

KEY TELEPHONE SYSTEMS
STATION ARRANGEMENT FOR 2- AND 4-WIRE
PRIVATE LINE SERVICE
IDENTIFICATION

1. GENERAL

- (a) This section is reissued to:
- Show the 500AD telephone set for use in single line station arrangements.
 - Show the 565HF telephone set as a replacement for the 565HB which is rated Manufacture Discontinued (MD).
 - Show the 683- and 682-type telephone sets as replacements for the 608- and 618-type sets, respectively.
 - Show the J53041D, List 1 speakerphone control unit as a replacement for the 261A KTU which was never manufactured and rated MD.
- (b) Since this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.

2. PURPOSE

- (a) To provide an arrangement for terminating a 4-wire local battery private line circuit in single line or 2- and 4-wire key telephone sets (Fig. 1).

3. ORDERING GUIDE

- (a) *Telephone Sets*
- Set, Telephone, 500AD
 - Set, Telephone, 683- or 608-(MD) type, 30-button CALL DIRECTOR®
 - Set, Telephone, 682- or 618-(MD) type, 18-button CALL DIRECTOR
 - Set, Telephone, Hand, 211P with 685C Subset
- (b) *Key Telephone Units*

KTU CODE	CIRCUIT PURPOSE	QUANTITY	PANEL WIDTH	
			INCHES	7/16-INCH MODULES
201C	Fuse unit	as required	2-5/32	5
220B	Ring relay or power supply	1 per line	3-1/32	7
227A (MD) or 227B	Common audible control circuit	as required	3-1/16	7
229B	Auxiliary relay unit used as 4-wire line pickup relay circuit	1 per station per line	3-1/16	7
	Auxiliary relay unit used as 4-wire line exclusion control circuit	1 per line		
232A (MD) or B	Time-out and manual intercom circuit provides flashing, winking, ringing and busy-tone signal interruptions when equipped with KS-15900, List 1 interrupter	as required*	3-15/32	8
240B or 244A	Line transfer circuit †	1 per line	6-31/32	16
241A	Auxiliary line transfer circuit		3-1/32	7
245A	Attenuator pads ‡	as required	2-5/32	5
248A (MD)	4-wire private line station circuit	1 per station group	3-1/32	7
248B			4-25/32	11
251A	Ringup relay for 20-cycle incoming signal	1 per line	2-5/32	5
J53041D, List 1	Speakerphone control §		6-3/32	14

* Time-out and required interruptions may be furnished from an associated key telephone system.

† 240B KTU equipped with 120C repeating coils; 244A KTU equipped with 120G repeating coils.

‡ Two 89-plug-in type resistors must be ordered separately. See Section 518-610-401.

§ Modified 55B control unit also required for speakerphone control. See Section 518-610-401.

4. COMPONENT FEATURES**(a) Telephone Sets**

- (1) Normal line functions such as pickup, lamps and signaling are furnished by the telephone sets used with this arrangement.
- (2) Two- or four-wire circuits may be picked up by the same key telephone set or separately mounted keys by the use of an FW (four-wire) relay in the telephone set or subset associated with hangup hand telephone sets.
- (3) A station group refers to those key telephone sets associated with the same local battery talking supply. A 4-wire private line may have up to six station groups with up to 20 extensions per group.
- (4) Speakerphone option for use with either 2- or 4-wire circuits is available.

(b) Key Telephone Units

- (1) **220A KTU** — Incoming signaling circuit operates from either SS1 or 600/1500 cycle selective signaling system or from the 4-wire private line circuit. This unit controls visual and audible time-out function, common audible, and where required, sends a busy line condition to other appearances of the line in certain switching systems.
- (2) **229B KTU** — Used as line pickup or exclusion control to provide additional contacts for 4-wire station control. Line pickup key is operated over A lead of pickup key associated with 4-wire circuit.
- (3) **232B KTU** — Provided when visual and audible signal circuit equipment is not available as part of an associated 1A1 KTS. Must be equipped with separately ordered KS-15900, List 1 interrupter.
- (4) **240B or 244A KTU** — Provided when a 4-wire circuit is to connect to customer-owned data or encryption equipment. Controlled by a nonlocking key on the telephone set. Line pickup key and transfer key are illuminated as long as customer equipment remains on line. The 240B KTU is equipped with 120C repeat coils which provide a 1:1 impedance ratio. The 244A KTU is equipped with 120G coils which can be strapped to

provide ratios of 1:2.5, 1:1.5, 2.5:1, or 1.5:1. Connections are provided for an auxiliary ringer used to signal customer from test board if circuit is inadvertently left in data or encryption mode.

- (5) **241A KTU** — Used as an auxiliary transfer circuit in addition to transfer circuit when more than one piece of customer-owned equipment is to be used on line. A second nonlocking key is required on telephone set to control circuit.
- (6) **245A KTU** — Provides attenuator pads when the input signal to the customer-owned data or encryption equipment is not at the proper level. Two plug-in 89-type resistors per KTU must be ordered separately. When two customer equipments require pads of same value, install 245A KTU ahead of auxiliary transfer circuit. When pads of different value are required, install individual 245A KTU after auxiliary transfer circuit.

(7) **248-Type KTU** — This unit provides the basic common line functions for the 4-wire private line service. Operates under control of pickup relays for key telephone sets or the switchhook in single line sets. Either the 248A (MD) or 248B KTU may be used with key telephone sets. The 248B KTU is required for use with single line telephone sets. Dial pulses when required, are repeated to the signaling system by this circuit.

(8) **251A KTU** — This unit is part of the 4-wire private line circuit. Responds to 20-cycle incoming ring and used to control the incoming signaling circuit (220A KTU).

(9) **J53041D, L1 Speakerphone Control Unit** — Used with a modified 55B control unit to provide 3A speakerphone feature at 2- and 4-wire stations. Both control units must be provided on a per station basis.

5. ASSOCIATED APPARATUS

- (a) Power supply — KTUs require a 20-26V dc source which can be obtained from:
 - 101G (J86731A, List 6) or 19-type power supply.
 - 101G (J86731A, List 4) or 20-type power supply when 105-volt ac is required.

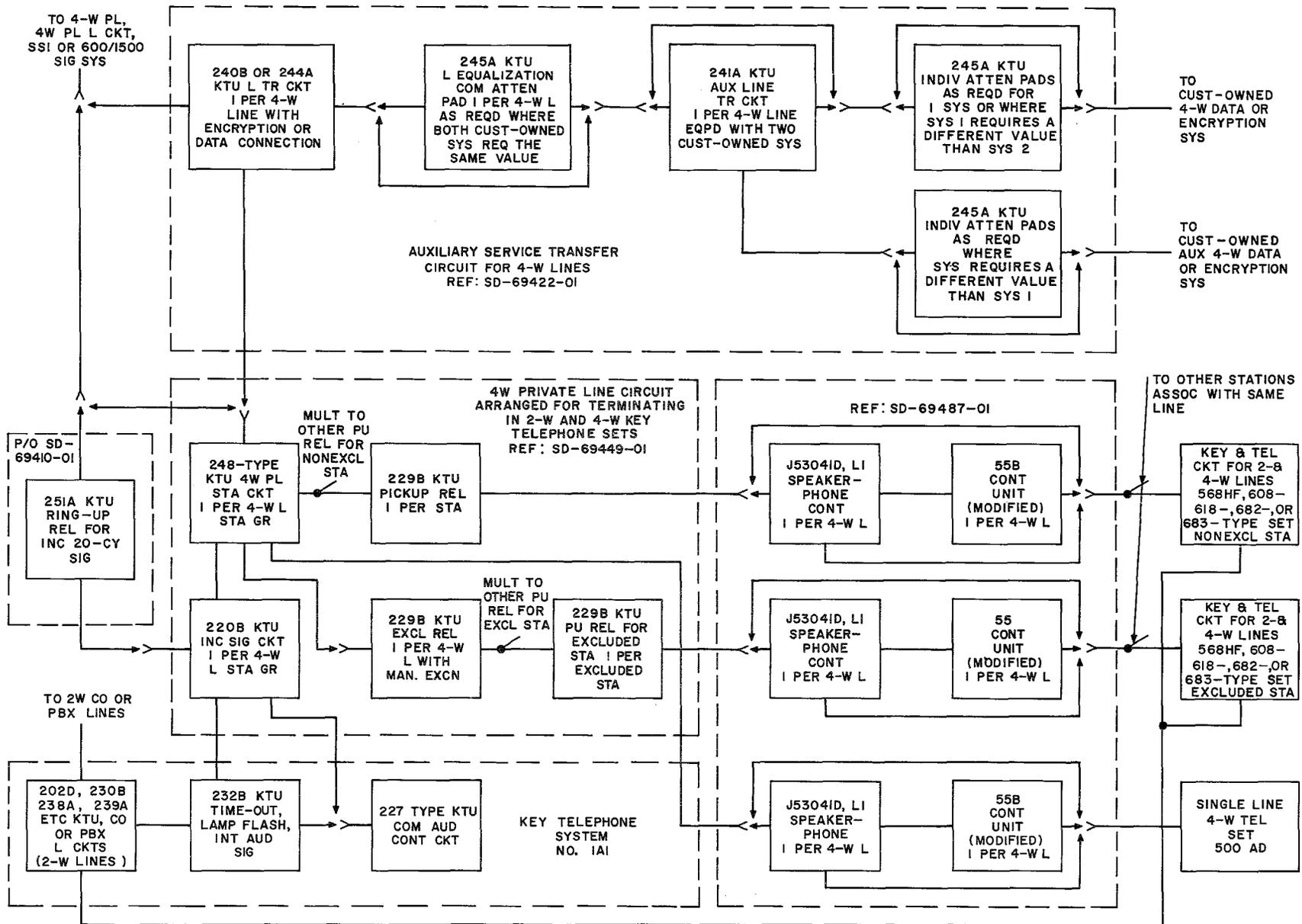


Fig. 1 - Block Diagram, Station Arrangement For 2- and 4-Wire Service