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

STANDARDS BRANCH - DIRECTION DES NORMES

NOTICE OF APPROVAL E - 107

OTTAWA November 2, 1971.

SMITH TYPES "APNE" AND "APNEC" SINGLE PHASE PREPAYMENT WATTHOUR METERS

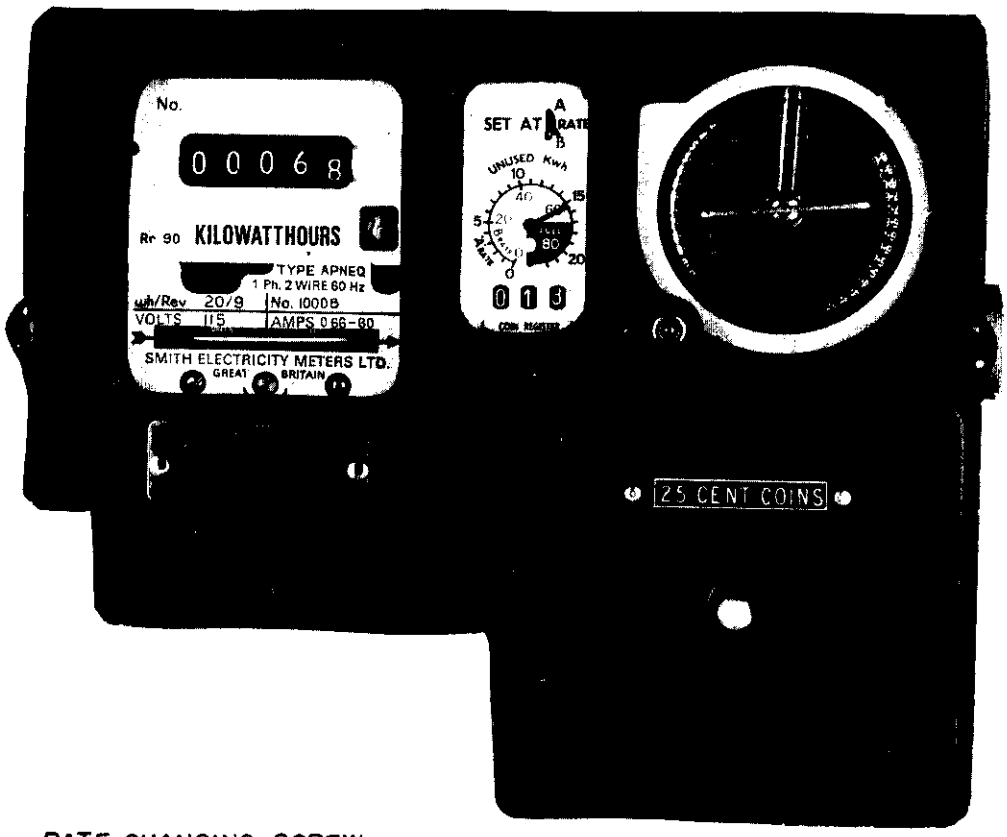
Current Range	0.66 - 60 amperes
Voltage	115 volts
Wire	2
Frequency	60 Hz
Disc Constant	20/9
Register Ratio	90
Register	5 dial x 1 cyclometer with test dial
Kilowatt hours per coin	
"A" rate	1.0 to 4.7 in steps of 0.1 kwh
"B" rate	4.0 to 18.8 in steps of 0.4 kwh
Storage capacity	
"A" rate	17 kilowatt hours
"B" rate	68 kilowatt hours
Coin used	25 cents
Type APNE	pivot and jewel type lower bearing
Type APNEC	magnetically suspended disc

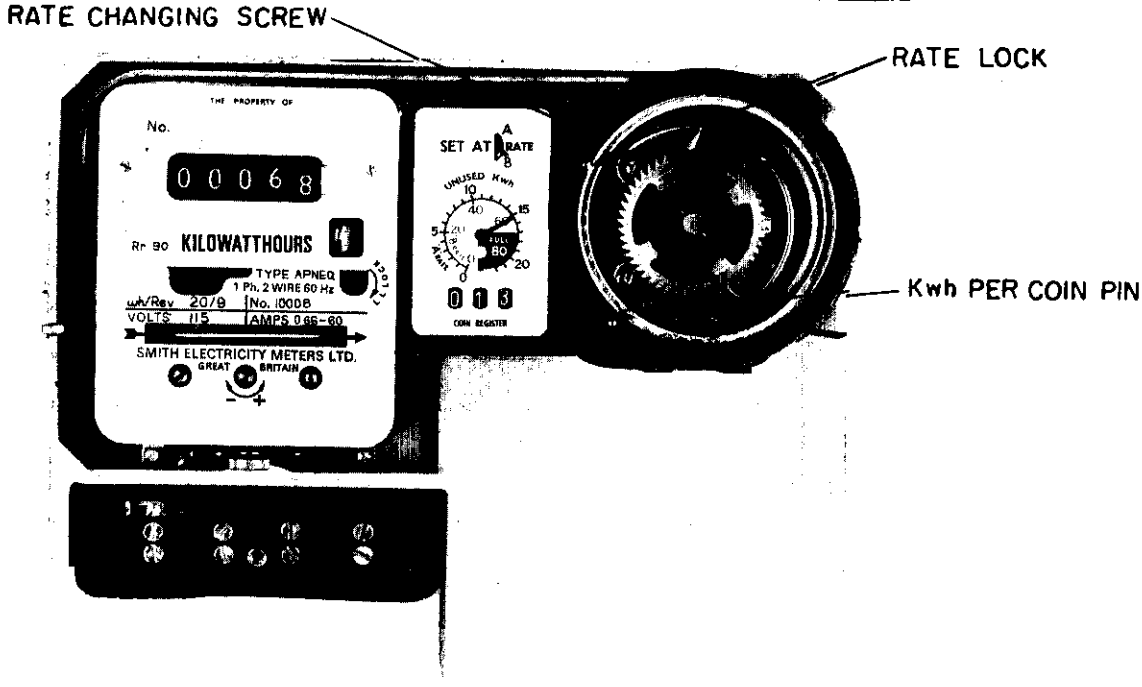
Description

These meters are similar to the Smith type "APR" prepayment meters that received approval under SD-EA.73. They differ in that there are slight modifications to the prepayment mechanism, they are of higher current capacity and are range rated.

The watthour meter and the prepayment mechanism are mounted side-by-side on a white plastic base and are connected together by a gear mechanism that transmits the disc revolutions to one side of a differential within the prepayment mechanism.

The other side of the differential is driven by the coin handle a distance proportional to the kilowatt hours per coin and the number of coins.


No.
00068
Rr 90 KILOWATTHOURS
TYPE APNEQ
1 Ph. 2 WIRE 60 Hz
wh/Rev 20/9
No. 10008
VOLTS 115
AMPS 0·66-60
SMITH ELECTRICITY METERS LTD.
GREAT BRITAIN
SET AT A RATE B
UNUSED Kwh
013
25 CENT COINS


RATE CHANGING SCREW
RATE LOCK
Kwh PER COIN PIN
THE PROPERTY OF
No.
00068
Rr 90 KILOWATTHOURS
TYPE APNEQ
1 Ph. 2 WIRE 60 Hz
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VOLTS 115
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SMITH ELECTRICITY METERS LTD.
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COIN REGISTER

Initial movement of the coin handle closes a pair of contacts which establishes the circuit to the load and when the kilowatt hour equivalent of the coins has passed through the meter, a toggle mechanism trips the contacts and opens the circuit.

The coin mechanism can be operated by the insertion of a 25 cent coin. A coin plate with serrations on part of its circumference provides steps for two series of rate settings. Series A embraces rates from 1 to 4.7 kwh per coin in steps of 0.1 kwh and series B covers rates from 4 to 18.8 kwh per coin in steps of 0.4 kwh. The rate settings may be changed by removing the cashbox and the coin plate sealing ring by unscrewing the retaining nut. A hasp on the cash box effectively locks this nut but the latter has a sealing wire hole for a wire and a lead seal if required.

Upon removal of the sealing ring, the coin mechanism may be withdrawn and set to the required rate by rotating and engaging the appropriate serration on a location pin.

With the sealing ring removed, a slotted screw is also exposed and this is turned to the extremity of its travel to change from one series of rates to the other series.

This avoids removal of the meter cover and the breaking of the seal.

During this operation, the gearing on the prepayment differential gear is automatically locked so that the state of credit is not disturbed by the movement of the gear train which is actuated by this slotted screw.

Also to ensure that the swing gear train has been properly meshed in gear when it is changed, a spring-loaded pin, located in the housing of the coin mechanism below the sealing ring, rises when the latter is removed but will not return if the slotted screw has not been fully rotated and the sealing ring cannot be refitted.

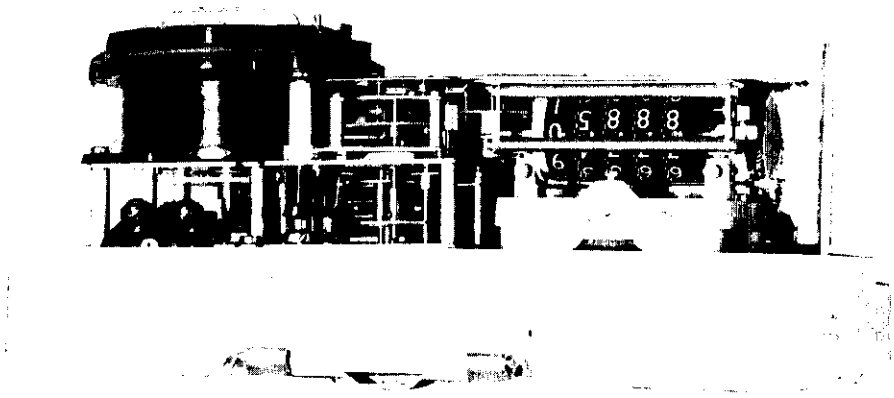
Through a small window in the cover, the "A" and "B" rate setting and the state of credit can be read easily on pointer type dials; also provided is a coin register which will indicate a total of 999 coins inserted before repeating itself.

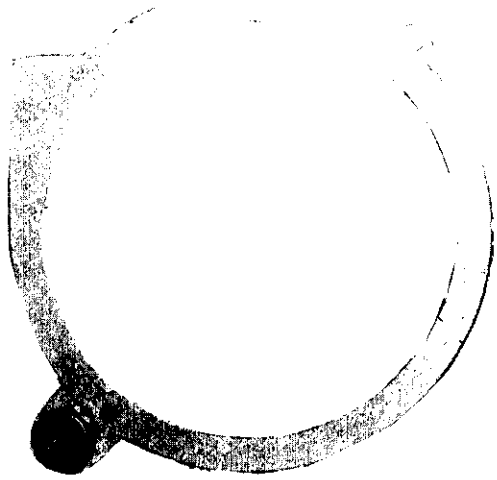
The coin mechanism is designed to operate when coins the size of Canadian 25 cent coins are used, if coins of smaller size such as 1 cent, 5 cent or 10 cent coins are inserted in the slot they do not operate the mechanism but drop in the coin box when the coin handle is turned.

The meter has three adjustments for the purpose of calibration.

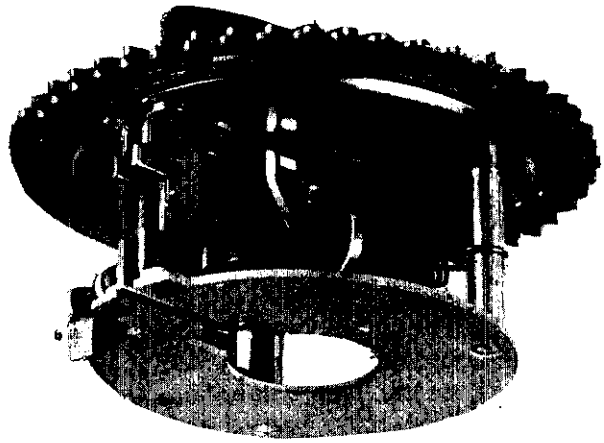
(a) High Load
An adjustment screw provided on the brake magnet assembly moves the magnet radially along the rotor disc to alter the effective braking torque. This adjustment is provided with a lock nut.

(b) Power Factor
A copper loop surrounding the lower end of the centre pole of the voltage electromagnet and carried on a sliding rack plate





LOCKING RING



COIN PLATE MECHANISM

can be adjusted up or down the pole by a pinion with a screwdriver slot in its end. The sliding rack is provided with a locking screw.

(c) Low Load
An auxiliary pole in the form of a sector and pivotted centrally at the bottom of the centre limb of the voltage electromagnet can be adjusted to the left or right to induce a small voltage drive bias to calibrate low loads. The sector is adjusted by a worm and wheel, the latter being attached to the sector and the former cut in a rod pivotted to the sides of the frame. A moulded knob is provided on the left hand end of the rod to make the adjustment and a pinch screw on the right hand pivot locks the adjustment.

The register is a five digit cyclometer type with test dial.

The test dial advances smoothly but the digits drum advances by means of a falling weight which is designed to fall when the units drum advances from 9 to 0. This causes backlash around this point so when dial testing it is suggested that digit 8 to 1 be avoided.

The meter is mounted by a hanger and two screws through two holes in the terminal block behind the terminal cover.

These meters are manufactured by Smith Electricity Meters in Great Britain and are distributed in Canada by Ferranti-Packard.

Approval granted to:

Ferranti-Packard Ltd.,
St. Catharines, Ontario.

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Ref: SL-100-214A
1145-57-F2