



Audi
Truth in Engineering



Technical Service Webinar
July 12, 2016

Technical Service Webinar

All information discussed is already published and is being discussed as diagnostic aids. Please always review the most current publications for current information.

We will not be discussing specific vehicles, please use TAC tickets for this.

We are using the webinars as a way to increase communication to dealerships and technicians. This is a result of feedback from the dealer sub council

Agenda:

- What's new
 - TACS System attachment tips
 - Trailer Hitch installation/removal
- TSB Tips
 - Control Module Hard Reboot
 - ELSA Tips
 - TSB 2033806 Coolant loss from coolant valve
 - TSB 2031245 DTC P0299 - negative pressure deviation
 - VAS6774 Fuel Identification Kit/testing
- Twin Cup
 - Program Info
- Feedback
 - Please send email to artactivation@audi.com



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What's New
2016

TACS System attachment tips

- Total attachment size is 10 MB per update
- Many common file extensions are supported including but not limited to jpeg, AAC, mov, mp3, mp4, png, pdf etc.
- Avoid updating the case with website links as many require logins or are not accessible to unregistered users.
- If you are having trouble attaching files, right click the file, click properties and verify all attachments are less than 10 MB combined
- Once ready to submit the ticket, based on the size of the attachment(s) the submission of the ticket could take a few minutes. It is best to click the send button one time and wait for the confirmation screen. Clicking multiple times will only delay the ticket as well as add duplicate submissions into the TAC case.

The screenshot displays two sections of a web form. The top section, titled "Technician Questionnaire", contains various input fields and dropdown menus for recording repair details. The bottom section, titled "Attachments", includes a text input for "GFF Diagnosis ID:", a dropdown for "Select a worksheet to download" with a "Download" button, and a "File:" input with a "Browse..." button, "Attach Another File" button, and "Help" button.

Technician Questionnaire

Technician/Shop Foreman Direct phone number or Cell number

Number of visits for this repair attempt?

Has your Shop Foreman/Team Leader been involved in the diagnosis of this vehicle?

Enter complete repair order number

Repair Order Date (MM/DD/YYYY)

Numbers of days vehicle has been down this repair attempt

Total number of cumulative days vehicle has been down

Is this car a Tow In?

Is MIL on?

Have you performed a search of all service information (in ELSA for Tech Bulletins, Campaigns, etc.)?

Have you performed the necessary Guided Fault finding for all systems supported by the scan tool.

Has the customers concern been duplicated?

Has the vehicle been modified ?

Is the vehicle currently at the dealership?

Is the customer in a loaner car?

Transmission Serial Number (Transmission issues only)

Attachments

GFF Diagnosis ID:

Select a worksheet to download

Attachment Type:

File:

Trailer hitch installation/removal

- Once components are installed and SVM/activation code is performed, there are changes to the PR codes of the vehicle in car port, recoding of control units, and the changes documented on the SVM server
- Car port interfaces with ELSA, ETKA, and the SVM server
- Installation of trailer hitch alters operation of rear lid, camera and stability control, re-sale price is also affected although indirectly
- It is advised to leave all components installed to prevent any discrepancies in the vehicle that could lead to misdiagnosis or confusion for a new buyer at time of re-sale, however if the hardware must be swapped:
 - Hitch and hardware can be swapped however the control unit must remain
 - There is no SVM code to electrically remove or code out the trailer hitch module





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TSB Tips

Control Module “Hard” reboot

- All standard diagnosis should be performed first, this includes reading relevant MVB’s, performing test plans, checking connections and performing any needed circuit testing.
- Resets will likely not resolve static faults for sensors or circuits
- When is it necessary to perform a hard reset/ electrical reboot?
- After coding one or several control units it is possible to be left with several faults for no communication, function restrictions and missing messages. These faults should be cleared first as well as a 10 second key cycle performed. Vehicle should then be re-scanned for faults, if these faults remain however no other priority fault is stored, rebooting the module may be needed
- If there are operational concerns that cannot be explained by normal diagnosis(ex. DIS in cluster is always lit or flashes)
- If a SVM action has failed halfway through due to a tester crash or hang-up resulting in a module no longer communicating

Control Module “Hard” reboot

Connected Gateway

- Remove all electrical connectors and also disconnect the internal battery for at least 1 minute. Reconnect internal battery and restore electrical connections to the module.



Regular Control modules

- With the ignition in the on position or 15 power on, (ignition on/engine off). Remove the appropriate fuse or fuses or gain access to the control unit and electrically disconnect the module from the vehicle harness. After a few minutes, reconnect all electrical connections or fuses and cycle the ignition and erase any DTC's set. Evaluate the concern again. In the interest of safety, airbag modules should not be reset, follow normal service instructions.

TSB 2031245 DTC P0299 - negative pressure deviation; turbocharger excessive wastegate play

Under certain driving conditions, the linkage for the waste gate actuation can encounter excessive wear which leads to play at the waste gate flap. This leads to boost escaping through a loose flap, which sets DTC P029900 (Negative Pressure Deviation).

Before beginning service address all other conditions, such as leaks/blockage in the intake system or additional DTCs.

For sporadic, single occurrences of DTC P029900 (Negative Pressure Deviation), delete the DTC and check if it reappears during road test.

If the condition cannot be verified during road testing then release the vehicle.

Do not replace turbo unless instructed to do so by GFF.

Performing P029900 test plan

- Clear the fault then test drive the vehicle comparing specified and actual boost pressure.
- Once the underboost condition has been verified the Test Plan lists possible causes. Test each component per the repair manual in ELSA.
- Once all possible causes have been ruled out then the turbo charger can be replaced per the test plan.
- A TAC case is not required for turbo replacement.

Test step: Evaluation

Campaign: MESSAGE

Output: **Possible malfunction causes:**

- Check the components using the Repair Manual Engine Mechanical.

- ◆ Turbocharger Recirculation Valve -N249- faulty
- ◆ Leaks between turbocharger and intake manifold
- ◆ Hoses to Wastegate Bypass Regulator Valve -N75- faulty
- ◆ Wastegate Bypass Regulator Valve -N75- faulty
- ◆ Vacuum diaphragm or linkage of diaphragm for charge pressure control faulty
- ◆ Wastegate door in turbocharger leaking
- ◆ Charge Air Pressure Sensor -G31- faulty
- ◆ In countries with poor fuel quality a clogged catalytic converter may be another possible cause.

If none of the malfunction causes apply, replace the exhaust turbo charger.

P029900 further diagnosis

- Pressurize the intake piping to 20 psi then spray all components with soapy water to check for leaks. Some boost leaks may only occur after a certain amount of pressure.
- Perform exhaust back pressure testing before and after the catalyst to check for a restricted cat. (A general spec for exhaust back pressure at idle is less than 1 psi).
- Borescoping the front side of the catalyst through the oxygen sensor port to check for a melted honeycomb.
- Check the air filter for a restriction or something restricting the inlet side of the air box (nest, bag, etc.).
- Remove the exhaust from the turbo and check the impeller for looseness or bent or damaged fins.
- Inspect the walls of the turbo housing to see if the impeller has contacted the housing.
- Perform a specified/actual comparison then check the Warranty Key in ELSA to see if the ECM has been tuned or modified.

ELSA: Technical Product Information & Technical Service Bulletins hints and tips

The following slides and information are provided to assist a Service Technician ensuring all ELSA information is reviewed.

Technical Product Information: This is located under the main heading of Special Information. "Special information"> "Technical product information" heading in ELSA contains, but not limited to: Information regarding some system functionality descriptions, guidelines for outside influence damage or operation information, general service / maintenance operations, & and overall product information for systems or service.

- *Example: TSB 2028220/4-48 Steering wheel leather damage, all vehicles. This information guides a service technician that the damage to the leather is from outside influence and is not a warrantable condition. Shows picture of damage.*

Technical Service Bulletins: "Technical Service Bulletins" heading in ELSA contains, but not limited to: Information regarding service or a repair process that is part of a counter measure or an improved part, system software update, or updated specifications noted from the factory.

ELSA: Technical Product Information & Technical Service Bulletins hints and tips

Print Search Workshop info Feedback Settings Warnings Help

1 Appointment setting 2 Appointment prep. 3 Vehicle acceptance 4 Services rendered 5 Quality control 6 Vehicle return 7 Finishing

Home page / Technical Service Handbook (HST) (333386, WAU3FLFF6F1066321, A3 Cabrio qu2.0 I4162 DSG, 2015, 8V758L, CNTC, QSN, Gonzales)

Technical Service Handbook (HST)

- Technical Service Handbook (HST)
 - What's New
 - Campaigns
 - Special Information
 - Technical product information**
 - Access control, start authorization, anti-theft protection
 - Assistance systems, comfort controls
 - Body attachments and installations
 - Chassis
 - Climate control
 - Engine
 - Entire vehicle
 - Information, navigation, communication, entertainment
 - Lighting, signaling
 - Power, vehicle electrical system, data transfer
 - Transmission
 - Vehicle service
 - Technical Service Bulletins**
 - Access control, start authorization, anti-theft protection
 - Assistance systems, comfort controls
 - Body

Note: "Special information"> "Technical product information" heading in ELSA contains, but not limited to: Information regarding some system functionality descriptions, guidelines for outside influence damage or operation information, general service / maintenance operations, & and overall product information for systems or service.

Note: "Technical Service Bulletins" heading in ELSA contains, but not limited to: Information regarding service or a repair process that is part of a counter measure or an improved part, system software update, or updated specifications noted from the factory.

ELSA: Technical Product Information & Technical Service Bulletins hints and tips

The screenshot shows the ELSA software interface. At the top, there is a menu bar with 'Print', 'Search', 'Workshop info', 'Feedback', 'Settings', 'Warnings', and 'Help'. Below the menu is a toolbar with various icons. The main window has a breadcrumb trail: 'Home page / Technical Service Handbook (HST) (333386, WAU3FLFF6F1066321, A3 Cabrio qu2.0 I4162 DSG, 2015, 8V758L, CNTC, QSN, Gonzales)'. On the left, a tree view shows the 'Technical Service Handbook (HST)' structure, with 'Special Information' > 'Technical product information' > 'Engine' selected. The main content area displays a list of technical information items:

- 01 Automatic detection of unauthorized chip tuning (TD1 warranty key) (2028842/2)
- 01 Idle speed characteristic during cold start (2028344/5)
- 10 Engine replacement, checking for debris lodged in transferred assemblies (2018288/5)
- 17 Checking engine oil level with dipstick T40178, but adjustment values are not available in Elsa (2038129/3)
- 17 Engine oils that meet Audi Oil Quality Standards 501 01, 502 00, 505 00, 505 01, and 504 00/507 00 (2010043/14)
- 19 Identifying and mixing factory fill engine coolants (2025303/5)
- 37 Vehicle lacks power or will not move after stop due to simultaneous depressing of the brake and accelerator pedals (2003658/6)

A red-bordered box highlights the following note:

Note: The above shows the content of the Engine folder under the "Special Information"> "Technical product information" heading.

ELSA: Technical Product Information & Technical Service Bulletins hints and tips

The screenshot shows the ELSA software interface. At the top, there is a menu bar with options: Print, Search, Workshop info, Feedback, Settings, Warnings, Help. Below the menu bar is a toolbar with various icons for navigation and actions. A progress bar at the top indicates the current step: 1 Appointment setting, 2 Appointment prep., 3 Vehicle acceptance, 4 Services rendered, 5 Quality control, 6 Vehicle return, 7 Finishing. The main content area displays a list of technical service bulletins under the heading "Technical Service Handbook (HST)". The left sidebar shows a tree view of the HST structure, with "Engine" selected. The main content area lists the following bulletins:

- 00 Audi engine oil-filling procedure (2033576/2)
- 00 Oil draining - cleanliness (2029737/2)
- 01 Engine warning light on after engine replacement (2038166/1)
- 19 Coolant warning light on, coolant level close to or below minimum (2039777/2)
- 20 MIL on (DTC P045600 - EVAP system leak detected NVLD (very small leak)) (2035073/9)
- 27 Low battery charge: excess current draw location (2029010/2)
- 57 "Is key in vehicle?" message appears with key in vehicle (2040239/2)
- 97 Harness damage from animal bites (2021169/2)
- 97 Sporadic DTCs - contact check (2013504/8)

A red-bordered box highlights the following note:

Note: The above shows the content of the Engine folder under the "Technical Service Bulletins" heading.

ELSA: Technical Product Information & Technical Service Bulletins hints and tips

Additional Notes: Please be aware that although information is listed under the folder of Technical Product Information, the heading of the actual file will denote it as a Technical Service Bulletin.

Although some of the same information may be in both locations, the best practice is to review information in both locations. This is to ensure all aspects of a customer's concern, that are documented in ELSA, be reviewed.

TSB 2033806 Coolant loss from coolant valve

- Coolant loss is found from one or more control valves: N82, N509, or N488. Coolant may have migrated into the wiring harness through the connector and into various control units.
- Inspection of the coolant control valves N82, N509, or N488 reveals the presence of coolant inside the electrical connector.
- Improved coolant control valves are available to rectify the problem.
- Further diagnosis is required after valve replacement to identify the full extent of the damage. Check the ECM, TCM, and HVAC modules for the presence of coolant at the connector.

TSB 2033806 Coolant loss from coolant valve

examples of what you might find during your inspection, although all cases may not be as severe as pictured, based on how long the valve has been leaking.

Example of coolant leaking through the valve.



Example of coolant leaking through the harness connector.



TSB 2033806 Coolant loss from coolant valve

Control module inspection

Check the ECM, TCM, and HVAC modules for corroded pins or the presence of coolant. If a corroded pin is found then that module will need to be replaced. If the pins are wet but no corrosion is found then clean the module and continue with repairs.



TSB 2033806 Coolant loss from coolant valve

The coolant is pushed through the harness by the pressure in the cooling system. The wiring will need to be cut back until dry non-corroded wire is found then new wire and terminal ends can be installed.

If the coolant has traveled all the way to the module then it is recommended to overlay the wiring for that coolant valve circuit from the valve to the module using new terminal ends. The plastic harness connectors can almost always be cleaned and re-used, unless they fail to hold the terminal end in place.

Complete harness replacement is a last resort, most harnesses can be repaired without issue.



When considering harness replacement it is recommended the technician consult the Shop Foreman and Service Manager before doing so to decide if it is absolutely necessary.

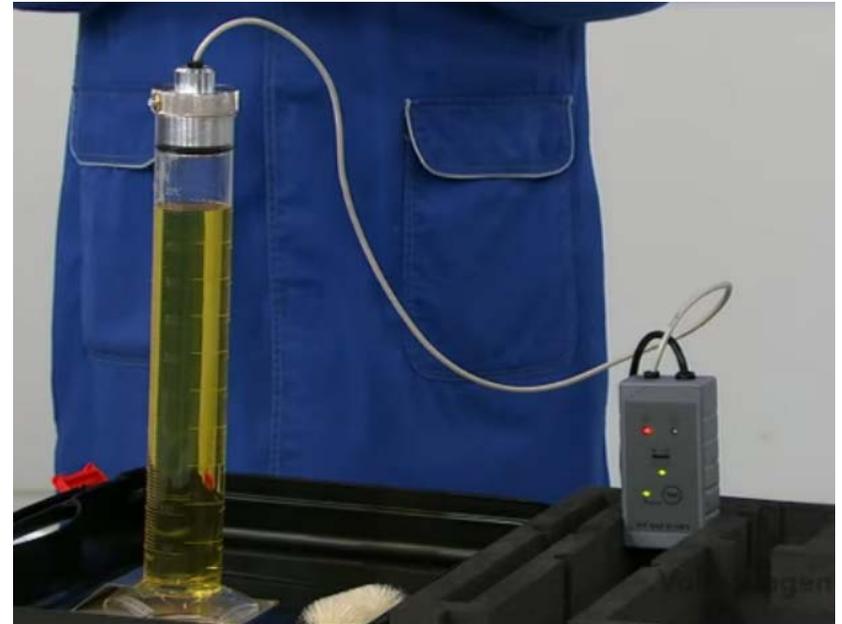
Perform a cost analysis of the repair to decide if multiple circuit overlays is a more cost effective and time efficient repair than complete harness replacement.

VAS6774 Fuel Identification Kit

- VAS6774 is a tool primarily used for testing Diesel fuel density and to test for the presence of gasoline in the Diesel fuel.
- This tool was auto shipped to all Audi dealers at the end of 2015.
- There is a 27 minute training video explaining the components of this tool, how to properly use it, and how to properly clean it.
- The video also explains what the readings from the tester indicate.
- Video can be found on Youtube by searching “VAS6774”.
- This is a preliminary test and does not take the place of sending the fuel out for comprehensive testing in the lab.

Petrol (Gasoline) Residue Test

- VAS6774 tests for gasoline hydrocarbons evaporating from the diesel fuel.
- Perform the self test before testing any fuel to make sure the sensor is ready for use.
- It is vital not to leave the fuel sample in the open air because the fuel can fully evaporate from the diesel sample causing a false passing test.
- The test will result in a pass or fail indication after approximately 3 minutes



Fuel Density Testing

- Insert the Hydrometer into the graduated cylinder making sure it is floating freely and is not resting on the walls of the cylinder.
- Read the value of the hydrometer to determine if the fuel density is correct.
- By reading the fuel density you can determine if the fuel is gasoline, diesel, water, or a mixture of fuels.





Twin Cup Challenge

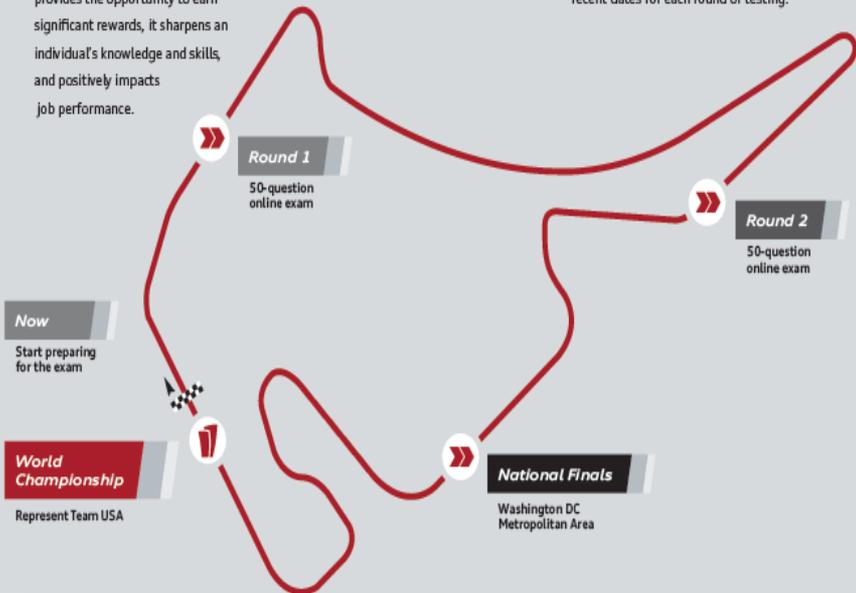


2016

The Challenge begins

The Twin Cup Challenge tests participants' knowledge of the Audi brand and his or her job role. In addition to online testing, participants must perform hands-on activities, such as installing a roof rack or selling accessories. Refer to page 5 for actions you should be taking to prepare for round 1. Competing in the Twin Cup Challenge not only provides the opportunity to earn significant rewards, it sharpens an individual's knowledge and skills, and positively impacts job performance.

Following are the testing details for the Twin Cup Challenge. Official rules can be found on the Audi Top Service Winner's Circle, accessible via iAudi. Be sure to look for upcoming emails with the most recent dates for each round of testing.



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Round 1 (Starts in July)

- ▶ Qualifier: Must be certified by fulfilling all Audi Academy requirements.
- ▶ 50-question online exam.
- ▶ Individualized tests for Service Technicians/Shop Foremen and Service Consultants.
- ▶ Two-minute time limit on each question.
- ▶ Participants may pause the exam, then resume later.
- ▶ Contestants will have 12 days to complete the exam.

The 200 top-scoring Technicians/Shop Foremen and 125 top-scoring Service Consultants will be awarded a \$50 debit card and advance to Round 2 of the competition. All participants will receive a thank you award for taking the test.

National Finals (October)

- ▶ Location: Washington, D.C., metropolitan area
- ▶ Qualifier: All CSI qualifiers must be met by the end of the appeals period for Round 2
- ▶ Hands-on proficiency testing.
- ▶ Event evaluates the entire Audi Top Service experience.
- ▶ Service Consultants
 - ▶ Customer service and product knowledge will be emphasized.
 - ▶ Simulations of customer situations will be implemented.
 - ▶ Proficiency in role-defined activities.
- ▶ Scoring based on accumulating the most points for each category.
- ▶ Technicians and Shop Foremen
 - ▶ Series of timed repair events.
 - ▶ Proficiency in performing repairs thoroughly and correctly according to proper Audi-specified repair procedures.
- ▶ Scoring based on accumulating the most points for each category.

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Round 2 (Starts in August)

- ▶ 50-question online exam.
- ▶ Higher level of difficulty.
- ▶ Contestants will receive test-prep materials by email prior to exam.
- ▶ Review of various SSPs, TSBs, web-based study programs or vehicles.
- ▶ 12 days to complete the exam.

The top 40 Service Technicians/Shop Foremen and top 20 Service Consultants will receive a \$100 debit card reward.

World Championship (2017)

- ▶ Top three Technicians/Shop Foremen and top three Service Consultants from National Finals will represent Team USA and compete in the 2017 Audi Twin Cup World Championship, hosted by Audi AG.
- ▶ The World Championship date and location will be communicated by early spring 2017.
- ▶ Participants' dealerships must pass the technical fault-finding portion of the Mystery Shop in Wave 1 or 2 in 2017
- ▶ Participants' dealerships must be at or above National Average for CSI for a period of time determined by Audi AG

Failure to achieve the qualifiers set by Audi AG may result in removal from the team. AoA reserves the right to move the next qualified participant onto Team USA.

Twin Cup

2016 Audi Twin Cup Challenge – tentative program schedule

Program Announcement – June 17, 2016

Round 1 – July 18 – 29

Round 2 – August 22 – September 2

National Finals – estimating Oct. 22 – 26

This year's competition has strict CSI qualifiers however in Rounds 1 and 2 there are still opportunities to earn money rewards

For more information on the Twin Cup Challenge:

iAudi > Service > Audi Top Service Winner's Circle > select Twin Cup Challenge under Programs



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Feedback

Please send email to artactivation@audi.com