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NOTICE OF APPROVAL
AVIS D'APPROBATION

E-148

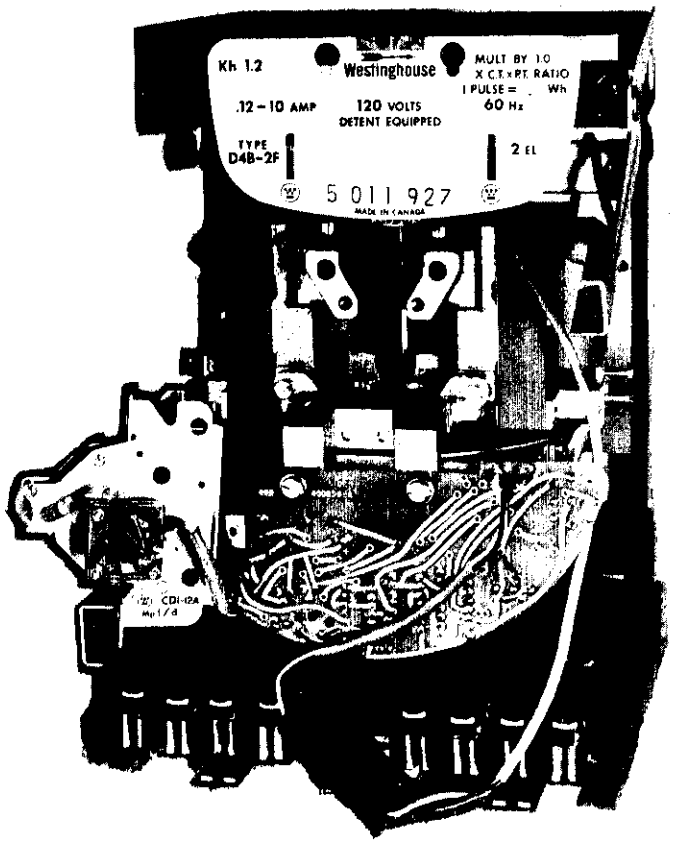
Ottawa, March 8, 1977

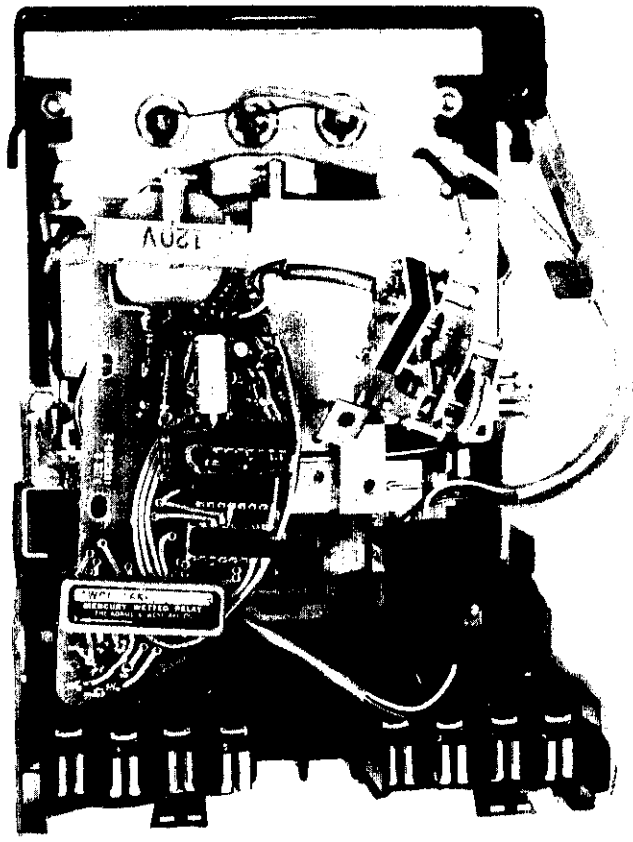
WESTINGHOUSE PHOTOELECTRIC PULSE INITIATORS TYPES "CDI-12A, "CDI-22A" AND "CDI-12B", "CDI-22B"

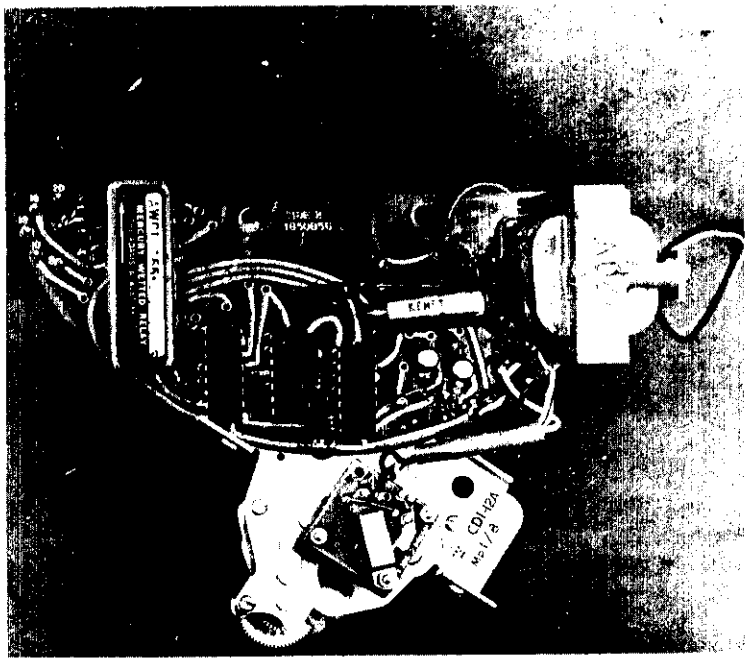
SUMMARY OF SPECIFICATIONS

Type	Photoelectric type sensing head (1).
Output	S.P.D.T. "KYZ" output from a Form C mercury-wetted, self-latching relay.
Relay	The Adams & Westlake Co. "AWCM-16552-1".
Capacity of contacts	Two amperes maximum, 500 volts maximum 100 VA maximum with contact protection.
Maximum pulse rate	30 pulses per second
Pulse gear train ratios "P_g" (2)	From 625/9 to 3, 2 to 20 shutter disc slot.
Meter disc revolutions for one pulse "Mp" (3)	Uni-directional energy flow: Types "CDI-12" Range 625/18 to 3/40 Types "CDI-22" Range 10 to 1/16. Bi-directional energy flow: Types "CDI-12" Range 625/18 to 1/8 Types "CDI-22" Range 10 to 1/6.
Power supply (4)	120,240,277 and 480 volts.
Frequency	60 Hz.
Supply burden	1.4 VA at rated voltage.
Watts loss	0.84 watts at rated voltage.
Temperature range	-35°C to + 50°C.
Approved for use on	All approved Westinghouse D-line single and polyphase watthour meters,
Reverse running detent	Required on all reactive meters Q-hour meters and on all watthour meters used on interchange of power.

(1) The types "CDI-12A" and "CDI"12B" operate through the slotted shutter disc geared to the disc shaft of the meter.
The types "CDI-22A" and "CDI-22B" operate from reflective spots on the meter disc.







TYPE "CDI-12A" PULSE INITIATOR

(2) "P_g" = Number of meter disc shaft revolutions for one revolution of the slotted shutter disc shaft.

Minimum acceptable "Pg" is limited by the friction of the pulse gear train to three.

(3) "Mp" = Number of meter disc shaft revolutions to cause 1 pulse (contact closure) i.e. Kp = Mp x Kh.

(4) The pulse initiator is connected internally to one of the meter voltage coils. The presence of the I in the type designation indicates internal power supply.

Note: When meters are equipped with a pulse initiator the following information must be clearly shown:

i) Type identification.
ii) Pulse initiator output ratio Mp.
iii) Pulse constant Kp.

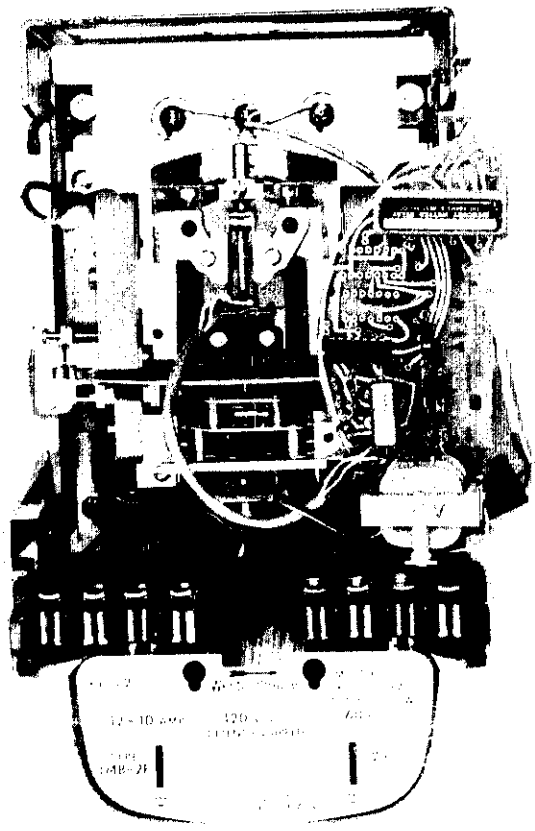
DESCRIPTION

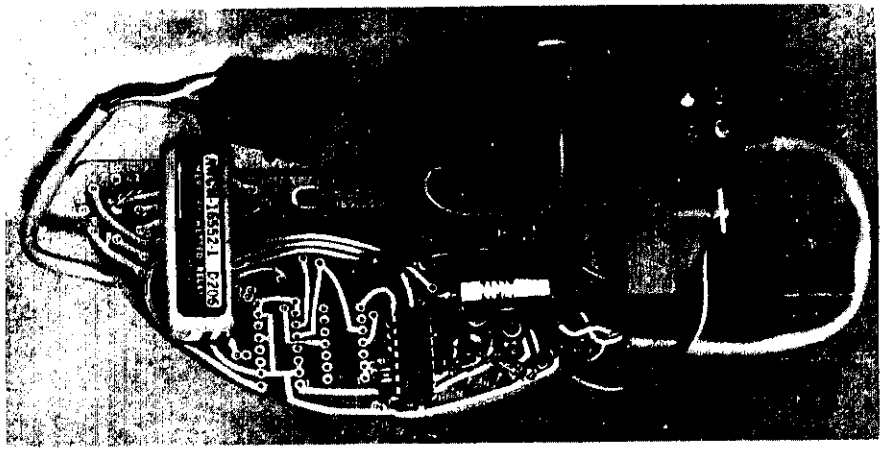
The Westinghouse types "CDI-12A", CDI-22A, "CDI-12B" and "CDI-22B" photoelectric pulse initiators generate pulses at a rate proportional to the speed of the moving element of the integrating meter in which they are mounted.

These initiators were designed using all solid-state electronic components mounted on a printed circuit board and only the mercury-wetted self-latching relay provides electromechanical action.

All types of photoelectric pulse initiators use the same basic type of sensing head consisting of two light-emitting diodes and two phototransistors with suitable optical apertures. Energy from the light-emitting diodes is reflected by the meter disc in types "CDI-22" and through the slotted shutter disc in types "CDI-12" in an alternating sequence onto the phototransistors. The output of each phototransistor is used to actuate a Form "C" mercury-wetted, S.P.D.T. self-latching relay resulting in "KYZ" output.

Both the "CDI-12A" and "CDI-22A" incorporate a CMOS electronic circuit and discrete components mounted on a conformal epoxy-coated circuit board to protect the initiator from environmental conditions and handling.





TYPE "CDI-22A" PULSE INITIATOR

The type "A" pulse initiators are provided with divide-by "N" circuitry so the output pulse rate can be varied by re-programming at the customer's location. The standard units provide divide by "1" and "2" features. An optional unit with "divide by-N" provision capability offers "N" equal 2, 4, 6, 8, 10, 12, 16 and 20.

The types "CDI-12B" and "CDI-22B" are virtually identical to the types "CDI-12A" and "CDI-22A" pulse initiators in principle of operation and available "Pg" and "Mp" ratios but without "Divide-by" circuitry. CMOS electronics and conformal coatings are not used on these "B" versions.

In the types "CDI-12A" and "CDI-12B" pulse initiators, the gear train from the meter disc shaft to the slotted shutter disc shaft offers variety of gear ratios ("Pg") so desired pulse rates may be readily obtained.

Each type "12-" initiator has a ratchet as part of the gear train to prevent meter disc reverse rotation. For the types "22-" initiators a separate detent is available.

The detent consists of; 13 tooth spline on the meter shaft, 65 tooth take-off gear and 20 tooth escapement gear with a double pawl which is equivalent to a 40-tooth ratchet. This combination, allows 45 degrees of reverse disc rotation before detent takes effect.

If the pulse initiator is known to be operating correctly the relay may be checked simply at the KYZ terminals using an ohmmeter.

Approval granted to

Westinghouse Canada Limited
Hamilton, Ontario

J. L. Armstrong, P. Eng.
Chief, Standards Laboratory

D. L. Smith, P. Eng.,
Chief, Electricity & Gas Division
Metrology and Laboratory Services

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