S-GA.260

OTTAWA......... May 15, 1963.

TYPE APPROVAL

ROCKWELL - REPUBLIC FLOW METER TYPE "40 Y"

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

Apparatus Approved: Type "40 Y" Recording and Integrating Flow Meter, manufactured by Republic Flow Meters Canada Ltd., subsidiary of Rockwell Manufacturing Company of Canada Ltd., and distributed in Canada by the latter.

Rating of Apparatus:
Differential Pressure Range ..... 1.19 to 118.51 inches water
Working Pressure .... up to 5000 p.s.i.

Description: The flow meter consists of two basic units - 1) the meter body and 2) the reading instrument:-

1) The meter body, type "40 Y", is basically a U-tube-type mercury differential pressure element enclosed in a weatherproof metal casing. The high pressure side contains a range tube which is available in various sizes and when combined with the appropriate resistance scale, located in the low-pressure side, provides a wide range of maximum differentials. As the mercury rises in the low-pressure side or contact chamber, it engages the resistance scale and progressively reduces the resistance in the electrical circuit to the reading instruments, thereby increasing the current. The resistances are so divided by the scale that the current corresponding to any given contact is directly proportional to the square root of the differential pressure.

2) The reading instrument, type "E", consists of two parts - a) the recorder and b) the integrator. Each of these parts is activated by the current existing in the circuit connecting the reading instrument with the resistance scale in the meter body:

   a) The recorder permanently records the percentage of the square root of the differential pressure on a 24-hour-per-revolution linear chart. The relationship between chart reading and differential pressure is

$$C.R. = \frac{\sqrt{h_w}}{\sqrt{h_w \; max.}} \times 100$$

   where C.R. is the chart reading, h_w is the existing differential pressure in inches of water and h_w max. is the maximum differential pressure, in this case 118.51 inches of water.

   b) The integrator is basically a watthour meter. The electrical energy to the integrator depends on the current which, in turn, is

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(proportional