

NORMOND TANK CONTENTS GAUGES

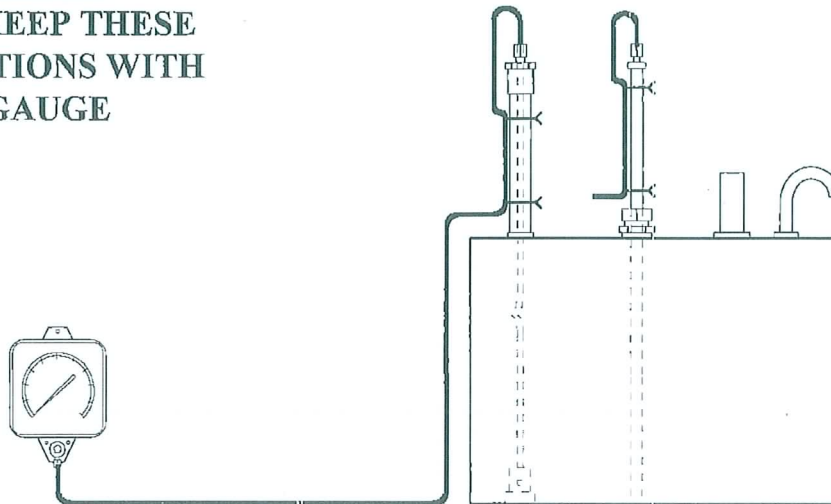
C & E Series Analogue Gauge

Installation, Operation and Maintenance

Normond Tank Contents Gauges are self-contained instruments operating on the hydrostatic principle. As air from a built-in pump is the transmitting medium, no external source of power is necessary. Each instrument consists of a tank unit, a gauge with integral hand pump and connecting tubing.

IMPORTANT

PLEASE KEEP THESE
INSTRUCTIONS WITH
THE GAUGE



INSTALLATION

(a) **Tank Unit.** A boss threaded $\frac{1}{2}$ " BSP must be provided on the top surface of the tank. The balance chamber of the tank unit is fed through this opening and lowered by the attached tubing until it positions itself on the base. The balance chamber is weighted so that it returns to position after the surging that occurs during filling.

Care should be taken that the balance chamber reaches the bottom of the tank and does not get lodged on a strut or a baffle. In case of doubt, mark the tubing to indicate tank depth.

When the balance chamber is satisfactorily positioned, screw the $\frac{1}{2}$ " reducing bush provided into the tank boss. Feed in an extra 2" (50mm) of tubing to keep it slack. Then position olive and nut on the reducing bush and tighten.

NOTE: Do not over-tighten as this can cause damage to the tubing.

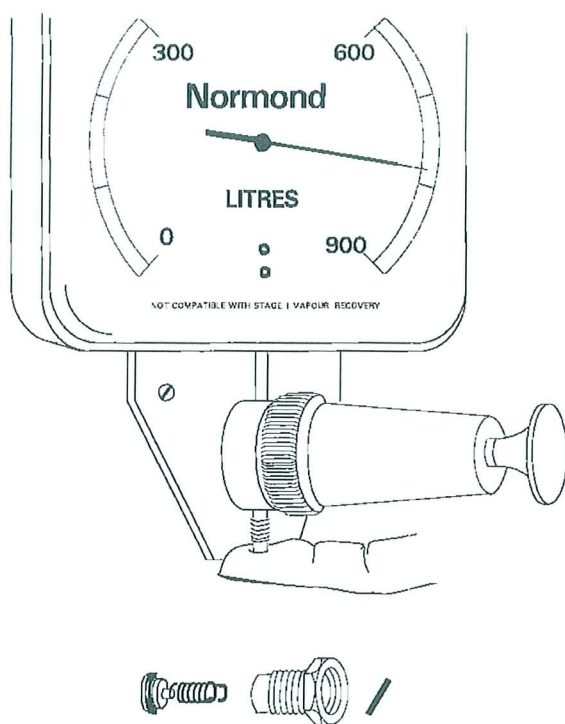
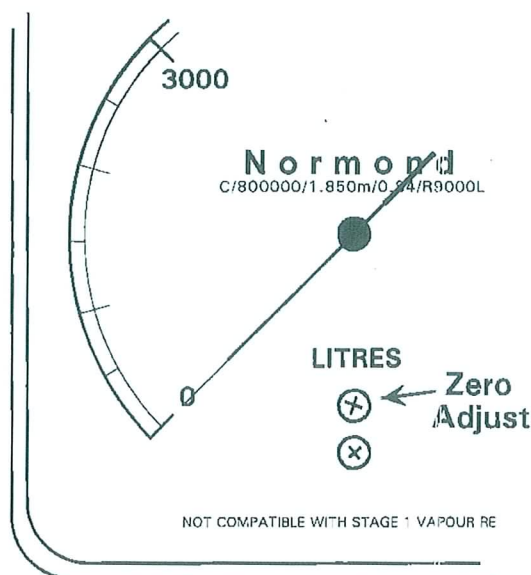
Support for the tubing, if required, can be provided by an 18" (50cm) length of pipe, threaded BSP and screwed into the tank boss, with a standard $\frac{1}{2}$ " socket at the upper end to take the reducing bush. Tubing to the gauge can then be taped to the extension pipe.

A **RIGID BALANCE CHAMBER** is available as an alternative fitting, and gives positive location of the chamber in the tank. This needs no extension, as it comes well above the surface of the tank. All rigid balance chambers come with 1" BSP compression fitting thus requiring a 1" socket in the tank top. Long rigid balance chambers are supplied in more than one piece, and should be assembled and the joints tested for air-tightness before insertion into the tank.

(b) **Gauge.** The standard gauge may be mounted on a wall, partition or panel, provided it is sheltered from heat and the full effects of the weather. It must be mounted vertically to avoid gravity errors, but will function efficiently irrespective of its height in relation to the tank. For outdoor mounting, a simple protective cover is advisable such as a wooden base and roof, or box type surround, sufficient to guard against sun and rain.

Adjustment. Before connecting up, see that the pointer indicates zero. If necessary, remove the rubber bung from the perspex cover, insert screwdriver into the top of the two screws and adjust by turning in the appropriate direction. Replace rubber cap after adjustment.

(continued overleaf)



(c) **Tubing.** To connect up, unroll the tubing from the tank unit, carrying it upwards for 18" (50cm) or so before taking it to the gauge position; this prevents surge of liquid into the tubing during tank filling. Secure the tubing at intervals, avoiding pinching and damage. Cut off to length. The gauge coupling is of Kematal and should not be over stressed, screw it as far as possible by hand and complete with a further $\frac{1}{2}$ to $\frac{3}{4}$ turn with a spanner in order to make a perfect joint.

Actuation of the hand pump at the base of the gauge charges the system with air and displaces liquid from the balance chamber in the tank. The resulting pressure in the balance chamber is indicated on the calibrated gauge.

To prime, operate the pump until the pointer ceases to advance. If the pointer tends to return to zero when there is liquid in the tank, an air leak is indicated which should be traced and rectified.

It is recommended that a few strokes of the pump be given before a reading is taken, as low readings can be caused by loss of air due to temperature changes. Contents should be read when the pointer is at its maximum and ceases to oscillate.

CAUTION: Do not over-pump which can damage the gauge.

MAINTENANCE

In general, little attention is required other than an occasional smear of petroleum jelly on the pump washer and stainless steel spindle. The knurled pump body is designed to be leak proof when finger-tight and should not be over tightened.

If the pointer does not remain steady and tends to return to zero (when there is liquid in the tank and no air leaks in tubing and connections), unscrew body and plunger, and inspect non-return valve for foreign matter under the O-ring seal. DO NOT pump the gauge when isolated from the balance chamber, as this could cause damage by over pressurising.

If it is necessary to dismantle O-ring seal, grip loop of spring with long-nose pliers, extend spring slightly and remove the retaining pin. Release spring and allow valve head to fall into the hand. Examine seal and face of valve, wash assembly with surgical spirit, allow to dry and re-assemble valve. Refit into pump, re-assemble and test as described above.

E-Series Gauge Calibration

Calibration of the E-Series gauge is very simple. First establish the following:

The height to which the tank will be filled at its maximum (in millimetres)

The specific gravity (SG) of the product within the tank

1. Multiply these figures together to get the mm water gauge
2. Select the chart for the gauge you have purchased and which is marked on the gauge i.e. Low, Medium or High Pressure
3. Find this figure in the vertical scale of the calibration chart and move along to the right until the intersection on the graph is reached
4. Go down to the calibration number on the horizontal scale and note this number

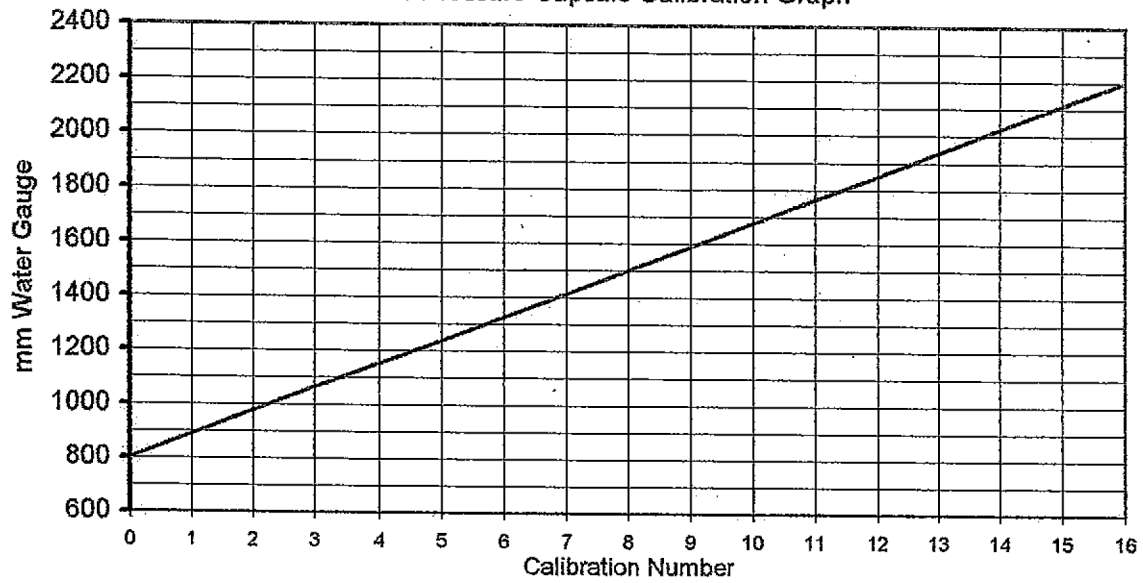
To calibrate the gauge:

1. Remove the cover by easing the rubber seal backwards on the gauge case
2. Loosen the calibration gauge screw using a thin screwdriver by turning the screw $\frac{1}{2}$ turn anticlockwise (this is found close to the black number 40 on the dial)
3. Insert the screwdriver into the calibration slot (located above the black number 100 on the dial) and turn clockwise until the number found from the capsule calibration graph is shown in the teardrop vision slot below
4. Re-tighten the calibration clamp screw (by the black number 40 on the dial) by turning clockwise $\frac{1}{2}$ turn
5. Zero the pointer by turning the screw in the slot above the screw at the bottom of the dial
6. This calibration process is now complete, move on to the installation instructions

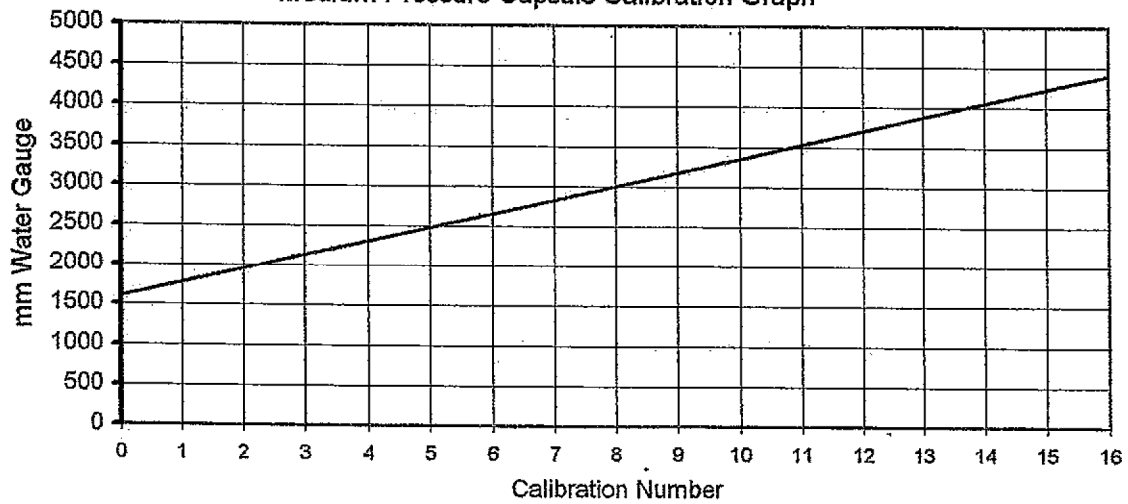
Important:

The calibration should always be set in a clockwise motion and if the required number is passed in the teardrop window then it must be turned anticlockwise to show a number two higher than required before turning clockwise again to show the correct number

Low Pressure Capsule Calibration Graph



Medium Pressure Capsule Calibration Graph



High Pressure Capsule Calibration Graph

