DEPARTMENT OF

TRADE AND COMMERCE
CANADA

S-EA.499

STANDARDS BRANCH

OTTAWA April 14, 1961.

TYPE APPROVAL

BRISTOL TYPE "1P12H560" 1-PEN AND TYPE "2P13H570" 2-PEN
'DYNAMASTER' RECORDING POTENTIOMETERS

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 "1P12H560" 1-Pen and Type "2P13H570" 2-Pen 'Dynamaster' Recording Potentiometers, manufactured and distributed in Canada by the Bristol Company of Canada Limited, 71-79 Duchess Street, Toronto 2, Ontario.

Rating of Apparatus:

*Millivolt Input or Inputs	Ranges up to 1500 millivolts
Record	One or two continuous lines
Current Standardization	Continuous automatic (Zener Diode)
Chart	12¼" wide, 11" calibrated width
Scale	11" calibrated width
Pen Speeds	1 second to 24 seconds inclusive
Chart Speeds	1" per hour min. to 4" per second max.
Supply Voltage	115 volts
Supply Frequency	60 cycles
Maximum External Resistance	4000 ohms

* The kilowatts, megawatts or other power function which the millivolts represent shall be shown on the nameplate or scale.

Description: This approval covers the 'Dynamaster' null-type DC potentiometer strip-chart recorder. It does not include the bridge-type recorder. The devices approved are similar to those approved under Circulars SD-EA.82 and SD-EA.99 of June 30, 1952 and March 19, 1953 respectively except that a Zener Diode controlled voltage reference source replaces the standard cell, dry cell battery and self-balancing slide-wire network.

In these instruments the DC millivolt input is compared with the voltage across a standardized resistor of known value, the current through which is maintained constant by the controlled voltage source. The difference voltage is converted to AC by what the manufacturer terms a "Synchrovertor", the phase being determined by the relative DC voltages. This AC voltage is amplified and applied to one winding of a two-phase motor, which through gearing moves an arm on a circular slide-wire in a direction to reduce the difference between the applied and reference DC voltages to zero simultaneously moving the pen over the scale.

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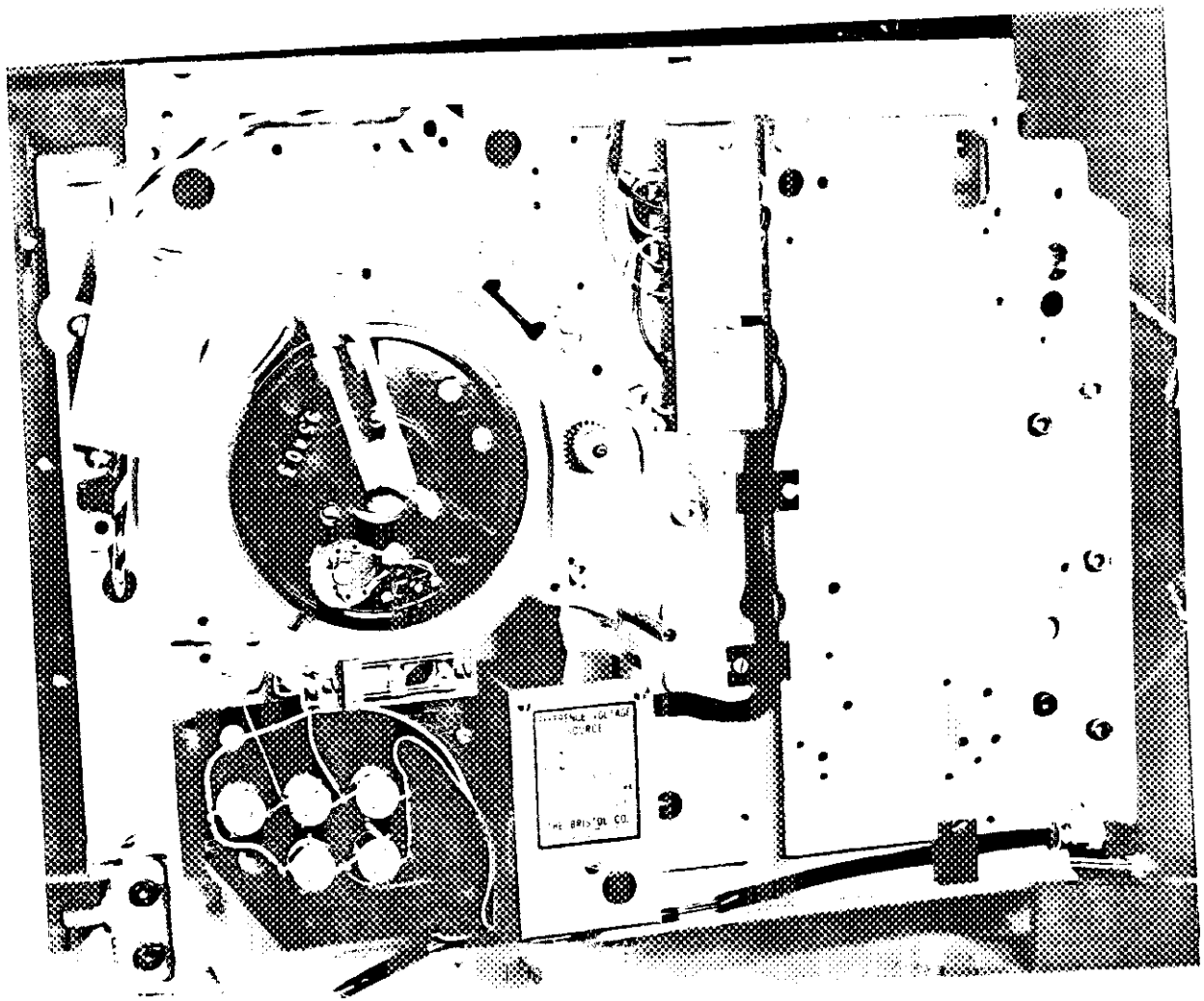
BRISTOL 'DYNAMASTER' RECORDING POTENTIOMETER



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A sensitivity control on the top left of the amplifier chassis is provided to adjust the amount of gain. Too much gain will cause the pen to "hunt" or oscillate and too little will reduce the sensitivity. The correct setting is just below the point where "hunting" starts, and if the pen cannot be made to "hunt" with the gain control turned fully clockwise, the amplifier lacks sensitivity and probably requires a tube replacement.

It is important that the external resistance in the input circuit should not exceed 4000 ohms.

In the type designation the prefixes '1' and '2' indicate 1- or 2-pen recorders respectively; the 'P' stands for a potentiometer-type instrument; the '12H' and '13H' indicate Zener Diode voltage regulated supply, the former being used with 1-pen and the latter with 2-pen continuous line recorders; the '560' refers to a standard case and '570' to an extra deep case such as required for the 2-pen recorder which has duplicate amplifiers.

Various attachments can be added to the basic instruments without affecting the approval. These are indicated by suffixes, e.g. -

N3 - fluorescent lighting
T4 - toggle switch in door
T72 - vacuum tube fail safe
26 - watt recorder
36 - vars recorder
51 - millivolt input
E51A - single switch alarm
E51J - nine switch alarm
(Illustration: 1P12H560-26-N3-T4-T72-E51A)

This instrument is approved for use unsealed.

E. F. Power

E. F. Power,
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Ref: A-258B