

# NEW CONTROL UNIT FOR CIS-E MOTRONIC SYSTEMS GROUP 25, NO. 91-01

## Article Text

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Wednesday, August 25, 1999 09:16PM

### ARTICLE BEGINNING

#### TECHNICAL SERVICE BULLETIN

#### NEW CONTROL UNIT FOR VEHICLES WITH CIS-E MOTRONIC SYSTEMS

Model(s): 1990-91 Volkswagen Passat, Jetta, GTI With 9A Engine  
Group: 25 - Continuous Fuel Injection  
Bulletin No.: 91-01  
Date: March 1, 1991

### SERVICE INFORMATION

#### A - NEW CIS-E MOTRONIC CONTROL UNIT WITH EXPANDED FEATURES

Starting in October 1990 production a new CIS-E Motronic control unit was installed as a running change.

Part Number: (49 State) 8A0 907 404  
(California) 893 907 404Q

NOTE: The control unit part number is displayed on the VAG 1551 (as it always has) during activation.

The new control unit differs from the old one as follows:

- 1 - Expanded self-diagnosis now includes:
  - \* Function 04 "System in basic setting"
  - \* Function 08 "Read measuring value block"
- 2 - The ignition portion of the system is now equipped with Digital idle stabilization.

NOTE: Ignition timing can now be monitored via the VAG 1551 in Function 08.

#### B - FOR PASSAT VEHICLES WITH 4-SPEED AUTOMATIC TRANSMISSIONS

If the throttle switch/potentiometer is replaced on a vehicle with an automatic transmission

- \* Activate VAG 1551 diagnostic tester to return the automatic transmission control unit to the "04 Basic setting".

#### A - EXPANDED SELF-DIAGNOSIS: FUNCTION 04 "SYSTEM IN BASIC SETTING"

- \* When Function 04 is selected (via the VAG 1551) the idle stabilization system is switched off and the carbon canister solenoid valve is closed.
- \* Values for coolant temperature, RPM, etc. are then displayed in

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the ten channels, see chart for displaying the channels.

NOTE: The channel values are displayed up to a maximum of 2000 RPM after which the channels go to zero.

### ENGINE BASIC SETTING ADJUSTMENT USING THE VAG 1551

- Connect VAG 1551 diagnostics tester. See section D2-30 of Repair Group D2 for additional information.
- Switch ON ignition.
- Press button 1 to select operating mode "Rapid data transfer"

Display will show the following:

```
ÚAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÄ
³ Rapid data transfer                      HELP ³
³ Input code word XX                      ³
ÀAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÙ
```

- Press buttons 0 and 1 to select "ENGINE ELECTRONICS"

Display will show the following:

```
ÚAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÄ
³ Rapid data transfer                      Q ³
³ 01 - Engine electronics                  ³
ÀAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÙ
```

- Press Q button to enter input.

Display will show the following:

```
ÚAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÄ
³ Rapid data transfer                      Q ³
³ Tester sends code word 01                ³
ÀAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÙ
```

- Press Q button to enter input.

Display will show the following:

```
ÚAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÄ
³ 8A0907404                               MOTOR Ä> ³
³ Coding 00                               ³
ÀAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÙ
```

- Push -> Button.

Display will show the following:

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```
ÚAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÄ
³ Rapid data transfer                      HELP ³
³ Select function XX                      ³
ÀAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÙ
```

- Push button 0 and 4 to select Function 04 "System in basic adjustment".

Display will show the following:

```
ÚAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÄ
³ Rapid data transfer                      Q ³
³ 04 Introduce basic adjustment          ³
ÀAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÙ
```

- Press Q button to enter input.

Display will show the following:

```
ÚAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÄ
³ Basic adjustment                      HELP ³
³ Input display group number XX        ³
ÀAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÙ
```

- Press 0 (Zero) button two times.

Display will show the following:

```
ÚAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÄ
³ Conduct basic adjustment              Q ³
³ Input display group number 00        ³
ÀAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÙ
```

- Press Q button to acknowledge input.

Display will show the following:

```
ÚAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÄ
³ System in basic setting              Ä> ³
³ _____                          ³
ÀAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÙ
```

## EXPANDED SELF-DIAGNOSIS: FUNCTION 08 "READ MEASURING VALUE BLOCK"

When this function is selected:

- \* The idle stabilization system and the carbon canister solenoid valve 1 are functioning.
- \* Channel values are displayed over the entire RPM range.
- \* Values for coolant temperature, RPM, etc. are displayed in the ten channels, see chart for information regarding channel display.
- \* Channel 10 displays the ignition timing point as calculated by the

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control unit.

NOTE: An accurate Channel 10 display requires that the ignition timing point be properly adjusted (at the distributor).

READING MEASURING VALUE BLOCK WITH VAG 1551

Display will show the following:

```
ÚAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA¿
³ Rapid data transfer                      HELP ³
³ Select function XX                      ³
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÙ
```

- Push button 0 and 8 to select Function 08 "READ MEASURING VALUE BLOCK".

Display will show the following:

```
ÚAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA¿
³ Rapid data transfer                      Q ³
³ 08 read measuring value block          ³
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÙ
```

- Press Q button to enter input.

Display will show the following:

```
ÚAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA¿
³ Read measuring value block              HELP ³
³ Input display group number XX          ³
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÙ
```

- Press 0 button two times.

Display will show the following:

```
ÚAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA¿
³ Read measuring value block              Q ³
³ Input display group number 00          ³
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÙ
```

- Press Q button to enter input.

Display will show the following:

```
ÚAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA¿
³ Read measuring value block              ³
³ 1 2 3 4 5 6 7 8 9 10                  ³
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAÙ
```

KEY TO FUNCTION 04 AND 08 CHANNEL DISPLAY

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|                         |                                                                     |
|-------------------------|---------------------------------------------------------------------|
| Channel Identification: |                                                                     |
| Channel <sup>3</sup>    | Designation                                                         |
| 1                       | <sup>3</sup> Coolant temperature                                    |
| 2                       | <sup>3</sup> Engine load                                            |
| 3                       | <sup>3</sup> Engine speed                                           |
| 4                       | <sup>3</sup> Idle stabilization, adaptation value                   |
| 5                       | <sup>3</sup> Idle stabilization (learned value)                     |
| 6                       | <sup>3</sup> Oxygen sensor control (learned value)                  |
| 7                       | <sup>3</sup> Oxygen sensor adaptation (adaptation value)            |
| 8                       | <sup>3</sup> Vehicle speed signal                                   |
| 9                       | <sup>3</sup> Switch signals that input the control unit             |
| 10                      | <sup>3</sup> Calculated ignition timing point (in Function 08 only) |

### FUNCTION 08/CHANNEL 9 DISPLAY, INTERPRETING

Channel 9 provides the technician with essential information that would have to be verified manually before performing the basic engine settings.

The ECU scans the system for certain conditions that must be met or for certain components that must be present or operative. It then assigns the numerical values (listed in the table below) to these conditions or components and ADDS them together to create the display value.

A value of zero will be assigned to conditions or components in the following chart that are NOT MET or NOT PRESENT.

#### SYSTEM CRITERIA

|                              |                                                                                                                      |
|------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Numerical Value <sup>3</sup> | Following Condition                                                                                                  |
| Assigned IF: <sup>3</sup>    | or component is present                                                                                              |
| 1                            | <sup>3</sup> Idle switch is in closed position                                                                       |
| 2                            | <sup>3</sup> Full throttle switch in closed position                                                                 |
| 4                            | <sup>3</sup> Vehicle is equipped with a Manual transmission<br><sup>3</sup> or Automatic transmission is in P N or D |
| 8                            | <sup>3</sup> A/C compressor is switched ON                                                                           |
| 64                           | <sup>3</sup> Acceleration enrichment activated                                                                       |
| 128                          | <sup>3</sup> Deceleration fuel shutoff is functioning                                                                |

NOTE: By analyzing the value displayed in channel 9 (using simple addition or subtraction) you can easily determine if a component or a condition is present or not.

EXAMPLE:

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A vehicle with a Manual transmission and idle switch is closed.

- 4 = Manual transmission coding
- + 1 = Idle switch is CLOSED
- ÄÄÄ
- 5 = displayed value in channel 9

NOTE: If the idle switch had been OPEN instead: the final displayed value would have been 4 because a value of zero would have been assigned to the idle switch instead of 1.

## IGNITION TIMING POINT, CHECKING/ADJUSTING

### CHECKING

#### Requirement:

- \* Engine oil temperature 80°C (176°F) minimum
- Connect VAG 1367 engine tester using inductive pickup VAG 1367/8.  
See Fig. 1.

CAUTION: Be sure TDC sensor is fully seated into transmission housing.

- Connect VAG 1551 diagnostic tester using adaptor cable VAG 1551/1 as follows:
  - \* Black terminal to black connector 1.
  - \* White terminal to brown or white connector 2.
  - \* Blue terminal not used. See Fig. 2.
- Start engine and let idle.
- Observe VAG 1551 display value or "SYSTEM IN BASIC SETTING".
- Use the following codes to obtain the functions as shown:
  - \* 1 to obtain "RAPID DATA TRANSFER" mode
  - \* 01 to select Function 01 "ENGINE ELECTRONICS"
  - \* 04 to select Function 04 "SYSTEM IN BASIC SETTING"
  - \* 00 to select individual channel from group display
- Observe value displayed in channel 9.
  - \* Must be 5.

If NO

- See FUNCTION 08/CHANNEL 9 DISPLAY, INTERPRETING.

### CHECKING USING VAG 1367 ENGINE TESTER

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Timing point value is displayed directly on tester.

\* Checking value: 4 to 8° Before TDC

### CHECKING WITH TIMING LIGHT

- Direct strobe on to fly wheel opening. See Fig. 3.

\* Checking value: 4 to 8°. Before TDC

### ADJUSTING

- Adjust timing if necessary by loosening and turning distributor.

\* Adjusting value: 6 +/- 1° Before TDC

If OK

- Enter 06 into VAG 1551 diagnostic tester for "DATA TRANSFER ENDED" input.

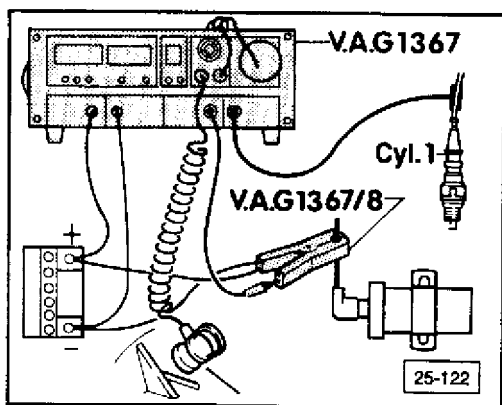


Fig. 1: Connecting VAG Engine Tester Using Inductive Pickup

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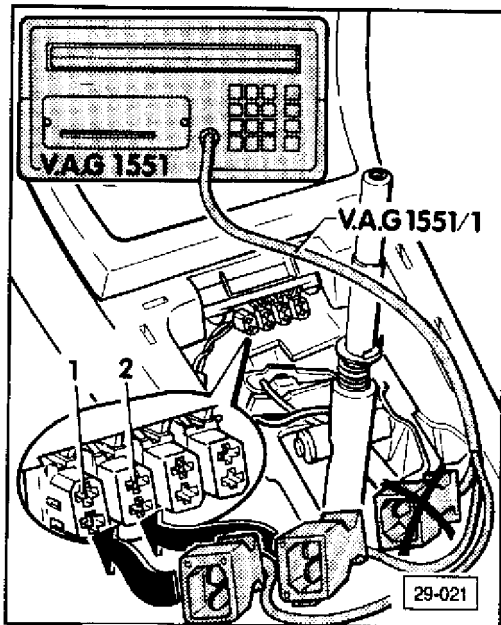


Fig. 2: Connecting VAG 1551 with Adapter Cable

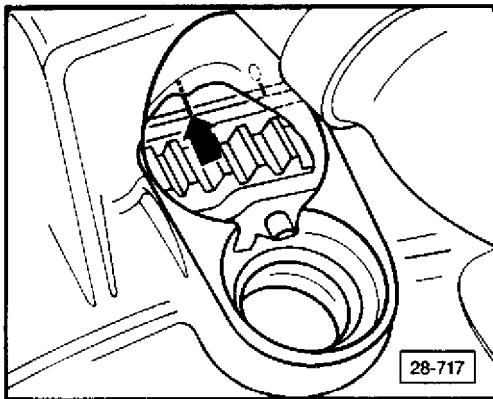


Fig. 3: Ignition Timing Marks

END OF ARTICLE