



# TECH TIMES

The Professional Publication for Kia Dealership Technicians & Service Staff

2014

Volume 17, Issue 1

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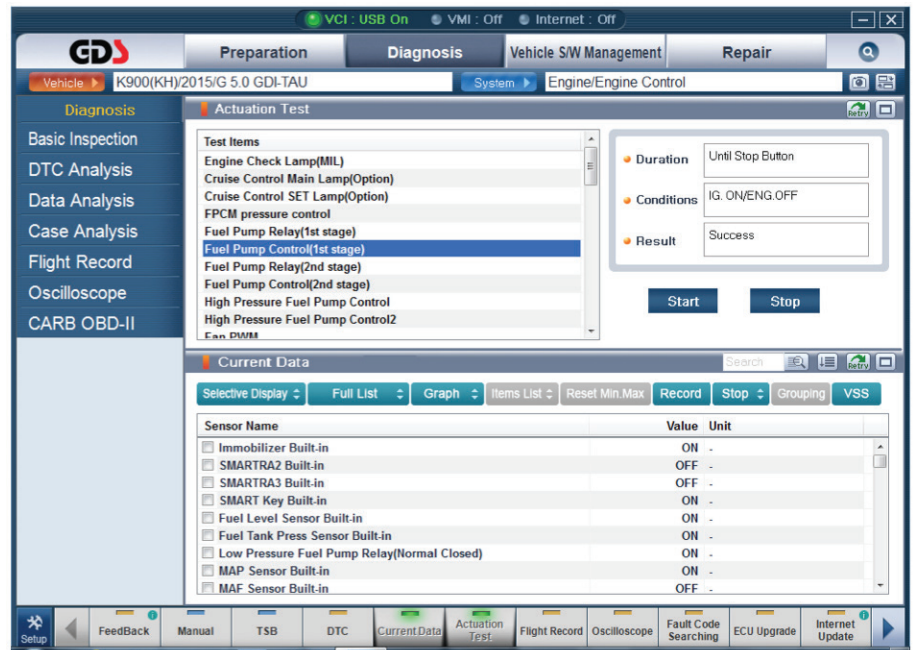
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## Understanding Actuation Tests

During the Actuation Test, the Control Module is asked to request a function. The request is sent from the control module to the device or switch. When the GDS displays "Success" it means that the control unit successfully requested the function. "Success" does not mean the request made it to the device or that the device performed the request. The technician should check for functionality of the device or check for the signal to it. Some Actuation Tests are easy, look for lights or listen for a relay to click. Other tests are not that easy and the technician may have to check current data or voltage on a circuit.

When the Actuation Test fails, it means the Control Unit could not send the request. Before condemning the Control Unit or communication with the GDS, check that the Conditions have been met. For example, if the engine is running when it should be off, the test will fail.



## Tech Line FAQs

Model/Year	Question	Answer
All Models	When starting a new case, how long should I wait before calling in for assistance?	Please allow the Techline Representative 20 minutes to respond to your case prior to calling in even if the customer is waiting. All Techline cases are answered in the order they are received.
All Models	How do I attach documents or pictures to a case?	You can add attachments by clicking on the "Attachment" button between the middle to the top of page on the right hand side. Once you add an attachment or pictures, please add notes in the case to notify us the attachments have been added.
2011 and newer	Technicians frequently ask how they can tell if the A/C compressor has an electrically controlled swash plate unit controlled by an ECV solenoid.	The Electrical Controlled Swash Plate style A/C compressor will have two wires instead of one.
2011 Sorento	Why does the tail gate not lock on a 2011 Sorento after IPM replacement when the vehicle is equipped with Remote Start?	Even though the factory remotes are not being used the IPM needs to see a remote programmed. If you program the factory remotes to the IPM the lift gate should lock.

## Latest Technical Service Bulletins, Service Actions and Campaigns

<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
<b>SC 100</b>	Front Lower Control Arm Inspection, Replacement or Application of Preventative Anti-Corrosion Material
<b>ELE 058</b>	BCM Update - IPM Logic Improvement (2014 Soul)
<b>ELE 057</b>	BCM Update - IPM Logic Improvement (2014 Sorento)
<b>SC 103</b>	2014MY Sportage Incorrect Certification label - FMVSS 110
<b>ELE 053</b>	UVO Upgrade - Sorento (XM) and Forte (YD)
<b>ENG 140r1</b>	3.5L MPI - Cold Engine Start-up Chatter

### 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 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.



## Congratulations on a Spectacular 2013 Training Effort!

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Building the Kia Brand and business for your dealership begins with delivering an outstanding experience for your customers. A key component of delivering an outstanding experience is fixing the customer's vehicle right the first time. The knowledge you attain from Kia University training helps Kia and your dealership reach their goals.

Thank you for your training efforts in 2013, and let's make 2014 even better.

### 2014 Training and Certification Requirements

The Technician 2014 Training Requirements are now posted on the [www.KiaUniversity.Com](http://www.KiaUniversity.Com) homepage. There are new training opportunities available and several core training activities that carryover from last year. Technicians that have successfully completed a required training activity from the past will not need to retake it again as we carryover credit for all coursework and tests from year-to-year. As a result, technicians may only need to focus on the newly added courses / tests for 2014.

2014 KIA RETAILER MINIMUM TECHNICAL TRAINING REQUIREMENTS	2014 KIA RETAILER MINIMUM TECHNICAL TRAINING REQUIREMENTS					2014 Elite Certification & Kia Tenure Requirements					
	Course Type / Code	"A" Dealer 1001-2, BOP	"B" Dealer 501-1200 BOP	"C" Dealer 601-900 BOP	"D" Dealer 301-400 BOP		"E" Dealer 0-300 BOP				
2014 Sales Technical Highlights Course & Test	WEB-TEC-01-041-1	4	3	2	2	1	■	■	■	■	■
2014 Service Technical Highlights Course & Test	WEB-TEC-01-041-2	4	3	2	2	1	■	■	■	■	■
2014 Shop Technical Highlights Course & Test	WEB-TEC-01-041-3	4	3	2	2	1	■	■	■	■	■
2014 Safety Technical Highlights Course & Test	WEB-TEC-01-041-4	4	3	2	2	1	■	■	■	■	■
Air Conditioning Diagnosis Update Course & Test	WEB-TEC-01-051-1	4	3	2	2	1	■	■	■	■	■
Automatic Transaxle Theory & Operation	WEB-TEC-01-036-1	4	3	2	2	1	■	■	■	■	■
Bringing the Kia Brand Homeowner Web Course	WEB-TEC-01-021-1	0	0	0	0	0	■	■	■	■	■
FSR 2014 Service Technical Update Prep	WEB-TEC-04-051-1	0	0	0	0	0	■	■	■	■	■
Intro to Noise Vibration Harshness Web Course & Test	WEB-TEC-01-035-1	4	3	2	2	1	■	■	■	■	■
Intro to Engine Management System Course & Test	WEB-TEC-01-031-1	4	3	2	2	1	■	■	■	■	■
Intro to Engine Mechanical Diagnosis Course & Test	WEB-TEC-01-031-2	4	3	2	2	1	■	■	■	■	■
Intro to I/OI V6 Course & Test	WEB-TEC-01-031-3	4	3	2	2	1	■	■	■	■	■
Intro to I/OI V6 Course & Test	WEB-TEC-01-031-4	4	3	2	2	1	■	■	■	■	■
Intro to Air Conditioning	WEB-TEC-01-031-5	4	3	2	2	1	■	■	■	■	■
Intro to Air Automotive Electrical Course & Test	WEB-TEC-01-041-1	4	3	2	2	1	■	■	■	■	■
Intro to Air Circuit Diagnosis Course & Test	WEB-TEC-01-041-2	4	3	2	2	1	■	■	■	■	■
Intro to Noise Vibration Harshness	WEB-TEC-01-035-1	4	3	2	2	1	■	■	■	■	■
Intro to Noise Vibration Harshness	WEB-TEC-01-035-2	4	3	2	2	1	■	■	■	■	■
Intro to OBDII Diagnostic Course & Test	WEB-TEC-01-031-1	4	3	2	2	1	■	■	■	■	■
Intro to OBDII Diagnostic Course & Test	WEB-TEC-01-031-2	4	3	2	2	1	■	■	■	■	■
Kia Auto Train Maintenance Course & Test	WEB-TEC-02-051-1	4	3	2	2	1	■	■	■	■	■
Pre-Delivery Insp. Course & Test (Professional)	WEB-TEC-04-031-1	4	3	2	2	1	■	■	■	■	■
Pre-Delivery Insp. Course & Test (Professional)	WEB-TEC-04-031-2	4	3	2	2	1	■	■	■	■	■
Spring 2014 Service Technical Update Prep	WEB-TEC-04-051-1	0	0	0	0	0	■	■	■	■	■
Tire Pressure Monitoring System Diagnosis Course & Test	WEB-TEC-01-031-1	4	3	2	2	1	■	■	■	■	■
Tire Pressure Monitoring System Diagnosis Course & Test	WEB-TEC-01-031-2	4	3	2	2	1	■	■	■	■	■
Turbocharger Direct Injection (TDI) Course & Test	WEB-TEC-01-031-1	4	3	2	2	1	■	■	■	■	■
WVO Emissions Diagnosis Course & Test	WEB-TEC-01-031-1	4	3	2	2	1	■	■	■	■	■
Wind Noise & Water Leak Diagnosis	WEB-TEC-01-041-1	4	3	2	2	1	■	■	■	■	■
2014 Cadenza Diagnosis Course	KIA-TEC-01-041-1	2	2	1	1	1	■	■	■	■	■
AT-1 DIAGNOSIS	KIA-TEC-01-041-2	2	2	1	1	1	■	■	■	■	■
Body Network Diagnosis Course	KIA-TEC-01-041-3	2	2	1	1	1	■	■	■	■	■
Diagnosis with OBDII Course (OBDII or OBDII 4wd)	KIA-TEC-01-031-1	2	2	1	1	1	■	■	■	■	■
Engine Management System Diagnosis Course	KIA-TEC-01-031-1	2	2	1	1	1	■	■	■	■	■
Engine Management System Diagnosis Course	KIA-TEC-01-031-2	2	2	1	1	1	■	■	■	■	■
Engine Mechanical Diagnosis Course	KIA-TEC-01-031-1	2	2	1	1	1	■	■	■	■	■
Engine Mechanical Diagnosis Course	KIA-TEC-01-031-2	2	2	1	1	1	■	■	■	■	■
Homeowner Air Service Web Course	WEB-TEC-01-021-1	0	0	0	0	0	■	■	■	■	■
Kia Cruise Control Diagnosis	KIA-TEC-01-041-1	2	2	1	1	1	■	■	■	■	■
Kia Cruise Control Diagnosis	KIA-TEC-01-041-2	2	2	1	1	1	■	■	■	■	■
Kia Multi-Media Technology Course	KIA-TEC-01-011-1	2	2	1	1	1	■	■	■	■	■
Kia Multi-Media Technology Course	KIA-TEC-01-011-2	2	2	1	1	1	■	■	■	■	■
2014 Kia Niro User Technology Course	KIA-TEC-01-011-1	2	2	1	1	1	■	■	■	■	■
2014 Kia Niro User Technology Course	KIA-TEC-01-011-2	2	2	1	1	1	■	■	■	■	■
2014 Noise Vibration Harshness (NVH) Course	WEB-TEC-01-035-1	2	2	1	1	1	■	■	■	■	■

### New Kia University Courses and Tests

Kia University is pleased to announce the launch of the following new web-based courses and tests on [www.KiaUniversity.com](http://www.KiaUniversity.com) which are required for Technician Certification.

- **Automatic Transaxle Theory & Operation Web Course and Test:** This web-based course is designed to introduce a systematic approach to efficiently diagnose internal and external Automatic Transaxle faults and to help provide a solution.
- **Intro to Noise Vibration Harshness Web Course and Test:** This web-based course will provide service technicians with vibration theory, corrections and strategies to help determine vibration causes and frequencies to locate the source.

Category	Course Code	Course Name
Technical	TEC-01-036-1	WEB: Automatic Transaxle Theory & Operation Course and Test – NEW!
Technical	TEC-01-035-1	WEB: Intro to Noise Vibration Harshness Course and Test - NEW!

For participating K900 dealerships, the following Technical course and test is required for **K900 Certification** and is now live on [www.KiaUniversity.com](http://www.KiaUniversity.com):

- **2015 K900 PDI Web Course and Test:** This luxury vehicle is aimed at an astute customer segment requiring an entirely new Pre Delivery Inspection (PDI) process. The new PDI worksheet contains the most extensive and thorough procedures performed on a Kia vehicle to help completely satisfy luxury customers.

Participating K900 Dealers are required to have 2 active Service Technicians complete the following:

- 2015 K900 PDI Web-Based Course and Test
- 2015 K900 Systems Diagnosis Instructor-Led Course\*

These courses are also required for Service Technician K900 Elite Certification (Professional, Senior, and Master)

- Including ASE Certification

Here is a summary of the course that has been released. Please work with your participating K900 retailers to complete this course.

Category	Course Code	Course Name
Technical	TEC-01-044-1	WEB: 2015 K900 PDI Course and Test – NEW!

\* 2014 Cadenza Diagnosis Course is a requirement to 2015 K900 Systems Course.

## Introduction to the K900 Inspection and Delivery Folder and Envelope

In an effort to help maximize customer satisfaction and promote a great sales delivery, Kia Motors America is pleased to introduce the new K900 Inspection and Delivery Folder and the K900 Inspection and Delivery Folder Envelope. These materials will be port installed and can be located in the glove box of every new K900.

### K900 Inspection and Delivery Folder (For Dealer):

The Pre-Delivery Inspection (PDI) form was created specifically for the K900 and features a more in-depth inspection procedure. With this in mind, it is important to pay close attention when performing the PDI. Follow and complete each of the steps in a thorough and accurate manner.

Front Cover



Back Cover

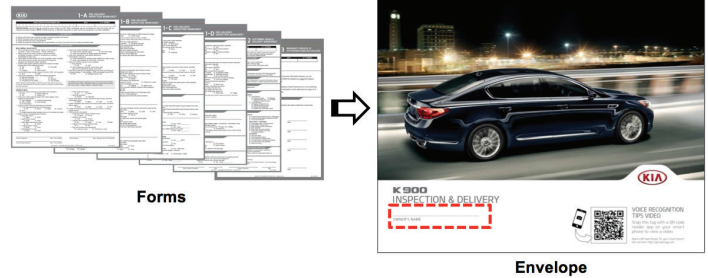
### K900 PDI Forms:

Perform each of the steps called out in the PDI forms, the Customer Vehicle Delivery Worksheet and the Warranty Service at Authorized K900 Kia Dealers in a thorough and accurate manner. **NOTE: The Customer Vehicle Delivery Worksheet and the Warranty Service at Authorized K900 Kia Dealers forms are to be completed at the time of sales delivery.**

Refer to TSB GEN 066

### K900 Inspection and Delivery Envelope (For Customer):

Additionally, the K900 Inspection and Delivery Envelope provide an organized location for customer copies of each form. During sales delivery, the top copy of each form, are to be neatly removed, folded and placed inside the K900 Inspection and Delivery Envelope, as shown below. Personalize the envelope by writing the customer's name on the front and place it in the customer's Owner's Manual Portfolio.



Forms

Envelope

### Ordering K900 Inspection and Delivery Folder & Envelope Replacements

Replacement folders and envelopes can be ordered via Archway at 866-542-6268.

Description	Pack of:	P/N
K900 Inspection and Delivery Folder	5	UK150-PS-007-A
K900 Inspection and Delivery Envelope	5	UK150-PS-009-A

**Note: Dealer inventory for new vehicle fulfillment is not required as these materials will be port installed. The P/N's listed above are for loss/replacement ONLY purposes.**

## KGIS/GDS Information Feedback Update

Last year Kia informed technicians of the Feedback button feature on KGIS ([www.kiatechinfo.com](http://www.kiatechinfo.com)) and GDS. This feature makes it easy for technicians to help identify issues in KGIS and GDS. The response has been better than ever and we would like to thank you for the feedback. Your help has allowed us to improve the Service Information. Every time a technician clicks the Feedback button it opens a case that, once completed, will result in an improved Service Information resource available to support your job as a technician. Between August 2008 and the end of 2013, we submitted a total of 684 requests to correct Service Information, many of them based on your feedback! The table below illustrates the results of activity in our feedback program to date.

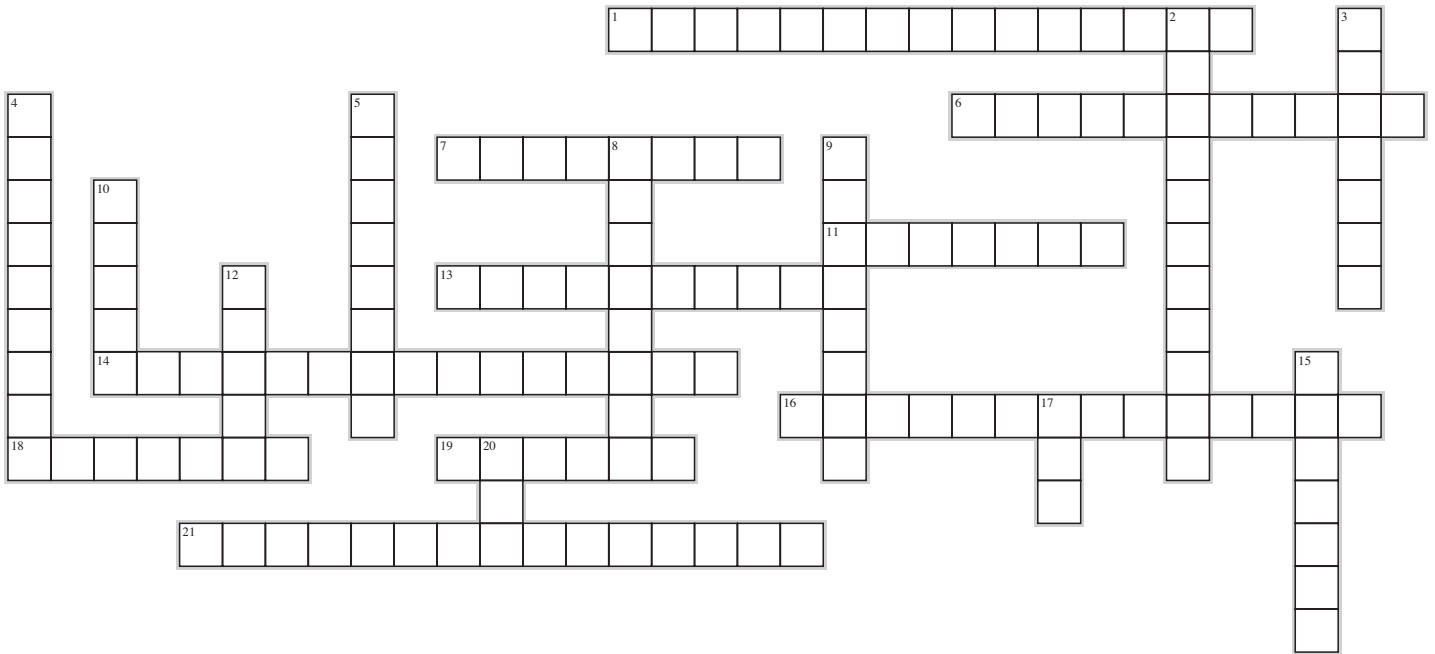
Type of Service Information	Opened Cases
Shop Manual	293
Electric Troubleshooting Manual	193
Diagnostic Trouble Codes	198

Summary (Aug 2008 – Dec 2013)	Total
Total Cases Opened	684
Total Corrections made	604

Please keep submitting your Feedback reports, the more reports the better the Service Information.

## 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 14.



### Across

1. The Smart Key System uses a \_\_\_\_\_ that allows the driver to keep the key-fob in their pocket. (Two Words)
6. The SMK looks for two \_\_\_\_\_, one for the crank function and one for the run function.
7. The \_\_\_\_\_ feature keeps the brakes applied after the brake pedal has been released. (Two Words)
11. The \_\_\_\_\_ control supplies ground when the switch contacts are closed. (Two Words)
13. The \_\_\_\_\_ style A/C compressor will have two wires instead of one. (Two Words)
14. Be sure to check that the carrier and \_\_\_\_\_ match the information listed on the website to ensure compatibility. (Two Words)
16. There have been cases where the Auto Hold will fail to operate \_\_\_\_\_ without diagnostic trouble codes.
18. \_\_\_\_\_ does not mean the request made it to the device or that the device performed the request.
19. Most of these keys have an "M" molded in the plastic which stands for \_\_\_\_\_ and indicates.
21. The BSD system uses \_\_\_\_\_ waves to sense objects.

### Down

2. Kia's first immobilizer systems used a \_\_\_\_\_ in the ignition key with an antenna around the Ignition Key Cylinder.
3. Clearance between the OCV and the bottom of the engine cover is \_\_\_\_\_.
4. Once the battery has been disconnected and then reconnected, it will take about \_\_\_\_\_ to self-calibrate. (Two Words)
5. When re-installing engine cover on 1.6L GDI engine, make sure not to apply any \_\_\_\_\_ pressure in the area around the OCV.
8. The \_\_\_\_\_ control supplies battery power when the switch contacts are closed. (Two Words)
9. Try duplicating the customer's issues by first \_\_\_\_\_ the customer's phone from the head unit and head unit from the phone.
10. When the actuation test \_\_\_\_\_, it means the control unit could not send the request.
12. Please add \_\_\_\_\_ in the case to notify us the attachments have been added.
15. If the vehicle has the icon in the \_\_\_\_\_, it has an immobilizer function.
17. If you program a factory remote to the \_\_\_\_\_ the lift gate should lock.
20. If replacing the battery on ISG equipped vehicle, replace with \_\_\_\_\_ type battery only.

## Who Are These GREAT Kia Master Technicians Going to National Cup?

While every Kia Master Elite or Master Elite Plus has an opportunity, the limited field of 16 who actually makes it is usually reserved for those with the motivation, ambition, and determination to make their goal a reality.

Kia University is proud to announce its 16 Master technicians, 4 from each region, who will be competing in this year's 2014 Kia Skill National Cup. In alphabetical order by last names, they are:

Central	Eastern	Southern	Western
Thomas Boss Keller Kia Grand Rapids, MI	Thomas Cinque Auto World Kia East Meadow, NY	Seth Heffner Paramount Kia Hickory, NC	James Baker Jerry Seiner Kia, Salt Lake Salt Lake City, UT
Derek Eveler Metro Kia of Madison Madison, WI	Chris Hobbs Parsons Kia Winchester, VA	Aaron Jenkins Paramount Kia of Asheville Asheville, NC	Jared Dimitt Courtesy Kia Henderson, NV
Ted Hambach Head Motor Company Columbia, MO	David Printy Garvey Kia Queensbury, NY	Bobby Nadimi Central Kia of Lewisville Carrollton, TX	David Gonzalez Mark Kia Scottsdale, AZ
Ben Hendricks Dorsch Kia Green Bay, WI	Ray Sowers Motor Mile Kia Christiansburg, VA	Ken Winders Gene Messer Kia Lubbock, TX	Justin Smith Camelback Kia Phoenix, AZ

### 2012 National Cup Technicians

While this year's National Cup has yet to happen, let's take a glimpse of 2012 when another group of top 16 Master technicians, 4 from each region, battled it out at Kia Motors America's (KMA's) headquarters in Irvine, California.

It's not easy to make it to National Cup, and if it was, every technician would be there. But nothing this prestigious and rewarding ever is. First, you have to earn your Master Elite certification. Then, it matters how your customers feel about you and the work you do. Earning your customers' trust is important to get you to National Cup.

pressure. Most National Cup technicians will tell you that it's easier to handle pressure when you are prepared. Often times, being mentally prepared is just as important as capability.

They told me "When you are handed your National Cup competition assignment, don't just jump into it. First, formulate a plan. While it's tempting to jump right in, DON'T. Because pressure can throw you off track and there's a good chance you'll lose precious time. By all means, do what you do every day on the job and you'll be just fine."

### National Cup... more than just the competition

Ask any National Cup technicians and their companions (yes, these National Cup technicians get to bring a guest) and they'll tell you that spending a few sunny days in Southern California is inviting. Just that alone is worth the trip. But, that's not all... there's a lot, lot more.



2012 Kia Skill National Cup Technicians

### Lessons Learned?

Feedback from National Cup technicians concluded that this is a must, once in a lifetime event. Many have said "it's a life changer. Competing side by side with other just as qualified and capable technicians helped put things in perspective. In fact, it helped me focus on my weaknesses and capitalized on my strengths that made me a much better technician", said one National Cup technician.

Being able to handle pressure is very important. In sports, there are a lot of very, very good, college athletes who won't make it in the pros. A major reason is their ability to manage



Design Center Tour



Welcome to KMA

Continued next page

## Who are these GREAT Kia Master Technicians Going to National Cup? (Continued)



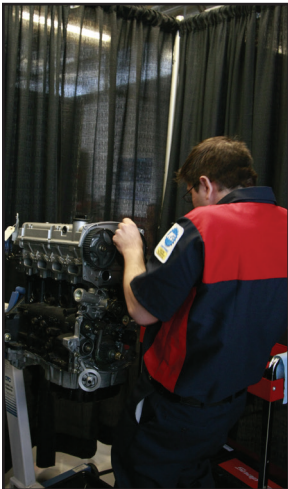
*Welcome Reception*

“It was very nice to meet busy KMA executives, coordinators, managers, and staff who greeted us when we arrived”, one technician said, and then tour Kia’s design center and the competition site. “And the Welcome Reception was a nice way to wrap up the day with good drinks, good food, and good friends.”



*Post Competition Dinner at Cabana Deck*

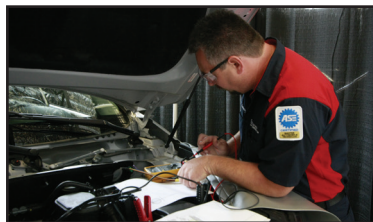
That evening, with the competition behind them, they were more than ready to join their travel companions for dinner at the beach. Over cocktails, hors d’oeuvres and dinner, they wanted to get over the competition, but couldn’t help but talk shop - about what they did, what they didn’t do, what they wished they had done, and so on. The day’s competition was not easily forgotten and will remain an extremely important part of their present and their future.



*Engine*



*Automotive Electrical*



*Drivability*

The next morning, technicians dressed in their new National Cup uniforms and got down to business. Throughout the day, they competed and tested their skills on engine, transmission, automotive electrical, CAN/body network, and drivability. At the end of the day, they felt a mix of emotions from doubtful to confident to triumphant. You see, it’s not so much what each technician thought he did, but was unsure about what another technician might have done that’s even better. One thing was clear... they were exhausted - physically and emotionally drained - and ready to get past the competition.



*Disneyland Front Entrance*

Ask any technician and his companion and you would hear “National Cup was no picnic. We were whisked from one place to the next. It was extremely fast paced and we were treated to a lot of great things... things that we would think about and remember when we got home, but it was awfully hard to keep track of what was going on when we were in the middle of it.”

“Disneyland was great fun, but it too was overwhelming with so much to do and so little time.” Fortunately, our guests had a couple of really good tour guides who directed them to the best rides and attractions. At the end of the day, most everyone did everything worth seeing and doing at the Happiest Place on Earth.

*Continued next page*

## Award Banquet and Presentation



*Award Dinner*

That evening's Award Banquet and Presentation came and gone, just like that. One technician said "I was so anxious that I could think of nothing else all day, even when I was on the Pirates of the Caribbean ride". Then, each technician heard his name called out. One by one, they approached the stage to claim their prize, beginning with the first region's 4th place winner, to the 3rd place, to the 2nd place, and finally the 1st winner; then technicians from another region was called, until all four regions were celebrated.

## 2012 World Cup Finalists

After every technician had been on stage, it was time to bring up the National Cup finalists who would represent KMA at the Kia Skill World Cup in Korea. Hush fell over KMA's large multi-purpose room. The moment of reckoning was here. Each name was called, one by one, starting with the 4th place finalist, then the 3rd finalist, next the 2nd finalist, and finally the 1st place finalist. Every one of these 4 World Cup technicians walked on stage to claim his prize, and forever earned their place on a World Cup plaque at every KMA technical training center.

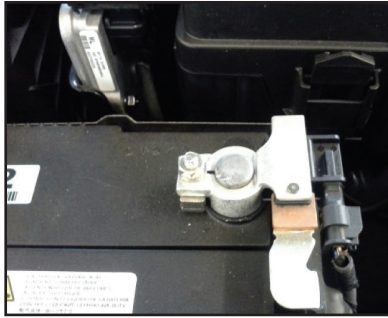


*Award Dinner*

Now that you've heard about the 2012 Kia Skill National Cup, watch for results from this year's 2014 Kia Skill National Cup from March 31 to April 4 and World Cup from May 15 to 23!

## Intelligent Battery Sensor

The Intelligent Battery Sensor Module (IBSM) monitors the battery temperature, charge voltage and the amount of current going into the battery. The IBSM is part of the Electrical Power Management System (EPMS) which controls the vehicle's charging system. Controlling when and how much the alternator charges the battery can help conserve fuel and maintain a higher battery charge.

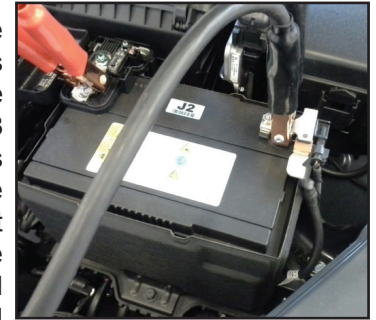


What you should know about the IBSM. The sensor communicates with the PCM via a LIN communication line. The other small wire going to the sensor brings battery voltage to the sensor. Once the battery has been disconnected and then reconnected, it will take about four hours to self-calibrate. The only time this matters is on Idle Stop & Go (ISG) systems. This is because the battery sensor is an input to the ISG system. Without a calibrated battery sensor sending a valid signal to the PCM, the ISG will not work. In these cases, the sensor would have to be calibrated before the ISG would function.

Calibrating the sensor is easy. Park the car with the key off for at least 4 hours. There is no need for the technician to hold onto the vehicle for 4 hours. The only time the customer would know that the sensor is not calibrated is with the ISG system. Even then, the customer can be told the ISG will not

work until the vehicle sits for at least 4 hours (see complete procedures below).

When testing or charging the battery, KMA recommends attaching the clamps on the battery terminal. If the GR8 (and other tester/charger) is attached on the cable side of the sensor, it will affect the values. If replacing the battery on ISG equipped vehicle, replace with AGM type battery only.



### **I. After battery terminal remove & re-connect or battery sensor replacement re-calibration:**

1. Engine ON 1 time
2. Remain 4 hours with Key OFF, Door Closed, Hood Switch OFF
3. Perform Engine ON 2 times

### **II. After battery replacement re-calibration:**

1. Replace with AGM battery ONLY
2. Engine ON 1 time
3. Remain 4 hours with Key OFF, Door Closed, Hood Switch OFF
4. Perform Engine ON 2 times

## Auto Hold Inoperative

The Auto Hold feature keeps the brakes applied after the brake pedal has been released. It will cancel the Auto Hold feature when the accelerator is pressed. There have been cases where the Auto Hold will fail to operate intermittently without diagnostic trouble codes in the EPB system. Some technicians have trouble when it comes to diagnosing this concern.

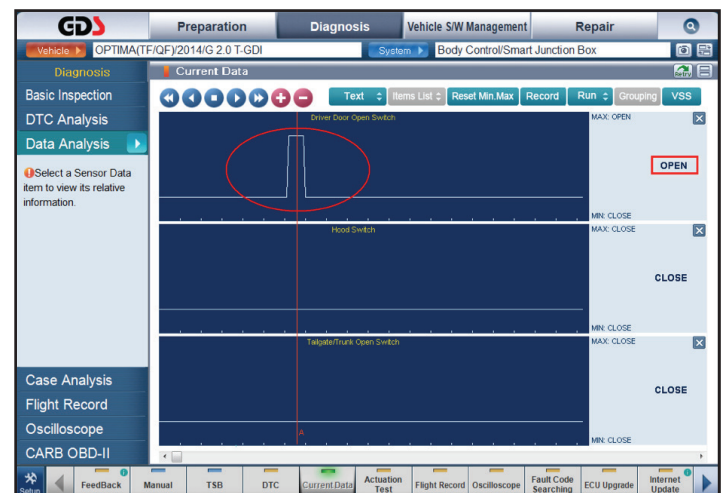


First view the current data on the BCM / Smart Junction Box. The Auto Hold does not operate when:

- The driver's door is opened
- The engine hood is opened
- The Trunk is opened

An improperly adjusted, damaged or faulty switch can cause the Auto Hold to be inoperative intermittently. Test by pulling on the hood, trunk and door while monitoring current data. If

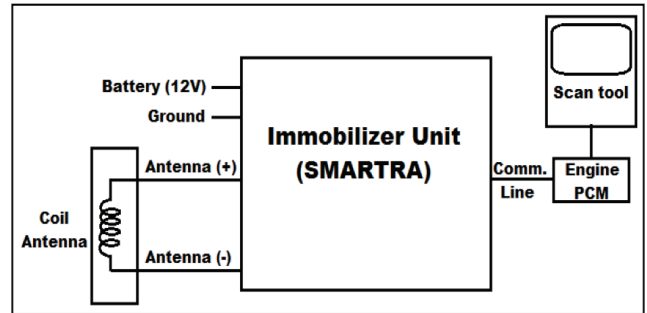
changes are noticed in the GDS current data readings (see image), then you may have found the problem. Repair as needed and recheck concern after repairs.



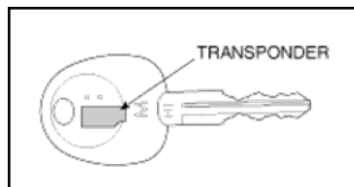
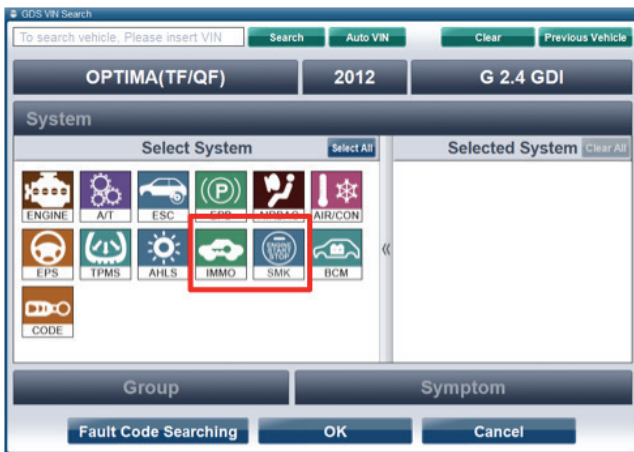
## Immobilizer vs. Smart Key

Kia's first Immobilizer systems used a transponder in the ignition key with an antenna around the Ignition Key Cylinder. These systems incorporated an Immobilizer Unit (SMARTRA) that communicated with the PCM sometimes through the BCM.

In more recent model year vehicles, Kia uses the Smart Key System (SMK). These systems are also called: Push Button Start (PBS), Start Stop Button (SSB) or Engine Button Start (EBS) system. The Smart Key System uses a Proximity Remote that allows the driver to keep the key-fob in their pocket or purse and still enter the vehicle and start the engine.



When Kia first used a proximity remote, it was called a Personal Identification Card (PIC). After the PIC, the name was changed to SMK (Smart Key).



When selecting the system on the GDS, the Immobilizer and SMK (Engine Start Stop) systems are different. The immobilizer refers to a key (stick key) with a chip in the plastic end. Most of these keys have an "M" molded in the plastic which stands for Master and indicates it is an immobilizer key. These systems have an Immobilizer (SMARTRA) Unit.

Most of the SMK systems include an immobilizer function. These vehicles do not have a separate immobilizer Unit, but the immobilizer function is in the SMK unit. The PCM is part of the immobilizer by looking for validation before activating the fuel system. The SMK looks for 2 validations, one for the crank function and one for the run function.

The Hybrid vehicles also have an authentication function with the Hybrid Power Control Unit (HPCU) along with the engine before the system will start. Because the HEV can start moving without the engine running and on electric motor power only, the HPCU, which controls the electric motor, functions as the immobilizer. When Engine ECM authentication is complete, the Engine ECM and the HCU undergo the authentication procedure, and when authentication is granted, the system enters "READY" status.

When asked if a vehicle has an Immobilizer, the best way may be to check for an IMMO icon in the cluster. If the vehicle has the icon in the cluster, it has an immobilizer function.

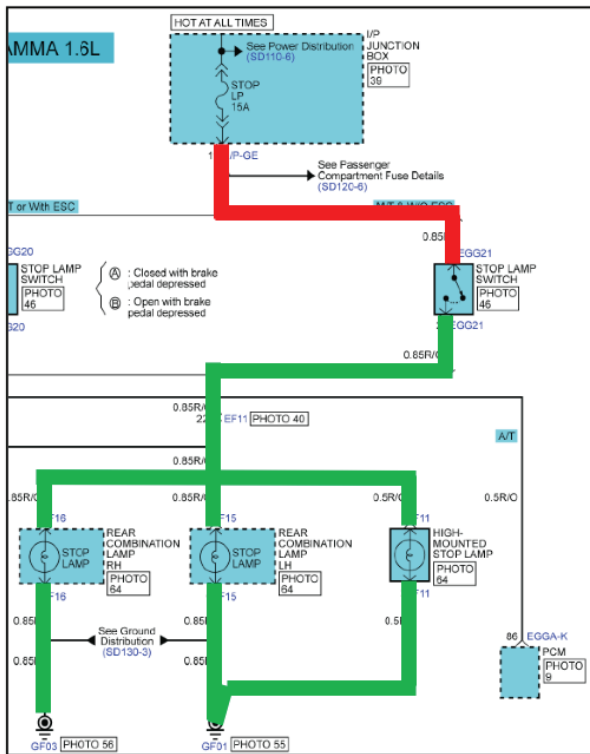
## Making Sense of Switch and Output Control Circuits

As you may remember, we started a series of articles in Volume 15, Issue 2 with "Making Sense of Input Switch and Sensor Circuits." We covered all inputs from the basic switch type Pull-up and Pull-down circuits, signal and frequency generating, and variable voltage types.

This is the first in the continuing series of articles starting with information about switch and output distribution control circuits used in Kia Electronic Control Units (ECUs).

In this article, we will discuss two types of switch output circuits currently being used:

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



**Figure 1**

*In the following example (Fig. 1), the STOP LAMP SWITCH supplies voltage to the STOP LAMP bulbs.*

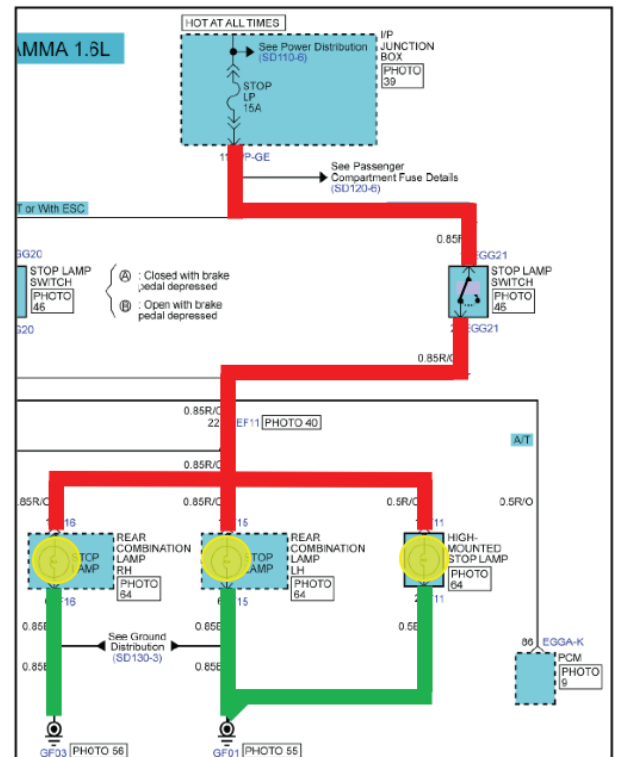
*It is a High-side control circuit.*

*The STOP LAMP SWITCH is connected to B+.*

*When the brake pedal is released, the switch contacts are open, and no voltage is supplied to the STOP LAMPS.*

*A Digital Volt Ohm Meter (DVOM) connected across any STOP LAMP bulb will read 0.00 Vdc.*

*When the brake pedal is pressed, the contacts close, and B+ is supplied to the STOP LAMP bulbs (Fig. 2).  
A Digital Volt Ohm Meter (DVOM) connected across any STOP LAMP bulb should read Battery voltage (12V).*



**Figure 2**

*Continued next page.*

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

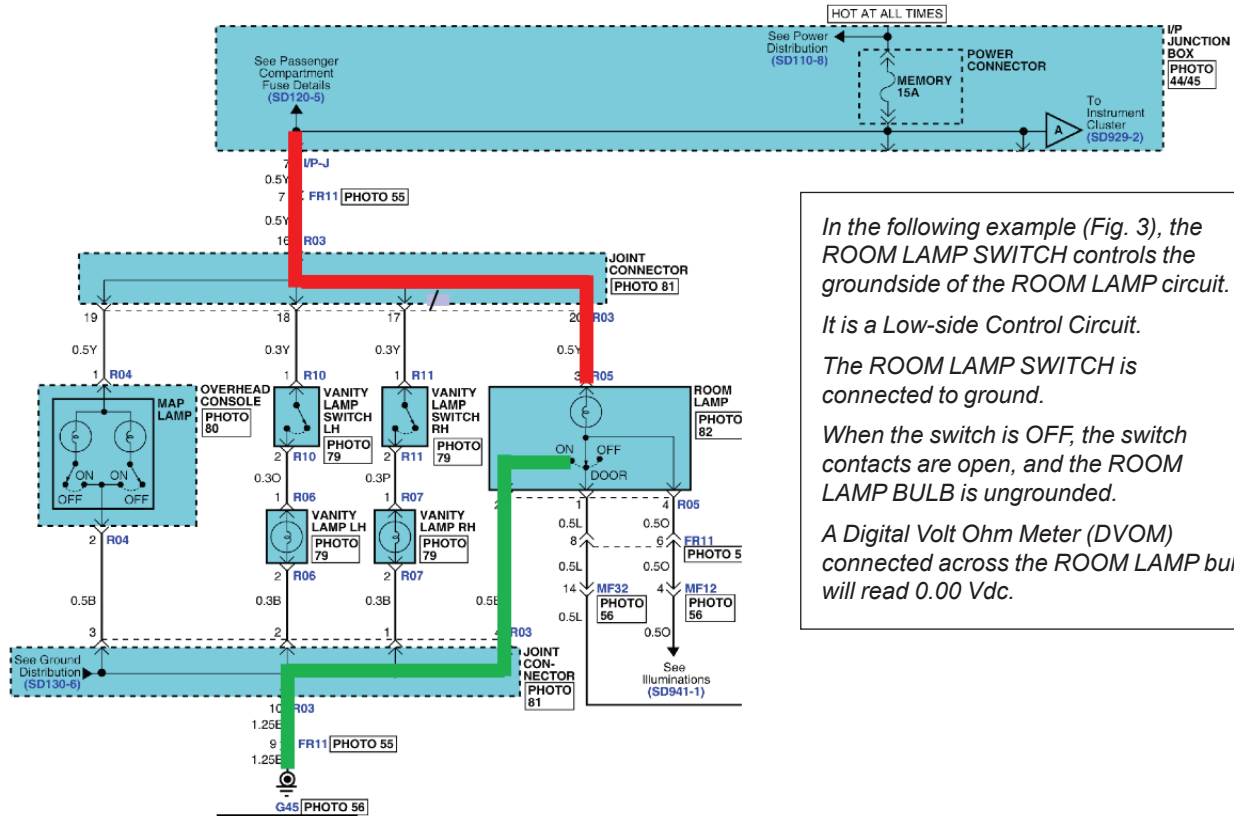


Figure 3

In the following example (Fig. 3), the ROOM LAMP SWITCH controls the groundside of the ROOM LAMP circuit. It is a Low-side Control Circuit. The ROOM LAMP SWITCH is connected to ground. When the switch is OFF, the switch contacts are open, and the ROOM LAMP BULB is ungrounded. A Digital Volt Ohm Meter (DVOM) connected across the ROOM LAMP bulb will read 0.00 Vdc.

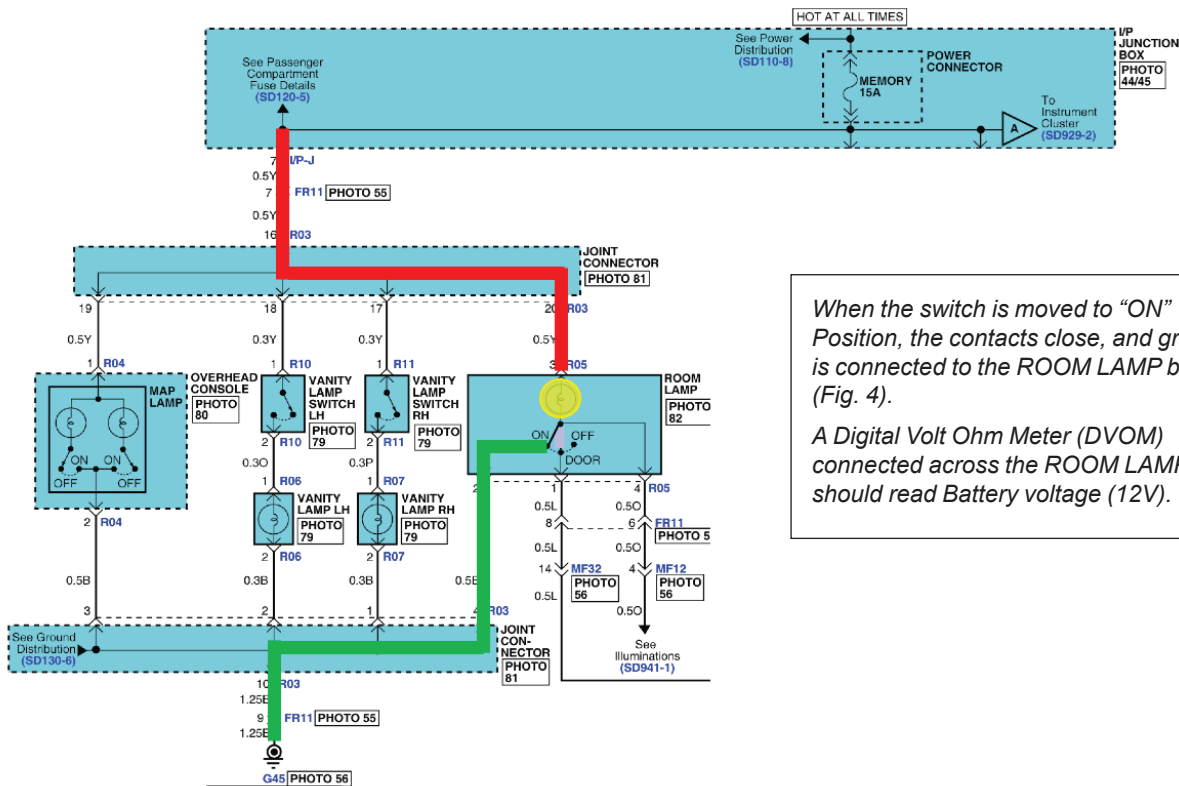


Figure 4

When the switch is moved to "ON" Position, the contacts close, and ground is connected to the ROOM LAMP bulb (Fig. 4). A Digital Volt Ohm Meter (DVOM) connected across the ROOM LAMP bulb should read Battery voltage (12V).

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

## Phonebook Contacts Fail To Download

This article provides information related to troubleshooting phonebook download concerns, methods available to download contacts, and the number of contacts that can be downloaded on various 2014MY head units. Contacts from a customer's phone can be downloaded to the head unit (Base Audio, UVO, or Navigation) in one of the following ways (depending upon model, head unit type, compatibility and software version):

### Download at Initial Pairing

Phonebook will automatically download at pairing if the customer has the option turned on in their compatible phone and they have accepted all requests for phonebook download on their device.

### Manual Download Button

The head units on some models may have a manual download button, found on the Contacts Screen, which allows the customer to manually download their contacts.

### Contacts Sync Set to "ON"

On some models, the Contacts Sync feature allows the customer to choose whether their phone contact list will transfer to the vehicle contacts each time the phone is connected or only at the initial pairing. Follow the instructions in the owner's manuals to enable or disable contacts syncing.

### Number of Phonebook Entries Allowed:

Head Unit Generation	Applicable Models	Number of entries allowed
AVN 3.0, 3.5, 4.0 Navigation with e-Services	2014MY – Cadenza (VG), Forte (YD), Optima (QF), Sorento (XMa), Soul (PS), Sportage (SL)	5,000
UVO e-Services without Navigation UVO2	2014MY – Forte (YD), Optima (QF), Sorento (XMa), Soul (PS), Sportage (SL)	2,000
Base Audio 3.0	2014MY – Forte (YD), Optima (QF), Sorento (XMa), Soul (PS), Sportage (SL)	1,000
UVO 1	2014MY Rio (UB)	1,000

### Troubleshooting

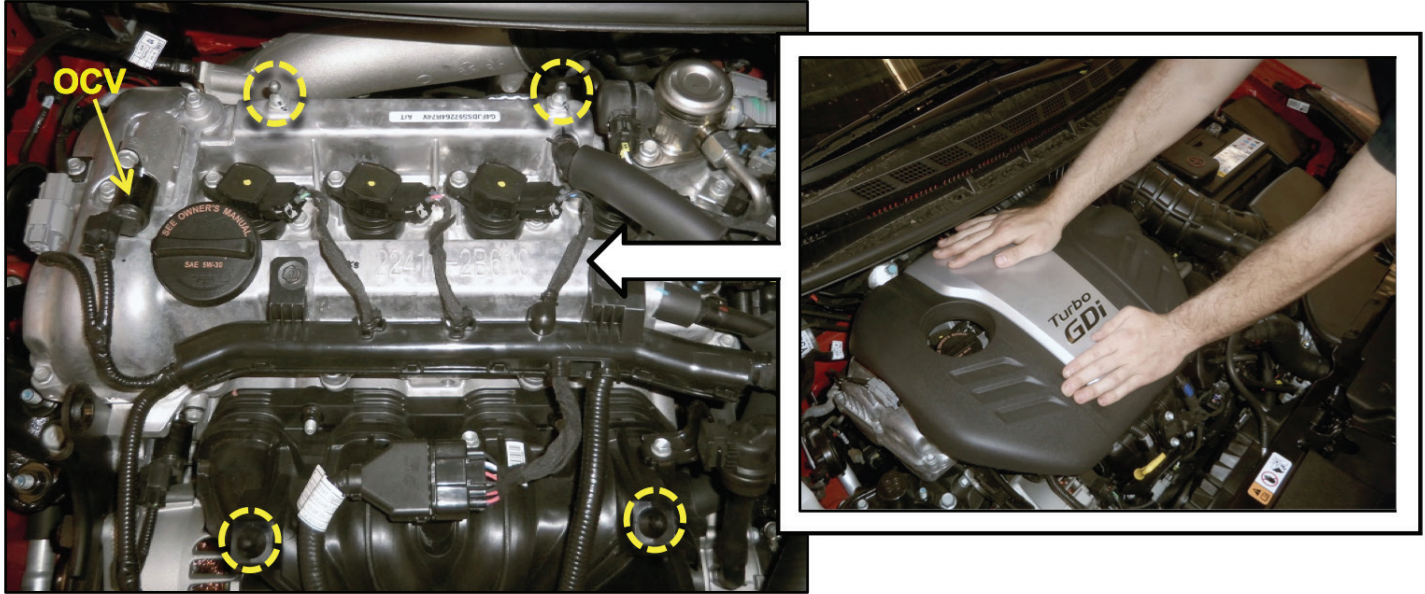
For customer complaints related to "Phonebook fails to download at all", check the following:

1. Try to duplicate the customer's issue by first deleting the customer's phone from the head unit and the vehicle's head unit from the phone. Reboot the customer's phone (turn the phone off and back on or remove the phone battery for 2 minutes). Pair the phone again and confirm the customer's issue.
2. Check to make sure the customer's phone has been tested as compatible by accessing <http://www.kia.com/us/en/#/content/owners/bluetooth>. Be sure to check that the carrier and software version match the information listed on the website to ensure compatibility.  
Note: A software version that is not listed has not been tested; however, it may or may not be compatible.
3. Has the customer accepted all requests on their phone for contact download and for future connections? This is required on Android™, Blackberry® and other compatible phones. On phones such as the iPhone®, make sure the "Sync Contacts" function is turned on.
4. Try a known compatible phone (<http://www.kia.com/us/en/#/content/owners/bluetooth>) in the customer's vehicle and confirm that the contacts download successfully. If the contacts do NOT download successfully with a known compatible phone, try resetting the head unit with a reset button if it is available on the head unit.
5. Try the customer's phone in a like vehicle (same model year, model, head unit type, software version preferably) and confirm the contacts will successfully download from the customer's phone onto that vehicle.
6. If contacts will NOT download from a known compatible phone and contacts from the customer's phone WILL download on a like vehicle, the vehicle may require a head unit replacement.

Please refer to Pitstop PS 295.

## OCV Damage When Installing Engine Cover

When re-installing the engine cover on vehicles equipped with a 1.6L GDI engine, make sure not to apply any downward pressure in the area around the Oil Control Valve (OCV) to prevent causing damage to the valve. Clearance between the OCV and the bottom of the engine cover is minimal; therefore, dealer personnel should refrain from using excessive force when trying to ensure the engine cover is fully seated. Before installing the engine cover, make a mental note of the approximate location of the pins and apply downward pressure ONLY to the areas immediately above the pins, as shown below.



Please refer to Pitstop PS 296.

## Crossword Puzzle Solution

We hope you gave this issue's crossword puzzle on page 5 a try. In case you need a little help, here are the answers to the puzzle clues.

