



# TECH TIMES

The Professional Publication for Kia Dealership Technicians & Service Staff

2014

Volume 17, Issue 2

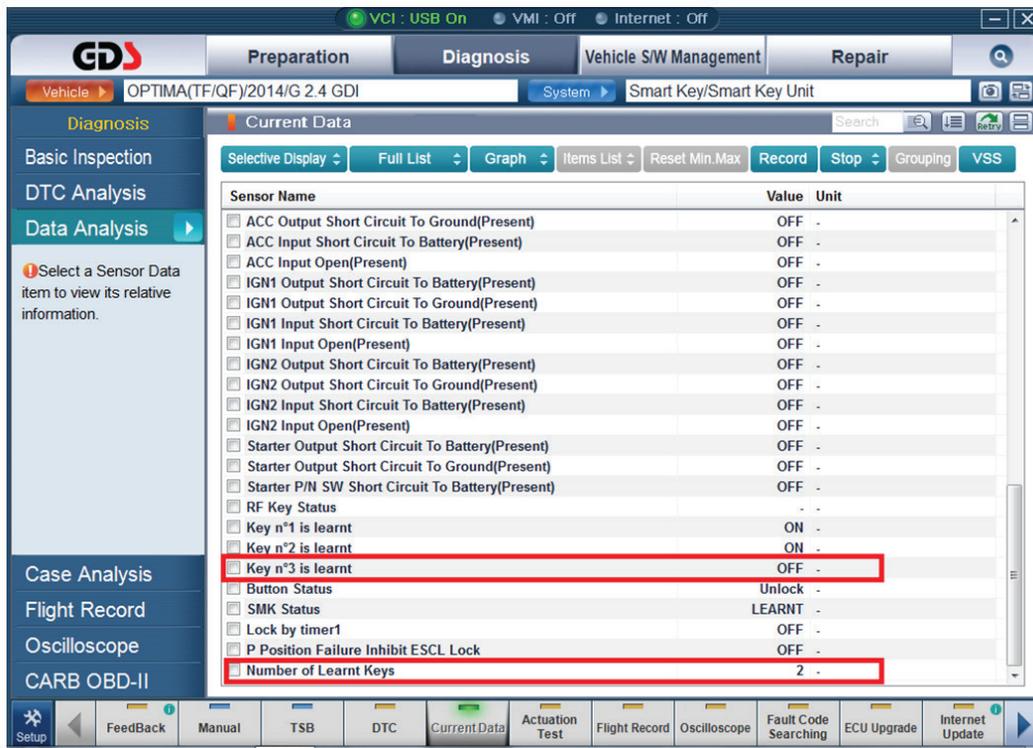
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## Programming a Third Smart Key on Certain 2014 and 2015MY Vehicles

In past Smart Key systems the maximum number of keys that could be programmed to a vehicle was 2. On certain 2014-15MY Kia vehicles, the number of keys that can be programmed to a vehicle has increased to 3. For information on the current number of keys “learned” by the system, access **SMK > Current Data** in GDS, as shown below. To program any additional keys, follow the applicable service procedure on KGIS.



## Tech Line FAQs

| Model/Year                | Question   | Answer  |
|---------------------------|--|---|
| All Models                | When I place the vehicle in reverse, the side view mirrors do not tilt down. Do you know what would be causing this issue? | The side view mirror reverse feature is only available on vehicles with memory seats (IMS). If the vehicle does not have memory seat buttons it will not have this feature and the side view will not tilt down when the vehicle is placed in reverse.    |
| 2010 & Newer Optima/Forte | Why won't my variant code work when programming my new SRSCM?  | Please review PS 274. The variant codes have changed on many of the replacement SRSCM's. Match the appropriate SRSCM part number to the correct variant code.   |
| All Models                | When KGIS is not working. How do I get a Variant Code or ACU code?   | When you create a case, after pasting or typing the VIN into the box, simply hit the "more info" button and you will see a list that includes: Campaigns, Service Actions, TSBs, Pit Stops, DTCs, ETM, Service Manual, ACU coding, and Key and PIN codes. |
| All Models                | How do I access the overhaul manuals?  | In KGIS without selecting a model, scroll down and select the correct application from the drop down list provided  |

## Latest Technical Service Bulletins, Service Actions and Campaigns

|                |  |
|----------------|--|
| <b>BOD 104</b> | Driver's Side Seat Cushion Cover Detaching   |
| <b>TRA 051</b> | 6SPD A/T Solenoid Replacement - DTC P0741  |
| <b>CHA 042</b> | Front Strut Bearing Replacement  |
| <b>GEN 067</b> | Information Collection Related to Electrical Concerns  |
| <b>SC 104</b>  | Application of Additional Anti-Corrosion Material  |
| <b>ENG 141</b> | 5.0L (TAU V8) GDI RPM Stability Improvement - ECM Upgrade  |
| <b>CHA 041</b> | Front Strut and Dust Cover Replacement   |
| <b>SC 102</b>  | Rear Lower Control Arm and Suspension Cross Member Application of Preventative Anti-Corrosion Material |

### 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.



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## New Kia University Courses and Tests

Kia University is pleased to announce the launch of the following new web-based courses and tests on KiaUniversity.com which are required for Technician Certification.

- **2014 Spring Update Tests:** Technicians will be challenged to seek out the latest Service Information Service Information pertaining to new technology, operation and diagnosis, emerging troubleshooting strategies, and tips for effective special service tool usage.
- **Intro to Kia Air Conditioning:** This course is designed to provide technicians with air conditioning theory, troubleshooting strategies, and tips for effective special service tool usage.

| Category    | Course Code  | Course Name                                    | Certification Requirement |
|-------------|--------------|--|---------------------------|
| Spring      | TEC-04-053-1 | WEB: 2014 Spring Update Test Technical - NEW!  | Technician                |
| Intro to AC | TEC-01-047-1 | WEB: Intro to Kia Air Conditioning Tech - NEW! | Technician                |

These tests are available for your retail personnel to take at [www.KiaUniversity.com](http://www.KiaUniversity.com).

## Techline Needs Your Feedback!

In an ongoing effort to help provide industry leading technical support to our dealers, Techline launched a pop-up survey that displays whenever technicians log into the Techline web portal to close their cases. The survey asks several questions about the Techline experience including availability, responsiveness, and advice given. We use this feedback to gauge our performance and drive improvements and we expect to achieve a total score of 95% overall satisfaction or better. Unfortunately, the response to this survey has been very low. This year less than 5% of cases closed had surveys completed. We would like to see survey completion at 50% or better. We ask that you please complete this survey each and every time you close a case so we can gauge our performance and be given the opportunity to research any concerns you may have and correct them. Thank you!

**To complete the survey, please do the following:**

- Log into the Techline web portal and select “close case” from the Techline menu.
- Select the case number you wish to close and hit “close case “again.
- A pop up window will appear asking if you would like to participate in the survey.
- Click the “YES” button.
- Answer the 5 questions and hit “submit survey/feedback”
- Scoring is “5” for very satisfied and goes down to “1” for very dissatisfied.
- Another pop-up window will appear thanking you for participating in the survey.
- Click the “OK” button and the window will close and the closed case screen will be displayed.
- Input all the pertinent information in the case notes and close your case as you normally would.

As always, I am here to assist you. If you have any questions or comments, please feel free to contact me.

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## 2014 Kia Skill National Cup Competition

The 2014 Kia Skill National Cup Competition brought the top sixteen master technicians, four from each region, to converge at Kia Motors America (KMA) headquarters in Irvine, California to match their skills against talented and experienced technicians alike.

The top four finalist of the Kia Skills National Cup Competition will move to an even larger world stage: Kia Motors Corporation's (KMC) Kia Skill World Cup where they will compete with the best Kia technicians from around the world.

National Cup is a grueling competition that challenges every one of these technicians. Even with the intensity of this competition, National Cup technicians and their travel companions had a wonderful time in Orange County, California.

They enjoyed their week with the traveling companions spending the entire day at Laguna Beach in bungalows that offered the comforts of home and all the amenities of a hotel. In the early evening, the technicians joined their traveling companions at the beach to feast on appetizers and a hearty dinner, all the while, trading stories of that day's competition.



*Traveling companions enjoying a beach day while technicians competed.*



*Technicians joined their traveling companions for a post-competition dinner at the beach.*

Fast forward to the Award Dinner & Presentation to find out how these top sixteen National Cup technicians fared in these five competition areas: Body Network, Driveline, Electrical, Engine Mechanical, Engine Management Systems.

### Central Region

1st Place



**Ben Hendricks**  
Dorsch Kia  
Green Bay, WI

2nd Place



**Thomas Boss**  
Keller Kia  
Grand Rapids, MI

3rd Place



**Ted Hambach**  
Head Motor Company  
Columbia, MO

4th Place



**Derek Eveler**  
Metro Kia of Madison  
Madison, WI

### Eastern Region

1st Place



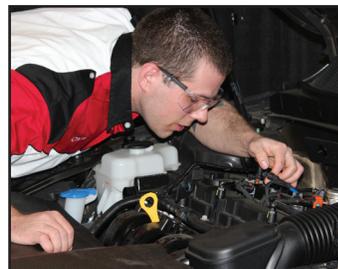
**Thomas Cinque**  
Auto World Kia  
East Meadows, NY

2nd Place



**Ray Sowers**  
Motor Mile Kia  
Christiansburg, VA

3rd Place



**Chris Hobbs**  
Parsons Kia  
Winchester, VA

4th Place



**David Printy**  
Garvey Kia  
Queensbury, NY

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## 2014 Kia Skill National Cup Competition (Continued)

### Southern Region

**1st Place**



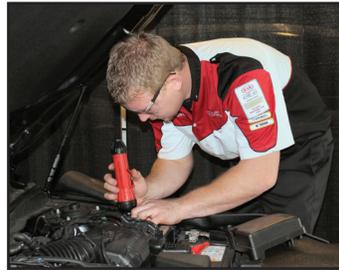
**Ken Winders**  
Gene Messer Kia  
Lubbock, TX

**2nd Place**



**Babak Nadimi**  
Central Kia of Lewisville  
Carrollton, TX

**3rd Place**



**Seth Heffner**  
Paramount Kia  
Hickory, NC

**4th Place**



**Aaron Jenkins**  
Paramount Kia of Asheville  
Asheville, NC

### Western Region

**1st Place**



**David Gonzalez**  
Mark Kia  
Scottsdale, AZ

**2nd Place**



**James Baker**  
Jerry Seiner Kia, Salt Lake  
Salt Lake City, UT

**3rd Place**



**Justin Smith**  
Camelback Kia  
Phoenix, AZ

**4th Place**



**Jared Dimitt**  
Courtesy Kia  
Henderson, NV

While the majority of the competition was judged on each National Cup technician's approach and ability to Fix the Vehicle Right the First Time (FRFT), they were also graded on using safety glasses and fender covers, maintaining a clean and orderly work area, and their professionalism.

No matter the outcome, the judges will tell you that every National Cup technician tried to do their best under high-pressured competition situations. Our photographer who is accustomed to observing facial expressions and body language said "the intensity you see on these guys was intense. If I had to pick winners from this group based on their determination alone, I wouldn't know who to pick."

After the regional award winners were announced and were awarded their plaques, the moment of truth has finally arrived. When it was all said and done, here's who's going to the 2014 Kia Skill World Cup competition



**4th Place**  
**Bobby Nadimi**  
Central Kia Lewisville  
Carrollton, TX

**3rd Place**  
**Tom Boss**  
Keller Kia  
Grand Rapids, MI

**2nd Place**  
**Ben Hendricks**  
Dorsch Kia  
Green Bay, WI

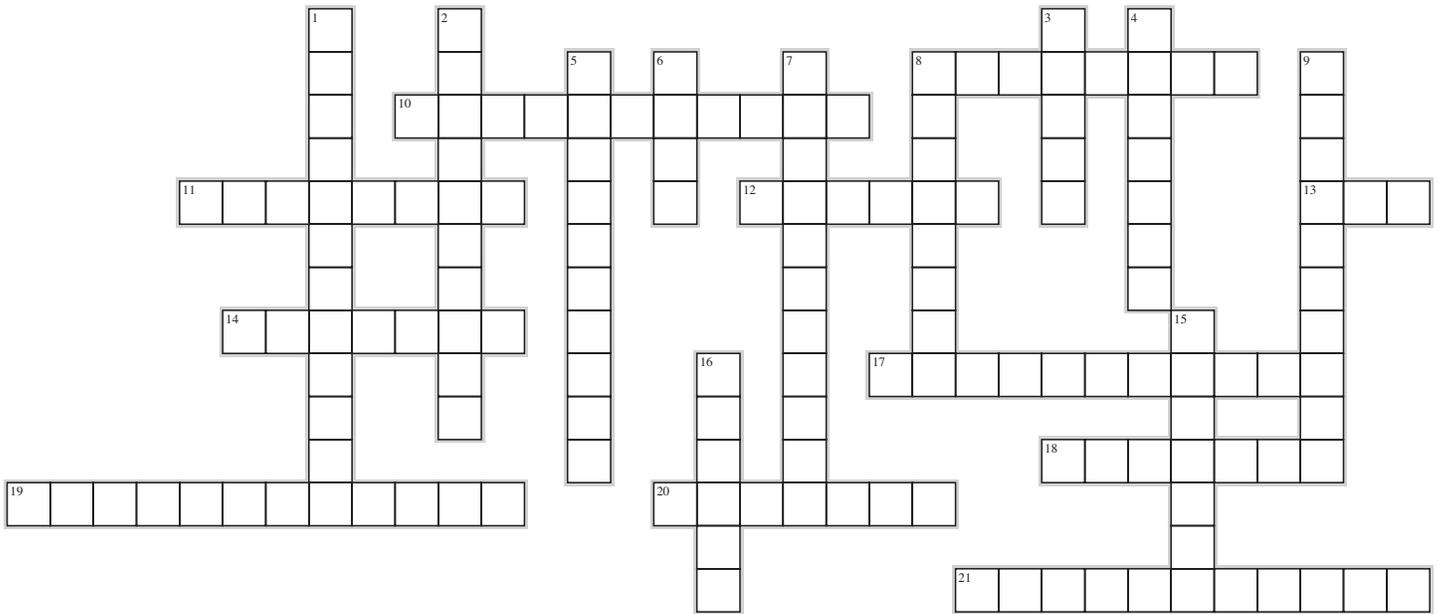
**1st Place**  
**Ken Winders**  
Gene Messer Kia  
Lubbock, TX

Congratulations to this team who will represent Kia Motors America at the 2014 Kia Skill World Cup in South Korea. Good luck and good fortune.

Also, congratulations and thank you to every 2014 Kia Skill National Cup technician and their traveling companion who participated this year to make this a successful and memorable event.

## 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 16.



### Across

8. \_\_\_\_\_ control: Battery is supplied to the control side of the relay. (Two words)
10. Customers may experience difficulties while setting a \_\_\_\_\_ if they touch a “hard” button or use the touch screen.
11. Internal \_\_\_\_\_ in the Brake switch provide input to the SSEM which outputs to the ESC.
12. If any “hard” buttons or the touch screen is used, the \_\_\_\_\_ is cancelled. (Two words)
13. The \_\_\_\_\_ system automatically engages Park Range when the engine is turned off.
14. For SBW, the traditional transmission inhibitor switch has changed to what is now the \_\_\_\_\_ Switch.
17. If the head unit has a \_\_\_\_\_, reset the head unit. (Two words)
18. The SVM tool includes a GDS interface that hooks up between the vehicle’s SVM modules and the vehicle \_\_\_\_\_.
19. RCTA can be deactivated in the \_\_\_\_\_ menu on some models. (Two words)
20. \_\_\_\_\_ control: Ground is applied to the control side of the relay. (Two words)
21. The side view mirror reverse feature is only available on vehicles with \_\_\_\_\_. (Two words)

### Down

1. \_\_\_\_\_ protection for the stop lamp circuit is integrated into the SSEM as well. (Two words)
2. Paired with the eight speed transmission, this advanced \_\_\_\_\_ shifter provides for easier gear selection and customer convenience.
3. On certain 2014 – 2015MY Kia vehicles, the number of keys that can be programmed to a vehicle has increased to \_\_\_\_\_.
4. Hydrophobic glass uses a thin transparent layer of titanium \_\_\_\_\_.
5. The hood release tool was developed to prevent damage to the hood release \_\_\_\_\_. (Two words)
6. Adjusting the Park Switch is similar to adjusting a neutral safety switch except the transmission must be in \_\_\_\_\_.
7. The Surround View Monitor System uses \_\_\_\_\_ to display the view around the vehicle. (Two words)
8. Communication with TCU is by CAN with a \_\_\_\_\_ backup in case of CAN failure. (Two words)
9. This \_\_\_\_\_ hold is designed to give the driver time to switch from the brake to the accelerator for starting up without the vehicle rolling backwards. (Two words)
15. When the BSD switch is turned on manually, it is placed in \_\_\_\_\_ mode until a vehicle is detected.
16. The Shift Lock is engaged by the TCU based upon the status of the \_\_\_\_\_ button, Brake Switch and the Key Mode.

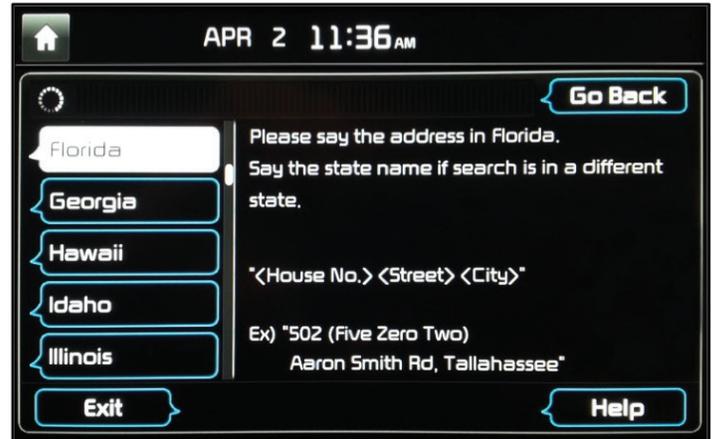
## Using Voice Recognition to Set Navigation Destination

This article provides information related to setting navigation destinations using voice recognition (VR), and describes some new features that have been added with the most recent navigation software.

In some head units, customers may experience difficulties while setting a destination if they touch a “hard” button, or use the touch screen, prior to setting the destination. However, other head units allow the user to use VR and touch screen input while in the process of setting a destination.

### Tips for using Voice Recognition to enter a destination:

- The 2014MY Soul is equipped with the first “Generation 4.0” AVN head unit and it allows the user to use both touch screen input and/or VR when entering an address. As Generation 4.0 head units become common in other models, they will also gain this extra functionality. For example, the state can be entered via the touch screen buttons on the left of the screen or via voice recognition, even when starting off in VR Mode.
- When using VR to enter addresses in all other head units the entire address and all selections must be made using VR ONLY and while in VR Mode. If any “hard” buttons or the touch screen is used, the VR Mode is cancelled. For example, if a list of addresses or states is shown, trying to use the touch screen to select those addresses instead of stating “Line 1” or “1” will result in cancellation of the VR Mode.
- The latest AVN software allows for customers to use “Find Address in <State>” command or “Find nearest <Restaurant>”. Check the VR menu in the vehicle (displays when the “push to talk” button is pressed) to confirm if the commands are available on a particular vehicle.
- Additionally, the latest AVN software allows for customers to enter a four digit address such as “9314” as “ninety-three, fourteen”, when using the VR mode. When entering addresses that contain more than four numbers, speak the numbers separately, such as, 15409 as “one-five-four-zero-nine”.
- In all current navigation head units, the address must be spoken exactly as it is entered in the map data base. Confirm the location is within the map database by using the touch screen if a complaint arises in setting a destination using VR. Sometimes setting a hard to recognize location manually, results in the VR recognizing that location the next time voice destination is attempted for the same location. In cases for which the voice destination feature does not work due to customer accent, pronunciation, or system limitation; it is recommended that the touch screen or controller be used to manually set the location when the vehicle is stopped.
- As always, for optimized results when using VR, ensure windows and sunroof are closed, speak clearly and in a moderate volume (not too soft or too loud), lower the HVAC fan speed and adjust the vents to point away from the cabin microphone.



Please refer to Pitstop PS 310

Refer to the QRcode to view a library of Premium AVN videos

### Premium AVN Video

To view a video on your mobile device, snap this QR code



## Automatic Transmission Shift by Wire (SBW)

### E-Shifter



The Shift by Wire or SBW system is all new in select Kia K900 models for 2015. Paired with the 8 speed transmission, this advanced electronic shifter provides for easier gear selection and customer convenience. Faster shifting with less movement enhances an independent gear shift pattern with a different gear selection order than conventional shifters.

#### Automatic Transmission (Shift by Wire) and Sport Mode Video

To view a video on your mobile device, snap this QR code



Let's take a look at key operational features of the new SBW system.

**Safety:** The SBW system automatically engages Park Range when the engine is turned off. The shift range is displayed on the shifter knob for easy visibility. The illuminated range position remains on for 30 seconds after the ignition is turned off, when the door is opened. Communication with TCU is by CAN with a hard wire back up in case of CAN failure.

**E-Shifter operation from P→R, P→D:** With KEY ON and holding the foot brake, press the shifter knob side Unlock Button and move the shift lever. If the brake pedal or unlock button are not pressed, the "invalid gear shift condition" message will be shown on the cluster.

**E-Shifter operation from N→D:** The shift lever can be moved but engagement is determined by the TCU under the following conditions:

- If vehicle speed is above 1.25 mph Drive is engaged.
- If vehicle speed is below 1.25 mph Drive is engaged only if engine speed is below 3000 RPM and the brake is ON.

**E-Shifter operation from R→N, D→N:** Gear shift is engaged when the shift lever is moved

**E-Shifter operation to P Range:** If the P button on the upper section of the knob is pressed or the SSB is pushed while the shifter is in Manual Position (Sport shift), the P range is engaged and the shift lever returns to Neutral Fixed position. However, P range is not engaged if the vehicle speed is over 0.6 mph.

**Park range is automatically engaged** under the following conditions:

- Current range is D/R/M and the seat belt is OFF.
- Accelerator & brake pedal are OFF.
- Door is opened, and vehicle speed is less than 1.2 mph.

**E-Shifter operation from R→D:** Move shift lever back 2 positions

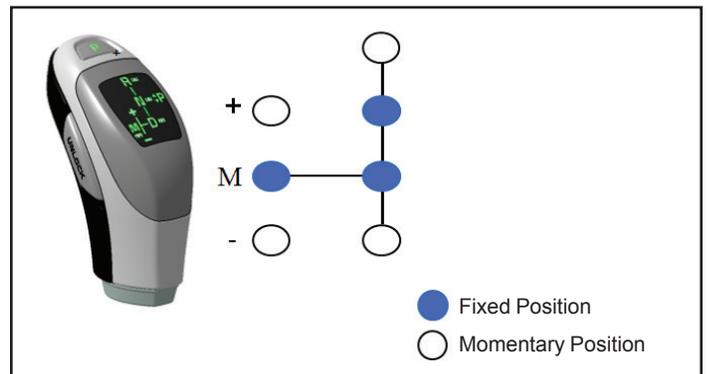
**E-Shifter operation from N→R:** Under the following conditions:

Gear shifts to R range if the shift is attempted while the brake is engaged, unlock button is pressed (left side of shifter), and the vehicle speed is less than 1.2 mph.

Gear shifts to R range if the shift is attempted while unlock button is pressed and the vehicle speed is between 1.2-5 mph.

If the attempt is made to shift the gear to R range while the vehicle speed is over 5 mph, the cluster will display "Invalid gear shift condition." message.

**NOTE:** The Shift Lock is engaged by the TCU based upon the status of the Unlock button, Brake Switch, and the Key Mode. **There is no separate Shift Lock device**



**Parking Switch:** The traditional transmission inhibitor switch, also known as the neutral safety switch, previously detected P/R/N/D. For SBW, this switch has changed to what is now the Parking Switch. The new parking switch determines if the transmission is in park or any gear other than park.

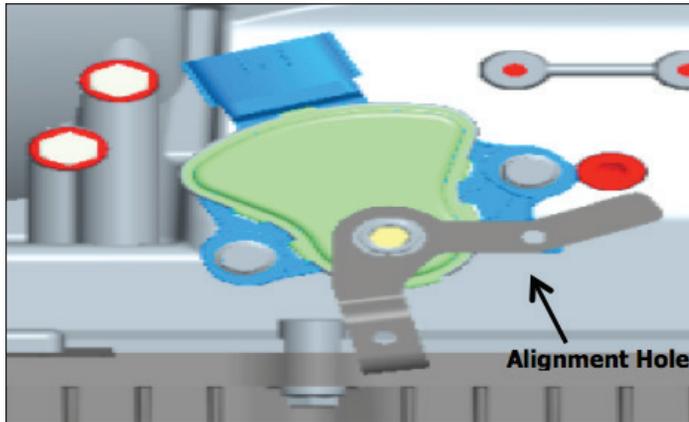
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## Automatic Transmission Shift by Wire (SBW) (Continued)

Although the parking switch looks the same as the inhibitor switch, it only uses 3 wires. One power input and two signal outputs, Signal 1 and Signal 2.

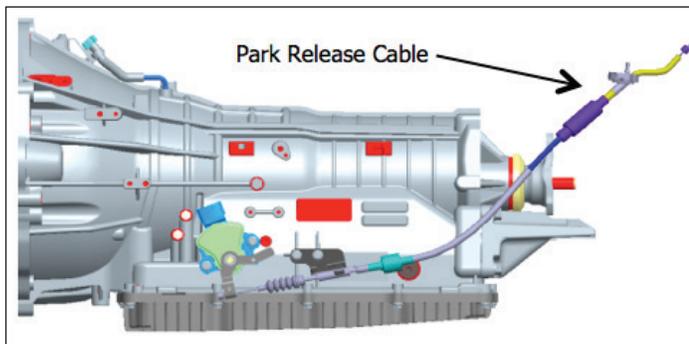
| Mode     | Signal 1 | Signal 2 |
|----------|----------|----------|
| Park     | ON       | OFF      |
| Not Park | OFF      | ON       |

Adjusting the Park Switch is similar to adjusting a neutral safety switch except the transmission must be in park.



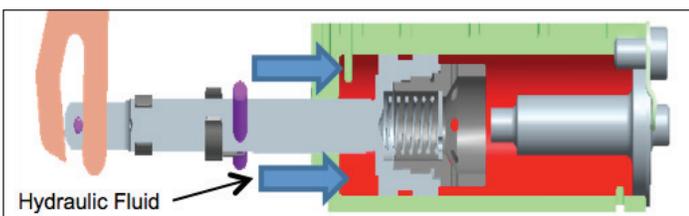
To make the adjustment:

1. Loosen the mounting bolts
2. Align the Park Range Setting Hole using the correct SST adjustment pin or drill shank.
3. Once correctly aligned tighten the mounting bolts.

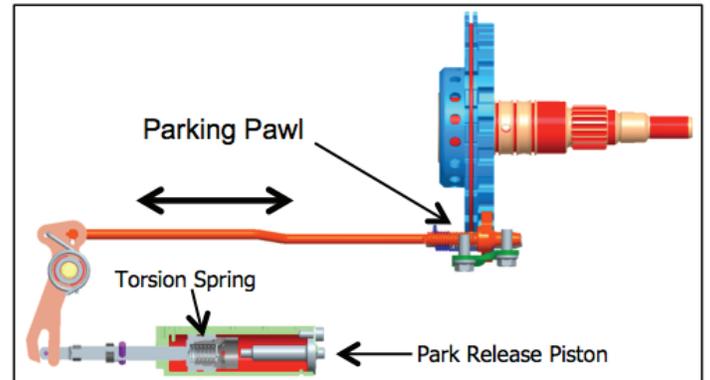


**Auto Park Release Cable:** Whenever the engine is turned off the transmission is placed into Park automatically. To avoid damage if the engine is turned off while the vehicle is moving the Park Release cable is pulled by an electric actuator to prevent the parking pawl to engage.

**Parking Pawl:** The mechanical parking pawl is engaged by torsion spring pressure inside the Park Release piston.



With the engine running hydraulic fluid pressure from the P-Position control solenoid pushes the piston right (inward) into the piston housing, pulling the rod and releasing the parking pawl.



When the engine stops the torsion spring overcomes hydraulic pressure and pushes the piston to the left and pushes the parking pawl right to engage the parking pawl.



If vehicle wheel rotation is detected the cable actuator is energized pulling the cable and keeping the parking pawl from engaging.

If a malfunction occurs you can manually disengage the parking pawl by inserting a screwdriver through the access hole in front of the shifter and turning the actuator screw clockwise 10 revolutions to release.

For additional information, specifications, or service procedures, see K900 service publications available on GDS, KGIS and KiaTechInfo.com.

## Introduction to the Surround View Monitor System

The Surround View Monitor System (SVM) uses four cameras to display the view around the vehicle. We will be seeing an expanded use of the Surround View Monitor system on Kia vehicles. The SVM is currently available on the All-new 2015 K900 and 2015 Cadenza.

*The Surround View Monitor System is not a substitute for proper and safe driving or backing up procedures. The Surround View Monitor System may not detect every object behind or surrounding the vehicle.*

The system combines images from 4 cameras to display what looks like a bird's eye view of the vehicle and the area surrounding the vehicle. The car in the image to the far right is a drawing with the live images of the surroundings placed around the car. The cameras are in the front grill, trunk lid, and the side rearview mirrors.



To calibrate, the SVM system requires a special tool kit. This tool includes a GDS interface that hooks up between the vehicle's SVM module and the vehicle harness.



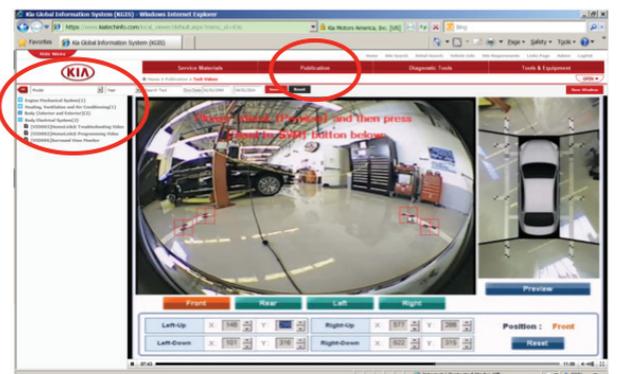
The kit also includes targets that layout on the floor around the vehicle.

This may look complicated, so Kia University has produced a training video to help guide you through the calibration process.



Whether the training video is used to learn the Calibration Procedure for the first time or as a review, this video is a great resource.

To find the video: Log onto KGIS and select the "Publication" tab, then select "Tech Videos". Select "Body Electrical System" and then select "Surround View Monitor".



### Surround View Monitor (SVM) Calibration Procedure Video

To view a video on your mobile device, snap this QR code



## Rear Cross-Traffic Alert

### Overview

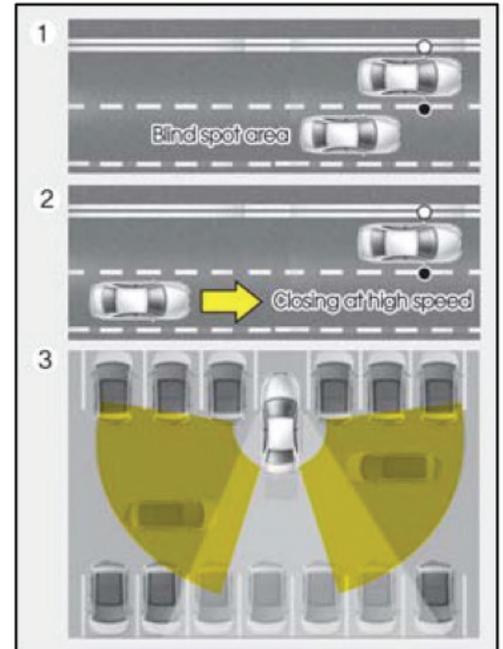
Available as options on the 2014 - 2015 Optima, 2015 Cadenza and 2015 K900, the BSD (Blind Spot Detection), LCA (Lane Change Assist) and Rear Cross Traffic Alert (RCTA) enhances driver and passenger safety in the following ways and warns the driver through visual (mirror, HUD) and audible warnings:

- BSD (1) detects vehicles in the left and right rear blind spots while driving
- LCA (2) detects vehicles approaching at a speed greater than the driver's vehicle during an intentional lane change (turn signal on)
- RCTA (3) detects an approaching vehicle from the left and right side (using the BSD sensors) as you are backing up

These systems are no excuse for not looking behind you or checking your mirrors and surroundings before and while performing lane changes or backing up.

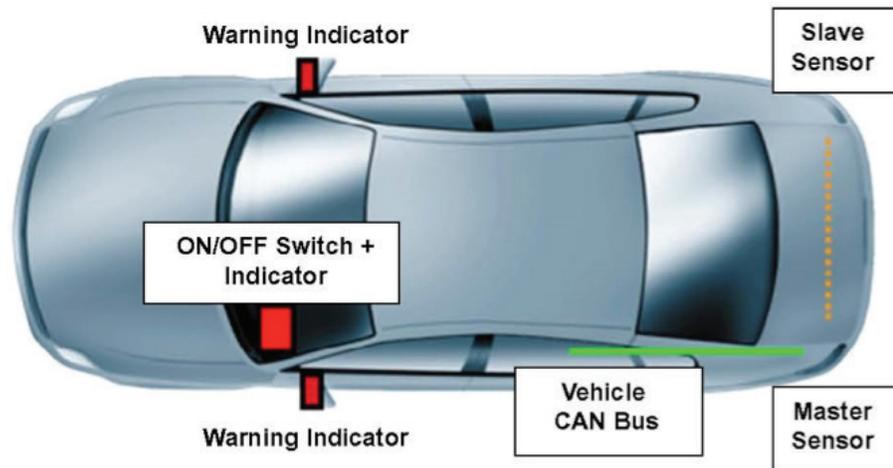
*The Rear Cross-Traffic Alert System is not a substitute for proper and safe driving or backing up procedures. The Rear Cross-Traffic Alert System may not detect every object behind or surrounding the vehicle.*

Tech Times 2013 Volume 16, Issue 1 explains BSD and LCA in greater detail; this article focuses on RCTA.



### Components

RCTA uses the same components as BSD and LCA to detect other vehicles and warn the driver of the location.



### Blind Sport Detection System with Rear Cross-Traffic Alert

To view a video on your mobile device, snap this QR code



### Overview

Like BSD and LCA, RCTA is default OFF when the vehicle is started. The system must be manually turned on by pressing the BSD switch (switch location varies by vehicle). This places the system in standby mode until a vehicle is detected. If the ignition is turned OFF after the BSD switch is turned ON, the system remains ON at the next startup.

Conditions to activate RCTA are:

- Vehicle speed is below 6.2 mph: and
- Shift lever is in R (Reverse)

RCTA can be deactivated in the User Settings menu on some models. The RCTA will NOT operate even if BSD and LCA are turned on.

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## Rear Cross-Traffic Alert (Continued)

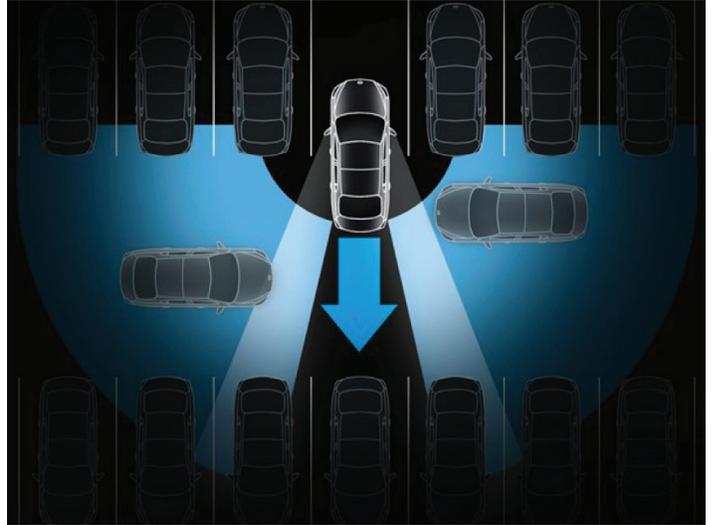
### Detection

RCTA detecting range is 1.6 - 65.6 feet. However, the system sensing range may differ based on conditions (Please refer to the Owner's Manual for complete list).

### Warnings

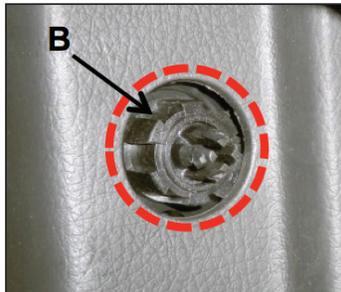
When a detected vehicle approaches your vehicle from the left or right while moving in reverse:

- Warning chime will sound on the side that the vehicle is approaching from
- Warning light on the mirror will blink on the side that the vehicle is approaching from (same as BSD/LCA)
- RCTA message will appear on the Cluster LCD display



## Special Service Tool for Hood Release Lever

This article provides information related to the introduction of a new Special Service Tool (SST) (A) developed to prevent the hood release lever pivot point (B) from being damaged when removing the hood release lever.



1. Insert the SST into the hole on the hood release lever, as shown.



2. While applying slight inward pressure to the end of the SST, use a plastic prying tool to remove the hood release lever.

### Required Special Tools

| Tool Name               | Part Number | Comments   |
|-------------------------|-------------|--|
| Hood Release Lever Tool | 07120-11000 | Dealers have been supplied with a Hood Release lever tool. Additional tools can be ordered through Snap-on Equipment Solutions at (888) 542-1011 |

Please refer to TSB SST 033

## Cadenza Hydrophobic Glass

The driver and passenger door glass on the KIA Cadenza use a water-repelling hydrophobic coating that helps improve visibility. Hydrophobic Glass is standard equipment on Cadenza “Limited models” and available as an option on “Premium” models.

Hydrophobic glass uses a thin transparent layer of titanium dioxide. This coating acts to clean the window in two stages, using two distinct properties: photo catalysis and hydrophobicity. In sunlight, photo catalysis causes the coating to chemically break down organic dirt adsorbed onto the window. When the glass is wet from rain or other water, hydrophobicity reduces contact angles to very low values, causing the water to form a thin layer rather than droplets, and this layer washes dirt away (Fig.1)



(Fig. 1) Cadenza Hydrophobic glass



(Fig. 2) Hydrophobic coating symbol found on glass

One of the best advantages of offering hydrophobic glass coating on the Cadenza besides less maintenance is providing cleaner windows to help keep the side glass clear, helping to improve visibility for example, and greatly assisting the driver in identifying when the Blind Spot Detection (BSD) warning light located in the side view mirror is activated.

Cadenza models fitted with hydrophobic glass can be quickly identified by looking at the lower corner of the side glass where the glass markings are located. To quickly identify if a Cadenza is fitted with hydrophobic glass, look for the symbol (Fig. 2) located in the lower corner of the glass where the glass manufacturer markings are usually located.

## Bluetooth® Issues After Software Update

This article provides information related to customers experiencing concerns with Bluetooth® (connecting, phonebook download, etc.) after a head unit software update (through a Service Action or TSB) or after they update the operating system in their phone (such as the recent iOS® 7.1 for Apple® or 4.4 KitKat® for Android™/Samsung Galaxy® products).

**The following are suggestions that may help improve Bluetooth® concerns after a head unit or phone software update:**

- If the head unit has a reset button, reset the head unit.
- Reboot the customer's phone (turn the phone off and back on or remove the battery in some models, such as BlackBerry® phones, for 2 minutes). Delete the phone from the head unit and the head unit from the phone. Re-pair the phone.
- Has the customer accepted all requests on their phone for contact download and for future connections? This is required on Android, Blackberry and other phones. On phones such as iPhones® the “Sync Contacts” must be turned on.
- Some of the recent phone software upgrades result in a change to the default contact list and customers with multiple contacts lists (such as from web based e-mail services or social networks) in their phones, may experience an issue with the contacts download feature. If this occurs, check the customers contact default (on some phones it is called a “group”) and ensure that ONLY the phone contact list is selected at the time of download.

**Note: The head unit will simply display the contacts as they are sent or supplied by the phone through Bluetooth®. Many contact download issues are caused by the phone and not the head unit.**

Please refer to Pitstop PS 311

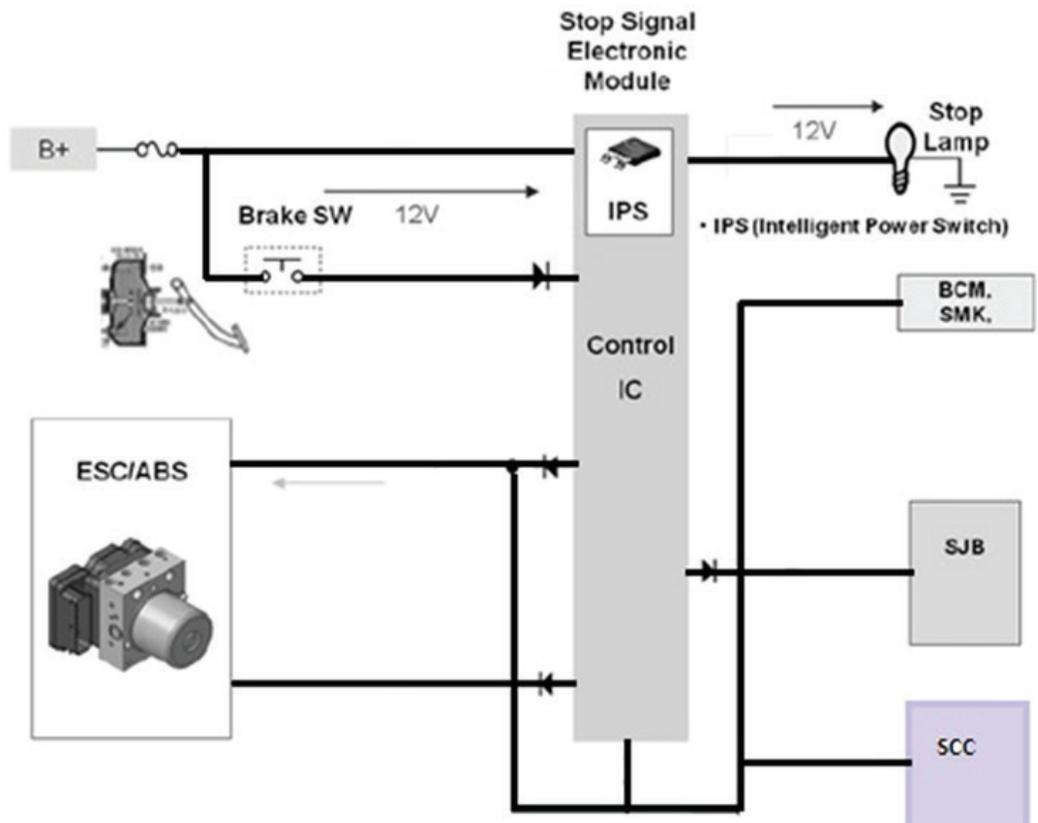
*The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Kia is under license. Other trademarks and trade names are those of their respective owners. A compatible Bluetooth® enabled cell phone is required to use Bluetooth® wireless technology.*

## Stop Signal Electronic Control Module

A Stop Signal Electronic module (SSEM) was first fitted to the 2014 Sorento and Cadenza. It is also used on the new K900. The function of this module is to coordinate stop lamp operation and control with integrated vehicle systems like Advanced Smart Cruise Control (ASCC), Electronic Stability Control (ESC), Down Hill Brake control (DBC), Hill Start Assist control (HAC), Auto Vehicle Hold (AVH), and Advanced Safety Vehicle Management (AVSM). This module is responsible to illuminate the stop lamps anytime the vehicle is braking or stopped even if the driver is NOT pressing the brake pedal.

Internal contacts in the Brake switch provide input to the Stop Signal Electronic module (SSEM) which outputs to the Electronic Stability Control module (ESC) and the stop lamps, illuminating the lamps whenever the driver applies the brakes. Short circuit protection for the stop lamp circuit is integrated into the SSEM as well. An Intelligent Power Switch (IPS) provides over-current protection shutting down operation whenever a short is detected in the stop lamp circuit. Power to the stop lamps will remain off internally until the fault is corrected.

The Electronic Stability control module (ESC) can also apply hydraulic pressure to slow or stop the vehicle without brake pedal application. When braking without driver input occurs, the ESC will



signal the Stop Signal Electronic module (SSEM) and the module will illuminate the stop lamps to alert following vehicles.

Hill Start assist for example maintains hydraulic pressure for an additional 2 seconds after the driver releases the brake pedal when the vehicle is stopped on an incline. This 2 second hold is designed to give the driver time to switch from the brake to the accelerator for starting up without the vehicle rolling backwards. Another example of Stop Signal Electronic module (SSEM) operation is during Smart Cruise control operation. Smart Cruise control system is also able to request brake application, stop lamp illumination and bring the vehicle to a complete stop without driver applying brake.

## Making Sense of Switch and Output Control Circuits

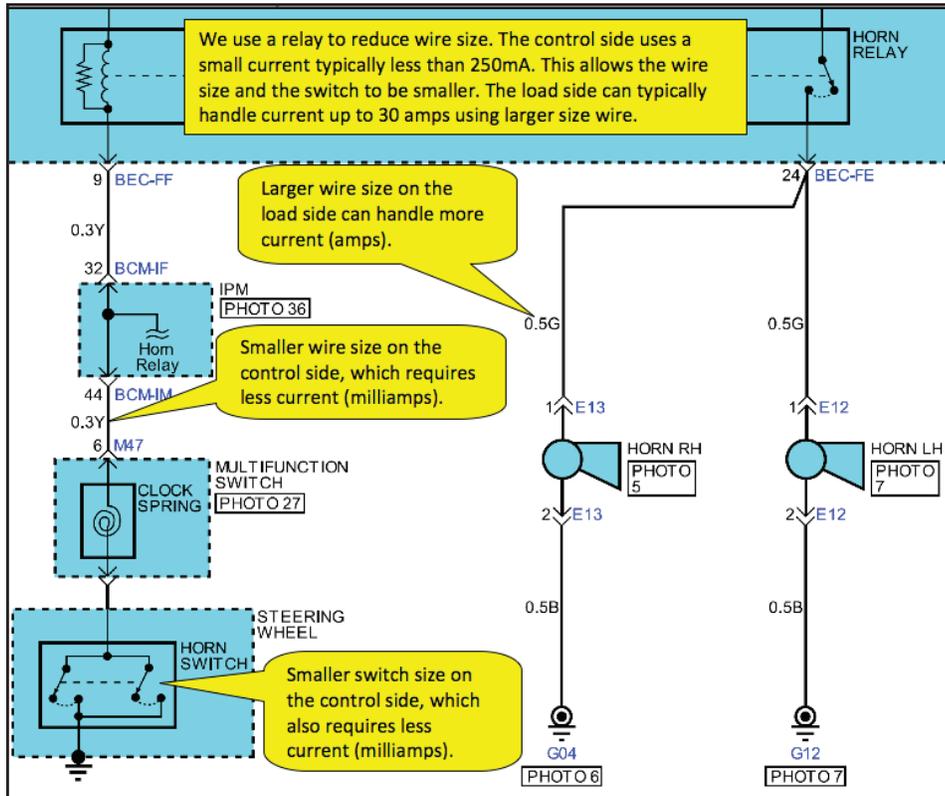
In the previous Issue, we covered two types of switch output circuits currently used on Kia vehicles:

- High-side control — Supplies B+ when the switch contacts are closed.
- Low-side control — Grounds the circuit when the switch contacts are closed.

In this issue, we will discuss two types of relay circuits currently used on Kia vehicles:

- High-side control — B+ is supplied to the control side of the relay.
- Low-side control — Ground is applied to the control side of the relay.

Let's do a refresher on relay circuits.



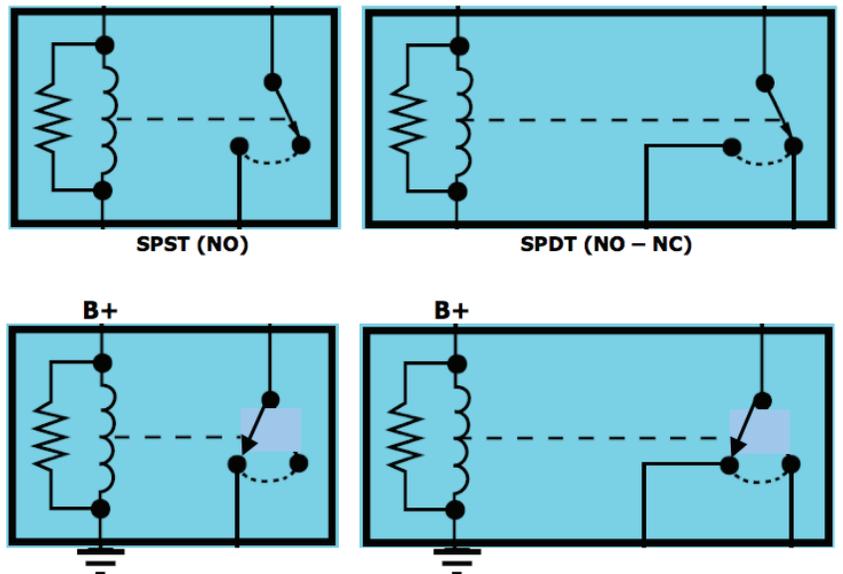
A relay circuit has two sides:

- The control side, which includes the relay coil
- The controlled side, which includes the switch contacts

Kia currently uses two types of switch contacts:

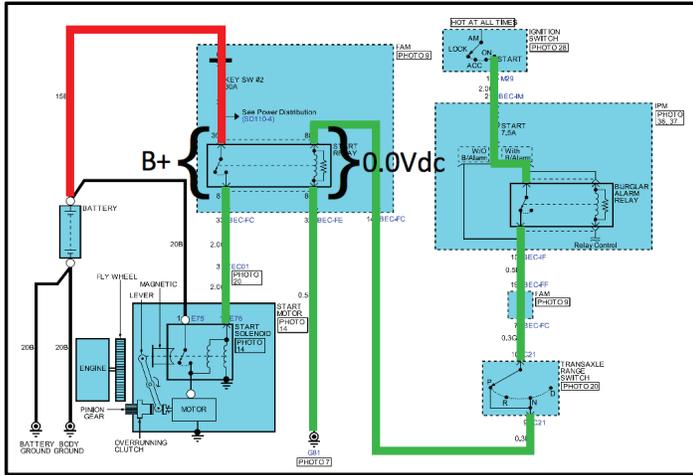
- Four (4) pin Single Pole Single Throw (SPST) Normally Open (NO)
- Five (5) pin Single Pole Double Throw (SPDT) with a NO and a Normally Closed (NC) set of contacts.

Applying power (B+) and ground to the relay coil creates a magnetic field, which pulls on the armature to open or close the switch contacts.



*Continued next page*

## Making Sense of Switch and Output Control Circuits (Continued)



**Figure 1**

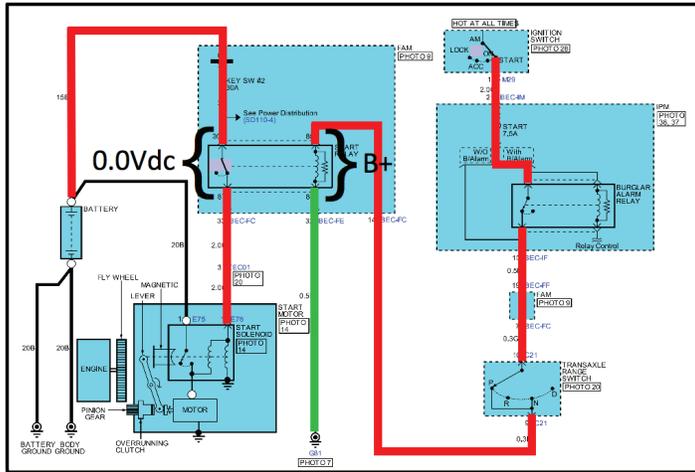
In the following example (Fig. 1 and 1a), the Ignition Switch supplies voltage to one side of the Start Relay Coil and the other side of the Start Relay Coil is hard wired to ground.

It is a High-side control circuit.

The Ignition Switch is connected to B+.

When the Ignition Switch is in LOCK, ACC, or ON position, the Ignition Switch Start Contacts are open, and no voltage is supplied to the Start Relay Coil.

A Digital Volt Ohm Meter (DVOM) connected across the Start Relay Coil will read 0.00 Vdc and across the Start Relay Contacts will read B+.



**Figure 1a**

When the Ignition Switch is in the START position, the Ignition Switch Start Contacts close, and voltage is supplied to the Start Relay Coil.

A Digital Volt Ohm Meter (DVOM) connected across the Start Relay Coil will read B+, and across the Start Relay Contacts will read 0.00 Vdc.

In our next issue, we will cover how we use a transistor to replace a relay to control output circuits.

## Crossword Puzzle Solution

We hope you gave this issue's crossword puzzle on page 6 a try. In case you need a little help, here are the answers to the puzzle clues.

