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

STANDARDS BRANCH - DIRECTION DES NORMES

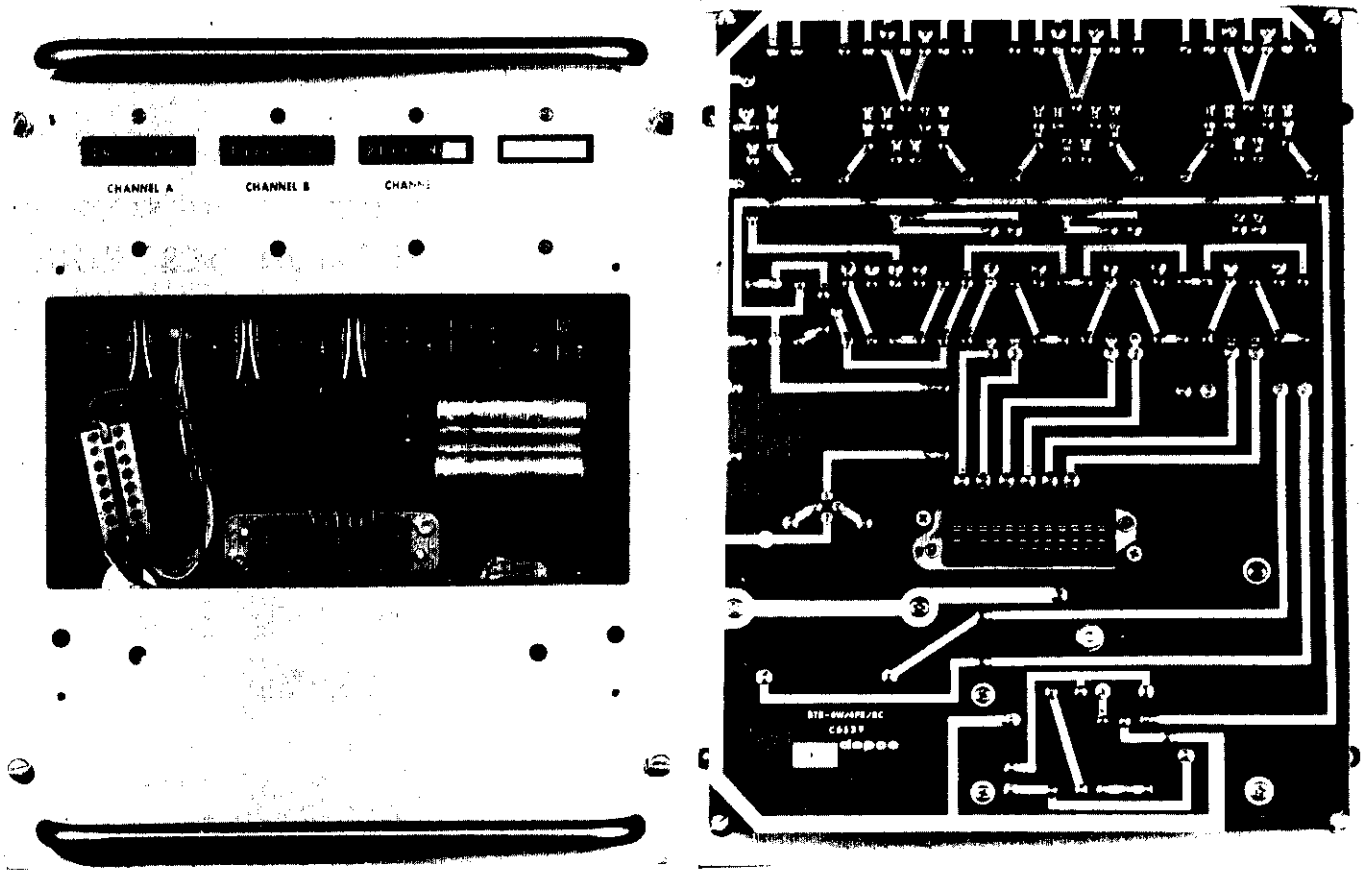
NOTICE OF APPROVAL

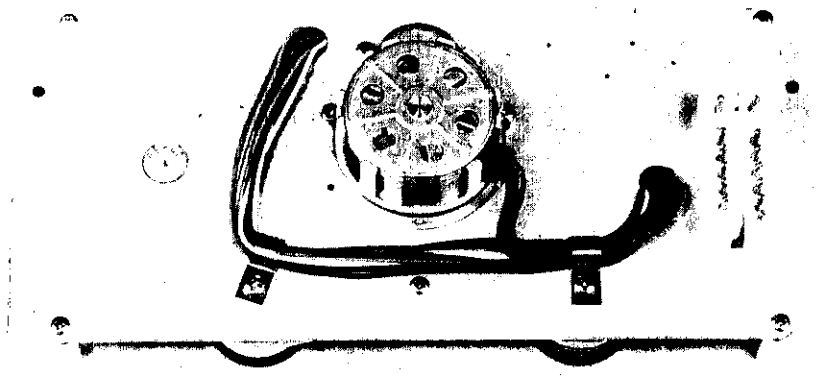
E-104

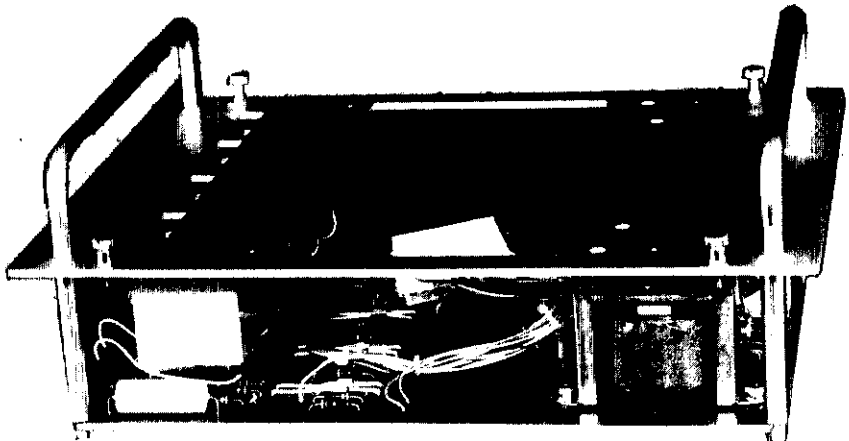
OTTAWA July 12, 1971.

DUNCAN TYPES "BTR-2W" and "BTR-4W" BILLING TAPE RECORDERS

Input ①	3-wire S.P.D.T. contact device. Form C (break before make). One set per channel
Max. Pulse Rage	1500 pulses in a 15 minute interval
Min. Time Between Pulses	0.6 seconds
Number of Input Channels ②	1 for BTR-2W, 3 for BTR-4W
Counter Digits	7 for data channels, 4 for time channel
Counter Type	Sodeco, data TCeB7E, time TCeB4E
Demand Interval	15, 30 and 60 minutes
Max. Error Pulse Count ③	±2 pulses
Tape	3M number 951, 1 mil Mylar(R) ¼ inch instrumentation tape, 516 feet, 35 day supply. Cartridge manufactured by Westinghouse Corporation
Tape Speed	0.002 inches per second
Dead Band ④	15 min. demand interval -1 to +2 minutes 30 min. demand interval -2 to +4 minutes 60 min. demand interval -4 to +8 minutes
Max. External Resistance	100 ohms
Burden on Contact Device ①	2 milliamperes at 18 volts DC
Operating Temperature Range	-35°C to 65°C (-30°F to 150°F)
Power Supply	120 and 240 volts 60 Hz
Carry over Batter	12 volts 0.45 amperes required
Approved Options ⑤	
L	⑥ LEDBITE™
BC ⑦	Battery Carryover
M ⑧	Master Timing Circuit
S ⑨	Slave Timing Circuit
IC ⑩	Latching Integrated Circuits
-	12 or 24 Hour Dial


CHANNEL A
CHANNEL B





(1) Contacts are on primary transmitting meter(s).
(2) BTR-2W identifies a 2-channel recorder and BTR-4W identifies a 4-channel recorder. In each case, one of the channels is the timing channel.
(3) The counting error is due to the condition existing at the beginning or end of a demand period. For a straight count there is no error.
(4) The dead band is the period during which the tape cartridge should not be changed, to make sure that the last timing pulse is put on the tape. When the mark on the minute knob points to the blackened segment of the minute dial, the tape is in the dead band.
(5) The abbreviations for the approved options will appear in the type designation.
(6) LEDBITE™ stands for Light-Emitting-Diode-Built-In-Test-Equipment.
(7) This is an external battery, normally trickle charged, that supplies the power to the recorder to keep it fully operational upon failure of the regular power supply.
(8) Master Timing Circuit denotes that the recorder has factory-installed provision via two marked terminals $Y_t Z_t$ in the terminal block for furnishing time pulses to other recorders.
(9) Slave Timing Circuit denotes that the recorder does not have an internal interval timer and must be timed by another recorder via two marked terminals Y_t, Z_t.
(10) IC denotes that integrated latching circuits are installed in the recorder to eliminate the effect of contact bounce from mechanical contact devices.

Description

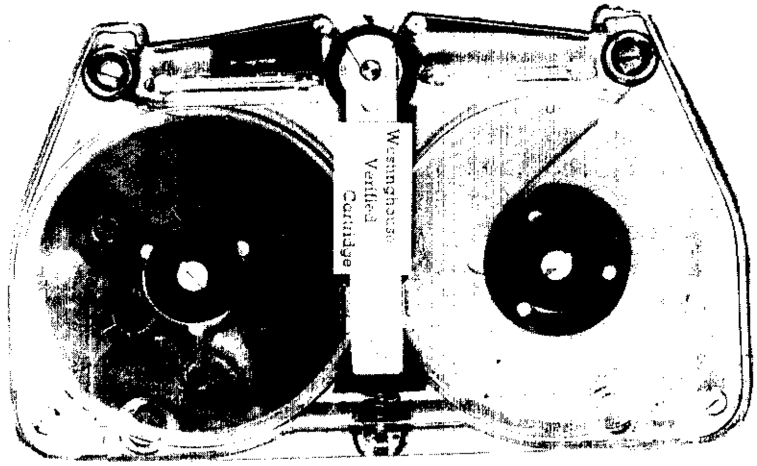
This Duncan Billing Tape Recorder is a magnetic tape recorder which records pulses proportional to the load(s) being metered and time interval pulses.

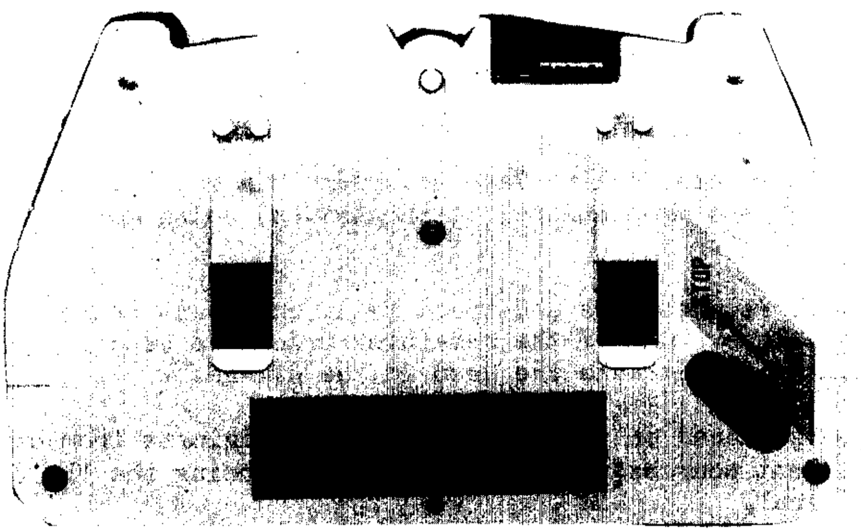
Each recorder has a 4-track head, one track being reserved for the timing pulses. One of the remaining tracks is used in the BTR-2W and all three remaining tracks are used in the BTR-4W.

Data placed on the data tracks can originate from one to three completely independent sources; the only common ties being the "K" connection and the time signal.

The tape is supplied in a Westinghouse type MTC magnetic tape cartridge which snaps into place and has clips to hold a card on which the necessary identification can be written.

It is necessary to avoid the dead band when removing the cartridge to insure that the last timing pulse has been placed on the tape.


Westinghouse
Verified
Cartridge



After removal, the cartridge with the data is processed on a translator which reads the tape and converts the results to ½" computer compatible tape or punched cards. Various computer programs can be used to compile the desired information, such as load survey or demand billing data etc.

When verifying either of these recorders, the tape cartridge must be removed, otherwise a signal from the verification test would be recorded on the tape which would create confusion when the tape was translated.

Pin jacks are provided so that by means of earphones it is possible to hear the data and timing pulses.

The light emitting diodes on models so equipped are connected in series with the channels of the recording head so that they indicate by glowing that a signal is going to the respective channels of the head and hence onto the tape.

The time interval knob may be reset without advancing the tape. The hour indicator is a slip adjustment and may be reset independent of the rest of the transport mechanism.

To keep the constant current circuit functioning properly, any unused channels of the BTR-4W should have their Z terminals jumpered to the K terminal.

These recorders are manufactured by Duncan Electric Company Inc., Lafayette, Indiana, U.S.A. and are distributed in Canada by Ferranti-Packard Limited.

Approval granted to:

Ferranti-Packard Limited,
St. Catharines, Ontario.

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

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

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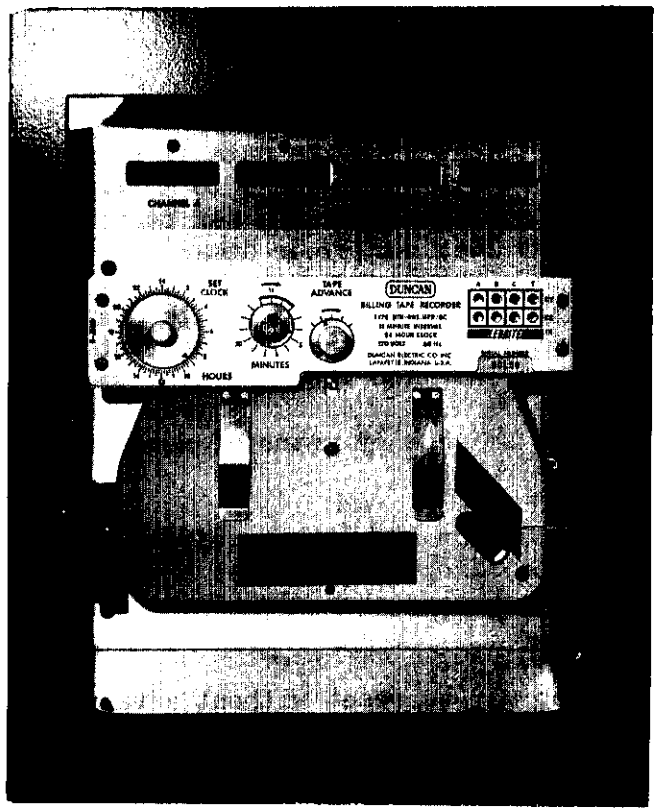
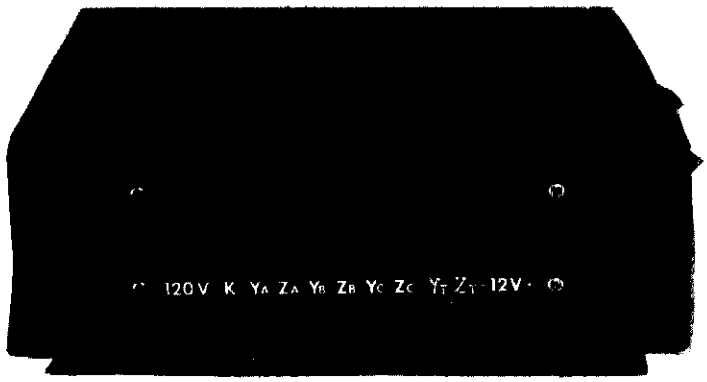

SET CLOCK
TAPE ADVANCE
DUNCAN
HOURS
MINUTES


120 V K YA ZA YB ZB YC ZC YT ZT 12V