



All communications to be addressed
THE SURVEYORS
Lloyd's Register of Shipping,
Copenhagen, K.

Reference

E.

LLOYD'S REGISTER
Received
23 NOV 1938
And.
LONDON

Lloyd's Register of Shipping,

28^I, Sankt Annæ Plads,

Copenhagen, K. 22nd November 1938.

The Secretary,

Lloyd's Register of Shipping,
London.

Dear Sir,

Having reference to your letter of the 14th instant respecting the "Metro" sounding devise proposed for Messrs. Burmeister & Wain's Yard No. 646, we have to inform you that on the 17th instant the undersigned paid a visit to the Makers', Messrs. Maalerfabriken "Metro"s Works at Aarhus for the purpose of examining and reporting on the construction of this apparatus.

The instrument is composed of the following elements:-

- 1) A small diving bell fitted at the bottom inside the tank to be sounded. ✓
- 2) A shifting cock fitted at the instrument panel in the engine room and connected with the interior of the diving bell by a substantial copper pipe. ✓
- 3) The sounding gauge, mounted on the instrument panel in

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the engine room and in direct connection with the shifting cock. ✓

The principle of the instrument is this that air from one of the air receivers (or from an ordinary bicycle pump) is led through the shifting cock to the diving-bell, thus forcing out the fluid, after which the cock is turned so as to connect the gauge with the bell, and the pressure of the air in the bell, now counterbalancing the head of the surrounding fluid, will cause the pointer of the gauge to move. ✓

The gauge itself is very sensitive, even for small pressures, this being obtained by employing a number (generally 4) of membran boxes (like those of an Aneroid Barometer) on top of each other. The membran-boxes are made of German silver, and even the slightest variation in the pressure, i.e. in the height of the fluid in the tank, is illustrated by the pointer. ✓

Each individual instrument is calibrated in the workshop by comparison with a water gauge pipe of glass and a scale. ✓

As a rule the instruments are calibrated on the basis of fresh water, and a correction has then to be made on board for the specific gravity of the oil or salt water in the tank to be sounded; but if requested the scale of the

✓

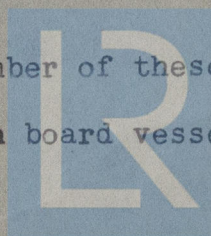
3. the soundings directly of the tank instrument may be divided to show when containing a fluid of a given specific gravity. ✓

The calibration of an instrument designed for a tank of 1500 mm. height was demonstrated in the presence of the undersigned, and as the scale had a length of about 250 mm., it will be seen that 1 mm. move of the pointer corresponds to 6 mm. variation in the height of fluid. By this demonstration, it was also proved that even small heights of fluid, say 3 a 4", could be measured, and likewise small variations about these figures. ✓

The gauge itself is made of brass, the shifting cock of bronze, the connecting pipes of copper, unions of brass, the bell of cast iron and the pipe next to it, inside the tank, of steel, all very substantial and resistant. ✓

With reference to the reliability of the gauge under working condition, we have no personal knowledge, but the accuracy of the readings may be tested on board by control-soundings through the man holes. It should also be mentioned that before reading the instrument the membran-boxes should be put in connection with the atmosphere for a moment, through the shifting cock, in order to make sure that the pointer will go back to the zero. ✓

We are aware that a number of these instruments have in recent years been fitted on board vessels and also in



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land-installations, and so far as we know there has been
no trouble with them. ✓

For further explanation of the details,
we have to-day, under separate cover, forwarded plans
showing the diving bell, shifting cock, sounding gauge,
tank side fittings, arrangements on instrument panel board
and general arrangement. ✓

Also a catalogue from the Makers. X

I am, Dear Sir,

Yours faithfully,

W. C. L. L.
SURVEYOR TO LLOYD'S
REGISTER OF SHIPPING



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Referred to the Chief Engineer Surgeon.

MB

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