Technical Service Bulletin

Topic	Air spring fault finding guidelines - 25MY
Market area	Bentley: worldwide (2WBE)
Brand	Bentley
Transaction No.	2076718/1
Level	EH
Status	Released for publishing
Release date	Mar 17, 2025

New customer code

Object of complaint	Complaint type	Position
chassis -> damping\suspension regulation -> automatic damper adjustment	functionality -> no function	
chassis -> level control system, pitch and roll compensation	functionality	
chassis -> damping\suspension regulation -> automatic level control system	functionality -> no function	

Vehicle data

25MY Continental GT/GTC & Flying Spur

Sales types

Type	MY	Brand	Designation	Engine code	Gearbox code	Final drive code
Z23*	2025	E		*	*	*
Z24*	2025	E		*	*	*
Z32*	2025	E		*	*	*

Documents

Document name
master.xml

Condition

The front and/or rear suspension appears to have dropped.

Technical Background

VERY IMPORTANT: Before proceeding with the instructions, the operative MUST be aware that all procedures within the repair manual MUST be strictly followed in particular when replacing air spring dampers and other air suspension components as the procedures differ depending on the vehicle model type

CAUTION

VERY IMPORTANT: Due to the high voltage system, only suitably qualified personnel should work on the vehicle

Bentley vehicles which are applicable to this TPI are fitted with air springs as part of the suspension system. Should air leak from the air spring dampers, this will cause the suspension to drop. However, the dropping of the suspension does not necessarily mean that the air spring is faulty.

NOTICE

On vehicle arrival, a diagnostic log must be taken prior to any diagnosis or filling of the air suspension system. Please see the measure section below for further instructions.

The “Measure” section of this TPI describes how and where to check for air leaks on the front and rear air springs, the air supply unit, pipes, valve unit and air reservoirs. This includes potential air leak points on the air spring dampers and also the locations of an air leak that can be repaired without the need to replace an air spring damper.

The new valves fitted into the top of the front air dampers are not minimum pressure valves. The valve is open when the VOSS connector and air line are connected and closes when the VOSS connector and air line are disconnected at the front air damper.

CAUTION

The valve itself must not be disturbed or removed as this can lead to a total failure of the pressurised system and this VOSS Connector should always be disconnected at the strut first not at the valve block.

NOTICE

The VOSS connector should be replaced if removed (FRONT AIR SPRING ONLY). This is suggested to minimise the risk of too much pressure loss from the strut on re-fitment.

The process which will minimise the risk when fitting the new VOSS connector is shown below:

From the repair part (see parts information) shown in Figure 1, the VOSS connector can be removed with the stopper and collet as one item Figure 2.

Figure 1

Figure 2

With the new VOSS connector & collet installed in the strut valve, the stopper backs out as the connector is wound in, which prevents air loss. (Figure 3).

NOTICE

Ensure the gap shown in Figure 3 is maintained. If pressed into the VOSS connector air will be released from the valve.

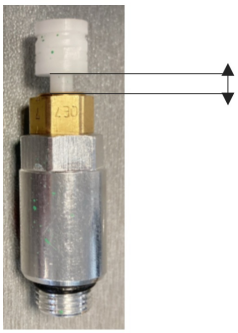


Figure 3

NOTE: The collet is correctly orientated and seated by installing the VOSS connector with the stop retaining the collet (Figure 4 – Note that the VOSS is removed in this figure for clarity)

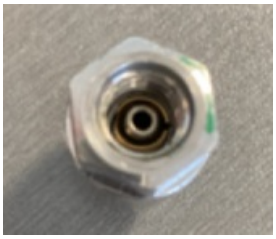


Figure 4

Figure 5 shows the air hose with the old collet removed, the hose cleaned up and installed in the new VOSS connector.

Figure 5

NOTICE

If the parts are replaced, please ensure the original VOSS connector is returned with the air spring (unfitted).

Once the new VOSS connector is fitted to the valve, the air line can be pushed into the correct position.

Vehicles now have a pressure retention valve, not a minimum pressure valve.

The VOSS connector is attached to the pressure valve (Figure 6).

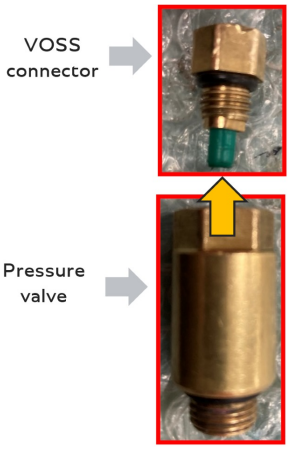


Figure 6

With the VOSS connector and hose fitted, the plunger is open and there is two way air flow (Figure 7).

Figure 7

With just the VOSS connector fitted and the hose removed, the plunger closes, there is no air flow and pressure is maintained in the spring (Figure 8).

Figure 8

NOTE: The vehicle should never be lowered to the ground without air pressure in the springs.

These checks should be carried out in conjunction with the ElsaPro procedure "Air suspension – To check" with the use of the special tool "Air suspension leak tester VAS 751 001" shown in Figure 9 as item (1). Refer to ElsaPro, Repair Group 43, "Air suspension – To check".

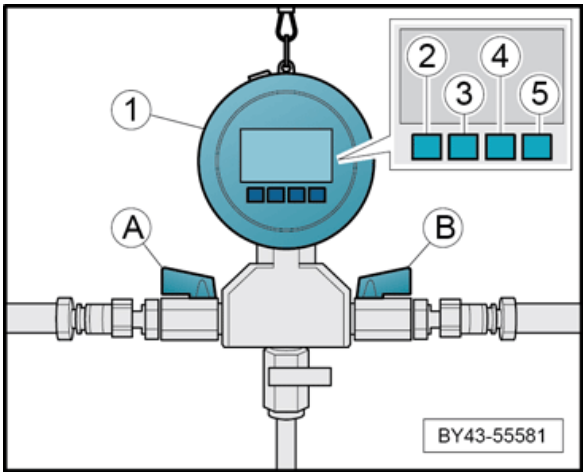


Figure 9

Please follow and complete the check list within the "Measure" section of this TPI to help in diagnosing the issue *(the check list does not need to be sent as an attachment should a DISS technical query be raised)*.

Should a leak be found from an air spring damper, compressor, valve unit or reservoir, please raise a DISS technical query and include as much information as possible including photograph/s of the leak/s location. Once the DISS ticket has been submitted please await clarification before commencing with replacing any of the suspected faulty air spring dampers.

Mandatory reporting is applicable for all air spring related issues.

NOTE: The operative MUST always refer to the applicable Rep.Gr within the repair manual as the procedures differ depending on the vehicle model type

CAUTION

The air line MUST be disconnected from the air spring damper first: NEVER disconnect the air line from the solenoid valve block first (Figure 10).

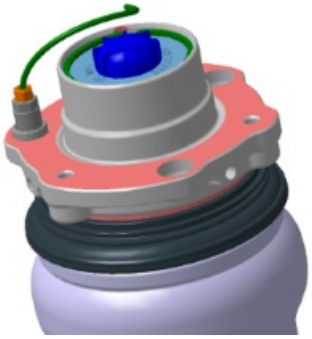


Figure 10

CAUTION

NEVER remove or disturb the retention valve (Figure 11).

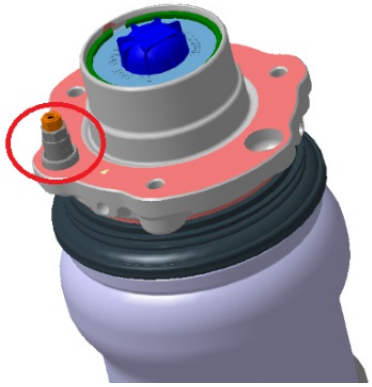


Figure 11

VERY IMPORTANT: When the air supply lines are disconnected the operative should ensure the pipes and connections are fitted with plastic caps/bungs to eliminate the risk of contamination within the air suspension system

CAUTION

The operative should be aware that all instructions regarding attaching photographs and videos to DISS queries is followed as advised within Section 3

Production Solution

Not applicable

Service

NOTICE

Please ensure the latest version of ODIS service is installed. On vehicle arrival, a diagnostic log must be taken and sent online prior to any diagnosis or filling of the air suspension system.

During the diagnostic sweep of the car, the technician may see either of the below warnings. If either of these warnings are seen, follow the instructions carefully and do not proceed until the instructions are completed fully.

If there is a strut pressure between 2 and 6 bar then the following message will be displayed to the retailer (Figure 12).

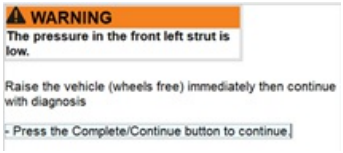


Figure 12

CAUTION

If ODIS displays the warning in figure 12, raise the vehicle immediately and continue with the diagnosis.

If there is a strut with less than 2 bar then the following message will be displayed to the retailer (Figure 13).

Figure 13

CAUTION

If ODIS displays the warning in figure 13, raise the vehicle immediately and raise a full technical DISS query.

A Minimum pressure of 1 bar **(2 bar in ODIS)** must be in the front air dampers and rear air springs to avoid internal bellow damage. This 1 bar of pressure ensures the bellows retain their shape within the components

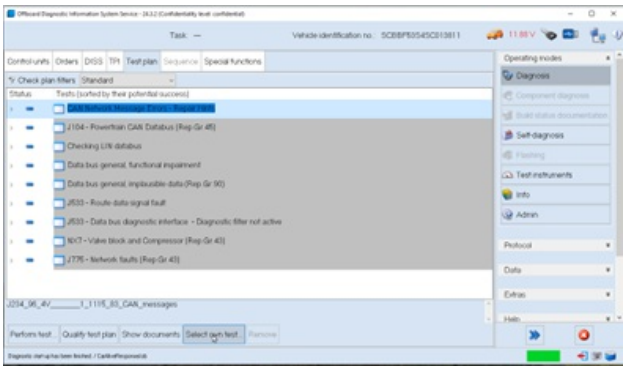
Please note that, during testing, ODIS will display 1 bar more than the pressure shown on a gauge (see table below)

ODIS Pressure Reading	Actual Pressure
1.8	0.8
2	1
3	2
4	3
5…	4…

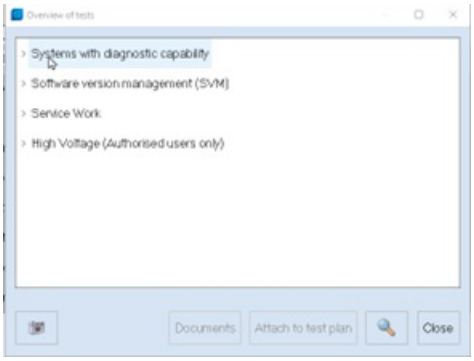
Guided Fault Finding

Before starting any further testing of the car, complete the guided fault finding pressure read procedure, as shown below.

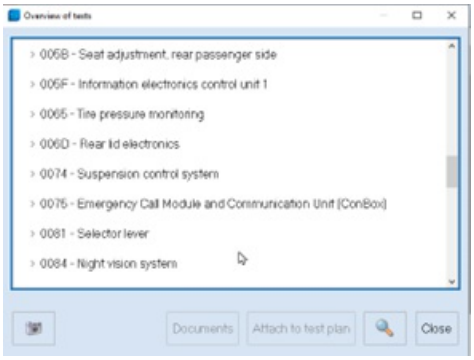
1) Select own test



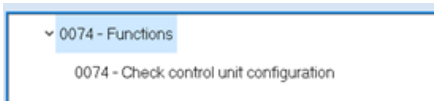
2) Within the ‘Overview of tests window’ select ‘Systems with diagnostic capability’



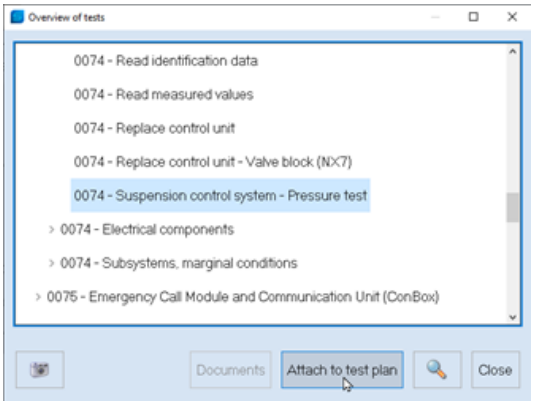
3) Then select diagnostic address 0074 – Suspension control system



4) Then select functions

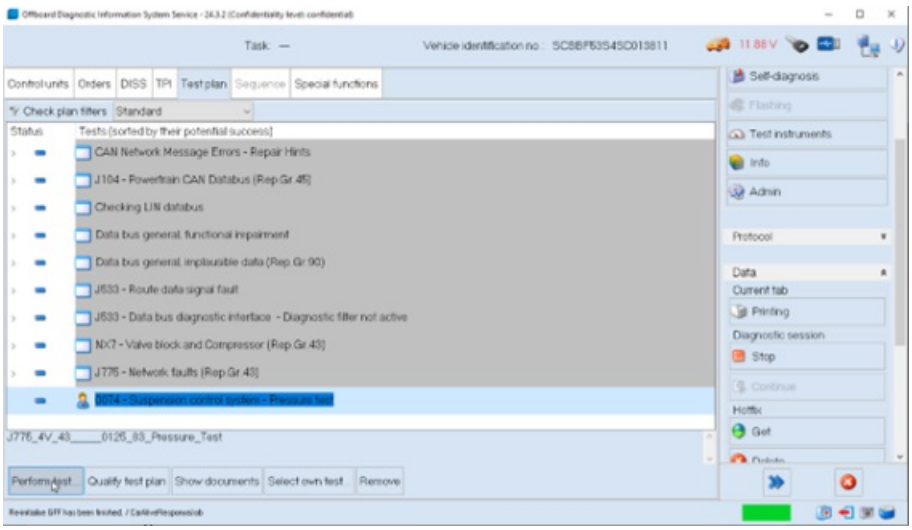


5) Select ‘Suspension control system – Pressure test’

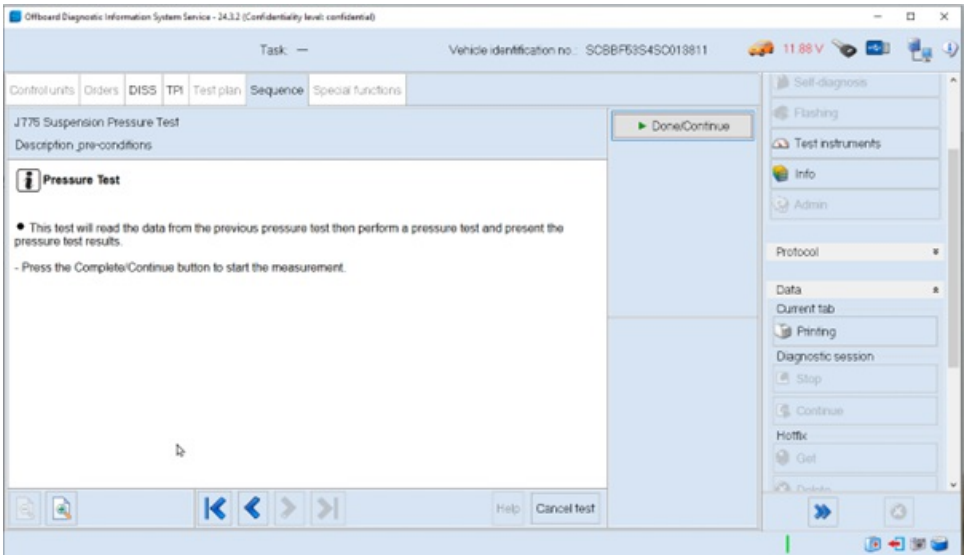


6) Attach the test plan

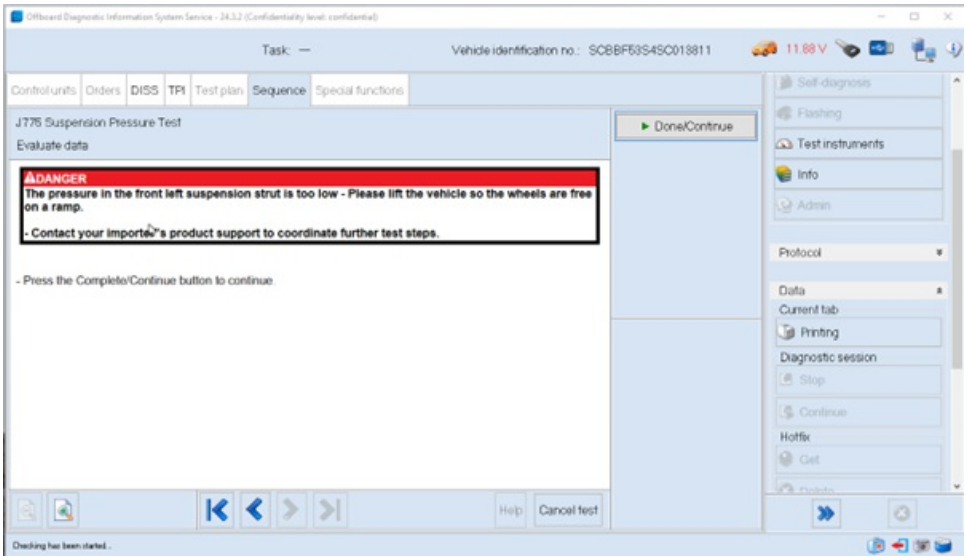
7) Perform the test



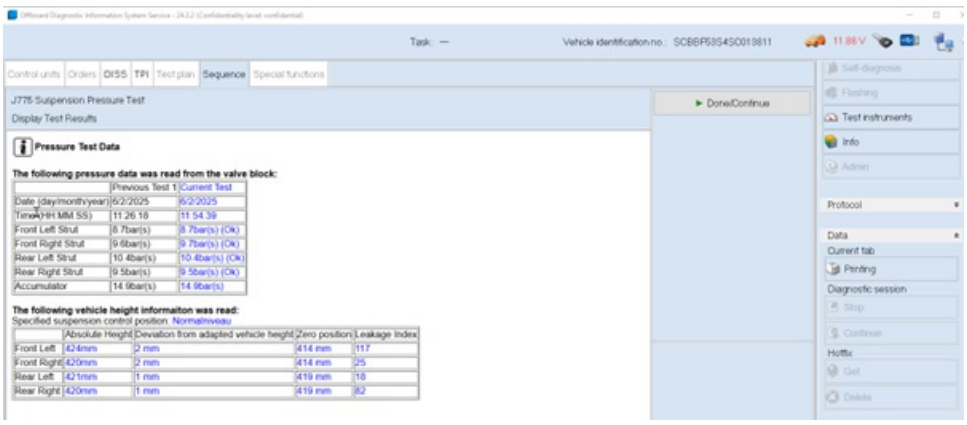
8) Press ‘Done/Continue’



9) Upon completion of the test the technician may see a warning similar to the one shown in figure 13.



10) The results should be displayed as seen below



Reference chart

Please use this generic “Reference Chart” (Figure 14) in conjunction with the customer description of the fault and the “Standard Ambient Conditions” of the DTC's if present, to focus on the relevant area (ie: if a DTC is pointing out to the accumulator and the event data from the DTC and the customer description explains that the issue appear while the vehicle was driving, then the potential source of the leak well might be in between reservoir, valve unit or compressor as these three components are active in these particular conditions).

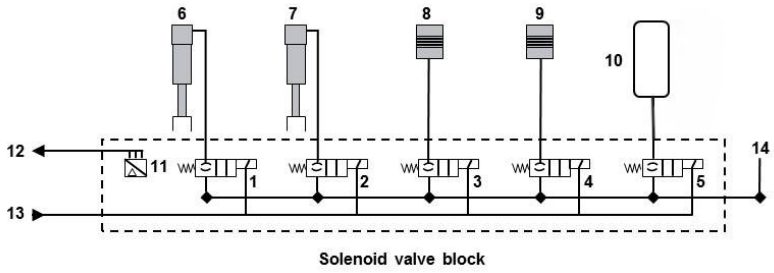


Figure 14

Component	Description
1 - 5	Solenoid valves
6 & 7	Front axle suspension struts
8 & 9	Rear axle suspension units
10	Pressure accumulator
11	Pressure sensor
12	Pressure reading
13	Electrical activation of solenoid valves
14	Compressor connection

Procedure

Position the vehicle on a flat and level surface and allow it to cool down.

NOTICE

IMPORTANT: Set the vehicle suspension into "Jack" mode by checking the 'Air suspension: suspension lock' box on the vehicle's MMI (Figure 15).

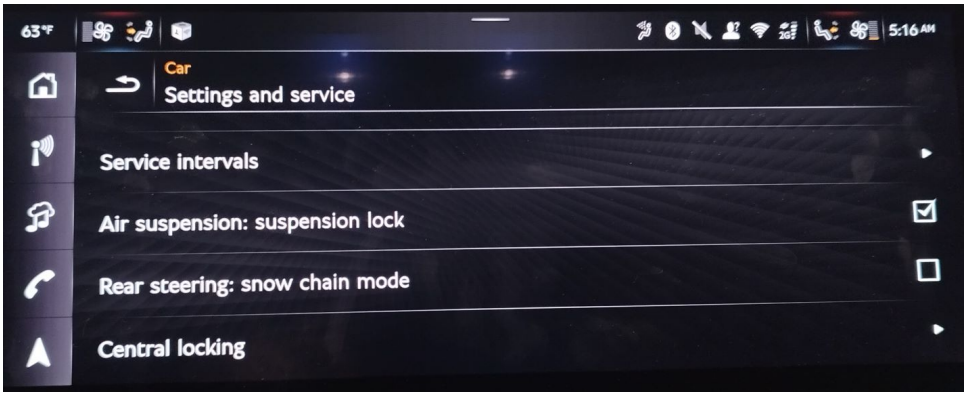


Figure 15

Apply strips of masking tape (**1**) from the centre of each wheel to the highest part of the wheel arch as shown, making sure the masking tape is applied 'taut'

Using a tape measure (**2**), measure and take note of the ride heights (**A-A**) at all four corners of the vehicle. See Figure 16.

Figure 16

Leave the vehicle overnight and again measure the ride heights (**A-A**) at all four corners of the vehicle. Compare these values with those taken previously.

CAUTION

ONLY leave the vehicle overnight if the leak is suspected to be small. DO NOT leave the vehicle overnight if a large leak is suspected.

If there is **NO** difference in ride heights, and the strips of masking tape are still 'taut' then no air leak is present.

Please explain to the customer the long term storage or changing climate conditions would cause a drop in ride height which is normal. As soon as the vehicle is started, the compressor will level the vehicle automatically and no further action is required.

If there **IS** a difference in ride heights, and the strips of masking tape (**1**) have 'sagged' (shown in Figure 17), then refer to the following leak finding procedures below.

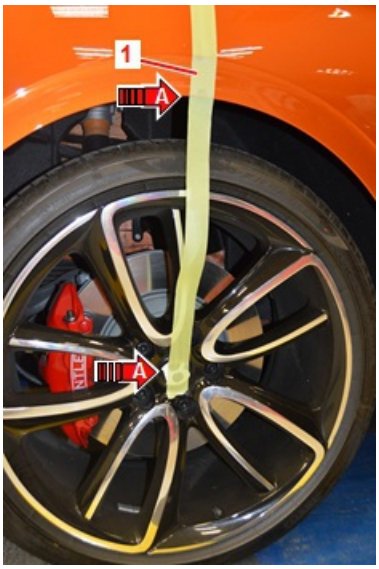


Figure 17

It should be noted that if these checks involve a claim through warranty then photographic evidence of the vehicle sagging and air leak should be included.

Always ensure the suspension is locked before raising the vehicle and exhausting the air from the suspension system. Refer to ElsaPro. Repair Group 43.

Section 1 - Front suspension air spring fault finding

Before any other checks are made to the front air springs check to confirm the pipes are fully inserted and firmly connected within the brass fitting.

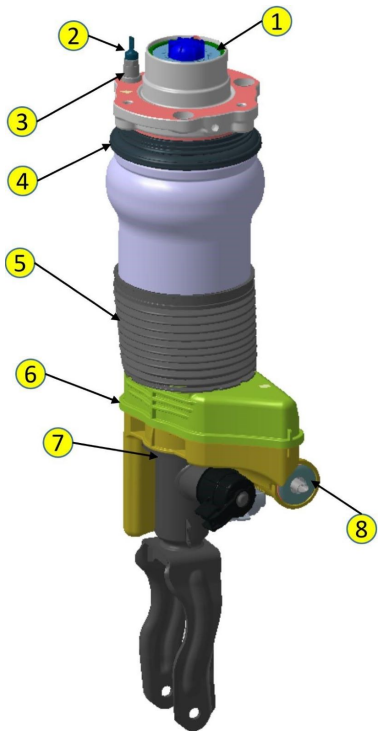
Air leakage may not be audible. A possible symptom of air leakage is excessive operation of the air supply unit. If no air leakage is apparent at the pipe unions and there is excessive operation of the air pump compressor, there may be a damaged air supply pipe to an air spring.

Suspected front air spring damper leaks can be verified by filling the front air springs and then disconnecting the VOSS connector and air line to check for internal leaks.

With the air suspension fully charged, use leak detector spray or a mild soap solution to check the connections for leaks as shown in the accompanying table.

Place an X in the appropriate column next to each check.

Front air spring check points

Check	Yes	No	Comments
 Top mount circlip (**1**) Air connection (**2**) Pressure retention valve (**3**) Upper air spring (**4**) Air spring gaiter (**5**) Spring body (**6**) Spring / damper seal (**7**) Shift valve (**8**)			

[Section 2 - Rear suspension air spring fault finding]

Before any other checks are made to the rear air springs check to confirm the pipes are fully inserted and firmly connected within the brass fitting.

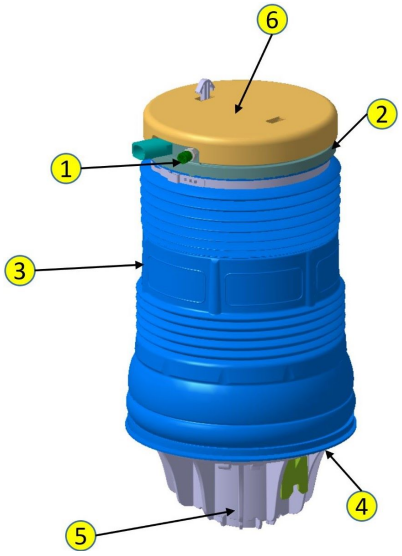
Air leakage may not be audible. A possible symptom of air leakage is excessive operation of the air pump located above the rear diffuser. If no air leakage is apparent at the pipe unions and there is excessive operation of the air pump compressor, there may be a damaged air supply pipe to an air spring.

With the air suspension fully charged, use leak detector spray or a mild soap solution to check the connections for leaks as shown in the accompanying table.

Place an X in the appropriate column next to each check.

Rear air spring check points

Check	Yes	No	Comments

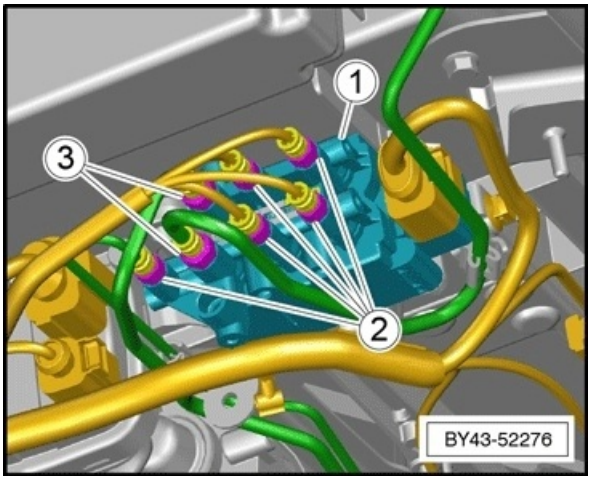
 Air connection (**1**) Upper air spring (**2**) Air spring gaiter (**3**) Lower air spring (**4**) Spring base / spigot (**5**) Shift valve (under isolator) (**6**)			

Section 3 - Air supply unit check points

Check for any air leaks on or around the air supply (compressor) unit.

Place an X in the appropriate column next to each check.

Air supply check points

Check	Yes	No	Comments
Air pipe connections (**2 & 3**) 			

NOTICE

In the event an air leak is evident at the air supply unit, the operative must conduct all remaining checks within this TPI. Once complete the operative should provide all additional findings via a new or existing DISS query as per the examples below:

NOTE: The photos below are shown as examples and do not refer to a particular vehicle type

Check if there any kinked, split or damaged air pipes

CAUTION

Before any of the air supply unit air lines are disconnected, photographic evidence showing all air lines fitted is required as shown below

HINT: The air lines must be connected with only one single ‘paint marking’ visible (Figure 18)

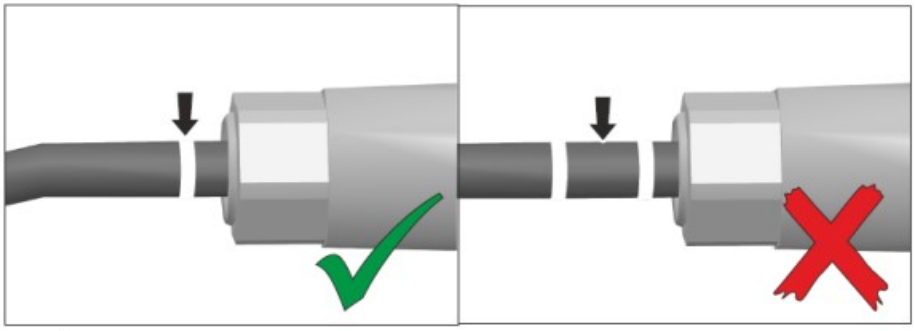


Figure 18

- Referring to Figure 19 - To assist in finding the leak, the operative must apply soapy water to the air supply unit in the area shown below, this is required to establish the source of the leak (air supply unit or air pipe connections)

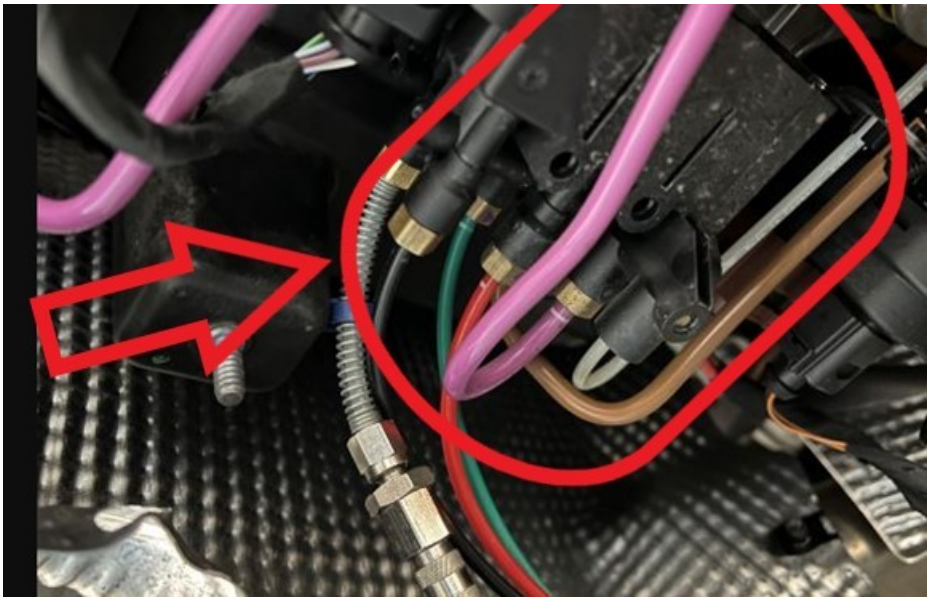


Figure 19

NOTICE

VERY IMPORTANT: In the event a leak is found at the air supply unit (Figure 20) a video and photographs of the leak is required to be attached to a new or existing DISS query

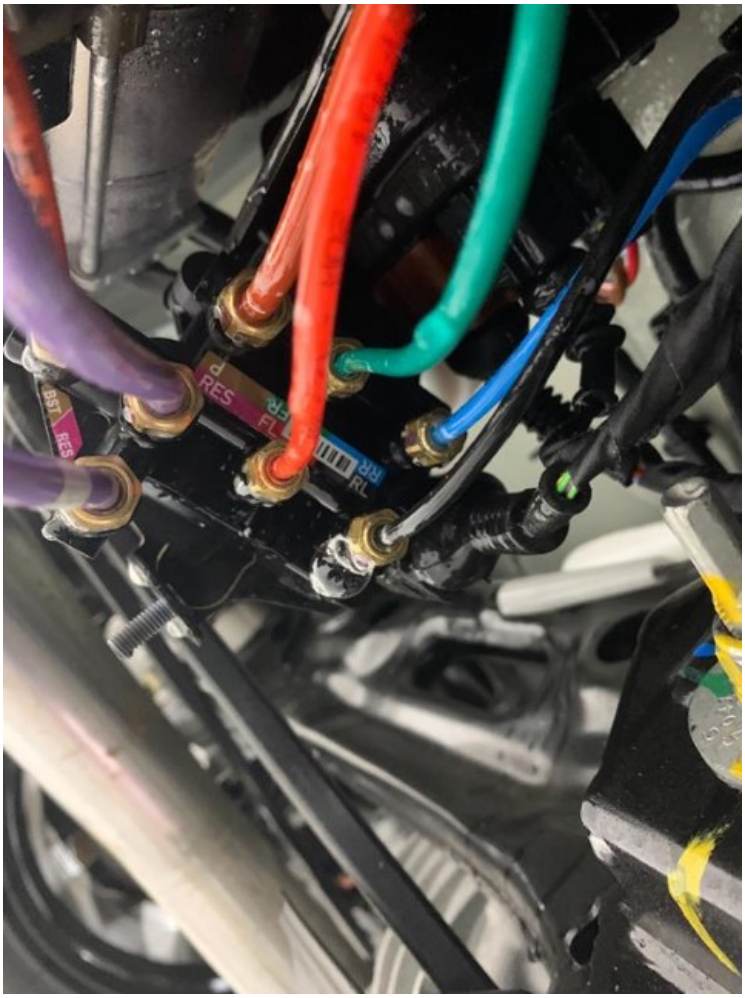


Figure 20

- Referring to Figure 21 - Ensure the air pipes are not kinked or damaged

CAUTION
A minimum radius of 30mm MUST be observed.

HINT: The pipes shown (CIRCLED) are bent and kinked and do not meet the minimum radius of 30mm

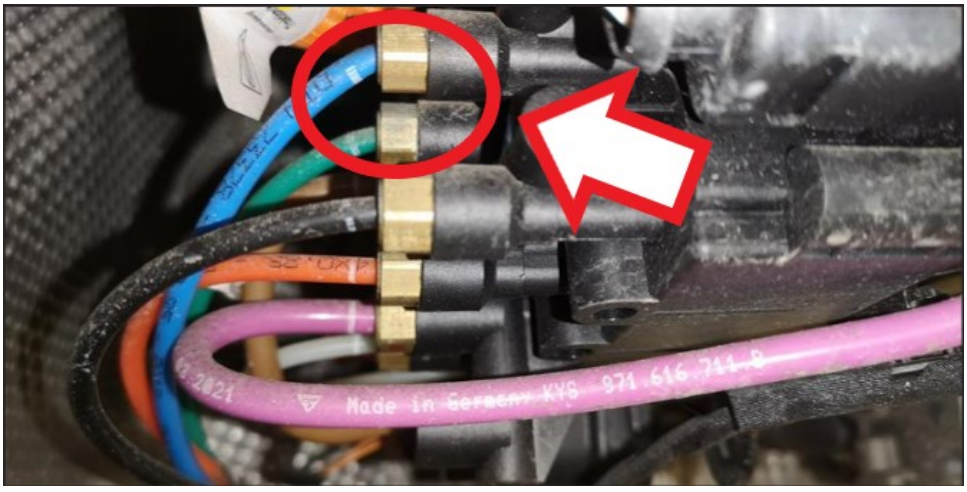


Figure 21

- Referring to Figure 22 - The pink air line routing IS **NOT** CORRECT

HINT: The pink air line is restricting the other air lines

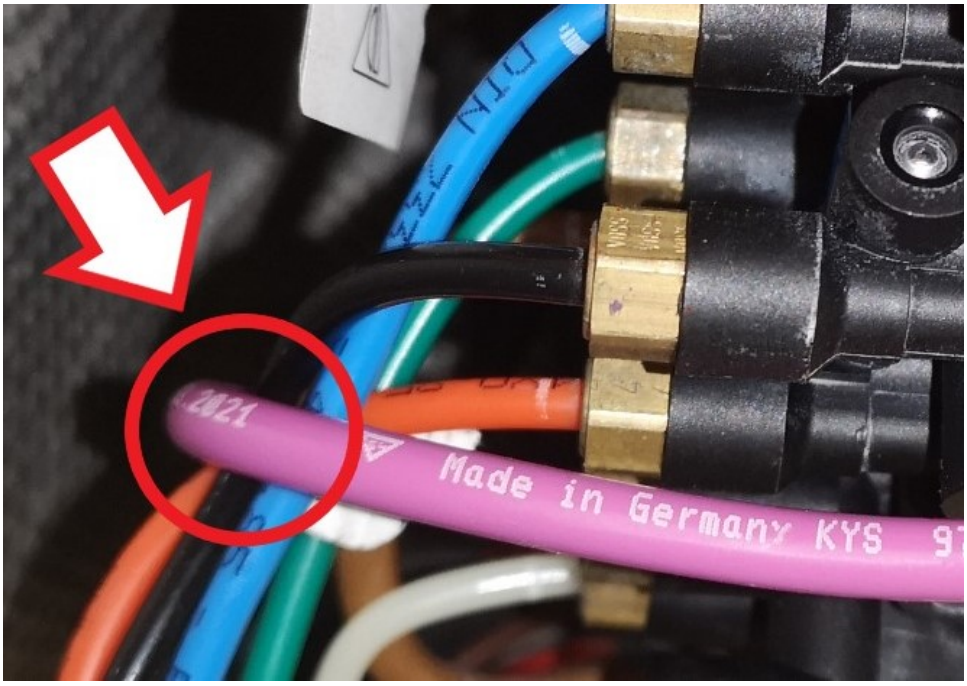


Figure 22

- Referring to Figures 23, 24 and 25, attach clear photographs of the components shown

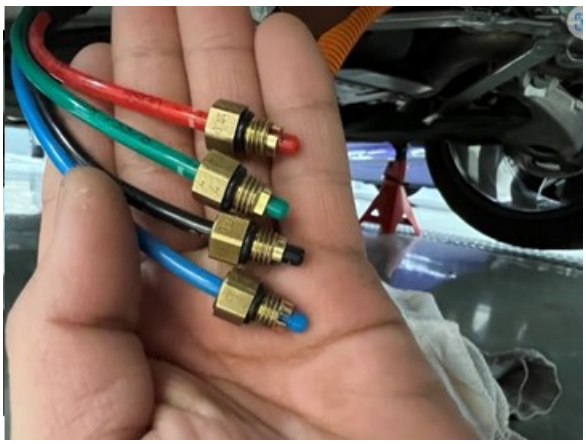


Figure 23

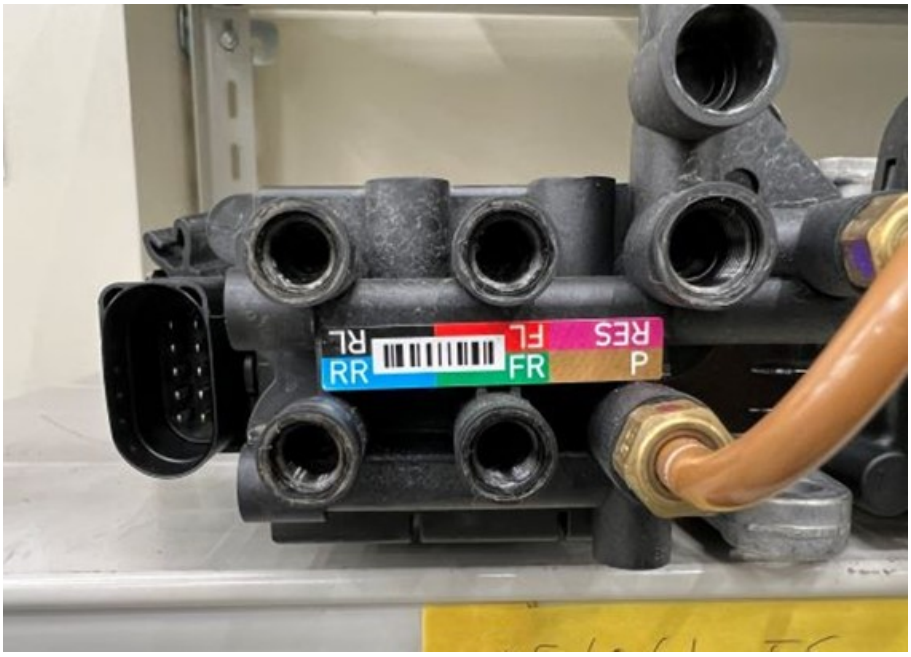


Figure 24

Figure 25

NOTICE

In the event an air leak or any other issues were found at any of the afore mentioned locations the operative should attach clear photos or video (if requested) to a new or existing DISS query

HINT: Warranty payments may not be processed should the required information not be provided

NOTICE

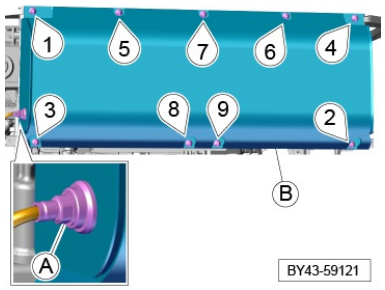
When refitting the air lines to the ports, remove any debris and check the thread condition before securing them to the valve block.

Section 4 - Air reservoir unit check points

Check for any air leaks on or around the air reservoir.

Place an X in the appropriate column next to each check.

Air supply check points

Check	Yes	No	Comments
Air pipe connection (**A**) Location – Refer to the repair manual depending on model 			

Section 5 - Air pipe repairs

If no evident air leak has been detected in the previous sections, refer to ElsaPro, Repair Group 43, “Air suspension – To check”.

The “Air suspension leak tester VAS 751 001” is used to check the air spring struts, solenoid valve block, accumulators, compressors, air reservoirs and air pipes for leaks.

In the event of an air leak from the air pipe/brass fittings on the supply unit the brass fittings and internal olive can be replaced individually.

To repair an air pipe, refer to ElsaPro, “Air Supply Pipe - To Repair” - Repair Group 43.

Using a “Vehicle Tester”, recharge the air system. Refer to ElsaPro, “To discharge and charge” - Repair Groups 40 and 42.

Warranty

Warranty type 110 or 910

Damage Service Number 43 25 - Air spring related claims

43 85 - Air supply line issues

Damage Code 00 50

Time to conduct the air suspension fault finding check

Labour Operation Code 44 96 01 00

Time 20 TU

Time to conduct the initial diagnosis

Labour Operation Code 44 96 03 00

Time 50 TU

Time to repair x1 air supply line

Labour Operation Code 44 96 41 00

Time 20 TU

Please be aware that warranty payments will be cancelled should any damage be caused to the air spring assemblies due to the applicable procedures within the applicable Rep.Gr not being followed.

It should be noted that if checks involve a claim through warranty then photographic evidence of the vehicle sagging and air leak should be included with the DISS technical query where possible.

Pictures should include the following:

- Tape (**1**) applied before and after, showing the tape sagging. See Figure 26
- All ride height measurements (**A-A**) before and after. See Figure 26
- Soap solution bubbling at the point of air leak (where possible).

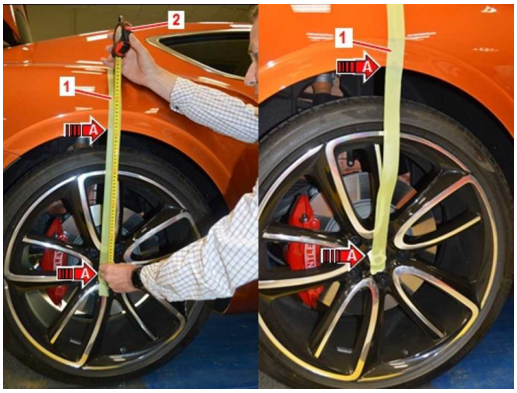


Figure 26

Required Parts and Tools

Repair part – 3W0.616.335