

**CASSETTE TAPE TO RECORDED ANNOUNCEMENT SYSTEM
RECORDING PROCEDURES
SWITCHING, BILLING, AND CENTRAL OFFICE
SYSTEMS MANAGEMENT
NETWORK SERVICES METHODS**

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3. RECORDING APPARATUS	2	1.02 Whenever this section is reissued, the reason(s) for reissue is given in this paragraph.
A. Cassette Recorder/Reproducer	2	1.03 References in this section to methods, planning, data requirements, service levels, and equipment quantities are based on American Telephone and Telegraph Company recommendations.
Feature Requirements	3	1.04 The title for each figure includes a number(s) in parentheses which identifies the paragraph(s) in which the figure is referenced.
Technical Performance Requirements	3	1.05 To perform the cassette to announcement system transcription, the following apparatus is required:
Servicing Information	4	(a) A high quality cassette recorder/reproducer (SONY model TCM-5000 or BTL approved equivalent)
C. Cassette Recording Tapes	4	(b) A KS22566, L1 Recording Interface Kit (Provides for interconnection of the cassette recorder/reproducer to the announcement system and storage of 30 KS-22550 cassettes).
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SECTION 780-200-024

- (c) KS-22550 cassettes containing a variety of prerecorded information. Detailed information pertaining to the KS-22550 cassettes may be found in Section 780-200-026.
- (d) A transmission measuring set (TMS) or noise measuring set (NMS).
- (e) An electronic frequency counter
- (f) A cassette test tape—Standard Tape Laboratory catalog number 29.

Note: Test tape available from:

Standard Tape Laboratory, Inc.
26120 Eden Landing Road No. 5
Haywood, California 94545

1.06 Use of the apparatus listed in paragraph 1.05 to transcribe prerecorded announcements onto announcement systems provides many advantages over the "live" transcription method. Some of these advantages are:

- (a) The elimination of background noise on the announcements.

(d) Cassettes and recording apparatus can be centrally located thereby minimizing equipment quantities.

(e) Recording levels can be easily adjusted during the transcription process and the transmission levels can be properly set during the announcement system playback process.

2. RECORDED ANNOUNCEMENT SYSTEMS AND FRAMES

2.01 Using the recording apparatus and procedure specified in Parts 3 and 4, announcements can be transcribed onto the following announcement systems:

2.02 The referenced sections provide guidelines for operation of each of the systems in the record and playback modes.

ANNOUNCEMENT SYSTEM	APPLICABLE SWITCHING SYSTEMS	BSP REFERENCE
5A	(A) 4A (B) 4M (C) XBT	201-511-301 & 201-511-301
6A	(A) SXS (B) No. 1 XB (C) No. 5 XB (D) Panel	951-114-100 & 201-513-501
7A	(A) SXS (B) No. 1 XB (C) No. 5 XB (D) Panel	951-116-100
13A (Bubble Memory)	(A) SXS (B) No. 1 & 5 XB (C) No. 1/1A, 2 & 3 ESS	201-519-301
J1A058A, J1A058C (RAF)	(A) No. 1 & 2 ESS	231-024-501
J1C021A, J1C021B, J1C012D (CSRAF)	(A) No. 1 ESS (B) No. 4 ESS (C) No. 5XB	201-520-301

- (b) Uniformity provided by prerecorded standard announcements.

(c) Customized (locally produced) recordings can be recorded at any desirable location under controlled conditions.

3. RECORDING APPARATUS

A. Cassette Recorder/Reproducer

3.01 The cassette Recorder/Reproducer required to transcribe announcements onto the various announcement systems, must be a high quality unit

with performance characteristics that will allow precision transcription of the Special Information Tones. A SONY model TCM-5000 (with tape speed accuracy control) or BTL approved equivalent, must be used. Figure 1 shows the recorder/reproducer interconnected with associated recording apparatus.

Feature Requirements

3.02 Specifically, the cassette Recorder/Reproducer must have the following features to perform the announcement transcription function:

- (1) Must be able to accept standard National Association of Broadcasters (NAB) audio cassettes.
 - (2) Must be equipped for 120 VAC operation. However, for versatility, a unit with both 120 VAC and battery power operation is recommended.
- Note:** If battery operation mode is provided, a battery check switch is very desirable, to ensure proper operation.
- (3) Must be equipped with a built in speaker and associated volume control.
 - (4) Must be equipped with a jack access to allow the employment of an external microphone.
 - (5) Must have a manually adjustable record level control and a volume unit (VU) meter, to monitor the record level. Automatic gain control (AGC) or automatic level control (ALC) are also very desirable features.
 - (6) Must have an external output jack (speaker, headphone, or monitor) with associated volume control. The output impedance at the jack should not exceed 8 ohms.
 - (7) Must be equipped with a built in tape counter with a reset control.
 - (8) Must be a 2-track, 1-channel monaural system.
 - (9) Must have the following tape functions each equipped with individual controls.

- Eject
- Rewind

- Stop
 - Forward (or play)
 - Fast forward
 - Record
 - Pause.
- (10) Must have a servo-controlled motor tape drive system for stable tape speed and an associated and easily accessible speed adjustment potentiometer to allow nominal tape speed adjustment.

Technical Performance Requirements

3.03 The cassette Recorder/Reproducer must meet the following technical performance requirements to properly perform the announcement transcription function.

- (1) Tape speed and accuracy-The nominal tape speed must be 1.875 inches per second (plus or minus 0.15 percent via speed adjustment potentiometer).
- (2) WOW and flutter-Must not exceed 0.25 percent (NAB weighed RMS.)
- (3) Frequency response-Must meet the NAB standard for normal recording tape (120 microsecond high frequency and 1590 microsecond low frequency equalization time constants). The record-play back response limits must not exceed plus 1.5 dB to minus 2.5 dB in the range of 150 HZ to 6000 HZ.
- (4) Signal to noise ratio-Must be 45 dB or more (utilizing C message weighting with no noise reduction circuitry).
- (5) Output level and load impedance-With the unit playing a zero dB level test tape (Standard Tape Laboratory catalog number L-26 or technically equivalent) it must be capable of delivering a minimum output level of zero dBm into a load impedance of 200 to 600 ohms from the external output jack. The harmonic distortion at this level must not exceed 3 percent.
- (6) Pause to stop time-The time from actuation of the pause control to zero tape speed must not exceed 50 milliseconds.

(7) Pause to start time-The time from release of the pause control to full tape speed of 1.875 inches per second must not exceed 50 milliseconds.

Servicing Information

3.04 Operator instructions must be provided with the unit. The address and phone number of an authorized service repair center should be maintained with the unit. In the event that servicing is required, it should be performed by a manufacturer certified repair person.

3.05 The Recorder/Reproducer must be stored at normal room temperature, to insure proper operation.

B. Recording Interface Kit (KS 22566-LI)

3.06 This portable kit (Fig. 2) consists of a KS 22566L2 interface unit (Fig. 3), a set of 4 patch cords, and storage space for up to 30 KS 22550 cassettes, with a compact carrying case for efficient transport and storage. A pocket, located in the kit

cover is provided for the storage of Bell System Practices and other written material.

3.07 The major component of this kit is the KS 22566L2 interface unit which serves primarily as a patch cord interface between the cassette Recorder/Reproducer and the announcement system. The unit provides jacks for recording, monitoring and transmission measuring.

3.08 Monitoring can be accomplished as the announcement is being transcribed onto the announcement system and/or as it is being played back from the system.

C. Cassette Recording Tapes

3.09 The KS-22550, L(1-122) cassettes contain prerecorded program material, which is used in the transcription process. Each unique tape has an identifying list number.

3.10 The prerecorded program material consists of the following items:

<u>PROGRAM MATERIAL</u>	<u>DESCRIPTION</u>
(a) Condition Encountered	Identifies type of announcement
(b) User's Instructions:	Provides instructions to the OTC craftperson in the use of the cassette.
(c) 1000-Hz Reference Tone:	Used for establishing recording and transmission levels
(d) Countdown:	Used by the OTC craftperson for tape queuing
(e) SIT:	Special Information Tones
(f) Standard Announcement or Blank Tape	Standard Announcement or blank tape for locally recording and announcement by the OTC craftperson.

D. Supplemental Equipment Requirements

3.11 The following supplemental test equipment is required, to maintain the cassette Recorder/Reproducer in optimum operating condition:

- An electronic frequency counter
- A Standard Tape Laboratory catalog number 29 "test tape"
- A record head cleaning kit
- A service manual
- An AC power adaptor
- A high quality microphone

E. Special Information Tones

3.12 Special Information Tones (SIT) consist of a series of three (3) short duration audible tones which immediately precede prerecorded announcements, which inform customers of dialing or network conditions causing call blockage. These tones are used to permit automatic detection and analysis of call disposition information by automatic service evaluation equipment.

3.13 There are four groups of SITs which uniquely identify the four standard categories of recorded announcements to the automatic service evaluation equipment. The announcement categories are:

- (1) Intercept (IC)
- (2) Vacant code (VC)
- (3) No circuit (NC)
- (4) Reorder (RO).

3.14 Detailed information regarding KS 22550, L(1-122) cassette recording tapes can be found in Section 780-200-026.

4. RECORDING PROCEDURES

4.01 Prior to proceeding with the transcription process detailed in paragraph 4.02, the cassette Recorder/Reproducer must be calibrated for

proper tape speed. This is easily accomplished by playing a speed reference tape in the cassette Recorder/Reproducer with the external output jack connected to a frequency counter. (See Fig. 4.) The speed control potentiometer on the cassette Recorder/Reproducer is then adjusted to provide a reading on the frequency counter that agrees with the calibration frequency recorded on the speed reference tape. The speed reference tape used for this procedure should be Standard Tape Laboratory catalog number 29 which has a recorded frequency of 3150 Hz. The cassette Recorder/Reproducer speed control potentiometer should be adjusted so that the frequency reported on the frequency counter is in the range 3145 to 3155 Hz.

Note: For the above calibration procedure and the announcement transcription procedures described in paragraph 4.02, the cassette Recorder/Reproducer should be powered from 120 VAC, 60 Hz. This will provide more precise speed control. In situations where 120 VAC is unavailable or very inconvenient to use, battery operation is acceptable, provided the batteries are fresh. When the cassette Recorder/Reproducer is in frequent use, the tape speed should be calibrated every two weeks unless experience dictates otherwise. Speed calibration should always be done before the cassette Recorder/Reproducer is used when it has been idle for a long time.

4.02 The following procedures should be used to transcribe recorded announcements from a cassette tape onto an announcement system channel. These procedures apply to all of the announcement systems and frames referred to in Part 2 of this section.

- (a) Select the desired cassette tape and place it into the cassette Recorder/Reproducer (R/R)
- (b) Press the FAST FORWARD control and advance the tape to the end. Press the REWIND control and rewind the tape to the beginning. This procedure tends to stabilize tape tension and should always be done when a cassette has not been in frequent use.
 - (1) Play the tape forward and listen to the "Condition Encountered" to verify proper cassette selection
 - (2) At the conclusion of the "Condition Encountered" press the cassette R/R STOP control.

- (c) Connect a patch cord from the external output jack on the cassette R/R to the tape input jack on the KS 22566 L2 interface unit.
- (d) Connect the appropriate patch cord from the input jack on the transmission or noise measuring set to the TMS/NMS jacks on the KS 22566 L2 interface unit.
- (e) Connect a handset or headset to the handset/headset input/output jack on the KS 22566, L2 interface unit. (Monitoring allows the user to supervise the tape and accurately control the tape movement). A monitor volume potentiometer is provided on the KS-22566, L2 interface unit to adjust the volume of the signal transmitted to the handset/headset from the tape input only.
- (f) Connect the appropriate patch cord from the announcement system input/output jack on the KS 22566, L2 interface unit to the desired announcement system channel. Improper polarity of the connection at the announcement system input/output jack on the KS 22566, L2 interface unit may effect operation. If operation is not proper with the original connection, and all operating procedures have been verified, reversing the plug on the interface unit may solve the problem.

Note 1: The J1A058A RAF System is not equipped with a jack access to the recording channels. The 624A10 call director, which is used to transcribe announcements onto this system, must be modified to provide jack access. This is accomplished by installing a GB417 Applique on the 624A10 call director. Mechanical installation information for the GB417 is provided with the unit. Ordering and wiring information is provided in Fig. 5.

- (g) Operate the monitor switch, on the KS 22566 L2 interface unit, to the "TAPE" position.
- (1) Operate the handset DC power switch on the KS-22566, L2 interface unit to the "OFF" position.

Note: The handset dc power switch is provided as a convenience for recording a "live" test announcement on to an announcement sys-

tem channel if it is desired to do so. To use this feature, the handset dc power switch must be in the "ON" position to record, and the monitor switch must be in the "ANN. SYSTEM" position to monitor the announcement.

- (2) Press the PLAY control to listen to the user instruction via the handset/headset.

- (h) After the user instructions have ended, use the 1000 Hz reference tone, the next item on the tape, to set the cassette R/R output level. The 1000 Hz reference tone is 60 seconds in duration which should provide adequate time to adjust the cassette R/R output level. The desired level can be obtained by adjusting the "Volume" control on the cassette R/R while observing the meter located on the TMS/NMS. To obtain a good signal-to-noise ratio, the level should be adjusted to -10 dBm on the TMS or the equivalent $+80$ dBm on the NMS. When this level has been obtained, the "Volume" control on the cassette R/R **must** remain in the same position for all following operations. At the conclusion of this adjustment, press the cassette R/R STOP button.

Note: Prior to transcribing an announcement on to an announcement system channel, the output level of the channel must be properly set to obtain the required transmission level. This can be accomplished by first transcribing the cassette tape 1000 Hz reference tone on to the announcement system channel and then adjusting the channel amplifier while the announcement system channel is playing back the 1000 Hz tone. It may be necessary to rewind the cassette tape to the beginning of the 1000 Hz reference tone for this operation. For those announcement system channels that **have** automatic gain control (AGC) in their record amplifiers (7A and 13A announcement systems and the J1A058C, J1C012A, J1C012B, and J1C01D RAF's) the announcement system channel output must be adjusted to provide a level of -13 dBm0 at the input to the announcement trunk. This will result in transmission of the SIT at -13 dBm0 and the announcement at -22 dBm0 since it is recorded 9 dB below the SIT on the cassette. For those systems that **do not** have AGC (5A and 6A announcement systems and the J1A058A RAF) the output must be adjusted to provide a level of -22 dBm0 at the input to the announcement trunk. This will re-

sult in transmission of the announcement at -22 dBm0 and the SIT at - dBm0 since it is recorded 9 dB above the announcement on the cassette.

- (i) Press the cassette R/R PLAY control and allow the tape to advance through the 5, 4, 3, 2, 1 countdown sequence. Immediately after hearing the digit "1" place the cassette R/R in the Pause mode by operating the Pause control.

Note: The Pause control permits the tape to be stopped without shutting down the cassette R/R motor. This allows the tape to be started quickly and smoothly when the Pause control is released.

- (j) Perform those procedures required by the respective announcement systems, to accept and record audible announcements. The recording procedures peculiar to each affected announcement system are covered in the BSP sections, listed in Part 2.
- (k) When the announcement system is ready to accept and record an announcement, release the cassette R/R Pause control. This will cause the announcement to be transcribed from the cassette to the announcement system channel.
- (l) When the announcement has been recorded, operate the Stop control on the cassette R/R and return the announcement system to normal.

- (m) Operate the monitor switch on the KS 22566, L2 interface unit to the ANN SYSTEM position. Monitor the recorded announcement for volume and clarity.

- (n) If the announcement is acceptable, disconnect the patch cord from the announcement system. If it is necessary to record again, repeat Steps (i) through (m).

- (o) When all steps have been completed satisfactorily, it is good practice to rewind the cassette tape to the beginning. The cassette should then be returned to its original plastic storage container, and stored in the KS-22566, L1 Recording Interface Kit for future use.

4.03 To thoroughly evaluate a newly transcribed announcement, it is recommended that the access to the announcement be tested from a working (active) line or trunk. This test can be performed by simulating the condition which would cause a subscriber to be routed to the announcement.

4.04 For the convenience of the craftperson, all of the steps that must be performed in section 4, are summarized in Table A, Summary of Recording Procedures.

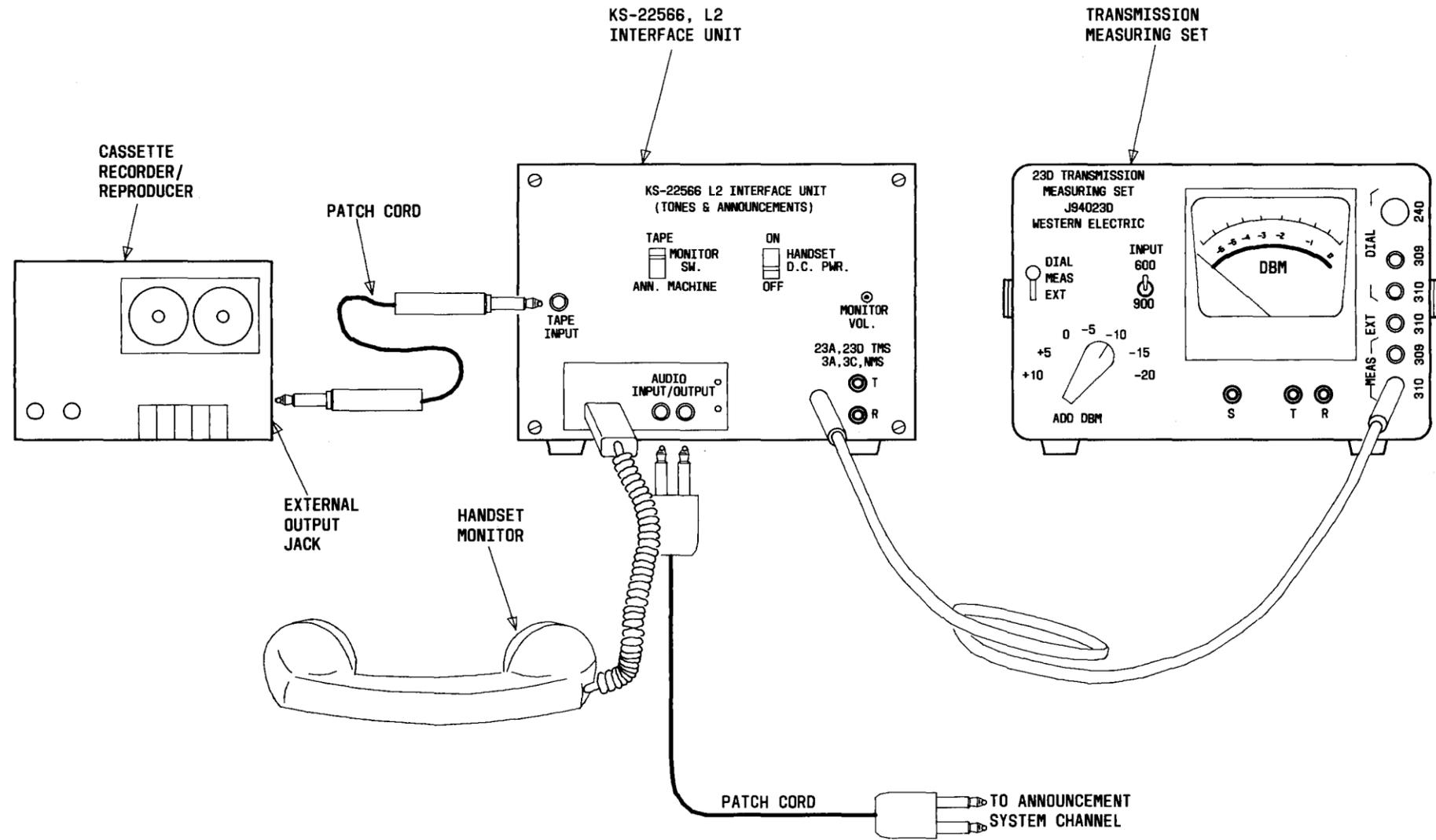


Fig. 1—Recording Apparatus (3.01)

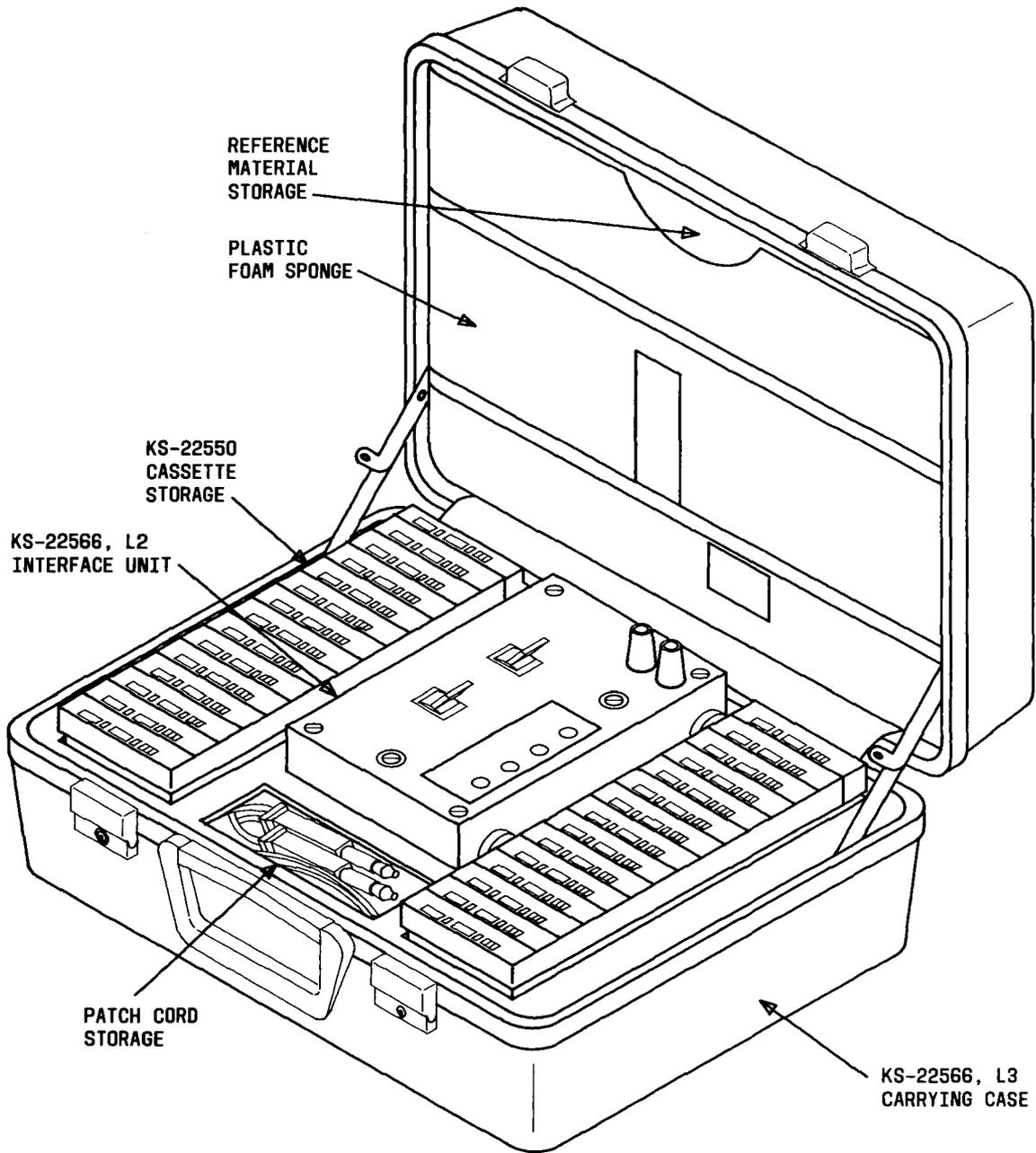


Fig. 2—Recording Interface Kit (3.06)

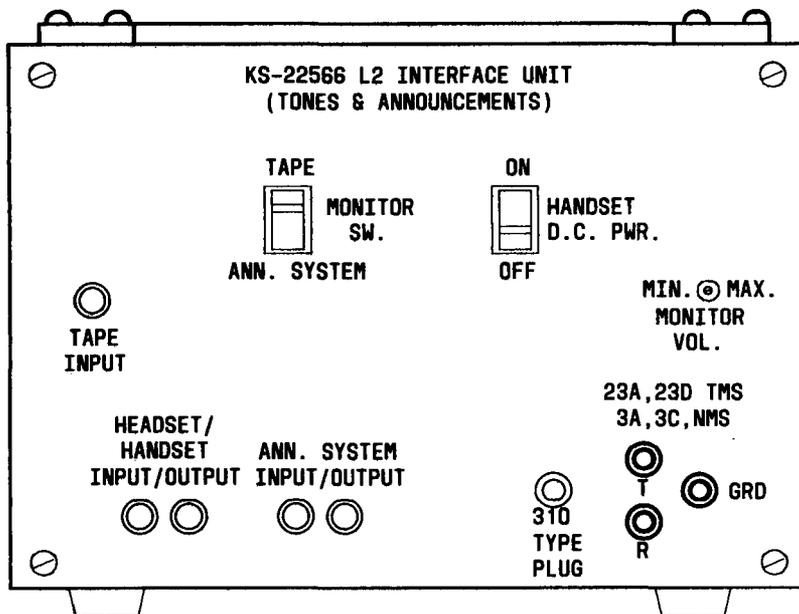


Fig. 3—Interface Unit (3.06)

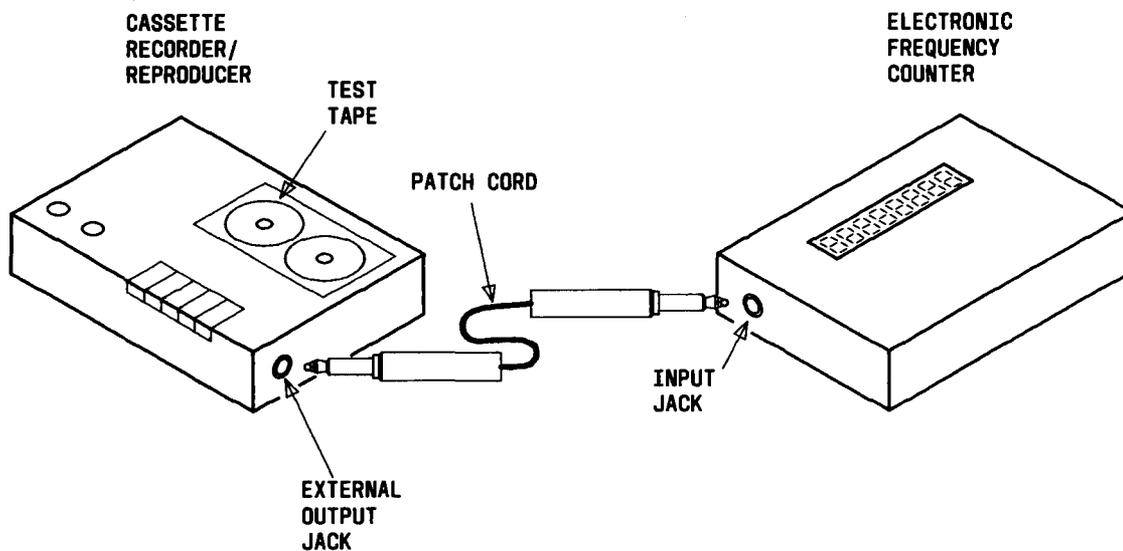


Fig. 4—Tape Speed Calibration Setup (4.01)

6 24 A10 CALL DIRECTOR MODIFICATION

ORDERING
INFORMATION

UNIT NUMBER	UNIT COLOR
GB417-00	Black
GB417-02	Red
GB417-04	Yellow
GB417-05	Green
GB417-09	Ivory
GB417-11	Pink
GB417-12	Blue
GB417-13	Beige
GB417-14	Grey
GB417-15	White

INSTALLATION – WIRING INFORMATION

GB417 – RIBBON CABLE		624A10 CALL DIRECTOR
Brown	1	Network R
Red	1	Network R
Orange	1	Remove black handset wire from network B and splice
Yellow	1	Network B
Green	1	Remove white handset wire and red switchhook wire from network GN and splice
Blue	1	Network GN
Violet	1	Ringer Terminal Strip – Terminal 1
Slate	1	Tape end of wires. Store inside call director.
White	1	
Black		
Brown	2	
Red	2	
Orange	2	
Yellow	2	
Green	2	
Blue	2	
Violet	2	
Slate	2	
White	2	Network C

GB 417 – APPLIQUE

Allen Tel. Products Inc. 2211 South Susan Street Santa ANA California 92704
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Fig. 5— Modification for J1A058A Call Director (624A10) (4.02)

TABLE A

SUMMARY OF RECORDING PROCEDURES

PROCEDURE	PARAGRAPH NO.
1. CALIBRATE CASSETTE RECORDER/REPRODUCER FOR SPEED ACCURACY	4.01
2. SELECT DESIRED CASSETTE LIST NO.	4.02(a)
3. PLAY "CONDITION ENCOUNTERED"	4.02(b)
4. INTERCONNECT ALL EQUIPMENT.	4.02(c) to 4.02(f)
5. PLAY "USER'S INSTRUCTIONS"	4.02(g)
6. PLAY "1000Hz REFERENCE TONE" TO SET TRANSCRIPTION LEVEL (-10 dBm)	4.02(h)
NOTE: LEVEL (VOLUME CONTROL) ON CASSETTE RECORDER/REPRODUCER MUST REMAIN FIXED	
7. TRANSCRIBE "1000Hz REFERENCE TONE" ONTO ANNOUNCEMENT SYSTEM	4.02(h)
8. ADJUST ANNOUNCEMENT SYSTEM OUTPUT AMPLIFIER FOR PROPER TRANSMISSION LEVEL	4.02(h)
A. AGC TYPE AMPLIFIERS (-13 dBmO)	
B. NON AGC TYPE AMPLIFIERS (-22dBmO)	
9. PLAY 5 - 4 - 3 - 2 - 1 "COUNTDOWN"	4.02(i)
10. PRESS CASSETTE RECORDER/REPRODUCER PAUSE CONTROL IMMEDIATELY AFTER HEARING "1"	4.02(i)
11. PLACE ANNOUNCEMENT SYSTEM IN RECORD MODE	4.02(j)
12. RELEASE CASSETTE RECORDER/REPRODUCER PAUSE CONTROL TO BEGIN TRANSCRIPTION PROCESS	4.02(k)
13. STOP CASSETTE RECORDER/REPRODUCER WHEN TRANSCRIPTION IS COMPLETE	4.02(l)
14. MONITOR ANNOUNCEMENT FROM ANNOUNCEMENT SYSTEM	4.02(m) to 4.02(o) and 4.03