Department of consumer and corporate affairs / Ministère de la consommation et des corporations

STANDARDS BRANCH - DIRECTION DES NORMES

NOTICE OF APPROVAL
AVIS D'APPROBATION

G-97

OTTAWA March 20, 1974.

Canadian Meter Company
Base Pressure Index - Continuous Integrator
"BPI-CI", Model PC 9

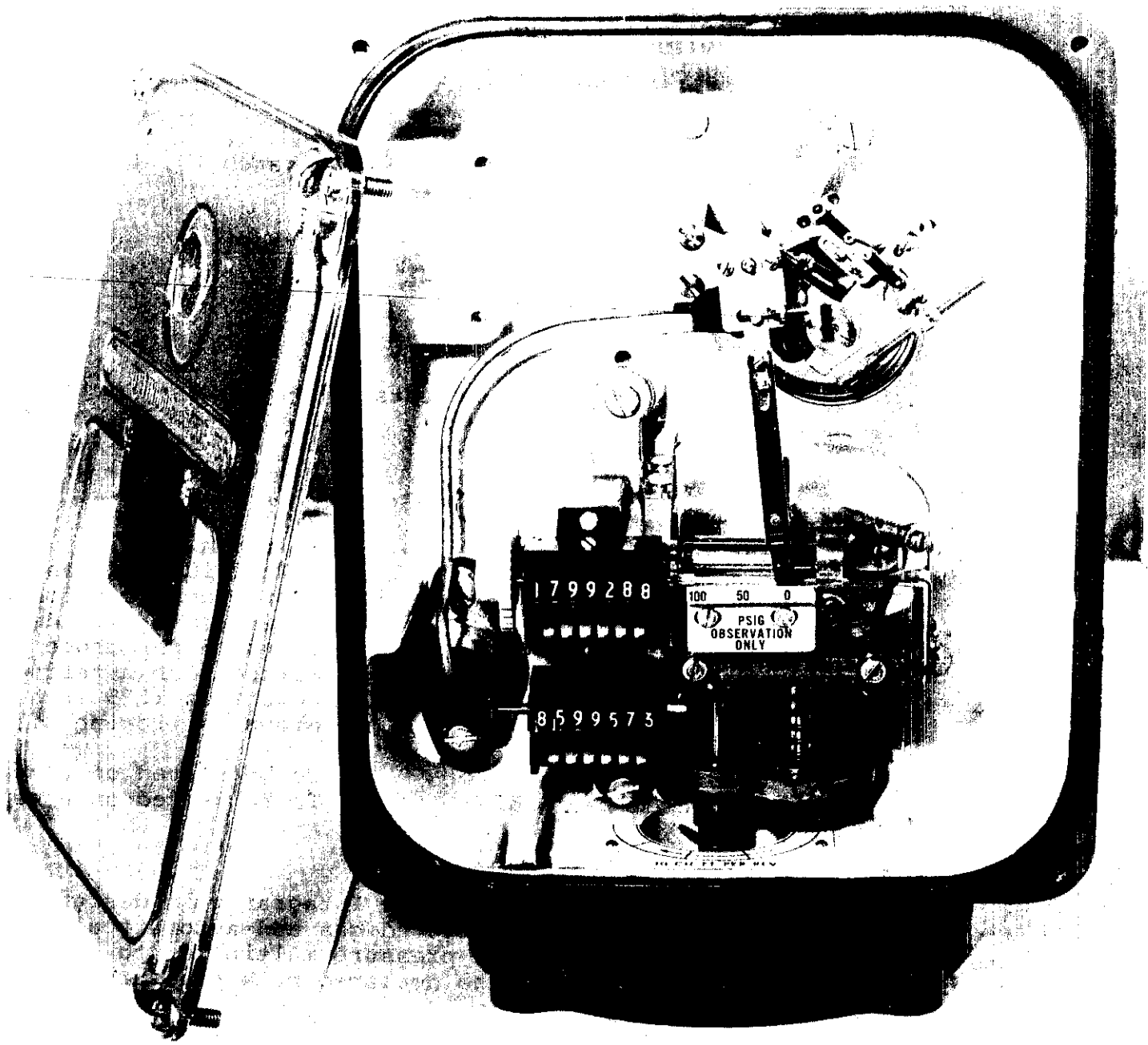
Apparatus

Static pressure ranges, psig		
- stacked diaphragm elements		0-5*, 0-15*, 0-30*
- helical bourdon element		0-45, 0-60, 0-100, 0-150 20-300, 50-500, 75-750, 100-1,000, 150-1,500
Base pressure, psia	Any value	10.5 to 15.5
Ambient temperature range		-35°F to 160°F
Maximum input drive speeds		30 r.p.m.
Acceptable pressure rangeability		30% to 100% of range for most pressure ratings. Lower limit extended downward for those marked with asterisk*.
Stated input torque requirements		Less than 1.25 inch-ounces
Capacity of proving dial		Shown on proving dial plat
Counter multipliers		
- uncorrected register		To be stated on nameplate
- corrected register		To be stated on nameplate

Description

The Base Pressure Index Continuous Integrator is designed to sense the line pressure of the metered gas and automatically and continuously apply the required pressure multiplier to provide a volume registration at the declared base pressure.

9 Note: an earlier model, not approved, is designated Model PP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PSIG
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This function is achieved through the employment of a ring and disc type integrating mechanism. The device is driven directly by a gas meter to which it is attached replacing the standard register.

The operation of the Base Pressure Index Continuous Integrator is essentially the same as the pressure system components of the Base Volume Index, Continuous Integrator which is described in Approval Notice G-104, November 27, 1973. American Meter Company Bulletin 217 also provides details of the operation and use of this instrument.

The general equation for converting the meter readings at line conditions to a contract base pressure is

$$Q_c = Q_m \frac{P + A}{P_b}$$

where Q_m = volume in cubic feet registered by the meter as displayed on the UNCORRECTED COUNTER

Q_c = volume in cubic feet at contract base pressure as displayed on CORRECTED COUNTER

P = weighted average line pressure at the meter

P_b = contract base pressure

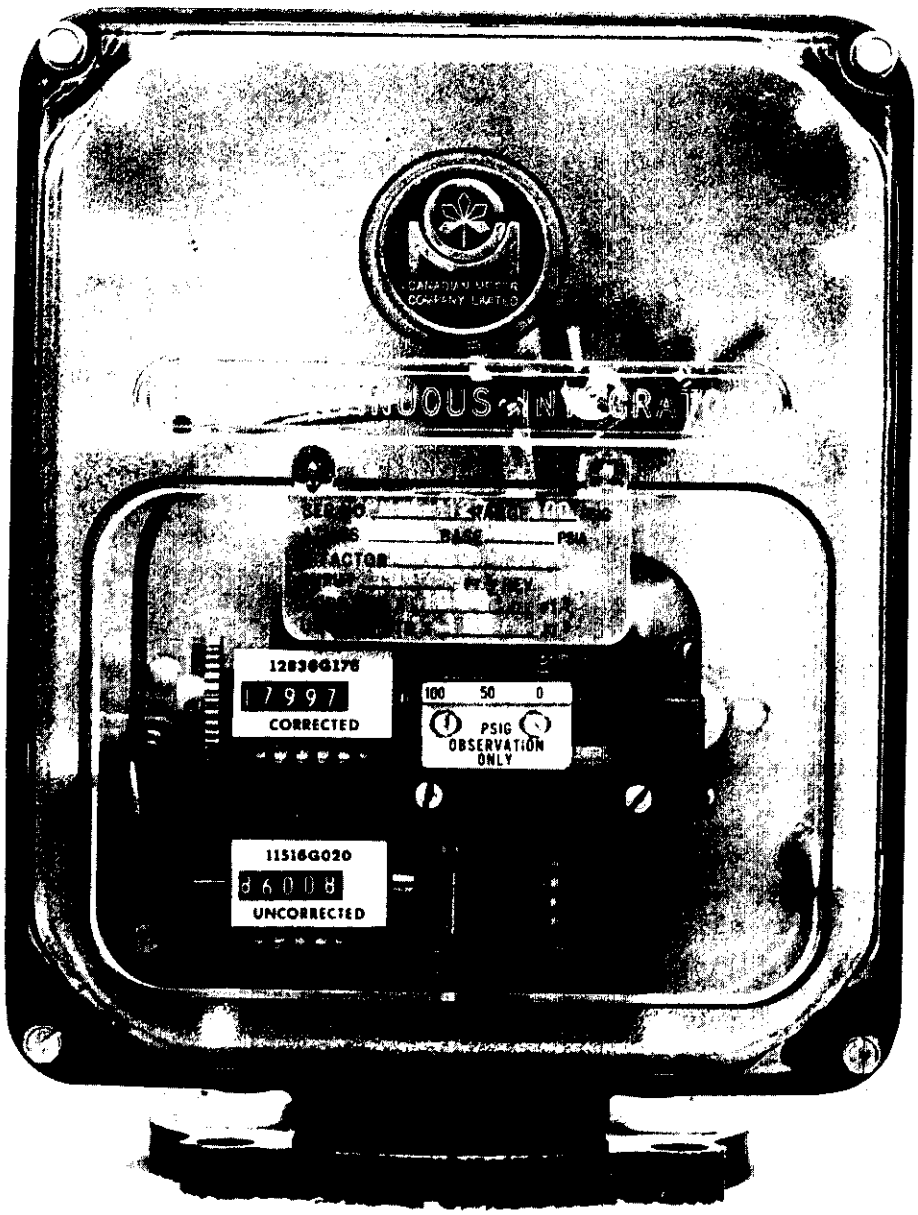
A = average atmospheric pressure at location of meter

This is the integration that the instrument generally performs but the manufacturer can introduce a factor to compensate, approximately, for supercompresibility and the equation then becomes

$$Q_c = Q_m \frac{P + A}{P_b} (Fpv)^2$$

where Fpv = the supercompressibility factor as determined from A.G.A. Report #3

To ensure that the appropriate factor is incorporated into an instrument, the utility must supply the manufacturer with the value carefully calculated and based upon the actual conditions which may exist in the line viz. line pressure range, normal line pressure, flowing temperature range, average flowing temperature, percent of each diluent in the gas and the specific gravity of the gas. Alternatively, the utility must supply the basic data to the manufacturer who shall make the calculation for the appropriate value. It should be noted that if the factor chosen is not within ±0.5% of the correct value over the whole range of pressures and temperatures additional instrumentation should be provided so that corrections can be made if necessary for extreme conditions.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7997
CORRECTED
100 50 0
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6008
UNCORRECTED

The BPI-CI may be used in conjunction with any suitable and approved frame mounted Print-Out Module or Pulse Volume Transmitter supplied by the Canadian Meter Company.

Each instrument shall have the following information marked on a nameplate:

(i) Manufacturer's name
(ii) Instrument Type or Model designation
(iii) Serial Number
(iv) Static pressure range, psig
(v) Base pressure, psia
(vi) Applicable atmospheric pressure, psia
(vii) Applicable multipliers for the uncorrected and corrected volume registers.
(viii) Applicable supercompressibilty factor

Approval granted to:

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

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