



DEPARTMENT OF TRADE AND COMMERCE  
STANDARDS BRANCH

E-69

OTTAWA January 30, 1963.

NOTICE OF APPROVAL

FOR

LEEDS & NORTHRUP SPEEDOMAX "W/L X<sub>1</sub> X<sub>2</sub>" STRIP CHART POTENTIOMETER RECORDER

Apparatus

Millivolt Input #	0-10 to 0-400 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 °	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)	(g)

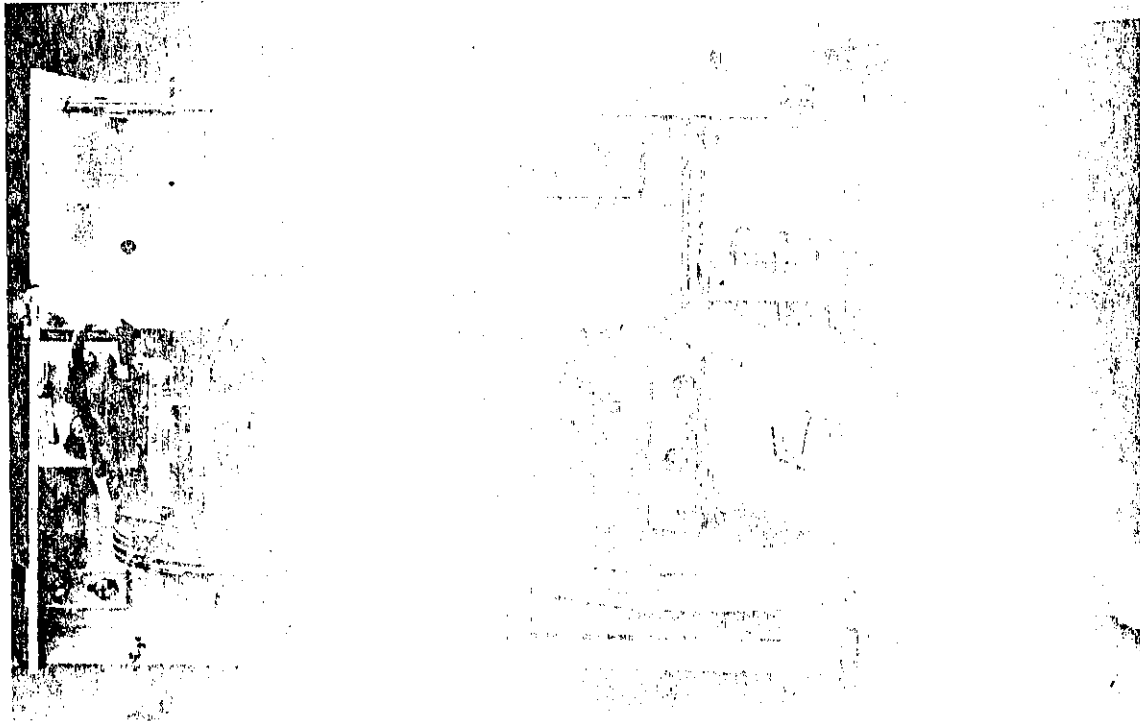
1 pen example

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

0 20 40 60 80 100  
70 80 90 100

M A K

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(a) Model

701 Single pen recorder  
702 Two pen recorder

(b) Measuring Circuit

30 millivolt measuring circuit

(c) Control Features

041 2 ON/OFF switches operated by front setter  
051 3 ON/OFF switches operated by front setter  
031 1 ON/OFF switch, independently set  
032 2 ON/OFF switches, independently set  
033 3 ON/OFF 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 400 millivolts.  
The scale will be selected to suit the application and will be marked in primary units along with the same values on the range card nameplate. (All recorders covered by this approval will incorporate input down-scale failsafe action).

(e)

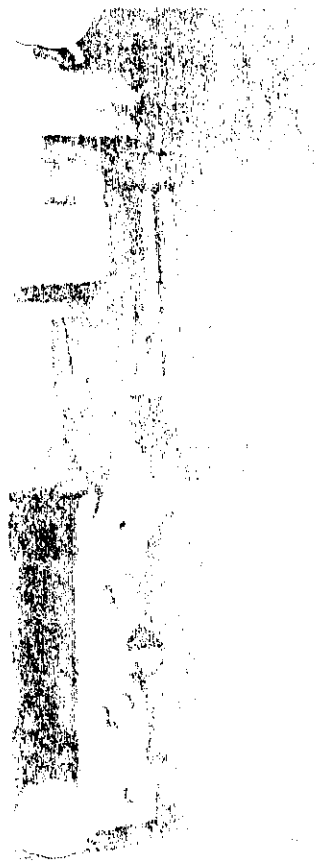
A	1" per hour	G	10" per hour
B	2" per hour	H	12" per hour
C	3" per hour	I	15" per hour
D	4" per hour	J	20" per hour
E	6" per hour	K	30" per hour
F	8" per hour		

(f) Power Supply

6 120 volts 60 hz

(g) Optional Features

006 CSA approval  
036 Door lock  
032 Legend plate on door  
033 Fluorescent light (includes switch if specified)  
037 Signal light to indicate power or fuse failure  
123 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



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712	2 seconds pen speed for X1 channel
722	2 seconds pen speed for X2 channel
32	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 "075" in the type designation denoting a re-transmitting slide wire and its associated dc power supply, will also have the "032" legend plate on the door giving the output value in millivolts.

#### Description

The Speedomax W/D 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.

