

513-, 514-, AND 515-TYPE KEY SERVICE UNITS

1A2 KEY TELEPHONE SYSTEM

IDENTIFICATION AND INSTALLATION

1. IDENTIFICATION

PURPOSE

- To accommodate the diversified and expanded services offered by the 1A2 Key Telephone System by providing mounting and connecting facilities for the 400 series KTUs (Fig. 1).

APPLICATION

- 1A2 Key Telephone System

ORDERING GUIDE

Unit, Service, Key, 513A1 (Basic unit)

Unit, Service, Key, 513A2 (513A1 with a 19C2 power unit)

Unit, Service, Key, 513A3 (513A1 with a 20C2 power unit)

Unit, Service, Key, 513A4 (513A1 with a 30C1 power unit)

Unit, Service, Key, 514A1 (Add-on unit)

Unit, Service, Key, 515A1 (513A1 and 514A1)

Unit, Service, Key, 515A2 (513A2 and 514A1)

Unit, Service, Key, 515A3 (513A3 and 514A1)

Unit, Service, Key, 515A4 (513A4 and 514A1)

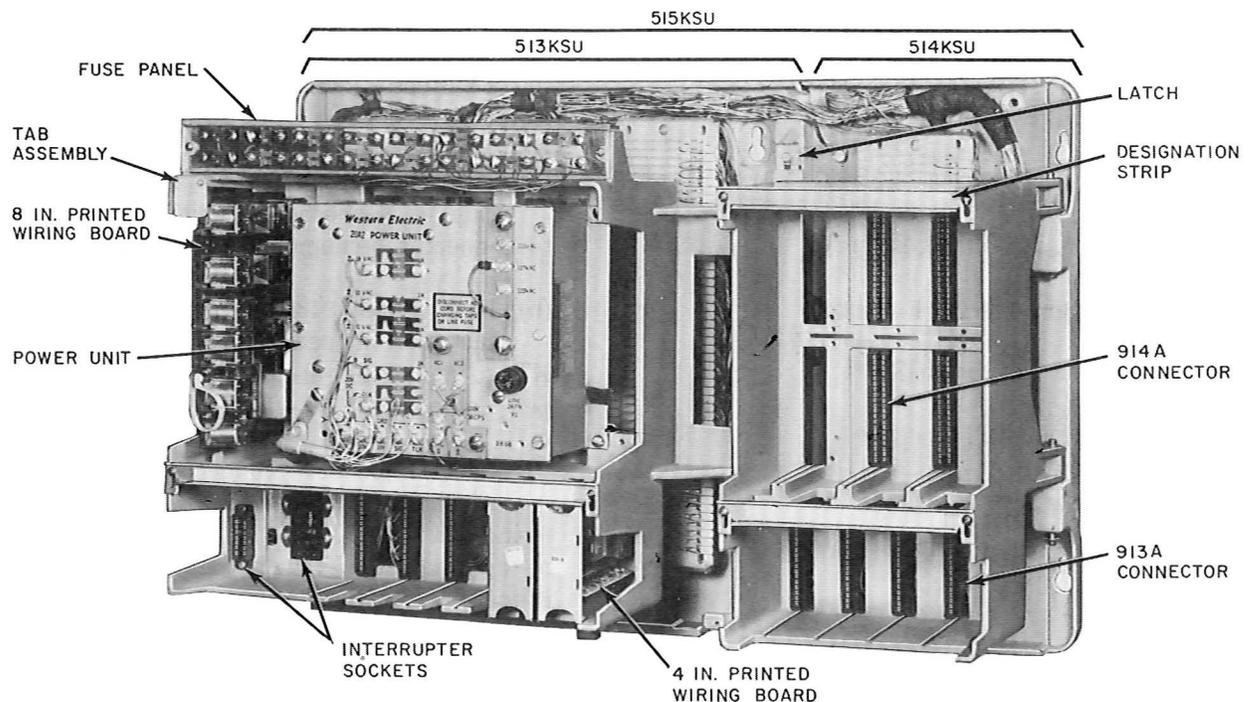


Fig. 1—515A3 Key Service Unit, Cover Removed

(a) *Replaceable Components*

- Fuse, 2 Amp, 24C
- Fuse, 1/2 Amp, 24E
- Fuse, 5 Amp, 24F
- Strip, P-40V604
- Strip, P-40V603
- Strip, Designation, P-40V602
- Strip, Designation, P-40V601
- Block, Connecting, 66R1
- Block, Connecting, 66R2
- Block, Connecting, 66R3
- Unit, Power, 19C2
- Unit, Power, 20C2
- Unit, Power, 30C1
- Interrupter, KS-15900, L1 (10V ac)
- Interrupter, KS-19175, L1 (10V ac)
- Interrupter, KS-19384, L2 (24V dc)
- Interrupter, KS-19385, L2 (24V dc)
- Cord, Power, 1 1/2', P-40J326*
- Cord, Power, 2', P-40J327*
- Cord, Power, 4', P-40J328*
- Cord, Power, 6', P-40J329*
- Cord, Power, 12', P-40J099*
- Block, Matrix, 1A1 and Screw, RMH, P-160853 (order two)*
- Block Connecting, 66R3 and Screw, RHM P-160884 (order two)*

- Mounting, Apparatus, 69E*
- Mounting, Apparatus, 69F*
- Assembly, Guide, P-40V590*

*Ordered separately

DESIGN FEATURES
513-TYPE KSU

- (a) The 513A1 KSU is the basic unit.
- (b) Unit is 17.4 inches wide by 17 inches high by 11 inches deep.
- (c) Removable cover of glass reinforced polyester resin.
- (d) Arranged for wall mounting.
- (e) Utilizes three 66-type connecting blocks, mounted on a backboard, to facilitate the interconnection of internal and external cables, and optional wiring (Fig. 2).
- (f) Space is provided on the backboard for one 1A1 diode matrix block, or a second 66R3 connecting block.
- (g) Swing-out carrier assembly hinged to left side of backboard provides ease of access to connector terminals, and connecting blocks.
- (h) Four 20-pin 913A connectors (J3-J6) which can accommodate 18- or 20-contact (4-inch) KTUs, and some 40-contact KTUs (limited use). See Table A.
- (i) Four 40-pin 914A connectors (J1, J2, J7, J8) which can accommodate 18-, 20-, or 40-contact (4-inch) KTUs. J1 and J2 are aligned vertically to accommodate an 80-contact (Dial Intercom) (8-inch) KTU when required (see Table A).
- (j) Two interrupter sockets (J9, J10) to accept any one of four KS-type interrupters as shown in ordering guide. The choice of interrupter is determined by the lamp capacity of the system, and/or the type of power available for the motor.

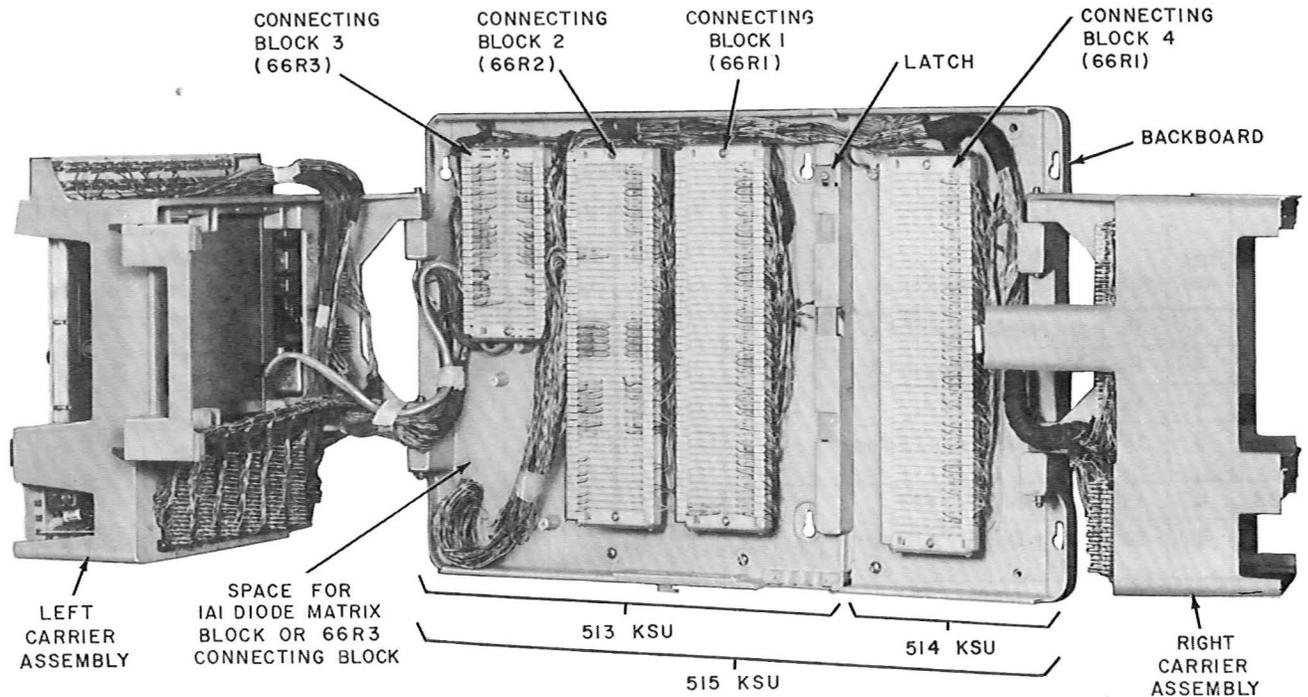


Fig. 2—515-Type Key Service Unit, Carrier Assemblies Open

- (k) Dedicated leads for battery and ground, interrupter, lamp steady, lamp flash, lamp wink, and ringing are wired to the same numbered contacts on each jack (J1-J8). These leads also terminate on connecting block 3 (Fig. 2).
- (l) Nondedicated leads are terminated on connecting blocks 1 and 2 for connections to station and/or distribution cable, and for strapping between units when required (Fig. 2).
- (m) Fuse panel provides power distribution to the jacks for lamp and interrupter functions. See Table B for fusing information.
- (n) Provision for any one of three optional power units. The 20- and 30-type units include a 30Hz frequency generator. When ringing voltage is required for a system using the 19-type power unit, an external source must be provided.
- (o) Designation strip holder also serves as a retainer for the KTUs plugged into jacks J3-J8.

- (p) If an external power supply is used, as many as three 69F apparatus mountings can be mounted in the space normally occupied by the power unit. Each 69F apparatus mounting will accommodate two 4-inch, (with the addition of a P40V590 guide assembly) or one 8-inch 400 series KTU. The 69F apparatus mounting must be ordered separately and installed in the field (Fig. 3).

514-TYPE KSU

- (a) The 514A1 KSU is an add-on unit intended for use with the 513-type KSU to provide for growth and/or expansion of features by furnishing additional mounting and connecting facilities (Fig. 1).
- (b) Unit is 8.2 inches wide by 16.7 inches high by 10.7 inches deep.
- (c) Furnished with hardware for joining the 514A1 KSU to the 513-type KSU (to form the 515-type KSU).

TABLE A
ARRANGEMENT OF 400 SERIES KTUS IN 513, 514, AND 515 KSUS

KTU	SIZE (IN)	PINS	SERVICE FUNCTION	515 KSU															
				513 KSU								514 KSU							
				J1	J2	J3	J4	J5	J6	J7	J8	J11	J12	J13	J14	J15	J16	J17	J18
				40	40	20	20	20	20	40	40	40	40	40	40	20	20	20	20
PIN	PIN	PIN	PIN	PIN	PIN	PIN	PIN	PIN	PIN	PIN	PIN	PIN	PIN	PIN	PIN				
400D	4	18	CO/PBX Line Ckt	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
401A	4	18	Manual Intercom Ckt	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
404A	4	18	Diode Matrix	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡	‡		
407B	8	18	Dial Intercom 10-Code Ckt	X		-	-	-	-	-	-	-	-	-	-	-	-		
413A	4	18	Aux Ring-Up Ckt	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
414A	4	20	Ring-Down Tie Line Ckt	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
415A	4	18	Auto Tie Line Ckt	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
416A	4	20	Station Tie Line Ckt	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
417A	4	40	Add-On Conf Ckt	-	-	-	-	-	X	X	◇	-	◇	-	-	-	-		
418A	4	20	Short Range Tie Line Ckt	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
419A	8	80	Auto Ring-Down Tie Line Ckt	X		-	-	-	-	-	X		X	-	-	-	-		
420A	4	18	Dial Intercom Long Line Ckt	-	-	X	X	X	X	X	X	X	X	X	X	X	X		
421A	4	40	Power Failure Transfer Ckt	*	*	-	-	-	X	X	*	*	*	*	-	-	-		
422A or B	4	40	Dial Intercom Station Busy Ckt	-	-	-	-	-	X	X	X	-	X	-	-	-	-		
423A	4	20	Dial Intercom, Aud Tone, Dial Tone, Busy Tone Ckt	-	-	X	X	X	X	X	X	X	X	X	X	X	X		
424A	8	80	Dial Intercom, 19-Code Ckt	X		-	-	-	-	-	-	-	-	-	-	-	-		
425A	8	80	Dial Intercom Flashing Lamp Ckt	-	-	-	-	-	-	-	X		X	-	-	-	-		
426A	8	80	TOUCH-TONE Adapter Ckt	-	-	-	-	-	-	-	X		X	-	-	-	-		
427A or B	8	80	TOUCH-TONE Adapter Ckt	-	-	-	-	-	-	-	X		X	-	-	-	-		
428A	4	40	Multiline Exclusion Ckt	Δ	Δ	Δ	Δ	Δ	X	X	X	Δ	X	Δ	Δ	Δ	Δ		
429A	4	40	Sup Hold Detector Ckt	-	-	-	-	-	X	X	-	-	-	-	-	-	-		
430A	4	20	Flutter Generator	X	X	X	X	X	X	X	X	X	X	X	X	X	X		

- X Usable in indicated connector
- Not usable
- ‡ Partial use
- ◇ Spare terminals for 13 leads required on connecting block
- Δ One circuit only
- * Restricted to transfer of one station ringer

TABLE B
FUSING FOR 513-, 514-, AND 515-TYPE KSUS

DESIGNATION	FUSE AMP	CIRCUIT	POTENTIAL	CODE
F1	5	Lamp	10V AC	24F
F2				
F3	0.5	MB, MG, ST	10V AC or 24V DC	24E
F4	2	Lamp Wink	10V AC	24C
F5		Lamp Flash		
F6				
F7				
F8				
F9				
F10		Lamp Wink		
F11		Lamp Steady		
F12				
F13				
F14				
F15				

(d) Utilizes one 66R1 connecting block, mounted on the backboard, to facilitate the connecting of station and/or distribution cable (Fig. 2).

(e) Swing-out carrier assembly hinged to right side of backboard provides ease of access to connector terminals, and connecting block.

(f) Four 20-pin 913A connectors (J15-J18) which can accommodate 18-, or 20-contact (4-inch) KTUs, and some 40-contact KTUs (limited use). See Table A.

(g) Four 40-pin 914A connectors (J11-J14) which can accommodate 18-, 20-, or 40-contact (4-inch) KTUs. J11 and J12, and J13 and J14 are aligned vertically to accommodate 80-contact (8-inch) KTUs when required.

(h) Dedicated leads for battery and ground, interrupter, lamp steady, lamp flash, lamp wink, and ringing are wired to the same numbered contacts on each jack (J11-J18). These leads also terminate on connecting block 3.

(i) Nondedicated leads are terminated on connecting block 4 for connection of station

and/or distribution cable. Some nondedicated leads, in addition to being terminated on the connecting block, are brought out in cable tails for termination on block 1 or 2 of the 513-type KSU, when required. Others are cable leads only, for termination on block 1 or 2 as required.

(j) Designation strip holders also serve as retainers for KTU printed wiring boards plugged into jacks.

(k) Space is provided for a 69E apparatus mounting to allow the adding of one 8-inch, or with the addition of a P40V590 guide assembly, two 4-inch KTU printed wiring boards (400 series KTUs). The 69E apparatus mounting must be ordered separately and installed in the field (Fig. 4).

515-TYPE KSU

(a) The 515-type KSU is a mechanically joined, and partially interwired combination of 513-type and 514A1 KSUs (Fig. 1 and 2).

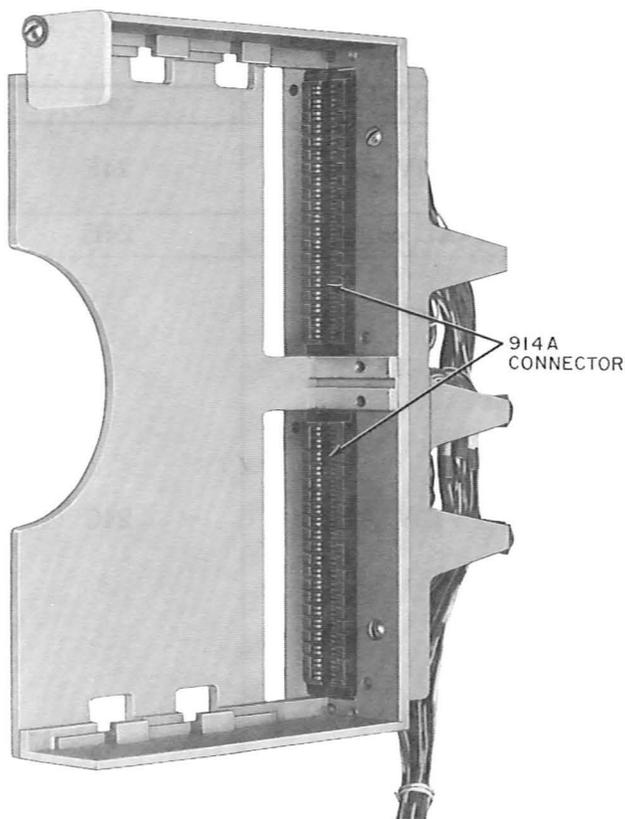


Fig. 3—69F Apparatus Mounting

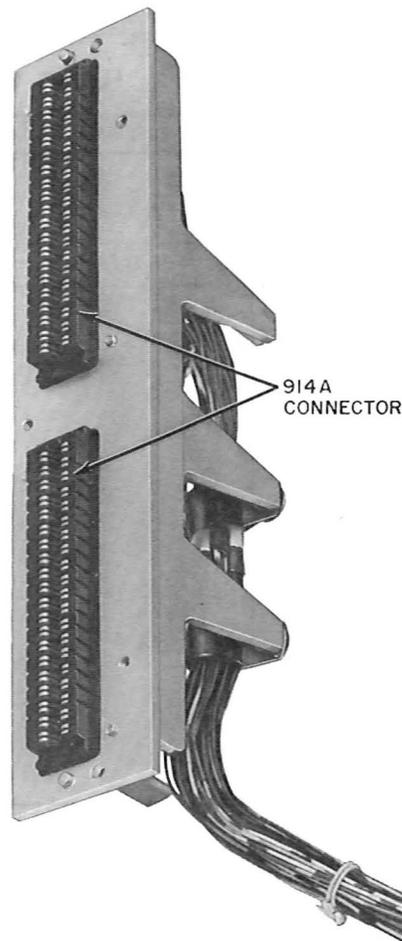


Fig. 4—69E Apparatus Mounting

(b) Intended for use where the initial installation requirement exceeds the service provided by a 513-type KSU.

(c) Unit is 25.5 inches wide by 17 inches high by 11 inches deep.

(d) Removable cover of glass reinforced polyester resin.

(e) Arranged for wall mounting.

2. INSTALLATION

PLANNING

- Use care when unpacking to prevent unit from falling out of the cover.

- Select a wall location for mounting that will allot at least 9-1/2 inches of wall space beyond each end of the backboard to allow full opening of the carrier assemblies.
- When a 513-type KSU is installed, allow at least 17-3/4 inches of space on the right side to provide room to add a 514-type KSU, should it ever be needed.
- Select the necessary KTUs to provide the desired service features.
- Make the necessary strappings on the option blocks to provide the required wiring options.

- Install the KTUs by inserting the plug-end of the boards into the selected jacks.



Exercise care when handling and inserting plug-in KTUs to avoid damage to the printed wiring and other components.

- If 69-type apparatus mountings are to be used, they should be installed, and the KTUs inserted.

INSTALLING

- Remove the cover.
 - Mount the unit on the wall at the selected location, using the provided template, and appropriate fasteners.
 - Unlatch and open the carrier assemblies.
 - If a 514A1 KSU is being added to a 513-type KSU:
 - Attach the two P-40V605 straps to the back of the 513-type KSU, using four of the eight P-210371 screws provided. Do not tighten the screws.
 - Slide the 514A1 KSU over the protruding ends of the straps, and butt the two units together—513-type KSU on the left and the 514A1 KSU on the right.
 - Secure the straps to the 514A1 KSU with the other four P-210371 screws.
 - Tighten the eight screws.
 - Fasten the 514A1 KSU to the wall.
 - Make the required strapping between units on the 66-type connecting blocks.
 - Mount the power unit in the carrier assembly, and connect the power leads from connecting block 3 to the proper terminals on the power unit. Refer to Section 518-215-405.
 - Be certain to make the circuit ground connection to an approved ground. See Section 167-400-200 for grounding information.
 - If an external power supply is used, remove the existing power supply leads from connecting block 3, and terminate replacement power leads of sufficient length on the assigned connecting block connectors.
 - Terminate the telephone set cabling and CO/PBX pairs on the connecting blocks.
 - Close and latch the carrier assemblies.
 - Plug the line cord into a 110V ac outlet.
 - If the available 110V ac outlet is not of the 3-wire grounded type:
 - An adapter must be provided.
 - Prepare a separate ground wire by attaching a lug (supplied) to a No. 14 gauge wire of sufficient length to reach from the KSU to an approved local ground (Should be same as protector and electric ground).
 - Attach the grounding wire at the KSU by placing the lug under one of the power unit mounting screws. Tighten the screw securely.
 - Refer to Section 167-400-200 for grounding information.
 - Test operation for services provided.
 - Replace and secure the cover.
- Note:** If a 514A1 KSU is being added, attach and secure the provided 129A cover. The 128A cover should be returned to stock.