



ADMIRALTY GAUGE G20 INSTALLATION, OPERATING & MAINTENANCE INSTRUCTIONS



SEETRU LIMITED

ALBION DOCKSIDE WORKS, HANOVER PLACE, BRISTOL BS1 6UT. ENGLAND

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GENERAL

The Seetru Admiralty Gauge consists of a transparent sight tube fixed to the outside of a tank and isolated from it by Seetru manual screwdown valves. Valves control the flow of liquid to the sight tube when they are unscrewed (the correct level is shown only when both valves are fully opened.) The gauge is specially designed for malaligned tank connections and deformed light walled tanks.

The sight tube (16) is protected against breakage by the guard tube (17), the guard tube completely surrounds the sight tube, apart from the windows through which the liquid level can be seen.

Anti-rattle rings (19) are fitted over the sight tubes and fit the inside diameter of the guard tubes. The maximum length of glass sight tube is 1 metre, therefore longer gauges will have two more sight tubes and guard tubes joined together with intermediate support brackets which will be equally spaced between the two valves.

Gauge collars are fitted to top and bottom ends of the sight tube. The sight tubes are sealed into both collars and intermediate support brackets by Ferrule (14) & Gland (15), which are compressed by the gland nut (13) when tightened.

The manual screw down valve units, slide into the collars (12) with 'O'rings (9) in the groove either side of the collar units (12). Valve units screw into the tank boss (18) and are sealed in the tank boss bore by 'O'ring (8).

INSTALLATION INSTRUCTIONS

READ ALL INSTALLATION INSTRUCTIONS BEFORE COMMENCING WORK

IMPORTANT NOTES

Due consideration should be taken of climatic, process or other conditions which might affect the performance of the gauge. Installation must be undertaken by qualified technicians to good engineering practice. If fitted in marine applications, ensure no classification rules are contravened. In addition, user's attention is drawn to our joint responsibility to ensure that the Health & Safety at Work Act (or other relevant safety standard) are not contravened by incorrect installation, commissioning or servicing.

Gauges should be stored preferably between 5⁰C and 25⁰C and a relative humidity of less than 75%. Very moist or very dry conditions should be avoided.

Before dismantling any pressurised components, the system must be effectively isolated from all sources of pressure and completely vented to atmosphere.

Any discharge of the tank content should terminate in a location which will not cause a hazard, particular attention being given to hazardous fluids or particales.

The admiralty Gauge is designed to be securely fitted to the side of the tank. Before the gauge is mounted on the tank, the glass tube is fragile, therefore the gauge should be handled with care. Do not pick the gauge up from the one end, when lifting support the gauge along it's entire length. If working on a bench, the gauge must be rigidly supported.



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TANK PREPARATION

Choose a position on the tank which is flat and unobstructed vertically, to mount the gauge.

Mark out two holes on the tank wall at the same centre distance as the gauge centres, these holes will locate the tank bosses for the gauge and so must be positioned vertically.

The bottom hole must be above any known or suspected sludge levels.

Drill a 42mm diameter hole at each marked position.

Remove the tank bosses (18) from the isolation valves (1).

Insert the bosses into the holes in the tank, up to the shoulder and weld into position.

Ensure that weld splatter does not enter boss bores.

All welding must be to the satisfaction of the classification surveyor.

GAUGE

Remove retaining nuts (5) & collars, complete with sight and gland tube assembly, from valve units (1).

Screw the valve unit into tank bosses after first checking that the bosses are cold,

If the gauge is fitted with intermediate supports, these require packing plates to be welded to the tank.

Support the gauge vertically, slide the gauge collars over the valve units protruding from the tank, tack weld the packing pads (20) to the tank remove screws (21) which retain gauge to packing pad, and remove gauge from tank.

Complete the welding of the packing pad to the tank.

Ensure inner collar 'O'ring (9) is fitted into groove in collar, support gauge vertically, slide collars over the valves. Fit outer 'O'rings into groove in collars, screw on retaining nuts and tighten.

If gauges have intermediate support brackets fitted, fit these to pads previously welded to tank with screws provided.

The gauge assembly can be adjusted by +/- 2.0mm on nominal centre distance. To carry out this adjustment when necessary, slacken gland nuts (13) slide collars on sight tube to obtain correct distance retighten gland nuts.

IMPORTANT

Centre distance must not exceed nominal distance by more than + 2.0mm.

Check for leaks.



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OPERATING INSTRUCTIONS TO READ LEVEL IN TANK

1. Unscrew top valve unit hand wheel.
2. Unscrew bottom valve unit hand wheel.
The level inside the tank should now register in the sight tube.

It should be noted that on gauges fitted with valves in top and bottom connections, the tank level shown may be incorrect if the bottom valve alone is operated. This is due to the trapping of air between the liquid and the upper valve. This will not occur in gauges fitted with a blind nipple assembly in the upper connection, as with this connection the top of the sight tube is always open to the tank.

Longer gauges with valves top and bottom are usually fitted with hydraulic actuation so that both valves are operated simultaneously from a single point.

OPERATION FAULTS

| Fault | Possible Cause | Rectification | Maintenance Paragraph |
|------------------------------------|---|--|-----------------------|
| Gauge not filling | Empty Tank. Obstruction in gauge. Obstruction in valve. | Fill Clear Clear | B E |
| Filling to incorrect level | Incorrect use of gauge. | See operation instruction | |
| Broken Reflex Glass | Mis-use. Misalignment. | Replace Replace – Check tank face flat | B |
| Valves not sealing | 'O'ring damage Broken spring | Replace Replace | E |
| <u>Leaks From:-</u> Collar seal | Loose nut 'O'ring damaged | Tighten Replace | A A |
| Sight tube gland | Loose nut Gland damaged | Tighten Replace | B B |
| Tank boss | 'O'ring damaged | Replace | D |
| Push rod | 'O'ring damaged | Replace | C |



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MAINTENANCE

Note When carrying out any of the following operations A to B, the contents of the gauge sight tube, will be released but the tank contents will be held by the gauge valves.

(A) To remove gauge from tank

1. Screw down both top and bottom valve unit hand wheels.
2. Remove screws (21) where fitted.
3. Remove gauge retaining nuts (5).
4. Remove gauge from tank complete with 'O'rings (9).
5. Check and replace seals (9).
6. Re-assemble in reverse order.

(B) To remove or replace gauge sight tube (1 or 2)

1. Remove gauge from tank, as section 'A' above.
2. Unscrew top gland nut (13) from top gauge collar (12).
3. Remove top gauge collar (12).
4. Remove guard tube (17).
5. Unscrew lower gland nut (13) in (top section) from intermediate support bracket (22).
6. Remove top section sight tube (16) complete with gland nuts (13), Gland (15), Ferrule (14) together with anti-rattle rings (19) from intermediate support (22).
7. Unscrew top gland nut (13) on lower sight tube from intermediate support, remove intermediate support bracket.
8. Remove guard tube (17).
9. Unscrew lower gland nut (13) from lower collar (12), remove lower sight tube (16) complete with gland nuts (13), Gland (15), Ferrule (14), together with anti-rattle rings (19) from lower collar.
10. Clean or replace sight tube, inspect all seals and replace if required.
11. Internal passages of collars and intermediate support bracket should be cleared of any obstruction.
12. Re-assemble in reverse order, push anti-rattle rings (19) behind bridges in the windows of the guard tubes.

Instructions B above refer to gauge with two sight tubes. For single sight tube ignore reference to intermediate support bracket. If more than two sight tubes repeat for each bracket.



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MAINTENANCE CONTINUED

Note When carrying out operations C to E, the tank must be drained below level of connection.

(C) To replace disc seal (11) or 'O'ring (10).

1. Remove sel-lok pin (6).
2. Pull out hand wheel assembly (1-11).
3. Inspect disc seal (11) and 'O'ring (10) replace if necessary.
4. Re-assemble in reverse order.

(D) To inspect or replace tank boss 'O'ring (8)

1. Drain tank to below level of connection.
2. Remove gauge from tank, as section (A).
3. Unscrew and remove valve unit (1-11) from tank boss (18).
4. Inspect 'O'ring (8) replace if necessary.
5. Check bore in tank boss is smooth and clean.
6. Re-assemble in reverse order.

SEETRU MARINE GAUGE PARTS LIST

| Item Number | Number Off per Unit | Description |
|-------------|---------------------|------------------------------|
| 1 | 1 | Valve Body |
| 2 | 1 | Valve |
| 3 | 1 | Cap |
| 4 | 1 | Hand wheel |
| 5 | 1 | Nut |
| 6 | 1 | Sel-lok Pin |
| 7 | 1 | Socket Screw |
| 8 | 1 | 'O' Ring |
| 9 | 2 | 'O' Ring |
| 10 | 1 | 'O' Ring |
| 11 | 1 | Disc Seal |
| 12 | 2 | Collar |
| 13 | 2 | Gland Nut |
| 14 | 2 | Ferrule |
| 15 | 2 | Gland |
| 16 | 1 | Sight Tube |
| 17 | 1 | Guard Tube |
| 18 | 1 | Tank Boss |
| 19 | A/R | Anti-Rattle Ring |
| 20 | 1 | Packing Pad |
| 21 | 2 | Screw |
| 22 | 1 | Intermediate Support Bracket |

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