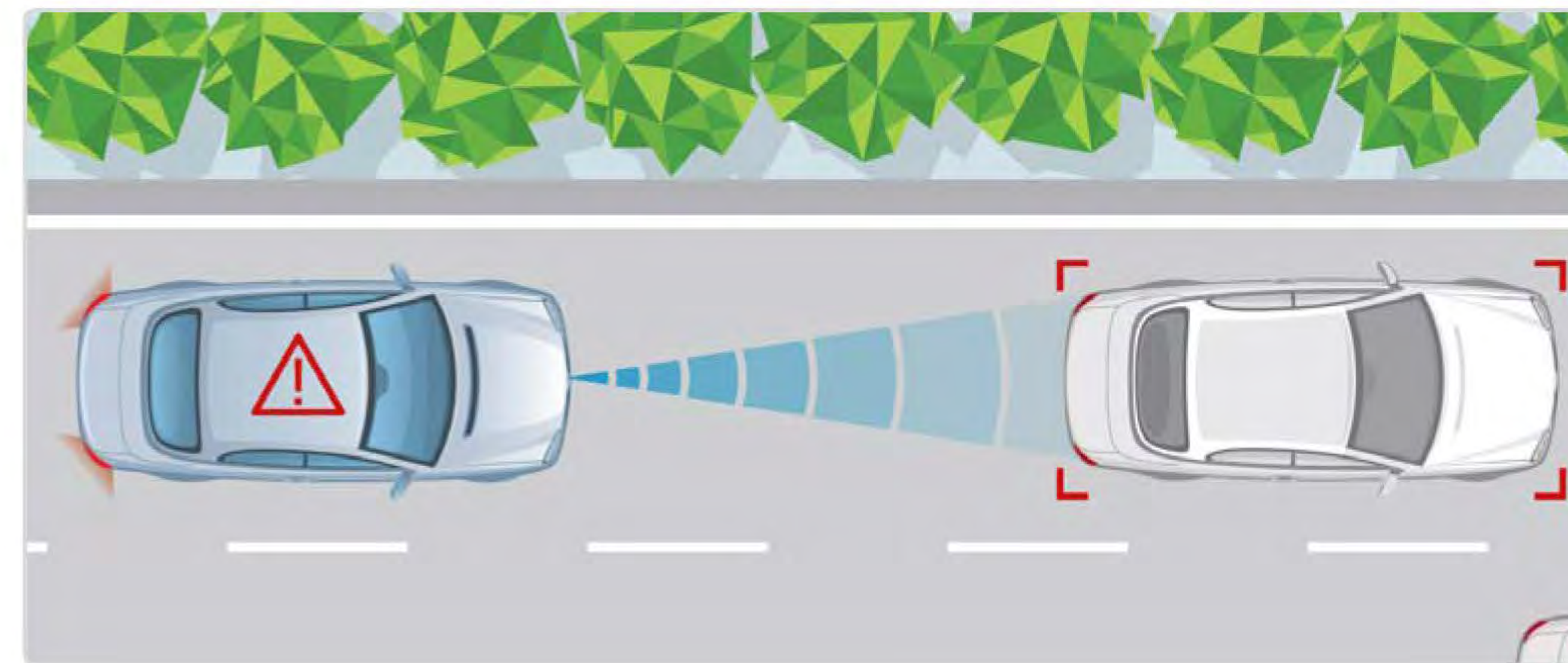
Kia offers a wide variety of Advanced Driver Assistance Systems (ADAS) Built with an eye view of the various ADAS features and functions that Kia offers with its standard available on the 2021 Seltos. **Note: Images are not to scale and are shown for illustrative purposes only.**



LANE FOLLOWING ASSIST* (LFA)

Standard S 2.0L EX S 1.6T and SX

Built on KA and SCC it can follow lane markings that the system detects and provide steering inputs to help maintain the vehicle along the lane. Note that if the vehicle has LFA it also has DW, DAW and LKA.



FORWARD COLLISION WARNING* (FCW)

Standard S 2.0L EX S 1.6T and SX

Designed to detect a vehicle in front and in emergency conditions can calculate the distance and closing speed and issues an alert to warn the driver if it senses a potential collision.



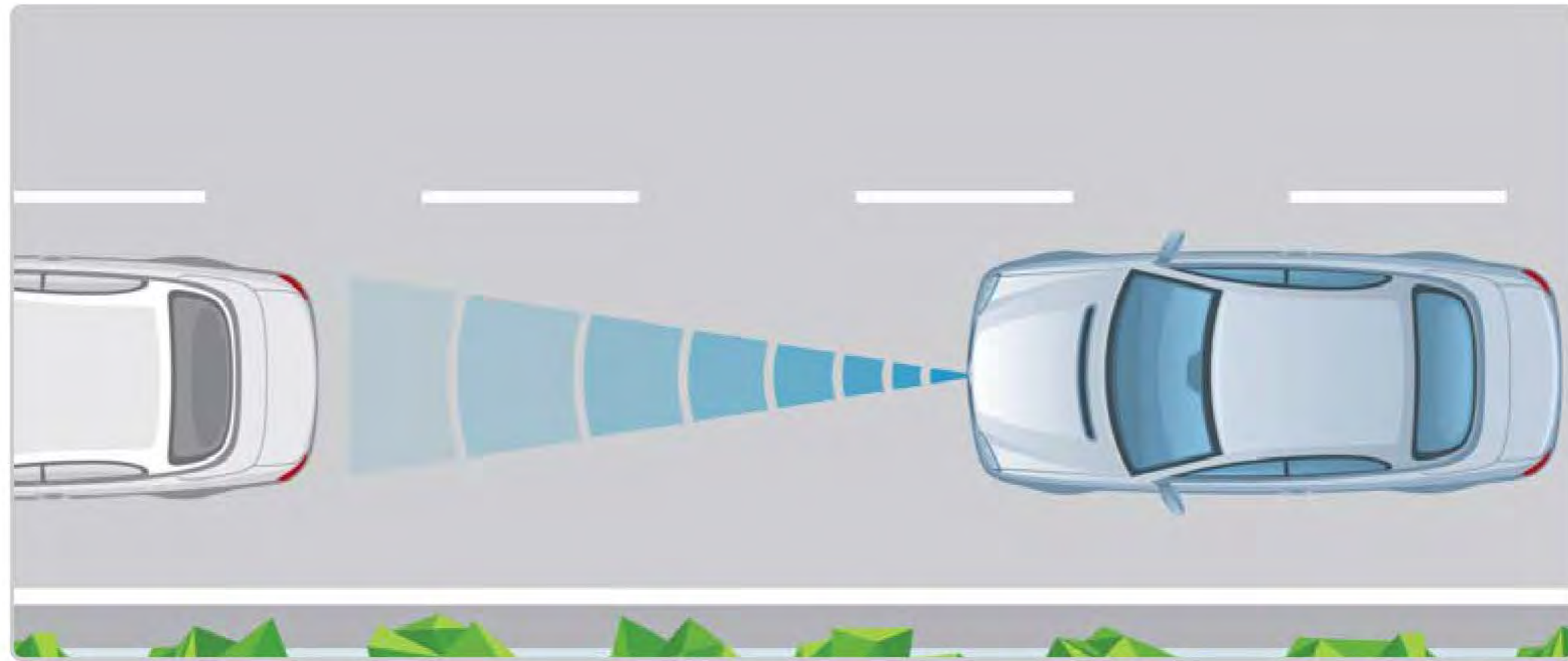
FORWARD COLLISION-AVOIDANCE ASSIST* (FCA)

Car and Pedestrian Standard S 2.0L EX S 1.6T and SX Cycle Standard SX

Built on FCW by assisting the driver in braking to help prevent a collision or lessen the effects in case of a collision by detecting in front.

DRIVER ASSIST

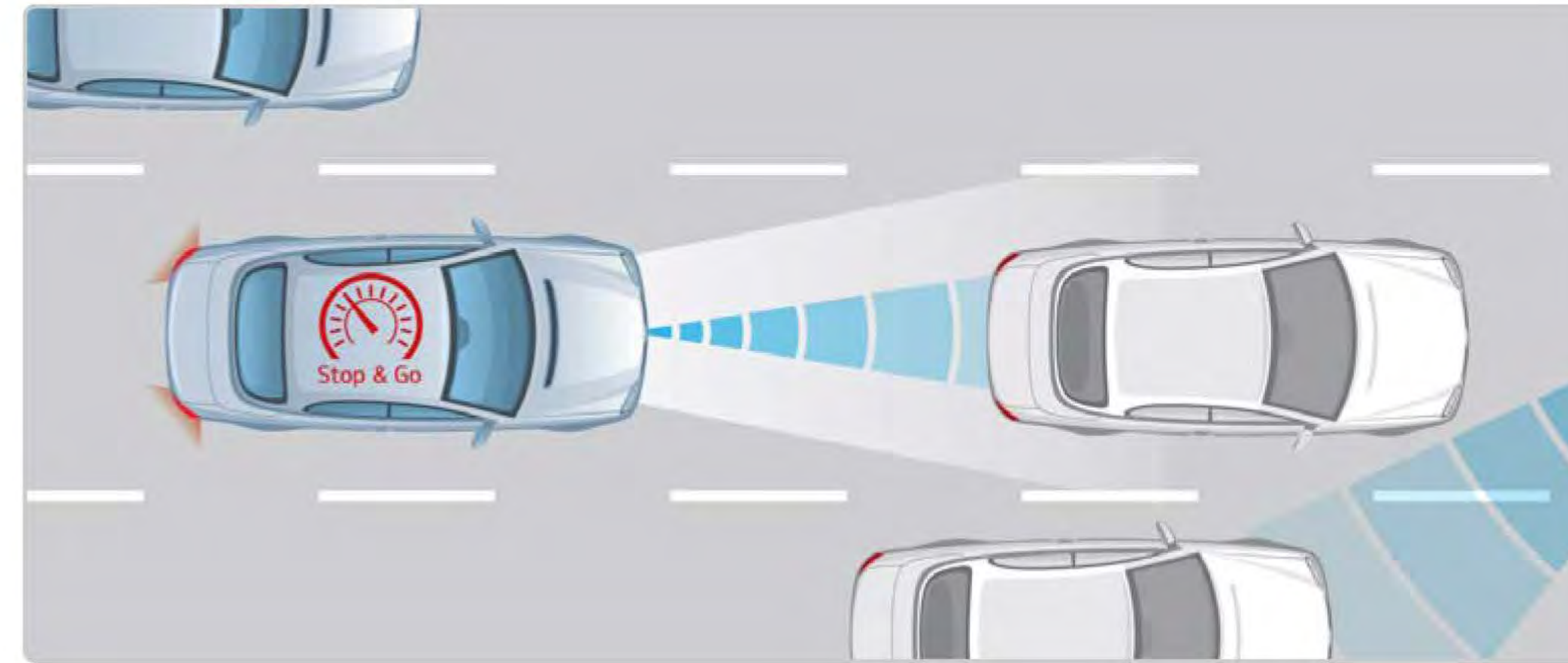
Kia offers a wide variety of Advanced Driver Assistance Systems (ADAS) with an overview of the various ADAS features and functions that Kia offers with its standard available on the 2021 Seltos. **Note: Images are not to scale and are shown for illustrative purposes only.**



SMART CRUISE CONTROL* (SCC)

Standard SX

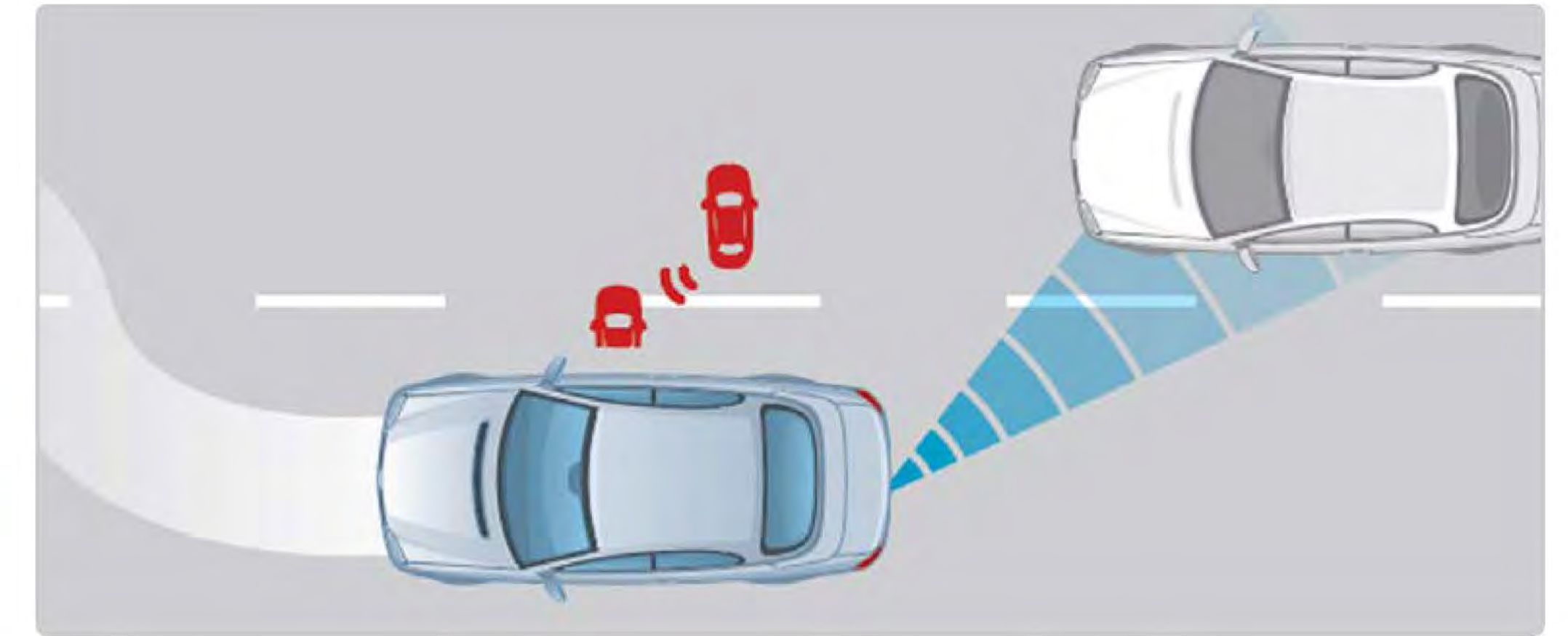
Designed to adapt to the driving environment by automatically applying the brakes or accelerator to help maintain a predetermined distance from a vehicle detected in front.



SMART CRUISE CONTROL WITH STOP & GO* (SCC w/ S&G)

Standard SX

Buys on SCC by being able to bring the vehicle to a full stop and resuming when traffic resumes within 3 seconds of stopping.



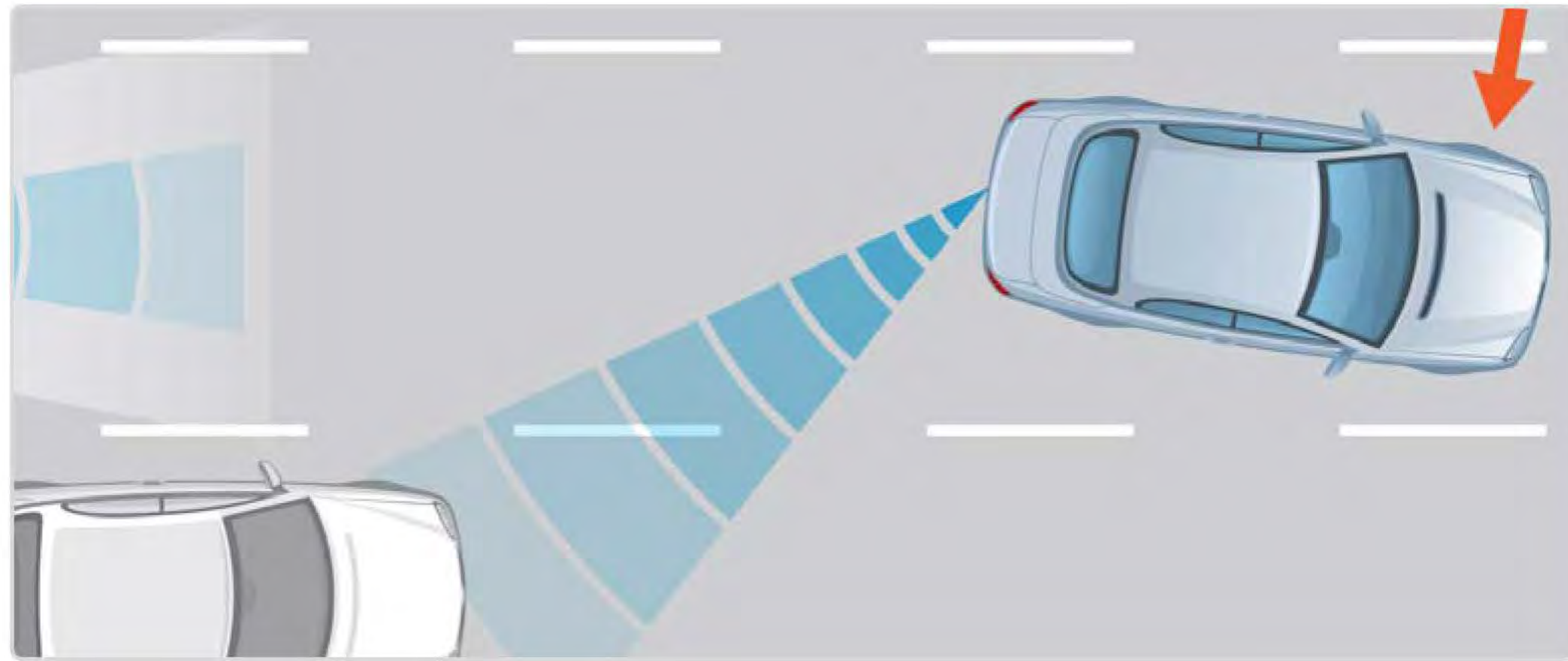
BLIND-SPOT COLLISION WARNING* (BCW)

Standard EX 1.6T and SX

Can detect vehicles under certain conditions ranging in the next lane. When a vehicle is detected in the blind spot, an icon flashes in the side mirror. A chime will sound if the turning signal is on.

DRIVER ASSIST

Kia offers a wide variety of Advanced Driver Assistance Systems (ADAS) to help improve the safety of your driving. The features and functions that Kia offers with the 2021 Seltos are not to scale and are shown for illustrative purposes only.



BLIND-SPOT COLLISION-AVOIDANCE ASSIST* (BCA)

Standard EX 1.6T and SX

Builds on Intelligent Collision Warning by applying brakes to the wheel under certain conditions to reduce the vehicle's speed.



REAR CROSS-TRAFFIC COLLISION WARNING* (RCCW)

Standard EX 1.6T and SX

Uses Blind Spot technology to help detect approaching cross traffic when in reverse. When approaching cross traffic is detected, the system alerts the driver.



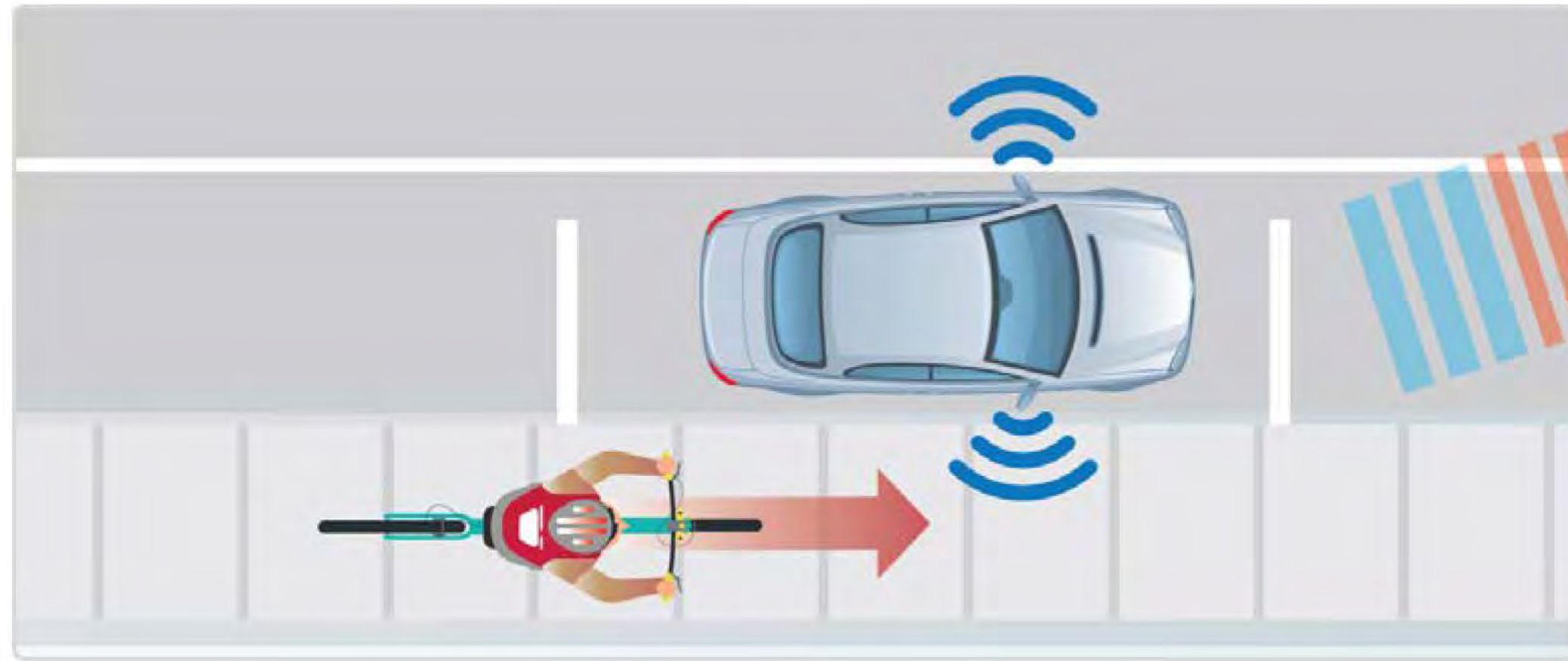
REAR CROSS-TRAFFIC COLLISION-AVOIDANCE ASSIST* (RCCA)

Standard EX 1.6T SX

Uses Blind Spot technology to look for traffic approaching from behind in the next lane. An icon flashes in the side mirror. A chime will sound if the turning signal is on.

DRIVER ASSIST

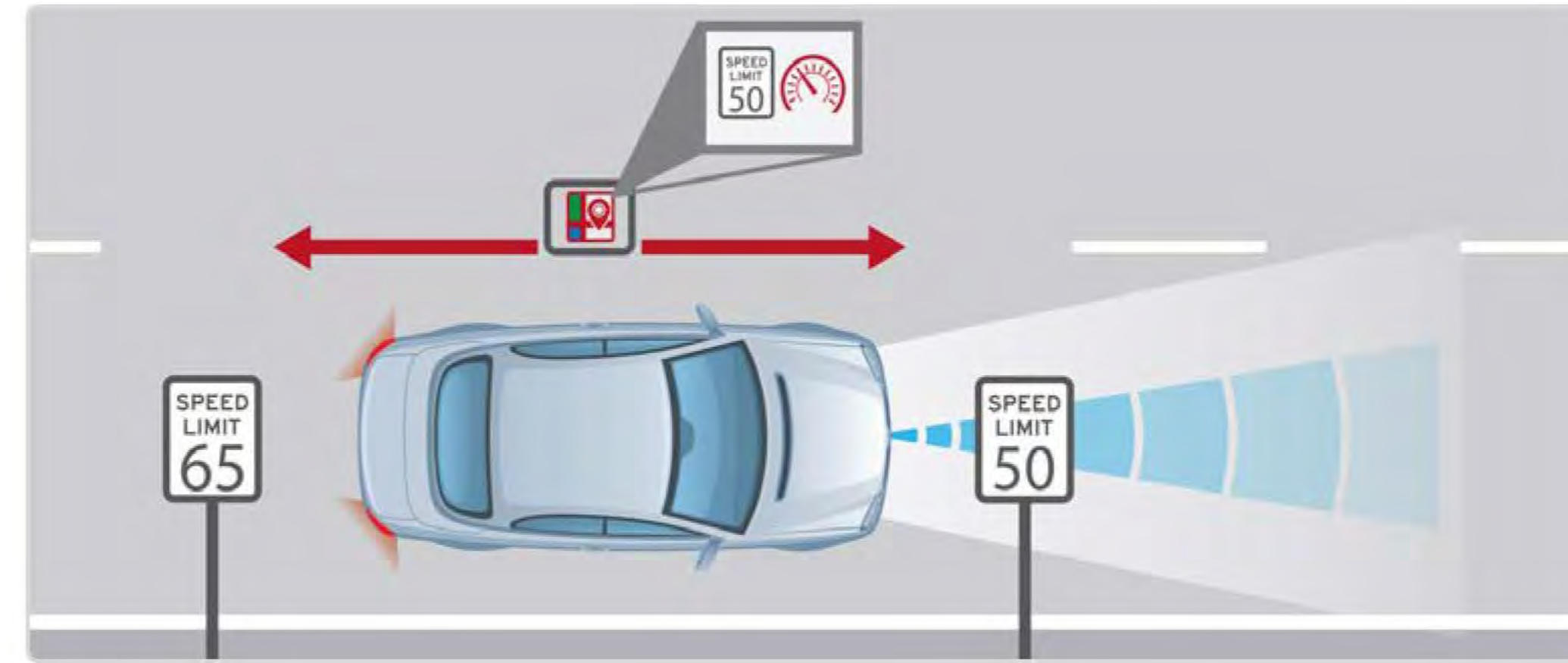
Kia offers a wide variety of Advanced Driver Assistance Systems (ADAS) Built with an eye view of the various ADAS features and functions that Kia offers with its standard available on the 2021 Seltos
Note: Images are not to scale and are shown for illustrative purposes only



SAFE EXIT ASSIST* (SEA)

Standard SX

Can alert the driver or passenger opening the door on the vehicle when the system detects approaching traffic. When detected, a chime sounds.



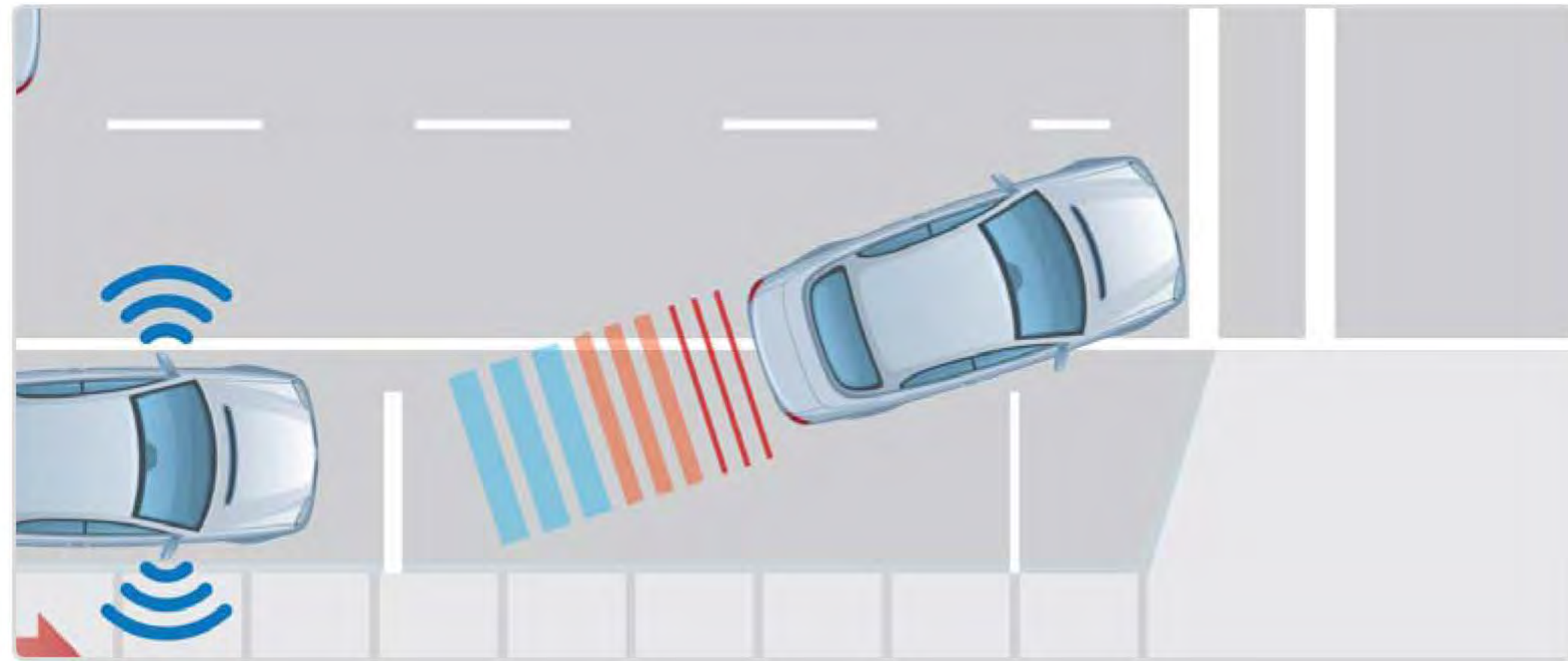
HIGHWAY DRIVING ASSIST* (HDA)

Standard SX

Bids on SCC w/ S&G by using adaptive highway speed limit information from the navigation system and user selection conditions can automatically adjust vehicle speed to be within the posted speed limit and maintain distance with the vehicle detected in front.

PARKING ASSIST

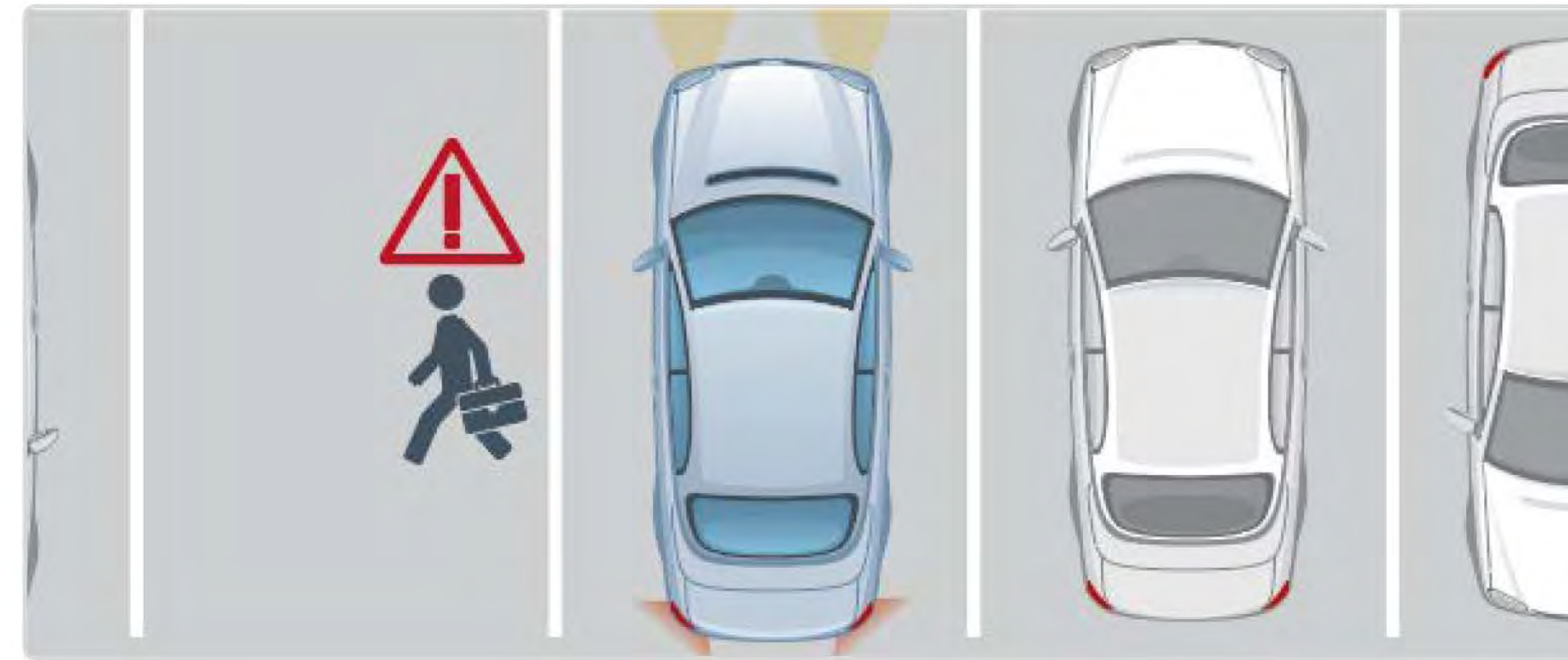
Kia offers a wide variety of Advanced Driver Assistance Systems (ADAS) Built with an eye view of the various ADAS features and functions that Kia offers with these standard available on the 2021 Set. **Note: Images are not to scale and are shown for illustrative purposes only.**



REAR VIEW MONITOR* (RVM)

Standard

Uses a camera located in the rear of the vehicle to help provide the driver with a view of what's behind the vehicle. It becomes active when the car is put in Reverse.



REAR OCCUPANT ALERT* (ROA)

Standard

Designed to provide a message in the instrument cluster or the driver's door pocket area to help prevent leaving the vehicle with a rear passenger left inside. The message appears when the driver door is opened after a rear passenger door had been opened and closed.

VISIBILITY ASSIST

Kia offers a wide variety of Advanced Driver Assistance Systems (ADAS) to help you drive safely. The following table shows the available ADAS features and functions that Kia offers with the 2021 Set. **Note: Images are not to scale and are shown for illustrative purposes only.**



HIGH BEAM ASSIST* (HBA)

Standard S 2.0L EX S 1.6T and SX

Can automatically switch the headlights to low beam when an oncoming vehicle or leading vehicle is detected. It can switch back to high beams when it no longer detects such vehicles.

DELIVERY

To ensure customer satisfaction make sure to advise you self with the operation and functions of these popular features and perform a thorough user demonstration during every Delivery Walkaround. By taking the time to fully explain potentially difficult options and (DTU or had to operate HTO) vehicle features for your customers you will help improve your overall customer service and satisfaction. For more information please view the Sales Features & Functions Guide or Sales Owner's Manual. Pay special attention to the following features when conducting a vehicle demonstration.



2021 Set s X hown

Standard *Bluetooth*® Connectivity and Phone Pairing

OVERVIEW

Helping customers connect their smartphone using *Bluetooth*® Connectivity during delivery can avoid confusion even an unnecessary service visit at a retailer to help them understand and then connect on issues that often are often related to coverage and may not mean there is a problem with the vehicle. (Standard Multi *Bluetooth*® Connectivity)

ACTION STEPS

- Expand that connection issues can occur *Bluetooth*® is not always the cause of connectivity issues and that additional troubleshooting or rebooting may be required. Use the Customer Vehicle Delivery Worksheet to ensure that the *Bluetooth*® pairing process is thorough and performed. Walk through pairing the customer's phone by following the pairing process. Make sure the customer accepts all requests or phonebook download data but ensure a connection in the phone.
- Expand to the customer that if they experience any issues with auto connections they should:
 - Reboot the phone (turn the phone off and then on)
 - Delete the phone from the radio and the radio from the phone and re-pair the phone
- Point the customer to resources they can access for additional information:
 - How to identify the user's device:
 - Kia.com/Owners
 - FAQs
 - Bluetooth*®
 - Vehicle Feature Tips
 - Audio System User Guide
 - Quick Start Guide
- Encourage our customer to use Android Auto™ or Apple CarPlay® or an approved user experience if the customer agrees. Be sure to explain that the usual data usage fees will apply. Take advantage of the information provided to customers in the Android Auto™ App or CarLife® Quick Start Guides.

OTHER *BLUETOOTH*®* TIPS

- Smartphone reception when connected through *Bluetooth*® or UVO port is affected by carrier coverage and is dependent on the phone.
- First-time audio through *Bluetooth*® from a device ensures that the listening volume on the device is turned up.

DETERMINING AUDIO PLATFORM FOR PHONE PAIRING

Many audio platforms look the same. Verify the audio platform from the Monday label to determine the best way to pair the customer's smartphone.

PHONE PAIRING PROCESS

The phone pairing process has been simplified.

- To pair a phone, press the dial button on the steering wheel.
- Turn *Bluetooth*® on from the device (phone) and select the vehicle name on the phone (Kia Motors) that matches the name on the screen.
- Follow the instructions on the device to confirm the pairing display.
- Press OK or Pair to complete the pairing. Be sure the customer looks down and confirms the connection request on the phone.



Simulated screen shown

Support for Apple CarPlay® & Android Auto™

OVERVIEW

Customers with compatible Android™ phones may need assistance with downloading the appropriate app prior to using Android Auto™. It's important that Sales Consultants ask customers with a phone they use Apple CarPlay® (Android Auto™ or both) and help them by performing the correct disconnection procedure (see the relevant Wi-Fi and Android Auto App CarPlay Availability in October 2020)

ACTION STEPS

Expand

- Using Android Auto™ requires that the Android Auto™ app be downloaded on a compatible phone.
- Both Android Auto™ and Apple CarPlay® enable the radio to be displayed and controlled on compatible Phones and Android phones when they're connected with a phone manufacturer-issued USB cable using the USB port.
- An iPhone® 5 or later phone is required.
- The recommendation is for the customer to purchase their Apple® and Android™ phones to the latest released operating system.
- The display provides access to compatible smartphone apps such as phone, music, maps, etc.
- Some third-party apps are also available; however, compatibility is not guaranteed. Refer customers to www.google.com and www.apple.com for the most up-to-date software support details.

To help the customer set up Apple CarPlay®

- On the head unit, press the SETUP key.
- Press the PHONE PROJECT ON button and select Apple CarPlay®.
- Ensure ENABLE Apple CarPlay® is selected. Have the customer accept all terms and conditions and respond on the head unit as directed on the screen.
- Connect the Apple CarPlay® compatible Phone® with the vehicle's USB port using the manufacturer's cable provided with your Phone®.
- From the vehicle's home screen, select the Apple CarPlay® button when you see the support details.

To help the customer set up Android Auto™

- From an Android Auto™ compatible device, download the Android Auto™ app from the Google Play™ store.
- Open the Android Auto™ app and proceed with the on-screen instructions to complete the setup on the mobile device.
- On the head unit, press the SETUP key.
- Press the PHONE PROJECT ON button and select Android Auto™.
- Ensure ENABLE Android Auto™ is selected. Have the customer accept all terms and conditions and respond on the head unit as directed on the screen.
- Connect the Android Auto™ compatible device with the vehicle's USB port using the manufacturer's cable provided with your phone.
- From the vehicle's home screen, select the Android Auto™ button when you see the support details.



Simulated screen shown



Simulated screen shown

Lane Following Assist (LFA)

OVERVIEW

The Lane Following Assist (LFA) system is designed to enhance safety by monitoring the detected lane ahead of the car and providing steering inputs. When using your Lane Following Assist (LFA) system, always be aware of your surroundings and road conditions that may interrupt the system.

Standard S 2.0L EX S 1.6T SX

ACTION STEPS

1. With the ENGINE START/STOP button in the ON or START position, Lane Following Assist (LFA) can be activated by pressing the button on the steering wheel.

NOTES

- Do not take the steering wheel off the wheel when the system is active near the road camera or where the rear view mirror is placed.
- Inspection, modification, or calibration may be required when replacing parts related to the wheel-mounted camera. Recommend the use of a Genuine Replacement Part and inspection of the system by an authorized Kia Dealer.
- Depending on your surroundings and road conditions, LFA could fail to recognize the lane and stop working. As such, extra caution is required when driving with LFA on.
- Be sure to check the non-operating conditions and cautions for the driver before using LFA.
- Do not place reflective materials such as white paper or a mirror on the dashboard, which may affect the system's operation.
- Loud audio messages prevent the occupants from hearing the alarms and sounds from LFA.
- Keeping your hands off the wheel while driving will trigger the hands-off warning and deactivate the steering assist system.
- When driving at a high speed, the steering assistance can become weak and the vehicle can drift out of its lane, requiring extra caution. Comply with the speed limit.
- At achieving an object to the steering wheel could prevent the steering assistance.
- At achieving an object to the steering wheel could prevent the hands-off warning.





2021 Set s X s own

Idle, Stop and Go (ISG) System

OVERVIEW

Your customers may become surprised when their engines stop while sitting at a traffic light. Many customers are not familiar with the Idle, Stop and Go (ISG) system operation so this important you educate the customer on why their vehicle has an ISG system and how to operate during the drive.

ACT ON STEPS

1. Explain that the ISG system is designed to help reduce fuel consumption by automatically shutting down the engine when the vehicle is at a standstill.
2. Fully explain the ISG system to the customer including:
 - a. When the ISG system is ON and the vehicle is at a standstill, the engine may stop and the green AUTO STOP indicator on the instrument cluster will illuminate.
 - b. The engine will restart when the brake pedal is released or the shift lever is moved from Drive (D) to the R (Reverse) position or to Sport Shift mode.
 - c. When the green AUTO STOP indicator is illuminated, the customer will turn off the ISG system by pressing the ISG OFF button if you press again the system will be deactivated.
 3. Reiterate the following important reminders with the customer:
 - a. ISG is active by default at vehicle start-up. When the ignition is cycled, ISG will turn ON again.
 - b. Under certain conditions, the engine will restart automatically even if the brake pedal is depressed (see Owner's Manual).
 - c. If the AUTO STOP indicator is continually blinking yellow and the ISG button LED is not present, an authorized Kia dealer.
 4. Explain when the ISG system is disabled, which occurs when:
 - a. The seat belt is unfastened.
 - b. The hood or a door is open.
 - c. Battery condition is poor.
 - d. The rotor or rear defroster is turned on.
 - e. Engine coolant temperature is low.
 - f. The outside ambient temperature is too high/low.
 - g. Mission control deactivates.
 - h. The vehicle is on a steep slope.

Rear Door Locks Feature

OVERVIEW

To help enhance driver and passenger security doors lock automatically based on user settings. Drivers may change the setting of lock doors by opening the Enable Based on Speed or Enable Shift from P. Weismar the features are nuances of each option that are important to understand.

ACTION STEPS

The child safety lock is located on the edge of each rear door.

When Enable Based on Speed is selected

- Doors will lock automatically when the vehicle speed exceeds 10 mph.
- If the rear passenger attempts to open the door above this speed the doors do not lock. The central door locking switch can unlock the doors.
- If the driver uses the door control to lock the vehicle above this speed the vehicle will detect and instantly relock the doors.
- This is possible to relock the doors using the door control and the speed sensor. The car will detect and relock it. The rear door can be opened but this is very difficult to do.
- The doors unlock when the ignition key is removed from the ignition switch or the ENGINE START STOP button is set to the OFF position or by bringing the vehicle speed below 1 mph and the door is pulled once.

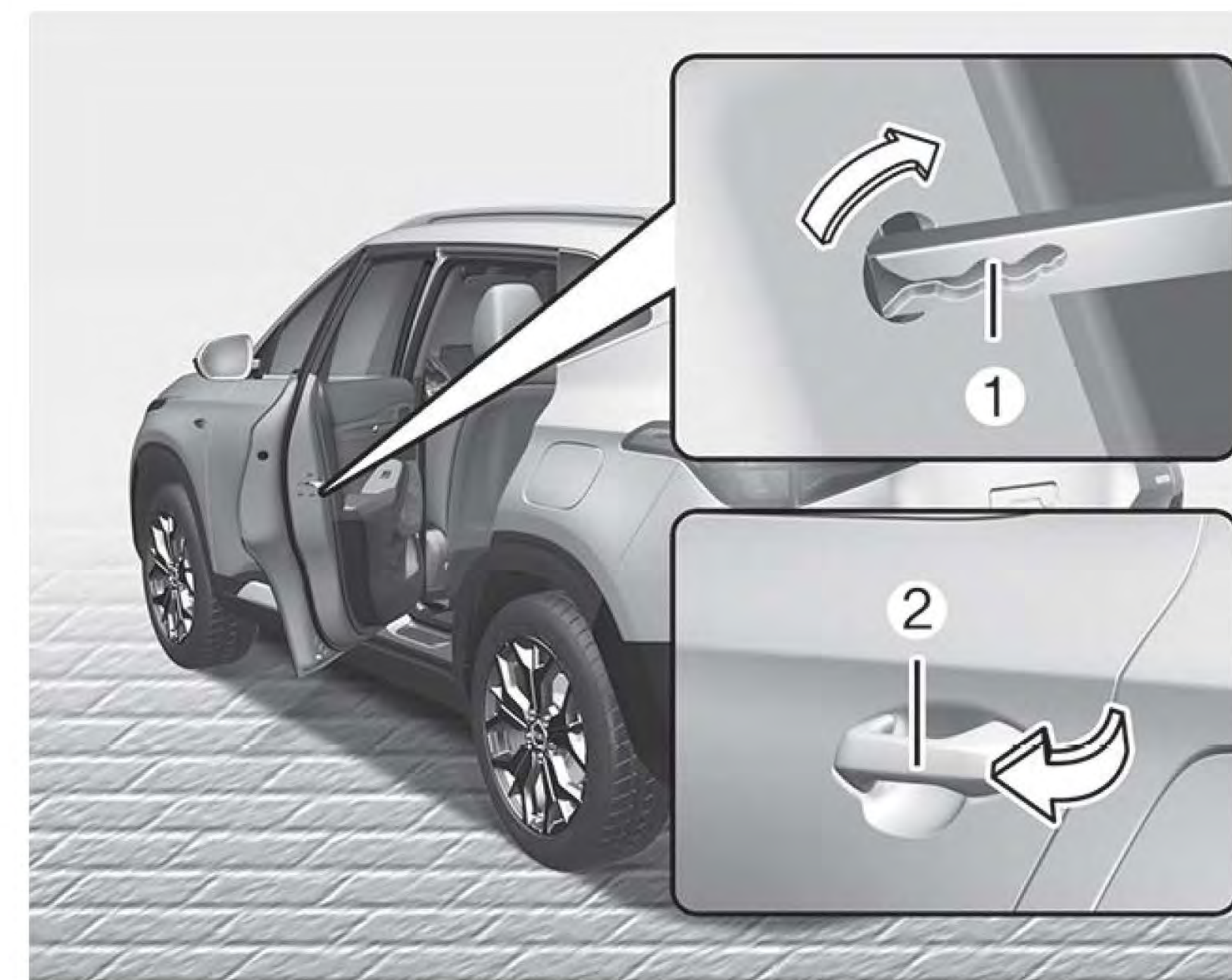
When Enable Shift from P is selected

- Doors will lock automatically when the vehicle shifts out of Park.
- If the driver pushes the door unlock button when the doors will stay unlocked until the vehicle is put to P and then back to D or another gear.
- The doors can be unlocked by pulling the door handle once. This is possible for the second passenger to open the doors by pulling the door handle once to unlock the door and then pulling again to open the door. In essence, two pulls on the door handle. Our feature is equipped with child safety locks to keep the rear doors locked from the inside at all times.

Get familiar with central door locks!

Help keep your car safe by familiarizing yourself and your family with the features like the door locks.

Note: If any of the four features are OPEN the doors WILL NOT lock when depressing the door lock switch on either the master switch or the passenger side switch. However, the doors WILL lock if all features are closed and the rear hatch is open.





Remote Start Using the Smart Key Fob

OVERVIEW

Make sure your customer can successfully operate the Remote Start using the Smart Key Fob. This convenient feature allows customers to start their vehicle and customize its interior before entering.

Standard EX X

ACT ON STEPS

Remote Start using the Smart Key Fob can start the vehicle from a distance as far as 98.4 feet (30 meters) away. The vehicle will remain running for a maximum of 10 minutes.

Starting the engine

- 1 Press the door lock button and within 4 seconds press and hold the remote engine start button for more than 2 seconds. The engine lights will blink 3 times when the function is successfully completed.
- 2 When the engine is turned on the previous HV/C mode set before engine off is used.

Stopping engine start

- Press the remote engine start button once.

NOTE Engine stop function is not available in use and the driver must be in the vehicle with the smart key fob inside the vehicle.

Key Competitive Wins

2021 KIA SELTOS VS 2020 HONDA HR-V

FHR-V Tr m Leve s LX Sport EX EX L and Tou ing

HR-V P we tra n Opt ons 1.8L 4 cy in er MPI 16V SOHC i VTEC

KEY SELTOS WINS

✓ Adv nced Powe tr in

- Set s 2.0L 4 cy i der MPI A ki son Nu 16V DOHC w th Dua CVVT pr duc ng 146 hp and 132 b ft as m re ho sepower nd to que t an the HR V at 141 hp and 127 b ft The av iabe 1.6L 4 ylnd r GDI Tu bo Gamma 16V DOHC wi h D al CVVT o fe s ev n mo e ower wi h 75 p nd 195 lb t
- Set s as two ava abe tr nsmi s on opt ons i cud ng an adv nced 7 speed du l clutch ran m s ion DCT) wher as the HR V on y has one av iabe t ansm s on
- Set s S 1.6T and SX use a more ad nced GD fue dei ery HR V us s n MPI ue sys em

✓ Gr ater om ort & Co ven en e

- AI Set s r m ev lsc me w th st nda d uppo t for A dro d Auto™ & Ap le Ca Pay® the eat re s nly tand rd on HR V EX EX L a d our ng
- Set s ff rs Dr v r Att nton W rn ng DAW) orwa d o l s on Avoda ce Ass st Cy le (FCA Cyc) Sa e Ext Ass st (S A) nd Bind Spot ol s on vodance Ass st ear BCA)w h R ar Cr ss ra fc Co l s on Avoda ce Ass st (RCC) one of t ese fe tu es are a ala le on HR V

- S l os of ers an a ai a le wi e ess p one cha ger she f HR V do s not
- S l os of ers a ai a le Mood L gh ing w th 6 themes and 8 g ow on y op io s HR V d es not

✓ Upg aded nt r or

- S l os of ers a 10 w y p w r adus abe r vers s at wi h ower umbar su port HR V has an a ala le 8 way p w r adust be di ers se t
- S l os of ers more h adr om t an the HR V at 40.0 i ches w/ s nroo) 38.5 in hes w o sun oof) 38.4 nch s HR V h s 9.5 nch s/38.3 nches LX por) 37.6 nch s/ 8.3 nch s EX X L To r ng)
- S l os pro i es mo e ove al ca go pace han the HR V wi h 62.8 cu t s 58.8 cu t FWD) HR V as 57.6 LX port w AWD) and 55.9 (X EX L w/ WD our ng)

✓ onger Wa ran y

- 5 yea /60 000 m e New Ve i le L mi ed Bas c War anty is tan ard on the S l os compa ed wi h he 3 ye r/ 6 00 mi e ove age f r HR V
- 0 yea /1 00 0 mi e L mt d ower ran Wa ra ty s st nda d on he Se tos c mp red w th the 5 ear 60 000 m le ove age for HR V
- 5 yea /60 000 m e Roads de As i tan e s sta dard on he S l os compa ed wi h he 3 Y ar 36 00 mi e co er ge for HR V

Key Competitive Wins

2021 KIA SELTOS VS 2020 EEP RENEGADE

Jeep Reneg de T im Leve s Spo t La i ude L m t d and Tra l awk

Jeep Reneg de Powe tra n Opt ons 2 4L 4 cy ind r MPI 16V SOHC Du l VVT 1 3L 4 cy l nder GDI T rbo 16V SOHC w th Dual VVT

KEY SELTOS WINS

✓ Adv nced Powe tr in

- Set s as two ava abe tr nsmi s on opt ons i c ud ng an adv nced 7 speed du l clutch ran ms ion DCT) wher as the Re egade o ly has o e ra i o al au omat c t ansm ss on av iabe
- Set s as a ase eng ne hat us s a more a van ed GDI fu l de very the b se eng ne n he Reneg de has a M l fu l sy tem

✓ G eat r Comfo t & C nven en e

- S l os comes wi h sta dard s ppo t for An ro d Auto[™] & App e Ca Pay[®] t e ea ure s on y tan ard on Rene ade La i ude Lmi ed nd ra hawk
- S l os comes wi h sta dard Au o On Off He d ig ts h s fea ure s on y tan ard on Ren gade La i ude L m ted and T ai hawk
- S l os of ers D i er At ent on Warn ng (DAW) and S fe Ext As i t SEA) both of wh ch a e unav iabe on Rene ade
- S l os of ers an a ai a le wi e ss p one cha ger she f Reneg de do s not

✓ U grad d n er or

- el os of e s mo e fr nt/ ear eg oom han t e R negade 41 4 37 1 n hes vs 41 2/35 1 i ches
- el os pr vdes more ov ra l argo spa e han the Re egade 62 8 u ft vs 0 8 cu t

✓ onger Wa ran y

- 5 yea /60 000 m e New Ve i le Lmi ed Bas c War anty is tan ard on the S l os compa ed wi h he 3 ye r/ 6 00 mi e ove age f r Reneg de
- 0 yea /1 00 0 mi e L m t d ower ran Wa ra ty s st nda d on he Se tos c mp red w th the 5 ear 60 000 m le ove age for R negade



Key Competitive Wins

2021 KIA SELTOS VS 2020 CHEVY TRAX

Chevy Trax Trim levels LS, LT and Premier

Chevy Trax Powertrain Options 1.4L 4 cylinder MPI 16V DOHC Turbo VVT

KEY SELTOS WINS

✓ Advanced Powertrain

- Sets 2.0L 4 cylinder MPI Allison Nu 16V DOHC with Dual CVT producing 146 hp and 132 lb ft torque compared to the Trax at 138 hp and 148 lb ft torque. The available 1.6L 4 cylinder GDI Turbo Gamma 16V DOHC with Dual CVT offers even more power with 175 hp and 195 lb ft.
- Sets offers two available engine options. The Trax has only one engine option.
- Sets has two available transmission options including an advanced 7 speed dual clutch transmission (DCT) the Trax only has one standard automatic transmission available.
- Sets has a more advanced GDI fuel delivery. Trax uses a MPI fuel system.

✓ Greater Comfort & Convenience

- Sets offers available LED headlights. This is not offered on Trax.
- Sets has available sensor automatic cruise control. Trax does not.

- Sets offers Driver Attention Warning (DAW) Lane Keeping Assist (LKA) Forward Collision Avoidance Assist (FCA) Pedestrian Cross Traffic Alert with Stop & Go (CTA) and Safe Exit Assist (SEA) all of which are available on Trax.
- Sets offers an available wireless phone charger. Trax does not.

✓ Upgraded Interior

- Sets offers a 10 way power adjustable driver's seat with power lumbar support. Trax has an available 8 way power adjustable driver's seat.
- Sets offers more interior storage than the Trax. 55.5 cu ft vs 41.5 cu ft.
- Sets offers more interior storage than the Trax. 41.4 cu ft vs 37.1 cu ft.
- Sets provides more interior cargo space than the Trax. 62.8 cu ft vs 48.4 cu ft.

✓ Longer Warranty

- 5 year / 60,000 mile New Vehicle Limited Basic Warranty is standard on the Sets compared with the 3 year / 60,000 mile coverage for Trax.
- 10 year / 100,000 mile Limited Powertrain Warranty is standard on the Sets compared with the 5 year / 60,000 mile coverage for Trax.
- 5 year / 100,000 mile Limited Anti-Rust Protection Warranty is standard on the Sets compared with the 3 year / 60,000 mile coverage for Trax.

Competitive Comparison*

	2021 KIA SELTOS	2020 HONDA HR-V	2020 JEEP RENEGADE	2020 CHEVY TRAX
TRIM LEVELS / PRICE				
Trim Levels	LX S 2.0L EX S 1.6T SX	LX Sport EX X L Touring	Sport Latitude Trailhawk Limited	S LT Premier
MRP	\$21,990 (LX) \$21,990 (S 2.0L FWD) \$23,490 (S 2.0L AWD package) \$25,290 (EX) \$25,490 (S 1.6T AWD) \$27,890 (SX)	\$20,820 (X) \$22,520 (Sport) \$23,970 (X) \$25,570 (X L) \$28,890 (Touring)	\$22,470 (Sport) \$24,125 (Latitude) \$27,990 (Trailhawk) \$26,840 (Limited)	22.95 (LS) 24.95 (LT) 28.95 (Premier)
PERFORMANCE				
Engine 1	2.0L 4-cyl GDI Atkinson Nu 16V DOHC w/ Dual CVT	1.8L 4-cyl MPI 6V OHC i VTEC	2.4L 4-cyl MP 16V SOHC Dual VVT	1.4L 4-cyl MPI 16V DOHC Turbo VVT
Horsepower (hp @ rpm)	146 @ 6,200	141 @ 6,500	180 @ 6,400	38 @ 4,000
Torque (lb-ft @ rpm)	132 @ 4,500	127 @ 4,300	175 @ 3,900	48 @ 1,500
Standard Transmission	6-speed Intelligent Variable Transmission (VT)	Continuously Variable Transmission (VT)	9-speed Automatic Transmission	6-speed Automatic Transmission
Engine 2	1.6L 4-cyl GDI Turbo Gamma 16V DOHC w/ Dual CVT	N/A	1.3L 4-cyl GDI Turbo 16V SOHC w/ Dual VVT	N/A
Horsepower (hp @ rpm)	175 @ 5,500	N/A	177 @ 5,750	N/A
Torque (lb-ft @ rpm)	195 @ 1,500 - 4,500	N/A	200 @ 1,750	N/A
Transmission 2	7-speed Dual Clutch Transmission (DCT)	N/A	N/A	N/A
Fuel Type	Regular Unleaded	Regular Unleaded	2.4L Regular Unleaded 1.3L Regular Unleaded Premium (Recommended)	Regular Unleaded

Competitive Comparison*

	2021 KIA SELTOS	2020 HONDA HR-V	2020 JEEP RENEGADE	2020 CHEVY TRAX
PERFORMANCE (CONTINUED)				
EPA c ty/ ig w y/ om in d MPG)	27/3 /29 (X EX) 29/3 /31 (S 2 0L) 25/3 /27 (S 1 6T X)	28 34/30 FW) 27 31/29 LX w AWD) 26 31/28 Spo t EX EX L Tou ing w/AWD)	24 32 27 1 3L FW) 23 29 26 1 3L/ WD) 22 30 25 2 4L FW) 21 29 24 2 4L/ WD)	6/31 28 (FWD) 4/29 26 (AWD)
Fuel ank Capa i y (ga)	13.2	13.2	12.7	4.0
Susp ns on F on /Rear	M cPhe son S rut Coup e To si n Beam A le CTBA) FWD) Mu ti i k (AWD)	MacPh rson S ru / To s on Beam (WD) DeD on (WD)	MacP er on tr t/ o lSp in s FWD) Ch pm n tr t(4WD)	Ma Phe son St ut/ ors on Be m
Sta i zer Ba s	TBD	Fr nt (FWD) F ont Rear AWD)	F ont Rear	ront
Ste r ng	El ct ic P w r Ste r ng (EP)	E ec rc Power St er ng (PS)	E ec rc Power S ee ing EPS)	le t ic Power tee ng EPS)
Dr ve Con i ura i n	FWD S 2 0L) AWD (S anda d X S 1 T EX X Ava abe S 2 0L)	FWD LX port EX X L) AWD St nda d Tou ng A ai abe LX port EX X L)	FWD (Sp rt La i ude im ted) 4WD (S anda d T a lh wk Av i abe Sp rt La i ude im ted)	WD (tand rd) WD (A a la l)
EXTERIOR				
Wh els	17 n A oy (LX S 2 0L EX) 18 n A oy (S 1 6T SX)	17 n Aloy (X EX X L our ng) 18 n Aloy (por)	16 in St el Spor) 17 in Aum num (S anda d L ttude T a lh wk Av i abe por) 18 in Aum num (S anda d L mi ed A ai abe Latt de)	6 n Aumin m (S LT) 8 n Aumin m (tand rd Prem er val ble LT)
Ti es	215/ 5R17 (LX S 2 0L EX) 235/ 5R18 (S 1 6T SX)	P215 55R17 (X EX X L our ng) P225 50R18 (por)	21 /65R16 Spo t) 21 /60R17 Sta dard La i ude A ai abe Spo t) 21 /65R17 Tra hawk) 22 /55R18 L mt d)	05/7 R16 LS LT) 15/5 R18 S anda d P em er val ble LT)

Competitive Comparison*

	2021 KIA SELTOS	2020 HONDA HR-V	2020 JEEP RENEGADE	2020 CHEVY TRAX
EXTERIOR (CONTINUED)				
Power Sunroof	Standard EX Available SX	EX EX L TURING	Available	Standard Premier Value LT
Power Adjustable Exterior Mirrors	Standard	Standard	Standard	Standard
Heated Exterior Mirrors	S 2.0L AWD EX S 1.6T SX	EX EX L TURING	Standard	TP Premier
Exterior Mirrors w/ LED Turn Signals	S 2.0L EX S 1.6T SX	EX EX L TURING	Standard Limited Available Limited	N/A
LIGHTING & INSTRUMENTATION				
Auto On/Off Headlights	Standard	Auto Off On y (X Sport) Auto On/Off EX EX L TURING	Limited Trailhawk Limited	Standard
Headlights	Projector Beam (X S 2.0L EX S 1.6T) LED (SX)	Projector Beam Halogen (X Sport EX EX L) LED (TURING)	Halogen LED Available Limited Trailhawk Limited	Halogen Reflector Beam (S) Halogen Projector Beam (TP Premier)
Front Fog Lights	S 2.0L EX S 1.6T SX	Sport X EX L TURING	Limited Trailhawk Limited	Premier
LED Tail Lights	S 2.0L EX S 1.6T SX	Standard	Available Limited Trailhawk Limited	TP Premier
AUDIO & INFOTAINMENT				
AM/FM/MP3	Standard	Standard	Standard	Standard
Speakers	6 speakers (X S 2.0L EX S 1.6T) 8 speakers (X)	4 Speakers (LX Sport) 6 Speakers EX EX L TURING	6 Speakers	6 Speakers (LS LT) 7 Speakers (Standard Premier Value LT)
Support for Android Auto™ & Apple CarPlay® (wireless available on 2020)	Standard	Sport X EX L TURING	Limited Trailhawk Limited	Standard

Competitive Comparison*

	2021 KIA SELTOS	2020 HONDA HR-V	2020 JEEP RENEGADE	2020 CHEVY TRAX
AUDIO & INFOTAINMENT (CONTINUED)				
SiriusXM® Satellite Radio	SX	EX EX L T ur ng	Standard Limited Trailhawk Available Sport	TP emier
USB	Standard	Standard	Standard	Standard
Wireless Phone Charger	EX SX	N/A	N/A	N/A
Bluetooth® Wireless Technology	Standard	Standard	Standard	Standard
Multi-Point Bluetooth® Connectivity	Standard	N/A	N/A	Standard
Navigation	SX	Touring	Available Limited Trailhawk	Standard w/ OnStar Subscription
Infotainment / Telematics System	UVO Link	HondaLink	Uconnect	Available Infotainment 3
COMFORT & CONVENIENCE				
Climate Control	Full Automatic Temperature Control (EX SX)	Single Zone Automatic (EX EX L Touring)	Dual Zone Automatic Standard Limited Trailhawk Limited Available Sport)	Single Zone Manual
Variable Intensity Washed Windows	Standard	Standard	Standard	Standard
Power Windows	Standard	Standard	Standard	Standard
Auto Up/Down Windows	Driver Auto Down Only (LX S2.0L S1.6T) Driver Auto Up/Auto Down (EX SX)	Standard	Driver & Front Row Passenger	Driver Auto Up Auto Down Passenger Auto Down Only
Steering Wheel Mounted Controls	Standard	Standard	Standard	Standard

Competitive Comparison*

	2021 KIA SELTOS	2020 HONDA HR-V	2020 JEEP RENEGADE	2020 CHEVY TRAX
COMFORT & CONVEN ENCE (CONT NUED)				
Vi or Van ty Mi ro s	I umna ed (EX SX)	I umnated EX EX L To r ng)	I umnat d La i ude Tra hawk Lmi ed)	I mna ed (P emie)
Remote K yf ss Ent y w Ala m	Keyf b AI Doo s)	Key ob (AI Do rs)	Ke fob (ll oor)	K yfob AI Doo s)
Push Bu ton St rt w/ Smart K y	EX SX	EX EX L T ur ng	S anda d	tand rd Premier val ble LT
Remote St rt si g he Smart Key F b	EX SX	EX EX L T ur ng	S anda d	tan ard Premier val ble LT
ADVANCED DRIVER ASSISTANCE SYSTEMS				
Rear V ew Mo i or w/ Par ing Gu da ce (RVM w/ G)	Sta dard	St nda d	S anda d	tand rd
Lane Dep rt re W rn ng LDW)	S 2 0L EX S 1 6T SX	EX EX L T ur ng	A ai abe Spo t L ttude Lmt d	P emi r
Lane Kee ing A sst LKA)	S 2 0L EX S 1 6T SX	EX EX L T ur ng	A ai abe Spo t L ttude Lmt d	N A
Lane Fo owi g A sst LFA)	S 2 0L EX S 1 6T SX	EX EX L T ur ng	N A	N A
Dr ver A ten i n Wa ni g (D W)	S 2 0L EX S 1 6T SX	N/A	N A	N A
Forwa d Co lson Warn ng FCW)	S 2 0L EX S 1 6T SX	EX EX L T ur ng	A ai abe Spo t L ttude Lmt d	P emi r
Forwa d Co lson Avo dan e A sst Ped FCA P d)	S 2 0L EX S 1 6T SX	N/A	A ai abe Spo t L ttude Lmt d	N A
Forwa d Co lson Avo dan e A sst C yce FCA Cy)	SX	N/A	N A	N A
Sm rt C ui e Cont ol w th S op & Go SCC w/ S&G)	SX	(top on y) EX EX L T ur ng	Stop o ly) val ble Spo t att de Lmi ed	N A

Competitive Comparison*

	2021 KIA SELTOS	2020 HONDA HR-V	2020 JEEP RENEGADE	2020 CHEVY TRAX
ADVANCED DRIVER ASSISTANCE SYSTEMS (CONTINUED)				
Rear Occupant Alert (ROA)	Standard	N/A	N/A	N/A
Safe Exit Assist (SEA)	SX	N/A	N/A	N/A
High Beam Assist (HBA)	SX	N/A	N/A	N/A
Blind Spot Collision Avoidance Assist Rear (BCAR) w/ Rear Cross Traffic Collision Avoidance Assist (RCTA)	S16T EX SX	N/A	N/A	N/A
Seating Material	Cloth (X) Cloth & OFINO Leatherette (S20L S16T) Sofno Leatherette (EX SX)	Cloth LX Sport EX Leatherette (EX L Touring)	Cloth Sport (Tall) w/ Leatherette (Standard Limited Available Trailhawk)	Cloth (LS LT) Cloth & Leatherette (Available LT) Leatherette Premier
Driver's Seat 1	6 way Adjustable (LX S20L S16T)	6 way Adjustable (LX Sport EX EX L)	6 way Adjustable (port Limited Tall)	6 way Adjustable (LS T)
Driver's Seat 2	10 way Power Adjustable w/ Power Lumbar Support (EX S)	8 way Power Adjustable (Touring)	10 way Power Adjustable (Limited)	6 way Power Adjustable Standard Premier (Available LT)
Passenger's Seat 1	4 way Adjustable	4 way Adjustable	4 way Adjustable	4 way Adjustable
Heated Front Seats	Standard EX SX Available S20L S16T	EX EX L Touring	Standard Limited Available Limited Tall	Premier

Competitive Comparison*

	2021 KIA SELTOS	2020 HONDA HR-V	2020 JEEP RENEGADE	2020 CHEVY TRAX
Lea her w app d tee i g Whe l & hi t Knob	S 2 0L EX S 1 6T SX	Spo t X L our ng	S ee i ng Whee l mi ed Sh t Knob ra hawk L mi ed	tee i g Whe l (tand rd Prem er va l ble T)
SAFETY & SECUR TY				
Fro t/R ar Bra es	4 whee Di c	4 whe l D sc	4 wh el D sc	D s /D um FWD) 4 wheel D sc AWD)
Four wheel nti ock Br ke Sys em (ABS)	Sta dard	St nda d	S anda d	tand rd
Tra t on Con rol yst m TCS)	Sta dard	St nda d	S anda d	tand rd
El ct on c Sta i ty Con rol (SC)	Sta dard	St nda d	S anda d	tan ard
Hi l s art As i t Con rol (HA)	Sta dard	St nda d	S anda d	tan ard
El ct on c Bra e f rce D st but on EBD)	Sta dard	St nda d	S anda d	tan ard
Dual Font Ad anc d Ar ags	Sta dard	St nda d	S anda d	tan ard
Dual Font S at mou ted S de Ai bags	Sta dard	St nda d	S anda d	tan ard
Fu l le gth S de Cur an A bags	Sta dard	St nda d	S anda d	tan ard
Ti e Pre sure Mon t r ng Sys em (TPMS)	Sta dard	St nda d	S anda d	tan ard

Competitive Comparison*

	2021 KIA SELTOS	2020 HONDA HR-V	2020 JEEP RENEGADE	2020 CHEVY TRAX
EXTERIOR DIMENSIONS				
Wheelbase (in)	103.5	102.8	101.2	100.6
Overall Length (in)	172.0	170.4 (LX EX EX L) 170.9 (Sport Touring)	166.6	167.2
Overall Width (in)	70.9	69.8 (LX EX EX L) 70.5 (Sport Touring)	79.6	79.9
Overall Height (in)	63.6 w/o Roof Rails 64.2 w/ Roof Rails	63.2	66.5	4.9 LS FWD) 6.0 LT FWD) 6.1 Premier FWD) 5.2 LS AWD) 6.3 LT AWD) 6.5 Premier AWD)
Curb Weight (lbs)	2,480 to 3,337	2,906 to 3,150	3,159 to 3,527	3,124 to 3,344
INTERIOR DIMENSIONS				
Headroom 1st row/2nd row)	40.3/38.4 (w/o Sunroof) 38.3/38.4 (w/ Sunroof)	39.5/38.3 (X Sport) 37.6/38.3 (X EX L Touring)	41.1/40.5	39.6/38.8
Shoulder Room 1st row/2nd row in)	55.1/54.7	56.8/54.5	55.9/55.1	41.5/28
Hip Room (1st row/2nd row in)	53.5/52.8	53.1/47.4	53.1/51.9	17.5/0.7
Legroom 1st row/2nd row in)	41.4/37.1	41.2/39.3	41.2/35.1	0.8/35.7
Pasenger Volume (cu ft)	TBD TBD	100.1 (LX Sport) 96.1 (EX EX L Touring)	118.6	2.8
Luggage Compartment Volume Rear Seated (cu ft)	62.8	58.8 (FWD) 57.6 (LX Sport w/ AWD) 55.9 (EX EX L Touring w/ AWD)	50.8	8.4

Competitive Comparison*

	2021 KIA SELTOS	2020 HONDA HR-V	2020 JEEP RENEGADE	2020 CHEVY TRAX
WARRANTIES				
New Vehicle Limited Basic Warranty	5 year / 100 000 miles	3 year / 36 000 miles	3 year / 36 000 miles	3 year / 36 000 miles
Limited Powertrain Warranty	10 year / 100 000 miles	5 year / 60 000 miles	5 year / 60 000 miles	5 year / 60 000 miles
Limited Anti-Rust Warranty	5 year / 100 000 miles	5 year unlimited miles	5 year unlimited miles	3 year / 36 000 miles
Roadside Assistance	5 year / 100 000 miles	3 year / 36 000 miles	5 year / 60 000 miles	5 year / 60 000 miles

Safety Information and Legal Disclaimers

Dingwh ed t at dca re utna o so ve i ec n ro t at m y ead o nac de t sv re od y h r m and e th T ed ier p i m ry e po sb ty s ntes fe nd e al o e a i n o fa e i e nd ny h n h e d d v es o h e eq p m e t or eh l sy t ms nc dng t er g wh e l m o u t d c n r l s w i h t k e h e r v r s y e s t e t o n d f c s a w y f o m t e s f e p r a o n f a v h c e r w h c a r n o p e m s i l e y a w s o u d n v e b e s e d u i g o e a i n o f h e i e

9 1 C n n c : 9 1 C n n c m u s b e e a l d o n e a u n t n d a t a t s a t r a r a g d p o m n t R q i e s e u a c o e a e

A p e A p p t r e A p l e n d h e A p e o o a e t a e m a k s f A p e l c e i t r d n t e U S a n d t e r o n r e s A p S o e s a s r i e m a k o A p l e n c A p r n s n y o r s m r p o n e e u a r a a s r i e N o m a d a a a e s w l p p y

A v a c d D r e R A s t a c e y t m (D A S A d a n e d r v r A s s a c e y s e m s r e o t a s b t t t e o s a e d v n g a d m a y o t e e c a l b e t s r u n d h e i e l a y s r e s f l y n d s e a u o n

A r a () F o m a i m m r t c i n w a y w e r y o r e a b e t P e s e e e t o u r v h c e s w n e s M a u l o r d d i n a m p o t n t a e y n o r m t n r g a d n g r b g s n c d n g d d i n a c u i n s n d w r i g s

A d r d : n d o d s a r d e m r k f G o g e L C

A d r d A u o V e c e u e r n e f c e s a r d u t o G o g e a d t s e m s a d p i a y s a e m n t a p l y e q i e t h A n r o d u t a p p n G o g e P y a n d n A n r d c o m a b e s m r p o n e u n n g A d o d 5 0 o l o p o h g h r d t a l n r t s a p y n r o d u t i s a t a e m r k f G o g e L C

A p e A p e s a e i t r d t a e m a k o A p l e n c

A p e C a P a y A p l e a d t e A p e C a P a y a e r d e m r s o f p p e n c r g s e e d n t e U S a n d t e r o n r e s A p e C r l y u s o n y u r m a t h n e c l l r d t a e v c e N o m a d t a a e s w l p p y

A n i o k B a e S y t m A S : N o y t m n o m t e r o w a v n c d c a c o m e s a e o r l l d v e r r a d o r r v n g o d t o s A w a s d i e s f l y

B n d S o t o l i n v i a n e A s s t e a (C A R) w h R e r C o s T a f c C l s o n A o d a c e s i t R C A : B n d S o t v o a n e A s s t e a (C A R) w h R e r C o s T a f c C l s o A v i a c e A s t (C C) s n t a s b t t t e o s a e d v n g a d m a y o t e e c a l o j c s a o n d o b e n d v h c e A w a s d v e a e y a d u s e a t o n

B n d S o t o l i n W a n n g B C W : l d p t C l s o n W r n g s n t a s b t t t e o s a e d v n g a d m a y o t d t t c t l o e c s a o n d r b h n d e h l e A w a s d v e a f y a n d u e c u i n

B u t o t h T h e *l e o t h* w o d m a k a d l g o a e r g s e e d r d e m r s o w e d y B u t o h S G l c n d n y u e o s u h m a k s y K a s p r u a t o l e n e A B u e o t h e a b d c e p h n e s e q r d t o s e B e t o h w e e s t c n o o y

B s e B o e s a e g t e e d a d m a k o f o e C o p r t o n

C r o : l c r o s h u d b e v n y d s i u e d a d p o e l y e u e d a d n v e p e d h g e r t a n h e e a b c k

C m p e t v e o m p r o n C m e t v e e i e d a g t e e d r m m n u a t r r s w b s e s N o e m e r 0 9

D w n h l r a e C n r l D B) N o s s e m o m a t r h w a d a n e d a n o m p n a t f o a l d v e r r a d o r r v n g o d t o s A w a s d i e s f l y

r v r A t n i n W a n n g D A W : r v r A t n i n W a n n g s o t a u b t u e f r s f e r v g a n d m y n t d t c t l n s a c s o f n t e t v e r i g p a c c s F a u e t o a y t e t o n o t a e c o d t n s n d v h c e p e a o n o u d e u t n l s s f v h c e o n o l l w y s r v s a e y n d u e c u i n

g n m a x A l w h e l r v e y t m : N o y t e m n o m t e r o w a v a c d c a n o m e n a e o r l d v r e r r a d o r r v g c o d t n s A w a s d v e a e y

l c r n c B a e o c e i t b u o n E B) N o y s e m n o m a e r o w a d a c d a n o m e n a e f r a d r e r r o r n / r d i n g o n i o n s l w y s r v s a e y

l c r n c S a i t y o n o l E C : N o y t m n o m t e h o w a v n e d c n c o m e s a e o r l d v e r r a d o r r v n g o d t o s A w a s d i e s f l y

P A B a e d n E P A s m a t s A c u l m e a e w l v r y i h o t o s d r i g c n d i n s r v g h a i s a d y o r v h c e m a n e n e

i d M y C r F n d M y a r e u r s c l l r c v r g e n d a o m p t b e m a t p o e w i h U O n k p p C l u r s r i e a t s a p y

o w a d C o s o n A o d n c A s i t C c e (C A C c : o r a r C o s o n A o d n c A s t s o t a u s i u e f r s f e r i g n d m y n o d e e t a o b c s i f o n o f e h l e A w y s r v e a e y a d u e c u i n

o w a d C o s o n A o d n c A s i t P d (C A P e) F r w r d o l i n A v i a c e A s t s o t a u s i u e f r s f e r i g n d m y n o d e e t a o b c s i f o n o f e h l e A w y s r v e a e y a d u e c u i n

o w a d C o s o n W r i g (C W : F r w r d o i o n W a n g i s o t s u s i u e o r a e r v g n d m y n o d e e t a o b e t i n r n t f v h c e A w y s d v e a e y a d u e a t o n

o o l e a y t o e G o g e P a S t r e s a a d m a k o f o o e L C © 2 1 9 G o g e L C l r g t s e e v d o o e a n d h e o o e L o o a e e g s e e d a d m a k s f G o g e L C

D R a i o : H D a d o n d h e H D a i o o a e p o r e a y t a e m r k o f B q t y D i a l o p o a o n

e a e d e a s U e e x e m e c u i n w h n u i g t e s a t w r m r s o a o d b r s R e e r o h e w n e s M a u a f r m o e a f t y f r m a o n

i h B e m s i t H B) H g h B a m A s t o e n o o p r t e e o w e r a n p e d s o i n o m e g h n g n d d v n g o n t o s P e a e b e w a e o y o r s r o n d n s a d e e c s e r p e r a d e q u t e w h n o e a t g a v h c e u n g h e h g b e m s

i h w y D r i g A s t H D) H g h a y D v n g A s t s n o a s b s t t e o r a e d v n g m y n o d e e t a o b c s s r o u d n g h e h l e n d o y f n c o n o n c r a n e d r l i h w y s A w a y d i e s f l y n d s e a u o n

i l t r t s s t C n t o (A C : o s s e m o m a t r h w d a n e d c n c m p n s t e o a l r v r e o r n d o d r i g c n d i n s A w y s r v e a e y

i c h m o n e d B e R a k T o i g r q u e s d d i n l e u p m n t

m a e : V h c e s h w n m a y c u e o p o n l e t u e s o m e e a u e s m y v r y

P o n e i h n e s a e s e r d t a e m r k f A p e c

a n D e a r u e W a n n g L W) L a e D p a t r e W r n g s n t a s b t t t e o s a e r v g n d m y n o d e e t a o b e t a r u d t e v e c e A w a s d i e s f l y n d s e a t o n

L n e F l w i g A s s t L A : a n e o o w n g s i t s n t a s b t t t e o s a e d v n g n d m a y o t e t c a l o e c s r o n d h e e h l e l w y s r v e a e y a d u e c u i n

L n e K e p g A s i t L K) T h e a e K e p n g s i t s n t a s b t t t e o s a e d v n g a d m a y o t e t c a l o e c s r o n d h e e h l e l w y s r v e a e y a d u e c u i n

L f g t : D v n g w h l t a e o p n m a y e u n w f l a d c n d a w d n g r u s x h u t f m e s n o v h c e f y u c o o e t o o s o e e p r v n s a n w i d o s o p n f r e n l t o n

M P G B a e d n E P A s m a e s A t u l m e g e w l a r w i h o t o s d i i g c n d o n s d i n g h b t a n d o u v h c e s o n t o n

M S R : M R P e c u e s e s n t o n n d h n l n g a e s t l e c n s f e s o p o s a n d e a e r c a g e s A t a p i e s e t y r t i r a d m a y a y

M y C r Z n e M y C r Z n e e q i e c e u a c v e a e C e u a s e v e r t s a p y

N a g a o n D s r c e d d v n g a n e u t n a o s o f e h l c o t o l W e n p e a n g a v h c e n e e u s e v e i e s e m t a t a e s y u r o u s w a y r m s a e v h c e p e a o n N a g a o n s o r n o m a i n p r o s s o l y n d K a d e s o t m k e n y w r a t e s b o t t e a c u a y o t h i f r m t o n

R e r C o s T a f c C l s n v o a n e A s s t R C A : e a C o s T r f c C l s o n v o a n e A s t R C A i n o a s u s t u e o r a e d i n g a n m a y n t d t c t l o j c s b h n d v h c e l a y s r e s a e y n d u e c u i n

R e r C o s T a f c C l s n W a n n g R C W) R e r C o s T a f c o l i n W a n n g s o t a s b s t t e o r a e d v n g a d m a y o t e t c a l b e c s e h n d e i e A w y s r v e s f l y n d s e a u o n

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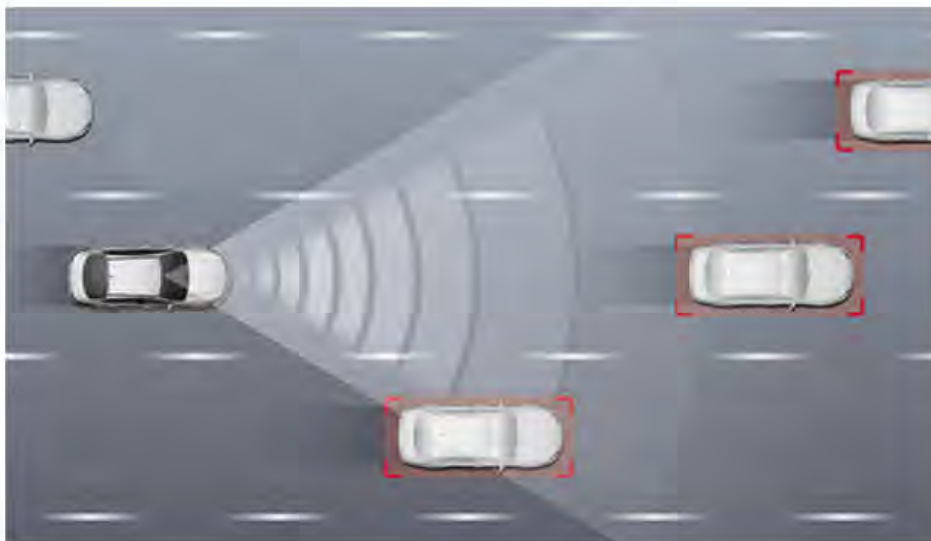
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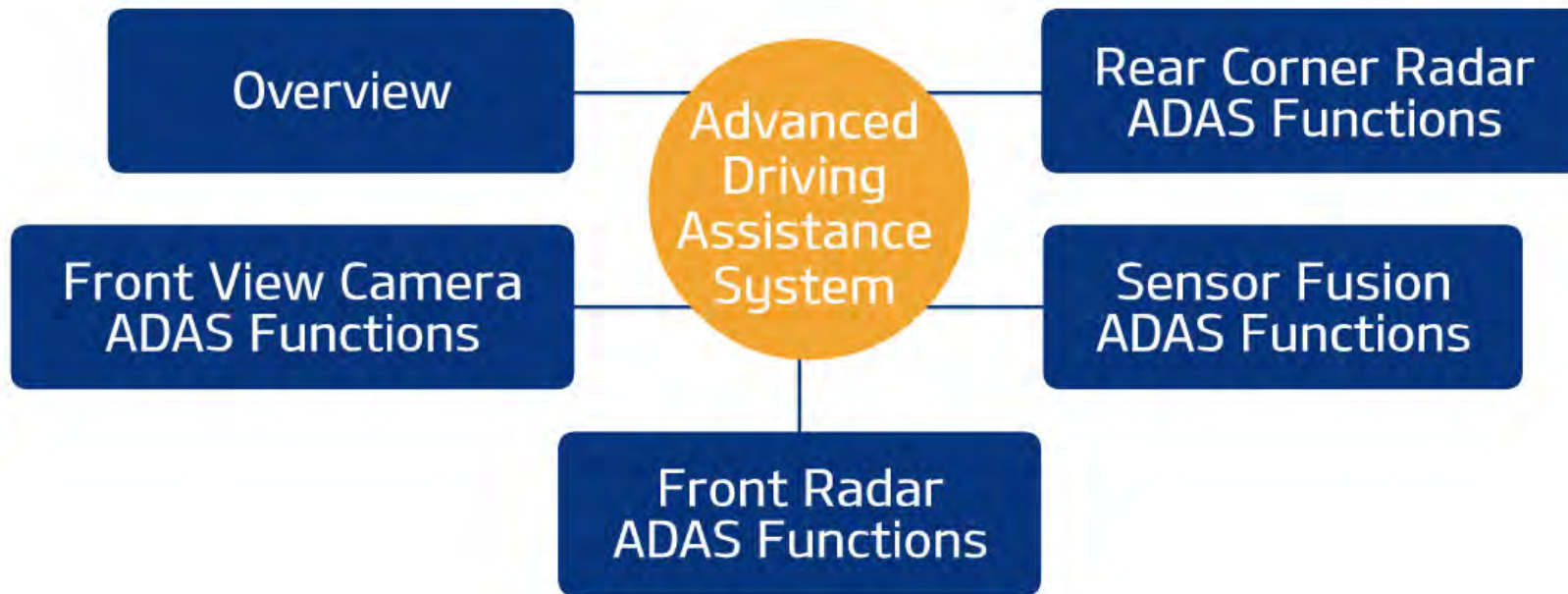
Advanced Driving Assistance System (ADAS)

In this module, you will learn about the K5's new and enhanced Advanced Driving Assistance System features.



Select "Help" for more tips on navigating this course, or select Next arrow to begin.

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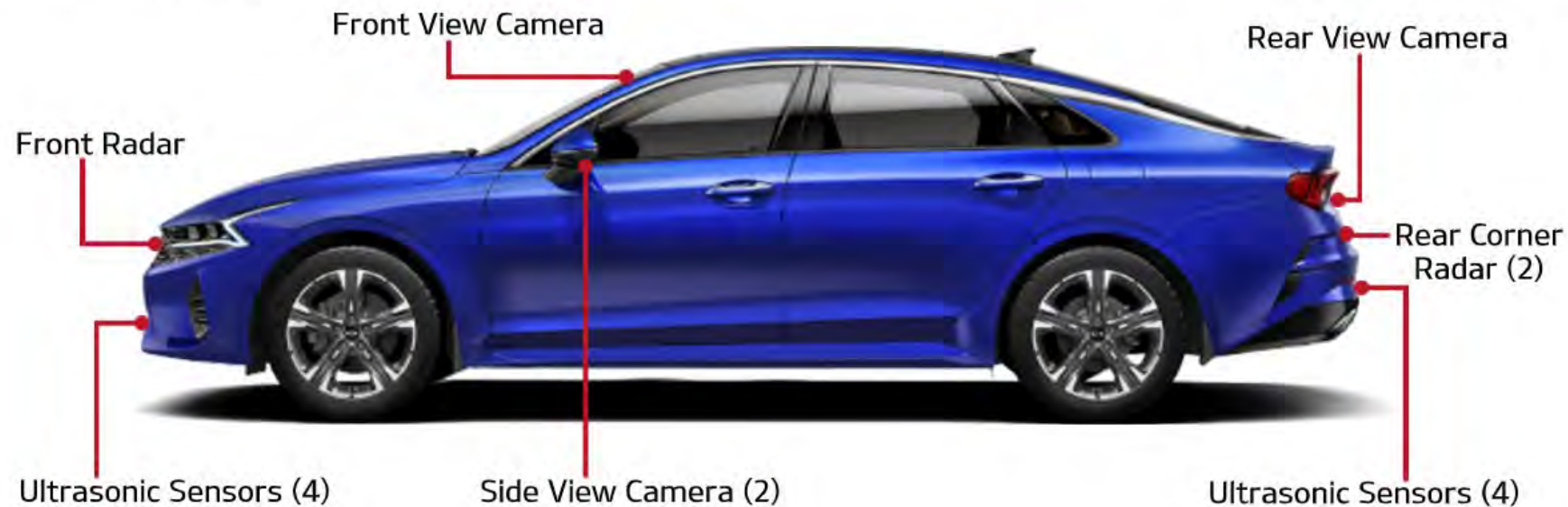
Select each topic to learn more.

Overview

The Advanced Driving Assistance System (ADAS) uses a variety of sensing devices to:

- Analyze the vehicle and its surroundings
- Provide warning to the driver or assist the driver with vehicle control if necessary

*Prototype vehicle shown



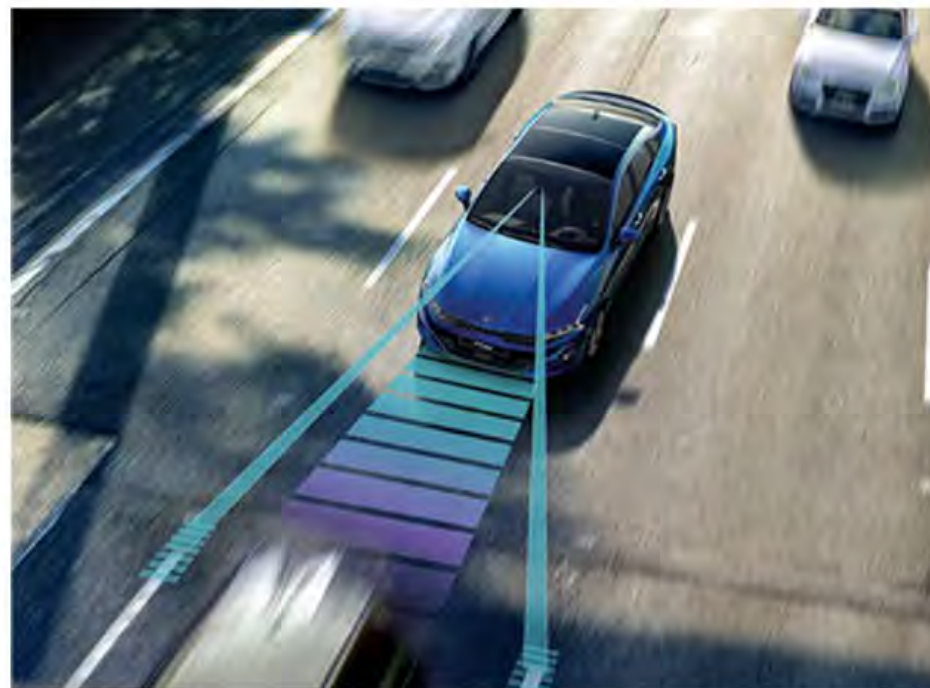
NOTE: Some ADAS functions depend on the Front Camera and the Front Radar working together. The combined function of these two devices is referred to as "sensor fusion."

Front View Camera ADAS Functions

The following ADAS functions rely solely on the Front View Camera:

- Forward Collision-avoidance Assist - Pedestrian (FCA-Ped)* 
- Lane Following Assist (LFA)* 
- Lane Keeping Assist (LKA)* 
- Driver Attention Warning (DAW+) with Leading Vehicle Departure Alert (LVDA)* 
- High Beam Assist (HBA)*

* Standard feature



*Prototype vehicle shown






NOTE: Functions that rely on both the Front View Camera and Front Radar (sensor fusion) are discussed later in this module.

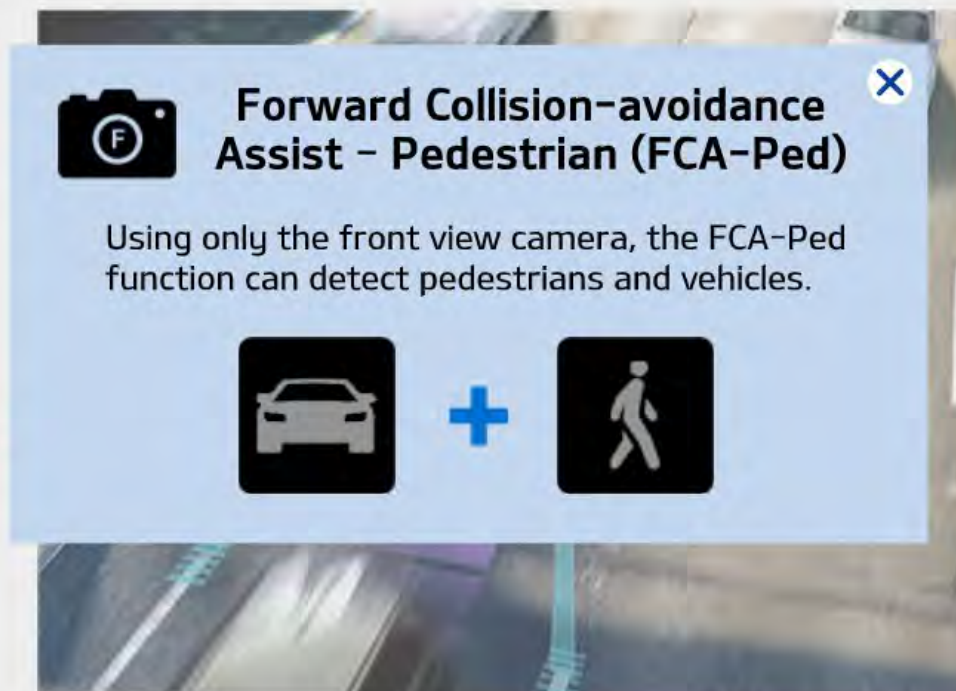
Select the information icons for details.

Front View Camera ADAS Functions

The following ADAS functions rely solely on the Front View Camera:


- Forward Collision-avoidance Assist - Pedestrian (FCA-Ped)* 
- Lane Following Assist (LFA)* 
- Lane Keeping Assist (LKA)* 
- Driver Attention Warning (DAW+) with Leading Vehicle Departure Alert (LVDA)* 
- High Beam Assist (HBA)*

* Standard feature



Forward Collision-avoidance Assist - Pedestrian (FCA-Ped)

Using only the front view camera, the FCA-Ped function can detect pedestrians and vehicles.



*Prototype vehicle shown



NOTE: Functions that rely on both the Front View Camera and Front Radar (sensor fusion) are discussed later in this module.

Select the information icons for details.

Front View Camera ADAS Functions

The following ADAS functions rely solely on the Front View Camera:

- Forward Collision-avoidance Assist - Pedestrian (FCA-Ped)* 
- Lane Following Assist (LFA)* 
- Lane Keeping Assist (LKA)* 
- Driver Attention Warning (DAW+) with Leading Vehicle Departure Alert (LVDA)* 
- High Beam Assist (HBA)*

* Standard feature



Lane Following Assist (LFA)



*Prototype vehicle shown

LFA Switch: In conventional models, Smart Cruise Control must be set before the LFA can operate. In the K5, LFA can be turned on independently using the separate LFA switch.



NOTE: Functions that rely on both the Front View Camera and Front Radar (sensor fusion) are discussed later in this module.

Select the information icons for details.

Front View Camera ADAS Functions



Lane Keeping Assist (LKA)



NOTE: LKA steering control force is 4.5 Nm, unlike the 2.5 Nm of the conventional LKA. For this reason, the turning feeling experienced during steering control is also different from other models.

Because the K5 comes with both LFA and LKA, the LKA comes in a single mode. This is unlike other models in which the LKA comes in driver-selectable active assistance or general assistance modes.



*Prototype vehicle shown

Select the information icons for details.

Front View Camera ADAS Functions

The following ADAS functions rely solely on the Front View Camera:

- ▶ Forward Collision-avoidance Assist - Pedestrian (FCA-Ped)
- ▶ Lane Following Assist (LFA)*
- ▶ Lane Keeping Assist (LKA)*
- ▶ Driver Attention Warning (DAW+)
Leading Vehicle Departure Alert
- ▶ High Beam Assist (HBA)*

* Standard feature



Driver Attention Warning (DAW+) with Leading Vehicle Departure Alert (LVDA)



DAW+ includes the LVDA function which alerts the driver when the leading vehicle begins to move forward from a still position.

When the leading vehicle departs, LVDA provides an alert sound and displays a message.





NOTE: Functions that rely on both the Front View Camera and Front Radar (sensor fusion) are discussed later in this module.

Select the information icons for details.

Front Radar ADAS Functions

The following ADAS functions rely solely on the Front Radar:

- ▶ Smart Cruise Control with Stop & Go (SCC w/S&G)* 
- ▶ Navigation-based Smart Cruise Control - Curve (NSCC-C)* 

*Available option



*Prototype vehicle shown



NOTE: Functions that rely on both the Front View Camera and Front Radar (sensor fusion) are discussed in the next topic.

Select the information icons for details.

Front Radar ADAS Functions

The following ADAS functions rely solely on the Front Radar:

- ▶ Smart Cruise Control with Stop & Go (SCC w/S&G)
- ▶ Navigation-based Smart Cruise Control - Curve (NSCC)

*Available option



NOTE: Functions such as Smart Cruise Control with Stop & Go (SCC w/S&G) and Navigation-based Smart Cruise Control - Curve (NSCC) are discussed in the next topic.



One-Touch Smart Cruise Control with Stop & Go (SCC w/S&G)

The K5 features the new one-touch SCC

- Conventional models require pressing Cruise + Set to set desired speed
- One-Touch SCC requires only pressing Cruise



*Prototype vehicle shown

Turns SCC on and sets speed

Increases speed

Pauses/restarts SCC

Decreases speed

Select the information icons for details.



Navigation-based Smart Cruise Control - Curve (NSCC-C)

When Smart Cruise Control is on, and the vehicle encounters a curve, it will automatically decelerate to a safe speed.

- Operates on curves with a radius less than 3280 feet
- Resumes set speed when the road straightens
- Operates even when the AVN is off



To operate, this feature must be enabled in the USM. When the system is on, the "AUTO" lamp color on the cluster changes from white to green.

System is on:






System is off:



Sensor Fusion ADAS Functions

The following ADAS functions rely on both the Front View Camera and Front Radar (sensor fusion):

- Forward Collision Avoidance Assist - Cyclist (FCA-Cyclist)* 
- Forward Collision Avoidance - Junction Turning (FCA-JT)** 
- Highway Driving Assist (HDA)** 

* Standard

** Available option



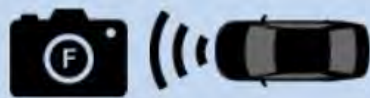
Select the information icons for details.

Sensor Fusion ADAS Functions

The following ADAS functions are available on both the Front View Camera and Front Radar.

- Forward Collision Assist - Cyclist
- Forward Collision Junction Turning
- Highway Driving

* Standard
** Available option

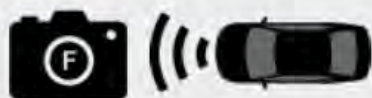


Forward Collision Avoidance Assist - Cyclist (FCA-Cyclist)

With the Front Radar and Front View Camera working together (sensor fusion), the FCA function is able to detect cyclists as well as vehicles and pedestrians.



Select the information icons for details.



Forward Collision Avoidance – Junction Turning (FCA-JT)

When turning at intersections, the system uses the front view camera and front radar to prevent colliding with an oncoming vehicle traveling on the opposite side of the road.

- Performs braking if there is a risk of collision with an oncoming vehicle when making a left-hand turn
- Involves cooperative control between front view camera, front radar and ESC

This function is activated when:

- FCA is on
- Left-turn signal is on
- Driver's vehicle speed is above 4 mph
- Oncoming vehicle speed is above 18 mph

The function only recognizes vehicles and does not recognize pedestrians, two-wheeled vehicles or animals. Other limitations apply. Refer to the Owner's Manual.



Sensor Fusion ADAS Functions



Highway Driving Assist (HDA)



The following functions are available on both the front view camera and Front Radar.

➤ Forward Collision Assist - (FCA)

➤ Forward Collision Warning - (FCW)

➤ Highway Driving Assist (HDA)

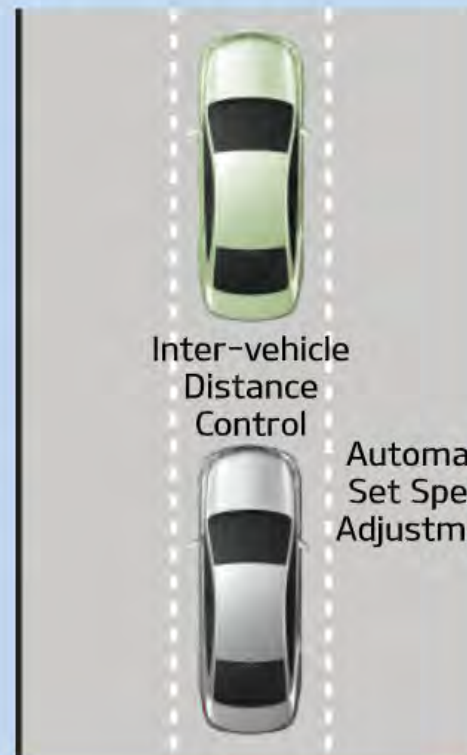
This feature performs control of vehicle speed, distance to preceding vehicle, and steering.

The HDA function integrates SCC control with the front radar, and lane following assist (LFA) control with the front view camera.

Unlike HDA in previous models, HDA in the K5 operates only when:

- HDA function is turned on in the USM settings.
- Lane Following Assist function is turned on by pressing the LFA switch.
- Cruise control speed is set.




* Standard
** Available



Select the information icons for details.

Rear Corner Radar ADAS Functions

The following ADAS functions rely on the Rear Corner Radar:

- Blind-spot Collision Warning (BCW)*  and Blind-spot Collision-avoidance Assist - Rear (BCA)*
- Rear Cross-traffic Collision-avoidance Assist (RCCA)* 
- Safe Exit Assist (SEA)* 

* Available option



*Prototype vehicle shown

Select the information icons for details.

Rear Corner Radar ADAS Functions

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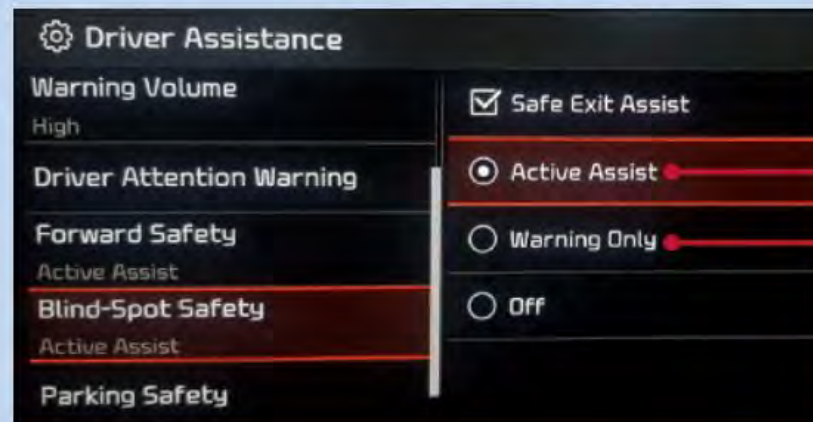
- ▶ Blind-spot and Blind-s Assist - Re
- ▶ Rear Cross Assist (RCC
- ▶ Safe Exit A

* Available opti



Blind-spot Collision Warning (BCW) and Blind-spot Collision-avoidance Assist - Rear (BCA)

The K5 does not have a BCW switch. BCW and BCA functions can be turned on from the cluster or AVN.



BCA Function

BCW Function

*Prototype vehicle shown

Select the information icons for details.

Rear Corner Radar ADAS Functions

The following ADAS functions are available on the Rear Corner Radar (RCR).

- ▶ Blind-spot Collision Avoidance Assist - Rear (BCA)*
- ▶ Rear Cross-traffic Collision Avoidance Assist (RCCA)*
- ▶ Safe Exit Assist (SEA)*

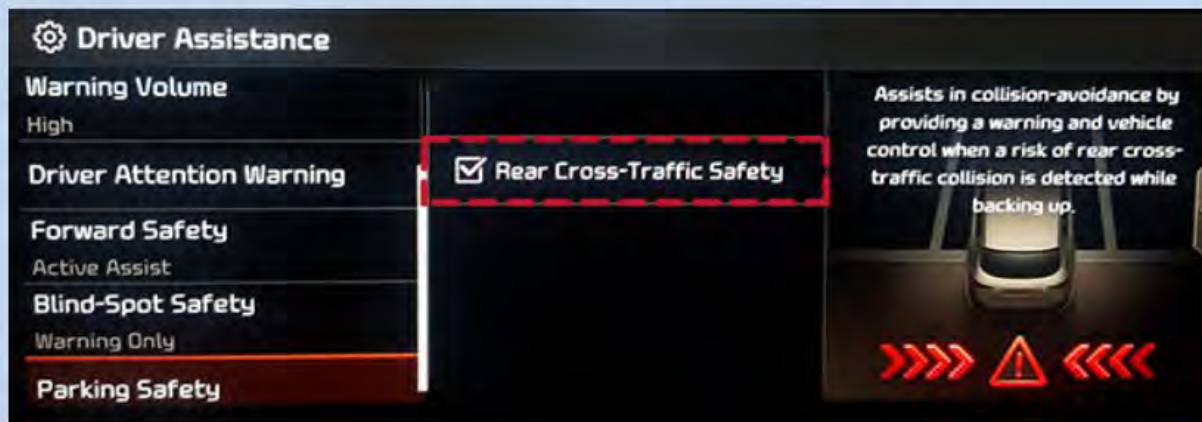
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Rear Cross-traffic Collision-avoidance Assist (RCCA)


RCCA provides a warning when there is a risk of collision while backing out of a parking space. RCCA also applies the brakes when the risk of collision is imminent.

In the K5, this function is turned on/off from the AVN or cluster.



*Prototype vehicle shown

Select the information icons for details.



Safe Exit Assist (SEA)

When the vehicle stops, SEA uses rear corner radar to detect vehicles approaching from behind.

- When an approaching vehicle is detected, SEA warns passengers to look before exiting the vehicle.

SEA continues to operate for 10 minutes after the engine is turned off.

If the vehicle is equipped with electronic child safety locks, SEA also prevents the rear doors from opening.



*Prototype vehicle shown



- The child lock is turned off after the vehicle passes.
- The lock function can be overridden by pressing the Child Safety Lock button two times within 10 seconds.



Good going!



You've completed ADAS.

OK

Select each topic to learn more.



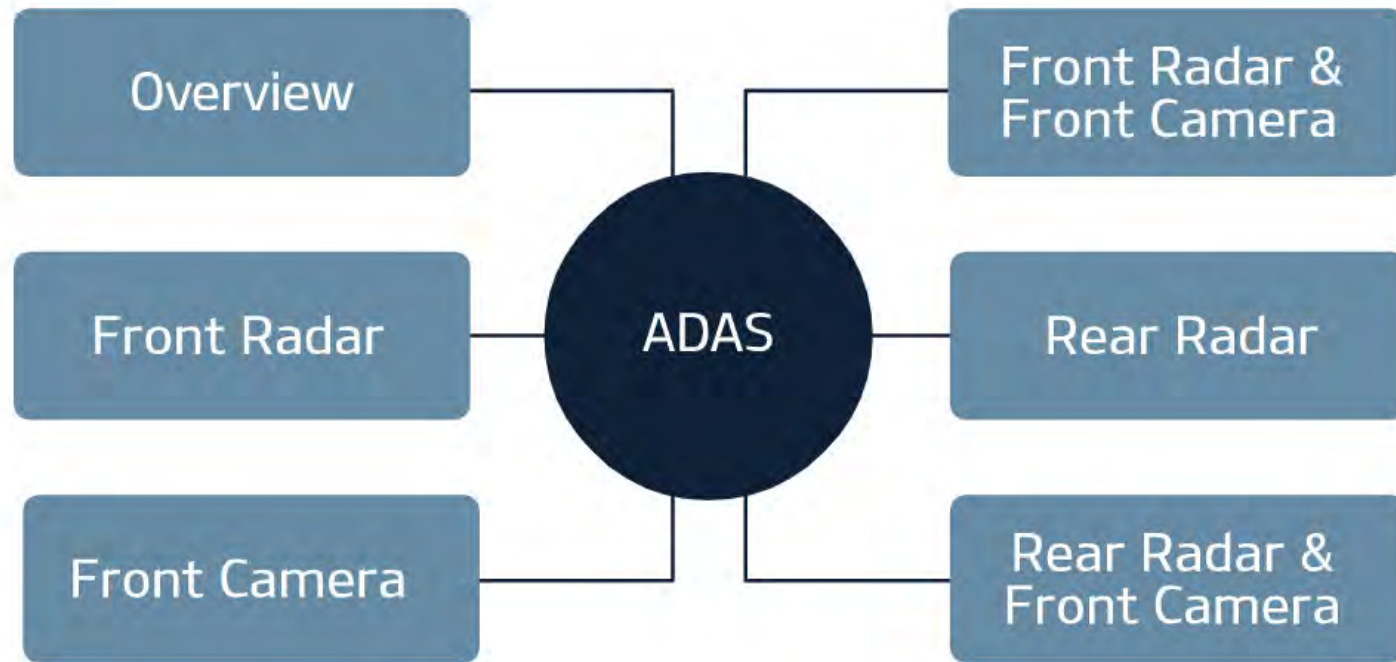
ADAS



In this module, you'll learn about the latest important advancements available in Sorento's Advanced Driver Assisted Systems.

Select "Help" for more tips on navigating this course, or select Next arrow to begin.

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Select each topic to learn more.

Overview

Sorento introduces several new ADAS features:

- Navigation-based Smart Cruise Control-Curve (NSCC-C)
- Smart Cruise Control with Stop & Go (SCC w/S&G)
- Intelligent Speed Limit Assist (ISLA)
- Forward Collision-avoidance Assist-Junction Turning (FCA-JT)
- Safe Exit Assist (SEA)
- Blind-spot Collision-avoidance Assist-Rear (BCA-R)





Service Tip: Staying current on new and evolving ADAS technologies and their calibration procedures will help you diagnose issues and provide customers with Fixed Right First Time service.

*Prototype vehicle shown



Front Radar

The Front Radar is used for these ADAS features:

- Navigation-based Smart Cruise Control-Curve (NSCC-C) 
- Smart Cruise Control with Stop & Go (SCC w/S&G) 



*Prototype vehicle shown

Select the information icon for details.



Navigation-based Smart Cruise Control - Curve (NSCC-C)

Uses navigation-based data to automatically slow down the vehicle for tight curves on highways.



Operating:



Standby:



- When the system is operating, the "AUTO" lamp on the cluster changes from white to green.
- NSCC-C setting is accessed from the USM.



Smart Cruise Control with Stop & Go (SCC w/S&G)

SCC w/S&G assists with cruise control, inter-vehicle distance control, and automatic stop and go while driving by controlling the Engine ECU and the ESC module based on driver input.



Note: The "Set" button has been deleted

Mode button = ON/OFF

+/- = Increase/decrease speed

Cruise Control Operation:

- If no traffic ahead, driver's vehicle moves at set speed
- If following a vehicle, follows at the speed of the vehicle ahead

Stop & Go Operation:


- Following a vehicle, driver's vehicle will move within 3 seconds once vehicle ahead proceeds from stop
- After being stopped for 3 seconds or longer, driver must initiate acceleration



Note: Deceleration and stop is controlled by the ESC module. To protect the ESC, the EPB is engaged and SCC is turned off when vehicle stops for 10 minutes or longer.

Front Camera

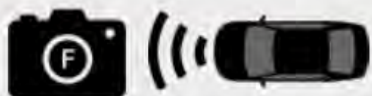
The Front Camera is used for these ADAS features:

- Forward Collision-avoidance Assist (FCA)
- Driver Attention Warning (DAW) w/ Leading Vehicle Departure Alert (LVDA) (DAW+)
- High Beam Assist (HBA)
- Intelligent Speed Limit Assist (ISLA) 
- Lane Departure Warning (LDW)
- Lane Keeping Assist (LKA)
- Lane Following Assist (LFA)



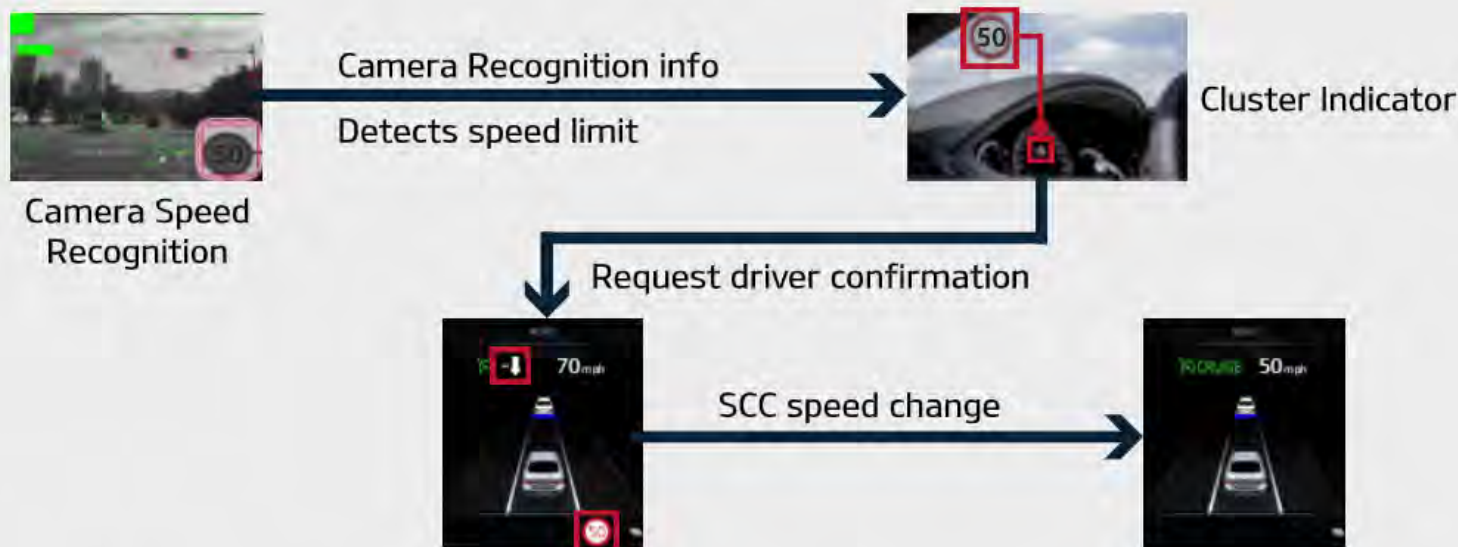
*Prototype vehicle shown

Select the information icon for details.



Intelligent Speed Limit Assist (ISLA)


Assists with setting and changing Smart Cruise Control (SCC) speed by detecting the posted speed limit.



- Front camera detects speed limit
- Speed limit information and sign are displayed together on the navigation screen and cluster
- Front view camera operates alone if navigation information is not received
- Automatically changes the set speed in coordination with Navigation-based Smart Cruise Control (NSCC) Autoset function

Front Radar and Front Camera (Sensor Fusion)

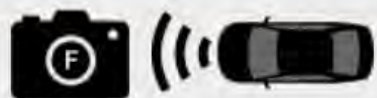
The Front Radar and Front Camera (Sensor Fusion) are used for these ADAS features:

- Highway Driving Assist (HDA)
- Forward Collision-avoidance Assist (FCA)
- Forward Collision-avoidance Assist- Junction Turning (FCA-JT) 



*Prototype vehicle shown

Select the information icon for details.



Forward Collision Avoidance – Junction Turning (FCA-JT)


Warns of a potential collision with oncoming traffic while turning at an intersection and applies emergency braking.



- Front radar/camera fusion activates when the left turn indicator is ON
- Conditions: FCA ON + left turn signal ON + vehicle speed 4.3 mph to 18.6 mph + oncoming vehicle speed (18.6–43.4 mph)
- Control: ESC braking with the front radar + camera sensor fusion (up to 1g)
- Target: Vehicles only (not including two-wheel vehicles and pedestrians)
- Warning: Visible and audible warnings and emergency braking to reduce the chance of a collision with oncoming traffic while turning at an intersection

Rear Radar


The Rear Radar is used for these ADAS features:

- Blind-spot Collision Warning (BCW)
- Safe Exit Assist (SEA) 
- Rear Cross-traffic Collision-avoidance Assist (RCCA)
- Rear Cross-traffic Collision Warning (RCCW)



*Prototype vehicle shown

Select the information icon for details.



Safe Exit Assist (SEA)

Uses rear corner radar to detect vehicles approaching from behind.



Warning: Cluster & Sound

When an approaching vehicle is detected:


- The system warns passengers to look before exiting the vehicle.
- When equipped with electronic child safety locks, the system takes the additional step of locking the child safety locks to prevent the rear door from opening.

Operating conditions:

- Vehicle must have electronic child safety locks for SEA to operate
- The child lock is turned off after the vehicle passes
- The lock function can be overridden by pressing the Child Safety Lock button two times within 10 seconds
- SEA continues to operate for 10 minutes after the engine is turned off

Rear Radar and Front Camera

The Rear Radar and Front Camera are used for these ADAS features:

- Blind-spot Collision-avoidance Assist (BCA Parallel Exit) 
- Parking Collision-avoidance Assist-Rear (PCA-R)



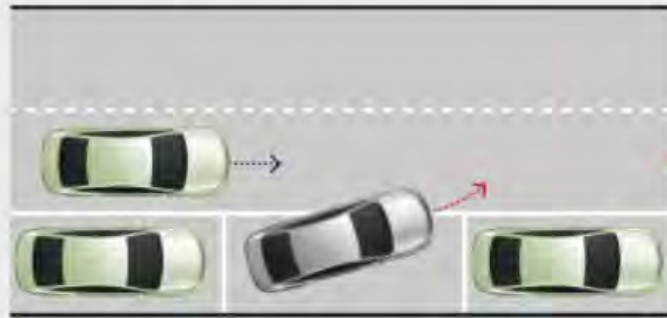
*Prototype vehicle shown

Select the information icon for details.



Blind-spot Collision-avoidance Assist (BCA Parallel Exit)

Applies differential braking to avoid a potential rear corner collision.



Collision risk with oncoming traffic from behind during a parallel exit:

- Applies emergency braking



Warning: Cluster & Blinking Side Mirror & Sound

Operating conditions:

- BCA ON (USM set, no switch)
- The exiting vehicle speed below 3.1 mph & the target vehicle speed above 1.8 mph
- Time to Collision (TTC) 2-3 seconds with steering angle exceeding 300 degrees



Good going!



You've completed ADAS.

OK

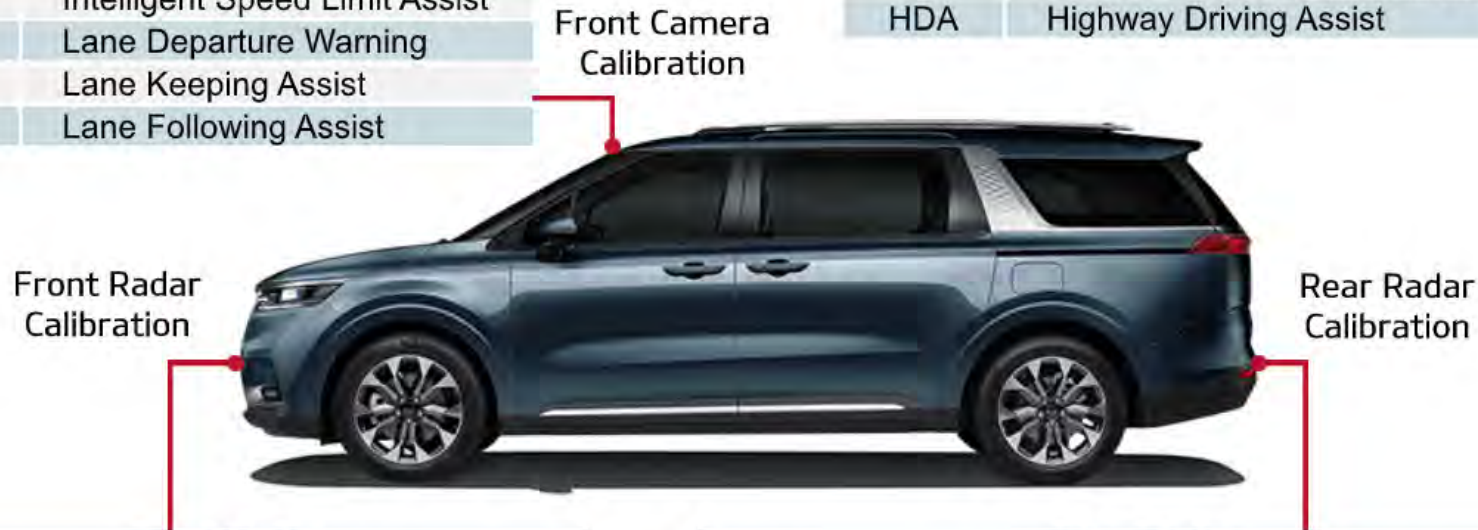
Select each topic to learn more.

ADAS

ADAS features rely on three main sensors, which must be calibrated after replacement.

Front Camera	
DAW	Driver Attention Warning
HBA	High Beam Assist
ISLA	Intelligent Speed Limit Assist
LDW	Lane Departure Warning
LKA	Lane Keeping Assist
LFA	Lane Following Assist

Front Radar and Camera (Sensor Fusion)	
FCA	Forward Collision-avoidance Assist
HDA	Highway Driving Assist



Front Radar	
NSCC-C	Navigation-based Smart Cruise Control-Curve
SCC w/S&G	Smart Cruise Control with Stop & Go

Rear Radar	
BCA	Blind-spot Collision-avoidance Assist-Rear
BCW	Blind-spot Collision Warning
SEA	Safe Exit Assist
RCCA	Rear Cross-traffic Collision-avoidance Assist
RCCW	Rear Cross-traffic Collision Warning

Front Radar Calibration

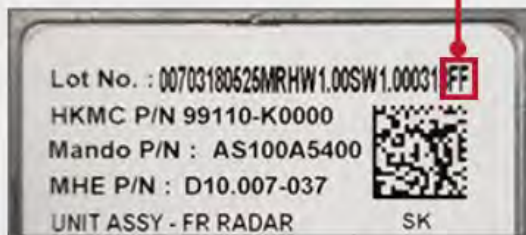
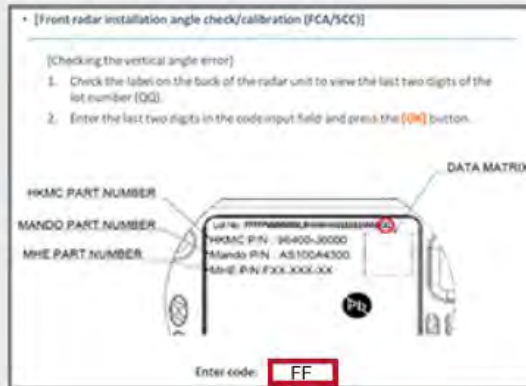
When the front radar sensor is replaced:

Variant Coding



The VIN is required to set variant coding.

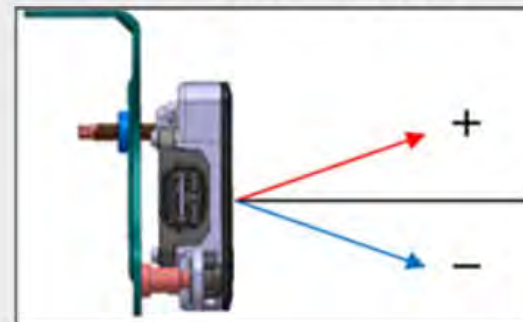
Deviation




Enter the two-digit code found on the radar sensor label to set the radar sensor's deviation value.

Alignment

Result value: -1.0 DEG



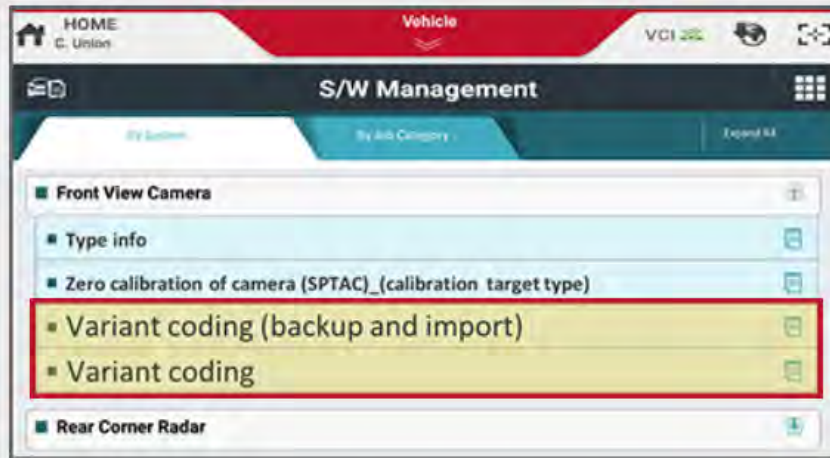
Adjust the vertical angle to match the result value shown on KDS, then perform driving relearn.

CLOSE 

Front Camera

When the front camera is replaced:

Variant Coding

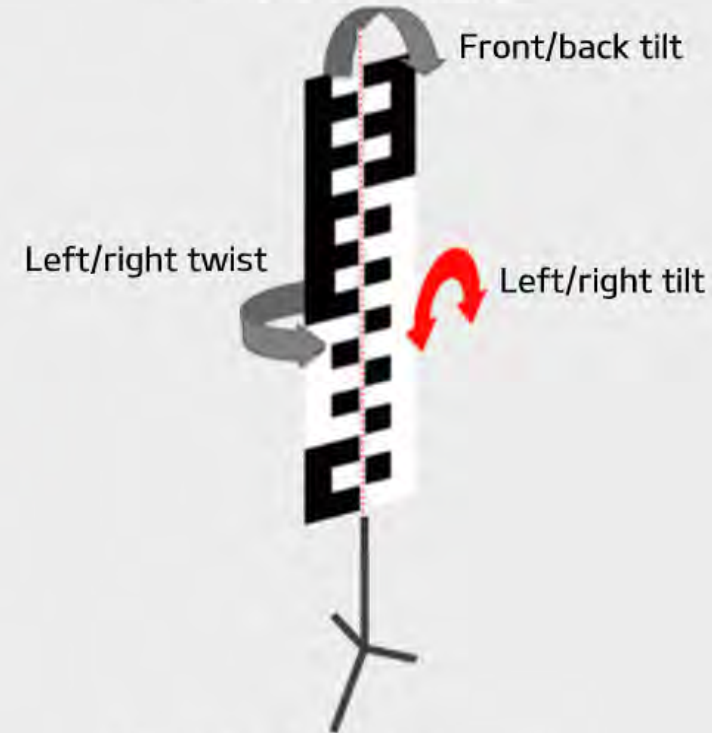


Variant Coding configures the sensor for the right model, equipment and year.

There are two methods for setting variant coding:


- The preferred method is “Backup and Import”
- If that is not possible, variant coding and vehicle specifications can be retrieved from KGIS using the VIN.

Axis Adjustment



Adjust the calibration target:

- Front/back tilt
- Left/right tilt
- Left/right twist

CLOSE 

Rear Radar Calibration

When a rear radar sensor is replaced:

Variant Coding



There are two methods for setting variant coding:

- Backup and Import (preferred)
- Direct entry

Calibration



- Calibration takes 30 seconds.
- Once started, the process cannot be stopped.

Alignment



The installation angle must be re-measured after significant structural repairs or if KDS can't complete calibration.

Accelerating Forward



New vehicles. New technologies. New opportunities. Kia is laying the foundation for a bright future with significant investments in electrification, mobility concepts, and autonomous capabilities. Our commitment to EVs is strong!

FOCUSING ON TODAY'S CUSTOMERS

The future is exciting and customers have a lot to look forward to with Kia! Advanced technologies such as ultra-fast charging, modern screens, cloud-based features and more will be available.

According to a 2020 Consumer Reports survey, 71% of drivers in America have at least some interest in electric vehicles —and 31% saying they would consider getting, or would definitely get, an EV the next time they purchase a vehicle.¹

Kia engineers are developing innovative electric vehicles with expanded driving ranges, the latest charging technologies, and improved performance.



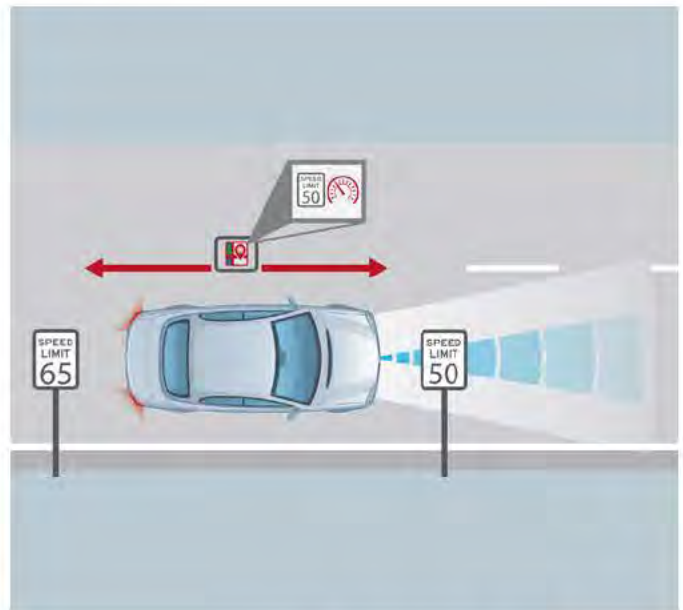
INNOVATIONS TAKE CENTER STAGE

Another advantage for Kia EVs is the inclusion of Kia Drive Wise* technologies, some of which can offer different levels of autonomous driving.

The Society of Automotive Engineers (SAE)² classifies autonomous driving technologies into six categories based on the advancement level, from 0 (no automation) to 5 (full automation).

For example, our Highway Driving Assist* (HDA) technology is a Level 2 autonomous driving system (partial automation).

When driving on the highway, HDA* maintains the set speed and uses the front camera to collect lane data for steering control. Additional technology advancements are on the horizon for Kia in the next decade. Customers are at the heart of every innovation and our engineers are dedicated to making the most of every aspect of the EV driving experience!



Highway Driving Assist* (HDA) feature shown

Sincerely,
Kia University Team
Kia Motors America, Inc.

*Safety Information and Legal Disclaimers

Driving while distracted can result in a loss of vehicle control that may lead to an accident, severe bodily harm, and death. The driver's primary responsibility is in the safe and legal operation of a vehicle, and the use of any handheld devices, other equipment, or vehicle systems, including steering wheel mounted controls, which take the driver's eyes, attention, and focus away from the safe operation of a vehicle or which are not permissible by law should never be used during operation of the vehicle.

Highway Driving Assist (HDA): Highway Driving Assist is not a substitute for safe driving, may not detect all objects surrounding the vehicle, and only functions on certain federal highways. Always drive safely.

Kia Drive Wise (Advanced Driver Assistance Systems): Advanced Driver Assistance Systems are not substitutes for safe driving, and may not detect all objects around the vehicle. Always drive safely and use caution.

¹Consumer Reports: <https://www.consumerreports.org/hybrids-evs/cr-survey-shows-strong-interest-in-evs/>

²Society of Automotive Engineers: <https://www.sae.org/news/2019/01/sae-updates-j3016-automated-driving-graphic>



2022 Niro EV: Advanced Technologies

The 2022 Niro EV is loaded with the latest Kia technologies, from infotainment to Kia Drive Wise* to our advances in electrification. Be sure that you are familiar with these technologies so that you can explain their functions and their **benefits** to your customers!

EV Technology and Performance

The 2022 Niro EV has a 64kWh lithium ion polymer battery high voltage and an efficient, powerful 150kW AC Synchronous Permanent Magnet Electric Motor. It delivers 201 hp and an impressive EPA* estimated All Electric Range* (AER) of 239 miles although the range of an EV can vary due to many factors, such as driving habits and weather or road conditions. To see what customers would get in the "real world," AMCI Testing* conducted a certified test over 10 full days of driving. They drove the 2020 Niro EV EX around San Diego, CA and the results were an average range of **293 miles** city/highway combined and **over 300 miles** on city streets only.

Its standard SAE Combo CCS Fast Charging port can accommodate a charging rate* of approximately 100% charge in 60 minutes using a compatible SAE CCS 100kW DC Fast charger* (available at public charging stations). Be sure to review all three levels of EV charging options with your customers.

Our regenerative braking system amps up the Niro EV's energy efficiency and the Drive Mode System (Eco, Normal, Sport, and Eco+) allows customers to adjust the driving experience to suit their preferences.

Because its operation is so quiet, the Niro EV also features a Pedestrian Warning System* (PWS) that audibly alerts pedestrians to its presence in low speed situations with a simulated engine noise.

And a 7 inch Supervision instrument panel with thin film transistor (TFT) color LCD screen gives customers the information they need, when they need it.



A Broad Range of Infotainment

2022 Niro EV EX Premium shown

The 2022 Niro EV comes standard with a 10.25 inch touch screen color display with three way split screen functionality and multi *Bluetooth*^{®*} wireless connectivity. Both trims (EX and EX Premium) also come with a harman/kardon^{®*} Premium Surround Sound Audio System with 8 speakers and Clari Fi^{™*} Digital Audio Restoration for an enhanced multi media experience.

The Niro EV has support for tethered Android Auto^{™*} and Apple CarPlay^{®*} in addition to the AM/FM/MP3 audio system with SiriusXM^{®*} and HD Radio^{™*}. To further enhance convenience, the Niro EV comes standard with Voice Recognition (VR) and a wireless phone charger^{*} pad for customers' smartphones right in the front console.

These features are important to highlight during your Walkaround presentation, and you should also spend a few minutes during the delivery process to review standard operations such as setting radio presets, switching media modes, and using voice commands to ensure the customer has an understanding of essential vehicle settings.

Navigation* Features Benefit EVs

All trims of the 2022 Niro EV feature onboard navigation* as well as UVO link*. Customers may not know that they can use these tools to find charging stations for their EV. Be sure to explain how customers can use navigation* (if equipped) to search for nearby public charging stations, and mention that they can also use the Kia Access with UVO link* app to find charging stations.



UVO link*

The UVO link* system and Kia Access with UVO link* app are part of Kia's suite of infotainment and telematics that change the way Kia owners interact with their vehicles. Integrate UVO link* throughout your Walkaround presentation by paying attention to the customer's interests, lifestyle, and vehicle requirements.

Simulated Screen shown

Customers who are specifically interested in the 2022 Niro EV may benefit from UVO link* features:

Charge Schedules: They can potentially save money by scheduling charging during off peak hours when lower electric rates may be available. They can also set the schedule to repeat automatically.

Find charging stations quickly and easily: The customers can touch the Nearby Stations icon on the headunit or, when not driving, tap the button on the Kia Access with UVO link* app or visit the Kia Owner's Portal to get real time information on nearby locations.

Remote Start* with Climate Control: Customers can experience comfort right from the get go by using Remote Start* for the engine and sending commands to either turn on the defroster, heat the cabin, and warm up the front seats on a cold day or turn on the air conditioner and cool the available ventilated front seats on a warm day.



2022 Niro EV EX Premium shown

Stay Tuned!

The Niro EV features some of Kia's most advanced technologies, from infotainment to performance to driver assist features. You can be sure that future Kia EVs will follow with their own technological innovations in these areas. These features are important selling points when it comes to customers, so make sure that you understand how they work and can showcase them for customers. Watch for more details coming soon as we continue to grow our EV portfolio!

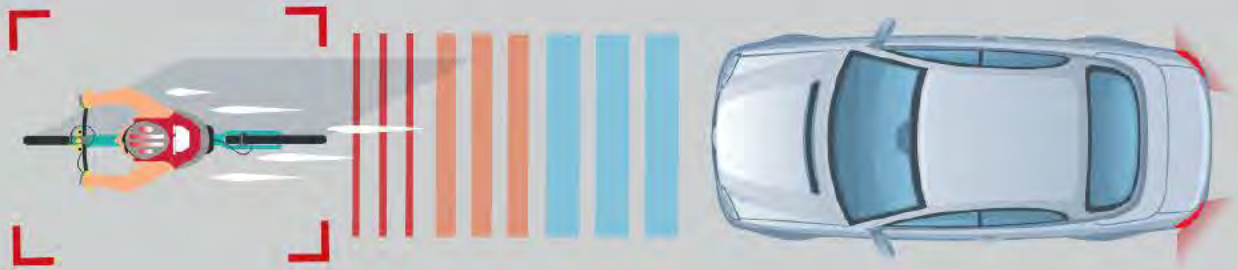


Image shown for illustrative purposes only, FCA-Cyc shown

Kia Drive Wise* Technologies

The 2022 Niro EV comes standard with many of the latest Kia Drive Wise* features to help customers remain aware of road conditions and reduce driver fatigue. These include:

- Blind Spot Collision Warning* (BCW) w/ Rear Cross Traffic Collision Warning* (RCCW)
- Driver Attention Warning* (DAW) including Leading Vehicle Departure Alert* (LVDA)
- Forward Collision Avoidance Assist Cyc* (FCA Cyc)
- Forward Collision Avoidance Assist Ped* (FCA Ped)
- Forward Collision Warning* (FCW)
- High Beam Assist* (HBA)
- Highway Driving Assist* (HDA)
- Lane Departure Warning* (LDW)
- Lane Following Assist* (LFA)
- Lane Keeping Assist* (LKA)
- Navigation based Smart Cruise Control Curve* (NSCC C)
- Rear Occupant Alert* (ROA)
- Rear View Monitor w/ Dynamic Parking Guidance* (RVM w/ DPG)
- Smart Cruise Control w/ Stop & Go* (SCC w/ S&G)
- Parking Distance Warning Reverse* (PDW R) (EX Premium only)

Every new Kia delivery should include showing the customer how to navigate the Settings menus and customize the Kia Drive Wise* settings to their preferences.



Get Up to Speed

Go to the Kia Product Presentation Center to learn all about the 2022 Niro EV.

You can also visit the new Kia EV Learning Center on the Kia Product Presentation Center for a wealth of information on EVs, helpful links, FAQs, and more.

*Safety Information and Legal Disclaimers:

Driving while distracted can result in a loss of vehicle control that may lead to an accident, severe bodily harm, and death. The driver's primary responsibility is in the safe and legal operation of a vehicle, and any handheld devices, other equipment, or vehicle systems, including steering wheel mounted controls, which take the driver's eyes, attention and focus away from the safe operation of a vehicle or which are not permissible by law should never be used during operation of the vehicle.

All Electric Range (AER): Based on EPA estimates on a full battery charge. Actual range will vary with options, driving conditions, driving habits, vehicle maintenance, charging practice, battery age, weather, temperature, and your vehicle's condition. Battery capacity will decrease with time and use. For more information on range, please see www.fueleconomy.gov.

Android Auto™: Vehicle user interface is a product of Google and its terms and privacy statements apply. Requires the Android Auto™ app on Google Play™ store and an Android™ compatible smartphone running Android™ 5.0 Lollipop or higher. Data plan rates apply. Android™, Android Auto™, and Google Play™ are trademarks of Google LLC or its affiliates.

Apple CarPlay®: Apple® and Apple CarPlay® are trademarks of Apple, Inc., registered in the U.S. and other countries. Apple CarPlay® runs on your smartphone cellular data service. Normal data rates will apply.

Blind Spot Collision Warning (BCW) w/ Rear Cross Traffic Collision Warning (RCCW): When engaged, Blind Spot Collision Warning and Rear Cross Traffic Collision Warning are not substitutes for safe driving and may not detect all objects around or behind vehicle. Always drive safely and use caution.

Bluetooth®: The *Bluetooth®* word mark and logos are registered trademarks owned by Bluetooth SIG Inc. A *Bluetooth®* enabled cell phone is required to use *Bluetooth®* wireless technology.

Charging rate: Charging rate based on Kia testing. Actual charging times and range will vary with options, driving conditions, driving habits, vehicle maintenance, charging practice, battery age, weather, temperature, and your vehicle's condition. Battery capacity will decrease with time and use. Frequent use of DC Fast charging can negatively impact battery performance and durability, and Kia recommends minimizing use of DC Fast charging.

Clari Fi™: Clari Fi™ is a trademark of Harman International Industries, Inc.

DC Fast Charging: Charging times will vary with options, vehicle maintenance, charging practice, battery age, weather, temperature, and your vehicle's condition. Frequent use of DC fast charging can negatively impact battery performance and durability, and Kia recommends minimizing use of DC fast charging. Battery capacity will decrease with time and use.

Driver Attention Warning (DAW): When engaged, Driver Attention Warning is not a substitute for safe driving and may not detect all instances of inattentive driving practices. Failure to pay attention to travel conditions and vehicle operation could result in loss of vehicle control. Always drive safely and use caution.

EPA: Based on EPA estimates (based on a full battery for PHEV or EV). Actual mileage will vary with options, driving conditions, driving habits, vehicle maintenance, and your vehicle's condition. For PHEV, mileage and range will also vary based on charging practice, battery age, weather, and temperature. Battery capacity will decrease with time and use. For more information, please see www.fueleconomy.gov.

Forward Collision Avoidance Assist Cyc (FCA Cyc): When engaged, Forward Collision Avoidance Assist Cyc is not a substitute for safe driving and may not detect all objects in front of vehicle. Always drive safely and use caution.

Forward Collision Avoidance Assist Ped (FCA Ped): When engaged, Forward Collision Avoidance Assist Ped is not a substitute for safe driving and may not detect all objects in front of vehicle. Always drive safely and use caution.

Forward Collision Warning (FCW): When engaged, Forward Collision Warning is not a substitute for safe driving and may not detect all objects in front of vehicle. Always drive safely and use caution.

harman/kardon®: harman/kardon® is a registered trademark of Harman International Industries, Inc.

HD Radio: HD Radio™ and the HD Radio logo are proprietary trademarks of iBiquity Digital Corporation.

Heated seats: Use extreme caution when using the seat warmers to avoid burns. Refer to the Owner's Manual for more safety information.

High Beam Assist (HBA): When engaged, High Beam Assist does not operate below certain speeds, or in some lighting and driving conditions. Please be aware of your surroundings and exercise proper road etiquette when operating a vehicle using the high beams.

Highway Driving Assist (HDA): When engaged, Highway Driving Assist is not a substitute for safe driving, may not detect all objects surrounding the vehicle, and only functions on certain federal highways. Always drive safely and use caution.



Kia Drive Wise: Advanced Driver Assistance Systems are not substitutes for safe driving, and may not detect all objects around the vehicle. Always drive safely and use caution.

Lane Departure Warning (LDW): When engaged, Lane Departure Warning is not a substitute for safe driving and may not detect all objects around the vehicle. Always drive safely and use caution.

Lane Following Assist (LFA): When engaged, Lane Following Assist is not a substitute for safe driving and may not detect all objects around the vehicle. Always drive safely and use caution.

Lane Keeping Assist (LKA): When engaged, Lane Keeping Assist is not a substitute for safe driving and may not detect all objects around the vehicle. Always drive safely and use caution.

Leading Vehicle Departure Alert (LVDA): When engaged, Leading Vehicle Departure Alert is not a substitute for safe driving and may not detect all instances of inattentive driving practices. Failure to pay attention to travel conditions and vehicle operation could result in loss of vehicle control. Always drive safely and use caution.

Navigation: Distracted driving can result in a loss of vehicle control. When operating a vehicle, never use a vehicle system that takes your focus away from safe vehicle operation. Navigation is for information purposes only, and Kia does not make any warranties about the accuracy of the information.

Navigation based Smart Cruise Control Curve (NSCC C): When engaged, Navigation based Smart Cruise Control (NSCC) is not a substitute for safe driving and cruise control procedures. This is not an auto pilot feature. It may not detect every object around the vehicle. Always drive safely and use caution.

Parking Distance Warning Reverse (PDW R): When engaged, Parking Distance Warning Reverse is not a substitute for safe driving and may not detect all objects behind vehicle. Always drive safely and use caution.

Pedestrian Warning System (PWS): This feature is an audible noise the vehicle emits to alert people around it. No system, no matter how advanced, can compensate for all driver error and/or driving conditions. Always drive responsibly and pay attention to the presence of pedestrians.

Rear Occupant Alert (ROA): When engaged, Rear Occupant Alert is not a substitute for one's attention. Always check the vehicle interior when exiting the vehicle.

Rear View Monitor w/ Dynamic Parking Guidance (RVM w/ DPG): When engaged, the Rear View Monitor with Dynamic Parking Guidance is not a substitute for safe driving and may not display all objects behind vehicle. Always drive safely and use caution.

Remote Start: Do not use remote start if vehicle is in an enclosed area (e.g., closed garage) or a partially enclosed area without ventilation. Close all doors leading from adjacent living areas to the vehicle area before executing a remote climate control or remote start command.

SiriusXM®: SiriusXM audio and data services each require a subscription sold separately, or as a package, by Sirius XM Radio Inc., after 3 month trial included with vehicle purchase. **If you decide to continue service after your trial, the subscription plan you choose will automatically renew thereafter and you will be charged according to your chosen payment method at then current rates. Fees and taxes apply. Please see the SiriusXM Customer Agreement at www.siriusxm.com for complete terms and how to cancel, which includes calling SiriusXM at 1 866 635 2349. All fees and programming are subject to change. Traffic information not available in all markets.** SiriusXM and all related marks and logos are trademarks of Sirius XM Radio Inc.

Smart Cruise Control w/ Stop & Go (SCC w/ S&G): When engaged, Smart Cruise Control with Stop and Go is not a substitute for safe driving and cruise control procedures. This is not an auto pilot feature. Always drive safely and use caution. The Smart Cruise Control system may not detect every object in front of the vehicle.

Parking Distance Warning Reverse (PDW R): When engaged, Parking Distance Warning Reverse is not a substitute for safe driving and may not detect all objects behind vehicle. Always drive safely and use caution.

UVO link: Purchase/lease of certain 2021 and newer Kia vehicles with UVO link includes a complimentary 1 year subscription starting from new vehicle retail sale/lease date as recorded by the dealer. After your complimentary 1 year UVO link subscription expires, continued access to the full suite of UVO link services available on your Kia will require a paid subscription at the then current subscription rate or your use of certain UVO link features may immediately terminate. Use of UVO is subject to agreement to the UVO Privacy Policy (available at owners.kia.com/us/en/privacy-policy.html) and Terms of Service (available at owners.kia.com/us/en/terms-of-service.html). Complimentary UVO link subscription is transferable to subsequent owner during the original UVO link service term. Only use UVO link when safe to do so. UVO link is currently unavailable for Model Year 2022 and newer vehicles sold or purchased in Massachusetts; please see the Kia Owners Portal for updates on availability. Kia Access with UVO link app is available from the Apple® App Store® or Google Play Store™. Kia America, Inc. reserves the right to change or discontinue UVO link at any time without prior notification or incurring any future obligation. Message and data rates may apply. Cellular and GPS coverage is required to use most features. UVO link features may vary by model, model year, and trim level. Features, specifications, and fees are subject to change. For more on details and limitations, visit www.kia.com or your authorized Kia dealer. Apple® and App Store® are registered trademarks of Apple Inc. Google™ and its logos are trademarks of Google LLC.

Wireless phone charger: Charging system only works with select devices. Refer to the vehicle's Owner's Manual for warnings and instructions.

Introduction to Kia ADAS

TEC-01-137-1

This course familiarizes you with Kia's Advanced Driver Assistance Systems (ADAS) and helps you understand the operation of their numerous features and functions.

Complete each section and topic to be eligible to take the Performance Assessment. You need to score 80% or better on the test to receive credit for the course.



Note: This course is for familiarization only. The description of ADAS functions, their operation, activation, and diagnosis are primarily based on specifications for 2021 Sorento. The specifications described may not apply to the same functions as they are implemented in other Kia models. The name of ADAS functions may also vary depending on specific model and year.

Refer to the appropriate Owner's Manual and service information on KGIS for further details.

[Start Course](#)



Main Menu

Select a section below to begin, or select the More Actions icon ☰, then "Help" for tips on navigating this course.



Introduction

Front View Camera Functions

Front Radar Functions

Rear Corner Radar Functions

Sensor Fusion Functions

View Monitor Functions

Variant Coding

Calibration

Performance Assessment

You must complete all sections before taking the Performance Assessment.

Introduction

Select any topic to learn more.

Overview

ADAS Sensor Technology


ADAS Functions

Overview

ADAS stands for "Advanced Driver Assistance Systems". ADAS is a group of advanced driving features that analyze driving and environmental conditions to provide guidance, warnings, and vehicle control, thus enhancing safety and convenience.

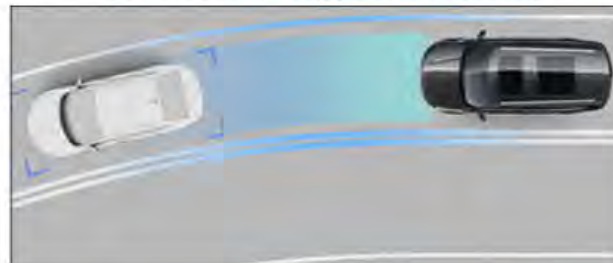
Kia promotes its ADAS technologies under the Drive Wise logo.



 A complete list of ADAS functions appears later in this section.

A few examples of ADAS functions include:

Lane Following Assist (LFA)



Blind-Spot Collision Avoidance (BCA)



Rear Cross-Traffic Collision Warning (RCCW)



ADAS Sensor Technology

ADAS functions are enabled using two types of sensor technology:

Cameras

For safety and convenience, Kia vehicles may be equipped with up to 5 cameras:

- 1 front view camera mounted in the upper center windshield

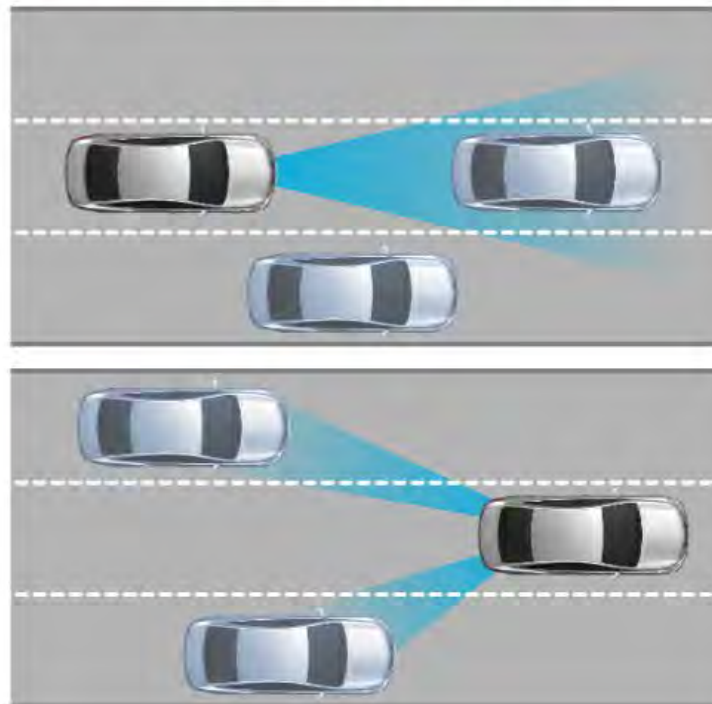


- 4 video cameras



Radar Sensors

ADAS functions rely on radar sensors installed on the vehicle's front and rear to detect nearby vehicles and objects.



Select the information icons to learn more.

ADAS Sensor Technology

ADAS functions are enabled using two types of sensor technology:

Cameras

Front View Camera

The front view camera, sometimes called the Multi-Function Camera (MFC), is programmed to detect and recognize images of vehicles, lane markers, pedestrians, cyclists, signs, and other objects.

- The front view camera compensates for a radar's inability to distinguish unique shapes, patterns, and colors
- Unlike a radar, the front view camera is incapable of directly measuring object speed, but can estimate speed using coordinates and image width



The windshield-mounted front view camera should not be confused with the front video camera installed in the grille.

Radar Sensors

ADAS functions rely on radar sensors installed on the vehicle's front and rear to detect nearby vehicles and objects.



Select the information icons to learn more.

ADAS Sensor Technology

ADAS functions are enabled using two types of sensor technology:

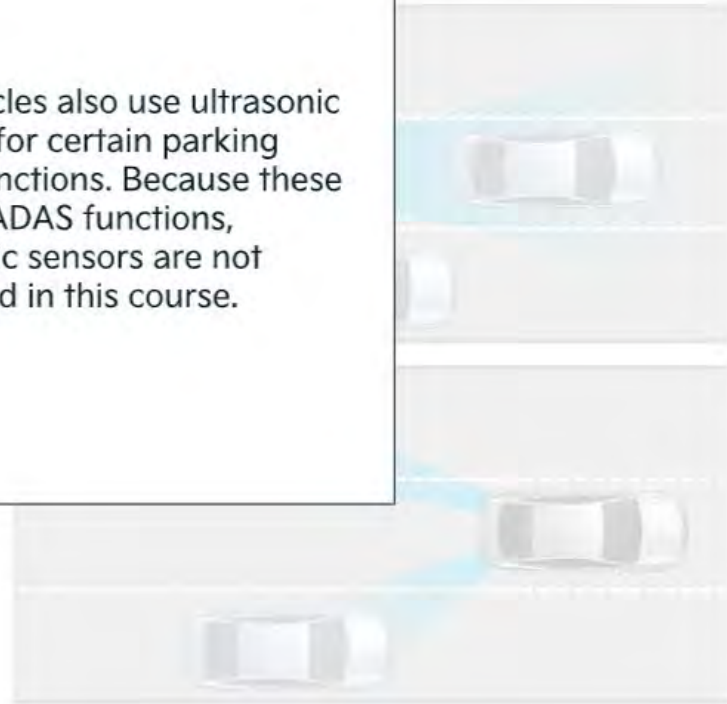
Cameras

For safety and convenience, vehicles may be equipped with up to:
• 1 front view camera mounted in the upper center windshield



Radar Sensors

Radar sensors are used for front and rear collision avoidance and object detection.



Ultrasonic Sensors



Kia vehicles also use ultrasonic sensors for certain parking assist functions. Because these are not ADAS functions, ultrasonic sensors are not discussed in this course.



Select the information icons to learn more.

ADAS Sensor Technology

ADAS functions are enabled using two types of sensor technology:

Cameras

For safety and convenience, vehicles may be equipped with:

- 1 front view camera
- 1 rear view camera
- 1 side view camera



Video Cameras

The front, rear and side view video cameras, when equipped, are able to display images from around the vehicle on the head unit or instrument cluster to assist the driver.



Radar Sensors



sors
d rear
ects.

Select the information icons to learn more.

ADAS Sensor Technology

ADAS functions are enabled using two types of sensor technology:

Cameras

For safety and convenience, Kia vehicles may be equipped with up to 5 cameras:

- 1 front view camera mounted in the upper center windshield



- 4 video cameras

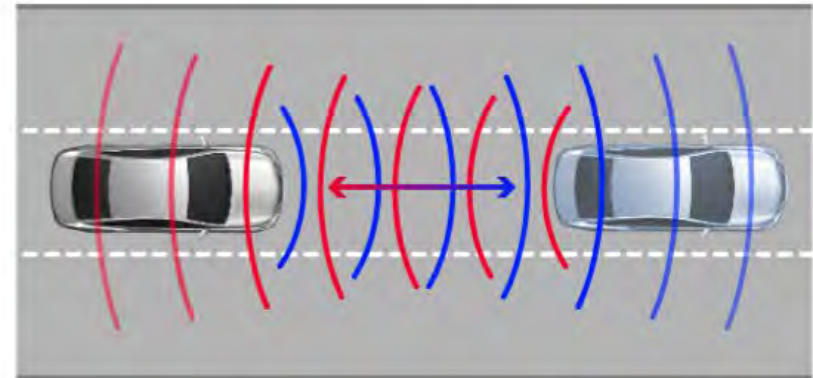


Radar Sensors

Radar Sensors



A radar sensor detects objects by sending and receiving electromagnetic waves, which reflect off the surface of objects and return.




Object locations and moving speeds can also be determined. Because electromagnetic waves travel at the speed of light, radar response is quick.

Select the information icons to learn more.

ADAS Functions

Each ADAS function relies on one or more of the vehicle's cameras or radar sensors. The following is a list of all Kia ADAS features organized by the type of sensor each feature uses.

Front View Camera	DAW: Driver Attention Warning
	HBA: High Beam Assist
	ISLA: Intelligent Speed Limit Assist
	LDW: Lane Departure Warning
	LFA: Lane Following Assist
	LKA: Lane Keeping Assist
	LVDA: Leading Vehicle Departure Alert
	MSLA: Manual Speed Limit Assist

 Kia vehicles also have parking assist functions available that rely on ultrasonic sensors and a rearview camera. These features are not considered ADAS functions and are not covered in this course.

Front Radar	SCC w/S&G: Smart Cruise Control with Stop & Go
	NSCC: Navigation-based Smart Cruise Control
Rear Corner Radar	BCW: Blind-Spot Collision-Avoidance Assist
	RCCA: Rear Cross-Traffic Collision-Avoidance Assist
	SEA: Safe Exit Assist
Front View Camera + Front Radar (aka "Sensor Fusion")	FCA: Forward Collision-Avoidance Assist
	FCA-JT: FCA - Junction Turning
	HDA: Highway Driving Assist
Front View Camera + Rear Corner Radar	BCA: Blind-Spot Collision-Avoidance Assist

Disclaimer: This feature list is accurate as of Fall 2021. Each Kia vehicle has an available subset of these features. Function names and operation are subject to change.

ADAS Functions

Each ADAS function relies on one or more of the vehicle's cameras or radar sensors. The following is a list of all Kia ADAS features organized by the type of sensor each feature uses.

Front View Camera	DAW: Driver	Front View Camera + Rear Corner Radar	SCC w/S&G: Smart Cruise Control with Stop & Go
	HBA: High Be		NSCC: Navigation-based Smart Cruise Control
	ISLA: Intellige		BCW: Blind-Spot Collision-Avoidance Assist
	LDW: Lane D		RCCA: Rear-Cross-Traffic Collision-Avoidance Assist
	LFA: Lane Fo		SEA: Safe Exit Assist
	LKA: Lane Ke		FCA: Forward Collision-Avoidance Assist
	LVDA: Leadin		FCA-JT: FCA - Junction Turning
MSLA: Manua	HDA: Highway Driving Assist	BCA: Blind-Spot Collision-Avoidance Assist	

Good going!

You completed the section:
Introduction

Kia vehicles also have parking assist functions available that rely on ultrasonic sensors and a rearview camera. These features are not considered ADAS functions and are not covered in this course.

Disclaimer: This feature list is accurate as of Fall 2021. Each Kia vehicle has an available subset of these features. Function names and operation are subject to change.

Front View Camera Functions

Select any topic to learn more.

Front View Camera Overview

LDW: Lane Departure Warning

LKA: Lane Keeping Assist

LFA: Lane Following Assist

HBA: High Beam Assist

DAW: Driver Attention Warning

LVDA: Leading Vehicle Departure Alert

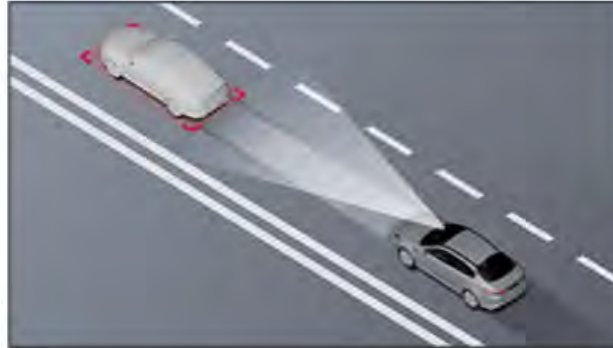
MSLA: Manual Speed Limit Assist

ISLA: Intelligent Speed Limit Assist

Front View Camera Overview

Originally, cameras installed on vehicles were mainly used to see areas hidden to the driver. The rearview camera is a prime example.

Now, cameras are used not only for image display, but also for detecting preceding vehicles, pedestrians, and vehicle lanes. These capabilities are used not only for warning the driver, but also for vehicle control.



Front View Camera Module

In Kia vehicles, a multi-function front view camera mounted behind the upper center windshield performs the following functions:


- LDW: Lane Departure Warning
- LKA: Lane Keeping Assist
- LFA: Lane Following Assist
- HBA: High Beam Assist
- DAW: Driver Attention Warning
- LVDA: Leading Vehicle Departure Alert
- MSLA: Manual Speed Limit Assist
- ISLA: Intelligent Speed Limit Assist

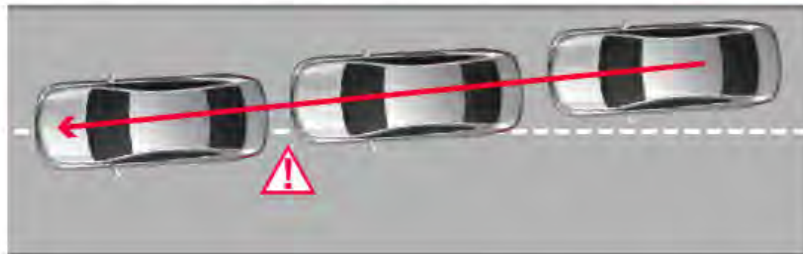
To execute its functions, the camera inside the front view camera module processes and detects images.

Detected images are sent to various other control modules to warn the driver, and help keep the vehicle out of danger by assisting steering and braking.

This section of the course covers these ADAS functions in detail.

LDW: Lane Departure Warning

Lane Departure Warning (LDW) alerts the driver when the vehicle begins to drift out of its lane. 



The instrument cluster LDW indicator will initially illuminate white when the function is turned ON.



- It will remain white when the vehicle is traveling slower than 40 mph or when the system does not detect the lane markers



- When the system detects the lane markers and the speed is above 40 mph, the indicator illuminates green

When a lane departure occurs, the cluster gives an audible warning and displays a warning message.



When switched ON, LDW operates under the following conditions:

- The vehicle speed exceeds approximately 40 mph
- The system recognizes the lane markers of the lane the vehicle is traveling in

Select the information icon to learn more.

Disclaimer: When engaged, LDW is not a substitute for proper and safe driving. LDW may not always alert the driver if the vehicle is driven outside its lane. Always drive safely and use caution.

Select all tabs before continuing.

LDW: Lane Departure Warning

Lane Departure Warning (LDW) alerts the driver when the vehicle begins to drift out of its lane.



When a lane departure occurs, the cluster gives an audible warning and displays a warning message.



LDW uses the front view camera to identify lane markers, and determine the vehicle's position within the lane.

The instrument cluster LDW indicator will initially illuminate white when the function is turned ON.



- It will remain white when the vehicle is traveling slower than 40 mph or when the system does not detect the lane markers
- When the system detects the lane markers and the speed is above 40 mph, the indicator illuminates green

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- The vehicle speed exceeds approximately 40 mph
- The system recognizes the lane markers of the lane the vehicle is traveling in

Disclaimer: When engaged, LDW is not a substitute for proper and safe driving. LDW may not always alert the driver if the vehicle is driven outside its lane. Always drive safely and use caution.

Select the information icon to learn more.

Select all tabs before continuing.

LDW: Lane Departure Warning

LDW operates in conjunction with LKA (Lane Keeping Assist). When the LKA button is pressed, the instrument cluster indicator illuminates indicating the system is ON. 



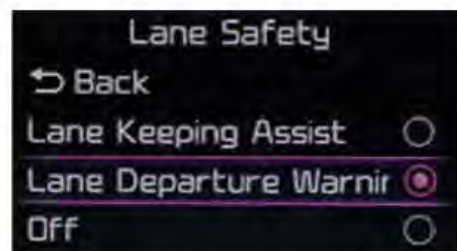
LKA Indicator

When switched on, the LKA button selects LKA by default.

- LDW is ON when LKA is ON

LDW can also be turned on separately. To switch on LDW only, go to User Settings in the instrument cluster, and select:

- Driver Assistance
- > Lane Safety
- > Lane Departure Warning



When the system is ON, LDW activates above 40 mph and deactivates below 35 mph.

Select the information icon to learn more.

If the turn signal lamps or hazard lights are ON, LDW or LKA deactivates.



- The turn signal lamps indicate that the driver intends to change lanes



- The hazard lights indicate that an emergency has occurred and the driver intends to control the vehicle

When no lane markers can be detected, LDW does not operate.



If one lane marker can be detected, LDW operates on that side.



Select all tabs before continuing.

LDW: Lane Departure Warning

LDW operates in conjunction with LKA (Lane Keeping Assist). When the LKA button is pressed, the instrument cluster indicator illuminates indicating the system is ON.

If the turn signal lamps or hazard lights are ON, LDW or LKA deactivates.



- The turn signal lamps indicate that the driver intends to change lanes
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LKA Button

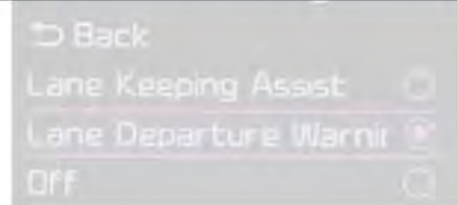
Pressing the LKA button again turns the system OFF.

When the ignition is cycled, the LKA system returns to its previous state, ON or OFF.

When switched on, the LKA button indicator illuminates. LDW is ON when LKA is ON.

LDW can also be turned on separately. To switch on LDW only, go to User Settings in the instrument cluster, and select:

- Driver Assistance
- > Lane Safety
- > Lane Departure Warning



If no lane markers are detected, LDW does not operate.

If one lane marker can be detected, LDW operates on that side.



When the system is ON, LDW activates above 40 mph and deactivates below 35 mph.

Select the information icon to learn more.

Select all tabs before continuing.

LDW: Lane Departure Warning

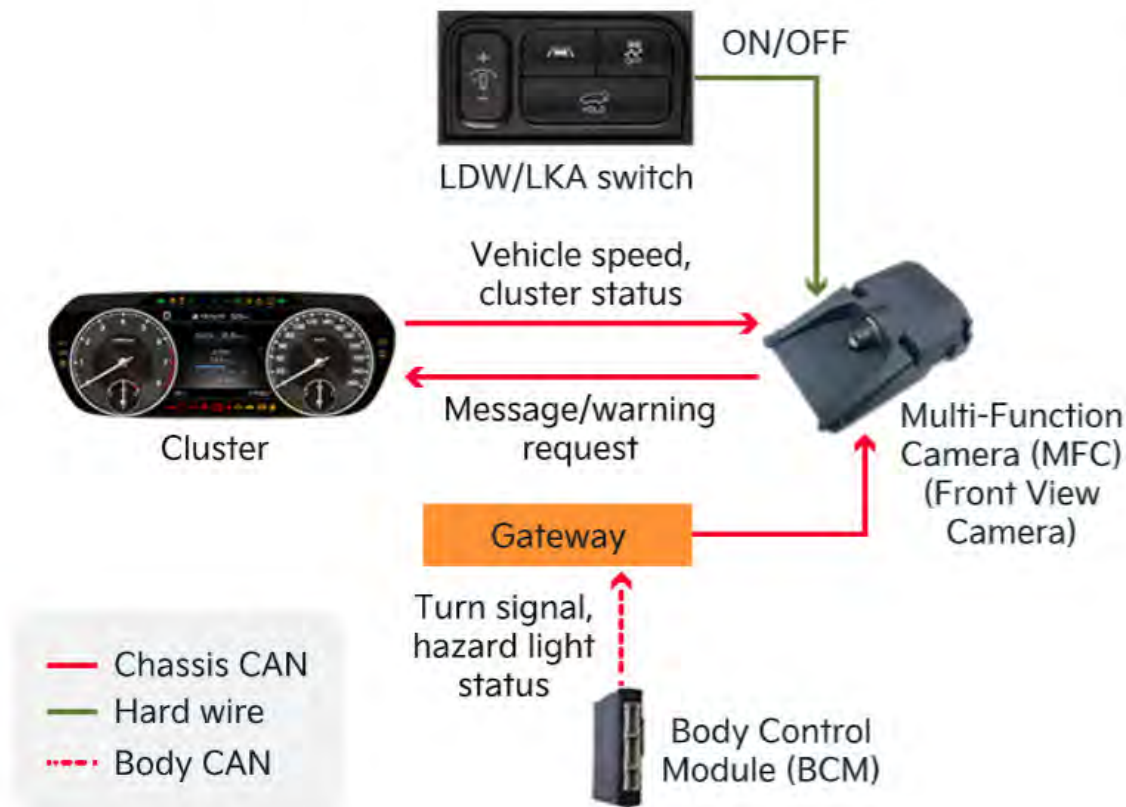



Diagram not representative of all Kia Models. Consult the service information for the vehicle you are servicing.

Select the information icon to learn more.

If the driver reports the Lane Departure Warning is not working and there are no DTCs, road test the vehicle and verify the activation conditions are met:

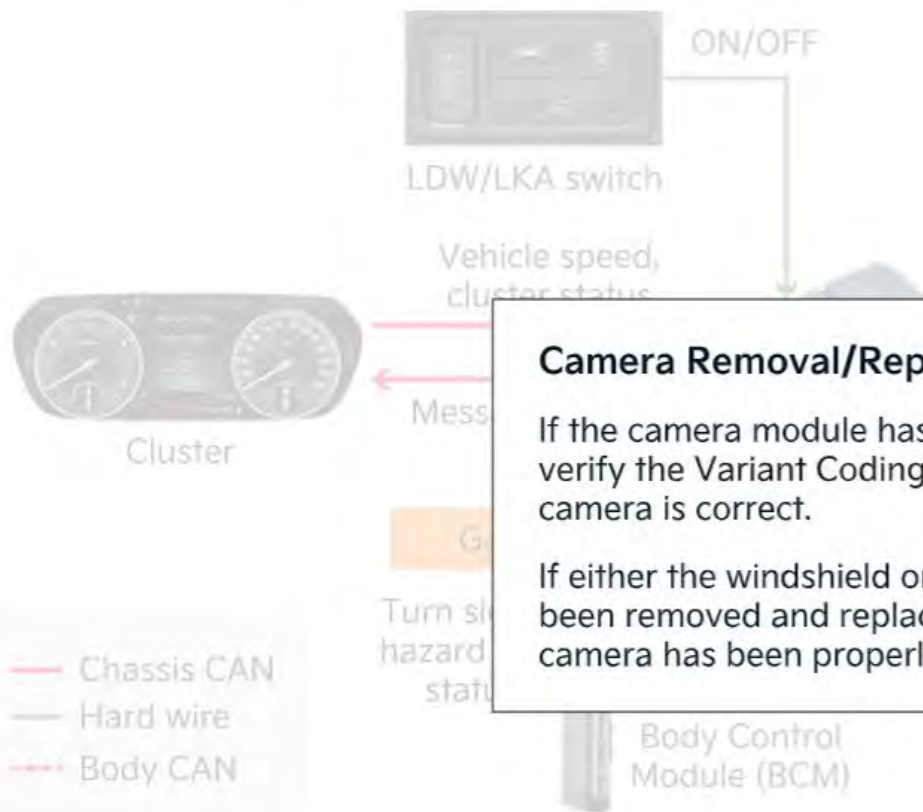
- LKA switch is ON and LDW is selected in the User Settings Menu
- Lane markers can be recognized (LKA indicator is green, not white)
- Turn signal and hazard lights are OFF
- Vehicle speed is above 40 mph

Also verify there is nothing on the front windshield to obscure the camera view and there is no damage to the windshield. 



Select all tabs before continuing.

LDW: Lane Departure Warning



If the driver reports the Lane Departure Warning is not working and there are no DTCs, road test the vehicle and verify the activation conditions are met:

- LKA switch is ON and LDW is selected in the User Settings Menu
- Lane markers can be recognized (LKA indicator is green, not white)

Camera Removal/Replacement

If the camera module has been replaced recently, verify the Variant Coding for the new front view camera is correct.

If either the windshield or front view camera has been removed and replaced/reinstalled, verify the camera has been properly calibrated.

al and hazard lights are OFF
peed is above 40 mph

here is nothing on the front windshield
ne camera view and there is no damage
shield.



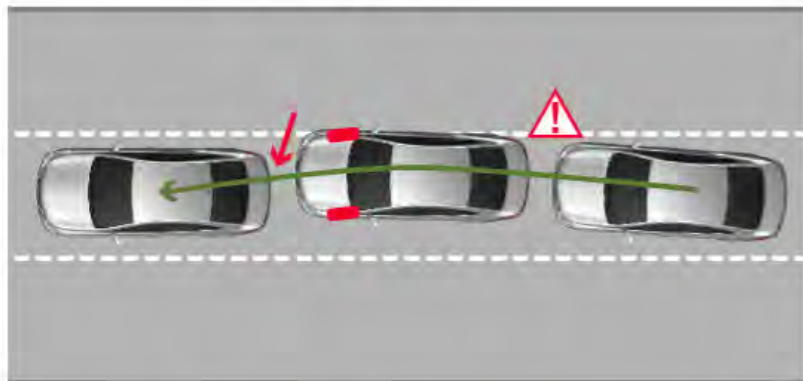
Diagram not representative of all Kia Models. Consult the service information for the vehicle you are servicing.

Select the information icon to learn more.


Select all tabs before continuing.

LKA: Lane Keeping Assist

LKA not only detects the lane markers on the road and warns the driver of lane departure, it also assists the driver's steering to help keep the vehicle in its lane.




- If LKA detects the vehicle moving outside of its lane, it sounds an audible warning and displays a Lane Departure Warning alert on the instrument cluster
- If the vehicle continues to move outside of its lane, LKA applies slight steering torque to help prevent the vehicle from moving outside of its lane

 If the system detects the driver overriding the applied steering torque, the system deactivates.

Select the information icon to learn more.


Operation on a Curve

LKA does not operate when the road exceeds a certain curvature.

- Even within the allowable curvature, LKA does not operate if the speed is higher than a certain level 



For this reason, the LKA may operate at some speeds and may not operate at other speeds when encountering a curve.

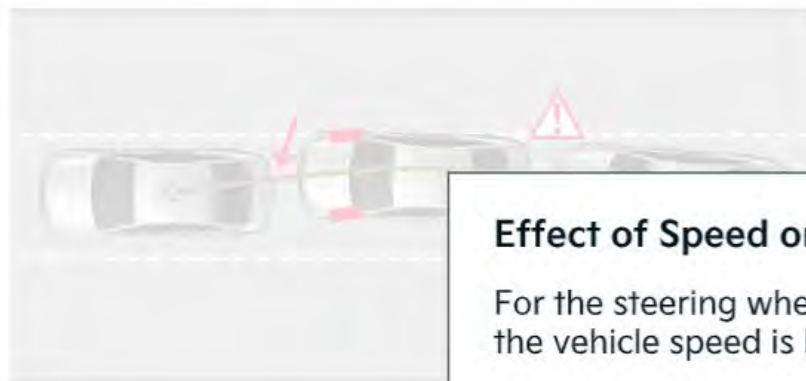
 If the customer reports this situation, it may be necessary to explain that this is normal system operation.

Disclaimer: When engaged, LKA is not a substitute for proper and safe driving. LKA may not always alert the driver if the vehicle is driven outside its lane. Always drive safely and use caution.

Select all tabs before continuing.

LKA: Lane Keeping Assist

LKA not only detects the lane markers on the road and warns the driver of lane departure, it also assists the driver's steering to help keep the vehicle in its lane.



Effect of Speed on Steering Control

For the steering wheel to be controlled properly when the vehicle speed is high, increased torque is required.

However, the steering torque is limited to about 2.5 Nm.

Therefore, the faster the vehicle speed, the less the curvature range that can be controlled by LKA.

- If LKA detects the vehicle is moving outside of its lane, it sounds an audible warning and a Lane Departure Warning alert.
- If the vehicle continues to move outside of its lane, LKA applies slight steering torque to help prevent the vehicle from moving outside of its lane.

If the system detects the driver overriding the applied steering torque, the system deactivates.

Select the information icon to learn more.

Operation on a Curve

LKA does not operate when the road exceeds a certain curvature.

- Even within the allowable curvature, LKA does not operate if the road curvature is beyond the system's operating level.




LKA may operate at some speeds and other speeds when encountering a curve.

If the system reports this situation, it is necessary to explain that this is a normal system operation.

Disclaimer: When engaged, LKA is not a substitute for proper and safe driving. LKA may not always alert the driver if the vehicle is driven outside its lane. Always drive safely and use caution.

Select all tabs before continuing.

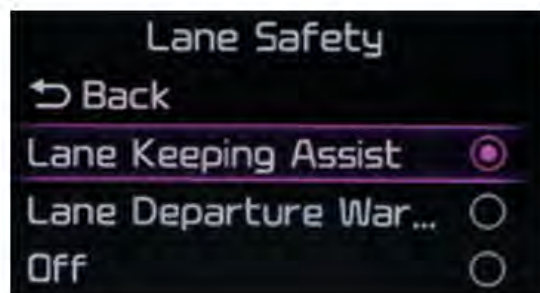
LKA: Lane Keeping Assist

When the LKA button is pressed, the instrument cluster indicator illuminates indicating the system is ON. 



LKA Indicator

- Pressing the LKA button again turns the system OFF
- When the ignition is cycled, the LKA system returns to its previous state, ON or OFF



When switched on, the LKA button selects LKA by default.

When the system is ON, LKA activates above 40 mph and deactivates below 35 mph.

If the turn signal lamps or hazard lights are ON, LKA deactivates.



- The turn signal lamps indicate that the driver intends to change lanes




- The hazard lights indicate that an emergency has occurred and the driver intends to control the vehicle



For LKA to operate:

- Both lane markers must be detected
- The vehicle must be between the lane markers

 LKA Hands Off Detection

Select the information icons to learn more.

Select all tabs before continuing.

LKA: Lane Keeping Assist

When the LKA button is pressed, the instrument cluster indicator illuminates indicating the system is ON.



LKA Indicator

- Pressing the LKA button again turns the system OFF
- When the ignition is cycled, the system returns to its previous state.

Instrument Cluster Indicator

When the system detects the lane markers and the speed is above 40 mph, the indicator illuminates green.

When the system is ON, LKA activates above 40 mph and deactivates below 35 mph.

If the turn signal lamps or hazard lights are ON, LKA deactivates.



• The turn signal lamps indicate that the driver intends to change lanes

• The hazard lights indicate that an emergency has occurred and the driver intends to control the vehicle

For LKA to operate:

- Both lane markers must be detected
- The vehicle must be between the lane markers

LKA Hands Off Detection



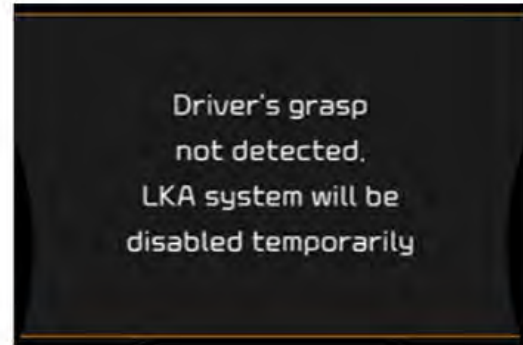
When switched on, the LKA button selects LKA by default.

Select the information icons to learn more.

Select all tabs before continuing.

LKA Hands Off Detection

- A warning sound is emitted if the vehicle travels with the driver's hands off the steering wheel for a period of 12 to 20 seconds when LKA is on
- LKA is deactivated if the driver's steering control is not detected within 5 seconds after the warning sound



LKA: Lane Keeping Assist

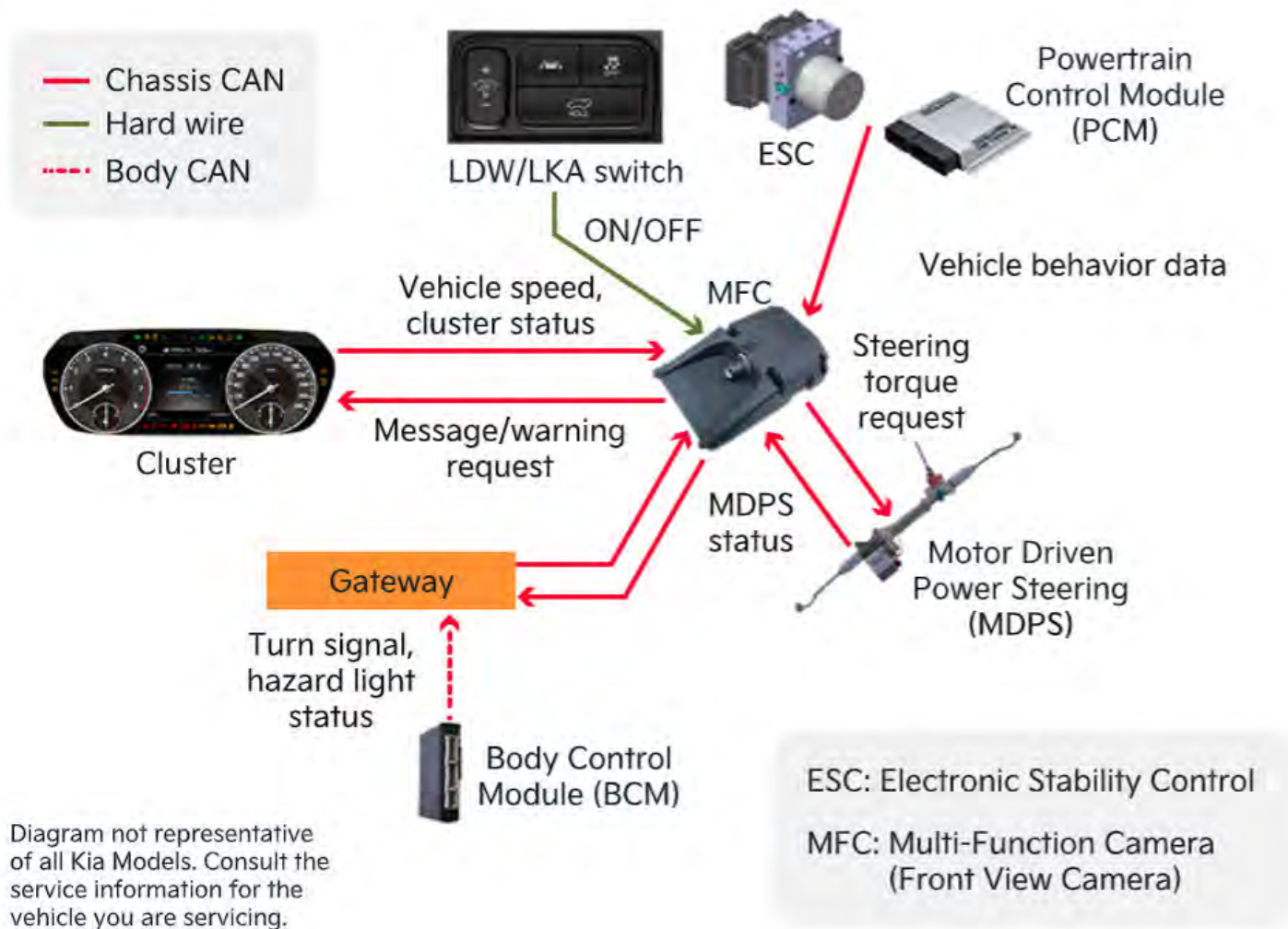


Diagram not representative of all Kia Models. Consult the service information for the vehicle you are servicing.

If the driver reports the Lane Keeping Assist is not working, and there are no DTCs:

- Road test the vehicle and verify the activation conditions are met
- Verify there is nothing on the front windshield to obscure the camera view and there is no damage to the windshield
- Determine if the windshield or camera unit have been replaced recently, and verify Variant Coding and camera calibration if necessary
- Discuss with the driver whether the condition occurs on a curved road where LKA may normally be inoperative

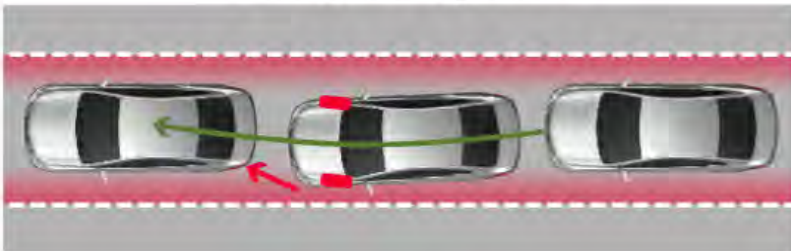
Select all tabs before continuing.

LFA: Lane Following Assist

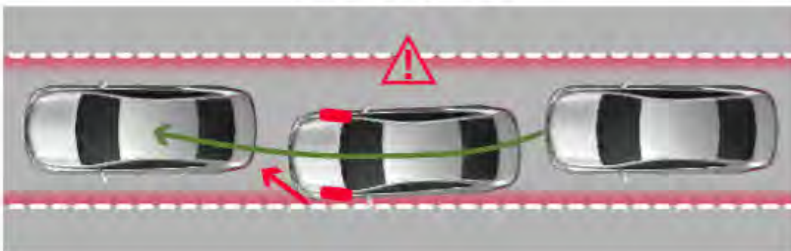
Lane Following Assist helps keep the vehicle traveling down the center of a lane by applying a range of steering torque support that is greater than that of LKA.

- This helps reduce driver fatigue and keep the vehicle within the lane as much as possible

Lane Following Assist



Standard LKA



Smart Cruise Control must be turned on for LFA to operate.



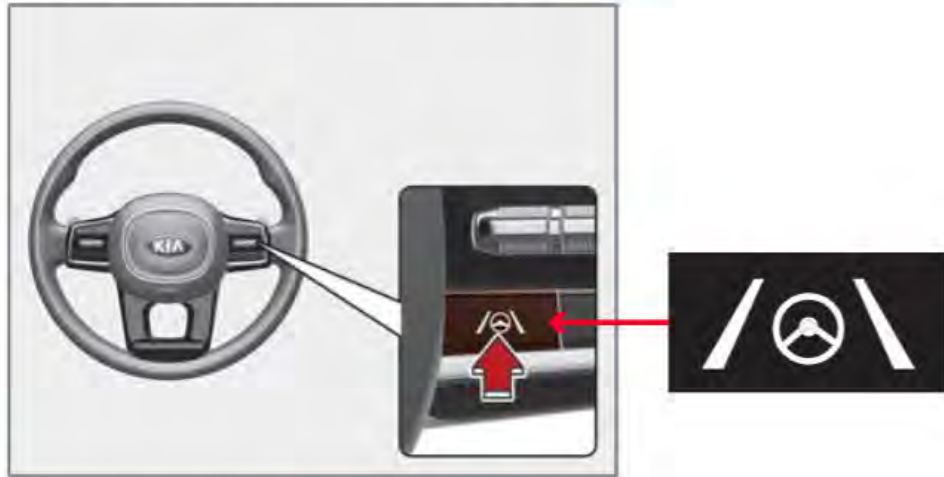
Green indicator shows LFA is active. White indicates standby mode.

Disclaimer: When engaged, LFA is not a substitute for proper and safe driving. LFA may not detect all road markings. Always drive safely and use caution.

Select all tabs before continuing.

LFA: Lane Following Assist

Use the Lane Following Assist button to turn the LFA system ON and OFF.



The LFA system will operate when the following conditions are met:

- Smart Cruise Control (SCC) is ON and operating
- The LKA system recognizes the lane markers on both sides of the lane the vehicle is traveling in
- The vehicle is traveling above 40 mph

Diagnostic Tips

Diagnostic tips for the LFA system are similar to those for the LKA system.

The instrument cluster LFA indicator will initially illuminate white when turned ON and SCC is engaged.

- The indicator will remain white when the system does not detect the lane markers
- When the system detects the lane markers and can assist steering, the LFA indicator will illuminate green

Select the information icon to learn more.

Select all tabs before continuing.

LFA: Lane Following Assist

Use the Lane Following Assist button to turn the LFA system ON and OFF.



Switching LFA ON

In some Kia models, LFA is turned on using the User Settings Menu:

Driver Assistance > Driving Assist > Lane Following Assist

The LFA system will operate when the following conditions are met:

- Smart Cruise Control (SCC) is ON and operating
- The LKA system recognizes the lane markers on both sides of the lane the vehicle is traveling in

traveling above 40 mph

tips

for the LFA system are the same for the LKA system.

The instrument cluster LFA indicator will initially illuminate white when turned ON and SCC is engaged.

- The indicator will remain white when the system does not detect the lane markers
- When the system detects the lane markers and can assist steering, the LFA indicator will illuminate green

Select the information icon to learn more.

Select all tabs before continuing.

HBA: High Beam Assist

High Beam Assist (HBA), also known as smart high beam, automatically turns on the high beams at night to get a maximum field of vision ahead of the vehicle.

No Light Source Detected Ahead

- High Beam On



If lights ahead are detected by the front view camera, high beams are automatically changed to low beams.

Light Source Detected Ahead

- High Beam Off



The front view camera detects the following types of light sources ahead of the vehicle:



- Rear lamp or brake lamp of the preceding vehicle



- Head lamp of oncoming vehicles



- Well-lit roadways

Disclaimer: When engaged, HBA does not operate below certain speeds, or in some lighting and driving conditions. Please be aware of your surroundings and exercise proper road etiquette when operating a vehicle using the high beams.

Select all tabs before continuing.

HBA: High Beam Assist

To turn HBA ON:

- Turn the light switch on the Multi-Function Switch (MFS) to the AUTO position
- Turn on the high beam by pushing the MFS away from you
- The High Beam Assist indicator will illuminate



Multi-Function Switch (MFS)

To turn HBA OFF:

- Turn the light switch on the MFS to a position other than AUTO, or
- Pull the MFS toward you while the High Beam Assist is operating

HBA operates only when high beams are ON with the Multi-Function Switch in AUTO.

- HBA activates when the vehicle speed is over approximately 25 mph
- HBA deactivates when the vehicle speed is under approximately 20 mph

HBA ON and low beam

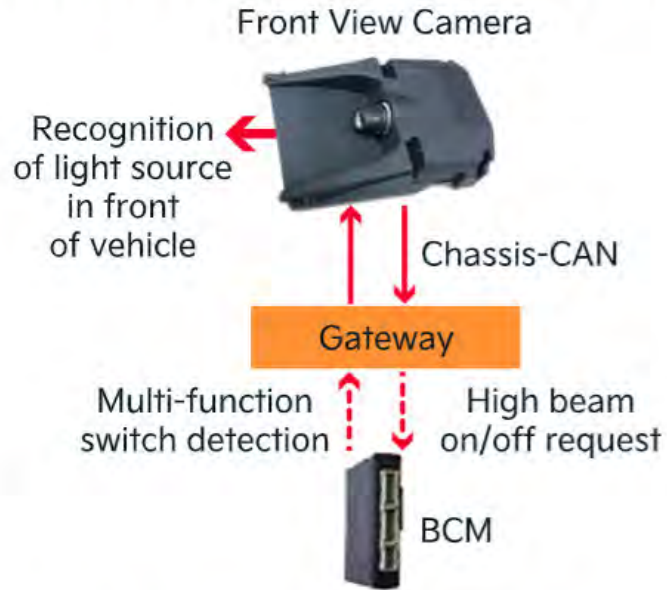


HBA ON and high beam



Select all tabs before continuing.

HBA: High Beam Assist



The front view camera receives signals via Chassis CAN when the light switch is in AUTO position and HBA is ON, and puts the system in standby mode.

- If the vehicle speed is above approximately 25 mph, the HBA system is activated
- Depending on whether the camera detects a light source, a request to turn the high beam on or off is sent to the head lamp controller via Chassis CAN

Diagram not representative of all Kia Models. Consult the service information for the vehicle you are servicing.

In some situations, light sources may be misrecognized.

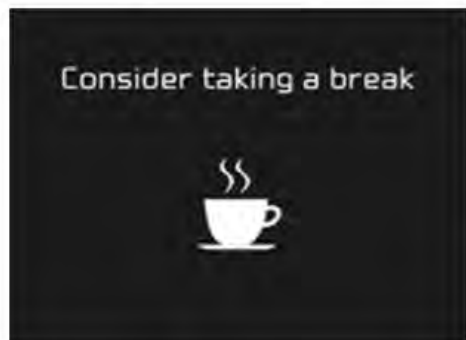
- On an uphill or downhill road, the vanishing point in the image may move and light sources can be misrecognized
- Tail lamps of a preceding vehicle are damaged or the light distribution performance has degraded
- Temporary reflectors around a construction work site may be recognized as light sources
- Wet areas on the road may be recognized as light sources



Select all tabs before continuing.

DAW: Driver Attention Warning

If Driver Attention Warning detects a pattern of inattentive driving practices, it alerts the driver and suggests taking a break from driving.



DAW operates when:

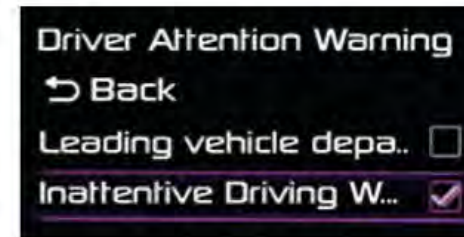
- DAW is turned ON in the USM
- Vehicle speed is above approximately 40 mph

Activation

To turn on DAW, go to User Settings in the instrument cluster, and select:



Driver Assistance >
Driver Attention Warning >
Inattentive Driving Warning



Attention Level can be displayed in the cluster. Attention Level starts at 5, and decreases or increases depending on driving pattern. The alert message appears at Level 0.



Select the information icons to learn more.

Attention Level is reset to 5 after:

- Engine off for 10 minutes
- Vehicle stopped for 10 minutes with engine ON
- Driver's seatbelt not fastened and door is opened (engine ON and vehicle stationary)

Disclaimer: When engaged, DAW is not a substitute for safe driving and may not detect all instances of driver fatigue or inattentive driving practices. Failure to pay attention to travel conditions and vehicle operation could result in loss of vehicle control. Always drive safely and use caution.

Select all tabs before continuing.

DAW: Driver Attention Warning

If Driver Attention Warning detects a pattern of inattentive driving practices, it alerts the driver and suggests taking a break from driving.



DAW operates when:

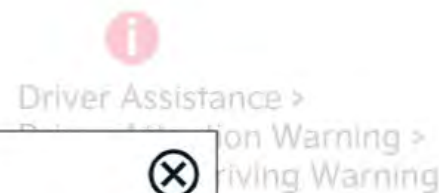
- DAW is turned ON
- Vehicle is in driving mode
- Vehicle speed is above 10 mph

Standby Mode

DAW will enter a standby mode if the forward camera cannot detect the lanes, or the driving speed remains under 40 mph.

Activation

To turn on DAW, go to User Settings in the instrument cluster, and select:



Attention Level can be displayed in the instrument cluster. The attention level starts at 5, and decreases or increases depending on driving pattern. The alert message appears at Level 0.



Attention level is reset to 5 after:

- Engine on for 10 minutes
- Vehicle stopped for 10 minutes with engine ON
- Driver's seatbelt not fastened and door is opened (engine ON and vehicle stationary)




Disclaimer: When engaged, DAW is not a substitute for safe driving and may not detect all instances of driver fatigue or inattentive driving practices. Failure to pay attention to travel conditions and vehicle operation could result in loss of vehicle control. Always drive safely and use caution.

Select the information icons to learn more.

Select all tabs before continuing.

Conditions that Increase or Decrease Attention Level

The front view camera analyzes lane information and vehicle behavior. Attention Level decreases by 0.5 or 1 each time a careless or fatigue-influenced driving pattern is detected.

Lane Keeping Failure	Unintended Lane Crossing	Over Steering	Under Steering
			
High Lateral Position Variation	Lane Crossing	Too Large Steering Pattern Variations	Steering Grip Weakened
Level Decreases by 0.5		Level Decreases by 1	

Other Conditions

- Level decreases by 1 if driving continuously for 1 hour (only if Level is above 2)
- Level increases by 1 if normal driving continues for a certain period of time without a careless or fatigue-influenced driving pattern detected (only if Level is below 5)
- If rapid deceleration (0.6g) takes place, attention level automatically decreases by 1 (only if Level is above 2)

DAW: Driver Attention Warning

If Driver Attention Warning detects inattentive driving practices, and suggests taking a break



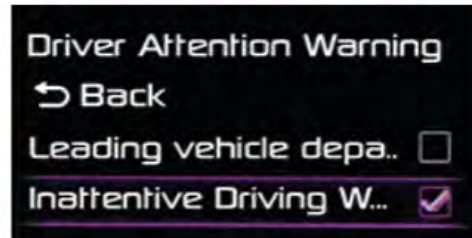
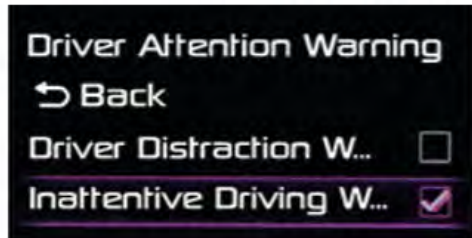
Attention Level can be displayed. Attention Level starts at 5, and decreases on driving pattern. The alert



Select the information icons to learn more.

USM Variations by Model

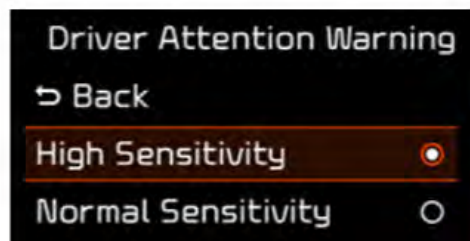
USM options may vary by vehicle model and installed options.



In some models, turn DAW ON/OFF by selecting/deselecting Inattentive Driving Warning.

In some models, turn DAW ON by selecting Normal/High Sensitivity, or turn DAW OFF by selecting Off.

- **Normal Sensitivity:** DAW warns the driver after detecting a pattern of inattentive driving practices
- **High Sensitivity:** DAW warns the driver of their inattentive driving practices sooner than in Normal mode



Settings and select:



after:

minutes with engine ON (engine started and door is open while vehicle stationary)

not a substitute for safe driving and inattentive driving practices: conditions and vehicle operation could result in unsafe driving and use caution.

Select all tabs before continuing.

DAW: Driver Attention Warning

When troubleshooting, keep in mind that ADAS functions frequently rely on input (vehicle speed, etc.) from other non-ADAS components, such as the cluster, LKA switch, AVN head unit, etc.

Refer to Components and Component Locations in the shop manual to identify related components.

Shop Manual:

- [-] Front View Camera System
 - [+] Components and Components Location
 - [+] Description and Operation
 - [+] Front View Camera Unit
 - [+] Lane Keeping Assist (LKA) ON/OFF Switch




Select all tabs before continuing.

LVDA: Leading Vehicle Departure Alert

When the vehicle ahead is at a stop and then begins to move, LVDA sounds an alert and displays a notification on the instrument cluster to let you know you can start driving.

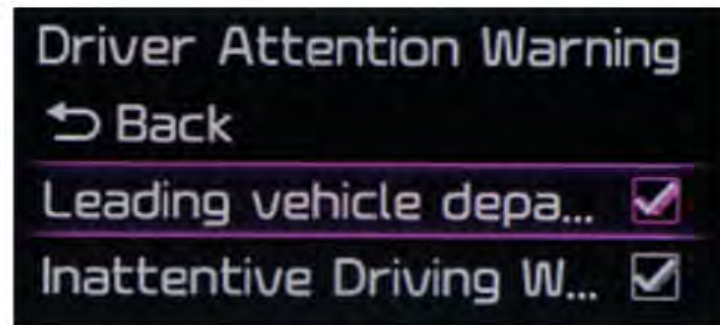



 If any other function's warning message is displayed or audible warning generated, the Leading Vehicle Departure Alert message may not be displayed, and the audible warning may not be generated.

Activation

To turn on LVDA, go to User Settings in the instrument cluster, and select:

Driver Assistance > Driver Attention Warning > Leading Vehicle Departure Alert



 If the vehicle in front departs abruptly, LVDA may not operate properly. Refer to the Owner's Manual for a complete list of driving and environmental conditions that may adversely affect LVDA operation.

Disclaimer: When engaged, LVDA is not a substitute for safe and proper driving but it can be a real asset when driving in traffic. Remember, always drive safely and use caution.

MSLA: Manual Speed Limit Assist



When the driver does not want to exceed a chosen speed, MSLA allows the driver to enter a preset speed limit. When the vehicle speed reaches the set speed:

- The accelerator pedal is controlled to help the driver maintain the set speed

Accelerator Pedal Control



When the preset speed limit is reached, the vehicle will not accelerate when the accelerator pedal is pressed unless the pedal is pressed forcefully.

If the vehicle exceeds the preset speed limit, the set speed blinks on the instrument cluster and an alert sounds until the vehicle speed no longer exceeds the preset limit.



Disclaimer: MSLA is not a substitute for safe and proper driving. Always drive safely and use caution.

Select all tabs before continuing.

MSLA: Manual Speed Limit Assist

To turn MSLA ON:

1



Press and hold the Mode button on the steering wheel until the LIMIT indicator illuminates

2



Push the +/- button up/down to set the speed limit.



To turn MSLA OFF, press and hold the Mode button again.

To pause and resume MSLA, press the Pause/Resume button.



While MSLA is operating, cruise control cannot be activated.



When not in use, keep MSLA off to avoid inadvertently setting the vehicle speed limit.

Select the information icons to learn more.

Select all tabs before continuing.

MSLA: Manual Speed Limit Assist

To turn MSLA ON:

1

2



Diagnostic Scenario

If the driver reports a loss of power, investigate whether MSLA may have been turned on inadvertently, especially if MSLA was set to a low speed.

- For example if the Mode button is held when trying to turn on cruise control



To turn MSLA OFF, press and hold the Mode button again.

To pause and resume MSLA, press the Pause/Resume button:



While MSLA is operating, cruise control cannot be activated.



When not in use, keep MSLA off to avoid inadvertently setting the vehicle speed limit.

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Select all tabs before continuing.

MSLA: Manual Speed Limit Assist

To turn MSLA ON:

1



Press and hold the Mode button on the steering wheel until the LIMIT indicator illuminates

2



Push the +/- button up/down to set the speed limit.

When not in use, keep MSLA off to avoid inadvertently setting the vehicle speed limit.

Select the information icons to learn more.



To turn MSLA OFF, press and hold the Mode button again.

MSLA Paused

When MSLA is paused, the set speed is grayed out.


To pause and resume MSLA, press the Pause/Resume button.

pause
ed.

Select all tabs before continuing.

ISLA: Intelligent Speed Limit Assist

ISLA allows the driver to input a preset speed limit in the same manner as MSLA.

ISLA then uses the front view camera to recognize speed limit signs, and advises the driver to lower the set speed when it exceeds the posted speed. 



When ISLA is on and active, the system will display the detected speed limit on the cluster.

ISLA operates when:

- Turned ON in the USM
- Activated by pressing and holding the Mode button on the steering wheel




Select the information icons to learn more.

If the speed limit set by the driver is above or below the posted speed limit:

- An arrow appears on the cluster to advise the driver to change the set speed



As with MSLA, if the vehicle exceeds the set speed, the set speed blinks on the instrument cluster and an alert sounds until the vehicle speed no longer exceeds the preset limit. 

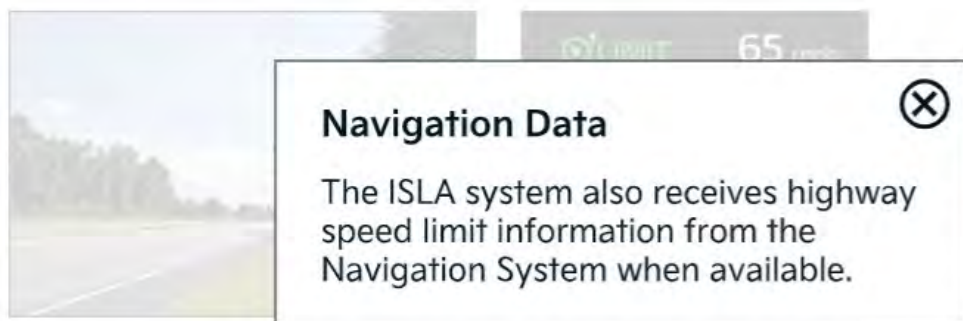
Disclaimer: When engaged, ISLA is not a substitute for safe and proper driving. Always drive safely and use caution.

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- Turned ON in the USM
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When ISLA is on and active, the system will display the detected speed limit on the cluster.

ISLA operates when:

- Turned ON in the USM
- Activated by pressing and holding the Mode button on the steering wheel



If the speed limit set by the driver is above or below the posted speed limit:

- An arrow appears on the cluster to advise the driver to change the set speed



ISLA vs. MSLA

Think of ISLA as MSLA with two added features:

1. Speed limit signs are detected and displayed on the cluster
2. When the set speed differs from the speed limit, an arrow appears advising the driver to change the set speed

ON/OFF, pause/resume, and speed setting functions are the same

Disclaimer: When engaged, ISLA is not a substitute for safe and proper driving. Always drive safely and use caution.

Select the information icons to learn more.

Select all tabs before continuing.

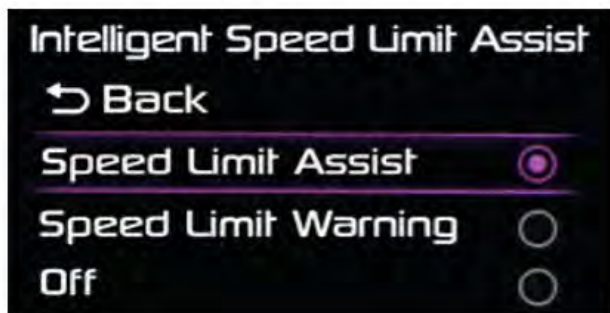
ISLA: Intelligent Speed Limit Assist

To activate ISLA, go to User Settings in the instrument cluster, and select:

Driver Assistance > Intelligent Speed Limit Assist

Select one of the three modes:

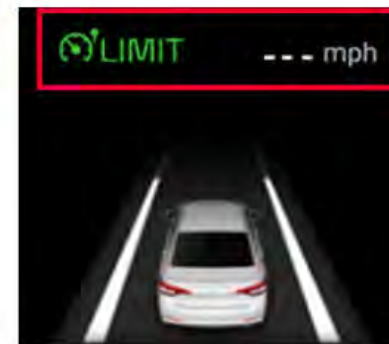
- **Speed Limit Assist:** Informs the driver of the detected speed limit, and alerts the driver to change the set speed. Also warns the driver when the vehicle is traveling faster than the set speed.
- **Speed Limit Warning:** Informs the driver of the detected speed limit. Also warns the driver when the vehicle is traveling faster than the set speed.
- **Off:** ISLA is disabled.



Select the information icon to learn more.

To turn ISLA ON:

- 1 Press and hold the Mode button on the steering wheel until the LIMIT indicator illuminates.
- 2 Push the +/- button up/down to set the speed limit.



To turn ISLA OFF, press and hold the Mode button again.

To pause and resume ISLA, press the Pause/Resume button.

Select all tabs before continuing.

ISLA: Intelligent Speed Limit Assist

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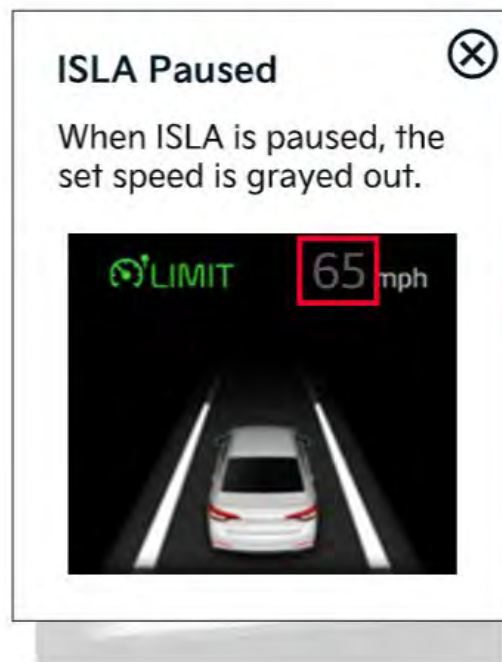
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- **Off:** ISLA is disabled.



Select the information icon to learn more.

To turn ISLA ON:

- 1 Press and hold the Mode button on the steering wheel until the LIMIT indicator illuminates.



Operation Activation



To turn ISLA OFF, press and hold the Mode button again.

To pause and resume ISLA, press the Pause/Resume button.

Select all tabs before continuing.

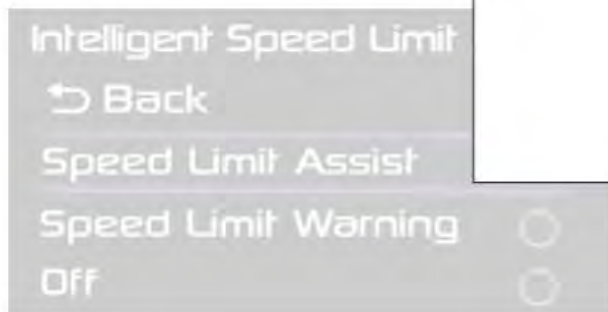
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- **Off:** ISLA is disabled.



To turn ISLA ON:

1 Press and hold the Mode button on the steering wheel until the


Good going!



You completed the section:
Front View Camera Functions



To turn ISLA OFF, press and hold the Mode button again.

To pause and resume ISLA, press the Pause/Resume button. 

Select the information icon to learn more.

Select all tabs before continuing.

Front Radar Functions

Select any topic to learn more.

Front Radar Overview

SCC w/ S&G: Smart Cruise Control with Stop & Go


NSCC: Navigation-based Smart Cruise Control


Front Radar Overview

The front radar is mounted in the vehicle's grille and detects objects in front of the vehicle. Radar uses electromagnetic waves for identifying the direction of an object ahead, and the object's distance and speed.



Front radar supports the following functions which are covered in this section:

- SCC w/S&G: Smart Cruise Control with Stop & Go 
- NSCC: Navigation-based Smart Cruise Control

 Radar is best for detecting metallic objects or other large objects that can reflect electromagnetic waves.

Most Kia models have the front radar module installed behind the center grille.

- Installation location can vary by model



Radar Module 

Sensor Fusion

The front radar is also used in combination with the front view camera to perform some ADAS functions such as Forward Collision-Avoidance Assist (FCA).

Functions that use both the front radar and front view camera are referred to as Sensor Fusion functions, and they are covered in a later section of this course.

Select the information icons to learn more.

Front Radar Overview

The front radar is mounted in the vehicle's grille and detects objects in front of the vehicle. Radar uses electromagnetic waves for identifying the direction of an object ahead, and the object's distance and speed.



SCC and Sensor Fusion



In some Kia models, SCC uses the front view camera and radar together to identify vehicles ahead.

In those models, SCC w/S&G would be classified as a Sensor Fusion function.

Front radar supports the following functions which are covered in this section:

- SCC w/S&G: Smart Cruise Control with Stop & Go 
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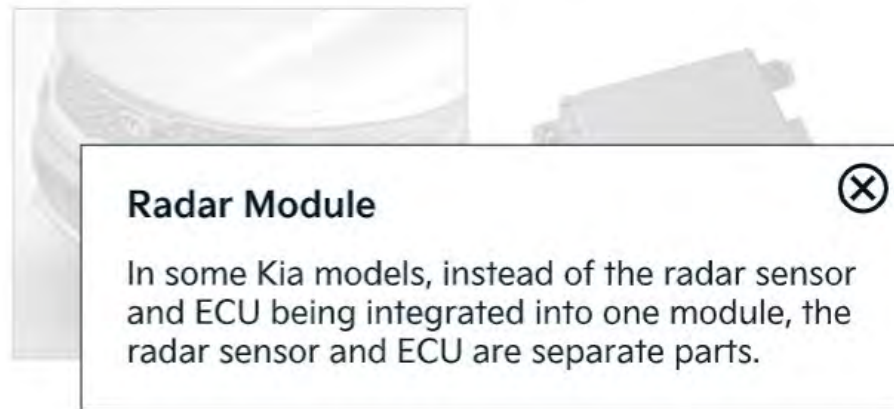
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Sensor Fusion

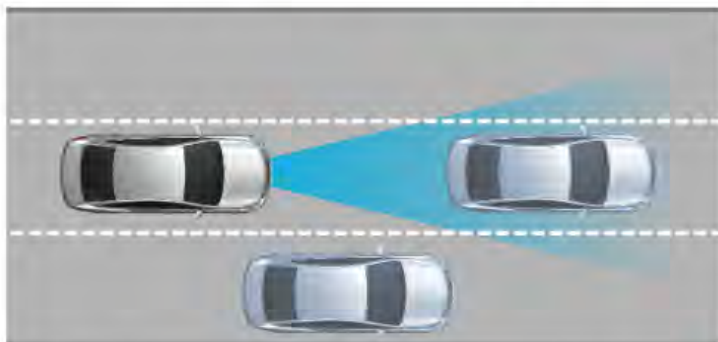
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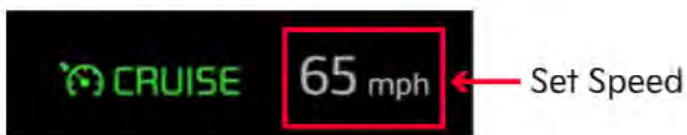
Select the information icons to learn more.

SCC w/ S&G: Smart Cruise Control with Stop & Go

After the driver engages SCC and selects a cruising speed (the "set speed"), SCC automatically accelerates and decelerates as necessary to maintain the set speed. 



SCC w/ S&G uses the radar installed in the front of the vehicle to measure distance to other vehicles and closing speed, and automatically adjusts vehicle speed to maintain a safe distance. 



Select the information icons to learn more.





Stop & Go

In traffic, the driver's vehicle will stop if the vehicle ahead stops. If the vehicle ahead starts moving within 2 or 3 seconds of stopping, the driver's vehicle will also start moving.

If the vehicle ahead does not start moving right away, a message appears on the cluster.

- Press the accelerator pedal or press the Resume switch on the steering wheel when it is safe to move ahead



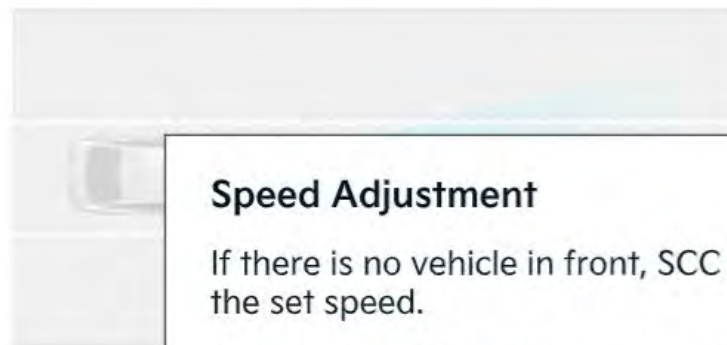
-  **Operating Conditions**
-  **Acceleration Based on Drive Mode**
-  **Following Distance**
-  **Overtaking Acceleration Assist**

Disclaimer: When engaged, SCC is not a substitute for safe driving practices. Always drive safely and use caution. The SSC system may not detect every object in the vehicle's direction of travel.

Select all tabs before continuing.

SCC w/ S&G: Smart Cruise Control with Stop & Go

After the driver engages SCC and selects a cruising speed (the "set speed"), SCC automatically accelerates and decelerates as necessary to maintain the set speed.

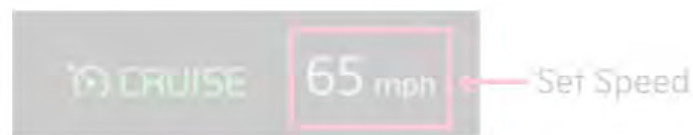


Speed Adjustment

If there is no vehicle in front, SCC maintains the set speed.

If there is a vehicle in front, speed may decrease to maintain a specified distance from the vehicle in front. If the vehicle ahead accelerates or leaves the lane, the driver's vehicle will accelerate to the set speed.

SCC w/ S&G front of the to other v automatic maintain



Stop & Go

In traffic, the driver's vehicle will stop if the vehicle ahead stops. If the vehicle ahead starts moving within 2 or 3 seconds of stopping, the driver's vehicle will also start moving.

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- Press the accelerator pedal or press the Resume switch on the steering wheel when it is safe to move ahead



- Operating Conditions
- Acceleration Based on Drive Mode
- Following Distance
- Overtaking Acceleration Assist

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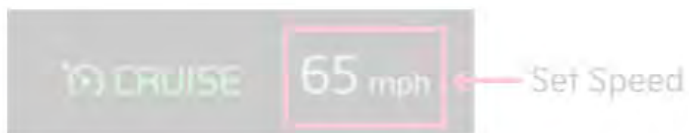
Select all tabs before continuing.

SCC w/ S&G: Smart Cruise Control with Stop & Go

After the driver engages SCC and selects a cruising speed (the "set speed"), SCC automatically accelerates and decelerates as necessary to maintain the set speed.



SCC w/ S&G uses the radar installed in the front of the vehicle to measure distance to other vehicles and closing speed, and automatically adjusts vehicle speed to maintain a safe distance.



Select the information icons to learn more.

Stop & Go

In traffic, the driver's vehicle will stop if the vehicle ahead stops. If the vehicle ahead starts moving within 2 or 3 seconds of stopping, the driver's vehicle will also start moving.

If the vehicle ahead does not start

Use switch or pedal

SCC Using Front Radar and Front View Camera

In some Kia models, SCC uses the front view camera and radar together to identify vehicles ahead.

In these models, SCC w/S&G would be classified as a Sensor Fusion function.

- Acceleration based on drive mode
- Following Distance
- Overtaking Acceleration Assist

Disclaimer: When engaged, SCC is not a substitute for safe driving practices. Always drive safely and use caution. The SCC system may not detect every object in the vehicle's direction of travel.

Select all tabs before continuing.

SCC w/ S&G: Smart Cruise Control with Stop & Go

After the driver engages SCC and selects a cruise control speed, the vehicle automatically maintains that speed as needed.

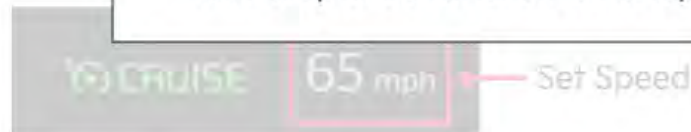
Operating Conditions



- Shifter is in D
- Driver's door is closed
- Parking brake is released
- Vehicle is within operating speed range
 - 5 to 110 mph when no vehicle ahead
 - 0 to 110 mph when a vehicle is ahead
- ESC, TCS, or ABS (Electronic Stability Control, Traction Control System, Anti-Lock Braking System) are ON but not controlling the vehicle
- Engine rpm is not over redline
- Forward Collision-Avoidance Assist (FCA) brake control is not operating
- Idle Stop & Go function is not operating



SCC w/ front of to other autom mainta



Stop & Go

In traffic, the driver's vehicle will stop if the vehicle ahead stops. If the vehicle ahead starts moving within 2 or 3 seconds of stopping, the driver's vehicle will also start moving.

If the vehicle ahead does not start moving right away, a message appears on the cluster.

- Press the accelerator pedal or press the Resume switch on the steering wheel when it is safe to move ahead



- Operating Conditions
- Acceleration Based on Drive Mode
- Following Distance
- Overtaking Acceleration Assist

Disclaimer: When engaged, SCC is not a substitute for safe driving practices. Always drive safely and use caution. The SCC system may not detect every object in the vehicle's direction of travel.

Select the information icons to learn more.

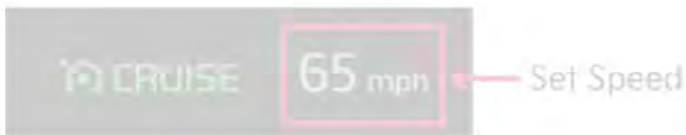
Select all tabs before continuing.

SCC w/ S&G: Smart Cruise Control with Stop & Go

After the driver engages SCC and selects a cruising speed (the "set speed"), SCC automatically accelerates and decelerates as necessary to maintain the set speed.



SCC w/ S&G uses the radar installed in the front of the vehicle to measure distance to other vehicles and closing speed, and automatically adjusts vehicle speed to maintain a safe distance.



Select the information icons to learn more.

Stop & Go

Drive Mode

When accelerating to the set speed, the SCC acceleration rate is based on the current drive mode:

Drive Mode	SCC Acceleration
Smart	Normal
Sport	Fast
Eco	Slow
Comfort	Normal

For vehicles without drive modes, acceleration is set to normal.

Overtaking Acceleration Assist

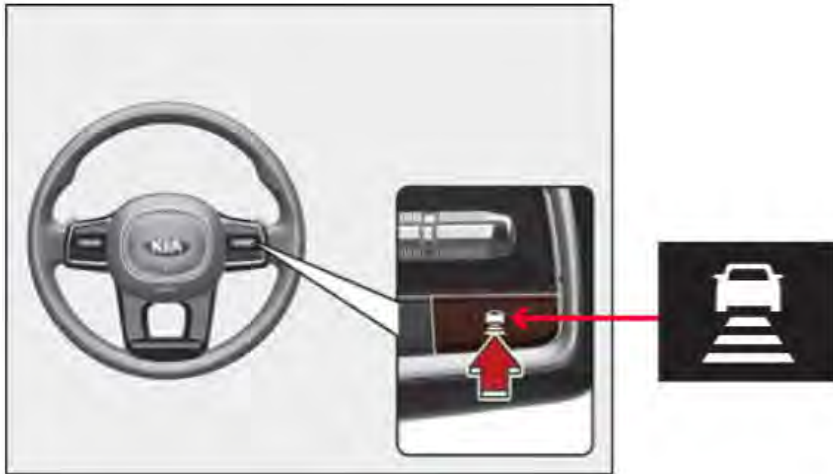
Disclaimer: When engaged, SCC is not a substitute for safe driving practices. Always drive safely and use caution. The SCC system may not detect every object in the vehicle's direction of travel.

Select all tabs before continuing.

Following Distance

For safety, SCC slows the vehicle as necessary to maintain a driver-selected distance from the vehicle ahead.

To select one of four preset distances, press the Vehicle Distance button to cycle through the available choices.



When SCC is operating and a vehicle is detected ahead, the set following distance is displayed.



In some models, the set following distance is displayed differently.

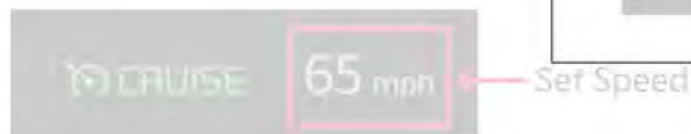


SCC w/ S&G: Smart Cruise Control with Stop & Go

After the driver engages SCC and selects a cruising speed (the "set speed"), the system automatically accelerates and decelerates as necessary to maintain the set speed.



SCC w/ S&G uses the radar installed in the front of the vehicle to measure distance to other vehicles and closing speed. The system automatically adjusts vehicle speed to maintain a safe distance.



Overtaking Acceleration Assist



While SCC is operating, if the system judges that the driver is determined to overtake the vehicle in front, acceleration will be assisted.

Overtaking Acceleration Assist operates when the left turn signal is on and the following conditions are met:

- Vehicle speed is above 40 mph
- Hazard warning flasher is OFF
- A vehicle is detected ahead
- Deceleration is not needed to maintain the set distance from the vehicle in front

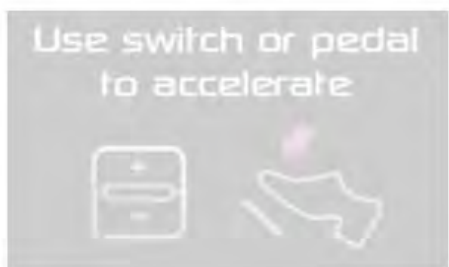


Caution: When the left turn signal is turned on while there is a vehicle ahead, the vehicle may accelerate temporarily.

will stop if the vehicle ahead starts to stop, the system will start to move again.

to start to move again.

or press the steering wheel to move ahead.



Drive Mode

Assist

Disclaimer: When engaged, SCC is not a substitute for safe driving practices. Always drive safely and use caution. The SCC system may not detect every object in the vehicle's direction of travel.

Select the information icons to learn more.

Select all tabs before continuing.

SCC w/ S&G: Smart Cruise Control with Stop & Go

To turn SCC ON and OFF, press the Mode button on the steering wheel.



- When turned ON, the set speed will be set to the current vehicle speed
- If the current vehicle speed is less than 20 mph, the set speed will be set to 20 mph

Set Speed

To change the set speed, push the +/- switch up or down to increase or decrease the current set speed.

- When the +/- button is pushed up/down momentarily, the set speed increases/decreases by 1 mph
- When the +/- button is pushed up/down and held, the set speed increases/decreases by 5 mph



Temporary Deactivation

To temporarily deactivate SCC:

- Press the brake pedal
- Press the Pause/Resume switch

To resume SCC after deactivating temporarily:

- Press the Pause/Resume switch

SCC Operating



SCC in Standby:



Select the information icons to learn more.

Select all tabs before continuing.

SCC w/ S&G: Smart Cruise Control with Stop & Go

To turn SCC ON and OFF, press the Mode button on the steering wheel.

- When turned ON, the set speed will be set to the current vehicle speed
- If the current vehicle speed is less than 20 mph, the set speed will be set to 20 mph

Do Not Hold Mode Button



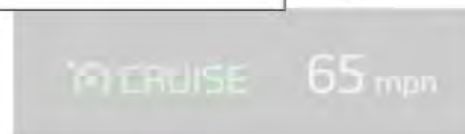
Be careful not to press and hold the Mode button when turning SCC off.

Pressing and holding the Mode button turns off SCC, but activates the Manual Speed Limit Assist (MSLA) or Intelligent Speed Limit Assist (ISLA) function (depending on USM settings).

Set Speed

To change the set speed, push the +/- switch up or down to increase or decrease the current set speed.

- When the +/- button is pushed up/down momentarily, the set speed increases/decreases by 1 mph
- When the +/- button is pushed up/down and held, the set speed increases/decreases by 5 mph



Select the information icons to learn more.

Select all tabs before continuing.

SCC w/ S&G: Smart Cruise Control with Stop & Go

To turn SCC ON and OFF, press the Mode button on the steering wheel.



- When turned ON, the set speed will be set to the current vehicle speed
- If the current vehicle speed is less than 20 mph, the set speed will be set to 20 mph

Set Speed

To change the set speed, push up or down the current speed switch.

- When the set speed is increased, the vehicle speed will increase.
- When the set speed is decreased, the vehicle speed will decrease.

When Increasing Set Speed



Use caution when pushing the + switch up and holding it. The vehicle speed may increase sharply.

Temporary Deactivation

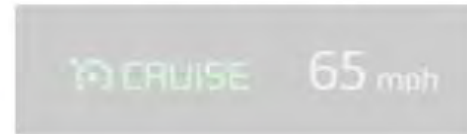
To temporarily deactivate SCC:

- Press the brake pedal
- Press the Pause/Resume switch

To resume SCC after deactivating temporarily:

- Press the Pause/Resume switch

SCC Operating



SCC in Standby:



Select the information icons to learn more.

Select all tabs before continuing.

SCC w/ S&G: Smart Cruise Control with Stop & Go

To turn SCC ON and OFF, press the Mode button on the steering wheel.



- When turned ON, the set speed will be set to the current vehicle speed
- If the current vehicle speed is less than 20 mph, the set speed will be set to 20 mph

Set Speed

To change the set speed, push the +/- switch up or down to increase or decrease the current set speed.

- When the +/- button is pushed up/down momentarily, the set speed increases/decreases by 1 mph
- When the +/- button is pushed up/down and held, the set speed increases/decreases by 5 mph



Temporary Deactivation

To temporarily deactivate SCC:

- Press the brake pedal
- Press the Pause/Resume switch

To resume SCC after deactivating temporarily:

- Press the Pause/Resume switch

SCC Operating



Resume SCC Operation



When the Resume switch is pressed to resume SCC, operation resumes at the previous set speed.

To resume SCC operation at the current vehicle speed, push the +/- switch up/down momentarily instead.

Select the information icons to learn more.

Select all tabs before continuing.

NSCC: Navigation-based Smart Cruise Control

NSCC has two main functions:

1. Automatically changes SCC set speed based on information from the Navigation System.
2. When necessary for safety, temporarily decelerates the vehicle on a curve based on curve information from the Navigation System.



NSCC uses highway speed limit information from the Navigation System only. It does not use information from speed limit signs detected by the front view camera.

NSCC operates when:

- NSCC is ON in USM
- SCC is operating
- Navigation is operating and a route to a destination is set
- Vehicle is on a controlled access highway

NSCC operates only on main roads of controlled access highways, and not on interchanges or junctions.

Activation

To turn on NSCC, go to User Settings in the instrument cluster, and select:

- Driver Assistance >
- Driving Assist > Highway
- Auto Speed Change



Disclaimer: When engaged, NSCC is not a substitute for safe driving practices. The Navigation's speed limit information may differ from the actual speed limit information on the road. It is the driver's responsibility to check the speed limit and avoid violating traffic laws.

Select the information icons to learn more.

NSCC: Navigation

NSCC has two main functions:

1. Automatically changes SCC set speed on information from the Navigation System.
2. When necessary for safety, temporarily decelerates the vehicle on a curve based on curve information from the Navigation System.



NSCC uses highway speed information from the Navigation System. NSCC does not use information from the Navigation System detected by the front view camera.

Highway Auto Speed Change



When the Highway Auto Speed Change function is active, the SCC set speed automatically changes when the highway speed limit obtained from the Navigation System changes. The vehicle then automatically accelerates or decelerates as appropriate.



The function will operate only when the SCC set speed is set to the highway speed limit obtained from the NAV system.



If the SCC set speed is set differently from the highway speed limit, the Auto Change function will be in standby (white AUTO indicator).

When the function has changed to standby due to leaving a controlled access highway, the function will begin operating again when the driver returns to the highway without changing the set speed.

When the function has changed to standby due to pressing the brake pedal, press the resume button to restart the function.

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is a substitute for safe driving information may differ from the actual. It is the driver's responsibility to avoid violating traffic laws.

Select the information icons to learn more.

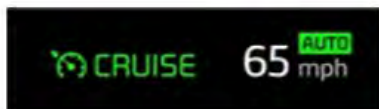
NSCC: Navigation-based Smart Cruise Control

NSCC has the following features:

1. Auto on
2. When deceleration on a curve

Highway Curve Zone Auto Slow-down

If deceleration on a curve is required while NSCC is in standby, the AUTO indicator changes from white to green.



After decelerating and passing the curve, the vehicle accelerates to the SCC set speed.



If NSCC is not able to slow the vehicle down to a safe speed on a curve, a "Drive Carefully" message appears on the cluster.



NSCC operates when:

- NSCC is ON in USM
- SCC is operating
- Navigation is operating and a route to a destination is set
- Vehicle is on a controlled access highway

NSCC operates only on main roads of controlled access highways, and not on interchanges or junctions.

Activation

To turn on NSCC, go to User Settings in the Instrument cluster, and select:

Driver Assistance > Driving Assist > Highway Auto Speed Change



NSCC uses highway speed limit information from the Navigation System only. It does not use information from speed limit signs detected by the front view camera.

Disclaimer: When engaged, NSCC is not a substitute for safe driving practices. The Navigation's speed limit information may differ from the actual speed limit information on the road. It is the driver's responsibility to check the speed limit and avoid violating traffic laws.

Select the information icons to learn more.

NSCC: Navigation-based Smart Cruise

NSCC has two main functions:

1. Automatically changes SCC set speed based on information from the Navigation System.
2. When necessary for safety, temporarily decelerates the vehicle on a curve based on curve information from the Navigation System.



NSCC uses highway speed limit information from the Navigation System only. It does not use information from speed limit signs detected by the front view camera.

Controlled Access Highway



A controlled access highway (also called a freeway or expressway) is a divided highway with limited entrances and exits designed for high-speed traffic flow.

NSCC operates only on main roads of controlled access highways, and not on interchanges or junctions.

- NSCC is activated when the destination is set
- SCC is engaged
- Navigation system is set to highway mode
- Vehicle is on a controlled access highway

NSCC operates only on main roads of controlled access highways, and not on interchanges or junctions.

Activation

To turn on NSCC, go to User Settings in the instrument cluster, and select:

- Driver Assistance >
- Driving Assist > Highway Auto Speed Change



Disclaimer: When engaged, NSCC is not a substitute for safe driving practices. The Navigation's speed limit information may differ from the actual speed limit information on the road. It is the driver's responsibility to check the speed limit and avoid violating traffic laws.

Select the information icons to learn more.

NSCC: Navigation-based Smart Cruise Control

NSCC has two main functions:

1. Automatically changes SCC set speed based on information from the Navigation System.
2. When necessary for safety, temporarily decelerates the vehicle on a curve based on curve information from the Navigation System.



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NSCC operates when:

- NSCC is ON in USM
- SCC is operating
- Navigation is operating and a route to a destination is set
- Vehicle is on a controlled access highway

NSCC operates only on main roads of controlled access highways, and not on interchanges or junctions.

Activation

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NSCC AUTO Indicator

When NSCC is ON, the AUTO indicator initially illuminates in white indicating standby mode.

CRUISE 65 ^{AUTO} mph

When NSCC is operating, the AUTO indicator changes from white to green.

CRUISE 65 ^{AUTO} mph

Select the information icons to learn more.

NSCC: Navigation-based Smart Cruise Control

NSCC has two main functions:


1. Automatically changes SCC set speed based on information from the Navigation System.
2. When necessary for safety, temporarily decelerates the vehicle on a curve based on curve information from the Navigation System.

NSCC operates when:

- NSCC is ON in USM
- SCC is operating



Good going!



**You completed the section:
Front Radar Functions**

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Driving Assist

↶ Back

Highway Driving Assist

Highway Auto Speed...

 NSCC uses highway speed limit information from the Navigation System only. It does not use information from speed limit signs detected by the front view camera.

Driving Assist > Highway Auto Speed Change

Disclaimer: When engaged, NSCC is not a substitute for safe driving practices. The Navigation's speed limit information may differ from the actual speed limit information on the road. It is the driver's responsibility to check the speed limit and avoid violating traffic laws.

Select the information icons to learn more.

Rear Corner Radar Functions

Select any topic to learn more.

Rear Corner Radar Overview

RCCA: Rear Cross-Traffic Collision-Avoidance Assist

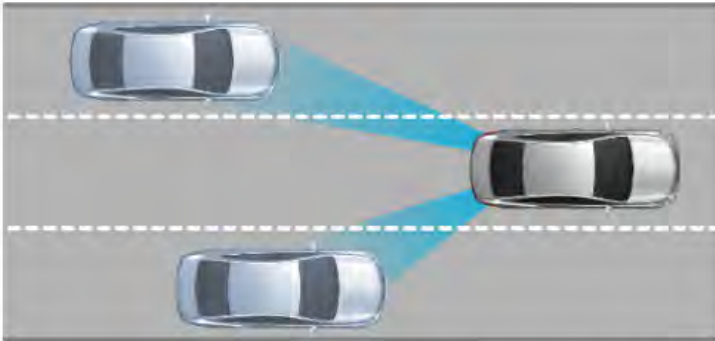
SEA: Safe Exit Assist

BCA: Blind-Spot Collision-Avoidance Assist

Rear Corner Radar Overview

Rear corner radar consists of two radar sensors mounted inside the rear bumper at each corner.

The radar sensors detect objects behind the vehicle up to approximately 100 to 200 feet away. (Detection distance varies by model.)



Rear corner radar supports the following functions which are covered in this section:

- RCCA: Rear Cross-Traffic Collision-Avoidance Assist
- SEA: Safe Exit Assist
- BCA: Blind-Spot Collision-Avoidance Assist



The radar units communicate with each other over a dedicated Local CAN.

- The main unit is the parent and the sub-unit is the child
- The parent unit communicates with other vehicle control modules over C-CAN

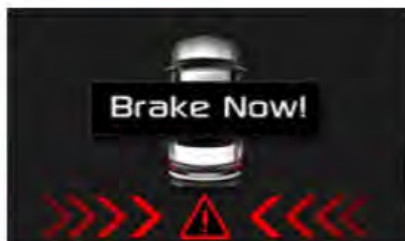
RCCA: Rear Cross-Traffic Collision-Avoidance Assist




When backing up, RCCA helps warn the driver of a vehicle approaching from the left or right rear, and under certain conditions, applies the brakes.


To warn the driver of rear cross-traffic:

- The warning indicator on the side view mirror blinks
- A warning message appears on the cluster, and an audible warning sounds
- Some models may also vibrate the steering wheel



If RCCA judges the possibility of an imminent collision, it applies the brakes. 

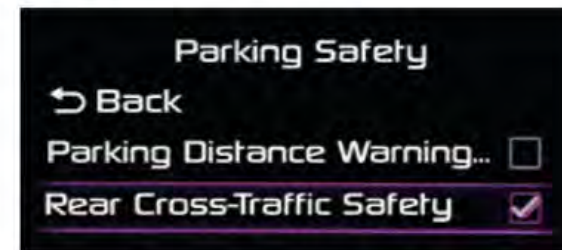
RCCA operates when: 

- RCCA is ON
- Shifter is in R
- Driver's speed is between 0 and 5 mph
- Approaching vehicle speed is above 3 mph
- Approaching vehicle is within 33 feet 

Activation

To turn on RCCA, go to User Settings in the instrument cluster, and select:

Driver Assistance > Parking Safety > Rear Cross-Traffic Safety



Disclaimer: When engaged, RCCA/RCCW are not substitutes for proper and safe backing-up procedures. Always drive safely and use caution when backing up.

Select the information icons to learn more.

RCCA: Rear Cross-Traffic Collision-Avoidance Assist



When backing up, RCCA helps warn the driver of a vehicle approaching from the left or right rear, and under certain conditions, applies the brakes.

To warn the driver of rear cross-traffic:

- The warning indicator on the side view mirror blinks



- A warning message on the cluster, and an audible warning sound
- Some models may vibrate the steering wheel

If RCCA judges the probability of an imminent collision, it applies the brakes.

RCCA operates when:

- RCCA is ON
- Shifter is in R
- Driver's speed is between 0 and 5 mph
- Approaching vehicle speed is above 3 mph
- Approaching vehicle is within 33 feet

Activation

To turn on RCCA, go to User Settings in the instrument cluster, and select:

Driver Assistance > Parking Safety

Emergency Braking

Brake control ends when:

- The driver applies the brakes with sufficient force
- The approaching vehicle:
 - Is out of detecting range
 - Passes behind the driver's vehicle
 - Slows down
 - Is not on a collision path



When the vehicle is stopped due to emergency braking:

- The Drive Carefully message appears on the cluster
- Brake control ends 2 seconds after stopping

to learn more.



Diagnostic Tip

Understanding operating conditions is important in ADAS diagnosis. Refer to the **Owner's Manual** and to the Description and Operation in the **Shop Manual** for information.

Shop Manual:

<ul style="list-style-type: none"> [-] Rear Corner Radar System <ul style="list-style-type: none"> [+] Components and Components Location [+] Description and Operation [+] Troubleshooting [+] Rear Corner Radar Unit [+] BCW & RCCA Indicator [+] Cruise Control System (CC) [+] Rear View Monitor (RVM) [+] Surround View Monitor (SVM) [+] Parking Distance Warning (PDW) 	<h4>Rear Cross-Traffic Collision-Avoidance Assist (RCCA)</h4> <ol style="list-style-type: none"> 1. RCCA activation condition <ol style="list-style-type: none"> (1) USM : Check [Driver Assistance > Parking Safety > Rear Cross-Traffic Safety] (2) Shift lever position : R range (3) Vehicle speed : -10 to 0 km/h (-7 to 0 mile/h) (4) Relative vehicle speed : More than 5 km/h (More than 3 mile/h) (5) Operating distance : 0.5 - 10 m (1.6 - 32.8 ft)
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

RCCA:



To warn the driver of cross-traffic:

- The warning appears on the side view mirror

- A warning message appears on the cluster, and an audible warning sounds
- Some models may also vibrate the steering wheel



Driver Assistance > Parking Safety > Rear Cross-Traffic Safety



If RCCA judges the possibility of an imminent collision, it applies the brakes.

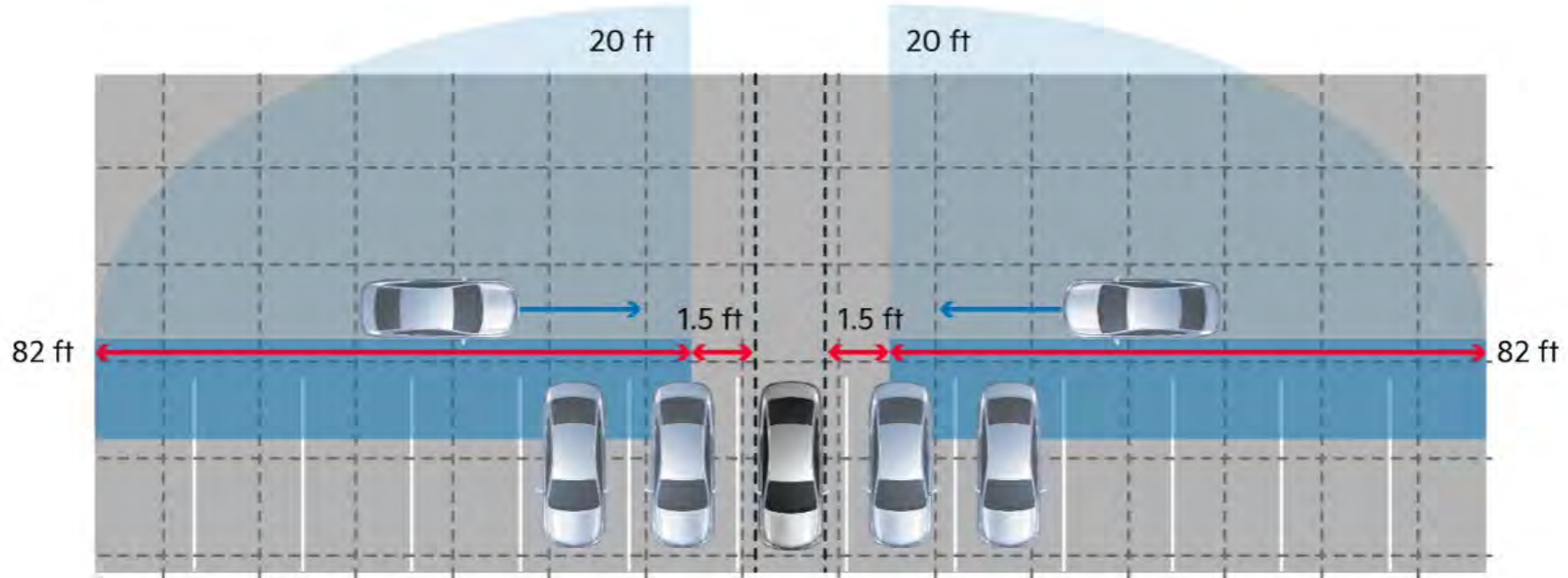


Disclaimer: When engaged, RCCA/RCCW are not substitutes for proper and safe backing-up procedures. Always drive safely and use caution when backing up.

Select the information icons to learn more.

CLOSE

Detection Range



- Warning sounds when the approaching vehicle is within approximately 82 feet
- Brakes are applied when the approaching vehicle is within approximately 33 feet

Detection distance can vary by model.

SEA: Safe Exit Assist

If a door is opened when the vehicle is stopped and another vehicle is detected approaching from behind, SEA sounds an audible warning and displays a message on the cluster.



Operating Conditions

- SEA is ON
- Shifter in Park
- Rear corner radar detects vehicle approaching from left or right rear
- Approaching vehicle speed above 3 mph
- A door is opened

SEA continues to operate for 10 minutes after the engine is turned OFF.

Activation

To turn on SEA, go to User Settings in the instrument cluster, and select:

Driver Assistance > Blind-Spot Safety > Safe Exit Assist

Disclaimer: When engaged, SEA is not a substitute for one's attention and may not detect all objects surrounding the vehicle. Always pay attention to traffic and to the area around your vehicle when exiting the vehicle.

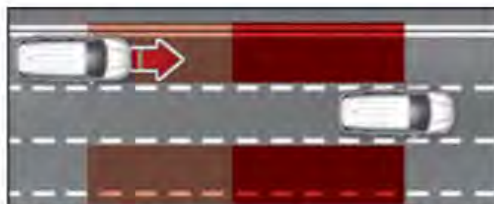
BCA: Blind-Spot Collision-Avoidance Assist

BCA helps detect and warn the driver of:

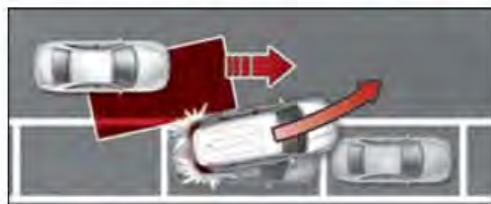
Vehicle in the driver's blind spot



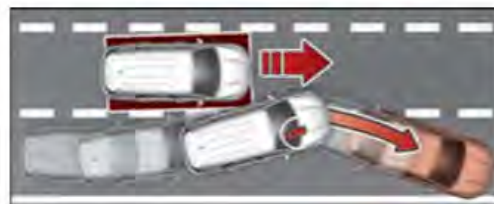
Vehicle approaching at high speed from the blind spot



Vehicle approaching from the blind spot area when exiting a parking space *



Vehicle approaching from the blind spot area when changing lanes *



* If BCA judges there is a collision risk, it will help avoid the collision by applying the brakes.

Operation on a Curved Road

Minimum Vehicle Speed for Operation

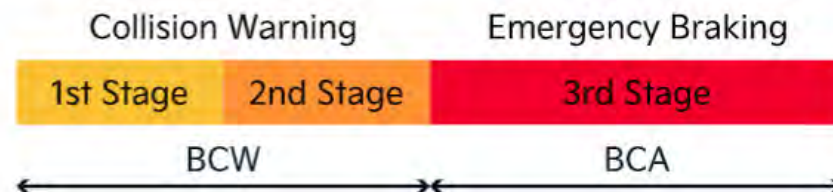
Select the information icons to learn more.

Front View Camera Function

BCA uses the front view camera to determine the vehicle's position in the lane. BCA will not operate if the vehicle is not driven in the center of the lane.



BCA Operation Sequence



Disclaimer: When engaged, BCA/BCW are not substitutes for safe driving practices. Always drive safely and use caution when changing lanes. BCA/BCW may not detect every object alongside or approaching from behind the vehicle.

Select all tabs before continuing.

BCA: Blind-Spot Collision-Avoidance Assist

BCA helps detect and warn the driver of:

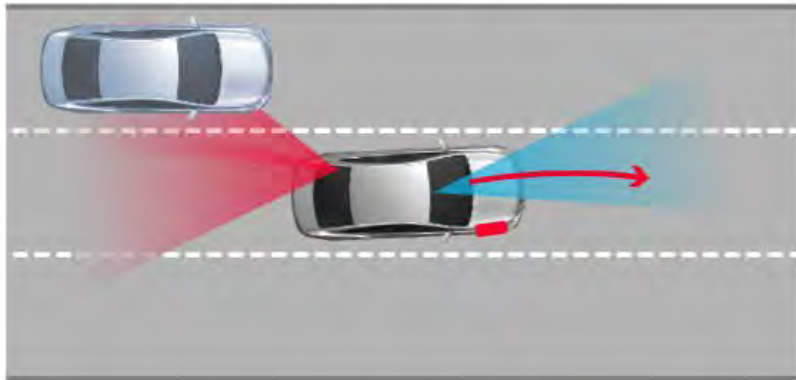
Vehicle in the driver's blind spot

Vehicle approaching at high speed from the blind spot

Differential Braking



At speeds above 40 mph*, BCA applies the front brake on the opposite side.



* Emergency braking is not applied at speeds below 40 mph except when exiting a parking space.



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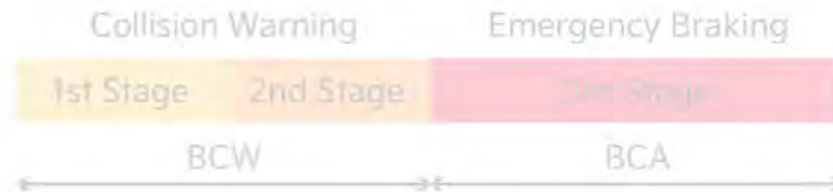


Front View Camera Function

BCA uses the front view camera to determine the vehicle's position in the lane. BCA will not operate if the vehicle is not driven in the center of the lane.



BCA Operation Sequence



Operation on a Curved Road

Minimum Vehicle Speed for Operation

Select the information icons to learn more.

Disclaimer: When engaged, BCA/BCW are not substitutes for safe driving practices. Always drive safely and use caution when changing lanes. BCA/BCW may not detect every object alongside or approaching from behind the vehicle.

Select all tabs before continuing.

BCA: Blind-Spot Collision-Avoidance Assist

BCA helps detect and warn the driver of:

Front View Camera Function

Vehicle in the driver's blind spot



Vehicle approaching from the blind spot area when exiting a parking space *



* If BCA judges there is help avoid the collision

Operation on a Curved Road

Minimum Vehicle Speed for O

Select the information icons to learn more.

Operation on a Curved Road

BCA may not operate properly when driving on a curved road.

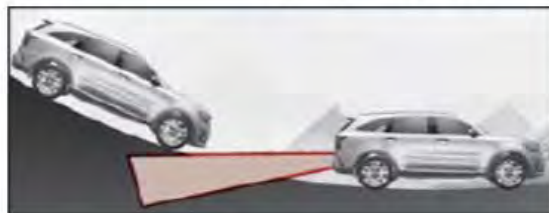
The vehicle in the next lane may not be detected.



BCA may detect the vehicle behind.



Improper operation may also occur on hills.



To determine the... will not operate if... ter of the lane.



Emergency Braking

3rd Stage

BCA

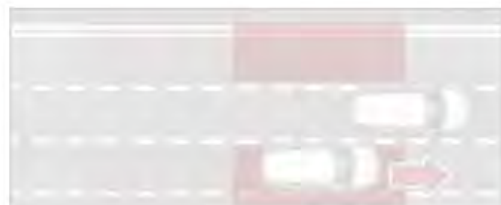
stitutes for safe driving... en changing lanes. BCA/BCW... hing from behind the vehicle.

Select all tabs before continuing.

BCA: Blind-Spot Collision-Avoidance Assist

BCA helps detect and warn the driver of:

Vehicle in the driver's blind spot



Vehicle approaching a speed from the blind spot



Vehicle approaching from the blind spot area when exiting a parking space *



Vehicle approaching the blind spot area when changing lanes



* If BCA judges there is a collision risk, it will help avoid the collision by applying the brakes.

Operation on a Curved Road

Minimum Vehicle Speed for Operation

Select the information icons to learn more

Minimum Vehicle Speed for Operation

The BCA warning function (BCW) operates when the driver's speed is above 12 mph, and the target vehicle speed is above 7 mph.

- BCA will not issue a warning if the driver's speed is 6 mph or more above the speed of surrounding vehicles



The BCA emergency braking function operates when driver's speed is above 40 mph, and both lane lines are detected.

When exiting a parking space, BCA operates when the driver's speed is below 2 mph, and the approaching vehicle speed is above 3 mph.



Select all tabs before continuing.

BCA Operation Sequence

BCW

1st-stage Alert: When another vehicle is detected in the blind spot area:

- An indicator illuminates on the outside rearview mirror



- Alternate indicator symbol for some models

2nd-stage Alert: When 1st stage alert is ON and the driver activates a turn signal:

- The indicators on the outside rearview mirrors flash
- The system sounds an alert
- A warning indicator appears on the cluster
- Some models may also vibrate the steering wheel.

If the turn signal is turned off, BCA returns to 1st stage.

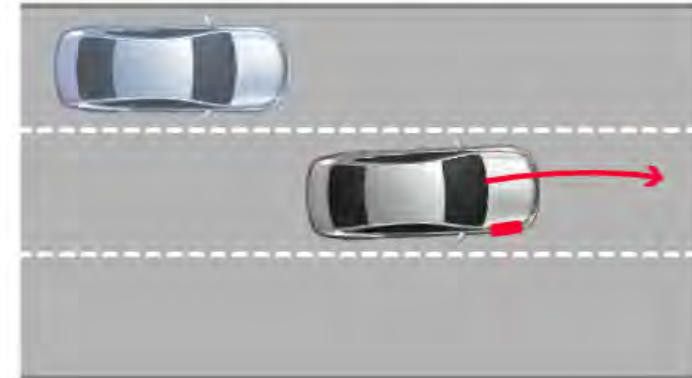
BCA

3rd-stage Alert: If the system judges a collision risk after the 2nd stage alert:

- Braking is applied to the opposite side front wheel



- A warning message is displayed on the cluster



BCA: Blind-Spot Collision-Avoidance Assist

To turn BCA OFF/ON, go to User Settings in the instrument cluster, and select:

Driver Assistance > Blind-Spot Safety

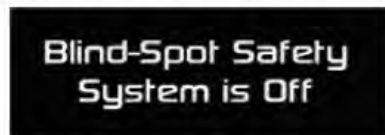


Active Assist: Warns the driver and applies braking depending on conditions (BCA)

Warning Only: Warns the driver but does not apply brakes (BCW)

Off: Turns BCA OFF

BCA will maintain the last setting when the ignition is cycled.



- If the engine is restarted with the function OFF, a message appears on the cluster

The indicator on the side view mirror will blink for approximately 3 seconds when:

- The setting is changed from OFF to Active Assist or Warning Only
- The engine is turned on when the function is set to Active Assist or Warning Only



BCA operation is canceled if:

- Steering is turned sharply or the brake pedal is pressed
- There is no longer a collision risk
- Driver's vehicle has driven a certain distance into the next lane
- Forward Collision-Avoidance Assist begins operating

Turning BCA OFF is recommended when towing a trailer.

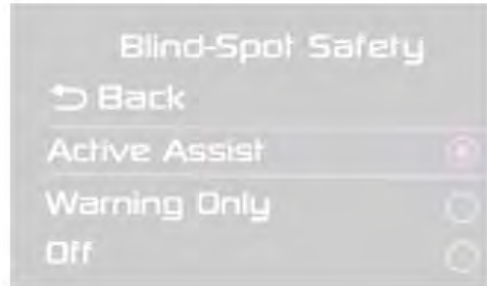
Select the information icon to learn more.

Select all tabs before continuing.

BCA: Blind-Spot Collision-Avoidance Assist

To turn BCA OFF/ON, go to User Settings in the instrument cluster, and select:

Driver Assistance > Blind-Spot Safety



Active Assist: Warns the driver and applies braking depending on conditions (BCA/BSM).

Warning Only: Warns the driver but does not apply brakes (BCW).

Off: Turns BCA OFF.

BCA will maintain the last setting when the ignition is cycled.



- If the engine is restarted with the function OFF, a message appears on the cluster.

Select the information icon to learn more.

The indicator on the side view mirror will blink for approximately 3 seconds when:

switched from OFF to Active

when the function is set to Warning Only

if the vehicle is in the blind spot or the brake is applied

there is a collision risk

when a certain level of lane deviation is detected

when the vehicle is in the blind spot

is recommended to use the function.



BCA Button

On some Kia models, BCA is activated using the USM, and then turned ON and OFF using the BCA button.

On some Kia models, BCA is activated using the button only, and the USM is not used at all.

Select all tabs before continuing.

BCA: Blind-Spot Collision-Avoidance Assist

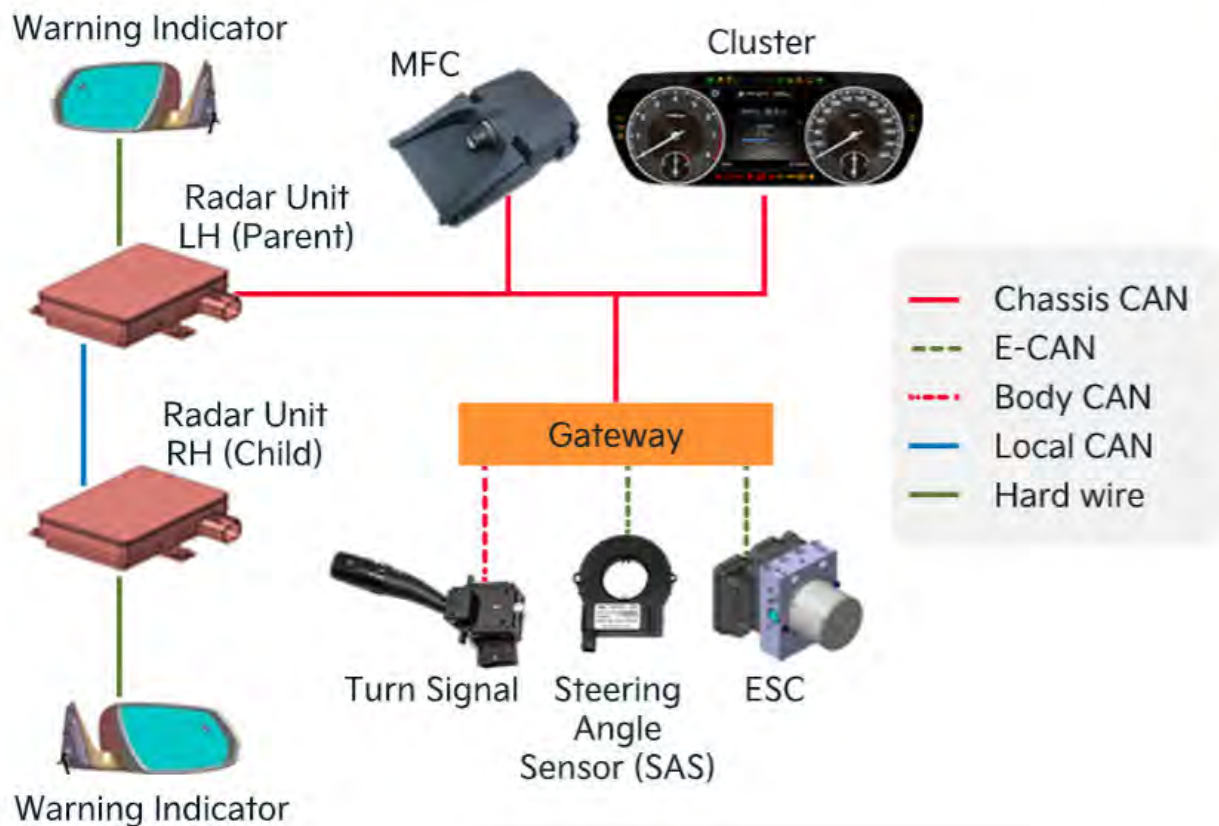


Diagram is not representative of all Kia Models. Consult the service information for the vehicle you are servicing.

ESC: Electronic Stability Control
MFC: Multi-Function Camera (Front View Camera)

BCA may not operate normally or it may operate unexpectedly depending on a variety of driving and environmental conditions. Refer to the Owner's Manual for a complete list of driving and environmental conditions that may adversely affect BCA operation.

When a failure occurs, check the following:

- Inspect vehicle for damage
- Inspect bumper for stickers placed over radar sensor location
- Remove the rear bumper and inspect radar surface for blockage
- Inspect the radar mounting bracket for damage
- Inspect the radar angle and adjust if necessary

The shapes of the LH and RH radar units are different. Be sure to install the correct unit in each location.

Select all tabs before continuing.

BCA: Blind-Spot Collision-Avoidance Assist

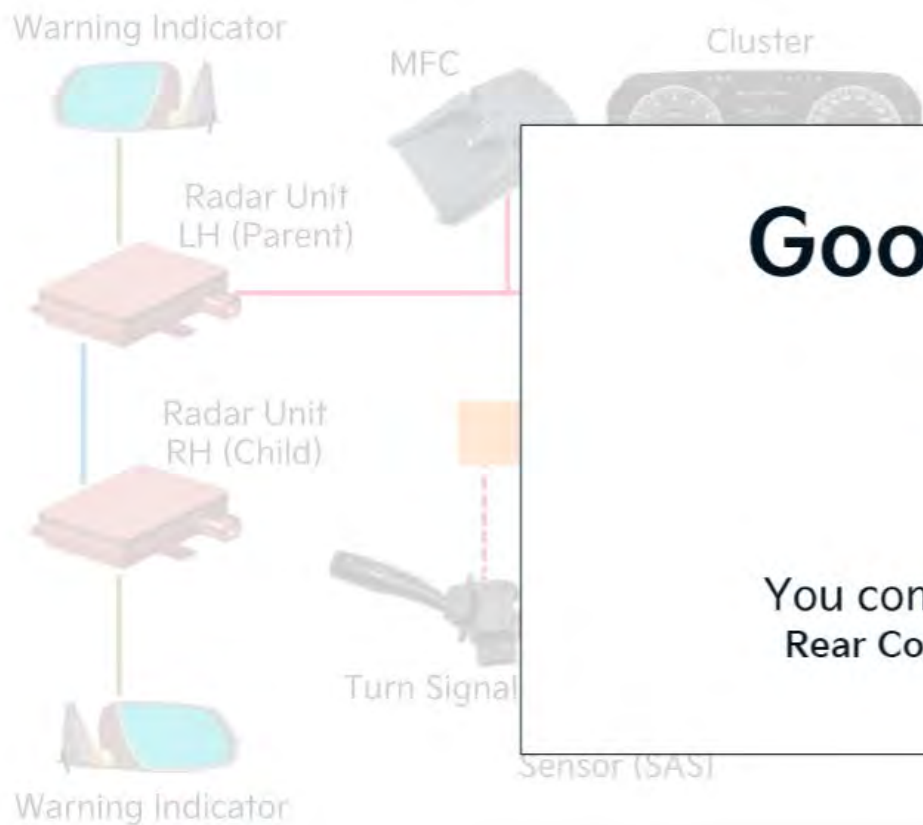


Diagram is not representative of all Kia Models. Consult the service information for the vehicle you are servicing.

ESC: Electronic Stability Control
MFC: Multi-Function Camera (Front View Camera)

BCA may not operate normally or it may operate unexpectedly depending on a variety of driving and environmental conditions. See the Owner's Manual for a list of driving and environmental conditions that may affect BCA operation.

Good going!

**You completed the section:
Rear Corner Radar Functions**

- Before you start, check the following:
- Check for damage
 - Check for stickers placed over the sensor
 - Check the rear bumper and inspect radar sensor package
 - Check the rear mounting bracket for damage
 - Check the sensor angle and adjust if necessary

The shapes of the LH and RH radar units are different. Be sure to install the correct unit in each location.

Select all tabs before continuing.

Sensor Fusion Functions

Select any topic to learn more.

Sensor Fusion Overview

FCA: Forward Collision-Avoidance Assist

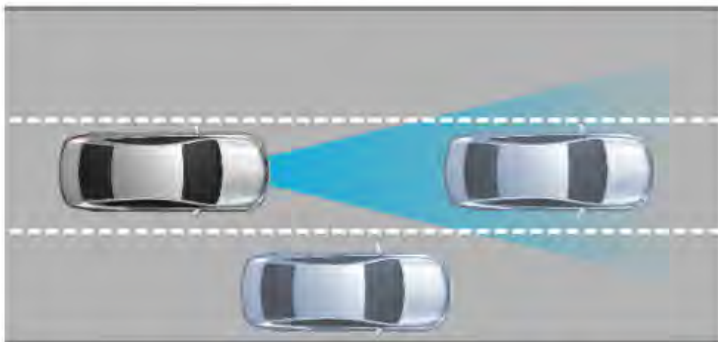
FCA-JT: FCA - Junction Turning


HDA: Highway Driving Assist

Sensor Fusion Overview

"Sensor fusion" refers to the combined use of the front view camera and front radar to make forward detections. The camera and radar sensor have different recognition characteristics.

- The camera is better at recognizing pedestrians and cyclists than the radar
- The radar is better at determining distance to objects and object speed



Sensor fusion supports the following functions which are covered in this section: 

- FCA: Forward Collision-Avoidance Assist
- FCA-JT: FCA - Junction Turning
- HDA: Highway Driving Assist

The camera and radar sensor communicate over a dedicated Local CAN to instantly exchange data and avoid communication overload.



Recognition data from the camera is sent to the controller in the front radar where data on detected objects are merged and analyzed.

Select the information icon to learn more.

Sensor Fusion Overview

"Sensor fusion" refers to the combined use of the front view camera and front radar to make forward detections. The camera and radar sensor have different recognition characteristics.

- The camera is better at recognizing pedestrians and cyclists than the radar
- The radar is better at determining distance to objects and object speed

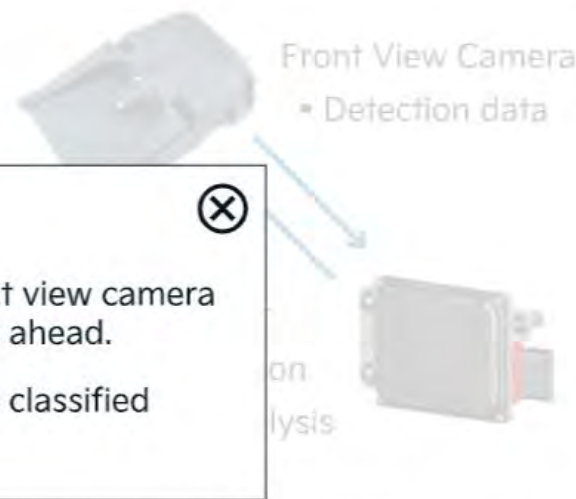


SCC and Sensor Fusion

In some Kia models, SCC uses the front view camera and radar together to identify vehicles ahead.

In those models, SCC w/S&G would be classified as a Sensor Fusion function.

The camera and radar sensor communicate over a dedicated Local CAN to instantly exchange data and avoid communication overload.



Recognition data from the camera is sent to the controller in the front radar where data on detected objects are merged and analyzed.

Sensor fusion supports the following functions which are covered in this section:

- FCA: Forward Collision-Avoidance Assist
- FCA-JT: FCA - Junction Turning
- HDA: Highway Driving Assist

Select the information icon to learn more.

FCA: Forward Collision-Avoidance Assist

When rapidly approaching a vehicle that is slowing down, braking or stopped, FCA alerts the driver and, under certain conditions, applies emergency braking.



Under certain conditions, FCA can also detect a potential collision with pedestrians (moving at less than 6 mph) or cyclists (moving at less than 12 mph).

FCA operates when:

- FCA is turned ON
- Driver's speed is over approximately 5 mph
- Electronic Stability Control (ESC) is ON
- A collision with a car, pedestrian, or cyclist is predicted

FCA Operation Sequence

Select the information icons to learn more.

Initially, FCA provides Forward Collision Warning (FCW) when it detects a potential collision, emitting an audible warning and displaying a visual alert on the instrument cluster.



If the system detects that the collision risk has increased, FCA automatically applies the brakes to potentially help reduce the effects of a possible collision.



- Brake force is maintained for 2 seconds after activation
- After 2 seconds, driver must press brake

Disclaimer: When engaged, FCA/FCW are not substitutes for safe driving practices. FCA/FCW may not detect every object in the vehicle's direction of travel. Always drive safely and use caution.

Select all tabs before continuing.

FCA: Forward Collision-Avoidance Assist

When rapidly approaching a vehicle that is slowing down, braking or stopped, FCA alerts the driver and, under certain conditions, applies emergency braking.



Under certain conditions, FCA can apply emergency braking to avoid a potential collision with a pedestrian (moving at less than 6 mph) or cyclists (moving at less than 15 mph).

FCA operates when:

- FCA is turned ON
- Driver's speed is over approximately 5 mph
- Electronic Stability Control (ESC) is ON
- A collision with a car, pedestrian, or cyclist is predicted

FCA Operation Sequence

Select the information icons to learn more.

Initially, FCA provides Forward Collision Warning (FCW) when a potential collision is detected.

When a potential collision is detected, FCA provides a visual alert (brake cluster).

If the driver's speed is increased, FCA reduces the braking force to reduce the risk of collision.

The brake cluster is maintained for 2 seconds after activation. The driver must press the brake.

Disclaimer: When engaged, FCA/FCW are not substitutes for safe driving practices. FCA/FCW may not detect every object in the vehicle's direction of travel. Always drive safely and use caution.

Select all tabs before continuing.

Emergency Braking

When FCA detects a potential collision with a vehicle, FCA applies emergency braking if the driver's speed is below approximately 50 mph.

- If the driver's speed is over approximately 50 mph, braking force is reduced to avoid subjecting occupants to high g forces

When FCA detects a potential collision with a pedestrian, FCA applies emergency braking if the driver's speed is below approximately 40 mph.

- Brakes are not applied if the driver steers the vehicle out of the lane to avoid the collision.



FCA: Forward Collision-Avoidance Assist



When rapidly approaching a vehicle that is slowing down, braking or stopped, FCA alerts the driver and, under certain conditions, applies emergency braking. 



Under certain conditions, FCA can also detect a potential collision with pedestrians (moving at less than 6 mph) or cyclists (moving at less than 12 mph).

FCA operates when:

- FCA is turned ON

Operating Speeds  

Pedestrian and cyclist detection operates only when driver's speed is between approximately 5 to 40 mph.

Initially, FCA provides Forward Collision Warning (FCW) when it detects a potential collision, emitting an audible warning and displaying a visual alert on the instrument cluster. 



If the system detects that the collision risk has increased, FCA automatically applies the brakes to potentially help reduce the effects of a possible collision.



- Brake force is maintained for 2 seconds after activation
- After 2 seconds, driver must press brake

Disclaimer: When engaged, FCA/FCW are not substitutes for safe driving practices. FCA/FCW may not detect every object in the vehicle's direction of travel. Always drive safely and use caution.

Select the information icons to learn more.

Select all tabs before continuing.

FCA: Forward Collision-Avoidance Assist

When rapidly approaching a vehicle that is slowing down, braking or stopped, FCA alerts the driver and, under certain conditions, applies emergency braking.



Under certain conditions, FCA can also detect a potential collision with pedestrians (moving at less than 6 mph) or cyclists (moving at less than 12 mph).

FCA operates when:

- FCA is turned ON
- Driver's speed is over approximately 5 mph
- Electronic Stability Control (ESC) is ON
- A collision with a car, pedestrian, or cyclist is predicted



FCA Operation Sequence

Select the information icons to learn more.

Initially, FCA provides Forward Collision Warning (FCW) when it detects a potential collision, emitting an audible warning and displaying a visual alert on the instrument cluster.



If the system detects that the collision risk has increased, FCA automatically applies the brakes to potentially help reduce the effects of a possible collision.



- Brake force is maintained for 2 seconds after activation
- After 2 seconds, driver must press brake

Electronic Stability Control



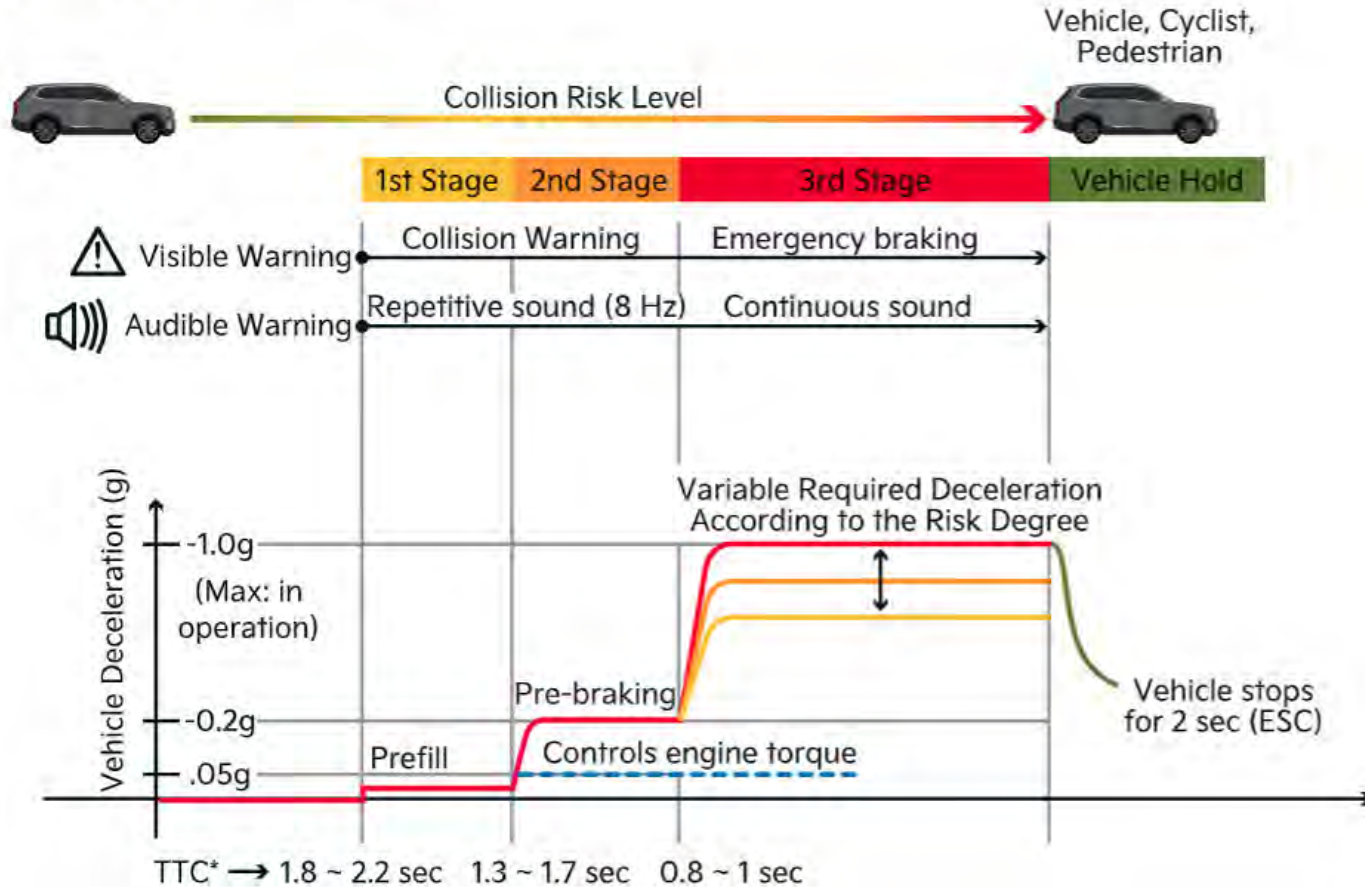
When ESC is ON, FCA uses input from the brake master cylinder pressure sensor to determine driver intention.

FCA does not operate in the event of a pressure sensor malfunction, or if ESC is OFF.

FCW are not substitutes for safe driving. FCW may not detect every object in the roadway. Always drive safely and use caution.

Select all tabs before continuing.

FCA Operation Sequence



Stage 1: When a risk of collision is detected, FCA provides a visual and audible warning.

Stage 2: Engine torque is reduced.

Stage 3: The brakes are applied automatically if conditions allow. The applied braking force differs depending on the collision risk level.

Vehicle Hold: When FCA braking stops the vehicle, ESC keeps the brakes applied for 2 seconds before release. The driver must then apply the brakes.

Diagram may not be representative of all Kia Models. Consult the service information for the vehicle you are servicing.

* TTC: Time To Collision (estimated when vehicle speed is approximately 25 mph)

FCA: Forward Collision-Avoidance Assist

When rapidly
down, brake
under certain

Steering Wheel Vibration

In addition to visual and audible warnings, some Kia models will also vibrate the steering wheel.



This is referred to as a "haptic" warning.

Initially, FCA provides Forward Collision Warning (FCW) when it detects a potential collision, emitting an audible warning and displaying a visual alert on the instrument cluster.



If the system detects that the collision risk has increased, FCA automatically applies the brakes to potentially help reduce the effects of a possible collision.



Under certain conditions, FCA can also detect a potential collision with pedestrians (moving at less than 6 mph) or cyclists (moving at less than 12 mph).

FCA operates when:

- FCA is turned ON
- Driver's speed is over approximately 5 mph
- Electronic Stability Control (ESC) is ON
- A collision with a car, pedestrian, or cyclist is predicted

FCA Operation Sequence

Select the information icons to learn more.

- Brake force is maintained for 2 seconds after activation
- After 2 seconds, driver must press brake

Disclaimer: When engaged, FCA/FCW are not substitutes for safe driving practices. FCA/FCW may not detect every object in the vehicle's direction of travel. Always drive safely and use caution.

Select all tabs before continuing.

FCA: Forward Collision-Avoidance Assist

When rapidly approaching a vehicle that is slowing down, braking or stopped, FCA alerts the driver and, under certain conditions, applies emergency braking.



Under certain conditions, FCA can also detect a potential collision with pedestrians (moving at less than 6 mph) or cyclists (moving at less than 12 mph).

FCA operates when:

- FCA is turned ON
- Driver's speed is over approximately 5 mph
- Electronic Stability Control (ESC) is ON
- A collision with a car, pedestrian, or cyclist is predicted

FCA Operation Sequence

Select the information icons to learn more.

Initially, FCA provides Forward Collision Warning (FCW) when it detects a potential collision, emitting an audible warning and displaying a visual alert on the instrument cluster.



Driver Braking



If at the first warning, the driver presses the brake pedal at a force exceeding the FCA calculated force, the FCA operation is canceled. If the driver's brake force is less than the FCA calculated force, FCA operation continues.

If the system detects that collision risk has increased, it automatically applies the brakes to potentially help reduce the effects of a possible collision.

- Brake force is maintained
- After 2 seconds, driver must press brake

Disclaimer: When engaged, FCA/FCW are not substitutes for safe driving practices. FCA/FCW may not detect every object in the vehicle's direction of travel. Always drive safely and use caution.

Select all tabs before continuing.

FCA: Forward Collision-Avoidance Assist

FCA is ON by default in most Kia models. To turn FCA OFF/ON, go to User Settings in the instrument cluster, and select:

Driver Assistance > Forward Safety



Active Assist: Warns the driver and applies brakes depending on conditions (FCA)

Warning Only: Warns the driver but does not apply brakes (FCW)

Off: Turns FCA off

Warning timing and warning volume can also be adjusted according to driver preferences.

Normal deactivation:

- FCA OFF is selected on the USM
- ESC is turned off

Temporary deactivation during vehicle operation:

- Maximum operating speed is exceeded
- Sudden turn (200 degrees per second or greater)
- Accelerator Position Sensor signal is over 60%
- Shifter in P or R

The FCA Warning Light illuminates whenever the FCA system is turned off or deactivated.



FCA will be activated by default when the ignition is cycled ON, even when the previous setting was OFF.

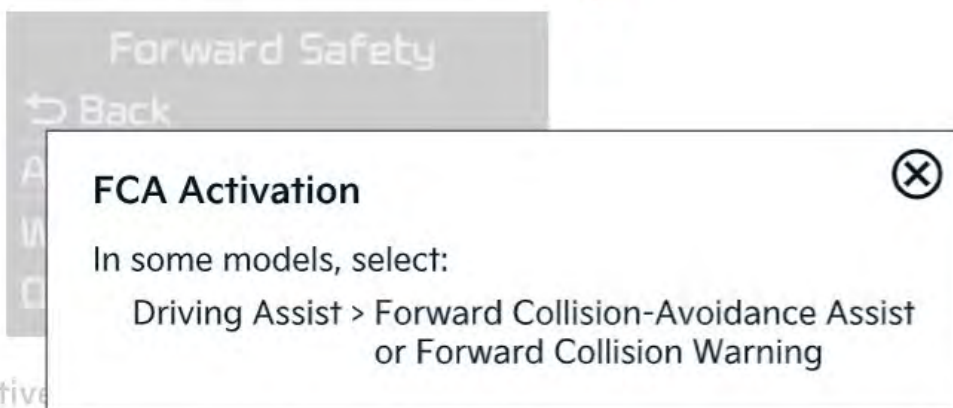
Select the information icons to learn more.

Select all tabs before continuing.

FCA: Forward Collision-Avoidance Assist

FCA is ON by default in most Kia models. To turn FCA OFF/ON, go to User Settings in the instrument cluster, and select:

Driver Assistance > Forward Safety



Active when the vehicle is moving and the driver's foot is on the brakes depending on conditions (FCA).

Warning Only: Warns the driver but does not apply brakes (FCW)

Off: Turns FCA off

Warning timing and warning volume can also be adjusted according to driver preferences.

Select the information icons to learn more.

Normal deactivation:

- FCA OFF is selected on the USM
- ESC is turned off

Temporary deactivation during vehicle operation:

- Maximum operating speed is exceeded
- Sudden turn (200 degrees per second or greater)
- Accelerator Position Sensor signal is over 60%
- Shifter in P or R

The FCA Warning Light illuminates whenever the FCA system is turned off or deactivated.



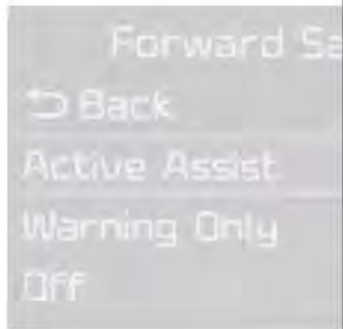
FCA will be activated by default when the ignition is cycled ON, even when the previous setting was OFF.

Select all tabs before continuing.

FCA: Forward Collision-Avoidance Assist

FCA is ON by default in n OFF/ON, go to User Sett and select:

Driver Assistance > F



Active Assist: Warns the brakes depending on cor

Warning Only: Warns the apply brakes (FCW)

Off: Turns FCA off

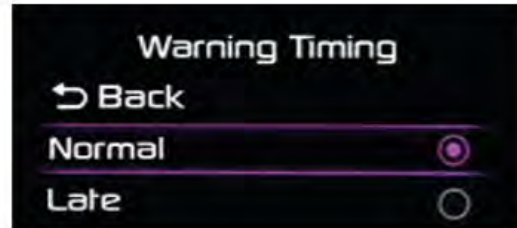
Warning timing and warn be adjusted according to

Warning Timing and Warning Volume



In the USM, select:

Driver Assistance > Warning Timing

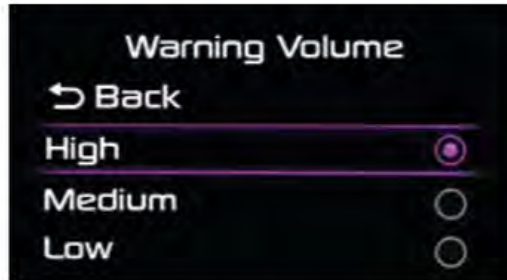


Even if Normal is selected for warning timing, if the front vehicle stops suddenly, the initial warning activation time may seem late.

Only select Late when traffic is light and driving speed is low.

In the USM, select:

Driver Assistance > Warning Volume



If the ignition is cycled, the warning time and warning volume maintain the last setting.

If you change the warning timing or volume, it may change the warning timing or volume for other ADAS functions.

Select the information icons to learn more.

Select all tabs before continuing.

FCA: Forward Collision-Avoidance Assist

FCA is ON by default in most Kia models. To turn FCA OFF/ON, go to User Settings in the instrument cluster, and select:

Driver Assistance > Forward Safety



Active Assist: Warns the driver and applies brakes depending on conditions (FCA)

Warning Only: Warns the driver but does not apply brakes (FCW)

Off: Turns FCA off

Warning timing and warning volume can also be adjusted according to driver preferences.

Normal deactivation:

- FCA OFF is selected on the USM
- ESC is turned off

Temporary deactivation during vehicle operation:

- Maximum operating speed is exceeded
- Sudden turn (200 degrees per second or greater)
- Accelerator Position Sensor signal is over 60%
- Shifter in P or R

Deactivation Conditions

Temporary deactivation conditions are shown for FCA systems (radar and camera) manufactured by Mando.

Specifications for FCA systems manufactured by Hyundai MOBIS are:

- Sudden turn (180 degrees per second or higher)
- Accelerator Position Sensor signal over 30%

Select the information icons to learn more.

Select all tabs before continuing.

FCA: Forward Collision-Avoidance Assist



ESC: Electronic Stability Control
 MFC: Multi-Function Camera (Front View Camera)
 PCM: Powertrain Control Module

Diagram is not representative of all Kia Models. Consult the service information for the vehicle you are servicing.

Select the information icon to learn more.

SCC w/ S&G and FCA work in conjunction with each other. If a malfunction occurs in one system, the other system should be checked.

Under certain circumstances, FCA may not operate properly, or it may operate unexpectedly. These situations do not indicate a malfunction.

For example:

Curved Roads



Sudden Lane Change



Refer to the Owner's Manual for a complete list of driving and environmental conditions that may adversely affect FCA operation.

Select all tabs before continuing.

FCA: Forward Collision-Avoidance Assist



SCC w/ S&G and FCA work in conjunction with each other. If a malfunction occurs in one system, the other system should be checked. i

Under certain circumstances, FCA may not operate properly, or it may operate unexpectedly. These situations do not indicate a malfunction.

For example:

FCA Warning Messages ✕

Forward Safety system disabled.
Camera obscured

Forward Safety system disabled.
Radar blocked

Check Forward Safety system



ESC: Electronic Stability Control

MFC: Multi-Function Camera (Front View Camera)

PCM: Powertrain Control Module

Diagram is not representative of all Kia Models. Consult the service information for the vehicle you are servicing.

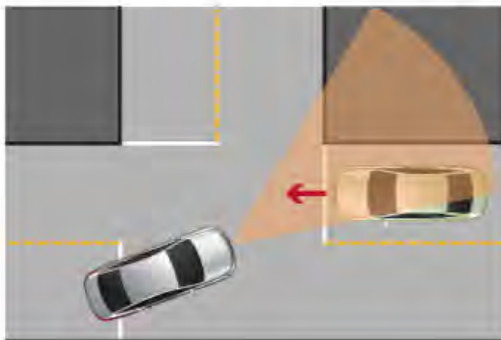
Select the information icon to learn more.

Refer to the Owner's Manual for a complete list of driving and environmental conditions that may adversely affect FCA operation.

Select all tabs before continuing.

FCA-JT: FCA - Junction Turning

The FCA Junction Turning feature helps avoid a collision with an oncoming vehicle while making a left turn.




When a potential collision with an oncoming vehicle is detected:

- An alert is sounded and a message displayed
- Emergency braking may be applied based on the conditions



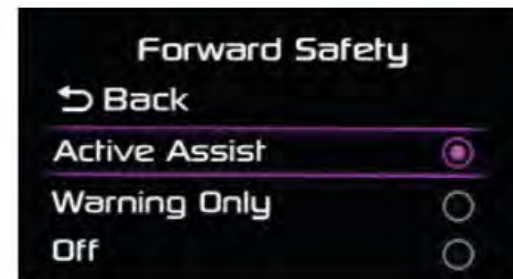
Operating Conditions


- FCA is ON
- Left turn signal is ON
- Driver's vehicle speed approximately 6 to 19 mph
- Oncoming vehicle speed approximately 19 to 44 mph

 FCA-JT only recognizes vehicles and does not recognize pedestrians, two-wheeled vehicles, or animals. Refer to the Owner's Manual for additional limitations.

Activation

FCA-JT is activated when FCA is ON, and deactivated when FCA is OFF

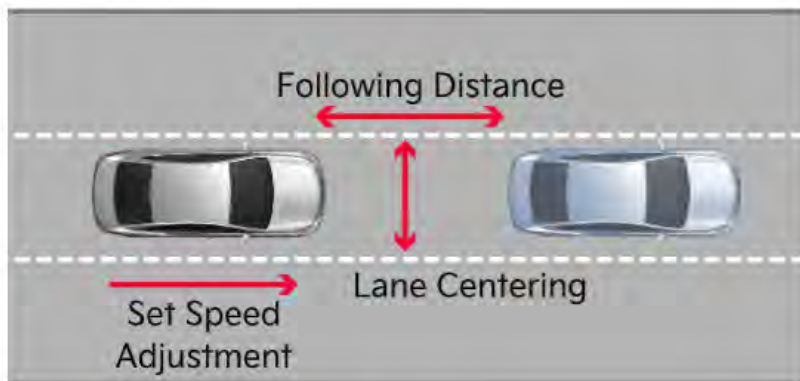


 If Warning Only is selected when FCA is activated, emergency braking does not occur.

Disclaimer: When engaged, FCA-JT is not a substitute for safe driving practices. FCA-JT may not detect every object in the vehicle's direction of travel. Always drive safely and use caution.

HDA: Highway Driving Assist

HDA integrates Smart Cruise Control with Lane Keeping Assist to help keep the vehicle in its lane while adjusting the set speed to maintain appropriate distance from the vehicle ahead.



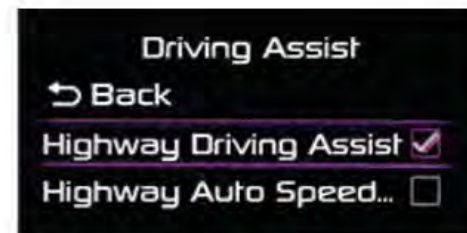
Operating Conditions

- HDA is ON
- Lane Following Assist is operating
- Smart Cruise Control is operating, and set speed is not above the posted speed limit
- Vehicle is being driven on a controlled access highway

Activation

To turn HDA ON:

- Go to User Settings in the instrument cluster, and select:
 - Driver Assistance >
 - Driving Assist >
 - Highway Driving Assist



- Press the Mode button on the steering wheel

System Standby

When the SCC is temporarily canceled while HDA is operating, HDA will be in a standby state. At this time, Lane Following Assist will operate normally.

Stop & Go

During HDA operation, the SCC Stop & Go feature operates.

Diagnostic Tip

Disclaimer: When engaged, HDA is not an autonomous driving system, and is not a substitute for safe driving practices. Always check road conditions and take appropriate actions to drive safely.

Select the information icons to learn more.

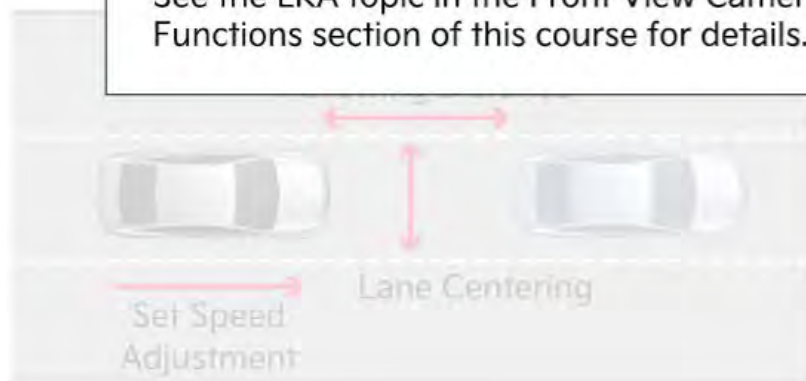
HDA: Highway Driving Assist

Hands Off Detection



Hands Off Detection is activated while Lane Following Assist is operating.

See the LKA topic in the Front View Camera Functions section of this course for details.



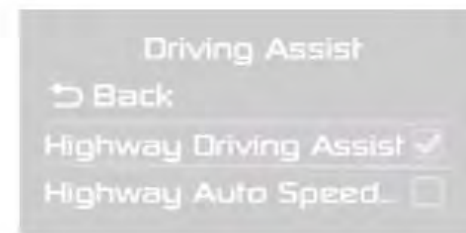
Operating Conditions

- HDA is ON
- Lane Following Assist is operating
- Smart Cruise Control is operating, and set speed is not above the posted speed limit
- Vehicle is being driven on a controlled access highway

Activation

To turn HDA ON:

- Go to User Settings in the instrument cluster, and select:
 - Driver Assistance >
 - Driving Assist >
 - Highway Driving Assist



- Press the Mode button on the steering wheel

System Standby

When the SCC is temporarily canceled while HDA is operating, HDA will be in a standby state. At this time, Lane Following Assist will operate normally.

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Diagnostic Tip

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Select the information icons to learn more.

HDA: Highway Driving Assist

HDA integrates Smart Cruise Control with Lane Keeping Assist to help keep the vehicle in its lane while adjusting the set speed to maintain appropriate distance from the vehicle ahead.



Navigation System Input ⓘ
 Information regarding posted speed limits and controlled access highways is supplied by the Navigation System.

Operational Requirements

- HDA is ON ⓘ
- Lane Following Assist is operating ⓘ
- Smart Cruise Control is operating, and set speed is not above the posted speed limit ⓘ
- Vehicle is being driven on a controlled access highway ⓘ

Activation

- To turn HDA ON: ⓘ
- Go to User Settings in the instrument cluster, and select:
 - Driver Assistance >
 - Driving Assist >
 - Highway Driving Assist
 - Press the Mode button on the steering wheel ⓘ



System Standby

When the SCC is temporarily canceled while HDA is operating, HDA will be in a standby state. At this time, Lane Following Assist will operate normally.

Stop & Go

During HDA operation, the SCC Stop & Go feature operates. ⓘ

Diagnostic Tip

Disclaimer: When engaged, HDA is not an autonomous driving system, and is not a substitute for safe driving practices. Always check road conditions and take appropriate actions to drive safely.

Select the information icons to learn more.

HDA: Highway Driving Assist

HDA integrates Smart Cruise Control with Lane Keeping Assist to help keep the vehicle in its lane while adjusting the set speed to maintain appropriate distance from the vehicle ahead.



Controlled Access Highway

A controlled access highway (also called a freeway or expressway) is a divided highway with limited entrances and exits designed for high-speed traffic flow.



- Smart Cruise Control is operating, and set speed is not above the posted speed limit
- Vehicle is being driven on a controlled access highway

Activation

To turn HDA ON:

- Go to User Settings in The Instrument cluster, and select:
 - Driver Assistance >
 - Driving Assist >
 - Highway Driving Assist



- Press the Mode button on the steering wheel

System Standby

When the SCC is temporarily canceled while HDA is operating, HDA will be in a standby state. At this time, Lane Following Assist will operate normally.

Stop & Go

During HDA operation, the SCC Stop & Go feature operates.

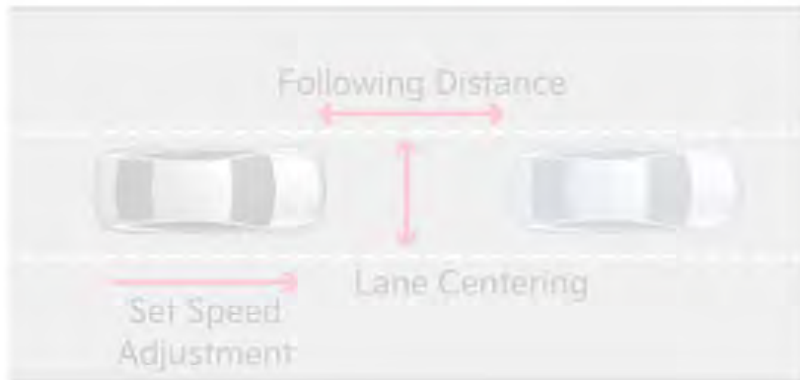
Diagnostic Tip

Disclaimer: When engaged, HDA is not an autonomous driving system, and is not a substitute for safe driving practices. Always check road conditions and take appropriate actions to drive safely.

Select the information icons to learn more.

HDA: Highway Driving Assist

HDA integrates Smart Cruise Control with Lane Keeping Assist to help keep the vehicle in its lane while adjusting the set speed to maintain appropriate distance from the vehicle ahead.



Operating Conditions

- HDA is ON
- Lane Following Assist is operating
- Smart Cruise Control is operating, and set speed is not above the posted speed limit
- Vehicle is being driven on a controlled access highway

Activation Conditions

If the vehicle is not on a controlled access highway when the Mode button is pressed, HDA does not activate until:

- The vehicle enters a controlled access highway
- SCC begins operating
- LKA is operating

• Press the Mode button on the steering wheel

System Standby

When the SCC is temporarily canceled while HDA is operating, HDA will be in a standby state. At this time, Lane Following Assist will operate normally.

Stop & Go

During HDA operation, the SCC Stop & Go feature operates.

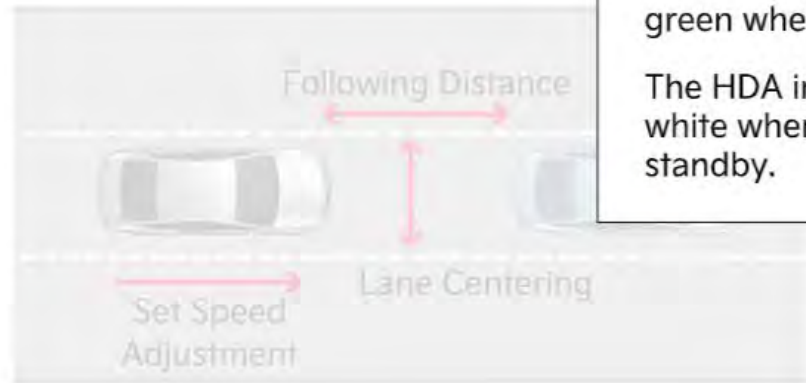
Diagnostic Tip

Disclaimer: When engaged, HDA is not an autonomous driving system, and is not a substitute for safe driving practices. Always check road conditions and take appropriate actions to drive safely.

Select the information icons to learn more.

HDA: Highway Driving Assist

HDA integrates Smart Cruise Control with Lane Keeping Assist to help keep the vehicle in its lane and maintain the set speed to maintain appropriate following distance from the vehicle ahead.



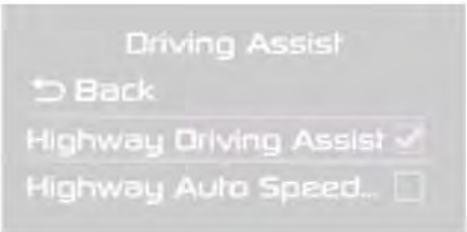


Activation

HDA Status Indicator


The HDA indicator illuminates green when HDA is operating.

The HDA indicator illuminates white when the system is in standby.

on the
nd select;
assist
on on the steering wheel

Operating Conditions

- HDA is ON
- Lane Following Assist is operating 
- Smart Cruise Control is operating, and set speed is not above the posted speed limit 
- Vehicle is being driven on a controlled access highway 

System Standby

When the SCC is temporarily canceled while HDA is operating, HDA will be in a standby state. At this time, Lane Following Assist will operate normally.

Stop & Go

During HDA operation, the SCC Stop & Go feature operates. 

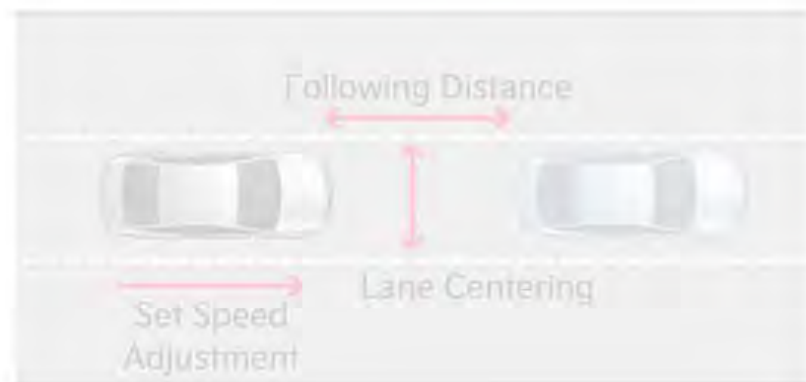
Diagnostic Tip

Disclaimer: When engaged, HDA is not an autonomous driving system, and is not a substitute for safe driving practices. Always check road conditions and take appropriate actions to drive safely.

Select the information icons to learn more.

HDA: Highway Driving Assist

HDA integrates Smart Cruise Control with Lane Keeping Assist to help keep the vehicle in its lane while adjusting the set speed to maintain appropriate distance from the vehicle ahead.



Operating Conditions

- HDA is ON
- Lane Following Assist is operating
- Smart Cruise Control is operating, and set speed is not above the posted speed limit
- Vehicle is being driven on a controlled access highway

Activation

To turn HDA ON:

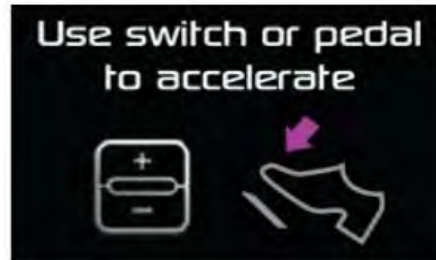
- Go to User Settings in the instrument cluster, and select:
 - Driver Assistance >
 - Driving Assist >
 - Highway Driving Assist
- Press the Mode button on the steering wheel



SCC Stop & Go

When HDA is operating, the vehicle will stop if the vehicle ahead stops.

- If the vehicle ahead starts moving within 30 seconds, your vehicle begins moving.
- If the vehicle ahead has not moved after 30 seconds, a message appears on the cluster. Press the accelerator or press the Resume switch to start driving.

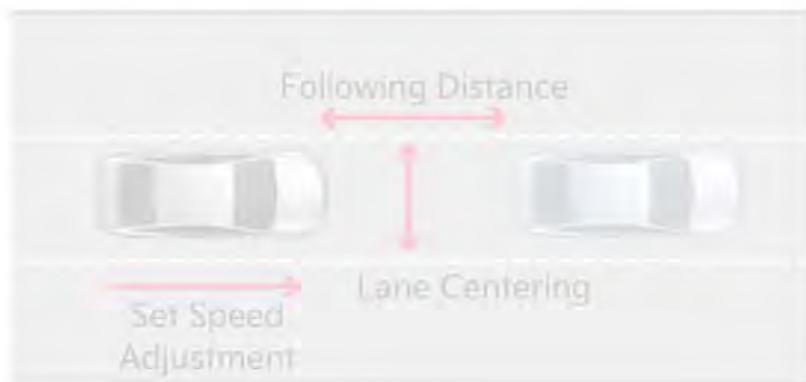


Check road conditions and take appropriate actions to drive safely.

Select the information icons to learn more.

HDA: Highway Driving Assist

HDA integrates Smart Cruise Control with Lane Keeping Assist to help keep the vehicle in its lane while adjusting the set speed to maintain appropriate distance from the vehicle ahead.



Operating Conditions

- HDA is ON
- Lane Following Assist is operating
- Smart Cruise Control is operating, and set speed is not above the posted speed limit
- Vehicle is being driven on a controlled access highway

Activation

To turn HDA ON:

- Go to User Settings in the instrument cluster, and select:
 - Driver Assistance >
 - Driving Assist >
 - Highway Driving Assist



- Press the Mode button on the steering wheel

System Standby

When the SCC is operating, HDA Lane Following

Stop & Go

During HDA operation

Diagnostic

Diagnostic Tip

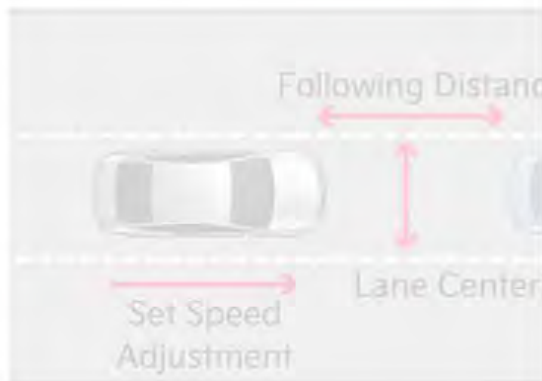
HDA uses the Navigation System to identify controlled access highways and speed limits. If the Navigation system is not up-to-date or is not operating properly, HDA may not operate properly or at all.

Disclaimer: When engaged, HDA is not an autonomous driving system, and is not a substitute for safe driving practices. Always check road conditions and take appropriate actions to drive safely.

Select the information icons to learn more.

HDA: Highway Driving Assist

HDA integrates Smart Cruise Control with Lane Keeping Assist to help keep the vehicle in its lane while adjusting the set speed to maintain appropriate distance from the vehicle ahead.




Operating Conditions


- HDA is ON
- Lane Following Assist is operating
- Smart Cruise Control is operating, and set speed is not above the posted speed limit
- Vehicle is being driven on a controlled access highway

Activation

To turn HDA ON:



Good going!



**You completed the section:
Sensor Fusion Functions**

Driving Assist

Back

Highway Driving Assist

Highway Auto Speed...

Diagnostic Tip

Disclaimer: When engaged, HDA is not an autonomous driving system, and is not a substitute for safe driving practices. Always check road conditions and take appropriate actions to drive safely.

Select the information icons to learn more.

View Monitor Functions

Select any topic to learn more.

[View Monitor Functions Overview](#)

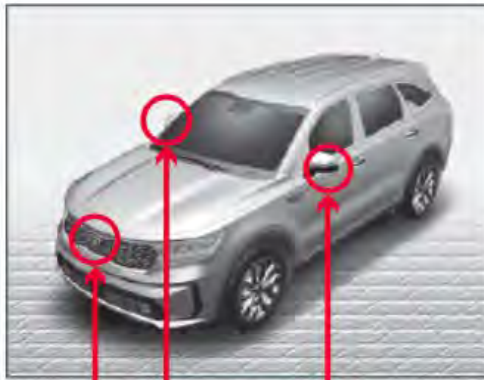
[BVM: Blind-Spot View Monitor](#)

[RVM: Rear View Monitor](#)

[SVM: Surround View Monitor](#)

View Monitor Functions Overview

The front view camera mounted on the front windshield is not the only camera that may be found on Kia vehicles. Other available cameras include:



Side View Cameras (2)

Front Camera



Rearview Camera

Three functions that use the view monitor cameras are covered in this section:

- BVM: Blind-Spot View Monitor
- RVM: Rear View Monitor
- SVM: Surround View Monitor

These are the cameras used by each view monitor function.

	Rear	Sides	Front
BVM	-	✓✓	-
RVM	✓	-	-
SVM	✓	✓✓	✓



Blind-Spot View Monitor (BVM) is an ADAS function, but Rear View Monitor (RVM) and Surround View Monitor (SVM) are not ADAS functions. They are included in this course, however, for completeness.

Select the information icon to learn more.

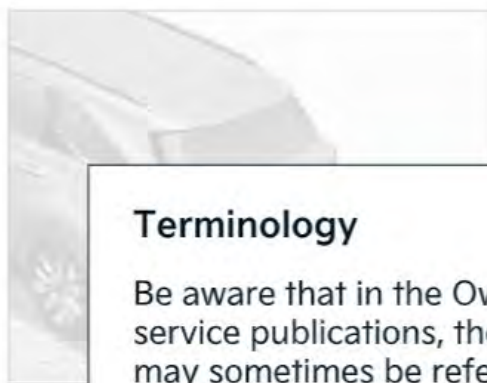
View Monitor Functions Overview

The front view camera mounted on the front windshield is not the only camera that may be found on Kia vehicles. Other available cameras include:



Side View Cameras (2)

Front Camera



Terminology

Be aware that in the Owner's Manual and service publications, the front video camera may sometimes be referred to as the "front view camera", and should not be confused with the front view camera mounted in the top center of the windshield.

These are the cameras used by each view monitor function.

	Rear	Sides	Front
BVM	-	✓✓	-
RVM	✓	-	-
SVM	✓	✓✓	✓


Blind-Spot View Monitor (BVM) is an ADAS function, but Rear View Monitor (RVM) and Surround View Monitor (SVM) are not ADAS functions. They are included in this course, however, for completeness.

Three functions that use the view monitor cameras are covered in this section:

- BVM: Blind-Spot View Monitor
- RVM: Rear View Monitor
- SVM: Surround View Monitor

Select the information icon to learn more.

BVM: Blind-Spot View Monitor

To help the driver change lanes more safely, BVM displays video images of the blind spot area on the cluster when the turn signal is turned on. 



Left Turn Signal ON



Right Turn Signal ON



BVM uses the side view cameras located underneath each side view mirror.

Operating Conditions

- Engine is ON
- A turn signal is ON
- Hazard warning flasher is OFF

-  Activation
-  Viewing Angle
-  Limitations

Disclaimer: When engaged, BVM is not a substitute for safe driving practices. Failure to visually confirm that it is safe to change lanes may result in an accident. Always drive safely and use caution when changing lanes.

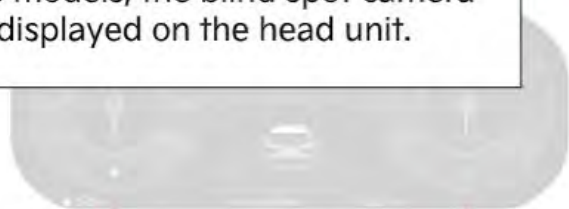
Select the information icons to learn more.

BVM: Blind-Spot View Monitor

To help the driver change lanes more safely, BVM

Head Unit Display

In some models, the blind spot camera view is displayed on the head unit.



Left Turn Signal ON



Right Turn Signal ON



BVM uses the side view cameras located underneath each side view mirror.

Operating Conditions

- Engine is ON
- A turn signal is ON
- Hazard warning flasher is OFF

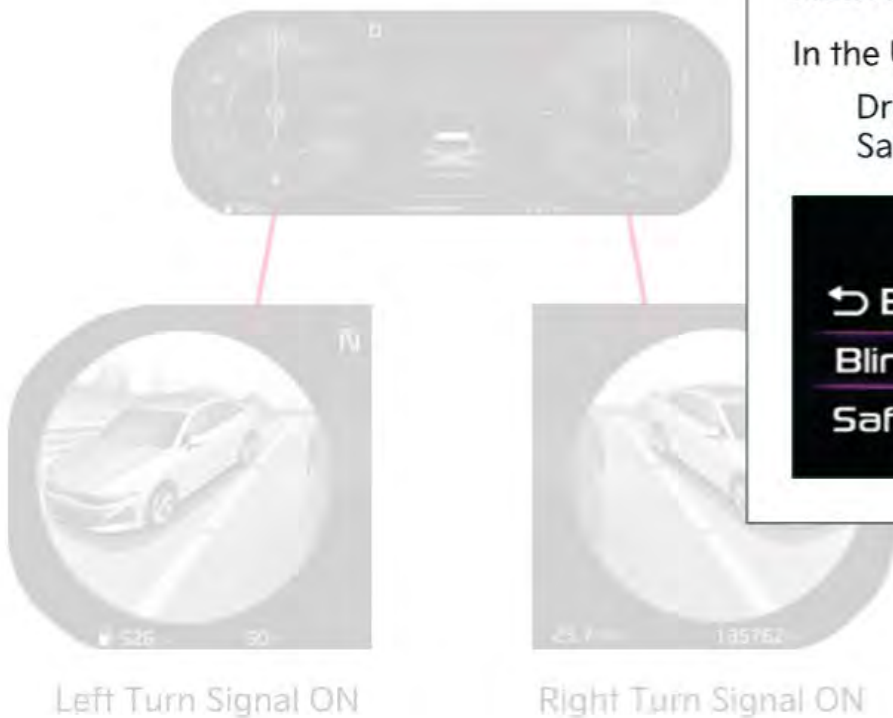
- Activation
- Viewing Angle
- Limitations

Disclaimer: When engaged, BVM is not a substitute for safe driving practices. Failure to visually confirm that it is safe to change lanes may result in an accident. Always drive safely and use caution when changing lanes.

Select the information icons to learn more.

BVM: Blind-Spot View Monitor

To help the driver change lanes more safely, BVM displays video images of the blind spot area on the cluster when the turn signal is turned on.



Activation ⓧ

In the USM, select:

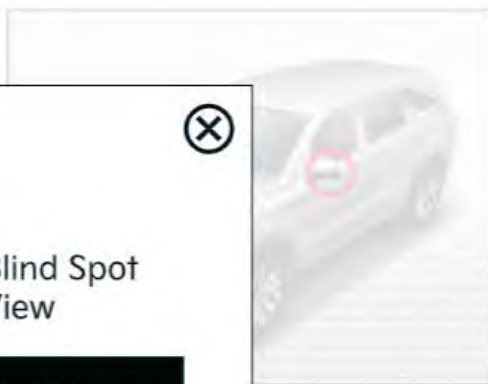
Driver Assistance > Blind Spot Safety > Blind Spot View

Blind-Spot Safety

↶ Back

Blind-Spot View

Safe Exit Assist (SEA)



BVM uses the side view cameras located underneath each side view mirror.

- i Activation
- i Viewing Angle
- i Limitations

Disclaimer: When engaged, BVM is not a substitute for safe driving practices. Failure to visually confirm that it is safe to change lanes may result in an accident. Always drive safely and use caution when changing lanes.

Select the information icons to learn more.

BVM: Blind-Spot View Monitor

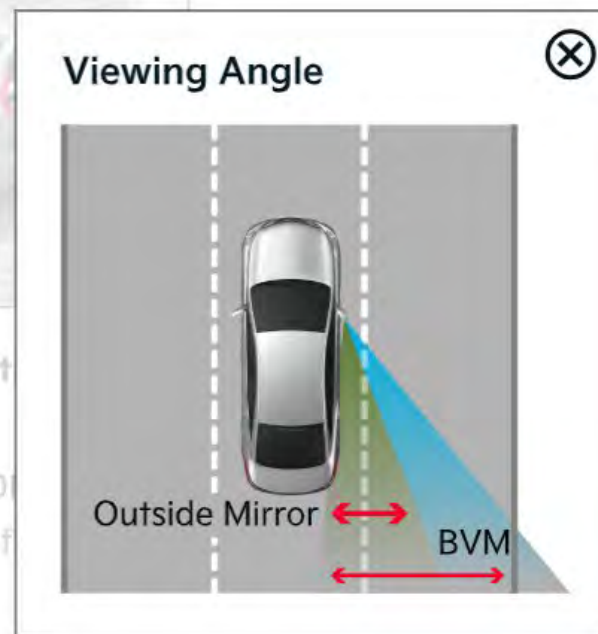
To help the driver change lanes more safely, BVM displays video images of the blind spot area on the cluster when the turn signal is turned on.



Left Turn Signal ON



Right Turn Signal ON



Operating Conditions

- Engine is ON
- A turn signal is ON
- Hazard warning is OFF

- Activation
- Viewing Angle
- Limitations

Disclaimer: When engaged, BVM is not a substitute for safe driving practices. Failure to visually confirm that it is safe to change lanes may result in an accident. Always drive safely and use caution when changing lanes.

Select the information icons to learn more.

BVM: Blind-Spot View Monitor

To help the driver change lanes more safely, BVM displays video images of the blind spot area on the cluster when the turn signal is turned on.



Limitations



- If the mirrors are folded, the video is displayed but does not represent a proper view of the surroundings
- The video quality may appear low because the image must be adjusted to fit the cluster
- The screen may temporarily fade out in changing light conditions, or when the vehicle enters tunnels
- Objects may appear farther away than they do in the rearview mirror



Signal ON



BVM uses the side view cameras located underneath each side view mirror.

Operating Conditions

- Engine is ON
- A turn signal is ON
- Hazard warning flasher is OFF

Activation

Viewing Angle

Limitations

Disclaimer: When engaged, BVM is not a substitute for safe driving practices. Failure to visually confirm that it is safe to change lanes may result in an accident. Always drive safely and use caution when changing lanes.

Select the information icons to learn more.

RVM: Rear View Monitor

RVM displays the area directly behind the vehicle to assist the driver when parking or backing up.



Video from the rear view camera displays on the Head Unit.

Settings can be changed by touching the Settings icon.



Touching this icon changes the display to a top view.



Operating Conditions

RVM operates when:

- Shifter is in reverse
- Vehicle speed is less than 6 mph



After RVM starts operating, it continues to operate even when shifted to N or D.

RVM turns off when:

- Vehicle speed is above 6 mph
- Engine is turned OFF

Disclaimer: When engaged, RVM does not cover the complete area behind the vehicle. Always check the rear area directly through the rearview mirror and side view mirrors when parking or backing up.

SVM: Surround View Monitor

SVM uses all 4 video cameras to create a top view of the area surrounding the vehicle on all sides. The resulting image is displayed on the Head Unit.

Driver-selected Camera View (1 of 4)



Combined Top View



To select any of the 4 camera views, use the icons on the SVM screen.

Camera Locations

Be sure to keep camera lenses clean. A dirty lens may adversely affect camera performance and SVM may not operate normally.



Activation

To turn the SVM function ON or OFF, press the Parking/View button on the console.

SVM operates when the vehicle speed is below approximately 9 mph.



Disclaimer: When engaged, SVM is not a substitute for safe driving practices and visually checking the surroundings of the vehicle. The apparent distance to objects shown on the SVM screen may differ from the actual distance. Be sure to directly check the vehicle's surroundings for safety. Always drive safely and use caution.

Select the information icons to learn more.

SVM: Surround View Monitor

SVM uses all 4 video cameras to create a top view of the area surrounding the vehicle on all sides. The resulting image is displayed on the Head Unit.

Driver-selected Camera View (1 of 4)



Combined Top View



To select any of the 4 camera views, use the icons on the SVM screen.

Image Processing

Image processing reduces distortion and merges the images into a single view.

Raw Images



Processing



Displayed Image



SVM is designed to be used on a flat area. If the ground height varies on different sides (such as when next to a curb and sidewalk), the image may not look correct.

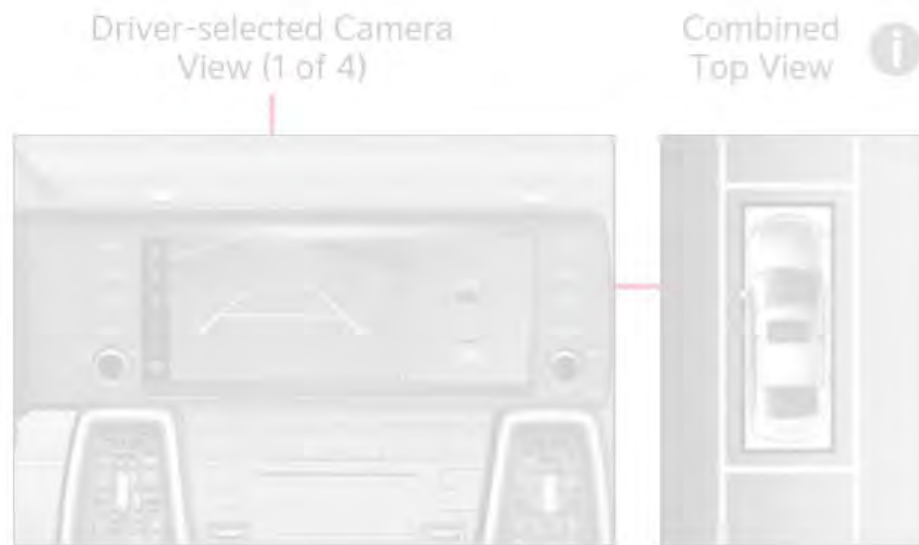


For safe driving practices and The apparent distance to objects may not be equal to actual distance. Be sure to directly observe and drive safely and use caution.

Select the information icons to learn more.

SVM: Surround View Monitor

SVM uses all 4 video cameras to create a top view of the area surrounding the vehicle on all sides. The resulting image is displayed on the Head Unit.



To select any of the 4 camera views, use the icons on the SVM screen.

Camera Locations

Be sure to keep camera lenses clean. A dirty lens may adversely affect camera performance and SVM may not op



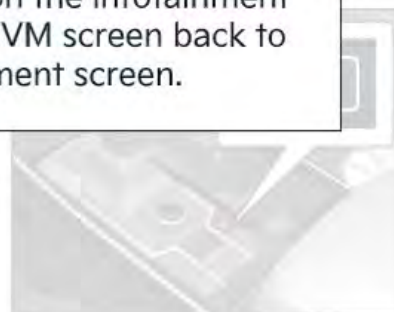
SVM Display

Pressing any button on the infotainment system changes the SVM screen back to the previous infotainment screen.

Activation

To turn the SVM ON or OFF, press the Parking/View button on the console.

SVM operates when the vehicle speed is below approximately 9 mph.

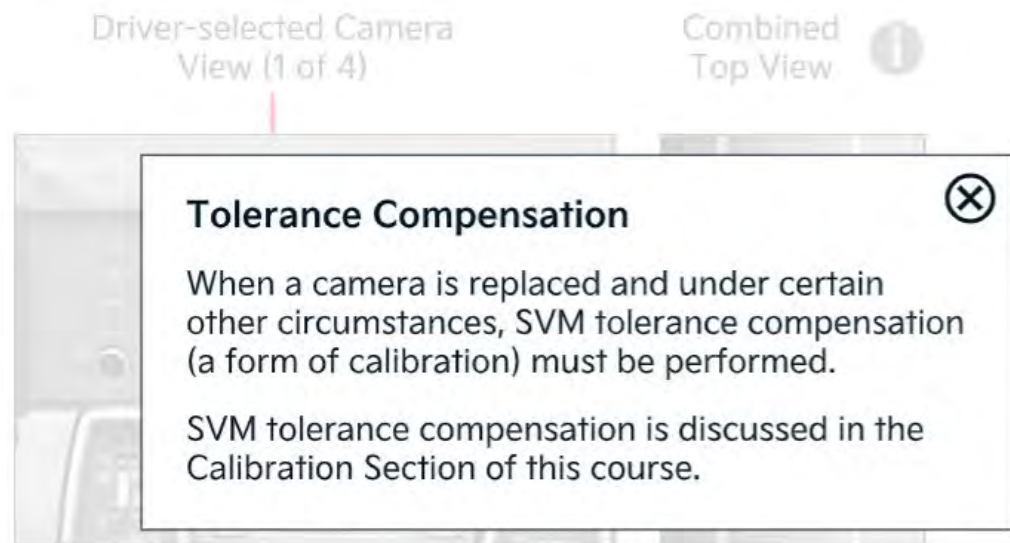


Disclaimer: When engaged, SVM is not a substitute for safe driving practices and visually checking the surroundings of the vehicle. The apparent distance to objects shown on the SVM screen may differ from the actual distance. Be sure to directly check the vehicle's surroundings for safety. Always drive safely and use caution.

Select the information icons to learn more.

SVM: Surround View Monitor

SVM uses all 4 video cameras to create a top view of the area surrounding the vehicle on all sides. The resulting image is displayed on the Head Unit.



To select any of the 4 camera views, use the icons on the SVM screen.

Camera Locations

Be sure to keep camera lenses clean. A dirty lens may adversely affect camera performance and SVM may not operate normally.



Activation

To turn the SVM function ON or OFF, press the Parking/View button on the console. ⓘ

SVM operates when the vehicle speed is below approximately 9 mph.



Disclaimer: When engaged, SVM is not a substitute for safe driving practices and visually checking the surroundings of the vehicle. The apparent distance to objects shown on the SVM screen may differ from the actual distance. Be sure to directly check the vehicle's surroundings for safety. Always drive safely and use caution.

Select the information icons to learn more.

SVM: Surround View Monitor

SVM uses all 4 video cameras to create a top view of the area surrounding the vehicle on all sides. The resulting image is displayed on the Head Unit.

Camera Locations




Driver-selected Camera View (1 of 4)



⊗

Good going!



You completed the section:
View Monitor Functions

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l may

i

W

e
9 mph.



To select any of the 4 camera views, use the icons on the SVM screen.

Disclaimer: When engaged, SVM is not a substitute for safe driving practices and visually checking the surroundings of the vehicle. The apparent distance to objects shown on the SVM screen may differ from the actual distance. Be sure to directly check the vehicle's surroundings for safety. Always drive safely and use caution.

Select the information icons to learn more.

Variant Coding

Select any topic to learn more.

Variant Coding Overview

Front View Camera Variant Coding

Front Radar Variant Coding

Rear Corner Radar Variant Coding

Variant Coding Overview

New front radar sensors, front view camera, and rear corner radar sensors can be installed in vehicles assembled and used all over the world.

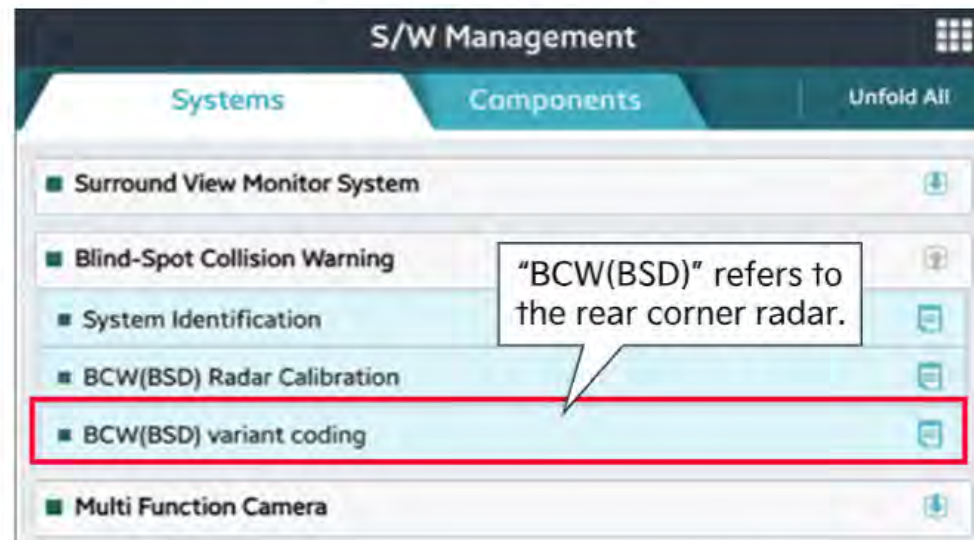
- Because the new parts are not specific to any vehicle model when manufactured, they must be customized to the vehicle after installation
- This is accomplished using variant coding

Variant coding identifies the specific features of a particular vehicle model and are programmed into the component so it functions properly in that vehicle model.

- What happens when variant codes are not entered correctly?
- Where are variant codes found?

Select the information icons to learn more.

KDS S/W Management is used for entering or confirming each vehicle's variant codes.



Select the arrow for options.

This section familiarizes you with a few of the variables involved in variant coding for radar sensors and the front view camera.

Select all tabs before continuing.

Variant Coding Overview

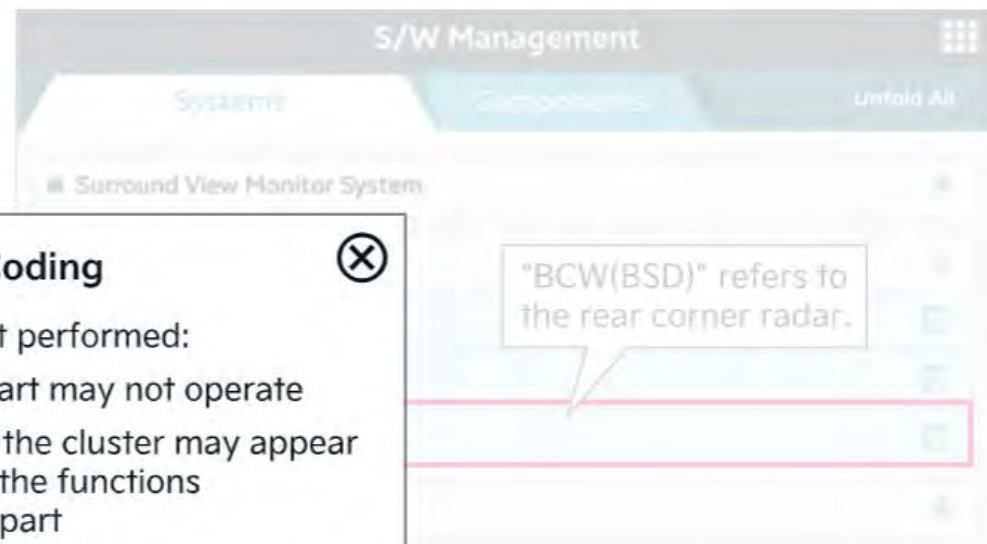
New front radar sensors, front view camera, and rear corner radar sensors can be installed in vehicles assembled and used all over the world.

- Because the new parts are not specific to any vehicle model when manufactured, they must be customized to the vehicle after installation
- This is accomplished using variant coding

Variant coding identifies the specific functions for a particular vehicle model and are programmed into the component so it functions properly for that vehicle model.

- What happens when variant codes are not entered correctly?
- Where are variant codes found?

KDS S/W Management is used for entering or confirming each vehicle's variant codes.



Incorrect Variant Coding

If variant coding is not performed:

- The replacement part may not operate
- Error messages on the cluster may appear in connection with the functions performed by that part
- One or more DTCs may be set. For example: C1702 Variant Coding Error

Select the arrow for options.

This section familiarizes you with a few of the variables involved in variant coding for radar sensors and the front view camera.

Select the information icons to learn more.

Select all tabs before continuing.

Where to Find Variant Codes

CLOSE

The easiest way to obtain variant codes for a particular part is to read the codes from the old part with KDS before removing it.

If it is not possible to obtain the variant codes from the old part, use the Vehicle Info search on KGIS to determine the specifications for the vehicle.

In this example, the vehicle is equipped with BCA and RCCA, so those functions should be enabled on the variant coding input screen.

The screenshot shows the Kia Service Materials website interface. At the top, there are navigation tabs for 'Service Materials', 'Publication', and 'Diagnostic Tools'. Below this is a breadcrumb trail: 'Home > Main > Vehicle Info'. The main heading is 'Vehicle Info' with a search input field containing '5XYRL4LC1MG *****' and a red 'Go' button. Below the search bar is a section titled 'Vehicle Specification' with a red square icon. This section contains a table of vehicle details. The table has four columns and multiple rows. The row for 'BLIND SPOT COLLISION' is highlighted with a red border, showing 'BCA (AVOIDANCE ASSIST)' and 'RCCA (AVOIDANCE ASSIST)'. Other rows include 'REAR CROSS-TRAFFIC COLLISION', 'REAR OCCUPANT ALERT', and 'ENGINE TYPE'.

Engin No	G4KNMK147180	ACU Code	R502
Production Date	2021-04-16	Shipping Date	20210421
Exterior Color	EB	Country	B28VA
MODEL 2ND DIGIT	2ND DIGIT PROJECT CODE (HY)	DRIVE TYPE	LHD
GRADE	(PGL)	TRANSMISSION	8AT2 - GDI
ENGINE CAPACITY	2500CC	FRONT COLLISION AVOIDANCE	CAR/PED
PARKING BRAKE	FOOT	ANTENNA TYPE	SHARK FIN
ANTENNA C/PAD TYPE	LTE	IGN KEY INTERLOCK SYS	H-MATIC
KEY TYPE	FOB KEY	RR HEATING DUCT	2ND & 3RD SEAT
BLIND SPOT COLLISION	BCA (AVOIDANCE ASSIST)	REAR CROSS-TRAFFIC COLLISION	RCCA (AVOIDANCE ASSIST)
REAR OCCUPANT ALERT	REAR OCCUPANT ALERT	LFA (LANE FOLLOWING ASSIST)	LFA (LANE FOLLOWING ASSIST)
ENGINE TYPE	GDI	BUTTON START	BUTTON W/ ILLUMINATED

Variant Coding Overview

New front radar sensors, front view camera, and rear corner radar sensors can be installed in vehicles assembled and used all over the world.

- Because the new parts are not specific to any vehicle model when manufactured, they must be customized to the vehicle after installation
- This is accomplished using variant coding

Variant coding identifies the specific features of a particular vehicle model and are programmed into the component so it functions properly in that vehicle model.

- ❓ What happens when variant codes are not entered correctly?
- ❓ Where are variant codes found?

Select the information icons to learn more.

KDS S/W Management is used for entering or confirming each vehicle's variant codes.

S/W Management

■ BCW(BSD) variant coding

• [BCW(BSD) variant coding]

1. Select the item to modify.
2. Select the value in combination.

[OK] button: Codes settings
[Cancel] button: Main Menu

Item	Setting Value
BCW status :	ENABLE
BCA status :	DISABLE
RCCW status :	ENABLE
RCCA status :	ENABLE

OK Cancel

! Do not touch any system buttons while performing this function.

Hint: Take a snapshot of this screen before removing the old ECU. This will give you the variant codes for this vehicle to program into the new ECU.

This example vehicle is not equipped with BCA, so it must be disabled.

Select OK to return. →

Variant Coding Overview

Some Kia models enable KDS to download a copy of the variant codes from the old ECU before it is removed. After the new ECU is installed, the codes can be automatically uploaded from KDS to the new part.

The screenshot displays the 'S/W Management' software interface. The main window shows a 'Systems' tab with a list of components: Front View Camera, System Identification, SPTAC Calibration, Variant coding (BackUp & Input) (highlighted with a red box), Variant Coding, and Rear Corner Radar. An inset window titled 'S/W Management' shows the 'Variant coding (BackUp & Input)' menu. The menu contains the following text:

- [Variant coding (BackUp & Input)]

To back up the variant coding values that are input in the ECU of the current vehicle to the diagnoser, click the **[BACKUP]** button.

After replacing the ECU, to input the coding values that are backed up to the diagnoser, click the **[INPUT]** button.

Buttons: BackUp, Input, Cancel

If the existing variant codes cannot be downloaded for any reason (e.g. old part was damaged), variant coding will need to be entered manually.

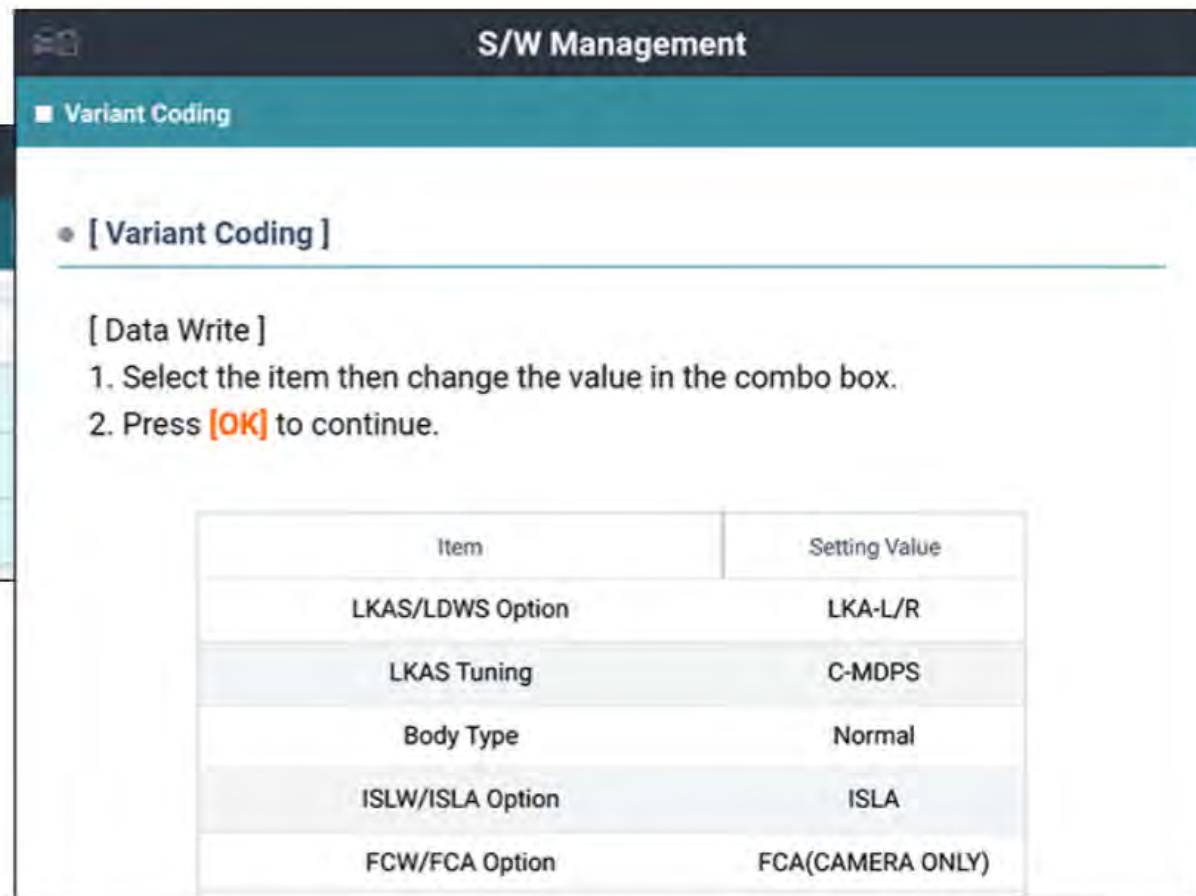
Select all tabs before continuing.

Front View Camera Variant Coding

These are sample screens for front view camera variant coding. Actual screens may vary by model.

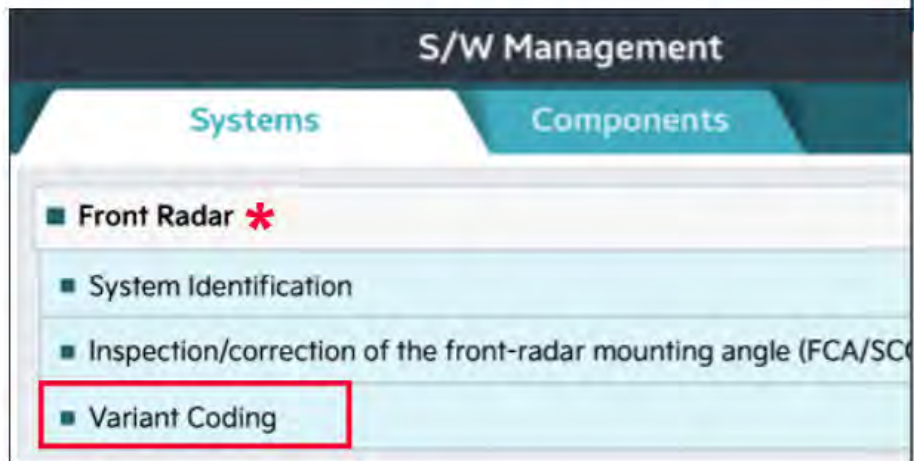


* In some models, the Front View Camera may be referred to as the Multi Function Camera

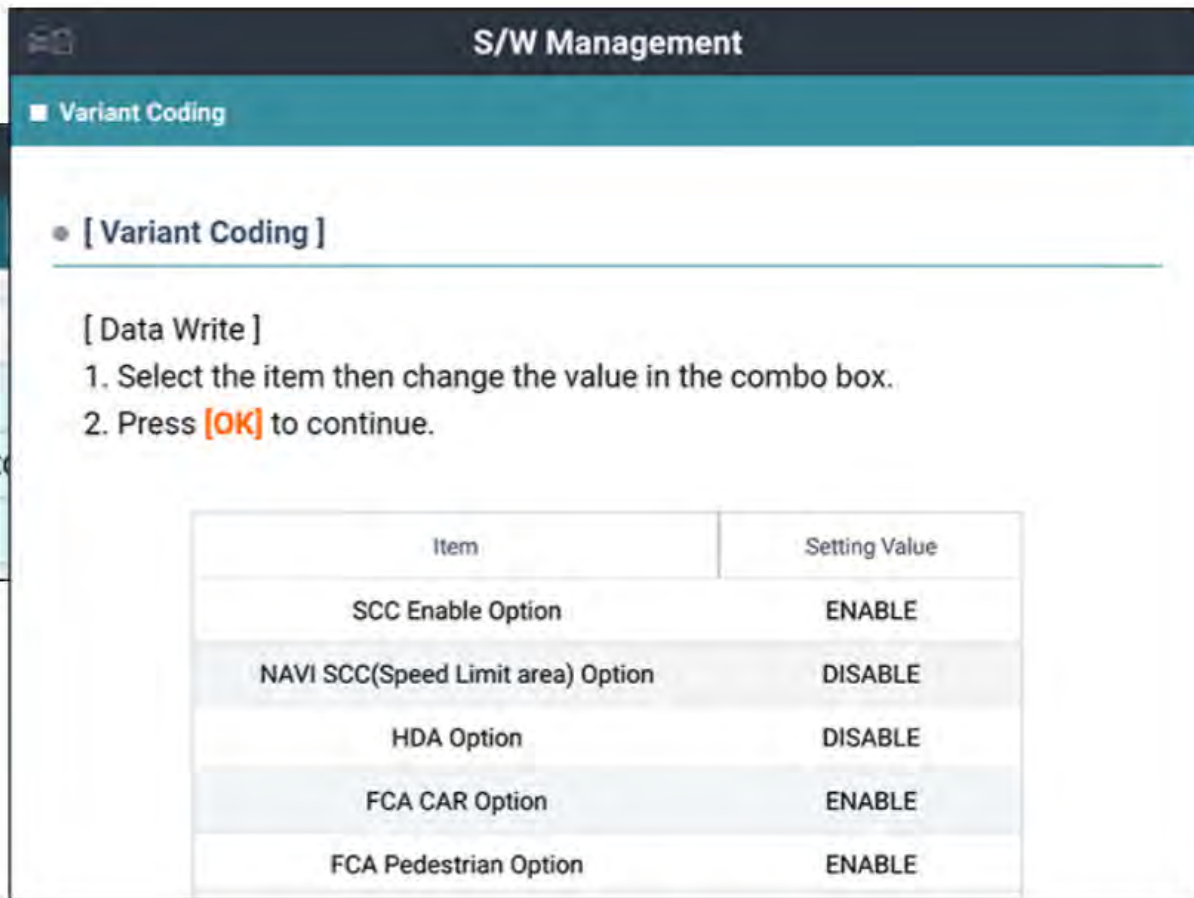


Front Radar Variant Coding

These are sample screens for front radar variant coding. Actual screens vary by model.

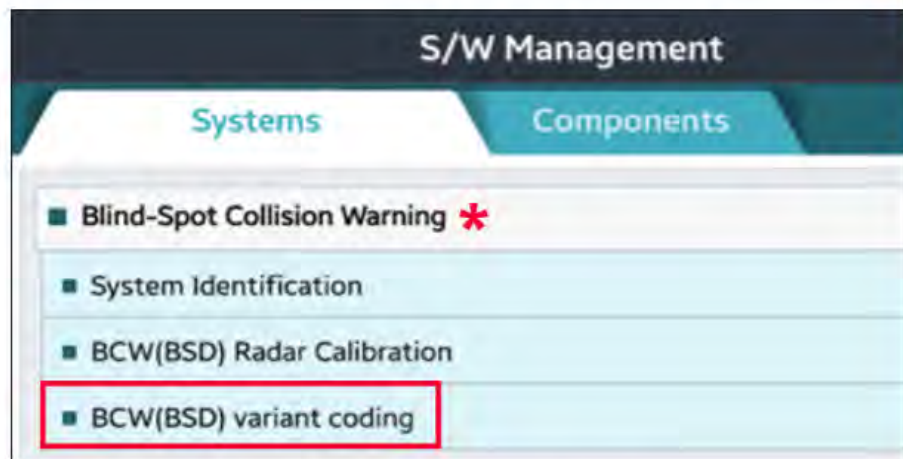


* The Front Radar may sometimes be referred to as FCA and/or SCC.

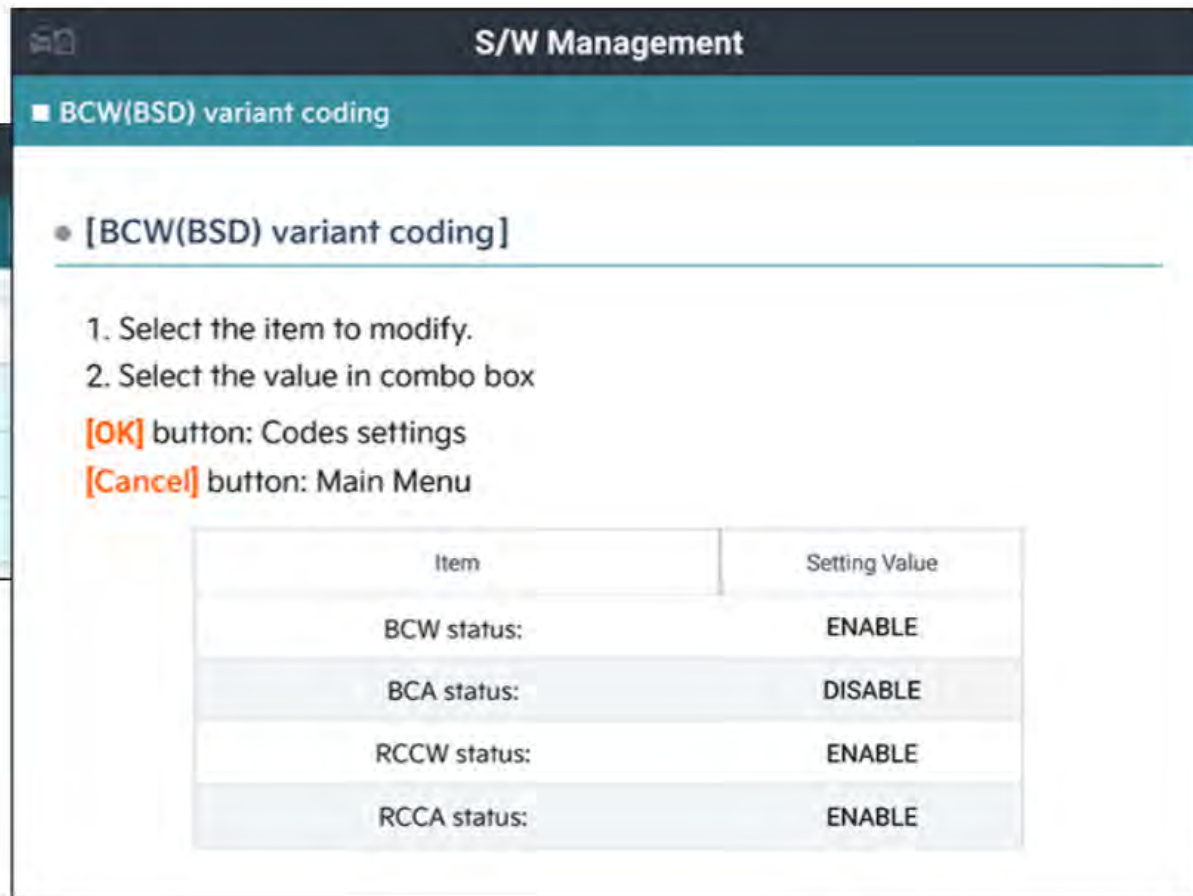


Rear Corner Radar Variant Coding

These are sample screens for rear corner radar variant coding. Actual screens vary by model.



* In some Kia models, the rear corner radar is referred to by the name of its primary function, Blind-Spot Collision Warning.



Rear Corner Radar Variant Coding

These are sample screens for rear corner radar variant coding. Actual screens vary by model.

The screenshot shows a diagnostic tool interface with a central success message: "Good going!" with a green checkmark icon and "You completed the section: Variant Coding". To the left, a list of systems is shown under the heading "Systems":

- Blind-Spot Collision Warning *
- System identification
- BCW(BSD) Radar Calibration
- BCW(BSD) variant coding** (highlighted with a red box)

Below the list, a note states: "* In some Kia models, the rear corner radar is referred to by the name of its primary function, Blind-Spot Collision Warning." To the right, a table shows the status of various systems:

Setting Name	Setting Value
BCA status:	ENABLE
RCCW status:	DISABLE
RCCA status:	ENABLE

Calibration

Select any topic to learn more.

Calibration Overview

Front View Camera Calibration

Front Radar Calibration

Rear Corner Radar Calibration

Surround View Monitor Calibration

Calibration Overview

To perform accurately, the radar sensors and front view camera must be properly aligned. The alignment process is referred to as calibration.

- Calibration must be performed whenever one of these components is replaced, or if alignment could have been affected by collision or other repairs



This section familiarizes you with the general procedures for calibrating radar sensors and the front view camera.

Diagnostic Tip

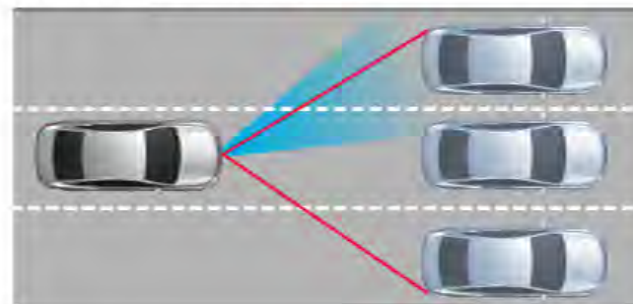
When troubleshooting, consider whether the issue is actually a component malfunction, or an alignment problem. Failure to perform calibration when required can result in sensor misalignment, and improper operation of sensor functions.

For example, front radar misalignment may result in failure to detect a vehicle ahead, faulty operation and/or DTCs.

Vertical Misalignment



Horizontal Misalignment



Front View Camera Calibration

Front view camera calibration is required when:

- Front view camera is removed and remounted, or replaced with a new one
- Windshield glass is changed
- Collision damage has been repaired
- An "Out of Calibration" DTC occurs



Tools

- Laser (SST 09964-C1200)
- Target (SST 09890-3V100)
- Tape measure
- Masking tape
- KDS



Refer to the service information for up-to-date SST requirements and part numbers.

Preparation

- Level area with 48 inches of free space in front of vehicle
- No heavy objects in vehicle
- Tire pressure and alignment correct
- Clean windshield and target



Front View Camera SPTAC Calibration

Disclaimer: The calibration procedure for the 2020 Telluride is shown. Exact measurements can vary by model but the procedure is substantially similar for all models. Refer to the appropriate service information for details.

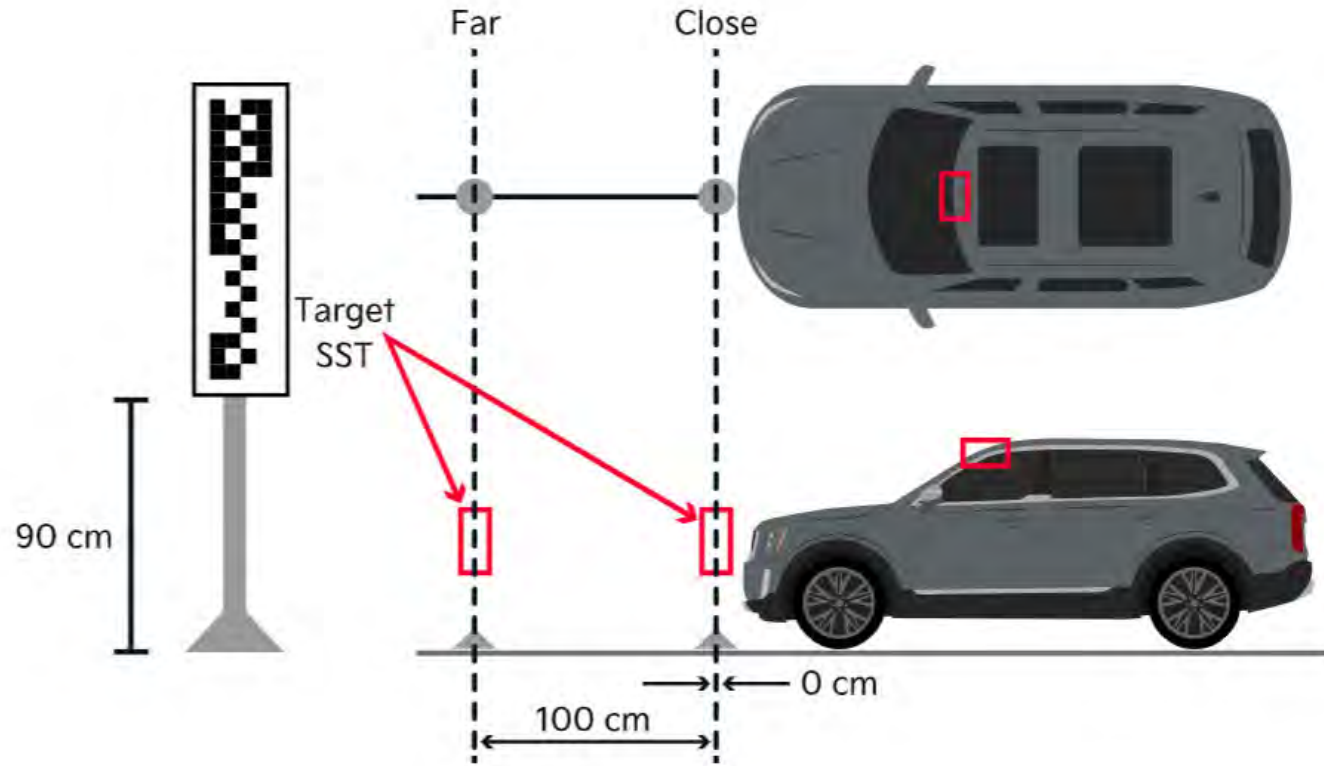
Select the Tech Toolbox for details on the calibration procedure.



Tech Toolbox: Front View Camera SPTAC Calibration

Overview of Procedure

1. Mark vehicle centerline above windshield and at front of hood.
2. Place laser on roof and align with center marks.
3. Align target to laser and adjust height.
4. Position target at close location and perform KDS close calibration.
5. Position target at far location and perform KDS far calibration.



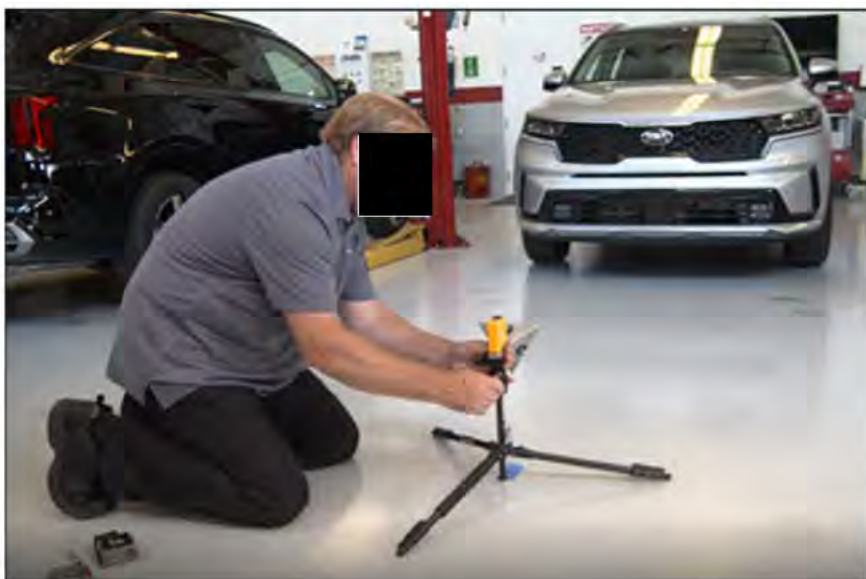
Select Play to see video.

*SPTAC: Service Point Target Auto Calibration

Front Radar Calibration

Front radar calibration involves checking and adjusting the radar installation angle. This procedure is required when:

- Front radar is removed and remounted, or replaced with a new one
- Front radar is not detecting and recognizing objects as it should
- Collision damage has been repaired
- A calibration failure DTC occurs



Tools

- Vertical protractor (tiltmeter)
- Tripod (09964-C1200)
- Laser (09964-C1300)
- Reflector Adapter (OK964-J5100)
- Reflector (C09964-C1100)
- KDS



Refer to the service information for up-to-date SST requirements and part numbers.

Preparation

- Vehicle on level ground
- No heavy objects in vehicle
- Tire pressure and alignment correct
- Radar and radar sensor cover are clean



Front Radar Calibration

Disclaimer: The calibration procedure for the 2021 Sorento is shown. Exact measurements can vary by model but the procedure is substantially similar for all models. Refer to the appropriate service information for details.

Select the Tech Toolbox for details on the calibration procedure.

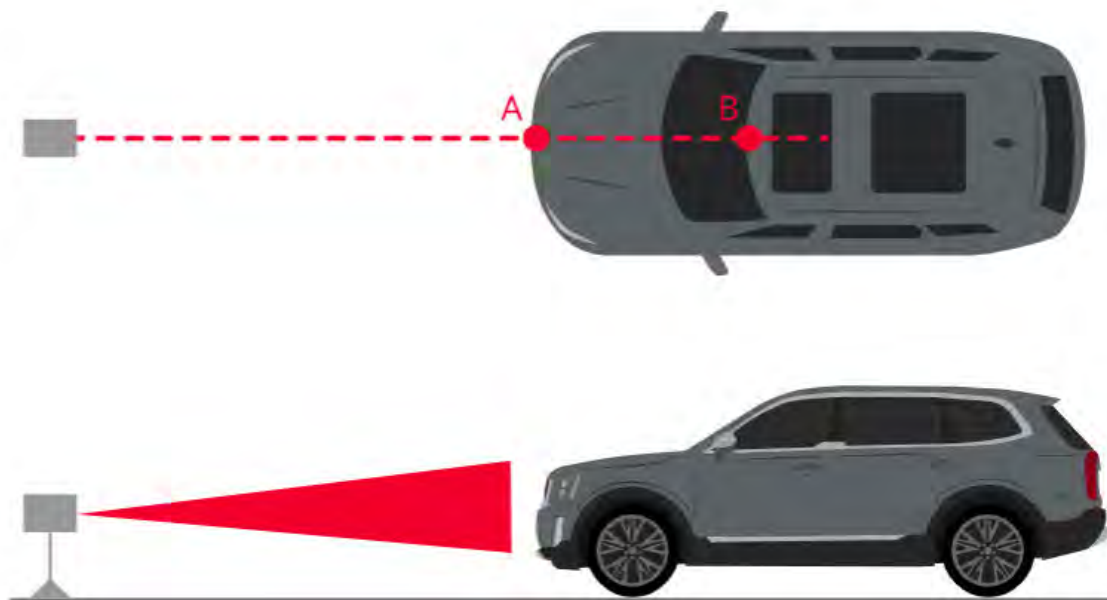


Tech Toolbox: Front Radar Calibration

CLOSE

Overview of Procedure

1. Before reinstalling the front bumper, perform vertical alignment of the radar unit according to KDS and shop manual instructions.
2. Reinstall the front bumper.
3. Mark vehicle centerline above windshield and at front of hood.
4. Place laser on tripod and align with center marks.
5. Mark location for reflector placement.
6. Place reflector on tripod and place in position.
7. Adjust reflector level and height.
8. Perform KDS calibration.



Select Play to see video.

Rear Corner Radar Calibration


The rear corner radar mounting angle must be calibrated after:

- Side or rear collision repair
- Removal or replacement of radar unit or mounting bracket



Select the information icon to learn more.

Tools

- Tape measure
- Masking tape
- BCW Kit (09958-3T500) 
- KDS

Refer to the service information for up-to-date SST requirements and part numbers.



Preparation

- Level area
- 6 ft free space behind vehicle
- Tire pressure correct
- No heavy objects in vehicle



Rear Corner Radar Calibration

Disclaimer: The calibration procedures shown use the 2020 K900 and 2020 Telluride as examples. Exact measurements can vary by model but the procedure is substantially similar for all models. Refer to the appropriate service information for details.

Select the Tech Toolbox for details on the calibration procedure.

Rear Corner Radar Calibration

The rear corner radar mounting angle must be calibrated after:

- Side or rear collision repair
- Removal or replacement of radar unit or mounting bracket

Tools

- Tape measure
- Masking tape
- BCW Kit (09958-3T500)
- KDS



BCW Kit

- Vertical plumb
- Horizontal measuring device (laser)
- BCW unit fixing adaptor (laser mount)
- Digital protractor
- Digital inclinometer

Refer to the service information for up-to-date part numbers.



Rear Corner Radar Calibration

behind vehicle
direct
in vehicle

Disclaimer: The calibration procedures shown use the 2020 K900 and 2020 Telluride as examples. Exact measurements can vary by model but the procedure is substantially similar for all models. Refer to the appropriate service information for details.

Select the information icon to learn more.

Select the Tech Toolbox for details on the calibration procedure.



Tech Toolbox: Rear Corner Radar Calibration

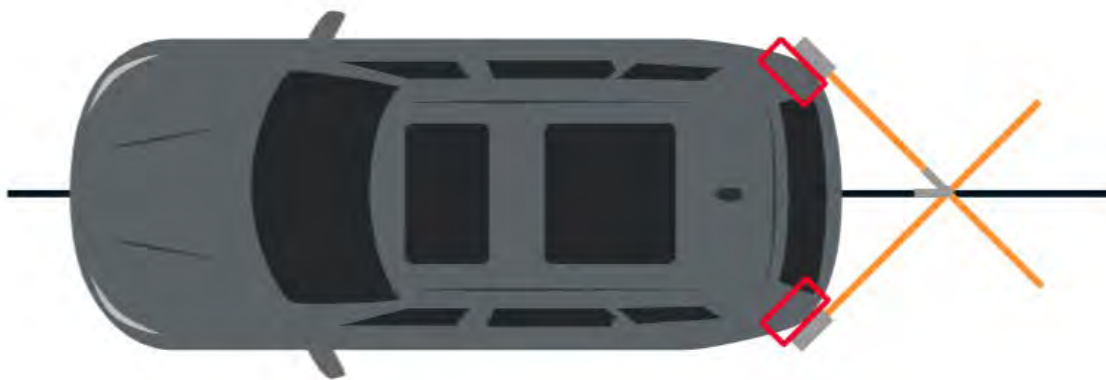
CLOSE

Overview of Procedure

1. Verify vehicle condition.
2. Determine vehicle center line.
3. Align sensors with BCW kit.
4. Calibrate with KDS.



Select Play to see video.



Surround View Monitor Calibration

The calibration procedure for the Surround View Monitor is referred to as tolerance compensation. This procedure must be performed after:

- Replacing or reinstalling any SVM component (camera, side view mirror, SVM ECU)
- Performing any body task that can change an SVM camera's focus




Select the information icon to learn more.

Tools

- SVM Calibration Tool
- KDS

Refer to the service information for up-to-date SST requirements and part numbers.

Preparation

- Level area with adequate space on all sides (approx. 10' x 30')
- Fully close hood, doors
- Unfold outside rearview mirrors
- Battery fully charged
- Check image from each camera 



Surround View Monitor Calibration

Disclaimer: The calibration procedure for the 2020 Telluride is shown. Exact measurements can vary by model but the procedure is substantially similar for all models. Refer to the appropriate service information for details.

Select the Tech Toolbox for details on the calibration procedure.

Surround View Monitor Calibration

The calibration procedure for the Surround View Monitor is referred to as tolerance compensation. This procedure must be performed after:

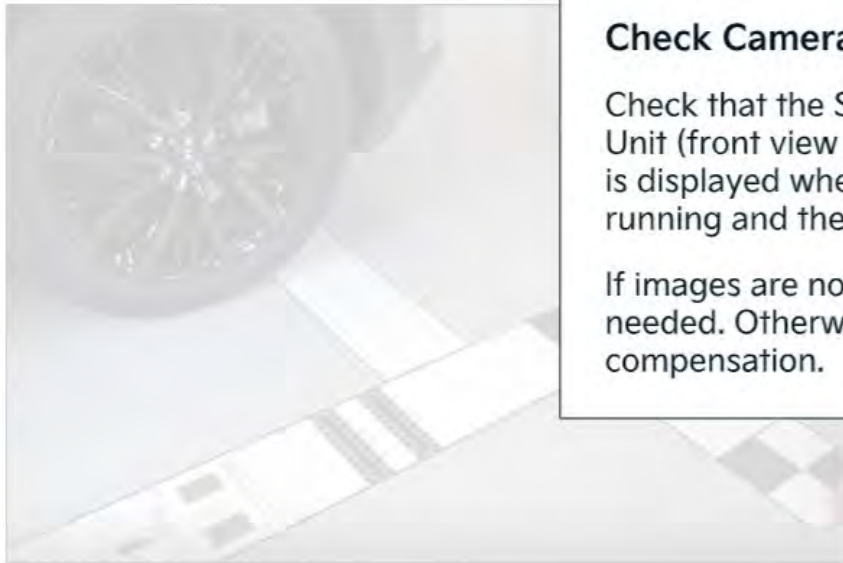
- Replacing or reinstalling any SVM component (camera, side view mirror, SVM ECU)
- Performing any body task that can change an SVM camera's focus

Tools

- SVM Calibration Tool
- KDS

Refer to the service information for up-to-date SST requirements and part numbers.

Preparation



Check Camera Images



Check that the SVM screen on the AVN Head Unit (front view image + surround view image) is displayed when shifting to R with engine running and the SVM switch ON.

If images are not properly displayed, repair as needed. Otherwise, proceed with tolerance compensation.



Adequate space (rox. 10' x 30')

doors

earview mirrors

erged

m each camera



d View

Monitor Calibration

Disclaimer: The calibration procedure for the 2020 Telluride is shown. Exact measurements can vary by model but the procedure is substantially similar for all models. Refer to the appropriate service information for details.

Select the information icon to learn more.

Select the Tech Toolbox for details on the calibration procedure.



Tech Toolbox: Surround View Monitor Calibration

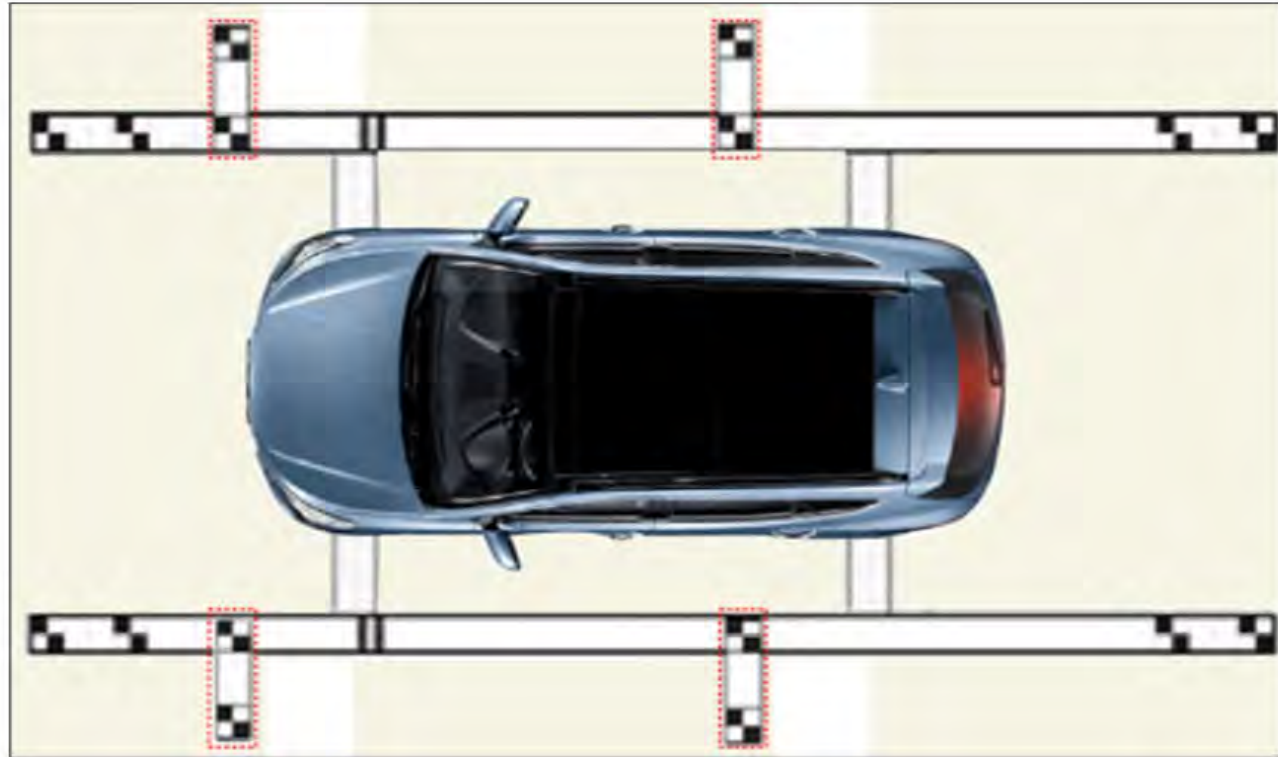
CLOSE

Overview of Procedure

1. Set calibration targets around the vehicle.
2. Perform tolerance compensation with KDS.



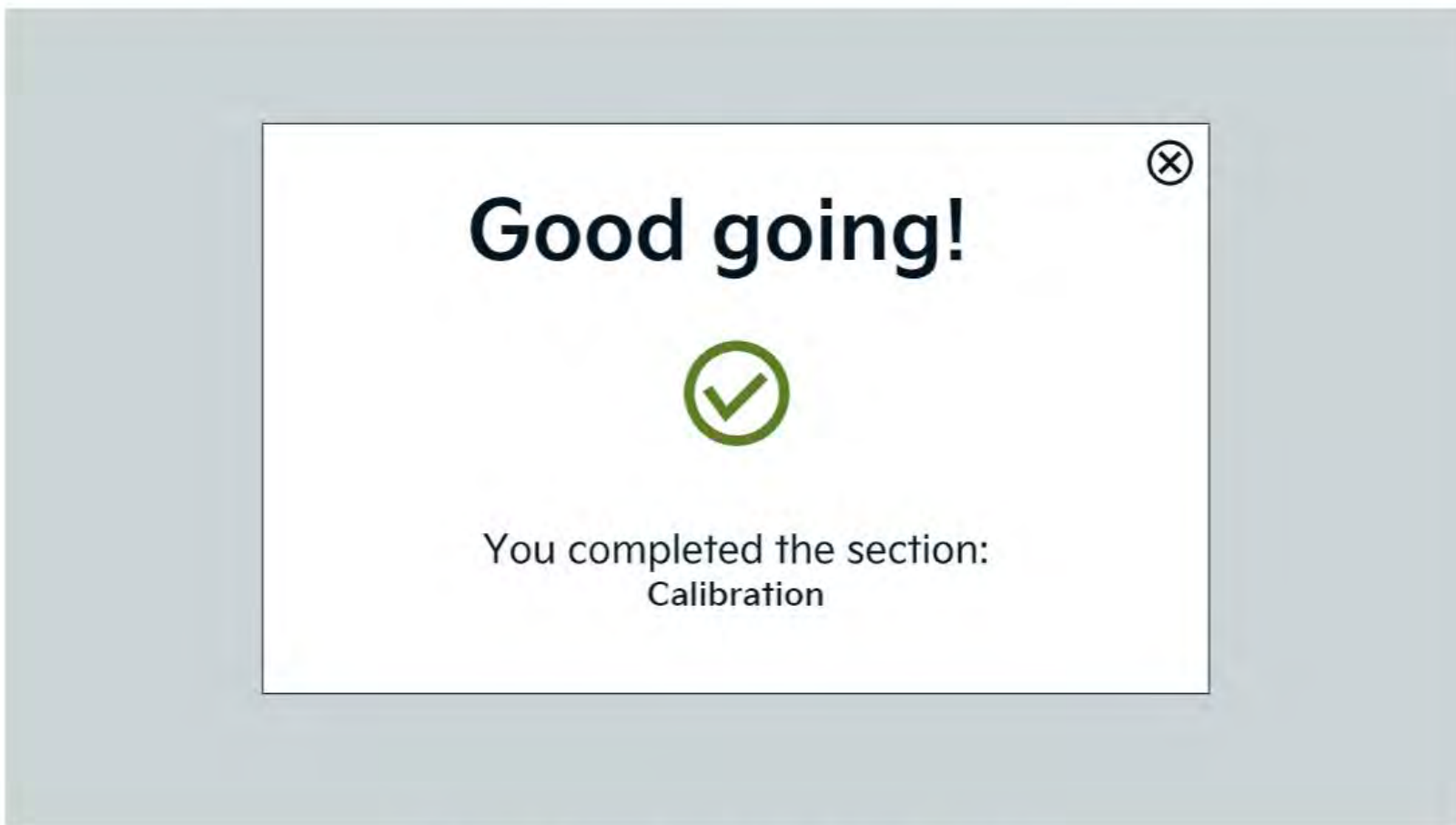
Select Play to see video.






Tech Toolbox: Surround View Monitor Calibration

CLOSE












Close window when finished viewing video.

Main Menu

Select a section below to begin, or select the More Actions icon , then "Help" for tips on navigating this course.



- Introduction 
- Front View Camera Functions 
- Front Radar Functions 
- Rear Corner Radar Functions 
- Sensor Fusion Functions 
- View Monitor Functions 
- Variant Coding 
- Calibration 
- Performance Assessment 

You must complete all sections before taking the Performance Assessment.

2020 Kia Telluride ADAS Overview

In this course, you'll take a tour of the available Adaptive Driver Assist System (ADAS) features for the 2020 Kia Telluride. Specifics include:

- Standard ADAS features
- Trim-Specific ADAS features
- Accolades, awards, and safety ratings

Estimated time to complete: **10 minutes**

☰ What is ADAS?

☰ Standard Features

☰ Trim-Specific Features

☰ Safety Accolades and Ratings

📄 Knowledge Check

☰ Thank You!

What is ADAS?



ADAS, or Adaptive Driver Assist Systems, form the backbone of intelligent safety features on the 2020 Kia Telluride.

In the broadest terms, ADAS features fall into two categories:

Driving Safety

These are features that either actively prevent accidents or passively protect in the instance of

a crash.

Driving Convenience

These are features that make daily use easier and add "quality of life" to the Telluride ownership experience.

Next, let's explore the standard ADAS features which come on all 2020 Telluride models...

Standard Features

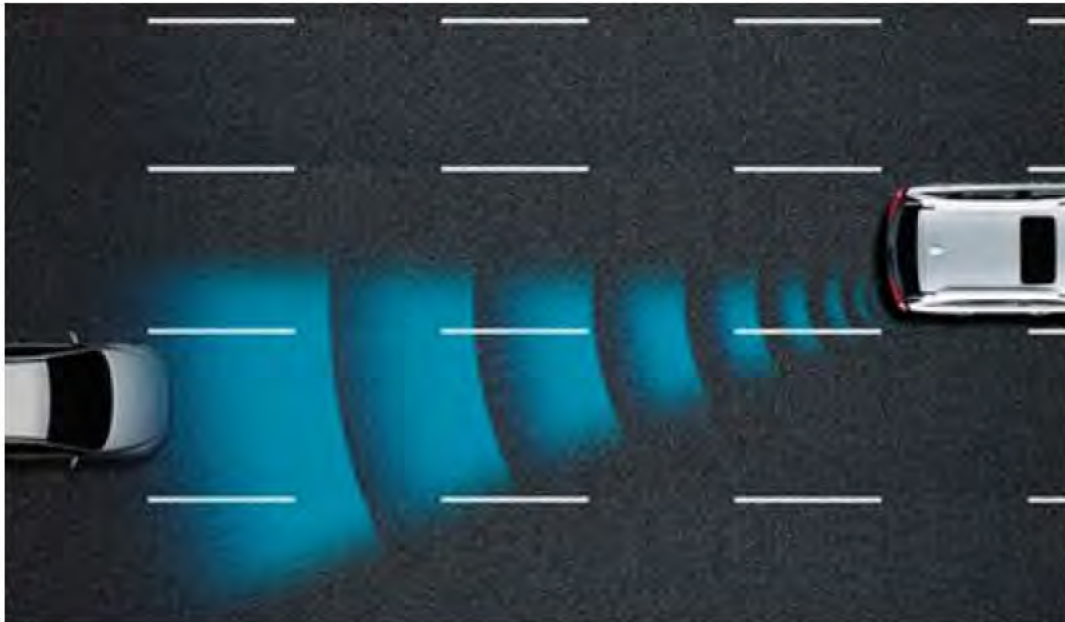


The following features represent standard ADAS equipment across all models and trims of the 2020 Kia Telluride.

Blind-Spot Collision-Avoidance Assist-Rear (BCA-R)

Lorem ipsum dolor sit amet, consectetur adipiscing elit. In et tincidunt diam, vitae tincidunt diam. Maecenas varius diam sed aliquam tempor. Sed facilisis tincidunt purus a lacinia. Interdum et malesuada fames ac ante ipsum primis in faucibus. Maecenas vulputate efficitur felis.

Blind-Spot Collision Warning (BSW) - Not listed in PRG



FPO ONLY--FINAL BSW IMAGE TO GO HERE.

Eliminate areas you can't see with Blind-Spot Collision Warning. This smart technology feature monitors blind spots and visually alerts you in the side-view mirror if another vehicle enters a blind spot.

Driver Attention Warning (DAW)

FEATURE DESCRIPTION TBD

Lorem ipsum dolor sit amet, consectetur adipiscing elit. In et tincidunt diam, vitae tincidunt diam. Maecenas varius diam sed aliquam tempor. Sed facilisis tincidunt purus a lacinia. Interdum et malesuada fames ac ante ipsum primis in faucibus. Maecenas vulputate efficitur felis.

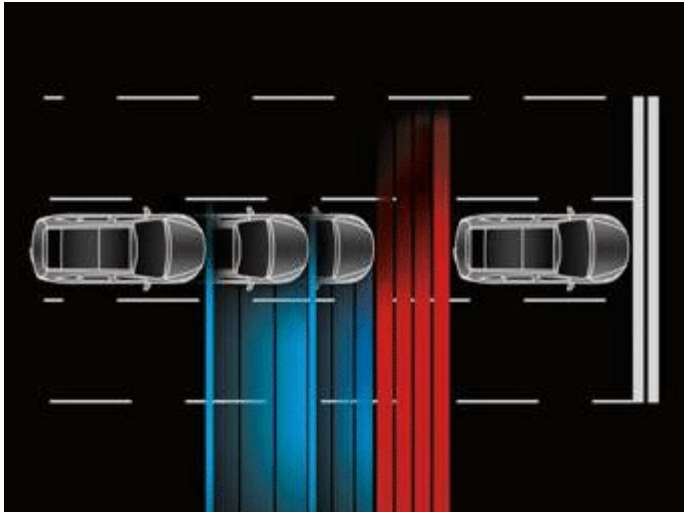
Forward Collision Avoidance w/ Pedestrian Detection (FCA)

Warning signals and automatic braking if you don't react help avoid or mitigate an accident. A radar on the car's front bumper and camera on the windshield detect potential dangers in the car's path, including pedestrians and cars.



FPO ONLY--FINAL FCA IMAGE TO GO HERE.

Forward Collision Warning (FCW)



FPO ONLY--FINAL FCW IMAGE TO GO HERE.

FEATURE DESCRIPTION TBD

Lorem ipsum dolor sit amet, consectetur adipiscing elit. In et tincidunt diam, vitae tincidunt diam. Maecenas varius diam sed aliquam tempor. Sed facilisis tincidunt purus a lacinia. Interdum et malesuada fames ac ante ipsum primis in faucibus. Maecenas vulputate efficitur felis.

High Beam Assist (HBA)

FEATURE DESCRIPTION TBD

Lorem ipsum dolor sit amet, consectetur adipiscing elit. In et tincidunt diam, vitae tincidunt diam. Maecenas varius diam sed aliquam tempor. Sed facilisis tincidunt purus a lacinia. Interdum et malesuada fames ac ante ipsum primis in faucibus. Maecenas vulputate efficitur felis.

Lane Departure Warning (LDW)

FEATURE DESCRIPTION TBD

Lorem ipsum dolor sit amet, consectetur adipiscing elit. In et tincidunt diam, vitae tincidunt diam. Maecenas varius diam sed aliquam tempor. Sed facilisis tincidunt purus a lacinia. Interdum et malesuada fames ac ante ipsum primis in faucibus. Maecenas vulputate efficitur felis.

*Lane Following Assist (LFA)



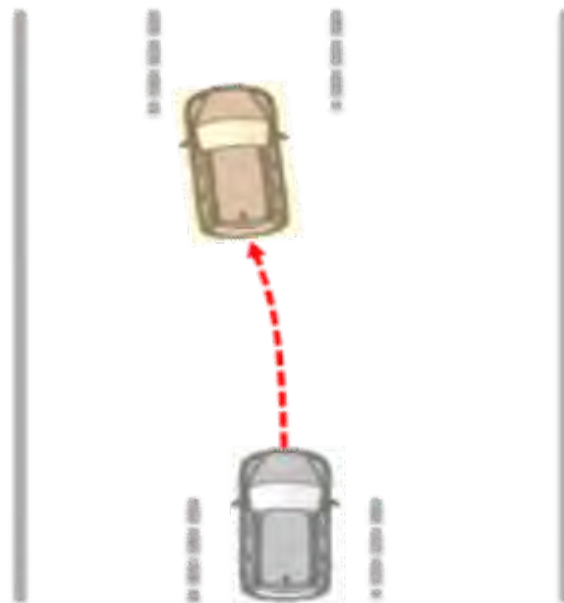
FPO ONLY--FINAL LFA IMAGE TO GO HERE.

Lane Following Assist tracks the vehicle in front during high traffic conditions, and identifies appropriate spaces in other lanes to move into safely and gain more ground in heavy congestion. The system uses external sensors to maintain a safe distance from the vehicle in front at all times, and only maneuvers when safe spaces are available.

*Segment first

Lane Keeping Assist (LKA)

No need to worry about drifting out of your lane. The Lane Keeping Assist alerts you and even steers you back into place to keep you exactly where you need to be.



FPO ONLY--FINAL LKA IMAGE TO GO HERE.

Park Distance Warning - Reverse (PDW-R)

FEATURE DESCRIPTION TBD

Lorem ipsum dolor sit amet, consectetur adipiscing elit. In et tincidunt diam, vitae tincidunt diam. Maecenas varius diam sed aliquam tempor. Sed facilisis tincidunt purus a lacinia. Interdum et malesuada fames ac ante ipsum primis in faucibus. Maecenas vulputate efficitur felis.

Rear Cross-Traffic Collision - Avoidance Assist (RCCA)



FPO ONLY--FINAL RCCA IMAGE TO GO HERE.

You'll have no nasty surprises when backing out of a parking space or driveway. The Rear Cross-Traffic Alert system warns of any cross traffic in the lane you're entering.

Smart Cruise Control w/ STOP & GO

Smart Cruise Control uses a radar sensor at the front of the car to monitor the distance to vehicles ahead. If the predetermined safe distance is not being maintained, the system will reduce the speed, and even stop the car, until the vehicle ahead proceeds.

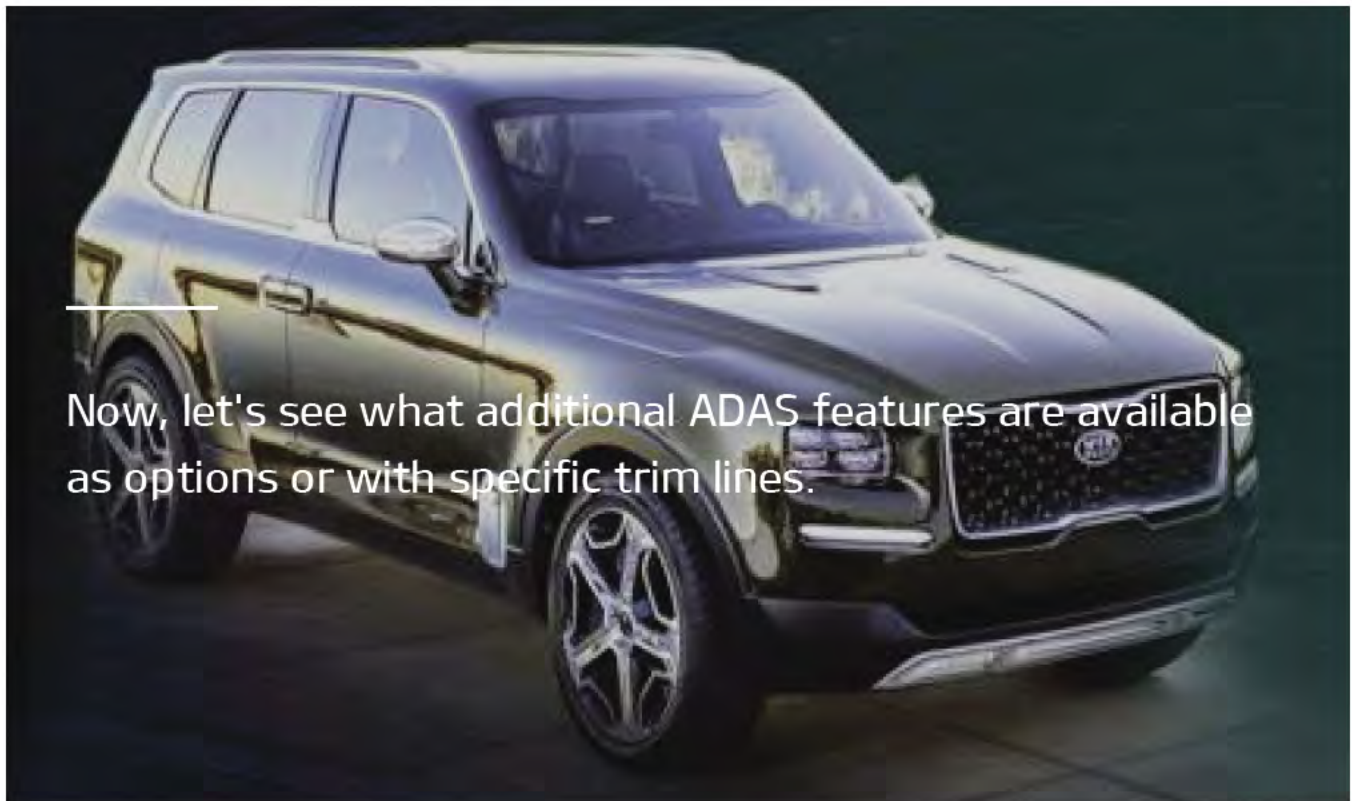


FPO ONLY --FINAL SCC VIDEO TO GO HERE.

As you can see, there's no shortage of driver safety and convenience features in the 2020 Telluride - and they're all standard!

Next, let's explore the suite of available ADAS features...

Trim-Specific Features



Blind-Spot View Monitor



FPO ONLY--FINAL BSM IMAGE TO GO HERE.

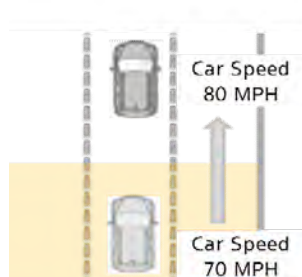
FEATURE DESCRIPTION TBD

Lorem ipsum dolor sit amet, consectetur adipiscing elit. In et tincidunt diam, vitae tincidunt diam. Maecenas varius diam sed aliquam tempor. Sed facilisis tincidunt purus a lacinia. Interdum et malesuada fames ac ante ipsum primis in faucibus. Maecenas vulputate efficitur felis.

*Highway Driving Assist (HDA)

Highway Driving Assist utilizes Kia's radar and LiDAR (Light Detection And Ranging radar) systems to interpret lane markings, allowing the car to stay in its lane and switch into others to overtake other vehicles. This comprehensive system removes the necessity for drivers to use the steering wheel, indicators, or acceleration and brake pedals in many situations, while displaying key information on the LCD head-up display (HUD)

*Segment first



FPO ONLY--FINAL HDA
IMAGES TO GO HERE.

FPO ONLY--FINAL HDA
IMAGES TO GO HERE.

Parking Distance Warning - Forward (PDW-F)

FEATURE DESCRIPTION TBD

Lorem ipsum dolor sit amet, consectetur adipiscing elit. In et tincidunt diam, vitae tincidunt diam. Maecenas varius diam sed aliquam tempor. Sed facilisis tincidunt purus a lacinia. Interdum et malesuada fames ac ante ipsum primis in faucibus. Maecenas vulputate efficitur felis.

Surround View Monitor (SVM)

At speeds below 20 kph (approximately 12 mph), the AVM combines four wide angle images (taken from cameras at the front, rear, and sides of the vehicle) to give you a bird's eye view of the space around you.



FPO ONLY--FINAL SVM
IMAGES TO GO HERE.

FPO ONLY--FINAL SVM
IMAGES TO GO HERE.

Trim-Specific ADAS Features.

Flip the cards below to see how these ADAS features integrate across the Telluride trim lines:

LX

FPO-"LX"

DESIGNATION TO

GO ON TOP OF

The ADAS features mentioned here are not available on the LX model.

EX

FPO-"EX"

DESIGNATION TO

GO ON TOP OF

Highway Driving Assist (HDA) is standard on the EX model.

All other ADAS features mentioned here are not available.

S

FPO-"S"

DESIGNATION TO

GO ON TOP OF S

The ADAS features mentioned here not available on the S model.

SX

FPO-"SX"

DESIGNATION TO

GO ON TOP OF

All ADAS features mentioned here are standard on the SX model.

The suite of available ADAS features on the Telluride is enough to give any driver a sense of ease on the road.

But, there are plenty of other reasons to trust our safety systems. Check out our NHTSA and IIHS ratings...

Safety Accolades and Ratings



Safety Ratings

1

FPO FOR NHTSA DATA AND SUMMARY OF FINDINGS

2

FPO FOR IIHS DATA AND SUMMARY OF FINDINGS

3rd Party Press Reviews

1

FPO FOR EDMUNDS.COM SAFETY REVIEW

2

FPO FOR KBB.COM SAFETY REVIEW

3

FPO FOR CONSUMER REPORTS SAFETY REVIEW

It's time to "lock in the learning" with a quick **Knowledge Check...**

Knowledge Check

Answer the following **five questions** to see how much you remember! **Four correct answers** will result in a passing mark. Good luck!

Question

01/05

Select the ADAS features that are standard on the Kia Telluride SX.

- Around View Monitor (SVM)
- Highway Driving Assist (HDA)
- Smart Cruise Control (SCC)
- Lane Keeping Assist (LKA)

Question

02/05

Which of the following are the two general categories of ADAS features?

- Driving Safety
- Driving Autonomy
- Driving Awareness
- Driving Convenience

Question

03/05





ADAS stands for...

- Autonomous Driving Advanced Systems
- Adaptive Driver Assist System
- Adaptive Driving and Assisted Steering
- Automobile Driver Avoidance System

Question

04/05

Match each **standard safety feature** with its correct description.

 Blind Spot Collision-Avoidance Assist-Rear (BCA-R)	Monitors blind spots. Provides visual alert if a vehicle is detected in a blind spot.
 Rear Cross-Traffic Collision - Avoidance Assist (RCCA)	Warning signal and automatic braking if driver doesn't react to vehicle in front
 Forward Collision Avoidance w/ Pedestrian Detection (FCA)	Automatically engages high beams when safe to do so.
 High Beam Assist (HBA)	In reverse, radar sensors monitor cross-traffic and alert driver when objects are detected

Question

05/05

True or False: Blind Spot View Monitor (BVM) always provides a video display of your blind spots in the center of your instrument panel.



-
- True
 - False

Thank You!



Before You Go...

GAMEON

2020 Kia Telluride

We'd like to remind you of the upcoming LIVE training tour for the 2020 Kia Telluride: GameOn.

Look for more information soon and ask your supervisor for the date we'll be visiting your dealership.

You won't want to miss it!



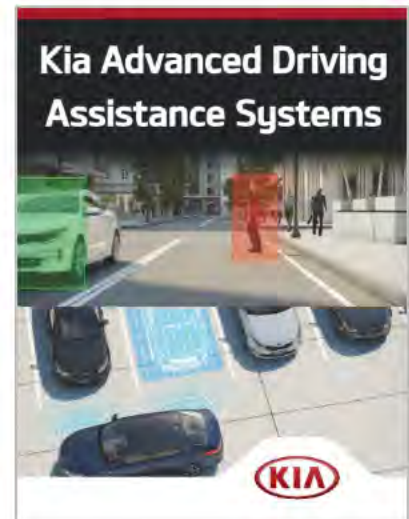
KIA MOTORS AMERICA, INC.
Corporate Headquarters
111 Peters Canyon Rd.
Irvine, CA 92606
TEL: (800) 542-5611
FAX: (949) 468-4905

TO: Dealer Sales Team
SUBJECT: IQS Quick Tip #17 ADAS, Apple CarPlay, Android Auto, UVO Link
DATE: December 15, 2020

Many Kia models are equipped with advanced technology features that can enhance the customer's experience with their new vehicle. Please review the following features/systems during every new car delivery and ensure that any hangtags/brochures are left in the vehicle for the customer to reference.

Kia Advanced Driving Assistance Systems (ADAS)

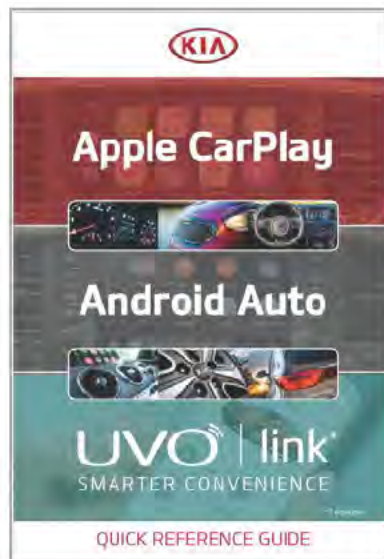
- Forward Collision-Avoidance Assist (FCA)
- Blind-Spot Collision Warning (BCW)
- Blind-Spot Collision-Avoidance Assist (BCA)
- Rear Cross-Traffic Collision-Avoidance Assist (RCCA)
- Lane Keeping Assist (LKA)
- Lane Following Assist (LFA) System
- Leading Vehicle Departure Alert (LVDA)
- Smart Cruise Control (SCC) with Stop & Go
- Highway Driving Assist (HDA)



Visit the Kia Features YouTube channel to view 33 new feature and function videos including several related to ADAS features.

<https://www.youtube.com/user/KiaFeatureVideos/>

Apple CarPlay, Android Auto, and UVO Link Quick Reference Guide



Help the customer follow the necessary steps to connect their compatible phone(s) to Apple CarPlay, Android Auto, and UVO Link (if customer chooses to and if equipped).

Android Auto

https://www.youtube.com/watch?v=aNX9LovlJ3Q&index=28&list=PL_UL-JGglDC4tMLFlbxYVWa9sRrlJcTxw

Apple CarPlay

https://www.youtube.com/watch?v=C_zkvloSqpI&index=32&list=PL_UL-JGglDC4tMLFlbxYVWa9sRrlJcTxw

Wireless Apple CarPlay and Android Auto

https://www.youtube.com/watch?v=4Xy1dplAoAE&list=PL_UL-JGglDC4i6xzJnnlcUa3Vx-F26wqu&index=21

Kia Access with UVO Link App

https://www.youtube.com/watch?v=3HT4X3MFQys&list=PL_UL-JGglDC4i6xzJnnlcUa3Vx-F26wqu&index=2

Thank you for your attention to explain technology features to our customers!

Julie Kurcz

Executive Director,

Product Quality

KDealer: QUICK TIPS

<https://www.kdealer.com/more/training/Pages/2021MYIQS.aspx>



**KIA MOTORS AMERICA,
INC.**

Corporate Headquarters
111 Peters Canyon Rd.
Irvine, CA 92606
TEL: (800) 542-5611
FAX: (949) 468-4905

TO: Dealer Sales & Service Team
SUBJECT: IQS Quick Tip #21 – Highway Driving Assist (HDA)
DATE: January 5, 2021

On some 2021MY Kia vehicles, Highway Driving Assist (HDA) can adjust the speed of the vehicle when driving on limited/controlled access highways/freeways based on available highway speed information. HDA is designed to set the speed automatically by adjusting the current Smart Cruise Control (SCC) speed to the current speed limits of the highway the vehicle is traveling on.

A customer's ability to understand the functionality and operation of HDA can help avoid "Difficult to Understand" concerns. As part of the perfect delivery, please explain the operation of HDA.

Highway Driving Assist (HDA) Video

https://www.youtube.com/watch?v=yz2V_iwIHsQ



TO OPERATE HIGHWAY DRIVING ASSIST (HDA):

1. Turn SCC on by pressing the CRUISE button (A)
2. Set SCC speed to posted highway speed
3. When HDA is activated and the conditions are met, the Instrument Cluster indicator (B) will illuminate green. If the conditions are not met, HDA will be in standby mode and the indicator light (B) will illuminate white

TO ENABLE HIGHWAY DRIVING ASSIST (HDA):

1. Press the Mode button (D) on the Steering Wheel and go to User Settings in the Instrument Cluster
2. Toggle the OK button (E) up/down and press to: Driver Assistance > Driving Assist > Highway Driving Assist
3. Press the OK button to enable

NOTE: Some models access settings through the Vehicle Settings in the audio head unit.

KEY REMINDERS:

- Current highway speeds and controlled or limited access road information may vary. Future navigation updates may change this information
- If the driver changes the speed while in automatic speed setting mode, it deactivates and enters a manual mode
- When the ignition is cycled, the system returns to its previous state, on or off

Thank you for your continued efforts to strive for a perfect customer delivery experience!

Sincerely,

Julie Kurcz
Executive Director,
Product Quality

KDealer: QUICK TIPS

<https://www.kdealer.com/more/training/Pages/2021MYIOS.aspx>



KIA MOTORS AMERICA, INC.
Corporate Headquarters
111 Peters Canyon Rd.
Irvine, CA 92606
TEL: (800) 542-5611
FAX: (949) 468-4905

TO: Dealer Sales and Service Team
SUBJECT: IQS Quick Tip #26 Advanced Driving Assistance Systems (ADAS) Videos
DATE: January 20, 2021

Did you know that **more than 3%** of our new owners surveyed in the Sales survey mention they find at least one Advanced Driving Assistance Systems (ADAS) feature difficult to understand or use? Taking the time to explain ADAS features during the perfect delivery can improve customer sales satisfaction and reduce the incidence of a misunderstanding. It is important for customers to know how to change the settings or to turn ADAS features off or on.

Visit the Kia Features YouTube channel to view new videos on some of these features at

<https://www.youtube.com/user/KiaFeatureVideos/>

The screenshot shows the YouTube channel page for 'Kia Features & Functions Videos'. The channel has 17.9K subscribers. The page displays a grid of video thumbnails. A red box highlights a section titled 'New Advanced Driving Assistance Systems (ADAS)' which includes the following videos:

- Leading Vehicle Departure Alert (LVDA) - 1K views • 2 months ago
- Rear Cross-Traffic Collision Avoidance Assist (RCCA) - 888 views • 2 months ago
- Safe Exit Assist (SEA) - 677 views • 2 months ago
- Highway Driving Assist (HDA) - 2.2K views • 2 months ago
- Forward/Reverse Parking Distance Warning (PDW) - 1.4K views • 2 months ago
- Surround View Monitor (SVM) - 1K views • 2 months ago

Direct links to some of the ADAS videos are found below:

Leading Vehicle Departure Alert (LVDA) Video

<https://www.youtube.com/watch?v=ddo7k85jsaA>

Rear Cross-Traffic Collision-Avoidance Assist (RCCA) Video

https://www.youtube.com/watch?v=ChaaFucAl_c

Lane Following Assist (LFA) Video

https://www.youtube.com/watch?v=_2oCok5xSFo

Safe Exit Assist (SAE) Video


<https://www.youtube.com/watch?v=KGrqQGOWGEA>

Thank you for your attention and diligence to explain technology features to our customers!

Julie Kurcz
Executive Director,
Product Quality

KDealer: QUICK TIPS

<https://www.kdealer.com/more/training/Pages/2021MYIQS.aspx>

	GROUP Electrical	MODEL All Equipped Models
	NUMBER PS663	DATE October 2020



TECHNICAL OPERATIONS

SUBJECT: MFC, CONCERNS FOR DISABLED OPERATION

This Pitstop provides information regarding concerns with disabled operation of Multi-Function Camera (MFC) on some Kia vehicles. When normal operation is not possible due to concerns (outside environment conditions such as; sunlight glare, heavy rain, sunlight, snow, fog and/or substance/debris) causing a temporary concern. This stops operation causing 'Warning Lamp ON' and/or 'Pop-up Message' displayed on the cluster. This is a normal operation of the ADAS and once environment conditions improve and/or substance/debris are removed, the system will clear itself and operate normally.

*** NOTICE**

This system is only a supplemental system and is not intended to, nor does it, replace the need for extreme care and attention of the driver. The sensing range and objects detectable by the sensor are limited. Refer to the owner's manual for detailed information that may affect the performance.

Sensor Locations (Radar and Camera):



[Front Radar]



[Front camera: MFC]

Common causes for temporary disabled ADAS operation:



[Heavy Snow / Rain]



[Direct Sunlight / Heavy Fog]



[Contaminated Vehicle]

Printed Pitstop copy is for reference only; information may be updated at any time. Always refer to KGIS for the latest information.



GROUP
Electrical
NUMBER
PS704

MODEL
2014MY~
Applicable Models
DATE
August 2021



TECHNICAL OPERATIONS

FRONT RADAR SENSOR MOUNTING INSPECTION (PS704)

SUBJECT:

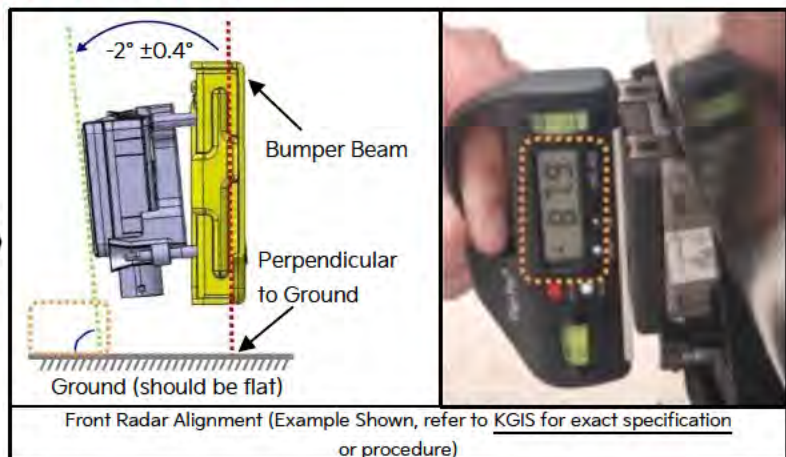
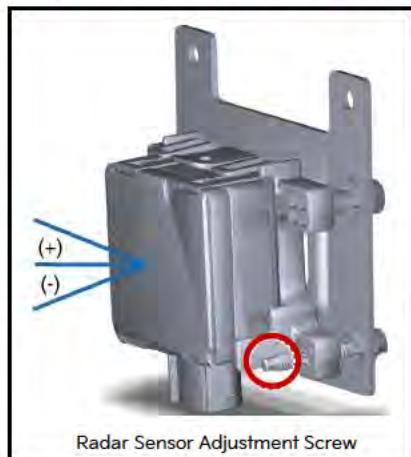
This pitstop provides information regarding front radar sensor alignment on 2014MY and later vehicles that may exhibit a warning light ON related to radar sensor alignment errors in the Forward Collision-Avoidance Assist (FCA)/Smart Cruise Control (SCC) system. These alignment errors may be due to a collision or other outside impact that may have caused the radar unit to lose its original factory setting. The underlying damage may not be readily apparent from the exterior. In these cases, replace the damaged bracket or bumper beam and perform the Front Radar Sensor Alignment by referring to the "Brake System → Forward Collision-Avoidance Assist (FCA) System → Repair procedures" in the applicable Shop Manual on KGIS.

If radar sensor alignment is needed review the videos on KGIS under "Publication → Tech Videos → Brake System"

- [\[VID031\]Tech Toolbox: Radar Alignment Procedures](#)
- [\[VID039\]Tech Toolbox: Front Radar KDS Running Mode Calibration](#)




Note: Check for any bent mounting brackets or bumper beam damage where the radar sensor is mounted that may have caused the radar sensor to go out of factory alignment.



- ❖ If the Front Radar Alignment does not correct the concern, dealer should diagnose and replace the required part(s) and perform the alignment as necessary.

NOTICE

All Warranty Claims require the "Before" and "After" Vertical Angle measurements documented in the claim notes.

	GROUP ELE	MODEL 2021MY Seltos (SP2)
	NUMBER 194	DATE March 2020
TECHNICAL SERVICE BULLETIN		
SUBJECT: SERVICE ACTION: FRONT RADAR DTC JUDGEMENT LOGIC IMPROVEMENT (SA414)		

This bulletin provides the procedure to improve the logic of the front radar software on some 2021MY Seltos SX (SP2) vehicles equipped with 1.6L-T Gamma engine, produced from November 20, 2019 through February 14, 2020, which may set a MIL ON with DTC C1604. To correct this concern, apply the improved logic to the ECU using the KDS ECU Upgrade function as described in this bulletin. For confirmation that the latest reflash has been applied to a vehicle you are working on, verify the ROM ID using the table on page 2 of this bulletin. Before conducting the procedure, verify the vehicle is included in the list of affected VINs.

DTC C1604: ECU Hardware Error



Kia Diagnostic System (KDS)

*** NOTICE**

A Service Action is a repair program without customer notification that is performed during the warranty period. Any dealer requesting to perform this repair outside the warranty period will require DPSM approval.

Repair status for a VIN is provided on WebDCS (Service → Warranty Coverage → Warranty Coverage Inquiry → Campaign Information). Not completed Recall / Service Action reports are available on WebDCS (Consumer Affairs → Not Completed Recall → Recall VIN → Select Report), which includes a list of affected vehicles.

This issue number is SA414.

SUBJECT:

SERVICE ACTION: FRONT RADAR DTC JUDGEMENT LOGIC IMPROVEMENT (SA414)

ECU Upgrade Procedure:

To correct this condition, the ECU should be reprogrammed using the KDS download, as described in this bulletin.

Upgrade Event Name
485. SP2 FRONT RADAR DTC JUDGMENT LOGIC IMPROVEMENT

* NOTICE


- A fully charged battery is necessary before ECU upgrade can take place. It is recommended that a battery charger is used in ECU mode during reflashing or the use of a fully charged jump starter box connected to the battery.
- DO NOT connect any other battery charger to the vehicle during ECU upgrade.
- Ensure the KDS or GDS is sufficiently charged prior to reflash.
- All ECU upgrades must be done with the ignition key in the 'ON' position.
- Be careful not to disconnect the VCI-II connected to the vehicle during the ECU upgrade procedure.
- DO NOT start the engine during ECU upgrade.
- Do NOT turn the ignition key 'OFF' or interrupt the power supply during ECU upgrade.
- When the ECU upgrade is completed, turn the ignition 'OFF' and wait 10 seconds before starting the engine.
- ONLY use approved ECU upgrade software designated for the correct model and model year.

* NOTICE

Before attempting an ECU upgrade on any Kia model, make sure to first determine whether the particular model is equipped with an immobilizer security system. Failure to follow proper procedures may cause the PCM to become inoperative after the upgrade and any claims associated with this repair may be subject to chargeback.

ROM ID INFORMATION TABLE:

Upgrade Event #485

Model	EM	TM	IMMO 	ECU P/No.	ROM ID	
					Previous	New
SP2	ALL	A/T	Yes	99110-Q5100	1.03	1.04

To verify the vehicle is affected, be sure to check the Calibration Identification of the vehicle's ECM ROM ID and reference the Information Table as necessary.

SUBJECT: SERVICE ACTION: FRONT RADAR DTC JUDGEMENT LOGIC IMPROVEMENT (SA414)

*** NOTICE**

Prior to performing the ECU upgrade, be sure to check that the KDS is fully charged.

1. Connect the VCI-II to the OBD-II connector, located under the driver's side of the instrument panel.

*** NOTICE**

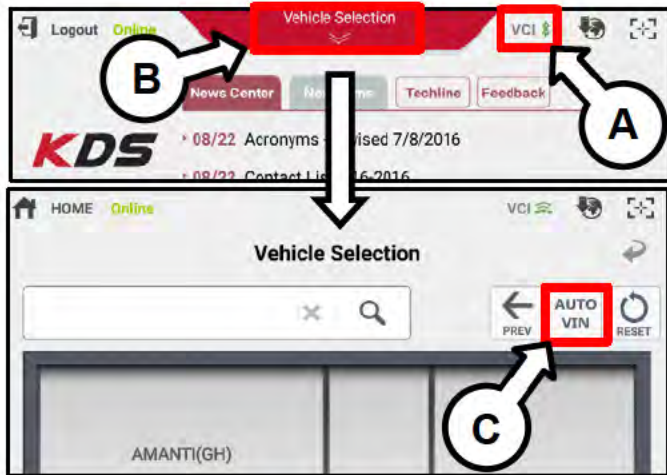
The ECU upgrade function on KDS operates wirelessly. It is not necessary to perform the upgrade via USB cable.



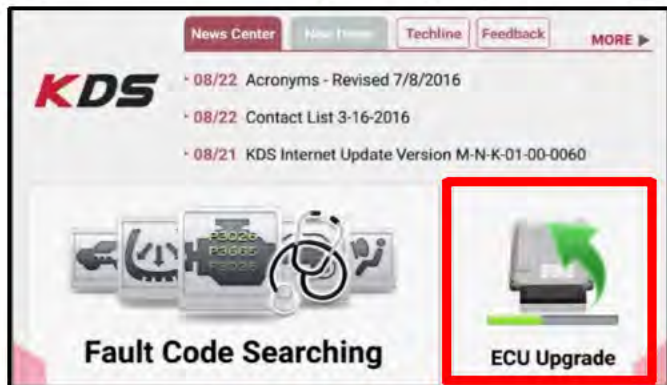
2. With the ignition ON, turn ON the KDS tablet. Select **KDS** from the home screen.



3. Confirm communication with VCI (A) and then configure the vehicle (B) using the **AUTO VIN** (C) feature.



4. Select **ECU Upgrade**.



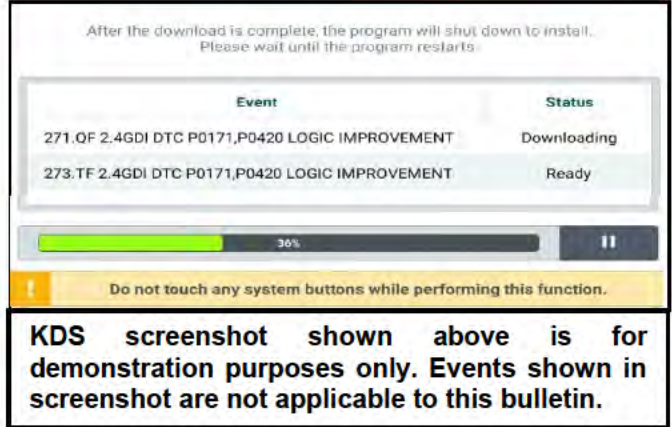
SUBJECT:

SERVICE ACTION: FRONT RADAR DTC JUDGEMENT LOGIC IMPROVEMENT (SA414)

- The KDS will check the server for recently uploaded Events and then automatically download **Upgrade Event #485**.

*** NOTICE**

The vehicle must be identified in Vehicle Selection to download an Event for that vehicle.



- Select **Auto Mode**.

CAUTION

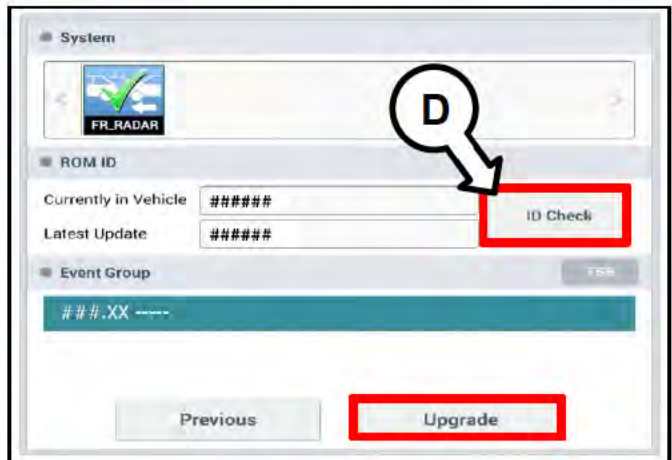
Do NOT attempt to perform a Manual Mode upgrade UNLESS Auto Mode fails. Always follow the instructions given on the KDS in either Auto or Manual mode.



- Select the **FR_RADAR** system under the System selection menu.

Touch **ID Check** (D) and confirm that the latest update is available.

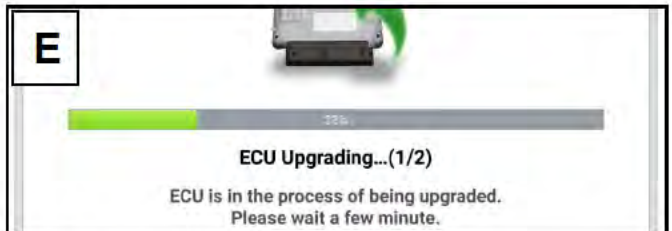
Select **Upgrade Event #485** and select **Upgrade** to continue.



- The ECU upgrade will begin and the progress of the upgrade will appear on the bar graph. Upgrade part (1/2) (E) will download the upgrade event to the VCI-II. Upgrade part (2/2) (F) will upgrade the ECU.

CAUTION

Do not touch the system buttons (like 'Back', 'Home', 'etc.') while performing ECU Upgrade.



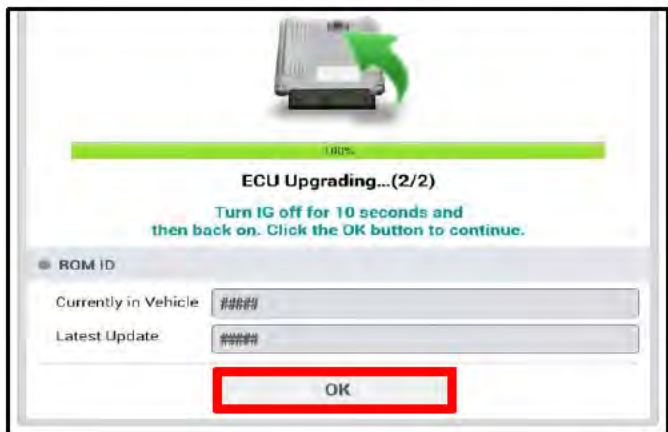
SUBJECT: SERVICE ACTION: FRONT RADAR DTC JUDGEMENT LOGIC IMPROVEMENT (SA414)

- If a "Communication Fail" screen appears, verify that the VCI-II and KDS are communicating properly. Touch **OK** and restart the procedure from step 4.

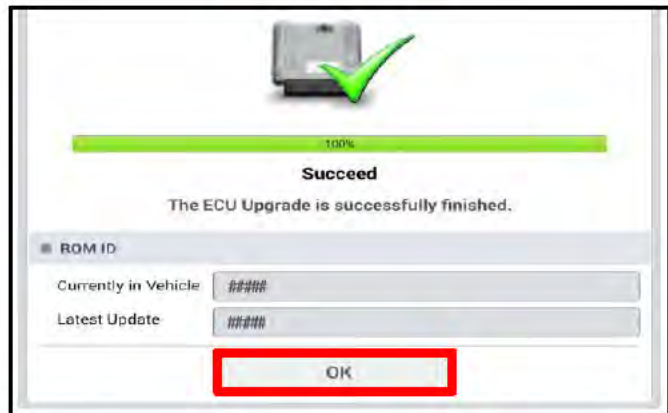
*** NOTICE**
 If an error notice continues to appear or if the upgrade cannot be performed, **DO NOT** disconnect the KDS/VCI-II. Contact GIT America Help Desk at (888) 542-4371 or Techline.



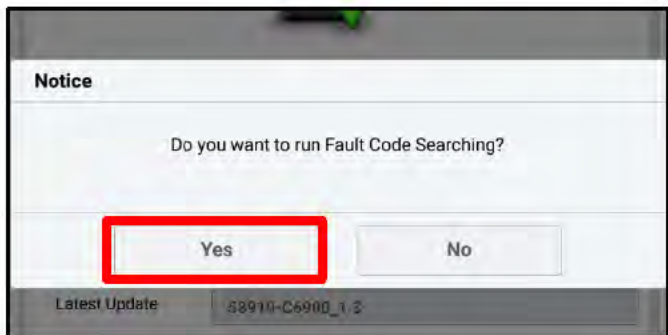
- When instructed on the KDS, turn the ignition **OFF** for ten (10) seconds then back on. Touch **OK** to continue.



- Once the upgrade is complete, touch **OK** to finalize the procedure.



- When prompted, select **YES** to check for Diagnostic Trouble Codes (DTC) and erase any DTCs stored such as EPS, ESC, and TPMS that may have been set during the upgrade.



- Start the engine to confirm proper operation of the vehicle.



Manual Upgrade Procedure:*** NOTICE**

The manual upgrade should **ONLY** be performed if the automatic upgrade fails.

If the automatic upgrade fails, turn the ignition **OFF** for about 10 seconds then place it back in the **ON** position to reset the control unit **BEFORE** performing manual upgrade.

See table below for Manual Mode passwords.

Manual Mode ECU Upgrade Passwords

Menu	Password
SP2 FRONT RADAR : 99110-Q5100	5100

1. Within the ECU Upgrade screen displayed, select **Manual Mode**.
2. Select the **FR_Radar** system under the System selection menu. Select **Upgrade Event #485** and select **Upgrade** to continue.
3. Select the appropriate control unit part number with reference to the ROM ID Information Table on page 2, and select **OK**.
4. Enter the appropriate password from the Manual Mode password table above and select **OK**.
5. The upgrade will begin and the progress of the upgrade will appear on the bar graph.
6. When instructed on the KDS, turn the ignition **OFF** for ten (10) seconds then back on. Touch **OK** to continue.
7. Once the upgrade is complete, touch **OK** to finalize the procedure.
8. When prompted, select **YES** to check for Diagnostic Trouble Codes (DTC) and erase any DTCs stored such as EPS, ESC, and TPMS that may have been set during the upgrade.
9. Start the engine to confirm proper operation of the vehicle.

SUBJECT:

**SERVICE ACTION: FRONT RADAR DTC JUDGEMENT
LOGIC IMPROVEMENT (SA414)**

AFFECTED VEHICLE RANGE:

Model	Production Date Range
Seltos (SP2)	November 20, 2019 to February 14, 2020

WARRANTY INFORMATION:

N Code: N99 C Code: C99

Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	Op Time	Replacement P/N	Qty.
V	99110 Q5100	0	(SA414) Front Radar DTC Judgement Logic Improvement	200010R0	0.4 M/H	N/A	0

*** NOTICE**

VIN inquiry data for this repair is provided for tracking purposes only. Kia retailers should reference SA414 when accessing the WebDCS system.





GROUP	MODEL
ELE	2019-2022MY Applicable Models Listed
NUMBER	DATE
246	August 2021

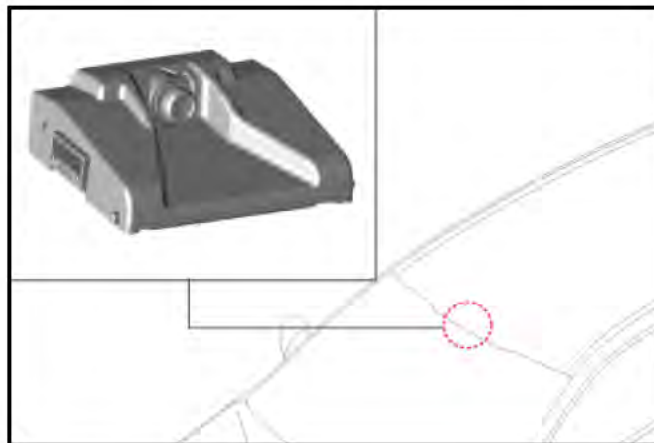
TECHNICAL SERVICE BULLETIN

SUBJECT:

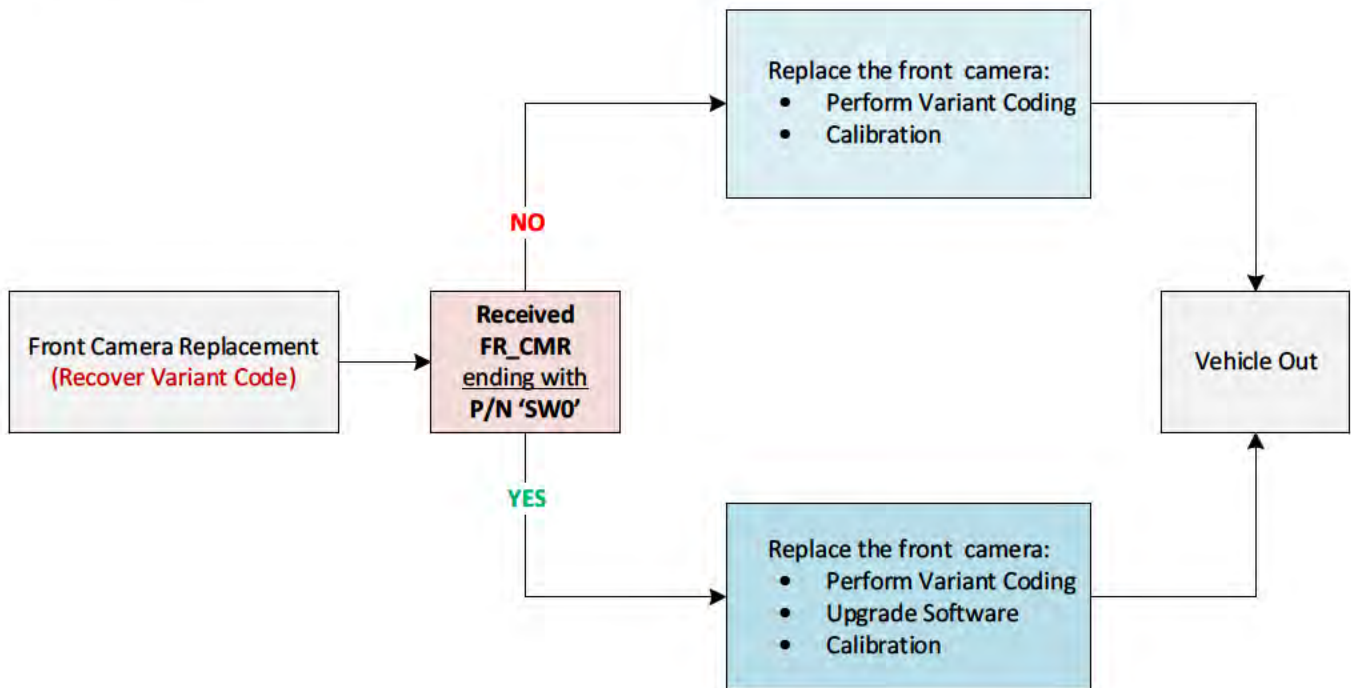
FRONT VIEW CAMERA REPLACEMENT AND SOFTWARE UPGRADE INSTALLATION

This bulletin provides the procedure to update the software logic of the Front Camera (FR_CMR) system on the vehicles listed below, which have had a new replacement Front View Camera installed without software upgrade. New parts with a part number ending in "SW0" do not have the operating software upgrade installed. If the S/W is not upgraded, units will exhibit a warning light ON with Diagnostic Trouble Codes (DTCs) related to the Front Camera (FR_CMR). Follow the procedures outlined in this publication to recover and record the prior variant coding value before replacement. For confirmation that the latest reflash has been applied to a vehicle you are working on, verify the ROM ID using the table on page 4 of this bulletin.

System	Model	Model Years
Front Camera (FR_CMR)	Niro HEV (DE HEV)	2019 - 2022
	Seltos (SP2)	2021 - 2022
	Soul (SK3)	2020 - 2021
	Sportage (QL)	2019 - 2022
	Telluride (ON)	2020 - 2022



Flowchart:

**ⓘ IMPORTANT**

When replacing the front view camera with a new one, perform the 'Variant Coding' procedure using KDS (Refer to KGIS for further instructions).

Replacement Procedure:

1. Replace the Front Camera with the new part number ending in "SW0" by referring to the "Advanced Driver Assistance System (ADAS) → Front View Camera System → Front View Camera Unit → Repair procedures" OR "Body Electrical System → Lane Departure Warning System (LDWS) → Lane Departure Warning System (LDWS) unit → Repair procedures" OR "Brake System → Forward Collision-Avoidance Assist (FCA) System → Lane Departure Warning System (LDWS) unit → Repair procedures" chapter in the applicable Shop Manual on KGIS.

📄 NOTICE

Record the prior variant coding value before removing the front view camera. Replace the front camera, apply the variant code from the removed camera and apply the software upgrade to the 'FR_CMV' system using the KDS ECU Upgrade function as described in this bulletin, then proceed to the calibration as described in KGIS.

SUBJECT:

FRONT VIEW CAMERA REPLACEMENT & S/W UPGRADE INSTALLATION

Front Camera ECU Upgrade Procedure:

To correct this condition, the ECU should be reprogrammed using the KDS download, as described in this bulletin.

Upgrade Event Name
554. ON FR_CMR UPGRADE AFTER FRONT CAMERA REPLACEMENT
555. DE HEV FR_CMR UPGRADE AFTER FRONT CAMERA REPLACEMENT
556. QL FR_CMR UPGRADE AFTER FRONT CAMERA REPLACEMENT
557. SK3 FR_CMR UPGRADE AFTER FRONT CAMERA REPLACEMENT
558. SP2 FR_CMR UPGRADE AFTER FRONT CAMERA REPLACEMENT


 NOTICE

- Confirm a fully charged battery (12.3 volts or higher is necessary) is used or utilize a fully charged jump starter box connected to the battery.
- **Ensure the KDS is sufficiently charged at 60% or higher prior to reflash.**
- All ECU upgrades must be performed with the ignition set to the 'ON' position unless otherwise stated.
- **Damaged VCI II units should not be used and promptly replaced.**
- Be careful not to disconnect the VCI-II connected to the vehicle during the ECU upgrade procedure.
- **DO NOT start the engine during ECU upgrade.**
- **DO NOT** turn the ignition key 'OFF' or interrupt the power supply during ECU upgrade.
- **When the ECU upgrade is completed, turn the ignition 'OFF' and wait 10 seconds before starting the engine.**
- **ONLY** use approved ECU upgrade software designated for the correct application.

 IMPORTANT

It is recommended to ALWAYS check the Electronic Parts Catalog (EPC) to locate the ECU Part Number respective to Auto/Manual Mode ROM IDs. DO NOT reference the parts label affixed to the ECU.

NOTICE

Before attempting an ECU upgrade on any Kia model, make sure to first determine whether the applicable model is equipped with an immobilizer  security system. Failure to follow proper procedures may cause the PCM to become inoperative after the upgrade and any claims associated with this repair may be subject to chargeback.

ROM ID INFORMATION TABLE:**Upgrade Event #554 (Telluride)**

Model	System	Camera P/N		ROM ID	
		Previous	New	Previous	New
ON	FR_CMR	99211 S9100	99211 S9100SWO	1.ON	1.03

Upgrade Event #555 (Niro HEV)

Model	System	Camera P/N		ROM ID	
		Previous	New	Previous	New
DE HEV	FR_CMR	99211 G5000	99211 G5000SWO	1.DE	1.07

Upgrade Event #556 (Sportage)

Model	System	Camera P/N		ROM ID	
		Previous	New	Previous	New
QL	FR_CMR	99211 F1000	99211 F1000SWO	1.QL	1.06

Upgrade Event #557 (Soul)

Model	System	Camera P/N		ROM ID	
		Previous	New	Previous	New
SK3	FR_CMR	99211 K0000	99211 K0000SWO	1.SK	1.02
		99211 K0100	99211 K0100SWO	2.SK	1.00

Upgrade Event #558 (Seltos)

Model	System	Camera P/N		ROM ID	
		Previous	New	Previous	New
SP2	FR_CMR	99211 Q5100	99211 Q5100SWO	1.SP	1.05

To verify the vehicle is affected, be sure to check the Calibration Identification of the vehicle's ECM ROM ID and reference the Information Table as necessary.

SUBJECT:

FRONT VIEW CAMERA REPLACEMENT & S/W UPGRADE INSTALLATION

NOTICE

- Confirm a fully charged battery (12.3 volts or higher is necessary) is used or utilize a fully charged jump starter box connected to the battery.
- **Ensure the KDS is sufficiently charged at 60% or higher prior to reflash.**

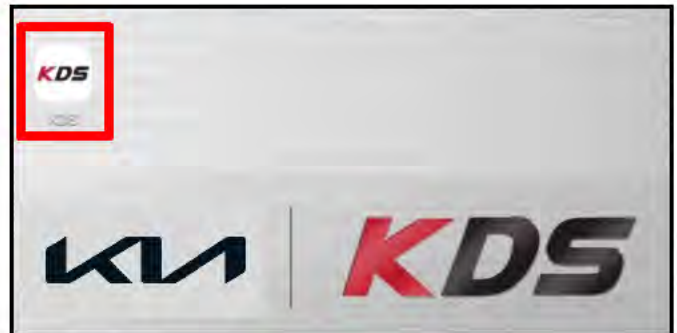
1. Connect the VCI-II to the OBD-II connector, located under the driver's side of the instrument panel.

NOTICE

The ECU upgrade function on KDS operates wirelessly. It is not necessary to perform the upgrade via USB cable.



2. With the ignition ON, turn ON the KDS tablet. Select 'KDS' from the home screen.



3. Confirm communication with VCI (A) and then configure the vehicle (B) using the 'AUTO VIN' (C) feature.



4. Select 'ECU Upgrade'.



SUBJECT: FRONT VIEW CAMERA REPLACEMENT & S/W UPGRADE INSTALLATION

- The KDS will check the server for recently uploaded Events and then automatically download Upgrade Event #554 (ON), #555 (DE HEV), #556 (QL), #557 (SK3), or #558 (SP2).

NOTICE

The vehicle must be identified in Vehicle Selection to download an Event for that vehicle.

After the download is complete, the program will shut down to install. Please wait until the program restarts.

Event	Status
271.QF 2.4GDI DTC P0171,P0420 LOGIC IMPROVEMENT	Downloading
273.TF 2.4GDI DTC P0171,P0420 LOGIC IMPROVEMENT	Ready

36%

Do not touch any system buttons while performing this function.

KDS screenshot shown above is for demonstration purposes only. Events shown in screenshot are not applicable to this bulletin.

- Select Auto Mode.

CAUTION

Do NOT attempt to perform a Manual Mode upgrade UNLESS Auto Mode fails. Always follow the instructions given on the KDS in either Auto or Manual mode.

- Select the FR_CMV system under the System selection menu. Touch ID Check (D) and confirm that the latest update is available. Select Upgrade Event #554 (ON), #555 (DE HEV), #556 (QL), #557 (SK3), or #558 (SP2), and select Upgrade to continue.

- The ECU upgrade will begin and the progress of the upgrade will appear on the bar graph. Upgrade part (1/2) (E) will download the upgrade event to the VCI-II. Upgrade part (2/2) (F) will upgrade the ECU.

CAUTION

Do not touch the system buttons (like 'Back', 'Home', 'etc.') while performing ECU Upgrade.

E

ECU Upgrading...(1/2)

ECU is in the process of being upgraded. Please wait a few minute.

F

ECU Upgrading...(2/2)


ECU is in the process of being upgraded. Please wait a few minute.



SUBJECT:

FRONT VIEW CAMERA REPLACEMENT & S/W UPGRADE INSTALLATION

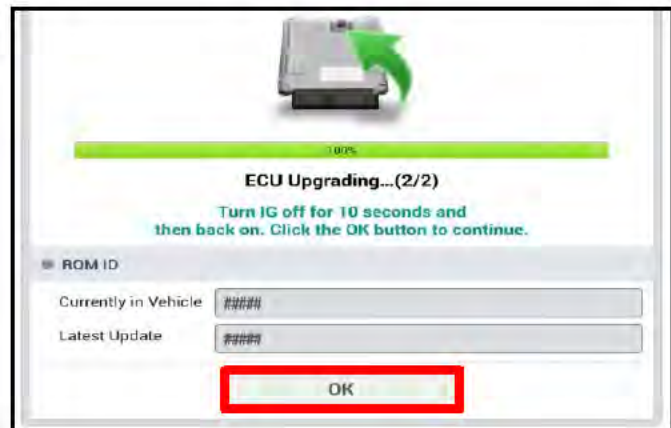
9. If a "Communication Fail" screen appears, verify that the VCI-II and KDS are communicating properly. Select 'OK' and restart the procedure from step 4.

 **NOTICE**

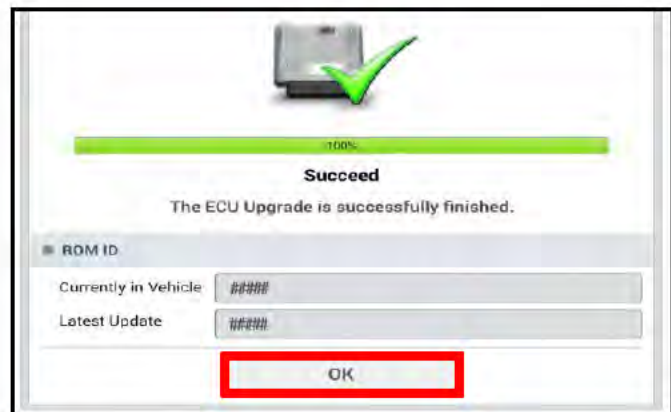
If an error notice continues to appear or if the upgrade cannot be performed, DO NOT disconnect the KDS/VCI-II. Contact GIT America Help Desk at (888) 542-4371 or Techline.



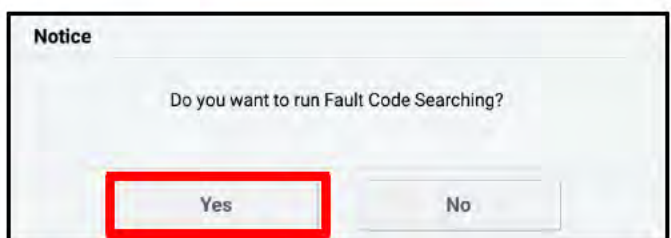
10. When instructed on the KDS, turn the ignition OFF for ten (10) seconds then back on. Select 'OK' to continue.



11. Once the upgrade is complete, select 'OK' to finalize the procedure.



12. When prompted, select 'YES' to check for Diagnostic Trouble Codes (DTC) and erase any DTCs stored such as EPS, ESC, and TPMS that may have been set during the upgrade.



13. Perform Variant Coding & Calibration Procedure.
14. Confirm normal operation.

Manual Upgrade Procedure:**NOTICE**

The manual upgrade should ONLY be performed if the automatic upgrade fails.

If the automatic upgrade fails, turn the ignition 'OFF' for about 10 seconds then place it back in the 'ON' position to reset the control unit BEFORE performing manual upgrade.

See table below for 'Manual Mode' passwords.

Manual Mode ECU Upgrade Passwords

Menu	Password
ON FR_CMV : 99211-S9100	0019
DE HEV FR_CMV : 99211-G5000	0005
QL FR_CMV : 99211-F1000 [1.QL]	0001
QL FR_CMV : 99211-F1500 [2.QL]	0051
SK3 FR_CMV : 99211-K0000 [1.SK]	1129
SK3 FR_CMV : 99211-K0100 [2.SK]	0010
SP2 FR_CMV : 99211-Q5100 [1.SP]	0015

1. Within the ECU Upgrade screen displayed, select **Manual Mode**.
2. Select the FM_CMV system under the System selection menu. Select **Upgrade Event #554 (ON), #555 (DE HEV), #556 (QL), #557 (SK3), or #558 (SP2)** and select **Upgrade** to continue.
3. Select the appropriate control unit part number with reference to the ROM ID Information Table on page 4, and select **OK**.
4. Enter the appropriate password from the Manual Mode password table above and select **OK**.
5. The upgrade will begin and the progress of the upgrade will appear on the bar graph.
6. When instructed on the KDS, turn the ignition OFF for ten (10) seconds then back on. Select **OK**.
7. Once the upgrade is complete, select **OK** to finalize the procedure.
8. When prompted, select **YES** to check for Diagnostic Trouble Codes (DTC) and erase any DTCs stored such as EPS, ESC, and TPMS that may have been set during the upgrade.
9. Perform **Variant Coding & Calibration Procedure**.
10. Confirm normal operation.

SUBJECT: FRONT VIEW CAMERA REPLACEMENT & S/W UPGRADE INSTALLATION
AFFECTED VEHICLE RANGE:

Model	Model Years
Niro HEV (DE HEV)	2019 - 2022
Seltos (SP2)	2021 - 2022
Soul (SK3)	2020 - 2021
Sportage (QL)	2019 - 2022
Telluride (ON)	2020 - 2022

REQUIRED TOOL:

Tool Name	Figure	Comments
KDS		Kia Diagnostic System

REQUIRED PART:

Part Name	Model	Part Number		Figure	Qty.
		Incl. S/W upgrade	Requires S/W upgrade		
Front View Camera	Niro (DE HEV)	99211 G5000	99211 G5000SW0		1
	Seltos (SP2)	99211 Q5100	99211 Q5100SW0		
	Soul (SK3)	99211 K0000	99211 K0000SW0		
		99211 K0100	99211 K0100SW0		
	Sportage (QL)	99211 F1000	99211 F1000SW0		
	Telluride (ON)	99211 S9100	99211 S9100SW0		

SUBJECT: FRONT VIEW CAMERA REPLACEMENT & S/W UPGRADE INSTALLATION
WARRANTY INFORMATION:
N Code: I14 C Code: ZZ3

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	Op Time
DE HEV	W	99211 G5000 or 99211 G5000SWO	1	Front View Camera Replacement + Variant Coding and Calibration	95470R00	0.6 M/H
SP2		99211 Q5100 or 99211 Q5100SWO				
SK3		99211 K0000 or 99211 K0000SWO				
		99211 K0100 or 99211 K0100SWO				
QL		99211 F1000 or 99211 F1000SWO				
ON		99211 S9100 or 99211 S9100SWO				
All		SWO Part Only	0	Front Camera Software Upgrade (Add-on LOP)	95470RA1	0.2 M/H

Note: The software upgrade procedure must be performed with parts number ending in 'SWO' and claimed as an 'add-on labor operation' (LOP) (ex. 95470RA1) during warranty claim entry.



GROUP
ELE

MODEL
2021MY
K5 (DL3a)

NUMBER
216

DATE
October 2020

TECHNICAL SERVICE BULLETIN

**SUBJECT: SERVICE ACTION: MULTI-FUNCTION CAMERA (MFC)
REPLACEMENT (SA442)**

This bulletin provides the procedure to replace the Multi-Function Camera (MFC) on some 2021MY K5 (DL3a) vehicles produced between September 2, 2020 through October 13, 2020 due to an internal control chip concern inside of the camera which may illuminate warning lights in the instrument cluster and/or MIL ON with DTC C160449. Before conducting the procedure, verify the vehicle is included in the list of affected VINs.

DTC Description: C160449 - ECU Hardware Error



* NOTICE

A Service Action is a repair program without customer notification that is performed during the warranty period. Any dealer requesting to perform this repair outside the warranty period will require DPSM approval.

Repair status for a VIN is provided on WebDCS (Service → Warranty Coverage → Warranty Coverage Inquiry → Campaign Information). Not completed Recall / Service Action reports are available on WebDCS (Consumer Affairs → Not Completed Recall → Recall VIN → Select Report), which includes a list of affected vehicles.

This issue number is SA442.

Printed TSB copy is for reference only; information may be updated at any time.
Always refer to KGIS for the latest information.

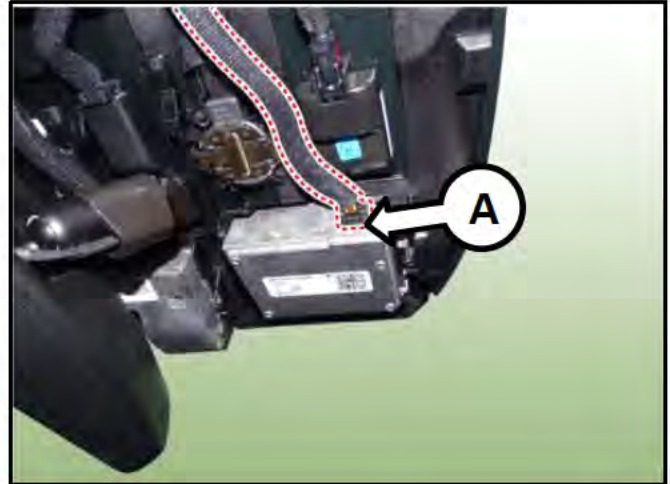
Circulate To: General Manager Service Manager Parts Manager
 Service Advisors Technicians Body Shop Manager Fleet Repair

Replacement Procedure:

1. Save customer radio presets.
2. Replace the Multi-Function Camera (A) by referring to the “Advanced Driver Assistance System (ADAS) → Front View Camera System → Front View Camera Unit → Repair procedures” chapter in the applicable Shop Manual on KGIS.

ⓘ IMPORTANT

Ensure to perform the Front View Camera ‘Adjustment’ process using KDS as outlined in the KGIS instructions.



3. Confirm normal operation.
4. Restore customer radio presets.



SUBJECT:

SERVICE ACTION: MULTI-FUNCTION CAMERA (MFC) REPLACEMENT (SA442)

AFFECTED VEHICLE RANGE:

Model	Production Date Range
K5 (DL3a)	September 2, 2020 to October 13, 2020

REQUIRED TOOL:

Tool Name	Figure	Comments
SCC Setting Beam Level Laser		09964 C1200
LKA Compensator Calibration Target		09890 3V100

REQUIRED PART:

Part Name	Part Number	Figure	Qty.
Multi-Function Camera	99211 L3000		1

WARRANTY INFORMATION:

N Code: N99 C Code: C99

Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	Op Time	Replacement P/N	Qty.
V	99211 L3000	1	(SA422) Multi-Function Camera Replacement	200A16R0	0.5 M/H	N/A	0

*** NOTICE**

VIN inquiry data for this repair is provided for tracking purposes only. Kia retailers should reference **SA442** when accessing the WebDCS system.





GROUP
ELE

MODEL
2021MY
Seltos (SP2)

NUMBER
223

DATE
December 2020

TECHNICAL SERVICE BULLETIN

SUBJECT:

SERVICE ACTION: FRONT VIEW CAMERA REPLACEMENT (SA452)

This bulletin provides information on the inspection and replacement of the front camera of some 2021MY Seltos (SP2) produced from August 10, 2020 through September 02, 2020, which may exhibit illumination of the Forward Collision-Avoidance Assist (FCA) Lane Keep Assistance (LKA) warning lamp in the instrument cluster with DTC C160449. Before conducting the procedure, verify the vehicle is included in the list of affected VINs.

DTC Description:
C160449 – ECU Hardware Error



Front View Camera

★ NOTICE

A Service Action is a repair program without customer notification that is performed during the warranty period. Any dealer requesting to perform this repair outside the warranty period will require DPSM approval.

Repair status for a VIN is provided on WebDCS (Service → Warranty Coverage → Warranty Coverage Inquiry → Campaign Information). Not completed Recall / Service Action reports are available on WebDCS (Consumer Affairs → Not Completed Recall → Recall VIN → Select Report), which includes a list of affected vehicles.

This issue number is SA452.

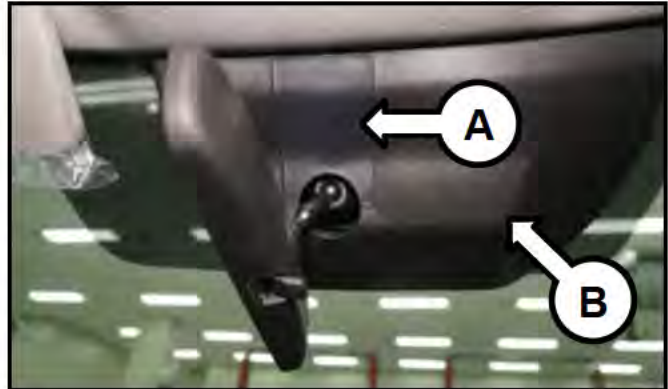
Always refer to KGIS for the latest information.

Circulate To: General Manager Service Manager Parts Manager
 Service Advisors Technicians Body Shop Manager Fleet Repair

SUBJECT: SERVICE ACTION: FRONT VIEW CAMERA REPLACEMENT (SA452)

Replacement Procedure:

- Carefully remove the inside rear view mirror cover (A) and front camera unit cover (B).

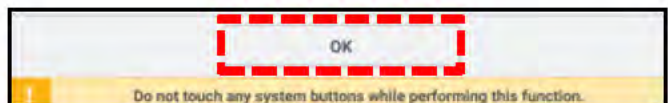
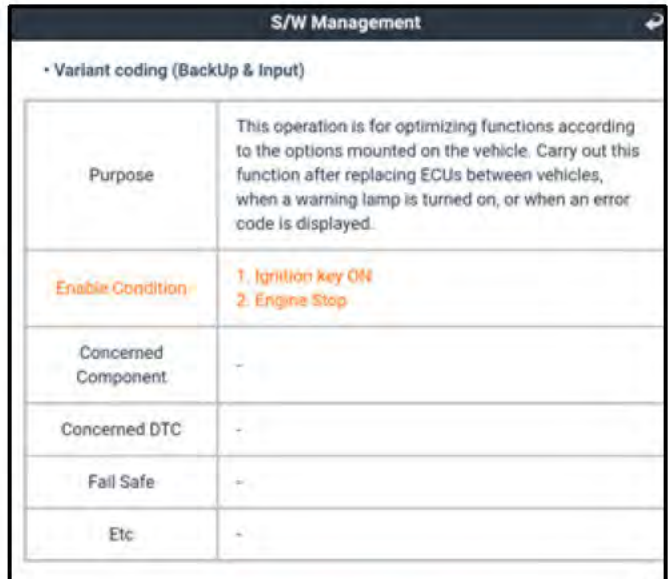


- Connect the VCI to the vehicle's OBD2 port and match to the vehicle model. Set the ignition to "ON"

In the 'Front View Camera' system, select '**Variant coding (BackUp & Input)**'.

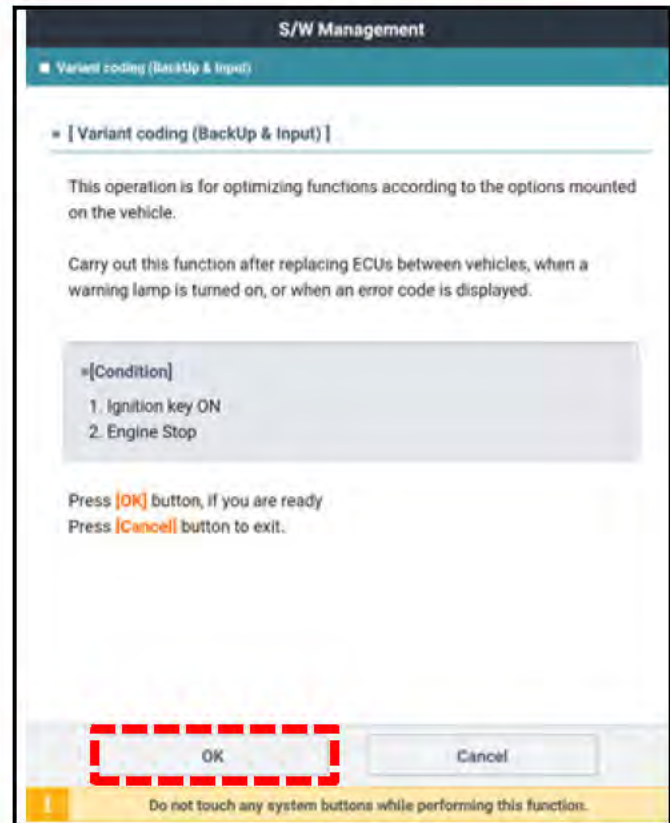


- Select '**OK**'.

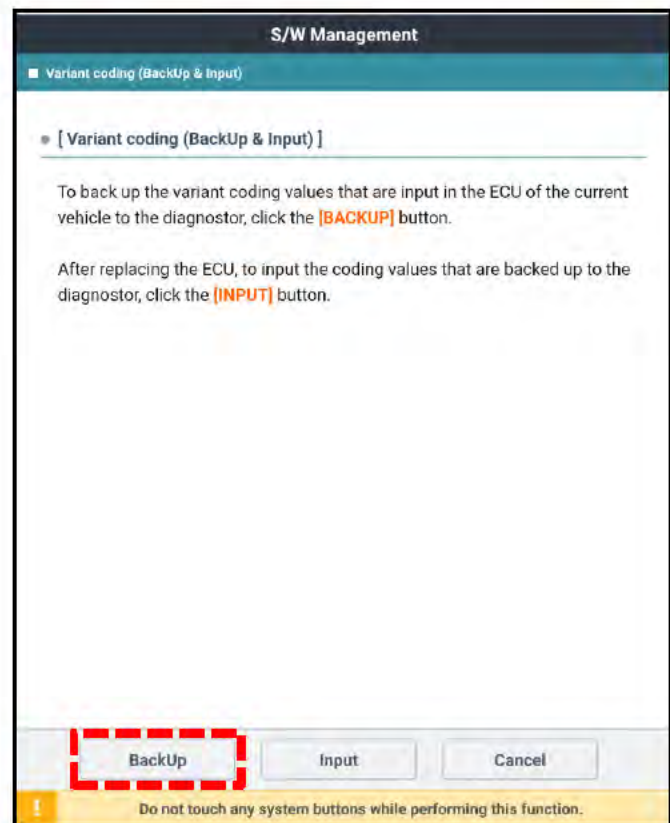


SUBJECT: SERVICE ACTION: FRONT VIEW CAMERA REPLACEMENT (SA452)

4. Select **'OK'**.

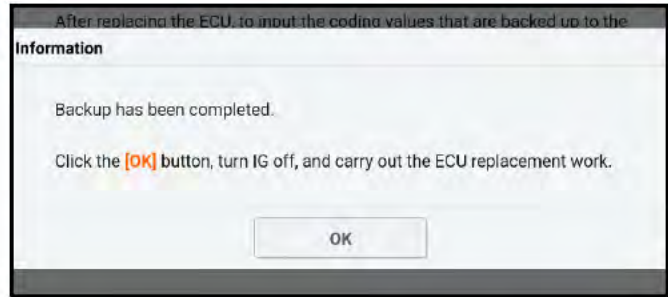


5. Select **'BackUp'**.

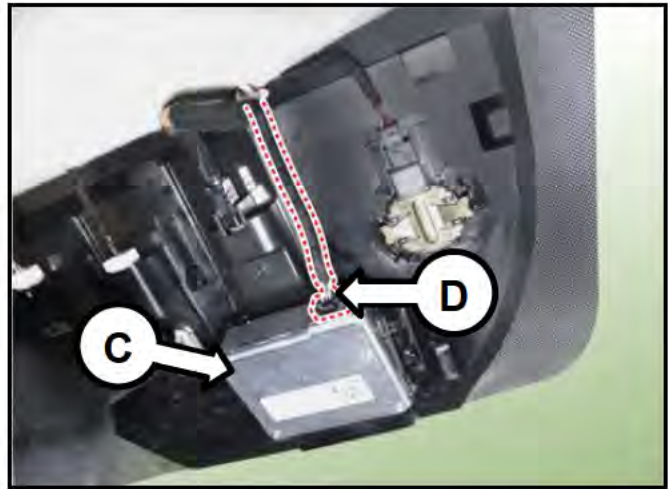


SUBJECT: SERVICE ACTION: FRONT VIEW CAMERA REPLACEMENT (SA452)

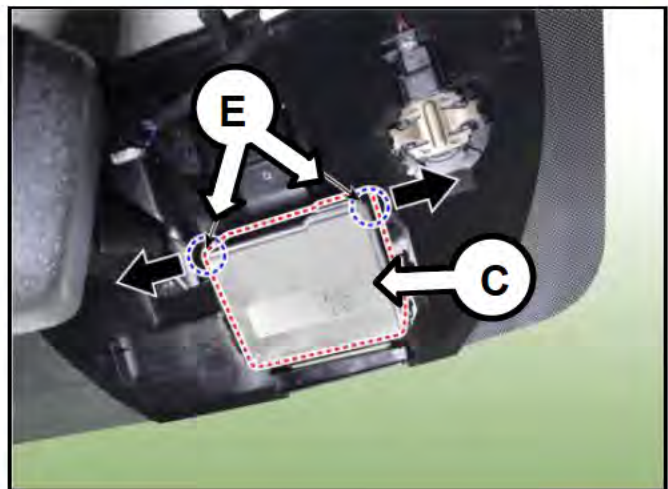
- 6. Once the BackUp process is completed, select 'OK' on the pop-up screen shown.



- 7a. Remove the front view camera (C) by disconnecting the connector (D).



- 7b. Separate the fix point (E) to remove the front view camera unit.



- 8a. Replace the front camera unit in the same reverse order of removal.
- 8b. Turn the ignition to the 'OFF' position.

SUBJECT: SERVICE ACTION: FRONT VIEW CAMERA REPLACEMENT (SA452)

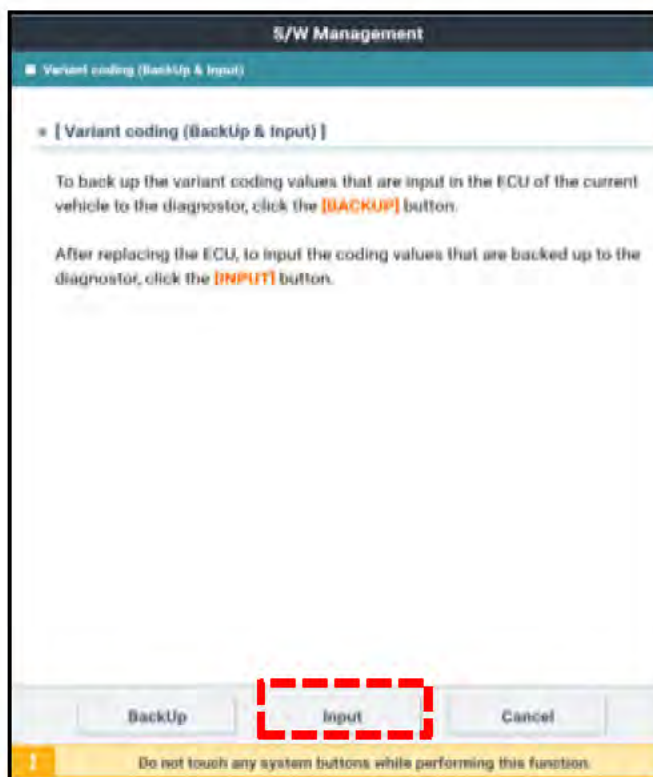
9. Remove the camera lens cap (F).



- 9a. Set the ignition to 'ON'.

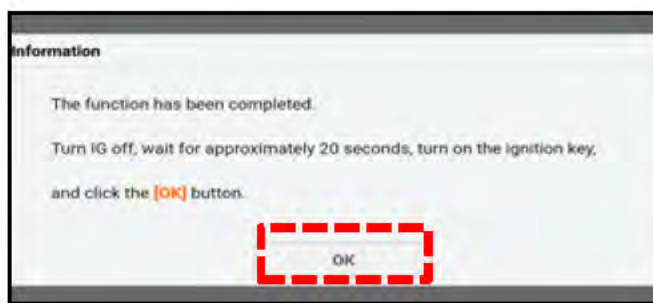
- 9b. Repeat step 2, 3 and 4.

10. Select 'Input'.



11. Turn IG off, wait approximately 20 seconds, turn on the ignition key.

Select 'OK' after completing the "Information" instructions.




12. Confirm normal operation.

SUBJECT: SERVICE ACTION: FRONT VIEW CAMERA REPLACEMENT (SA452)

AFFECTED VEHICLE RANGE:

Model	Production Date Range
Seltos (SP2)	August 10, 2020 to September 02, 2020

REQUIRED PART:

Part Name	Part Number	Figure	Qty.
Front View Camera Unit	99211 Q5100QQK		1

WARRANTY INFORMATION:

N Code: N99 C Code: C99

Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	Op Time	Replacement P/N	Qty.
V	99211 Q5100	0	(SA452) Front View Camera Replacement	200104R0	0.3 M/H	99211 Q5100QQK	1

*** NOTICE**

VIN inquiry data for this repair is provided for tracking purposes only. Kia retailers should reference SA452 when accessing the WebDCS system.



GROUP
ELE

MODEL
See Model List
on Page 1

NUMBER
231 (Rev 1, 4/28/2021)

DATE
April 2021

TECHNICAL SERVICE BULLETIN

SUBJECT:

**FRONT VIEW CAMERA REPLACEMENT
FOR DTC C160449 & C160649**

★ NOTICE

This bulletin has been revised to include additional information. New/revised sections of this bulletin are indicated by a black bar in the margin area.

This bulletin provides information on the inspection and replacement of the front camera on some vehicles listed below. Due to an internal control chip concern inside the camera, the vehicle may exhibit an MIL on with DTC C160449 and/or C160649. Certain systems may become temporarily disabled during occurrences: Smart Cruise Control (SCC), Lane Keep Assistance (LKA), Lane Departure Warning (LDW), Forward Collision-Avoidance Assist (FCA), Forward Collision Warning (FCW) and/or Driver Attention Warning (DAW). Follow the procedure outlined in this publication to diagnose and replace the front view camera assembly.

DTC Description:

C160449 – Hardware Concern

C160649 – Software Concern

Model Year	Model	Production Date Range
2020-2021	Telluride (ON)	August 7, 2018 through November 30, 2020
2019-2021	Forte (BDm)	June 1, 2018 through November 20, 2020
2017-2021	Sportage (QL)	May 19, 2015 through September 30, 2020



Front View Camera
(image is representative only)

Printed TSB copy is for reference only; information may be updated at any time.
Always refer to KGIS for the latest information.

Circulate To: General Manager Service Manager Parts Manager
 Service Advisors Technicians Body Shop Manager Fleet Repair

Replacement Procedure:

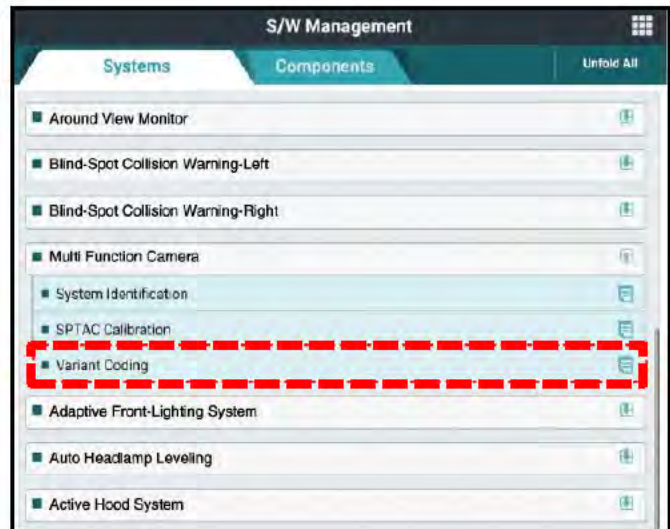
1. Remove and replace the Front View Camera (A) by referring to the “Body Electrical System → Front Camera System → Front View Camera Unit → Repair Procedures” chapter in the applicable Shop Manual on KGIS.



2. Perform the “Variant Coding” procedure by referring to the “Body Electrical System → Front Camera System → Repair Procedures” chapter in the applicable Shop Manual on KGIS.

IMPORTANT

After replacing the front camera with a new unit, the Variant Coding procedure must be performed.



3. Perform the Calibration procedure by referring to the “Body Electrical System → Front Camera System → Repair Procedures” chapter in the applicable Shop Manual on KGIS.
4. Connect vehicle to KDS and check for DTCs.

SUBJECT: FRONT VIEW CAMERA REPLACEMENT FOR C160449 & C160649**AFFECTED VEHICLE RANGE:**

Model Year	Model	Production Date Range
2020-2021	Telluride (ON)	August 7, 2018 to November 30, 2020
2019-2021	Forte (BDm)	June 1, 2018 through November 20, 2020
2017-2021	Sportage (QL)	May 19, 2015 to September 30, 2020

REQUIRED PART:

Part Name	Model	Part Number		Figure	Qty.
		Old	New		
Front View Camera Unit	Telluride (ON)	99211 S9100	99211 S9100FFF		1
	Forte (BDm)	95740 M6000	95740 M6000FFF		
	Sportage (QL)	95895 D9100	95895 D9100FFF		
		99211 F1000	99211 F1000FFF		

Note: All parts and service references provided in this bulletin are subject to change. Always check with your local Mobis for the latest information.

WARRANTY INFORMATION:**N Code: I3A C Code: ZZ3**

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	Op Time	Replacement P/N	Qty.
Telluride (ON)	W	Refer to EPC (Front View Camera)	0	R&R Front Camera Assy	95895F02	0.8 M/H	99211 S9100FFF	1
Forte (BDm)							95740 M6000FFF	
Sportage (QL)							95895 D9100FFF	
							99211 F1000FFF	

Note: Op time includes diagnostic tool operation & part's calibration after the part's replacement. Always use the correct causal part when submitting the warranty claim.





GROUP
ELE

MODEL
See Model List
on Page 1

NUMBER
231 (Rev 2, 08/24/2021)

DATE
April 2021

TECHNICAL SERVICE BULLETIN

SUBJECT:

**FRONT VIEW CAMERA REPLACEMENT
FOR DTC C160449 & C160649**

★ NOTICE

This bulletin has been revised to include additional information. New/revised sections of this bulletin are indicated by a black bar in the margin area.

This bulletin provides information on the inspection and replacement of the front camera on some vehicles listed below. Due to an internal control chip concern inside the camera, the vehicle may exhibit a Forward Collision Avoidance Assist Warning Lamp (A) and/or Master Warning Lamp (B) with C160449 and/or C160649 codes. Certain systems may become temporarily disabled during occurrences: Smart Cruise Control (SCC), Lane Keep Assistance (LKA), Lane Departure Warning (LDW), Forward Collision-Avoidance Assist (FCA), Forward Collision Warning (FCW) and/or Driver Attention Warning (DAW). Follow the procedure outlined in this publication to diagnose and replace the front view camera assembly.

DTC Description:

C160449 – Hardware Concern

C160649 – Software Concern

A



B



Model Year	Model	Production Date Range
2020-2021	Telluride (ON)	August 7, 2018 through November 30, 2020
2019-2021	Forte (BDm)	June 1, 2018 through November 20, 2020
2017-2021	Sportage (QL)	May 19, 2015 through September 30, 2020
2018-2021	Soul (SK3)	February 7, 2018 through September 28, 2020
2016-2021	Niro (DE)	April 8, 2016 through September 21, 2020
2016-2019	Niro EV (DE EV)	April 20, 2015 through July 11, 2018



Front View Camera

Printed TSB copy is for reference only; information may be updated at any time.
Always refer to KGIS for the latest information.

Circulate To: General Manager Service Manager Parts Manager
 Service Advisors Technicians Body Shop Manager Fleet Repair

Replacement Procedure:

1. Remove and replace the Front View Camera (A) by referring to the “Body Electrical System → Front Camera System → Front View Camera Unit → Repair Procedures” chapter in the applicable Shop Manual on KGIS.



2. Perform the “Variant Coding” procedure by referring to the “Body Electrical System → Front Camera System → Repair Procedures” chapter in the applicable Shop Manual on KGIS.

IMPORTANT

After replacing the front camera with a new unit, the Variant Coding procedure must be performed.



3. Perform the Calibration procedure by referring to the “Body Electrical System → Front Camera System → Repair Procedures” chapter in the applicable Shop Manual on KGIS.
4. Connect vehicle to KDS and check for DTCs.

SUBJECT: FRONT VIEW CAMERA REPLACEMENT FOR C160449 & C160649
AFFECTED VEHICLE RANGE:

Model Year	Model	Production Date Range
2020-2021	Telluride (ON)	August 7, 2018 to November 30, 2020
2019-2021	Forte (BDm)	June 1, 2018 through November 20, 2020
2017-2021	Sportage (QL)	May 19, 2015 to September 30, 2020
2018-2021	Soul (SK3)	February 7, 2018 to September 28, 2020
2016-2021	Niro (DE)	April 8, 2016 to September 21, 2020
2016-2019	Niro EV (DE EV)	April 20, 2015 to July 11, 2018

REQUIRED PART:

Part Name	Model	Part Number		Figure	Qty.
		Old	New		
Front View Camera Unit	Telluride (ON)	99211 S9100	99211 S9100FFF		1
	Forte (BDm)	95740 M6000	95740 M6000FFF		
	Sportage (QL)	95895 D9100	95895 D9100FFF		
		99211 F1000	99211 F1000FFF		
	Soul (SK3)	99211 K0000	99211 K0000FFF		
		99211 K0100	99211 K0100FFF		
	Niro (DE)	99211 G5000	99211 G5000FFF		
		95740 G5010	95740 G5010FFF		
		95740 G5050	95740 G5050FFF		
	Niro EV (DE EV)	99211 Q4000	99211 Q4000FFF		
95740 Q4000		95740 Q4000FFF			

Note: All parts and service references provided in this bulletin are subject to change. Always check with your local Mobis for the latest information.

**WARRANTY INFORMATION:
N Code: I3A C Code: ZZ3**


Printed TSB copy is for reference only; information may be updated at any time. Always refer to KGIS for the latest information.

TSB: ELE231 (Rev 2) Multiple Models April 2021

SUBJECT: FRONT VIEW CAMERA REPLACEMENT FOR C160449 & C160649

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	Op Time	Replacement P/N	Qty.
Telluride (ON)	W	Refer to EPC (Front View Camera)	0	R&R Front Camera Assy	95895F02	0.8 M/H	99211 S9100FFF	1
Forte (BDm)							95740 M6000FFF	
Sportage (QL)							95895 D9100FFF	
							99211 F1000FFF	
Soul (SK3)							99211 K0000FFF	
Niro (DE)							99211 K0100FFF	
							99211 G5000FFF	
							95740 G5010FFF	
Niro EV (DE EV)							95740 G5050FFF	
	99211 Q4000FFF							
	95740 Q4000FFF							

Note: Op time includes diagnostic tool operation & part's calibration after the part's replacement. Always use the correct causal part when submitting the warranty claim.

The claim may be subject to charge back if the new part number (ending in "FFF") is not utilized to repair the vehicle.



GROUP

ELE

MODEL

2020-2021MY
Telluride (ON)

NUMBER

231

DATE

April 2021

TECHNICAL SERVICE BULLETIN

SUBJECT:

**FRONT VIEW CAMERA REPLACEMENT
FOR DTC C160449 & C160649**

This bulletin provides information on the inspection and replacement of the front camera on some 2020-2021MY Telluride (ON) vehicles, produced from August 7, 2018 through November 30, 2020. Due to an internal control chip concern inside the camera, the vehicle may exhibit an MIL on with DTC C160449 and/or C160649. Certain systems may become temporarily disabled during occurrences: Smart Cruise Control (SCC), Lane Keep Assistance (LKA), Lane Departure Warning (LDW), Forward Collision-Avoidance Assist (FCA), Forward Collision Warning (FCW) and/or Driver Attention Warning (DAW). Follow the procedure outlined in this publication to diagnose and replace the front view camera assembly.

DTC Description:**C160449 – ECU Hardware Error****C160649 – ECU Software Error**

Front View Camera

Printed TSB copy is for reference only; information may be updated at any time.
Always refer to KGIS for the latest information.

Circulate To: General Manager Service Manager Parts Manager
 Service Advisors Technicians Body Shop Manager Fleet Repair

Replacement Procedure:

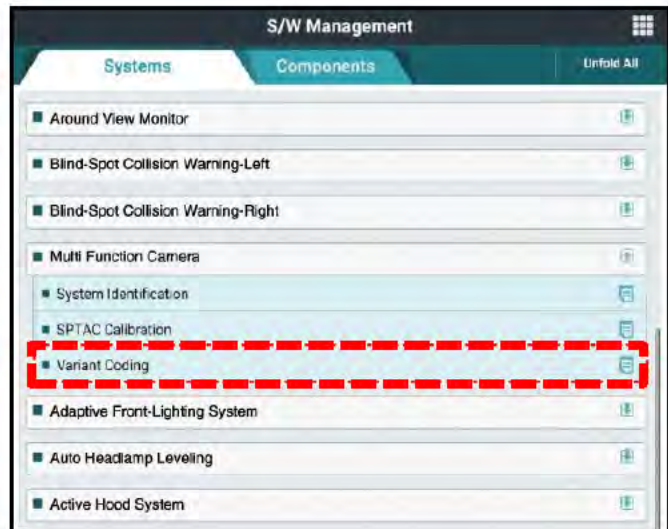
1. Remove and replace the Front View Camera (A) by referring to the “Body Electrical System → Front Camera System → Front View Camera Unit → Repair Procedures” chapter in the applicable Shop Manual on KGIS.



2. Perform the “Variant Coding” procedure by referring to the “Body Electrical System → Front Camera System → Repair Procedures” chapter in the applicable Shop Manual on KGIS.

IMPORTANT

After replacing the front camera with a new unit, the Variant Coding procedure must be performed.




3. Perform the Calibration procedure by referring to the “Body Electrical System → Front Camera System → Repair Procedures” chapter in the applicable Shop Manual on KGIS.
4. Connect vehicle to KDS and check for DTCs.

SUBJECT: FRONT VIEW CAMERA REPLACEMENT FOR C160449 & C160649

AFFECTED VEHICLE RANGE:

Model	Production Date Range
Telluride (ON)	August 7, 2018 to November 30, 2020

REQUIRED PART:

Part Name	Part Number		Figure	Qty.
	Old	New		
Front View Camera Unit	99211 S9100	99211 S9100FFF		1

Note: All parts and service references provided in this bulletin are subject to change. Always check with your local Mobis for the latest information.

WARRANTY INFORMATION:

N Code: I3A C Code: ZZ3

Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	Op Time	Replacement P/N	Qty.
W	Refer to EPC (Front View Camera)	0	R&R Front Camera Assy	95895F02	0.8 M/H	99211 S9100FFF	1

Note: Op time includes diagnostic tool operation & part's calibration after the part's replacement. Always use the correct causal part when submitting the warranty claim.





GROUP
ELE

MODEL
2021MY Rio (SC)

NUMBER
240

DATE
May 2021

TECHNICAL SERVICE BULLETIN

SUBJECT:

**SERVICE ACTION: FRONT CAMERA
LOGIC IMPROVEMENT FOR DTC 160649 (SA475)**

This bulletin provides the procedure to update the software logic of the Front Camera system on some 2021MY Rio (SC) vehicles produced from December 22, 2020 through March 29, 2021, which might exhibit an MIL ON with DTC 160649 – Internal Failure (software error). This out-of-range fault signal will disable the supplemental Forward Collision Avoidance (FCA), if equipped, Lane Departure Warning (LDW), Lane Following Assist (LFA), Lane Keep Assist (LKA), Driver Attention Warning (DAW) and High Beam Assist (HBA) systems but does not compromise the basic vehicle safety with normal braking. To correct this concern, apply the improved logic to the Front Camera (FR CMR) system using the KDS ECU Upgrade function as described in this bulletin. For confirmation that the latest reflash has been applied to a vehicle you are working on, verify the ROM ID using the table on page 2 of this bulletin. Before conducting the procedure, verify that the vehicle is included in the list of affected VINs.



Kia Diagnostic System (KDS)

★ NOTICE

A Service Action is a repair program without customer notification that is performed during the warranty period. Any dealer requesting to perform this repair outside the warranty period will require DPSM approval.

Repair status for a VIN is provided on WebDCS (Service → Warranty Coverage → Warranty Coverage Inquiry → Campaign Information). Not completed Recall / Service Action reports are available on WebDCS (Consumer Affairs → Not Completed Recall → Recall VIN → Select Report), which includes a list of affected vehicles.

This issue number is SA475.

Circulate To: General Manager Service Manager Parts Manager
 Service Advisors Technicians Body Shop Manager Fleet Repair

SUBJECT:

SERVICE ACTION: FRONT CAMERA LOGIC IMPROVEMENT FOR DTC 160649 (SA475)

ECU Upgrade Procedure:

To correct this condition, the ECU should be reprogrammed using the KDS download, as described in this bulletin.

Upgrade Event Name

552. SC FRONT CAMERA (LKA/LFA) DTC JUDGMENT LOGIC IMPROVEMENT (C1606)


★ NOTICE

- Confirm a **fully charged battery** with 12.3 volts or higher is necessary or the use of a fully charged jump starter box connected to the battery.
- Ensure the KDS GDS is sufficiently charged at 60% or higher prior to reflash.
- All ECU upgrades must be done with the ignition key in the 'ON' position unless otherwise stated.
- Be careful not to disconnect the VCI-II connected to the vehicle during the ECU upgrade procedure.
- DO NOT start the engine during ECU upgrade.
- DO NOT turn the ignition key 'OFF' or interrupt the power supply during ECU upgrade.
- When the ECU upgrade is completed, turn the ignition 'OFF' and wait 10 seconds before starting the engine.
- ONLY use approved ECU upgrade software designated for the correct application.

ⓘ IMPORTANT


It is recommended to ALWAYS check the Electronic Parts Catalog (EPC) to locate the ECU Part Number respective to Auto/Manual Mode ROM IDs. DO NOT reference the parts label affixed to the ECU.

★ NOTICE

Before attempting an ECU upgrade on any Kia model, make sure to first determine whether the applicable model is equipped with an immobilizer  security system. Failure to follow proper procedures may cause the PCM to become inoperative after the upgrade and any claims associated with this repair may be subject to chargeback.

ROM ID INFORMATION TABLE:

Upgrade Event #552

Model	System	IMMO 	ECU P/No.		ROM ID	
			Previous	New	Previous	New
SC	FR_CMV	Yes	99211 H8010	99211 H8020	1.06	1.00

To verify the vehicle is affected, be sure to check the Calibration Identification of the vehicle's ECM ROM ID and reference the Information Table as necessary.

SUBJECT:

SERVICE ACTION: FRONT CAMERA LOGIC IMPROVEMENT FOR DTC 160649 (SA475)

★ NOTICE

Prior to performing the ECU upgrade, be sure to check that the KDS is fully charged.

1. Connect the VCI-II to the OBD-II connector, located under the driver's side of the instrument panel.

★ NOTICE

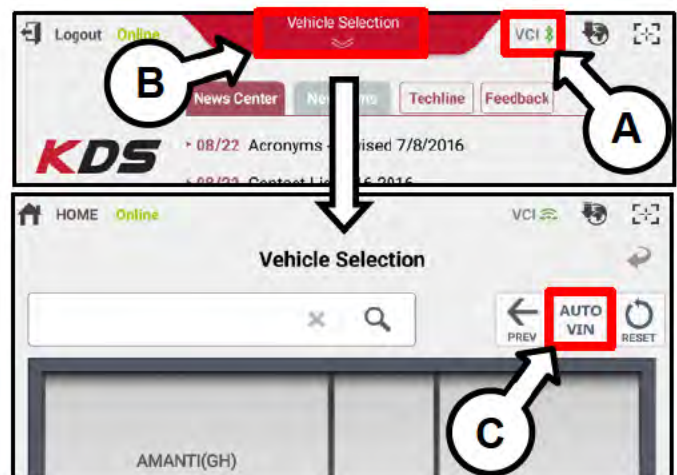
The ECU upgrade function on KDS operates wirelessly. It is not necessary to perform the upgrade via USB cable.



2. With the ignition ON, turn ON the KDS tablet. Select **KDS** from the home screen.



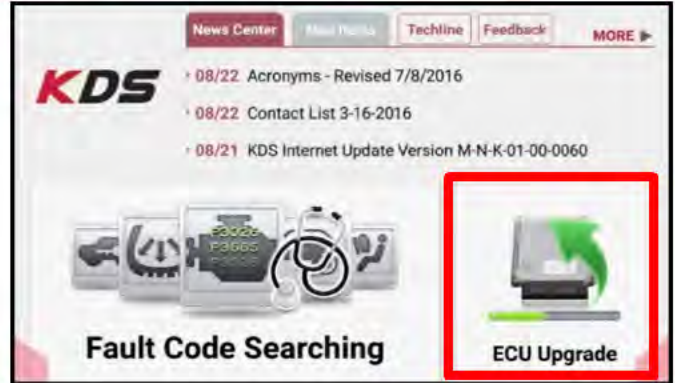
3. Confirm communication with VCI (A) and then configure the vehicle (B) using the **AUTO VIN** (C) feature.



SUBJECT:

SERVICE ACTION: FRONT CAMERA
LOGIC IMPROVEMENT FOR DTC 160649 (SA475)

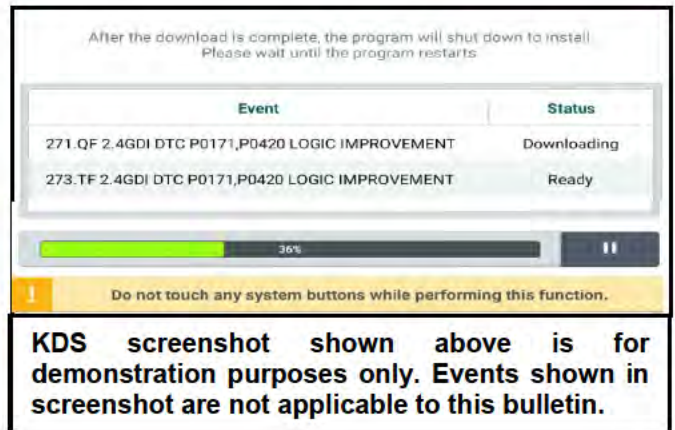
4. Select **ECU Upgrade**.



5. The KDS will check the server for recently uploaded Events and then automatically download **Upgrade Event #552**.

*** NOTICE**

The vehicle must be identified in Vehicle Selection to download an Event for that vehicle.



6. Select **Auto Mode**.

CAUTION

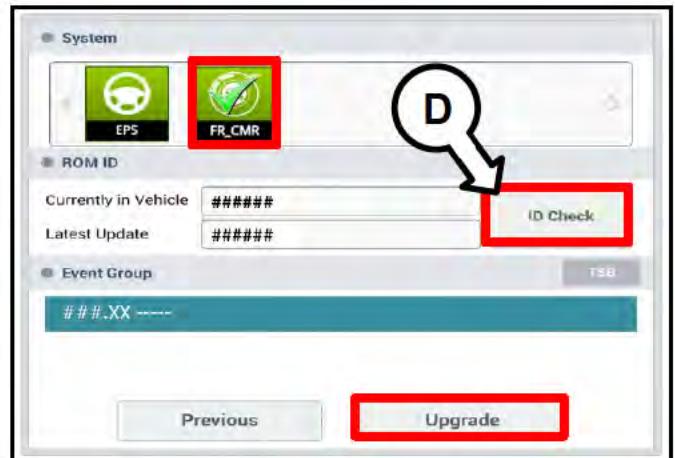
Do NOT attempt to perform a Manual Mode upgrade UNLESS Auto Mode fails. Always follow the instructions given on the KDS in either Auto or Manual mode.



7. Select the **FR_CMR** system under the System selection menu.

Touch **ID Check** (D) and confirm that the latest update is available.

Select **Upgrade Event #552**, and select **Upgrade** to continue.



SUBJECT:

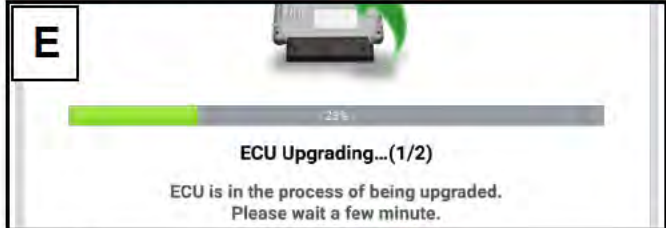
SERVICE ACTION: FRONT CAMERA LOGIC IMPROVEMENT FOR DTC 160649 (SA475)

8. The ECU upgrade will begin and the progress of the upgrade will appear on the bar graph. Upgrade part (1/2) (E) will download the upgrade event to the VCI-II. Upgrade part (2/2) (F) will upgrade the ECU.



CAUTION

Do not touch the system buttons (like 'Back', 'Home', 'etc.') while performing ECU Upgrade.



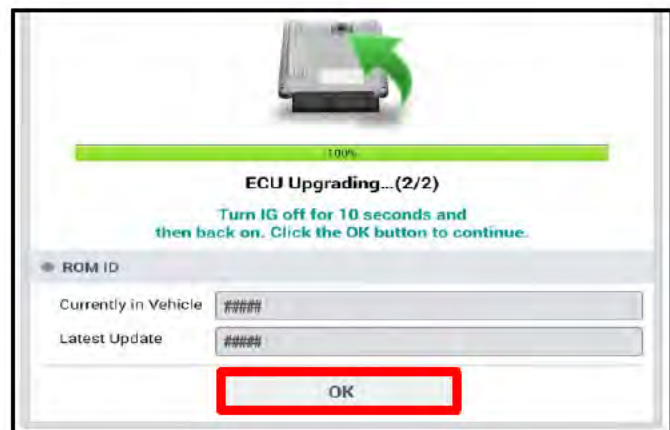
9. If a "Communication Fail" screen appears, verify that the VCI-II and KDS are communicating properly. Touch **OK** and restart the procedure from step 4.

★ NOTICE

If an error notice continues to appear or if the upgrade cannot be performed, DO NOT disconnect the KDS/VCI-II. Contact GIT America Help Desk at (888) 542-4371 or Techline.

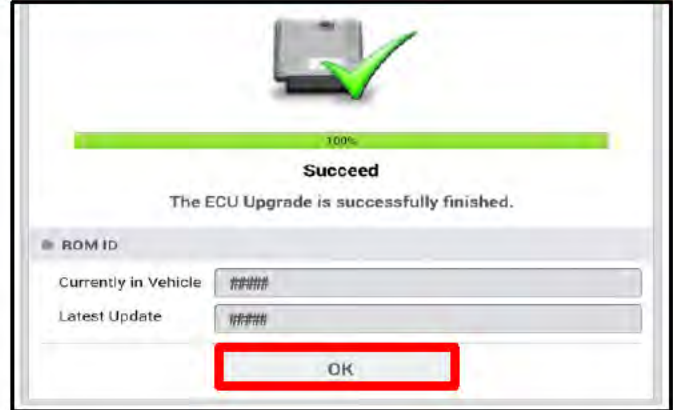


10. When instructed on the KDS, turn the ignition **OFF** for ten (10) seconds then back on. Touch **OK** to continue.

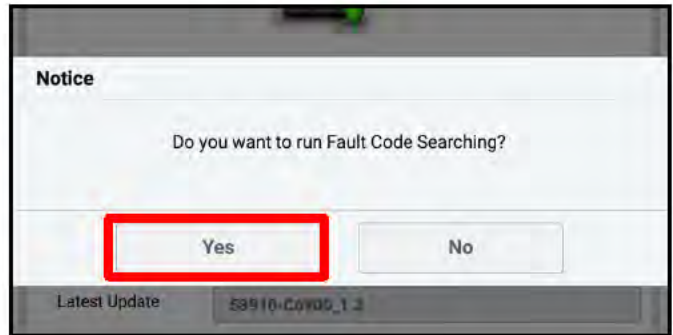


SUBJECT: SERVICE ACTION: FRONT CAMERA
LOGIC IMPROVEMENT FOR DTC 160649 (SA475)

- 11. Once the upgrade is complete, touch **OK** to finalize the procedure.



- 12. When prompted, select **YES** to check for Diagnostic Trouble Codes (DTC) and erase any DTCs stored such as EPS, ESC, and TPMS that may have been set during the upgrade.



- 13. Start the engine to confirm proper operation of the vehicle.



SUBJECT:

SERVICE ACTION: FRONT CAMERA
LOGIC IMPROVEMENT FOR DTC 160649 (SA475)

Manual Upgrade Procedure:*** NOTICE**

The manual upgrade should **ONLY** be performed if the automatic upgrade fails.

If the automatic upgrade fails, turn the ignition **OFF** for about 10 seconds then place it back in the **ON** position to reset the control unit **BEFORE** performing manual upgrade.

See table below for Manual Mode passwords.

Manual Mode ECU Upgrade Passwords

Menu	Password
SC FR_CMV : 99211-H8010	0108

1. Within the ECU Upgrade screen displayed, select **Manual Mode**.
2. Select the **Engine** system under the System selection menu. Select **Upgrade Event #552** and select **Upgrade** to continue.
3. Select the appropriate control unit part number with reference to the ROM ID Information Table on page 2, and select **OK**.
4. Enter the appropriate password from the Manual Mode password table above and select **OK**.
5. The upgrade will begin and the progress of the upgrade will appear on the bar graph.
6. When instructed on the KDS, turn the ignition **OFF** for ten (10) seconds then back on. Touch **OK** to continue.
7. Once the upgrade is complete, touch **OK** to finalize the procedure.
8. When prompted, select **YES** to check for Diagnostic Trouble Codes (DTC) and erase any DTCs stored such as EPS, ESC, and TPMS that may have been set during the upgrade.
9. Start the engine to confirm proper operation of the vehicle.



SUBJECT:

**SERVICE ACTION: FRONT CAMERA
LOGIC IMPROVEMENT FOR DTC 160649 (SA475)**

AFFECTED VEHICLE RANGE:

Model	Production Date Range
Rio (SC)	December 22, 2020 to March 29, 2021

WARRANTY INFORMATION:

N Code: N99 C Code: C99

Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	Op Time	Replacement P/N	Qty.
V	99211 H8010	0	(SA475) Front Camera Logic Improvement	210M06R0	0.3 M/H	N/A	0

*** NOTICE**

VIN inquiry data for this repair is provided for tracking purposes only. Kia retailers should reference SA475 when accessing the WebDCS system.





GROUP	MODEL
ELE	2019-2022MY Applicable Models Listed
NUMBER	DATE
246 (Rev 1, 09/10/2021)	August 2021

TECHNICAL SERVICE BULLETIN

SUBJECT:

FRONT VIEW CAMERA REPLACEMENT AND SOFTWARE UPGRADE INSTALLATION

NOTICE

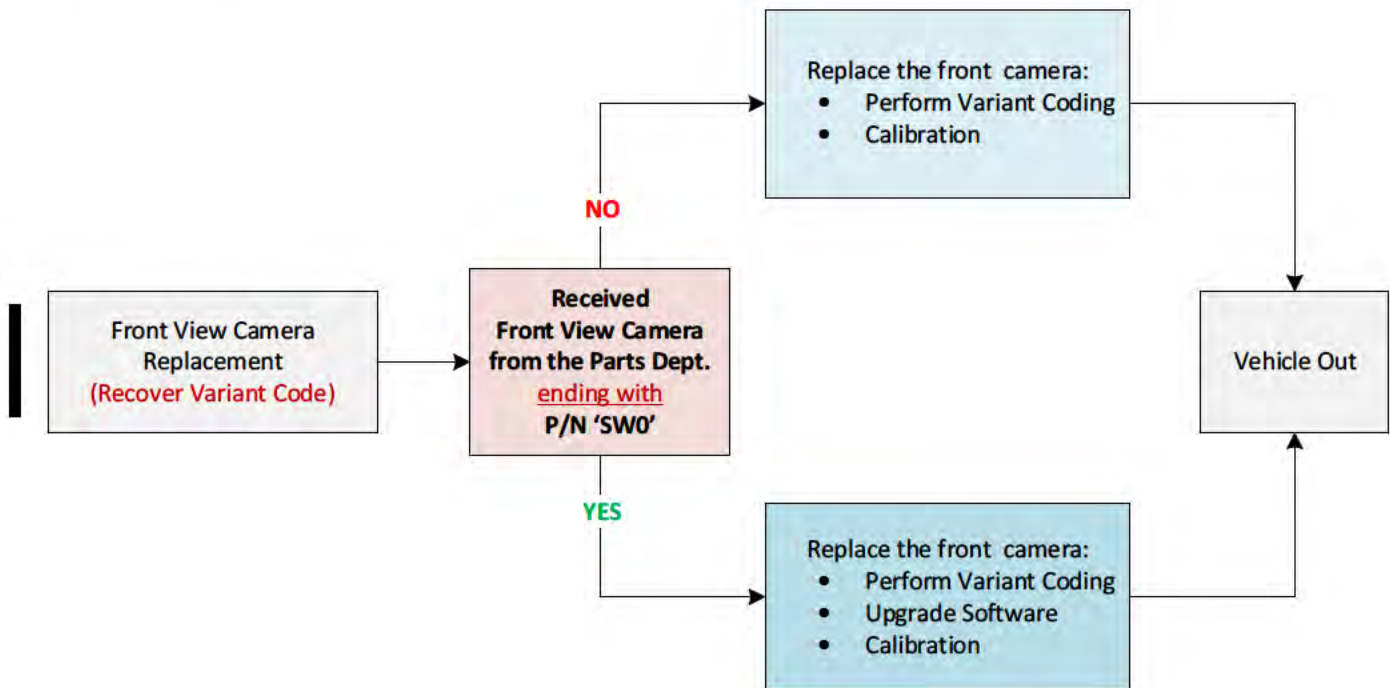
This bulletin has been revised to include additional information. New/revised sections of this bulletin are indicated by a black bar in the margin area.

This bulletin provides the procedure to update the software logic of the front view camera system (FR_CMV) on the vehicles listed below, when a new replacement Front View Camera installed with a part number ending in "SW0". NEW parts with a part number ending in "SW0" do not have the operating software upgrade installed. If the software upgrade is not installed, units will exhibit a warning light ON with Diagnostic Trouble Codes (DTCs) related to the front view camera. Some vehicles require recovery and recording the prior variant coding value before replacement; refer to the procedure outlined in this publication. For confirmation that the latest reflash has been applied to a vehicle you are working on, verify the ROM ID using the table on page 4 of this bulletin.

Part	Model	Model Years
Front View Camera	Niro HEV (DE HEV)	2019 - 2022
	Seltos (SP2)	2021 - 2022
	Soul (SK3)	2020 - 2021
	Sportage (QL)	2019 - 2022
	Telluride (ON)	2020 - 2022



Flowchart:

**ⓘ IMPORTANT**

When replacing the front view camera with a new one, perform the 'Variant Coding' procedure using KDS (Refer to KGIS for further instructions).

Replacement Procedure:

1. Replace the Front View Camera by referring to the "Advanced Driver Assistance System (ADAS) → Front View Camera System → Front View Camera Unit → Repair procedures" OR "Body Electrical System → Lane Departure Warning System (LDWS) → Lane Departure Warning System (LDWS) unit → Repair procedures" OR "Brake System → Forward Collision-Avoidance Assist (FCA) System → Lane Departure Warning System (LDWS) unit → Repair procedures" chapter in the applicable Shop Manual on KGIS.

📄 NOTICE

Record the prior variant coding value before removing the front view camera. Replace the front camera, apply the variant code from the removed camera and apply the software upgrade to the 'FR_CMR' system using the KDS ECU Upgrade function as described in this bulletin, then proceed to the calibration as described in KGIS.

SUBJECT:

FRONT VIEW CAMERA REPLACEMENT & S/W UPGRADE INSTALLATION**Front View Camera ECU Upgrade Procedure:**

To correct this condition, the ECU should be reprogrammed using the KDS download, as described in this bulletin.

Upgrade Event Name
554. ON FR_CMR UPGRADE AFTER FRONT CAMERA REPLACEMENT
555. DE HEV FR_CMR UPGRADE AFTER FRONT CAMERA REPLACEMENT
556. QL FR_CMR UPGRADE AFTER FRONT CAMERA REPLACEMENT
557. SK3 FR_CMR UPGRADE AFTER FRONT CAMERA REPLACEMENT
558. SP2 FR_CMR UPGRADE AFTER FRONT CAMERA REPLACEMENT


NOTICE

- Confirm a fully charged battery (12.3 volts or higher is necessary) is used or utilize a fully charged jump starter box connected to the battery.
- **Ensure the KDS is sufficiently charged at 60% or higher prior to reflash.**
- All ECU upgrades must be performed with the ignition set to the 'ON' position unless otherwise stated.
- **Damaged VCI II units should not be used and promptly replaced.**
- Be careful not to disconnect the VCI-II connected to the vehicle during the ECU upgrade procedure.
- **DO NOT start the engine during ECU upgrade.**
- **DO NOT** turn the ignition key 'OFF' or interrupt the power supply during ECU upgrade.
- **When the ECU upgrade is completed, turn the ignition 'OFF' and wait 10 seconds before starting the engine.**
- **ONLY** use approved ECU upgrade software designated for the correct application.

IMPORTANT

It is recommended to ALWAYS check the Electronic Parts Catalog (EPC) to locate the ECU Part Number respective to Auto/Manual Mode ROM IDs. DO NOT reference the parts label affixed to the ECU.

NOTICE

Before attempting an ECU upgrade on any Kia model, make sure to first determine whether the applicable model is equipped with an immobilizer  security system. Failure to follow proper procedures may cause the PCM to become inoperative after the upgrade and any claims associated with this repair may be subject to chargeback.

ROM ID INFORMATION TABLE:**Upgrade Event #554 (Telluride)**

Model	System	Camera P/N		ROM ID	
		Previous	New	Previous	New
ON	FR_CMR	99211 S9100	99211 S9100SWO	1.ON	1.03

Upgrade Event #555 (Niro HEV)

Model	System	Camera P/N		ROM ID	
		Previous	New	Previous	New
DE HEV	FR_CMR	99211 G5000	99211 G5000SWO	1.DE	1.07

Upgrade Event #556 (Sportage)

Model	System	Camera P/N		ROM ID	
		Previous	New	Previous	New
QL	FR_CMR	99211 F1000	99211 F1000SWO	1.QL	1.06

Upgrade Event #557 (Soul)

Model	System	Camera P/N		ROM ID	
		Previous	New	Previous	New
SK3	FR_CMR	99211 K0000	99211 K0000SWO	1.SK	1.02
		99211 K0100	99211 K0100SWO	2.SK	1.00

Upgrade Event #558 (Seltos)

Model	System	Camera P/N		ROM ID	
		Previous	New	Previous	New
SP2	FR_CMR	99211 Q5100	99211 Q5100SWO	1.SP	1.05

To verify the vehicle is affected, be sure to check the Calibration Identification of the vehicle's ECM ROM ID and reference the Information Table as necessary.

SUBJECT:

FRONT VIEW CAMERA REPLACEMENT & S/W UPGRADE INSTALLATION

NOTICE

- Confirm a fully charged battery (12.3 volts or higher is necessary) is used or utilize a fully charged jump starter box connected to the battery.
- **Ensure the KDS is sufficiently charged at 60% or higher prior to reflash.**

1. Connect the VCI-II to the OBD-II connector, located under the driver's side of the instrument panel.

NOTICE

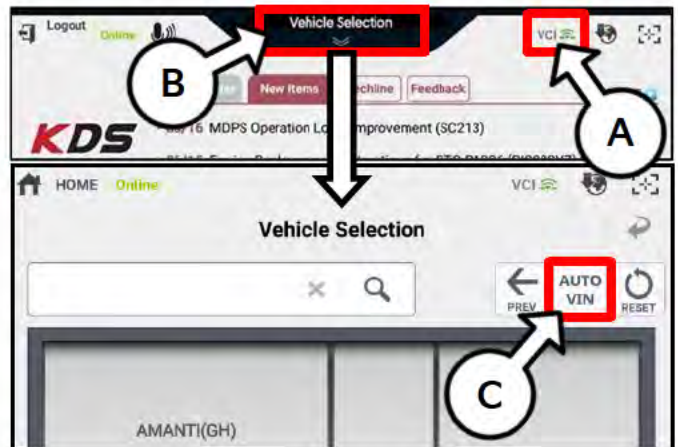
The ECU upgrade function on KDS operates wirelessly. It is not necessary to perform the upgrade via USB cable.



2. With the ignition ON, turn ON the KDS tablet. Select 'KDS' from the home screen.



3. Confirm communication with VCI (A) and then configure the vehicle (B) using the 'AUTO VIN' (C) feature.



4. Select 'ECU Upgrade'.



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- The KDS will check the server for recently uploaded Events and then automatically download Upgrade Event #554 (ON), #555 (DE HEV), #556 (QL), #557 (SK3), or #558 (SP2).

NOTICE

The vehicle must be identified in Vehicle Selection to download an Event for that vehicle.

After the download is complete, the program will shut down to install. Please wait until the program restarts.

Event	Status
271.QF 2.4GDI DTC P0171,P0420 LOGIC IMPROVEMENT	Downloading
273.TF 2.4GDI DTC P0171,P0420 LOGIC IMPROVEMENT	Ready

36%

Do not touch any system buttons while performing this function.

KDS screenshot shown above is for demonstration purposes only. Events shown in screenshot are not applicable to this bulletin.

- Select Auto Mode.

CAUTION

Do NOT attempt to perform a Manual Mode upgrade UNLESS Auto Mode fails. Always follow the instructions given on the KDS in either Auto or Manual mode.

- Select the FR_CMV system under the System selection menu. Touch ID Check (D) and confirm that the latest update is available. Select Upgrade Event #554 (ON), #555 (DE HEV), #556 (QL), #557 (SK3), or #558 (SP2), and select Upgrade to continue.

- The ECU upgrade will begin and the progress of the upgrade will appear on the bar graph. Upgrade part (1/2) (E) will download the upgrade event to the VCI-II. Upgrade part (2/2) (F) will upgrade the ECU.

CAUTION

Do not touch the system buttons (like 'Back', 'Home', 'etc.') while performing ECU Upgrade.

E

ECU Upgrading...(1/2)

ECU is in the process of being upgraded. Please wait a few minute.

F

ECU Upgrading...(2/2)


ECU is in the process of being upgraded. Please wait a few minute.



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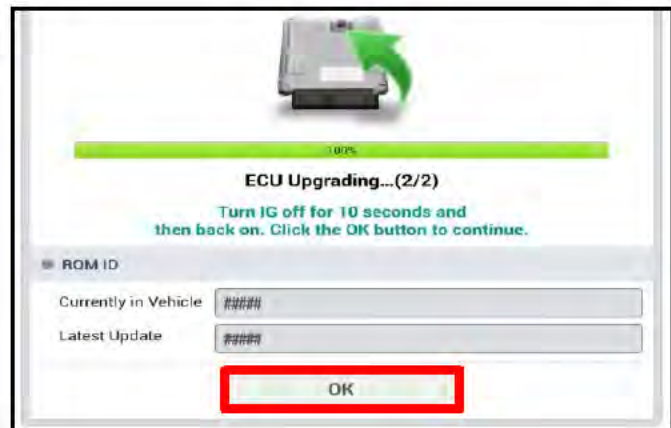
9. If a "Communication Fail" screen appears, verify that the VCI-II and KDS are communicating properly. Select 'OK' and restart the procedure from step 4.

 **NOTICE**

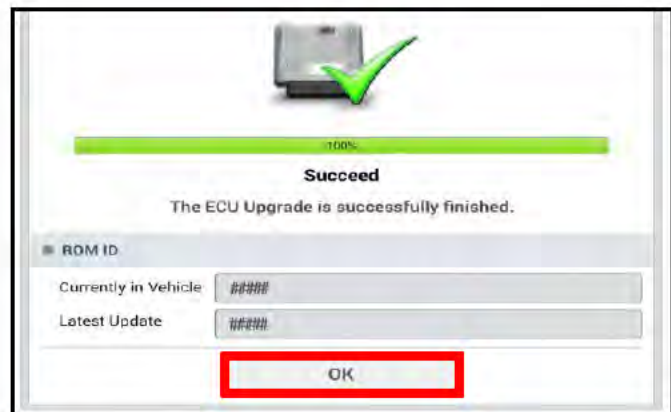
If an error notice continues to appear or if the upgrade cannot be performed, DO NOT disconnect the KDS/VCI-II. Contact GIT America Help Desk at (888) 542-4371 or Techline.



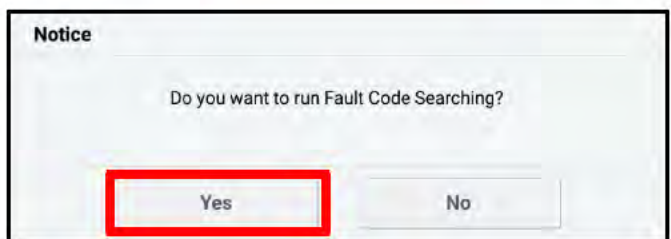
10. When instructed on the KDS, turn the ignition OFF for ten (10) seconds then back on. Select 'OK' to continue.



11. Once the upgrade is complete, select 'OK' to finalize the procedure.



12. When prompted, select 'YES' to check for Diagnostic Trouble Codes (DTC) and erase any DTCs stored such as EPS, ESC, and TPMS that may have been set during the upgrade.



13. Perform Variant Coding & Calibration Procedure.
14. Confirm normal operation.

Manual Upgrade Procedure:

NOTICE

The manual upgrade should ONLY be performed if the automatic upgrade fails.

If the automatic upgrade fails, turn the ignition 'OFF' for about 10 seconds then place it back in the 'ON' position to reset the control unit BEFORE performing manual upgrade.

See table below for 'Manual Mode' passwords.

Manual Mode ECU Upgrade Passwords

Menu	Password
ON FR_CMV : 99211-S9100	0019
DE HEV FR_CMV : 99211-G5000	0005
QL FR_CMV : 99211-F1000 [1.QL]	0001
QL FR_CMV : 99211-F1500 [2.QL]	0051
SK3 FR_CMV : 99211-K0000 [1.SK]	1129
SK3 FR_CMV : 99211-K0100 [2.SK]	0010
SP2 FR_CMV : 99211-Q5100 [1.SP]	0015

1. Within the ECU Upgrade screen displayed, select **Manual Mode**.
2. Select the FM_CMV system under the System selection menu. Select **Upgrade Event #554 (ON), #555 (DE HEV), #556 (QL), #557 (SK3), or #558 (SP2)** and select **Upgrade** to continue.
3. Select the appropriate control unit part number with reference to the ROM ID Information Table on page 4, and select **OK**.
4. Enter the appropriate password from the Manual Mode password table above and select **OK**.
5. The upgrade will begin and the progress of the upgrade will appear on the bar graph.
6. When instructed on the KDS, turn the ignition OFF for ten (10) seconds then back on. Select **OK**.
7. Once the upgrade is complete, select **OK** to finalize the procedure.
8. When prompted, select **YES** to check for Diagnostic Trouble Codes (DTC) and erase any DTCs stored such as EPS, ESC, and TPMS that may have been set during the upgrade.
9. Perform **Variant Coding & Calibration Procedure**.
10. Confirm normal operation.


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AFFECTED VEHICLE RANGE:

Model	Model Years
Niro HEV (DE HEV)	2019 - 2022
Seltos (SP2)	2021 - 2022
Soul (SK3)	2020 - 2021
Sportage (QL)	2019 - 2022
Telluride (ON)	2020 - 2022

REQUIRED TOOL:

Tool Name	Figure	Comments
KDS		Kia Diagnostic System

REQUIRED PART:

Part Name	Model	Part Number		Figure	Qty.
		Incl. S/W upgrade	Requires S/W upgrade		
Front View Camera	Niro (DE HEV)	99211 G5000	99211 G5000SW0		1
	Seltos (SP2)	99211 Q5100	99211 Q5100SW0		
	Soul (SK3)	99211 K0000	99211 K0000SW0		
		99211 K0100	99211 K0100SW0		
	Sportage (QL)	99211 F1000	99211 F1000SW0		
	Telluride (ON)	99211 S9100	99211 S9100SW0		

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WARRANTY INFORMATION:
N Code: I14 C Code: ZZ3

Model	Claim Type	Causal P/N	Qty.	Repair Description	Labor Op Code	Op Time
DE HEV	W	99211 G5000 or 99211 G5000SWO	1	Front View Camera Replacement + Variant Coding and Calibration	95470R00	0.6 M/H
SP2		99211 Q5100 or 99211 Q5100SWO				
SK3		99211 K0000 or 99211 K0000SWO				
		99211 K0100 or 99211 K0100SWO				
QL		99211 F1000 or 99211 F1000SWO				
ON		99211 S9100 or 99211 S9100SWO				
All		SWO Part Only	0	Front Camera Software Upgrade (Add-on LOP)	95470RA1	0.2 M/H

Note: The software upgrade procedure must be performed with parts number ending in 'SWO' and claimed as an 'add-on labor operation' (LOP) (ex. 95470RA1) during warranty claim entry.