



Audi
Truth in Engineering



Technical Service Webinar
November, 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
 - 80B8 update
 - 80B9 update
- TSB Tips
 - TSB 2043851 Q7 Tail gate
 - TSB 2038119 Oil minimum warning
 - TSB 2045549 DTC P001600 Repair Authorization
 - No fault diagnosis on power rear lids
 - TSB 2045050 Base gearbox replacement
- Twin Cup
 - Program update
- Feedback
 - Please send email to artactivation@audi.com



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What's New
2016

80B8/80B9 Campaigns

- 80B8 and B9 are similar in nature, however address two different systems
- If a TAC is opened:
 - Separate TAC tickets needed
 - 80B8 affects N82: use the A/C concern group
 - 80B9 affects N488: use Engine electronics concern group
- N82 affects climate control system operation
- N488 affects ECM and possible drivability concerns
- If coolant migration is found at the valve, the controlling module should be inspected. Take photos of the associated connections and attach to TAC ticket regardless if migration is found at the module.
- Having photos ready at the start of the ticket will reduce handling time
- As these repairs are fairly straight forward, web cases are best for these two concerns
- Any subsequent damage to components as a direct result of the coolant migration should be repaired within the scope of the campaign.

80B8 Campaign

Description:

On Audi A8 vehicles without auxiliary heating manufactured within a specific period, the coolant shut-off valve N82 may sporadically stick. If this happens, the heating output of the air conditioner will be reduced.

Corrective Action:

Inspect the N82 valve and valve connector

- If coolant ingress is not found at N82, follow the campaign instructions.
- If coolant ingress is found in the N82 connector, inspect plug connections at J255
- If coolant is found at J255, replace the N82, N82 connector, J255, associated pins and wiring
- If coolant ingress is found at N82 but not at J255, replace N82, connector and wiring back to the J255

Additional Information:

- TAC cases are not needed for this campaign however if one is made take pictures of any damage that is found and update the case with the work performed.

80B8 Campaign

Example photos



80B9 Campaign

Description:

Over time, it is possible for coolant to leak through a coolant valve wire connection, causing coolant migration into the engine control module. If this happens, it can cause a short circuit, placing the vehicle into "limp-home mode," or possibly even cause a stall without warning. Stalling can lead to a vehicle crash.

Corrective Action:

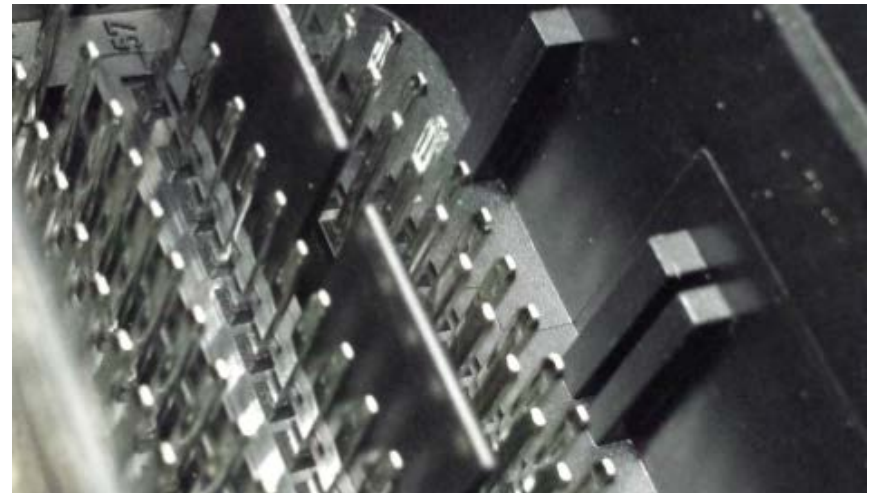
Replace affected coolant valve and inspect for coolant leaking through the valve electrical connector.

Additional Information:

- TAC case not required unless coolant is found in the connector
- Inspect the N488 valve and connector for coolant and/or corrosion
- If coolant is present **-STOP-** and take a picture of the N488 harness connector and create a technical assistance case for further direction of repair.
- If coolant is not present then complete the repair outlined in the campaign.

80B9 Campaign

Example photos





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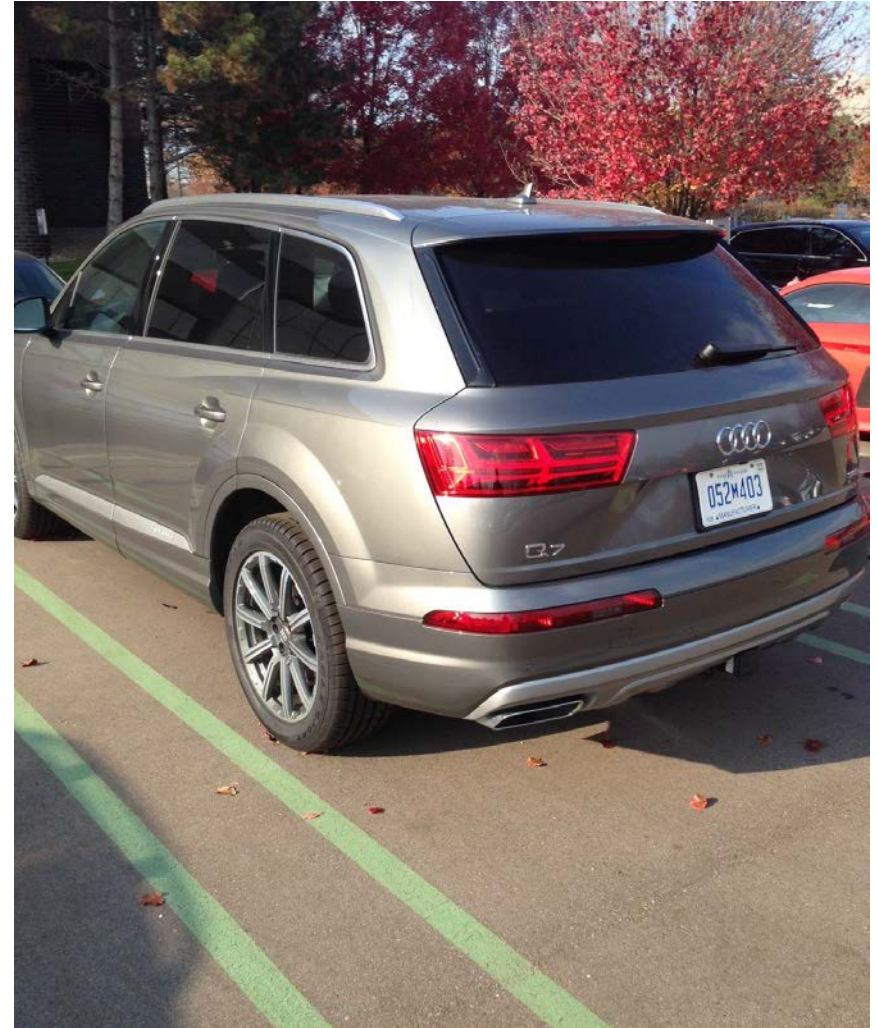


TSB Tips

TSB 2043851

Rear lights do not switch from bumper to hatchgate

- All information is already published in above TSB
- Vin range WA1%F7%H%000001 – 010119
- Early build vehicles only
- G525/G526 switch mounting positions have changed and are now located on the body instead of the trim panel
- Customer may have a concern where the MMI displays “Vehicle lights malfunction”
- The actuation of the Rear Lid Closed Sensor G525/G526 relies on a correct latch angle to ensure that both paddles of the sensor are fully depressed. An incorrect latch angle can cause activation malfunctions or damage to the sensors.
- In many cases the customer’s symptom is not present and the MVB’s are correct.



2017 Q7 Rear Lid

TSB 2043851/2 cont.

First check the Measured Values for the Rear Lid Closed Sensor G525/G526 in the comfort module, J393 (address 46) with the rear lid closed

The MVB's should read as follows:

- Rear lid -closed- sensor 1 = open
- Rear lid -closed- sensor 2 = closed
- Main notch contact of rotary latch = open
- Pre-engagement contact for rotary latch = open

These MVB's provide the readings needed to diagnose the vehicle if:

- The malfunction lies outside of TSB 2043851
- One of the switches reads incorrectly
- DTC's set for any of the rear lid components
- Rear lid not opening or closing for any reason

2017 Q7 Rear Lid

TSB 2043851/2 cont.

Perform a visual inspection of the clearance between the latch striker mounting studs to the lock carrier trim. If the lock carrier trim is correctly installed, there should be no more than five threads visible between the head of the nut and the lock carrier trim. If more than 5 are present it is possible that the trim carrier is being pushed upwards thus moving the sensors out of position, installation of the striker should then be checked.

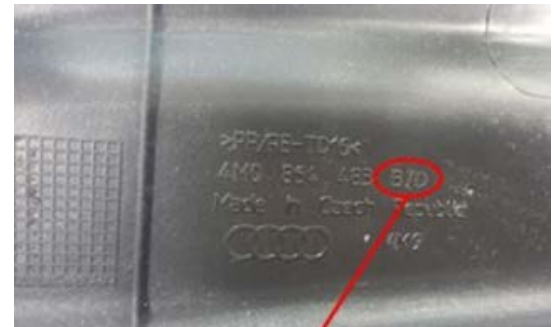
Inspect the inside of the trim for the part number index and version, replace if the older version is found or the part is physically damaged.

Parts affected:

- B/D index and version 04S or lower
- C/E index and version 04S or lower

Parts not affected:

- F/G/H/J index and all versions



2017 Q7 Rear Lid

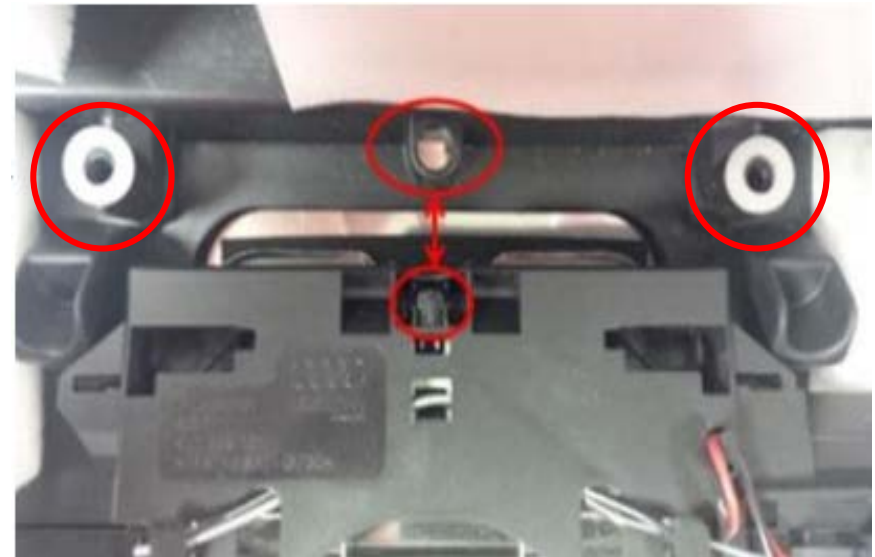
TSB 2043851/2 cont.

Inspect the installation of the sensor assembly to the trim panel.

Ensure the washers are installed between the sensor assembly and the trim panel.
(washer part number N 912 006 01)

Ensure the sensor assembly fits correctly at the screw points and the indexing pin is fit inside the locating hole on the trim panel.

Incorrect installation of the trim to the body or the sensor assembly to the trim panel can cause incorrect readings from the Rear Lid Closed sensors.

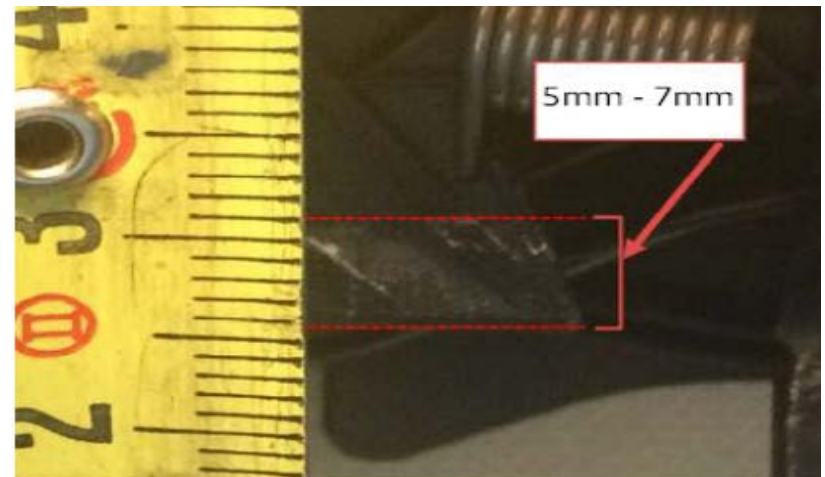


2017 Q7 Rear Lid

TSB 2043851/2 cont.

Finally, the mounted angle of the Rear Lid Latch will be checked.

- Apply a marking medium on the inner edge of the Rear Lid Latch.
- Close the rear lid normally, then open it normally. This will allow a mark to be transferred to the paddle surfaces.
- Measure the width of the mark transferred to the paddles. The ideal width is 6mm +/- 1mm.
- If this dimension is achieved, no further work is necessary.
- If the Rear Lid Latch angle is out of adjustment the contact width will be approximately 4mm or less. If this is the case, the Rear Lid Latch angle will need to be adjusted inward for higher contact with the paddles.



2017 Q7 Rear Lid

TSB 2043851/2 cont.

To check the rear lid latch angle:

- Source a carpenter's square with metric graduation.
- Apply a small piece of tape to the areas that will come in contact with the square to protect the paint. Apply the square to the three points on the rear lid shown in the illustration.
- The lower axis of the square must contact the lug of the rear lid latch
- The gap between the lower edge of the rear lid and the square should ideally be 15mm +/- 1mm.



2017 Q7 Rear Lid

TSB 2043851/2 cont.

To adjust the rear lid latch angle:

- Source a 2 x 4 board 100cm long
- Take precautions to avoid scratching the bumper with the 2 x 4
- To move the Rear Lid Latch angle forward, bring the rear lid down and rest the latch on the 2 x 4 board
- Push down slightly on the rear lid with light pressure to move the latch angle.
- Reapply the marking medium, open and close the rear lid, and recheck the contact width on the paddles. Repeat this process until a contact width on the paddles is 6mm +/- 1mm.



TSB 2038119 "Oil minimum warning, add one quart of oil" message appears, but oil level is above minimum (but not overfilled)

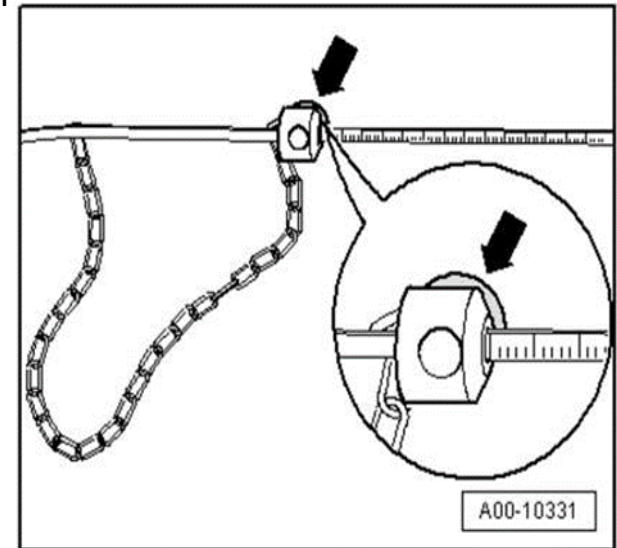
Condition requirements:

- The message "Oil minimum warning, add one quart of oil" appears in the instrument cluster.
- The oil level is above the minimum but not above the maximum level (when measured with the special tool T40178).
- There are no DTCs related to oil level stored in the ECM memory.

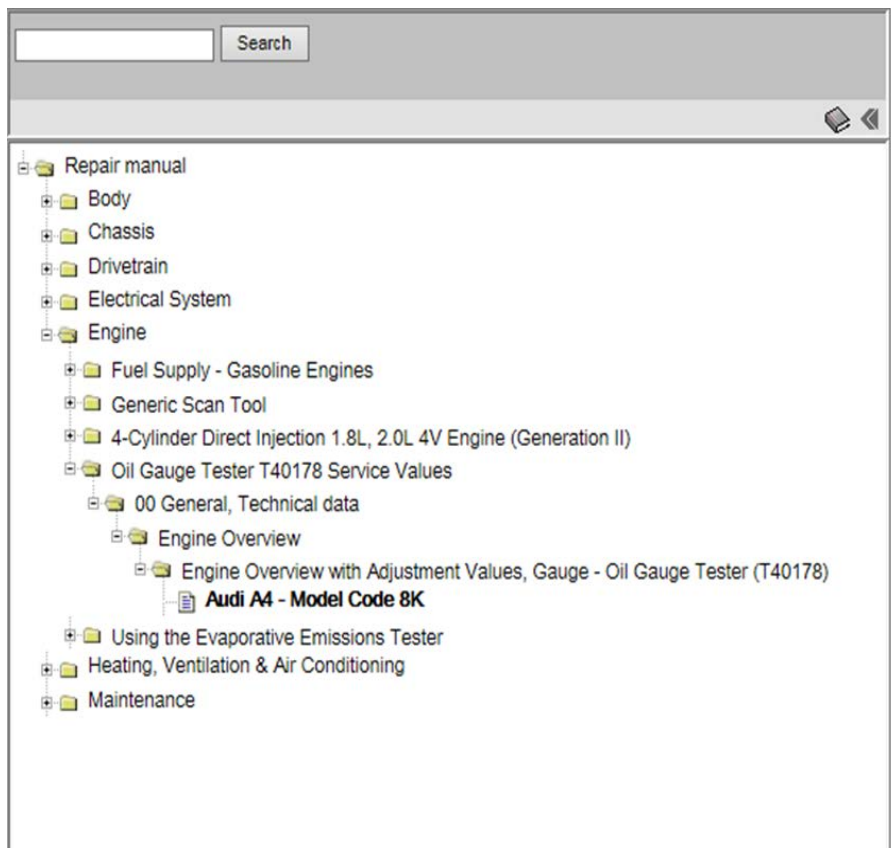
Note: If the crankcase is overfilled with oil it can cause this warning. Correct the oil level and do not replace the oil level sensor.

- An updated oil level sensor is available to correct the condition
- After sensor replacement, set the oil level is at max (but not exceeding max), with engine oil temperature at 80°C using special tool T40178.
- Perform the "oil level/temp adaptation" in the cluster (address word 17).

Note: Do not perform an oil consumption test!



Engine oil level adjustment values chart



Audi A4 - Model Code 8K

Gasoline engines

Engine Code	Construction/ Amount of Cylinders	Displace- ment [l]	Injection System	Output [kW] (RPM [min ⁻¹])	Torque [Nm] (RPM [min ⁻¹])	Camshaft Drive	Stroke [mm]	Bore [mm]	C ompression Ratio [:1]	Adjustment Value for Adjuster Ring	Min Oil Level	Max Oil Level
CABA	R4	1.8	FSI	88 3650- 6200	230 1500- 3650	Chain	84.100	82.500	- → Note	39	0	24
CABB	R4	1.8	FSI	118 4500- 6200	250 1500- 4500	Chain	84.100	82.500	- → Note	39	0	24
CAEA	R4	2.0	FSI	132 4700- 6000	320 1500- 4200	Chain	92.800	82.500	9.60	39	0	24
CAEB	R4	2.0	FSI	155 4300- 6000	360 1500- 4200	Chain	92.800	82.500	9.60	39	0	24
CAED	R4	2.0	FSI	162 4300- 6000	360 3000- 5000	Chain	92.800	82.500	9.60	39	0	24
CAKA	V6	3.0	FSI	245 5500- 7000	440 2900- 5300	Chain	89.000	84.500	10.50	132	0	13
CALA	V6	3.2	FSI	195 6500	330 3000- 5000	Chain	92.800	85.500	12.50	132	0	13
CABA	V6	2.0	FSI	245 5500- 7000	440 2900- 5300	Chain	89.000	84.500	10.50	132	0	13

TSB 2045549 MY 16/17 2.0TFSI, MIL on, DTC P001600

Repair Authorization

In an effort to gain information on the DTC codes for the vehicles listed above, we are asking that you contact the Audi Technical Assistance Center (TAC) before replacing any parts. This will assist us in diagnosing any potential issues with the condition noted above.

- Customer may report MIL on, DTC P001600 (Crankshaft/Camshaft correlation) is stored in the ECM.
- No changes to production have been made, as no issue has been identified. Investigation is ongoing.
- Verify the condition, contact a TAC consultant before proceeding. Please attach the DTC and diagnostic log to the TAC ticket.
- We will give you testing steps to perform and possible repair direction based on findings.

Power Liftgate A7/Q3/Q5/Q7

No fault diagnosis

In this example we will look at an RS7

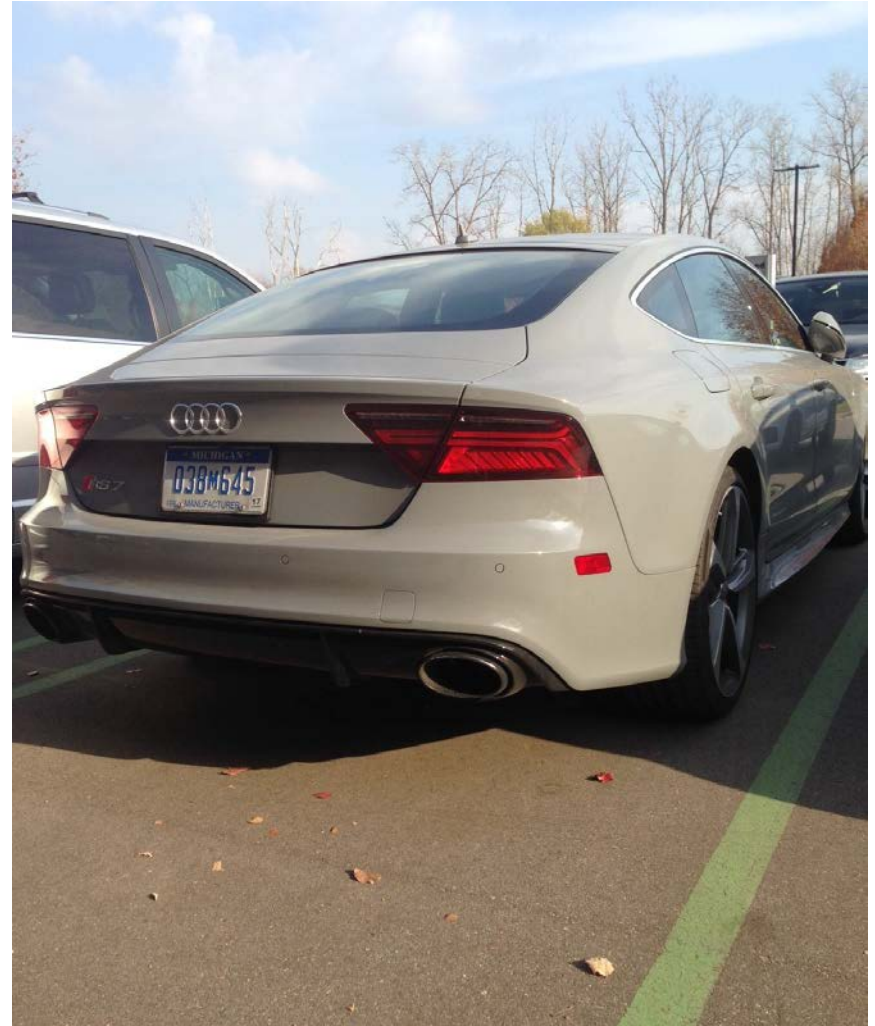
MVB's will be located in 46 and 6D

Components to inspect for operation:

- Central locking latch V53, F124
- Closing assist motor V382, F332/F333
- Rear lid closed sensors G525/G526
- Rear lid motors V444/V445

MVB's should be checked with the rear lid in the open and closed position as well as in the working and failed state.

MVB's may have different labels, blocks or status displays between vehicles



Power Lift gate A7/Q3/Q5/Q7

No fault diagnosis

Customer states:

- The rear lift gate does not open
- Bumper light changeover does not occur
- There is a warning for the lift gate not closed displayed

Dealer has:

- Verified the concern
- Vehicle scanned and no faults are stored

Possible failure modes:

- Rear lid opens incrementally
- Rear lid only pops open and does not lift
- Rear lid does not close or closes incrementally
- Rear lid must be manually opened but will close electrically
- Rear lid must be manually closed but will open electrically

Power Liftgate A7/Q3/Q5/Q7

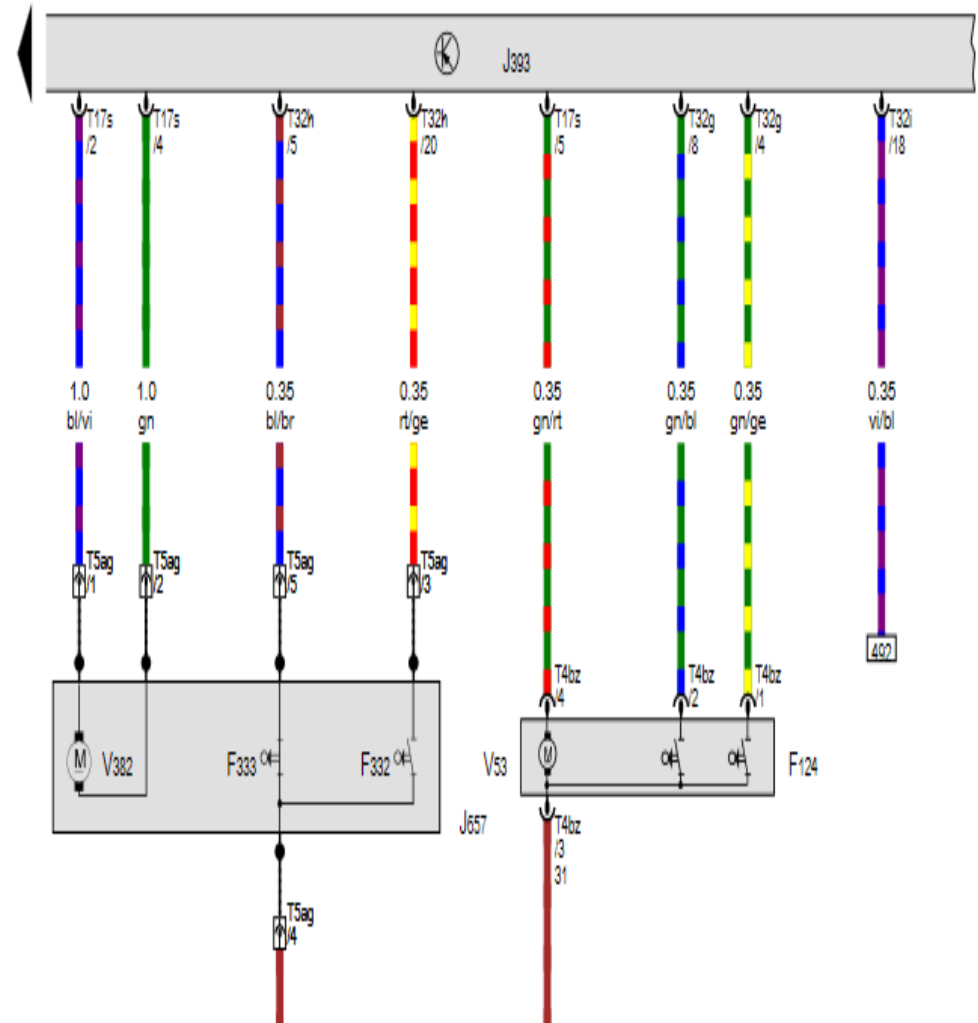
No fault diagnosis

What do we know about this circuit?

- J393(46) is the input module
- MVB readings will be found in 46
- F332, F333, F124 are mechanical switches
- Switches share common grounds

How do we test these circuits?

- Measure resistance of the circuits
- Check circuits for short to power or ground
- Use DVOM to check switch operation
- Compare DVOM and MVB readings
- Compare MVB reading to a like vehicle
- Check physical installation of components
- F124 could be open at pivot point in the rear lid harness



Power Liftgate A7/Q3/Q5/Q7

No fault diagnosis

Below shows MVB readings from 46 module with rear lid CLOSED

Address	ID	Measured value	Value	Unit	Target value
0046	2.1	Contact switch rear lid driver's door - CAN signal	not operated		
0046	2.3	Rear lid pre-latch - hardware signal	closed		
0046	2.4	Rear lid main-latch - hardware signal	closed		
0046	16.1	Closing assistance - hardware input	retracted		
0046	27.3	Rear lid position - CAN signal	15		0 <= x <= 100
0046	47.1	Rear lid sensor, sensor 1	not installed		
0046	47.2	Rear lid sensor, sensor 2	not installed		
0046	47.3	Rear lid sensor, sensors 1 and 2	not installed		
0046	180.4	Read lid position (in percentage)	15		

Below shows MVB reading from 46 module with rear lid OPEN

Address	ID	Measured value	Value	Unit	Target value
0046	2.1	Contact switch rear lid driver's door - CAN signal	not operated		
0046	2.3	Rear lid pre-latch - hardware signal	open		
0046	2.4	Rear lid main-latch - hardware signal	open		
0046	16.1	Closing assistance - hardware input	extended		
0046	27.3	Rear lid position - CAN signal	112		0 <= x <= 100
0046	47.1	Rear lid sensor, sensor 1	not installed		
0046	47.2	Rear lid sensor, sensor 2	not installed		
0046	47.3	Rear lid sensor, sensors 1 and 2	not installed		
0046	180.4	Read lid position (in percentage)	112		

Power Liftgate A7/Q3/Q5/Q7

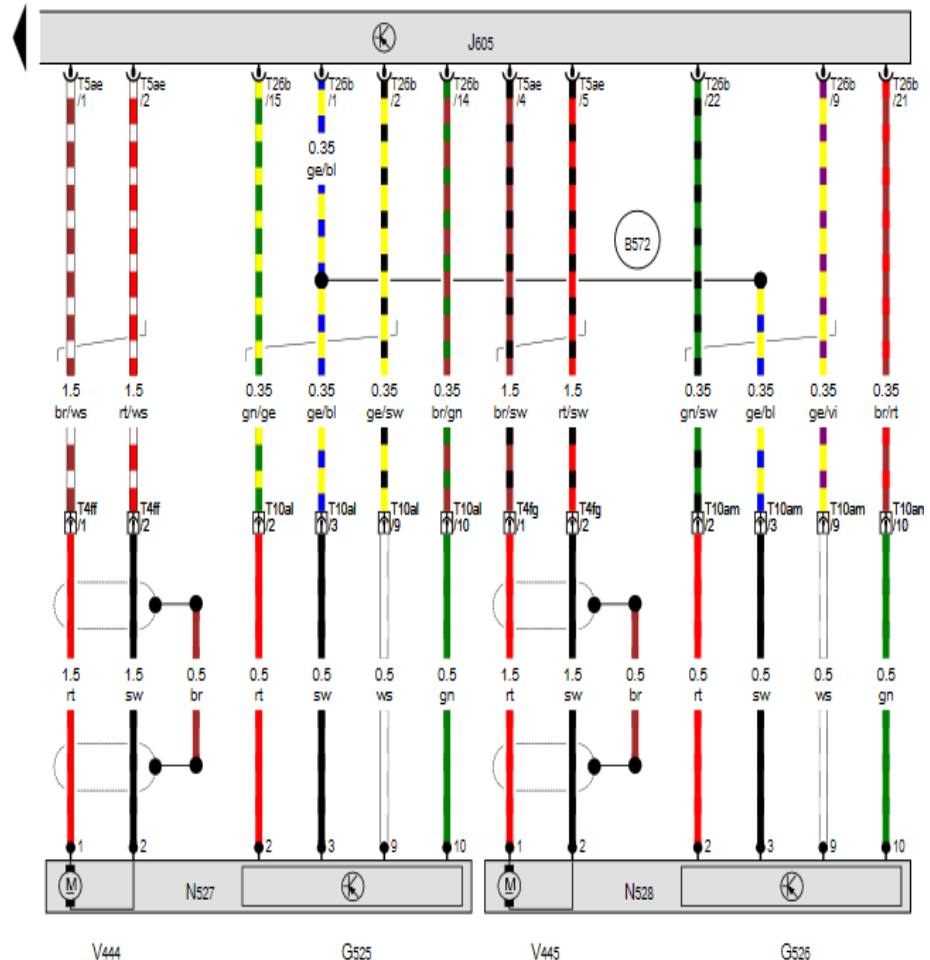
No fault diagnosis

What do we know about this circuit?

- J605(6D) is the input module
- MVB's will be found in 6D
- G525/G526 are hall sensors and integrated into V444/V445 motors
- There is an inline connection that can be checked or accessed for diagnosis
- G525/G526 are the rear lid closed sensors
- **NOTE:** Since these sensors are integral to the motor, direct testing may not be possible

How can we test this circuit?

- Measure resistance of the circuits
- Check circuits for short to power or ground
- Compare MVB reading to a like vehicle
- Check physical installation of components



Power Liftgate A7/Q3/Q5/Q7

No fault diagnosis

Below shows the MVB readings of 6D when the rear lid is CLOSED

Measured value name	ID	Value
▾ Rear lid position, relative	IDE02017	
	MAS00194	0 %
▾ Tailgate condition	IDE02092	
	MAS00194	locked
▾ Status of closing assist	IDE02094	
	MAS00194	retracted
▾ Status of rear lid lock	IDE02093	
Terminal 1	MAS01943	Closed
Terminal 2	MAS01944	Closed
▾ Reason for cancellation of rear lid proce	IDE05229	
	MAS00194	completed successfully

Below shows the MVB readings of 6D when the rear lid is OPEN

Measured value name	ID	Value
Rear lid position, relative	IDE02017	
	MAS00194	97 %
Tailgate condition	IDE02092	
	MAS00194	open
Status of closing assist	IDE02094	
	MAS00194	extended
Status of rear lid lock	IDE02093	
Terminal 1	MAS01943	Open
Terminal 2	MAS01944	Open
Reason for cancellation of rear lid proce	IDE05229	
	MAS00194	completed successfully



TSB 2045050 Transmission repair with base gearbox part 02E/OD9

- This technical service bulletin provides instructions for the replacement of the “base gearbox.” Note that this TSB can only be used after TAC has authorized the replacement.
- A base gearbox is available for the transmission codes listed in the TSB. The base gearbox comes without the mechatronic unit, dual clutch, and possibly without the bevel box. TAC will assist with identifying the correct part number for the vehicle.
- The new gear box will have various upgrades over the original unit.
- Check the transmission 3-letter code on the original transmission against the table in *Required Parts and Tools* section of the TSB to ensure that the correct base gearbox is ordered and received.
- After receiving the base gear box the mechatronic unit, dual clutch, possibly the bevel box, and possibly the combination sensor G184/G509 will need to be transferred from the original transmission. Use the Elsa repair manual as guide.
- After transmission has been assembled and installation is complete set the transmission fluid level, perform all transmission basic settings, then perform a road test to verify the repair.

Transmission ID tag example

Applicable gearbox codes:

- PQQ
- PQR
- PUR
- PUQ
- PPQ
- QSG
- QSP
- PUK
- QSN
- PUG
- QSD

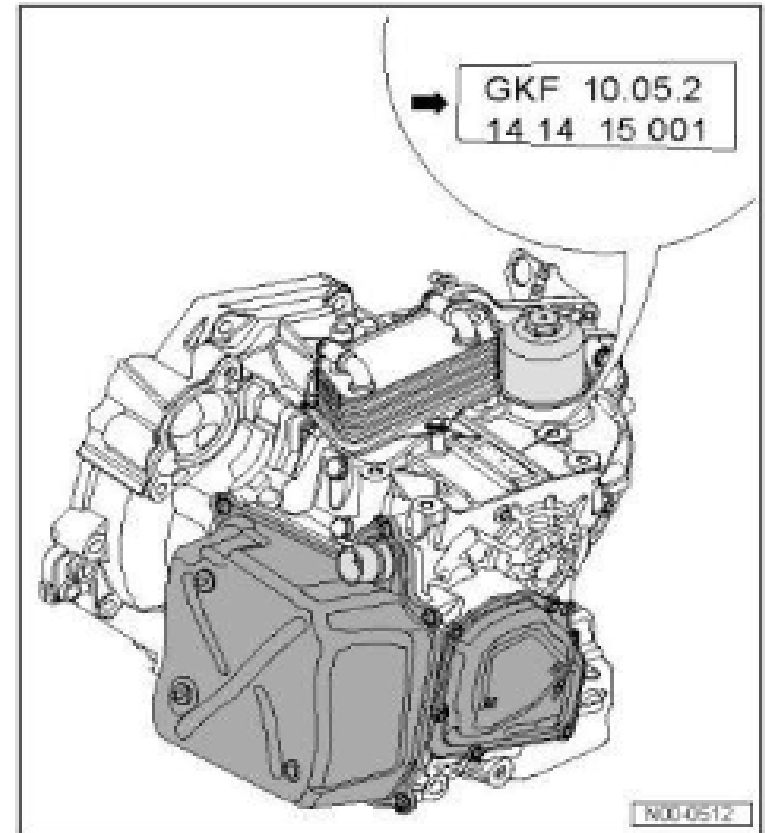


Figure 1. The location of the 3-letter gearbox code. In this example, “GKF” is the 3-letter gearbox code.



Twin Cup Challenge

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2016

2016 Audi Twin Cup Challenge – program schedule

Program Announcement – June 17, 2016

Round 1 – Complete, Winners announced

Round 2 – Complete, Winners announced

National Finals – Complete, Winners announced

National competition is now over, The top 3 service consultants and 3 technicians have been chosen and will move onto the 2017 international finals! The winners will represent the US at the 13th Audi Twin Cup World Championship in Europe! Date and location to be announced.

For more information on the Twin Cup Challenge:

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

Feedback

Please send email to artactivation@audi.com