TRAFFIC DATA REMOTE RECORDER

OPERATING INSTRUCTIONS

## TRAFFIC DATA RECORDING SYSTEM NO. 1A

1. GENERAL

1.01 This section describes the procedures for operating the traffic data remote recorder of the Traffic Data Recording System No. 1A. It also describes the trouble conditions that may occur during operation and the audible and visual alarms that are activated by these conditions.

1.02 The traffic data remote recorder provides receivers for data from the time-of-day encoder and from local and remote traffic data converter circuits, a recording control circuit which allows manual or automatic control of the recorder tape transport and a remote program control circuit to transmit clock-programmed start and stop signals to the associated TURs.

1.03 The traffic data remote recorder can record traffic data from 19 data channels simultaneously, for a period of about 12 hours. A twentieth channel is used to record time and data information. A double-pass wiring option may be provided, whereby data can be recorded on a maximum of nine channels simultaneously with a tenth channel for time and date information. Then the tape transport automatically rewinds the magnetic tape and records data from the same nine sources with new time and date information on the other ten channels. This option increases the recording capacity of the remote recorder to two 12-hour segments separated by a 15-minute recycle interval. Tape reels from a double-pass recorder must be properly identified by the recorder operator so the summarizer can be programmed for this option.

1.04 The remote data recorder uses a magnetic tape transport consisting of a tape drive mechanism designed for a continuous tape motion at a constant recording speed. Relay switching facilitates local and remote control of three tape-motion functions: slow forward, fast forward, and rewind.

1.05 The remote recorder will accommodate 1-inch wide magnetic tape. All tapes must have photoreflective markers attached as shown in Fig. 1 for beginning-of-tape (BOT) and end-of-tape (EOT) sensing by the tape transport.
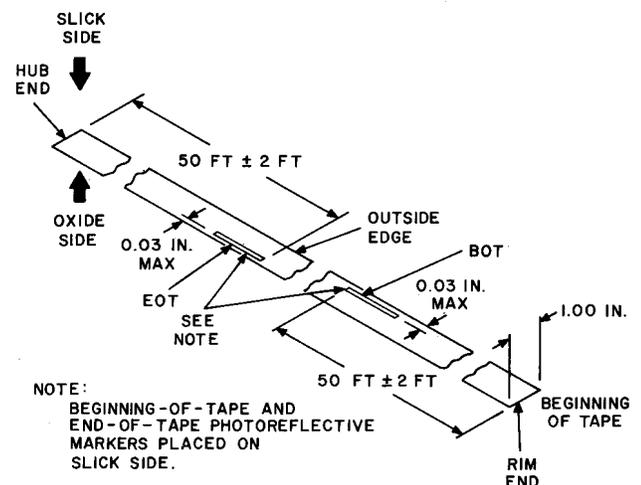
Fig. 1—Photoreflective Marker Placement on 1-Inch Magnetic Tape

2. TROUBLE CONDITIONS AND ALARMS

2.01 Whenever any one or more of the data or time-of-day channels which should be active, receives no data for approximately 300 seconds, an audible alarm will be sounded by the data receive-write and alarm circuit. The channel in trouble can be determined by its associated unlighted L- lamp. Operation of the SA key will silence the alarm but the alarm cannot be reset until the trouble in the channel is cleared or it's associated TD- key is operated. Once the trouble is cleared, momentary operation of the RRA key lights the RRA lamp and initiates the receiver alarm reset sequence. When the sequence is complete, the RRA lamp is extinguished. The alarm feature can

be disabled, if desired, by the operation of the PRA key.

2.02 In the remote control program circuit, an alarm relay continually monitors the output of the 2600-Hz oscillator. This alarm relay is normally operated when the oscillator is on. If the output level drops below the trouble value, the AL relay will release and cause an audible alarm to sound and the PA lamp to be lighted. The audible alarm can be silenced by operation of the PPA key but the PA lamp cannot be extinguished until the output level of the oscillator is restored to operating level and the RPA key is operated.

2.03 A visual and audible alarm signal will be activated in the recording control and time-of-day register circuit under the following conditions:

(a) Failure to start the tape transport when an automatic start signal is produced.

(b) Stoppage of the tape transport during a recording period.

(c) Magnetic tape break during a recording period.

(d) Connector transfer relay TR being locked up when the tape transport is on local control. This would indicate that a proper end-of-tape condition had not been reached during the previous tape pass.

2.04 The activated alarm relay lights a TBL lamp on the control panel, activates the office and alarm system and prevents reoperation of the tape transport until the trouble condition has been cleared and the AR (alarm release) key has been operated. The office alarm may be retired before the trouble is cleared by operation of the AG key. The AG lamp will light during this period. When maintenance action has been completed, the AG key is restored to normal and then the AR key is operated to release the alarm circuit.
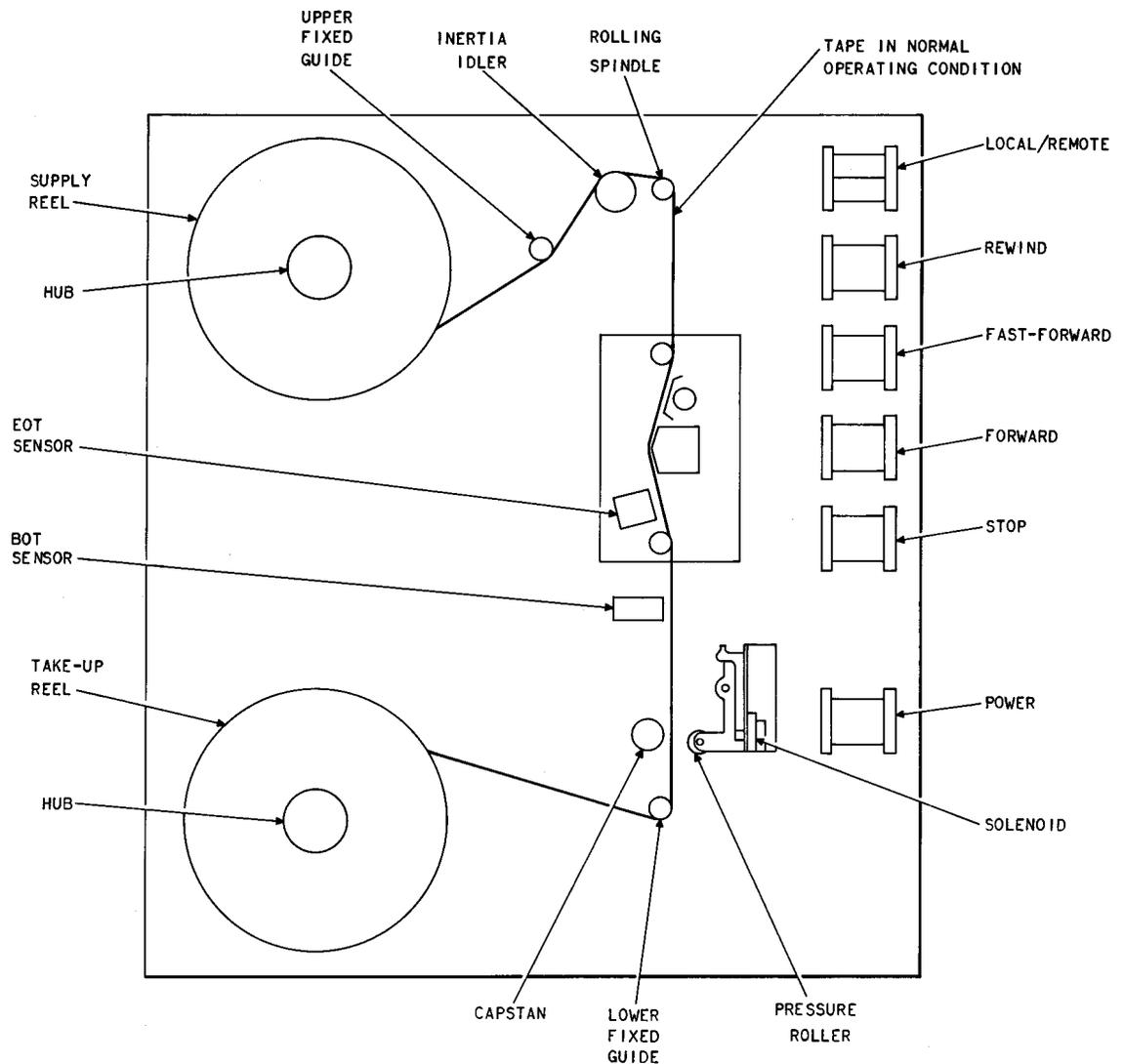
3. METHOD OF OPERATION

STEP	ACTION	VERIFICATION
1	At tape transport— Momentarily operate LOCAL pushbutton if not already operated.	LOCAL lamp lighted. REMOTE lamp extinguished.
2	Momentarily operate POWER pushbutton to OFF.	POWER lamp extinguished.
3	Open front door of tape transport. *Note:* Front door safety interlock is actuated when door is open.	
4	Install full reel of magnetic recording tape on upper reel adapter and tighten hub. Magnetic tape should feed from the bottom and to the right of supply reel as shown in Fig. 2.	
5	Remove enough tape from supply reel to thread the tape as shown in Fig. 2. Thread the remaining portion of the tape onto the top of take-up reel, rotating the reel in a counterclockwise direction until secure.	
6	Close front door of tape transport.	

STEP	ACTION	VERIFICATION

UPPER FIXED GUIDE · INERTIA IDLER · ROLLING SPINDLE · TAPE IN NORMAL OPERATING CONDITION

SUPPLY REEL · HUB · EOT SENSOR · BOT SENSOR · TAKE-UP REEL · HUB

LOCAL/REMOTE · REWIND · FAST-FORWARD · FORWARD · STOP · POWER · SOLENOID

CAPSTAN · LOWER FIXED GUIDE · PRESSURE ROLLER

Fig. 2—Method of Threading Magnetic Tape on Remote Recorder Tape Transport

7	Momentarily operate POWER pushbutton to ON.	POWER lamp lighted.
8	Momentarily operate FAST FORWARD pushbutton.	FAST FORWARD lamp lighted. Tape drive started in a forward direction.
9	After five seconds— Momentarily operate STOP pushbutton.	STOP lamp lighted. FAST FORWARD lamp extinguished. Tape drive stopped.

STEP	ACTION	VERIFICATION
10	Momentarily operate REMOTE pushbutton.	REMOTE lamp lighted. LOCAL lamp extinguished.
11a	If a data channel is idle, or it is desired that data not be recorded on a data channel— At the data receive-write circuit— Operate associated TD- key.	
12	At recording control circuit— Operate MO key.	MO lamp lighted. Correct month displayed on numerical indicators.
13a	If verification of Step 12 is not obtained— Operate and release ADJ key until verification is obtained.	Correct month of year displayed on numerical indicators.
14	Repeat Steps 12 using D, H, and M keys each in turn.	Correct day, hour, and minute displayed on numerical indicators.
15b	If verification of Step 14 is not obtained— Repeat Step 13a until verification is obtained.	Correct day, hour, and minute displayed numerical indicators.
16	Verify that hour and minute shown on CL program clock corresponds to hour and minute displayed on numerical indicators.	CL program clock shows same hour and minute displayed on numerical indicators.
17c	If verification of Step 16 is not obtained— Turn minute hand of program clock in a clockwise direction until correct hour of day or night is in line with 60-minute mark of minute dial and then further turn minute hand until it is in line with correct minute mark of minute dial.	
18	Check the hour and minute shown on each PC- program clock.	Each PC- program clock is written within 1 minute of setting obtained on CL program clock.
19d	If verification of Step 18 is not obtained— Turn minute hand of program clock in a clockwise direction until correct hour of day or night is in time with 60-minute mark of minute dial and then further turn minute hand until it is in line with correct minute mark of minute dial.	
20	Operate RP- key corresponding to number of recording intervals required during recording period. *Note:* If double-pass option is provided, it will be necessary to determine the number of recording intervals possible on the first	

STEP	ACTION	VERIFICATION

path and the *total* number of recording intervals possible with two passes. Two corresponding RP- keys must then be operated.

21e If manual start is desired— Operate MAN key.

ON lamp lighted.
Tape drive started slowly in a forward direction.
Recording period begins.

22f If recording peg count (PC) data only and automatic start is desired— Operate (depress) time selector pins on CL program clock corresponding to the start and stop times of the desired recording period and operate AUTO key.

23g If recording TUR data, or a combination of TUR and PC data and automatic start is desired— Operate (depress) time selector pins on CL program clock corresponding to the *start* time of the desired recording period.

24g Operate (depress) time selector pins on CL program clock corresponding to a time 15 minutes *later* than the *stop* time of the desired recording period.

25g Operate (depress) time selector pins on PCA through PCE program clocks for desired *start* and *stop* time for each program.

26g Set PS- program switches to desired program position.

27g Operate DT- switches associated with channels on which a detector test is desired.

Note: The PS- program switch is bypassed when the associated DT- switch is operated.

28g Operate (depress) time selector pins on CLE program clock for desired *start* and *stop* time for detector test program.

29h If recording accumulated data— Set PS- program switches to AD.

30h Operate (depress) time selector pins on CL program clock corresponding to the start and stop times of the desired recording period and operate AUTO key.

STEP	ACTION	VERIFICATION
31	When recording period is completed (ET lamp lighted)— Momentarily operate LOCAL pushbutton of tape transport.	LOCAL lamp lighted. REMOTE lamp extinguished.
32	Momentarily operate REWIND pushbutton.	REWIND lamp lighted. Tape drive started in a reverse direction. When rewind operation is complete— REWIND lamp extinguished.
33	Momentarily operate POWER pushbutton to OFF.	POWER lamp extinguished.
34	Open front door of tape transport and remove recorded magnetic tape.	
35	Close front door of tape transport.	