

TECH TIMES

*Celebrating 20 Years
1996 - 2016*

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NO COMMUNICATION WITH BLIND SPOT DETECTION AFTER COLLISION REPAIRS

This article provides information relating to 2014-2015MY Optima (QF) vehicles with Blind Spot Detection (BSD), which may exhibit a "Check BSD System" message and no communication with the BSD system after collision repairs. This concern is commonly caused by the rear bumper harness installed backwards.

The master BSD module, located at the right side of the rear bumper, is the only BSD module that communicates on the C-CAN. The slave module (left side of bumper) communicates to the master module via local network CAN. The master (RR02) and slave (RR01) module connectors are physically identical and may be mistakenly swapped.

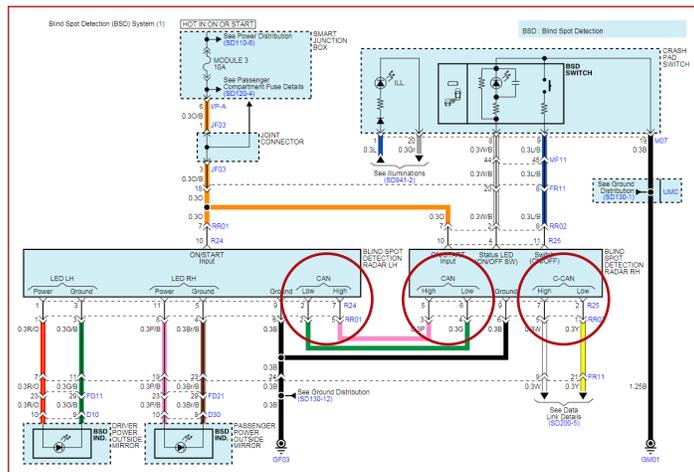
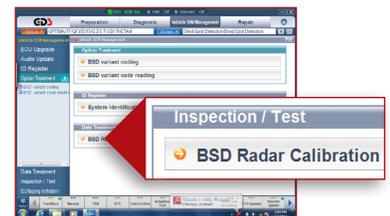


Fig. 1.

To confirm correct installation of the harness, verify that the yellow and white wires of the master (RR02) module connector are at pins 1 (yellow) and 5 (white). See Fig. 1.

It is important to note that the BSD system calibration must be performed after any rear collision repairs. Failure to do so can result in improper BSD system operation.

1. Using a KDS/GDS, select "BSD Radar Calibration" in the BSD System
2. Perform the "BSD Radar Calibration" procedure according to the KDS screen.



[BSD Radar Calibration]

This function sets BSD Radar after replacement.

This calibration procedure will clear any 'Missing Calibration' DTCs which allows the Radar Sensors to go through the Self Alignment Procedure. The Sensors continually self-align while the vehicle is driven.

It may take up to 30 seconds.

It will not allow cancellation of the process.

Press [OK] below to continue.

3. Once the procedure is complete, test drive the vehicle at speeds above 20mph to verify proper operation of the BSD system.

Please refer to PitStop PS 464.

TECHLINE FAQs

Q I replaced the PCM and now the light in cluster for the gear indicator is flashing with no codes. What should I do?

A Some models may require an Oil Pressure Characteristic value to be reset or programmed. Perform the oil pressure characteristics backup procedure using the KDS when replacing with a new PCM, under Vehicle SW management > Data Treatment > Oil Pressure Characteristics (TCU exchange). See article on page 8.

Q I have a 2016 optima with a 1.6L engine and a Dual clutch transmission that on take-off has a slight shudder.

A Please see pit stop PS481. The normal characteristic of the DCT drive train which has a dual mass clutch causes it to act like a manual transmission and is designed with fuel economy in mind. A slight shudder will be felt during acceleration.

Q I added the attachment you requested to my Techline Case but have not gotten a response, why?

A When you add an attachment also you have to add a written note in the case to let us know you have uploaded it to the case. Our current system will not notify us if you add just the attachment, there must be something written in the case notes for the system to send us a notification that you have updated the case.

Q I have approval to replace the long block; how do I go about gaining approval to replace the turbo or other necessary components damaged by the failure?

A All collateral damage is covered by the drivetrain warranty and needs to be thoroughly documented on the repair order and in the warranty claim stating the reason for the replacement. Supporting documentation will be required at the time of warranty claim submission.

LATEST TECHNICAL SERVICE BULLETINS, SERVICE ACTIONS AND CAMPAIGNS

ENG 169	Shift Quality Improvement (SA295) (16MY UMa)
ENG 168	Idle Stability & Shift Quality Improvement (SA294) (16MY JFa)
TRA 069	Shift Quality Improvement (SA292) (16MY JFa / UMa)
CLI 038	HVAC Control Unit Logic Improvement (16MY (JFa / JF)
CLI 036	A/C Discharge Hose Replacement (15/16MY YP)
BOD 170	Front Seat Headrest Replacement (16MY UMa)
BOD 169r1	Panoramic Sunshade Roller Guide Adjustment (17MY UMa)
SC 149r1	Halogen Headlamp Low Beam Connector Replacement (11/12MY XMa)

CAUTION

Vehicle servicing performed by untrained persons could result in damage to the vehicle.

WARNING

- Vehicle servicing performed by untrained persons could result in serious injury or death 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 and trained Kia automotive technicians only. It is written to provide a general overview 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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Director, Kia University
David Wobst

Tech Times Editor
Lewis Thompson

Production Coordinator
Carlos Sicairos

Tech Times Contributors

Dan Algarin

Joe Alt

Brian Betz

Shari Brady

Dan Howells

Benny Ishii

Rob Levy

Barry Nelson

Neal Moen

Chris Risdon

Carlos Sicairos



Technical Editors

Lewis Thompson

Neem Van der Reest

Engineering Support &
Technical Writer

Neem Van der Reest

Technical Writers

Scott Irwin

Henry Nguyen

2018 RIO NEW MODEL TECHNICAL HIGHLIGHTS



The 2018 Kia Rio is a new design on an all-new platform. Available in four and five-door configurations, the new Rio is longer, wider, and lower than the outgoing model. This allows more leg room, shoulder room and cargo volume for added comfort and capacity.

With the new exterior and updates under the hood, Rio delivers an improvement in combined fuel economy, too. Fresh looks and performance equal a sure winner.

To bring Service Technicians up to speed on Rio technology, Kia developed the 2018 Kia Rio Technical Highlights Web-based Training program.

This program includes details on:

- 1.6 liter Gamma engine with GDI
- 6-speed automatic transaxle with a direct actuation valve body

- Steering and suspension enhancements that improve ride and handling
- Comfort and convenience technology
- Key points for PDI inspection

The program also demonstrates important service and diagnostic procedures that Technicians can use on Rio and many other Kia vehicles.

Service and diagnostic topics include:

- Using KDS Oscilloscope function to test wheel speed sensors
- Brake system bleeding
- Refresher on alignment angles and the effect on handling
- Transmission bar code identification and code input procedures during replacement
- R1234yf refrigerant recovery and recharge tips using the Mahle AC Special Service Equipment

After completing this course, Technicians will be able to:

- List Rio's new features
- Explain component operation and technology improvements
- Properly PDI, diagnose and repair the Rio using KGIS, KDS and Special Service Tools

Check into KiaUniversity.com for more details and to enroll in the 2018 Rio Technical Highlights Course.

TECHNICIAN SATISFACTION SURVEY RAFFLE 1ST QTR 2017 WINNERS

Greetings Kia Technicians!

The results of the Q1-2017 Technician Satisfaction Survey Raffle are in! We received **5,389** survey responses in Q1-2017 and the results for Techline have continued to be very positive with the overall satisfaction rating for Techline at **92%** using a 1 to 5 point scoring system where only a score of 5 counts. As you know, anything less than 5 will be considered a failure. We reviewed all of your responses and continue to gain valuable feedback on your Techline experiences. We will continue to use your feedback to see how we were doing and how we can correct any issues that may be occurring in our ongoing efforts to improve the level of service we provide to all our dealers. Thank you to all who participated in the surveys. We greatly appreciate all of your valuable feedback!

The 3 winners of the Q1-2017 raffle were...

1. Dustin Abbott - OH062
2. Frank Dorado - NC072
3. David Cha - CA266

Congratulations to all the winners!

The Techline Technician Satisfaction Survey will continue every quarter throughout 2017 so please continue to submit your feedback by completing the survey when you close your cases and get your chance at winning 1 of 3, \$500 MasterCard gift cards!

In closing, Techline continuously works hard to provide industry leading technical support to all Kia dealers in an efficient manner. Here are the latest performance metrics for Kia Techline:

Web case response time avg: 14 minutes

Phone response time avg: 12 seconds

Comeback Ratio: 0.7%

New Case Count (incl. PWA cases): 2,308 in 2017

Overall Satisfaction Survey Score (Only a score of 5 counts): 92%

Thank you all for your continued support! **Go Kia!**

Regards,

Robert Levy, Acting Techline Communications Manager, Kia Motors America

JOE'S CORNER TO BLEED OR NOT TO BLEED? THAT IS THE QUESTION

Kia Hybrid and Electric Vehicles use a hydraulic brake booster. This requires a different brake bleeding procedure using the High Pressure bleeder with brake reservoir adapter cap.

2011–2013 TF HEV uses a Brake Actuation Unit (BAU) to provide power assist to the conventional master cylinder.

I. BAU bleeding two (2) modes (Fill reservoir with fresh brake fluid):

1st auxiliary battery disconnected:

- Pressure Bleed **A & B**
- Pressure Bleed + brake pedal **A & B**

2nd auxiliary battery connected:

- Pressure Bleed **A & B**
- Pressure Bleed + brake pedal **A & B**

II. Master cylinder High Pressure bleeding:

- Pressure Bleed at calipers
- Pressure Bleed + brake pedal at calipers

III. Electronic Stability Control (ESC) Bleeding:

- Fill reservoir with fresh brake fluid
- Perform "HCU Air Bleeding Mode" in S/W Management in the KDS/GDS
- Follow the instruction on the KDS/GDS
- Pressure Bleed at calipers to finish
- Always Test Drive to confirm proper brake operation



Fig. 1.



Fig. 2.

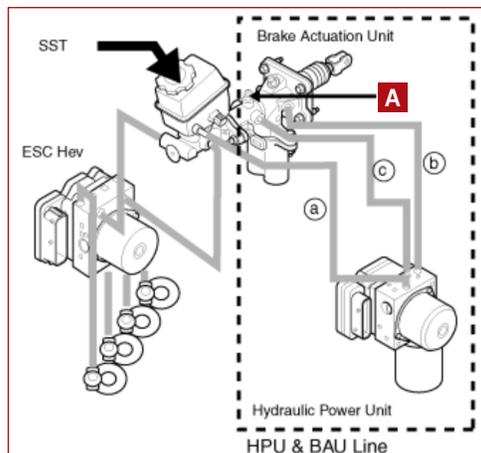


Fig. 3.

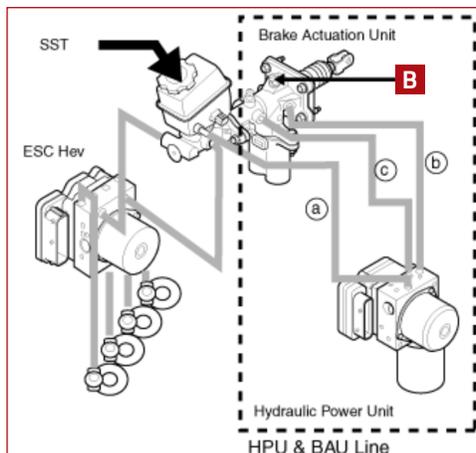


Fig. 4.

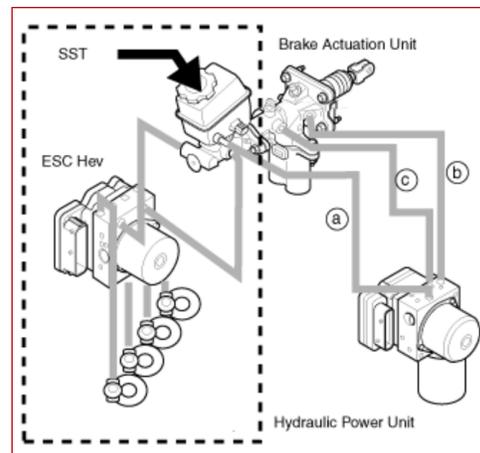


Fig. 5.

Starting in 2014, HEV, PHEV, and EV vehicles use an Integrated Brake Actuation Unit (iBAU). It has a Pressure Source Unit that delivers high-pressure brake fluid to a solenoid valve assembly to regulate brake pressure to the calipers. It does not have a separate master cylinder.

The iBAU requires relieving high pressure in the system before opening any of the lines between the PSU and iBAU. This is a function of S/W Management in the KDS/GDS.

(continued)

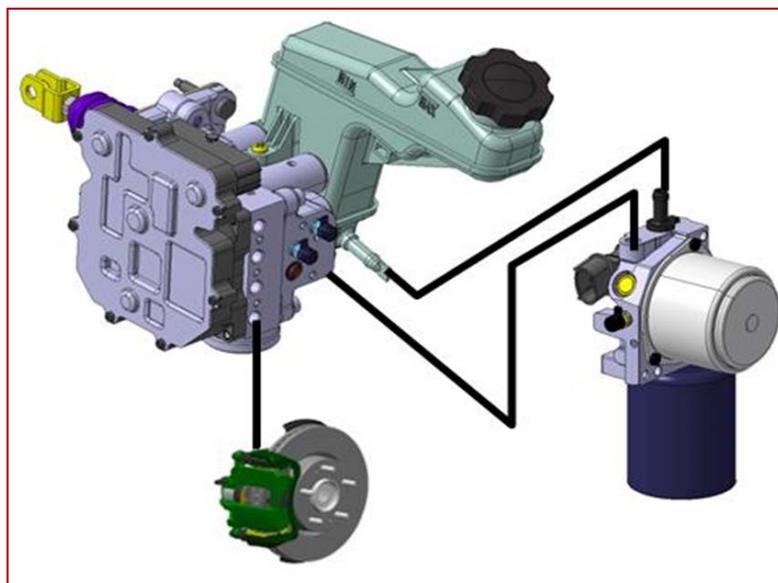


Fig. 6.

JOE'S CORNER TO BLEED OR NOT TO BLEED? continued

The IBAU bleeding also requires two (2) modes:

Mode 1: With auxiliary battery disconnected

- Pressure Bleed at PSU **1** (fig. 7)
- Pressure Bleed at iBAU **2** (fig. 7)
- Pressure Bleed at Calipers **3** (fig. 7)
- Pressure Bleed + brake pedal at iBAU **4** (fig. 8)
- Pressure Bleed + brake pedal at calipers **5** (fig. 9)

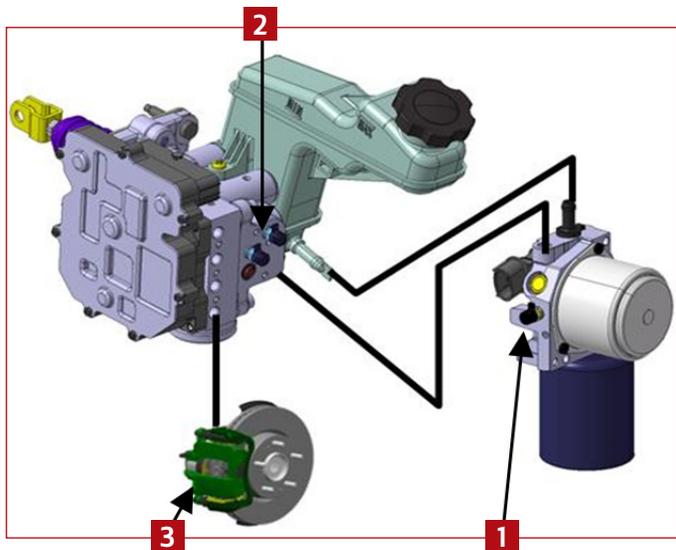


Fig. 7.

Mode 2: With auxiliary battery connected:

- Ignition ON "NOT READY"
- Press and hold ESC switch
- Slowly press and release the brake pedal 10 times
- Release the ESC switch
- Ignition OFF 10 seconds
- Ignition ON "NOT READY"
- Press and hold the ESC switch until all the brake warning lamps in the cluster turn on (about 3-5 seconds)
- Pressure Bleed + brake pedal at calipers
- Remove Pressure Bleeder
- Perform Fluid Circulation in S/W Management in the KDS/GDS
- Use the GR8-1299 in the manual charging mode during this operation
- Always Test Drive to confirm proper brake operation

My next issue is "Tune-up your DVOM," so stay tuned!

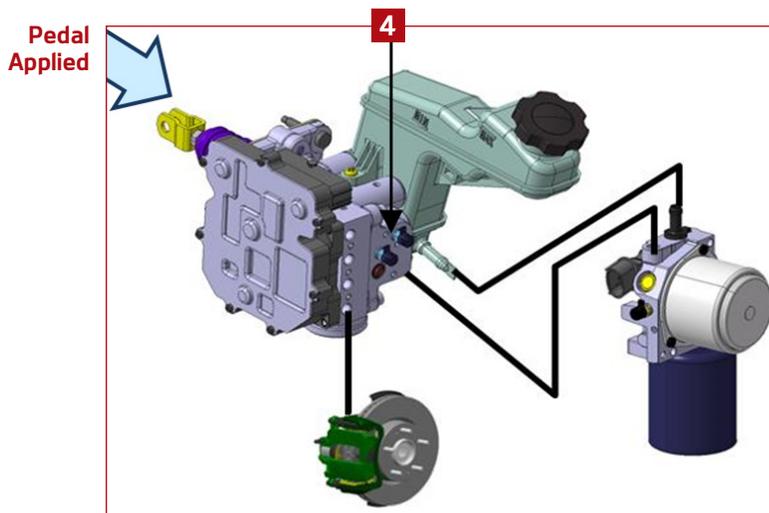


Fig. 8.

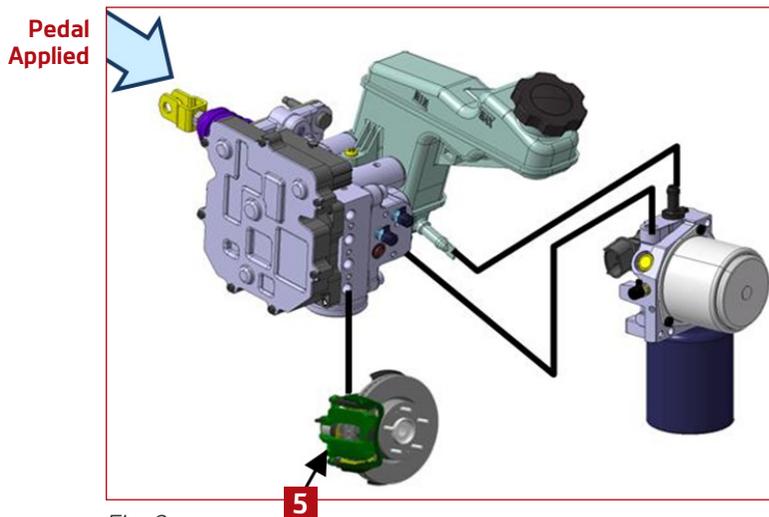


Fig. 9.

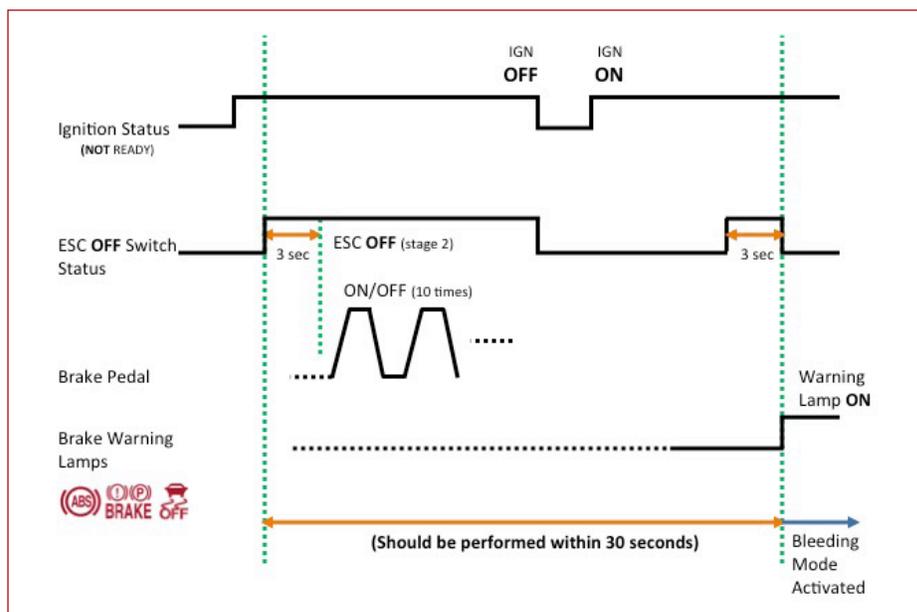


Fig. 10.

WHAT IS "ANTI-CONDENSATION LOGIC"?

Kia has introduced a new anti-condensation logic to help prevent the interior windows from becoming excessively fogged. This logic is included on all 2017 model year Kia vehicles, and some 2016 model year vehicles (Rio [UB], Sorento [UM], and Sedona [YP]). Under certain conditions the HVAC control head will automatically take control of the air intake settings to minimize the amount of fogging.

The HVAC control head continuously monitors ambient temperature to determine which settings will best prevent the windows from fogging. If the system detects lower ambient temperature (about 60°F or below), it may automatically set the air intake mode to FRESH, depending on the other settings.

If the user changes the air intake setting to RECIRCULATION, the anti-condensation logic will take control again after 5 minutes, provided all conditions are still met, and set the air intake back to FRESH. Some customers may prefer the air intake mode to stay on RECIRCULATION for longer periods of time for various reasons (for example, allergies or asthma). If the anti-condensation logic results in undesired operation, the logic may be disabled.

Note: If the vehicle is equipped with a sunroof, the HVAC ventilation logic may still set the air intake to FRESH after 3 minutes, even with the anti-condensation logic disabled. It is important to note that the anti-condensation logic is different from defogging logic and HVAC ventilation logic. Refer to page 5 of Tech Times Volume 5 Issue 4 for more information on defogging logic, and PS 472 for more information on HVAC ventilation logic.

Enabling and Disabling the Anti-Condensation Logic

To disable or enable the anti-condensation logic, perform the following:

1. Turn the ignition to the ON position
2. Turn the mode selection to the FACE (👤) position

3. 2016MY+: UB, UM, YP: while holding the A/C button, press the RECIRCULATION (🔄) button five (5) times within 3 seconds
ALL 2017MY+ (except above): Hold the RECIRCULATION (🔄) button for five (5) seconds
4. The RECIRCULATION indicator light will blink 3 times to indicate that the logic has been disabled, or the light will blink 6 times to indicate that the logic has been enabled

The system anti-condensation logic will remain activated or deactivated unless the battery is discharged or disconnected. The anti-condensation logic is enabled by default when the battery is reconnected.

Tips for Minimizing Window Fog

It is important to note that if the anti-condensation logic is disabled, the windows may become excessively fogged. This can result in low visibility and may lead to dangerous driving conditions. Preventing and clearing window fog can best be achieved by:

- Keeping your windshield clean and free of dust and dirt
- Keeping the anti-condensation logic enabled during normal driving conditions
- Keeping the defogging logic enabled during normal driving conditions
- Turning the mode selector to the DEFROST (👤) position
- Setting the temperature to MAX heat initially
- Ensuring the air intake is set to FRESH mode
- Turning the A/C compressor ON

If the windows still exhibit excessive fog, commercial products such as **Rain-X® Interior Glass Anti-Fog** are available to help prevent fog.

Please refer to PitStop PS 498 and PS 472.

PRO-CUT X9 ROTOR MATCHING SYSTEM

With Pro-Cut you get the most innovative on-car brake lathe. The X9 model is the latest in the Pro-Cut line and brings an on-board LED light, redesigned lighter and stiffer body!

Kia prefers Pro-Cut's rotor matching system instead of bench lathes or rotor replacement (unless rotor is below specified thickness) because the Pro-Cut process machines the rotor on the vehicle which effectively "matches" it to the hub which in turn ensures no run-out, even wear, and a long term solution to brake pulsation issues. Once matched to the hub a cut on the rotor should last for the life of the pads! This matching feature is something that bench lathes or new rotors can't deliver because the hub is never used as a

reference point. And with the mobility to fit on every vehicle, with or without a lift, the vehicle can be serviced within 6-8 minutes!

In addition to a higher quality and quicker repair, Pro-Cut insures the profit of the machine by providing world certified class training (on-line and hands-on), shop marketing, and technician support through their branded programs **TrainSMART**, **BrakeSaver**, and **SuperTech**. Pro-Cut also currently offers a free on-site demo that allows technicians to get hands-on with the equipment and determine best fit.

For purchasing information, please visit kiaspecialtools.com or call (888) 542-1011.



WORD SCRAMBLE PUZZLE

Test your knowledge of the articles in this issue of Tech Times. Each of the scrambled words are taken from various articles. Unscramble the words, then use the letters underlined in red to unscramble the Kia "Secret Phrase." Answers are on page 14.



1. NCETIDEOT _ _ _ _ _ (Page 1)

2. OROTR _ _ _ _ _ (Page 6)

3. NCOAPMRAI _ _ _ _ _ (Page 10)

4. WEGILG _ _ _ _ _ (Page 9)

5. CLYIURADH _ _ _ _ _ (Page 4)

6. LHSUF _ _ _ _ _ (Page 12)

7. ONCODNEATINS _ _ _ _ _ (Page 6)

8. NTABEMI _ _ _ _ _ (Page 6)

9. DILNB POST _ _ _ _ _ (Page 1)

10. ORMEOCPRSS _ _ _ _ _ (Page 11)

11. SESRANH _ _ _ _ _ (Page 9)

12. EABKR _ _ _ _ _ (Page 5)

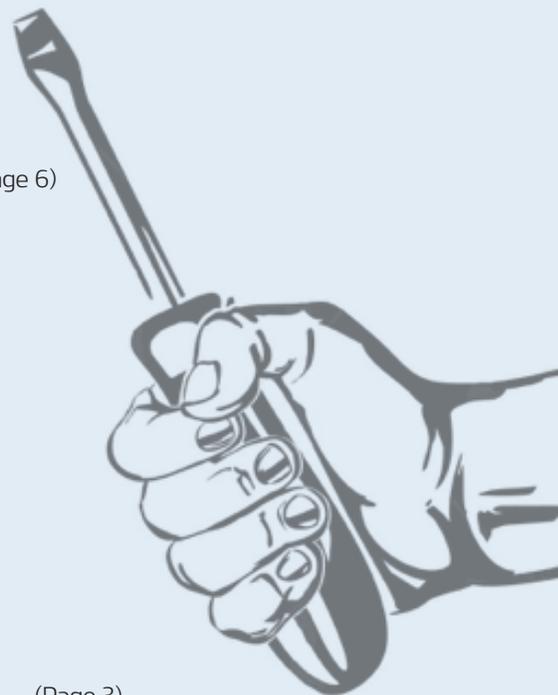
13. NFNATIOUCROGI _ _ _ _ _ (Page 3)

14. NTAUIATCO _ _ _ _ _ (Page 4)

15. AESSLYBM _ _ _ _ _ (Page 8)

16. TAMREEPRA _ _ _ _ _ (Page 8)

17. IPONRLOPSU _ _ _ _ _ (Page 13)



The All-New
2017 Kia Niro is...

Answers are on page 14

2017 KIA MODELS 6-SPEED AUTOMATIC TRANSMISSION REPLACEMENT REQUIREMENTS

In the event of a TCM or Automatic Transmission assembly replacement, certain 2017 model year Kia vehicles fitted with the 6-speed automatic transmission (model A6MF1-2), found in the Forte (YDm), Soul (PS), and Sportage (QL) now require transmission label data to be entered using KDS during reprogramming. (See Fig. 1)

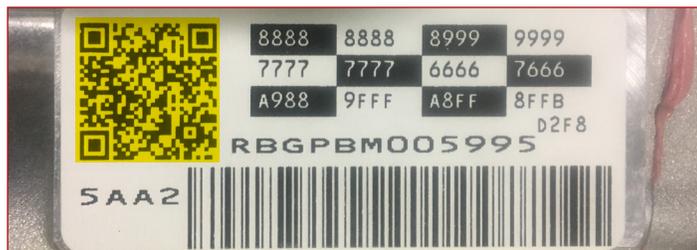


Fig. 1. Sample of a 6-Speed (Model A6MF1-2) Automatic Transmission Label. QR code is highlighted yellow.

Figure 1, above, shows the transmission label containing the transmission hydraulic pressure parameter values in the form of either a 68-digit sequence of numbers and letters or a "Quick Response Code" popularly known as a QR code (see Fig. 1).

The steps required to perform this operation are similar to the process used on current K900 model TCM or Automatic Transmission replacement. This is covered in detail in PitStop PS 430 dated December 15, 2015.

Each transmission's hydraulic pressure parameter values are recorded into the TCM at the end of the production line. This data can be uploaded using KDS to provide the pathway to input the data into the TCM in the event of a TCM or Automatic Transmission (A/T) assembly replacement.

To begin the process, the technician needs to determine which menu selection to choose from the KDS SW Management Menu (See Fig. 2):

- Oil Pressure Characteristic (Automatic Transmission A/T) Replacement)
- Oil Pressure Characteristic Backup & Input (TCM Replacement)

The next screen will display the instructions on how to input the label data.

The KDS now has a built-in "QR reader" Application. Once the technician determines which function needs to be performed (that is TCM or A/T replacement), the following screen (See Fig. 3) will display the instructions on how to proceed with the QR Code Capture application.

This screen displays the QR Code Capture application (See Fig. 4). At this point the technician needs to capture the QR code affixed to the transmission. If the QR Code label has been damaged/missing, or if the technician prefers not to use the QR Code capture application, one may select the "SERIAL INPUT" button at the bottom of the screen to perform a manual input of all 68 digits (See fig. 5).

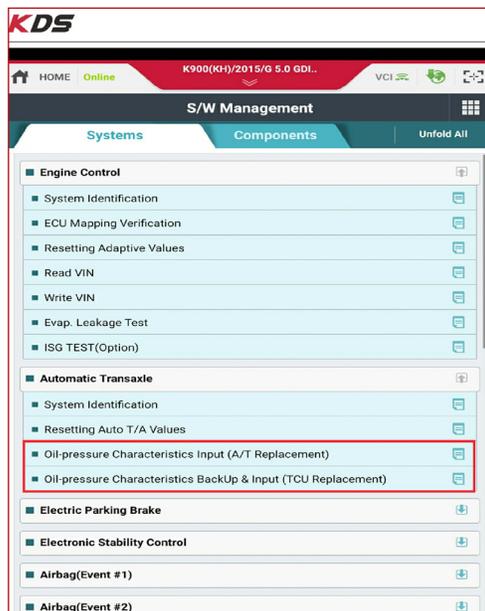


Fig. 2. GKDS Data Input Screen

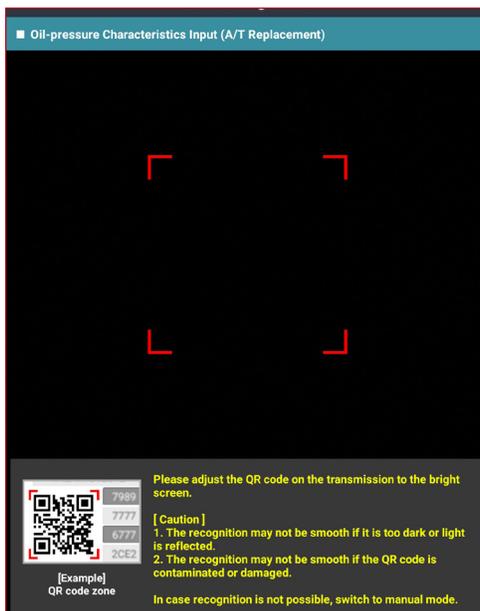


Fig. 3. QR Code capture screen

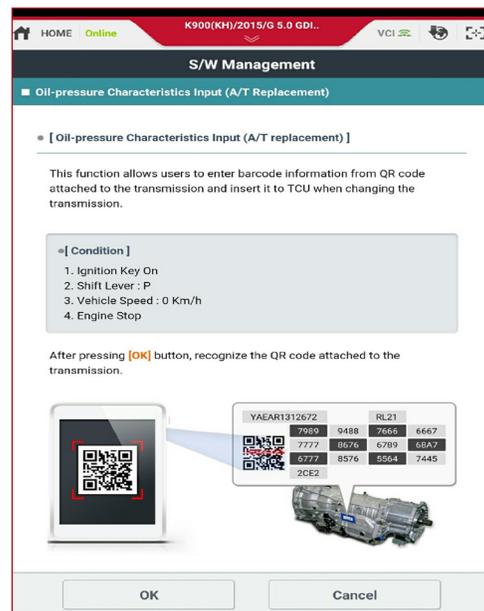


Fig. 4. KDS S/W Management A/T replacement programming instructions

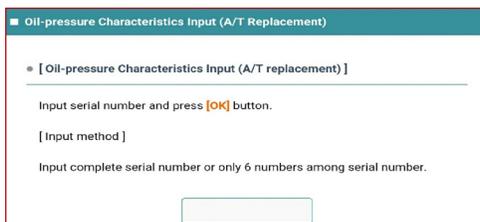


Fig. 5. Manual input screen

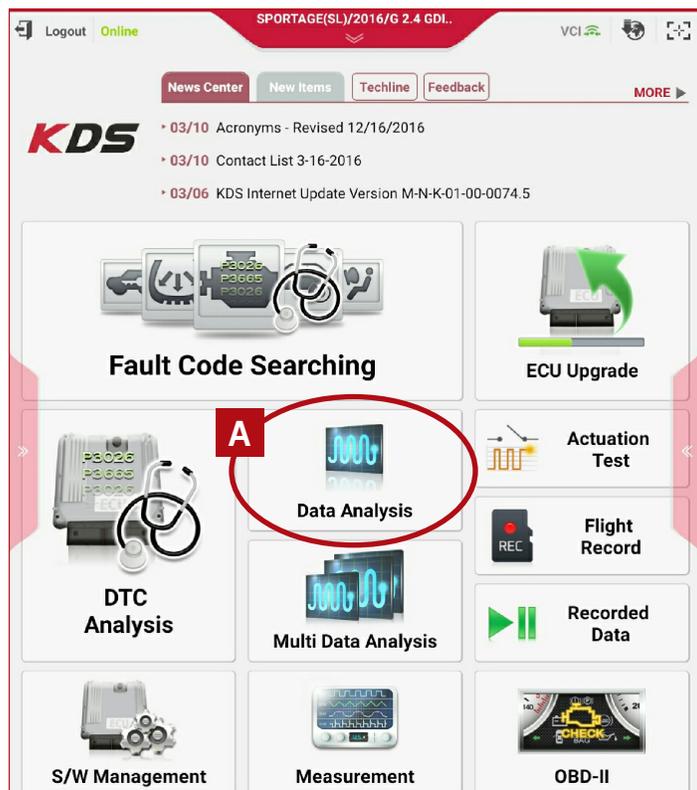
KDS - WIGGLE TEST

The Wiggle Test can help technicians find intermittent/poor connection issues. This KDS function monitors selected items while the technician moves the suspected harness, wire and connectors. When in the Wiggle Test mode, the technician should wiggle the harness by pushing and pulling at various locations. If an alert occurs, then work down to connectors and wires to locate the fault.

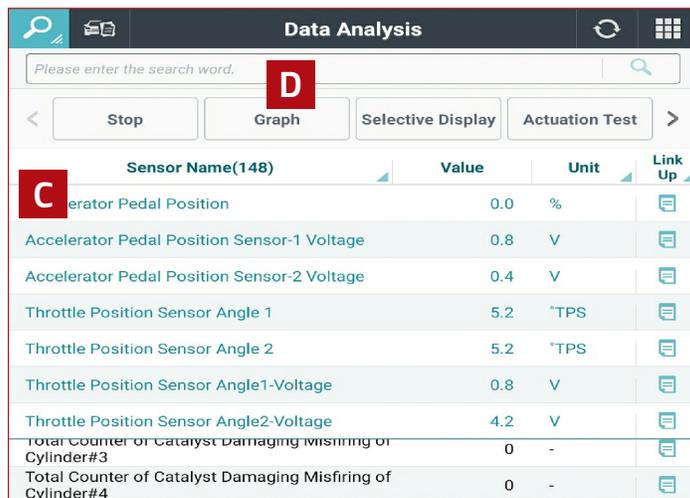
To set up the Wiggle Test

This test should be performed with Key ON - Engine OFF

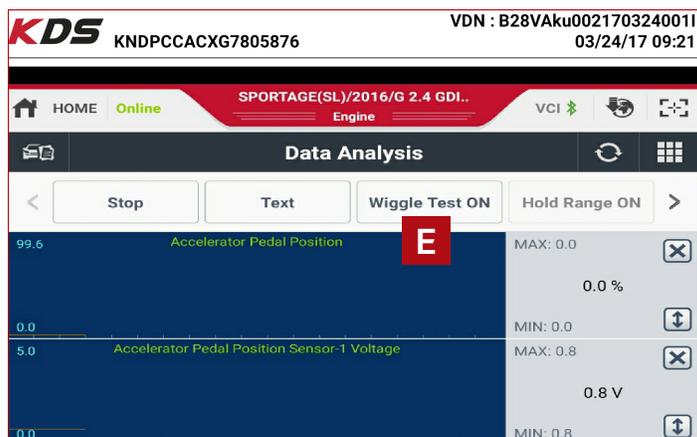
1. Identify the vehicle and select "Data Analysis" **A**



2. Select the desired system **B**



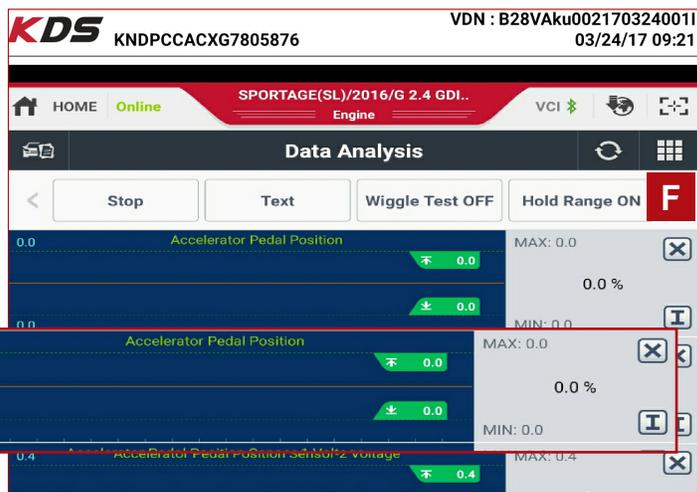
3. Select the items to be monitored, **C**, then select Graph **D**.



4. Select Wiggle Test On **E**. Range lines are added with the values listed.

5. Select Hold Range ON **F**. The "Hold Range ON" will keep the Range Lines from moving when the signal moves past the Range Lines **G**.

(continued next page)

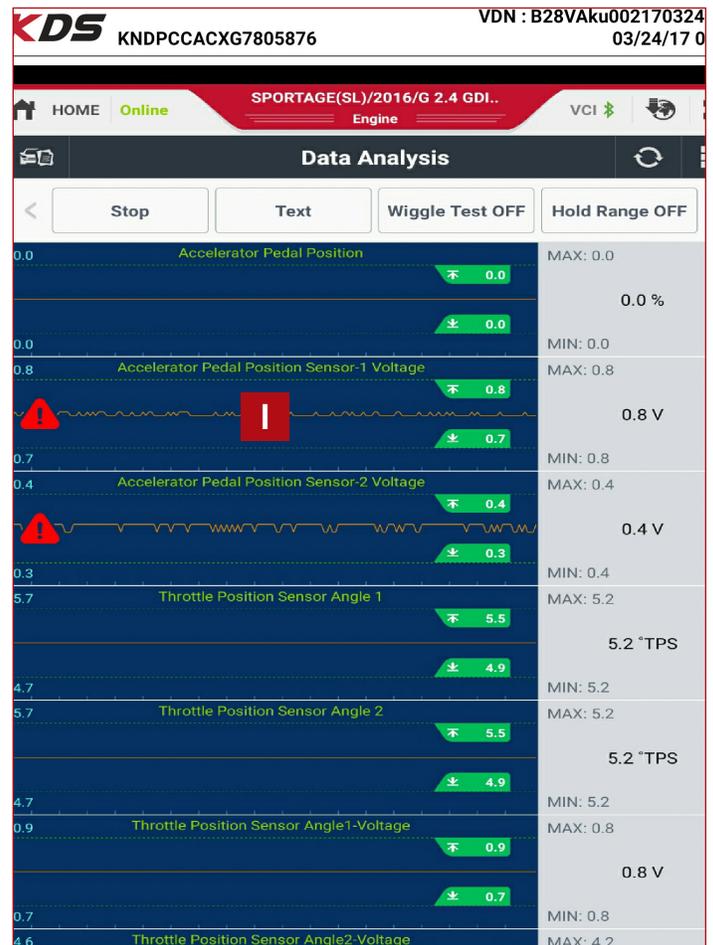
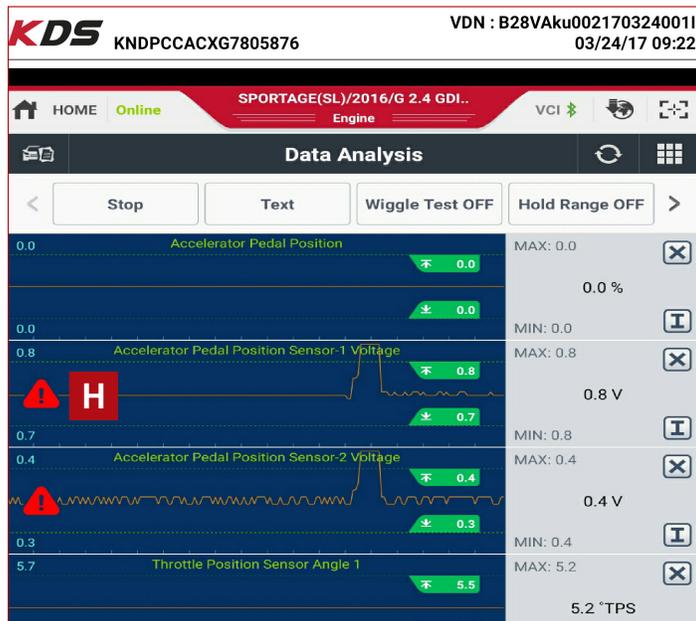


KDS - WIGGLE TEST continued

6. Wiggle the harness and connectors to see if the values change.

If an item value changes to the point that the signal crosses the Range Lines, an audible alert will sound and a visual flag will display **H**. The alert flag will remain displayed to indicate the item that has changed.

The Range Lines can be moved to increase or decrease to amount of movement needed before the alert sounds. Touch and drag the Range Lines up or down **I**.



TSB: BOD 125 REMINDER

If you encounter a 2016 Sorento with a panoramic sunroof that will not close, or is slow/struggles to close, closely follow TSB BOD 125 to correct the concern. It is important to note, the TSB must be performed exactly per the procedure outlined, using the specified lubricant. If the procedure is not followed and/or the incorrect grease is used, the vehicle will likely return with the same issue. If you have any questions regarding the procedure, please open a technical assistance case.

	GROUP BOD	MODEL 2016MY Sorento (UMa)
	NUMBER 125 (Rev 1, 02/27/2017)	DATE August 2016

TECHNICAL SERVICE BULLETIN

SUBJECT: PANORAMIC SUNROOF SLOW TO CLOSE AND/OR ABNORMAL NOISE WHEN CLOSING

*** NOTICE**

This bulletin has been revised to include additional information. New/revised sections of this bulletin are indicated by a black bar in the margin area.

This bulletin provides the procedure to repair a panoramic sunroof that exhibits a slow to close condition and/or abnormal noise when closing, on some 2016MY Sorento (UMa) vehicles produced from October 27, 2014 through January 23, 2016. Follow the procedure in this bulletin to clean, lubricate, and replace the rear tilt levers to correct the concern. Do NOT replace the sunroof assembly for this concern.



GROUP BOD	MODEL 2016MY Sorento (UMa)
NUMBER 125 (Rev 1, 02/27/2017)	DATE August 2016

TECHNICAL SERVICE BULLETIN

SUNROOF SLOW TO CLOSE AND/OR ABNORMAL NOISE WHEN CLOSING

Used to include additional information. New/revised sections of this bulletin are indicated by a black bar in the margin area.

To repair a panoramic sunroof that exhibits a slow to close condition and/or abnormal noise when closing, on some 2016MY Sorento (UMa) vehicles produced from October 27, 2014 through January 23, 2016, follow the procedure in this bulletin to clean, lubricate, and replace the rear tilt levers to correct the concern. Do NOT replace the sunroof assembly for this concern.

Manager Service Manager Parts Manager
Technicians Body Shop Manager Fleet Repair

MAHLE ACX1299 COMPRESSOR OIL FLUSHING PROCEDURE

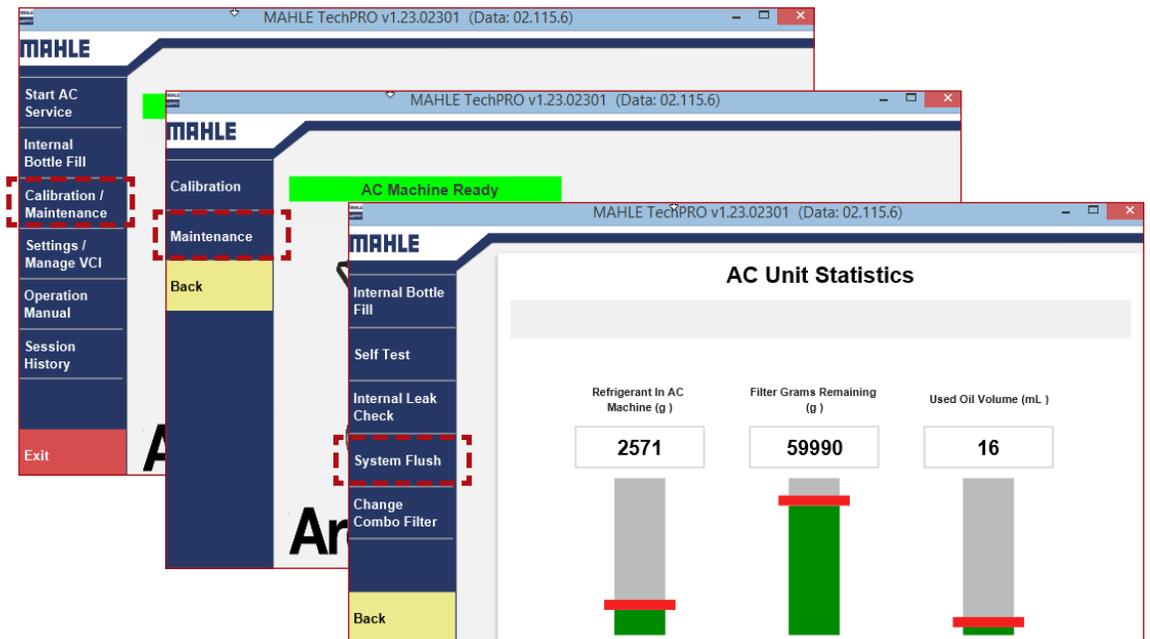
Vehicles with electric AC compressors use non-conductive oils to eliminate electrical shorting within the compressor. PAG oils can conduct electricity which could short the High Voltage system in the vehicle. Flushing the AC Equipment avoid potential contamination of an electric compressor equipped

vehicle with PAG oil and will protect the vehicles AC system.

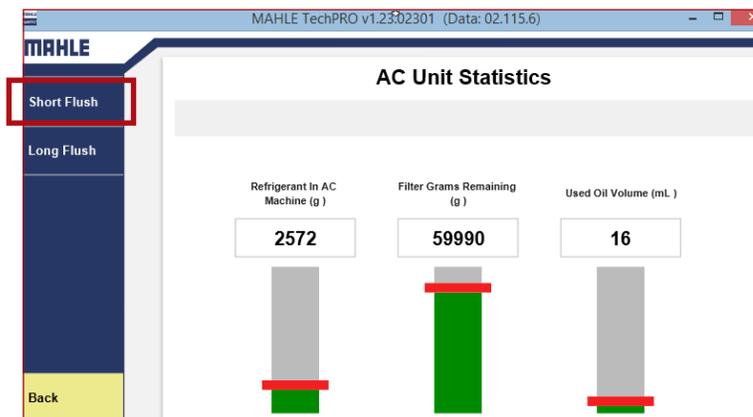
The Mahle ACX1299 includes a “System Flush” function to remove oil from the AC Service Hoses and internal plumbing of the equipment. Flushing should be performed when moving from PAG to POE and from POE to PAG.

From the home page Select
“Calibration/Maintenance”

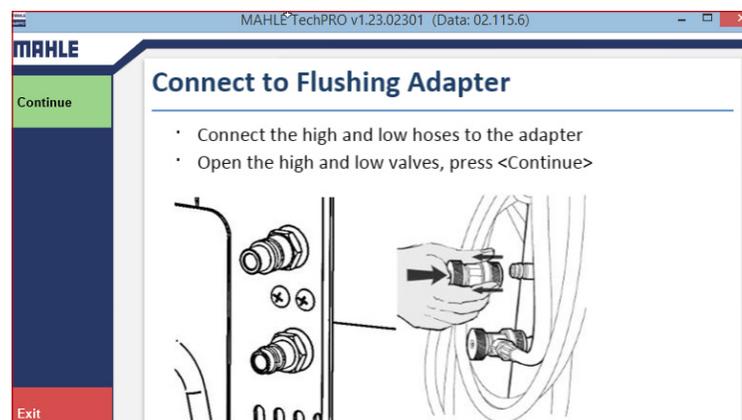
- ➔ Select “Maintenance”
- ➔ Select “System Flush”



Select “Short Flush”



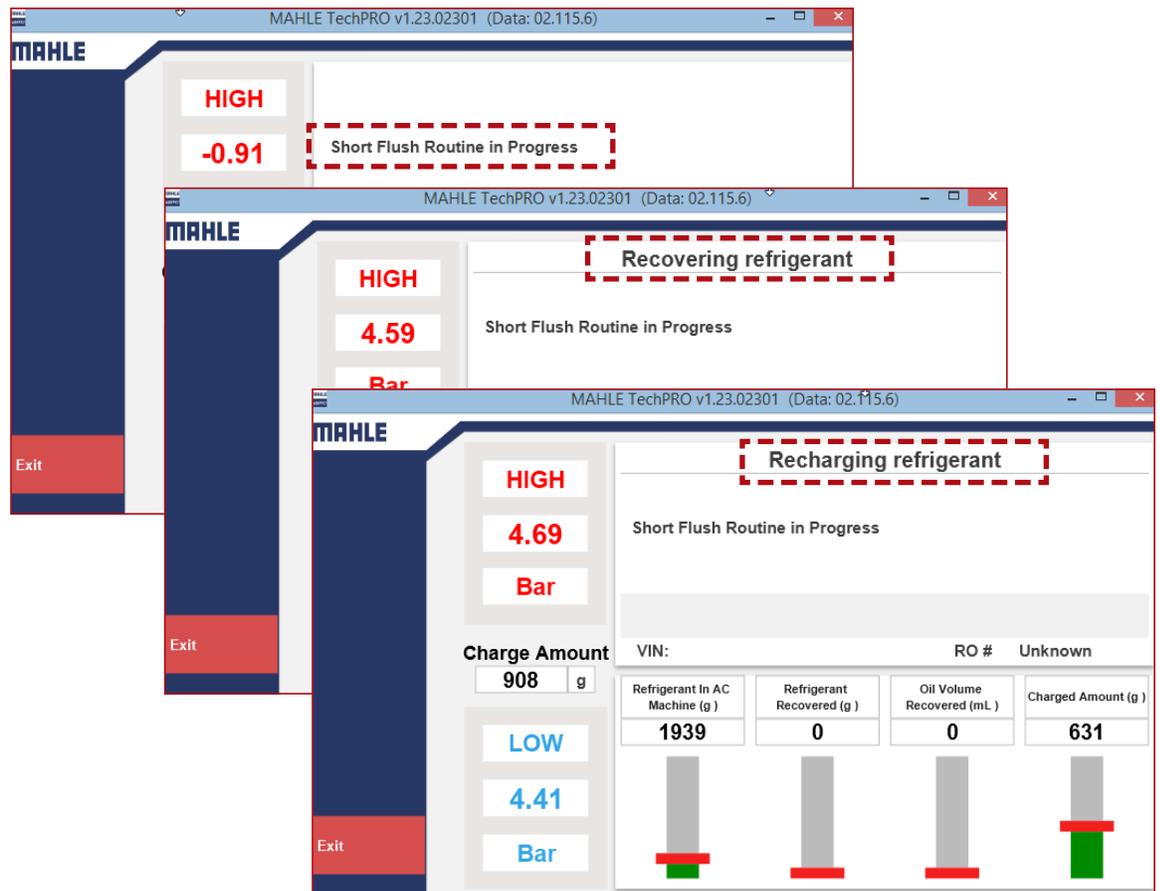
Attach the service hoses to the ports on the side of the machine and open the valves (clockwise).



(continued)

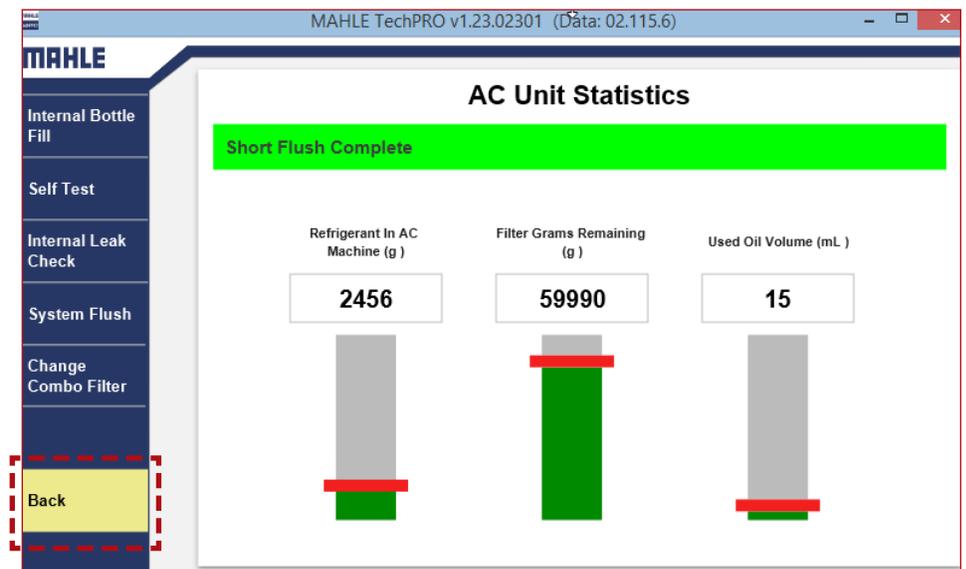
MAHLE ACX1299 COMPRESSOR OIL FLUSHING PROCEDURE (CONTINUED)

The ACX1299 will pull a vacuum and run a charge/recover cycle during the Flush Process.



1. When the Flush cycle is complete, select "Back"
2. Close off the coupler valves (counter-clockwise) and remove the service hoses.

The system is now free of any oil residue and can be used on electric and conventional compressor equipped AC systems.



3-PHASE AC MOTORS AND THEIR APPLICATION ON KIA MODELS

This is the second in a series of 3 technical articles on the 3-Phase Alternating Current (AC) Motors and their application on KIA vehicles.

In this article we will briefly discuss 3-phase motors on Kia Hybrid and Electrical vehicle applications such as the Optima HEV, Niro HEV and Soul EV models.

All Kia hybrid and electric vehicles use a Permanent Magnet Synchronous Motor (PMSM) to provide vehicle propulsion and to also operate as an engine starter electrical charging generator with the Hybrid Starter Generator (HSG).

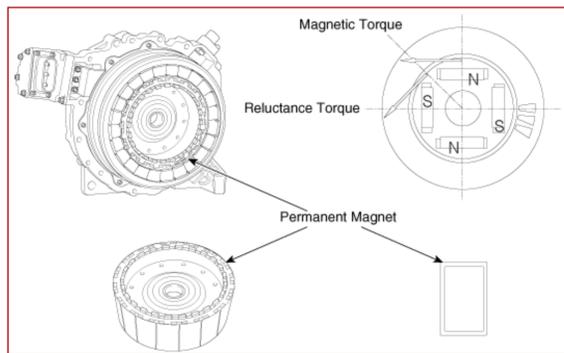


Fig. 1.
Permanent
Magnet
Synchronous
Motor
(PMSM)

The PMSM is a type of motor whose field excitation is provided by permanent magnets (See Fig. 1). Some of the advantages of using this type of motor are:

- With permanent magnets the PMSM can generate full torque at zero speed
- Higher torque density versus AC Induction Motors (ACIM), i.e., smaller frame size for same power
- High efficiency operation

One major difference to point out between the Optima Hybrid AC motor and the new Niro AC motor is how they are replaced during service. On the Optima Hybrids, the AC motor is only available as part of the Automatic transmission assembly. While on Niro models, the Motor can be serviced separately from the DCT transmission (See Fig. 2 & 3).

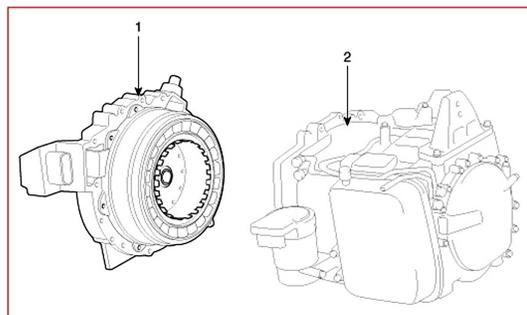


Fig. 2.
Optima
Hybrid AC
Motor (1),
Automatic
Transmission
(2)

While the large majority of AC motor faults will result in the Hybrid Power Control Unit (HPCU) or Motor Control Unit (MCU) outputting a Diagnostic Trouble Code (DTC), there are a number of diagnostic tests that a technician should perform in order to help diagnose an AC motor-related concern.

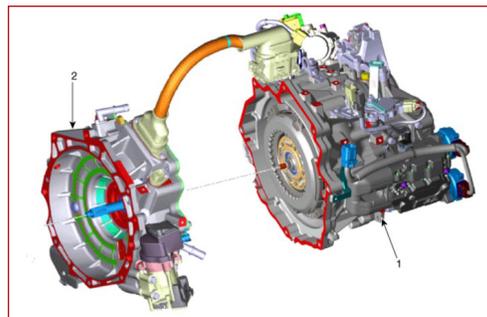


Fig. 3.
NIRO DCT
Transmission
(1), AC Motor
(2)

Some of these tests are:

- **Phase-to-Phase resistance** (see Fig. 4): This test checks the stator winding resistance phase-to-phase.
- **Motor Resolver(s) resistance** (see Fig. 5): A resolver is an extremely accurate motor position sensor that reads rotor position whenever the vehicle's powertrain is powered up (READY Mode). It consists of a ring of coils, resembling a stator winding, surrounding an elliptical steel lobe mounted on the motor-generator's rotor shaft. This test checks the resistance of the resolver windings.
- **Motor Temperature Sensor resistance** (see Fig. 6): This test checks the resistance of the Motor temperature sensor.
- **Motor Insulation resistance** (see Fig. 7). This test checks the stator winding resistance phase-to-ground. For more information on this test/procedure, refer to Tech Times Vol. 19 Issue 5 and Tech Times Vol. 17 Issue 4

Stay tuned for the next issue of Tech Times for part 3 of the 3-Phase Alternating Current (AC) Motors and their application on Kia vehicles.

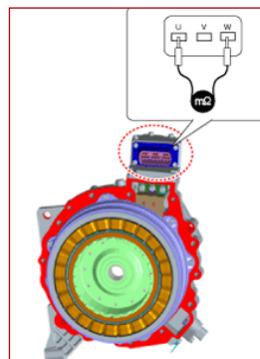


Fig. 4. (left)
Phase-
to-Phase
Resistance Test

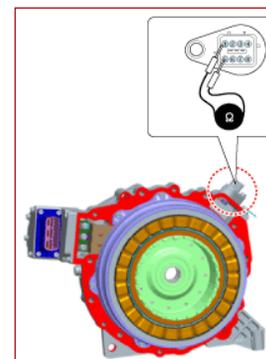


Fig. 5. (right)
Motor
Resolver(s)
Resistance Test

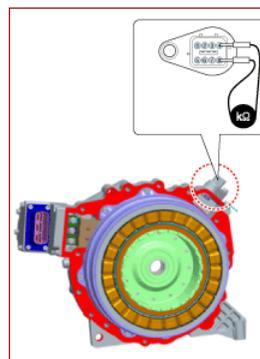


Fig. 6. (left) Motor Temperature Sensor Resistance Test

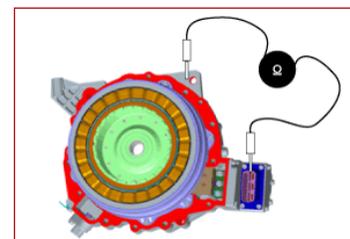


Fig. 7. (below) Motor Insulation Test

UVO eSERVICES MIRROR BUTTONS

This article provides information regarding the functionality of the UVO eServices buttons located on the rear view mirror in some 2016–2017MY K900 (KH), and 2017MY Optima Plug-in Hybrid (JF PHEV) and 2017MY Soul EV (PS EV) vehicles.

In the vehicles equipped with this feature, the button functionality is as follows:

Description	Symbol/Label
eServices Guide	
UVO eServices Voice Local Search	
Roadside Assistance	

eServices Guide: The eServices Guide connects to the UVO center and provides information about the available UVO eServices features.

* Google® is a registered trademark of Google, Inc.

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

*** Normal cellular service rates will apply.

The eServices Guide is not available if the UVO eServices are not activated or the service period has expired.

UVO eServices Voice Local Search: With UVO eServices network service, you can search for Google provided place names with your voice.*

This feature is separate from the voice recognition activated through the steering wheel, and specializes in place name searches.**

The search is only available when the communication network is available.***

Roadside Assistance: This service provides roadside assistance services through a connection to the UVO center including emergency assistance and vehicle towing in case of a vehicle anomaly or emergency.

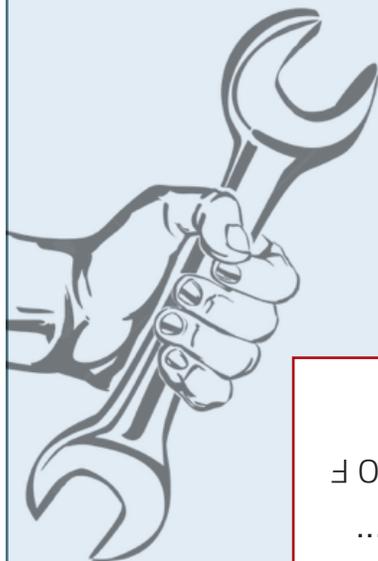
Roadside Assistance feature is available without activating the UVO eServices. However, it is not available if the UVO eServices period has expired.

Roadside Assistance is not available in areas without network coverage.

Please refer to PitStop PS 497.

PUZZLE SOLUTION

Here are the unscrambled words from the puzzle on page 7, with the red letters highlighted. These letters form the Kia Niro slogan in the box.



The All-New
2017 Kia Niro is ...
THE FIRST OF
ITS KIND

1. DETECTION
2. ROTOR
3. PANORAMIC
4. WIGGLE
5. HYDRAULIC
6. FLUSH
7. CONDENSATION
8. AMBIENT
9. BLIND SPOT
10. COMPRESSOR
11. HARNESS
12. BRAKE
13. CONFIGURATION
14. ACTUATION
15. ASSEMBLY
16. PARAMETER
17. PROPULSION

