



TRADE AND COMMERCE  
CANADA

STANDARDS BRANCH

S-GA.249

OTTAWA November 21, 1962.

TYPE APPROVAL

ARCCO-ANUBIS RECORDING GAS GRAVITOMETER  
MODELS "RD-B" AND "RDPT-B"

The apparatus specified and illustrated herein has been duly approved by the Standards Branch under the provisions of the Gas Inspection Act, Chapter 129, R.S. 1952, and may be admitted to verification in Canada.

Apparatus Approved: Arcco-Anubis Recording Gas Gravitometer, Models "RD-B" and "RDPT-B", manufactured by Arcco Instrument Company, Inc., Los Angeles, Calif., U.S.A. and distributed in Canada by MacNutt Industries Limited, Calgary, Alberta, and Knight Industrial Products, Toronto, Ontario.

Application: Used in connection with the determination of specific gravity factor in the measurement of manufactured, natural and petroleum gases.

Range of Apparatus:

Specific Gravity: (length of column, 150 cm) .... 0.5 to 1.0 and 0.5 to .75  
(length of column, 75 cm) ..... 0.5 to 1.5 and 0.5 to 1.0  
Rate of Flow of Gas ..... 2 cubic feet per hour.

Description: The recording gas gravitometer is basically a balance with two bells of equal size suspended on knife links at the ends of a main beam. The lower portions of the bells are immersed in a sealing oil contained in two inter-connected tanks securing equal oil level. Two vertical, adjustable in height and equal in length columns, one for gas and the other for air, are connected through the bottom of the tanks to the inside of the bells above the level of the oil. Through suitable diffusers additional connections are provided to this area for external supply of gas and air. The air column is terminated at the top with a container filled with silica gel, and similar dryer is provided at the end leading to air diffuser.

The main beam carries calibration weights and a pendulum weight suspended on a helical thermostatic element and providing restoring balancing moment as well as required temperature compensation. The movement of the beam is transferred to the recording pen by a linkage system carrying various balancing weights. The barometric compensation is provided by means of a floating lever in the pen linkage attached to the adjustable aneroid barometer unit. Two pivots are located on this lever for the purpose of dual range provision.

In operation the air column is filled with dry air at existing atmospheric conditions and the other column is supplied with gas through an

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(orifice)



orifice at low pressure limited by an oil seal. The difference in the upthrust on the two bells caused by different densities of the two media, i.e. gas and dry air, produces an equilibrium position of the balancing system interpreted by the recording pen as a measure of the specific gravity of gas.

The instrument calibration is checked by observing the air balance conditions when both columns are filled with the same media, usually air. The recording pen should then indicate unity if the existing barometric pressure during the check is 30.0" Hg. For other barometric pressures at time of calibration check, the pen will depart from unity by an amount which could be established from graphs included in the Supplement No.1, Instruction Bulletin No.105-D, for Model "RD-B".

In field testing proper results shall be obtained for air balance and for the gas test when 'Ac-Me' specific gravity balance shall be used for establishing the specific gravity of gas passing through the gravitometer.

Chart drives may be either spring-wound, mechanical, or synchronous electrical clocks providing chart speed of 24 hours per revolution.

This approval covers the use of the gravitometer alone or in conjunction with the Taylor Pneumatic Indicating Transmitter Type 226R which operates Taylor Receiver Recorder Type 78J, when the gravitometer designation becomes Model "RDPT-B".

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