

Introduction

- This installation information is only valid for Viper Mark 1 Display unit and Control box .
- On receipt of the goods, remove all packaging material and check all the items for transport damage.
- Check that the delivered goods correspond to the specifications of the delivery note.
- For further information as to installation dimensions, weights, performance, and so on, please refer to the drawings, product information sheets, etc.

NOTE!

Before starting installation work, read the documentation accompanying the product.

The correct function and performance of the product are only guaranteed on condition that the instructions given in this document are strictly followed.

Mounting of the Viper Mk1 and Sensors

Viper Mk1 Display unit

The Viper Mk1 Display is placed in the dashboard. The outer dimensions of the display are 84 x 39 mm. **Note:** see drawing in the product information.

Viper Mk1 Control box

Place the control box in a dry and dust free location.

Sensors

The placement of the sensors are of utmost importance to achieve a good function of the climate system.

Outside air sensor

The outside sensor is placed protected from road splatter and dirt, and in the shade with good air circulation.

Inside air sensor

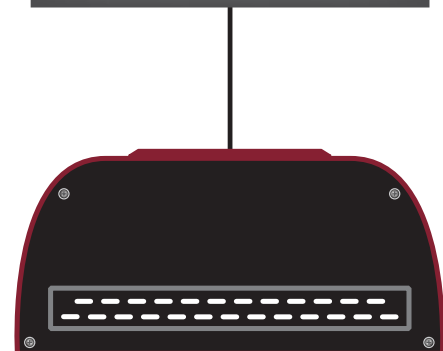
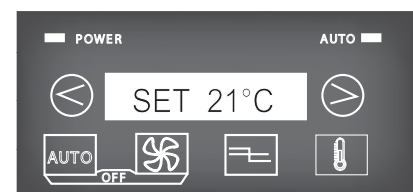
When primary heating consists of roof heating (TSV) and blowers it is very important that the compartment temperature sensor is placed protected from warm or cold draughts. Otherwise, fast changes in temperature may lead to climate control problems.

If the heating is only composed of convectors, then the air agitation in the compartment is less. This makes it important to not place the sensor too protected in the stationary air. In this case the best solution is to place it in an air evacuation duct.

Roof duct sensor

The roof duct sensor is used when the vehicle is equipped with roof ventilation or temperature stabilized ventilation (TSV). The purpose of the sensor is to measure the temperature of the roof air ducts. This sensor should be placed just after the heat exchanger to give a quick feedback. In some cases the temperature may decrease before it reaches the end of the duct. Then, it is better to place the sensor near the outlets.

Viper Mk 1 Display



Viper Mk 1 Control Box

Note: Tests are recommended to determine placement. UWE can help you perform these tests.

Viper Control box connections

Connectors for 16-pin contact:

Pin no	Name	Characteristic	Comment	Nominal impedance	Maximum voltage	Open loop voltage (1)	Maximum current
1	SER. GND *	Analogue GND	Series ground (display)	0 Ω	-	0V	+/- 20 mA
2	ROF_SE GND	Analogue GND	Roof sensor ground	0 Ω	-	0V	+/- 20 mA
3	EXT_SE GND	Analogue GND	Outside sensor ground	0 Ω	-	0V	+/- 20 mA
4	AIR_SE GND	Analogue GND	Compartment sensor ground	0 Ω	-	0V	+/- 20 mA
5	ANA_IN GND	Analogue GND	Not used	0 Ω	-	0V	+/- 20 mA
6	WAT_SE GND	Analogue GND	Water sensor ground	0 Ω	-	0V	+/- 20 mA
7	POT GND	Analogue GND	Series ground (display)	0 Ω	-	0V	+/- 20 mA
8	POT + **	Analogue input	External pot meter supply	10k Ω	+/- 40V	+5V	+/- 20 mA
9	SER. + *	Supply	Series + (display)	0 Ω	-	+24V	+ 500 mA
10	SER. COM. *	Line driver/rec.	Series communication (display)	56 Ω / 1.1k Ω	+40V/-10V	+16V	+/- 50 mA
11	ROF_SE	Analogue input	Roof sensor signal	9.3k Ω	+/- 40V	+5V	+/- 20 mA
12	EXT_SE	Analogue input	Outside sensor input/signal	13.3k Ω	+/- 40V	+5V	+/- 20 mA
13	AIR_SE	Analogue input	compartment sensor signal	9.3k Ω	+/- 40V	+5V	+/- 20 mA
14	Z-speed	Analogue input	Limit value +7 V ***	27k Ω	+/- 40V	0 V	+/- 20 mA
15	WAT_SE	Analogue input	Water sensor signal	3.3k Ω	+/- 40V	+5V	+/- 20 mA
16	POT IN **	Analogue input	External pot meter signal	330k Ω	+/- 200V	+3.3V	+/- 20 mA

(1) Open loop voltage is the voltage you measure using a high impedance voltmeter with the device powered and no connections. A difference between nominal and measured values of more than +/- 10% indicates device failure.

* These pins may only be connected to the standard Viper Display. The connection is made with standard 3-core cable that is not shielded.

** These pins can be connected to any 10k Ω potentiometer. For correct operation it is absolute necessary that the potentiometer is connected only to these pins. The connection should be made with standard 3-core cable that is not shielded. The voltage/temperature characteristics of pin 16 is linear with the end points; 0V = 27,2°C, 2.5V = 16.7°C. **Note:** A measurement of 3.1V to 4.1V means 'disregard reading' and more than 4.1 means 'Viper logically off'

*** When above 7 volts EVAP 3 is blocked (reduced roof ventilation speed)

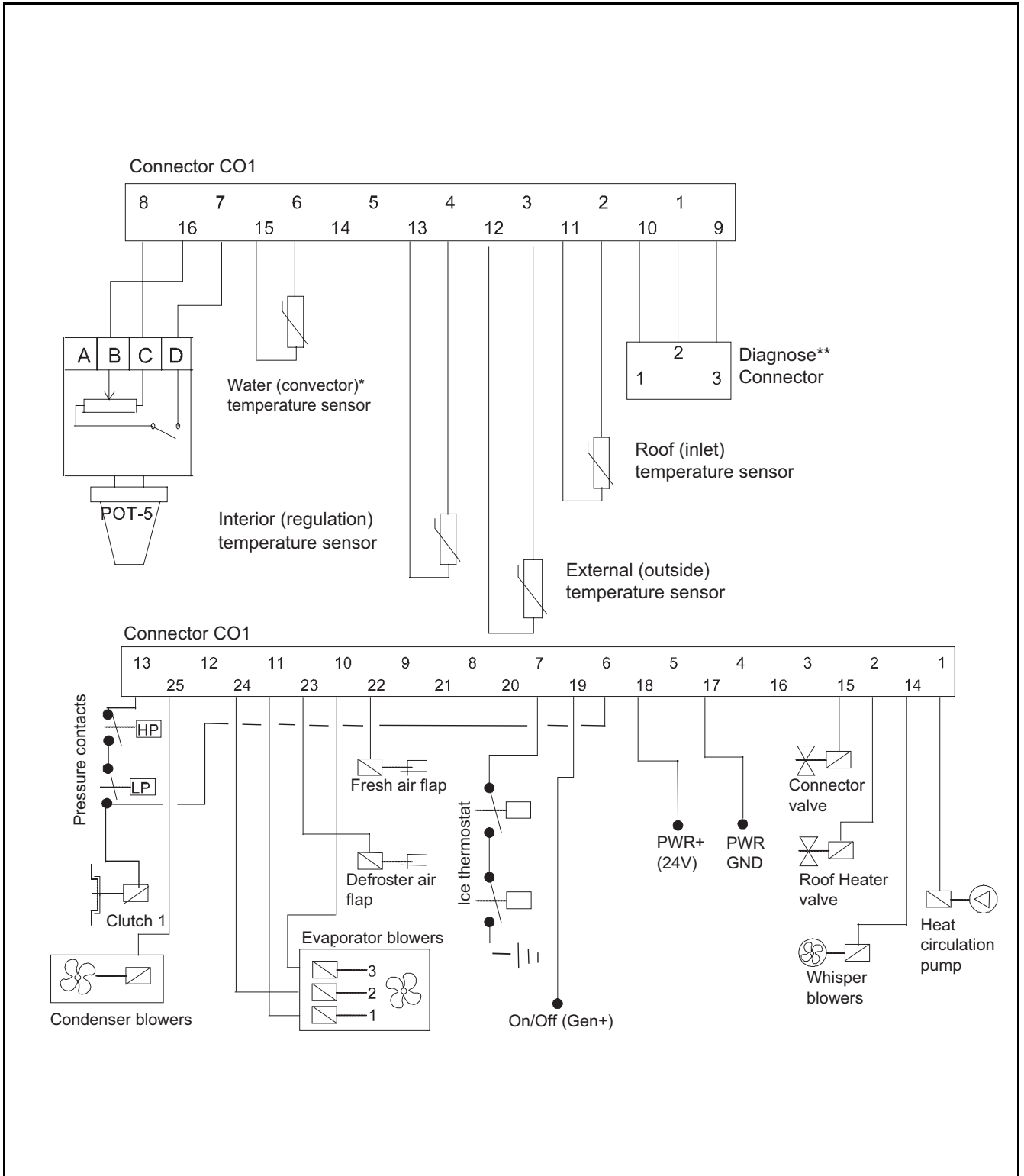
Connectors for 25-pin contact

Pin no	Name	Characteristic	Comment	Nominal impedance	Maximum voltage	Open loop voltage	Max. current
1	CIRC	Active pull-up os (open source)	Shunt pump conv. pump	0.006Ω	- 10V / + 42V	PWR+ / 0V *	8A
2	ROF_VA	Active pull-up os	Valve roof heating (TSV)	0.100 Ω	- 10V / + 42V	PWR+ / 0V *	1.5A
3	RehInd	Active pull-up os	Reheat indication output	0.100 Ω	- 10V / + 42V	PWR+ / 0V *	1.5A
4	-	NC	Not used	-	-	-	-
5	PWR + (2)**	Analog input	Optional supply	-	-30V / + 42 V	-	- 8A
6	HPLP	Digital input	AC high pressure	12.2kΩ	+ / - 200V	0V	+/- 20 mA
7	ICE	Digital input	AC ice warning	12.2kΩ	+ / - 200V	0V	+/- 20 mA
8	Fresh-/REC air compartment	Active Push - pull	0V = Fresh air	0.100 Ω	- 10V / + 42V	PWR+ / 0V *	1.5A
9	Fresh-/REC air defroster	Active Push - pull	0V = Recirculated air	0.100 Ω	- 10V / + 42V	PWR+ / 0V *	1.5A
10	Roof ventilation high speed	Active pull-up os	Connect via relay	0.100 Ω	- 10V / + 42V	PWR+ / 0V *	1.5A
11	Roof ventilation low speed	Active pull-up os	Connect via relay	0.100 Ω	- 10V / + 42V	PWR+ / 0V *	1.5A
12	Optional AC compressor	Active pull-up os	Connect via relay	0.100 Ω	- 10V / + 42V	PWR+ / 0V *	1.5A
13	AC compressor	Active pull-up os		0.006Ω	- 10V / + 42V	PWR+ / 0V *	8A
14	BLW	Active pull-up os	Compartment blower	0.050 Ω	- 10V / + 42V	PWR+ / 0V *	3.6A
15	CNV_VA	Active pull-up os	Valve convector	0.100 Ω	- 10V / + 42V	PWR+ / 0V *	1.5A
16	Aux. booster pump heating circuit	Active pull-up os	Connect via relay	0.100 Ω	- 10V / + 42V	PWR+ / 0V *	1.5A
17	PWR GND	Ground	System ground	-	0 V	-	-
18	PWR + (1)**	Analog input	System supply	-	-30V / + 42 V	-	- 8A
19	ON OFF (gen+)	Digital input	System activation	12.2kΩ	+ / - 200V	0V	+/- 20 mA
20	Reheat	Digital input	Reheat input signal	12.2kΩ	+ / - 200V	0V	+/- 20 mA
21	(PWR GND)	Optional ground	Not used	-	0 V	-	-
22	Fresh-/REC air compartment	Active Push - pull	24V = Fresh air	0.100 Ω	- 10V / + 42V	PWR+ / 0V *	1.5A
23	Fresh-/REC air defroster	Active Push - pull	24V = Recirculated air	0.100 Ω	- 10V / + 42V	PWR+ / 0V *	1.5A
24	EVAP_2	Active pull-up os	Connect via relay	0.100 Ω	- 10V / + 42V	PWR+ / 0V *	1.5A
25	COND	Active pull-up os	AC condenser	0.050 Ω	- 10V / + 42V	PWR+ / 0V *	3,6A

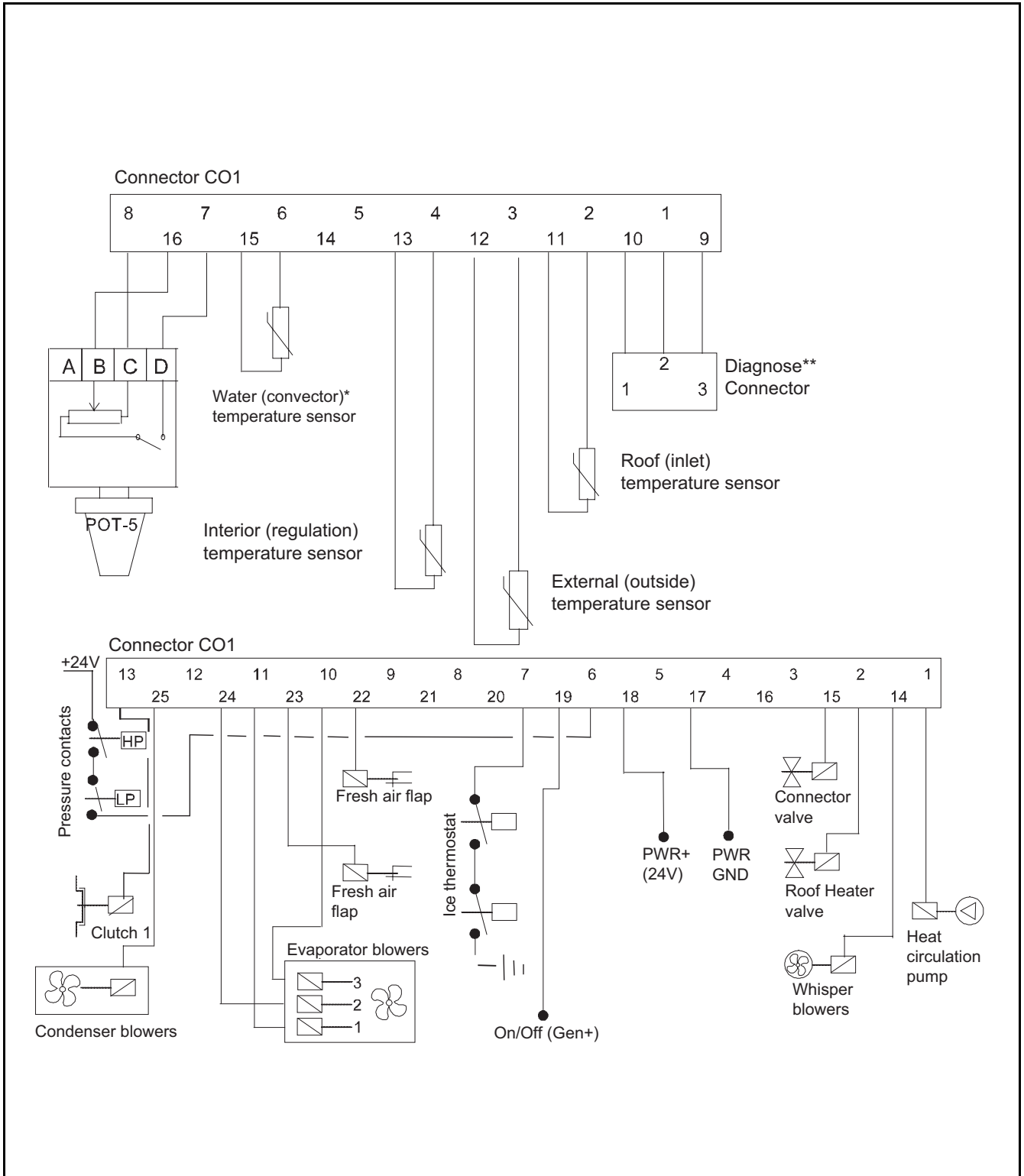
* In this case the open loop voltage should be measured with a 2.5 k Ohm resistor in series with the voltmeter.

** In case a total current >8A is to be drawn from the outputs then both PWR + pins should be connected.

Connection schematic for Standard system



Connection schematic for Webasco system



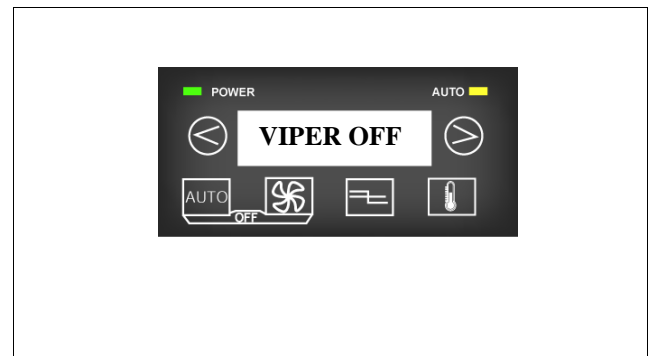
Mode setting



With Viper MK1 there is a possibility to change mode setting depending on the method of heating (convectors, heating fans and roof ducts). The default temperature will be the temperature chosen by Viper MK1 if the potentiometer or Display, for any reason is, inoperative or if the display is not used. **Note:** see table below.



Mode 0		Mode 1		Mode 2		Mode 3	
Primary heating: Convectors Roof heating		Primary heating: Convectors No roof heating (TSV)		Primary heating: Heating fans Roof heating (TSV)		Primary heating: Heating fans No roof heating (TSV)	
Setting	Temperature	Setting	Temperature	Setting	Temperature	Setting	Temperature
0	19°C	4	19°C	8	19°C	C	19°C
1	21°C	5	21°C	9	21°C	D	21°C
2	23°C	6	23°C	A	23°C	E	23°C
3	25°C	7	25°C	B	25°C	F	25°C

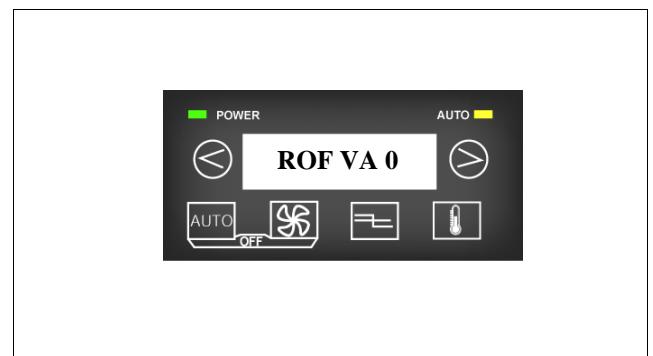
How to change mode and default temperature:

- Switch on the power supply to Viper MK1 but **do not** start the engine. "VIPER OFF" is shown in the display, see figure right.



- Press the two arrow buttons   simultaneously.

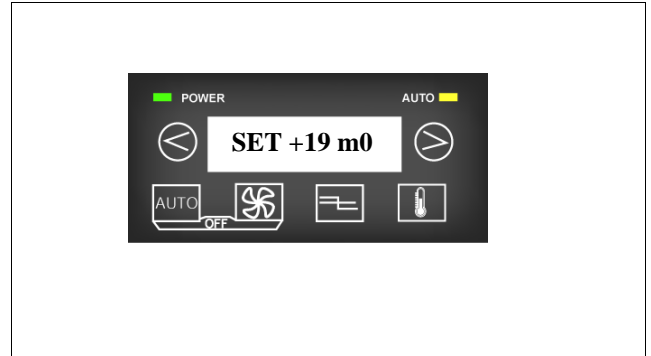
Immediately after that press AUTO and flap buttons simultaneously  



3. Press the temperature button



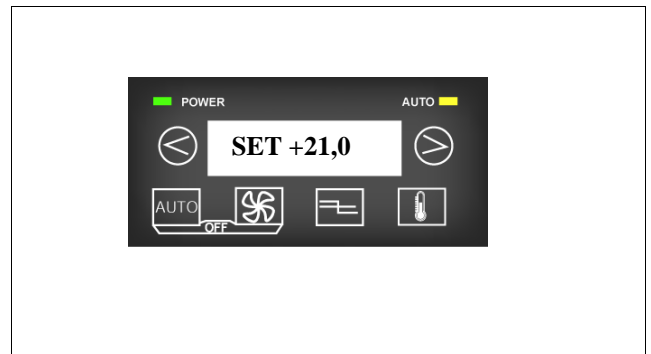
and the display (right) is shown.
SET+19 m0 means that default setting for temperature is 19°C and mode 0 is selected.



4. With a screw driver, rotate the mode setting screw on the control box until the desired mode and default temperature is shown on the display.



5. When finished, press AUTO .
The display is now showing set temperature.



Removing the Viper MK1 Display Unit

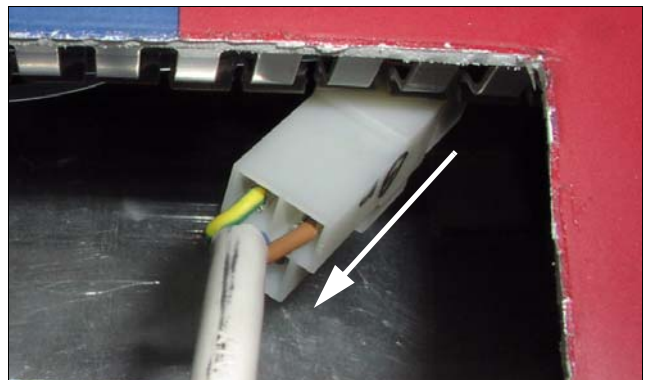
1. Use a screw driver to carefully lift up one side of the Viper Mk1 Display Unit.



2. Now lift up the other side and finally carefully lift the display unit.



3. Release the 3-pin connector.



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