

# PARTS & SERVICE NEWS

REF NO.	AA02136
DATE	May 23, 2002

**SUBJECT:** INTRODUCTION OF NEW SWITCH UNITS "entrelec" FOR THERMO SENSORS PT 100

**PURPOSE:** Substitution of switch unit RP51

**APPLICATION:** H285S Hydraulic Shovel, S/N's 78076, 78083, 78097, 78104, 78110, 78111, 78113, 78120, 78124, 78134, 78139  
 H455S Hydraulic Shovel, S/N 15005  
 H485SE Hydraulic Shovel, S/N 12016  
 PC3000 Hydraulic Excavator, S/N's 6174 and 6182  
 PC4000-6 Hydraulic Excavator, S/N 8152

**FAILURE CODE:** DG00Z9

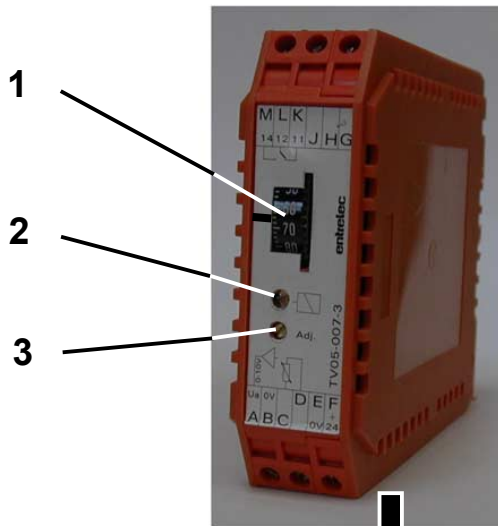
**DESCRIPTION:**

		Thermo Sensor	Switch Unit
Old Version	Name	TP31	RP51
	Part No.	440 382 40	576 308 40
New Version	Name	TP31	<b>entrelec</b>
	Part No.	440 382 40	899 301 40

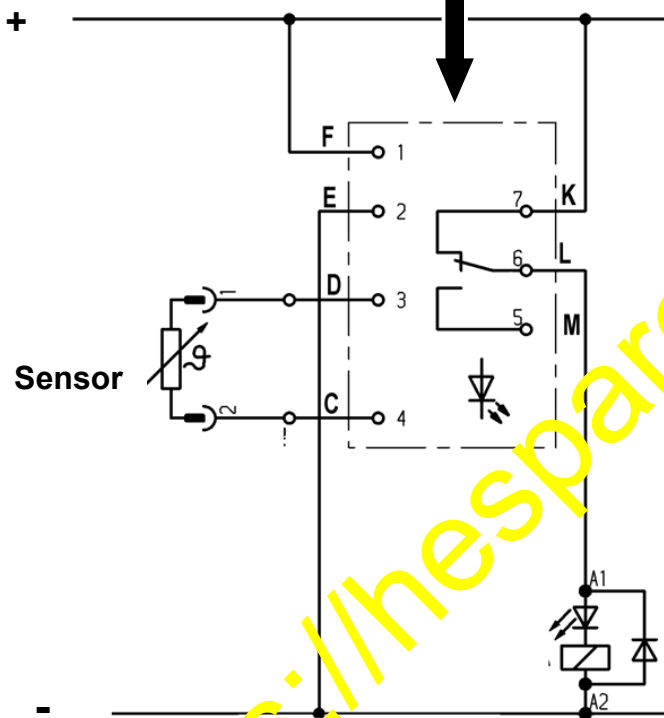
The line resistance between thermo sensor, at the respective measuring point and the switch unit, located in a switch box, has to be compensated.

Adjustment procedure according to Pages 3 and 4

https://mespareparts.com/



- A Signal analog (0 - 10 V)  
0V in -30°C  
10V in +110°C
- B Signal 0V
- C Sensor (PT100)
- D Sensor (PT100)
- E - ground
- F + 24V DC Supply voltage
- G } not used
- H } not used
- J } not used
- K Relays
- L Relays
- M Relays



If temperature lower than switch point, L-M connected; LED on!

### Features

- **Temperature below switching point**  
Relay is energised (M + L closed)  
LED (2) lights
- **Temperature above switching point**  
Relay drops off (L + K closed)  
LED (2) off

### Operating instructions

The Adjustment of the temperature switching level is possible by hand (without tool) and is infinitely variable over the full range of the drum scale.

The adjusted value is readable in the middle of the scale window (1).



- **Never turn the scale over the „Stop“ marking(white line) because of damages of the final stop position.**

### Line resistance compensation:

A small screwdriver is used to set the potentiometer (3) to compensate the line resistance below the drum scale (1).

### Adjustment.

Open the sensor cover of PT 100, disconnect cables.

Measure the PT 100 resistance of the current temperature with an multimeter at the cable connections and determine the temperature by means of the temperature-resistance table (see page 4/4).

Connect cables to sensor, close sensor cover.

The temperature, taken from the table, has to be adjusted at the drum scale (1) of the switching unit.

Adjust the switching point of the relays with the line resistance compensate potentiometer (2)(adjusting screw ).

### Function check.

Adjust drum scale over (LED off) and below (LED on) the current temperature and check the correct switching function.

### Finally:

Adjust the drum scale to the switching temperature you can find in the Maintenance Manual and in the hydraulic diagram.

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**Temperature - Resistance -Table (PT 100)**

° C	0	1	2	3	4	5	6	7	8	9
-50	80,31	79,91	79,51	79,11	78,72	78,32	77,92	77,52	77,13	76,73
-40	84,27	83,88	83,48	83,08	82,69	82,29	81,89	81,50	81,10	80,70
-30	88,22	87,83	87,43	87,04	86,64	86,25	85,85	85,46	85,06	84,67
-20	92,16	91,77	91,37	90,98	90,59	90,19	89,80	89,40	89,01	88,62
-10	96,09	95,69	95,30	94,91	94,52	94,12	93,73	93,34	92,95	92,55
0	100,00	100,39	100,78	101,17	101,56	101,95	102,34	102,73	103,12	103,51
10	103,90	104,29	104,68	105,07	105,46	105,85	106,24	106,63	107,02	107,40
20	107,79	108,18	108,57	108,96	109,35	109,73	110,12	110,51	110,90	111,28
30	111,67	112,06	112,45	112,83	113,22	113,61	113,99	114,38	114,77	115,15
40	115,54	115,93	116,31	116,70	117,08	117,47	117,85	118,24	118,62	119,01
50	119,40	119,78	120,16	120,55	120,93	121,32	121,70	122,09	122,47	122,86
60	123,24	123,62	127,84	124,39	124,77	125,16	125,54	125,92	126,31	126,69
70	127,07	127,45	131,66	128,22	128,60	128,98	129,37	129,75	130,13	130,51
80	130,89	131,27	135,46	132,04	132,42	132,80	133,18	133,56	133,94	134,32
90	134,70	135,08	139,26	135,84	136,22	136,60	136,98	137,36	137,74	138,12
100	138,50	138,88	143,04	139,64	140,02	140,39	140,77	141,15	141,53	141,91

For example: 109,73  $\Omega$  = 20,5°C