DEPARTMENT OF CONSUMER AND CORPORATE AFFAIRS

STANDARDS BRANCH

G-45

OTTAWA, February 21, 1969

NOTICE OF APPROVAL

FOR

TEJAS BALANCED PRESSURE INK-RETENTION SYSTEM

Apparatus

Balanced Pressure Ink Retention System described in attached two-page bulletin may be used on any approved circular chart recorder which lends itself to suitable adaptation of required components.

Plastic charts always require special ink, and this balanced-pressure system is specifically recommended for use with these charts.

Approval granted to:

Canadian Meter Company Limited,
Milton, Ontario
and
Edmonton, Alberta.

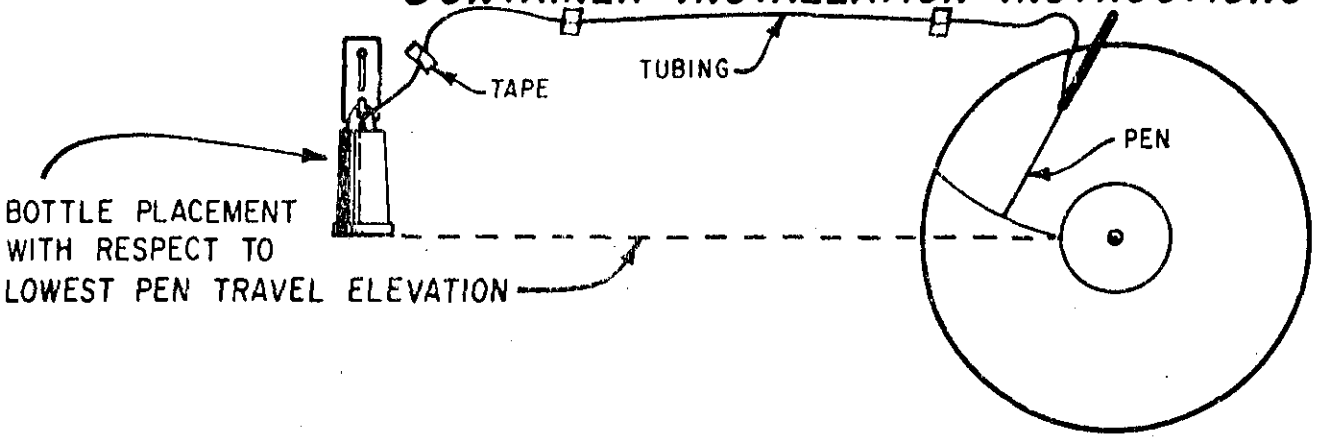
J.S.T. Swanson,
Chief, Standards Laboratory,
Standards Branch.

W. J. S. Fraser,
Chief, Electricity and Gas Division,
Standards Branch.

Ref: SL-100-252L

TEJAS BALANCED PRESSURE *INK RETENTION SYSTEM*

CONTAINER INSTALLATION INSTRUCTIONS



Although a circular chart installation is depicted above, B-P bottles may be similarly used with strip-chart recorders. It is only necessary to remember that the bottom of the bottle should be spotted generally above the pen point recording plateau.

The bottle hook provided is easily attached to instrument cases. The mounting member features a bolt slot, allowing some degree of height adjustment. The bottle may be elevated to lay a heavier ink pattern, often desired where chart scanners are employed.

To fill bottle with ink, lift bottle from hook, turn bottom of bottle upward, then remove plug. Ink should be poured to the level of the inlet to the capillary tubing. Re-insert plug firmly to obtain an airtight seal. Turn bottle to normal position to attach to hook.

Only quality inks should be used in B-P systems. Extraneous matter may plug small passageways leading to the compensator. Fast drying inks and inks containing volatile antifreeze ingredients may be used without fear of evaporation, loss of protection or quality deterioration.

To prime capillary tube with ink, attach pen syringe to pen point and slowly withdraw the plunger. Once ink enters syringe barrel, wait a moment before detaching syringe, to allow pressures within the bottle to reach equilibrium. If a pen syringe is not at hand, the capillary system can be primed by elevating the B-P bottle to an excessive height.

B-P inking requires airtight integrity at the bottle plug and the capillary tube junctures with both the bottle and pen stylus. It is a semi-sealed system calling upon vacuum pressure. The cleaning wire provided is useful in the eventuality of clogged pen points. If the compensator should be fouled with inferior inks, remove compensator (bottle plug), withdraw projecting air tube, then flush compensator with distilled water. Afterward the air tube is re-inserted. It is advisable to wash the bottle and flush the capillary system with distilled water whenever it is necessary to replenish ink.

B-P inking systems are available with TEJAS' Type "S", "SS" and "O" pens. TEJAS also provides a "B-P Conversion Kit" to upgrade pen styli of competitive manufacture.

TEJAS INSTRUMENT ENGINEERS, INC. P.O. BOX 1081 - HOUSTON, TEXAS 77001

WHAT IS B-P INK RETENTION?

Tubular writing styli, supplied with ink through small tubes connected to a remotely located ink reservoir, are commonplace within the field of instrumentation. Previously there was no alternative but call upon capillary attraction to supply the pen tip with ink, ever at the risk of flooding or failure, depending upon ink chemistry, ambient conditions, the recording plateau and its relationship to reservoir ink levels. TEJAS' Balanced-Pressure ink retention system now provides alternate means for ink feeding.

A special plastic bottle of large ink capacity is employed. It is equipped with a triple-function compensator that equates for changes in ambient temperature, barometric pressure and reservoir ink head pressures. While the level of the ink within the B-P reservoir should always be generally above the pen tip, ink does not siphon to the pen point. A semi-vacuum above the container ink, regulated by the compensator, overcomes head pressure and maintains a constant force upon the tubing entry leading to the writing stylus. From this point the system functions similarly to common capillary pens.

For all practical purposes the B-P bottle is sealed from ambient contamination and ink ingredient losses through evaporation. Ink vapors are trapped within the sealed zone of semi-vacuum above the container ink. Freedom from evaporation allows use of inks fortified with volatile anti-freeze ingredients and fast-drying inks, without the normal expectancy of ink quality deterioration. The induced vacuum pressure in turn de-aerates the ink supply, rids the liquid of entrained air to overcome the potential hazard of bubble formations in capillary tubes.

There are but a few precautions that accompany Balanced-Pressure inking. The bottom of the bottle should be mounted on a plane with the elevation of lowest pen travel or slightly above the plane - never below. A bit of experimentation will guide the innovator. An airtight seal must be maintained at the tubing entry to the bottle to prevent loss of vacuum. The air vent to the compensator must remain unobstructed to allow its functions. The bottle fill-plug must be adequately sealed to prevent both entry of air or ink seepage. These precautions are obvious to the instrument serviceman.

Pens equipped with B-P inking are primed with ink by applying a suction upon the pen point with the provided TEJAS pen syringe. This operation should be accomplished slowly. Then, once the tubing has been filled, the syringe should not be disconnected immediately. A few seconds are required to allow the compensator to accomplish its functions and equilibrate the induced pressure imbalance.

B-P inking is indeed different.

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