DEPARTMENT OF

TRADE AND COMMERCE
CANADA

SD-EA.352a

STANDARDS DIVISION

OTTAWA April 24, 1958.

TYPE APPROVAL

CANADIAN WESTINGHOUSE TYPE "DSH"
COMBINATION THERMAL DEMAND-ENERGY METER

The apparatus specified and illustrated herein has been duly approved by the Standards Division under the provisions of the Electricity Inspection Act, Chapter 94, R.S. 1952, and may be admitted to verification in Canada.

Apparatus Approved: Type "DSH" Single-Phase Combination Thermal Demand-Energy Meter, manufactured by the Canadian Westinghouse Company Limited, Hamilton, Ontario.

Rating of Apparatus:

Current Range	0.75-100 amperes
Volts	230 or 240
Wire	3
Full Scale Demand	24 KW
Scale Range	0-1200
Multiplier	20
K_h	3.6
Frequency	60 cycles.

Description: This meter is essentially a type "DS" watthour meter with a thermally-operated demand section attached.

Watthour Meter Section: The watthour meter differs from that previously approved under Circular SD-EA.238, April 10, 1956, in the following features:-

1. Electromagnet: (a) Voltage Section:- A centre tapped secondary winding has been added to provide sufficient potential to drive the required "potential current" through the heater. Current blades are increased in length.

(b) Current Section:- Ring-type current transformers encircle each "line" current lead and are fastened to the electromagnet laminations by the electromagnet mounting screws. These transformers provide the heater with currents proportional to the line current.

2. Register: The ratio of the register, which is of the clock type, has been changed to 555-5/9.

3. Cover: The depth of the cover has been increased to accommodate the thermal section and a reset device added.

4. Base: Minor physical changes have been made to accommodate current transformers, longer current blades, etc. A second potential disconnect has been added.

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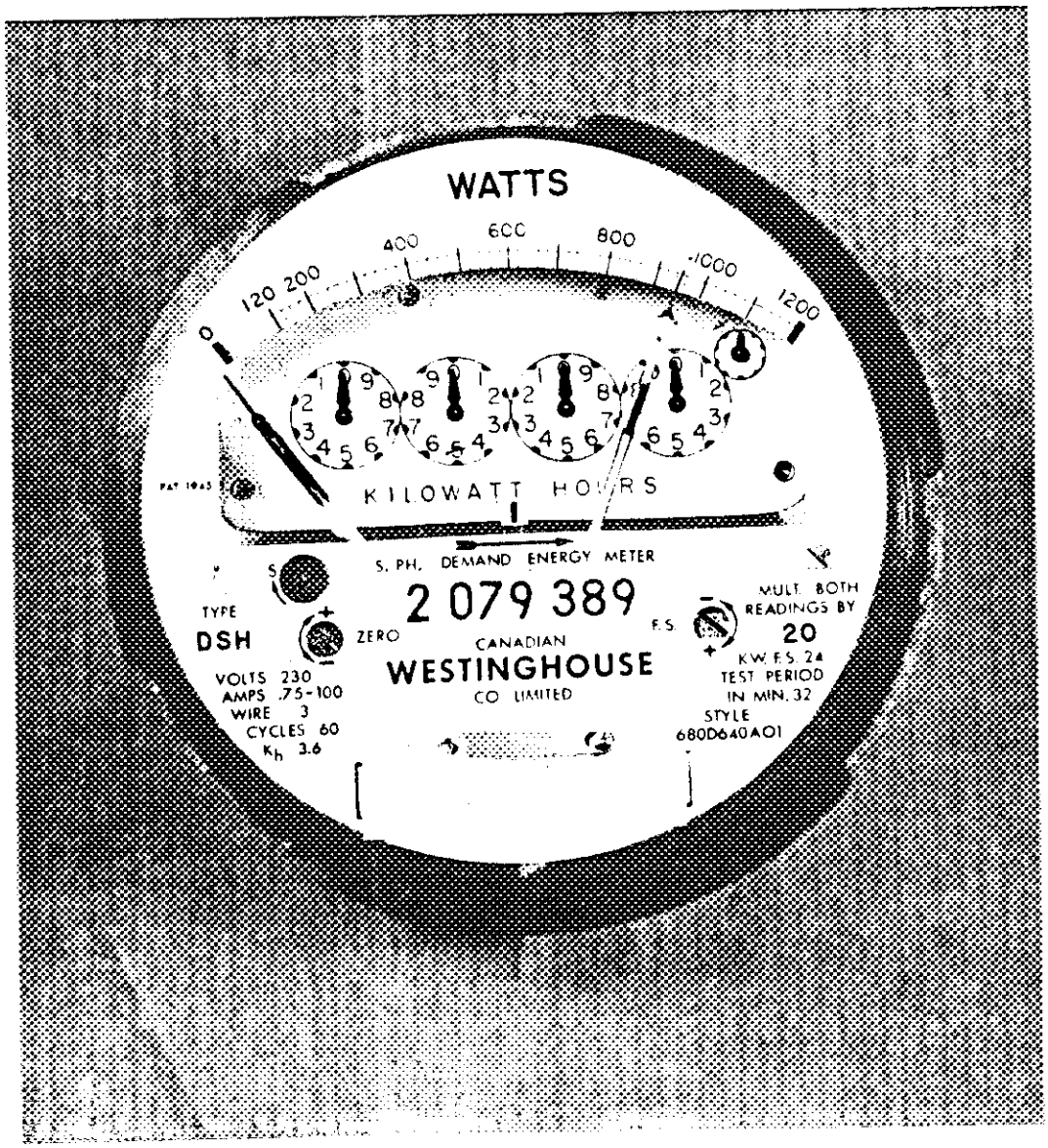

5. Frame: Additional machining has been done on the frame to provide space and mounting facilities for the thermal section.

6. Moving Element and Bearing System: These are the same as current production except that the length of the lower bearing screw has been reduced to provide room for the thermal section.

Thermal Section: The thermal element operates on the well-known and proven thermal principle in a similar manner to the types "CAH" and "CSH" approved under Circular SD-EA.141, February 15, 1954. The thermal element consists of an accurately-paired set of bimetallic coils, mounted on a shaft in such a way that the winding directions oppose. Each of the bimetal coils is encased in a moulded bakelite cup and so arranged that, when assembled, a complete enclosure results. Heaters are provided in each of the cups and they are so arranged as to provide uniform distribution of heat to the bimetal coils. The element shaft is supported by sapphire ring bearings at both the front and rear of the assembly.

The driven pointer is of the grease-damped type. It is so designed that it is relatively easy to replace a damaged pointer assembly.

The calibration and zero adjustments of the demand element are readily made from the front of the meter. Compensation for differences of voltage and power factor are inherent in the design of the meter and no adjustment is provided. The driven pointer adjustment consists of a light thrust spring and adjustment screw with a locknut.

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