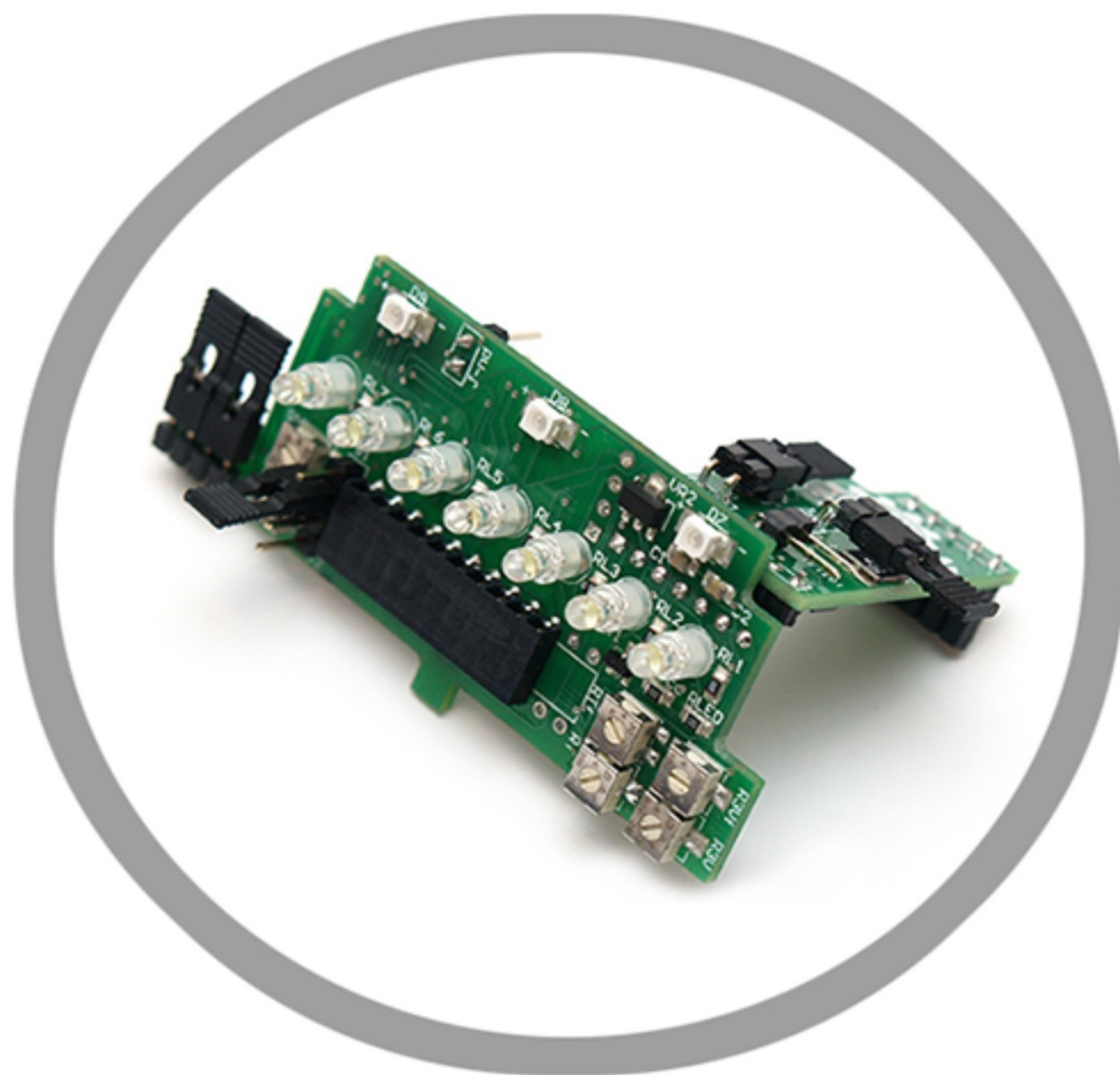


# INSTALLATION INSTRUCTIONS AND OPERATING MANUAL



## E30 Shiftlights

## PACKAGE CONTENTS

1. Shiftlights board 1x
2. Adapter board 1x
3. Jumper 5x ( mounted on the boards )
4. 2-wire jumper cable 1x

## OPTIONAL and NOT INCLUDED

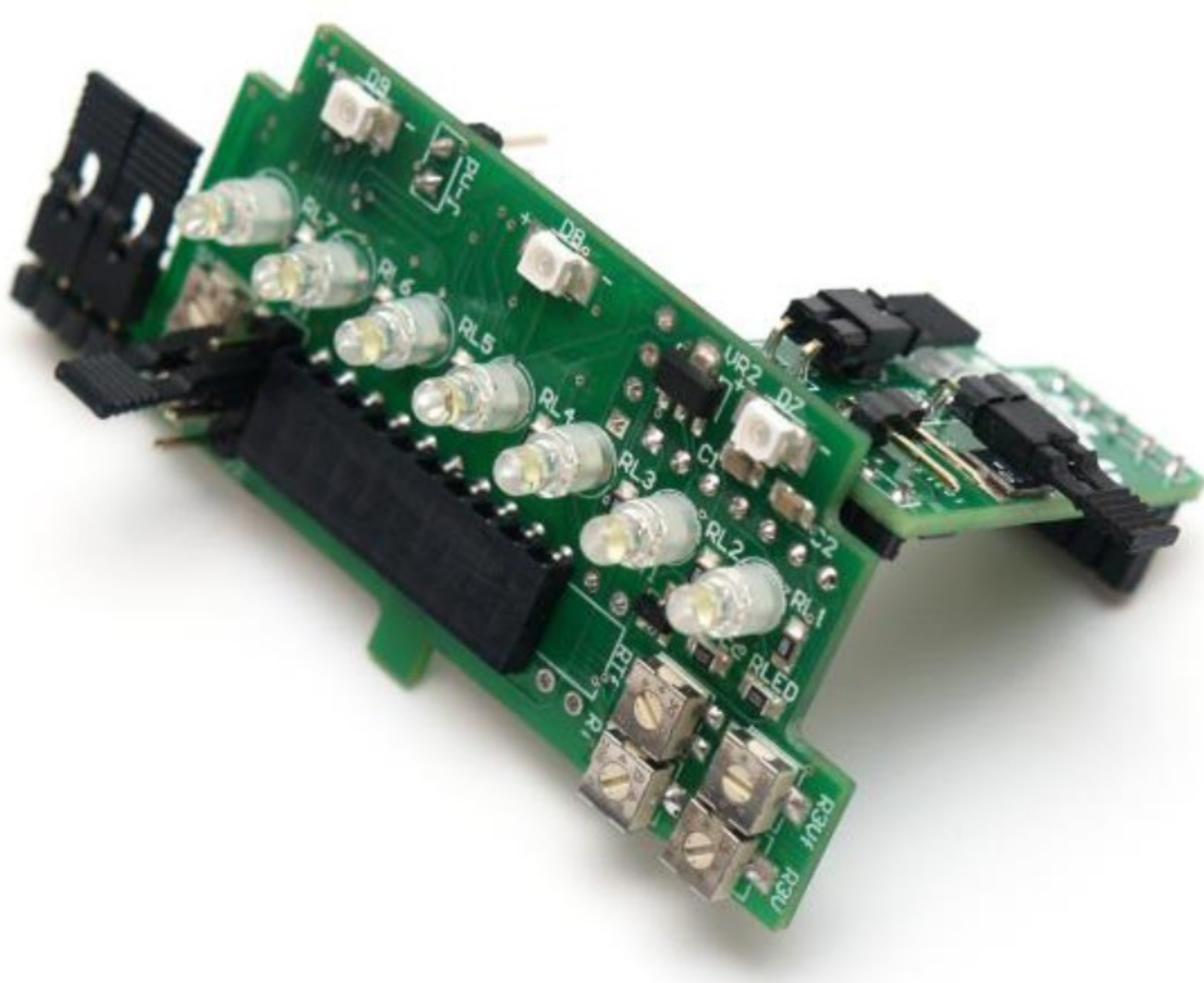
1. Two pin jumper wire
2. ON-OFF switch which you can mount anyplace in the car

*Hint: If needed buy them beforehand as you will need them during the installation process*

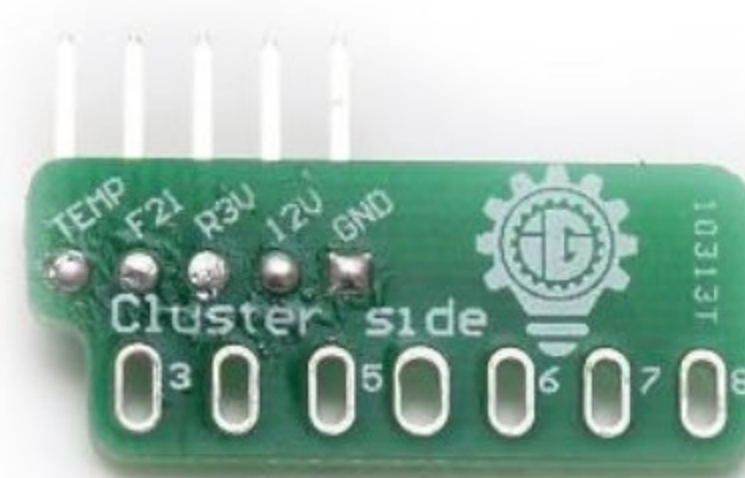
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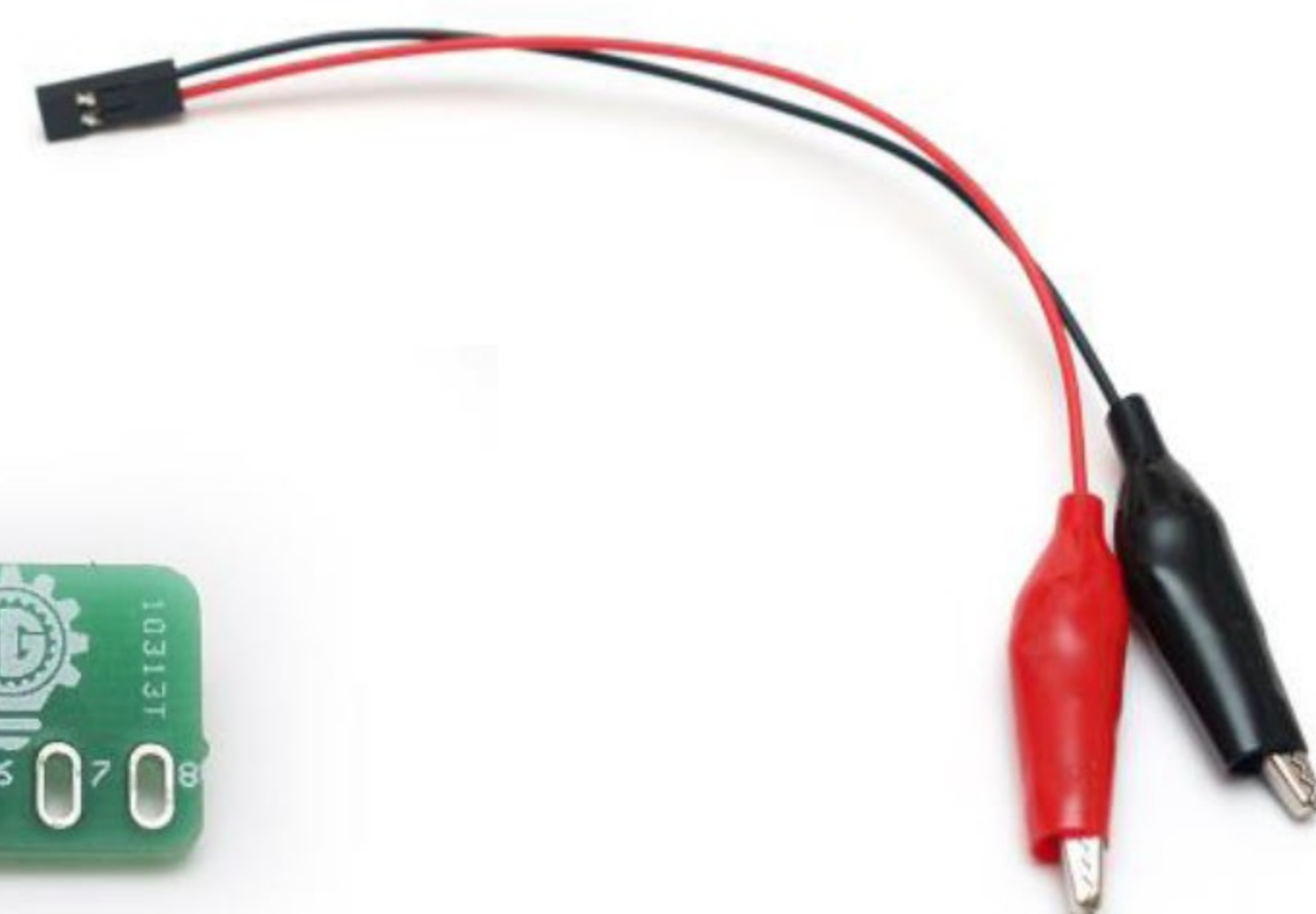
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1. Shiftlights board



2. Adapter board



3. 2-wire jumper cable

# OPERATING MANUAL

## 1. WHAT DO YOUR SHIFTLIGHTS DO?

Once Shiftlights are installed turning your key from OFF to ACCY position the LEDs display you service interval reading as you are used to by now.

With ignition ON Shiftlights are activated and service interval is no longer displayed.

During the installation process, you will define the MIN and MAX thresholds. MIN setting are RPMs where the first LED will turn on. MAX setting are the RPMs where all LEDs will be flashing with full power.

These thresholds are dependent on engine temperature. This is why you will define MIN and MAX thresholds for cold and MIN and MAX thresholds for hot (working temp) engine. Don't worry everything is explained in the installation part of the manual.

Shiftlights are supposed to be so bright that you keep your focus on the road/track and know what your RPMs are. Brightness is adjustable. We even added optional Day/Night jumper, where you can connect a switch to toggle between day and night LED brightness.

To use this option you will need (not included in the package):

- Two pin jumper wire
- ON-OFF switch which you can mount anyplace in the car

Note that the LED brightness when MAX RPMs are reached is always at FULL power regardless of the Day/Night switch position and set LED Day or Night brightness unless brightness is set to minimum.

*You can now skip to INSTALLATION INSTRUCTIONS section and return when you are done.*

## 2. SET LED BRIGHTNESS

*With this procedure, you can adjust the brightness of your Shiftlights. For safety reasons make sure you do this while your car is parked.*

*For this procedure you will need somebody, anybody or your buddy to help you. If you have a long reach you can even do it by yourself.*

- a. Open the hood
- b. Remove the fuse box cover
- c. Start up the engine
- d. Remove fuse F21
  - i. Observe that the tacho stops responding even though the engine is still on. If this does not happen, you will need to set the brightness using the Shiftlights board, which can be done only with the instrument cluster disassembled
- e. Observe that the brightness of the LEDs is changing and cycles through the following steps:
  - i. The brightness slowly rises from MIN to MAX (all LEDs are on)
  - ii. When it reaches the MAX it stays there, LEDs start turning off one by one
    1. If you insert the fuse at any time during this step, the brightness will be set to MAX
  - iii. When all LEDs turn off, they will blink, reset to MIN brightness and hold there for 1-2 seconds.
    1. If you insert the fuse at any time during this step, the brightness will be set to MIN
- f. When it reaches the desired brightness insert the fuse back into its position
- g. The setting is now stored
- h. If applicable repeat procedure for "Night mode" by first toggling the "day/night" switch to "ON" position ("Night" mode) and repeating steps "d." to "f."

*Note that you can change this setting as many times as you wish.*

*Hint: By setting the brightness in Night mode position to minimum, you can use the "day/night" switch to turn the Shiftlights ON/OFF.*

ENJOY!

# INSTALLATION INSTRUCTIONS

*Make sure you have your phone turned off, kids and wife locked away in a safe place so nothing can distract you. 😊*

*Make sure you follow the instructions step by step.*

**Do not skip** any steps otherwise you may have to restart the process.

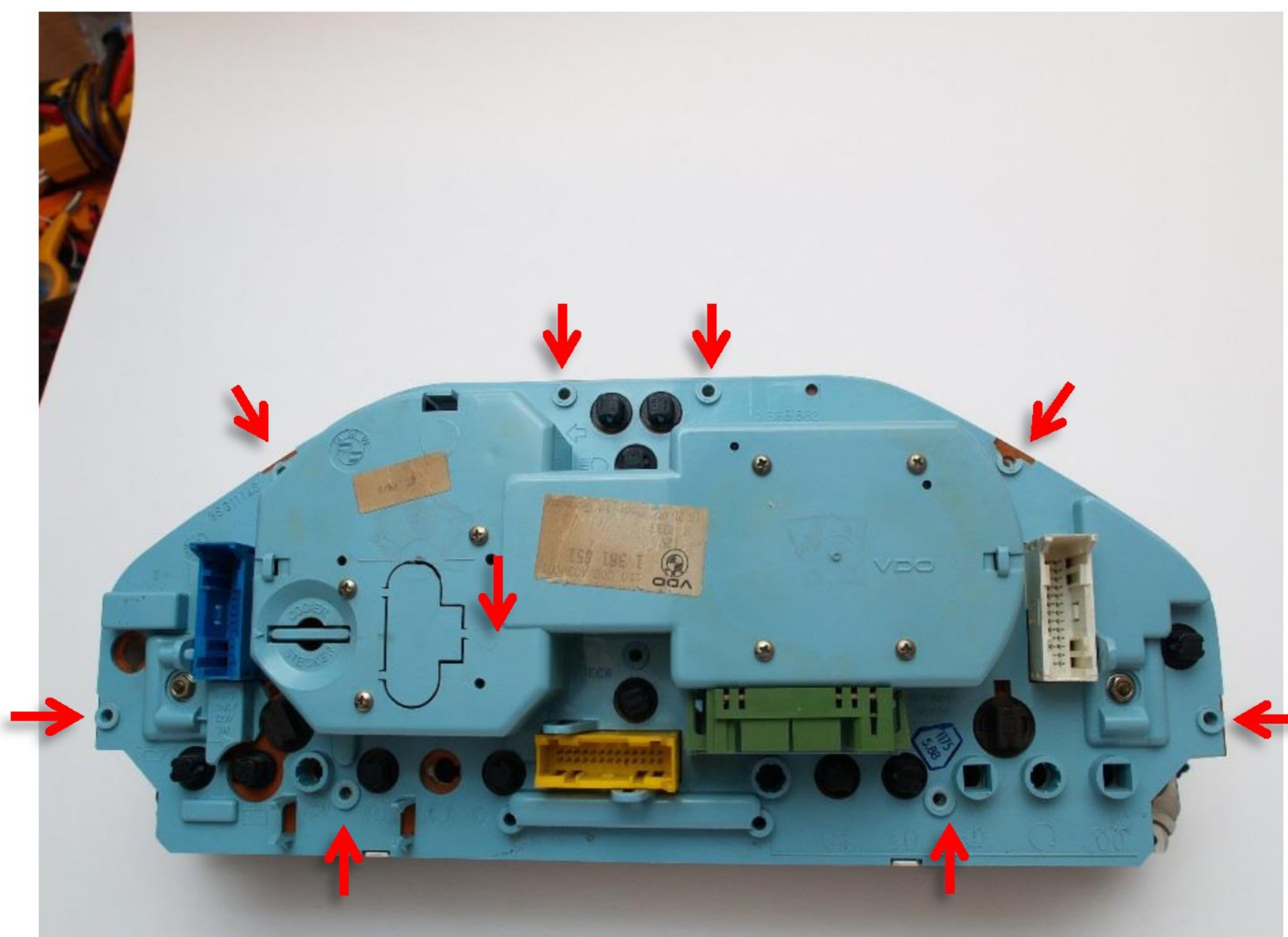
## 1. FUSE 21 TEST

- a. Open the hood
- b. Remove the fuse box cover
- c. Start up the engine
- d. Remove fuse F21
- e. Observe that the tacho stops responding even though the engine is still running. This fuse will be used to adjust the LED brightness.

If this does not happen, you will need to set the brightness during the installation procedure with the instrument cluster disassembled.

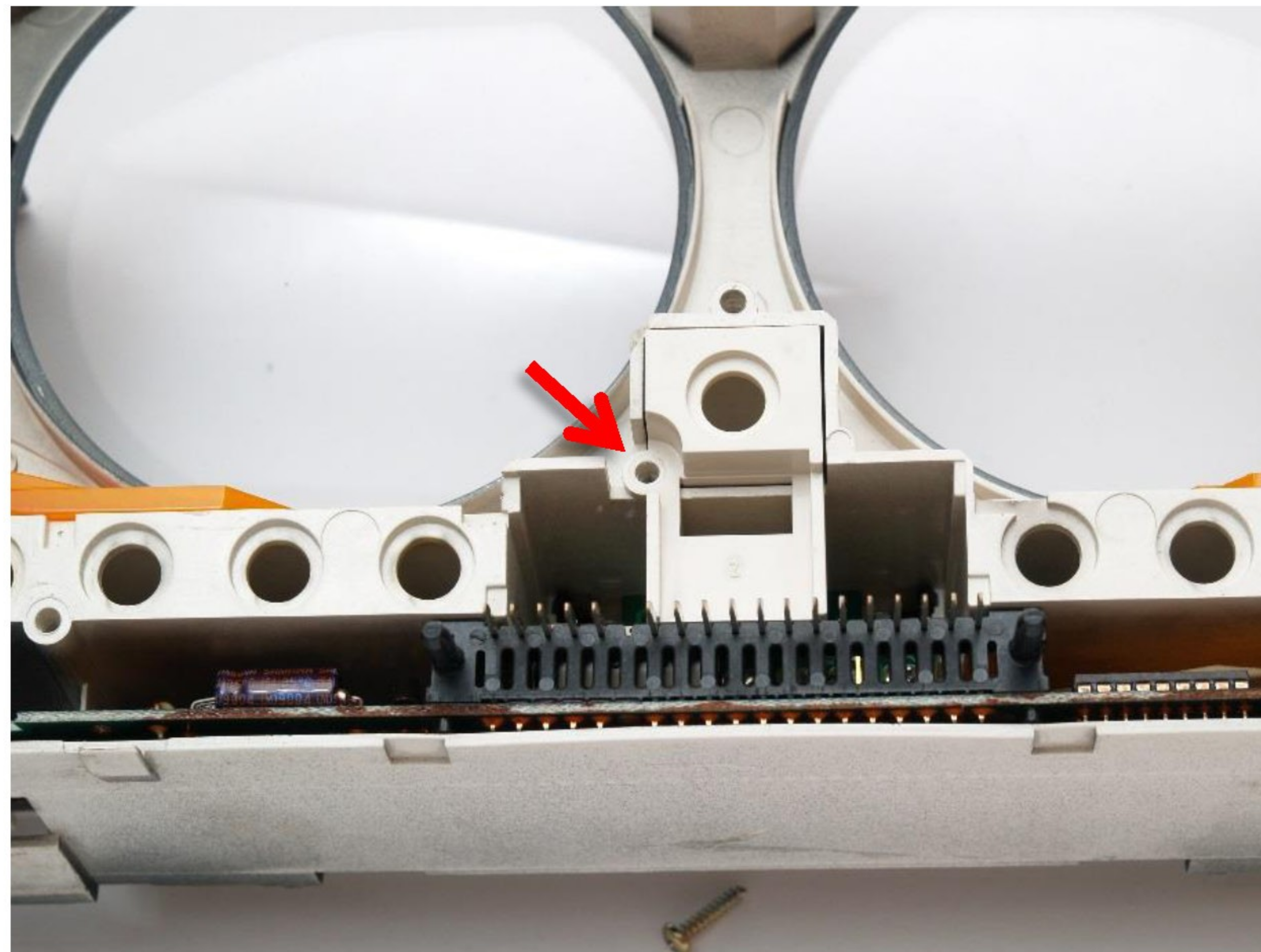
## 2. DISSASSEMBLE THE INSTRUMENT CLUSTER

- a. Turn off engine
- b. Disconnect the ACCU (to be on the safe side)
- c. Follow the instructions to remove the instrument cluster from the dashboard
- d. Disconnect the GREEN plug from the back side of the cluster
- e. Disconnect the CODING plug from the front side of the cluster
- f. Remove 9 screws on the back side of the cluster



- g. Separate the two halves of the cluster

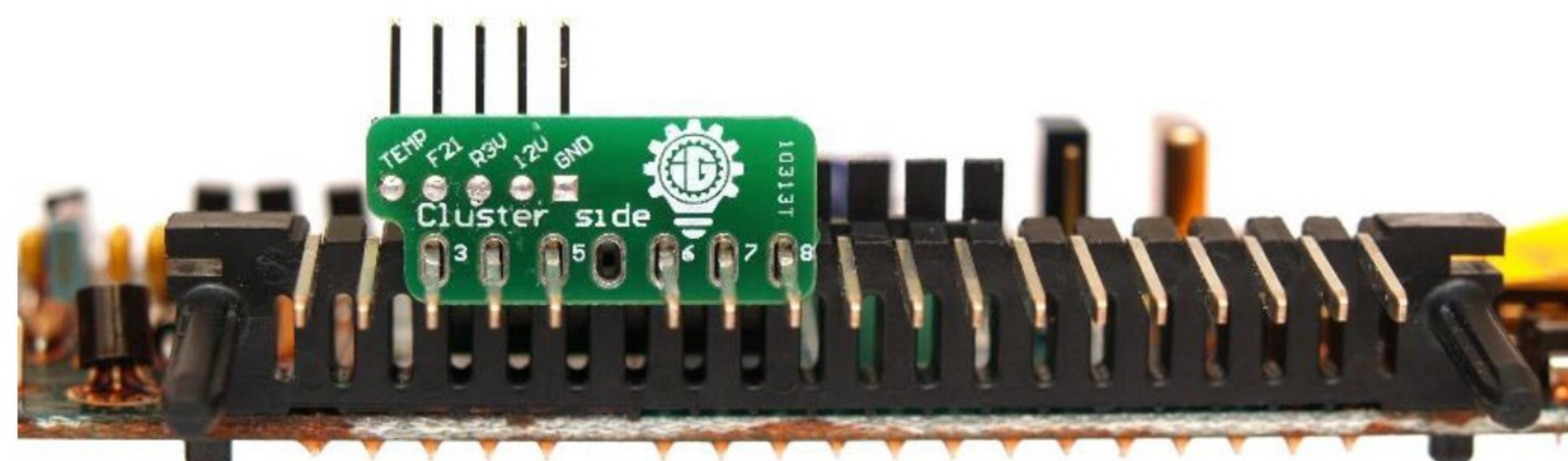
- h. Remove the locking plate (one screw, a little smaller than the other 9 screws you already removed)



- i. Carefully remove the SI board by grabbing it by the pins
- j. Remove the LED board from the SI board

### 3. MOUNTING THE NEW AND IMPROVED SHIFTLIGHTS BOARD

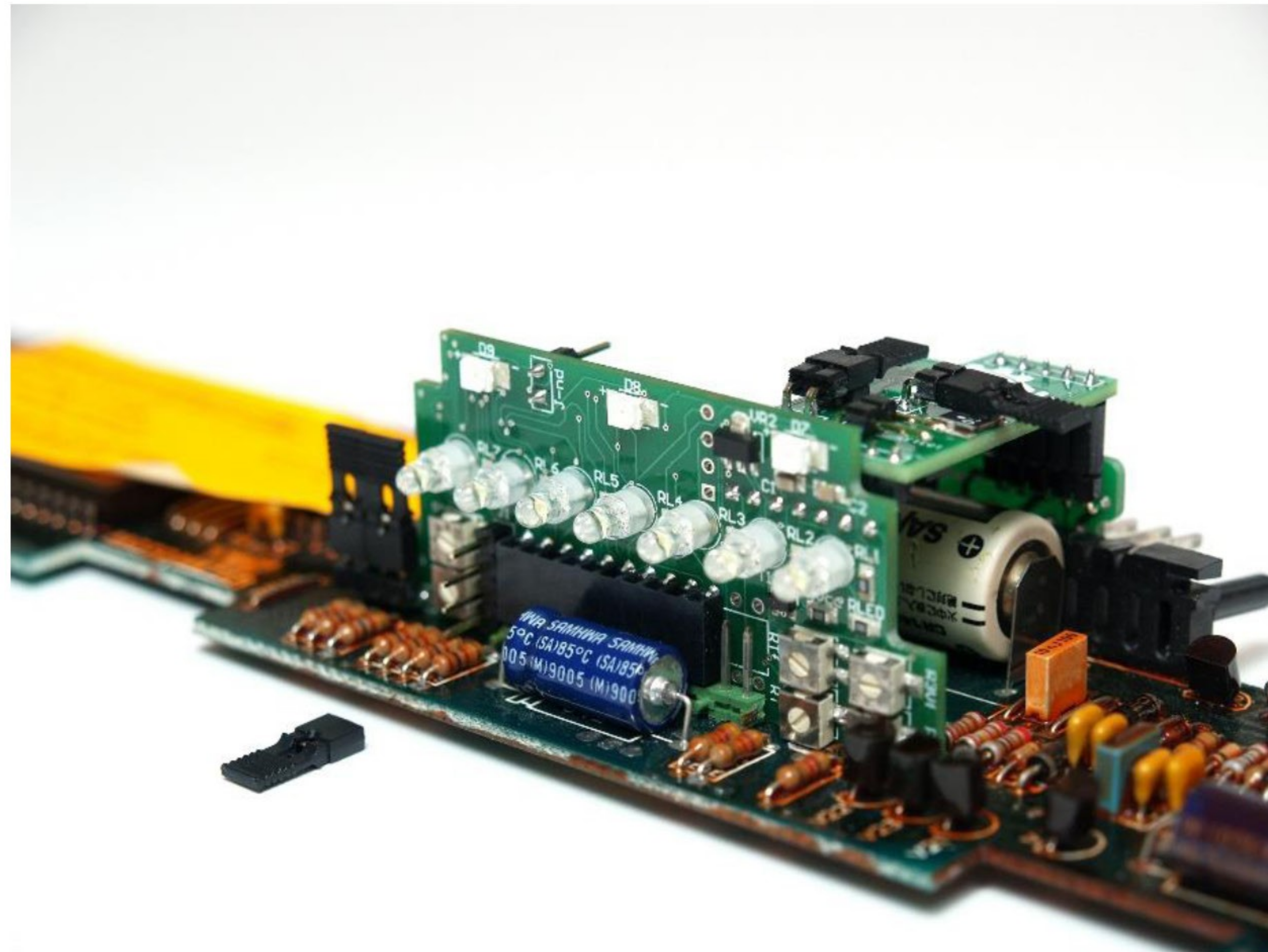
- a. Open the package
- b. Take out the ADAPTER board and mount it on the SI board pins
  - i. Make sure you align it on the proper pins
  - ii. Make sure the board is oriented correctly – “SI board side” should face the SI board
  - iii. Note it is a tight fit to get a good contact. Pins may bend just a little during the process.



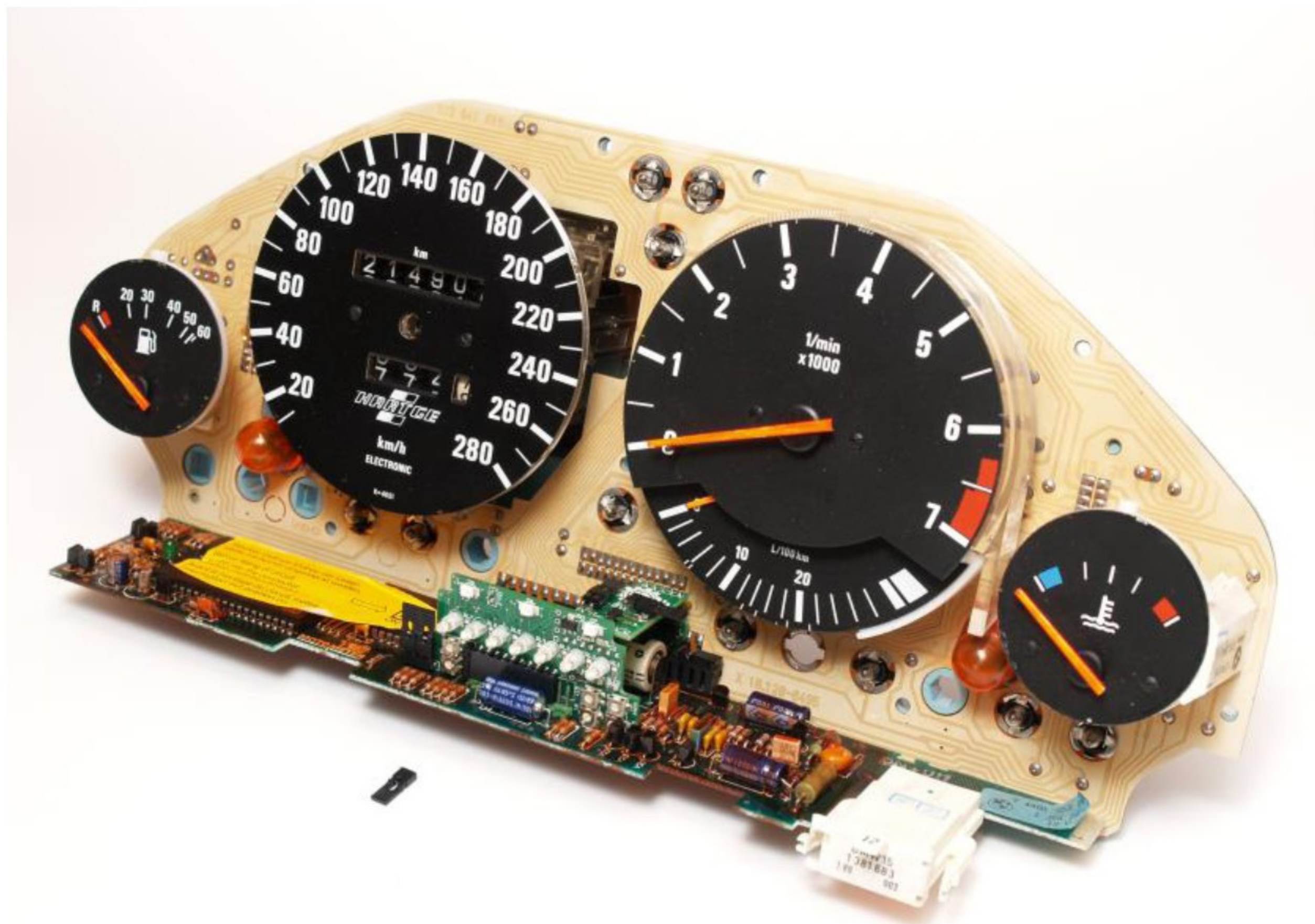
- iv. If so, make sure you align them back to the original position.

- c. Reconnect the CODING plug to the blue connector on the SI board
- d. Take the Shiftlights board
- e. If your board has an “Engine” jumper, make sure it is set to match your engine type:
  - i. “Engine” in place for 6 cylinder engines
  - ii. “Engine” removed for 4 or 8 cylinder engines (do not throw the jumper away, you may need it later)

- f. If your board does not have an "Engine" jumper your board is universal. Be careful not to over-rev your tachometer in the steps to follow.
- g. Mount the Shiftlights board onto SI board (to the 12 pins where the old LED board was connected) and the Adapter board (to the 5 pins).
  - i. Make sure the LEDs are facing the correct way
  - ii. Note that the last two pins on the SI board are not connected
- h. Make sure the "R3Vs", "Fuse" and "Temp" are in place as shown below and jumper "J1" removed.

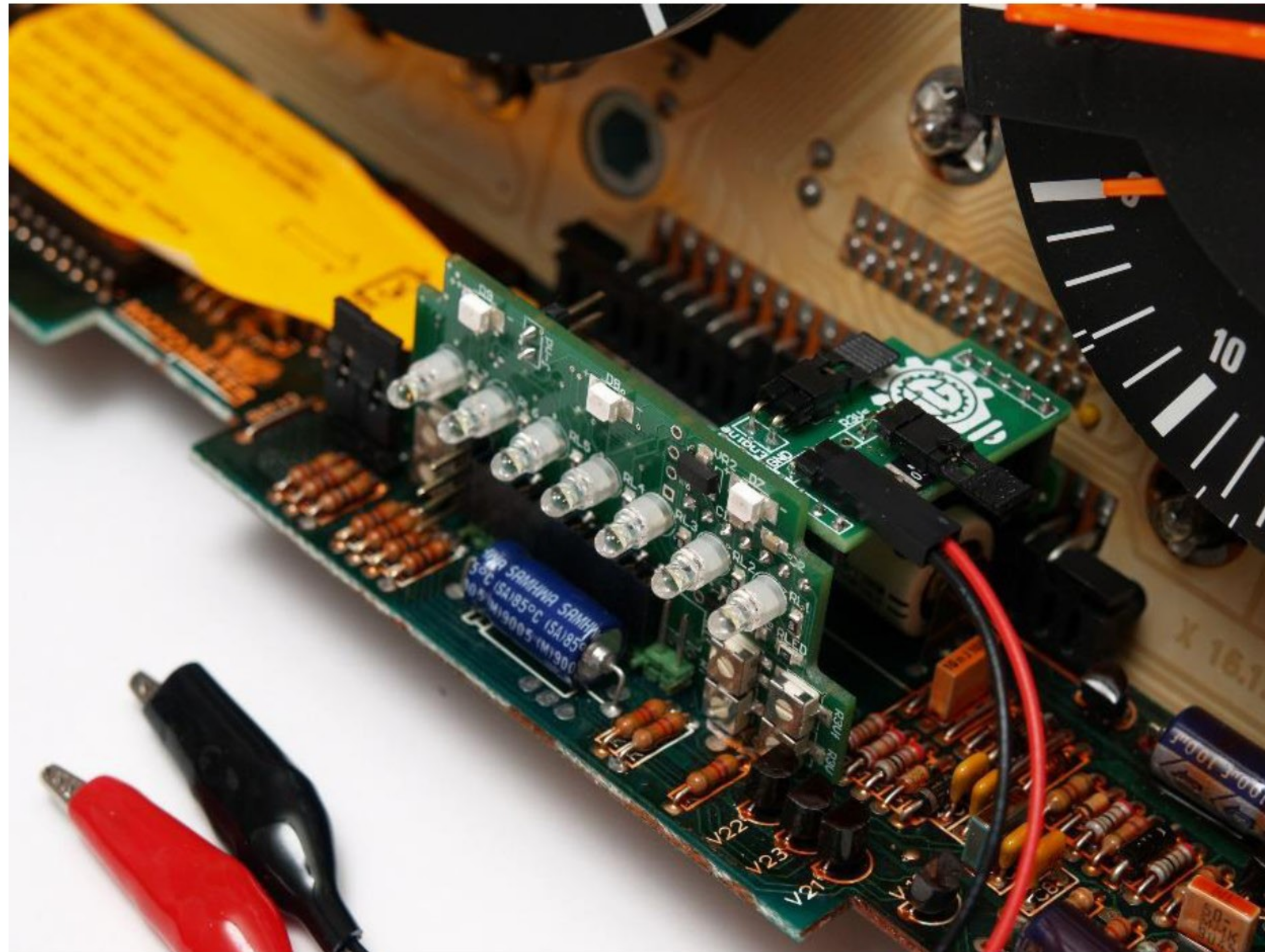


- i. Connect the SI board back with the cluster

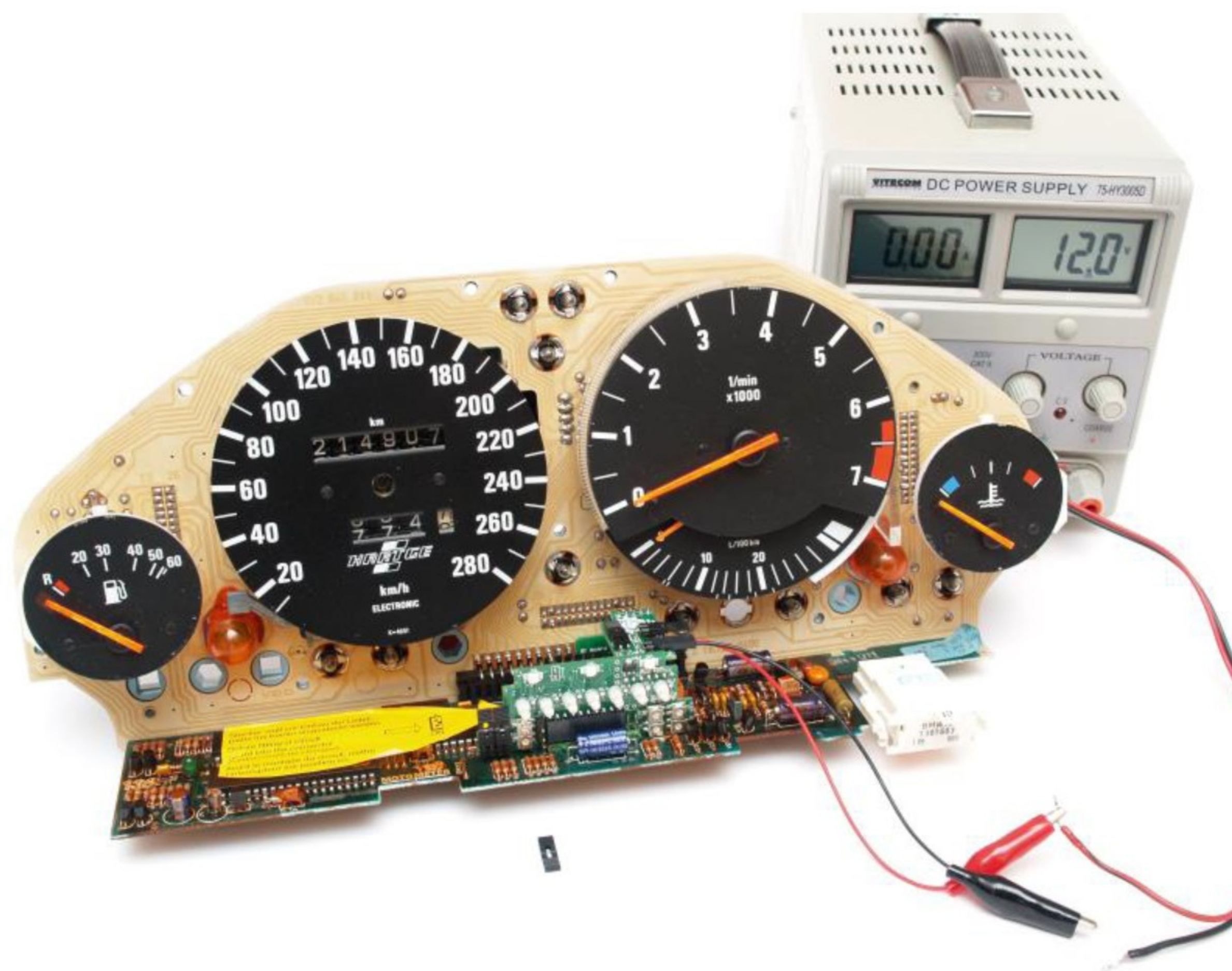


j. Powering the Shiftlights board

- i. Take the supplied the 2-wire cable and connect it to the Shiftlights board on the two jumper pins as shown below



- ii. Connect the wires to a 12V power supply (black croc clip to GND, red croc clip to +12V). Make sure you adjust the output to 12V **before** you connect the Shiftlights board.
- iii. If you do not have 12V power supply, you can use the ACCU in the car.



k. Test the setup:

*(NOTE: turn the trimmers slowly to avoid over-revving the tacho)*

- i. By turning the "R3V" trimmer clockwise on the Shiftlights board you should see the revs rise on the tacho. Turning it counterclockwise causes the revs to drop.



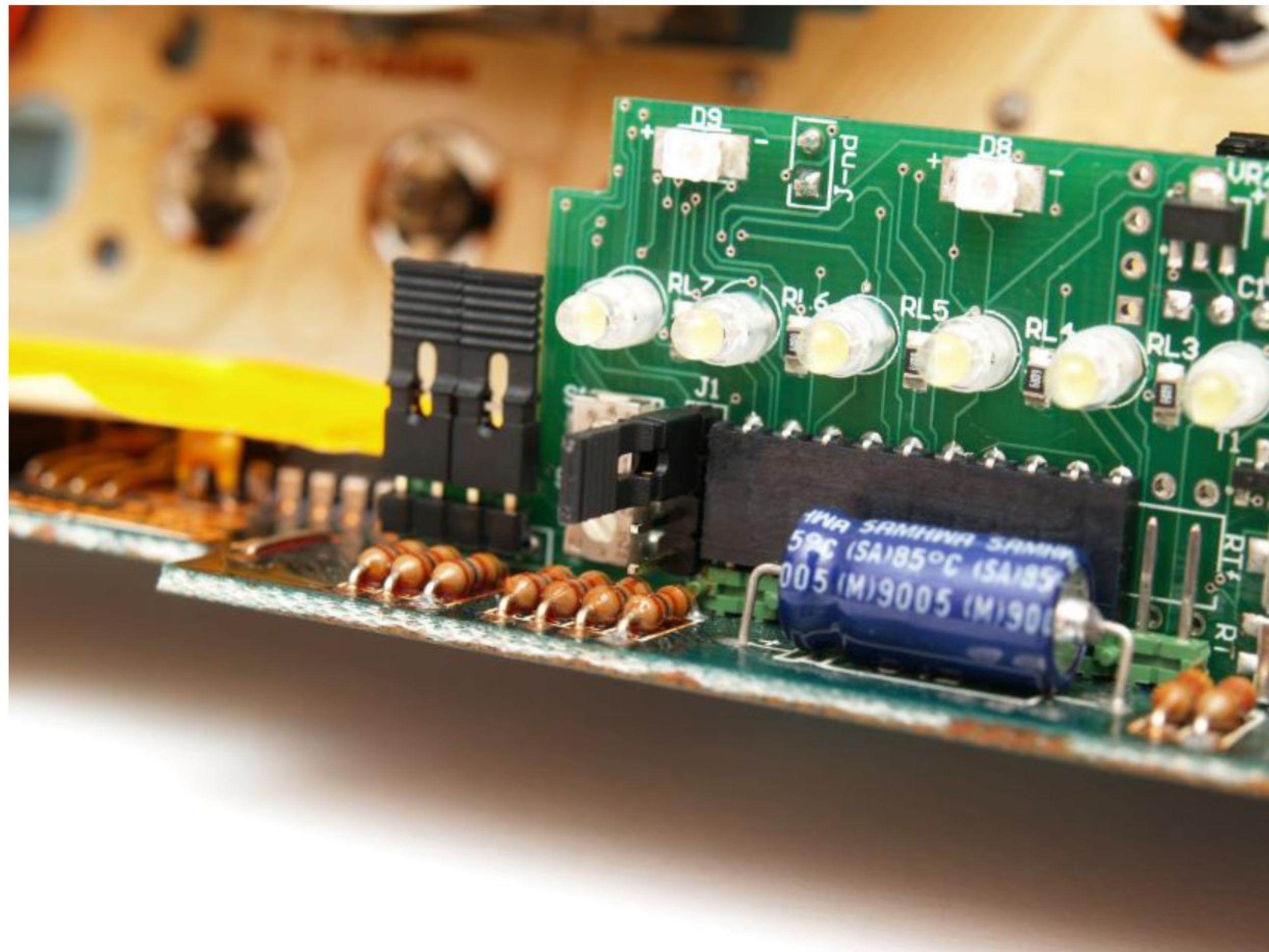
- ii. If ok, turn the "R3V" trimmer back to min revs

**Now it is time to set the thresholds to your liking.**

**4. SET LOW TEMPERATURE THRESHOLDS**

*In the following steps, you will set the Shiftlights thresholds for cold engine operation.*

- a. Using "RT" and "RTf" trimmers (they are one-turn trimmers, so don't over turn them) on Shiftlights board set the temperature to minimum. You can do this by turning the trimmer counterclockwise all the way. You can see the set temperature on the temp gauge on the Instrument cluster.
  - i. "RT" trimmer is for coarse adjustments
  - ii. "RTf" trimmer is for fine adjustments
- b. Place jumper on "J1" pins as shown on the picture below

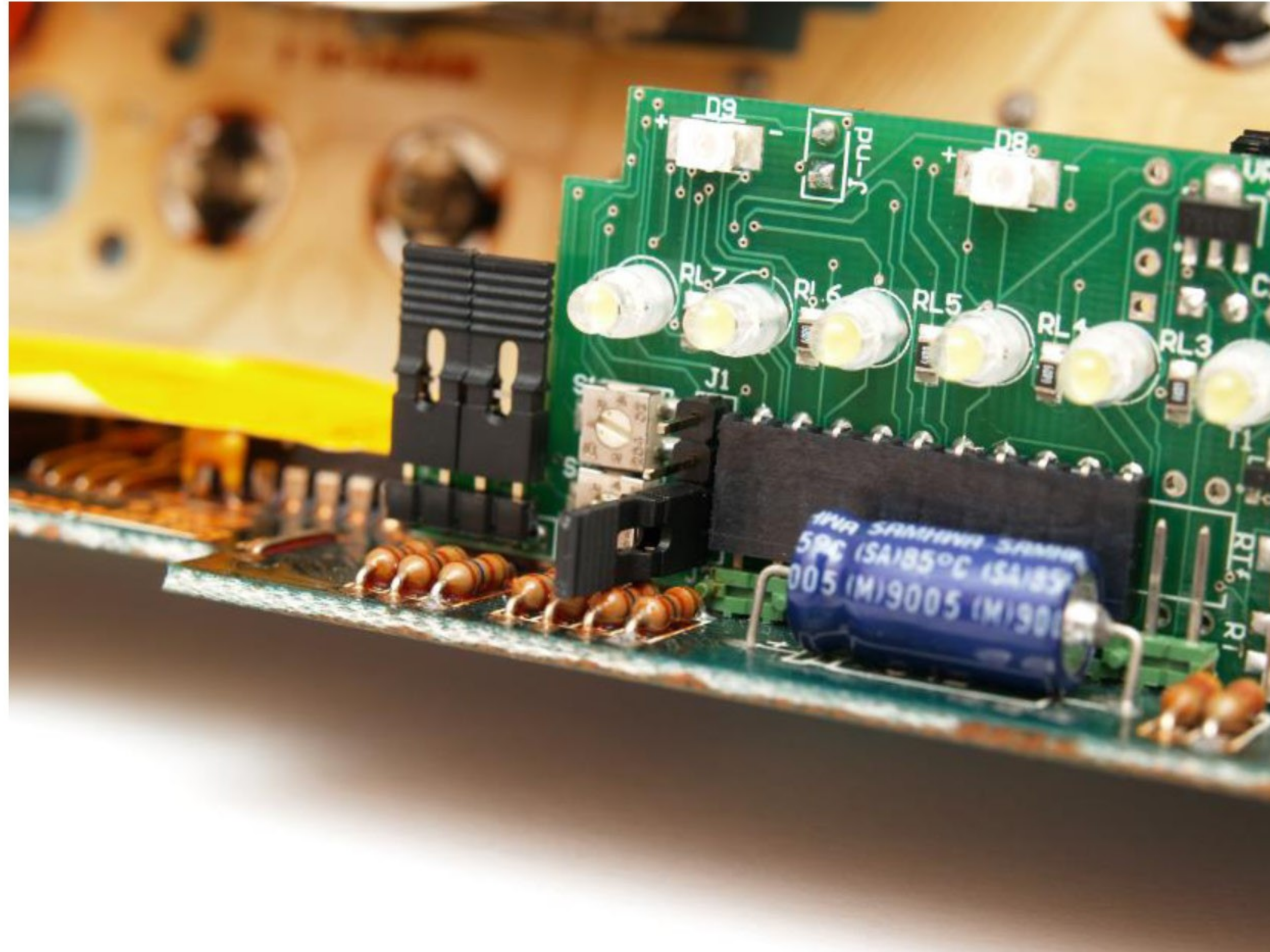


- c. Using the "R3V" (coarse adjustments) and "R3Vf" (fine adjustments) trimmers on the Shiftlights board set the revs to a position where you want the first LED to turn ON (for example 2500 rpm, point "1" on graph below)
  - i. Don't mind the number of LED that light on at this moment, there may be one or all LEDs turned on at this time
- d. Using the "S1" trimmer on the Shiftlights board adjust so that only one LED is ON
- e. Using the "R3V" and "R3Vf" trimmers on the Shiftlights board set the revs to a position where you want ALL LEDs to turn ON (for example 5000 rpm, point "2" on graph below)
- f. Using the "S2" trimmer on the Shiftlights board adjust so that ALL LEDs are ON and BLINKING
- g. Test the set thresholds by changing the revs with "R3V" and "R3Vf" trimmers on the Shiftlights board
- h. If satisfied, exit the LOW TEMPERATURE THRESHOLDS settings by removing the "J1" jumper. Leave "S1" and "S2" trimmers as they are.

**5. SET WORKING TEMPERAURE THRESHOLDS**

*In the following steps, you will set the shiftlights thresholds for hot (working temp.) engine operation.*

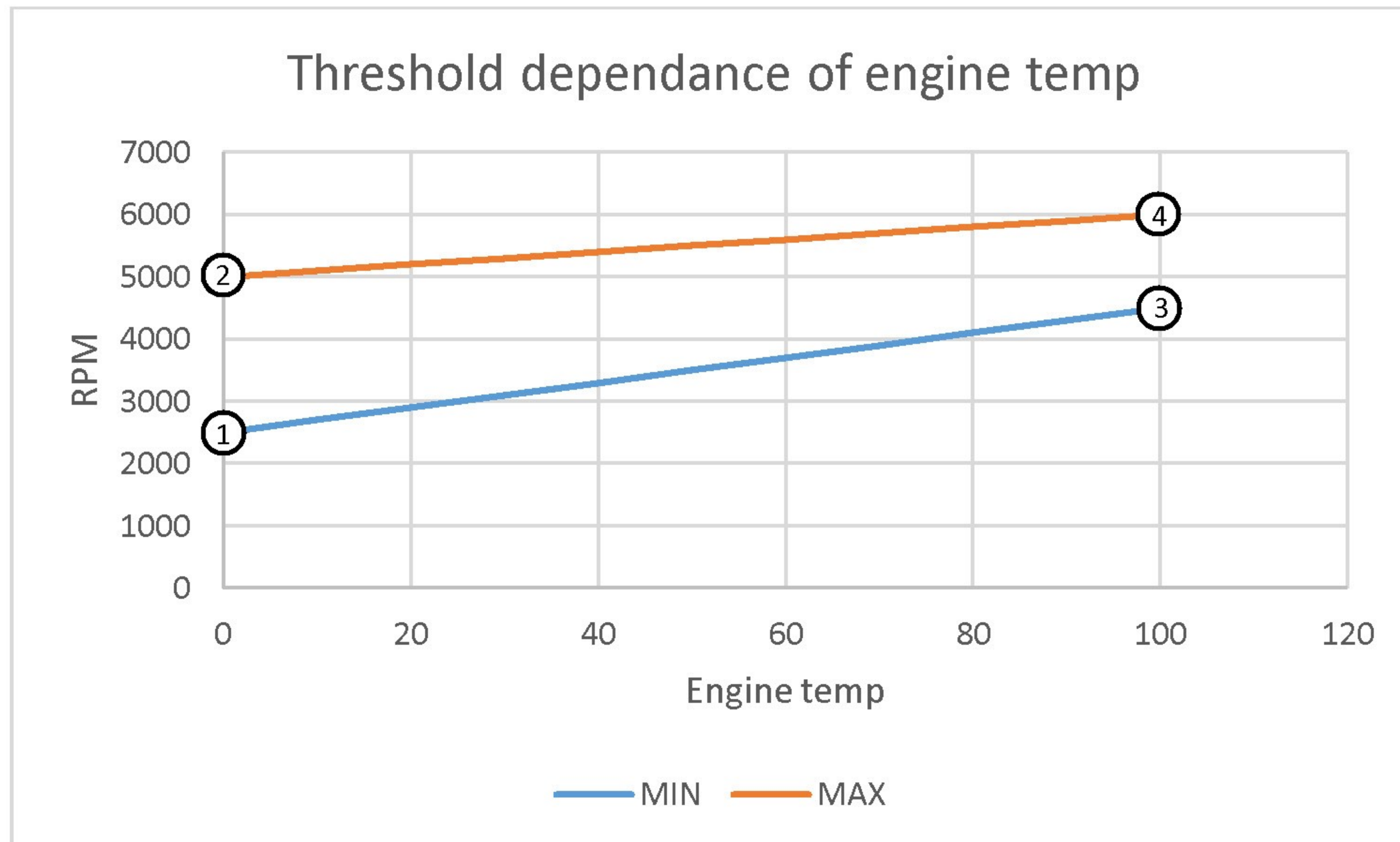
- a. Using "RT" and "RTf" trimmers on Shiftlights board set the temperature to engines normal working temperature. Turning the trimmer clockwise will increase the temp, turning it counterclockwise will decrease the temperature. You can see the set temperature on the temp gauge on the Instrument cluster.
- b. Place jumper on "J2" pins as shown on the picture below



- c. Using the "R3V" and "R3Vf" trimmers on the Shiftlights board set the revs to a position where you want the first LED to turn ON (for example 4500 rpm, point "3" on graph below)
  - i. Don't mind the number of LED that light on at this moment, there may be one or all LEDs turned on at this time
- d. Using the "S1" trimmer on the Shiftlights board adjust so that only one LED is ON
- e. Using the "R3V" and "R3Vf" trimmers on the Shiftlights board set the revs to a position where you want ALL LEDs to turn ON (for example 6000 rpm, point "4" on graph below)
- f. Using the "S2" trimmer on the Shiftlights board adjust so that ALL LEDs are ON and BLINKING
- g. Test the set thresholds by changing the revs with "R3V" and "R3Vf" trimmers on the Shiftlights board
- h. If satisfied, exit the WORKING TEMPERATURE THRESHOLDS settings by removing the "J2" jumper.

## 6. TEST THE SET THRESHOLDS

- a. With the cold/hot thresholds set you can now test the setup
- b. The thresholds are now dependent on the coolant temp. Note that the lines in the graph are just for illustration only and are drawn according to the example values ("1", "2", "3", "4") in the text above.



- By turning the "RT" and "RTf" trimmers you can set the engine coolant temp
- By turning the "R3V" and "R3Vf" trimmers you can set the engine revs
- Watch the magic happen! 😊

#### 7. SET LED BRIGHTNESS (**ONLY IF FUSE 21 TEST FAILED**)

- Note the "Fuse" jumper on the Shiftlights board. Remove the jumper from the pins.
- Observe that the brightness of the LEDs is changing and cycles through the following steps:
  - The brightness slowly rises from MIN to MAX (all LEDs are on)
  - When it reaches the MAX it stays there, LEDs start turning off one by one
    - If you insert the fuse at any time during this step, the brightness will be set to MAX
  - When all LED's turn off, they will blink, reset to MIN brightness and hold there for 1-2 seconds.
    - If you insert the fuse at any time during this step, the brightness will be set to MIN
- When it reaches the desired brightness insert the jumper back onto its pins
- The setting is now stored
- If you plan to use the "day/night" switch function you can now make the steps described under "8. h." and return back
- If applicable repeat procedure for "night mode" by first toggling the "day/night" switch to "ON" position ("Night" mode) and repeating steps "a." to "d."

*Note that you can change this setting as many times as you wish.*

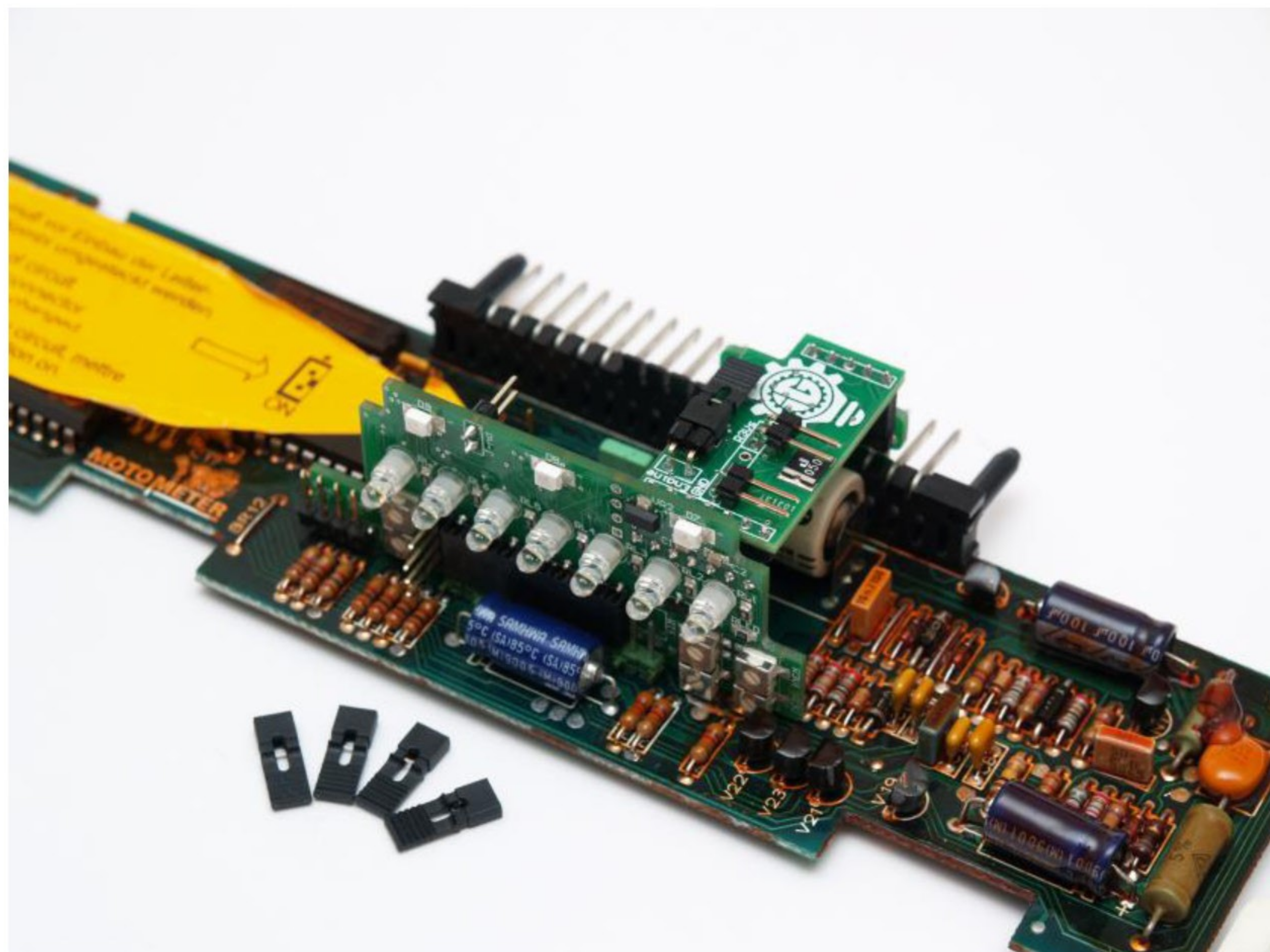
*Hint: By setting the brightness in Night mode position to minimum, you can use the "day/night" switch to turn the Shiftlights ON/OFF.*

## 8. REASSEMBLE THE INSTRUMENT CLUSTER

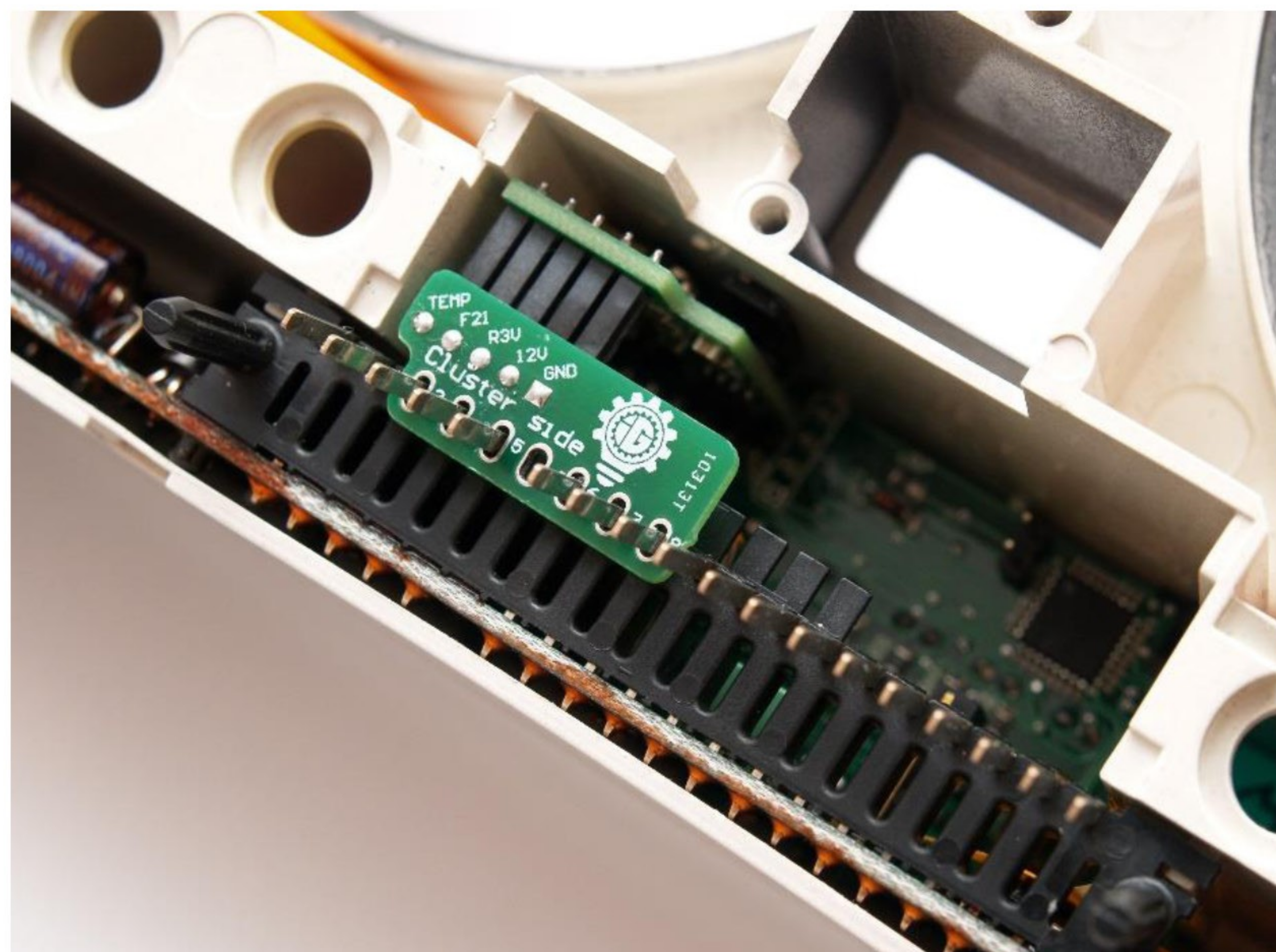
- a. Remove the power supply from the Shiftlights board
- b. Disconnect the SI board from the cluster
- c. Remove coding plug from SI board
- d. OPTIONAL: Day / Night switch connection

*This switch will allow you to toggle between day and night brightness of your Shiftlights.*

- i. Insert a two pin jumper wire (not supplied) onto "J-nd" header
  - ii. Connect the wires to your preferred switch (not supplied – any ON-OFF switch will do). Make sure the wires are long enough to reach the spot where the switch will be mounted.
  - iii. Put the switch into OFF position – remember that this will be your "Day" mode.
- e. Remove "Temp", "Fuse" and "R3Vs" jumpers. (Jumper "J2" was already removed in step 5.h.)
    - i. If not removed, you will not be able to do the next step

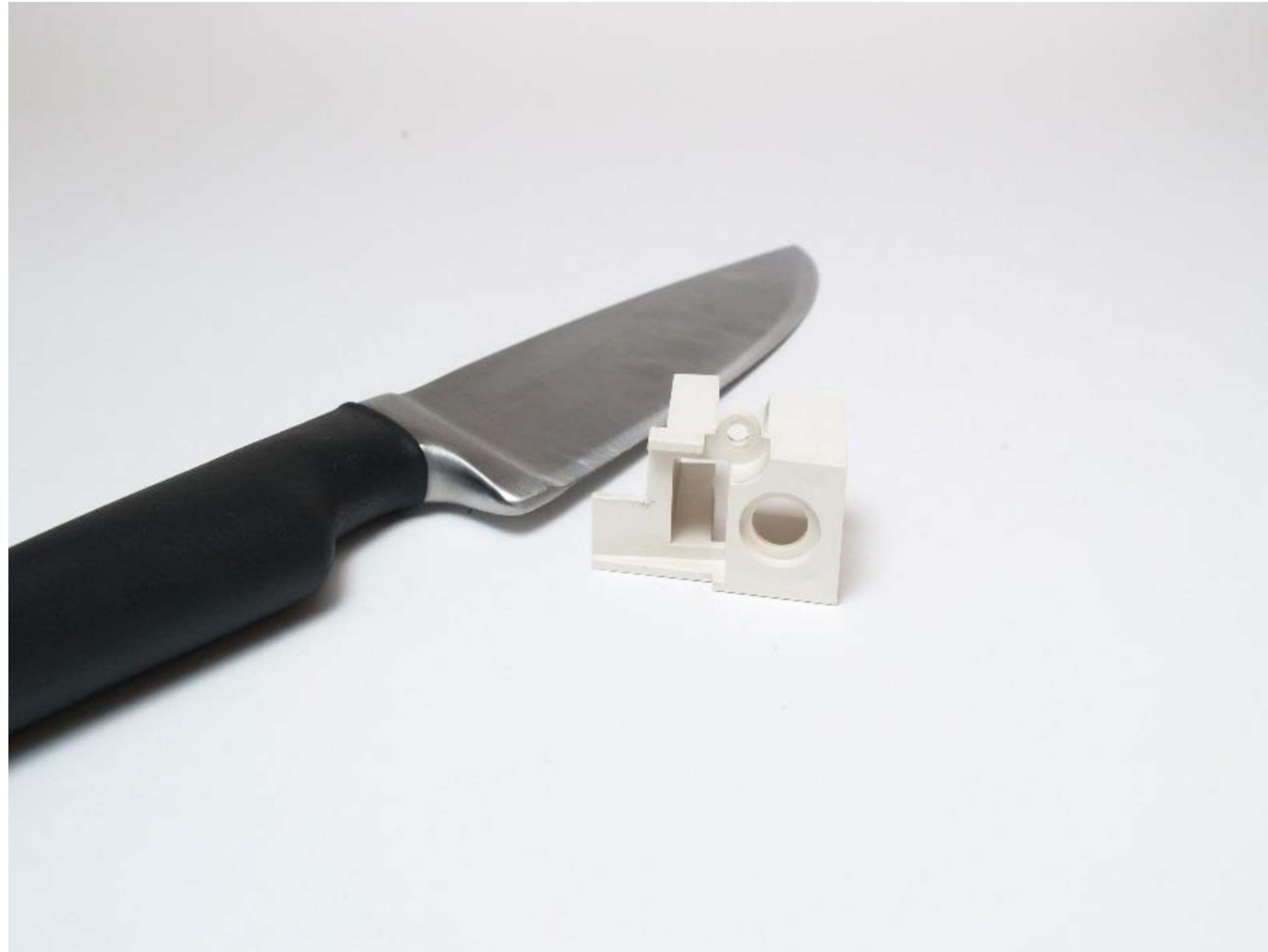


- f. Reinstall the SI board into the front half of the cluster.



- g. In order to be able to install the locking plate you will have to make a slight modification of the locking plate itself.

This is how the cut locking plate should look like after you finish (read on for instructions):



Take a sharp kitchen knife with a straight edge. Using the knife make two cuts into the locking plate (to make room for connection between the Adapter and the Shiftlights board) as shown below. The easiest way to do this is to put the locking plate on a flat surface and push down on the knife with both hands. Note that this will in no way hinder the locking plate function.

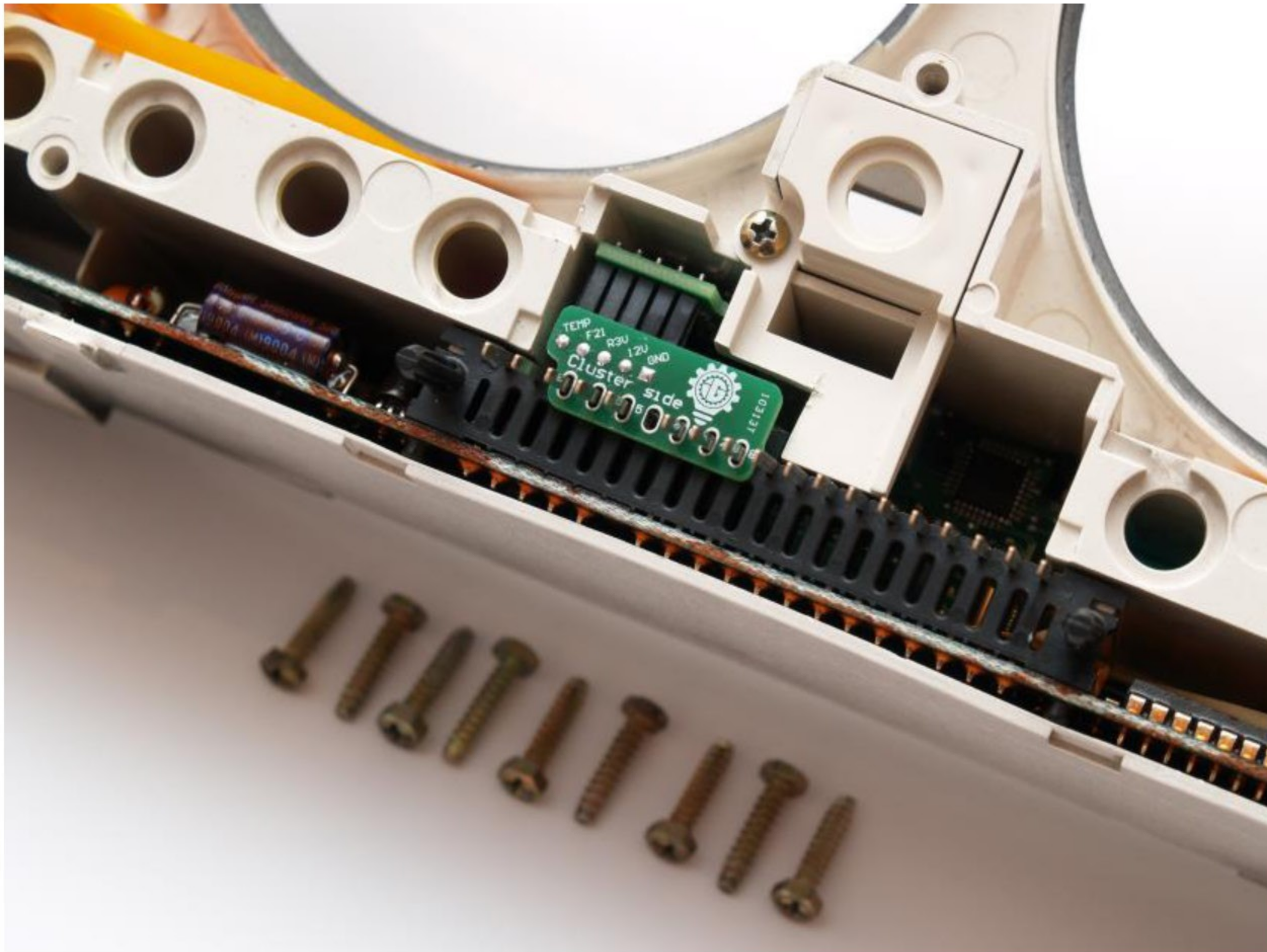
First, make the vertical cut – turn the locking plate upside down:



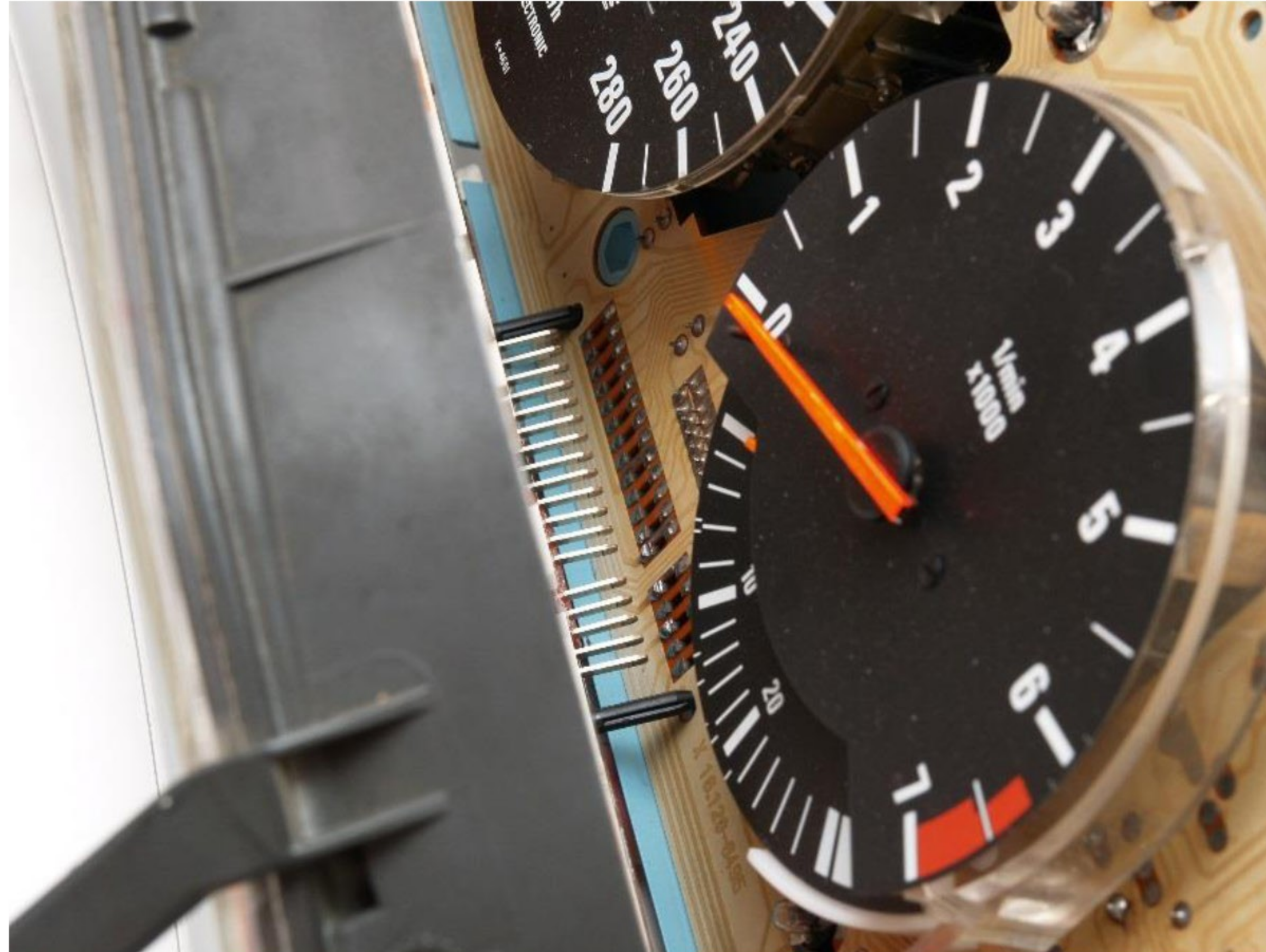
Next, make the horizontal cut down to the vertical cut previously made:



h. Reinstall the locking plate using the smaller screw of the 10 you have on the table



- i. Take the two halves of the instrument cluster and join them together. To make things easier first insert the plastic guide pins on SI board.



- j. Use the 9 screws on the table to finish the assembly.

## 9. MOUNTING THE INSTRUMENT CLUSTER

- a. Mount the instrument cluster back into the car
- b. OPTIONAL: Route wires and mount the "day/night" switch to your preferred position

## 10. THE INSTALLATION IS NOW COMPLETE! 😊

- a. Reconnect the ACCU
- b. You can now do a test drive with your E30.

*Before that, make sure you release your wife and kids and turn on your phone.*