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

STANDARDS BRANCH - DIRECTION DES NORMES

NOTICE OF APPROVAL
AVIS D'APPROBATION

E-22-1

OTTAWA November 7, 1973

LANDIS & GYR TYPES "NAA6", "NAA7", "NAB6", "NAC6", "NAC7", "NAD6" AND "NAD7" MAXIPRINT AVERAGE DEMAND IMPULSE OPERATED PRINTERS WITH STEPPING MOTOR

APPARATUS

Input	Up to 90 pulses per minute
Min. impulse duration #	60ms
Min. impulse interval #	0.6 second
Chart speed	6mm per printing
°Demand time intervals	10, 15, 20, 30 and 60 minutes
Min. duration of timing pulse	2 seconds
Register	6-digit cyclometer type
Max. print maker range	30% of the max. recording value with a registering range from 6 to 100% of the max. recording value
Storage capacity of the receiving units	approximately 15 pulses
Supply voltage	115 volts 60 Hz
Stepping motor A.C. operation voltage	115V±20% 60Hz

\# Applies only to the Maxiprints listed above. These ratings for the receiving stepping motors "s1" and "s2" are given separately under "Variations of input circuits for stepping motor of Maxiprint" on page 4.

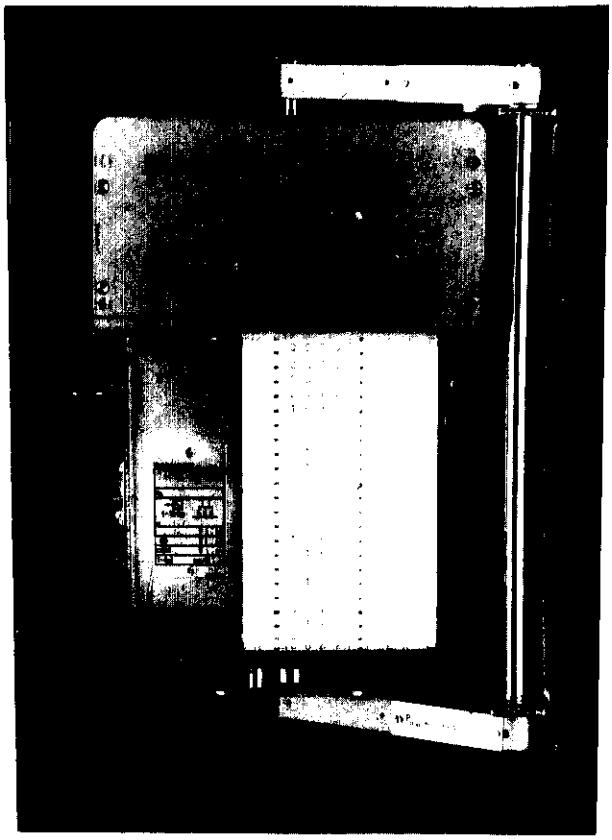
° Determined by external time switch, but will be marked on the nameplate.

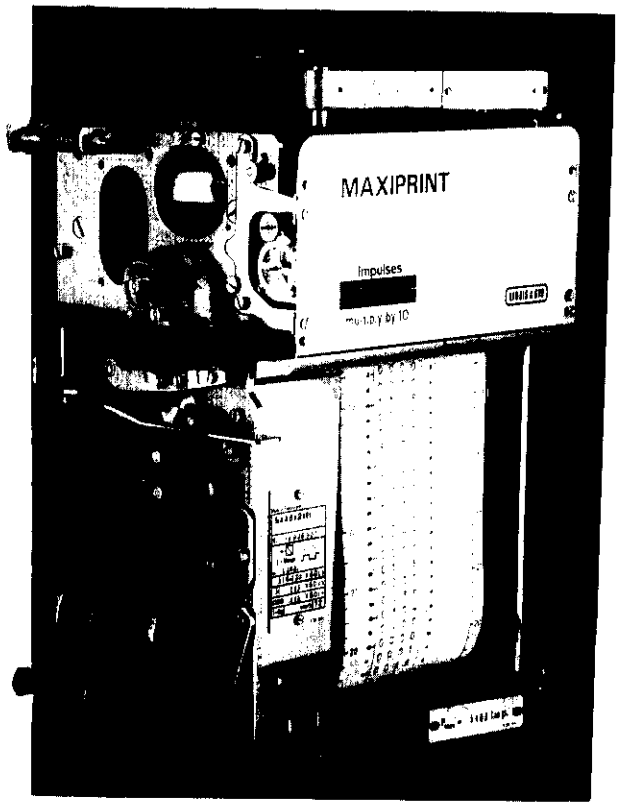
TYPE CONFIGURATIONS:

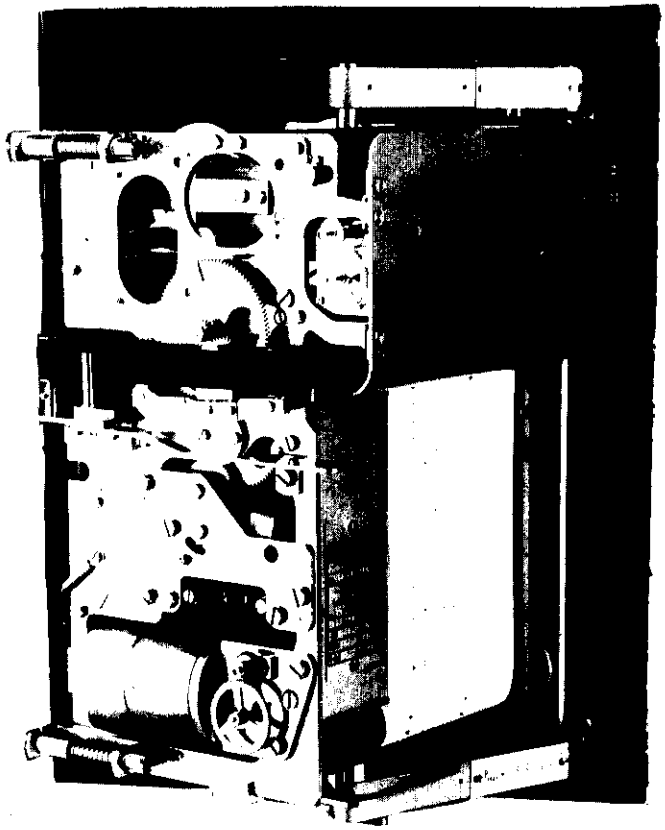
"NAA6" Single printer (four-digit) with zero reset device.

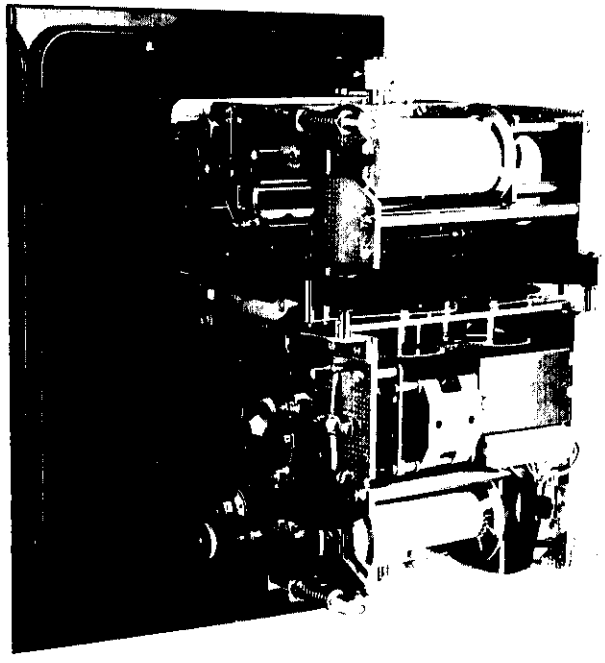
"NAA7" Single printer (four-digit) cumulative.

"NAB6" Point marker with single printing mechanism (four-digit) and a point diagram printing mechanism, with zero-reset device.




MAXIPRINT
Impulses





"NAC6" Double printer (four-digit) with zero-reset device, with a vertical cutter for the separation of the chart strips and a horizontal cutter for detaching the duplicate; in addition with a relay for the control of the horizontal cutters.

"NAC7" Double printer as the "NAC6", however with cumulative rollers (continually integrates and prints cumulative total).

"NAD6"* Code printer (four-digit) with zero-reset device, with single printing mechanism and code printing mechanism.

"NAD7"* Code printer as "NAD6", however with cumulative rollers (continually integrates and prints cumulative total).

* See page 6.

The illustrations on page 6 show the 2-from-6 code used on types "NAD6" and "NAD7" and a short section of chart from a type "NAD6" showing the printed digital record and the corresponding coded record.

The chart from a type "NAD7" would be similar except that the record values are cumulative.

DESCRIPTION

The new line of Maxiprints is the same as the Maxiprints of series "NA..4" and "NA..5" receiving approval under circular E-22 of November 4, 1965 but which have been modified so that the input pulses are received by a stepping motor instead of the original servo-type relay.

The use of a stepping motor permits both the conventional 2-wire pulse input, as was the case with previous Maxiprints, and various 3-wire pulse inputs corresponding to stepping motor types "AMA1" and "AMA2" respectively.

The use of these two basic types of stepping motors facilitates the application of three different input circuits as shown on page 4 under "Variations of input circuits for stepping motor of Maxiprint".

The input circuit "s1" is based on the "AMA1" impulse stepping motor which receives 2-wire input pulses.

With the receipt of an impulse signal, the stepping motor makes an exactly-defined half step. The step is then

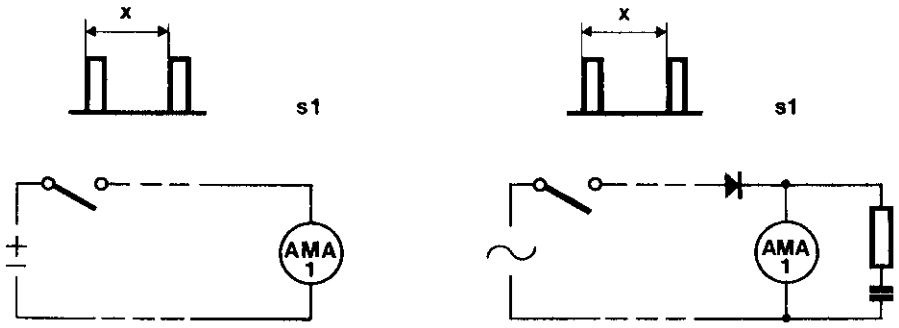
VARIATIONS OF INPUT CIRCUITS FOR STEPPING MOTOR OF MAXIPRINT

s1 Impulse contact input

Impulse frequency	max. 5 imp/s
Impulse duration	min. 70 ms, continuous impulse permissible
Impulse interval	min. 100 ms
Consumption	approx. 3 W with impulse, 0 with interval

STEPPING MOTOR
A.C. Operation voltage 115 V ± 20% 60 Hz

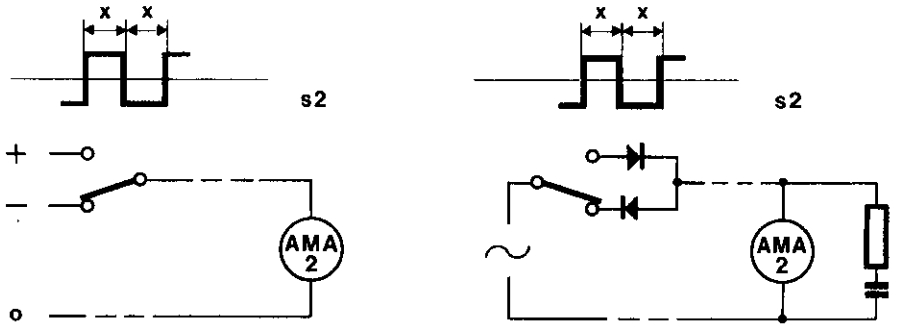
CIRCUITS AND IMPULSE VALUE DEFINITION X



s2 double-current input

Impulse frequency	max. 10 imp/s
Impulse duration	min. 50 ms, continuous impulse permissible
Impulse interval	i. e. without current; any length
Consumption	approx. 1 W with + and − impulses

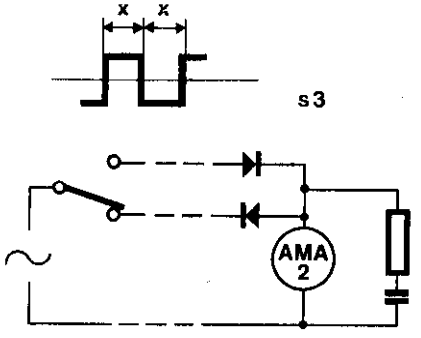
STEPPING MOTOR
A.C. Operation voltage 115 V ± 20% 60 Hz



s3 three-wire input

Impulse frequency	max. 10 imp/s
Impulse duration	min. 50 ms, continuous impulse permissible
Impulse interval	i. e. transmitting contact open; any length
Consumption	approx. 1 W with transmitting

STEPPING MOTOR
A.C. Operation voltage 115 V ± 20% 60 Hz



NOTE: The broken lines indicate transmission lines.

Left of the transmission line are transmitting contacts on the primary meter.

Right of the transmission line are the receiver circuits in the Maxiprint.

completed immediately after the impulse has disappeared.

The input circuit "s2" contains the "AMA2" double-current stepping motor which turns through a complete, exactly-defined step per impulse signal. A negative impulse signal must follow each positive.

This circuit is particularly suited for use in conjunction with heavily-bouncing transmitting change-over contacts, as a receiving step is only initiated when the contact changes from one position to the other, i.e. a change of polarity.

The impulse interval can be any length, as the stepping motor remains in a defined position.

The input circuit "s3" is practically identical to the double-current input circuit "s2".

A double-current source is not required on the transmission side, as the diodes built into the receiver produce the respective half-wave signals, but it requires a 3-wire transmission line.

The type designation shows which kind of input circuit has to be used "s1", "s2" or "s3".

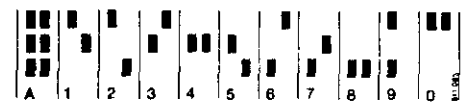
The new basic type designations are derived from the originals by raising the number in the original type designation by "2" thus, the type "NA..4" now becomes the "NA..6" and the type "NA..5" becomes "NA..7".

The new series of Maxiprints, approved by this circular will supersede the series "NA..4" and "NA..5" as listed in the approval circular E-22 of November 4, 1965.

However, the information contained in the circular E-22 applies equally to the new series of Maxiprints with the exception of the receiving unit, which has been modified, by replacing the servo-type relay by the stepping motor.

Approval granted to:

Landis & Gyr Incorporated,
2063 Chartier Street,
Dorval 760, Quebec.



2-FROM 6 CODE
NAD6, NAD7

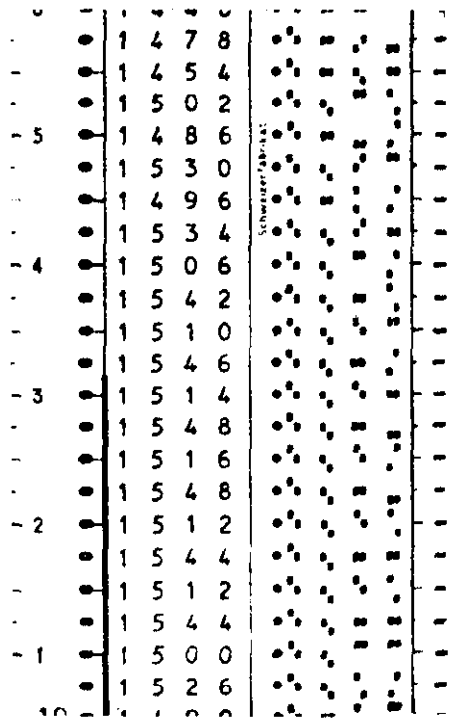


CHART FROM NAD6

J. L. Armstrong,
Chief, Standards Laboratory,
Metrology & Laboratory Services.

W.J.S. Fraser,
Chief, Electricity & Gas Division,
Metrology & Laboratory Services.

Ref: GL 1145-57/L1-818
G 1145-57/L1-818