DEPARTMENT OF CONSUMER AND CORPORATE AFFAIRS

LEGAL METROLOGY AND LABORATORY SERVICES

FILE: 6635-R292 OTTAWA, August 12, 1977

TECHNICAL GAS CIRCULAR G-77-5

TO: REGIONAL SUPERVISORS OF ELECTRICITY AND GAS
REGIONAL MANAGERS, LEGAL METROLOGY
DISTRICT INSPECTORS OF ELECTRICITY AND GAS
DISTRICT MANAGERS OF ELECTRICITY AND GAS

FROM: CHIEF, ELECTRICITY AND GAS DIVISION

RE: VERIFICATION OF ROMET TC/ID METERS

The accuracy of Romet TC/ID meter may be checked in the field according to the following procedure:

1. The meter accuracy (using the uncompensated register) may be checked with a transfer prover using an adaptor shown in Circular G-102-1, or with any other suitable standard of comparison. The adaptor mounts from the bottom of the housing for the horizontal mount meters.

2. The accuracy of the temperature compensating unit may be checked at a constant temperature by comparing the volume registered on the two counters, using the following procedure:-

(a) At the highest feasible rate of flow, pass exactly 1000 cu. ft. through the meter as recorded on the compensated register, (V_t). This may be performed by connecting a suitable blower to the meter, thus freeing the prover for other testing.

(b) Record the volume registered during that time on the uncompensated register, starting and ending volume counting at the instant when the compensated register has started or has stopped its movement (V_u).

(c) Using a certified thermometer record the average gas flowing temperature accurately to a fraction of a degree (T_{fl}).

(d) Calculate temperature correction factor (F_t) according to the formula.

$$F_t = \frac{460 + T_{base}}{460 + T_{fl}} = \frac{520}{460 + T_{fl}}$$

(e) Calculate the percent error of the T.C. unit by the equation:-

$$\% \text{ Error} = \left[\frac{V_t - V_u \times F_t}{V_u \times F_t} \right] \times 100$$

(f) Errors shall not be greater than $\pm [0.5 + 0.05 (t - 60)]$ % if t is greater than 60^0F, and

$\pm [0.5 + 0.05 (60 - t)]$ % if t is less than 60^0F.

3. The 1:1 transfer ratio of the corrected volume to the instrument drive may be verified by the following procedure:

NOTE: The manufacturer is to supply the utilities with a graduated instrument drive plate, showing the required direction of rotation of the instrument drive. A pointer, which is to be attached to the instrument drive dog, is to be supplied also.

However, if these components are not available for the purpose of verification, Standards Branch should be advised and the necessary components will be supplied.

(a) Attach the graduated instrument drive plate to the base of the index drive and the pointer to the instrument drive dog.

(b) Manually rotate the instrument drive in the direction shown on the plate until the wide white bands of the "units" and "tens" digits on the register of the corrected counter appear and the "hundreds" digit has just advanced one count.

NOTES: 1) Always rotate the instrument drive in the direction as shown on the adaptor plate. Rotation in the opposite direction will damage the meter.

2) The inital rotation will serve two purposes, as follows:

-Firstly, to line up the corrected counter as described above, and

-Secondly, to engage the drive dog on the gear-train so as to overcome any initial slack.

(c) Record the reading on the corrected counter and the reference location of the pointer with respect to the graduated instrument drive plate.

(d) Manually rotate the instrument drive ten (10) complete revolutions. Having the pointer in line with the original reference location on the instrument drive plate, the corrected counter must show the advance of 100 cu. ft. This advance verifies the 1:1 transfer ratio from the corrected counter to the output shaft of the instrument drive.

D. L. Smith

c.c. Romet Limited