KIA TECH TIMES

The Professional Publication for Kia Dealership Technicians & Service Staff

2014 Volume 17, Issue 4

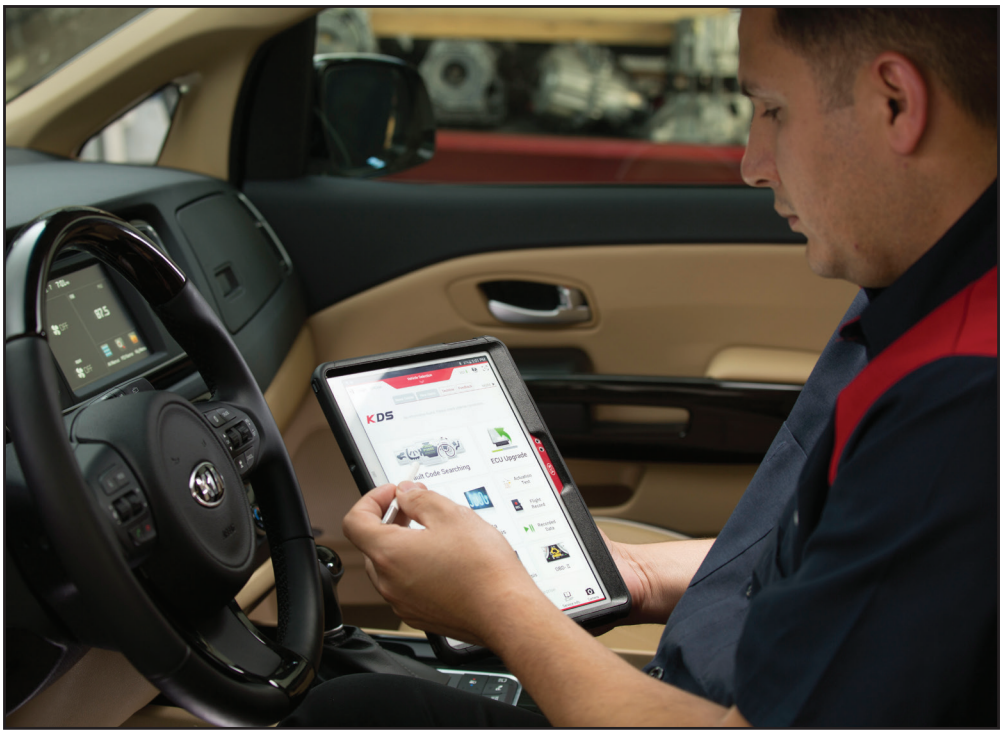
Inside this Issue:

Page

Introducing Kia Diagnostic System (KDS)

KDS is the third generation of Kia's vehicle diagnostics systems soon to be available to dealers, designed and optimized for use on mobile tablets.

The new diagnostic system will allow Kia's vehicle technicians to more quickly and effectively identify any faults with customer vehicles. Wireless connectivity and Bluetooth® support allow technicians to move around a vehicle, instead of having to return to a fixed heavy diagnostic computer or move a cart around the service area. KDS doesn't necessarily require a wire to connect to a vehicle, as the compact Vehicle Communication Interface (VCI-II) provides Bluetooth® and Wi-Fi Direct® functions.



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Tech Line FAQs

Model/Year	Question	Answer
2006 – 2014 VQ Sedona	Alarm does not set (no light flash or horn confirmation). What should I check?	Please check the power sliding door lock actuators and verify that they are locking and unlocking properly using the GDS. This concern is usually caused by one of the power sliding doors does not locking all the way. Other causes could be the front doors or tail gate not locking correctly or a faulty hood switch.
All Models	How do I re-open a closed Techline case that was previously opened for the same concern?	Please call into Techline at (800) 494-4542 with the previous case number so Techline can re-open the case right away without creating a duplicate web case.
All Models	Where can I find Kia Accessories information for troubleshooting accessories concerns?	Please check KGIS under Detailed search, enter the vehicle and type in the accessory (such as remote start or interior lighting kit) in the text search box and click enter. Next look under the accessory section and you will see all related accessory installation instructions and troubleshooting charts.
All Models	Where can I find if the customer's phone is compatible?	Visit http://www.kia.com/us/en/#/content/owners/bluetooth or https://www.myuvo.com for more information.
All Models	The TPMS light remains on after module replacement. What should I do?	From the ID register screen select "Mode Configuration" and make sure it is set to "Normal Mode".

Latest Technical Service Bulletins, Service Actions and Campaigns

ELE 063	Variant Coding After Head Unit Replacement
SC 105	Service Campaign: ECM/TCM Software Upgrade
ENG 137r2	Data Collection: Extract California Emission Data From ECU
BOD 107	Front Door Glass Run Channel Replacement
SC108	Steering Gear Assembly Pinion Plug Replacement
GEN 070	New Vehicle Inventory Maintenance and Best Practices
ENG 114r1	Aftermarket Oil Filters and Oil Viscosity
GEN 069	UVO eServices (AVN4.0) - Technology Highlights

⚠ CAUTION

VEHICLE SERVICING PERFORMED BY UNTRAINED PERSONS COULD RESULT IN DAMAGE TO THE VEHICLE.

⚠ WARNING

- **Vehicle servicing performed by untrained persons could result in injury to those persons or to others.**
- **Always take proper and necessary safety precautions when performing any type of service on a vehicle.**
- **The Kia technician newsletter (Tech Times) is intended for use by professional Kia automotive technicians only. It is written to inform technicians of conditions that may occur on some vehicles. Trained Kia technicians have the equipment, tools, safety instructions, publications and expertise to help perform the job correctly.**

*** NOTICE**

The topics covered in this newsletter are designed to assist you with the diagnosis and repair of specific vehicle conditions. Just because a condition is described in this newsletter, do not assume that it applies to your vehicle, or that your vehicle will have that condition. In all cases, the procedures in the applicable Service Manual and/or Electrical Troubleshooting Manual or on KGIS should be performed first.

Published by Kia Motors America, Inc. and produced by Kia University.

Introducing Kia Diagnostic System (KDS) - Continued

KDS Connectivity

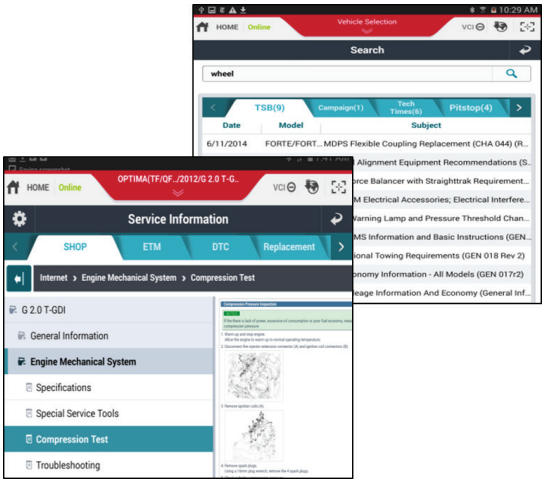
Dealerships are required to meet the following Wi-Fi minimum requirements listed below, by October 1, 2014.

- Connectivity in all service bays and service drive
- Internet connection 256k or higher
- 802.11 a/b/g/n/ac wireless networks

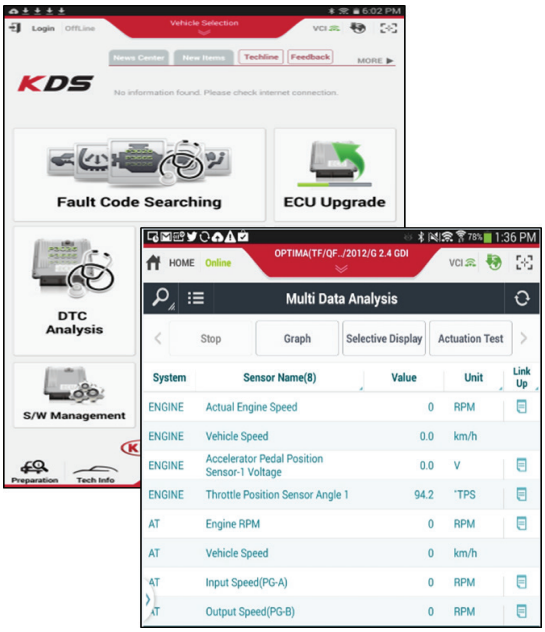
NOTE: 802.11 ac recommended

Being able to monitor data like RPM and other sensors in the ECM and the TCM at the same time will help technicians diagnose problems quicker and more efficiently.

The KDS will have live, up to date, Service Information via Wi-Fi and also stored on the SD card to view in areas of your dealership where Wi-Fi is not available.



In Multi Data Analysis the technician has the ability to monitor data from more than one module at a time. Systems with CAN data communication can be monitored at one time.



Mega Ohm / Insulation Resistance Tester

The Optima HEV and Soul EV will require using a special Digital Ohm Volt Meter for specific tests. The Fluke DVOM model 1507 features Mega Ohm / Insulation Resistance testing capabilities and special positive (red) test lead needed for checking Drive Motor and Hybrid Starter Generators insulation resistances.

The special red test lead can be recognized by the button labeled (Test) at the end of the red test lead and must be inserted into the meter marked for insulation testing. The black (negative) test lead is installed into the black test lead port on DVOM. To test the Drive Motor insulation resistance on Optima HEV you must ground the black test lead to the transmission housing.

Turn meter on and move mode selector switch on DVOM to DC 500 volts. Place the red test lead end on the U-V-W pin connector one pin at a time and hold the test button down for 1 minute while monitoring the insulation resistance indicated in large numbers on meter. When performing this test the meter sends 500 volts through the coil windings and detects current leakage. You should have a reading of 10 mega ohms or higher for each pin tested. Readings below 10 mega ohms or OL (out of limits) indicate a bad Drive Motor or HSG insulation resistance in the motor windings and require replacement of either the Drive Motor or Hybrid Starter Generator.

Kia Global Information System Enhancement

Kia Global Information System (KGIS) will be undergoing a minor enhancement. As part of new regulations, public access (non Kia dealers access) to KGIS is being updated to a pay-per-use web service to meet compliance with government and state agencies.

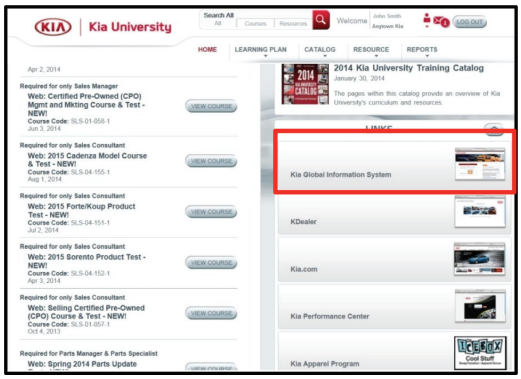
How does this affect Kia dealership users?

Using the single sign on capability of one of the Kia sites below would have no impact to your everyday activities.

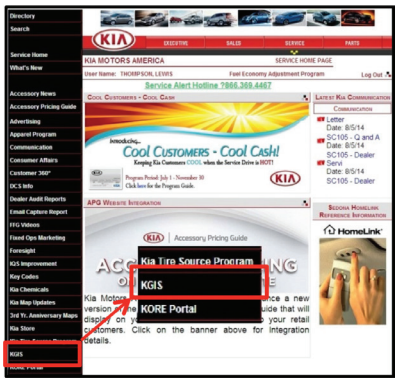
- KiaUniversity.com
- Kdealer.net
- Kdealer.com

Simply login to one of these sites and click on the KGIS link. KGIS will launch and be ready to assist with your vehicle repair needs.

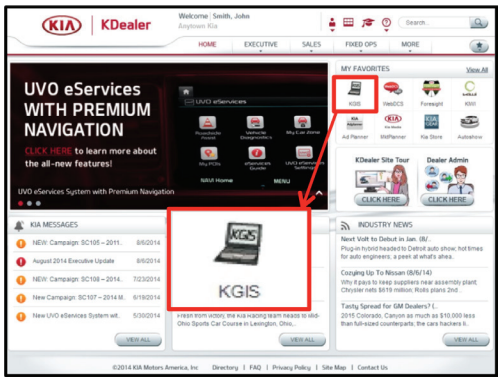
For reference, these site images details the location of the KGIS link.



KiaUniversity.com



kDealer.net



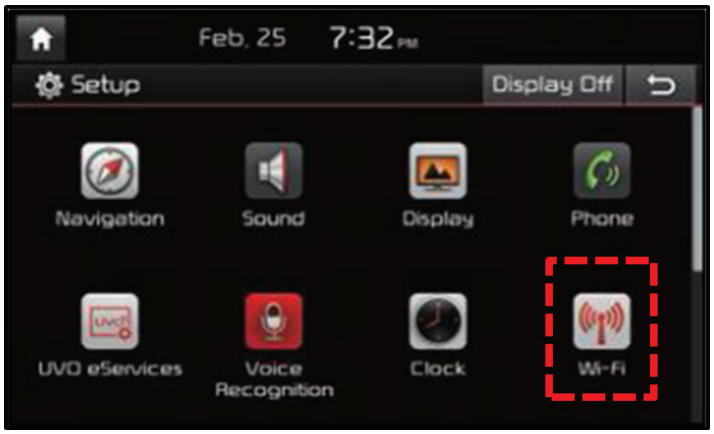
kDealer.com

Enabling Wi-Fi on UVO eServices W/Premium Navigation Equipped Vehicles (Customer Guide)

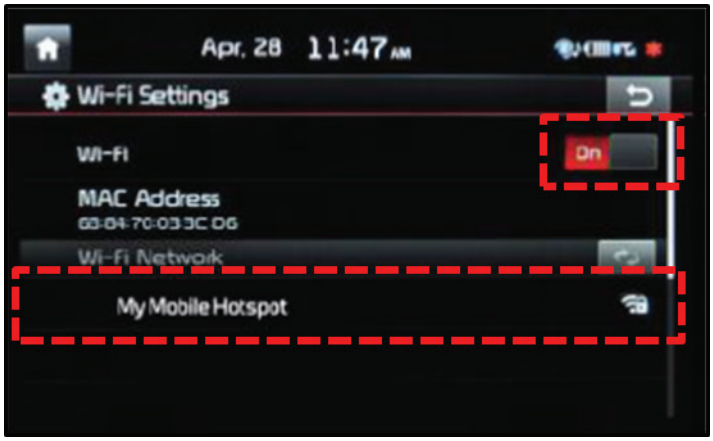
Along with the Download Center and other new UVO features comes the addition of Wi-Fi capability for the vehicle. Beginning with UVO eServices w/Premium Navigation equipped 2015MY Optima (QF) vehicles, you can now connect your vehicle to a personal hotspot, such as a standalone MiFi® device or a smartphone, when configured as a hotspot. Follow the procedure outlined below to configure the head unit and the hotspot device.

Head Unit Configuration:

1. Press the **SETUP** hard key and select the Wi-Fi icon on the screen.



2. Move the **Wi-Fi** toggle button to the **ON** position. Once the Wi-Fi is on, select the hotspot device from the on-screen list and enter any required credentials to make the connection.



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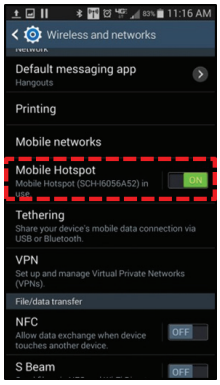
Hotspot Device Configuration:

1. Refer to the instructions included with the particular device in order to enable hotspot functionality, if available.

Android™

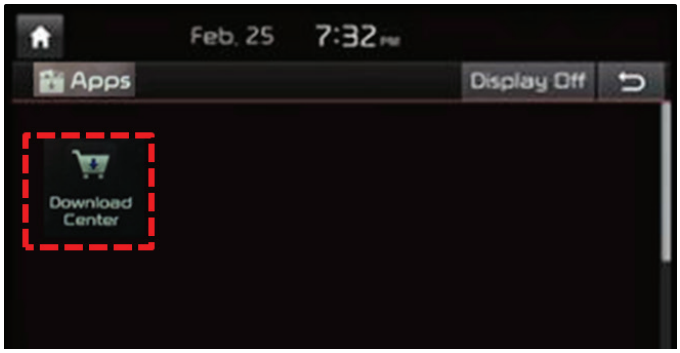


iPhone®

MiFi® Hotsport

Please refer to Pitstop PS 331

2. Once connected to Wi-Fi, you can access the Download Center and Local Search Powered by Google™.



AVN4.0 UVO eServices Dealer Engineering Mode

When troubleshooting an AVN 4.0 head-unit, follow the procedure outlined below to access the Dealer Engineering Mode and perform various eServices related maintenance functions.

1. Make sure the UVO eServices app is installed on the smartphone to be used.
2. Bluetooth® pair and connect the smartphone via USB cable to vehicle.
3. Log in to the UVO eServices app using the Universal Identification (UID) login credentials:

   User ID: uid@kiausa.com
   Password: 1234

4. To access the Dealer Engineering Mode, press the UVO hard key. Then, use a finger to touch a specific area of the head unit screen, using a specific combination of strokes (A ▸ B), as shown in the image below.

Note: Perform the combination A ▸ B a total of three (3) times, as shown above. Avoid pressing the ⮌ button when touching the screen at location A.

Continued next page

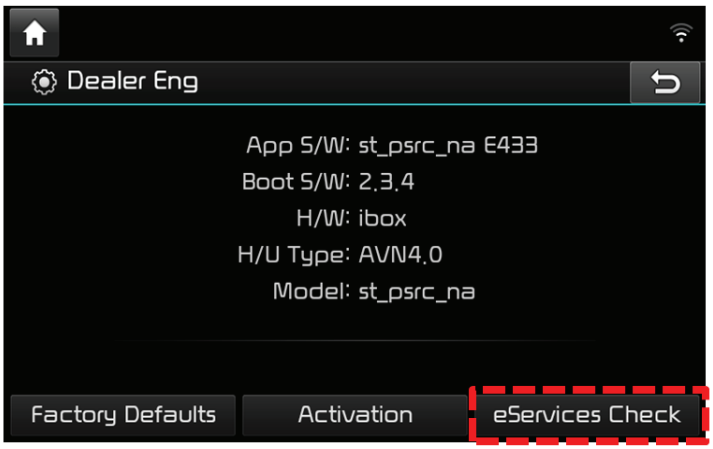
5. After performing the A ▸ B procedure correctly, the Dealer Engineering screen will be displayed on the head unit. Press the **eServices Check** button to test system operation.

6. The system will display the status of various subsystems. If all subsystems are working correctly the following message will be displayed:

   "TMU, OK!" - "BT Connection, OK!" - "USB Connection, OK!" - "eServices Check, OK!"

   Note: The message above indicates all subsystems are working correctly. No further action is required.

7. If any of the system checks fail, refer to the Troubleshooting Matrix below or to the applicable workshop manual on KGIS.



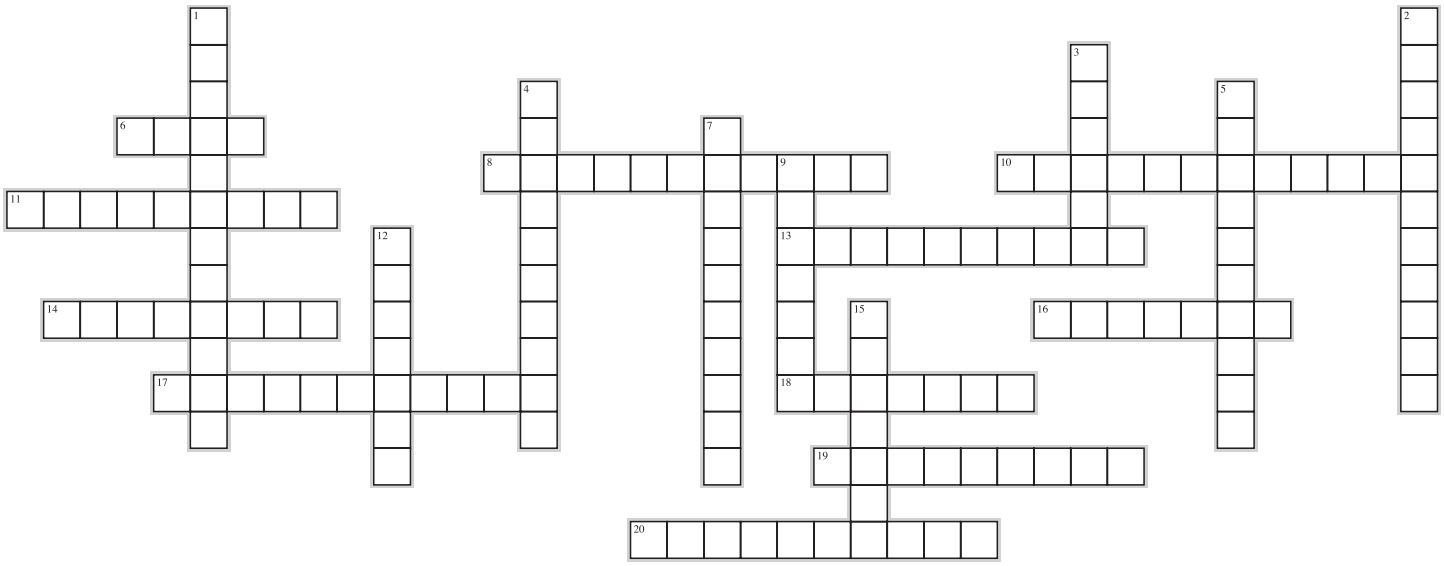
Error Codes Troubleshooting Matrix for AVN 4.0 Head Units

CHECK	CODE	MESSAGE	TROUBLESHOOTING
TMU	T000	Checking TMU	N/A
	T001	TMU submicom is not connected	Reset AVN or update to latest version
	T002	Unknown VIN	IGN on (at least once)
	T999	TMU OK!	N/A
BT	B000	Checking BT Connectivity	N/A
	B001	BT Initializing	Try again in a few minutes
	B002	No BT Phone connected	BT phone connection needed
	B003	Connecting to BT Profiles	N/A
	B999	BT Connection OK!	N/A
USB	U000	Checking USB Connectivity	N/A
	U001	USB is not connected	Connect with smart phone using USB cable
	U002	Not supported device	Smart phone needed(ex. not USB stick)
	U003	No response from Phone	Reconnect USB cable
	U004	Phone is not ready	Install UVO app into the phone
	U999	USB Connection OK!	N/A
TMS	C000	Checking TMS data transfer	N/A
	C001	USB unlink	Check USB connection
	C002	No Response from Phone	Reconnect USB cable
	C003	Response Error	Check phone network status
	C999	eServices Check OK!	N/A

Please refer to Pitstop PS 330

Crossword Puzzle

Test your knowledge of the articles in this issue of TechTimes by completing this crossword puzzle. The solution to this month's puzzle can be found on page 13.



Across

6. A _____ switch is one of the components that will cause the alarm not to set on a VQ Sedona.
8. The latch lock indicator shows a _____ _____ on both sides of the seat base if properly installed. (Two Words)
10. When diagnosing a heater blowing cold air in EV mode, make sure to test the Electric water pump located on the rear of the _____.
11. The main feature of the new KDS Diagnostic tool is wireless connectivity and _____ support.
13. When replacing a TPMS module you must set the "Mode Configuration" to _____ _____. (Two Words)
14. The Rain Sensing Wiper Sensor detects _____.
16. 2015 Optima (QF) vehicles equipped with AVN 4.0 audio units have the capability for Wi-Fi using a standalone MiFi device or smartphone when configured as a _____.
17. It is very important not to _____ the sensor prior to installation as this may cause the rain sensor to malfunction.
18. When testing resistance insulation, you should have a reading of _____ _____ ohms or higher for each pin tested. (Two Words)
19. The ability to monitor data from more than one module at a time is available using the _____ _____ Analysis. (Two Words)
20. The rain sensor uses Light Emitting Diodes (LED) and a _____ to sense the amount of rainwater.

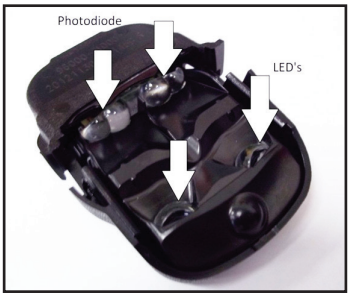
Down

1. The speed of the windshield wipers automatically adjust when the front wiper switch is in the _____ _____. (Two Words)
2. The _____ is located between the intake manifold and the brake booster.
3. Service Information via Wi-Fi and also stored on the _____ _____ to view in areas of your dealership where Wi-Fi is not available. (Two Words)
4. Ensure there are no _____ _____ between the adhesive tape and the windshield during installation. (Two Words)
5. To test the _____ _____ insulation resistance on Optima HEV you must ground the black test lead to the transmission housing. (Two Words)
7. The intensifier has an inlet to the _____ _____ assembly which supplies clean air to the intensifier. (Two Words)
9. When diagnosing a P1784 DTC on Optima Hybrid, check for _____ between the Electric Oil Pump (EOP) harness and the oil cooler hose clamp.
12. The main purpose of the brake booster is to _____ the pressure the driver applies to the brake pedal.
15. A _____ is added to supply more vacuum to the booster quicker.

Rain Sensing Wiper Sensor Cadenza

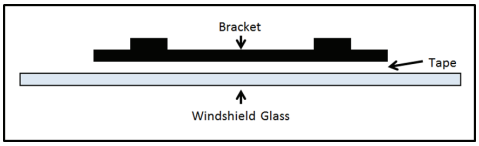
The Rain Sensing Wiper Sensor detects moisture on the windshield and automatically starts to adjust the wipers speed. This occurs when the front wiper switch is in the AUTO position. The sensor is mounted on the inside of the side windshield behind the rearview mirror.

Once the key is on, the sensor begins to monitor the amount of rainwater contacting the windshield. When the wiper switch is in the AUTO position and the sensitivity signal from the intermittent switch is received, the wiper is controlled based on the amount of rainwater on the windshield.

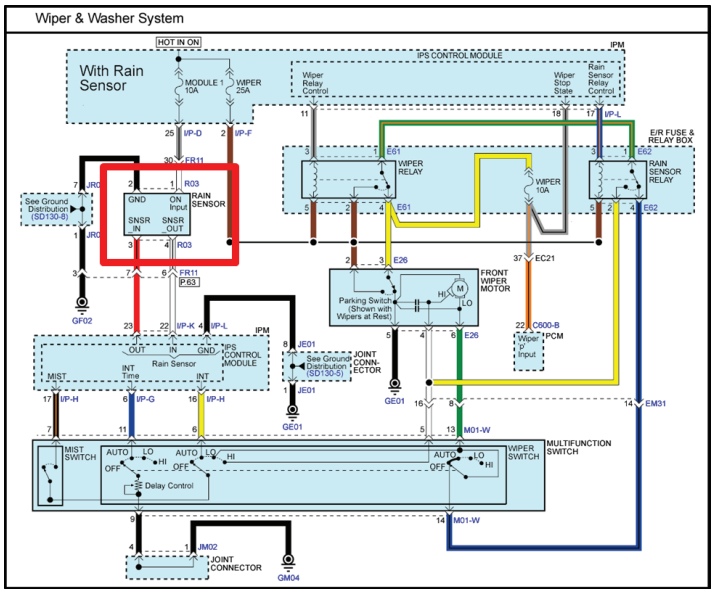


The rain sensor uses Light Emitting Diodes (LED) and a photodiode to sense the amount of rainwater. This is accomplished by the light reflecting from the LED's off the windshield glass and detected by the photodiodes on the opposite side of the sensor. If no rain water is detected, the photodiodes receive light from the LED's. If rainwater contacts the windshield, the light from the LED's becomes refracted and the amount of light received by the photodiode decreases. So the water droplets act like a convex lens that refracts any light that enters it.

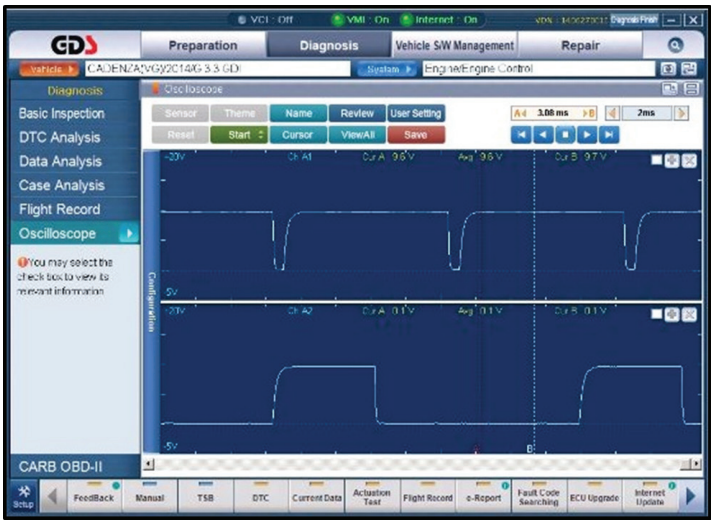
The rain sensor is mounted to the windshield (shown below) with adhesive tape and a bracket. It's very important not to contaminate the sensor prior to installation as this may cause the rain sensor to malfunction.



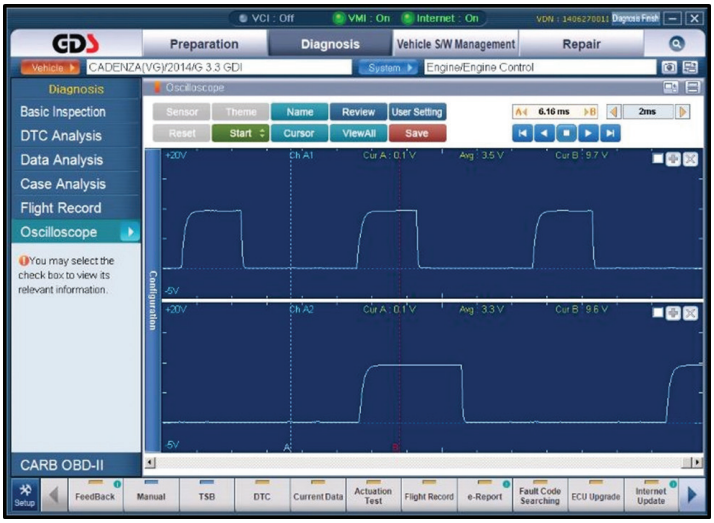
In addition it's also very important to make sure there are no air bubbles between the adhesive tape and the windshield during installation. This may cause the light from the LED's not to refract correctly and cause a customer concern.



The rain sensor receives power with ignition on at pin 1 and ground at pin 2 as shown on the wiring diagram below. Pin number 3 is a PWM signal input to the sensor based on the wiper "AUTO" switch position. Pin number 4 is a PWM signal out of the rain sensor based on rainwater on the windshield.



The screen shot above is with the wiper off and no water on the windshield. The top pattern is input to the rain sensor for the "AUTO" switch position, pin number 3 of the sensor. The lower pattern is output for water present on the windshield from the rain sensor, pin number 4.



This screen shot shows the "AUTO" wiper switch active on the upper pattern, without water on the windshield, lower pattern.

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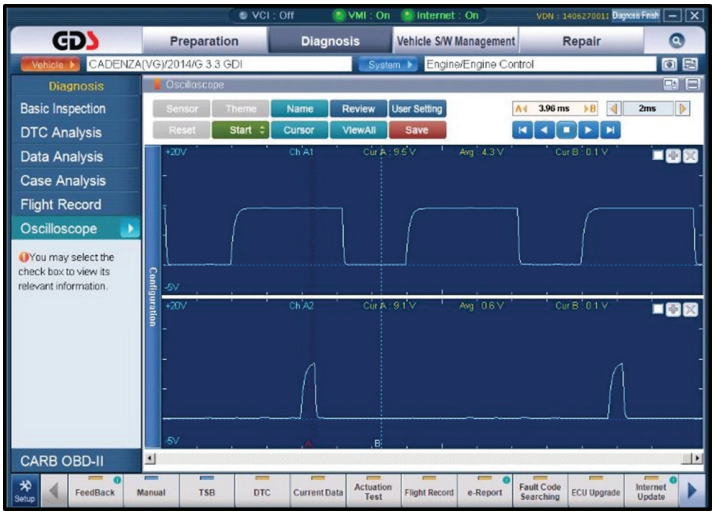
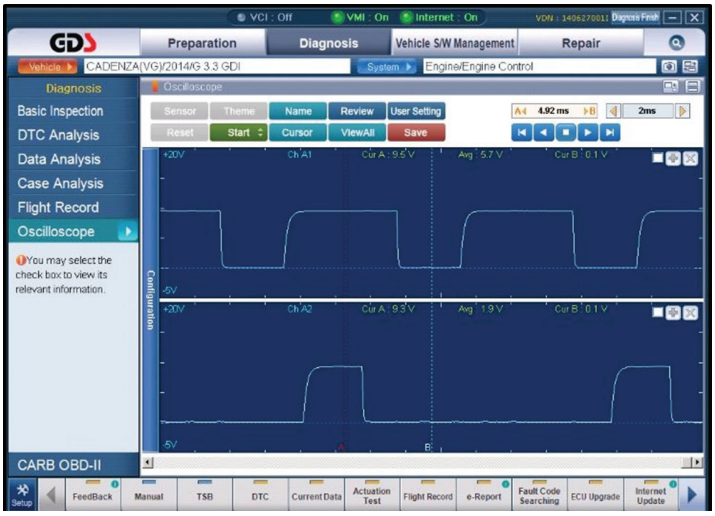
Rain Sensing Wiper Sensor Cadenza (Continued)



The screen shot above shows the “AUTO” switch in the maximum intermittent position, upper pattern, and heavy rain on the wind screen, lower pattern. The windshield wiper is running at high speed.

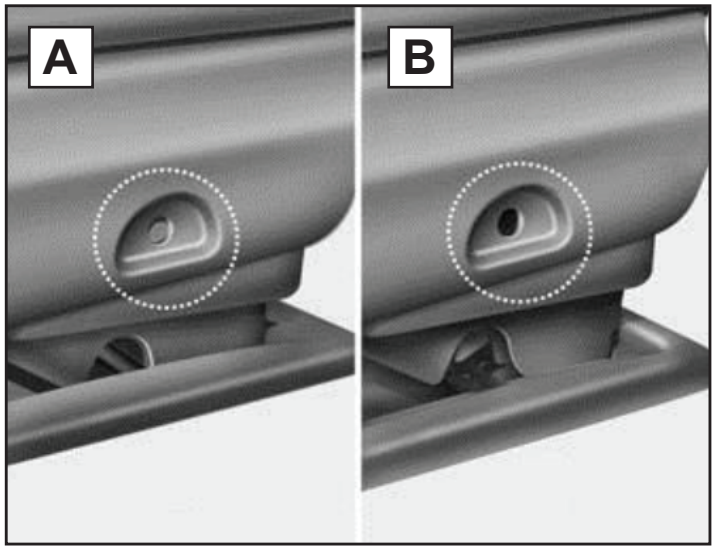


The screen shot above shows the “AUTO” switch in the minimum intermittent position, upper pattern, and light rain on the windshield, lower pattern. The windshield wiper is running at low speed.

Second Row Seat Release Mechanism Inoperative

When diagnosing a concern on 2006 - 2014 (VQ) Sedona relating to a difficult to release or inoperative second row seat tumble feature, first, check the following components:

- Latch lock indicator shows a green circle on both sides of the seat base (A). If the green circle is not visible (B), make sure the seat is properly attached.



- Seat latches are properly greased
- Seat release cables are not damaged

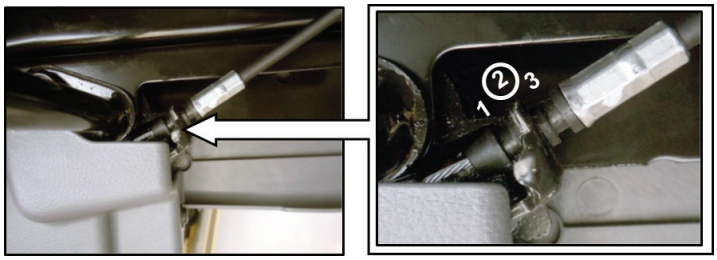
Once the checks above are complete and the mechanism is still inoperative, adjust the tension in the seat release cables by following the procedure below.

Please refer to Pitstop PS 306

Adjusting the seat release cables:

1. Move the seat to the full forward position and locate the seat release cables on the left and right side of the seat track.

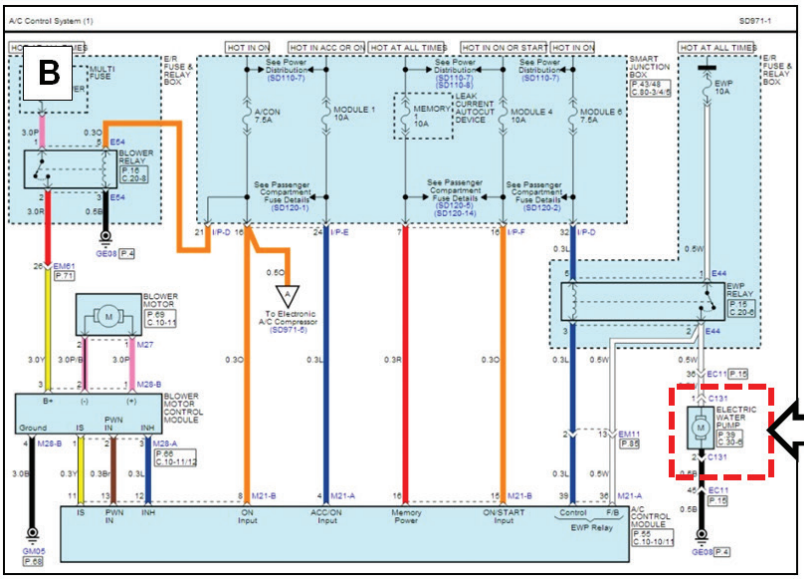
2. Check the current position for the seat release cable adjuster. The default setting from the factory is in slot two (2).

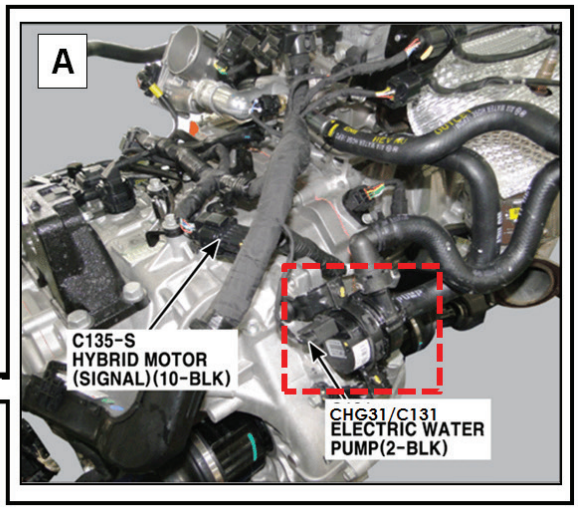


3. If more tension is required to operate the release mechanism, remove the cable adjuster from the default slot and place it in slot one (1).
4. If there is excess cable tension in the mechanism, remove the cable adjuster from the default slot and place it in slot three (3).
5. Operate the seat release handle to make sure the seat will tumble forward.
6. Repeat the steps above on the opposite side second row seat, if necessary.

Heater Blowing Cold Air While In EV Mode

When diagnosing a concern on Optima Hybrid related to the heater intermittently blowing cold air while in EV mode, check the Electric Water Pump (EWP) for the A/C system (NOT the main cooling system EWP), located on the rear of the transmission (A), for proper operation. To test EWP operation, disconnect connector CHG31/C131 (B) and apply power and ground to the EWP. If the EWP operates after applying power and ground, continue diagnosing per the ETM. If the EWP does not operate, replace the EWP to resolve the concern.





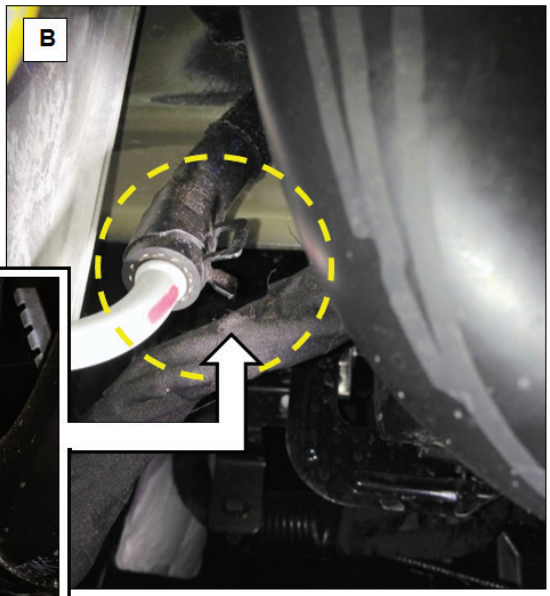
Please refer to Pitstop PS 338

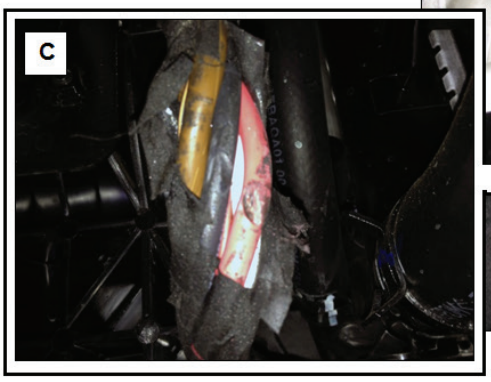
Hybrid Warning System Message in Cluster and MIL-ON with DTC P1784

When diagnosing an Optima Hybrid with a “Hybrid System Warning!” message (A) in the cluster, the malfunction indicator lamp (MIL) on and DTC P1784 (EOP 3-Phase Wiring Line Open), in either active or in history, check for contact between the Electric Oil Pump (EOP) harness and the oil cooler hose clamp (B). If the harness is visibly damaged from contact (C), repair or replace as needed.

NOTE: If the “Hybrid System Warning!” message appears in the cluster without a DTC present in the system, call Techline for further assistance with diagnosis.

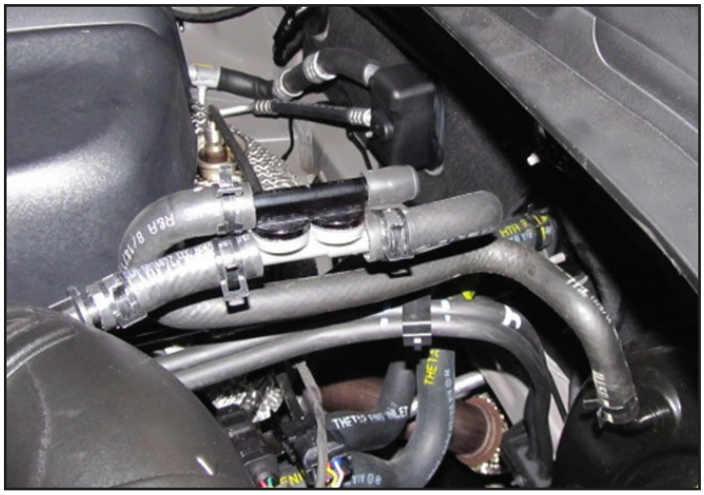
Please refer to Pitstop PS 316





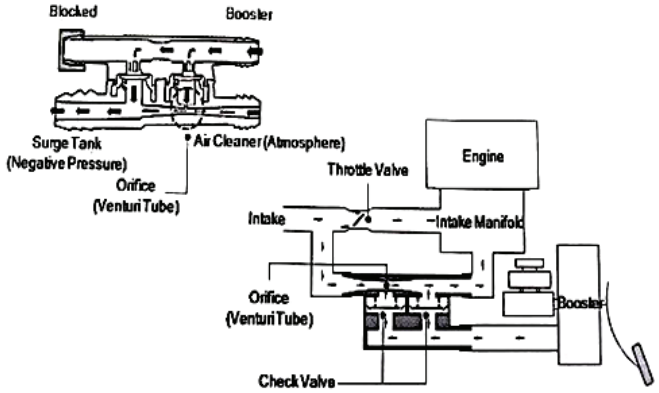
Intensifier Valve Overview

We were introduced to the Intensifier valve in Tech Times Volume 15 issue 3. This article will help you understand the principles behind it and how to diagnose.



Overview

To understand why we use the intensifier, we need to step back and take a look at the operation of the brake booster. The main purpose of the brake booster is to amplify the pressure the driver applies to the brake pedal. Generally engine manifold vacuum is used to assist in braking effort. The intensifier adds a venturi to also supply vacuum to the booster.



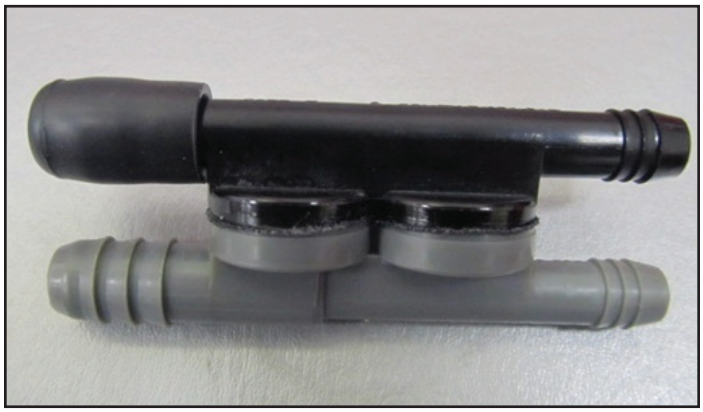
Operating Principles

As shown on the illustration above, the intensifier is located between the intake manifold and the brake booster. Air is pulled from the brake booster, through a one-way valve, into the intake manifold. The one-way valve traps the vacuum in the booster when the intake manifold vacuum decreases during acceleration. A venturi is added to supply more vacuum to the booster.

The intensifier has an inlet to the air cleaner assembly which supplies clean air to the intensifier. This clean air is pulled through the venturi, inside the intensifier, which creates a vacuum. Going back to the days of carburetors, when air is pulled through a restriction, the air speeds up and the pressure decreases creating a vacuum. In this case, the vacuum is routed to the brake booster. When the engine is running, air flows from the air cleaner through an orifice in the intensifier and on to the intake manifold. The vacuum produced by this process in the venturi is sent to the booster.

Intensifier Inspection

Air flow operation test: The intensifier has two gray ports (one larger, one smaller) and one open black port. You should be able to lightly blow through the larger gray port



and feel air exiting the smaller gray port. There should be a resistance caused by the venturi. Blowing through the larger gray port, air should not exit the open black port. Pulling a vacuum on the larger gray port should pull air through the open black port.

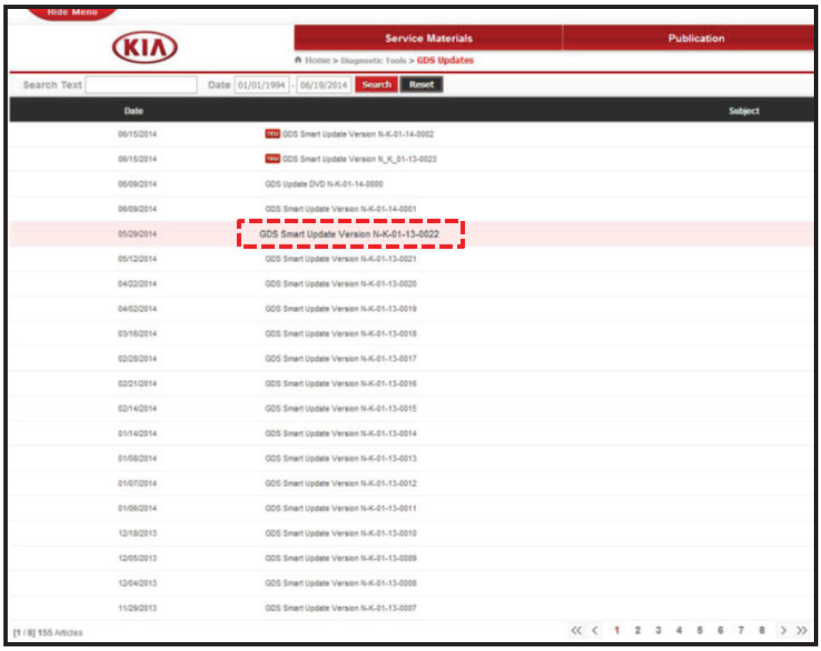
Vacuum test: a vacuum gauge can be installed in the manifold vacuum line going to the intensifier. After starting the engine, record the vacuum reading. Move the gauge to the vacuum line going into the booster and record the reading. The vacuum reading should be the same or higher at the booster as it is at the intake manifold.

Resetting Cylinder Balance Adaptation Values

When addressing a cylinder balance concern on a vehicle equipped with a 2.4L GDI engine, it is important to note that the DTC may recur after replacement of any faulty component(s) and resetting adaptive values. Adaptive reset function did not previously contain the ability to reset cylinder balance values, allowing the possibility for these values to remain out of the allowable threshold, and triggering the DTC. To ensure proper repair of a vehicle with this concern, GDS software version must be at least N-K-01-13-0022 or later. GDS software updates after this point contain the ability to reset cylinder balance adaptation values.

NOTE: PCM replacement for this concern without first updating GDS to the latest version may be subject to warranty chargeback.

Please refer to Pitstop PS 327



Adjusting Rear Hatch Closing Effort

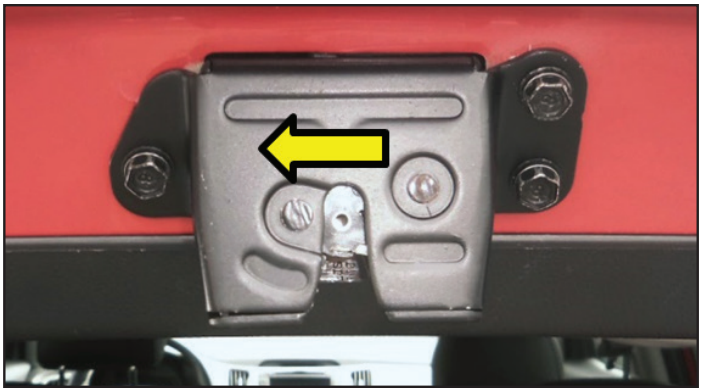
When encountering a customer concern related to excessive rear hatch closing effort on some 2011MY to 2014MY Sportage (SL) vehicles, first, verify the customer concern by comparing the closing effort on the affected vehicle to other like vehicles. Make sure all windows are rolled up and use minimal effort to try and close the hatch. If more effort is required to close the hatch than on like vehicles, perform the following procedure:

1. Loosen three bolts securing the latch to the tailgate.

Please refer to Pitstop PS329

2. Shift the latch as far to the left as possible and re-torque the bolts to proper specifications.

Tightening torque: 5.1~8.0 lb-ft (6.9~10.8 Nm).



3. Verify the hatch closes properly and with minimal effort.

Crossword Puzzle Solution

We hope you gave this issue's crossword puzzle on page 7 a try. In case you need a little help, here are the answers to the puzzle clues.