

**TAPE DATA FACILITY
OPERATING PROCEDURES
PERIPHERAL DATA STORAGE PROCESSOR
2-WIRE NO. 1 ELECTRONIC SWITCHING SYSTEM**

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1.03 Detailed description of teletypewriter (TTY) input and output message is given in input manual IM-4C001-01 and output manual OM-4C001.

1.04 Under certain conditions verification messages will contain maintenance or diagnostics messages other than those listed. The appearance of these messages exists because of the variations in timing of the transmission and execution of orders within the PDSP. Since these messages are not consistently present in verification messages, they are not included in this section.

FIGURES

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2. TAPE CHANGING REQUIREMENTS

2.01 Tape cartridges are changed or rotated because of high tape writing activity, high error rates, or for maintenance purposes. An office should not have less than four backup tapes.

2.02 When high tape error rates are experienced, the tape cartridge may be changed. If these errors are correctable by retensioning or rewriting a track or block, the tape may remain in the cartridge tape transport or it may be changed. If these errors are not correctable, the tape must be retired from service.

2.03 When changing the tape cartridge, the currently active cartridge will be placed at the bottom of the rotational cycle, and those tapes will be accessed first should some catastrophic failure occur to the active tapes. These tape cartridges should be easily accessible, but stored so they will not be affected by the same conditions that may ruin the active cartridges. No more than four backup cartridges with the same generic information should be in the rotational cycle to avoid excessive bookkeeping.

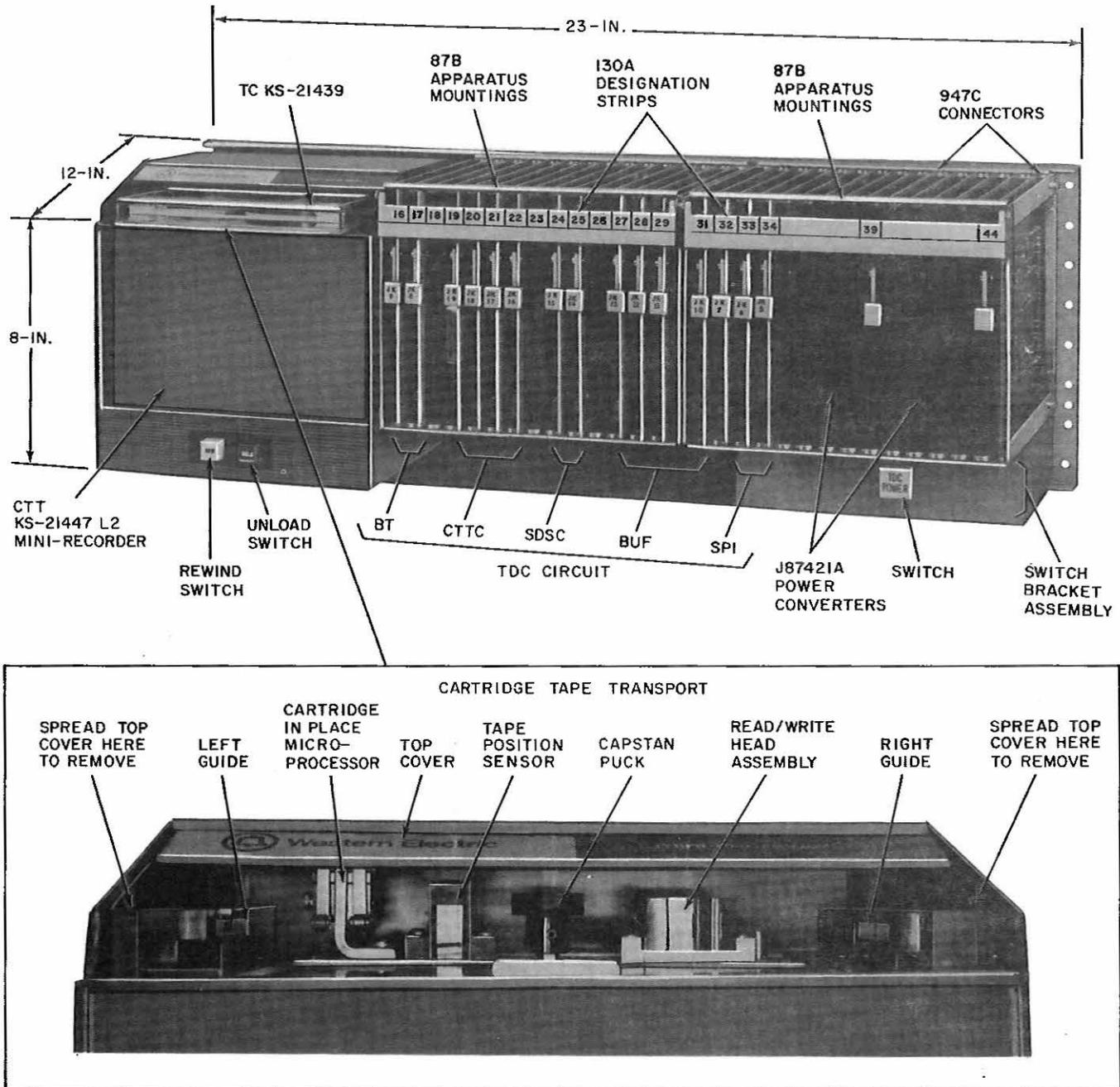
1. GENERAL

1.01 This section describes the operating procedures of the tape data controller (TDC) unit as used in a No. 1 Electronic Switching System (ESS) office with the Peripheral Data Storage Processor (PDSP). The TDC (Fig. 1) is installed in the maintenance frame which is part of the control complex in the PDSP.

1.02 Whenever this section is reissued, the reason for reissue will be listed in this paragraph.

NOTICE

Not for use or disclosure outside the
Bell System except under written agreement



ABBREVIATIONS

BUF-BUFFER
 BT-BUS TERMINATOR
 CTT-CARTRIDGE TAPE TRANSPORT
 CTTC-CARTRIDGE TAPE TRANSPORT CONTROLLER

SDSC-SYNCHRONOUS DATA SET CONTROLLER
 SPI-SERIAL PERIPHERAL INTERFACE
 TC-TAPE CARTRIDGE

Fig. 1—Tape Data Controller Unit 0 or 1-J1C053A (Front View)

3. TAPE HANDLING CONVENTIONS

3.01 The following TDC and tape cartridge handling conventions should be observed.

- (a) Mated TDCs should not be out of service simultaneously, nor should any TDC be out of service for a prolonged period.
- (b) A tape cartridge should not be allowed to remain in a TDC if it is write protected by the use of the safe key in the upper left corner of the tape cartridge case.
- (c) A tape cartridge should not be left in service unless it is an exact copy of its mate or it

is in service as a part of a maintenance or test procedure.

- (d) New tapes or any tapes not used for a period longer than one day should be retensioned before any tape operation is performed.
- (e) All manual procedures requiring tape writing should be preceded by tape diagnostics.

4. REMOVAL OF THE TAPE CARTRIDGE

4.01 The following procedure must be used in removing the tape cartridge.

STEP	ACTION	VERIFICATION
1	At the SYSTEM STATUS AND CONTROL PANEL— Observe that the system is normal	TDC, MISC, and MANUAL FORCED lamps are extinguished.
2	At maintenance TTY— Type in: RMV:DEVICE:TDC a! a = tape to be removed from service (0 or 1)	At cartridge tape transport— REW and UNLD keys enabled. At maintenance TTY— Output message: OK IP followed by: DEVICE RPT TCA a STATE MAN
	<i>Note:</i> If the RMV:DEVICE:TDC a! TTY message is typed while the tape is moving, an emergency stop will be generated by the tape software. The tape activity will then be switched to the other TDC.	
3	At cartridge tape transport— Depress REW key.	Tape rewinds to its beginning-of-tape (BOT) mark and then moves in its forward direction to its load point.
4	Depress UNLD key.	Tape rewinds to its BOT mark.
5	After tape movement ceases remove tape cartridge.	

5. INSERTION OF THE TAPE CARTRIDGE

5.01 The tape cartridge to be inserted should be obtained from the top of the rotational stack. If any tape writing activity has occurred since the tape cartridge was last active, the tape is considered

to be a list 2 cartridge. List 2 cartridges must be brought up to list 1 status as soon as possible. List 1 and list 2 cartridges are defined as follows.

5.02 List 1 cartridge—A list 1 cartridge is the most complete data base produced for a

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specific office. This tape cartridge contains the following:

- A copy of the generic program
- Label information specifying the generic program and the office for which the tape cartridge is prepared
- Translations derived for or supplied by an operating company for a specific central office
- Patches applied to the tape cartridge
- All supporting files defined and space allocated for each.

5.03 List 2 cartridge—A list 2 cartridge contains out-of-date central office data base. Its primary function is to provide a backup generic

program for the PDSP. It must have its data updated by copying from a currently active tape before it can be used in an active PDSP. List 2 tape cartridges contain the following:

- The latest version of the generic program
- Magnetic labeling specifying its generic version
- Fully blocked data (Fig. 2) on all four tracks
- Defined files for the tape cartridge.

5.04 Before a tape cartridge is inserted, the following conditions must exist:

- At the TDC—the TDC POWER lamp must be lighted.

Insert the tape cartridge per the following procedure:

STEP	ACTION	VERIFICATION
1	Obtain the tape cartridge from the top of the rotational stack, or obtain the one that has been in disuse longest and insert it into the cartridge tape transport.	
2	Type in: RST:DEVICE:TDC a!	At cartridge tape transport— Observe movement of the tape. At the maintenance TTY— Output message: IP DEVICE REPT TDC a STATE AVL
3	Type in: ALW:TAPEUTIL!	Output message: ALW TAPEUTIL COMPLETE
4	Type in: EX:TDC!	Observe tape motion on one TDC followed by motion on the other.
5	Type in: RST:DEVICE:TDC a!	Output message: DEVICE REPT TDC a STATE AVL
6	Type in: DGN:DEVICE:TDC a!	Output message: DGN TDC ATP

6. EMERGENCY PROCEDURES

GENERAL

6.01 A condition may present itself that requires immediate restoration of the TDC, or it may

STEP	ACTION	VERIFICATION
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be known that the tape cartridge to be inserted is an exact copy of its mate. In this case an emergency restore is provided. Emergency restoration bypasses the system defenses that require time consuming diagnostics of the TDC and audits of the tape.

EMERGENCY REMOVAL OF TAPE CARTRIDGE

6.02 The tape cartridge should be removed from the cartridge tape transport immediately without performing the tape cartridge removal procedures outlined in 4.01 upon discovery of any of the following conditions:

- A broken tape
- Movement of the tape into regions beyond the end of tape (EOT) and before the beginning of tape (BOT) marks (Fig. 2)
- Jamming of the tape within the tape cartridge.

When the tape cartridge is removed due to any of these conditions, it should be retired from service.

EMERGENCY INSERTION OF THE TAPE CARTRIDGE

6.03 If an emergency occurs that requires immediate restoration of the TDC, the last active tape cartridge should be used. Restore the TDC as follows:

STEP	ACTION	VERIFICATION
------	--------	--------------

- | | | |
|---|--|--|
| 1 | Obtain the tape cartridge from the bottom of the rotational stack, or obtain the one that was last active and insert it into the cartridge tape transport. | |
|---|--|--|

Caution: *An office must not be left unattended if both tapes in the tape transports are not identical.*

- | | | |
|---|---|-----------------------|
| 2 | At the maintenance TTY—
Type in:
RST:TAPE a; UCL!
a = tape to be restored to service (0 or 1).
UCL = unconditional, an action option that will restore the tape independent of the results of TDC diagnostics or tape audits. | Output message:
OK |
|---|---|-----------------------|

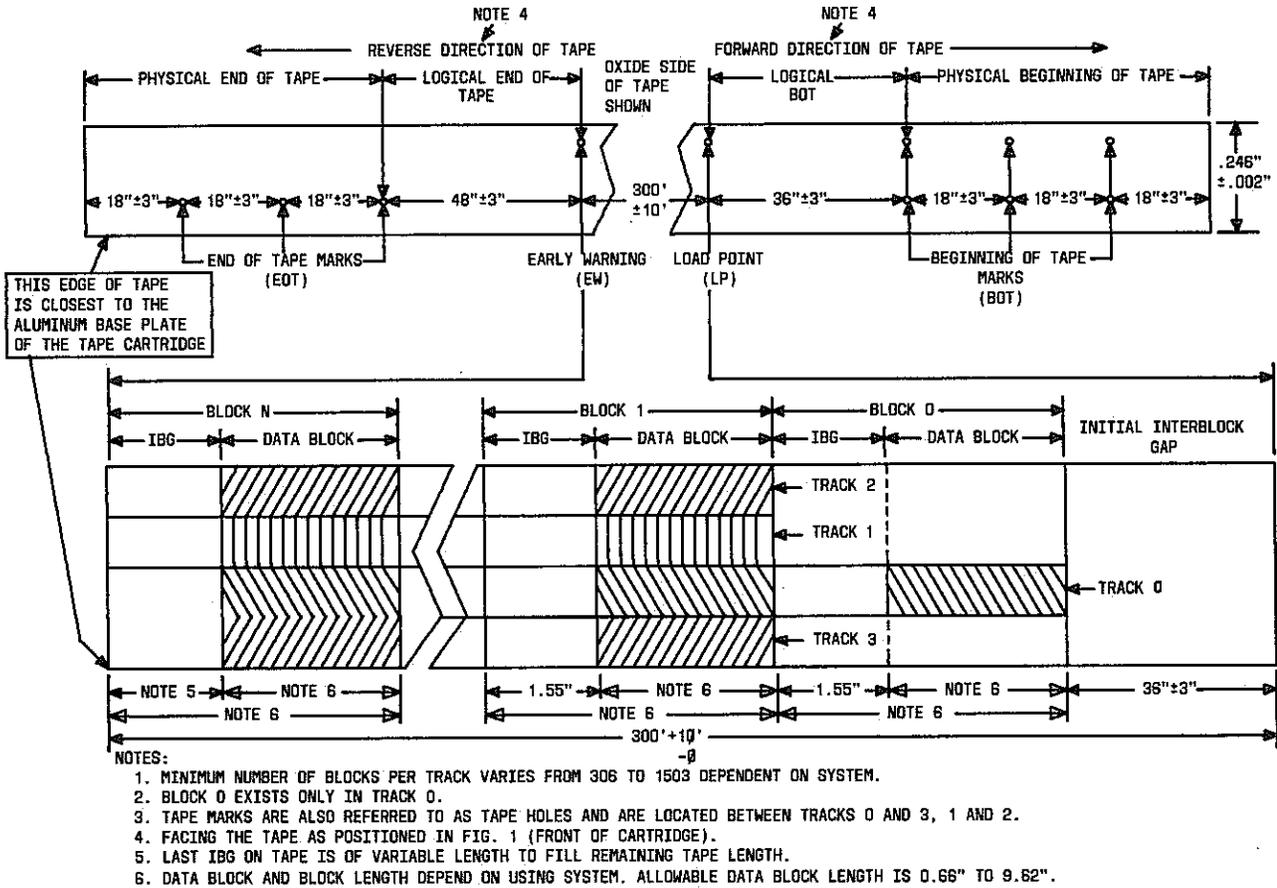


Fig. 2—Tape Cartridge-Tape Hole Pattern and Division of Blocks

6.04 Depending on the condition of the TDC and what originally removed it from service, the system may immediately remove it from service

again. If this occurs, perform Step 2 of 5.04. Upon completion of this step, perform Step 2 of 6.03 again.