

AL-232

Technical Bulletin

Aldrich Swivel McLeod Gauge Oil Type

Z421022

Filling With Oil

- Disconnect coupling assembly and add ~8mL of clean oil (Dow Corning Silicone Oil #702, Cat. No. **446548**) to reservoir bulb
- Reconnect reservoir as shown in the REST position (Fig. 1)
- Mount gauge with a micro clamp (i.e. **Z121657**) and connect to the vacuum system
- There should be sufficient oil present so that when reading the non-linear scale the oil level in the open capillary can be adjusted to reach the 1 torr mark

Degassing Oil

- Apply vacuum to system with gauge in the REST position
- Open system valve slowly as oil begins to degas, the time for degassing depends on the degree of vacuum
- When oil appears quiescent, attempt reading
- Degassing is complete when the oil reaches the bottom scale checkpoints without bubbles
- To minimize degassing time for the next application, close the system valve before breaking the vacuum in the system

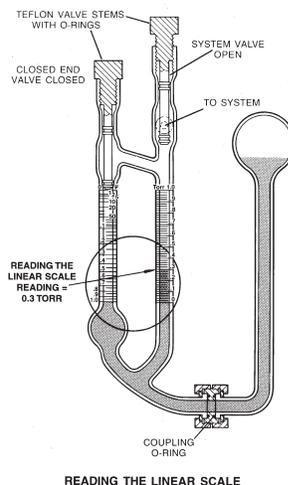
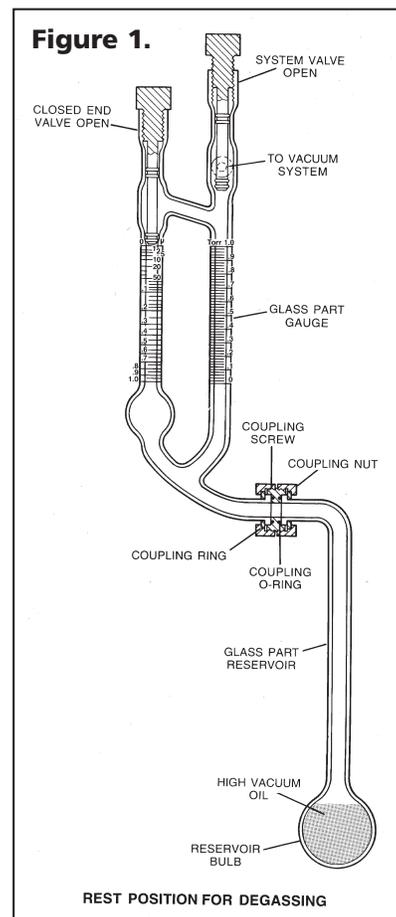
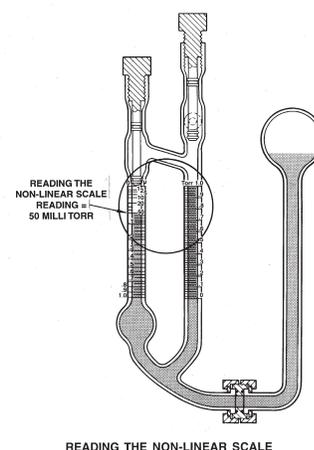
Reading The Scales

Linear scale:

- Shut the closed-end valve tight
- Swivel reservoir bulb to vertical position until oil level in closed capillary reaches 1 torr mark of non-linear scale (Fig. 2)
- Read level of oil column in open capillary; when reading is <0.1 torr oil, a more accurate measurement is obtained by reading non-linear scale

Non-linear scale:

- Swivel reservoir bulb to vertical position until oil level in open capillary reaches 1 torr mark of linear scale (Fig. 3)
- Tap capillaries to improve accuracy of reading level of oil column in closed capillary
- The non-linear scale is graduated in millitorr below 0.1 torr oil. Minimum reading is 1 millitorr. Accuracy: $\pm 3\%$ or ± 1 mm of scale division, whichever is greater


READING THE LINEAR SCALE

READING THE NON-LINEAR SCALE

Cleaning

- The oil gauge requires less cleaning than a mercury gauge. Clean gauge and replace oil when levels in each capillary no longer give reproducible hemispherical menisci
- Dismantle coupling and plug assemblies to clean glass parts with petroleum ether followed by laboratory detergent and a distilled water and acetone rinse
- Clean plastic and rubber parts with laboratory detergent; apply a thin film of silicone grease to O-rings, wipe dry to assure a high vacuum seal and easy operation of swiveling coupling
- Dry glass parts thoroughly before reassembly, then refill with oil