Department of consumer and corporate affairs / Ministère de la consommation et des corporations

STANDARDS BRANCH - DIRECTION DES NORMES

NOTICE OF APPROVAL

E-98

OTTAWA March 16, 1971

for

WESTINGHOUSE TYPE "WE-IT" TRANSMITTER

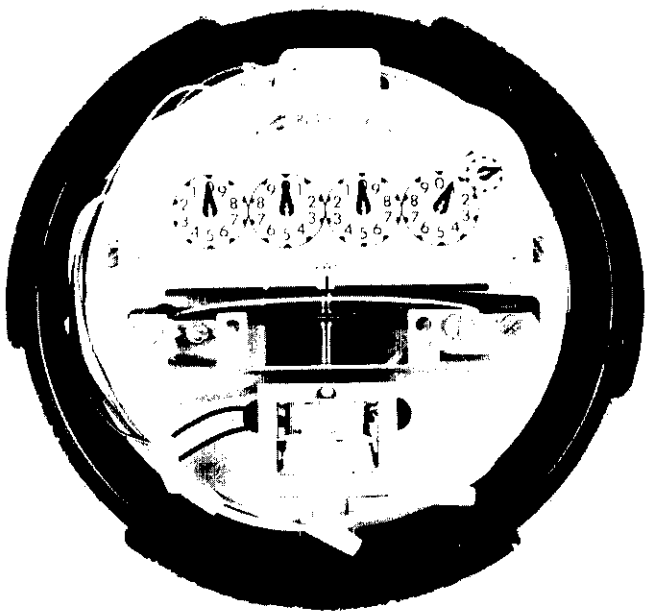
and

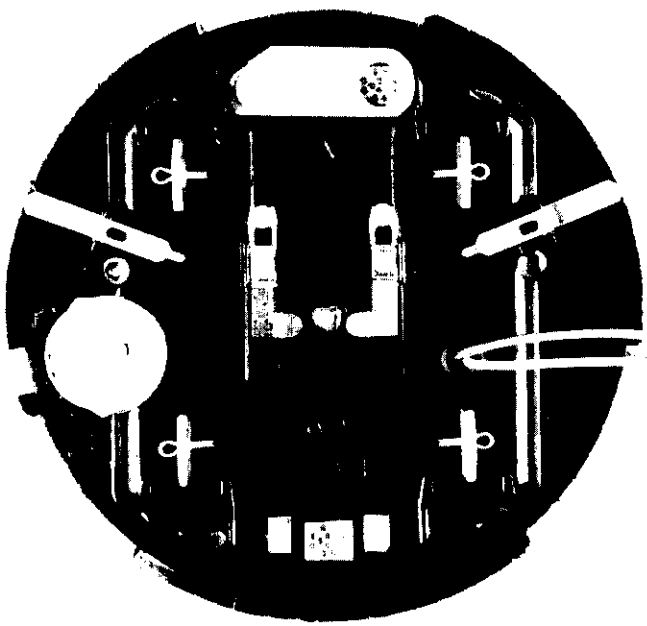
TYPE "WE-1R" REMOTE REGISTER

Approved Micro Switch	- Cherry Electrical Products Corp. Type E-21-04 HX
Rating of Micro Switch	- 0.1 amps, 125 V A.C. S.P.D.T.
Approved Diodes	- Type 1N40
Rating of Transformer	- 240 - 12 volts
Maximum Line Resistance	- (2) 200 ohms
Remote Registers	- 5 dial clock no test dial 12 V. D.C. Operation 4 dial clock no test dial 12 V. D.C. Operation

Watthour meters on which the Type "WE-1T" transmitter is approved for use:-

Westinghouse Type "WE-IT" Transmitter and Type "WE-IR" Remote Register





TYPE	RATING	VOLTS	WIRE	REG. MULT.	REG. RATIO	REG. TYPE
DA, D2A	.75-100 amps	240	3	1	27 7/9	4 dial clock with test dial
DA, D2A	.75-100 amps	240	3	10	277 7/9	(3) 4 dial clock with test dial
DS, D2S, D3S	.75-100 amps	240	3	1	27 7/9	4 dial clock with test dial
DS, D2S, D3S	.75-100 amps	240	3	10	277 7/9	(3) 4 dial clock with test dial
DS, D2S, D3S, D4S	2-200 amps	240	3	1	13 8/9	(1) 5 dial clock
DS, D2S, D3S, D4S	2-200 amps	240	3	10	138 8/9	4 dial clock with test dial

(1) 5 dial X 1 registers without test dials may be used on meters of 200 ampere rating providing the Utility presenting meters equipped with these registers has facilities acceptable to the District Inspector concerned, for making a full dial test.
(2) Resistance of connecting wires between transmitter and remote register.
(3) Remote registers supplied from the transmitter installed on a "X10" register must be marked "Mult. by 10".

DESCRIPTION

The Westinghouse Remote Register System using a type WE-1T transmitter and a Type WE-1R remote register provides a means of obtaining a duplicate readout of the consumption recorded on the register of a Canadian Westinghouse "D" Line of Single Phase Watthour Meters at a remote location.

The WE-1T Transmitter

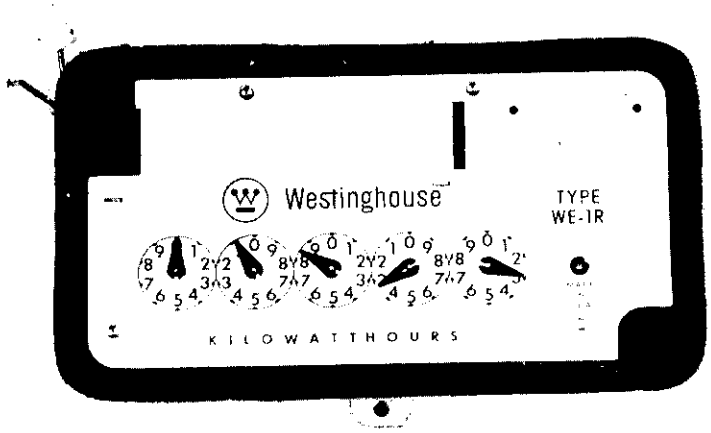
The transmitter assembly consists of four basic parts:-

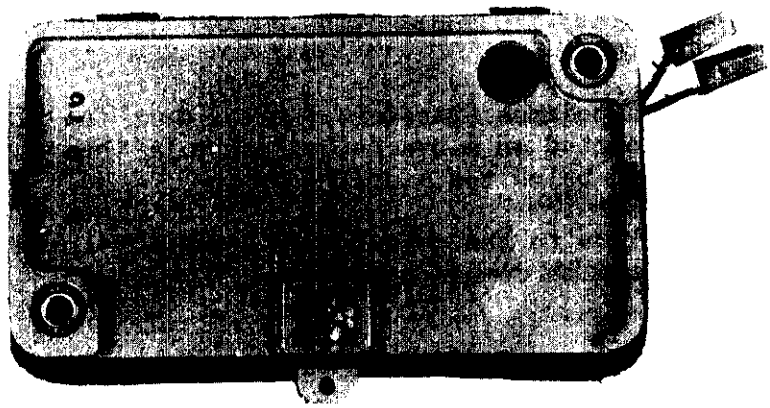
(1) Transformer

A high impedance transformer steps down the line voltage to 12 V AC. It is mounted on a bracket attached to the grid at the front of the meter and below the disc.

Connections to the primary and secondary leads of the transformer are made with connectors.

Westinghouse Type "WE-IT" Transmitter and Type "WE-IR" Remote Register





(2) Micro Switch

This switch is mounted on a plate which is attached to the top rear portion of the register dial plate by means of machine screws. The L.H. hole through which one of these screws passes is slightly larger than the screw so that a limited amount of adjustment is possible.

Two diodes in opposite polarity are connected to the terminals of this switch so that a half wave rectified d.c. is produced of a polarity depending upon the state of the switch.

Two leads, one from the common of the switch is connected to the transformer secondary and the other from the common connection of the diodes is connected to the transmission line.

To prevent these leads from fouling the gears of the register, they are supported midway by means of a clamp. This point is to be checked when verifying.

(3) The 10 Point Cam

This is a plastic cam having 10 points and is fixed to the shaft that carries the pointer of the first reading dial.

(4) The Extension Arm

This is an arm of flat metal, rivetted to the micro switch arm and having a short bent section at the end to contact the 10 point cam. The arm passes over the operating button of the micro switch so that as the 10 point cam revolves it causes the arm to rise and fall and in so doing the arm operates the micro switch.

The amount of travel is very small and so the micro switch must be adjusted to obtain approximately equal contact dwell in each state.

This may be done by operating the register manually, and listening to the operation of the switch and at the same time observing the test dial on the hand on the shaft of which the cam is attached. As an alternate, the operation of the remote register may be observed.

When the switch has been properly adjusted, the pointer on the register must move approximately equal amounts for each change of state of the switch and the extension arm should move the button of the micro switch a minute amount after the switch has operated in each of it's positions.

The WE-1R Remote Register

The remote register is a 4- or 5-dial register rivetted into a metal box with a transparent sealable gasketted cover. The register has provision for a Utility badge.

On the shaft carrying the pointer of the units dial is mounted a 10 tooth gear. A pawl contacts this gear and by it's movement causes this gear to advance a half step at a time.

This pawl is connected to a permanent magnet which can rock about a pivot and thus cause the pawl to oscillate and this causes the gear to rotate.

Surrounding the permanent magnet is an electromagnet which causes the permanent magnet to rock about it's pivot according to the direction of the current.

A complete cycle of operation corresponding to the advance of the hand one digit on the units dial on the meter register is an up-down motion of the knob of the micro switch, two reversals of current in the transmission line an up-down motion of the pawl and two half steps of the units pointer of the remote register.

The Transmission Line

This is a pair of insulated copper conductors not smaller than No. 22 AWG and having a total loop resistance not exceeding 200 ohms.

They are connected by means of connectors to leads projecting from the S meter base and connected to leads projecting from holes drilled in the "A" base terminal block.

The leads projecting from the "S" meter base and the "A" base terminal block will be sealed in such a way as to prevent dust and dirt from entering the meter enclosure.

Utilities wishing to use these remote registers with present meters on which the type WE-1T transmitters are approved for use may do so, provided they use the Canadian Westinghouse components covered by this approval that mount on the meter including the complete register.

The workmanship must be performed to the satisfaction of the District Inspector.

The hole in the base of socket meters and the holes in the terminal block of "A" based meters must be such a size that dust and dirt cannot enter at these points. If necessary suitable grommets may be used.

A limited number of "trial" installations is to be put into service, in one District, in the near future. Following experience with this group further detailed instructions will be issued.

Approval granted to: Canadian Westinghouse Co. Ltd., Hamilton, Ontario.

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Ref: SL-100-143
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