24 01 Diagnosis/troubleshooting

Diagnosis/troubleshooting

DME

System M 11

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Contents overview

24 70 Programming DME control module

General

When a DME control module is replaced, the new DME control module must be programmed. This sets the new DME control module to the catalytic converter version installed, among other things.

Three catalytic converter versions are available in the Porsche System Tester 2:

1. **OBD II control module**
2. **RoW control module**
3. **German control module (tri-metal catalytic converter)**

Work preparation

The following vehicle data must be provided before programming of the new DME control module can begin:

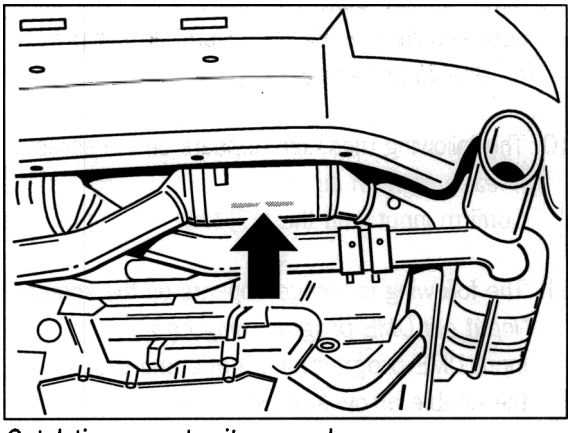
Vehicle Ident. No.

Catalytic converter item No. corresponding to the catalytic converter version used

DME and immobilizer programming codes (from the Porsche IPAS system)

With the information about the *Vehicle Ident. Number* and *catalytic converter item number*, the associated programme can be selected from the allocation table.

Figure 307_98 shows where the catalytic converter item number can be found on the vehicle.



Catalytic converter item number 307_98

Programming

1. Connect and switch on the Porsche System Tester 2 and switch on the ignition.
2. Select **911 (996)** in the *Vehicle type* menu.
3. Select **DME** in the *Control unit* menu and press the double arrow key [>>].
4. Select ***Program control unit*** in the *DME function selection* menu and press the double arrow key [>>].
5. Select "Read control units" and press the double arrow key [>>].
6. Install new DME control module.

7. Select **Program control unit** in the *Control unit programming* menu and press the double arrow key [>>].

8. Ensure that all requirements requested on the screen are fulfilled and then press the double arrow key [>>].

9. The following message appears on the screen:
   "Input Vehicle Ident. Number".
   Input Vehicle Identification Number and press the double arrow key [>>].

10. The following message appears on the screen:
    "Please confirm input"
    Confirm input with the [F7] key.

11. The following message appears on the screen:
    "Input old DME programming code"
    Input DME programming code and press the double arrow key [>>].

12. The following message appears on the screen:
    "Please confirm input"
    Confirm input with the [F7] key.

13. The following message appears on the screen:
    "Input new programming code"
    Input new DME programming code and press the double arrow key [>>].

14. The following message appears on the screen:
    "Please confirm input"
    Confirm input with the [F7] key.

15. The following message appears on the screen:
    "Input new immobilizer code"
    Input immobilizer code and press the double arrow key [>>].

16. The following message appears on the screen:
    "Please confirm input"
    Confirm input with the [F7] key.

17. The following message appears on the screen:
    "Select data record"
    Select data record according to the allocation table and press the double arrow key [>>].

The control module will now be programmed. Programming will take approx. 5 minutes.

Warning:
> Never interrupt the programming process

18. The following message will appear after the programming time has elapsed:
    "Programming was completed successfully"
    Press the double arrow key [>>], switch the ignition off and then on again.

This completes programming of the DME control module.

Catalytic converter version	Vehicle Ident. Number	Catalytic converter item number
OBD II control module	WP0xx**2**xxx**W**xxxxxxx	996.113.021.53 996.113.022.53
RoW control module	WP0**ZZZ**xxx**W**xxxxxxx	996.113.021.52 996.113.022.52
German control module (tri-metal catalytic converter)	WP0**ZZZ**xxx**W**xxxxxxx	996.113.021.54 996.113.022.54
OBD II control module	WP0xx**2**xxx**X**xxxxxxx	996.113.021.53 996.113.022.53
RoW control module	WP0**ZZZ**xxx**X**xxxxxxx	996.113.021.52 996.113.022.52
German control module (tri-metal catalytic converter)	WP0**ZZZ**xxx**X**xxxxxxx	996.113.021.54 996.113.022.54

Allocation table

Note:

The DME control module can also be reprogrammed using the Porsche System Tester 2. In this case, the old data record will be overwritten by a new record (e.g. RoW instead of Germany)

Program map/data must be selected in Step 7 if reprogramming is necessary.

Warning:
Risk of damage if allocation is incorrect!

> Ensure correct allocation of the data record in the control module to the installed catalytic converter (refer to the allocation table)

24 01 DME setpoints

Boundary conditions

- Ambient temperature approx. 20° C

  Engine temperature 90 - 95° C

  All loads switched off

  Engine idling

Nominal values

	Value	Unit	Deviation
Idle speed	680	rpm	±20
Load signal	1.3	ms	±0.3
Mass air flow	17	kg/h	±2.5
Hot film mass air flow meter	1.3	V	±0.2
Voltage	13.6	V	±0.5
Engine temperature	90	°C	±5.0
Throttle plate angle	0.0	%	±0.5
Ignition timing	5.3	°crk	±0.7
Spec. air mass	17	kg/h	±1.0
Spec. air adaptation	3.0	kg/h	±1.0
Injection time	3.0	ms	±0.4
Oil temperature	90.0	°C	±5

	Value			Unit	Deviation
Oxygen sensing cylinder					+0 05
Oxygen ng cylinder					±0 05
Range cylinder (FRA)	02				±0 04
ange cylinder (FRA 2)	.0				+0 05
Range cylinder (TRA)	0.00				+0
ang cylinder (TRA 2)	00				±0
voltage ahead of cat. conv	04	U_L	79		
O2 sensor voltage ahead of cat	0.04	U_{L2}	79		
02 enso voltage behind cat. conv	04	U_L	79		
02 voltage behind cat conv	0.04	U_{L2}	79		
shaft position deviation				crk	+6
Camshaft position deviation	0.			crk	±6
Rough-running threshold				$/s^2$	+1.3
Ro ning				/	
Segment (A)	.0				
Segmen (B)	.0				
Learning progress, sensor wheel adaptation	0.000				
Misfire detection					

	Value	Unit	Deviation
Engine compartment temperature	63.0	°C	±8.0
Oxygen sensor heat resistance ahead of cat. conv.	3.1	Ω	±0.4
* Oxygen sensor heat resistance behind cat. conv.	3.1	Ω	±0.4

*** Only for OBDII vehicles**

Note:

The stated values are the result of measurements of vehicles with different mileages and in perfect condition.
Different values can result from diagnosis in the workshop because of mileage and environmental influence. For DME diagnosis, it is important to look at several values simultaneously and in a collective group during troubleshooting.

Example:

An important collective group is formed by the following values:

Group	Values in normal state	Change caused by secondary air (oil filler cap)
Range 2 cylinder 1 - 3 (FRA)	0.96	0.96
Range 2 cylinder 4 - 6 (FRA 2)	0.96	0.96
Range 1 cylinder 1 - 3 (TRA)	0.08	0.36
Range 1 cylinder 4 - 6 (TRA 2)	0.01	0.36
Ignition timing	5.3 °crk	3.8 °crk
Mass air flow	15.5 kg/h	11.25 kg/h
Engine speed	680 rpm	720 rpm

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Diagnosis/Troubleshooting

Tiptronic

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