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

STANDARDS BRANCH – DIRECTION DES NORMES

NOTICE OF APPROVAL

F-69-1

OTTAWA May 29, 1970.

LEEDS & NORTHRUP SPEEDOMAX "W/L X_1 X_2" STRIP CHART POTENTIOMETER RECORDER

	Apparatus
Millivolt Input #	10 to 1000 millivolts
Record	Single or Double Pen, continuous line
Standardization	Continuous automatic (zener diode)
Chart	9-7/8" and 10" calibrated width
Chart Speed	1" - 30" per hour
Pen Speed o	1 second and 5 seconds
Power Supply	120 volts 60 hz
Maximum External Resistance	2500 ohms
Approved Amplifier	101194 transistor type

The kilowatts, megawatts or other power function which the millivolts represent will be shown on the nameplate and scale and also on the range card.

o Pen speed is the length of time taken by the pens to travel the full length of the scale with a step load change equal to full scale value.

Type Designation: Made up of the following groups of numbers, all of which are covered by this approval.

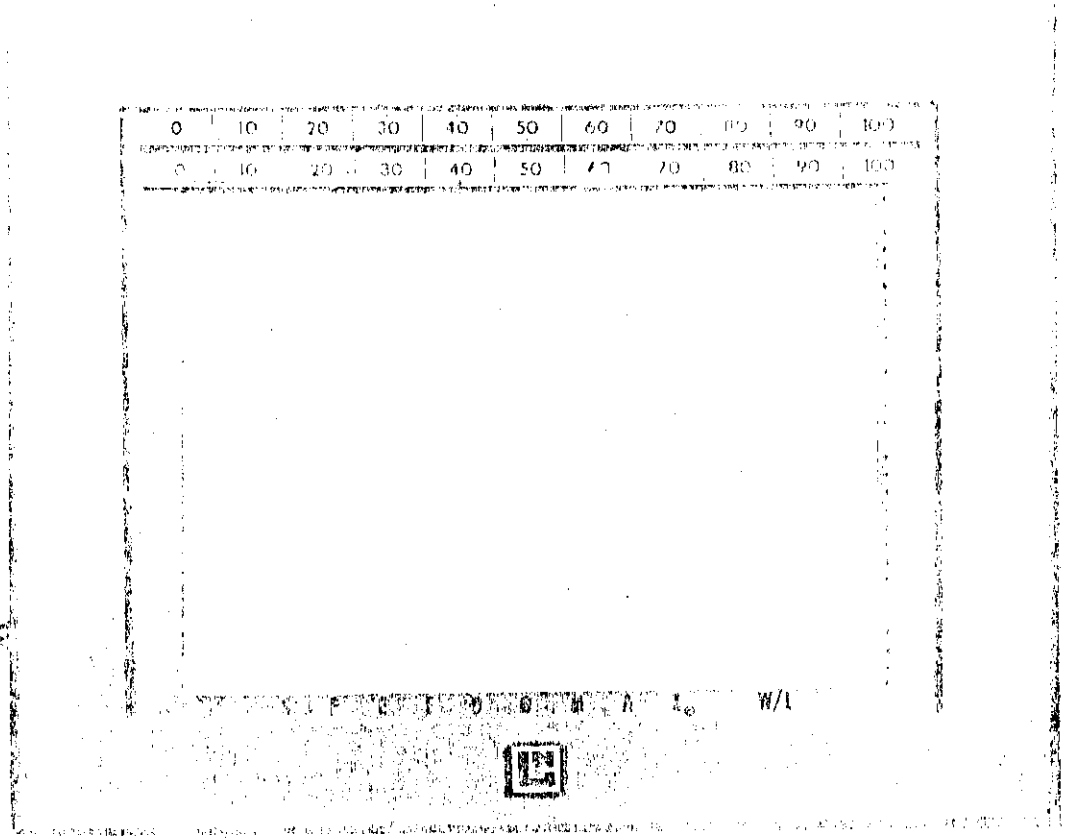
2 pen example

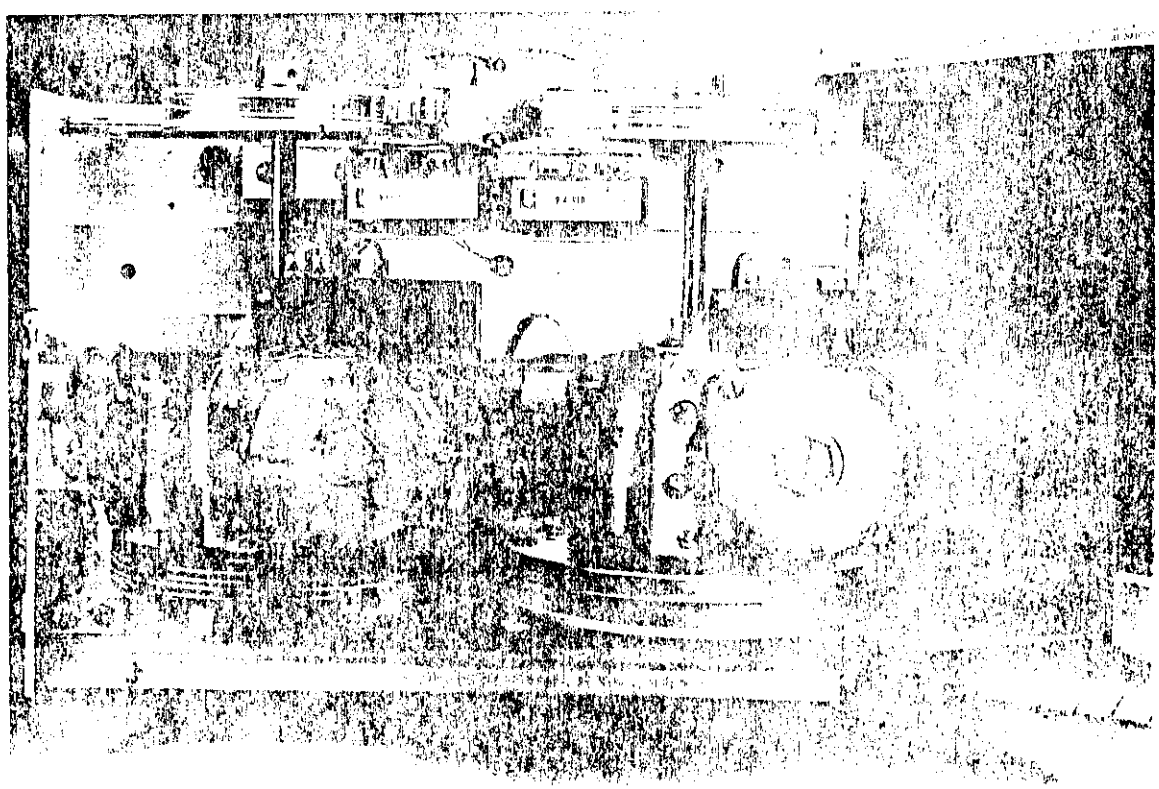
702	-30	-30	-041	-041	-0999	-0999	-A0000	-6	-006	-036	-
(a)	(b)	(b)	(c)	(c)	(d)	(d)	(e)	(f)	(g)	(g)	(

1 pen example

701	-30	-041	-0999	-A0000	-6	-006	-036	-
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(g)	(g)

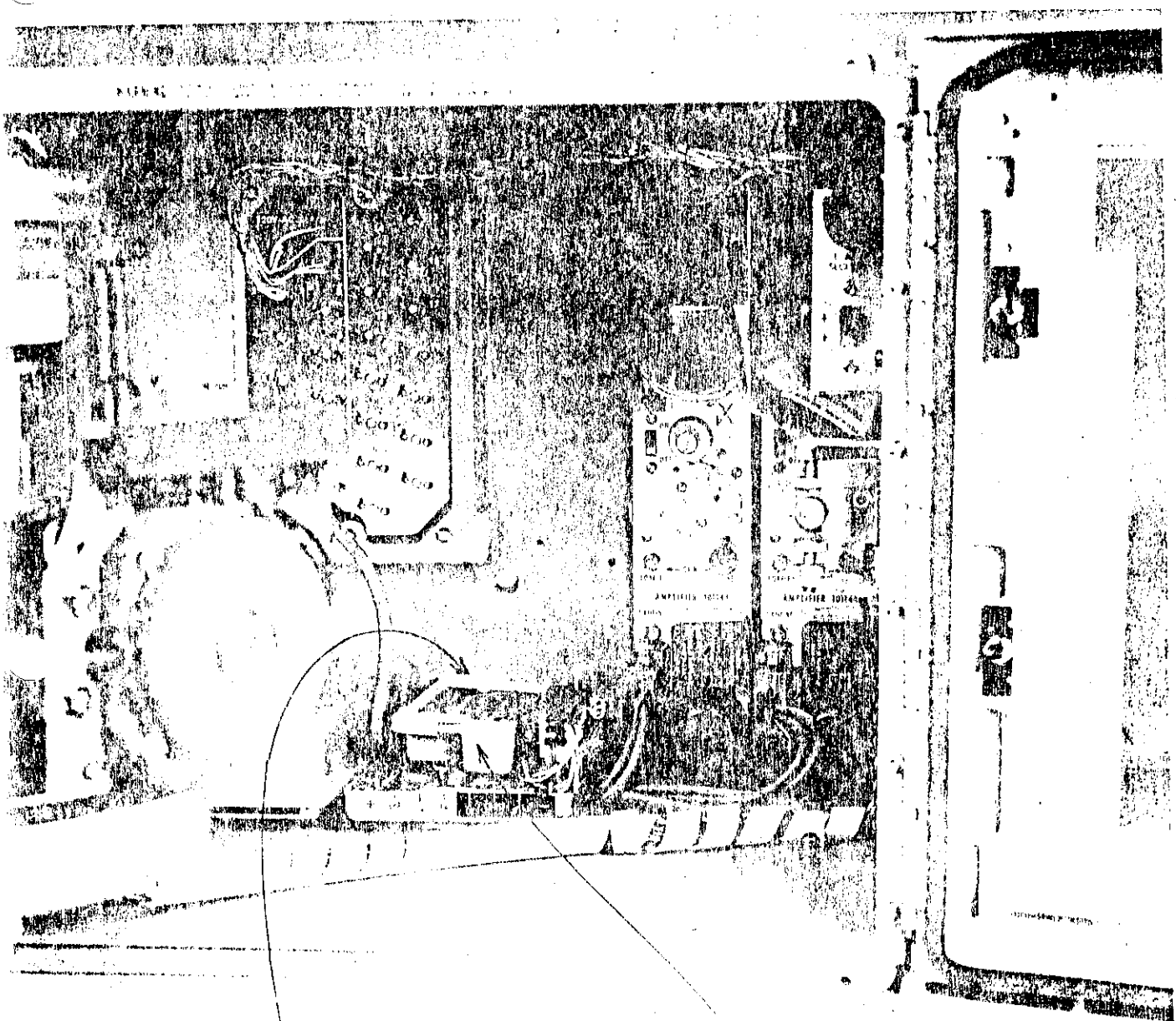
...contd..2..


0 10 20 30 40 50 60 70 80 90 100
0 10 20 30 40 50 60 70 80 90 100
W/L

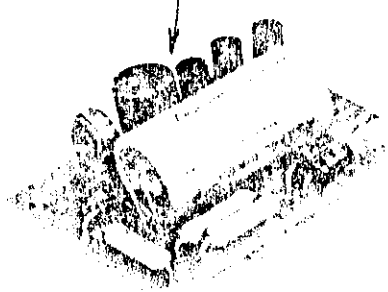


LEEDS & NORTHRUP SPEEDOMAX "W/L X_1X_2" STRIP CHART POTENTIOMETER RECORDER

E-69



CONSTANT VOLTAGE SOURCE



RANGE CARD

(a) Model

701	Single pen recorder
702	two pen recorder

(b) Measuring Circuit

30	millivolt measuring circuit

(c) Control Features

041	2 SPDT switches operated by front setter
051	3 SPDT switches operated by front setter
081	1 SPDT switch, independently set
082	2 SPDT switches, independently set
083	3 SPDT switches, independently set
075	1 retransmitting slide wire with dc power supply (Model 702 may have two retransmitting slide wires)

(d) Input Ranges

0999	Any millivolt span between 10 and 1000 millivolts, including a raised zero up to midscale or more. For example a millivolt span of -25-0-+25 millivolts. This scale will be selected to suit the application and will be marked in primary units along with the same value on the range card nameplate. (All recorders covered by this approval will incorporate input downscale failsafe action).

(e)

A	1" per hour	G	10" per hour
B	2" per hour	H	12" per hour
C	3" per hour	I	15" per hour
D	4" per hour	J	20" per hour
E	6" per hour	K	30" per hour
F	8" per hour		

(f) Power Supply

6	120 volts 60 hz

(g) Optional Features

006	CSA approval
036	Door lock
032	Legend plate on door
038	Fluorescent light (includes switch if specified)
037	Signal light to indicate power or fuse failure
128	Black case instead of gray
030	Special scale for X1 channel (lower)
730	Special scale for X2 channel (upper)
034	Listed scale for X1 channel
734	Listed scale for X2 channel

....contd..5..

712	2 seconds pen speed for X1 channel
722	2 seconds pen speed for X2 channel
S2	Pen zero check switches (one for X1, one for X2).

Note: All recorders covered by this approval will have "036" denoting a door lock and will also have "030" or "034" denoting a special or listed scale for the single channel recorder, or "730" or "734" denoting special or listed scales for the 2-channel recorder.

All scales will be marked in primary units.

All recorders covered by this approval which have "675" in the type designation denoting a re-transmitting slide wire and its associated dc power supply, will also have the "052" legend plate on the door giving the output value in millivolts.

Description

The Speedomax W/L X1 X2 Strip Chart Potentiometer Recorder is a self-balancing null type and may have one or two completely independent measuring systems. In the latter case, the only common tie will be the chart and chart drive, so that each measuring system may have the same or different values of full scale millivolts.

The main components of each measuring system are the null balance measuring circuit with zener diode regulated constant voltage source, the null detector amplifier, the balancing motor and the display unit.

Plug-in range cards are available for the desired range, and the card along with the printed circuit regulated power supply module will be found on the bottom of the case at the back underneath a protective cover.

Full scale adjustment is by means of a rheostat mounted on the regulated power supply module.

The pens are capillary type joined to the stationary ink bottles by coiled capillary tubing. On 1-second recorders a small ink reservoir integral with each pen assembly equalizes ink pressure at the pen.

The main on - off power switch is located inside the case on the upper right side and separate power switches for each channel are located on their respective amplifiers.

Amplifier 101144 shown in one of the illustrations has been superseded by an improved version number 101194.

This is a reissue of circular E-69 to include recorders having a raised zero and ranges from 10 to 1000 millivolts.

Approval granted to: Leeds & Northrup, Canada, Limited,
Rexdale,
Ontario.

J.S.T. Swanson, P. Eng.,
Chief, Standards Laboratory,
Standards Branch.

W.J.S. Fraser,
Chief, Electricity & Gas Division,
Standards Branch.

Ref. SL-100-240-N