

## 19. Pyrometer

Exhaust-gas Temperature Measuring System (dia. 52 mm)  
(only for VDO cockpit international)

Contents	Page
19.1 General informations	19 -2
19.2 Technical data (indicator unit)	19 -3
19.3 Technical data (temperature sensor, connecting cable, threaded bushing)	19 -4
19.4 Temperature sensor	19 -5
19.5 Wiring diagram	19 -7
19.6 Dropping resistor for 24 V	19 -8
19.7 Systems survey	19 -9

### Installation instructions

999-165-026: VDO cockpit international

see file 'Installation Instructions (MA)'.

## 19. Pyrometer

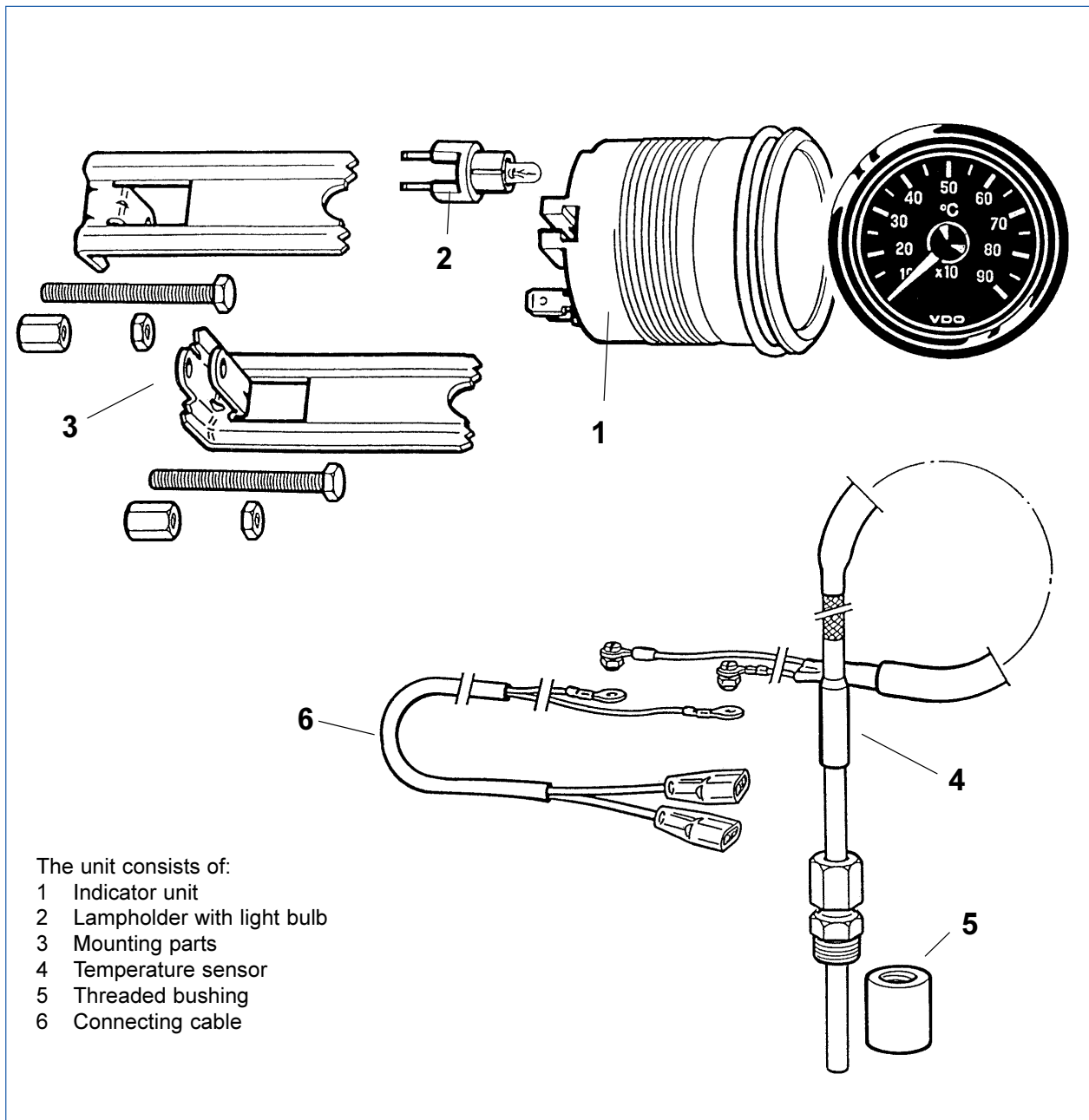
Exhaust-gas Temperature Measuring System (dia. 52 mm)  
(only for VDO cockpit international)

### 19.1 General Informations

The exhaust-gas temperature measuring system has been designed for landbound vehicles (with the exception of motorcycles) or stationary systems only.

The pyrometer serves to monitor accurately the temperature in the elbow flange of the exhaust pipe and indicates eventual thermal overload of the engine.

A temperature sensor installed in the exhaust pipe measures the exhaust temperature and transmits the data (100°C to 900°C) to an analog indicator unit (turning magnet ratio measuring movement, pointer deflection up to 320°: designation of function see tachometer, dia. 52 mm).



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### 19.2 Technical Data (Indicator Unit)

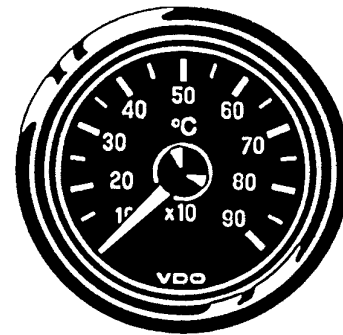
#### Temperature gauge, electronic

(Instrument separate not available. Only as set.)

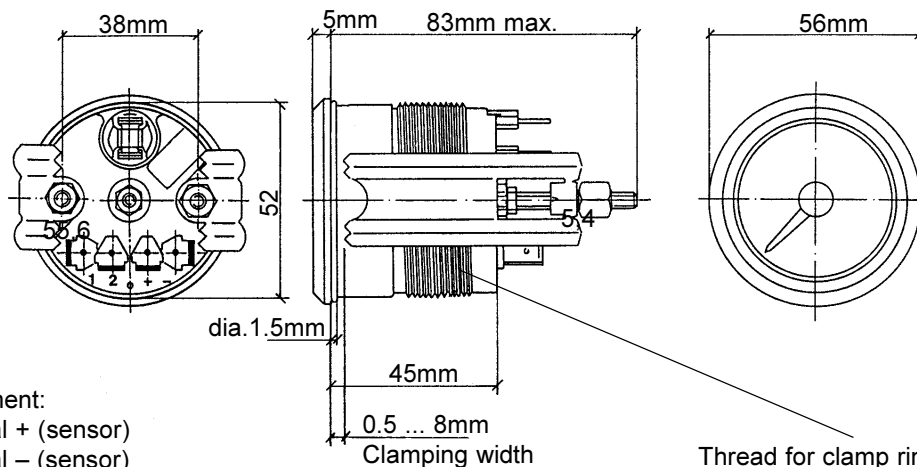
Operating voltage:	10.8 ... 16 V
Movement:	System Ke (→ 320°C)
Current consumption:	< 100 mA (without illumination)
Operating temperature:	- 20°C ... + 70°C
Storage temperature:	- 30°C ... + 85°C
Illumination:	1 light bulb 12 V, 2 W
Protection:	IP64 DIN 40050 from the front
Connections:	reverse-polarity protection
Vibration resistance:	max. 1g eff., 25 ... 500 Hz, duration 8 h, f: 1 octave/min.
Nominal position:	NL 0 to NL 90, DIN 16257

VDO cockpit international

dia. 52 mm Floodlight



Mounting hole: dia. 53mm



Pin assignment:

Pin 1: Signal + (sensor)

Pin 2: Signal - (sensor)

Pin +: + 12 V, terminal 15

Pin -: Ground, terminal 31

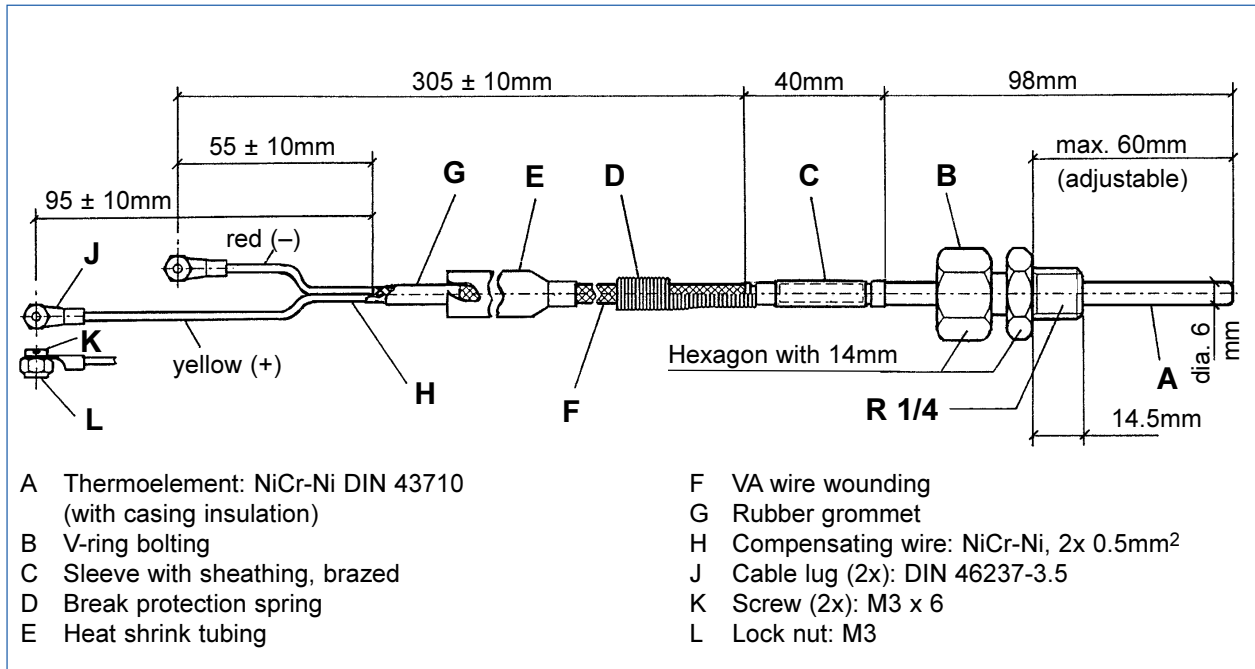
Thread for clamp ring (option)  
(clamping width:  
0,5 ... 12 or 12 ... 23mm)

### 19. Pyrometer

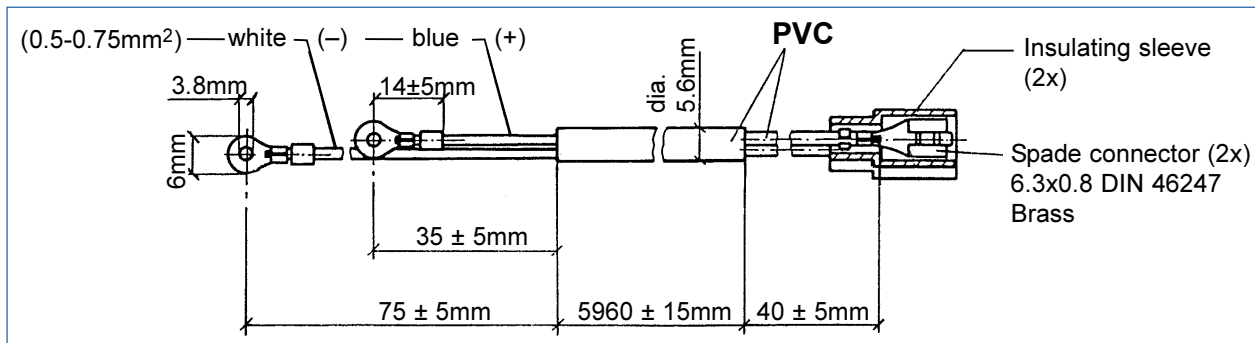
Exhaust-gas Temperature Measuring System (dia. 52 mm)  
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#### 19.3 Technical Data (Temperature Sensor, Connecting Cable, Threaded Bushing)

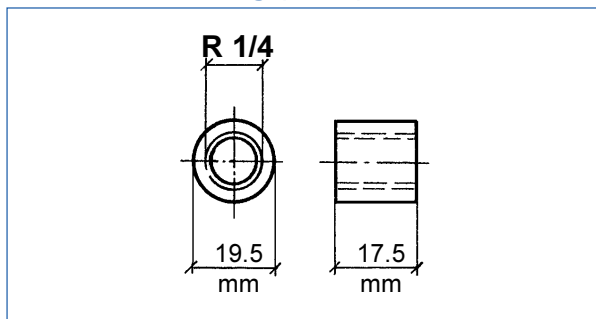
Temperature sensor 2pole (insulated return)



#### Connecting cable



#### Threaded bushing (steel)



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### 19.4 Temperature Sensor

The temperature sensor needed to operate the pyrometer is supplied with threaded bushing and connecting cable.

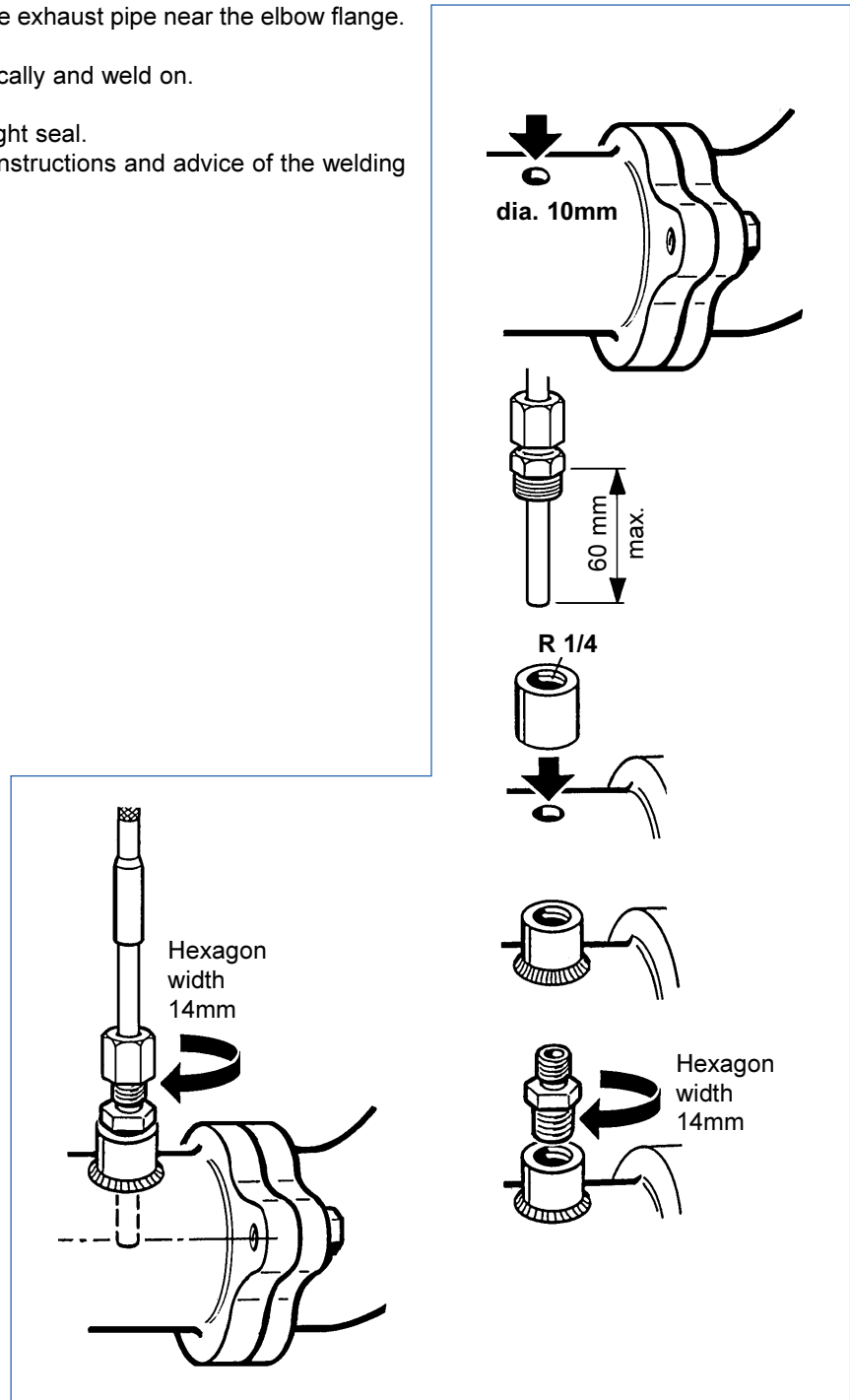
Install the temperature sensor in the exhaust pipe near the elbow flange.  
Mounting hole: dia. 10 mm.  
Mount the threaded bushing centrally and weld on.



The weld must form a tight seal.  
Always follow the safety instructions and advice of the welding equipment manufacturer.



Adjustment depth up to the middle of exhaust pipe (max. 60 mm).

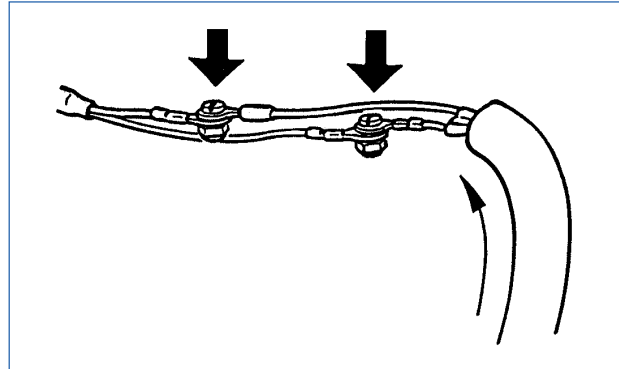


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### 19.4 Temperature Sensor

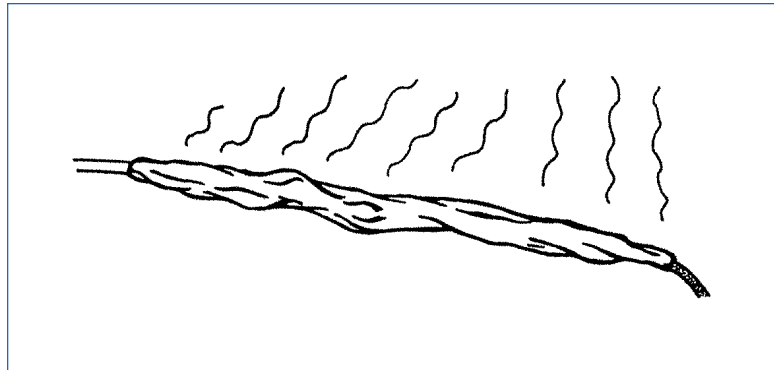
Connect the white cable of the temperature sensor with the red cable of the connecting cable and the yellow cable of the temperature sensor with the blue cable of the connecting cable.



Slide the heat shrink tubing over the cable connections and then heat with a hot-air fan over the entire length until it shrinks.



Always follow the safety advice of the hot-air fan manufacturer.

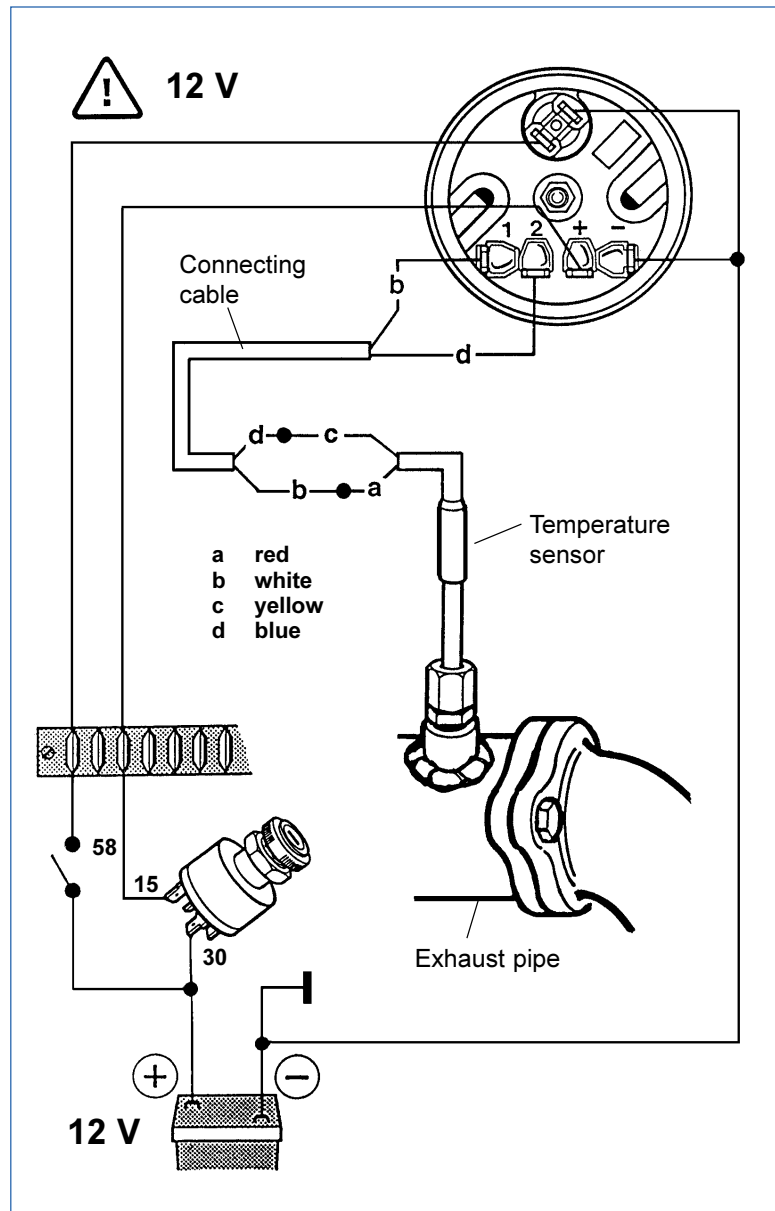


Do not shorten the connecting cable (measuring lead).

## 19. Pyrometer

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### 19.5 Wiring Diagram



Do not shorten the connecting cable (measuring lead).

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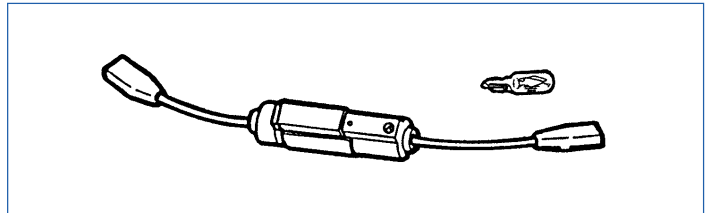
#### 19.6 Dropping Resistor For 24 V

The electronic exterior temperature indicating instrument (rated voltage 12 V) can also be used with a rated voltage of 24 V if an external dropping resistor (option) is installed in the plus wire (terminal 15). In this case the operating voltage can be 21 V to 32 V.



Replace 12 V light bulb by a 24 V light bulb.

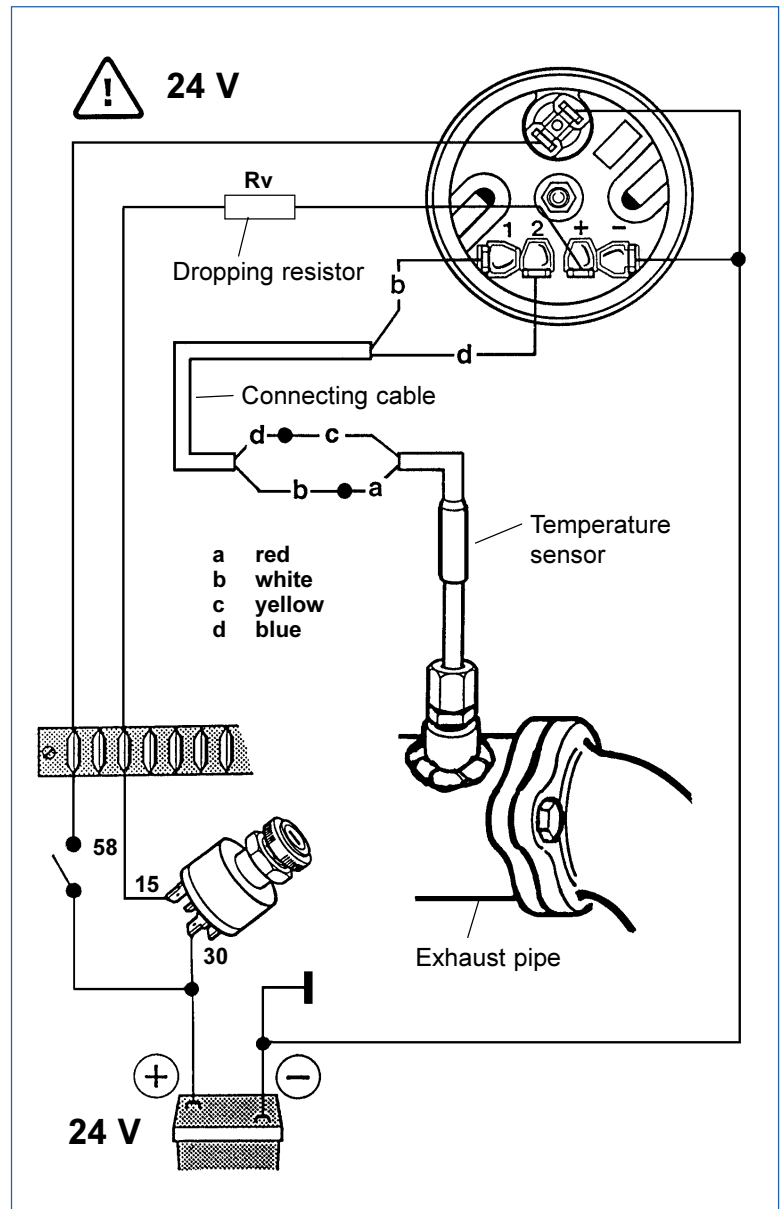
The dropping resistor is supplied with a 24 V 2 W light bulb.  
Part No.: 800-005-027G



#### Wiring diagram



Do not shorten the connecting cable (measuring lead).





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### 19.7 Systems Survey

VDO cockpit international (Floodlight) dia. 52 mm

Part No. 397-015-...

Dial		Special feature	Part No.
Range	Imprint		
100°C ... 900°C	10 ... 90 x10 °C	12 V	<b>003C</b>

# Technical Product Manual

VDO cockpit vision VDO cockpit international

## Change Overview

Date	Chapter-Page	Comment
0200	—	New issue, supersedes Technical Product Manual VDO Instruments chapter A Round VDO Instruments chapter B Confectioning of Round VDO Instruments (TU00-0777-0000002)
0600	general	Installation Instruction: <i>removed:</i> ▼ will follow
	15 - 4	Protection: IP64 <i>was</i> IP40
	14 - 5, - 6	<i>removed:</i> temperature sensor, insulated return
0101	5 - 5, 14 - 5	Light bulb: 2W <i>was</i> 1.2 W, dropping resistor: 2W <i>was</i> 1.2 W
	5 - 8, 14 - 7	<i>new:</i> dropping resistor VDO cockpit international
	18 - 6	<i>new:</i> dropping resistors
	15 - 4	500 Hz <i>was</i> 2000 Hz
0301	3 - 10, 5 - 9, 5 - 10	<i>new:</i> 5 cylinders, text coding table
	13 - 1 to 13 - 7	<i>new:</i> 331-810-012-....
	19	<i>complete new</i>
0601	17 - 15, 17 - 17	Pos. 16: dia. 100mm 999-071-003 <i>was</i> 999-075-003
	17 - 22, 17 - 24, 17 - 26	Pos. 15: dia. 100mm 999-071-003 <i>was</i> 999-075-003
0801	7-12	<i>new:</i> table 60 to 200°C
	2-4 to 2-7, 3-4 to 3-7, 4-4 to 4-5	<i>new:</i> EMC test: according to EN 13309 and ISO 13766
0102	12 and 13	<i>new:</i> new generation (illustrations and text)
0502	13-4	<i>new:</i> 18V to 28V, Pin KL 58
	13-7	331-810-012-004B <i>was</i> -004, -007B <i>was</i> -007
0902	5-16	<i>new:</i> 029C: with clamp ring, 029G: with stud bolt
0503	2-9	<i>new:</i> pin allocation hall sensor
0704	9-11	Deflection ( $\alpha$ ) 24, 48, 67 <i>was</i> 22, 44, 66
	12-8	Part No. -031- <i>was</i> -021-
0607	13-3 and 13-6	Old Generation removed
	13-4	9V to 26V removed
	13-5	Page compl. removed (Old Generation)
	13-7	Old Generation removed;
	13-7	removed 331-810-012-005, 331-810-012-006, 331-810-012-008 to 010