Service Training

Audi - The Advanced Maintenance Concept

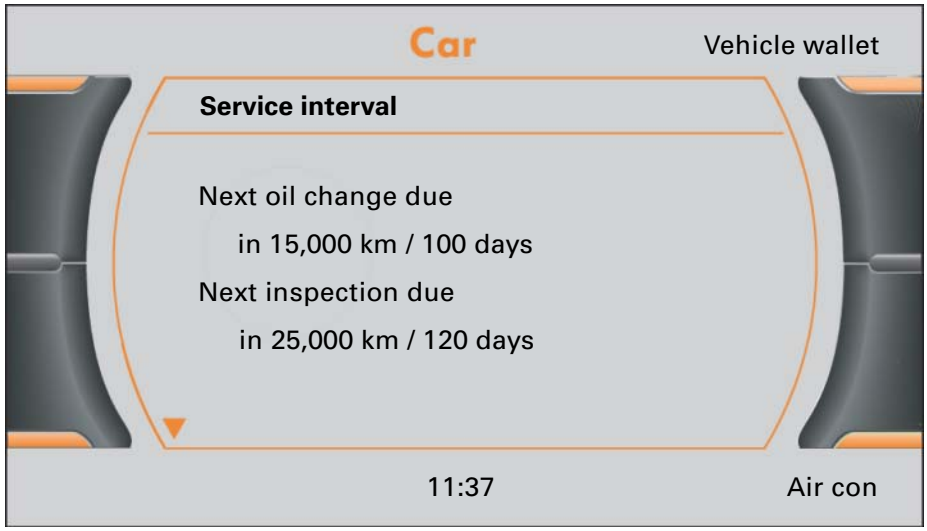
Self-Study Programme 438

Like every technical object, an automobile is also subject to a certain wear and tear. To minimise wear and tear, and to keep the vehicle as safe, reliable and as value-retentive as possible, it is vital that the vehicle be serviced on a regular basis and that specific components, fluids and lubricants be changed.

On account of this fact, Audi vehicle owners are reminded when service work is due.

It is important to find a compromise between technical and commercial considerations. On the one hand, every effort must be made to ensure that the vehicle runs properly throughout its life cycle. On the other hand, it is necessary to keep maintenance costs down to a competitive, low level.
This compromise is reflected in every conceivable maintenance concept.
It is also necessary to take into account the very different, personal driving profiles and conditions of use.

The Advanced Maintenance Concept meets all these requirements by offering customers greater transparency with regard to maintenance work and when it is due.



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This Self-Study Programme provides you with all you need to know about the Advanced Maintenance Concept.
You will also find here information on the Service Key and the electronic oil level indicator.

Once you have worked your way through this Self-Study Programme, you will be able to answer the following questions:

- ► What's new about the Advance Maintenance Concept?
- ► Which information can you obtain from the new Service Interval Display?
- ► What are the points to note with regard to the order acceptance?
- ► How does the new Maintenance Chart in Elsa look?
- ► How do you reset the various channels of the Service Interval Display?
- ► How do you fill out the Service Plan?
- ► Which are the work items assigned to the various maintenance events?
- ► Which information does the electronic oil level indicator provide?
- ► Which data is saved on the Service Key and how can it be exported?

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The Self-Study Programme teaches the design and function of new vehicle models, new vehicle components or new technologies.

The Self-Study Programme is not a Repair Manual.
All values given are intended as a guideline only and refer to the software version valid at the time of preparation of the SSP.

For information about maintenance and repair work, always refer to the current technical literature.

Reference

Note

The Advanced Maintenance Concept

With regard to the maintenance concept, we have been distinguishing between fixed service intervals and LongLife Service since model year 2000.

Regardless of whether the vehicle is operated on fixed service intervals or LongLife Service, the customer is always reminded when an oil service is due.

In conjunction with the Advanced Maintenance Concept, the Service Interval Display has been provided with two additional channels which inform customers not only about due oil changes but also about mileage-dependent and time-dependent events.

These additional channels mean that the procedures for order acceptance and resetting the Service Interval Display have changed. These changes will be explained later in this SSP in the relevant chapters.

Fixed service intervals

The Service Interval Display on vehicles with fixed service intervals also distinguishes between three different service events, but the intervals themselves have remained unchanged. The following applies to vehicles operated on fixed service intervals:

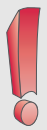
- ► Oil change service — due every 15,000 km or every 365 days
- ► 30,000 km inspection service — due every 30,000 km or 730 days

LongLife Service

In the case of vehicles with LongLife Service, several changes apply due to the Advanced Maintenance Concept. Basically, a distinction is made between flexible service events, mileage-dependent events and time-dependent events.

- The flexible event is the engine oil change, for which the maximum possible interval is 30,000 km or 730 days, depending on the driving profile and engine oil stress.
- Mileage-dependent events involved work always due at exactly a multiple of 30,000 km, e.g. inspection work or the replacement of certain components, lubricants or fluids (e.g. dust and pollen filter, air filter, fuel filter, spark plugs, timing belt, multitronic gearbox oil etc.)
- Time-dependent events involve work always due upon expiration of defined periods, e.g. brake fluid change (due for the first time after 3 years, and thereafter every 2 years) or the replacement of certain other components, provided that the mileage limit has not already been reached (e.g. changing the dust and pollen filter after 2 years or spark plugs on certain models after 6 years, etc.).

The reasons for making this distinction are, firstly, to perform only the work actually due and, secondly, not to always carry out the same inspection work only because the oil change is due. On the other hand, it must also be ensured that the customer is notified in a timely manner of all due servicing work by his/her Service Display.
The personal driving profiles and conditions of use are the factors determining whether multiple, shorter service visits are best, or whether it makes sense to combine various service events into a single service visit.



Note

The time interval for changing the brake fluid is country specific and market specific. In Europe, the first brake fluid change is due 3 years after initial registration, and thereafter every 2 years. In Germany, therefore, the brake fluid change is scheduled to coincide with the main inspection and the exhaust emission inspection.

The following types of LongLife Service are available:

- Flexible Oil Change Service (LongLife)
- 30,000 km LongLife Service (excl. oil change)
- LongLife Service (incl. oil change)

When it comes to resetting or setting the Service Interval Display, you will find these terms in the Maintenance Chart in Elsa, in the table of work items and on the diagnostic tester display.

Examples showing the use of the various terms:

Example 1

A customer has covered 20,000 km in 10 months with his Audi and is reminded to have his vehicle serviced on the basis of his driving profile. In this case, the flexible event, i.e. the engine oil change, is due. The Flexible Oil Change Service (LongLife) is performed.

Assuming the same driving profile, the vehicle would have covered 30,000 km after a total of 15 months. The mileage-dependent event is now due at 30,000 km, but the engine oil is not changed. In this case, the LongLife Service is performed every 30,000 km (excl. oil change).
In this example of a possible driving profile, two shorter service visits are advised.

Example 2

A customer has covered 26,000 km in 10 months with his Audi and is reminded to have his vehicle serviced on the basis of his driving profile. In this case, an engine oil change is also due. The flexible event (oil change) and the mileage-dependent event at 30,000 km (inspection) can be combined after consultation with the customer. The LongLife Service (incl. oil change) is now performed.
For this particular customer, both items of work are performed during a single service visit.

The following rule of thumb applies here: if the difference between the flexible event and the mileage-dependent event is less than 5,000 km, then both service events can be combined.
However, since driving profiles and conditions of use are of a very personal and variable nature, this decision can only be made in a conversation between the service consultant and the customer.

The Advanced Maintenance Concept has been implemented for the following vehicles:

- A3 from model year 2008 onwards
- TT from model year 2008 onwards
- A4 from model year 2008 onwards
- A5 from market launch onwards
- Q5 from market launch onwards
- A6 from model year 2009 onwards and production week 46/08 onwards
- Q7 from model year 2009 onwards and production week 46/08 onwards
- R8 from model year 2009 onwards

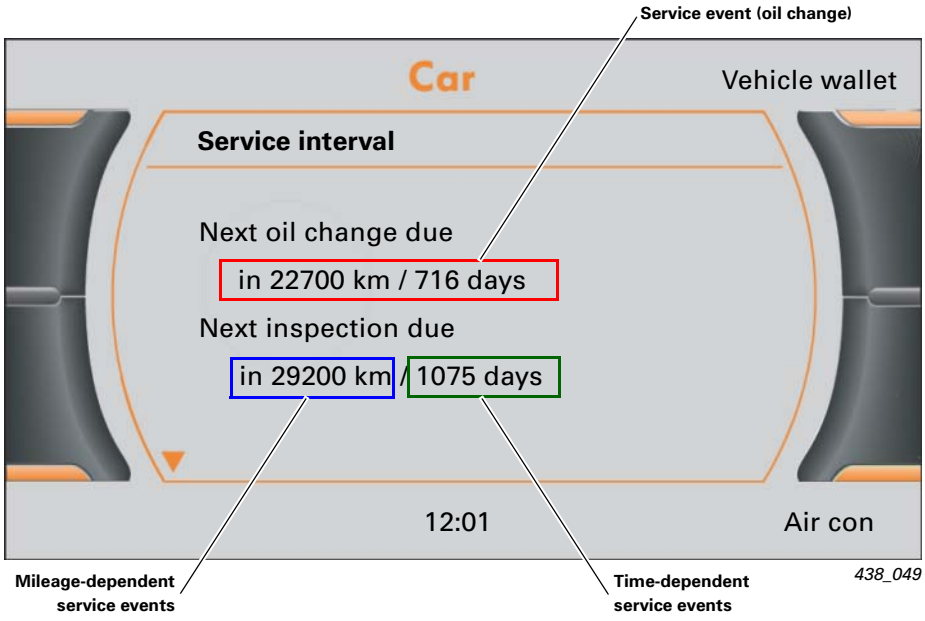
The Advanced Maintenance Concept is being prepared for use in other models

The new Service Interval Display

A new Service Interval Display has also been implemented in conjunction with the Advanced Maintenance Concept.
Depending on model and trim level, the display can be activated via the menu on the dash panel insert or via the Car menu of the radio or MMI.

The new additional display informs customers which service event is due and why.

Example of the Service Interval Display on the MMI screen of an Audi A4, model year 2008



The above illustration shows all three separate service events. Note that the mileage-dependent events and the time-dependent events are displayed together on a single line only.

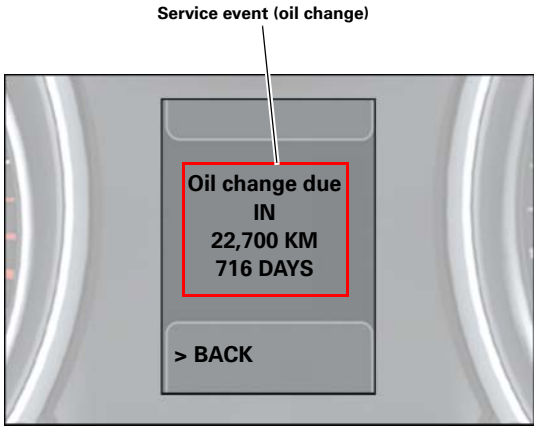
If the vehicle is new, nothing is displayed in the box for the flexible service event (oil change) during the first 500 km. An interval computed from the driving profile and engine oil stress will then be displayed. The calculation is continuously adjusted during vehicle operation and updated about every 500 km.

On vehicles operated on a fixed interval, the oil change interval is not flexible. On new vehicles, the display initially reads 15,000 km / 365 days and decreases daily in increments of 100 km.

On new vehicles, the mileage-dependent service events box initially displays 30,000 km and decreases in 100 km increments.

On new vehicles, the value displayed in the time-dependent events box is initially 1095 days (3 years) and decreases daily.

Example of the Service Interval Display on the dash panel insert of an Audi A3, model year 2008



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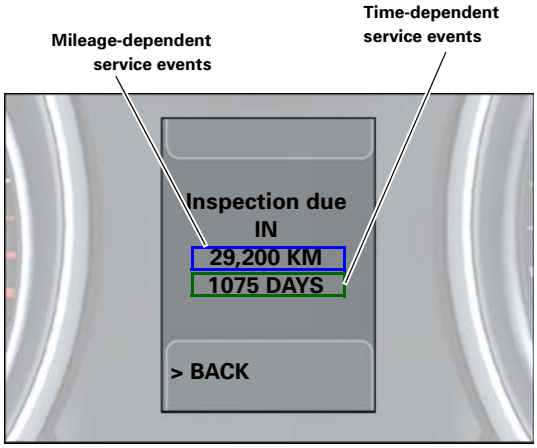

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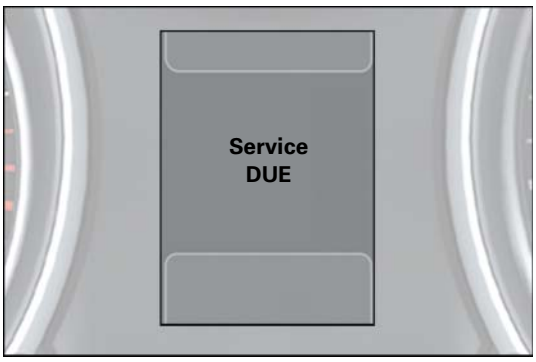
Irrespective of whether the new Service Interval Display is indicated on the dash panel insert or on the radio/ MMI display, the service reminders or prompts are still displayed to the customer on the dash panel insert.



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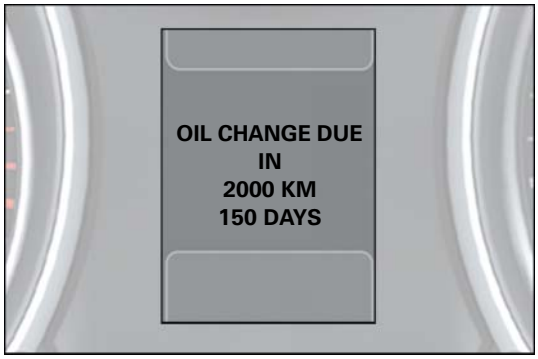

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Note

The coloured frames on the illustrated Service Interval Display are for explanatory purposes only and not shown on the original display.

Reference

The effects of resetting or setting on the Service Interval Display are explained in greater depth in the maintenance example on page 20 and thereafter.

Order acceptance

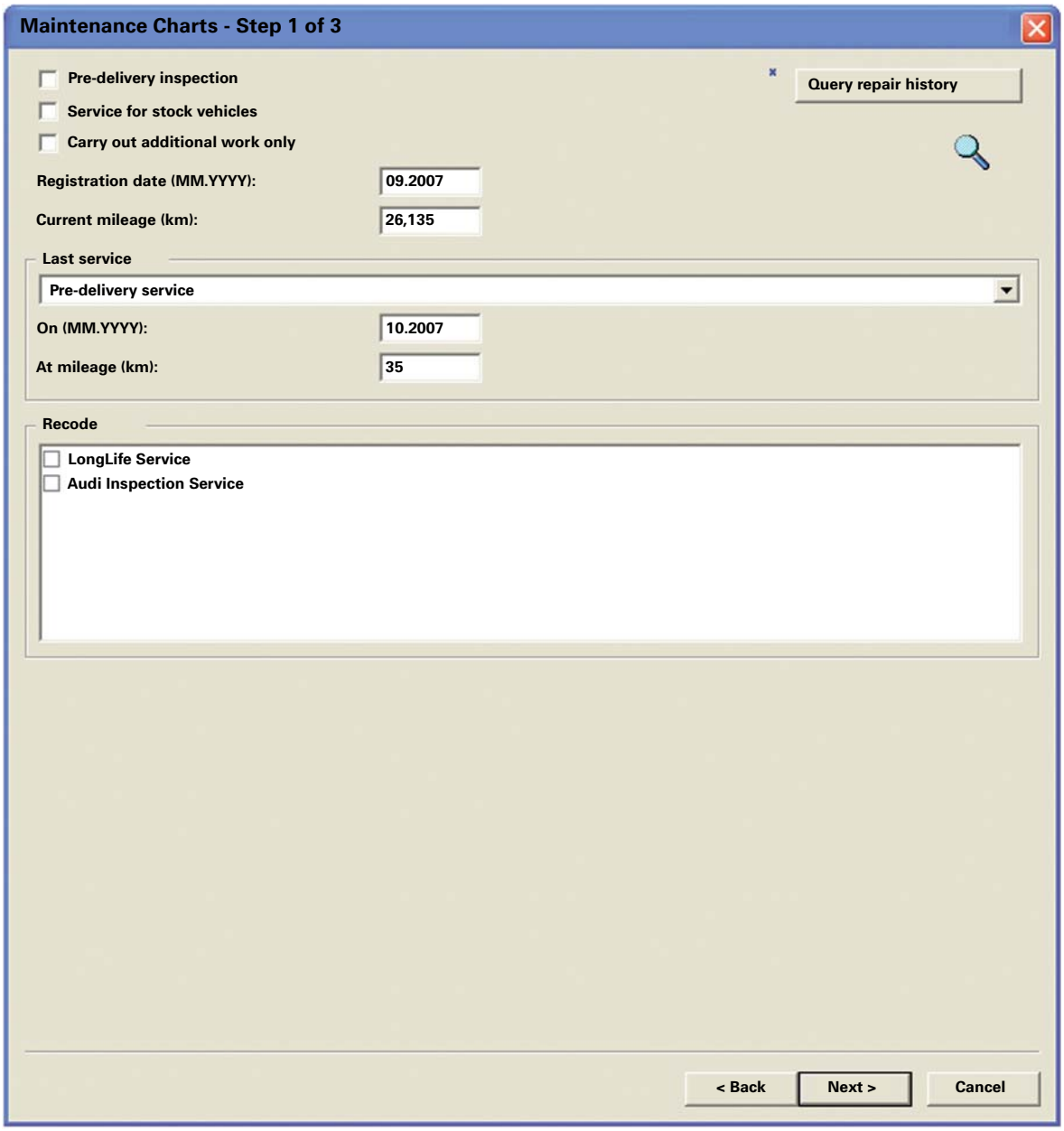
During the order acceptance process, the customer is informed by the service consultant when individual service events are due. The service consultant then discusses with the customer which work is to be done on the vehicle.

As mentioned already in the examples on page 5, we recommend that the oil change and the inspection be performed separately if the differential between the service events is more than 5,000 km.

If the service events are close together, i.e. the differential is less than 5,000 km, the service consultant should advise the customer to have both the oil change and the inspection done in a single service visit.

The 5,000 km limit is to be regarded as a recommendation only. The driving profile and, of course, the customer's wish are decisive. Depending on the driving profile and conditions of use, in certain situations it make sense to deviate from this recommendation.

The Elsa system with the Maintenance Chart provides a guideline for service consultants.
In Step 1 of the Maintenance Chart, the service consultant interrogates the data of the repair history and enters the current mileage.



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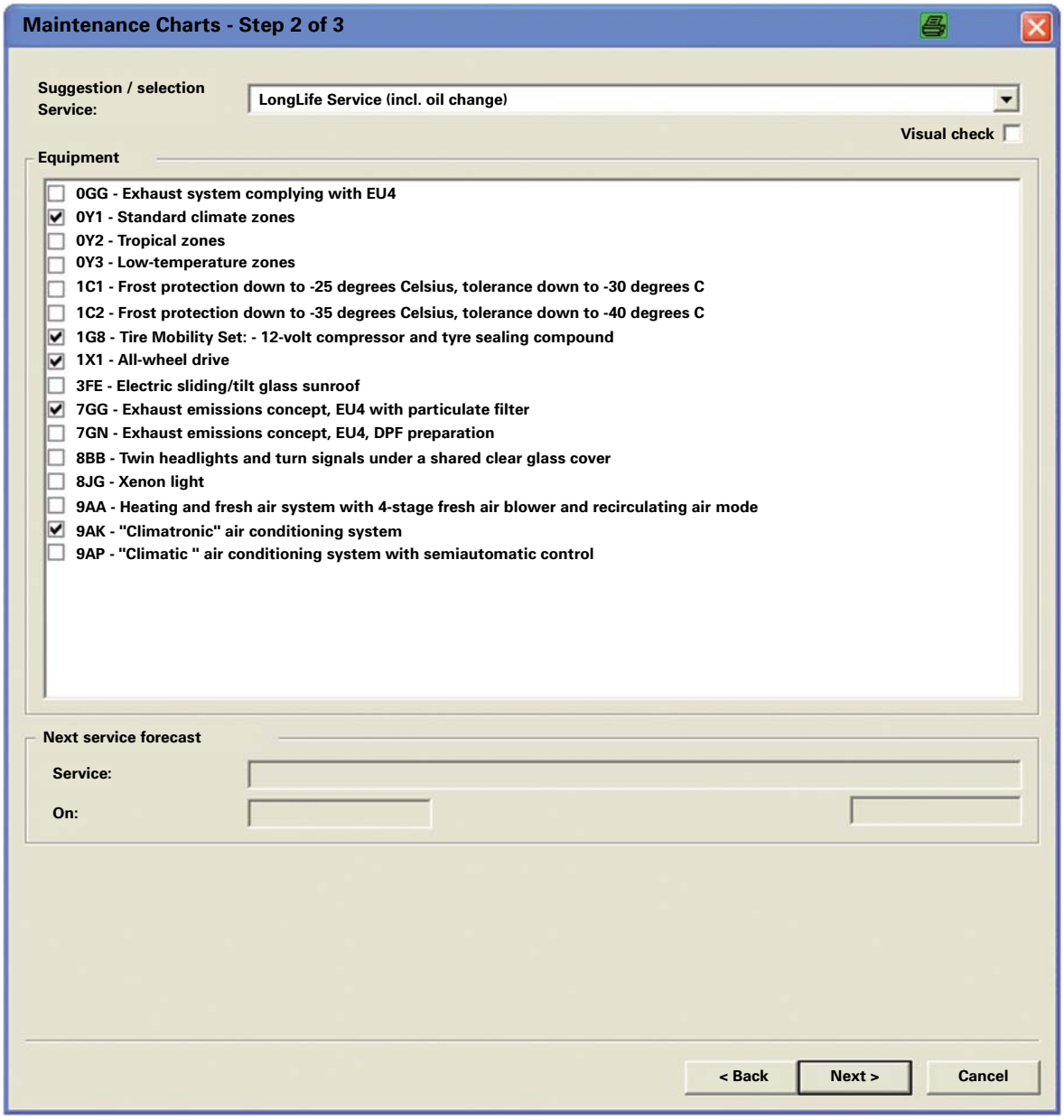
In Step 2, the service consultant then receives a service suggestion from the Elsa system.

Example:
A customer has covered 26,000 km in 10 months with his Audi and is reminded to have his vehicle serviced on the basis of his driving profile. An engine oil change is also due. The oil change and the inspection can be combined after consultation with the customer.

In this case, the service consultant receives from Elsa the suggestion to carry out a LongLife Service (incl. oil change).



438_053

If the vehicle has covered 23,000 km after 10 months, Elsa would display as a suggestion the Flexible Oil Change Service (LongLife).

Both are suggestions only. The service consultant is free to make a different choice at any time.

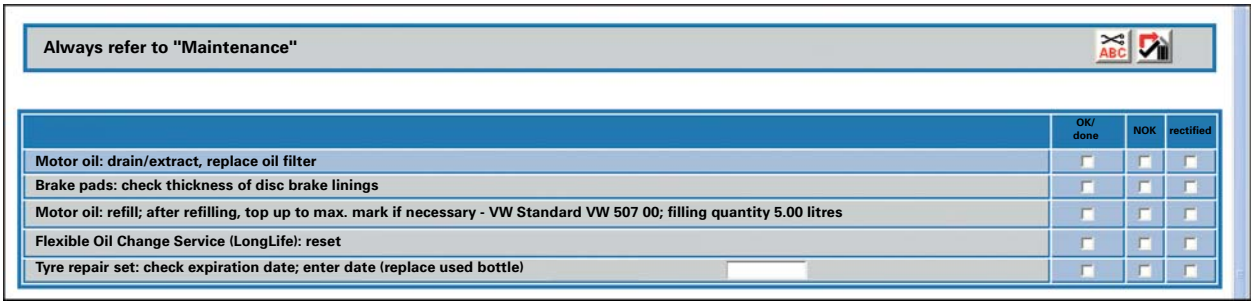
Reference

For detailed instructions on the use of the Maintenance Chart, please refer to the maintenance example on page 20 and thereafter.

The Maintenance Chart in Elsa

Once the service consultant has created the Maintenance Chart in Elsa, he still has to enter the values required by the mechanic in order to reset and set the Service Interval Display.
This list must then be printed out by the service consultant. It represents the bill of work for the mechanic.
The text line "Reset Service Interval Display" has been deleted.

Display for Flexible Oil Change Service (LongLife):



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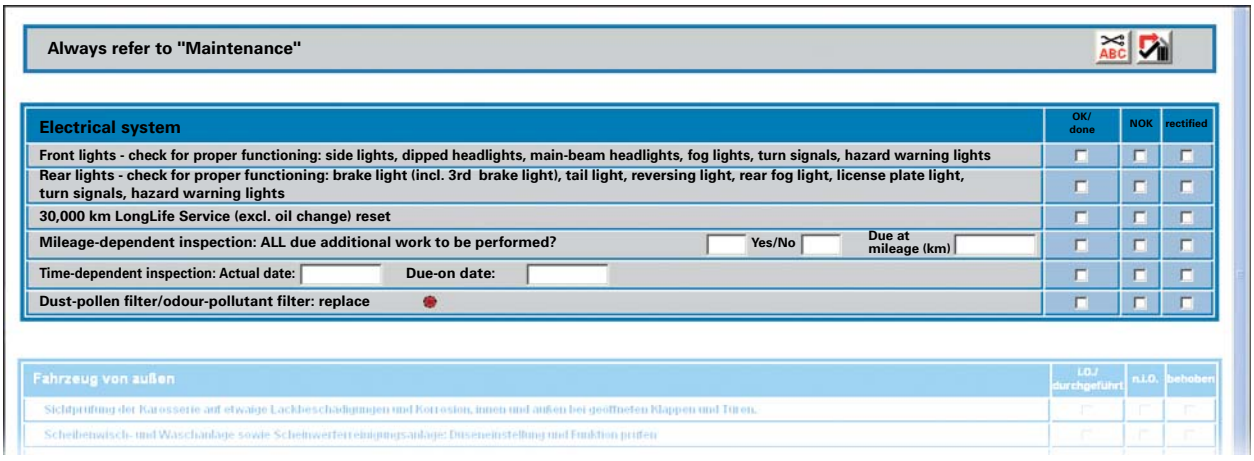
If a Flexible Oil Change (LongLife) is selected, the following line will be displayed in the Maintenance Chart for the mechanic:
"Flexible Oil Change Service (LongLife) reset"

Display for 30,000 km LongLife Service (excl. oil change):

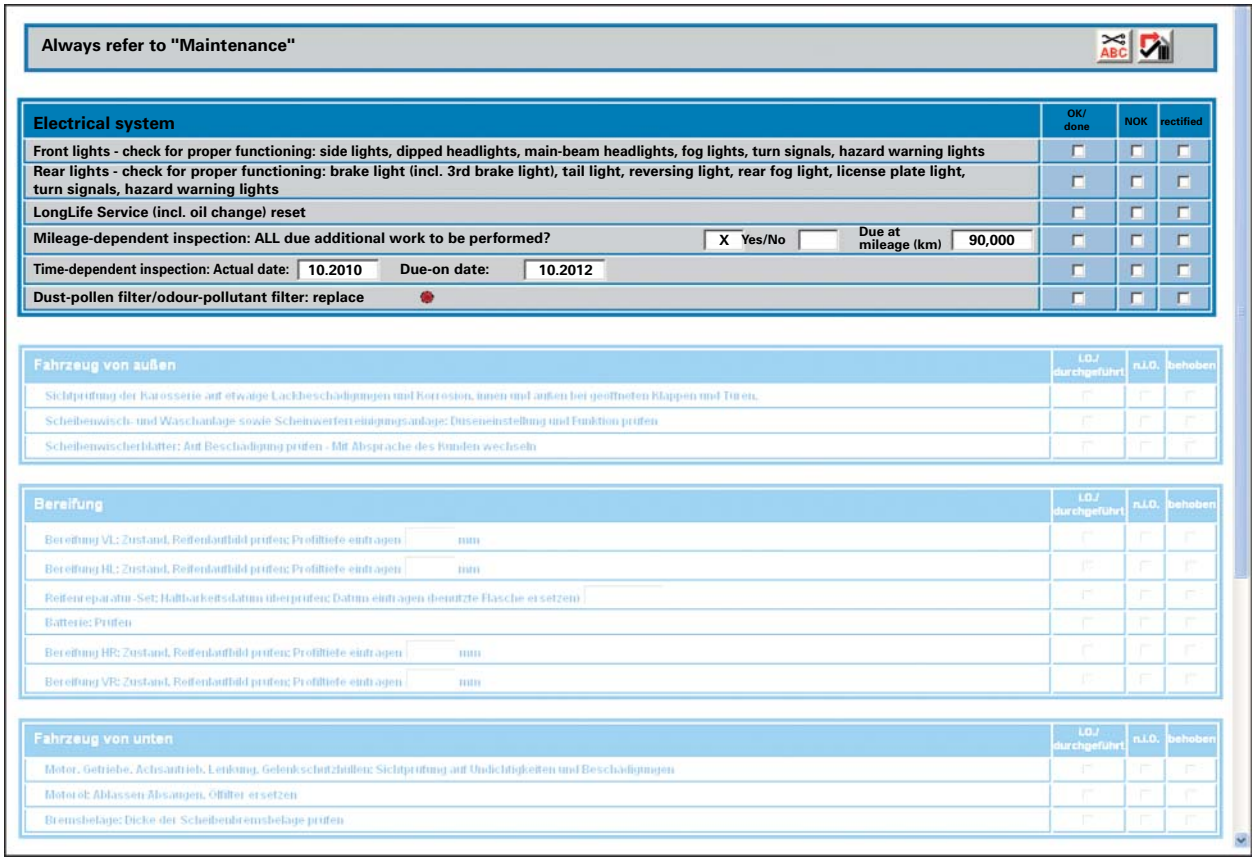


438_057a

If the LongLife Service (incl. oil change) or LongLife Service every 30,000 km (excl. oil change) is selected as the service event, then three lines of text will appear referring to the Service Interval Display. The service consultant must complete two of the three text lines so the mechanic knows how to reset or re-set the Service Interval Display.

The service consultant obtains the required data from the due dates and/or forecasts generated in Step 3 when generating the Maintenance Chart. The mechanic receives from the service consultant a printout of the Maintenance List containing all the data required to reset or re-set the Service Interval Display and does not have to make any calculations himself.

Display for the LongLife Service (incl. oil change):



438_057

Note

Depending on the vehicle's trim level, the Maintenance Chart may deviate from that shown here.

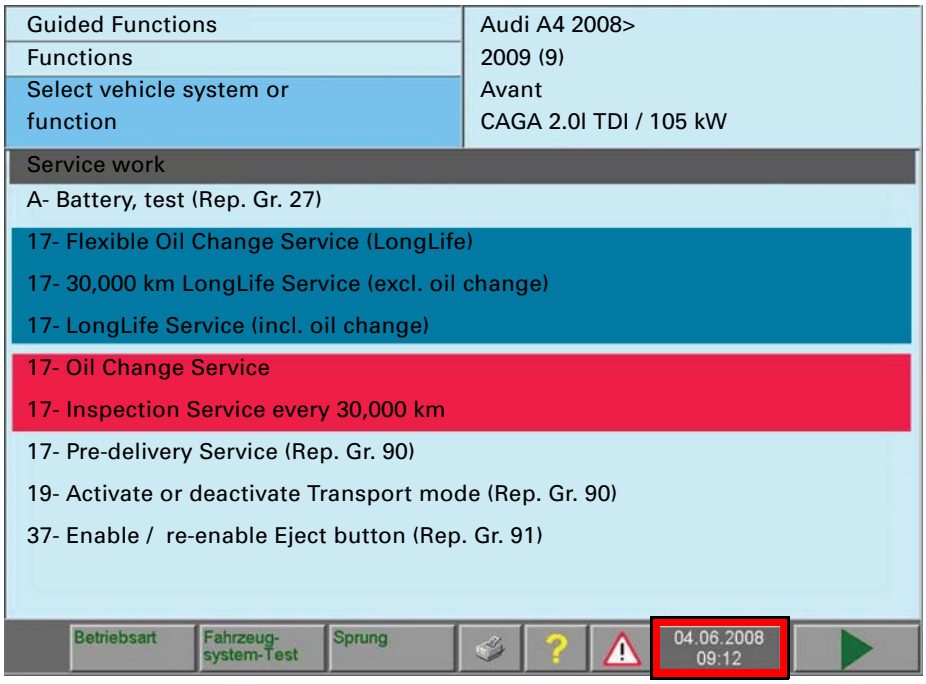
Resetting and setting the Service Interval Display

The Service Interval Display can be reset and set using diagnostic tester 505X running in "Guided Functions" or "Guided Fault Finding" mode.

A list containing the same terms as used in the Maintenance List is displayed under the menu item "Service work".

The mechanic will find the term to be selected directly under the vehicle data on the Maintenance List.

After selecting the relevant term, the mechanic will be guided through the program by the diagnostic tester.
The data previously entered in Elsa by the service consultant when generating the Maintenance List is indispensable here.



438_004

The terms highlighted dark-blue:

- ► Flexible Oil Change Service (LongLife)
- ► 30,000 km LongLife Service (excl. oil change)
- ► LongLife Service (incl. oil change)

apply to vehicles with LongLife Service.

The terms highlighted red:

- ► Oil Change Service
- ► Inspection Service every 30,000 km

apply to vehicles with fixed service intervals.

Another requirement for correctly setting the Service Interval Display is that the date on the diagnostic tester is set correctly. This date is displayed on the bottom line of the diagnostic tester's user interface.

Note

The colour code is for explanatory purposes only, and is not visible on the diagnostic tester's user interface.

Reference

The individual steps to resetting the Service Interval Display are explained in the maintenance example on page 20 and thereafter.

The Service Plan

The Service Plan has been redesigned and adapted to meet the new requirements.
The Service Plan is identical for all Audi vehicles, irrespective of whether the vehicle is serviced under the Advanced Maintenance Concept or not.

Basically, all the Service Plan does is document the work done.
The service consultant co-ordinates with the customer the work to be performed, and whether service events are to be combined and how the Service Interval Display is to be configured.

The Maintenance Chart in Elsa provides the basis for the consultation.

When filling in the Service Record, all service work items must be confirmed with Yes or No and the relevant boxes ticked. This provides the customer with a clear documentation of work done and work to do.

Service Records

Audi LongLife Service: Yes/No

- ☐☐ Oil change
- ☐☐ Audi Inspection

Audi Inspection Service Yes/No

- ☐☐ Oil change
- ☐☐ Audi Inspection

Additional work: Yes/No

- ☐☐ Brake fluid
- ☐☐ Air filter
- ☐☐ Spark plugs
- ☐☐ Fuel filter
- ☐☐ Dust and pollen filter
- ☐☐ Haldex: oil
- ☐☐ Multitronic: oil
- ☐☐ S tronic: oil and filter
- ☐☐ Timing belt

Mileage (km)	Invoice number
Mobility Guarantee valid to:	
Service display	
Date and stamp of Audi dealership	

438_034

Service Records

Audi LongLife Service: Yes/No

- ☐☐ Oil change
- ☐☐ Audi Inspection

Audi Inspection Service Yes/No

- ☐☐ Oil change
- ☐☐ Audi Inspection

Additional work: Yes/No

- ☐☐ Brake fluid
- ☐☐ Air filter
- ☐☐ Spark plugs
- ☐☐ Fuel filter
- ☐☐ Dust and pollen filter
- ☐☐ Haldex: oil
- ☐☐ Multitronic: oil
- ☐☐ S tronic: oil and filter
- ☐☐ Timing belt

Mileage (km)	Invoice number
Mobility Guarantee valid to:	
Service display	
Date and stamp of Audi dealership	

438_034

The mileage, invoice number, date and stamp of the Audi partner all go in the bottom block. The customer's Mobility Guarantee will be automatically extended until the next service event is due.

Reference

You can find examples showing how to complete the Service Record in the maintenance example on page 20 and thereafter.

The work items

New work items were approved for the Advanced Maintenance Concept:

- 01 14 00 00 Flexible Oil Change Service LongLife
- 01 34 00 00 LongLife Service excl. oil change with Mob. Guarantee every 30,000 km
- 01 34 00 01 LongLife Service excl. oil change with Mob. Guarantee every 60,000 km

The existing work items for the LongLife Service remain unchanged.

- 01 09 00 00 LongLife Service excl. oil change with Mob. Guarantee every 30,000 km
- 01 09 00 01 LongLife Service excl. oil change with Mob. Guarantee every 60,000 km

The work items for the fixed interval also remain unchanged.

- 01 04 00 00 Oil Change Service
- 01 03 00 00 Inspection including oil change with Mob. Guarantee every 30,000 km
- 01 03 00 01 Inspection including oil change with Mob. Guarantee every 60,000 km

Note

The 7th and 8th digits of the work item numbers in Elsa may deviate from those shown here.

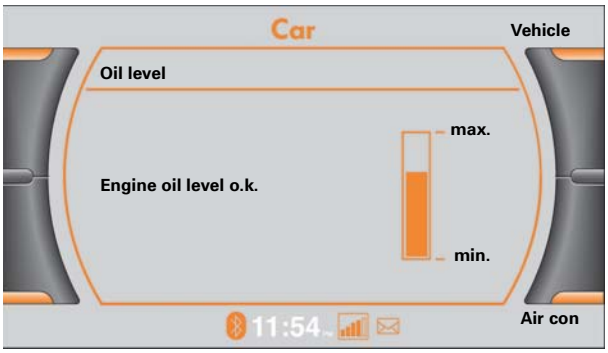
Reference

For further information on the work item numbers, please refer to Chapter 4 of the Service Organisation Handbook (HSO). - Business Management / 4.3 - Labour and Time Studies / 4.3.3 - Work Items

The electronic oil level indicator

On vehicles equipped with an electronic oil level sensor (engines without a dip stick), specific engine oil level information can be displayed on the MMI screen or radio display. The oil level messages previously displayed on the dash panel insert (e.g. minimum oil warning) remain unchanged.

Example of an MMI screen display



438_007

The following procedure must be followed when checking the oil level:

Park the vehicle in a horizontal position.

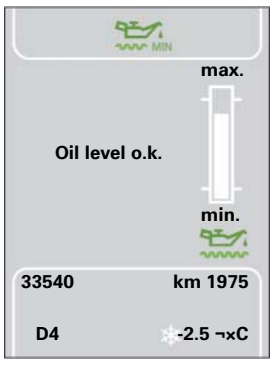
- Select: CAR> Oil Level function key.
- When the engine is running at operating temperature, allow it to idle briefly and then turn it off.
- Wait for approx. two minutes.
- Read the oil level on the display.
- Top up the engine oil if the indicated oil level is close to "min".

If the engine is not running at operating temperature or the vehicle is not on a level surface, textual warnings will be displayed.

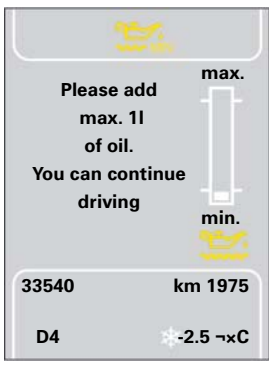
Examples of messages displayed on the dash panel insert

The following displays are possible:

- Normal oil level (green symbol) with text "Oil level o.k."
- Minimum oil level (yellow symbol) with text "Please add max. 1 litre. You can continue driving"
- Low oil level (red symbol) with text "Urgent: Please add oil"
- High oil level (yellow symbol) with text "Please reduce oil level"
- Faulty oil level sensor (yellow symbol) with text "Sensor faulty"



438_012



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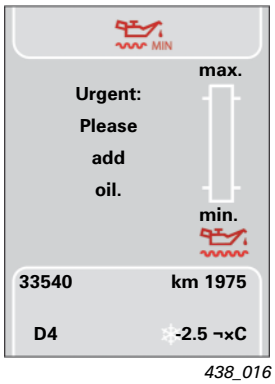


438_016

After opening the engine hood, the current oil level is indicated on the dash panel insert for approx. 10 seconds. In this case, too, the aforementioned requirements for oil level indication must be met.

Note

Not all possible displays have been shown here. In addition, the mode of representation of the displays on the dash panel insert can vary depending on model and engine type.

The Service Key

Since the introduction of the new key concept on the Audi A5, the ignition key supports a new function - the "Service Key".

438_046

The 2002 Audi A8 was the first Audi vehicle that could be identified through the transponder in the ignition key, and now, thanks to the Service Key recently introduced on the Audi A5, it is possible to store additional vehicle information on the key.

The key can be used for the storage of variable data (e.g. mileage), which assists the service consultant in checking for compliance with Service Core Processes.

Model	Model year	Vehicles that can be identified through the ignition key.	Vehicles that can write data to the key - Service Key -
Audi A3	2003	X	
Audi A4	2005	X	
Audi A4	2008	X	X
Audi A5	2008	X	X
Audi A6	2004	X	
Audi A6	2009 and from production week 46/08 onwards	X	X
Audi A8	2002	X	
Audi R8	2007	X	
Audi Q5	2009	X	X
Audi Q7	2005	X	
Audi Q7	2009 and from production week 46/08 onwards	X	X
Audi TT	2007	X	

The following data is stored on the Service Key:

- Mileage (km)
- Date and time of last save
- Wear data (brake pad) is indicated not OK, where applicable
- Fluid levels (washer fluid, coolant, brake fluid) is indicated not OK, where applicable
- Service Interval Data (in km and days)
- Warnings (e.g. front right turn signals not OK)
- Oil level (applies to vehicles with an electronic oil level indicator)

A key reader is available for reading the data of the Service Key. The reader can be connected to the workshop computer through an USB port. Data can be read out and displayed on screen using the supplied software.

The interface to the Service Key is already implemented on service systems such as Elsa and ETKA. The various Dealer Management Systems (DMS) can likewise process data (e.g. for generating work orders).
In this way, manual and multiple data entries can be eliminated.

438_047

Note

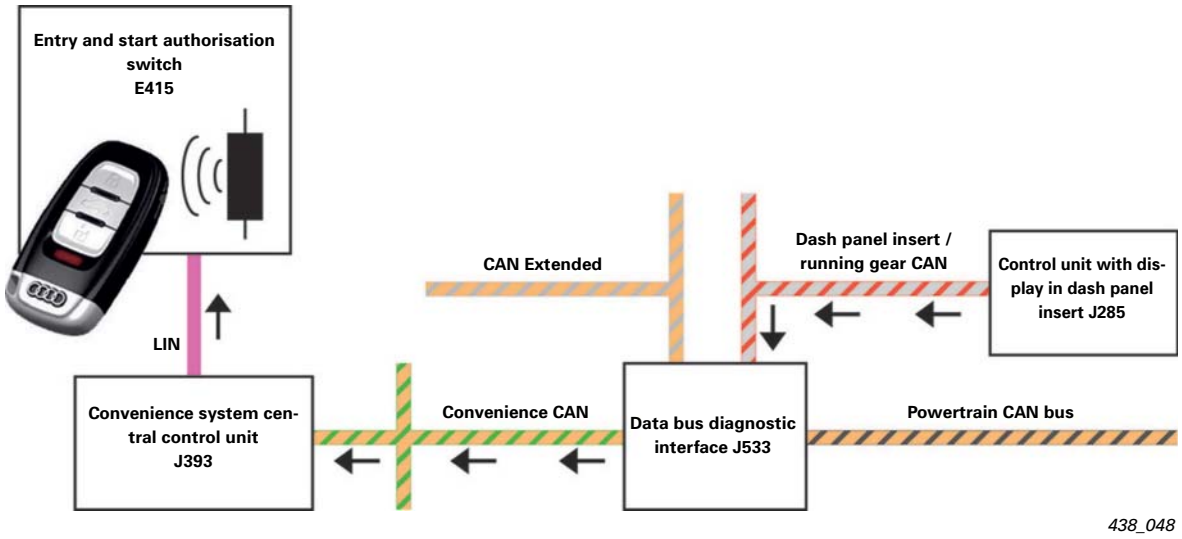
How and to what extent can the data stored on the Service Key be used on the various Data Management Systems depends on the software version. If in doubt, please consult your supplier!

At present, the key can only be written inside the vehicle. Data is saved to the ignition key:

- once a day after starting the vehicle
- every 20 km relative to the last save
- as soon as a new warning is issued

A further condition for saving is that the vehicle exceeds a speed of 20 kph for the duration of at least 40 seconds.

Networking of the key with the in-car control units (fig. applies to A5, A4´08 and Q5).



The data used for writing the key is supplied by the control unit with display in dash panel insert J285. The data is transferred via through the dash panel insert / running gear CAN, the data bus diagnostic interface J533 and the convenience CAN bus to the convenience system central control unit J393. The convenience system central control unit transfers the data through a LIN line to the entry and start authorisation switch E415, which in turn transmits the data wirelessly by means of a coil to the chip in the ignition key (description applies to A5, A4'08 and Q5).

When using the key reader, the vehicle data on the last key to be read out is available until a new key is read out or the Service Key program is restarted.

For this reason, please make sure that you have read out the correct key before using the Service Key functions on systems such as Elsa or ETKA, as otherwise you may not be working with the correct vehicle data.
This is also the case if, upon acceptance of the work order, the customer hands over a second key which possibly does not have the current mileage stored on it.

Note

Further and current information about the Service Key and the key reader can be found on the Audi Service Net at: Systems \ Service Key!
*applies to German market only!

Example showing how data is represented on the key reader.

Vehicle data

Vehicle data

Brand:	A	VIN:	WAUZZZ8T48A001042
Model year:	2008	Description:	A5 Coupe qTDI3.0 V6176 M6S
Sales type:	8T30H9	Production date:	Apr 2, 2007
Engine code:	CAPA	Delivery date:	Apr 12, 2007
Gearbox code:	KMU		

Colour specifications

Type	*Colour code*	*Description*
Exterior	P5	Ice Silver Metallic
Interior	GD	black/black-black/black/Star Silver

Service Key data

Service Key header data

Mileage	885 km
Date	12.04.2008
Time	11:02:39

Service Interval Display (SID)

Maintenance interval, oil, distance	Service due in 18,600 km
Maintenance interval, oil, time	Service due in 716 day(s)
Maintenance interval, inspection, distance	Service due in 29,400 km
Maintenance interval, inspection, time	Service due in 1,081 day(s)

Oil level

Oil quantity	1.125 l
Oil level	0.85 l
Oil quantity up to max	0.275 l
Min oil level warning	active

Service Key warnings

Equipment	*Status*
Rear right turn signal	not OK

The data in the "Oil level" category is only written to the ignition key if the vehicle is equipped with an electronic oil level sensor.

Glossary:

- Oil quantity: Indicates the value in litres between the min and max marks
- Oil quantity up to max: The max quantity of oil which must be added (provided that an oil level could be computed)
- Oil level: Oil level in litres from min mark

The following warnings can occur in addition to the oil level and oil quantity values:

- Min oil > add oil
- Low oil level warning > add oil (urgent)
- At angle > to obtain an exact reading the vehicle must not be at an angle
- Not at operating temp. > to obtain an exact measurement the engine must be running at operating temperature.

Maintenance example

The following example shows the cycle of a service visit from vehicle reception to return of the vehicle to the customer.

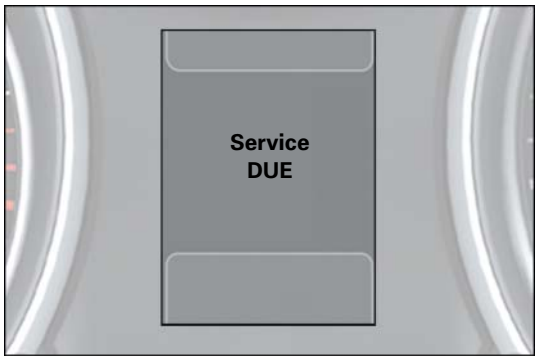
We will assume an annual mileage of approx. 28,000 km and accompany the vehicle until a vehicle age of 36 months and a mileage of approx. 85,000 km.

The following 5 events will be analysed:

Event	Mileage (km)	Vehicle age	Work done
1	26,135 km	11 months	LongLife Service (incl. oil change)
2	52,100 km	22 months	Flexible Oil Change Service (LongLife)
3	60,500 km	26 months	LongLife Service every 30,000 km (excl. oil change)
4	78,000 km	33 months	Flexible Oil Change Service (LongLife)
5	85,400 km	36 months	LongLife Service every 30,000 km (excl. oil change) Brake fluid change

Event 1

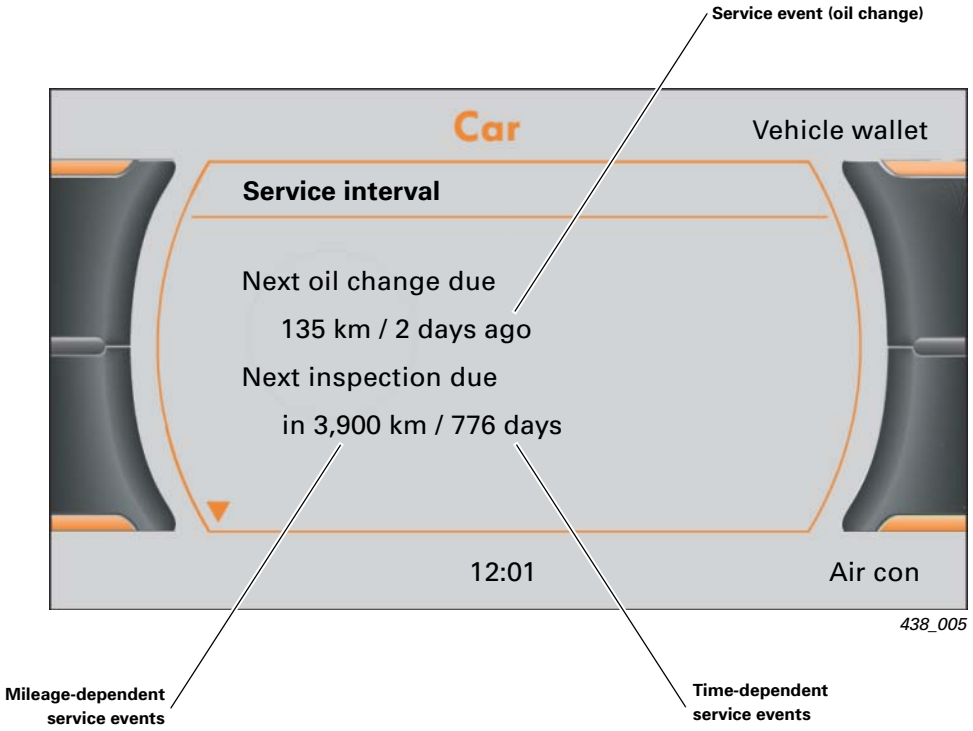
The customer has covered 26,135 km with his Audi A4 (initially registered in 10/2007) in 11 months .
This works out at an average monthly mileage of 2,363 km.
The message "Service due" appears on dash panel insert of the customer's vehicle.
Today's date is 02.09.2008.



438_044

With the new Service Interval Display, customers can now obtain additional information via the Car menu of the MMI or radio or via the dash panel insert menu.

Example of the Service Interval Display on the MMI screen



In this case, the customer has received a service reminder, because the Flexible Oil Change is due.

In our example, neither the mileage-dependent service event nor the time-dependent service event is due yet.

At the agreed service time, the service consultant reads out the data from the Service Key using the reader.

The MMI display is mirrored in the Service Key data under "Service Interval Display".

Vehicle data

Vehicle data

Brand:	A	VIN:	WAUZZZ8K78A000636
Model year:	2008	Description:	A4 saloon TD12.0 R4105 M6S
Sales type:	8K20QC	Production date:	Sep 26, 2007
Engine code:	CAGA	Delivery date:	Oct 18, 2007
Gearbox code:	JJG	Leasing:	

Colour specifications

Type	*Colour code*	*Description*
Exterior	L8	Phantom Black Pearlescent
Interior	GP	Mustang Brown/black-black/black/Star Silver

Service Key data

Service Key header data

Mileage	26,135 km
Date	02.08.2008
Time	10:43:48

Service Interval Display (SID)

Maintenance interval Oil Distance	Service due in 135 km
Maintenance interval Oil Time	Service due in 2 day(s)
Maintenance interval Inspection Distance	Service due in 3,900 km
Maintenance interval Inspection Time	Service due in 776 day(s)

Oil level

Oil quantity	1.125 l
Oil level	0.85 l
Oil quantity up to max	0.275 l
Min oil level warning	active

Service Key warnings

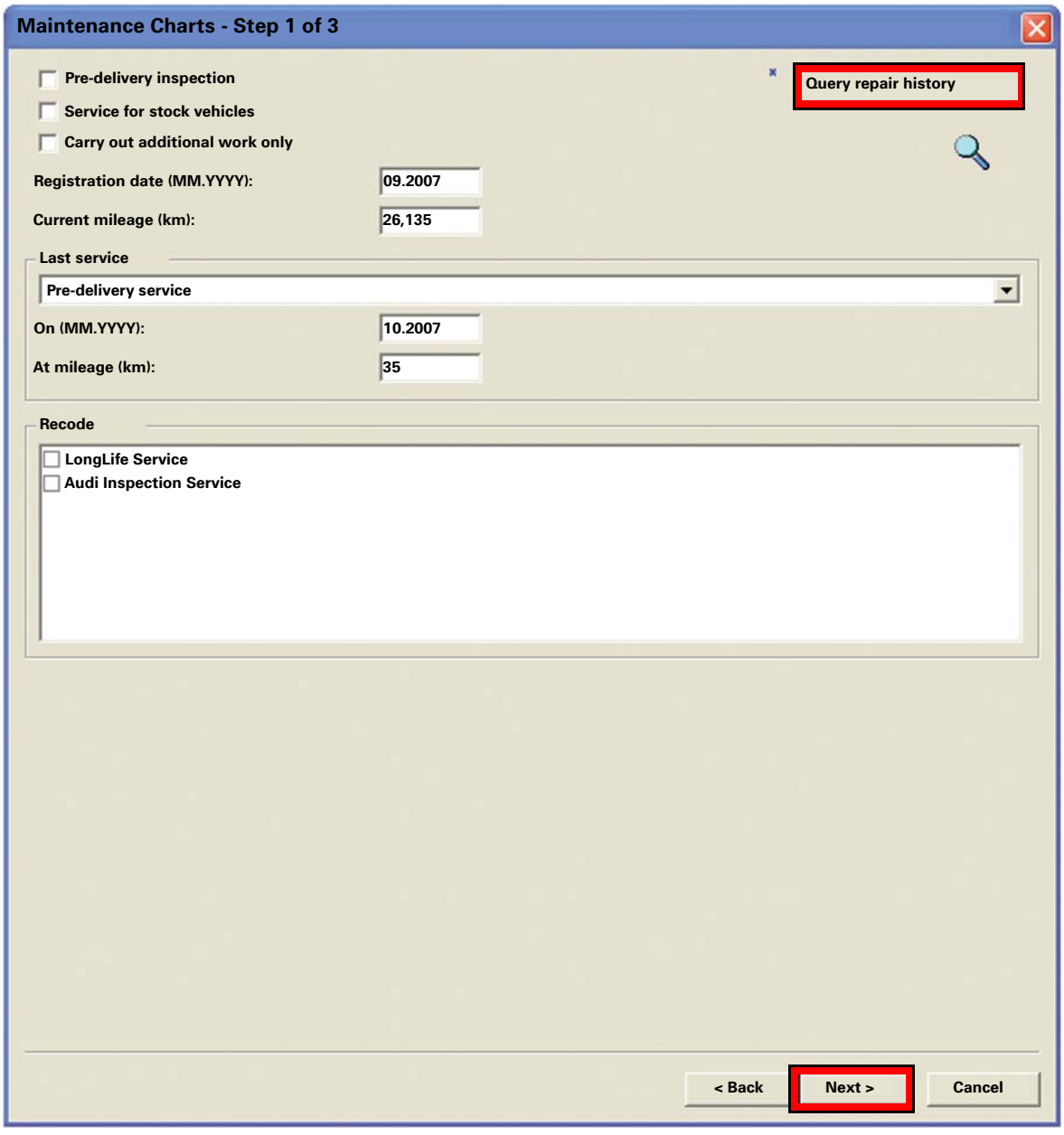
Equipment	*Status*
Rear right turn signal	not OK

After the "direct reception" process, the service consultant transfers the Service Key data to the Elsa system.

If no Service Key reader is available, then the mileage and VIN data must still be entered manually after reading the current mileage out of the dash panel insert.

The service consultant calls up the Maintenance Chart in Elsa and in Step 1 retrieves the repair history.

In this example, the last service to be performed was the Pre-delivery Service, which was carried out on the date of initial registration and at a mileage of 35 km.



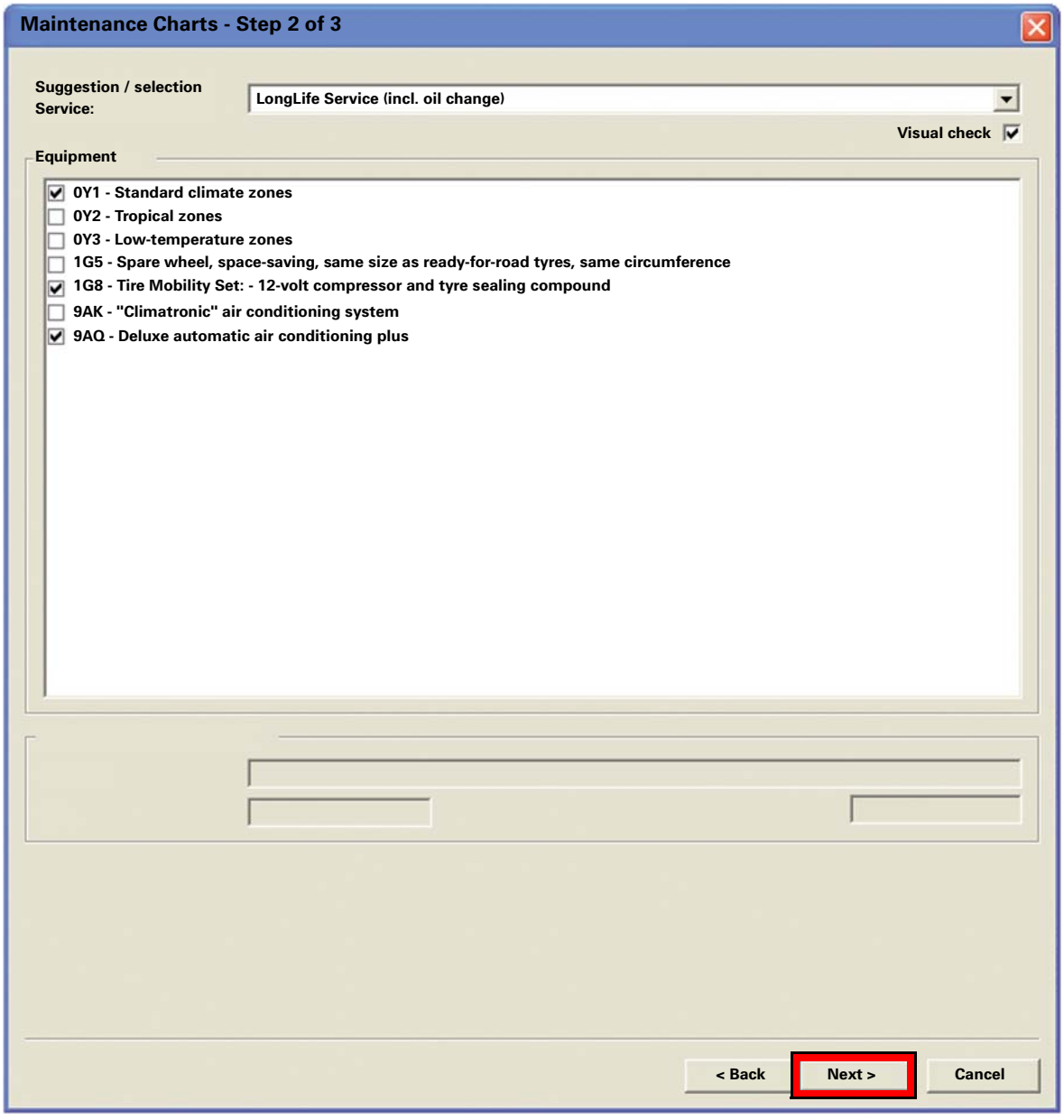
438_035

After entering the required data, press the "Next >" button and call up Step 2.

In Step 2, the service consultant automatically receives a service suggestion from the Elsa system.

The Flexible Oil Change Service is due on this vehicle. Since the difference to the next event (in this case it is the mileage-dependent event) is only 3,900 km, the Elsa system automatically suggests the LongLife Service (incl. oil change).
This means that under this driving profile and at a difference of less than 5,000 km the next service event can be brought forward and combined with the Flexible Oil Change Service.

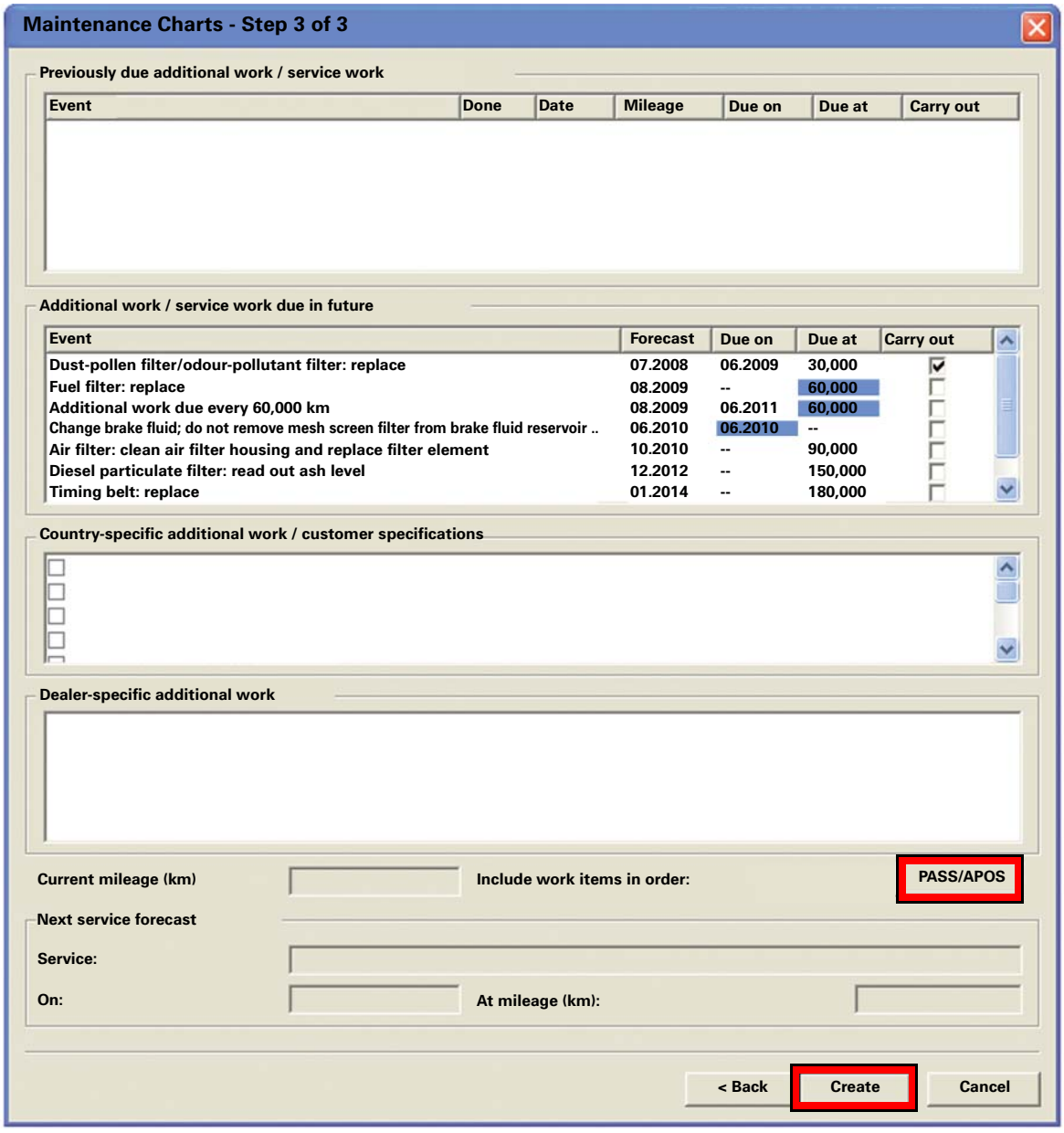
In this case, the service consultant should advise the customer of the options available. The Elsa system assumes that the customer's driving profile will remain unchanged, and therefore suggests combining the flexible event with the mileage-dependent event. The decision as to what work is actually done of course rests ultimately with the customer.



438_036

As soon as you have selected a service event, ticked off the "Visual check" box and checked the equipment, press the "Next>" button.

In Step 3 the service consultant confirms the change of pollen filter.
After this press the "PASS/APOS" button to transfer the work items or packages to the order generated in DMS.

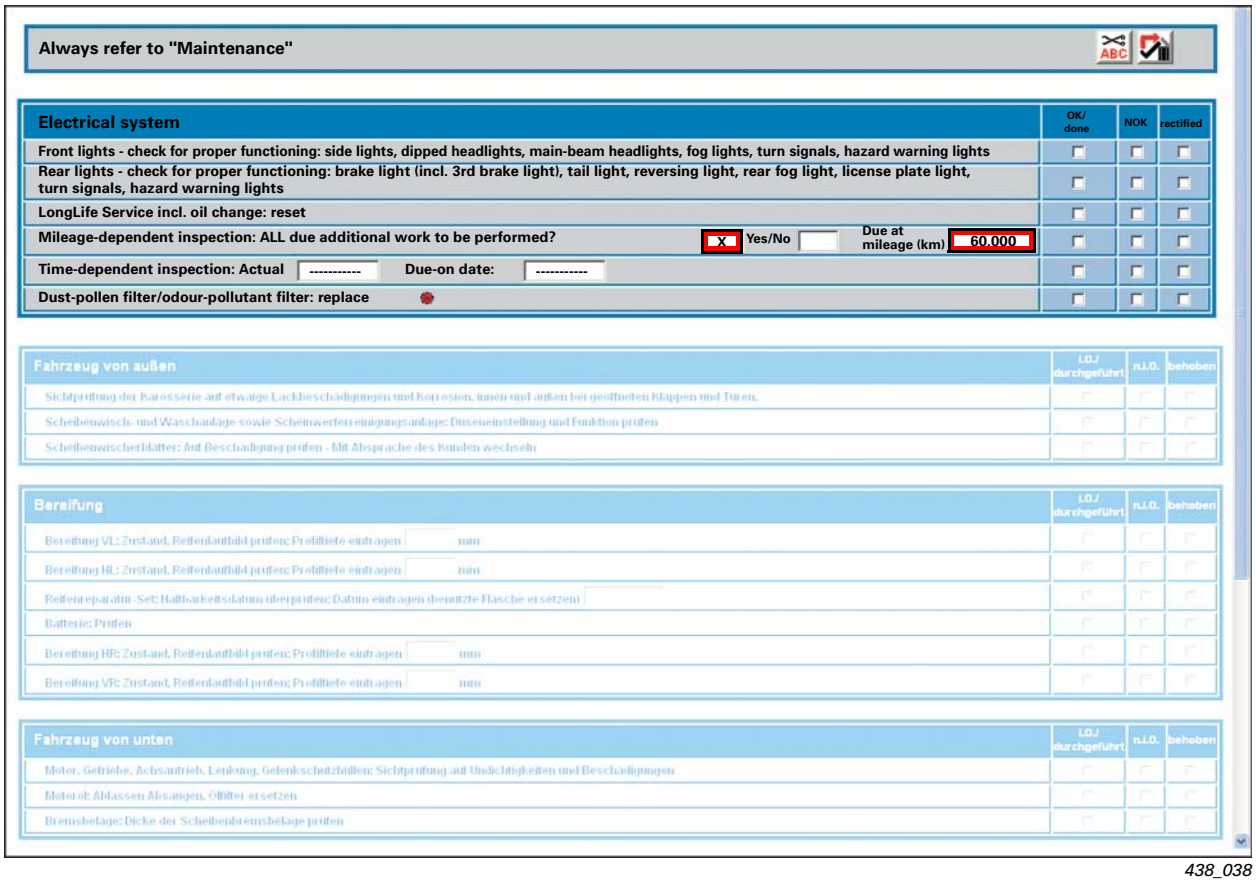


438_037

The service consultant should now note when the next mileage-dependent and time-dependent events are due. This data must then be entered in the Maintenance List, which is generated by pressing the "Create" button.

In the Maintenance List generated by the Elsa system, answer "Yes" to the question "ALL due additional work to be performed?" in the line "Mileage-dependent inspection" and enter the value 60,000 in the box "Due at mileage".

In our example, no entry is made in the line "Time-dependent inspection". In this case, the time-dependent event would be the brake fluid change in 11.2010, i.e. in 776 days, and this value is already displayed on the MMI screen.
Lines of text which are displayed in the Maintenance List but cannot be filled in because service work has been done should be scored out by the service consultant. This clearly indicates to the mechanic that he does not have to re-set the Service Interval Display for this particular work item.



438_038

After the data has been entered in the Maintenance List, this list can be printed.
The Maintenance List represents the bill of work for the mechanic, and provides him with the data he requires to reset or re-set the Service Interval Display.
In the first line under the vehicle data, the mechanic can see which service work is to be performed. In our case, this is the "LongLife Service (incl. oil change)".
The mechanic will also find this term in the diagnostic tester options menu, when it comes to setting the Service Interval Display.

Maintenance List

Order number	Model	License plate	Initial registration
90,00016857	8K20QC		2007-10
VIN	**Engine code**	**Mileage (km)**	**Service consultant**
WAUZZZ8K78A000636	CAGA	26,135	
Model designation	**Gearbox code**	**Model year**	**Date**
A4 saloon TDI2.0 R4105	JJG	2008	2008-9-02

LongLife Service (incl. oil change)

Electrical system	OK/ done	NOK	rec-tified
Front lights - check for proper functioning: side lights, dipped headlights, main-beam headlights, fog lights, turn signals, hazard warning lights	☐	☐	☐
Rear lights - check for proper functioning: brake light (incl. 3rd brake light), tail light, reversing light, rear fog light, license plate light, turn signals, hazard warning lights	☐	☐	☐
LongLife Service incl. oil change: reset	☐	☐	☐
Mileage-dependent inspection: ALL due additional work to be performed? X Yes/No ☐ Due at mileage (km) 60,000	☐	☐	☐
Time-dependent inspection: Actual ---------- Due-on date: ----------	☐	☐	☐
Dust-pollen filter/odour-pollutant filter: replace	☐	☐	☐

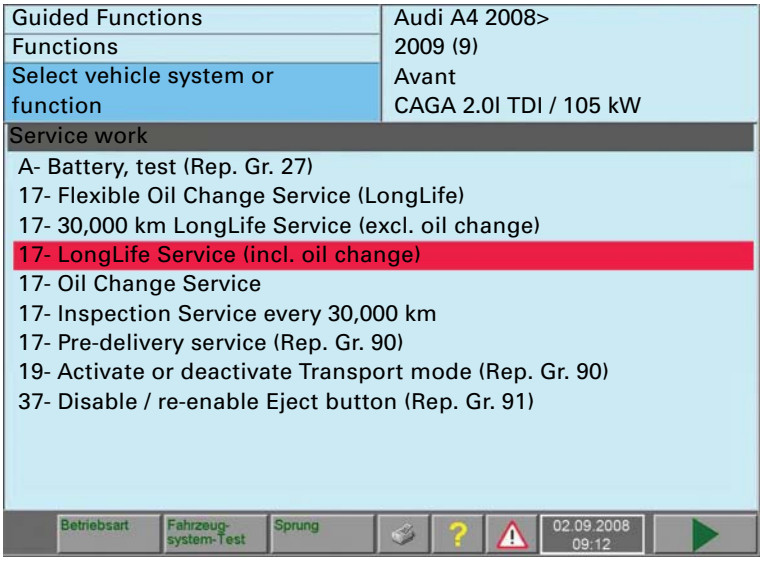
Fahrzeug von außen	i.O./ durchgeführt	n.i.O.	behoben
Sichtprüfung der Karosserie auf etwaige Lackbeschädigungen und Korrosion, innen und außen bei geöffneten Klappen und Türen.	☐	☐	☐
Scheibenwisch- und Waschanlage sowie Scheinwerferreinigungsanlage; Düseneinstellung und Funktion prüfen	☐	☐	☐
Scheibenwischerblätter: Auf Beschädigung prüfen - Mit Absprache des Kunden wechseln	☐	☐	☐

Bereifung	i.O./ durchgeführt	n.i.O.	behoben
Bereifung VL: Zustand, Reifenluftbild prüfen; Profiltiefe eintragen ____ mm	☐	☐	☐
Bereifung HL: Zustand, Reifenluftbild prüfen; Profiltiefe eintragen ____ mm	☐	☐	☐
Reifenreparatur-Set: Haltbarkeitsdatum überprüfen; Datum eintragen (benutzte Flasche ersetzen)	☐	☐	☐
Batterie: Prüfen	☐	☐	☐
Bereifung HR: Zustand, Reifenluftbild prüfen; Profiltiefe eintragen ____ mm	☐	☐	☐
Bereifung VR: Zustand, Reifenluftbild prüfen; Profiltiefe eintragen ____ mm	☐	☐	☐

Fahrzeug von unten	i.O./ durchgeführt	n.i.O.	behoben
Motor, Getriebe, Achsantrieb, Lenkung, Gelenkschutzhüllen: Sichtprüfung auf Undichtigkeiten und Beschädigungen	☐	☐	☐
Motoröl: Ablassen/Absaugen, Ölfilter ersetzen	☐	☐	☐
Bremsbeläge: Dicke der Scheibenbremsbeläge prüfen	☐	☐	☐

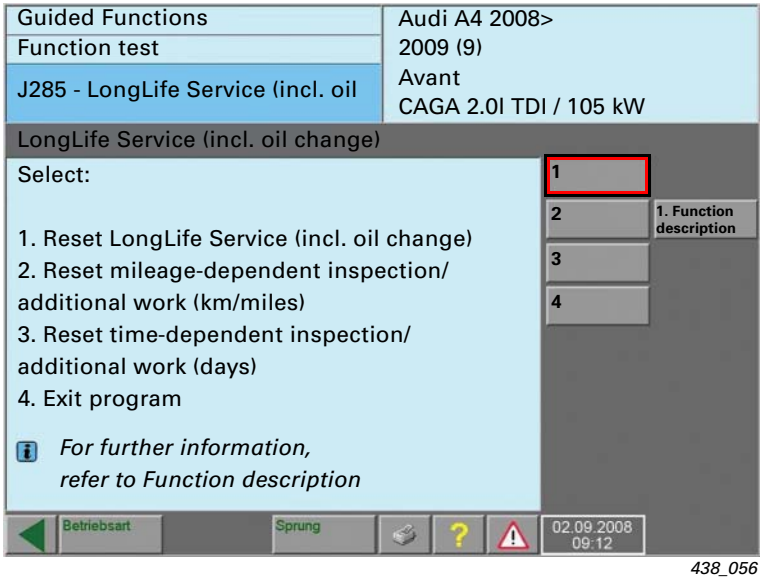
438_040

Upon completion of the work detailed in the Maintenance List, the mechanic must reset or re-set the Service Interval Display. This is done in the "Guided Functions" or "Guided Fault Finding" mode of the diagnostic tester 505X. After selecting a vehicle, the program corresponding to the work done can be selected in the "Service work" menu. In this example, program "17 , - LongLife Service (incl. oil change)" is selected.



438_055

As soon as the diagnostic tester has opened the program, the exact same terms as used in the Maintenance List are available for selection.



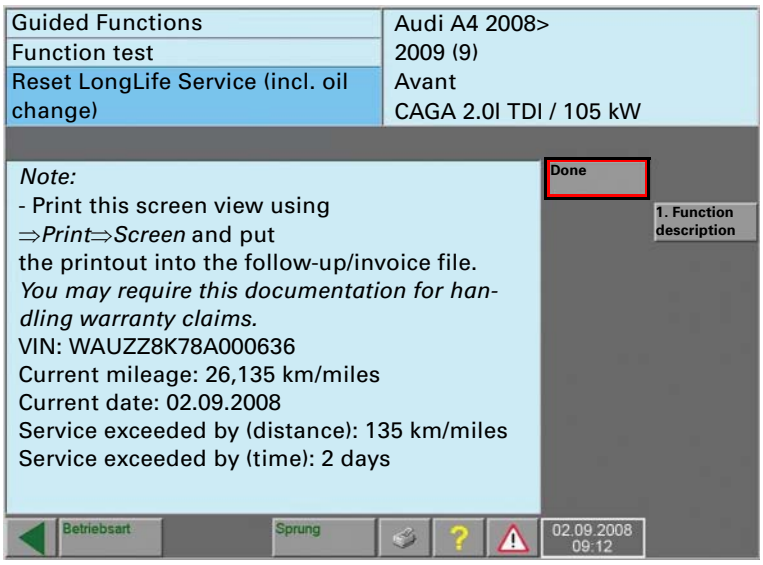
438_056

Firstly, the mechanic presses button 1 in order to select the LongLife Service (incl. oil change).

Note

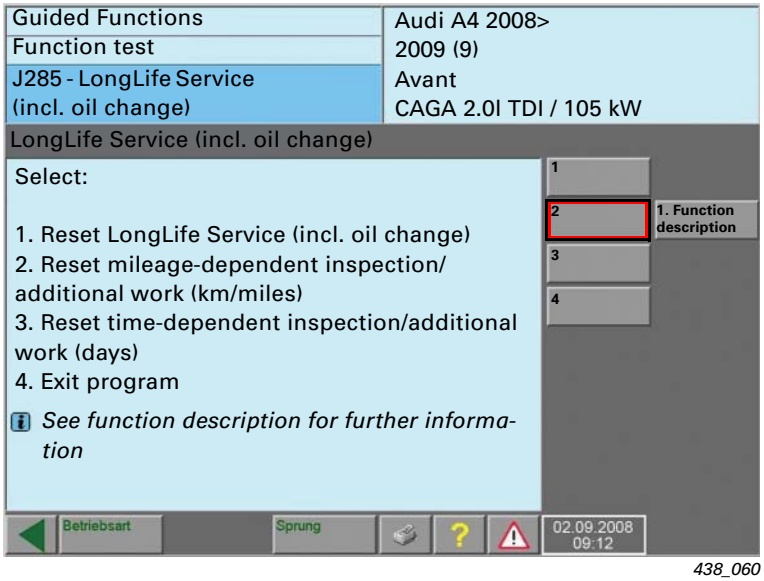
The diagnostic tester screens shown in this SSP are limited to the key work steps. Minor differences are possible due to software modifications.

The diagnostic tester advances the program and reads the information out of the vehicle's dash panel insert.



438_059

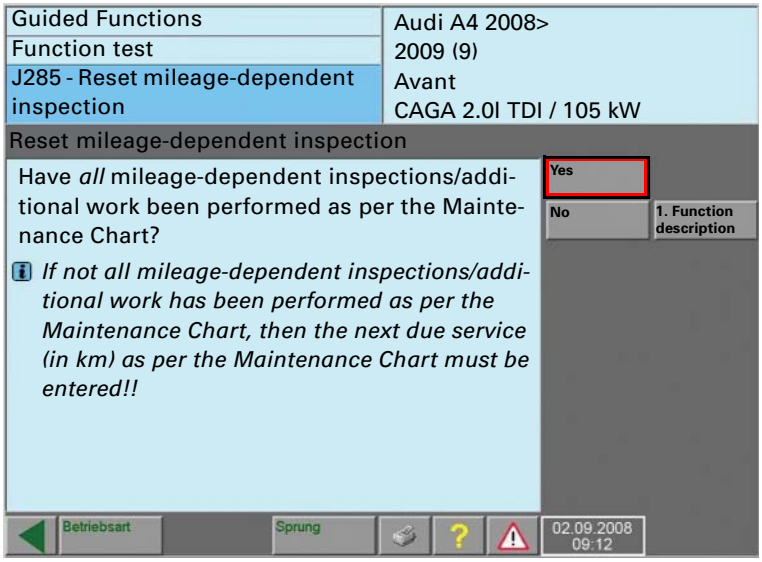
As already described on the diagnostic tester interface, the overdue service can be documented by printing the screen. After the mechanic has given the necessary confirmations, the diagnostic tester resets the oil change. The mechanic then returns to the Options menu.



438_060

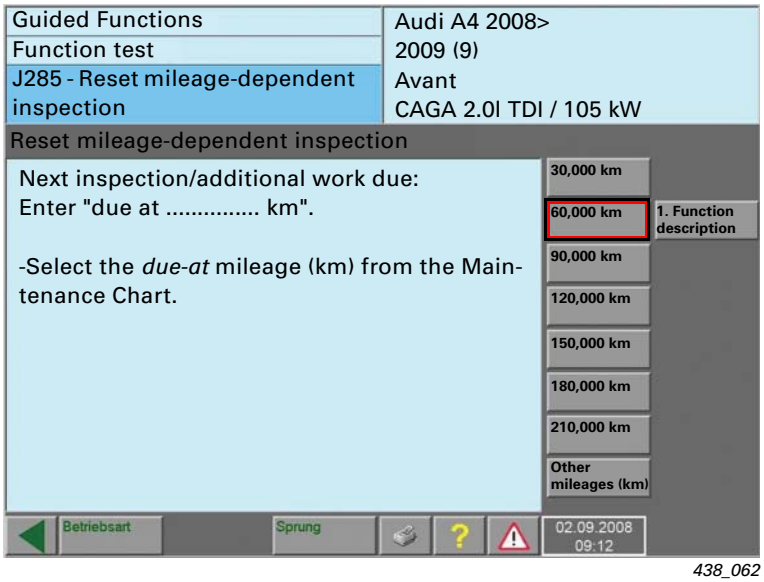
The next step is to reset and re-set the mileage-dependent inspection by pressing button 2.

After several queries on the country version etc., the following screen appears on the diagnostic tester:



438_061

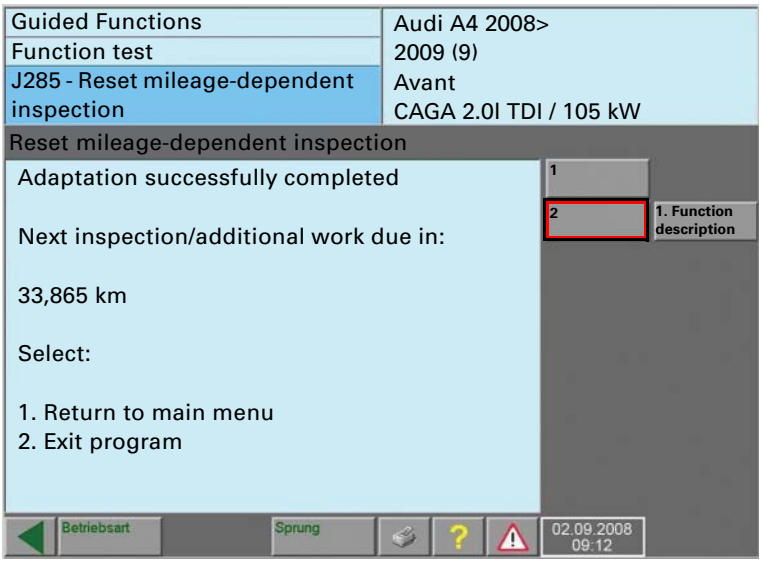
The answer "Yes" must be given to this query.
If this is not done, then the program will assume the work done at 30,000 km is still not due. Consequently, it would not be possible for the service consultant to set the Service Interval Display to 60,000 km as per the Maintenance List.
In our example, the mechanic answers "Yes" to the query, and the program confirms that the interval has been reset. On the next interface, the mechanic must select the mileage (km) figure entered into the Maintenance List by the service consultant. In our example, this is 60,000 km.



438_062

When recalculating for the mileage-dependent event, the diagnostic tester does not add 30,000 km to the current mileage but always calculates to the next multiple of 30,000 km. This means that, as far as mileage-dependent work is concerned, the customer is always alerted to the next due service punctually by or shortly before the next multiple of 30,000 km.

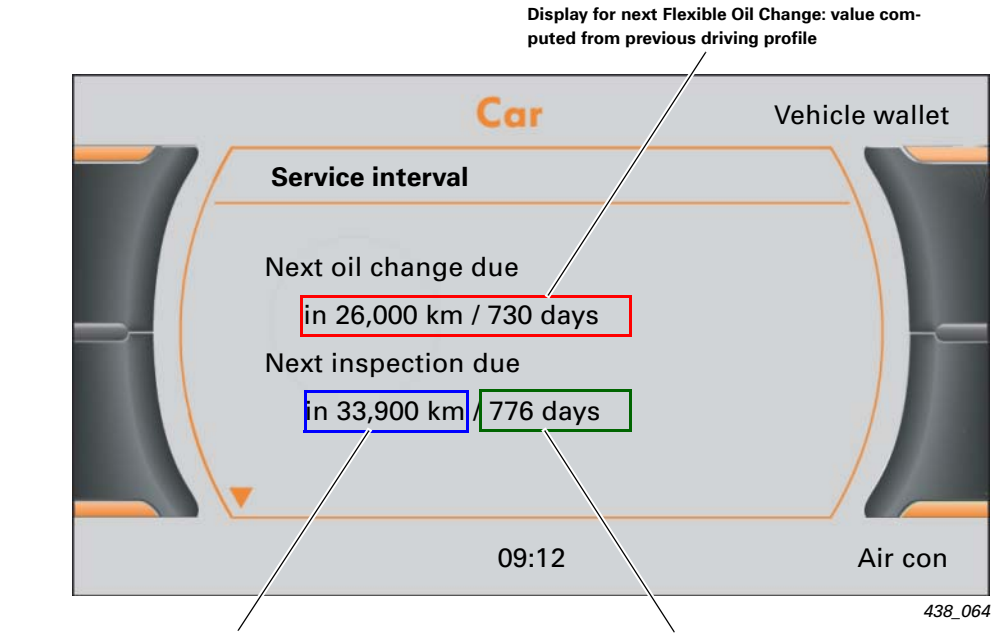
The program now calculates the difference between the vehicle's mileage (in our example it is 26,135 km) and the limit selected by us for the next mileage-dependent service event (in this case it is 60,000 km), whereupon it displays this value and enters it into the dash panel insert. 60,000 km minus 26,135 km equals 33,865 km, which is rounded up to 33,900 km.
This means that the interval to the next mileage-dependent service is now greater than 30,000 km in our example, as we have brought forward the service.



438_063

The mechanic can now exit the program. The value for the time-dependent interval is not changed.

After resetting or setting the Service Interval Display, the following display will appear on the MMI screen:
The values for the next Flexible Oil Change are entered in the first line. The maximum possible interval is not given here, rather a value computed from the previous driving profile. The interval is recalculated after another 500 kilometres. In the early releases of the software, a black box was displayed on the dash panel insert after resetting until such time as the interval was recalculated (e.g. on a new vehicle).
The following information appears in the second line:
firstly, 33,900 km, being the calculated number of kilometres until the next mileage-dependent event (in this example it is 60,000 km), and, secondly, 776 days, being the number of days until the first time-dependent event (same as before service).



438_064

After all work has been done by the mechanic, the service consultant must write the invoice and fill in the Service Plan by way of documentation for the customer.
The following work item numbers were included when generating the Maintenance Chart:

- 01 09 00 00 LongLife Service including oil change with Mob. Guarantee every 30,000 km

- 85 18 19 50 Replace dust and pollen filter

Example showing how to fill in the Service Plan. All boxes must be filled in to clearly show which work has been done.

Service Records

Audi LongLife Service: Yes/No

☒ ☐ **Oil change**

☒ ☐ **Audi Inspection**

Audi Inspection Service Yes/No

☐ ☒ **Oil change**

☐ ☒ **Audi Inspection**

Additional work: Yes/No

☐ ☒ **Brake fluid**	☐ ☒ **Air filter**
☐ ☒ **Spark plugs**	☐ ☒ **Fuel filter**
☒ ☐ **Dust and pollen filter**	☐ ☒ **Haldex: oil**
☐ ☒ **Multitronic: oil**	☐ ☒ **S tronic: oil and filter**
☐ ☒ **Timing belt**	

Mileage (km): 26,135 **Invoice number**

Mobility Guarantee valid to:

Service display

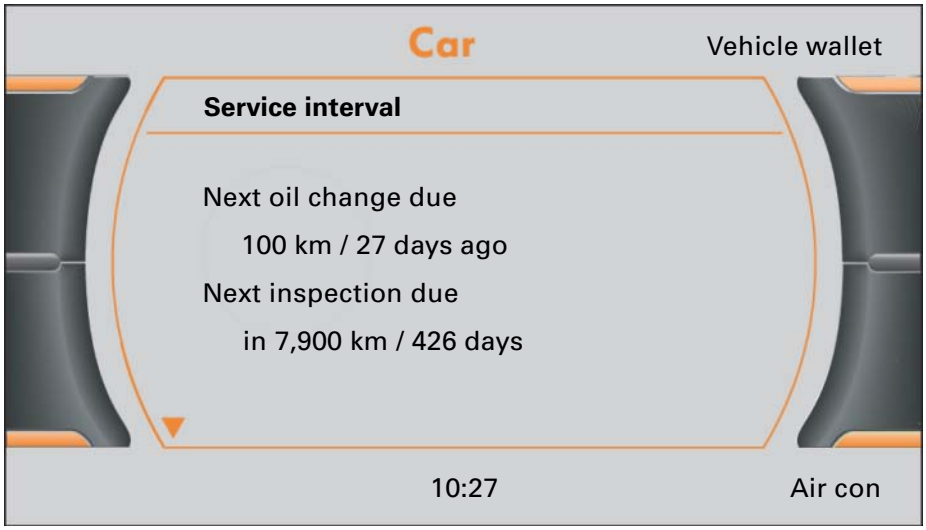
Date and stamp of Audi dealership

438_065

Event 2

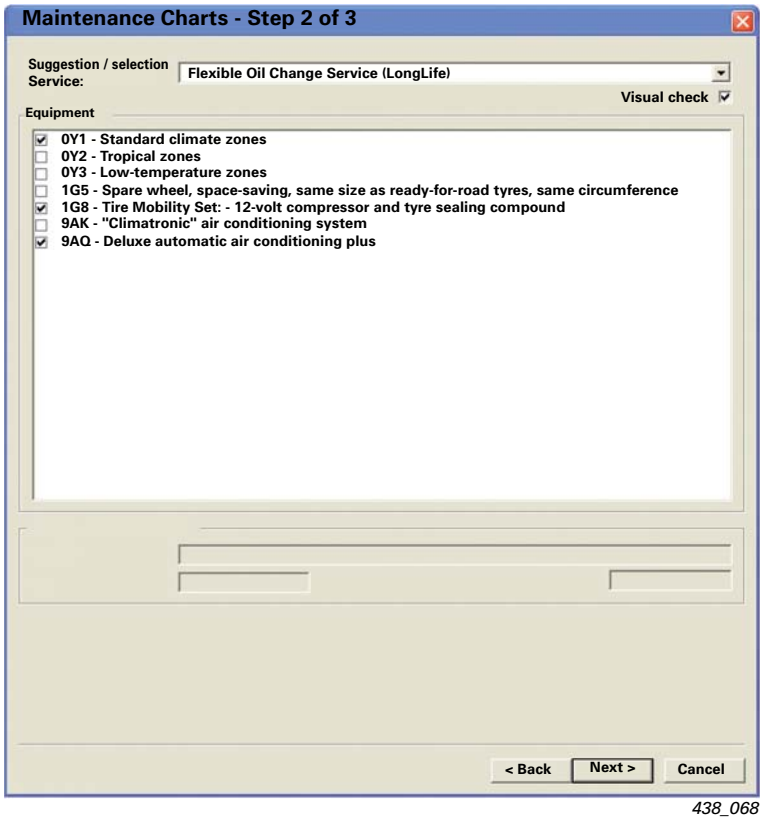
We will continue this example under the assumption that the driving profile will remain unchanged (approx. 2,363 km per month). The driver will again be reminded that a service is due after a total of 52,100 km have been covered and the vehicle reaches an age of 22 months.

Display on MMI screen:



438_066

The Flexible Oil Change is due. The next mileage-dependent event is not due for another 7,900 km. After consulting with the customer, only the Flexible Oil Change Service (LongLife) is carried out.
The following Maintenance Chart shows the data entered in Elsa:

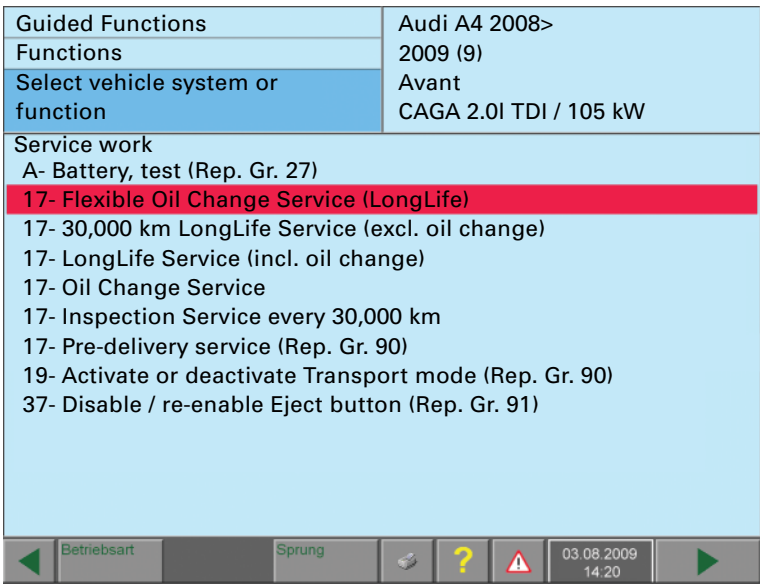


438_068

Reference

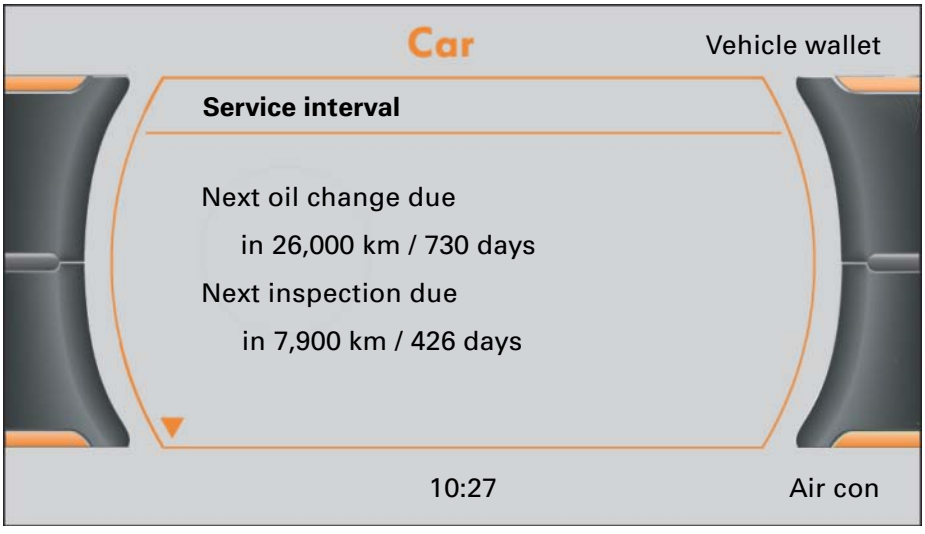
The Maintenance List for the Flexible Oil Change Service (LongLife) is shown on page 10 (Fig. 438_058).

After the work has been completed, the mechanic resets the Flexible Oil Change Service (LongLife) using the diagnostic tester as directed in the Maintenance List.



438_067

The following display then appears on the MMI screen:



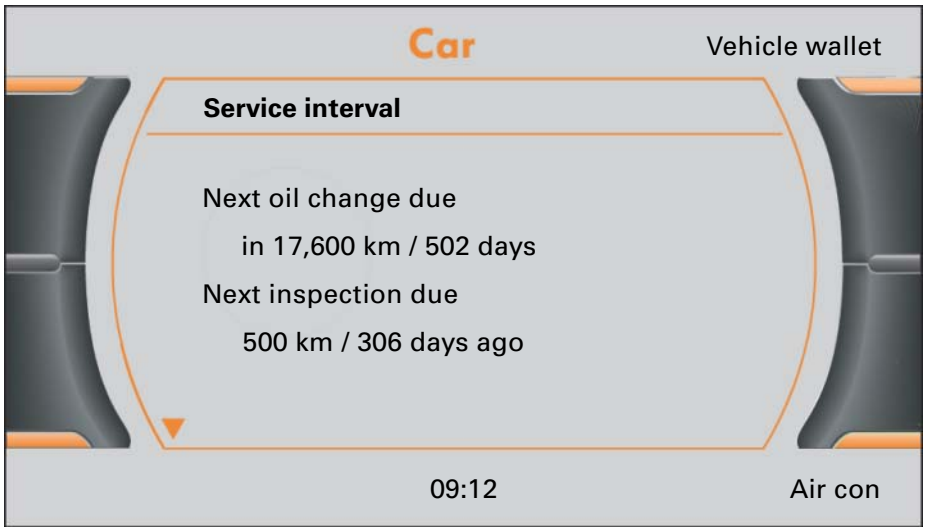
438_070

By resetting the Flexible Oil Change, a new entry, again computed from the driving profile, is made in the first line.
Both values in the second line remain unchanged.
The customer can now continue driving another 7,900 km until the next mileage-dependent event is due (inspection at 60,000 km).
The Mobility Guarantee is valid until then. The service consultant completes the Service Record and writes an invoice for the following work item:
01 14 00 00 Flexible Oil Change Service (LongLife).

Event 3

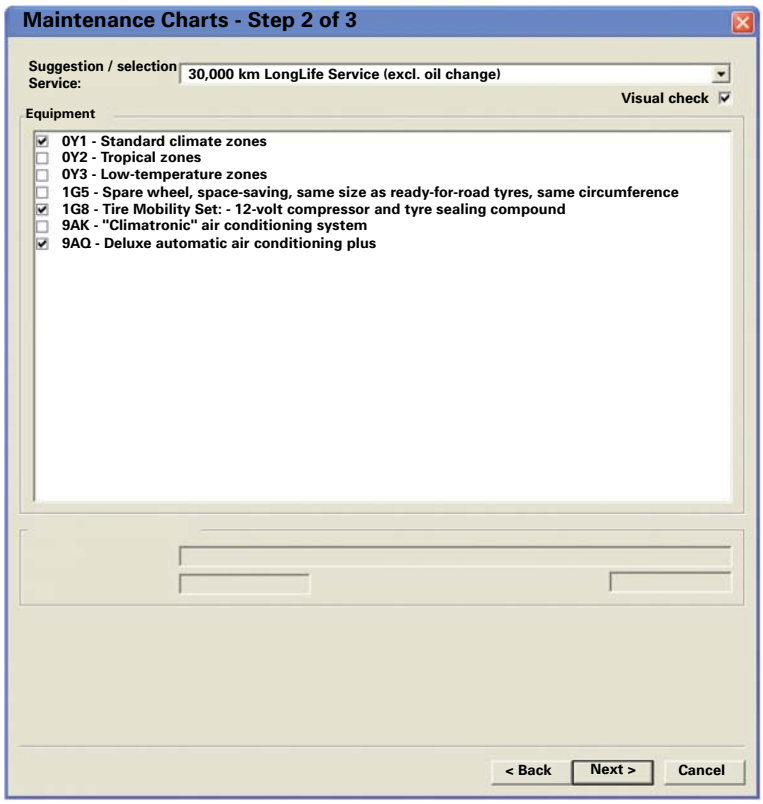
After approximately 26 months, the vehicle has reached a mileage of 60,000 km.
The customer is reminded that a service is due by the Service Reminder on the dash panel insert, but continues driving until a mileage of 60,500 km before taking the car in for servicing.
The MMI screen informs customer that this time he has received the Service Reminder for a mileage-dependent event that was due 500 km ago.

Display on MMI screen:



438_071

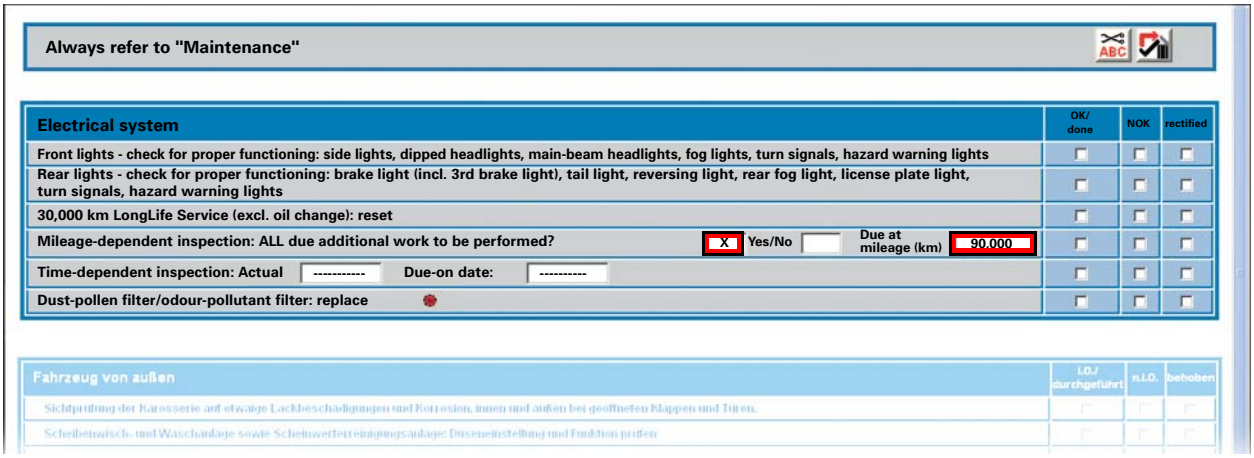
After the service consultant enters the data in Elsa, the 30,000 km LongLife Service (excl. oil change) is suggested. After consulting with the customer, this service is carried out.
The following is displayed on the Elsa screen.



438_072

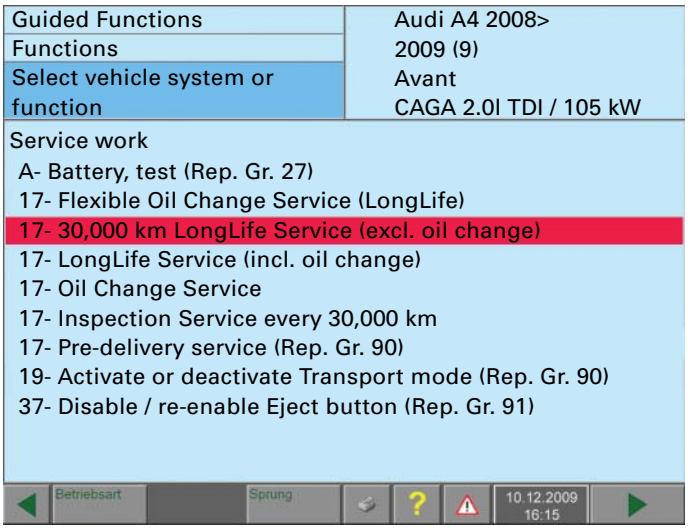
The service consultant completes the boxes under 'Electrical system' so that the mechanic knows how to reset or re-set the Service Interval Display.

The answer "Yes" must be given to question "ALL due additional work to be performed?" and the value 90,000 entered for the next due mileage-dependent event. A time-dependent event is still not due, so the boxes in that line are scored out by the service consultant.

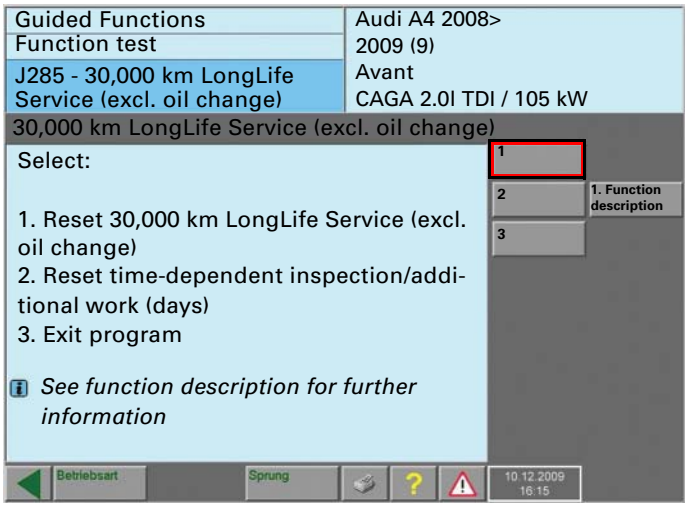


438_057b

The mechanic performs the 30,000 km LongLife Service (excl. oil change), ticks off the Maintenance List and resets the Service Interval Display using the diagnostic tester.

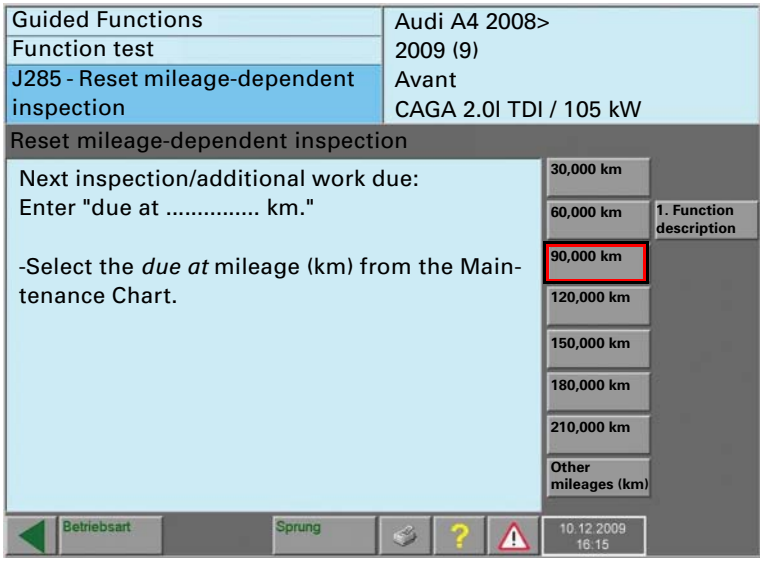


438_073



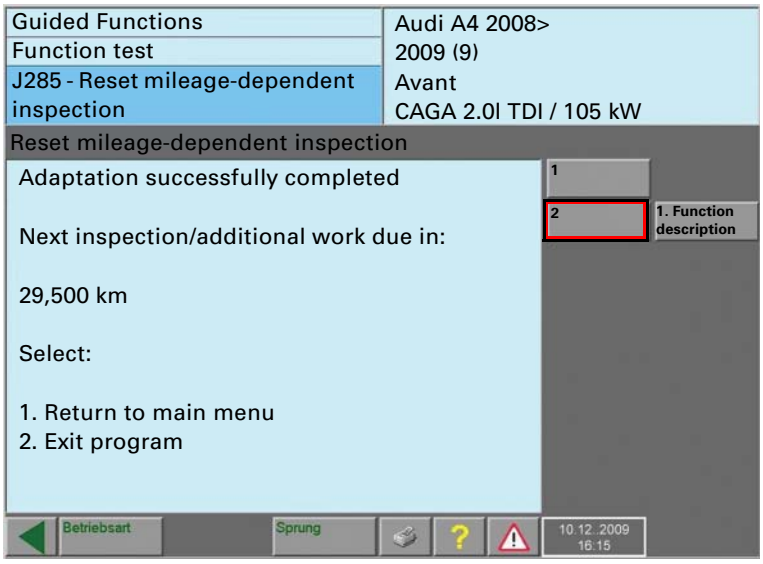
438_074

After querying whether the service should be reset and whether all due work has been performed, the mechanic must (in our example) then select the "90,000 km" button as entered in the Maintenance List by the service consultant.



438_075

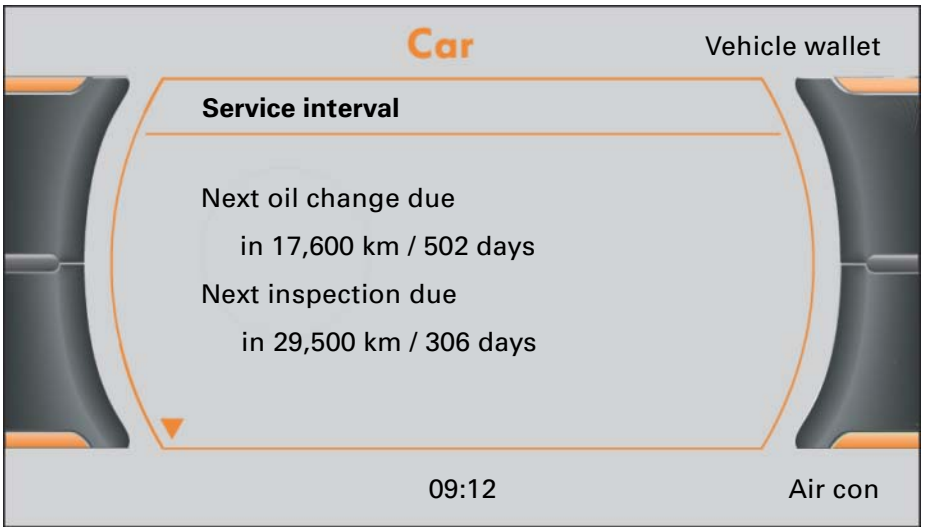
After recalculating, the diagnostic tester displays the following information:



438_076

As the customer has exceeded the preset interval by 500 km, only 29,500 km (and not 30,000 km) are approved to the next mileage-dependent event.

This following effects on the Service Interval Display on MMI screen:



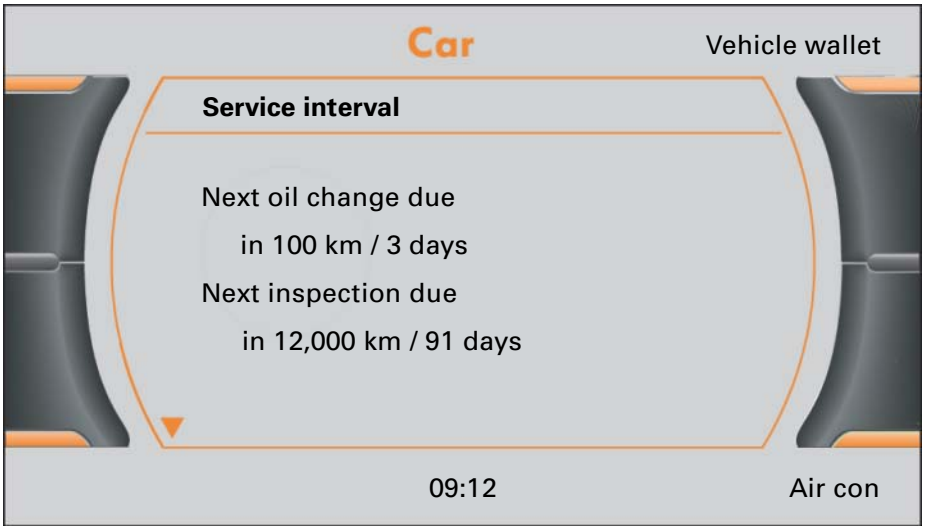
438_077

Since no oil change was performed, line 1 remained unchanged.
The value from the diagnostic tester was transferred to line 2. In this case, the customer is given a green light until the next mileage-dependent event in 29,500 km (in our example it is up to a total mileage of 90,000 km).
The second value in line 2 was not changed.
The service consultant now fills in the Service Plan based on the work done and writes a the invoice. In this case, the correct work items are:01 34 00 01 LongLife Service every 60,000 km (excl. oil change) plus 85 18 19 50 - Replace dust and pollen filter.

Event 4

In our example, the customer receives the next Service Reminder at a mileage of 78,000 km. The vehicle is then 33 months old.

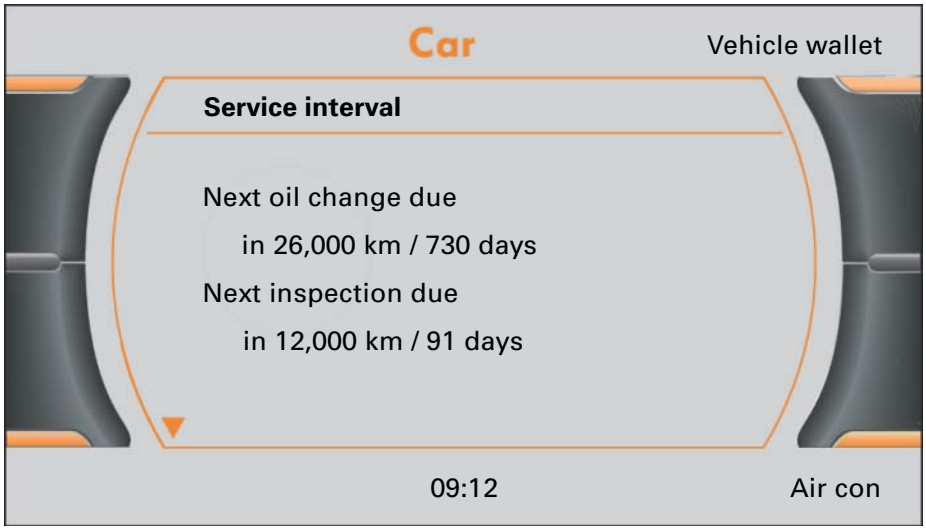
The display on the MMI screen shows the customer that the next Flexible Oil Change is due.



438_078

The next mileage-dependent event is not due for another 12,000 km. The Flexible Oil Change Service (LongLife) is carried out.
The procedures for generating the Maintenance List, resetting the Service Interval Display, preparing the invoice and filling in the Service Plan are the same as for the work done at 52,100 miles in our example and, therefore, are not shown again here.

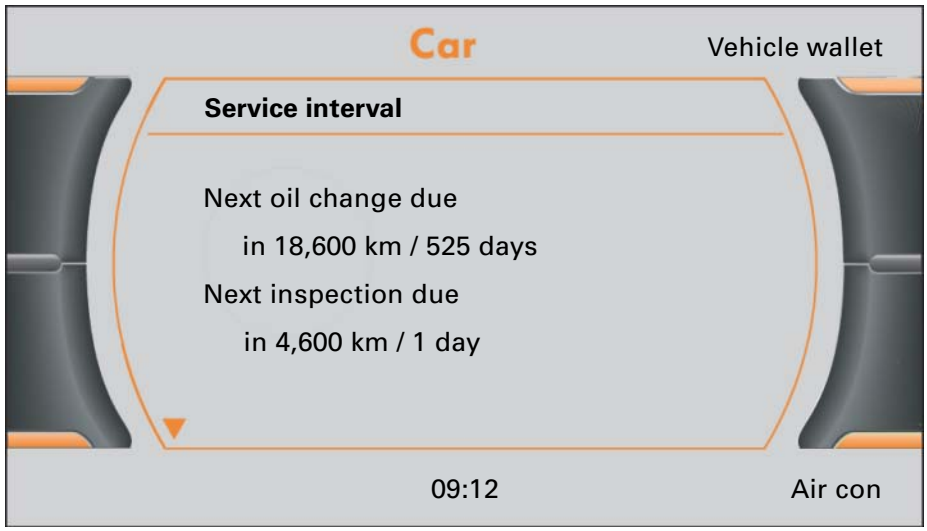
After resetting the Flexible Oil Change Service (LongLife), the following display will appear on the MMI screen:



438_079

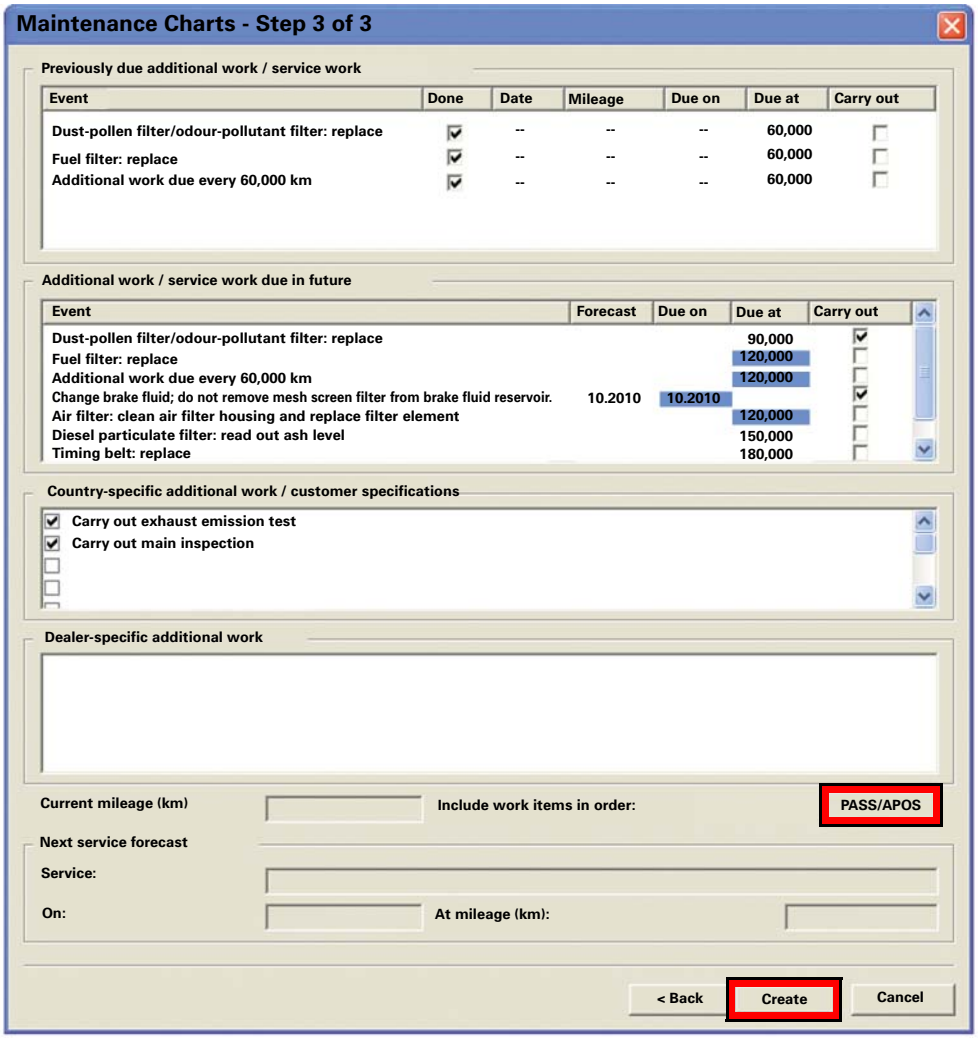
Event 5

36 months after initial registration of the vehicle, the customer is again given a Service Reminder. Our vehicle has covered a total of 85,400 km during this 36 month period. A glance at the Service Interval Display on the MMI screen shows that the first time-dependent event, namely the first brake fluid change, is due in one day's time.

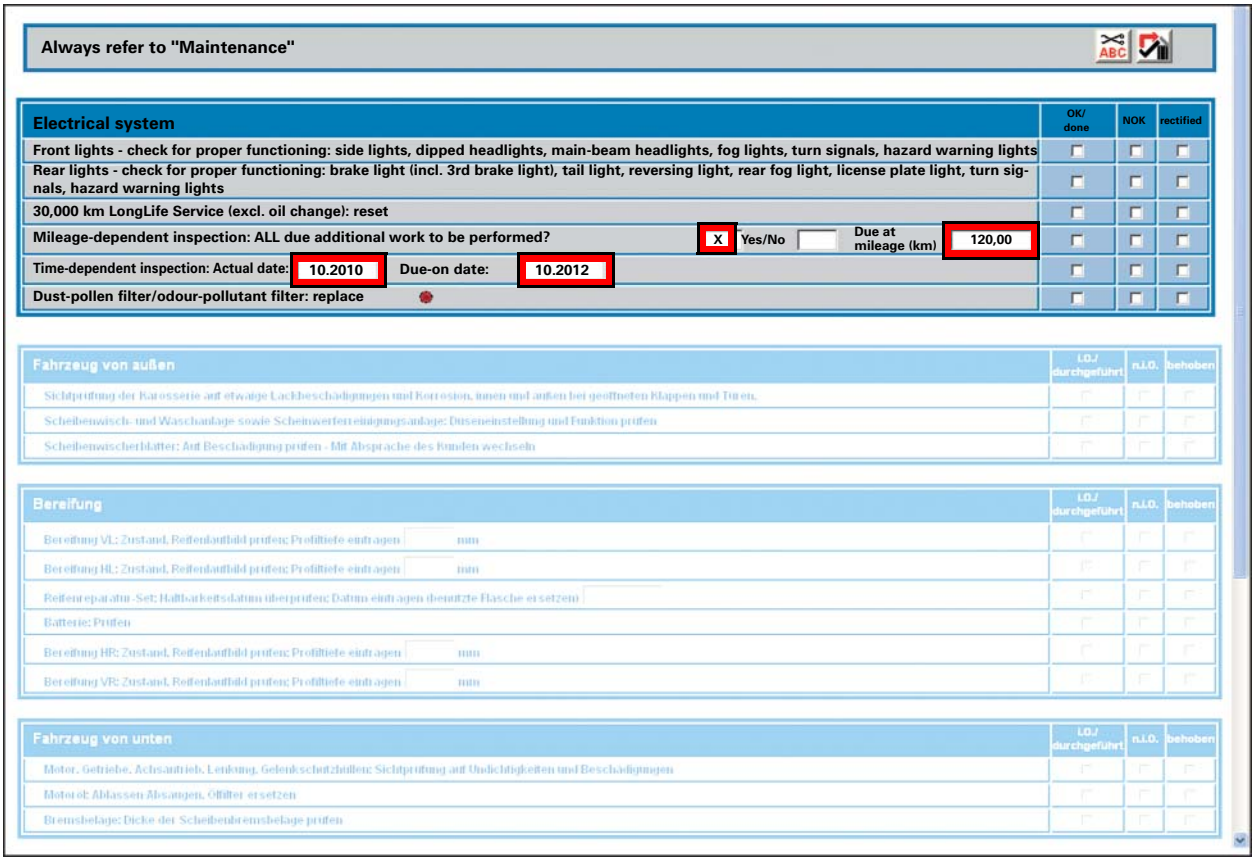


438_080

However, the display also informs the customer that only 4,600 km remain until the next mileage-dependent event. In this case, the service consultant can again recommend combining two service events - the brake fluid change and the 30,000 km LongLife Service (excl. oil change). In Germany, the exhaust emission test and the main inspection would also be due at this vehicle age.
If this work is not commissioned by the customer, the following display will appear on the Elsa screen:



438_091

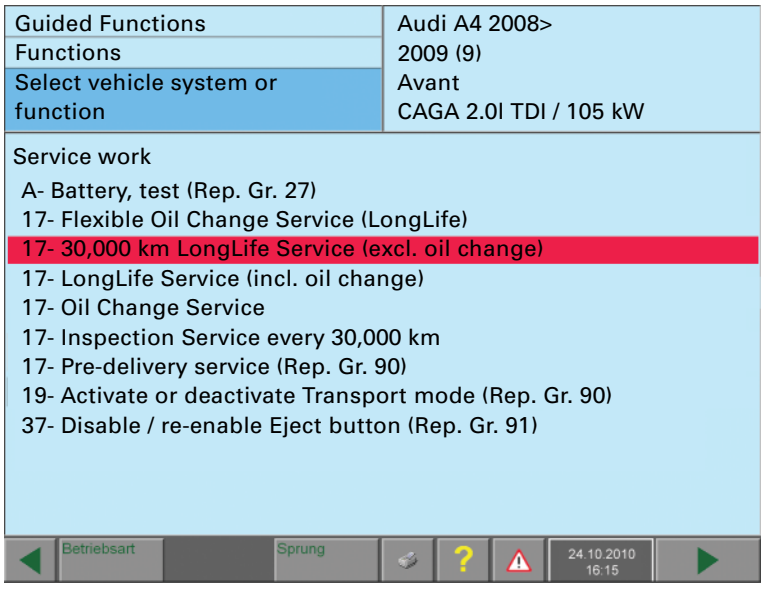


438_090

Answer "Yes" to the question "Is ALL due additional work to be due?" and enter the value 120,000 for the next due mileage-dependent event.

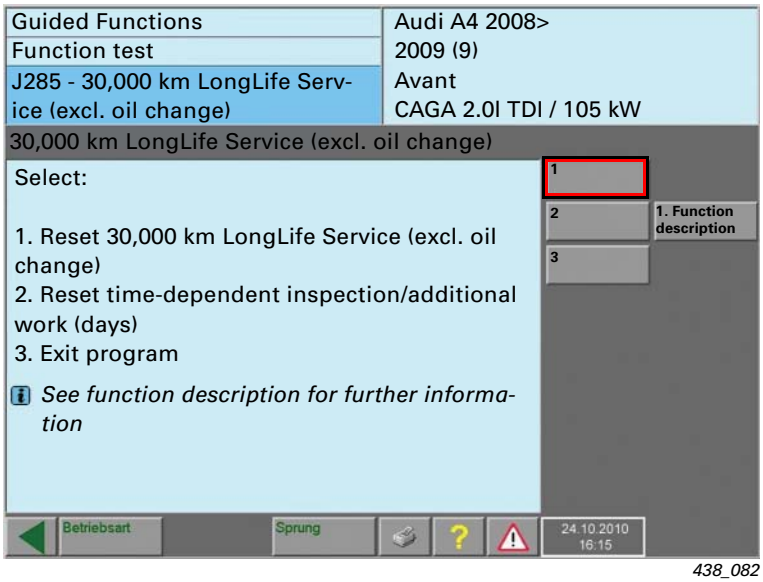
In the line "Time-dependent inspection", the service consultant must enter the current date and the date of the next due time-dependent event.
The service consultant can approve up to two additional years, unless the Maintenance Chart displays an earlier date for an event, in which case the earlier date must be entered.

After processing the Maintenance List, the mechanic must reset and set the Service Interval Display.
For this purpose, the mechanical selects 30,000 km LongLife Service (excl. oil change) on the diagnostic tester.



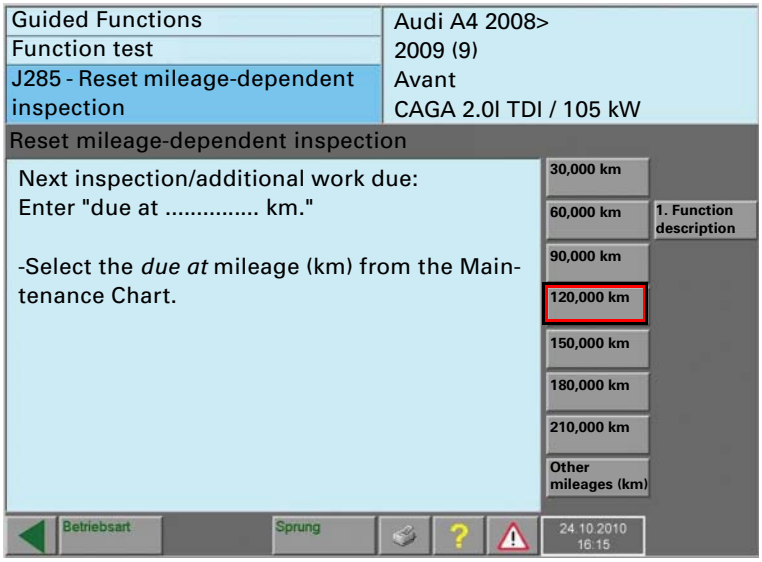
438_081

The program for resetting the 30,000 km LongLife Service (excl. oil change) is started by pressing button 1.



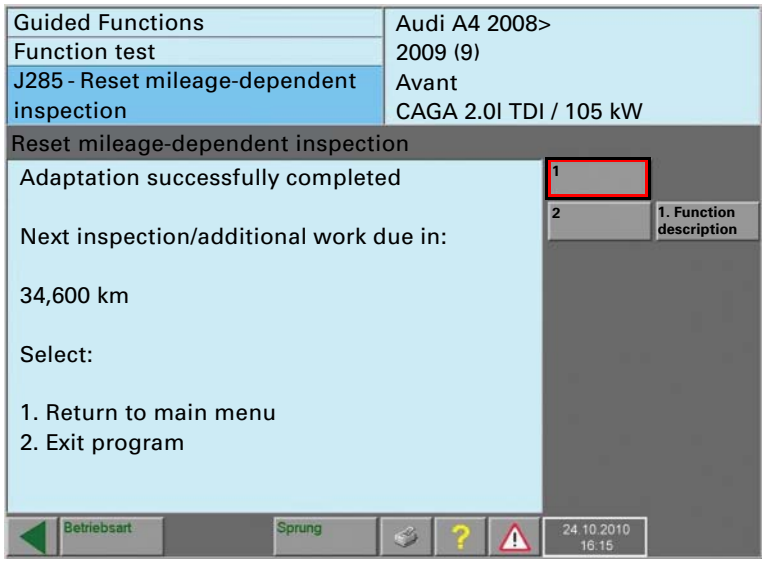
438_082

After querying whether the service should be reset and whether all due work has been performed, the mechanic must (in our example) then select the "120,000 km" button as entered in the Maintenance List by the service consultant.



438_083

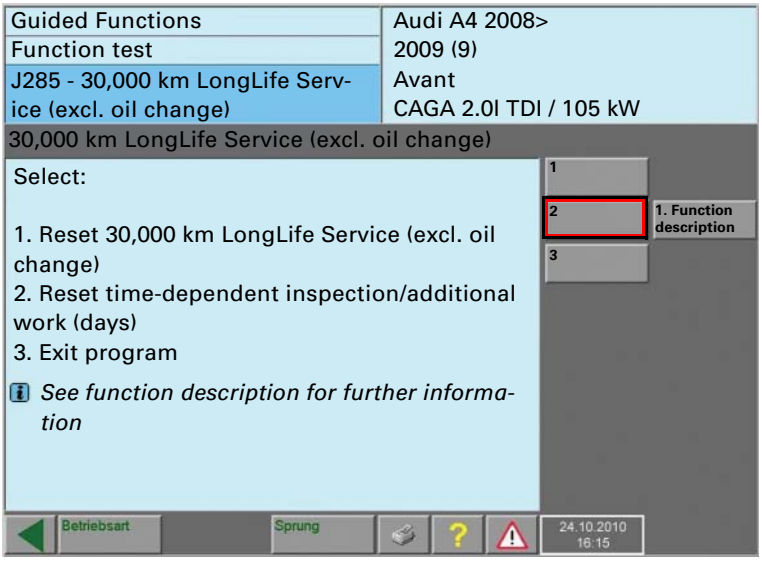
After recalculating, the diagnostic tester displays "Next inspection/additional work due in: 34,600 km". The interval is again greater than 30,000 km, as we have brought forward the inspection.



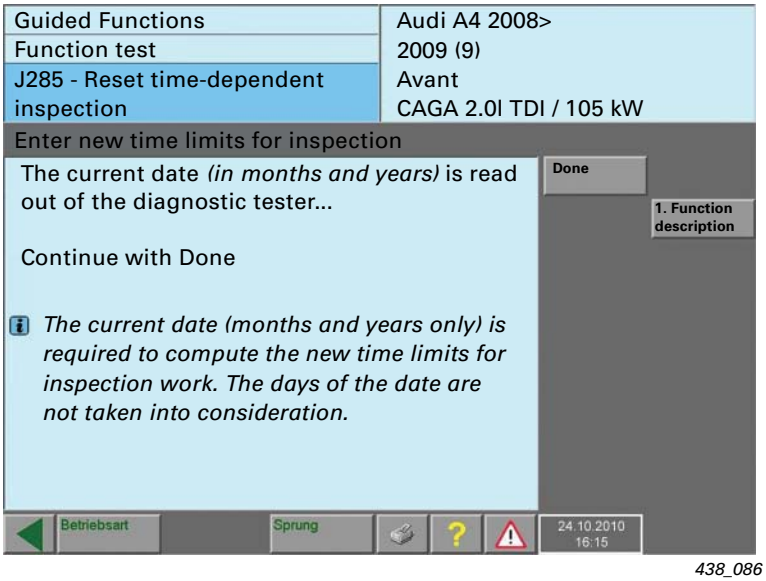
438_084

The mechanic now returns to the main menu, since he still has to set the interval for the next time-dependent event.

Using button 2, the mechanic now selects the program for resetting the time-dependent inspection/additional work.



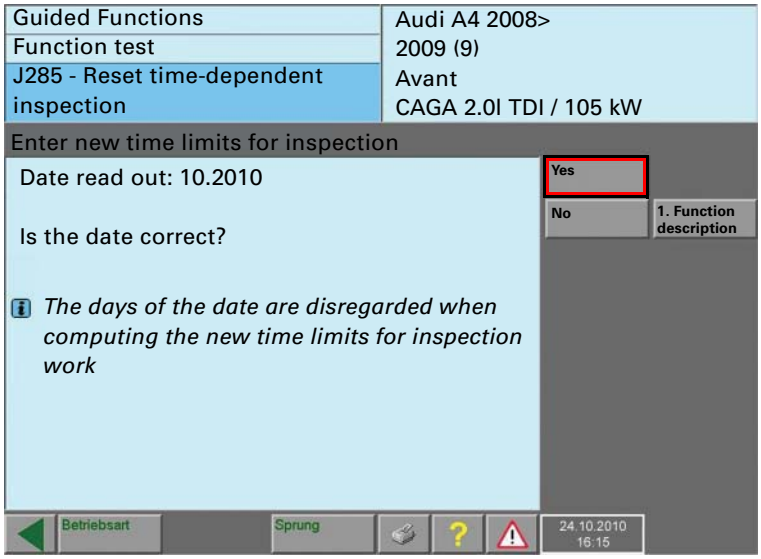
438_085



438_086

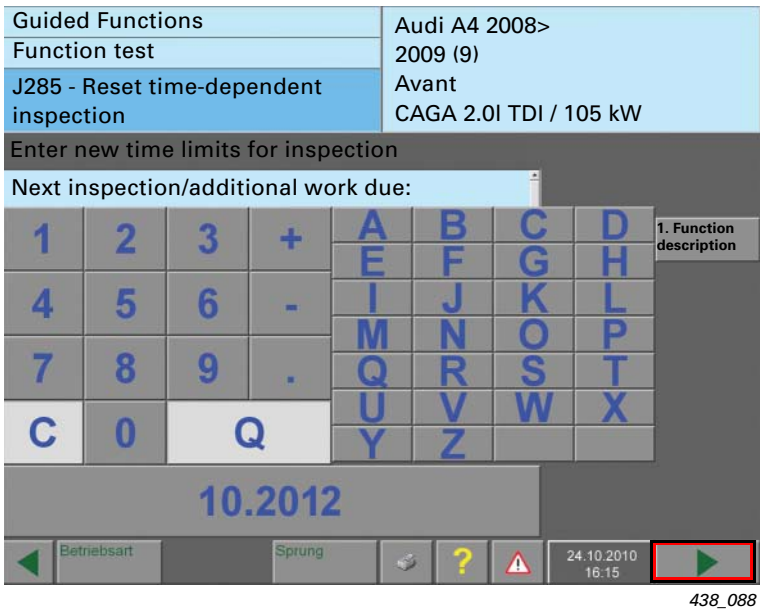
During this step, the program checks the date set in the diagnostic tester.
The days are disregarded, and only the month and year are checked.

After this, the current date is read out of the diagnostic tester. Care must be taken to ensure that the diagnostic tester is set to the correct date.



438_087

After confirming, the mechanic is asked to enter the date for the next time-dependent event. This value must be entered into the relevant box by the service consultant when generating the Maintenance List and transferred to the diagnostic tester by the mechanic.



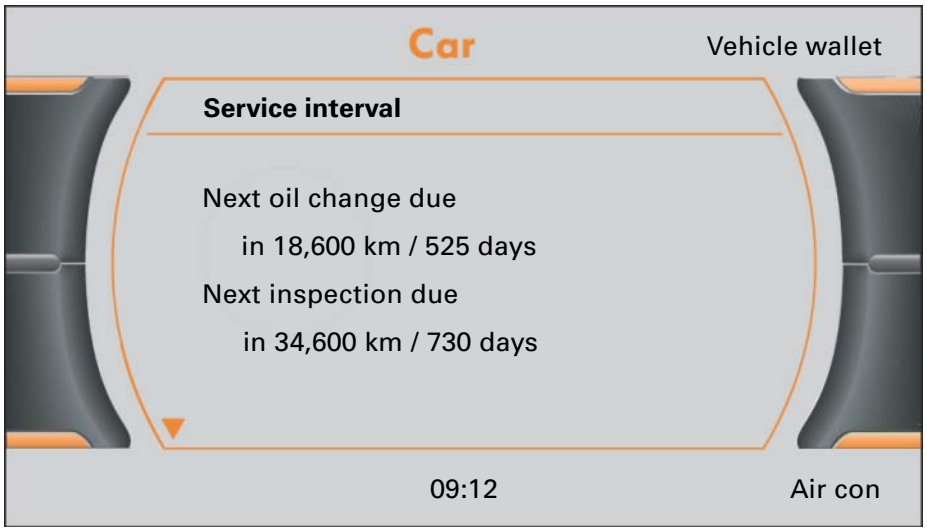
438_088

The correct input format must be observed. The date must be entered in months and years (MM.YYYY). Example: 10.2012 = October 2012

Attention must be paid to the point which separates months from years. If the point is omitted, the diagnostic tester will not accept the entry. The same will happen if a date is selected where the interval is greater than 730 days or 2 years. In this case, the date must be re-entered.

The diagnostic tester now confirms that the data has been transferred successfully. In our example, the value 10.2012 was entered. The date on the diagnostic tester is 10.2010. This means that the maximum interval for the time-dependent events, namely 730 days or 2 years, has been fully utilised. 2 years need not always be approved. The Elsa forecast provides the service consultant with the information required.
The time-dependent interval can be approved on a once-only basis for 1095 days (i.e. 3 years), albeit only for the pre-delivery service. It is important that the pre-delivery service be carried out shortly before delivery of the vehicle to the customer.

After resetting or setting the Service Interval Display, the following display will appear on the MMI screen:



438_089

In this case, too, the service consultant has to complete the Service Plan in order to document the work done for the customer and to prepare the invoice.
The following work items are used: 01 34 00 00 30,000 km LongLife Service (excl. oil change),
01 40 00 00 Brake fluid change and 85 18 19 50 Replace dust and pollen filter.

This concludes our maintenance example.

This was only one example showing how the Advanced Maintenance Concept is applied.

As indicated, service events can be carried out separately or combined, depending on when they are due and if this is appropriate to the driving profile. This gives the service consultant maximum flexibility when it comes to personal driving profiles and customer specifications. Changing driving profiles can also be taken fully into account.

For further examples of the Advanced Maintenance Concept, please refer to Chapter 6 of the Service Organisation Handbook (HSO). - Processes / 6.2 - Inspection and Maintenance / 6.2.2. Service Events / 6.2.2.5 Audi LongLife Service with new Service Interval Display from model year 2008 onwards.

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