HYUNDAI | NEW THINKING. NEW POSSIBILITIES.

TECHNET TIMES

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INSIDE THIS ISSUE...

The 2013 Santa Fe

The long wheel-base 2013 Santa Fe premiered at auto shows late last year and is headed to Hyundai Dealerships later this quarter. The redesigned crossover will replace the Veracruz in Hyundai's model line. Like its smaller sibling, the Santa Fe Sport, the Santa Fe introduces many new features:

The light and windshield washer controls both have toggle switches within, one operates the fog lights and the other operates the intermittent wiper function. The windshield wipers are two-speed Low/High with a variable intermittent control and Mist control with a single speed rear window wiper, which also has an intermittent wipe.

A Steering Wheel Heater has also been added as an option for warming the driver's hands. It is turned on by pressing the switch on the left side of the steering column. The indicator in the switch will illuminate and after only one minute the driver will feel a noticeable increase of warmth to the steering wheel's leather sections. Pressing the switch again will turn off the heater. It also has an auto-off feature, turning off after 30 minutes of operation.

continued on page 2

The 2013 Santa Fe

continued from page 1

The Santa Fe also offers User Display Settings that are navigated with three buttons on the steering wheel. The buttons are the same (Mode, Move, Select) as those found on the Santa Fe Sport. The system operates in the same manner as well.

The new 2013 Santa Fe vehicles come standard with either a six or seven passenger seating arrangement. The six passenger has second row captain's chairs with third rowing seating for two. The seven passenger vehicle has the standard three passenger second row seat and third row seating for two.

An optional tow hitch is also available through dealer parts accessories. The class 2 Tow hitch is rated at 3500lb towing capacity, but the owner's manual should be consulted for specific details and applications.

The Lambda-II engine used in the new Santa Fe is of similar design to other Lambda-II engine applications. Most mechanical components and the Delphi engine management system remain unchanged from other current engines. One of the most notable differences of this engine is the IDB (Injector Driver Box) and PCM used to control the GDI direct gasoline injection.

The IDB (Injector Driver Box) located behind the glove-box, is an external driver box, designed to provide Gasoline Direct injection (GDI) capability to the Port Fuel Injection (PFI) Engine Management System (EMS) hardware. The IDB provides electrical actuation signals used by the GDI injectors and the high pressure fuel pump inlet valve.

All GDI control software resides in the main (PCM) controller. Reprogramming is performed through the PCM as a pass through on the local CAN bus with the (PCM) controller.

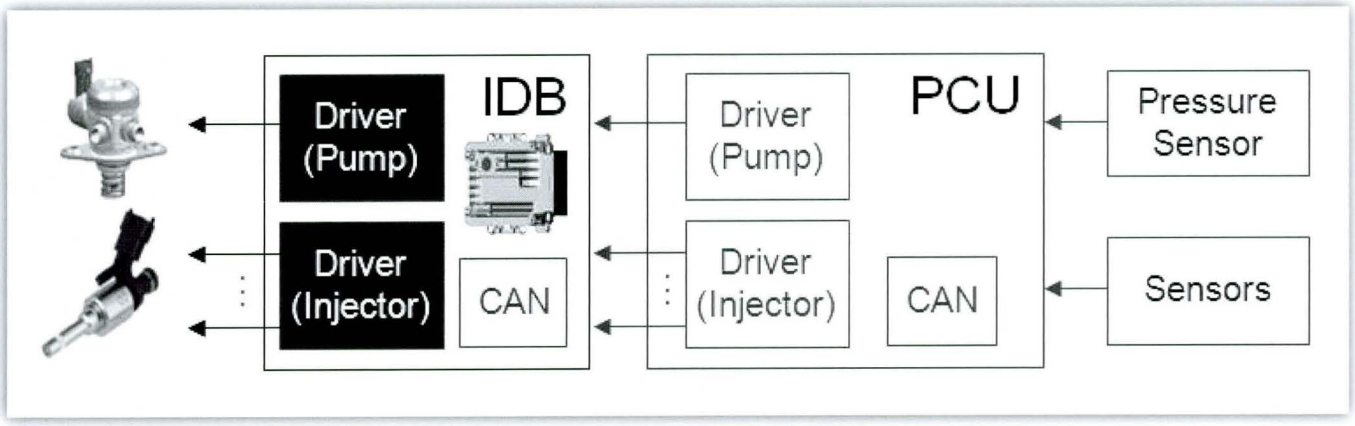
Listed are some of the features of the new 3.3L GDI V6 engine:

- Block composition: High pressure die cast aluminum
- Head composition: aluminum
- Timing Chain (Roller type)
- High pressure fuel system (High pressure pump, Two pulse GDI injector)
- GDI Pistons (Bowl pistons) & Piston rings
- DOHC Dual CVVT
- VIS (Variable Intake System, 3 stage)
- Individual Ignition (Stick coil type)
- Shimless MLA (Solid tappet)
- Plastic Intake manifold
- Delphi PCM
- Serpentine belt
- 290 horsepower and 252 lbs/ft torque

The A6LF2 transmission used in the Santa Fe is the same as used in the Santa Fe Sport with some specification enhancements for the Santa Fe application. With the 3.3L Lambda-II engine, the A6LF2 automatic transmission has different gear ratios and final drive than the Santa Fe Sport. With this application, the Shiftronic™ control also uses the new-style range switch with four outputs.

This transaxle does not use a dipstick as it uses the overflow method to measure the fluid level. The transaxle's A6FL2 fluid capacity is 8.24 qts. The type is SP-4. The oil filler cap is on the oil pan and is visible from the engine compartment.

The all new 2013 Santa Fe brings many more component and system variations. An online 2013 Santa Fe New Model course is being developed. This in-depth review will provide you with the details required to service this amazing new crossover. Be on alert for announcements about the launch of this new web course.



2013 Santa Fe Fuel Control Communication System

TACS Waitlist: An Interview

With the launch of wait lists for TACS courses, TechNet Times decided to get feedback on it from our instructional team. We tracked down Regional Training Manager, Scott Eakin in the Southern Region. Here is what Scott told us:

TNT **You have been a proponent of TACS Waitlist, why?**

SE: The wait list will tell us how much demand there is for a class. This information will help us make better schedule choices so that the classes we put on the schedule are the ones that the guys in the field want and need.

TNT **How will TACS Waitlist help the instructors?**

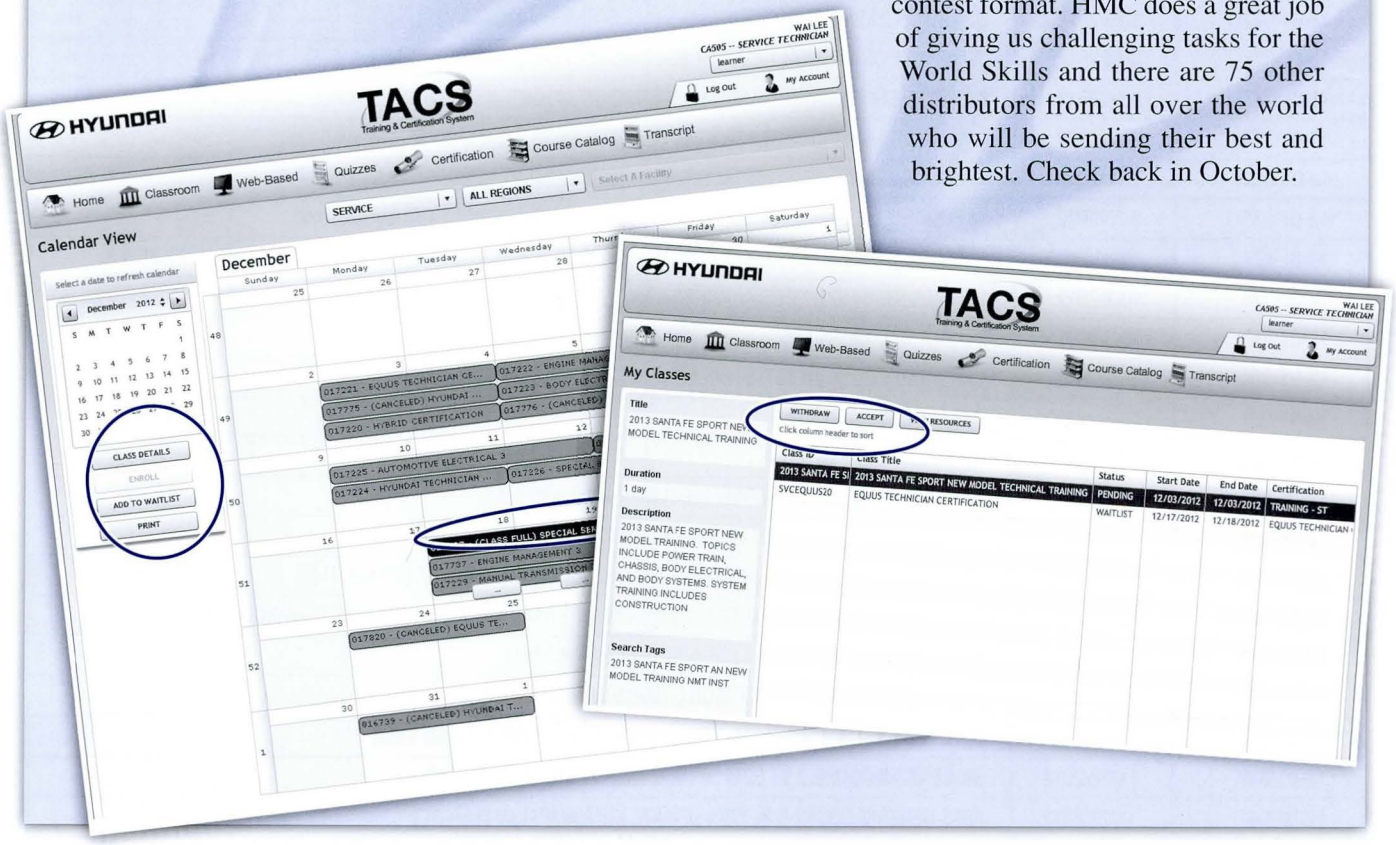
SE: With the wait list, [instructors] will be able to make sure that the guys who ask for a class are ready—that means those guys who have done the web course and taken the necessary prerequisites. We also want to help techs finish their certifications. The waitlist helps us identify the techs who only need one or two classes for a certification and make sure they get that class in a reasonable time frame.

TNT **What added flexibility will TACS Waitlist bring for students?**

SE: The waitlist makes it easy for techs to let us know what classes they need. In the long run, this should shorten the time a tech needs to finish up a certification.

TNT **On a side note, given your experience as a former World Skills Competition medal winner, how do you like our chances this year?**

SE: We have another really strong team going to Korea in 2013. It will be hard to top last year's performance; but we certainly intend to try. We will be practicing to make sure the team is ready for the contest environment. I don't have any doubt that they have the talent, now we just have to make sure that they are prepared to demonstrate that talent in the contest format. HMC does a great job of giving us challenging tasks for the World Skills and there are 75 other distributors from all over the world who will be sending their best and brightest. Check back in October.



2012 Technical Service Bulletins

Below is a listing of all Technical Service Bulletins and Campaign Bulletins released in 2012.

Campaign Bulletins		
12-01-001-1	2/22/2012	STEERING COLUMN TILT AND TELESCOPE SWITCH REMOVAL (SERVICE CAMPAIGN TK1)
12-01-002	1/26/2012	NVLD REPLACEMENT (SERVICE CAMPAIGN TG6)
12-01-003	1/30/2012	ECM UPDATE (SERVICE CAMPAIGN TF4)
12-01-004	1/31/2012	BLUE LINK TMU SOFTWARE REPROGRAMMING (SERVICE CAMPAIGN TJ9)
12-01-005	2/7/2012	ECM UPDATE (SERVICE CAMPAIGN TF2)
12-01-006-1	2/16/2012	BLUE LINK TMU SOFTWARE REPROGRAMMING (SERVICE CAMPAIGN TK3)
12-01-007	2/23/2012	GENESIS TILT TELESCOPE (SERVICE CAMPAIGN TK4)
12-01-008-1	3/7/2012	ACCENT ECM & TCM UPDATE (SERVICE CAMPAIGN TK5)
12-01-009	3/7/2012	SONATA HEV REAR CENTER SEATBELT IMPROVEMENT (CAMPAIGN 104)
12-01-010-1	4/5/2012	CAMPAIGN TH1 ACCENT ECM UPDATE (SERVICE CAMPAIGN TH1)
12-01-011-2	4/17/2012	HG AZERA VEHICLE PULLING (SERVICE CAMPAIGN TK6)
12-01-012	4/9/2012	HG AZERA EPS SOFTWARE UPDATE (SERVICE CAMPAIGN TK7)
12-01-013	4/17/2012	TOUCH SCREEN NAVIGATION SYSTEM SOFTWARE REPROGRAMMING (SERVICE CAMPAIGN TK8)
12-01-014	5/1/2012	REVISION OF HEV MULTI - ECU (SERVICE CAMPAIGN TG5)
12-01-015	5/8/2012	2012 SANTA FE NAVIGATION SYSTEM SOFTWARE UPDATE (SERVICE CAMPAIGN TK9)
12-01-016	5/25/2012	CM SANTA FE & EN VERACRUZ CLOCK SPRING REPLACEMENT (CAMPAIGN 103)
12-01-017	6/25/2012	VELOSTER HEAD UNIT SOFTWARE REPROGRAMMING (SERVICE CAMPAIGN TL0)
12-01-018-1	9/26/2012	SMART KEY MODULE (SMK) SOFTWARE REPROGRAMMING (SERVICE CAMPAIGN TL1)
12-01-019-2	10/16/2012	SONATA YF AND YF-HEV CURTAIN AIRBAG (CAMPAIGN 106)
12-01-020-1	8/15/2012	ECM UPDATES - PODS UPDATE SOFTWARE (CAMPAIGN 105)
12-01-021-1	9/29/2012	SONATA YF LM INHIBITOR SWITCH BRACKET (SERVICE CAMPAIGN TL2)
12-01-022	8/14/2012	SONATA YF CRANKSHAFT PULLEY BOLT INSPECTION(SERVICE CAMPAIGN TL3)
12-01-023	8/16/2012	SANTA FE SPORT ENGINE AND TRANSMISSION MOUNT INSPECTION (SERVICE CAMPAIGN TL4)
12-01-024	9/10/2012	PANORAMIC SUNROOF GLASS SEAL REPAIR (SERVICE CAMPAIGN TL7)
12-01-025	9/17/2012	VI EQUUS FRONT AIR STRUT ASSEMBLY REPLACEMENT (SERVICE CAMPAIGN TL5)
12-01-026-1	9/25/2012	VI EQUUS, BH GENESIS BRAKE FLUID REPLACEMENT (SERVICE CAMPAIGN TL6)
12-01-027	10/31/2012	ECM UPDATE - 2.4L GDI 2.0L T-GDI CHECK FUEL CAP LOGIC IMPROVEMENT (SERVICE CAMPAIGN TL8)
12-01-028	10/2/2012	UD ELANTRA AUDIO GEN3.0/OWNERS MANUAL (20CA06) (SERVICE CAMPAIGN TL9)
12-01-029	10/3/2012	RECALL CAMPAIGN 089
12-01-030	9/28/2012	CARB OBD IN-USE MONITOR PERFORMANCE DATA COLLECTION (DC1)
12-01-031	10/3/2012	RECALL CAMPAIGN 090
12-01-032	10/31/2012	RECALL CAMPAIGN 091
12-01-033	10/11/2012	VELOSTER VEHICLE TRACKING (SERVICE CAMPAIGN TM0)
12-01-034	10/16/2012	GENESIS COUPE TCU UPDATE (CAMPAIGN TM1)
12-01-035	10/23/2012	VELOSTER CLOCK SOFTWARE UPGRADE (NON-NAV) (SERVICE CAMPAIGN TM2)
12-01-036-1	12/5/2012	MD UD ELANTRA & JK ELANTRA COUPE FRONT BRAKE PAD REPLACEMENT (SERVICE CAMPAIGN TM3)
12-01-037	11/2/2012	MONRONEY REPLACEMENT (SERVICE CAMPAIGN TM4)
12-01-038	11/6/2012	FUEL PUMP ASSIST KIT (SERVICE CAMPAIGN TM5)
12-01-039	11/8/2012	2013 ACCENT CAMPAIGN IQS TCM UPDATE (SERVICE CAMPAIGN TM6)
12-01-040	11/12/2012	BK GENESIS COUPE 2.0T ECM UPDATE (SERVICE CAMPAIGN TM7)
12-01-041	11/12/2012	2013 GENESIS COUPE 3.8L ECM UPDATE IQS CAMPAIGN (SERVICE CAMPAIGN TM8)

Campaign Bulletins (continued)		
12-01-042	11/12/2012	2013 TUCSON CAMPAIGN IQS ECM & TCM UPDATE (SERVICE CAMPAIGN TM9)
12-01-043	11/12/2012	VELOSTER ECM & TCM CAMPAIGN UPDATE (SERVICE CAMPAIGN TN0)
12-01-044	11/16/2012	MD ELANTRA SUNVISOR DEFLECTION IMPROVEMENT (SERVICE CAMPAIGN TN1)
12-01-045	11/16/2012	BK GENESIS COUPE MTM SHIFT KNOB (SERVICE CAMPAIGN TN2)
12-01-046	11/21/2012	MD ELANTRA ECM & TCM UPDATE (SERVICE CAMPAIGN TN3)
12-01-047	11/29/2012	2013 AVN ELANTRA GT OPERATING SOFTWARE UPDATE (SERVICE CAMPAIGN TN4)
12-01-048	12/10/2012	2013 AZERA ECU UPDATE (SERVICE CAMPAIGN TN5)
12-01-049	12/10/2012	SANTA FE SPORT CLUSTER UPGRADE SOFTWARE (SERVICE CAMPAIGN TN6)
Automatic Transmission		
12-AT-001	1/17/2012	ATM REMAN PROGRAM
12-AT-002-2	6/25/2012	VELOSTER DCT REPLACABLE PARTS
12-AT-003-1	6/20/2012	MD ELANTRA RATTLE NOISE
12-AT-004-1	4/9/2012	8 SPEED AUTOMATIC TRANSMISSION FLUID LEVEL
12-AT-005	2/14/2012	AUTOMATIC TRANSMISSIN STALL TEST PROCEDURE
12-AT-006-2	12/12/2012	HYUNDAI SPECIFIED ATF AND ADDITIVE USAGE
12-AT-007	2/14/2012	HD & FD ELANTRA INPUT & OUTPUT SPEED SENSOR
12-AT-008	2/14/2012	YF SONATA TCM UPDATE P0748
12-AT-009-4	11/8/2012	YF SONATA, CM SANTA FE LM TUCSON TG INPUT SENSORS
12-AT-010	3/8/2012	BH GENESIS, VI EQUUS, BK GENESIS COUPE DATA TRANSFER
12-AT-011	3/15/2012	8AT HARSH OR DELAYED SHIFT
12-AT-012	3/15/2012	6AT HARSH DELAYED SHIFT
12-AT-013	3/15/2012	LM TUCSON AT OIL COOLER HOSE - F/FIX
12-AT-014	3/19/2012	VELOSTER DCT INSTALLATION
12-AT-015-1	10/22/2012	BH GENESIS, VI EQUUS, BK GENESIS 8AT SOLENOID DTC
12-AT-016-2	12/13/2012	AUTOMATIC TRANS SOLENOID DTC CODES
12-AT-017	8/7/2012	AT RESET ADAPTIVE VALUES
12-AT-018	8/9/2012	YF SONATA SHIFT LEVER - ACCESSORY PWR. REMAINS
12-AT-019	8/14/2012	AUTOMATIC TRANS OIL COOLER FLUSHING
12-AT-020	8/27/2012	"BH GENESIS, VI EQUUS KEY LOCK MODULE"
12-AT-021-1	11/8/2012	6AT OTS AND HARNESS
12-AT-022-1	10/10/2012	AUTOMATIC TRANSAXLE (6-SPEED) INHIBITOR SWITCH DTC CODES
12-AT-023	10/10/2012	5AT OTS AND HARNESS
12-AT-024	10/29/2012	BH GENESIS, VI EQUUS, BK GENESIS SPEED SENSOR DTC
12-AT-025	10/29/2012	BH GENESIS, VI EQUUS, BK GENESIS OIL TEMPERATURE SENSOR
Body		
12-BD-001	7/12/2012	MATTE PAINT DEALER INFORMATION
12-BD-002	12/12/2012	OUTSIDE REAR VIEW MIRROR NOISE REPAIR
12-BD-003	12/12/2012	STEERING WHEEL ORNAMENT REPLACEMENT
12-BD-004	12/19/2012	FRONT BUMPER LICENSE MOLDING LOCATION
Body Electrical		
12-BE-001	2/9/2012	VELOSTER BLUETOOTH FIELD FIX
12-BE-002	2/22/2012	BH GENESIS, VI EQUUS, DIS NAVIGATION
12-BE-003	2/29/2012	BLUE LINK TELEMATIC UNIT (TMU) POP UP MESSAGE DIAGNOSTIC

continued on page 6

2012 Technical Service Bulletins

continued from page 5

Body Electrical (continued)		
12-BE-004	2/29/2012	BLUE LINK TELEMATICS UNIT (TMU) REPLACEMENT
12-BE-005-2	6/1/2012	CLEARING DIAGNOSTIC CODES FROM BLUE LINK
12-BE-006	4/11/2012	2013 GENESIS COUPE BLUETOOTH PAIRING REQUIRE PARKING BRAKE ENGAGEMENT
12-BE-007	4/16/2012	WCS REPLACEMENT & RESET
12-BE-008	5/4/2012	BLUE LINK REMOTE START RETROFIT
12-BE-009-1	5/22/2012	YF BLUE LINK REMOTE START PART 2
12-BE-010	5/7/2012	2013 GENESIS COUPE WITH NAVIGATION LANGUAGE CHANGE AND RESETTING FACTORY DEFAULTS
12-BE-011	5/24/2012	POWER SEAT ADJ ELECTRICAL COMPONENTS
12-BE-012-1	7/9/2012	VELOSTER BLUE LINK TMU REPROGRAMMING FIELD FIX
12-BE-013	6/14/2012	VELOSTER HEAD UNIT SOFTWARE REPROGRAMMING
12-BE-014	7/2/2012	VELOSTER BLUE LINK TMU REPROGRAMMING FIELD FIX
12-BE-015	8/22/2012	HOW TO REMOVE AND REPLACE 2013 SANTA FE (AN) BLUE LINK TELEMATIC UNIT (TMU)
12-BE-016	10/10/2012	BH GENESIS, VI EQUUS DIS MAP UPDATE
12-BE-017	10/10/2012	NAVIGATION SOFTWARE UPDATE PURCHASE PROCEDURE
12-BE-018-1	10/30/2012	BACKUP CAMERA REPLACEMENT AND CAMERA MODULE COMPATIBILITY
12-BE-019	10/16/2012	IPOD USB DATA CABLE COMPATIBILITY
Brakes		
12-BR-001	4/27/2012	ABS SELF CHECK NOISE
12-BR-002	5/7/2012	BH GENESIS, VI EQUUS, FRONT BRAKE SHIM REPLACEMENT - FIELD FIX
Drive System		
12-DS-001	5/1/2012	MD ELANTRA DRIVE SHAFT NOISE
12-DS-002	5/1/2012	CM SANTA FE, EN VERACRUZ DRIVE SHAFT NOISE
Emission Control System		
12-EC-001	11/13/2012	ELANTRA (MD) FRONT MUFFLER RATTLE NOISE
Engine Electrical		
12-EE-001-1	9/21/2012	STARTER MOTOR LEVER REPLACEMENT
Engine Mechanical		
12-EM-001-1	11/16/2012	CENTER MUFFLER RATTLE SERVICE PROCEDURE
12-EM-002	6/1/2012	FUEL ECONOMY VALIDATION
12-EM-003	7/16/2012	YF SONATA TURBO EWGA INSPECTION AND ADJUSTMENT
12-EM-004	7/30/2012	CYLINDER HEAD COVER GASKET INSTALLATION
12-EM-005	8/15/2012	FRONT MUFFLER PIPE HANGER BRACKET RATTLE REPAIR
12-EM-006	9/12/2012	USE OF AFTERMARKET ENGINE OIL FILTERS CAUSING ENGINE KNOCKING NOISE
12-EM-007	11/16/2012	TURBOCHARGER WASTEGATE RATTLE
Fuel System		
12-FL-001	2/22/2012	MD/UD ELANTRA ECM UPDATE-COLD START OCV NOISE
12-FL-002	3/30/2012	ECM UPDATE FOR 12MY RB/FS MIL DTC
12-FL-003	4/10/2012	BK GENESIS 3.8L P0638
12-FL-004	4/10/2012	CM SANTA FE 3.5L P638
12-FL-005-1	12/18/2012	ECM UPDATE - MIL ON DTC P0456/P0128
12-FL-006	7/16/2012	RB ACCENT P0456, P0461 ECM UPDATE

Fuel System (continued)		
12-FL-007	7/20/2012	GDI IDB ECU UPDATE MIL ON DTC P0300 - P0306
12-FL-008	11/19/2012	CM SANTA FE 3.5L CYLINDER CONTRIBUTION BALANCE DTC
12-FL-009	11/19/2012	F/FIX BK GENESIS 3.8 GDI ECM UPDATE
12-FL-010	12/18/2012	ECM UPDATE MIL ON DTC P2192
General Information		
12-GI-001	1/17/12	USE OF SCISSOR AND TWIN-POST LIFTS ON 2012 AZERA
Heating, Ventilation and Air Conditioning		
12-HA-001	11/5/2012	BLOWER MOTOR REPLACEMENT
12-HA-002	11/15/2012	AC REFRIGERANT RECHARGE WARRANTY INFO
12-HA-003	11/21/2012	AC COMPRESSOR FIELD COIL SPECIFICATION
Manual Transmission		
12-MT-001	11/6/2012	GK TIBURON CLUTCH PARTS
Suspension System		
12-SS-001-1	3/20/2012	2012 MY ALIGNMENT SPECIFICATION
12-SS-002	3/19/2012	VI EQUUS VEHICLE TRACKING
12-SS-003	4/3/2012	VI EQUUS AIR SUSPENSION
Steering System		
12-ST-001	2/22/2012	HD ELANTRA EPS UPDATE DTC
12-ST-002	11/21/2012	CM SANTA FE POWER STEERING PUMP PARTS UPDATE

TechNet Tips

2013 Genesis Coupe Phone Pairing

On the 2013 Genesis Coupe equipped with the Navigation package, when the engine is running engage the parking brake to pair a phone. When the parking brake is not engaged while the engine is running, the "**Add to**" selection on the navigation screen is not available, and the user will not be able to pair a phone. **Note:** If the key is in the ACC or ON position (with engine NOT running), the parking brake does not need to be applied when pairing a phone.

2013 Genesis Coupe Language Change and Resetting Factory Defaults on Navigation System

On the 2013 Genesis Coupe equipped with the Navigation package, when the engine is running, the parking brake must be engaged to change the navigation language or resetting factory defaults. When the parking brake is not engaged while the engine is running, the "**Change**" and "**Factory Defaults**" selection on the navigation screen is not available, and the user will not be able to change the system Language or reset to Factory Defaults. **Note:** If the key is in the ACC or ON position (with engine NOT running) the parking brake does not need to be applied when trying to change the Language or resetting to Factory Defaults.

2013 Santa Fe User Mode Settings

User Mode Settings allow drivers to get detailed vehicle information and customize the operation of their 2013 Santa Fe Sport or Santa Fe. Three control buttons on the right side of the steering wheel let you toggle through five display modes that appear in the instrument cluster LED display.. You will need to know how to navigate the system to establish or check settings for items like Service Intervals, lighting preferences and displays. You can view the status of each of four different Display Modes. Choose to display Trip Computer, Audio, Navigation, and Service Interval. Additionally, use the Settings function to specify certain additional preferences.

Before we look at each Display Mode, let's explore the three display control buttons on your steering wheel. The top button or "Mode button" allows you to cycle through the various Display Modes. The vehicle will display the same mode until changed. In other words, whatever mode was used last, will display when a vehicle is restarted. The middle button is called the "Move" button. Once an information mode has been selected, the Move button let's you move through the various options within that Mode.

The Select or Reset button is the bottom of the three. Once you have navigated to your desired display feature. Use this button to select your preference. To reset the trip computer hold down the button until you see the numbers reset.

Now let's explore the five display modes a bit more.

Select the Trip Computer icon to display Range to Empty and Average miles per gallon or Trip data: Average miles per hour or the elapsed time the engine has operated since the last reset.

Choose the Audio icon and the current audio source information will display. Remember, the LCD Display mode buttons control display choices. Use the actual audio control buttons or voice commands (if equipped) to change your audio system input sources.

The Navigation icon lets you display the current compass direction or, if a turn by turn route is selected in the navigation system, (if equipped) then each successive turn instruction is displayed as the system prompts the driver.

PDI Form January Updates

All Hyundai Pre-Delivery Inspection (PDI) forms are now model-specific, and will be revised on a regular basis. On January 14, 11 PDI forms were updated and loaded onto both Hyundaidealer.com and Hyundaitechinfo.com. Only the Sonata Hybrid PDI form remains with a revision date of 10/19/2012. All other model PDI forms are now dated 1/14/2013.

Please check regularly at the websites to confirm that your dealership is using the latest PDI forms. **Note: You can identify the updates by the date appearing in the filename** once you call up the PDI forms from either of the Hyundaitechinfo.com or Hyundaidealer.com sites.

When the Service icon displays, it shows the miles or days until your pre-selected service interval. We will discuss how to activate this feature and specify intervals in a moment. Let's first look at how it works.

When you drive within 900 miles or 30 days of your selected service interval, the Service In... display appears for a few seconds each time the ignition is turned on. When you pass your service interval without getting service or resetting the display, the "Service Required" message displays for a few seconds each time the ignition is turned on.

The Settings Mode is used to adjust your Service Interval and set other feature preferences as well. We will come back to setting Service Interval, but now let's review the other preference settings available in the Settings Mode.

You can define preferences for the Auto Door Lock feature. Once in Settings Mode, use your Move button to scroll through the features. Find "Door". Pressing the select button will display three choices: Auto door lock function off, Auto-locking doors above nine miles per hour, or when the shifter moves out of Park.

You can also set the system to unlock all the doors when the vehicle is turned off, shifted to Park, or when the driver door unlock button is pressed twice.

To view the three preference options for the lamps, use the Move button to scroll to the Lamp preferences and press the Select button. "Headlamp Delay" keeps the headlights on for a few moments after the engine is stopped and illuminates the headlamps when the remote door unlock button is pressed on the key fob. In this mode, you can also turn on the exterior Welcome lights that light the door handle area. "Auto Triple Turn" which blinks the turn indicator three times when the turn lever is moved slightly is also available. All the Lamp functions offer ON or OFF preferences only.

Within the Settings mode, the "Settings" preference lets you select whether temperatures are displayed in Fahrenheit or Celsius. Here, you can turn the Welcome tone ON or OFF. Average fuel economy calculations can be reset as well. (This preference setting is handy for determining mpg in various driving conditions. Just reset upon entering the new conditions.) If you select "Auto Reset", the calculator will reset every time you fill the fuel tank.

The last preference setting is the Service Interval. This function can be turned off, or you can select an interval by pressing the Select Button. This will advance the number to be selected. Change number columns with the Move button.

Once you are familiar with the button functions and the menus, User Mode Settings become an effective and easy way to set driver preferences for many features on the 2013 Santa Fe and Santa Fe Sport.

Fix-It-Right

VEHICLE DRIFT/PULL TEST PROCEDURE – ALL MODELS

When a vehicle is received with a drift/pull condition the Service Consultant should document the customer comments using the Vehicle Drift or Pull Data Sheet.

- Many conditions can contribute to vehicle drift or pull, such as tire pressure, tire uniformity, wheel alignment, brake drag, road crown, cross winds, spring sag resulting in ride height differences, cargo load/weight distribution, and more.
- It is important to consider all potential effects when diagnosing and confirming a vehicle drift or pull condition.

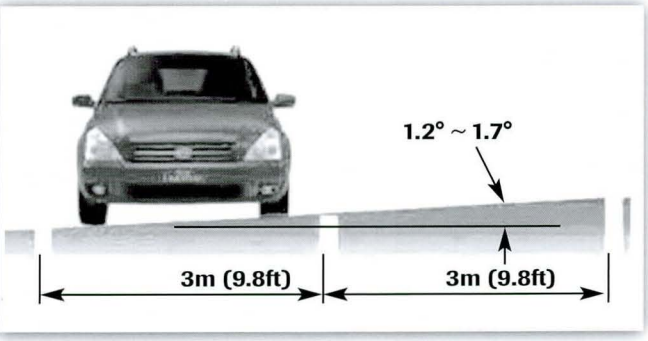
Technical Service Bulletin #13-SS-001 addresses alignment and drift/pull conditions in-depth, including alignment specifications for all 2013 models. Consult this bulletin for additional information.

Vehicle Drift/Pull Test Procedure

NOTE: Perform road testing with no passengers (driver only) and without carrying excessive weight.

SERVICE PROCEDURE:

1. Locate an acceptable road for testing which meets the following criteria:



RECOMMENDATIONS

- One or more lane road.
- Road is straight for at least 250m (820 ft).
- Road grade: 1.2 to 1.7 degrees maximum. The flatter the better.
- Lane width: 3 to 3.5 meters (10-11.5 feet).

CAUTIONS

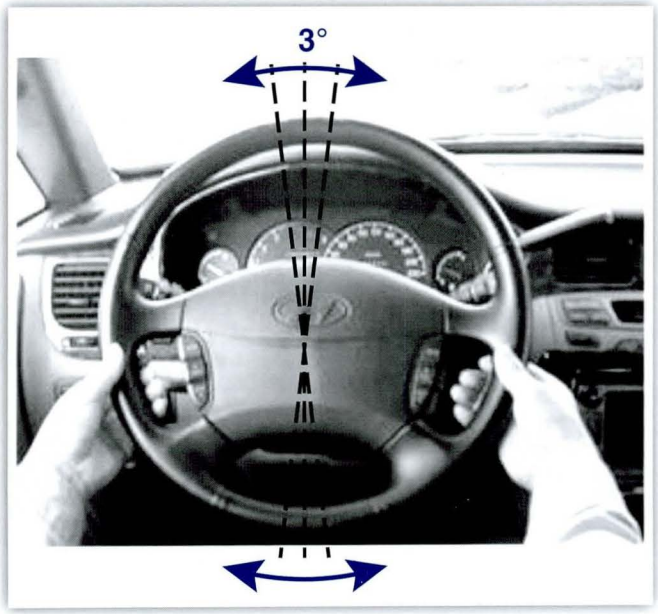
- Conduct the test on a smooth, even road without bumps or grooves.
- Do not test on a road with excessive grade/crown.
- Conduct the test on an uncrowded road.
- Ensure there is not a strong wind present during testing. ont hanger of the front muffler.

2. Before test driving, verify that all tires are OEM, correctly installed (directional tires, correct placement for staggered sizes, etc) and set to the correct inflation pressure.

NOTE For the best accuracy, it is recommended to use the GDS to measure tire pressures under Current Data within TPMS system.

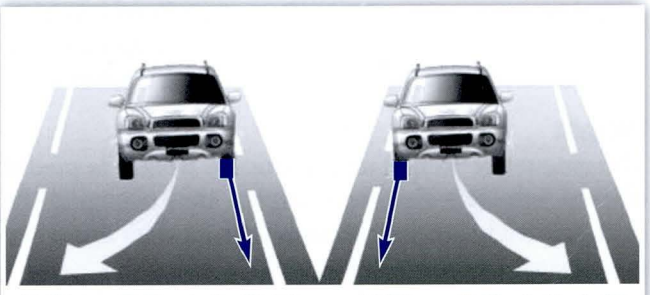
3. Approach the test road section and drive through at 40 MPH. Center the steering wheel, then slightly turn (~3 degrees) it to the left and to the right to get a feel for the steering center. Hold the steering wheel with a light touch on center.

NOTE If the vehicle drives straight but the steering wheel is off-center, it is required to perform an alignment to correct the condition.



4. Note which direction the vehicle has a tendency to drift towards. If the vehicle tends to go left, place the vehicle on the right side of the lane. If the vehicle tends to go right, place the vehicle on the left side of lane, as shown.

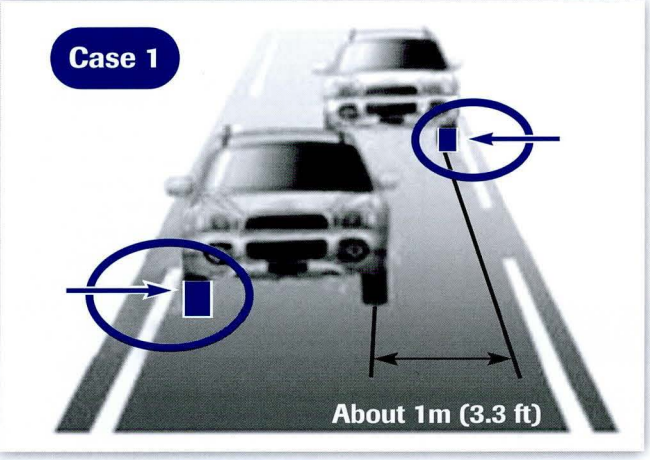
NOTE To ensure accuracy, it is recommended that the test be repeated with the vehicle travelling in the opposite direction on the same road.



<Drifting or Pulling to the Right> <Drifting or Pulling to the Left>

5. Take time measurements to see time how long it takes for the vehicle to move from one edge to the other edge (case 1), as shown. Use the conditions in the table below to confirm drifting or pulling condition.

#	Case 1
Condition	The vehicle moves from one edge of the lane to the other (about 1m or 3.3 feet).
Drift/ Pull Criteria	It takes 6 seconds or less at 40 MPH.

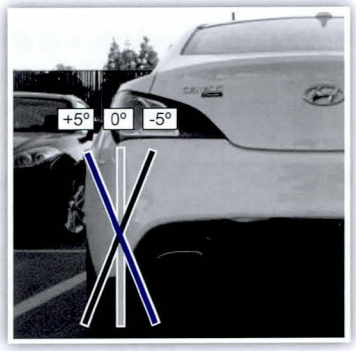


Alignment Angle Definitions

Camber

Angle between the vertical axis of the wheel and the vertical axis of the vehicle when viewed from the front or rear.

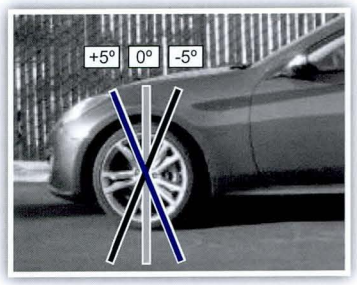
- Positive (blue line): The upper sidewall of the tire is tilted outwards away from the center of the vehicle.
- Negative (black line): The upper sidewall of the tire is tilted towards the center of the vehicle.



Caster

When viewing a car from the side, the angle of the vehicle's steering axis is defined by drawing a line through the upper and lower ball joints (for a double wishbone front suspension), or through the strut tower mount and the lower ball joint (for a MacPherson strut front suspension).

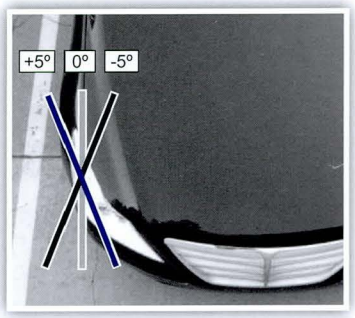
- Positive (blue line): The line leans towards the rear of the car.
- Negative (black line): The line leans towards the front of the car.



Toe

The amount the tires point inwards or outwards when viewing the car from above.

- Positive (blue line): Toe-in, the tires point inwards towards the center of the vehicle.
- Negative (black line): Toe-out, the tires point outwards away from the center of the vehicle.



Factors that Influence Vehicle Drift/Pull

Vehicle drift or pull can be attributed to several factors. Understanding what can affect it is imperative for anyone repairing a vehicle with a drift or pull condition.

Air pressure

Low front tire pressure can cause a vehicle to drift or pull towards that tire.

continued on page 12

Fix-It-Right

Vehicle Drift/Pull Test Procedure

continued from page 11

Alignment

- **Camber -** A vehicle will drift or pull towards the side with more positive front camber. As a rule of thumb, the camber difference between the front tires should be less than 0.5 degrees.
- **Caster -** A vehicle will tend to drift or pull towards the side with less positive caster.
- **Steering Axis Inclination (SAI) -** The angle formed by the line drawn through the steering pivot axis and a line at true vertical when viewed from the front of the vehicle. SAI is designed into a vehicle's suspension and aids straight-line stability. This angle can be measured by the alignment machine. For Hunter units, it is measured during the caster sweep process. It is useful for checking for damaged components when the SAI difference between left and right sides is more than 1 degree. If SAI is lower on one side of the vehicle it may indicate a bent lower control arm. If SAI is higher on one side of the vehicle it may indicate damage to the upper strut mount.
- **Thrust angle -** This is the direction the rear axle is pointing as a result of the rear toe angles and results in the steering wheel being off-center. To avoid this situation, rear camber and toe should be adjusted before the front when performing a four wheel alignment. After the rear is set, center the steering wheel, lock it in place, then adjust the front camber, caster, and toe (if applicable).

Tires

Tires can have a significant effect on vehicle drift or pull. Arranging tires on a vehicle according to StraightTrak can help improve a vehicle drift or pull condition. Tires contribute to vehicle drift or pull in the following ways:

- **Ply steer -** Ply steer is an inherent characteristic in a tire which results in a lateral force as the tire rolls. Rotating the tires may aid in cancelling out the effects of ply steer.
- **Conicity -** Tire conicity refers to the shape of the tire, and how cone-shaped it is. This can influence vehicle drift or pull. Conicity can be present in a new tire due to manufacturing, or in a used tire due to camber wear.

Weight

The amount of weight and where the weight is placed alters a vehicle's alignment angles, thus changing the drift/pull tendency. It is important to consider this when diagnosing a vehicle drift or pull.

Road Crown

Every vehicle will have a tendency to follow road crown towards the low side of the crown.

Brake Drag

If one side of a vehicle's brakes are dragging, the vehicle can have a drift or pull tendency towards that side. Inspect the brake system to ensure brake drag is kept to a minimum on all four wheels.

Cross Winds

Cross winds can push a vehicle towards one side of the road. It is important to conduct road testing by driving a vehicle in opposite directions to verify the effects of cross winds.

TECHNET TIDBIT

The HTSS Team receives all feedback provided from technicians in the field. If you provide feedback, **please make sure your email address listed in TACS is current.** If a comment requires a response, your email is the way the team replies.

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