DEPARTMENT OF

TRADE AND COMMERCE
CANADA

S-EA.487

STANDARDS BRANCH

OTTAWA November 29, 1960.

TYPE APPROVAL

CANADIAN GENERAL ELECTRIC TYPE "D-41"
IMPULSE GENERATOR FOR DEMAND METERING

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

Apparatus Approved: Type "D-41" Impulse Generator, manufactured by Canadian General Electric Company Limited, Quebec, P.Q.

Rating of Apparatus:

Input Voltage	110-130 (to amplifier)
Frequency	50 and 60 cycles
Ambient Temperature	-20°F to +140°F (maximum temperature inside meter not to exceed 150°F)
Impulse Range	10 revs. per impulse to 1 rev. per 10 impulses
Impulse Rate	Maximum 3 per second
Burden	Less than 5 volt-amperes
Output Contacts	Single pole double throw (S.P.D.T.)
Capacity of Contacts	1 ampere resistive at 120 volts A.C.
Maximum Lead Resistance ...	Meter to amplifier not more than 0.5 ohms
*Used on	V-62A, V-62S (SD-EA.384), V-63A, V-63S, V-65A, V-65S, V-66A, V-66S, DS-63, DS-65, DS-66 (SD-EA.404), and other approved suitable types.

* The use of the "D-41" impulse generator on any approved meter is denoted by the addition of "W" in the type designation, e.g., "V-63A" becomes "VW-63A". Approved meters other than the "V" and "DS" types listed above require modifications in mounting.

Description: The "D-41" Impulse Generator consists of two parts - (1) the "Initiator" and (2) the "Amplifier". The initiator is mounted in the meter and the amplifier external to the meter. The initiator consists of a bracket with a ratio gear train, a lamp assembly, a photocell assembly, a shutter disc, an anti-reverse detent, and a terminal board. The amplifier is a small plug-in dust-proof package that contains the power supplies for the photocell and lamp, a relay, and temperature compensation networks. Connections are to pins on a standard octal base and are indicated by a

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(diagram

GENERAL ELECTRIC TYPE "VW-63A" METER
EQUIPPED WITH TYPE "D-41" IMPULSE GENERATOR

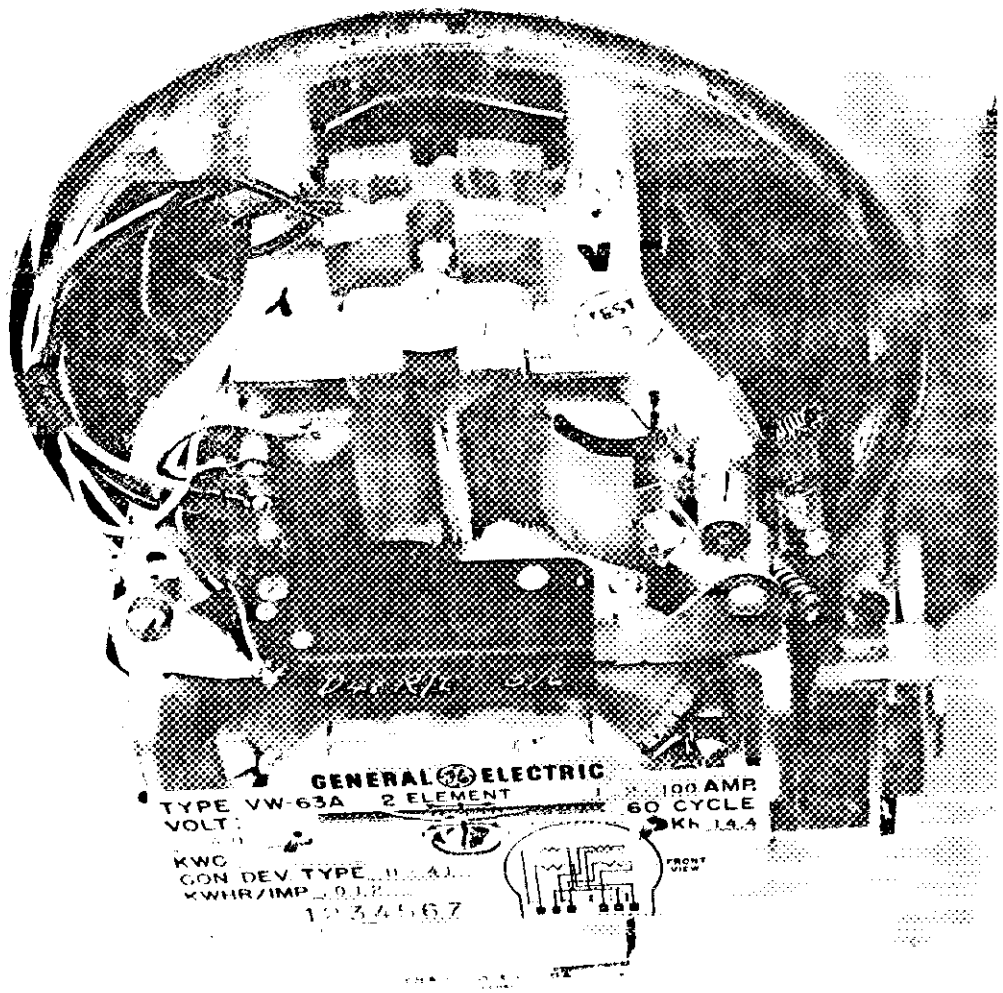

diagram on the top. The amplifier plugs into an industrial screw connector socket and can be mounted in any position. The initiator is mounted on the meter grid by two screws passing through slotted holes. The take-off gear meshes with a spur gear on the disc shaft and through a gear train drives the shutter disc at a rate proportional to the application. The shutter disc is interposed between the lamp and the photocell and is slotted in such a way as to give three levels of light on the photocell which has three corresponding values of resistance.

The relay is connected in series with the photocell and the current through its coil will vary through three levels as the shutter disc rotates. The relay is adjusted so that it picks up between the intermediate and high levels of current and drops out between the intermediate and low levels of current. Rotation of the shutter disc causes the following sequence: 1) relay pickup current for 8 degrees of rotation, 2) 'hold' current for 28 degrees, 3) 'drop out' current for 8 degrees, 4) 'hold' current for 28 more degrees. Therefore one revolution of the shutter disc will alternately result in five relay pickups and five relay drop-outs, which produces a total of 10 impulses.

A built-in detent prevents reverse disc rotation and the consequent generation of false impulses.

The amplifier will usually be mounted relatively close to the meter, but if placed some distance away, the resistance of the wiring *should not exceed 0.5 ohms.* Resistances higher than this will cause the lamp to operate below its design voltage with consequent incorrect relay current and possible faltering. The initiator is connected through colour-coded leads to "K,Y,Z" terminals in 'A'-based meters and to a polarized plug in 'S'-based meters. The "K,Y,Z" terminals on the meter are to be connected to the "K,Y,Z" terminals of the amplifier socket. The underside of each initiator has a C_g ratio fraction stamped into the bracket. This ratio is the contact device gear ratio or meter disc revs/shutter disc revs. As one revolution of the shutter disc produces 10 impulses, a C_g of 50/6 equals R/I revolutions per impulse of 5/6. An impulse is defined as one contact closure. This will result in a 'one' count on a 3-wire device or a "1/2" count on a 2-wire device. The output relay is a 3-wire contact device.

Note: The clearances between the take-off gear, the disc shaft gear and the R.H. potential coil shield are small and, as the gear can be readily observed from the top of the meter, when verifying, check for mesh and adequate clearance.

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