

## 650A KEY SERVICE UNIT 1P2 KEY TELEPHONE SYSTEM IDENTIFICATION AND INSTALLATION

### 1. GENERAL

**1.01** The 650A Key Service Unit (Fig. 1 and 2) is a wall mounting for housing key telephone units which provide various key telephone features associated with PICTUREPHONE<sup>®</sup> service.

**1.02** The 400-type KTUs used in these arrangements are described in Section 518-215-125. The 600-type KTUs are described in Section 518-800-105.

### 2. IDENTIFICATION

#### PURPOSE

- When equipped with the proper 400 and 600 series key telephone units, provides *single group* line and *single link* dial selective intercom 1P2 key telephone service in one of the following basic arrangements:

(a) Single group, one (CO, Centrex, or PBX) audio/video line with optional add-on conference

or

Single group, two (CO, Centrex, or PBX) audio/video lines with optional add-on conference

(b) Single group, one (CO Centrex, or PBX) audio/video line and single link dial selective 6-station audio/video intercom

(c) Single link dial selective 10-station audio/video intercom

#### DESIGN FEATURES

- Wall mounted
- Removable gray cover
- Optional self-contained power supply
- 914-type connectors to accept 400 and 600 series key telephone units

- Swing-out carrier assembly hinged to left side of backboard, provides ease of access to eight KS-16671, List 1 connectors and two 66-type connecting blocks.

- Fuse panel to provide protection for power distribution

- Designation strip holders serve as retainers for the KTUs plugged into connectors

- The eight 50-pin KS-16671, List 1 connectors provide access to external cross-connect field via A25B connector cables

- Internal wiring harness interconnects the 914-type connectors with the KS-16671, List 1 connectors and/or 66B3-50 connecting blocks to facilitate choice of service arrangements.

- The two 66-type connecting blocks provide for service option strapping.

#### ORDERING GUIDE

Unit, Service, Key, 650A1 (less power unit)

Unit, Service, Key, 650A2 (equipped with 51C1 power unit)

Cord, Power, P-40J329, (6 feet); P-40J099, (12 feet)

(a) *Separately ordered apparatus required for single group, one or two (CO, Centrex, or PBX) audio/video lines with add-on conference. (See Fig. 3 for location in carrier.)*

- Interrupter, KS-15900, List 1 (one per KSU)

- Unit, Telephone, Key, 417A (conference circuit, one per KSU)

- Unit, Telephone, Key, 600A (station line circuit, one per line)

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- Unit, Telephone, Key, 601A (video switch circuit, one per KSU)\*
  - Unit, Telephone, Key, 606A (common half cable equalizer, one per line)
  - Unit, Telephone, Key, 607A (control half cable equalizer, one per line).
- (b) ***Separately ordered apparatus required for one (CO, Centrex, or PBX) audio/video line and single link dial selective 6-station audio/video intercom arrangement with add-on conference. (See Fig. 3 for location in carrier.)***
- Interrupter, KS-15900, List 1 (one per KSU)
  - Unit, Telephone, Key, 407B (selector circuit, [10 codes] one per KSU)
  - Unit, Telephone, Key, 417A (conference circuit, one per KSU†)
  - Unit, Telephone, Key 422B (station busy selection circuit, one per KSU)
  - Unit, Telephone, Key, 423A (dial tone, station busy tone, audible ringback circuit, one per KSU)
  - Unit, Telephone, Key, 425B (flashing lamp circuit, [19 codes] one per KSU)
- |  |   |   |
|--|---|---|
| <ul style="list-style-type: none"> <li>● Unit, Telephone, Key 426A (amplifier, band separation and limiter circuit, one per KSU)</li> <li>● Unit, Telephone, Key, 427B Series 4 (frequency recognition, and translation circuit, one per KSU)</li> </ul> | } | <p>TOUCH<br/>TONE®</p> <p>Adapter<br/>Circuit</p> |
|--|---|---|
- Unit, Telephone, Key 600A (station line circuit, one per line)

- Unit, Telephone, Key 601A (video switch circuit, one per KSU)\*
  - Unit, Telephone, Key, 604A (station lockout circuit, one per KSU)
  - Unit, Telephone, Key, 605A (audio/video link circuit, one per 3 stations). Place in positions J1 and J2 in carrier 2.
  - Unit, Telephone, Key, 606A (common half cable equalizer, one per line)
  - Unit, Telephone, Key 607A (control half cable equalizer, one per line).
- (1) ***In addition, the following externally mounted associated apparatus‡ must be separately ordered when any of the following arrangements are required:***
- Station Busy Tone
    - Unit, Telephone, Key, 422B (station busy selection circuit, one per arrangement)
  - Signal Key Preset Audio Only Conference
    - Unit, Telephone, Key, 404A (diode matrix, one per arrangement)
    - Unit, Telephone, Key, 421A (transfer relay, three per arrangement)
  - Dial Selected Preset Audio Only Conference
    - Unit, Telephone, Key, 404A (diode matrix, one per arrangement)
    - Unit, Telephone, Key 413A (auxiliary ringup, one per arrangement)
    - Unit, Telephone, Key, 421A (transfer relay, two per arrangement)
  - Bridged Hunting—One Station

\*When a priority station arrangement is required, one 601A KTU for each two stations to be so arranged must be ordered separately and mounted externally.

†Must be mounted externally for this arrangement.

‡KTUs must be mounted external to the 650A KSU using 69-type apparatus mountings (Section 518-215-120), 99-type brackets, and 16-type apparatus mountings (Section 463-140-100).

Unit, Telephone, Key, 421A (transfer relay, one per arrangement)

● Bridged Hunting—More Than One Station

Unit, Telephone, Key 421A (transfer relay, one per arrangement)

Unit, Telephone, Key, 422B (station busy selection circuit, one per arrangement)

(c) **Separately ordered apparatus required for single link dial selective 10-station audio/video intercom arrangement. (See Fig. 3 for location in carrier.)**

● Interrupter, KS-15900, List 1 (one per KSU)

● Unit, Telephone, Key 407B (selector circuit, [10 codes] one per KSU)

● Unit, Telephone, Key 422B (station busy selection circuit, one per KSU)

● Unit, Telephone, Key, 423A (dial tone, station busy tone, audible ringback circuit, one per KSU)

● Unit, Telephone, Key, 425B (flashing lamp circuit, 19 codes, one per KSU)

● Unit, Telephone, Key, 426A (amplifier, band separation, and limiter circuit, one per KSU)

● Unit, Telephone, Key 427B Series 4 (frequency recognition and translation circuit, one per KSU)

TOUCH-TONE Adapter Circuit

● Unit, Telephone, Key, 604A (station lockout circuit, one per KSU)

● Unit, Telephone, Key, 605A (audio/video link circuit, one per three stations).

(1) **In addition, the following externally mounted associated apparatus<sup>‡</sup> must**

**be separately ordered when any of the following arrangements are required:**

● Station Busy Tone

Unit, Telephone, Key, 422B (station busy selection circuit, one per arrangement)

● Signal Key Preset Audio Only Conference

Unit, Telephone, Key, 404A (diode matrix, one per arrangement)

Unit, Telephone, Key, 421A (transfer relay, three per arrangement)

● Dial Selected Preset Audio Only Conference

Unit, Telephone, Key, 404A (diode matrix, one per arrangement)

Unit, Telephone, Key, 413A (auxiliary ringup, one per arrangement)

Unit, Telephone, Key, 421A (transfer relay, two per arrangement)

● Bridged Hunting—One Station

Unit, Telephone, Key, 421A (transfer relay, one per arrangement)

● Bridged Hunting—More Than One Station

Unit, Telephone, Key, 421A (transfer relay, one per bridged station)

Unit, Telephone, Key, 422B (station selection circuit, one per arrangement).

(d) **Replaceable Components**

Unit, Power, 51C1 (51A1 power unit with hardware for mounting in KSU)

Unit, Power, 51A1 (ac and dc power supply only)

Fuse, 24C (2 amp, 1 required)

<sup>‡</sup>KTUs must be mounted external to the 650A KSU using 69-type apparatus mountings (Section 518-215-120), 99-type brackets, and 16-type apparatus mountings (Section 463-140-100).

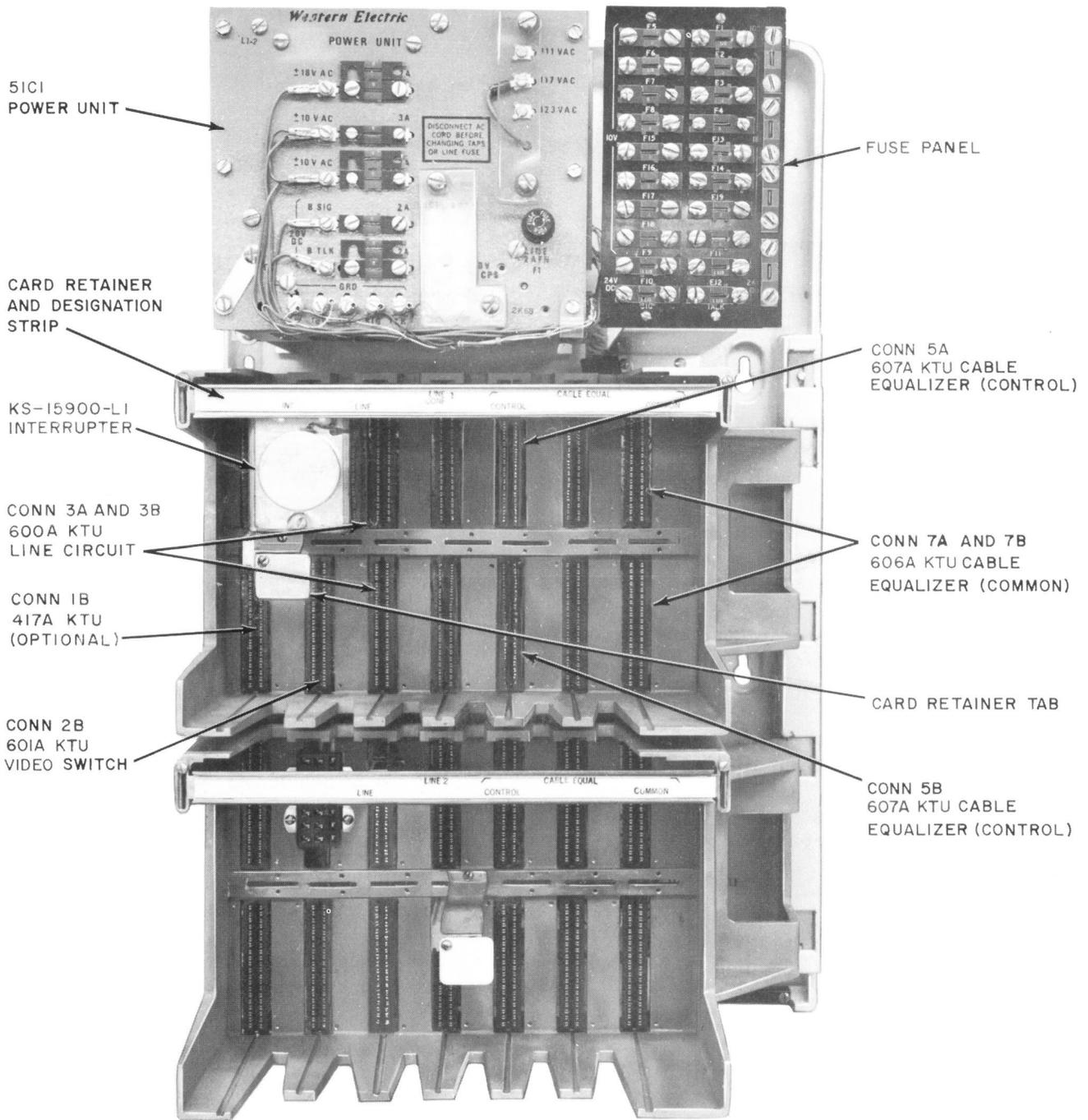


Fig. 1—650A Key Service Unit, Carriers Closed, Circuit Packs Removed

- Fuse, 24E (1/2 amp, 2 required)
- Fuse, 24F (5 amp, 2 required)
- Fuse, 24G (1-1/3 amp, 16 required)
- Strip, Designation 840263156

### 3. INSTALLATION

#### PLANNING

- Select a wall location for mounting that is substantial, will allow full opening of the carriers, and is in close proximity to other key telephone systems for ease of wiring

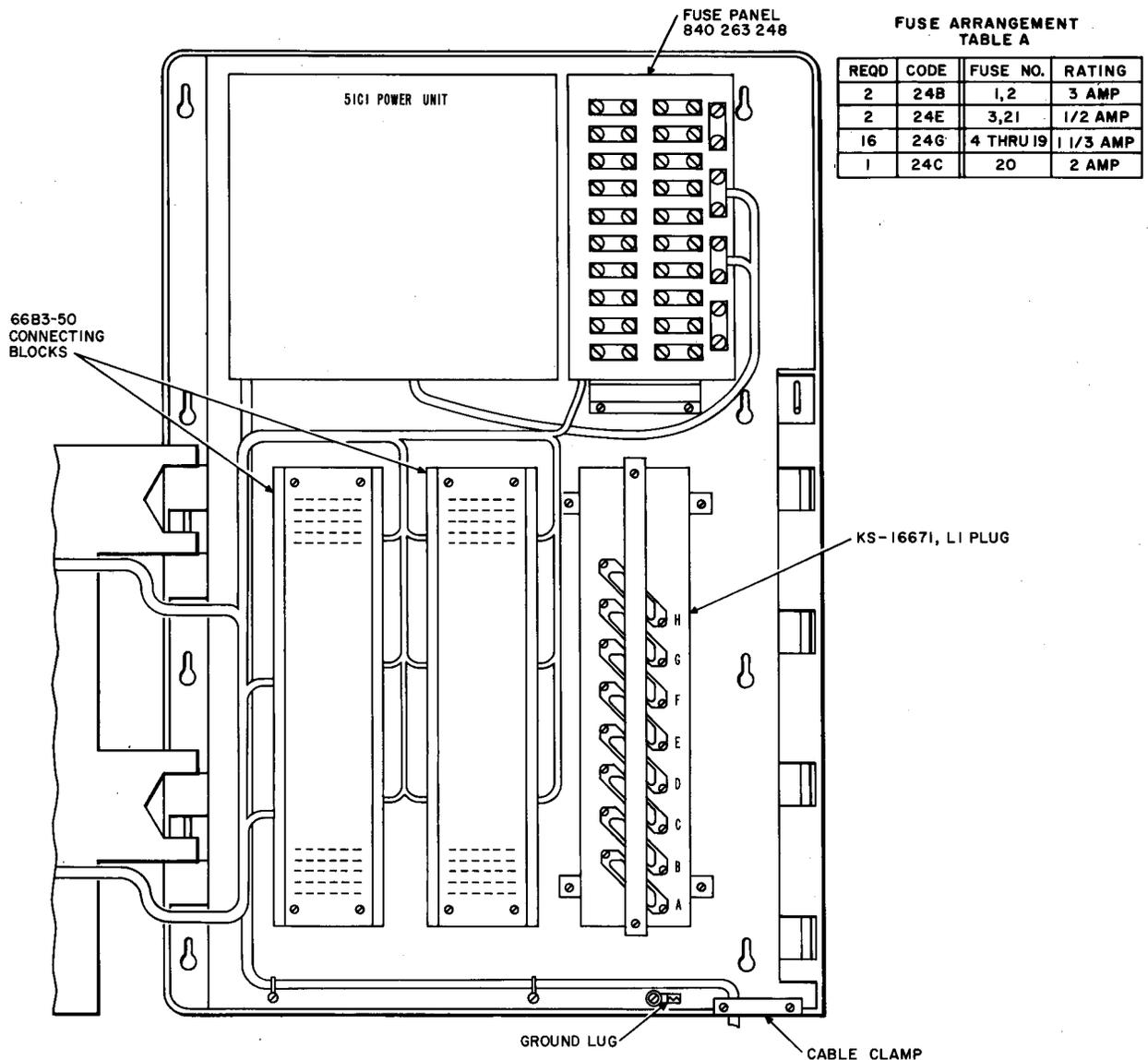


Fig. 2—650A KSU, Carriers Opened

- Select location with customer-provided 105- to 117-volt, 60 Hz outlet not under control of a switch
- Select the necessary KTUs to provide the required service features.

**INSTALLING**

- (1) Use care when unpacking to prevent key service unit from falling out of cover
- (2) Remove cover
- (3) Mount the unit on the wall at the selected location, using the template provided and appropriate fasteners. (Section 463-140-200.)
- (4) Install the necessary straps on the option blocks and KTUs to provide the required wiring options. For 600-type KTU option strapping see Section 518-800-105. For 400-type KTU option strapping see Section 518-215-125.
- (5) Install the KTUs by inserting the plug end into the proper connector(s) (Fig. 3). Make certain card retainer (Fig. 1) is properly secured to keep KTUs in place.



**Exercise care when handling KTUs to avoid damage to the printed wiring and other components. Examine connectors for bent or damaged springs.**

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- (6) Mount external 66B4-25 connecting blocks or 184B backboard(s)
- (7) Plug A25B connector cables into the appropriate connectors on KSU and terminate the other end of the cables on external connecting blocks as outlined in Section 518-800-405, 518-800-409, or 518-800-413.
- (8) Terminate a No. 14 ground wire on the ground lug provided in the 650A KSU (Fig. 2). Refer to 518 Division, section entitled Key Telephone Systems, Grounding and Special Protection Requirement.
- (9) Terminate the telephone set cabling, CO/PBX pairs and other wiring on the external connecting blocks.
- (10) Plug the 3-wire line cord into the ac outlet provided.
- (11) Close and latch the carrier assemblies.
- (12) After station tests (using the 136A test set, Section 518-800-501) have been completed, test the 1P2 Key Telephone System operation for services provided.
- (13) Replace and secure cover.

650A KEY SERVICE UNIT  
CARRIERS 1 AND 2  
EQUIPPED FOR 2 CO LINES AND ADD-ON CONF

J1A	J2A	J3	J4	J5	J6	J7
KS-15900, LI INTERRUPTER		600A KTU		607A KTU		606A KTU
J1B	J2B					
417A KTU	601A KTU					

J1	J2	J3	J4	J5	J6	J7
		600A KTU		607A KTU		606A KTU

650A KEY SERVICE UNIT  
CARRIERS 1 AND 2  
EQUIPPED FOR 1 CO LINE AND 6 STA INTERCOM

J1A	J2A	J3	J4	J5	J6	J7
KS-15900-LI INTERRUPTER		600A KTU	407B KTU	607A KTU	604A KTU	606A KTU
J1B	J2B					
	601A KTU (NOTE 1)					

J1	J2	J3	J4	J5	J6	J7
605A KTU (1-3 STA)	605A KTU (4-6 STA)		422B KTU	426A KTU	425B KTU	* 427C KTU
			J4B			
			423A KTU			

650A KEY SERVICE UNIT  
CARRIERS 1 AND 2  
EQUIPPED FOR 10 STA INTERCOM

J1A	J2A	J3	J4	J5	J6	J7
KS-15900, LI INTERRUPTER			407B KTU	605A KTU (7-9 STA)	604A KTU	605A KTU (10-12 STA)
J1B	J2B					

J1	J2	J3	J4A	J5	J6	J7
605A KTU (1-3 STA)	605A KTU (4-6 STA)		422B KTU	426A KTU	425B KTU	* 427C KTU
			J4B			
			423A KTU			

NOTE:

1. SECOND HALF OF THIS 601A VIDEO SWITCH CANNOT BE USED. IF A PRIORITY ARRANGEMENT IS REQUIRED, ADDITIONAL 601A KTUS MUST BE INSTALLED EXTERNAL TO THE 650A KSU USING 69-TYPE APPARATUS MOUNTINGS, 99A BRACKETS AND 16-TYPE APPARATUS MOUNTINGS.

\* 427C KTU IS EQUIVALENT TO A 427B SERIES 4 KTU.

Fig. 3—Key Telephone Equipment Locations in Carrier Positions of the 650A KSU