TRANS ATLANTIC DIESELS, Inc.

Testing Oil Pressure and Water Temp Gauge Sending units.

Resistance of Oil Pressure & Water Temp Senders.

Should you experience an erratic or inaccurate gauge reading, and are unsure if the problem is in the gauge or the sender, the information below may help you. The process of eliminating or identifying the sender as the problem will help you identify whether your fault is in the sender or the gauge.

Using the appropriate chart shown below and an electrical test meter with an Ohm setting, you can test and confirm the accuracy and function of either your water temp or oil pressure sender.

Procedure: Testing a Water Temp sender for correct resistance.

You will need an Ohm meter, and a method of measuring the engine's water temp other than the gauge sender you are testing. You can use an infrared handheld device which is probably the best way. The beam should be directed as close to the sender being tested as possible as you are trying to simulate the temp the sender is recording. Alternatively, you can fit a mechanical temp gauge in an available location. It should be as close to the sender being tested as possible. Remove the wire/s that are connected to the sender and insulate the wire so it does not touch the engine block. Bring the temp up to the prescribed temp per ohm reading, for example: @ 100f on your infrared gauge, with your ohm meter connected to the Pos. terminal of the sender and Neg. terminal to the exposed brass case of the sender you should see an ohm reading of 450 ohms. Correspondingly, the same procedure can be followed at 175f where the ohm reading should be 99 ohms. There will be variations in accuracy so don't expect the figures to be exact, they are for trouble shooting not calibrating.

Testing the Oil pressure sender is similar. You should connect a manual oil pressure gauge in addition to the sender being tested, if you do not have a vacant opening, you can use a 1/8th inch NPT "T" fitting for the purpose of the test) Remove the wire/s from the sender and insulate the wire. Before starting the engine connect the ohm meter Pos. lead to the sender connection and the Neg. terminal making a good clean ground connection to the sender's body. The reading at zero PSI before starting the engine should be 240 ohms. When you start the engine and bring the oil pressure to 40 psi, this should give you a reading of 103 ohms. Increasing the pressure to 80 psi should give you a reading of 33.5 ohms. You may be able to vary the engine speed to achieve the PSI required. Don't expect these figures to be exact, they are for trouble shooting not calibrating.

Note: Dual station senders will have ½ the resistance value of single station senders.

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VDO: The chart shown also lists European resistance readings such as VDO. The test can be done in a similar way. It should be noted that commonly, VDO senders have 2 terminals. When testing connect one probe to each terminal, the terminals are not polarity sensitive.

Standard U.S. Faria Marine Oil Pressure Sender Resistance

As Supplied by TAD

0-80 psi ***Standard Sender*** ***(5-Bar)***		***0-100 psi*** ***High Pressure Sender*** ***(7-Bar)*** ***(NOT STD)***	
psi	***ohms***	***psi***	***ohms***
0	240	0	240
40	103	40	103
80	33.5	100	33.5

Standard US Marine Faria Water Temperature Sender Resistance

As Supplied by TAD

100 F -250 F		***40 C - 120 C***	
F	***ohms***	***C***	***ohms***
100	450	40	450
175	99	65	99
250	29.6	120	29.6

European Marine Oil Pressure Senders e.g. VDO

0-80 psi ***Standard Sender*** ***(5-Bar)***	
0	10
40	95
80	180

European Marine Water Temperature Senders e.g. VDO

40 C - 120 C	
C	***ohms***
40	281
80	68
120	22

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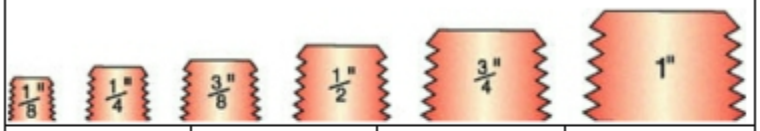
If you need to order a replacement water temp sender, our (NPT) National Pipe Thread chart should help you order the correct size. Please also tell us which engine you have. Oil pressure sender's are in most cases 1/8thinch NPT.

N.P.T. (NATIONAL PIPE THREAD) SIZE CHART



N.P.T. PIPE THREAD SIZE	THREADS PER INCH	MALE THREAD O.D.	FEMALE THREAD I.D.
1/8"	27	13/32"	11/32"
1/4"	18	9/16"	15/32"
3/8"	18	11/16"	19/32"
1/2"	14	27/32"	23/32"
3/4"	14	1 1/16"	15/16"
1"	11 1/2	1 5/16"	1 3/16"
1 1/4"	11 1/2	1 11/16"	1 17/32"