

**PARTS & SERVICE NEWS**

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This PARTS & SERVICE NEWS supercedes the previous issue No.: 21 – 290e dated November 1999 which should be discarded.

**SUBJECT:** Fuel tank - Electronic fuel measurement (EFM)  
Pressure transducer (sensor)

**PURPOSE:** New kind of connection plug (Yazaki)

**APPLICATION:** All models

**FAILURE CODE:** 041DZ9

**DESCRIPTION:****1. General Information**

The above mentioned machines are equipped with the electronic fuel measurement (EFM) consists of:

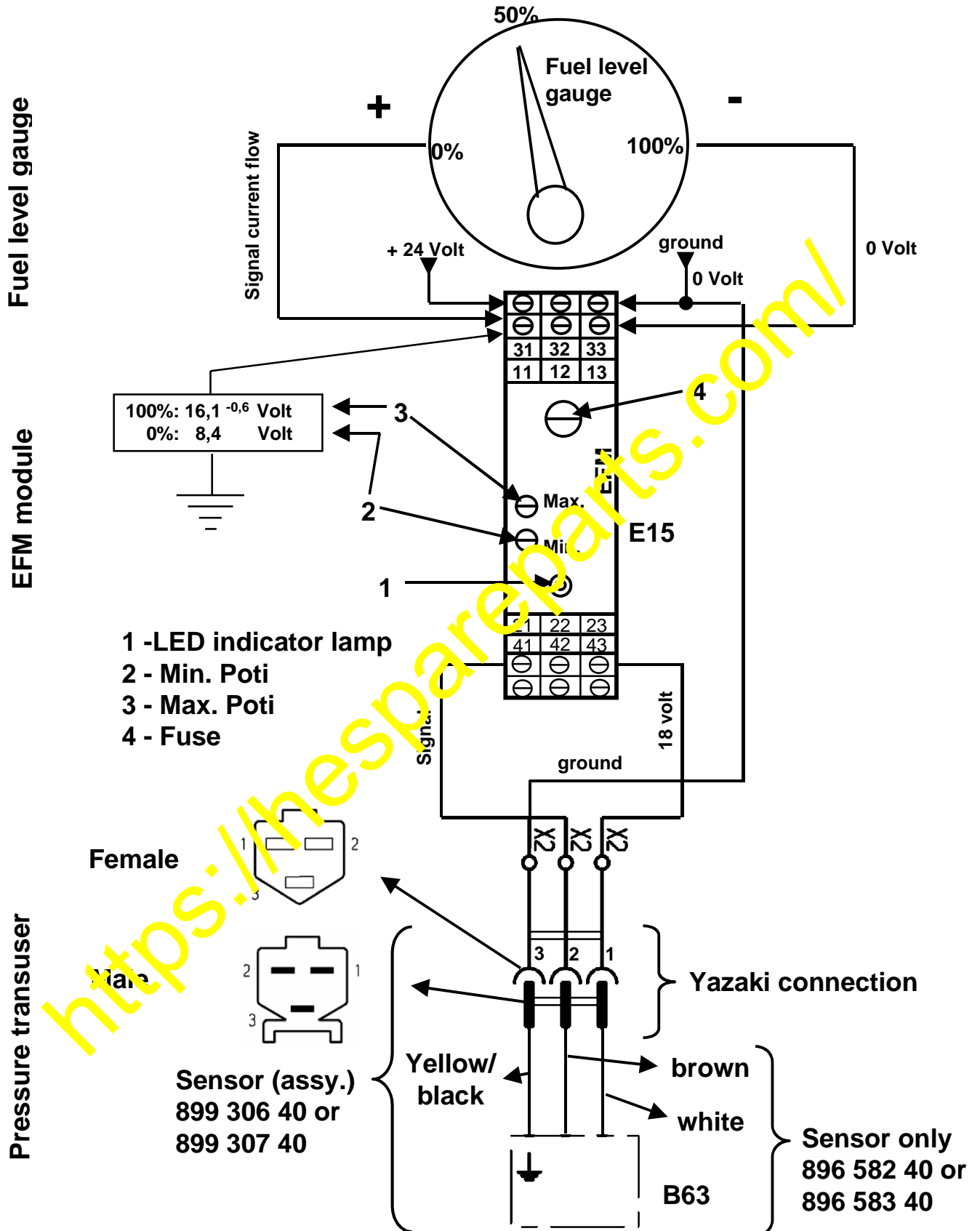
- Version A** (illust. 1)
- Pressure transducer - fuel tank  
There are two different pressure transducers according to the size of the fuel tank (illust. 2 + 3).
  - Module EFM– inside the switch box “X 2”  
(refer to the electric circuit diagram of the excavator)
  - Fuel-level gauge - operator's cab

- Version B**
- Pressure transducer - fuel tank  
There are two different pressure transducers according to the size of the fuel tank (illust. 2 + 3).
  - HCS / VHMS with monitor



- All new sensor assies. will be delivered with Yazaki plugs (male – installed; female – inserted).
- The female is used instead of the used cube plug on old machines.

To "A": Illustration 1 (models without ECS/VHMS)

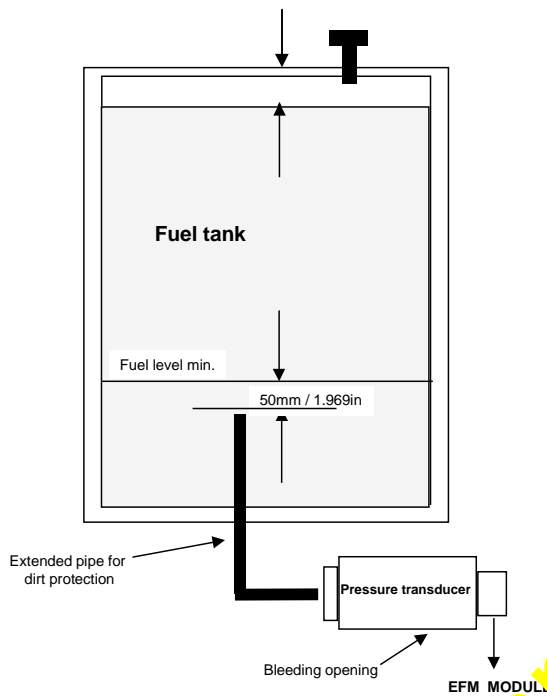


The pressure transducer can be installed at two varies places:

1. Installation in a pipe below the fuel tank (Illustration 2);
2. Installation sideways at the tank (Illustration 3).

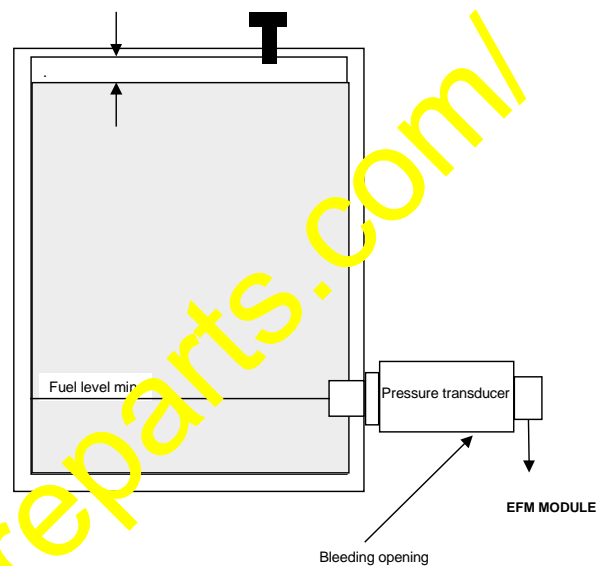
**Illustration 2**

Space for expansion min. 5% of  $V_{total}$



**Illustration 3**

Space for expansion min. 5% of  $V_{total}$



Model	Sensor (assy.)			
	899 306 40		899 307 40	
	min.	max.	min.	max.
	[mA]	[mA]	[mA]	[mA]
H 55	4,92	10,36		
H 65	4,86	11,15		
H 85	4,26	12,13	4,17	9,09
H 95	5,34	12,98	4,83	9,62
H 125	5,34	14,46	4,84	10,54
H 185	5,20	15,00	4,80	10,90
H 185 S	5,38	17,33	4,86	12,33
H 285 S	5,78	15,67	5,11	11,29
H 485 S	5,39	20,00	4,87	14,14
H 685 SP			4,87	13,84

Model	Sensor (assy.)			
	899 306 40		899 307 40	
	min.	max.	min.	max.
	[mA]	[mA]	[mA]	[mA]
H 55	4,00	9,64		
H 65	4,00	10,48		
H 95	4,00	10,69		
H 135/PC1400			4,00	9,73
H 185			4,86	12,33
H 255/PC3000			4,00	11,37
H 285			4,00	10,26
PC4000			4,00	12,67
H 455/PC5500			4,00	12,59
H 485			4,00	13,83
H 655/PC8000			4,00	13,83
H 685			4,00	13,83



- On models with ECS / VHMS – system only the faulty sensor has to be replaced. Adjustments not necessary.

## 2. Adjustment (Models without ECS / VHMS)

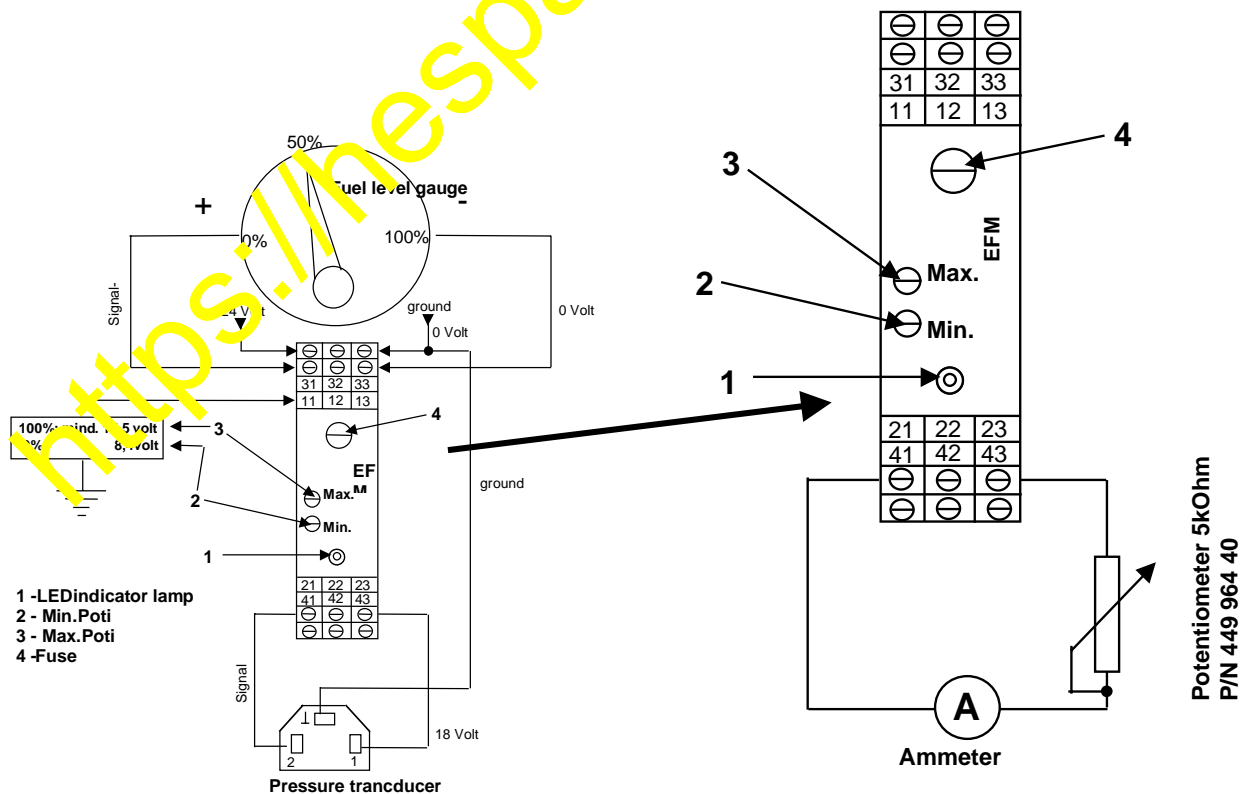
- New machines are factory-adjusted and do not require any adjustment of the module during commissioning.
- In case of changes on (Min. / Max.) adjustment or replacement of the module, a new calibration has to be carried out.
- For the adjustment and trouble shooting an ammeter and a 5 kΩ poti are required. For the adjustment and trouble shooting refer to the following pages.

### 2.1 Preparation

Disconnect pressure transducer and establish the wire circuit according to the illustration 4 (You can do this in the X2-box – see electric circuit diagram). Determine the mounting position of the pressure transducer (inst. 2 and 3) and select the right table.

Switch on the ignition (power supply); the LED (1) has to shine.

Illustration 4



## 2.2 Adjusting of the fuel level gauge to “0%” (min. value) illust. 4

- Adjust the corresponding min. value (table illust. 2 or 3) with a 5kΩ potentiometer. With the potentiometer you can simulate the fuel level in the tank.
- Turn the “min.” – potentiometer (2) until the fuel level gauge shows “0%”
- The voltage between clip 11 and the ground of the excavator must be now 8,4 volt

## 2.3 Adjusting of the fuel level gauge to “100%” (max. value) illust. 4

- Adjust the corresponding max. value (table illust. 2 or 3) with a 5kΩ potentiometer. With the potentiometer you can simulate the fuel level in the tank.
- Turn the “max.” – potentiometer (3) until the fuel level gauge shows “100%”
- The voltage between clip 11 and the ground of the excavator must be now more than 15,5 volt  
Pay attention to the space above the fuel. It must be min. 5% of the total volume.

## 3. Trouble shooting

Problem	Probable cause	Remedy
LED (1) off	<ul style="list-style-type: none"> <li>• Fuse (4) blown</li> <li>• EFM-Module defective</li> </ul>	<ul style="list-style-type: none"> <li>• Exchange fuse</li> <li>• Exchange EFM-Module</li> </ul>
Fuel level gauge is not adjustable by means of min. / max. poti at EFM-module	<ul style="list-style-type: none"> <li>• Pressure transducer defective</li> </ul>	<ul style="list-style-type: none"> <li>• Remove pressure transducer</li> <li>• Connect Ammeter and 5KΩ poti according to the circuit on page 04</li> <li>• If the fuel level gauge is adjustable now, change pressure transducer</li> </ul>
Fuel level gauge is faulty Precondition ⇒ <ul style="list-style-type: none"> <li>• LED lights</li> <li>• Fuse (4) is not blown</li> </ul>	<ul style="list-style-type: none"> <li>• EFM-Module defective</li> <li>• Fuel level gauge defective</li> </ul>	<ul style="list-style-type: none"> <li>• Disconnect gauge</li> <li>• Adjust poti (2) that between terminal 11 and ground a voltage of 8.4 volt exists</li> <li>• If the voltage is not adjustable, exchange EFM-module.</li> <li>• If the voltage is adjustable, connect the fuel level gauge.</li> <li>• Display ⇒ minimum</li> <li>• If not, exchange the fuel level gauge. The a.m. points have to be done for the max. indication (100%) with minimum 16.1 volt.</li> </ul>