

## PHONECART KS-21428

### 1. GENERAL

1.01 This section contains information on the KS-21428 Phonecart (Fig. 1 and 2) which is a rolling cart for use with a modified 1C-type coin telephone set in hospitals and/or nursing homes. The cart is intended to be rolled from one location to another to make available coin telephone service for those patients who do not have a room phone and whose illness prevents them from using public telephones provided outside the hospital room or ward. These carts may also be used to provide coin telephone service in penal institutions.



*Cart may be used in hospital general care area only. A wall jack must not be located within 30 feet of critical care area.*

1.02 This section is reissued to:

- Add list numbers 5, 6, 7, 8, 9, 10, 12, and 101
- Delete List 11
- Revise Fig. 1, 2, 4, 8, and 10
- Add Fig. 5, 6, 7, and 11.

Since this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.

### 2. IDENTIFICATION

2.01 Overall dimensions of the cart are:

- Height—57 inches
- Width—26 inches
- Depth—19-1/2 inches

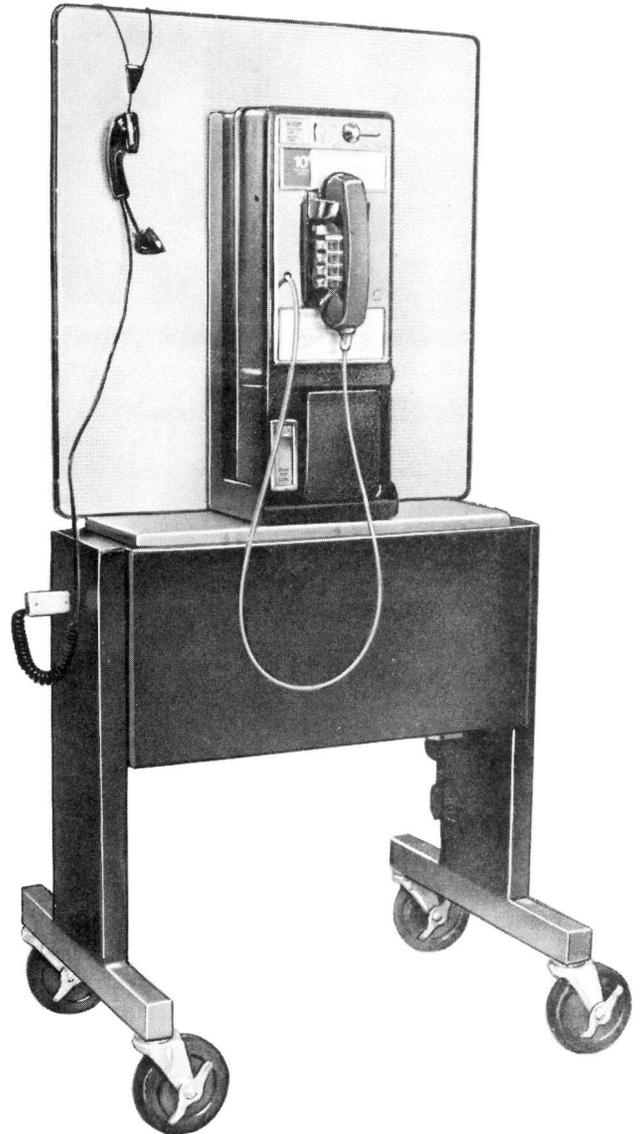
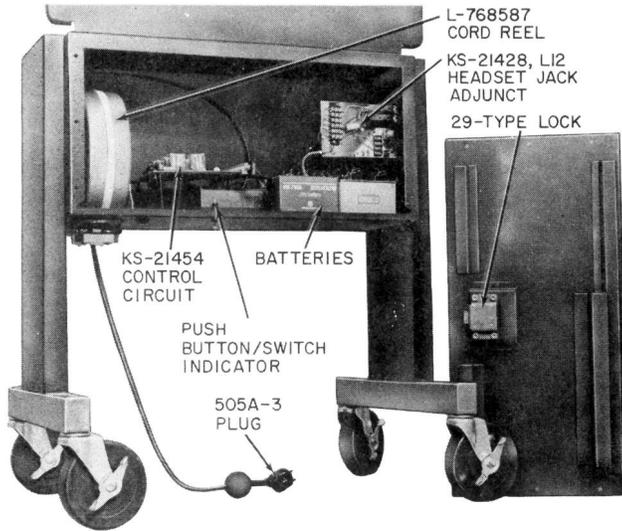


Fig. 1—Typical KS-21428, List 4 Phonecart With Modified 1C-Type Coin Telephone Set

### NOTICE

Not for use or disclosure outside the  
Bell System except under written agreement



**Fig. 2—KS-21428 Phoncart, Rear View**

- Shelf Height—30 inches
- Coin Slot Height—50-1/2 inches.

**2.02** Weight of the cart including the coin telephone set is approximately 190 pounds.

**2.03** The cart is constructed of rectangular steel tubing covered with sheet metal and finished in black-textured vinyl paint.

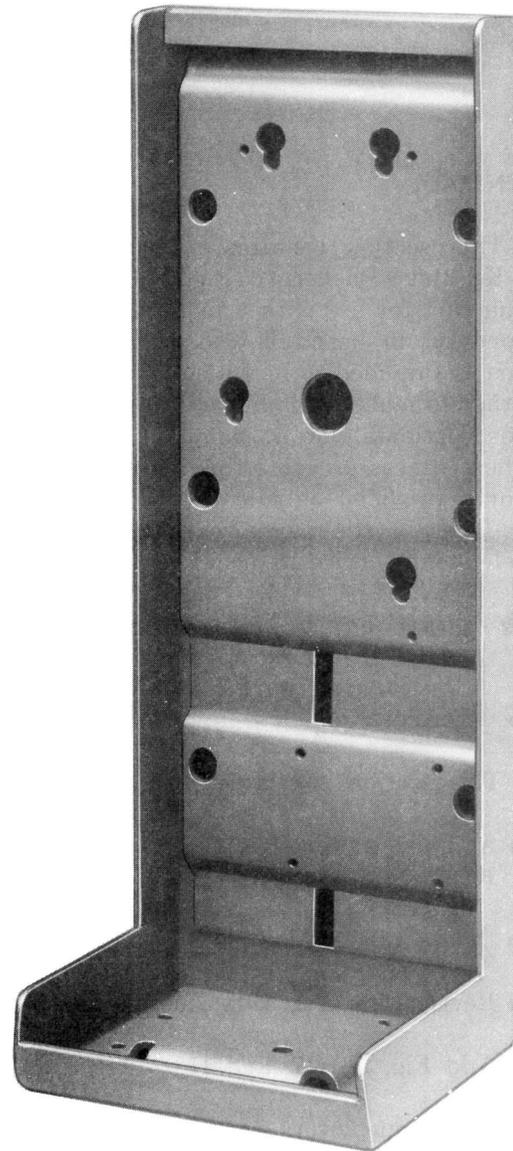
**2.04** The legs are equipped with four rubber tired casters, all of which have foot-operated locking devices.

**2.05** The top consists of a stainless steel cover which serves as a shelf.

**2.06** A backplate, covered with fiberglass acoustic material and a perforated metal exterior, offers some measure of acoustical and visual privacy.

**2.07** A KS-21676, List 1 L-shaped backboard (Fig. 3) is bolted to the structural rails under the stainless steel shelf and also to the backplate.

**2.08** A storage compartment is located between the two leg assemblies. This compartment houses a KS-21454 control circuit, three dry cell batteries, a switch-indicator, and a 30-foot latching cord reel (Fig. 2).



**Fig. 3—KS-21676, List 1 Backboard Assembly**

(a) The KS-21454 control circuit is composed of a plug-in printed circuit (PC) board. This circuit causes deposited coins to be collected if the cart is rocked, tilted, or unplugged while a call is in process.

(b) Three dry cell batteries are used with the phoncart.

(1) A KS-6573, 22-1/2 volt battery drives the control circuit.

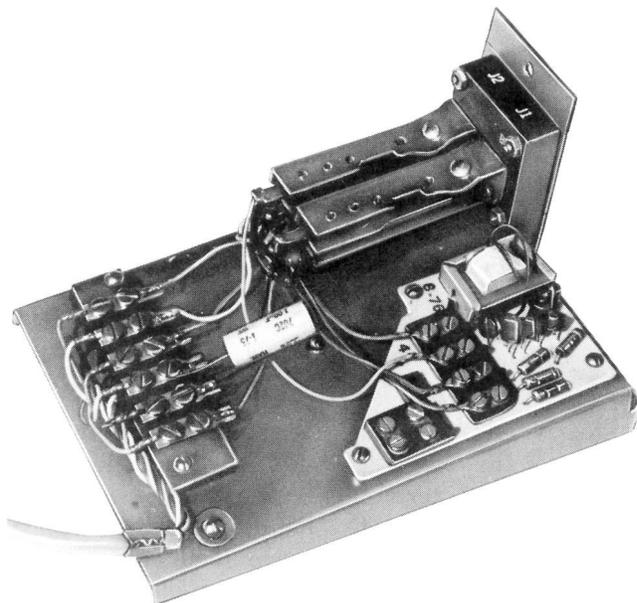
- (2) A KS-7105, 22-1/2 volt battery operates the totalizer.
  - (3) A KS-7890, 90-volt battery operates the coin relay.
- (c) The pushbutton switch-indicator at rear of storage compartment is used to check the KS-6573 battery.
- (d) The mounting cord (a component of the cord reel) is approximately 30-feet long and consists of 18-gauge, 4-conductor cord, terminated in a standard 505A-3, four-prong plug.

**2.09** The KS-21428, List 12 headset jack adjunct (Fig. 4) is available for using a headset. When headset is plugged in, the handset is inoperative.

- A modified 53JR headset (Fig. 5) must be furnished locally.

#### A. Ordering Guide

**2.10** Refer to Table A for available list numbers.



**Fig. 4—KS-21428, List 12 Headset Jack Adjunct**



**Fig. 5—53JR Headset With Modified 425A-61 Plug**

**2.11** Orders for this product shall specify quantity, KS number, and list number. The following are examples of typical orders:

- **Example 1**—Basic cart with batteries, lock, 505A plug, and control circuit.

1—Phonecart, KS-21428, L3

- **Example 2**—One complete facility including headset jack adjunct and a moss green TOUCH-TONE® coin telephone set

1—Phonecart, KS-21428, L4 equipped with a modified 1C2-51 coin telephone set with G3AH-52 handset (4-1/2 foot cord) and the headset jack adjunct.

### 3. INSTALLATION

**3.01** The cart, modified 1C-type coin telephone set, and KS-21454 control circuit (with batteries) are assembled at the service center, complete with 29A lock and 505A cord reel plug. Installation of a standard coin line, terminated in a 548A or 549A jack, is required for mating with the 505A mounting cord plug.

**3.02** *The provision of a local ground to the 548A or 549A jack using No. 10 AWG wire is required to meet existing NEC regulations.* Connect a No. 10 AWG insulated copper wire to a local power system or telephone system ground that must be made available in the patient area where the phonecart is to be used as specified in NEC regulations. Connect the other end of this wire to the Y terminal of

TABLE A

## BASIC LIST NUMBERS\*

KS-21428 LIST NO.	FIG.	DESCRIPTION	REMARKS
1		Basic Phonecart	Includes the dolly, KS-21454, List 1 control circuit, KS-21676, List 1 backboard, KS-21428, Lists 5, 7, 8, 9, and 10
3		Phonecart, batteries Lock, and plug	Includes KS-21428, List 1, KS-6573, KS-7105, and KS-7890 batteries, 29A lock, and 505A plug
4		Phonecart with headset jack adjunct	Includes KS-21428, List 3 plus a KS-21428, List 12
5	6	Roller guide bracket assembly	For assisting in extending and retracting mounting cord
6	6	Roller guide	Component of List 5. Intended as a replacement part
7	2	Cord reel assembly	Contains retractable mounting cord
8		Printed circuit connector	Plug-in connector for KS-21454 control circuit
9		Minature push button switch	For checking the KS-6573 battery
10		Caster	Includes one caster with a foot brake. Has a 5/8-inch diameter mounting shaft.
12	4	Headset jack adjunct	Jack for plugging in a modified 53JR headset
101	7	Caster kit	Includes one caster and associated hardware. Used to replace old gray-colored obsolete casters. Not to be used as a replacement part for List 10. Has a 3/8-inch diameter mounting shaft.

\* For Phonecart only; does not include coin telephone set.

the 548A or 549A jack as shown in Fig. 8. It will be necessary to procure locally a 1/2-inch long No. 6-32, RHMS and two No. 6 flat washers. Replace the existing screw in Y jack terminal with the screw and washers before installing the No. 10 ground wire.

**3.03** All coin lines associated with a phonecart must have a protector at point of entry to the building (Fig. 8).

**3.04** Refer to Fig. 8 for the 548A or 549A jack wiring requirements.

**Note 1:** Make sure the (BK) strap is added to the 548A or 549A jack and not placed between terminals 8 and 15 on the control circuit. Due to the design of the control circuit, a strap between terminals 8 and 15 is not equivalent to a short on the 548A or 549A jack.

**Note 2:** Spacing of jacks in a hospital ward must be such that every bed can be reached by 30 feet (or less) of mounting cord. Jacks should be located so that the cord will not have to be placed across frequently used aisles

or passageways. Jacks should also be provided so that phonecart can be used by hospital personnel and public visitors when not being used by a patient.

- 3.05** Verify that information plate on front of coin telephone set (dial-tone-first or coin-first) agrees with mode of operation.



*Phonecarts can be wired for either Coin-First (CF) or Dial-Tone-First (DTF) mode and should only be plugged into jacks connecting to central office which provides the same mode of operation.*

- 3.06** Verify that a shorting strap has been installed from terminal No. 8 to terminal No. 10 on the connector assembly.

- 3.07** After installation, ensure that the coin telephone is working properly by performing routine tests per local instructions. If set does not work properly, perform test outlined in Part 4.

#### 4. OPERATION TESTS AND TROUBLE ANALYSIS

- 4.01** The modified 1C-type coin telephone set associated with the phonecart can be tested separately by using the following procedure.

- (1) Ensure that the mounting cord is unplugged from wall jack.
- (2) If applicable, remove headset from headset jack adjunct.
- (3) Disconnect the tip, ring, and ground leads from TB1 in the coin telephone set. (These leads are from the control circuit.)
- (4) Install a shorting strap between terminals of the coin relay, where the (G-W) and (W-O) wires are connected (Fig. 9).
- (5) Temporarily extend tip, ring, and ground from the 548A or 549A jack to TB1 in the coin telephone set.
- (6) Perform Operation Tests as directed in Sections 506-410-400, 506-900-503, or the Coin Maintenance Check Booklet.

- 4.02** After tests have been completed on coin set, remove the improvised extension, the strap from coin relay, and reconnect tip, ring, and ground from control circuit to TB1.

- 4.03** Test and/or troubleshoot the control circuit and headset jack adjunct (if applicable as directed in Table B).

#### 5. MAINTENANCE

- 5.01** To make components of the phonecart accessible, remove six B-189998-3 security screws from compartment cover using a KS-19192 wrench. Unlock the 29-type lock, slide cover up, and lift off. Install cover using reverse procedure.

- 5.02** The KS-6573 battery can be checked by operating the pushbutton switch-indicator located on the bottom rear of the storage compartment (Fig. 2).

- (a) If indicator lamp lights, battery is OK.
- (b) If indicator lamp does not light, check wiring and retest.
- (c) If indicator lamp still does not light, replace battery.
- (d) Retest pushbutton switch indicator. If indicator lamp still does not light, replace switch indicator per paragraph 5.03(b).
- (e) Initiate a call using the coin telephone set and check for proper operation.

- 5.03** Replace components as follows.

- (a) **KS-6573, KS-7105, and KS-7890 batteries:** Disconnect leads and remove batteries. When installing batteries, refer to Fig. 10 for connections.

- (b) Miniature Pushbutton Switch-Indicator.

- (1) Remove the two wires from switch-indicator terminals 1 and 2.

**Note:** Two versions of the switch-indicator exist.

- An early version (Tec Inc. No. S-1022-1AA-07-T02) has an orientation dot

TABLE B

## TROUBLE ANALYSIS – COIN FIRST OR DIAL TONE FIRST

STEP	ACTION	VERIFICATION	FAILURE	POSSIBLE CAUSE	REMEDIAL ACTION
<b>PREPARATION FOR ALL TESTS</b>					
1	Remove coin cover unit from coin telephone set				
2	Install KS-20950 cover parking tool and hang cover unit assembly on tool				
3	Plug cord reel plug of phonecart into proper wall jack  <i>Note 1:</i> Do not unplug or tilt the phonecart while test is in progress  <i>Note 2:</i> KS-21250 portable test set cannot be used for these tests				
4	Remove six security screws from compartment cover of Phonecart, unlock 29-type lock, slide cover up and lift off.				
<b>HEADSET TEST</b>					
5	Remove handset and lay it aside. Plug headset into jack. Deposit initial rate and call operator	Operator on line, side tone present in headset	No side tone	Defective headset	Replace defective apparatus
			No transmission	Defective headset jack adjunct	

TABLE B (Contd)

## TROUBLE ANALYSIS – COIN FIRST OR DIAL TONE FIRST

STEP	ACTION	VERIFICATION	FAILURE	POSSIBLE CAUSE	REMEDIAL ACTION
<b>HEADSET TEST (Cont)</b>					
6	Request operator to return coins	Coins returned	Coins not returned	Nonstation trouble	Repeat request and if failure reoccurs, test with test-desk
<b>CONTROL CIRCUIT AND ASSOCIATED APPARATUS</b>					
7	Trip hopper trigger in coin set by hand, then remove cord reel plug from wall jack	Coin relay operates and coin vane moves to collect position	Coin relay does not operate	Defective KS-7980 battery	Replace defective apparatus
				Defective control circuit	
			Coin vane operates to refund position	Defective control circuit	
8	With cord reel unplugged, deposit a nickel	Totalizer resets and nickel is returned	Nickel does not return	Defective control circuit	
			Totalizer does not reset	Defective KS-7105 battery	
				Defective control circuit	
9	Restore Phonecart for normal operation				

on the base between terminals 1 and 4. Terminals are numbered in a clockwise direction from the dot.

- A later version (Grayhill Inc. No. 40-200) has one brass terminal and 3 white terminals. Terminals are numbered in a clockwise direction, the brass terminal being number 4.

- (2) Remove knurled nut, lockwasher, and switch-indicator.

- (3) Remove the strap wire from the old switch-indicator and install it on the new switch-indicator terminals 3 and 4.

- (4) Install and secure the new switch-indicator in the phonecart.

- (5) Connect the lead from terminal 11 of the control circuit to terminal 1 and the lead from terminal 9 of the control circuit to terminal 2.

- (c) *KS-21428, List 7 Cord Reel Assembly.*

**Note:** Early model phonecards did not have a roller guide assembly associated with the cord reel assembly and the mounting hardware is different than current models.

(1) To remove cord reel assembly on early models, disconnect the four leads from terminal strip and remove two 3/8-16 by 1/2 RHM screws and two 3/8-inch lockwashers. Install using reverse procedure and refer to Fig. 10 for connections to terminal strip.

(2) To remove cord reel assembly on current manufactured models with roller guide bracket assembly, disconnect the four leads from terminal strip, remove two 3/8-16 by 3/4 RHM screws, two 3/8 inch lockwashers, and one No. 10-32 security screw. The roller guide bracket and cord reel assembly are secured with the same hardware. Install using reverse procedure and refer to Fig. 10 for connections to terminal strip.

(d) **KS-21428, List 5 Roller Guide Bracket Assembly.**

**Note 1:** The rubber ball on retractable cord will not go through the roller guide, consequently the roller guide will have to be removed from the bracket [see (e)] before the bracket can be removed from the cord. The rubber ball can be forced through opening in the bracket.

**Note 2:** Early model phonecards did not have a roller guide bracket assembly.

(1) To remove bracket assembly, remove two 3/8-16 by 3/4 RHM screws, two 3/8-inch lockwashers, and one No. 10-32 security screw. Install using reverse procedure.

(2) To install a roller guide bracket assembly on an early phonecard which was never equipped with one:

- Separate roller guide from bracket (Fig. 6)
- Force rubber ball of retractable cord through bracket
- Disassemble roller guide [see (e)]
- Insert cord through cut-out in roller guide

- Assemble roller guide and secure it to bracket (Fig. 6)

- Secure bracket to phonecard using two 3/8-16 by 3/4 RHM screws, two 3/8-inch lockwashers, and one No. 10-32 by 1/2 security screw.

(e) **KS-21428, List 6 Roller Guide.**

**Note:** The roller guide will have to be partially disassembled to remove or install.

(1) To remove roller guide.

- Remove four No. 10-32 hex nut-lockwasher assemblies and four No. 10-32 by 3/4 RHM screws (Fig. 6).
- Remove roller next to the opening in frame by removing the roller pin and lifting roller out
- Pull roller assembly from mounting cord.

(2) Install using reverse procedure.

(f) **KS-21454 Control Circuit:** Remove two No. 6-32 by 1/2 RHM screws from the mounting brackets and pull the control circuit out of the connector assembly. Install using reverse procedure. Verify that a shorting strap has been installed from terminal No. 8 to terminal No. 10 on the connector assembly.

(g) **Modified 1C-Type Coin Telephone Set:** Remove the coin telephone set per instructions in Section 506-410-400 with the following exceptions.

- (1) The five inside wires between the control circuit and coin telephone set will have to be disconnected from the coin set, two of which will have to be unsoldered from the coin relay.
- (2) The six inside wires between the headset adjunct, if provided, and coin telephone set will have to be disconnected from the coin telephone set (Fig. 11).

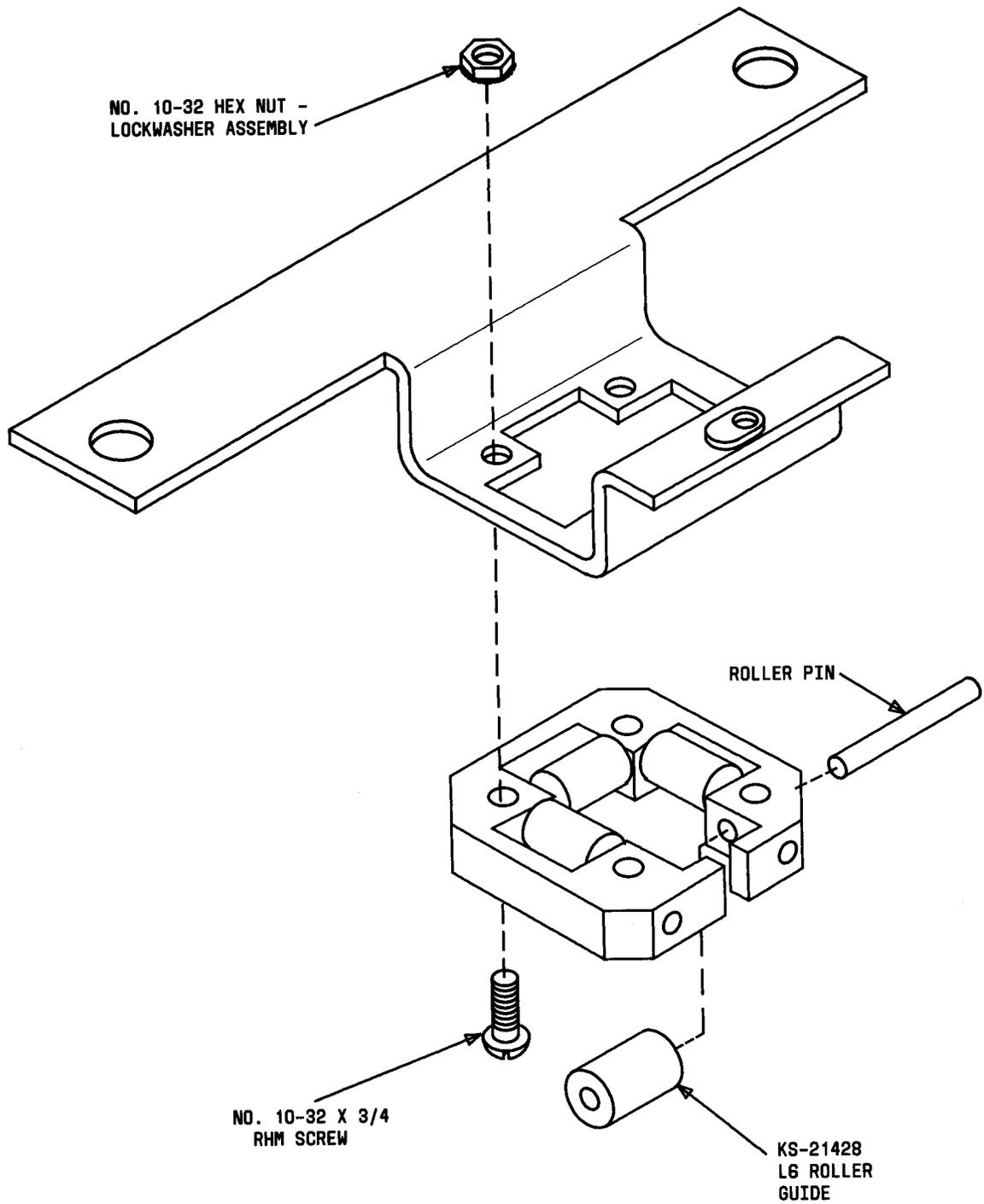


Fig. 6—KS-21428, List 5 Roller Guide Bracket Assembly



**Never replace a modified coin telephone set on the phonecart with a standard 1C-type set. The set must be modified per Fig. 9 and be equipped with a 4-1/2 foot handset cord.**

(h) **KS-21428, List 12 Headset Jack Adjunct (Fig. 4).**

- (1) Disconnect leads from TB4 on adjunct.
- (2) Remove screw which secures stayhook.
- (3) Remove three hex nuts which secure adjunct to phonecart housing.
- (4) Lift adjunct out of cart.
- (5) To install, use reverse procedure.
- (6) Connect leads to TB4 per Table C and Fig. 11.
- (7) Secure stayhook.
- (8) Ensure that adjunct bracket and phonecart frame are bonded electrically.

(i) **KS-21428, List 10 Casters.**

**Note:** The List 10 casters and List 101 casters are not interchangeable. The mounting shaft on a List 10 is larger.

- (1) To remove a List 10 caster, remove the 5/8-18 hex nut and 5/8-inch lockwasher. Lift caster off.
- (2) To install, use reverse procedure.

(j) **KS-21428, List 101 Casters.**

**Note:** The List 101 caster (Fig. 7) is a replacement for the old gray-colored obsolete caster which is equipped with a 3/8-inch diameter mounting shaft. It should not be used as a replacement for the List 10 caster which has a 5/8-inch diameter mounting shaft.

- (1) To remove a List 101 caster, or an obsolete gray-colored caster, remove one 3/8-16 hex nut and one 3/8-inch lockwasher.

**Note:** A wrench (comcode No. 900403379) can be ordered separately for use on the List 101 caster.

- (2) To install, use reverse procedure.

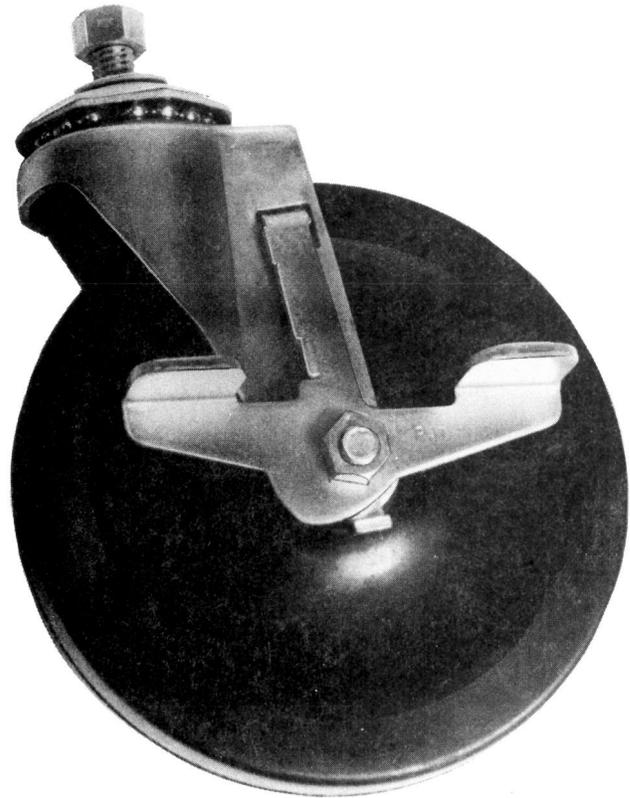


Fig. 7—KS-21428, List 101 Caster Kit

**5.04 To add a List 12 headset jack adjunct to a List 1 or List 3 Phonecart.**

**Note:** The List 12 headset jack adjunct includes three hex nut/lockwasher assemblies and three standard lockwashers for securing adjunct to cart, plus two connectors and insulation sleeves for splicing handset wires. Also included is the cable for interconnecting the adjunct to the coin telephone set and a 425A-61 plug to be used with the 53JR headset (see paragraph 5.05).

- (1) Remove knockout from right end of cart, as viewed from rear.

(2) Install the three lockwashers over studs and mount adjunct to inside of cart utilizing the knockout hole for headset jack and the three mounting studs which are part of the cart. Secure with the three furnished hex nut/lockwasher assemblies.

**Note:** Ensure that the adjunct and cart are bonded electrically. The three lockwashers are installed between the cart and adjunct chassis for that purpose.

- (3) Run the cable up through the cart and into back of coin set following same path as control circuit cable.
- (4) Allow approximately 2 feet of cable from backplate grommet to end of spade terminals.
- (5) Connect the spade terminals to coin telephone set per Table C and Fig. 11. Dress all wires in housing so as not to interfere with moving parts.

#### 5.05 53JR Headset.

(a) The 53JR headset can be used in conjunction with the List 12 adjunct; however, the 464A-61 headset plug must be replaced with a 425A-61 plug. The 425A-61 plug is furnished with a List 12 adjunct.

(b) Modify the 53JR headset as follows.

- (1) Remove three plug clamp screws and lift shell-half off of the 464A-61 plug.
- (2) Disassemble the 425A-61 plug.
- (3) Observe lead colors and connections on the 464A-61 plug and transfer leads to the respective terminals on the 425A-61 plug.
- (4) Install the shell half on the 425A-61 plug.
- (5) Discard the 464A-61 plug in accordance with local instructions.

(c) Plug the 425A-61 plug into the List 12 adjunct.

**5.06 Cleaning:** Refer to Section 508-100-101.

#### 6. CONNECTIONS

**6.01** Refer to Fig. 11 for KS-21428, List 12 headset adjunct connections.

**6.02** Refer to Fig. 10 for control circuit connections.

**6.03** Refer to Section 506-410-400 for coin telephone set connections except the coin relay connections shown in this section will be modified per Fig. 9 and 10.

♦TABLE C♦

HEADSET JACK ADJUNCT AND  
MODIFIED COIN TELEPHONE SET CONNECTIONS

HEADSET JACK ADJUNCT TERMINAL	WIRE COLOR (COMPONENT OF ADJUNCT)	CONNECT TO MODIFIED COIN SET TERMINAL	
		1C1 SET	1C2 SET
TB4-1	BL	TB2-3	TB2-3
TB4-2	BK	TB2-8	TB2-8
TB4-3	Y	TB2-2	TB2-7
TB4-4	R	Handset R lead*	Handset R lead*
TB4-5	W	Handset W lead*	Handset W lead*
TB4-6	G	TB2-6	TB2-5

\*(R) and (W) leads from adjunct to handset are spliced with two 801219320 connector assemblies.

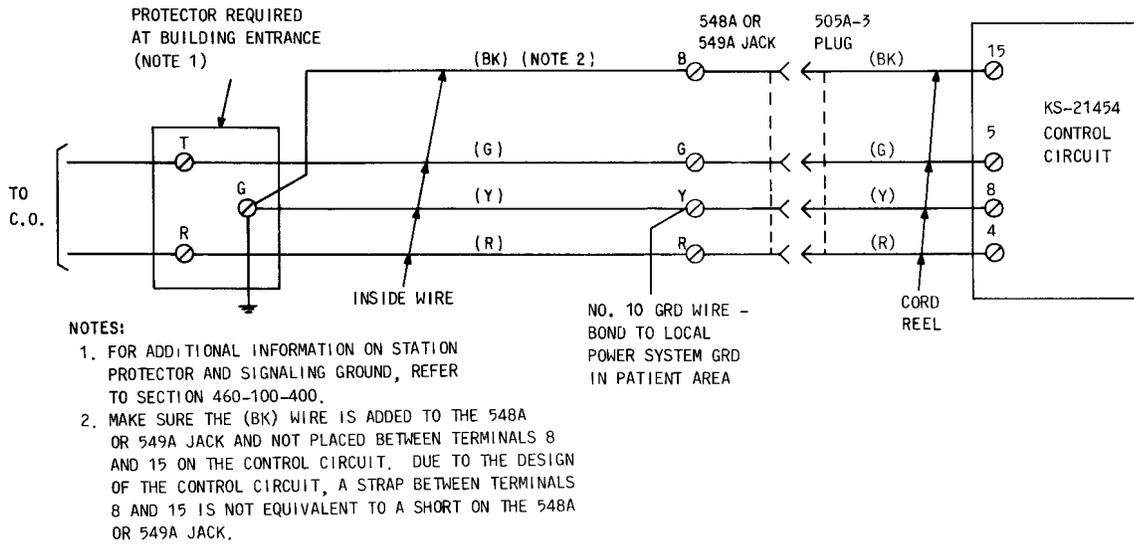


Fig. 8—Plug and Wall Jack Wiring

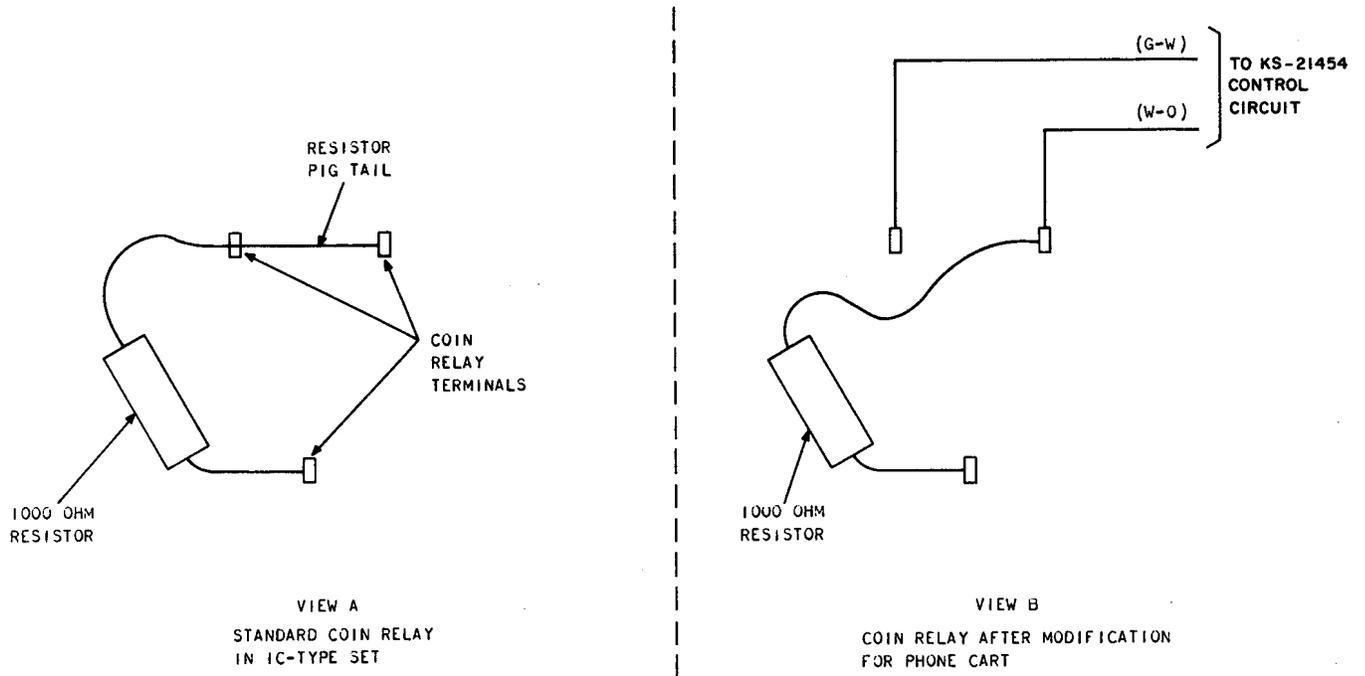


Fig. 9—Coin Relay Modification

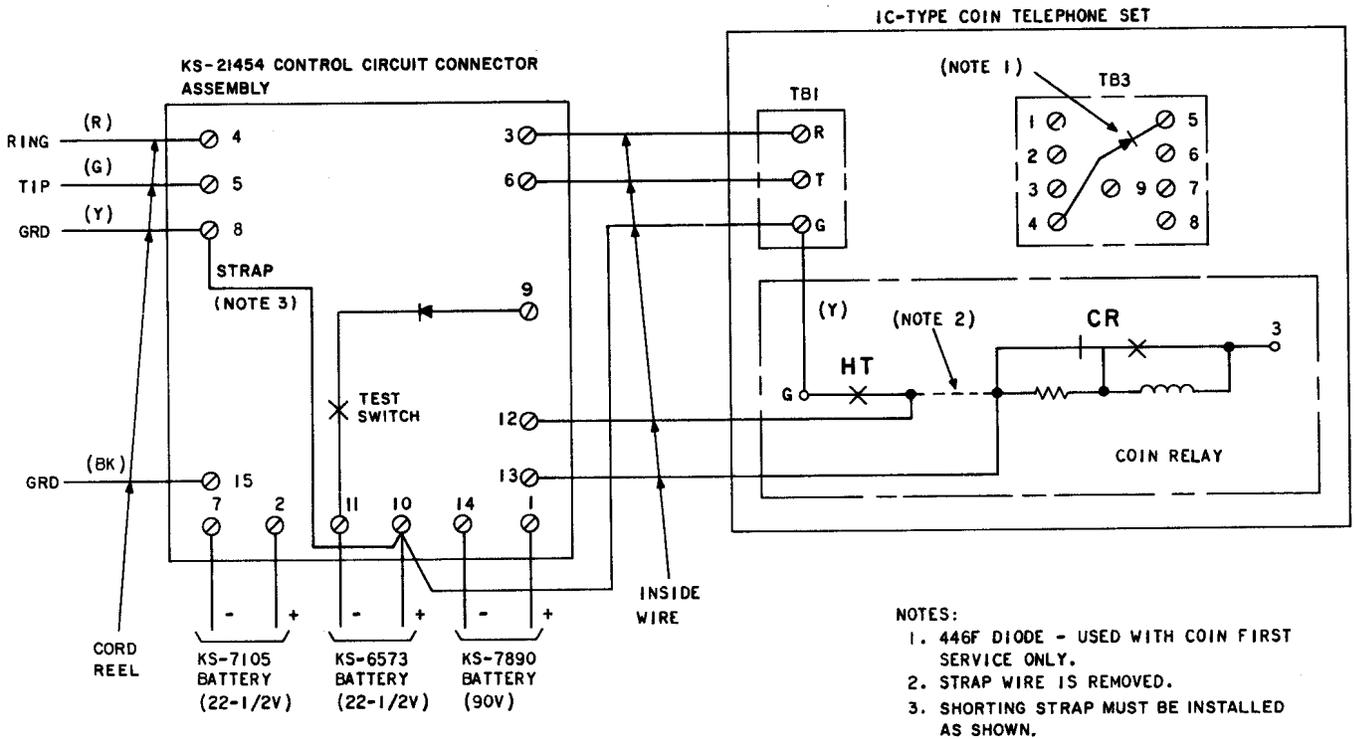
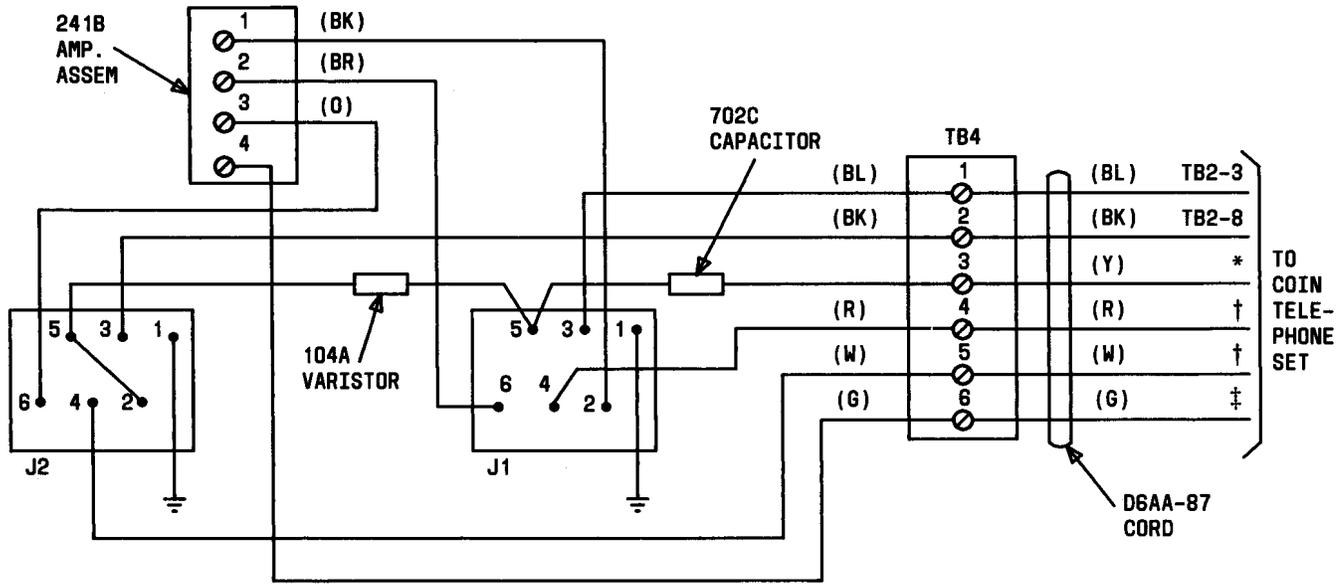


Fig. 10—Phoncart, Connections

SECTION 508-254-100



- \* TO TB2-2 ON ROTARY SETS OR TB2-7 ON "TOUCH-TONE" SETS
- † CONNECT THE (R) AND (W) LEADS TO THE (R) AND (W) LEADS OF THE HANDSET RESPECTIVELY USING THE TWO 801219320 CONNECTOR ASSEMBLIES FURNISHED
- ‡ TO TB2-6 ON ROTARY SETS, OR TB2-5 ON "TOUCH-TONE" SETS

Fig. 11—KS-21428, List 12 Headset Jack Adjunct, Connections