

77 Braemar Road, Sutton Coldfield, West Midlands, B73 6LZ.

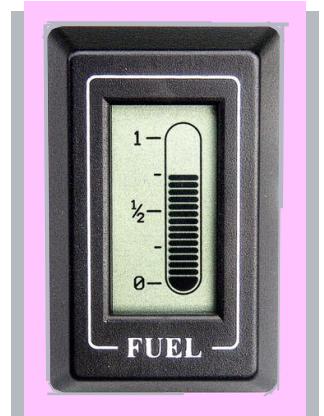
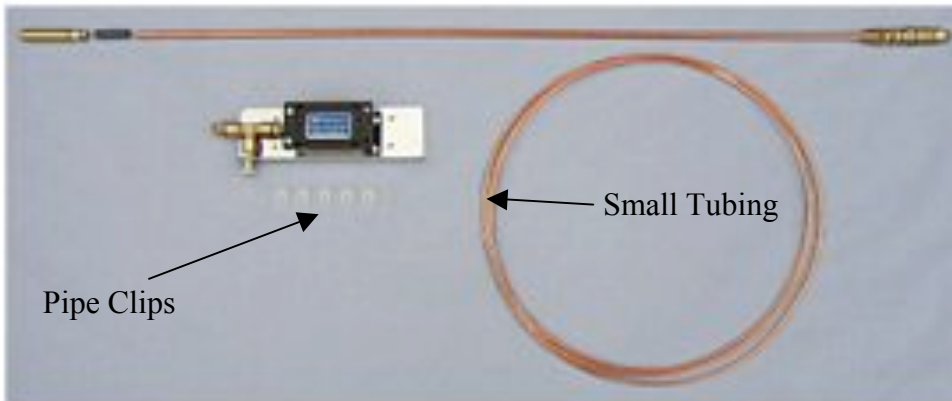
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VAT No. 346 0049 76

Thank you for purchasing a Diesel Tank Gauge from us. This gauge meets the relevant requirements of the Boat Safety Scheme PROVIDED that these installation instructions are followed carefully. Please contact us if any details are not clear.



Siting The Unit

If lockers extend over the tank then the best place to gain entry for the sensor unit is through the top of the tank inside the locker. Choose a place where there is good access. Remember as well as drilling the hole there must be enough room to turn the 1/4" BSPT tap.

If lockers do not extend over the tank then it is permissible to enter the tank through the sidewall inside the engine compartment, but this should be as high as possible again giving consideration to access for the drill and tap. Remember there must be enough room to feed the sensor unit into the tank before feeding the bend through the sidewall to finally position the sensor, so the final choice is likely to be in the front wall of the tank, probably the side that does not have the pick up pipes fitted. Also choose the place where the amplifier is to be fixed. This should be away from water and protection should be given to prevent impact damage and **MUST BE ABOVE THE MAXIMUM FUEL LEVEL**. Fit the amplifier assembly using suitable fixings in the chosen place.

Having chosen the place for the tank entry, work up in steps to a hole size of 12mm, then tap the hole using a 1/4" BSPT tap. Care should be taken to ensure that the tap is at right angles to the face of the tank and this may be made easier if an electric drill is used set to very slow speed at least to start the tapping process. Use oil to lubricate.

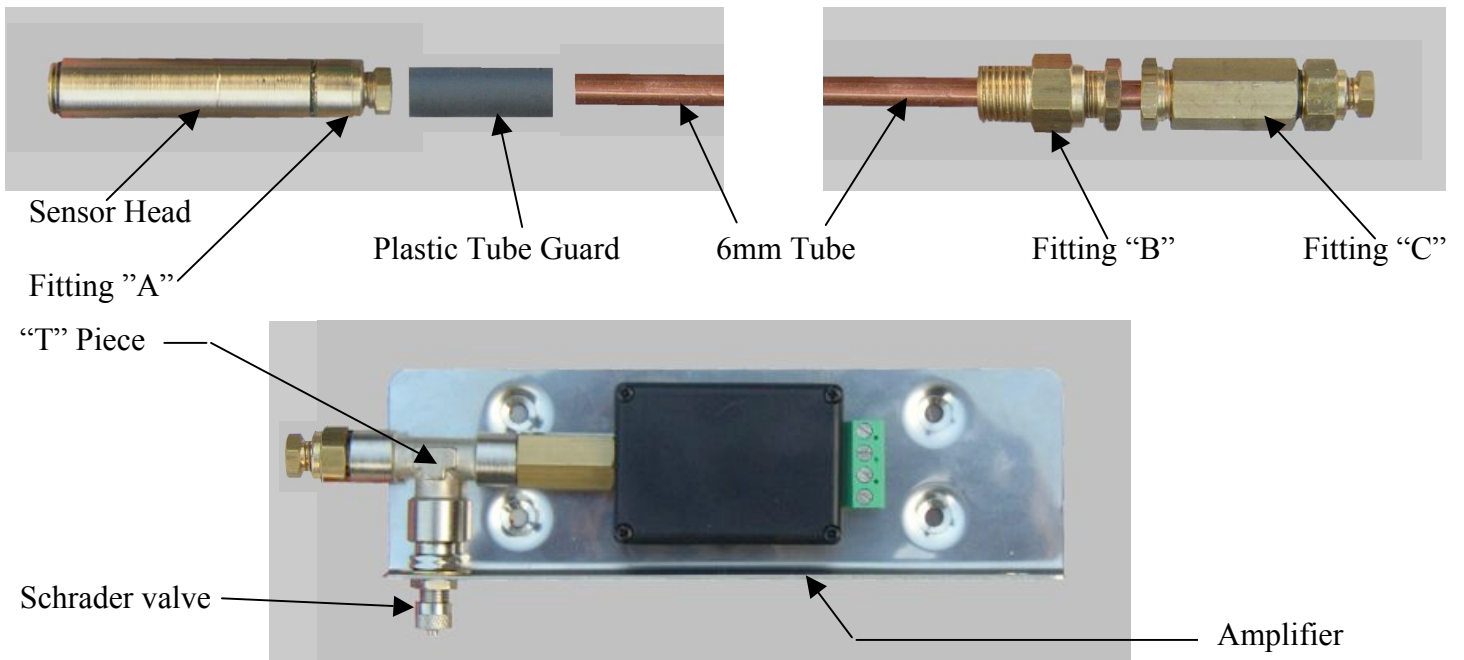
This method of fixing is only suitable where the tank is constructed from steel plate as in the case of a narrow boat, other types of construction need a 1/4" B.S.P. bush fitting. If the unit is to be fitted to a new tank then have a 1/4" B.S.P bush fitted in all cases.

If at this stage there is any doubt as to ones ability to drill and tap the tank entry or uncertainty as to the safety of the operation, then this part of the work should be entrusted to a professional.

IMPORTANT NOTE

Always use a tube cutter to cut all tubes.

Always remove the nut and olive, thread them onto the tube, then assemble hand tight before using tools to finally tighten the 3/4-1 1/4 turns as instructed. This ensures that the olive is fully on the tube.



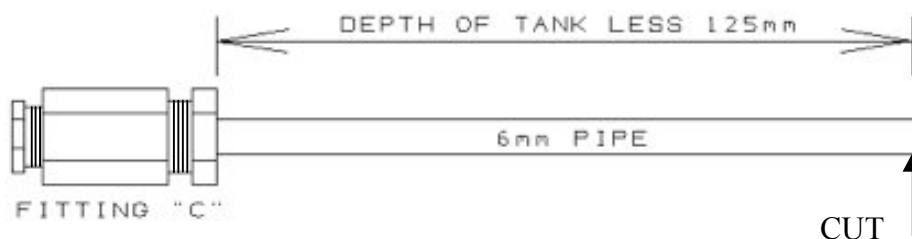
Please note: - The appearance of some fittings may vary depending on the supplier.

Top Entry.

Now measure the depth of tank. Deduct 125mm (100mm if the tank depth is less than 30cm) from this measurement and cut the 6mm tube using a pipe cutter to this length, measured from the face of fitting "C" as shown in diagram 1.

If the 6mm tube is not as long as this, don't worry, the purpose of the larger tube is to add mechanical strength only and does not need to reach the sensor head.

DIAGRAM 1

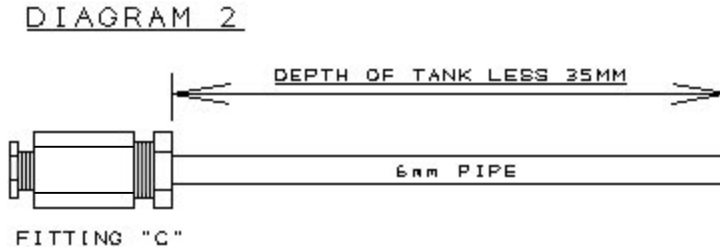


Now slide the small tube down the inside of the larger one from the fitting "C" end twisting as you go, (separate the smaller tube nut and olive and slide onto the tube first) leave plenty of spare at the tank sensor head end, the length from fitting "C" should be at least the depth of the tank. Tighten the small tube end of fitting "C" first by hand then a further $\frac{3}{4}$ -1 turn using tools. Cut the small tube to a length of 75mm (50mm if the tank depth is less than 30cm) less than the depth of the tank, again measuring from the face of fitting "C", this should position the bottom of the sensor head approximately 50mm (25mm if the tank depth is less than 30cm) from the base of the tank when assembly is complete. Apply thread seal tape to fitting "B"(10 turns should be sufficient wound in a clockwise direction when viewed from the threaded end of the fitting) and slide onto the 6mm tube until it contacts fitting "C". Fit the plastic tube guard. Push the tube well home into fitting "A" and tighten $\frac{3}{4}$ -1 complete turn, using a 5mm Allen key to hold the sensor head. Use Hermetite Golden non-setting jointing compound on this olive. Now feed the assembly into the tank then tighten fitting "B" first into the tank and secondly tighten the compression nut 1-1 $\frac{1}{4}$ turns to grip the 6mm tube whilst pushing the two fittings "B" and "C" together. Finally fit the clips supplied to support the small tube between the tank and the "T" piece, cut the other end of the tube to length, push well home into the "T" piece and tighten $\frac{3}{4}$ -1 turn. **USING TWO SPANNERS.** Failure to hold the fitting with the second spanner may result in damage to the seal between the 'T' and the transducer. Use a good quality non-setting jointing compound on this olive.

The mechanical part of the installation is now complete.

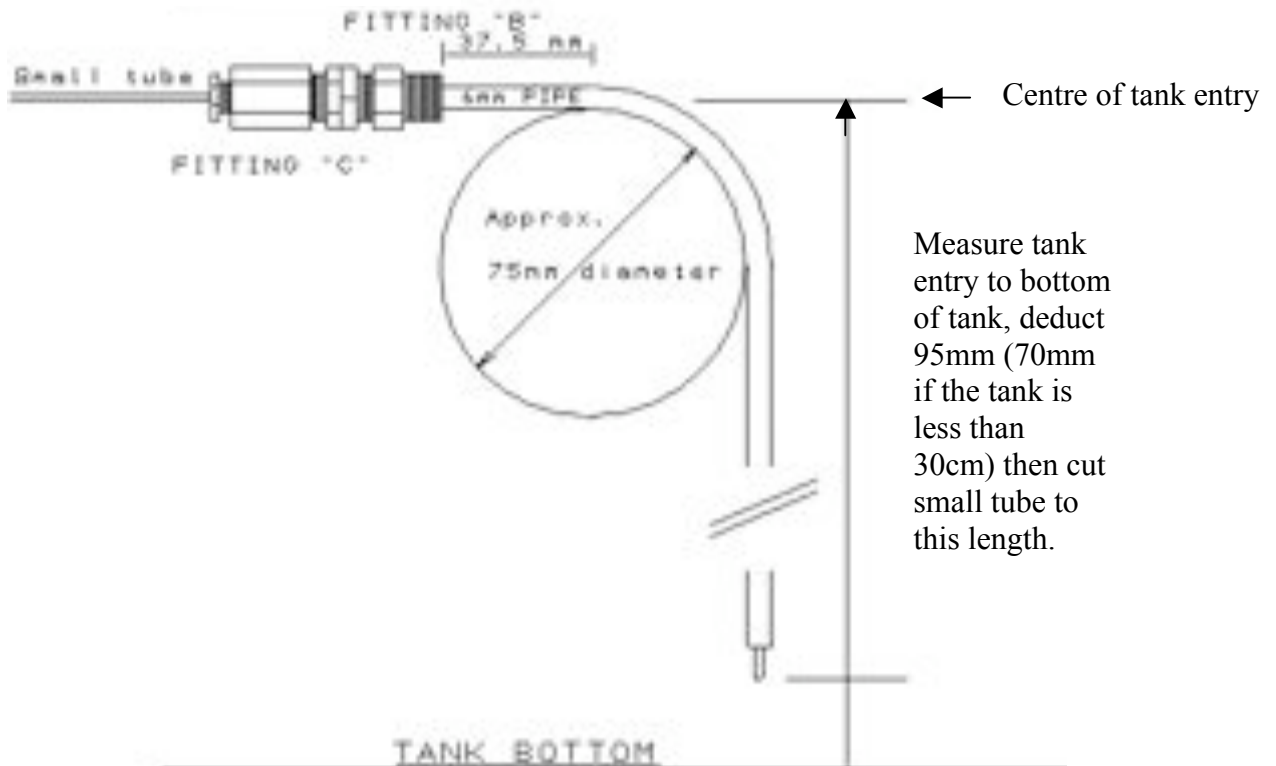
Side Entry.

Measure the depth of the tank from the centre of the tank entry to the bottom. Deduct 35mm (10mm if the depth is less than 30mm) from this length and using a pipe cutter cut the 6mm tube measured from the face of fitting “C” as shown in diagram “2”. If the 6mm tube is not as long as this, don’t worry, the purpose of the larger tube is to add mechanical strength only and does not need to reach the sensor head.



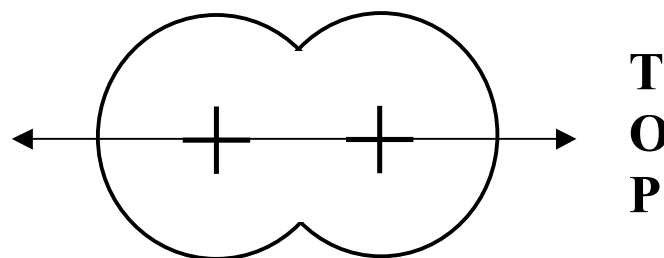
Now slide the small tube down the inside of the larger one from the fitting “C” end, twisting as you go, (Separate the smaller tube nut and olive and slide onto the tube first) leave plenty of spare at the tank sensor head end at least enough to reach to the bottom of the tank. Tighten the small tube end of fitting “C” first by hand then a further 3/4-1 turn using tools. Apply thread seal tape to fitting “B” (10 turns should be sufficient wound in a clockwise direction when viewed from the threaded end of the fitting) and slide onto the 6mm tube until it contacts fitting “C”. It is now time to bend the sensor tube. Find a round object with a diameter of approximately 75mm (a 250ml paint tin is about right) then bend as shown in diagram 3.

DIAGRAM 3



Cut the small tube to length to position the bottom of the sensor head approximately 50mm (25mm if the depth of the tank is less than 30cm) from the base of the tank. (Centre of tank entry to bottom of tank less 95mm, [70mm if tank is less than 30cm] diagram 3) Fit the plastic tube guard. Push the tube well home into fitting “A” and tighten 1-1½ turns, using a 5mm Allen key to hold the sensor. Use a good quality non-setting jointing compound on this olive. Now feed the assembly into the tank and tighten fitting “B”, first into the tank, then secondly tighten the compression nut 1-1¼ turns to grip the 6mm tube while pushing fittings “B” and “C” together. Finally fit the clips supplied to support the small tube between the tank and the “T” piece, cut the other end of the tube to length, and again push well home into the “T” piece and tighten 1-1½ turns **USING TWO SPANNERS**. Failure to hold the fitting with the second spanner may result in damage to the seal between the ‘T’ and the transducer. Again use a good quality non-setting jointing compound on this olive.

The mechanical installation is now complete.



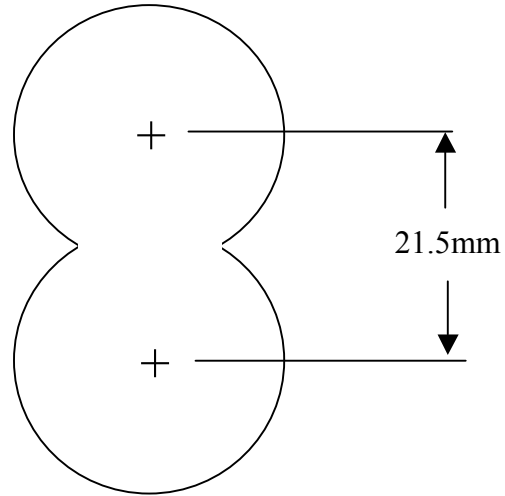
Drilling Template
Use vertically

Mounting the Gauge and Electrical Connection.

The hole cut-out for the gauge is as per diagram. (see drill template on bottom of page 4) It will be easier if the calibration procedure is carried out before finally mounting the gauge as the gauge can then be connected and viewed easily while adjustments are being made.

Mark the hole centres 21.5mm apart or use the drill template on page 4, then using a small drill make two pilot holes. Now using a 32mm (1 1/4") hole saw, cut out the two circles. Try the gauge and remove rough edges as necessary.

A drilling template is on page 4 of this instruction manual.



This is **NOT** a template
See page 4

Electrical connection.

Connect the wires to the connector blocks as shown using a wire gauge that fits the blocks. Multistrand 0.5-0.75mm CSA is ideal as this is a gauge of wire that can be supported and attached mechanically. (Do not use single strand wire) Connect to a supply in the range of 12-24 volts. Insert the plug into the sender ensuring that the two retaining clips on the plug fit over the OUTSIDE of the socket. If the sender and gauge are a long distance apart only the 0 volts and signal need to be run between the sender and the gauge leaving the +&- supply to be fed locally to the gauge and the + supply only to be fed locally to the sender.

Sender

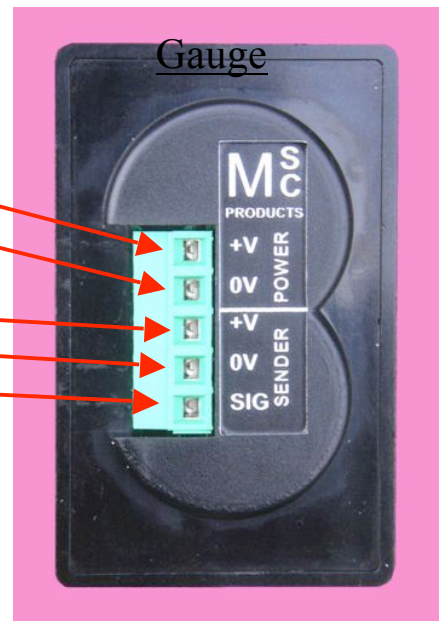


Power feed

+12-24 volts
- 0 volts

12-24 volts
Negative 0volts
Signal

Gauge



The unit will now be operational.

Calibration Procedure.

Air must now be pumped into the system to displace the fuel. This is done by connecting a car or cycle pump to the Schrader valve mounted on the “T” piece. It will take 40-55 P.S.I. to open the internal valve, then pumping SLOWLY continue until air is heard to bubble out of the sensor head..(The transducer may be damaged if pumping is over vigorous DO NOT USE AN AIRLINE). Replace the valve cap firmly.

Fill the tank . Although the main scale of the gauge is heavily damped, causing it to only move slowly, the calibration dot is almost instantaneous in function making adjustment easier.

If the dot is showing turn the ‘Adjust full’ control slowly anti-clockwise until it goes out then slowly clockwise until it just shows. If the dot is not showing turn the ‘Adjust full’ control slowly clockwise until the dot just shows.

After approximately ten seconds the main scale will show full.

Mount the gauge in its final position using the double sided adhesive gasket supplied.

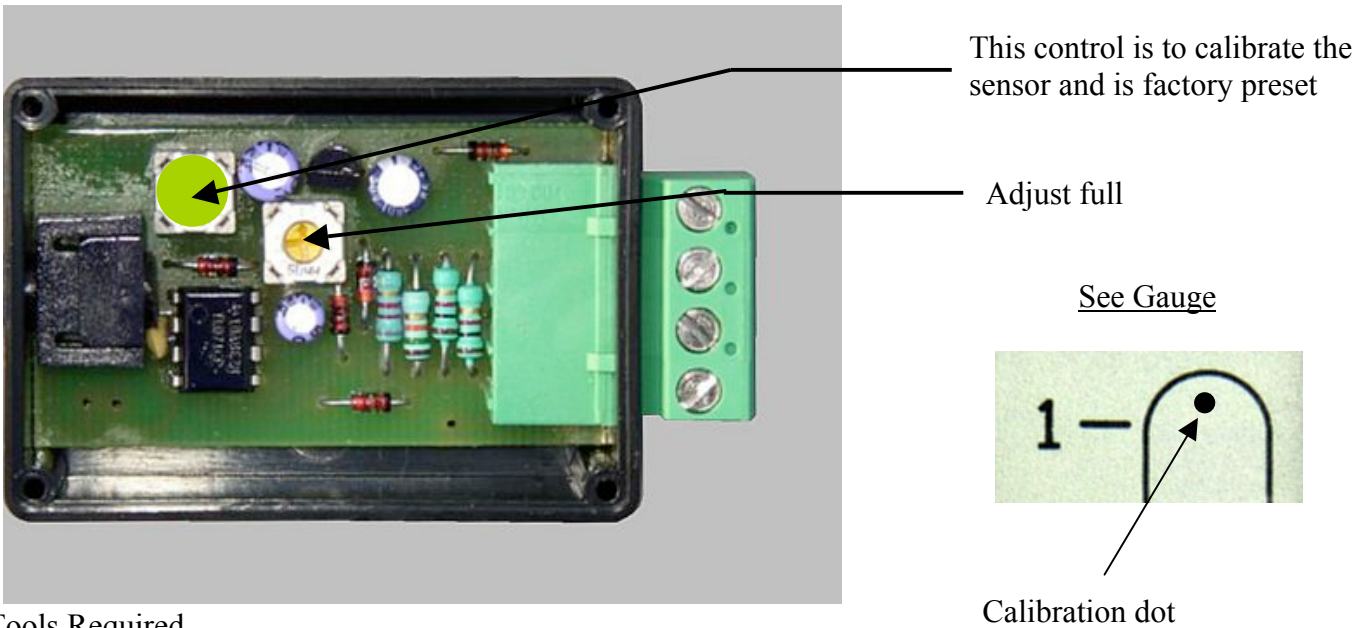
Finally

Refit the lid using the four screws provided.

Finally:- Check for leaks at the tank entry.

Your unit is now fully operational and I hope it continues to give good service for many years.

If after a period of time (typically one year plus) the gauge starts to read erratically or the gauge does not read full after filling the tank, it is likely that the system has lost air pressure. In this case pump air into the system as described in calibration procedure.



Tools Required.

- Tube cutter
- Electric drill
- Selection of spanners
- Good quality non-setting jointing compound
- Thread seal tape
- Small electrical screwdriver
- Car or cycle pump-to fit Schrader valve
- Suitable fastenings for pipe clips and amplifier bracket
- Wire to provide power feed to amplifier and Gauge
- Assorted drills + 12mm drill
- ¼” B.S.P. Tap
- Fitting Kit available Comprises of one 12mm drill and one ¼” B.S.P. Tap