PREPARATION OF CONTROL TAPES FOR TRANSMISSION TESTING OF OUTGOING TRUNKS AUTOMATIC PROGRESSION TRUNK TEST FRAME AND AUTOMATIC TRANSMISSION MEASURING SYSTEM NO. 5 CROSSBAR OFFICES

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FIGURES

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1. GENERAL

1.01 Normally, the tapes used for controlling the automatic progression trunk test frame (APTT) for making automatic transmission tests will be prepared at a central location and then forwarded to the No. 5 crossbar office equipped with the APTT. However, there will be occasions when it will be necessary or desirable to prepare control tapes on a limited basis locally in the office. This section provides the procedures for preparing control tape using the teletypewriter equipment associated with the APTT. The tapes may also be prepared using these procedures on any 28-type KSR teletypewriter set not associated with the APTT, provided it is equipped with a modified A-type keyboard. (See Fig. 1.)

1.02 This section is reissued for the following reasons:

(a) To revise Fig. 2 to show the current issue of Forms E-6121 and E-6122—Tape Preparation Worksheets.

(b) To specify the operation of the PMC and BRT keys for producing tape leader, 4.02 and 6.02(2).

(c) To make other minor changes as required.

This reissue does not affect Equipment Test Lists.

1.03 The control tapes provide instructions to the APTT and the director of the associated automatic transmission measuring system (ATMS). When the APTT is used to control a ROTL, the tapes also include the necessary information for

accessing the ROTL and for enabling the ROTL to seize trunks to be tested. The control tapes may also contain captions and subcaptions which provide information regarding the trunks to be tested and the tests to be made. In addition these tapes may contain a preamble which provides information regarding the contents of the tape or any other significant information. Captions, subcaptions, and the preamble are printed on the output page copy and tape, but do not affect the test frame operation. Control tapes are made by perforating standard 5-level, 11/16-inch paper teletype tape by means of a 28-type teletypewriter set.

1.04 This section covers methods of splicing and copying control tapes. It is not recommended, however, that spliced tapes be used for operating the APTT, because of the possibility of blocking the frame. All spliced tape should be copied to provide a duplicate tape for test frame operation.

1.05 It is imperative that instructions for the preparation of tape given in this section are followed explicitly. Failure to comply may cause improper operation of the test frame when the tape is used for testing.

2. EQUIPMENT AND MATERIALS

2.01 The 28B teletypewriter set is equipped with a typing unit, transmitter-distributor, reperforator, and keyboard. A modified A-type keyboard (Fig. 1) is used. Reference should be made to the 28 ASR Teletypewriter Operator Manual for detailed information concerning the teletypewriter set.

2.02 When perforating or copying control tapes, it will be necessary that the teletypewriter set be provided with the following materials and apparatus:

(a) KS-8483 L1 perforator tape

(b) 5C tape winder

(c) TU2 Western apparatus tape unwinder

(d) 1A45 paper winder

(e) TP193950 copy display rod

(f) KS-1970 teletypewriter paper.

2.03 For splicing control tapes, the following or equivalent is required:

(a) 317212 teletype tape splicer

(b) 317325 teletype splicing patch, 5-channel, color-coded blue.

3. CONTROL TAPE DATA

3.01 The information required to prepare control tapes is obtained from worksheets prepared in accordance with Section 218-220-303. The trunks to be tested may be arranged in various ways on the control tape as described in Section 660-420-010. A single tape should include all of the trunks which are to be tested in a particular testing period.

3.02 Prior to perforating a tape, the forms prepared in accordance with Section 218-220-303 should be arranged in such a manner that the trunks are grouped in the desired sequence. Preamble and caption information to identify the particular tape and each major grouping of trunks should be inserted in the appropriate places. Subcaptions should also be placed in the space provided to identify the transmission facility.

3.03 Both marker priming and transmission priming information must precede each group of trunks to which common marker priming information applies. Only transmission priming is inserted when new transmission information applies to any trunk subgroup within a group to which common marker priming applies.

4. PERFORATING TAPES

4.01 After the worksheets have been assembled in the desired order as described in Part 3, the tape is perforated by operation of the keyboard of the teletypewriter set. It is necessary to follow precisely the data as entered on the worksheets. Any errors in the priming information will cause the test frame to block or cause a wrong measurement.

4.02 Before starting the tape perforation, it is desirable to provide a sufficient length (approximately 3 feet) of tape leader to permit it to reach the tape winder when it is used on the machine associated with the APTT. To accomplish this on the 28B machine, operate the PMC and BRT keys. The PMC lamp on the APTT key and

lamp panel lights. Depress and hold the REPT key.◀ The space bar is operated momentarily. When sufficient length of leader is produced, the REPT key is released. Figure 1 shows an example of a control tape containing preamble caption, priming information, trunk address, and trunk identification. The worksheet from which this tape was prepared is shown in Fig. 2.

4.03 A page copy is always made simultaneously with the perforated tape. When a given tape has been completed, the page copy should be checked for accuracy by comparing it carefully and in detail to the worksheets.

5. CORRECTION OF ERRORS

5.01 If an incorrect character is perforated on the tape and discovered a short time thereafter, a correction may be made by deleting the incorrect character ***and any others*** that follow. The tape is moved back in the tape punch by depressing the TAPE B. SP. key on the keyboard once for each character to be deleted until the first character that must be corrected is over the punch pins. The LTRS key which causes all holes to be punched is then depressed once for each character to be deleted. After all the required characters have been deleted, the correct information is then perforated and perforation is then continued in the normal manner. Care should be taken when retyping the correct information to ensure that, if the first character to be perforated is in FIGS mode of operation, the FIGS key is depressed at the end of the string of LTRS punches. The deleted characters should be obliterated on the page copy by drawing a line through them.

5.02 If errors are found after the tape has been completed, corrections can be made by cutting out the affected portion of tape, preparing an insert containing the correct information, and splicing it into the control tape. If desired, corrections can be made while copying tape by stopping the tape being copied at the appropriate point, perforating the correct information on the new tape manually, advancing the tape being copied to the next character following that which was corrected, and then continuing copying procedure. Whenever a tape is spliced, a duplicate should be made for use by the test frame TTY.

6. COPYING TAPE

6.01 It may be advantageous in some cases to splice several tapes to obtain a complete tape for use in a testing period. Also, splicing may be the most desirable method in many cases to add, delete, or correct data on the tape. A damaged or torn tape can also be repaired by splicing. However, a spliced tape should not be used as a control tape because it may cause blockage of the test frame. Therefore, any tape which contains one or more splices should be copied to produce a tape which is suitable for use with the test frame.

6.02 Tape is copied by means of a 28B ASR teletypewriter set, equipped with a transmitter-distributor and reperforator. The procedure is as follows.

(1) Load the reperforator with new tape, if required.

(2) Produce about 3 feet of tape leader by ▶operating the PMC and BRT keys at the APTT key and lamp panel. Depress and hold the REPT key.◀ Momentarily operate the space bar. When sufficient length of tape leader has been perforated, release the REPT key.

(3) Set the tape read switch of the transmitter-distributor to STOP.

Caution:* Pin 6 will tear the tape if the tape read switch is in the RUN position when the tape is placed in the transmitter-distributor and the gate is closed.

(4) Open the gate of the transmitter-distributor.

(5) Place the tape to be copied over the feed pins of the transmitter-distributor. The first printed character or symbol on the tape should be aligned with the engraved lines. This places the first perforation under the tape reader.

(6) Close the tape gate.

(7) Set the tape read switch of the transmitter-distributor to RUN.

(8) Operate the COPY and CST keys. The tape will be copied and a page print copy will be produced.

(9) If it is desired to stop the tape to delete, add, or correct information, when the approximate location on tape is reached, operate the TAH key. Momentarily release and reoperate the key until the exact location is reached.

(10) To add information, or to insert corrected information, type the desired characters by depressing the appropriate keyboard keys.

(11) If information is to be deleted, operate the tape read switch of the transmitter-distributor to STOP, open the tape gate, and move the tape to the first character on which copying is to be resumed. [Refer to (5).] Close the tape gate and set the tape read switch to RUN.

(12) To resume copying, operate the COPY and CST keys.

(13) When copying of tape has been completed, depress and hold the REPT key and momentarily operate the LINE FEED key.

(14) When sufficient tape (approximately 12 inches) and paper (approximate 6 inches) has been obtained beyond the end of the perforated and printed parts, release the REPT key.

(15) Restore all keys and switches.

(16) Cut the duplicated tape and tear off the page copy. The page copy should be retained for future reference.

7. TAPE SPLICING METHODS

7.01 *To splice Torn Tape:*

(1) Place the leading end of torn tape on the cutting pins of the splicer with the torn edge of the tape to the right. Note the printed entry on the tape ***in line with*** the scribe mark on the splicer (Fig. 3A).

(2) Pull the cutting head of splicer to the left and then forward to cut the tape. Release the cutter head.

(3) Pull the cutting head to the right and remove the tape from the splicer.

(4) Place the trailing end of torn tape on the cutting pins of the splicer with the torn end of the tape to the left. Note the printed entry which is ***one space to the left*** of the scribe mark (Fig. 3B).

(5) Pull the cutting head of splicer to the left and then forward to cut the tape. Release the cutter head.

(6) Pull the cutting head to the right and remove the tape from the splicer.

(7) Perforate a new tape containing the information starting with the printed entry noted in (1) through the printed entry one space to the left of the scribe mark noted in (4).

(8) Place the leading end of the new tape-insert on cutting pins of the splicer, positioning the printed entry noted in (1) in line with the scribe mark (Fig. 3C). Cut the tape and remove from the splicer.

(9) Place the trailing end of the new tape-insert on cutting pins of the splicer, positioning the printed entry noted in (4) ***one space to the left*** of the scribe mark (Fig. 3D). Cut the tape and remove from the splicer.

(10) Remove the backing and place the tape splicing patch on block with the adhesive side up and the feed holes over the pins.

(11) Place the trailing end of the tape being revised and the leading edge of the new tape-insert end-to-end with feed holes over the pins and the end of each tape over one-half of the patch. Press down over the pins using the grooved bar supplied with the splicer. Exert sufficient pressure on the bar to form a good bond between the tapes and splicing patch.

(12) Remove the tape from the splicer.

(13) Splice the trailing end of the new tape to the leading end of the original tape using the methods described in (10), (11), and (12).

(14) Remove the tape from the splicer.

(15) Using the copying tape procedures in Part 6, make a duplicate of the spliced tape.

Note: When a tape is perforated, the printing lags the related perforations by six spaces. When a tape is spliced to insert a new section of tape, the six lines of perforations preceding the splice lose the related printing. The printing related to the last six lines of perforations on the new tape-insert appear on the trailing end of the spliced tape. When the spliced tape is copied, the perforations and the printing will appear in their proper places.

7.02 ***To Splice Additional Information to Tape:***

(1) Place the tape to be revised on the cutting pins of the splicer with the printed character for the first line of perforations to be retained on the trailing end of the tape in line with the scribe mark. If the new information is to be added to the end of the tape to be revised, the printed character for the last perforation to be retained should be ***one space to the left*** of the scribe mark. Cut and remove the tape from the splicer.

(2) Prepare to perforate a new section of tape starting with approximately 2 inches of blanks by depressing and holding the REPT key and momentarily operating the blank key (unmarked key at lower right of the keyboard). Release the REPT key.

(3) Perforate the new section of tape with added information leaving approximately 2 inches of blanks on the trailing end.

(4) Using the tape splicer, cut off all the blanks from the ends of the newly perforated tape. If new information is to be added to the end of the tape to be revised, cut off the blanks from the leading end only.

(5) Remove the backing and place the tape splicing patch on the block with the adhesive side up and the feed holes over the splicing pins.

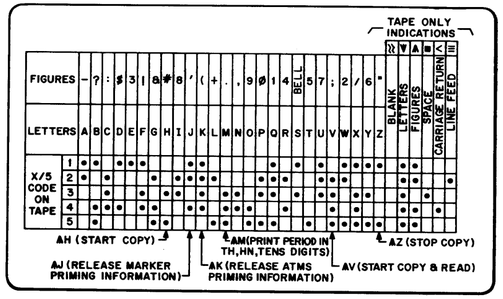
(6) Place the trailing end of the tape being revised and the leading end of the new tape-insert end-to-end with feed holes over the splicing pins and the end of each tape over one-half of the patch. Press the tapes down over the pins using the grooved bar supplied with the splicer. Exert sufficient pressure on the bar to form a good bond between tapes and splicing patch.

(7) Remove the tape from the splicer.

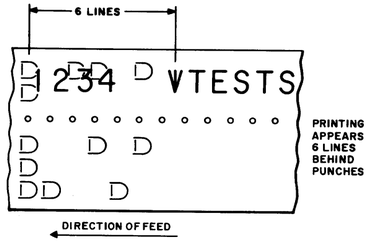
(8) If required, splice the trailing end of the new tape-insert and the leading end of the tape being revised using the method described in (6). Remove the tape from the splicer.

(9) Using the copying tape procedures in Part 6, make a duplicate of the spliced tape.

Note: When a tape is perforated, the printing lags the perforations by six spaces. When a tape is spliced to add a new section of tape, the six perforations preceding the splice lose the printing related to them as this printing is on the trailing end of the tape separated by the tape insert. When the spliced tape is copied, the perforations and printing on the duplicate tape will appear in their proper places.



MODIFIED A-TYPE KEYBOARD



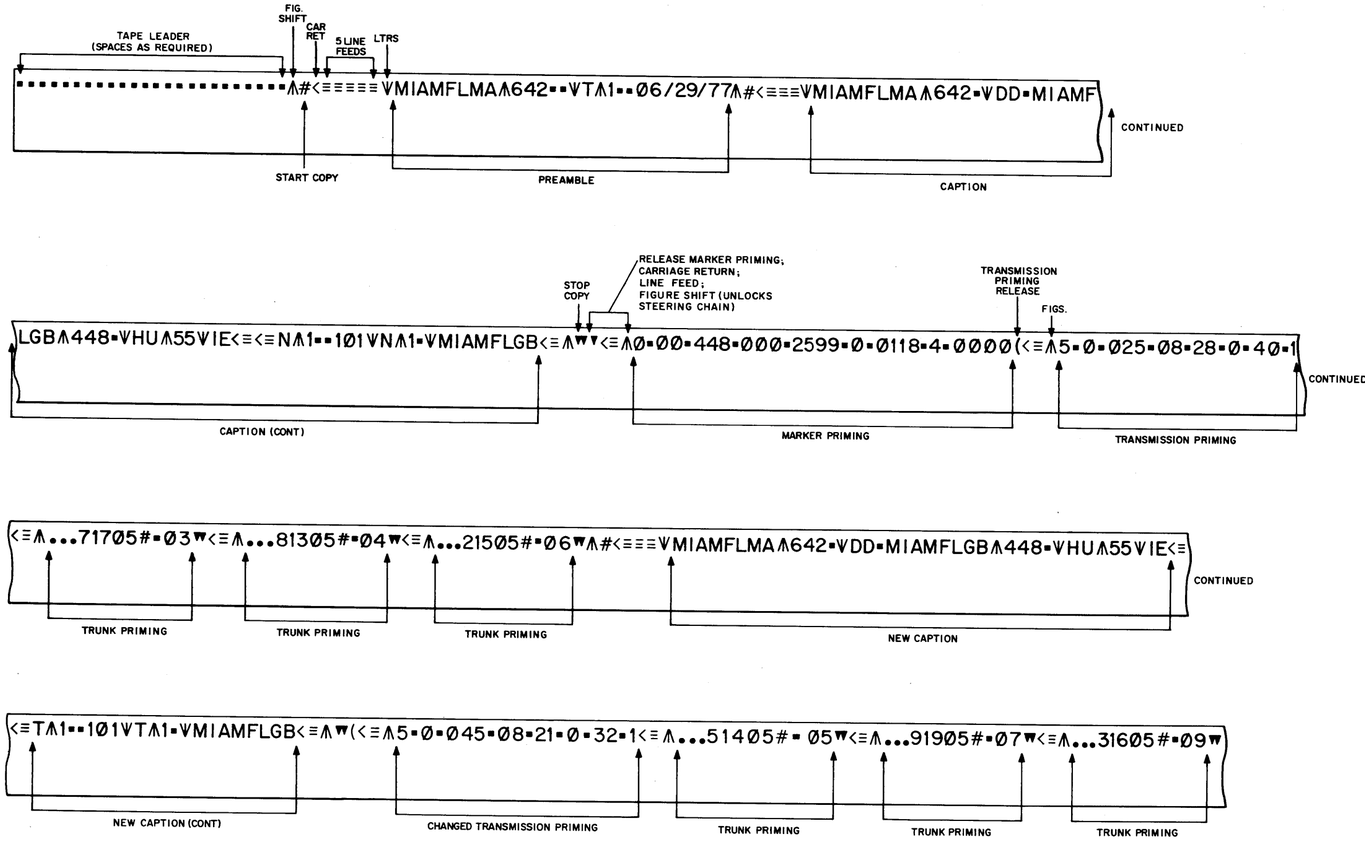


Fig. 1—Teletypewriter Tape

APTT-5XB: BSP 218-220-301 & -303
AOTT-4XB: BSP 212-512-301
AOTT-SXS: BSP 226-591-300
ALL: BSP 800-102-100

TAPE PREPARATION WORKSHEET
PREAMBLE INFORMATION

NO. 5 CROSSBAR APTT FRAME, ISSUE 30 AND LATER
NO. 4 CROSSBAR AOTT FRAME
STEP-BY-STEP AOTT FRAME

E-6121 (4/72)
SHEET 1 OF 2
DATE 6-29-77

▨ INDICATES SPACE

APTT-5XB: | ↑ | # |

AOTT-4XB: | CTL DCO | RUB OUT | RUB OUT |

AOTT-SXS: | ↑ | ↓ | ↑ | ↓ | ↑ | ↓ |

ALL:

						ORIGINATING OFFICE												TAPE				DATE							
						TOWN				STATE		BLDG		UNIT			▨	▨	TYPE		▨	▨	MONTH		DAY			YEAR	
CRT	LNF	LNF	LNF	LNF	LNF	M	I	A	M	F	L	M	A	6	4	2			O	P			Ø	6	/	2	9	/	7	7

ADDITIONAL PREAMBLE INFORMATION:

CRT	LNF	LNF
	CRT	LNF
	CRT	LNF
	CRT	LNF
	CRT	LNF
	CRT	LNF
	CRT	LNF
	CRT	LNF
	CRT	LNF
	CRT	LNF

NOTE: 1. TOTAL CHARACTERS IN THE ADDITIONAL PREAMBLE INFORMATION (INCLUDING CARRIAGE RETURNS AND LINE FEEDS) SHOULD NOT EXCEED 240.
2. INFORMATION IN SHADED AREAS SHALL NOT BE PERFORATED ON THE TAPE.

Fig. 2—Sample of Tape Preparation Worksheet (Sheet 1 of 3)

BSP 218 - 220 - 301
218 - 220 - 303
800 - 102 - 100

TAPE PREPARATION WORKSHEET
NO. 5 CROSSBAR APTT FRAME
SD – 25938-01, ISSUE 30 AND LATER, WITH TAPE SIMPLIFICATION

E – 6122 (11/73)
Sheet 3 Of 3
Date 6-29-77
Tape Type T1

GROUPING METHOD					
✓	F		TF		T

TEST GROUP FACILITY
T1

TEST LINE TYPE
1Ø5

ACCESS MODE
SUBSCRIBER

TTY	CAPTION INFORMATION																TTY
	ORIGINATING OFFICE							TERMINATING OFFICE					TRUNK TYPE				
↑ • < ≡ ≡ ≡	TOWN	STATE	BLDG	UNIT	(space)	PULSING	(space)	TOWN	STATE	BLDG.	UNIT	(space)	TRAFFIC CLASS	OFFICE CLASSES	TRAFFIC USE	MODIFIER	< ≡
↑ # < ≡ ≡ ≡	M I A M	F L	M A	6 4 2		D D		M I A M	F L	G B	4 4 8		H U	5 5	I E		< ≡

TTY	TEST GROUP	(space)	(space)	FACILITY IDENTIFICATION		(space)	FACILITY TERMINAL			TTY
< ≡	FACILITY			NUMBER	TYPE		TOWN	STATE	BLDG.	↑ ” < ≡
< ≡	T 1			1 Ø 1	T 1		M I A M	F L	G B	↑ ” < ≡

TTY						MARKER PRIMING																													
↑	'	<	≡	↑	RET	MKG	(space)	TMT	TMU	(space)	A	B	C	(space)	OA/DDA	OB/DDB	OC/DDC	(space)	NTH	NH	NT	NU	X	(space)	CLT	CLU	TIT	TIU	(space)	AG-RA		CRG	CRU	CST	CSU
↑	’																																		

TTY				TRANSMISSION PRIMING																
(	<	≡	↑	FE	(space)	TPL	(space)	EML	(space)	LOSS DEV	(space)	NOISE M.L.	(space)	NDL	(space)	NOISE I.A.L.	(space)	DR
(	<	≡	↑	5		Ø		Ø 4•5		Ø•8		2 1		Ø		3 2		1

TTY			TRUNK PRIMING														
<	≡	↑	ASN CST	ASH CSU	ITH	IHT	ITT	IUT	TRUNK NUMBER	FT/RDA	FU/RDB	TT/RDC	TU/RDD	RDE	#	(space)	CHAN NO.	”
<	≡	↑							• • • 5	1	4	Ø	5		#		Ø 5	”
<	≡	↑							• • • 9	1	9	Ø	5		#		Ø 7	”
<	≡	↑							• • • 3	1	6	Ø	5		#		Ø 9	”

TTY			TRUNK PRIMING															
<	≡	↑	ASN CST	ASH CSU	ITH	IHT	ITT	IUT	TRUNK NUMBER	FT/RDA	FU/RDB	TT/RDC	TU/RDD	RDE	#	(space)	CHAN NO.	”

(space) = INDICATES SPACE

NOTE: INFORMATION IN SHADED AREAS SHALL NOT BE PERFORATED ON THE TAPE

Fig. 2—Sample of Tape Preparation Worksheet (Sheet 2 of 3)

BSP 218 - 220 - 301
218 - 220 - 303
800 - 102 - 100

TAPE PREPARATION WORKSHEET
NO. 5 CROSSBAR APTT FRAME
SD - 25938 - 01, ISSUE 30 AND LATER, WITH TAPE SIMPLIFICATION

E - 6122 (11/73)
Sheet 2 Of 3
Date 6-29-77
Tape Type T1

GROUPING METHOD					
✓	F		TF		T

TEST GROUP FACILITY
N1

TEST LINE TYPE
1Ø5

ACCESS MODE
SUBSCRIBER

TTY						CAPTION INFORMATION: ORIGINATING OFFICE							TERMINATING OFFICE					TRUNK TYPE				TTY	
↑	#	<	≡	≡	≡	TOWN	STATE	BLDG	UNIT	▨	PULSING	▨	TOWN	STATE	BLDG.	UNIT	▨	TRAFFIC CLASS	OFFICE CLASSES	TRAFFIC USE	MODIFIER	<	≡
↑	#	<	≡	≡	≡	MIAM	FL	MA	642		DD		MIAM	FL	GB	448		HU	55	IE		<	≡

TTY		TEST GROUP			FACILITY IDENTIFICATION			FACILITY TERMINAL			TTY			
<	≡	FACILITY	▨	▨	NUMBER	TYPE	▨	TOWN	STATE	BLDG.	↑	"	<	≡
<	≡	N1			101	N1		MIAM	FL	GB	↑	"	<	≡

▨ INDICATES SPACE

TTY						MARKER PRIMING																											
↑	'	<	≡	↑	RET	MKG	▨	TMT	TMU	▨	A	B	C	▨	OA/DDA	OB/DDB	OC/DDC	▨	NTH	NH	NT	NU	X	▨	CLT	CLU	TIT	TIU	▨	AG-RA		CRG	CRU	CST	CSU
↑	,	<	≡	↑		Ø		Ø	Ø		4	4	8		Ø	Ø	Ø		2	5	9	9	Ø		Ø	1	1	8		4		Ø	Ø	Ø	Ø

TTY				TRANSMISSION PRIMING															
(	<	≡	↑	FE	▨	TPL	▨	EML	▨	LOSS DEV	▨	NOISE M.L.	▨	NDL	▨	NOISE I.A.L.	▨	DR
(	<	≡	↑	5		Ø		Ø2•5		Ø•8		28		Ø		4Ø		1

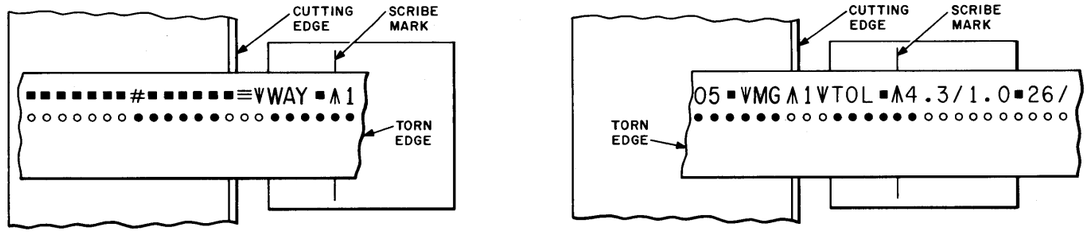
TTY			TRUNK PRIMING														
<	≡	↑	ASN CST	ASH CSU	ITH	IHT	ITT	IUT	TRUNK NUMBER	FT/RDA	FU/RDB	TT/RDC	TU/RDD	RDE	#	▨	CHAN NO.	"
<	≡	↑							•••7	1	7	Ø	5		#		Ø3	"
<	≡	↑							•••8	1	3	Ø	5		#		Ø4	"
<	≡	↑							•••2	1	5	Ø	5		#		Ø6	"

TTY			TRUNK PRIMING														
<	≡	↑	ASN CST	ASH CSU	ITH	IHT	ITT	IUT	TRUNK NUMBER	FT/RDA	FU/RDB	TT/RDC	TU/RDD	RDE	#	▨	CHAN NO.	"

NOTE: INFORMATION IN SHADED AREAS SHALL NOT BE PERFORATED ON THE TAPE

Fig. 2—Sample of Tape Preparation Worksheet (Sheet 3 of 3)

TORN TAPE



NEW TAPE

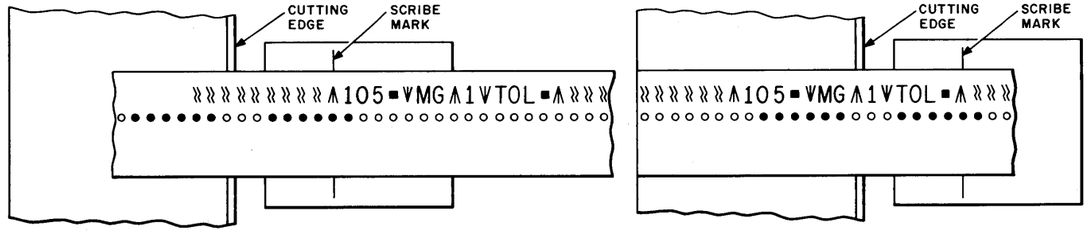


Fig. 3—Tape Splicing