VOICE CONNECTING ARRANGEMENTS RDL AND RDM KS-19522, LIST 1 OR LIST 2 RECORDER COUPLER USED WITH KS-16765, LIST 1 ANNOUNCEMENT SET

1. GENERAL

1.01 This section provides identification, installation, operation, maintenance and connection information for the KS-19522, List 1 or List 2 recorder coupler when used in Voice Connecting Arrangements (VCA) RDL or RDM and in association with the KS-16765, List 1 announcement set and a customer-provided (CP) message recorder.

1.02 This section is reissued to:

- Add test information on the use of a 1013A (or equivalent) hand test set when the associated telephone set requires a G6-type amplifier handset
- Add Fig. 11—Recorder Coupler Connections to CP equipment
- Revise test section format in Part 5.

1.03 Voice Connecting Arrangement RDL provides for one-way voice transmission in each direction (but not simultaneously) between CP recorder equipment and a telephone line on incoming calls. Transmitters of any telephone set associated with the line are disabled during incoming calls to prevent recording of 2-way conversations. This arrangement is provided by KS-19522, List 1 or List 2 recorder coupler. The KS-19522, List 2 consists of a KS-19522, List 1 with a KS-19522, List 11 voice control added.

1.04 Voice Connecting Arrangement RDM provides for 2-way voice transmission between the CP equipment and telephone line, permitting distant party control of CP equipment during incoming calls. Recording of 2-way conversations is prevented as before. This arrangement requires a modified KS-19522, List 2 recorder coupler stamped "2W".

1.05 When used with RDL or RDM the KS-16765, List 1 announcement set:

- Answers incoming calls automatically
- Transmits prerecorded announcements to telephone line
- Signals the KS-19522 recorder coupler at the end of the announcement period.

1.06 With either arrangement (RDL or RDM), an associated key telephone set may make a normal outgoing call when the coupler is not in use.

1.07 The KS-19522, List 12 test set is used for testing the recorder coupler.

1.08 ***Lettered Steps:*** A letter a, b, c, etc, added to a step number in Part 5 of this section indicates an action which may or may not be required depending on local conditions. The condition under which a lettered step or a series of lettered steps should be made is given in the ACTION column, and all steps governed by the same condition are designated by the same letter within a test. Where a condition does not apply, all steps designated by that letter should be omitted.

1.09 Refer to Section 463-340-110 for detailed information on the circuit description and operation of the KS-19522 recorder coupler.

1.10 Refer to Sections 514-210-100 and 514-210-200 for detailed information on the circuit description and operation of the KS-16765 announcement set.

1.11 If the customer wants a copy of the Technical Reference which covers this interface specification, the customer should contact the local Telephone Company Business Office or the Marketing Representative.

1.12 This issue of the section is based on the following drawings:

SD-99356-01, Issue 10D—KS-19522 Recorder Coupler

SD-95286-01, Issue 7B—KS-16765, L1 Announcement Set

If this section is to be used with equipment or apparatus reflecting later issue(s) of the drawing(s), reference should be made to the SDs and CDs to determine the extent of the changes and the manner in which the section may be affected.

2. IDENTIFICATION

PURPOSE

- To provide the means of coupling CP equipment to the telecommunications network
- To limit excessive levels from CP equipment and to provide protection for personnel against hazardous voltages.

APPLICATION

- For use with a key telephone set to connect a CP recorder to the telecommunications network for transmitting prerecorded messages to the telephone line and recording messages from the line. Not to be used for the recording of 2-way conversations.

ORDERING GUIDE

- Coupler, Recorder, KS-19522, L1 (one-way transmission, Fig. 1 and 2)
- Coupler, Recorder, KS-19522, L2 (one-way transmission, automatic disconnect, Fig. 3)
- Coupler, Recorder, KS-19522, L1 (2W modified for 2-way transmission per BSRS 455.204)
- Coupler, Recorder, KS-19522, L2 (2W modified for 2-way transmission, per BSRS 455.204 with automatic disconnect)
- Control, Voice, KS-19522, L11, Fig. 4 (provides automatic disconnect—see 2.03) required for No. 1 Crossbar
- Set, Test, KS-19522, L12 (required for testing recorder-couplers, Fig. 5)
- Set, Announcement, KS-16765, L1 (Fig. 6, 7, and 8).

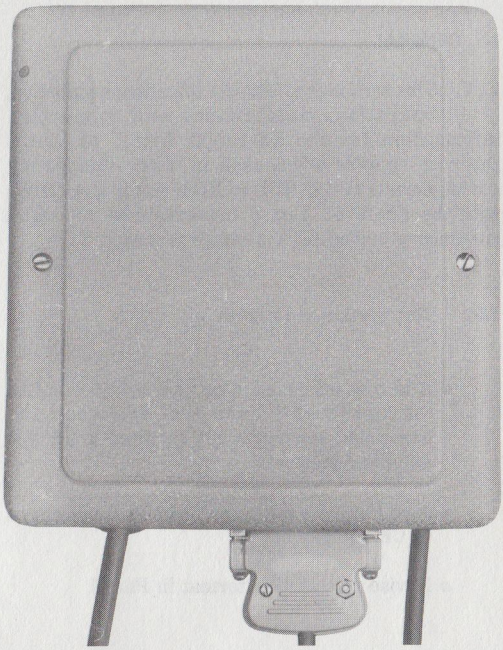


Fig. 1—KS-19522 Recorder Coupler

Associated Equipment (Order Separately)

- Set, Telephone, 565GK or
- Set, Telephone, 2565GK
- Capacitor, 596G- 1.0 MFD (one required, 2565GK only)
- *Capacitor, 542C- .25 MFD (one required)
- *Resistor, KS-14603, L3C-450 ohms (one required)
- *Diodes, 420G (nine required)

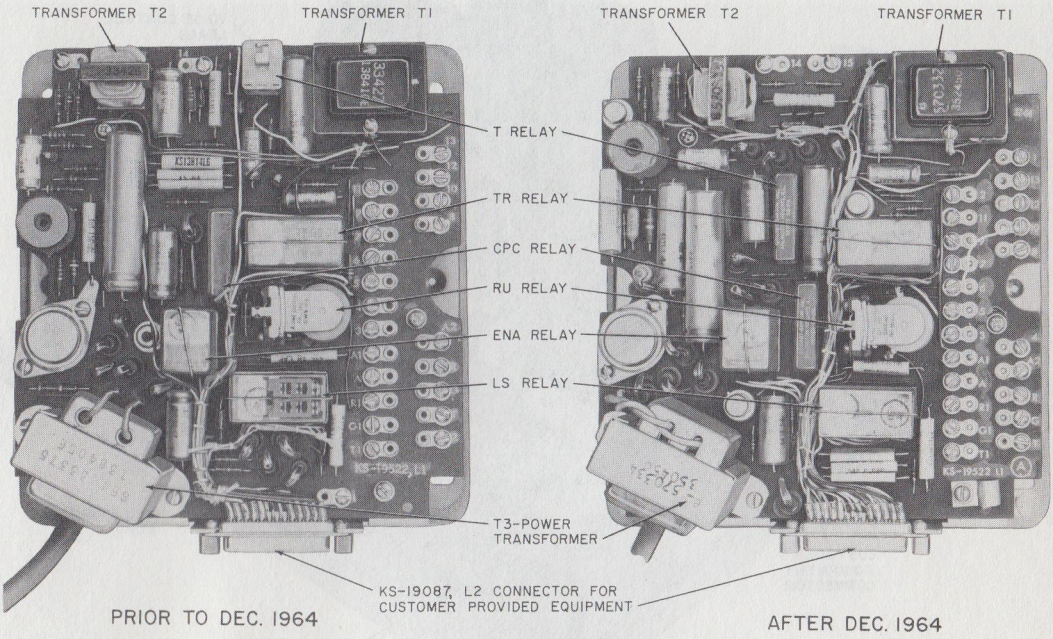


Fig. 2—KS-19522, List 1 Recorder Coupler (Cover Removed)

- *Unit, Telephone, Key 17B (one required)
- *Block, Connecting, 44A (four required).

* These components are required for interunit connections (Fig. 9 and 10).

DESIGN FEATURES

2.01 The KS-19522, List 1 or List 2 recorder coupler:

- Couples incoming messages from telephone line to CP recording equipment (upon receipt of transfer signal from the KS-16765, List 1 announcement set)
- Transmits a single short beep tone to telephone line at start and end of recording period
- Transmits low-level tone to telephone line as required by customer unit (not recommended when List 11 voice control is used)
- Disconnects from telephone line on signal from customer unit (opening of ready leads), battery reversal or momentary open from CO, or, at the end of a predetermined timing interval in the absence of speech when the KS-19522, List 11 voice control (Fig. 4) is provided.

2.02 The KS-19522, List 11 voice control provides automatic disconnect from the telephone line in the absence of speech after a 12-second interval. CO receiver off-hook tone generator will prevent operation of the voice control.

2.03 ▶The KS-19522, List 11 voice control is required when the local CO does not provide a suitable disconnect signal (momentary interruption in line current) when the calling party goes on-hook.

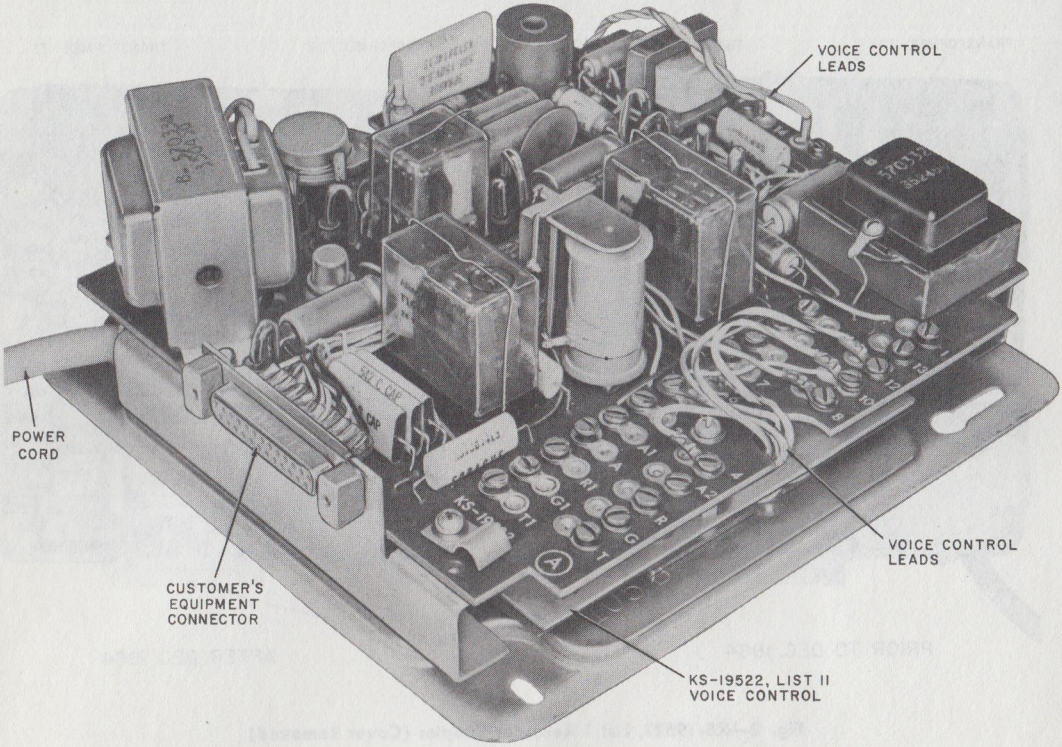


Fig. 3—KS-19522, List 2 Recorder Coupler (Cover Removed)

The List 11 voice control is factory-installed in the List 2 recorder coupler or may be ordered separately for field installation in the List 1 recorder couplers. See Fig. 10 for connections.

2.04 The KS-16765, List 1 announcement set features:

- Recording and reproducing of announcements on a magnetic recording band
- Announcement recording capacity of 2 minutes with provision for increasing to 3 minutes
- Adjustment for limiting announcement recording interval to less than maximum capacity
- Variable cycle that automatically adjusts reproduce cycle to length of recorded announcement.

3. INSTALLATION

3.01 Install and test the recorder coupler as described in Section 463-340-110.

Warning: Disconnect recorder coupler power cord before proceeding with interconnections to announcement set.

3.02 Install the KS-16765, List 1 announcement set as described in Section 514-210-200.

3.03 Install telephone set, cable, drop, block, and inside wiring in the standard manner as outlined in the appropriate sections.

3.04 Fig. 10 shows the interconnecting circuits for the KS-19522, List 1 or List 2 recorder coupler; KS-16765, List 1 announcement set; 17B KTU; and 565GK or 2565GK key telephone sets.

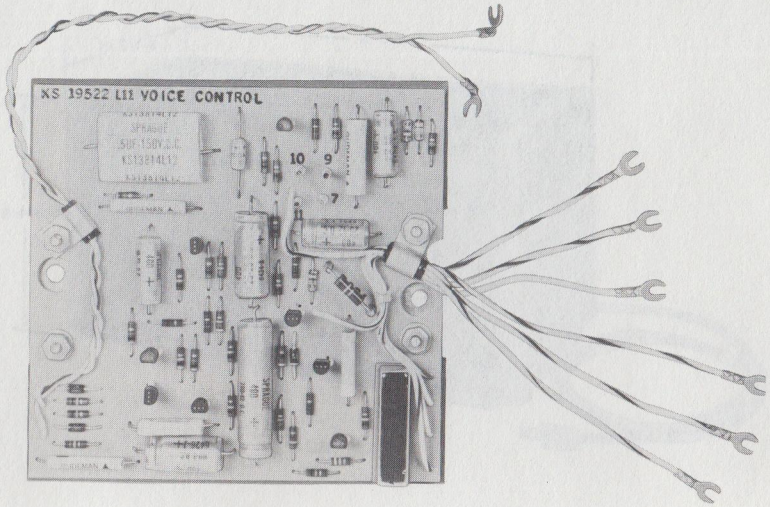


Fig. 4—KS-19522, List 11 Voice Control, Unmounted

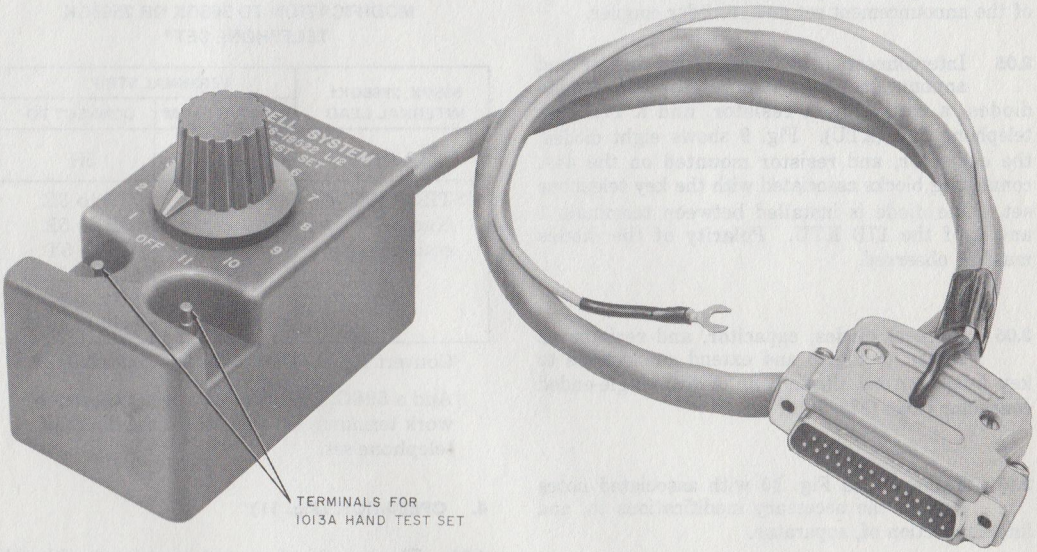


Fig. 5—KS-19522, List 12 Test Set

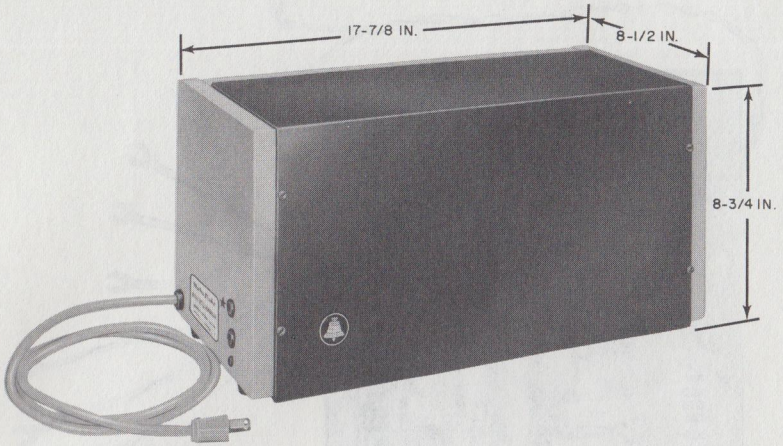


Fig. 6—KS-16765, List 1 Announcement Set

The key telephone set provides for functional control of the announcement set and recorder coupler.

3.05 Interconnection of the recorder coupler and announcement set requires the use of nine diodes, a capacitor, a resistor, and a 17B key telephone unit (KTU). Fig. 9 shows eight diodes, the capacitor, and resistor mounted on the 44A connecting blocks associated with the key telephone set. One diode is installed between terminals 1 and 3 of the 17B KTU. Polarity of the diodes must be observed.

3.06 Connect diodes, capacitor, and resistor as shown in Fig. 9 and extend connections to key telephone set through an A25B, single-ended connector cable (Fig. 10).

3.07 Table A and Fig. 10 with associated notes explain the necessary modifications to, and interconnection of, apparatus.

3.08 Table B and Fig. 10 provide ringer connection information.

3.09 Prepare key designation strip in accordance with strip shown in Fig. 10.

TABLE A

MODIFICATION TO 565GK OR 2565GK TELEPHONE SET*

565GK, 2565GK† INTERNAL LEAD	TERMINAL STRIP	
	REMOVE FROM	CONNECT TO
BR-BK	M	5H
STRAP (M1W cord or equivalent)	—	2R to 3R
	—	4R to 5R
	—	4T to 5T
	—	LG2 to LG3
	—	LG3 to LG4
	—	LG4 to LG5

*Convert No. 6 pick-up key to nonlocking.

†Add a 596G, 1.0 mf capacitor between network terminals L2 and RR on the 2565GK telephone set.

4. OPERATION (Fig. 11)

4.01 The key telephone set associated with this equipment may be operated in the conventional manner when an incoming call is not being answered and LINE key is depressed. During the automatic cycle, the telephone set may be used to monitor the call in progress; however, the transmitter is disabled by removal of talking battery preventing its use for 2-way telephone conversation. ➧The

TABLE B

RINGER CONNECTION OPTIONS WITH KS-16765, LIST 1 ANNOUNCEMENT SET

STATION RINGER COMBINATIONS	OPTION
Normal ringer connection	A
Ringer silenced during DICTATE*	B
Tip Party (no identification)	M
Ring Party	N
Bridged	V

*With B option the telephone line (ringer) will be open as long as the DICTATE key is operated.

G6-type amplifier handset, required by a handicapped person for conventional calling, requires line current to operate and will become inoperative when used to monitor a call during the automatic cycle of a KS-19522 recorder coupler (because it is then inductively coupled to the line).

4.02 The automatic cycle can be interrupted by a BREAK-IN signal from the customer unit (a momentary opening of the ready signal leads RDY 1 and RDY 2, if provided), or by operating the LINE key on the associated key telephone set. This will allow normal transmit and receive operation of the associated key telephone set.

4.03 Low-level tone is under control of the customer unit and may be transmitted by closing the TD1 and TD2 leads, as many times as required, for any desired interval during the cycle. This may be used, for example, as talk-down tone associated with a recording control circuit located in the customer unit. This feature is not recommended when the List 11 voice control is provided, as the tone signal may mask the calling party's voice and the voice control would cause disconnect after 12-seconds.

4.04 To record announcement: (CP recorder may be disconnected if desired)

(1) Remove handset and operate locking DICTATE READY key.

(2) Press down nonlocking DICTATE key and wait for DICTATE READY lamp to light. DICTATE READY lamp indicates that any previously recorded announcement has been erased and the recorder is ready to record new announcement.

(3) Continue to hold DICTATE key operated and dictate announcement in normal voice to the transmitter of the telephone set.

(4) Release DICTATE key immediately after dictating announcement. When necessary, station ringer can be disabled throughout dictate procedure to prevent sound of bell being recorded by using wiring option ***B***, Fig. 10.

When wiring option B is used, telephone line will be open as long as DICTATE key is operated.

4.05 To check recorded announcement: (CP recorder may be disconnected if desired)

(1) With handset off-hook, operate locking CHECK key. Recorded announcement will be heard over receiver of telephone set but will be isolated from telephone line.

(2) After checking announcement, release CHECK key by operating either locking LINE key or locking AUTO ANSWER key depending upon which condition of the system is desired.

4.06 To place answering and recording system in automatic answer and record condition, operate locking ANS-REC key. System will operate as follows: (Ready signal, closure of leads RDY 1 and RDY 2 must be present from CP recorder.)

(1) ANS-REC lamp will light.

(2) Incoming 20-Hz ringing will be tripped by ringing bridge in announcement set.

(3) ANS-REC lamp will go off.

(4) Prerecorded announcement will then be automatically transmitted to telephone line.

(5) After announcement has been transmitted once, the announcement set sends a transfer

signal to the recorder coupler (grounds lead RSM to operate transfer relay TR).

(6) The recorder coupler transmits a short beep tone to the telephone line and conditions its amplifier to couple incoming speech from the telephone line to the CP message recorder.

(7) Incoming message is recorded by CP equipment.

(8) Low-level tone is transmitted by recorder coupler to telephone line as required by customer unit (when List 11 voice control is not provided).

(9) The recorder coupler transmits a short beep tone to the telephone line and disconnects on signal from the customer unit (opening of ready leads), CO battery reversal or momentary open, or, after approximately 12 seconds in the absence of speech, when the List 11 voice control is provided.

(10) ANS-REC lamp will light.

4.07 To place answering system in automatic answer only condition, operate locking ANS-ONLY key. System will operate as follows:

(1) ANS-ONLY lamp will light.

(2) Incoming 20-Hz ringing will be tripped by ringing bridge in announcement set.

(3) ANS-ONLY lamp will go off.

(4) Prerecorded announcement will then be automatically transmitted.

(5) After announcement has been transmitted once, announcement set automatically disconnects from telephone line and prepares to accept another call.

(6) ANS-ONLY lamp will light.

4.08 To use the telephone set as a regular station, operate locking LINE key. This disassociates telephone set from announcement set.

4.09 ▶Fig. 11 shows the connections to the CP equipment. These leads are designated and function as follows:

(a) Speech pair (leads TT and RR) provides unilateral transmission from the telephone line to the CP recorder during the message record interval. Not used in this application for the announcement interval.

(b) Ready (leads RDY 1 and RDY 2)—isolated circuit closure is provided by CP equipment at all times except when the CP recorder is not ready to accept a call or when signaling the recorder coupler for disconnect.

(c) Ring-up (leads RU, RU1, and RU2)—isolated contact closures provided by the recorder coupler to the CP recorder to indicate that a call is being received.

(d) Start (leads ST1 and ST2)—isolated contact closure provided by the CP recorder to the recorder coupler to cause line seizure.

(e) Line seizure (leads LS, LS1 and LS2)—isolated contact closures provided by the recorder coupler to indicate line seizure to the CP recorder.

(f) Transfer (leads TR1 and TR2)—isolated contact closure provided by the CP recorder to the recorder coupler at the end of the announcement cycle to cause the recorder coupler to change from announcement to record. Not used in this application.

(g) Message record (leads MR, MR1 and MR2)—isolated contact closures provided by the recorder coupler to the CP recorder at the time of transfer from announcement to message record.

(h) Remote start (leads RSA, RSM and RSC)—isolated contact closures provided by the CP recorder to the recorder coupler to start an announcement or message record cycle. Used only for the message record cycle in this application.

(i) Talk down tone (leads TD1 and TD2)—isolated contact closure provided by the CP recorder to the recorder coupler to cause the recorder coupler to transmit a low level 1400-Hz tone to the telephone line. This feature is not

recommended when the List 11 voice control is used.

5. MAINTENANCE

5.01 When trouble is reported verify that:

- CO pair is good.
- All wiring is correct and secure and proper wiring options installed.
- Power is supplied to station coupler and announcement set.
- Customer connection plug is secure.

5.02 Using the KS-19522, List 12 test set (Fig. 5), test for proper operation of the recorder coupler and announcement set (Test A). If the KS-19522, List 12 test set is not available, proceed to (Test B) tests without test set.

Notes: Tests A and B

(1) When LS relay is operated, the installer will not be able to talk to the local test desk operator since talking battery is removed from the associated telephone set (except KS-19522 [2W] Voice Connecting Arrangement RDM), and the recorder coupler is conditioned for one-way transmission from the telephone line to the 1013A (or equivalent) hand test set.

(2) When the KS-19522, List 11 voice control unit is provided (List 2 recorder coupler), the voice control feature may be disabled by strapping terminal 5 to terminal 6 as an aid in trouble clearance.

(3) ▶If the associated telephone set uses a G6-type amplifier handset, it will be necessary to use a 1013A (or equivalent) hand test set connected across T and R of the telephone line for monitoring.◀

5.03 ***Apparatus Required:***

Test A

- KS-19522, List 12 test set (Fig. 5)
- 1013A (or equivalent) hand test set.

5.04 ***Preparation:***

Tests A and B

STEP	ACTION	VERIFICATION
1	Disconnect connector to customer equipment.	
2	Remove cover of recorder coupler.	
3	Plug the recorder coupler and announcement set power cords into 115-volt, 60-Hz power outlet.	
Test A		
4	Set rotary switch on the test set to the OFF position.	
5	Connect test set plug to the connector on the recorder coupler.	
6	Connect a 1013A (or equivalent) hand test set to the terminals provided on the List 12 test set.	

5.05 *Test A:* (using List 12 test set)

STEP	ACTION	VERIFICATION
7	Record desired announcement as described in 4.04.	Check recorded announcement as described in 4.05.
8	Depress LINE key on associated key telephone set and call local test desk. Ask test desk operator to call back and speak for approximately 30 seconds after hearing the beep tone (following the recorded announcement), then cut off test desk transmitter but hold talking battery on the line. Restore handset on-hook.	
9	Depress ANS-REC key on telephone set. Rotate test set switch to position 1.	ANS-REC key lamp lights.
10	Ringing current on telephone line.	Announcement set relays RU and ST operate, motor starts, relays A, B, and CPC operate. ANS-REC lamp goes off. Recorder coupler relays ENA and LS operate. Battery removed from associated key telephone set.
11	Monitor outgoing announcement on key telephone handset.	Announcement transmitted to telephone line and heard in key telephone handset.
12	Announcement is concluded.	Announcement set relay STP operates— Set mechanism stops. Recorder coupler relay TR operates— After approximately 1-1/2 seconds, relay ENA releases.
13	Listen to receiver of 1013A hand test set.	Short beep tone is transmitted to telephone line. Beep tone and speech from calling party should be heard in 1013A hand test set receiver.
14a	If List 11 voice control is provided— It will cause automatic disconnect approximately 12 seconds after the calling party stops talking. Listen to receiver of telephone handset.	Relay TR releases. Short beep transmitted to telephone line should be heard in telephone handset receiver. Relay LS releases. Battery connected to telephone set.
15b	If voice control is not provided— Rotate test set switch to position 5. Listen to receiver of telephone handset.	Low level tone from recorder coupler should be heard in telephone handset receiver.
16b	Rotate test set switch to position 6. Listen to receiver of telephone handset.	Relay TR releases. Short beep tone transmitted to telephone line should be heard in telephone handset receiver.

STEP	ACTION	VERIFICATION
		Relay LS releases. Battery connected to telephone set.
17	Ask local test desk operator to release the line from test.	

5.06 ***Test B:*** (without test set)

STEP	ACTION	VERIFICATION
4	Record desired announcement as described in 4.04.	Check recorded announcement as described in 4.05.
5	Depress LINE key on associated key telephone set and call local test desk. Ask test desk operator to call back and speak for approximately 30 seconds after hearing the beep tone (following the recorded announcement), then cut off test desk transmitter but hold talking battery on the line. Restore handset on-hook.	
6	Depress ANS-REC key on telephone set.	ANS-REC key lamp lights.
7	Ringing current on telephone line.	Announcement set relays RU and ST operate, motor starts, relays A, B, and CPC operate. ANS-REC lamp goes off. Recorder coupler relays ENA and LS operate. Battery removed from associated key telephone set.
8	Monitor outgoing announcements on key telephone handset. (Leave handset off-hook through remaining steps to maintain line connection.)	Announcement transmitted to telephone line and heard in key telephone handset receiver.
9	Announcement is concluded.	Announcement set relay STP operates— Set mechanism stops. Recorder coupler relay TR operates— Short beep tone is transmitted to telephone line— After approximately 1-1/2 seconds relay ENA releases. Beep tone should be heard in telephone set handset.
10	Test desk operator should speak for approximately 30 seconds.	Incoming message should be heard in telephone set handset.
11a	If List 11 voice control is provided— It will cause automatic disconnect approximately 12 seconds after the calling party stops talking.	Relay TR releases. Short beep tone transmitted to telephone line should be heard in telephone handset receiver.

STEP	ACTION	VERIFICATION
		Relay LS releases. Battery connected to telephone set.
12a	After voice control disconnect— Connect a strap between terminals 5 and 6 of the recorder coupler to prevent time-out in following steps. Proceed to Step 15.	
13b	If the List 11 voice control is ***not*** provided and customer unit provides for control of the talk-down tone circuit— Momentarily connect pins 24 and 25 at J1.	A low level 1400-Hz tone should be heard in telephone handset receiver.
14b	Depress LINE key on the associated key telephone set.	Relay TR releases. Short beep tone transmitted to telephone line should be heard in telephone handset receiver. Relay LS releases. Battery connected to telephone set.
15c	If the customer equipment provides REMOTE-START MESSAGE feature— ANS-REC key must be depressed to enable REMOTE-START operation. Momentarily connect terminal 7 to terminal 2 on the recorder coupler to simulate remote start.	Relays ENA, LS, and TR operate. Short beep tone transmitted to telephone line should be heard in telephone handset receiver. Battery removed from telephone set. After approximately 1-1/2 seconds, relay ENA releases. Incoming speech from telephone line can be recorded.
16c	Depress LINE key on associated key telephone set.	Relay TR releases. Short beep tone transmitted to telephone line should be heard in telephone handset receiver. Relay LS releases. Battery connected to telephone set.
17	End of tests. Ask local test desk operator to release the line from test.	

5.07 When trouble develops that cannot be cleared with plug-in relay substitution, replace the recorder coupler. If trouble is identified as failure to disconnect from CO, List 11 voice control may be required to correct trouble.

Do not attempt any test or repair to the customer-provided equipment.

5.08 If the tests are satisfactory, remove all test connections to restore circuit to normal and follow local reporting procedures for CP trouble.

5.09 Maintenance of the KS-19522 recorder coupler is covered in Section 463-340-110. Maintenance of the KS-16765, List 1 announcement set is covered in Section 514-210-100.

5.10 When in the repairman's judgment the trouble is located in the CP equipment, the Repair Service Bureau should be notified so that proper Maintenance of Service Charge billing can be initiated as outlined in Section 660-101-312 entitled Maintenance of Service Charge on Services With Customer-Provided Equipment (CPE).

6. CONNECTIONS

6.01 For connection information using the KS-19522 recorder coupler, refer to Fig. 3 and 10.

6.02 For connection information using the KS-16765, List 1 announcement set, refer to Fig. 7, 8, 9, and 10.

6.03 For connection information for the key telephone set, refer to Fig. 9 and 10 and Tables A and B.

6.04 Connections to the customer equipment shown in Fig. 11 are made through the 25-pin KS-19087, List 2 connector. The customer must furnish a suitable connecting cable equipped with a Cinch DB-19604-432 (231-25-61-125) Plug with a DB-51226-1 (239-13-99-070) Hood, or equivalent.

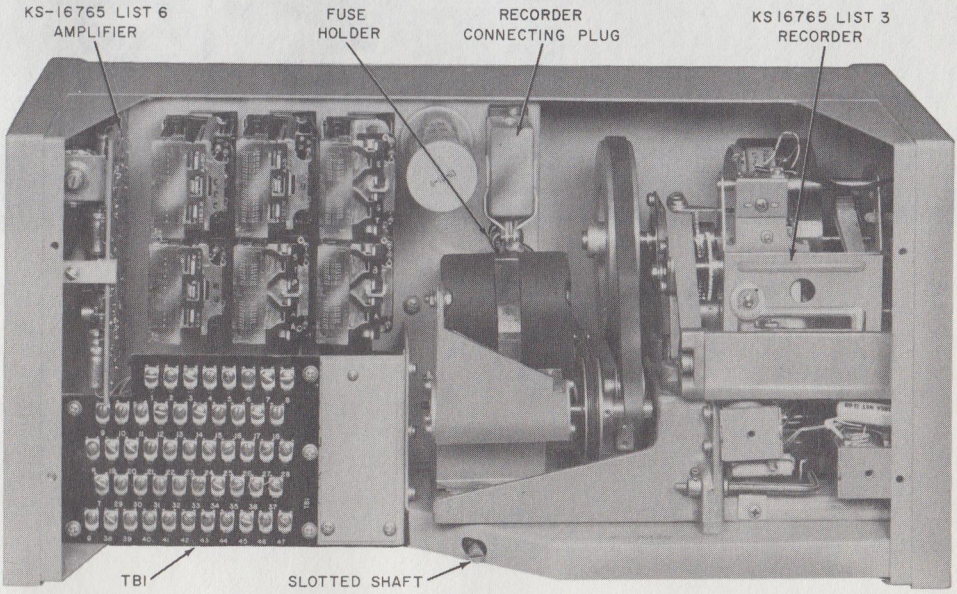


Fig. 7—KS-16765, List 1 Announcement Set (Front Cover Removed)

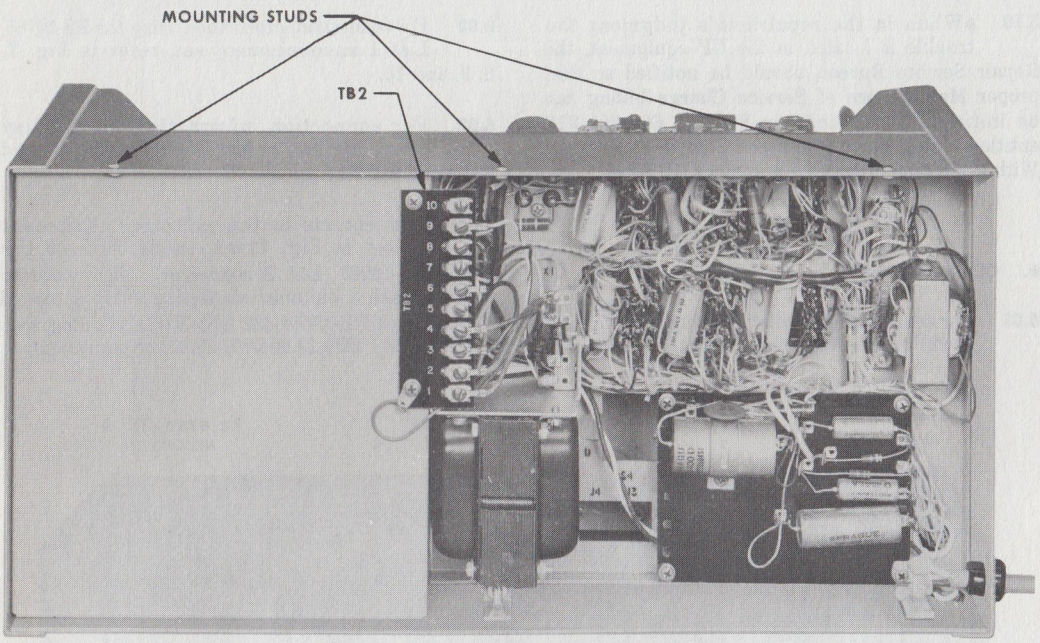


Fig. 8—KS-16765, List 1 Announcement Set (Rear Cover Removed)

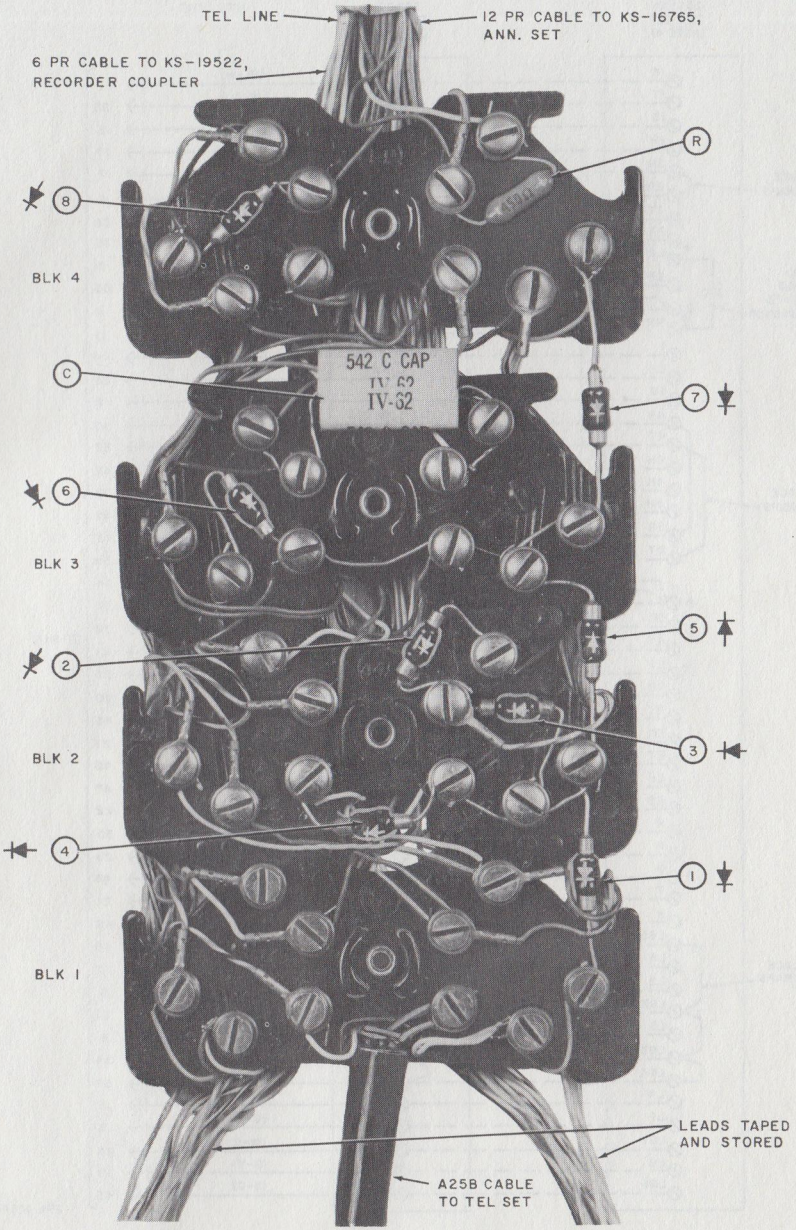


Fig. 9—44A Connecting Blocks With Components Mounted

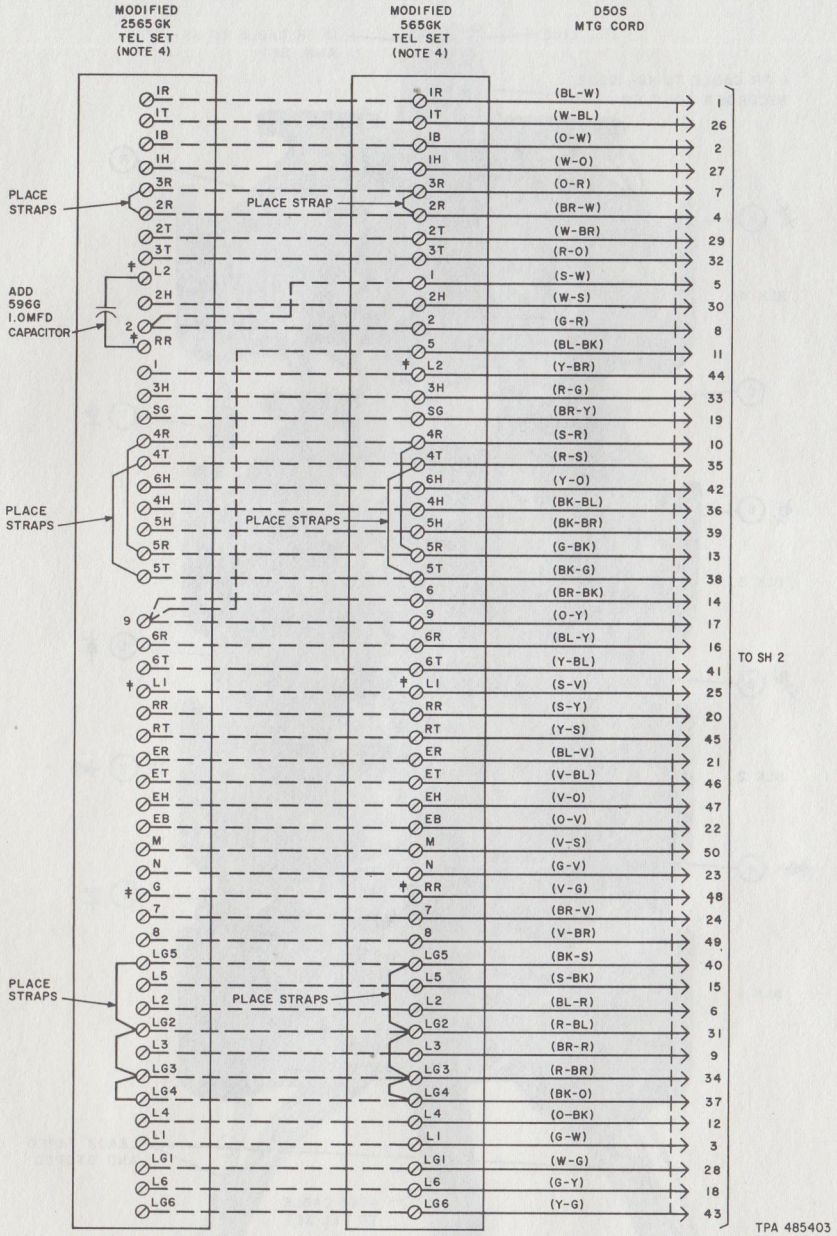


Fig. 10—Connections Using KS-16765, List 1 Announcement Set, KS-19522 Recorder Coupler and 565GK or 2565GK Telephone Set With Customer-Provided Message Recorder (Sheet 1)

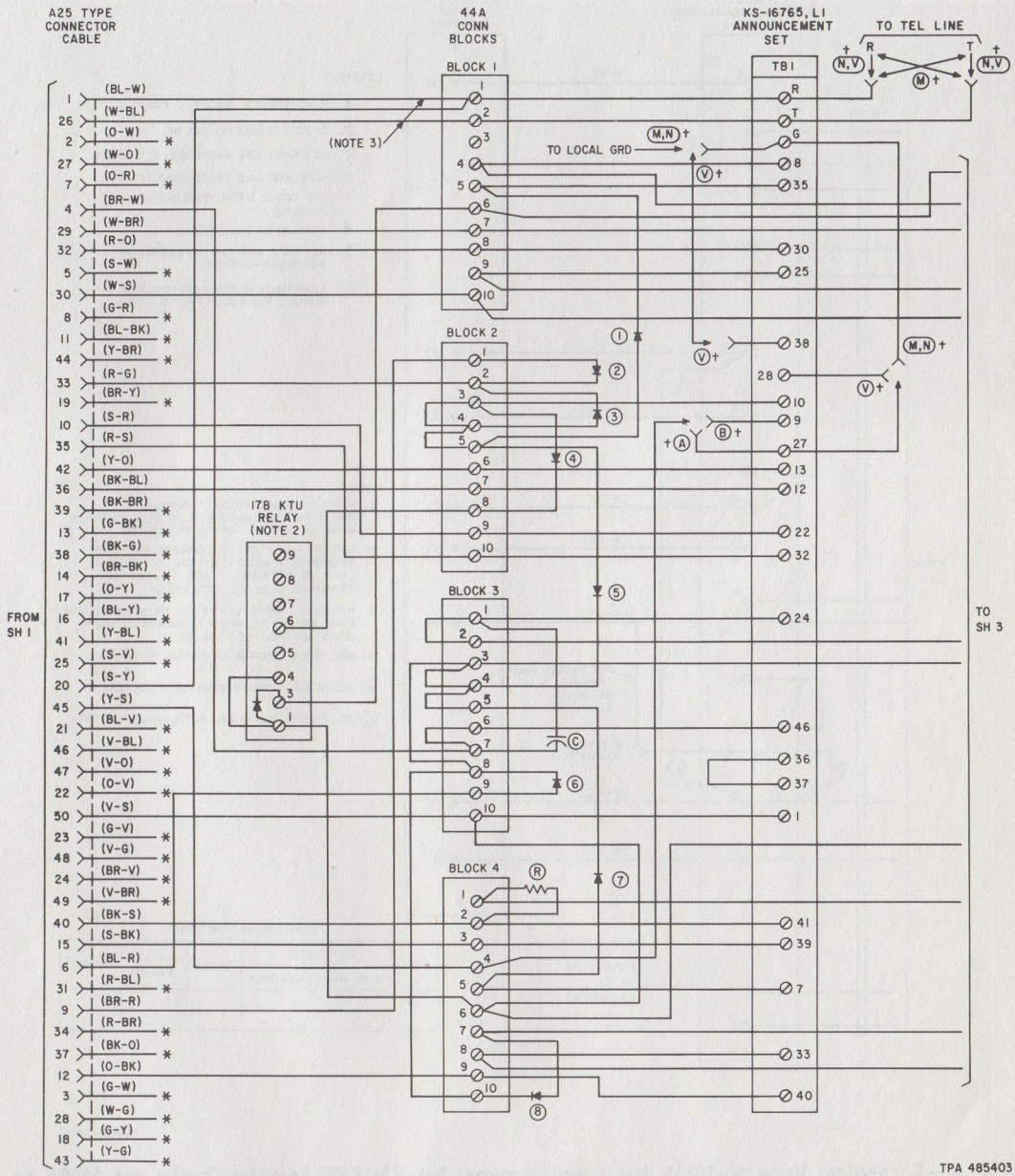


Fig. 10—Connections Using KS-16765, List 1 Announcement Set, KS-19522 Recorder Coupler and 565GK or 2565GK Telephone Set with Customer-Provided Message Recorder (Sheet 2)

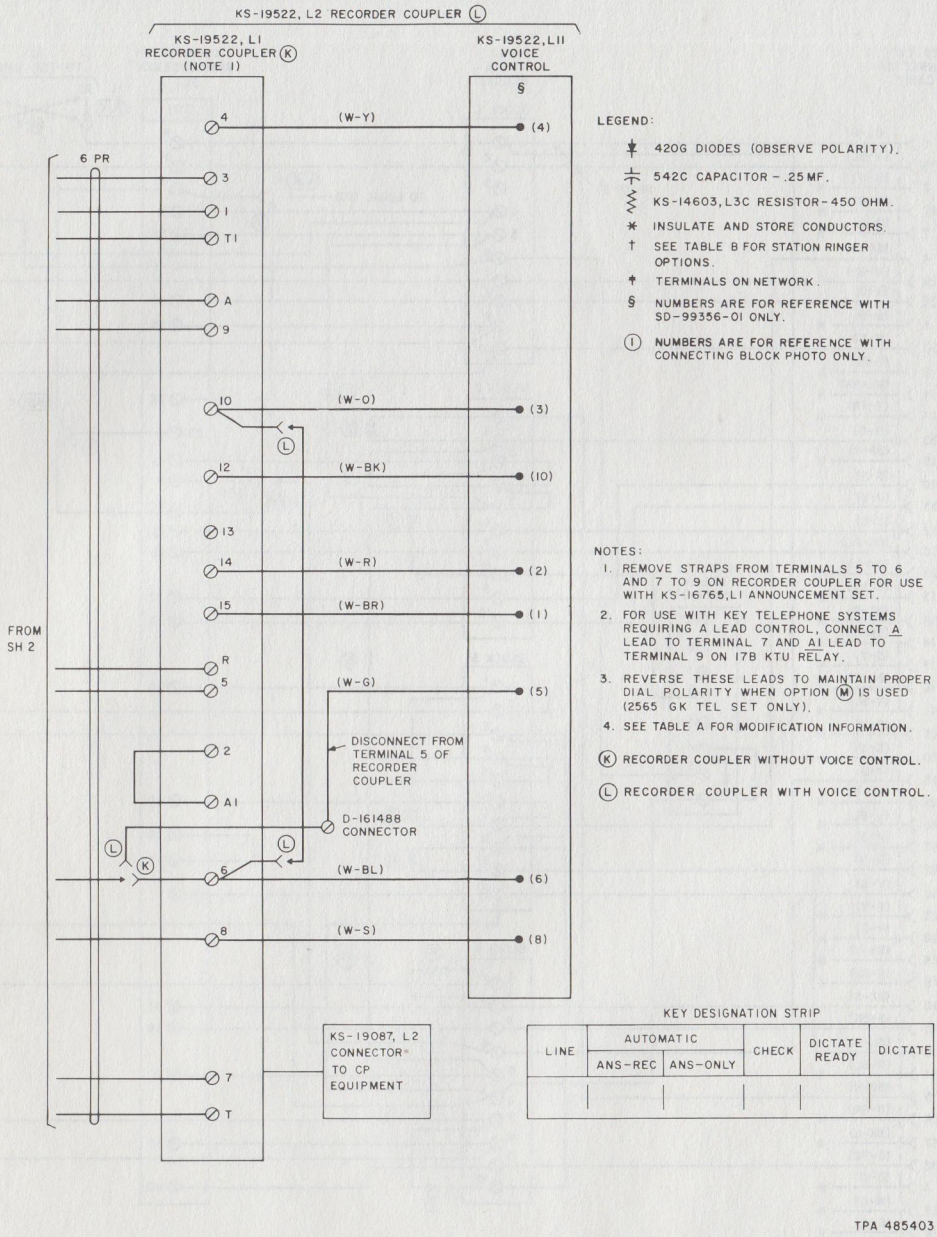
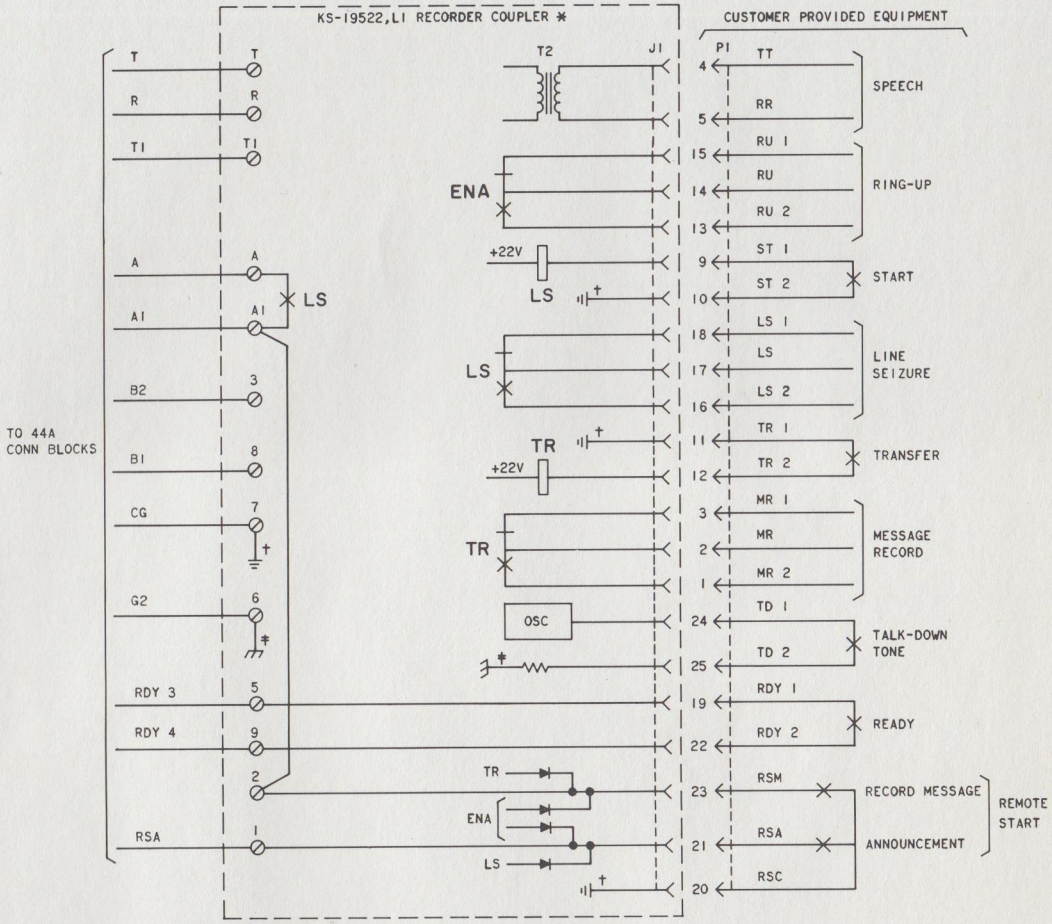


Fig. 10—Connections Using KS-16765, List 1 Announcement Set, KS-19522 Recorder Coupler and 565GK or 2565GK Telephone Set With Customer-Provided Message Recorder (Sheet 3)



* KS-19522,L2 RECORDER CONNECTIONS ARE AS SHOWN WITH VOICE CONTROL ADDED PER FIG. 10.
† DENOTES CONTROL GROUND
‡ DENOTES CHASSIS GROUND

Fig. 11—KS-19522 List 1 Recorder Coupler-Connections to Customer-Provided Equipment