minitools

SEPDISP06

Modification instructions

Ver. 3.1

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**WARNING:** This process is recommended only to expert and qualified staff

THE FOLLOWING MODIFICATION IS NECESSARY FOR THE CORRECT FUNCTIONING OF SEPDISP06 DISPLAY.

· Replace the display in an ambient **temperature of 25 °C**.

· After replacing the LCD, **switch on the cluster** (pin no. 1 negative, pin no. 5 and pin no. 6 positive).

· **Identify the PCB** of your dashboard (PCB1 or PCB2) and **measure the voltage between A and B points**.

PCB1

Pic.1

PCB2
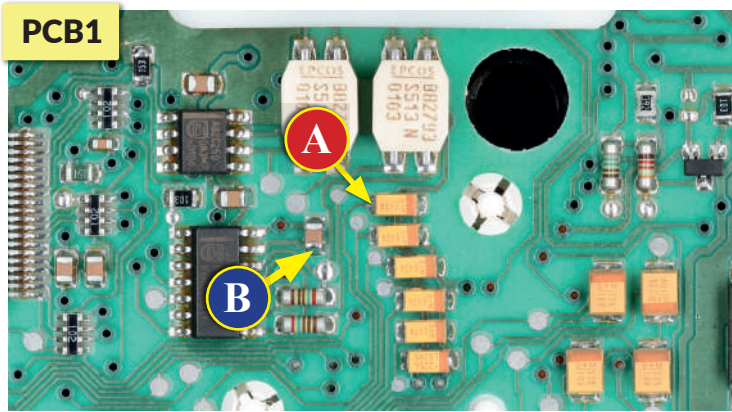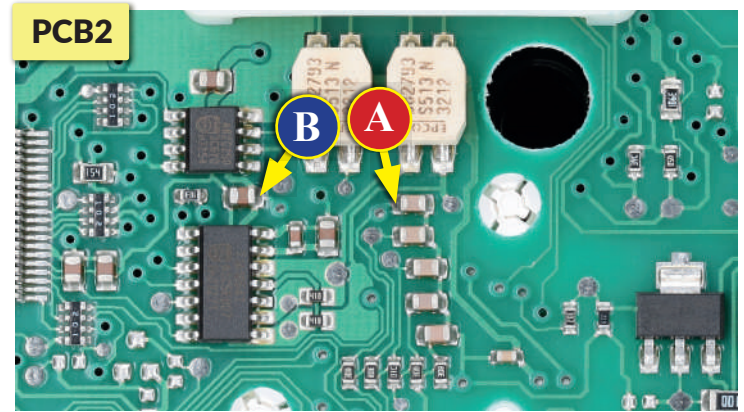
Pic.2

· If the **voltage** measured is **between 7.7V and 7.8V, no modification is necessary**;

· If the **voltage** detected is instead **lower than 7.7V or higher than 7.8V, it is necessary to do the modification** described in the following paragraph "**EEPROM MODIFICATION**".

EEPROM MODIFICATION

NOTE: *For this modification, it is necessary to use an EEPROM programmer.*
We recommend our SEP-EECLIP.

● **De-solder** the 93C86 EEPROM from the PCB;

● Set the **programmer reading in hexadecimal (HEX)**;

ATTENTION: make a backup of the EEPROM, **before the modification.**

● To reach a voltage between 7.7V and 7.8V, **identify the 01E4, 01E5, 01E6 and 01E7 locations and modify their values:** increasing or decreasing the 4 locations values by 1 HEX unit, the **variation will be +/- 0.09 V.**

*If not familiar with hexadecimal calculation, it is possibile to use the **calculation tool in the box beside**, simply typing in the values.*

Once these operations have been done, solder back the **93C86 EEPROM on the PCB,** switch on the instrument cluster and **check again the tension between points A and B.**

Verify, then, if a **voltage between 7.7V and 7.8V** has actually been reached.
If not, decrease or increase the values of the locations until the voltage is between that range.

WARNING: if the **VOLTAGE HAS NOT CHANGED** after the EEPROM modification, **see the following page "PROBLEMS AND SOLUTIONS".**

CALCULATION OF THE NEW VALUE OF THE LOCATION
(The tool works correctly on computers. For the mobile version click here)

· *Type in the value of the voltage measured between points A and B* *(pic. 1 or pic. 2)*
(use a period as decimal separator, e.g. 7.4)

01E4 LOCATION

·*Type in the HEX value of 01E4 location**

· *new value to type in 01E4 location*

01E5 LOCATION

·*Type in the HEX value of 01E5 location**

· *new value to type in 01E5 location*

01E6 LOCATION

·*Type in the HEX value of 01E6 location**

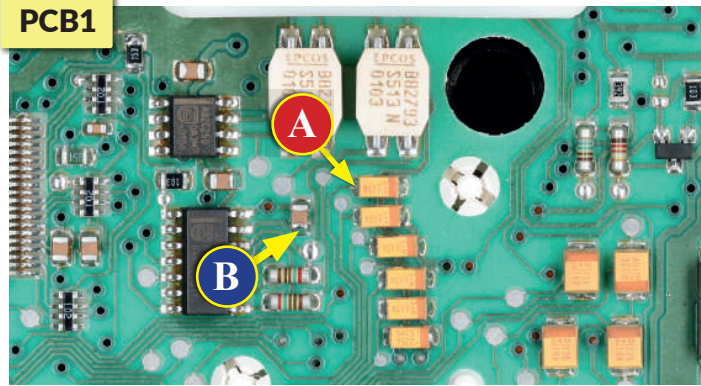· *new value to type in 01E6 location*

01E7 LOCATION

·*Type in the HEX value of 01E7 location**

· *new value to type in 01E7 location*

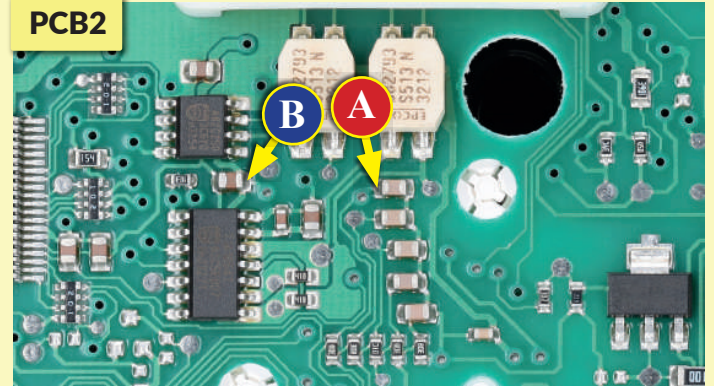**How to identify 01E4, 01E5, 01E6 and 01E7 locations values on the EEPROM programmer*

Offset(h)	00 01 02 03	04 05 06 07	08 09 0A 0B 0C 0D 0E 0F
000001D0			
000001E0			
000001F0			

PROBLEMS AND SOLUTIONS

PCB1

Pic.1

If you've done the modification on an instrument cluster with the **"PCB1"** and the voltage has NOT changed, please CONTACT US by e-mail at *info@minitools.com*.

PCB2

Pic.2

If you've done the modification on an instrument cluster with the **"PCB2"** instead, and the voltage has NOT changed FOLLOW THE INSTRUCTIONS shown in the following paragraph "EEPROM MODIFICATION".

EEPROM MODIFICATION

(to do only if the voltage has **NOT CHANGED** after the first modification at page 2).

●**De-solder again** the 93C86 EEPROM from the PCB;

● Set the **programmer reading in hexadecimal (HEX)**;

ATTENTION: upload the backup previously made on the EEPROM, to restore the original data.

● To reach a voltage between 7.7V and 7.8V, **identify the location 03B3 and modify its value:** decreasing the location value by 1 HEX unit, the **variation will be + 0.0125V (or vice versa)**.

If not familiar with hexadecimal calculation, it is possibile to use the **calculation tool in the box beside**, *simply typing in the values.*

Once these operations have been done, solder back the **93C86 EEPROM** on the PCB, switch on the instrument cluster and **check again the tension between points A and B**.

CALCULATION OF THE NEW VALUE OF THE LOCATION
(The tool works correctly on computers. For the mobile version click here)

· *Type in the value of the voltage measured on the PCB2 between the points A and B (pic. 2)*
  (use a period as decimal separator, e.g. 7.4)

· *Type in the HEX value of the location 03B3**

· **New value** *to type in the location 03B3.*

*How to identify 03B3 location value on the EEPROM programmer

Offset(h)	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
000003A0	00	A6	02	26	03	9C	00	79	01	25	01	4A	01	64	01	80
000003B0	01	87	01	26	01	98	87	50	A0	99	01	A0	38	38	5E	51
000003C0	00	00	00	10	28	00	3C	00	50	00	6D	00	02	00	00	10

Verify, then, if a **voltage between 7.7V and 7.8V** has actually been reached. If not, decrease or increase the value of the location until the voltage is between that range.

WARNING: if the **VOLTAGE HAS NOT CHANGED** at all after the EEPROM modification, **CONTACT US.**