DEPARTMENT OF

TRADE AND COMMERCE
CANADA

SD-EA.141

STANDARDS DIVISION

OTTAWA, February 15, 1954.

TYPE APPROVAL

CANADIAN WESTINGHOUSE TYPES "CAH" AND "CSH" DEMAND-ENERGY METERS

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: Types "CAH" and "CSH" Single-Phase Demand-Energy Meters, manufactured by the Canadian Westinghouse Company Limited, Hamilton, Ontario.

Rating of Apparatus:

Nominal Amperes	10	10	15	25	50
Maximum Amperes	33-1/3	33-1/3	50	83-1/3	100
Volts	120	240	240	240	240
Wire	2	3	3	3	3
Full Scale Demand (KW) ...	4	8	12	20	24
K_h	2/3	1-1/3	2	3-1/3	6-2/3

Test Period ..... 32 minutes
Phase 1
Frequency ..... 60 cycles.

Description: The types "CAH" and "CSH" are combination demand-energy meters. The watthour portions of the meters are the same as the types "CA" and "CS-1" respectively except for change in potential coils noted below. The thermal elements operate on the well-known Lincoln thermal principle.

The thermal element is mounted as a separate unit above the watthour element. The heater plates and bi-metal springs are contained in moulded composition cases. Each bi-metal spring and its heater units is in a separate housing for proper heat storage and distribution.

The dial and nameplate are combined and the demand scale is located at the bottom of the dial. The demand dial and pointers do not interfere with the reading or accessibility of the watthour meter register. Two demand pointers are provided, a red one which acts as a pusher and a black one which is equipped with a knife edge and indicates the maximum demand during the billing period. The black pointer is held in position by means which include a silicon grease, which is designed to eliminate shifting of the pointer due to vibration and to maintain constant friction for varying conditions of temperature and humidity. The maximum demand pointer may be reset by means of a sealable external reset device on the cover.

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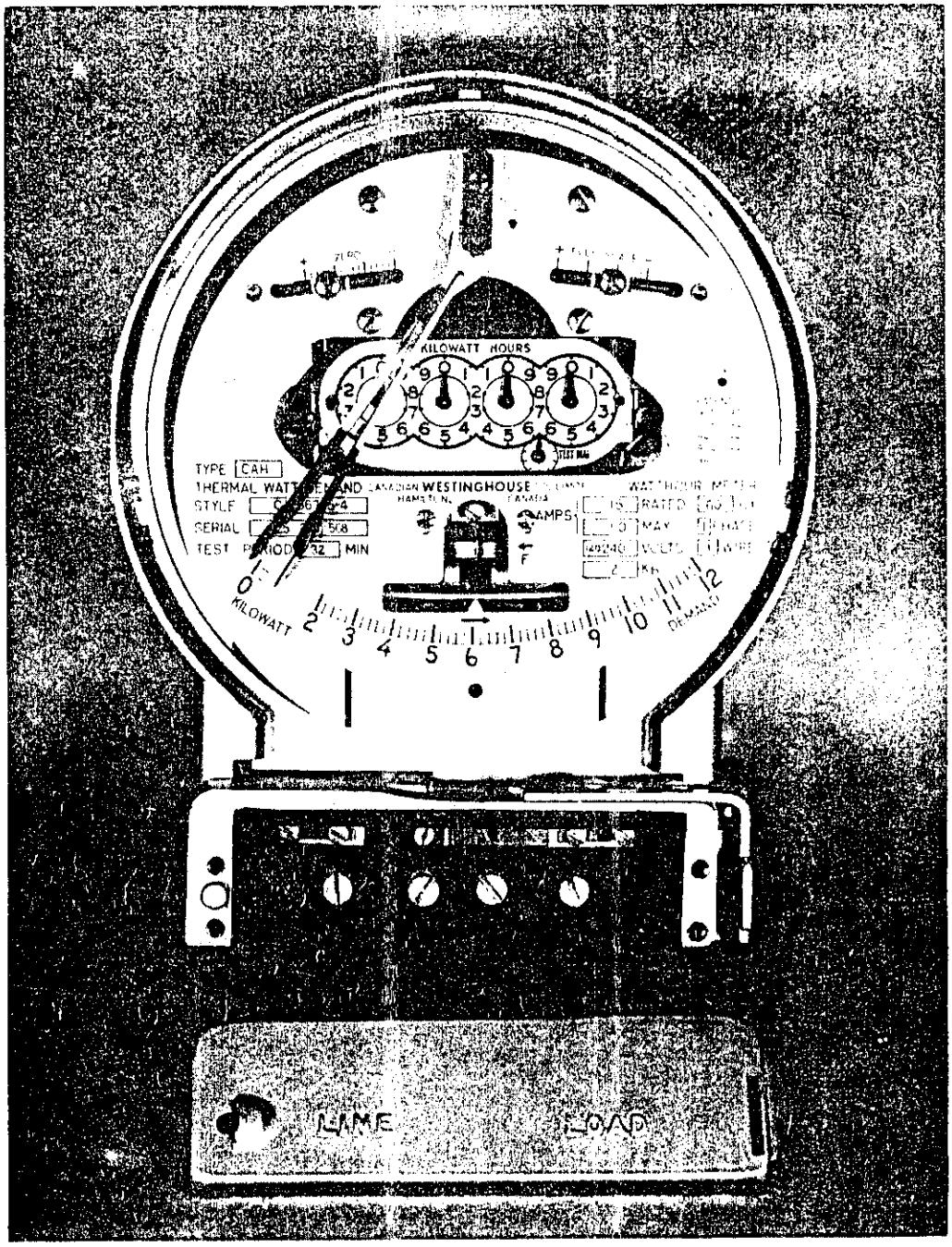
CANADIAN WESTINGHOUSE TYPE "CAH" DEMAND-ENERGY METER



The meters have a built-in current transformer to supply current to the heater elements. This reduces the load current to a value that prevents undue self-heating, isolates the thermal elements from direct line potential and protects the heater elements from burn-out due to over-loads. A secondary winding on the watthour meter potential coil furnishes the potential component for the thermal element.

The watthour elements are adjusted in the usual manner. The friction of the maximum demand pointer is maintained by a spring plate pressing on the end of the pointer shaft. The spring pressure is adjusted by turning an adjusting screw in or out to obtain the desired friction. To adjust the meter for zero a slider mounted on the left-hand side of the meter dial is provided. A helical torsion spring is attached between the slider and the red pusher pointer. To adjust the meter at the high scale point the full scale slider mounted on the right-hand side of the dial is used and is moved to the left to increase the pointer deflection and to the right to decrease pointer deflection. A helical tension spring is attached between the slider and the red pusher pointer, this spring having sufficient strength to give about 10% full scale range adjustment.

The type "CAH" has the same base as the type "CA-5" already approved. The base of the "CSH" is similar to that of the type "CS-1". In the case of the 3-wire type "CAH", the meter may be made 4-terminal or 6-terminal, the latter having the leads from the voltage coil brought out to two separate terminals instead of being connected to the main terminals. All meters are furnished with test links for opening the voltage coil circuits.

The covers are slightly deeper than the standard watthour meter covers and they are coated on the inside of the sides so as to reflect sunlight.

The basic rotor speed is considered to be 25 r.p.m., e.g. on a 10-ampere, 120-volt meter at 1000 watts, the speed will be 25 r.p.m.

Approval covers use of either the 4- or 5-dial register.

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Ref: A-157B & C