

## JACKS AND PLUGS

### IDENTIFICATION AND SERVICE

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#### 1. GENERAL

1.01 This section provides identification, installation, and service of jacks and plugs for indoor and outdoor use.

1.02 This section is reissued to:

- Provide information on the 338A adapter
- Rate the 281A adapter manufacture discontinued (MD)
- Delete information pertaining to the following equipment that is MD:

- 391A Jack (MD)
- 392A Jack (MD)
- KS-16151, List 1 Jack (MD)
- 74A bracket (MD)
- KS-19407, List 1 bracket (MD)
- 274A plug (MD)
- 283B plug (MD)
- Early model D4BP cord and adapter
- Early model D3BU cord connected to 505A plug.

#### 2. IDENTIFICATION

2.01 Table A lists jacks and mating plugs for telephone set use. The table shows indoor and outdoor location, contacts, and method of mounting.

2.02 For detailed information covering the installation of B weatherproof-type jacks, refer to Section 461-220-101 entitled Recreational Vehicle Wiring—Nonpermanent Type.

2.03 Adapters for the D4BU mounting cord are used as follows when it is not desirable to replace existing jacks:

- The 224A adapter (Fig. 10) is used to adapt the D4BU mounting cord to the 541A and 551A jacks (12-pin jack).
- The 225A adapter is used to adapt the D4BU mounting cord to 404B (MD), 493A (MD), 497A (MD), 548A, and 549A jacks (4-pin jacks). The 541A, 551A, 548A, and 549A jacks should not be mixed with 625-type connecting blocks where telephone service is required. The current design of the 225A adapter is shown in Fig. 11. The adapter will be available in white (-121) only—former versions were available in ivory or translucent.
- The 1A converter (Fig. 19) is used to convert the 404B (MD), 493A (MD), 497A (MD), 548A, and 549A jacks (4-pin jacks) to the modular system. The 1A converter, when plugged into a 4-pin jack, is designed to be nonremovable.
- The 281A adapter (MD) (Fig. 14) is used to plug into the 623-type line cord jack in the base of the PRINCESS® telephone. This adapter allows the installation of dial illumination transformers without connecting the power to the inside station wiring. ♦See Fig. 15 for wiring of adapter.♦
- ♦The 338A adapter (Fig. 16) connects at the 625-type connecting block and has two modu-

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♦TABLE A♦

## JACKS AND MATING PLUGS—SELECTION

LOCATION	NO. PINS	MOUNTED	JACK	MATING PLUG
Indoor	4	Nonflush	404B (MD) 549A	283B (MD) or 505A
		Outlet Box	493A (MD) 497A (MD) 548A 550A	
	12	Nonflush	551A	504A
	12	Outlet Box	541A 547A (MD) 547B	504A
Outdoor	3	Includes Housing	KS-8420 (MD) KS-8421 (MD)	KS-8419 (MD)
	3	B Outlet Box	B Weatherproof Type	B or C Weatherproof Cord
	3	Flush Mounted	B Waterproof	B or C Weatherproof Cord
	4 or 12	KS-19316, List 4*	493A (MD) 541A 548A	504A 505A
		KS-20202, List 1*	541A 548A	

\* Will also accept a 625F connecting block in modular installations.

lar jacks, either of which may be used to connect the 2012C transformer (required for a PRINCESS dial light) or the telephone set. The adapter is wired internally to prevent transformer power from being connected to the service wiring (Fig. 17).♦

**2.04** The 65A faceplate (Fig. 35) is used when flush-mounted wall jacks and connecting blocks are installed. This faceplate has a knockout to cover the hole when the faceplate is used in prewired installations and a jack or connecting block is not installed.

**2.05** The B adapter plate (Fig. 18) is used to adapt the B waterproof jack (AT-8731) to a boat where the KS-8420 jack had previously been mounted.

**Note:** The B adapter plate has two sets of mounting holes. Only one set of holes is used.

The second set is available in case the holes from the old KS-8420 jack interfere with adequate mounting of the adapter plate. The rubber gasket is made so that when placed between the boat and the adapter plate, the holes in the gasket line up with one set of holes in the adapter plate. Turning the gasket over causes the gasket holes to line up with the second set of adapter plate holes. This provides a water-tight seal.

**2.06** The 158A cover (Fig. 57) is a molded rubber cover to be placed over the screw terminals on the rear of the 625F and 47F connecting block and the 548A jack.

**2.07** The 101A sleeve (Fig. 31) is used to protect the prewiring while the drywall is being cut around the 63B bracket as the drywall is being in-

stalled on the studding. The metal tube snaps into either access hole of the bracket before the wiring is placed.

**2.08** The 43B bracket is rerated MD and is replaced by the 842615544 bracket which is supplied as part of the 65A faceplate (Fig. 35). The 842615544 bracket will also be supplied as a component of the 547B jack, 550A jack, and 625B connecting block.

### **2.09 Illustration Index**

Fig. 1—404B Jack (MD)

Fig. 2—497A Jack (MD)

Fig. 3 and 4—541A Jack

Fig. 5—547B Jack

Fig. 6—548A Jack

Fig. 7—549A Jack

Fig. 8—550A Jack

Fig. 9—551A Jack

Fig. 10—224A Adapter

Fig. 11—225A Adapter

Fig. 12—267A Adapter

Fig. 13—Schematic Diagram, 267A Adapter

Fig. 14—281A Adapter (MD)

Fig. 15—Schematic Diagram, 281A Adapter (MD)

Fig. 16—338A Adapter

Fig. 17—Schematic Diagram, 338A Adapter

Fig. 18—AT-8731 B Adapter Plate

Fig. 19—1A Converter

Fig. 20—KS-8420 Jack (MD)

Fig. 21, 22, and 23—KS-8421 Jack (MD)

Fig. 24—KS-19316, List 4 Housing

Fig. 25—KS-19316, List 5 Cover

Fig. 26 and 27—KS-19316, List 6 Housing

Fig. 28—KS-20202, List 1 and List 2 Housing

Fig. 29—43-Type Bracket (MD)

Fig. 30—63A Bracket (MD)

Fig. 31—63B Bracket

Fig. 32—KS-20502, List 1 Bracket (MD)

Fig. 33—KS-20502, List 2 Bracket

Fig. 34—16-Type Faceplate

Fig. 35—65A Faceplate

Fig. 36—423A Plug

Fig. 37—478-Type Plug

Fig. 38 and 39—504A Plug

Fig. 40, 41, and 42—505A Plug

Fig. 43—KS-8419 Plug (MD)

Fig. 44, 45, and 46—B Weatherproof Jack

Fig. 47 and 48—B Waterproof Jack

Fig. 49 and 50—B Weatherproof Female Jack Adapter

Fig. 51—B Outlet Box

Fig. 52—B Mounting Bracket

Fig. 53 and 54—Assembly of B Waterproof Jack to B Outlet Box and B Mounting Bracket

Fig. 55—B Weatherproof Cord

Fig. 56—C Weatherproof Cord

Fig. 57—158A Cover

Fig. 58 and 59—652WP4 Jack

### **2.10 Ordering Guide**

- Adapter, 224A

## SECTION 461-630-100

- Adapter, 225A
- Adapter, 267A
- ♦Adapter, 338A♦
- Adapter, Jack, Female, Weatherproof, B
- Box, Outlet, B
- Bracket, 43B (MD)
- Bracket, 63A (MD)
- Bracket, 63B
- Bracket, Mounting, B
- Bracket, KS-20502, List 2
- Converter, 1A
- Cord, Weatherproof, B
- Cord, Weatherproof, C
- Cordage, Flexible, KS-15153 (3-conductor, 18-gauge) Specify length†
- Cover, KS-19316, List 5 (cast aluminum)
- Housing, KS-19316, List 4 (cast aluminum)
- Housing, KS-19316, List 5 (cast aluminum)
- Housing, KS-19316, List 6 (cast aluminum)
- Housing, KS-20202, List 1 (cast aluminum)
- Jack, 541A- (\*)
- Jack, 547B- (\*)
- Jack, 548A- (\*)
- Jack, 549A- (\*)
- Jack, 550A- (\*)
- Jack, 551A- (\*)
- Jack, KS-8420 (MD) (Brass)
- Jack, KS-8421 (MD) (Brass)

- Jack, Male, Weatherproof, B
- Jack, Female, Weatherproof, B
- Jack, Male, Waterproof, B
- Plate, B Adapter, AT-8731
- Plate, Face, 16A- (\*)
- Plate, Face, 16B- (\*)
- Plate, Face, 16D- (\*)
- Plate, Face, 65A- (\*)
- Plug, 423A- (\*)
- Plug, 478A- (\*)
- Plug, 478B- (\*)
- Plug, 504A- (\*)
- Plug, 505A- (\*)
- Plug, KS-8419 (MD) (Brass only)
- Template, B
- Template, C

### ***Replaceable (Optional) Components***

- Plate, Cover, 818839490
- Plate, Cover, 818839508
- Plate, Cover, 818839540

**2.11 Color:** See Table B for color ordering information on jacks. See Table C for color ordering information on plugs.

### **2.12 Application**

- Fig. 1 through 9 and 19 through 23 show jacks used in indoor and outdoor installations.
- Fig. 10 through 18 show adapters used with plug-ended mounting cords.

\* Add color suffix, Table B or C.

† Used with KS-8419 plug.

TABLE B

## COLOR ORDERING GUIDE—JACKS

JACK AND FACEPLATE	LIGHT OLIVE GRAY (-49)	IVORY (-50)	BROWN (-54)
541A	•	•	•
547B	•*	•*	•*
548A	•	•	•
549A	•	•	•
550A	•*	•*	•*
551A	•	•	•
16A	•	•	•
16B	•	•	•
16D	•	•	•
65A	•	•	•

\* Additional faceplates in colors corresponding to jack.

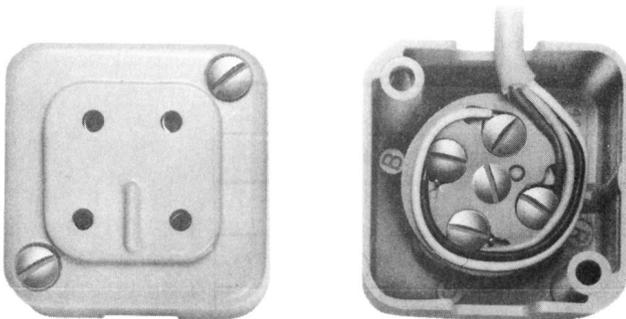
♦TABLE C♦

## COLOR ORDERING GUIDE—PLUGS

COLOR		TYPE PLUG				
		423A*	478A	478B	504A	505A
Black	-3		•			
Light Olive Gray	-49				•	•
Ivory	-50		•	•	•	•
Green	-51					
Red	-53					
Brown	-54					
Yellow	-56					
White	-58		•			
Rose Pink	-59					
Light Beige	-60					
Light Gray	-61					
Aqua Blue	-62					
Turquoise	-64					

\* This plug is inside the 750 telephone set and may be any color as it is made from scrap plastic.

- Fig. 24 through 35 show housings, brackets, and faceplates used.
- Fig. 36 through 50 show plugs used with jacks.
- Fig. 51 through 54 show B weatherproof-type jacks and other apparatus for outdoor installations. (Replaces the KS-8419 and KS-8421 jacks.)
- Fig. 55 and 56 show B and C weatherproof cord used with telephone set.
- Fig. 57 shows 158A cover used for the protection of the screw terminals on rear of 625F and 47F connecting blocks and 548A jack.
- Fig. 58 and 59 show the 652WP4 modular outdoor jack.



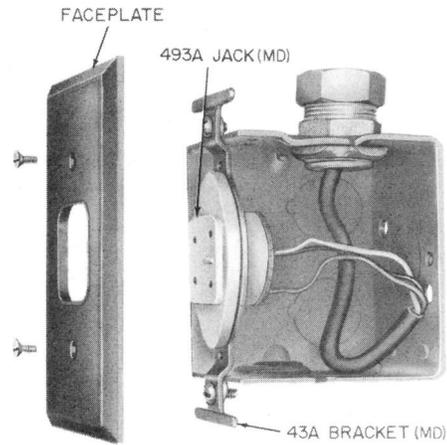
- REPLACED BY 549A JACK
- 4 CONTACTS
- NONFLUSH MOUNTED
- MATES WITH 505A PLUG
- MOUNTING HARDWARE SUPPLIED

Fig. 1—404B Jack (MD)

3. PLUGS

A. 423A Plug

3.01 The 423A plug (Fig. 36) is a 2-piece, 4-contact molded plastic plug for use inside the 750-type panel telephone set. U-shaped projections are molded



- REPLACED BY 550A JACK
- 4 CONTACTS
- FLUSH WALL MOUNTED
- MATES WITH 505A PLUG
- MOUNTING HARDWARE SUPPLIED

Fig. 2—497A Jack (MD) Mounted in Standard Electrical Outlet Box

in the base for securing the mounting cord. Refer to Table C for color availability.

B. 478A Plug

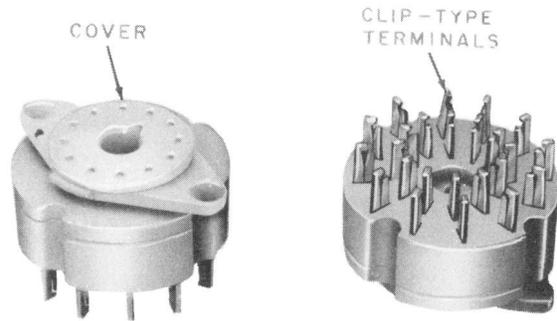
3.02 The 478A plug (Fig. 37) is a flexible twin-double conductor plug. It contains a 616P miniature modular jack and a 100-ohm 1-watt resistor. It is arranged so each plug finger may be turned 90 degrees in the shell to present a new surface for wear. It is intended to be used with G15- and K1-type headsets in place of the G3CR- and G3L-type handsets.

C. 478B Plug

3.03 The 478B plug is identical to the 478A plug except it is not equipped with the 100-ohm 1-watt resistor.

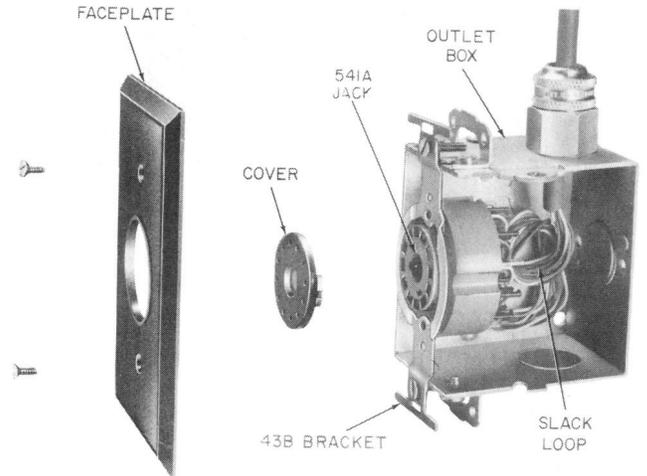
D. 504A Plug

3.04 The 504A plug (Fig. 38) is a 12-terminal plug consisting of a molded plastic block, cord tip guide, and cap assembly held together by one screw.



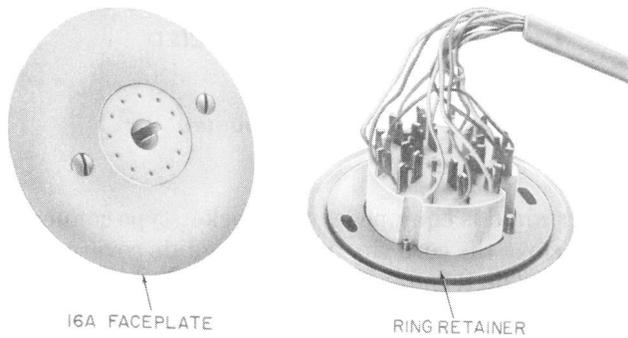
- 12 CONTACTS
- FLUSH MOUNTED USING 63-TYPE OR KS-20502, L2 BRACKET AND 16A FACEPLATE
- MATES WITH 504A PLUG

**Fig. 3—541A Jack**

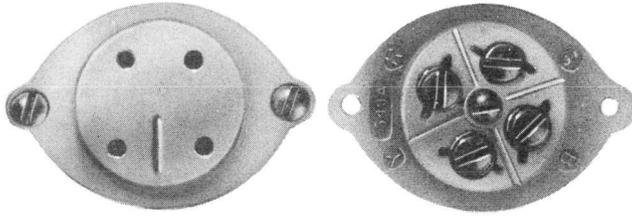


- 12 CONTACTS
- FLUSH WALL MOUNTED
- MATES WITH 504A PLUGS
- MOUNTING SCREWS AND FACEPLATE SUPPLIED
- OPTIONAL COLOR FACEPLATES

**Fig. 5—547B Jack Mounted in Standard Electrical Outlet Box**

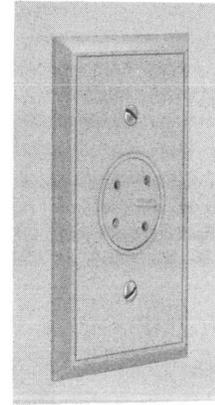


**Fig. 4— 541A Jack With Faceplate and Terminated 541A Jack Using Retainer**



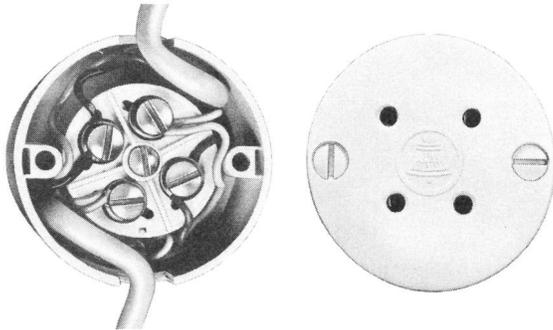
- 4 CONTACTS
- FLUSH MOUNTED:  
USING 63-TYPE OR KS-20502, LIST 2  
BRACKET AND 16A FACEPLATE OR IN  
STANDARD ELECTRICAL OUTLET BOX  
USING 43B BRACKET OR IN WOODWORK  
USING 1-1/4 INCH HOLE
- MATES WITH 505A PLUG
- MOUNTING SCREWS SUPPLIED
- REPLACES 493A JACK (MD)

Fig. 6—548A Jack



- 4 CONTACTS
- COMPONENTS:  
548A JACK  
43B BRACKET  
FACEPLATE
- EARLY PRODUCTION SUPPLIED  
WITH 43A BRACKET (MD)
- MATES WITH 505A PLUG
- 6 MOUNTING SCREWS SUPPLIED

Fig. 8—550A Jack Mounted



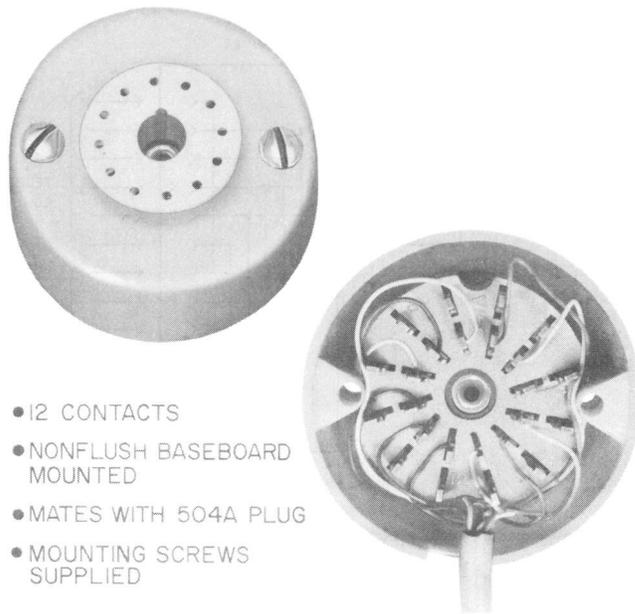
- 4 CONTACTS, DOUBLE  
TERMINAL
- NONFLUSH BASEBOARD  
MOUNTED
- MATES WITH 505A PLUG
- MOUNTING SCREWS SUPPLIED

Fig. 7—549A Jack

Each terminal is equipped with a socket-type connector to receive the cord tip. A cord tip guide covers the terminals. The terminals are numbered 1 through 12 and match numbering on the 541A jack. The plug can be inserted into the jack in only one position. It is available in colors shown in Table C. Included with the plug is a metal cord stay designed for use with cords equipped with a wire S hook (Fig. 39). The S hook is removed and discarded. The cord stay, inserted into the vacated band hole, serves as a wing band. Slots are provided on the plug block and shell to hold a wing band or the cord stay. The wing band or cord stay seated in the slot prevents the mounting cord from slipping out of the plug.

**E. 505A Plug**

**3.05** The 505A plug (Fig. 40, 41, 42) is a 4-contact plug similar to the 504A plug; in addition, however, it has a cord fastener which holds the cord



- 12 CONTACTS
- NONFLUSH BASEBOARD MOUNTED
- MATES WITH 504A PLUG
- MOUNTING SCREWS SUPPLIED

Fig. 9—551A Jack

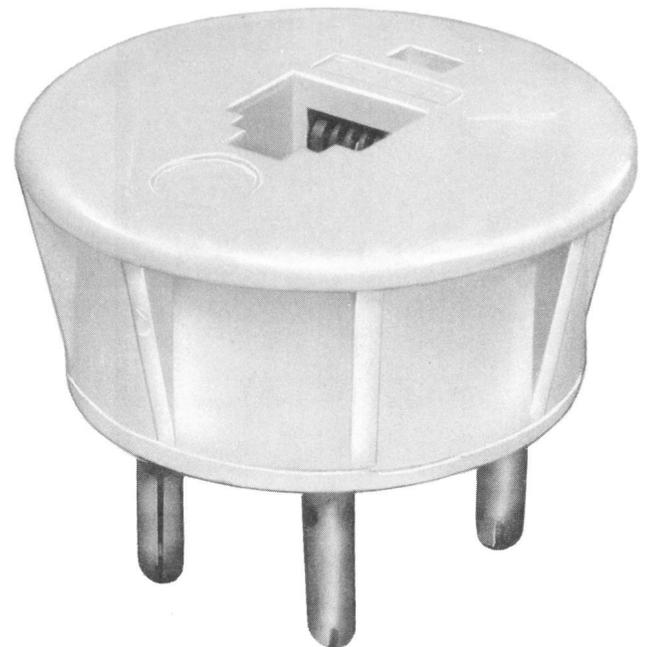


Fig. 11—225A Adapter

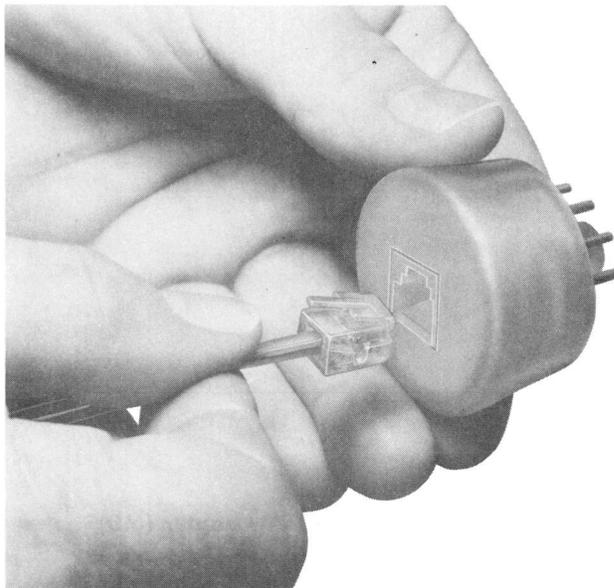


Fig. 10—224A Adapter

in place while spade tips are being connected. The cord fastener also anchors the mounting cord in the assembled plug. The plug is available in colors shown in Table C. The current model cord tip guide provides a cutout to permit the use of a cord equipped with a flat eyelet stay band.

#### F. KS-8419 Plug (MD)

**3.06** The KS-8419 plug (Fig. 43) is a 3-contact, brass plug intended for connecting telephone sets installed on boats, trains, or auto trailers to outdoor jacks of PBX or CO lines. This plug is intended for use with KS-8420 jacks. ♦This plug has been replaced by the B and C weatherproof cords which have plugs attached and are intended to be used with B weatherproof, B waterproof jacks, and B weatherproof jack adapter. ♦

#### G. B Weatherproof Male Jack

**3.07** The B weatherproof jack (Fig. 44 and 45) mounts in the B outlet box on the recreational vehicle, ♦houseboats, etc, ♦ and receives the female plug of the B weatherproof cord to provide telephone service to recreational vehicles. The jack has a

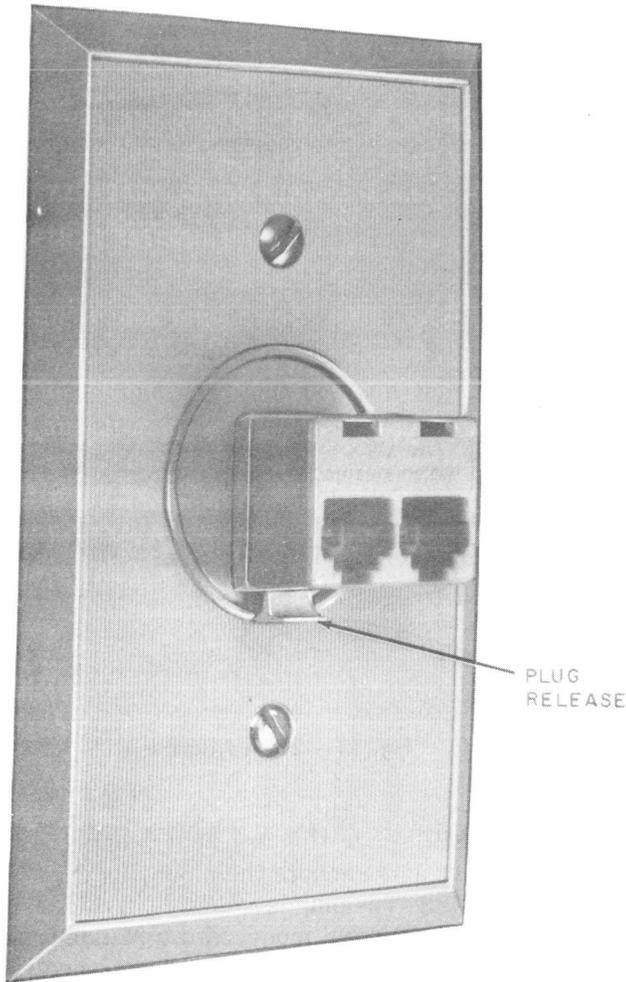


Fig. 12—267A Adapter (Plugged Into 625B Connecting Block)

spring-loaded hinged cover to make it weatherproof when not in use. Three screw terminals stamped R, T, and GR on rear of jack provide connection to ring, tip, and ground.

**H. B Weatherproof Female Jack**

**3.08** The B weatherproof female jack (Fig. 44 and 46) looks the same as the male jack except for the pins, and mounts in the B outlet box *at the trailer service pad or on the dock at the marina*. It receives the male plug of the B or C weatherproof cord.

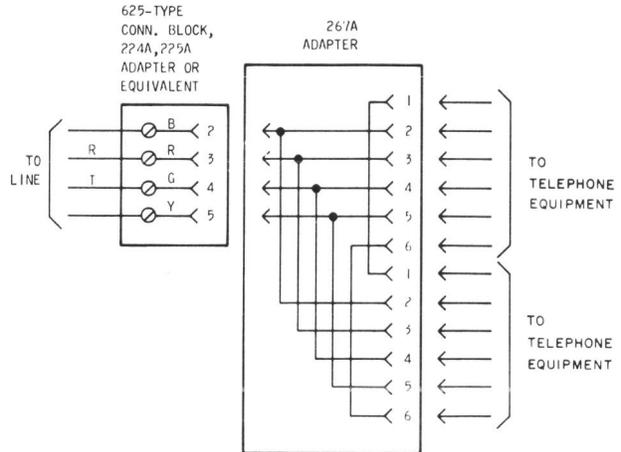


Fig. 13—Schematic Diagram, 267A Adapter

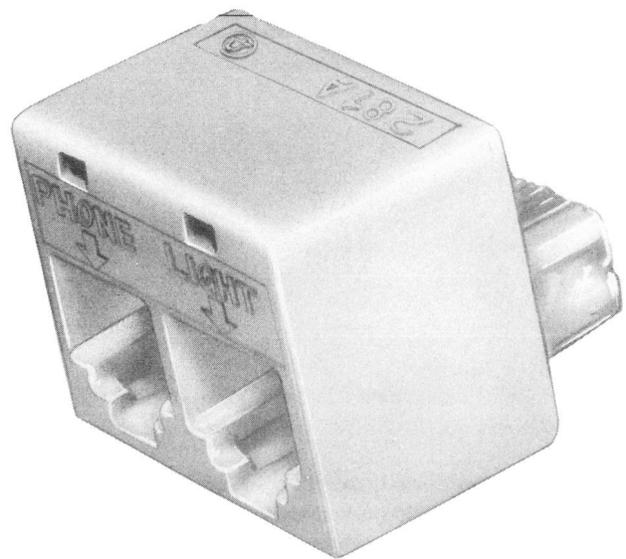


Fig. 14—281A Adapter (MD)

**I. B Waterproof Male Jack**

**3.09** The B waterproof male jack (Fig. 47 and 48) is mounted on a boat and receives the female plug of the B weatherproof cord to provide telephone service to boats. It is chrome plated with hinged, threaded cover to make the jack waterproof when not in use. Three screw terminals on the rear of the jack stamped R, T, and GR provide connections.

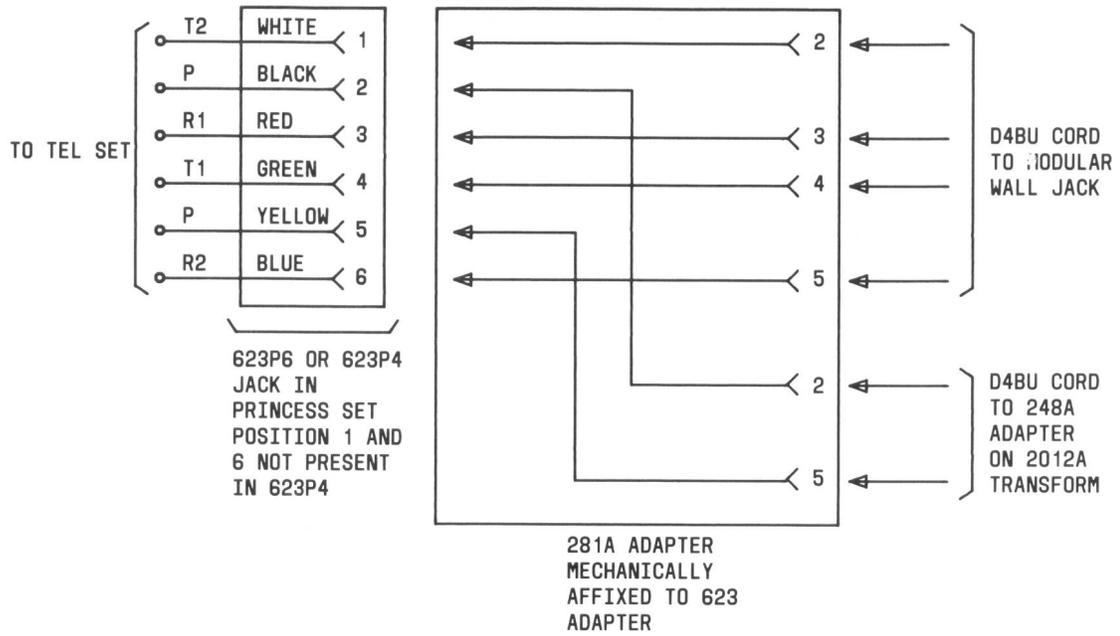


Fig. 15—Schematic Diagram, 281A Adapter (MD)

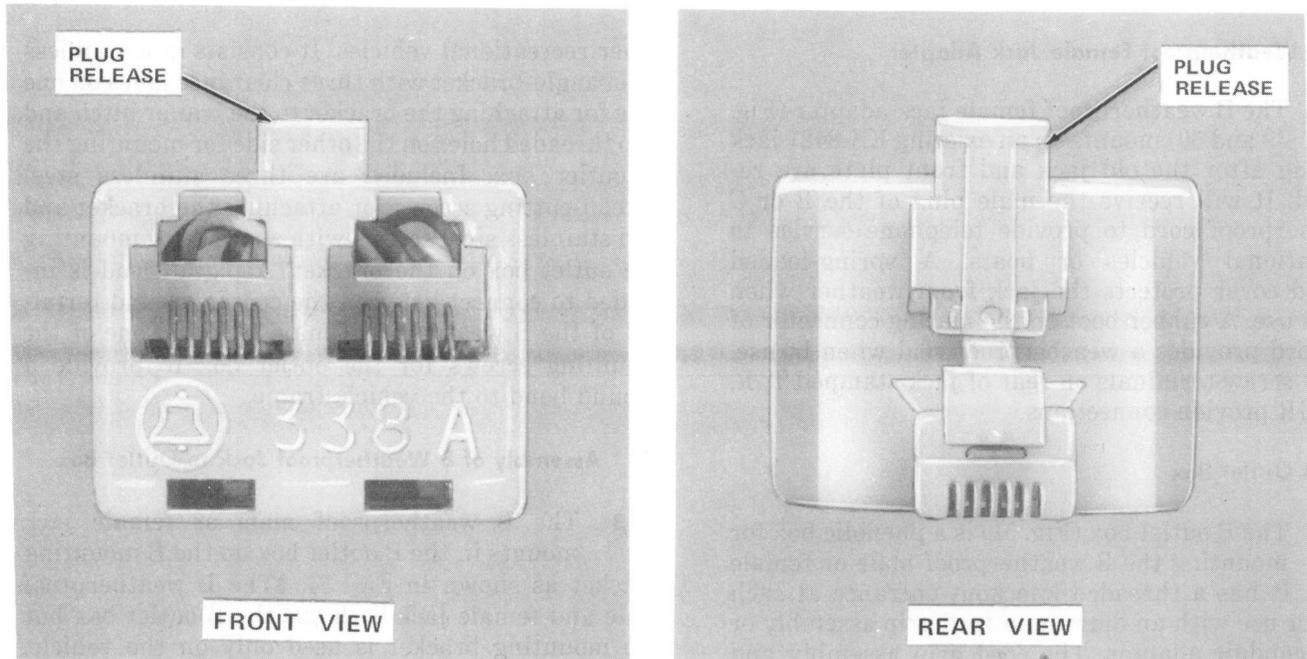


Fig. 16—338A Adapter

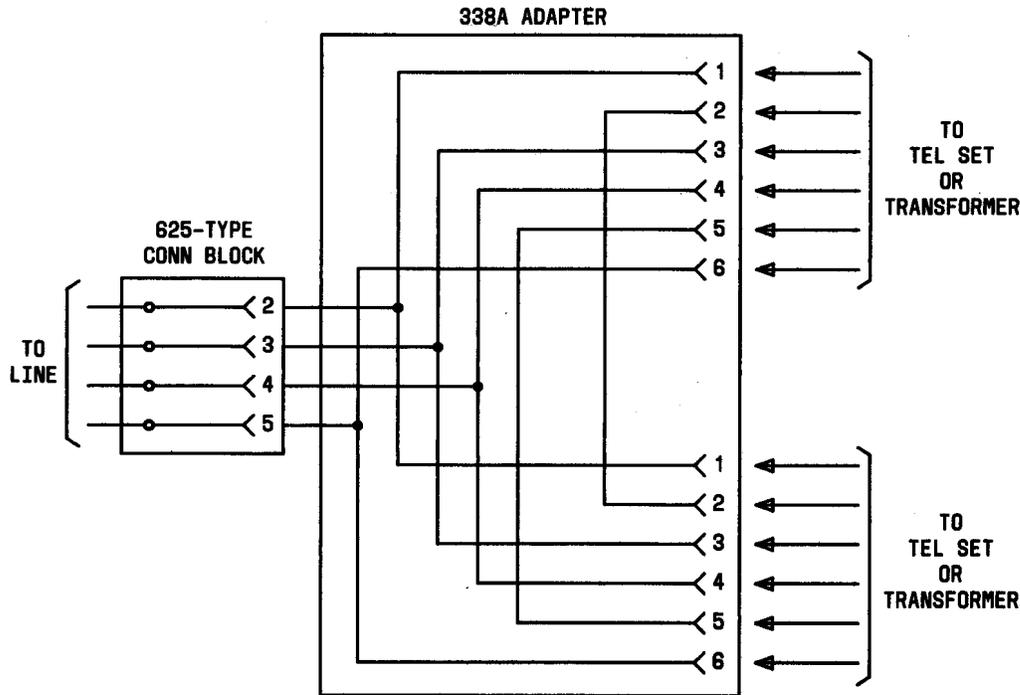


Fig. 17—Schematic Diagram 338A Adapter

#### J. B Weatherproof Female Jack Adapter

3.10 The B weatherproof female jack adapter (Fig. 49 and 50) mounts on an existing KS-8421 jack housing after the old jack and front plate are removed. It will receive the male plug of the B or C weatherproof cord to provide telephone service to recreational vehicles or boats. A spring-loaded hinged cover protects the jack from weather when not in use. A rubber boot on the mating connector of the cord provides a weatherproof seal when in use. Three screw terminals on rear of jack stamped T, R, and GR provide connections.

#### K. B Outlet Box

3.11 The B outlet box (Fig. 51) is a phenolic box for mounting the B weatherproof male or female jacks. It has a threaded knockout entrance at each end for use with an aluminum cord grip assembly or PVC conduit adapter. The cord grip assembly and conduit adapter ship with the outlet box.

#### L. B Mounting Bracket

3.12 The B mounting bracket (Fig. 52 and 53) is used to mount the B outlet box on trailers and

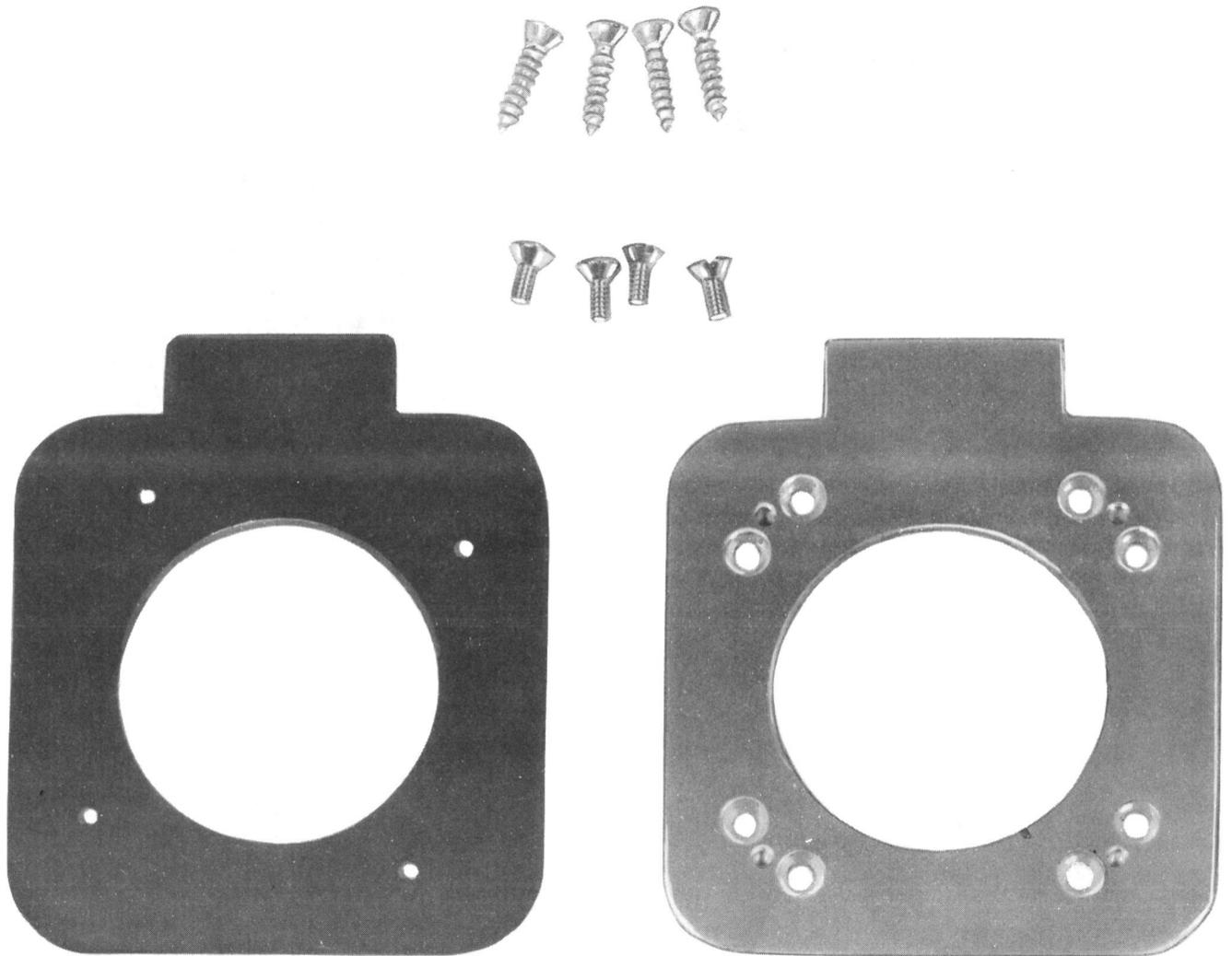
other recreational vehicles. It consists of a stainless steel angle-bracket with three clearance holes on one side for attaching the bracket to the trailer hitch and two threaded holes on the other side for mounting the B outlet box. Included are three stainless steel thread-cutting screws for attaching the bracket and two stainless steel screws with spacers for mounting the outlet box on the bracket. A pigtail lead is included to connect between the center ground terminal of the B weatherproof male jack and one of the mounting screws for the outlet box to provide a ground bond to the vehicle frame.

#### M. Assembly of B Weatherproof Jack to Outlet Box

3.13 The B weatherproof male or female jack mounts in the B outlet box on the B mounting bracket as shown in Fig. 54. The B weatherproof male and female jack both use the B outlet box but the mounting bracket is used only on the vehicle, which is always the male jack.

#### N. B Weatherproof Cord

3.14 The B weatherproof cord (Fig. 55) is used to provide connection between the post-mounted



**Fig. 18—AT-8731 B Adapter Plate**

jack at the service pad and the jack on the recreational vehicle at the trailer park or between the dock and boat in a marina. It consists of a 50-foot, 16-gauge, 3-wire (ring, tip, and ground) yellow PVC insulated flexible cord, equipped with one male and one female plug. PHONE is stamped on the cord at 1-foot intervals for identification. Rubber boots on the plugs mate with their respective jacks to provide a weatherproof seal.

**O. C Weatherproof Cord**

**3.15** The C weatherproof cord is similar in construction to the B weatherproof cord except,

that instead of a female plug, one end is equipped with an "S" hook assembly and spade-tipped leads for connection to a telephone set (Fig. 56).

**P. B Template**

**3.16** The B template (not shown) is used on the boat to locate the pilot holes for mounting screws and clearance hole for jack body for the B waterproof male jack. It is printed on index card stock and is packed separately from the jack so that mounting holes may be prepared in advance by the boat owner.

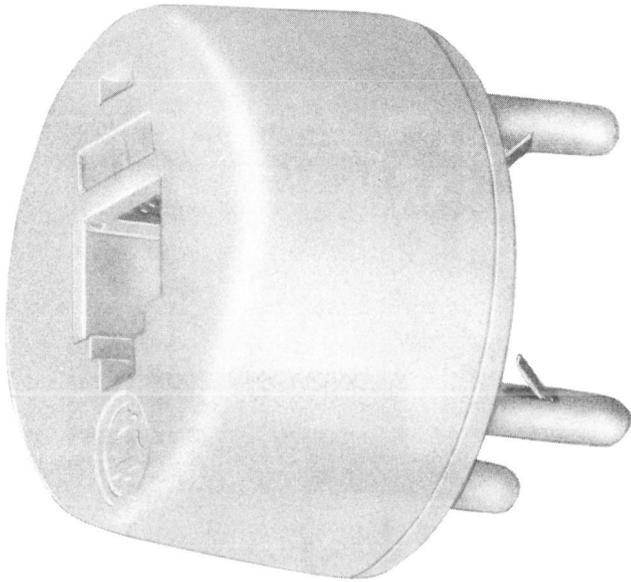
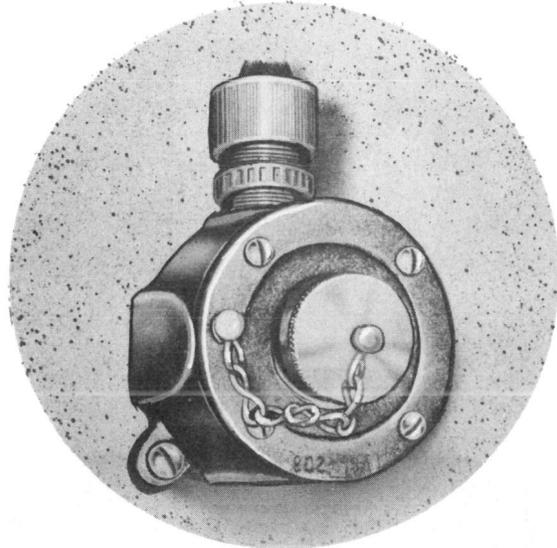
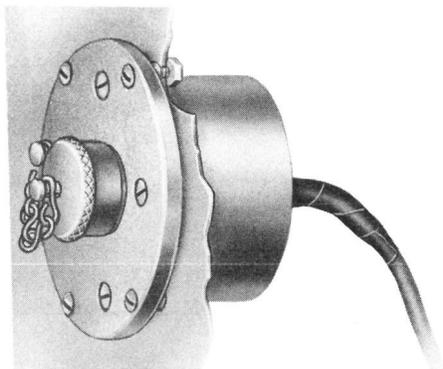


Fig. 19—1A Converter



- SURFACE MOUNTED JACK
- USES KS-8419 PLUG

Fig. 21—KS-8421 Jack (MD)



- FLUSH MOUNTED JACK
- USED KS-8419 PLUG

Fig. 20—KS-8420 Jack (MD) Installed

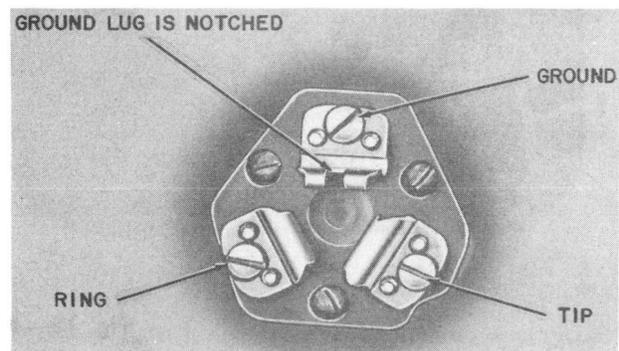


Fig. 22—Connections for KS-8420 and KS-8421 Jacks (MD)

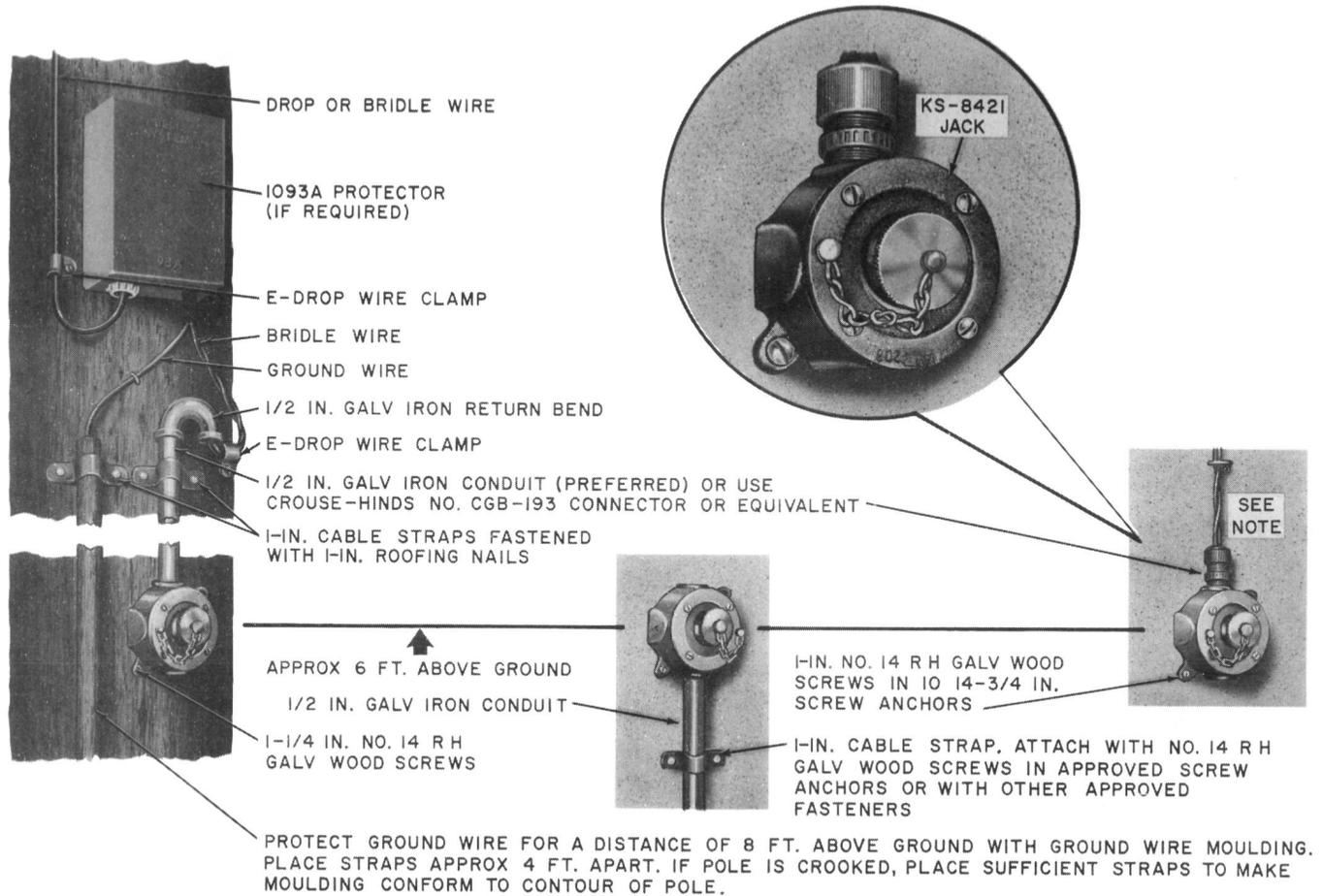
**Q. C Template**

**3.17** The C template (not shown) is used on the recreational vehicle to locate pilot holes for the three thread-cutting screws used to mount the B mounting bracket. It is printed on index card stock and packed separately from the B mounting bracket so that mounting holes may be prepared by the vehicle owner prior to bracket installation.

**4. JACKS AND JACK MOUNTINGS—INDOOR**

**4.01** Only one conductor shall be connected to a single clip of a clip-type jack terminal. The loop-through method for terminating IW cable may be used on jacks which have dual clip-type terminals.

**4.02** Connect conductors as indicated by the color designators stamped next to the terminals.



NOTE: WHEN TWISTED PAIR OR TRIPLE WIRE IS USED, PLACE A LAYER OF RUBBER TAPE BETWEEN THE CONDUCTORS WHERE THEY ENTER THE RUBBER PLUG OF THE CONNECTOR SO THAT WHEN THE CONNECTOR CAP IS TIGHTENED THE HOLE WILL BE EFFECTIVELY SEALED.

Fig. 23—KS-8421 Jack (MD), Typical Installation

The red conductor is terminated at the R terminal, etc. Table D shows the connections for 4-conductor jacks.

4.03 Table E shows the connections for 8- and 12-conductor jacks.

**Caution:** Test each jack location for correct circuit operation.

**INSTALLATION OF NONFLUSH JACKS**

**A. 404B (MD) and 549A Jacks**

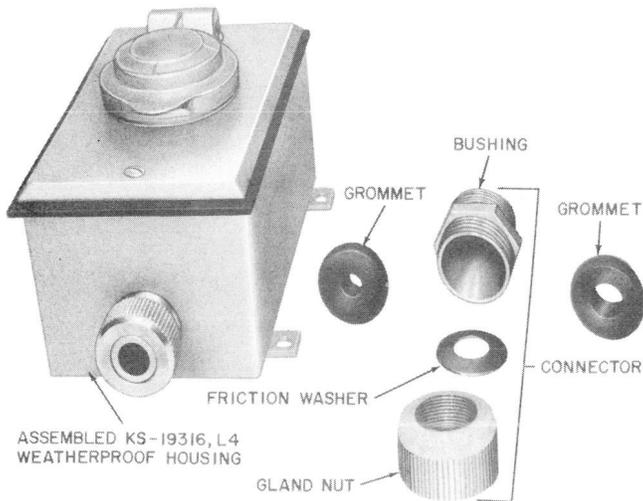
4.04 Install as follows:

- (1) Connect station wire to jack and dress wiring inside shell.
- (2) Fasten jack to mounting surface with furnished screws.

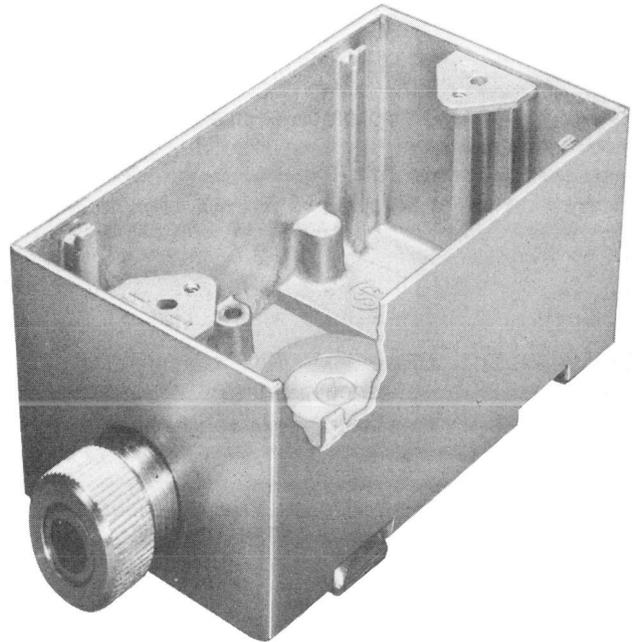
**B. 551A Jack**

4.05 Install as follows:

- (1) Connect station wire or cable conductors to clip terminals of jack using 714-type tool. Conductors may be loop-through terminated.
- (2) Fasten jack to mounting surface with furnished screws.

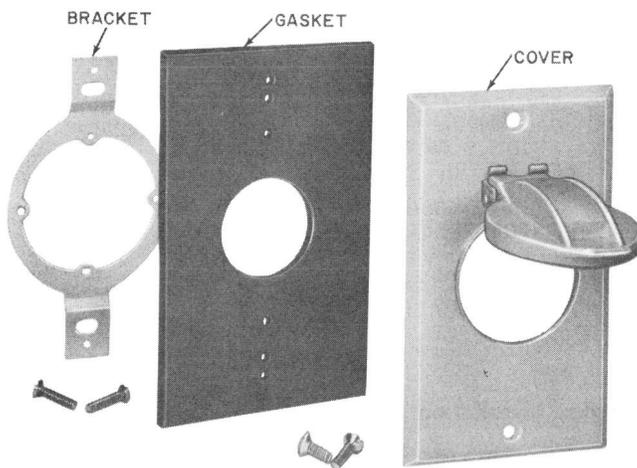


**Fig. 24—KS-19316, List 4 Housing and Components (2 of 3 Grommets Shown)**



- FURNISHED WITH LATER PRODUCTIONS OF KS-19316, LIST 6 HOUSING
- WITH REVERSIBLE MOUNTING LUGS

**Fig. 26—KS-19316, List 6 Housing Box**



- FOR USE WHERE BOX FOR JACK HAS BEEN INSTALLED OR REPLACEMENT PARTS FOR KS-19316, LIST 4.

- ACCEPTS:  
493A JACK (MD),  
541A JACK, 548A JACK,  
625F CONNECTING BLOCK

- MOUNTS TO STANDARD ELECTRICAL OUTLET BOX
- MOUNTING SCREWS SUPPLIED

**Fig. 25—KS-19316, List 5 Cover**

**INSTALLATION OF FLUSH-TYPE JACKS IN STANDARD ELECTRICAL OUTLET BOXES**

**A. 497A (MD) Jack**

**4.06** The 497A (MD) jack is mounted in standard electrical outlet box as follows:

- (1) Mount 493A jack on 43A bracket.
- (2) Connect station wire to jack.
- (3) Mount jack-equipped bracket in outlet box.
- (4) Fasten faceplate with furnished screws.

**B. 547A (MD) or 547B Jack**

**4.07** Install as follows:

- (1) Attach 541A jack on 43B bracket.
- (2) Connect station wire or cable to jack.

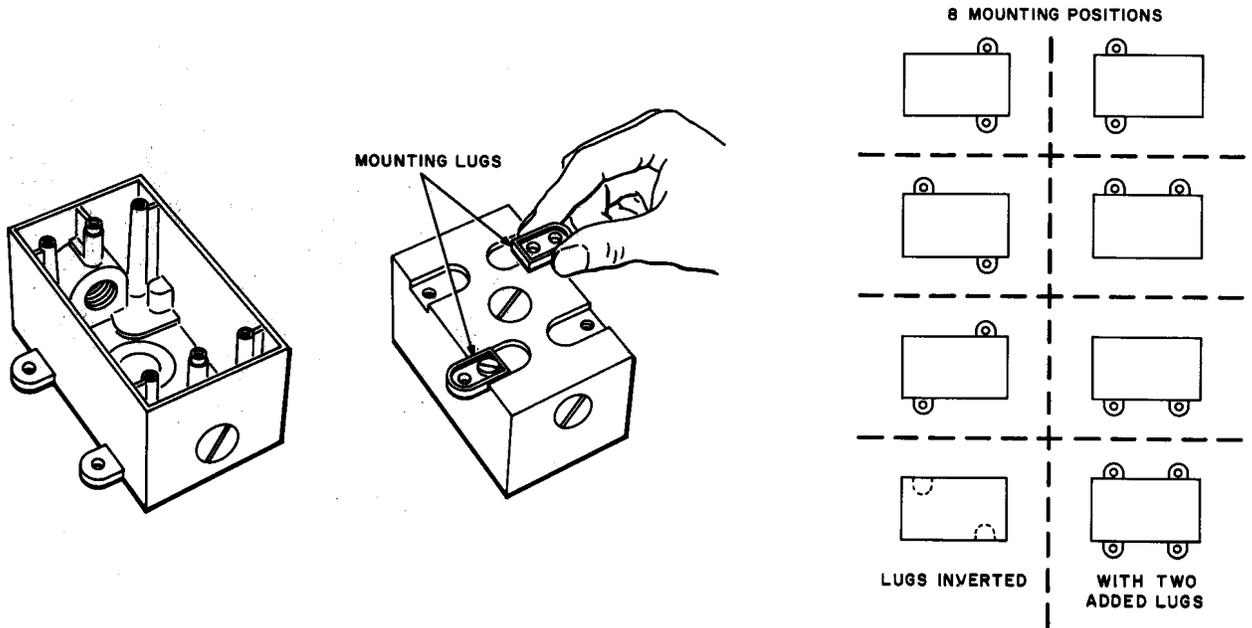


Fig. 27—KS-19316, List 6 Housing Box Showing Reversible Mounting Lugs

- (3) Mount jack and bracket assembly in outlet box.
- (4) Install faceplate. (The cover must be on jack before placing faceplate.)

#### C. 493A (MD) or 548A Jack

4.08 Install as follows:

- (1) Attach jack to 43-type bracket (MD) (Fig. 29) or to the bracket supplied with the 65A faceplate.
- (2) Connect station wire or cable to jack.
- (3) Attach bracket to outlet box and install suitable faceplate.

#### D. 550A Jack

4.09 The 550A jack is assembled in the same manner as the 497A (MD) jack. It consists of a 548A jack, 65A faceplate, and mounting screws.

#### INSTALLATION OF FLUSH-TYPE JACKS IN 63-TYPE OR KS-20502 TYPE BRACKET

4.10 The 493A (MD), 541A, and 548A jacks can be mounted on 63-type or KS-20502-type bracket

(Fig. 30, 31, 32, and 33) with a 16-type or 65A faceplate. Use the same color faceplate as the jack.

4.11 When mounting jacks on the 63-type bracket, the 16-type faceplate ring retainer is required. The 16-type or 65A faceplate can be mounted to the KS-20502-type bracket without a ring retainer.

(a) The 493A (MD) or 548A jack is installed on the 63-type bracket as follows:

- (1) Mount the ring retainer on bracket.
- (2) Connect station wire to jack.
- (3) Mount jack on ring retainer.
- (4) Mount faceplate on ring retainer.

(b) The 493A (MD) or 548A jack is installed on the KS-20502-type bracket as follows:

- (1) Connect station wire to jack.
- (2) Mount jack on bracket using screws supplied with bracket.
- (3) Mount faceplate to bracket using screws supplied with bracket.

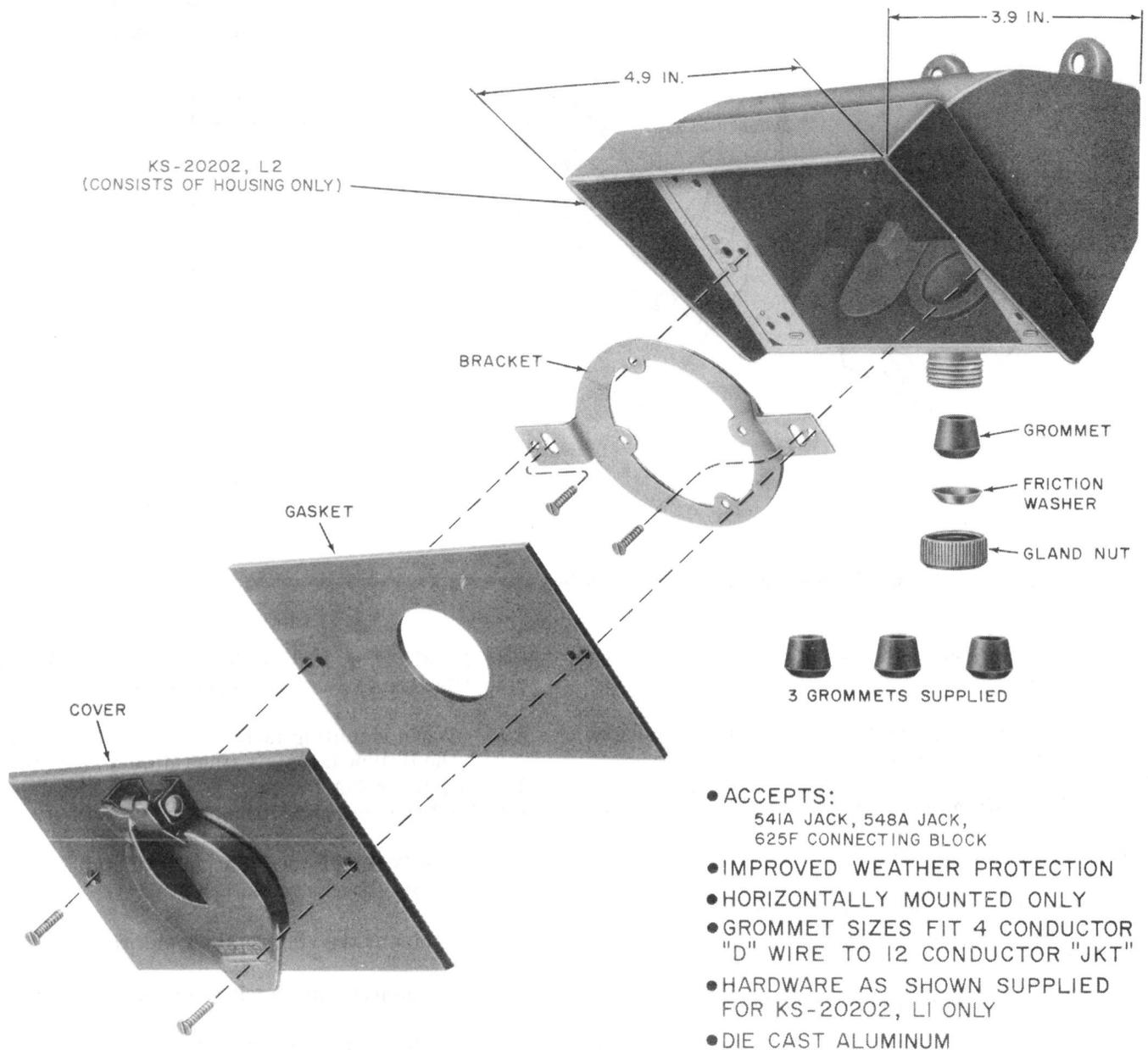


Fig. 28—Assembly of KS-20202, List 1 and 2 Waterproof Housing

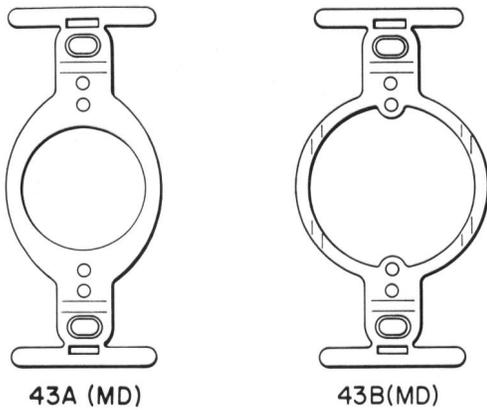
**A. KS-20502 Type Bracket**

4.12 The KS-20502, List 2 plastic bracket (Fig. 33) is a replacement for the KS-20502, List 1 (MD) plastic bracket (Fig. 32). This bracket is intended to mount the 541A or 548A jack, the 625F connecting block, and 16-type or 65A faceplate.

4.13 This bracket may be installed in a 2-1/4 inch

diameter hole with a wall thickness of 1-1/4 inch maximum as follows:

- (1) Make sure the wall behind the bracket is hollow.
- (2) Fasten bracket in wall opening by first placing the self-aligning clamps behind interwall material and tightening the two screws.

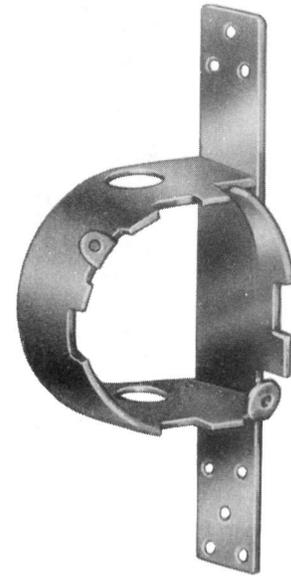


- TO MOUNT JACKS IN STANDARD ELECTRICAL OUTLET BOX
- BREAK-OFF WINGS
- REPLACED BY 43B BRACKET
- TO MOUNT  
493A JACK (MD)  
548A JACK
- COMPONENT OF  
497A JACK (MD)  
550A JACK (OLD)
- TO MOUNT  
493A JACK (MD)  
541A JACK  
548A JACK  
625F CONNECTING BLOCK  
REPLACES 43A BRACKET (MD)
- COMPONENT OF  
547B JACK  
550A JACK  
625B CONNECTING BLOCK

**Fig. 29—43-Type Bracket (MD)**

(3) Bring concealed building wire through opening of bracket and make connections to 541A or 548A jack.

(4) Position jack and faceplate on bracket so two screw holes opposite each other align. Fasten jack and faceplate to bracket using two screws furnished with bracket. These are special thread-cutting screws. The use of any other screws could overstress the polycarbonate bracket and seriously affect its life.



- USE TO PREWIRE BUILDING DURING CONSTRUCTION
- MOUNTED TO STUDDING
- USE WITH 16-TYPE FACEPLATE
- FOR MOUNTING  
493A JACK (MD)  
541A JACK  
548A JACK  
625F CONNECTING BLOCK

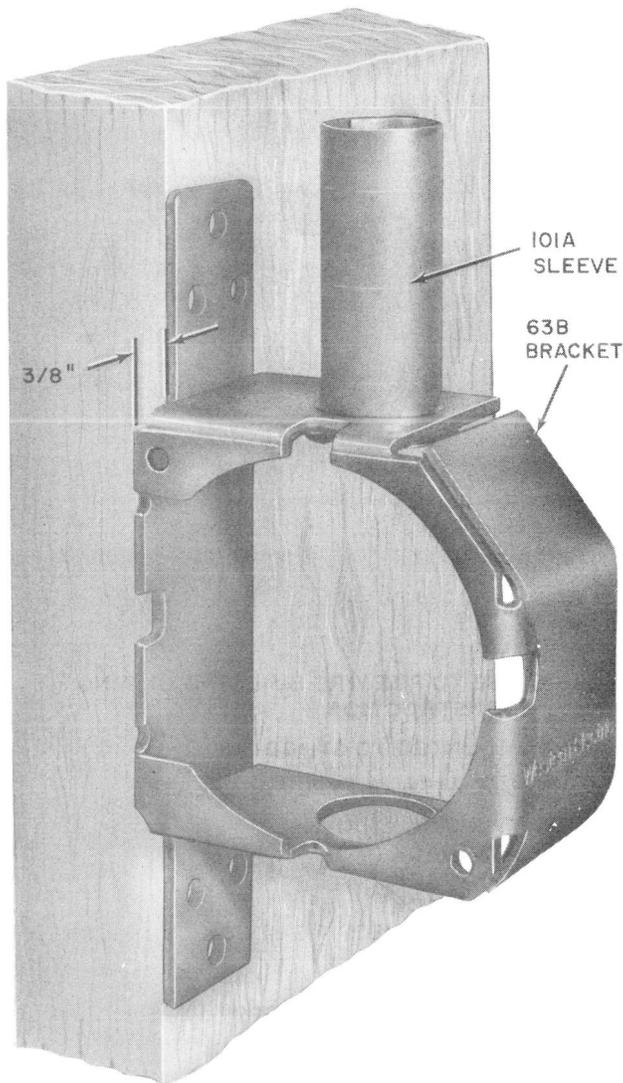
**Fig. 30—63A Bracket (MD)**

#### **B. 541A Jack**

**4.14** The 541A jack is installed in the 63-type bracket as follows:

- (1) Mount ring retainer on 63-type bracket.
- (2) Connect station wire or cable leads to clip terminals of jack.
- (3) Mount jack on ring retainer.
- (4) Place cover on jack.
- (5) Mount faceplate on retainer ring.

**4.15** The 541A jack is installed in the KS-20502-type bracket as follows:



**Fig. 31—63B Bracket With 101A Sleeve Installed**

- (1) Connect station wire or cable leads to clip terminals of jack.
- (2) Place cover on jack.
- (3) Position faceplate over cover and fasten faceplate and jack to bracket.

#### ADAPTERS

**4.16** Adapters are intended for use where it is not desirable to replace existing jacks.

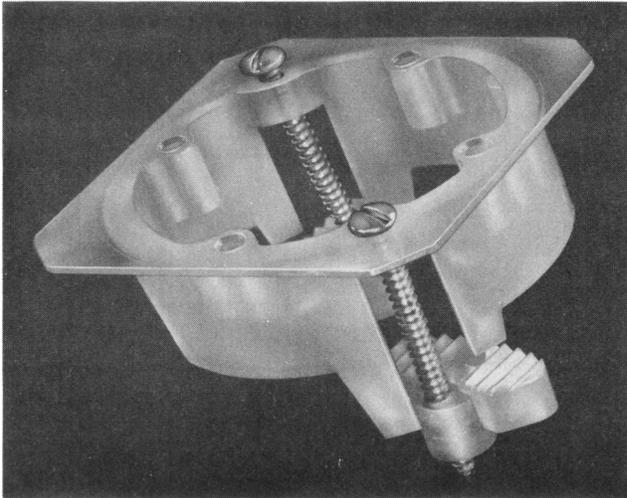


- SELF-EXTINGUISHING PLASTIC
- USE FOR EXISTING WALLS
- WALL HOLE 2-1/4 INCH DIAMETER
- WALL THICKNESS LIMIT 1-1/4 INCH

**Fig. 32—KS-20502, List 1 Bracket (MD)**

- (a) The 224A adapter (Fig. 10) is used to adapt the D4BU or D6-type mounting cord to the 541A and 551A jacks (12-pin jack). The adapter brings out connections from 6 of the 12 connections in the jack.
- (b) The 225A adapter (Fig. 11) is used to adapt the D4BU mounting cord to 404B (MD), 493A (MD), 497A (MD), 548A, and 549A jacks (4-pin jack).
- (c) The 267A adapter (Fig. 12) consists of two modular jacks connected to a single modular line cord-type plug. It can be mounted piggy-back on a 224A or 225A adapter or plugged directly into an existing modular jack.

**Caution:** *Because of the possibility of installing more than one transformer on the same inside wiring pair, the 267A adapter should not be used to connect dial illumination transformers to modular systems.*



- PLASTIC BRACKET, REPLACEMENT FOR STEEL KS-19407 LI BRACKET AND PLASTIC KS-20502 LI BRACKET.
- FOR EXISTING WALLS ( POST WIRING )
- FOR MOUNTING 541A, 548A JACK OR 625F CONN. BLOCK AND 16-TYPE FACEPLATE.
- WALL HOLE 2-1/4 IN. DIAMETER.
- WALL THICKNESS LIMIT 1-1/4 IN.

**Fig. 33—KS-20502, List 2 Bracket**

**4.17** Where portable telephone service is required, 541A, 551A, 548A, and 549A jacks should not be mixed with 625-type connecting blocks.

## **5. JACKS AND JACK MOUNTINGS—OUTDOOR**

**5.01** For a 4-conductor jack, connect conductor as indicated by the color designator stamped next to the terminals. The red conductor is terminated at the R terminal, etc.

### **A. KS-8420 (MD) Jack**

**5.02** Install as follows:

- (1) Arrange for the customer to provide a 2-11/16 inch hole at location selected for jack installation.

- (2) Temporarily insert jack in hole and mark fastener holes.
- (3) Remove jack and drill fastener holes.
- (4) Connect wire as shown in Fig. 22.
- (5) Secure jack to mounting surface with four No. 8 PH or FH cadmium plated tapping screws.

### **B. KS-8421 (MD) Jack**

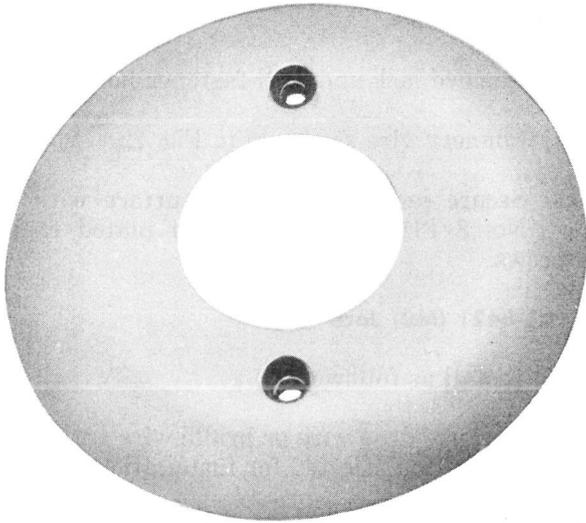
**5.03** Install as follows:

- (1) Arrange drop wire or bridle wire and conduit at location selected for installation (Fig. 23).
- (2) Secure the jack housing to the mounting surface using suitable fasteners.
- (3) Connect wire to terminal block as shown in Fig. 22.
- (4) Mount terminal block to jack housing.
- (5) Install cover on housing.

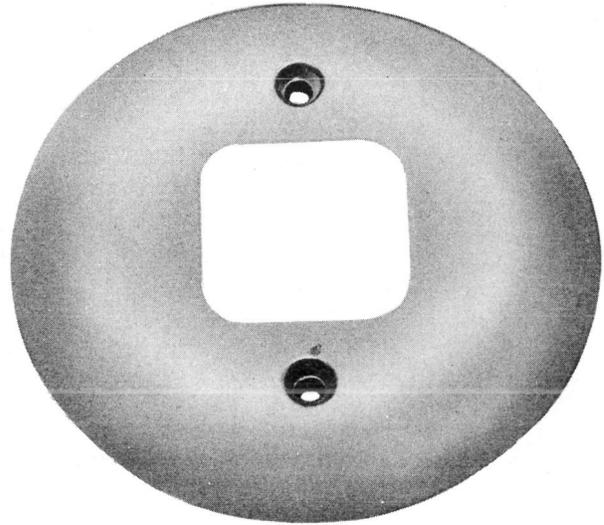
### **C. KS-19316, List 4 or List 6 Housing**

**5.04** Install as follows:

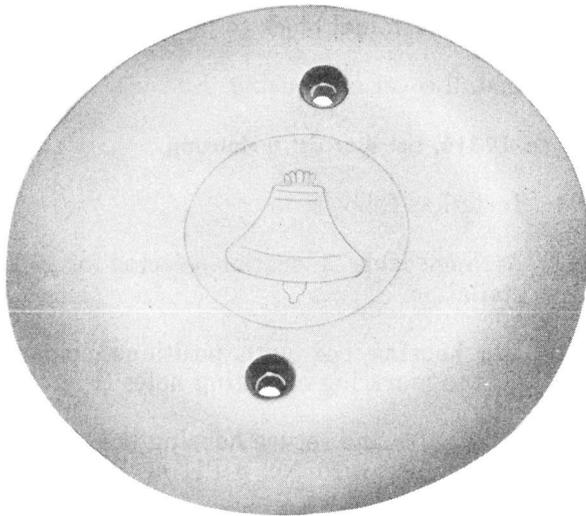
- (1) Arrange cable at location selected for jack installation.
- (2) Use housing box with positioned mounting lugs to mark lug mounting holes (Fig. 27).
- (3) Drill holes and secure housing box to mounting surface with No. 8 PH or FH cadmium plated tapping screws.
- (4) Place gland nut, friction washer, and grommet on cable.
- (5) Run cable inside housing and adjust grommet and friction washer for watertight fit with gland nut.
- (6) Attach bracket to housing box.
- (7) Connect wire or cable to jack.
- (8) Install jack to bracket. The cover supplied for the 541A jack is not required and may be discarded.



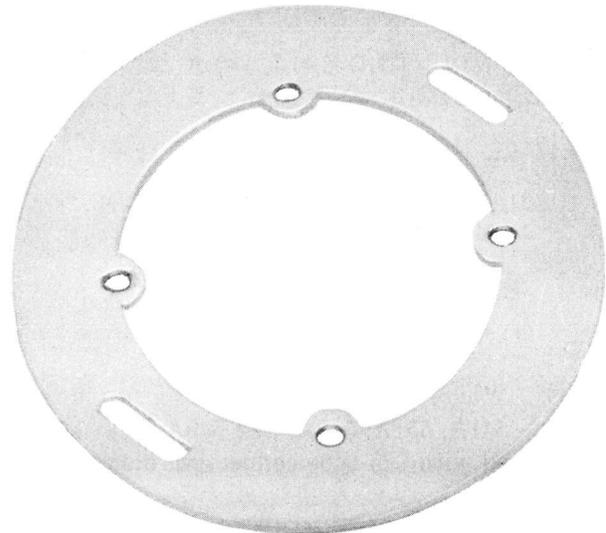
16A



16B



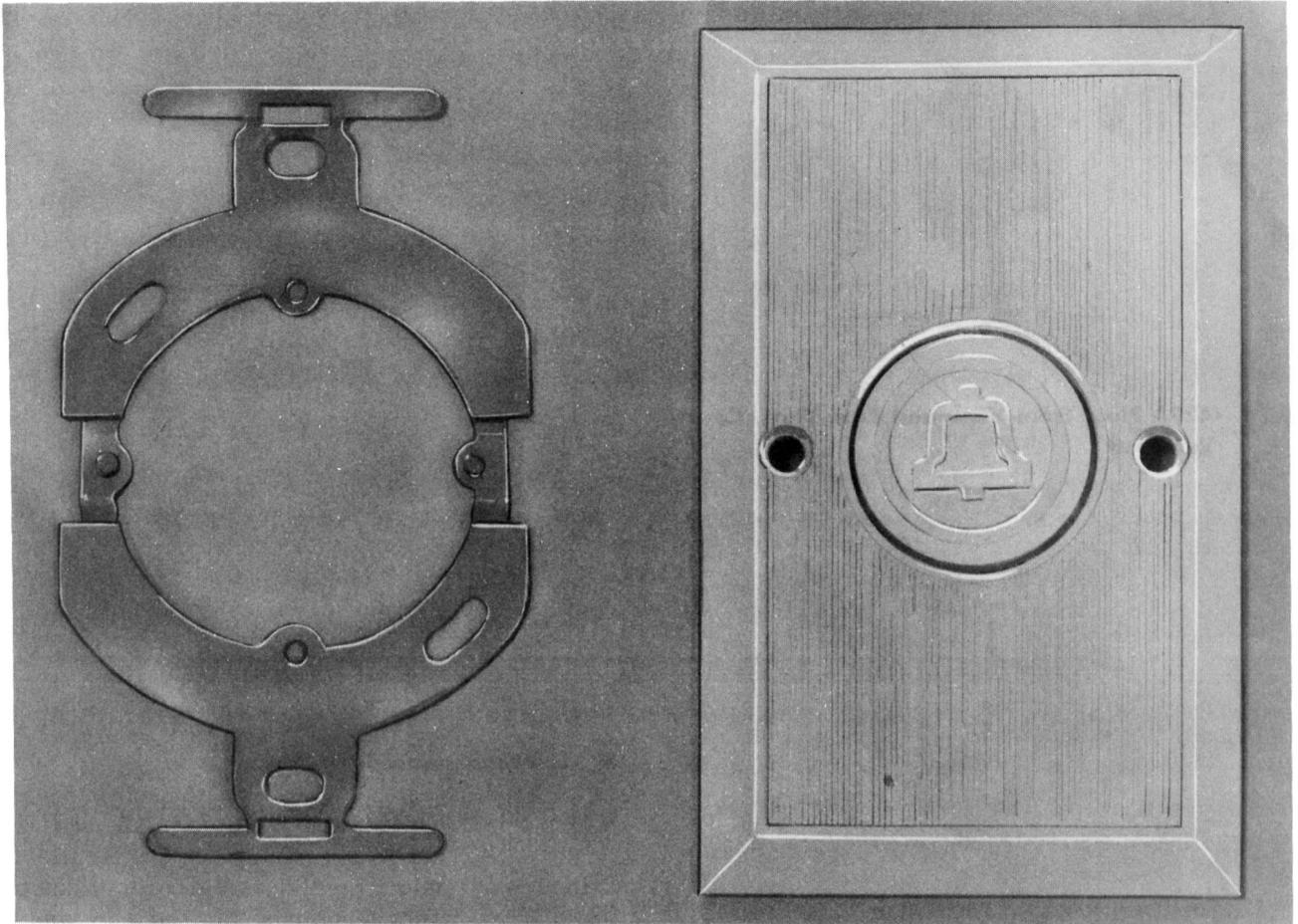
16D



RING RETAINER

- MOUNTS TO 63-TYPE BRACKET USING RING RETAINER KS-20502, L2 BRACKET (RING NOT REQUIRED)
- MOUNTING SCREWS AND RING RETAINER SUPPLIED

**Fig. 34—16-Type Faceplate**



**Fig. 35—65A Faceplate**

(9) Install gasket and cover for watertight fit.

**D. KS-20202, List 1 Housing (Fig. 28)**

**5.05** Install as follows:

- (1) Arrange cable or drop wire at location selected for installation.
- (2) Hold housing to mounting surface and mark fastener holes.
- (3) Remove housing and drill fastener holes.
- (4) Secure housing to mounting surface with No. 8 PH or FH cadmium plated tapping screws.
- (5) Place gland nut, friction washer, and grommet onto cable or drop wire.
- (6) Run cable or drop wire inside housing and adjust grommet and friction washer for watertight fit with gland nut.
- (7) Install bracket and arrange cable or drop wire through center of bracket.
- (8) Connect conductors to selected jack.
- (9) Install jack to bracket. The cover supplied for the 541A jack is not required and may be discarded.
- (10) Install gasket and cover.

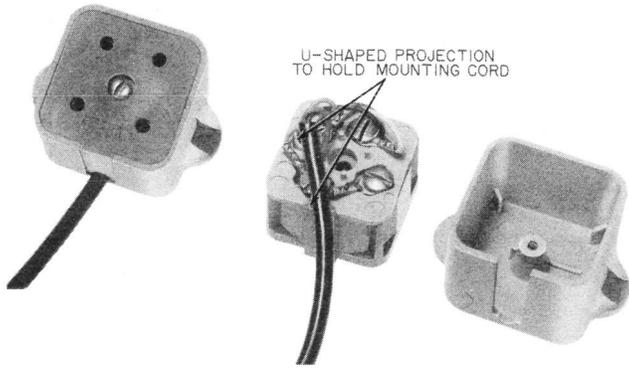


Fig. 36—423A Plug, Front View and Rear View, Cover Removed

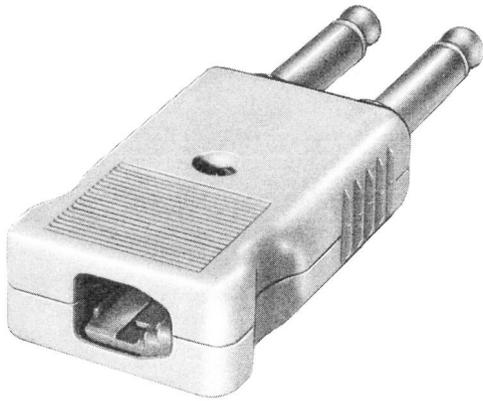


Fig. 37—478-Type Plug

**E. B Weatherproof Jack Adapter**

5.06 Mount the B weatherproof female jack adapter (Fig. 49 and 50) on an existing KS-8421 jack housing after the old jack and cover plate are removed. Use the four mounting screws and cover gasket provided. Three screw terminals stamped T, R, and GR provide for connection to tip, ring, and ground. Wire tip and ring of jack to the tip and ring terminals of the protector. Connect a 14-gauge ground wire from ground terminal of protector to center ground terminal of jack.

**Note:** Do not bond ground wire to boat ground as undesirable electrolysis reaction may develop.

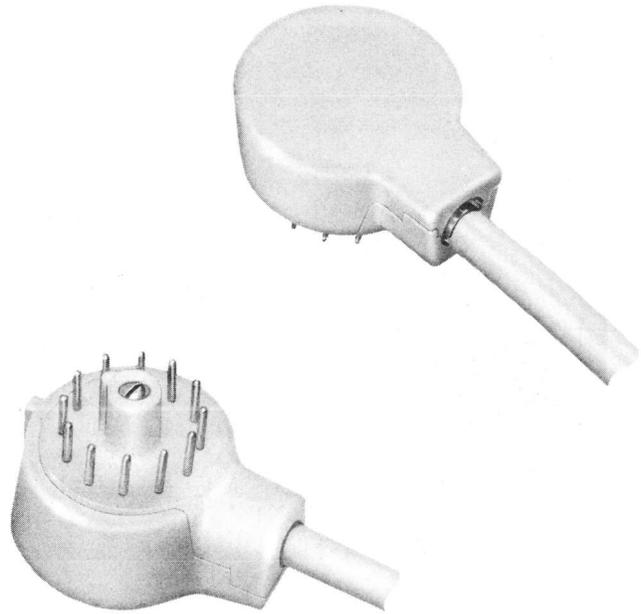


Fig. 38—504A Plug

**F. B Weatherproof Jacks**

5.07 The B weatherproof male or female jacks (Fig. 44, 45, and 46) are mounted in the B outlet box using the four mounting screws and cover gasket provided. Three screw terminals stamped T, R, and GR are provided for connections. A cord grip assembly and conduit adapter are provided with the B outlet box for use with service wire or plastic conduit.

(a) Mount the B weatherproof female jack and B outlet box close to the protector on the post at the utility pad and provide a ringer simulator if required. Wire tip and ring of jack to tip and ring terminals of protector. Connect a 14-gauge ground wire from ground terminal of protector to center ground terminal jack. (See Note in 5.06.)

(b) The B mounting bracket is used to mount the B weatherproof male jack and B outlet box on the recreational vehicle using the mounting holes provided by the customer. The customer will use the C template to drill pilot holes for the B mounting bracket on top of the trailer hitch or vehicle bumper. The cord grip assembly may be attached to either end of the B outlet box depending on existing space. Wire tip and ring of jack to tip and ring terminals of connecting block in the vehicle.

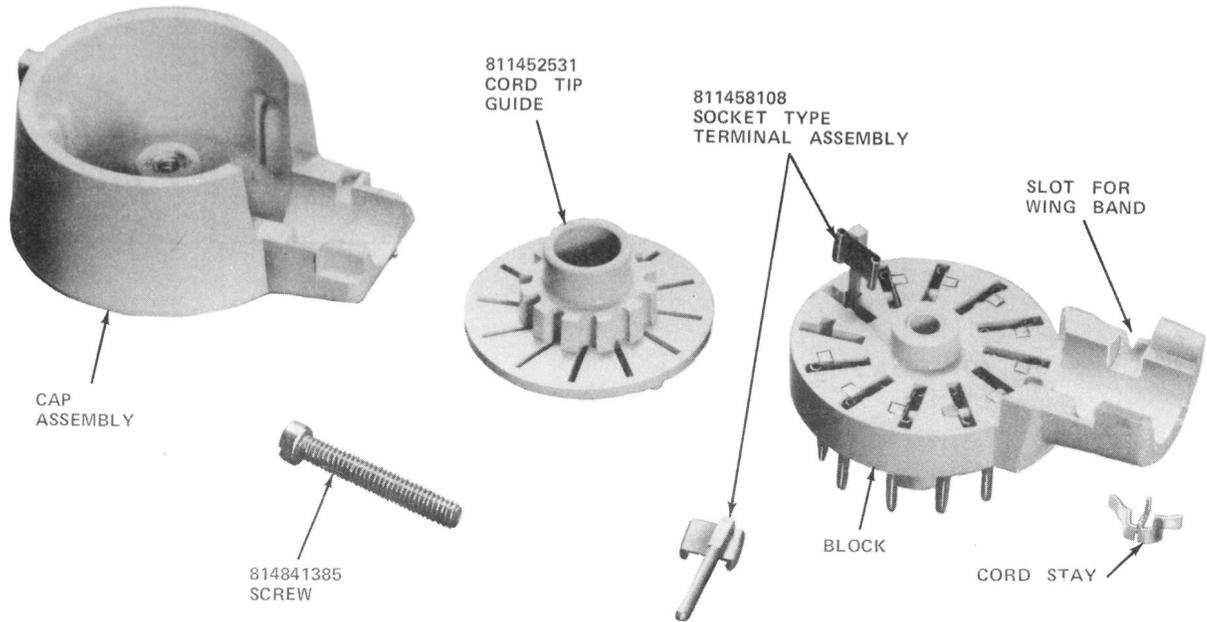


Fig. 39—504A Plug Disassembled

The ground lead provided with the B mounting bracket must be connected from center ground terminal of the jack to a mounting screw as shown in Fig. 53 and 54 to provide a ground bond to vehicle chassis.

**Danger:** ⚡Before making contact with any metal portion of a recreational vehicle, check for the presence of hazardous voltage on the body or chassis using rubber gloves and B voltage tester.⚡

#### G. B Weatherproof Cord

**5.08** The B weatherproof cord (Fig. 55) consists of a 50-foot, 16-gauge, 3-wire (tip, ring, and ground) yellow PVC insulated flexible cord, with PHONE stamped on the cord at 1-foot intervals for identification. The cord is terminated on one end with a male plug which engages the B weatherproof female jack at the service pad or dock. The other end is terminated in a female plug which engages the male jack on the recreational vehicle or boat. Rubber boots on the plug mate with their respective jacks to provide weather protection.

#### H. C Weatherproof Cord

**5.09** The C weatherproof cord is constructed the same as the B weatherproof cord except that

the female plug is replaced with a stay hook and spade-tipped conductors for termination in a telephone set.

#### I. B Waterproof Male Jack

**5.10** The B waterproof male jack (Fig. 47 and 48) is mounted on a boat using mounting holes provided by the customer. The customer will use the B template to locate the pilot holes for mounting screws and clearance hole for the jack body for the B waterproof male jack. The jack is chrome plated with a hinged, threaded cover which makes the jack waterproof when not in use. Three screw terminals, stamped T, R, and GR, on the rear of the jack provide connection for ring, tip, and ground. Wire the tip and ring of the jack to tip and ring terminals of connecting block on boat.

**Note:** Do not bond ground wire to boat ground as undesirable electrolysis reaction may develop. Insulate and store ground conductor. Refer to Section 461-220-101 for routing wiring in boats.

#### J. 652WP4 Jack

**5.11** The 652WP4 jack (Fig. 58) is intended for use with modular apparatus at outdoor locations

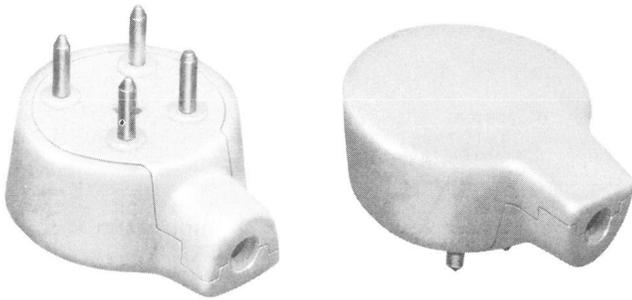


Fig. 40—505A Plug

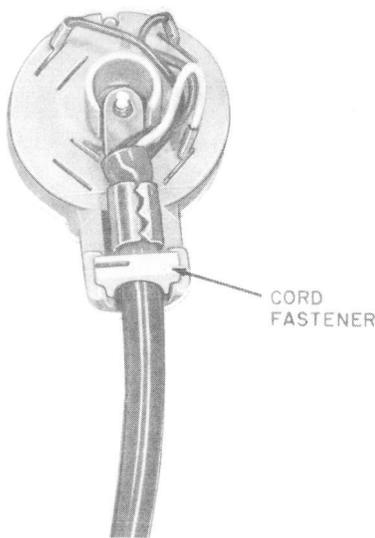


Fig. 41 — Current Model D3BU Cord Connected to Current Model 505A Plug

but can also be used at indoor locations where severe environmental conditions exist such as steel mills, foundries, etc. The 652WP4 jack is not to be used as a replacement for the weatherproof, 3-conductor jacks used for marina and recreational vehicle installations. The 652WP4 jack can be used with all existing outdoor boxes or housing. A 3/4-inch No. 14 straight pipe thread is molded on the rear of the jack, permitting it to be mounted on the box or housing using a 3/4-inch conduit locknut (not supplied). The modular jack is effectively sealed from environmental effects with or without a modular plug installed. Without a plug installed, the jack opening is sealed by the spring-loaded, gasketed cover. To provide a

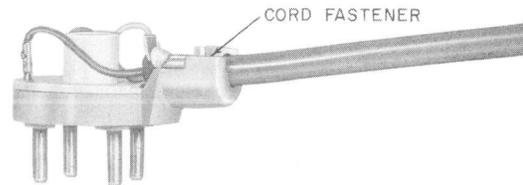
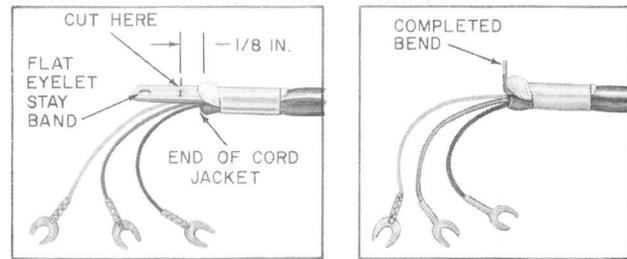


Fig. 42—Connecting Current Model D3BU or D4BP Cord to Early Model 505A Plug

seal with a modular plug inserted, the rubber grommet, plastic washer, and screw cap must be assembled on the cord as shown in Fig. 59. After the plug is inserted in the jack, the screw cap is threaded and tightened on the threaded projection molded on the jack frame.

## 6. PLUGS—INDOOR AND OUTDOOR (TABLE F)

### A. 504A Plug

**6.01** Included with the 504A plug (Fig. 38 and 39) is a metal cord stay designed for use with cords equipped with a wire S hook. The S hook is removed and discarded. The cord stay, inserted into the vacated band hole, serves as a wing band.

**6.02** Assemble the 504A plug as follows:

- (1) Place cord tip guide on block.
- (2) Insert mounting cord tips into socket-type terminals of plug.
 

**Note:** For mounting cord conductor connections, refer to connection section for the telephone set.
- (3) Dress conductors so they will lie within the cap of plug.
- (4) Place wing band or cord stay of mounting cord in its proper slot.

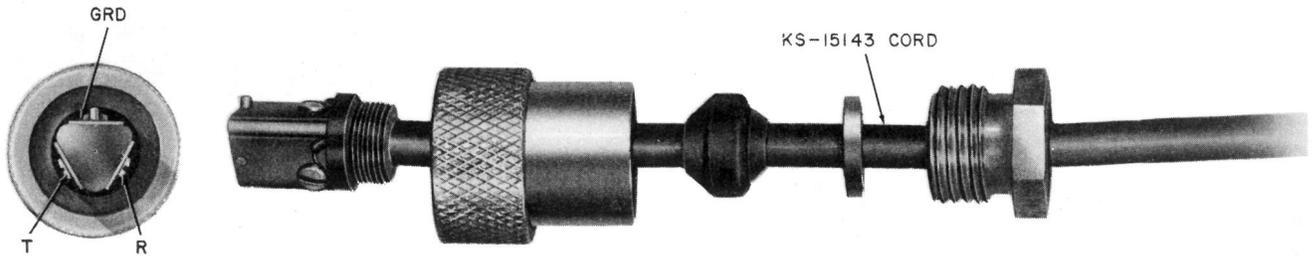


Fig. 43—KS-8419 Plug (MD)

(5) Place cap on plug so cord and wing band or cord stay will seat properly. Be sure no leads are pinched.

(6) Snap two sections of neck together.

(7) Insert screw and tighten.

#### B. 505A Plug

**6.03** The 505A plug is a 4-contact plug similar to the 504A plug; in addition, however, it has a cord fastener which holds the cord in place while spade tips are being connected. The cord fastener also anchors the mounting cord in the assembled plug.

**6.04** Connect current model D3BU or D4BP mounting cord to a current model 505A plug as follows:

- (1) Position flat eyelet stay band in the cord channel so that the screw hole is over the screw hole in the center of the cord tip guide (Fig. 41).
- (2) Fit cord fastener into groove in the cord channel and press until it snaps into position.
- (3) Connect the mounting cord space tips in the socket-type terminals.
- (4) Insert screw through hole in block and stay band.
- (5) Dress conductors so they will not obstruct the center of the cord tip guide.
- (6) Position cap assembly on cord tip guide and block; check that no cord leads are pinched and tighten screw.

**6.05** Connect current model D3BU or D4BP mounting cord to an early model 505A plug as follows:

- (1) Cut flat eyelet stay band approximately 1/8 inch from end of cord jacket using 8-inch sidecutters, or equivalent (Fig. 42).

**Caution:** When cutting the stay band, take precautions to prevent the severed end from striking personnel or apparatus.

- (2) Make a right angle bend in the remaining length of stay band in the direction away from the cord conductors.
- (3) Position the mounting cord into the cord channel of the block, as shown in Fig. 42.
- (4) Fit the cord fastener into the groove in the cord channel and press until it snaps into position.
- (5) Connect the mounting cord spade tips in the socket-type terminals.
- (6) Dress the conductors so they will not obstruct the center of the cord tip guide.
- (7) Position the cap assembly on the block so that the right angle bend of the stay band is supported by the inner surface of the cap assembly; check that no cord leads are pinched.
- (8) Insert cover screw and tighten.

**6.06** Connect 505A plug to a cord equipped with a wing band as follows:

- (1) Fit the cord tip guide into place on the top of the block.

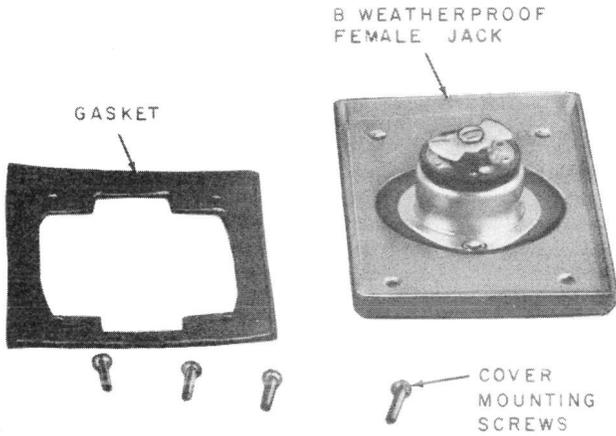


Fig. 44—B Weatherproof Male (or Female) Jack

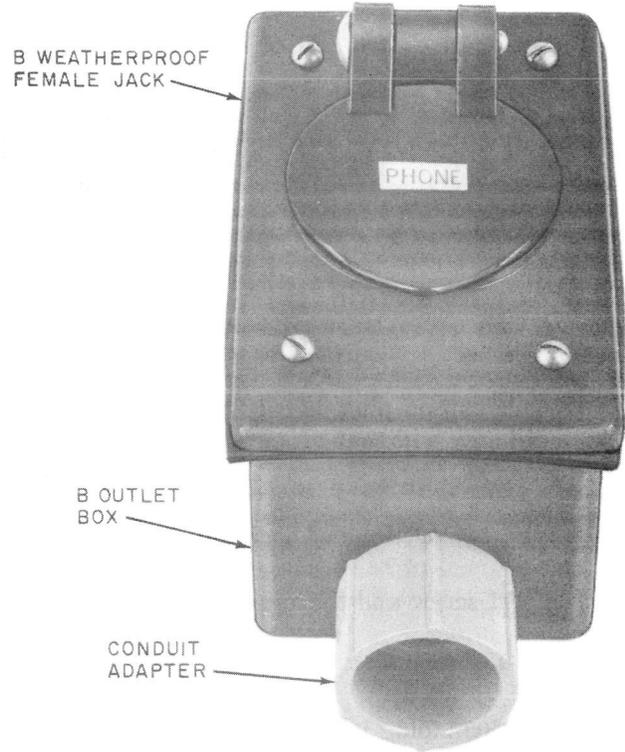


Fig. 46—B Weatherproof Female Jack on B Outlet Box

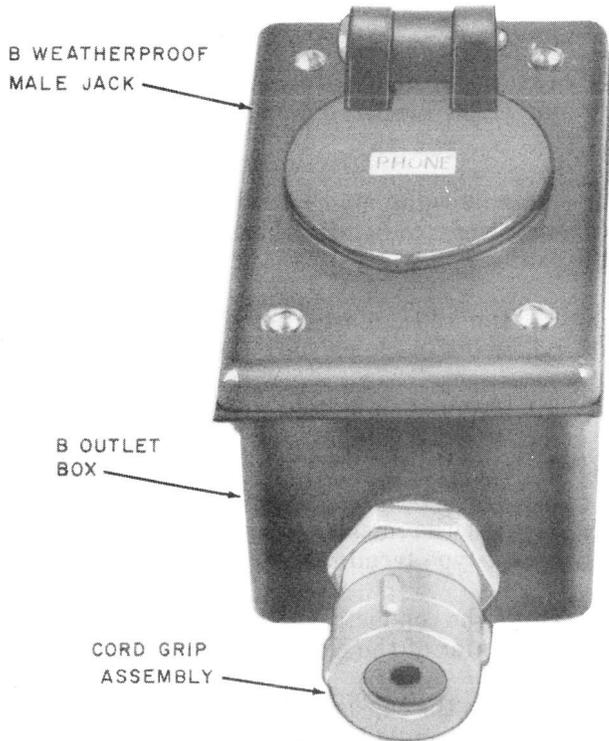


Fig. 45—B Weatherproof Male Jack on B Outlet Box

(2) Position the mounting cord into the cord channel of the block so the cord wing band fits into the wing band slot. One ear of the wing band will extend into the wing band slot of the cord fastener.

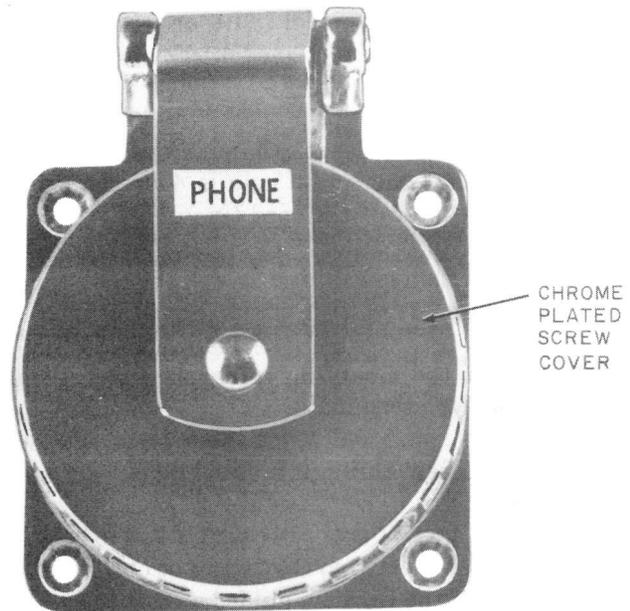
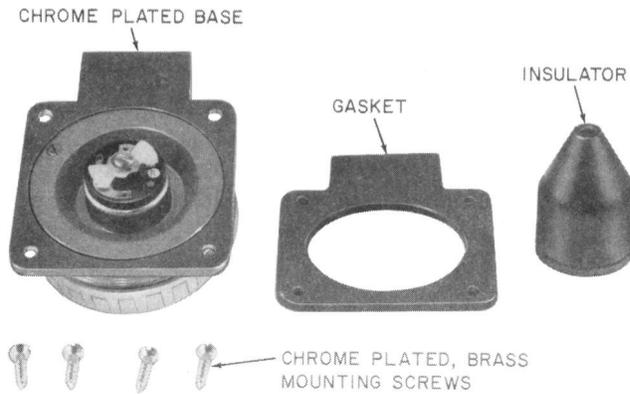
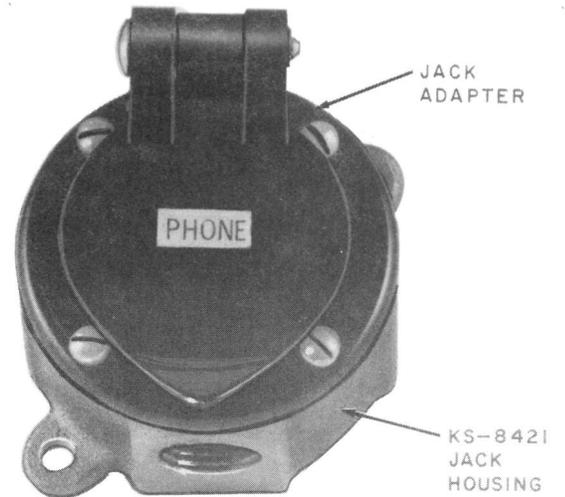


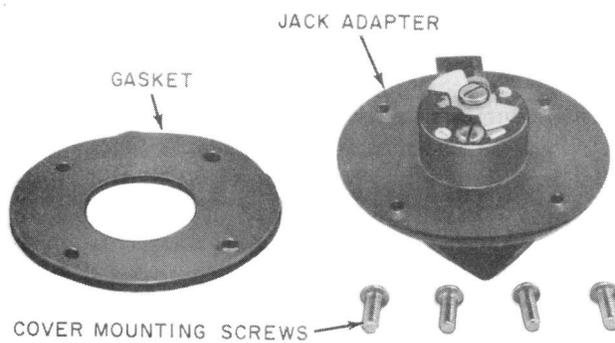
Fig. 47—B Waterproof Male Jack (Front View)



**Fig. 48—B Waterproof Male Jack (Rear View, Gasket and Insulator Removed)**



**Fig. 50—B Weatherproof Female Jack Adapter Mounted on KS-8421 Jack Housing**



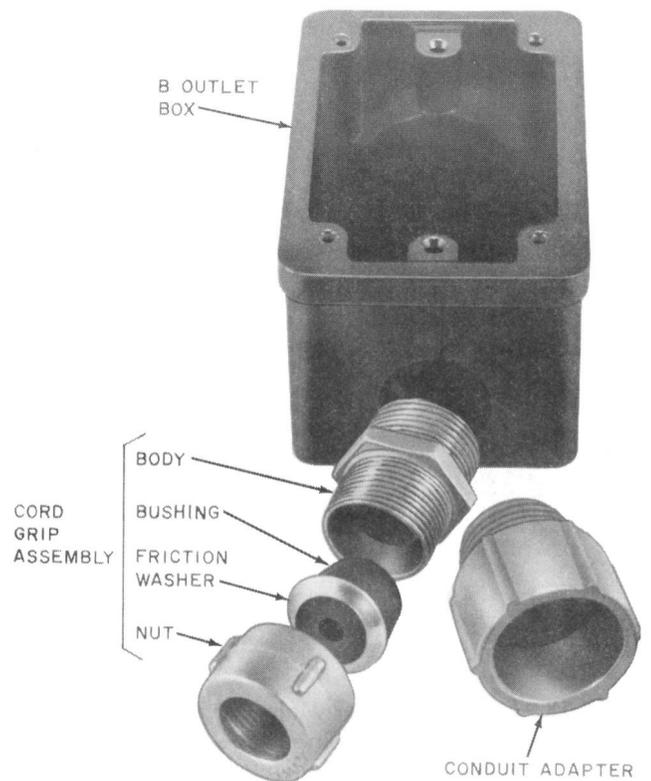
**Fig. 49—B Waterproof Female Jack Adapter**

- (3) Fit the cord fastener into the groove in the cord channel and press until it snaps into position.
- (4) Arrange the mounting cord spade tips in the socket-type terminals.
- (5) Adjust the conductors so they will not obstruct the center of the cord tip guide.

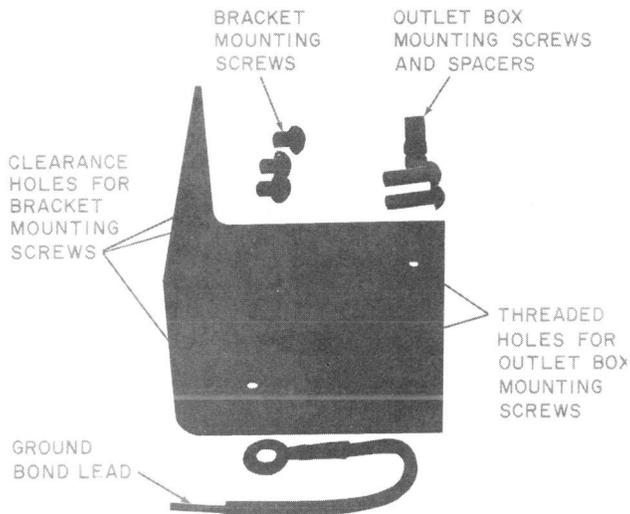
**C. 423A Plug**

**6.07** Connect the 423A plug as follows:

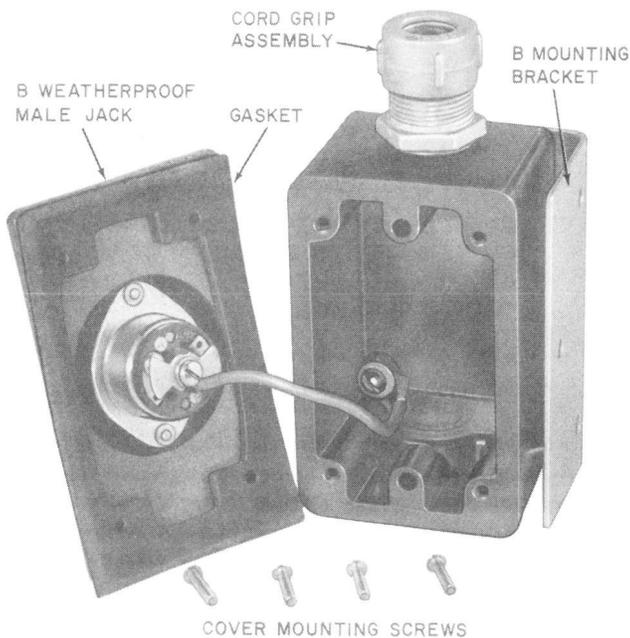
- (1) Connect as indicated by color designations stamped adjacent to terminals.
- (2) Lay jacketed portion of cord in the two molded U-shaped projections.



**Fig. 51—B Outlet Box (for Mounting B Weatherproof Jacks)**



**Fig. 52—B Mounting Bracket (for Mounting B Outlet Box)**



**Fig. 53—B Weatherproof Male (or Female) Jack on B Outlet Box Showing Ground Lead Connected to B Mounting Bracket**

(3) Place cover on base and tighten screw.

**D. KS-8419 (MD) Plug**

**6.08** The KS-8419 plug (Fig. 43) is a 3-contact, brass plug intended for connecting telephone sets installed on boats, trains, or auto trailers to outdoor jacks of PBX or CO lines. This plug is intended for use with KS-8420 or KS-8421 jacks.

**6.09** Connect the KS-8419 (MD) plug as follows:

- (1) Plug components are assembled to KS-15143 3-conductor, 18-gauge cord, or equivalent (Fig. 43).
- (2) In KS-15143 cord, or equivalent, the black conductor should be used for the ring (negative) side of the line. The white conductor should be used for tip (positive) side of the line. The green conductor is the ground conductor.
- (3) One terminal of the KS-8419 plug has a small lug protruding from the contact. This lug and the notched terminal on KS-8420 and KS-8421 jacks are provided to ensure that the plug is inserted in one position only.
- (4) When ground is necessary for service, the green conductor should be terminated on the notched terminal.

**E. 478A and 478B Plug**

**6.10** The 478A or 478B plug is used to connect a modular plug-ended cord to a jack-equipped console or a CALL DIRECTOR® telephone.

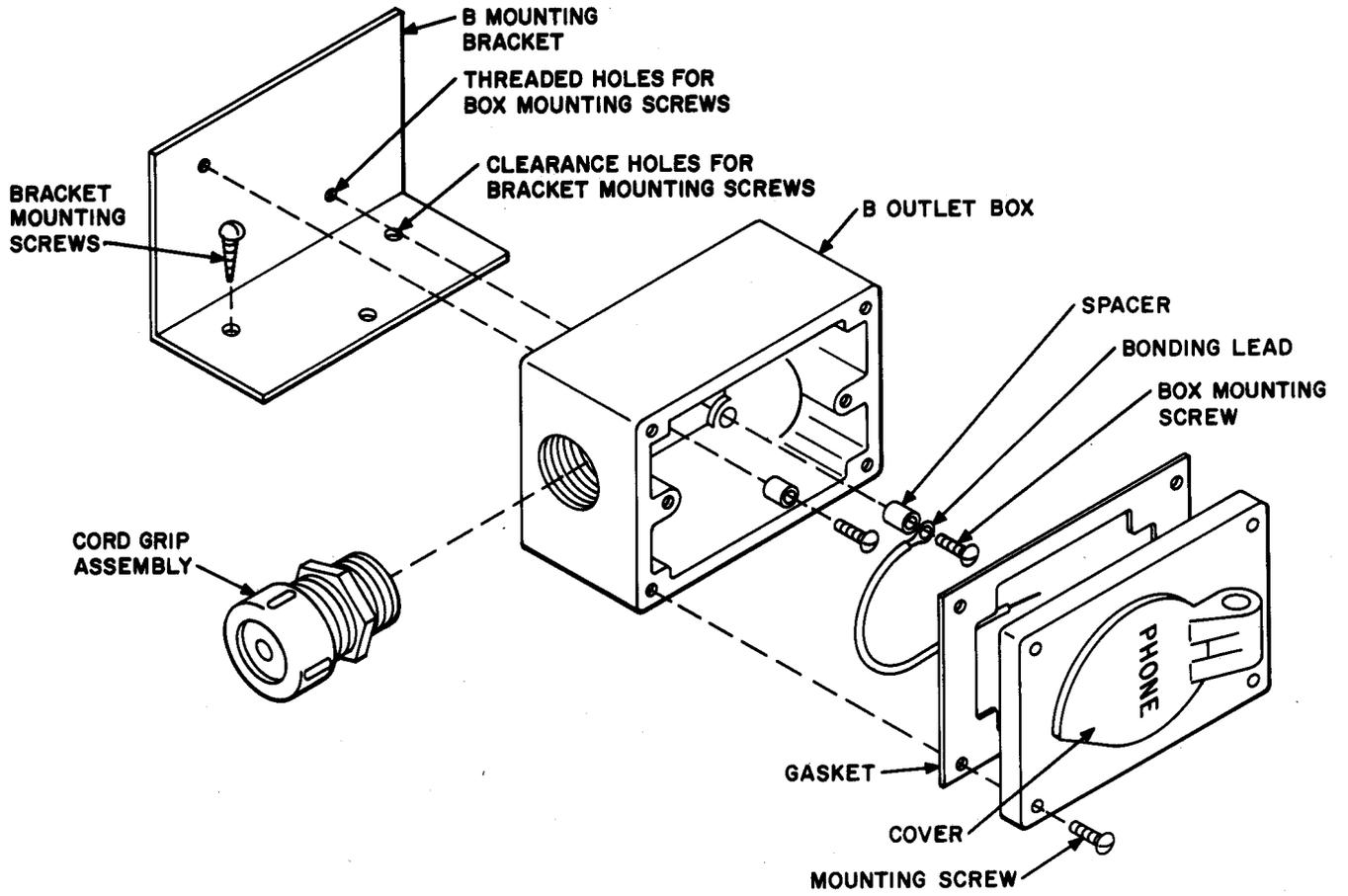


Fig. 54—Assembly of B Weatherproof Male Jack to B Outlet Box and B Mounting Bracket

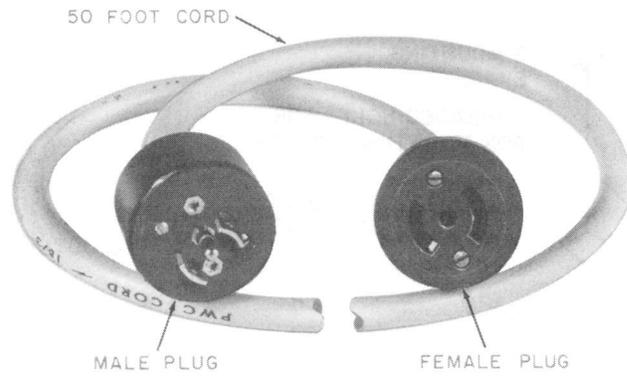


Fig. 55—B Weatherproof Cord

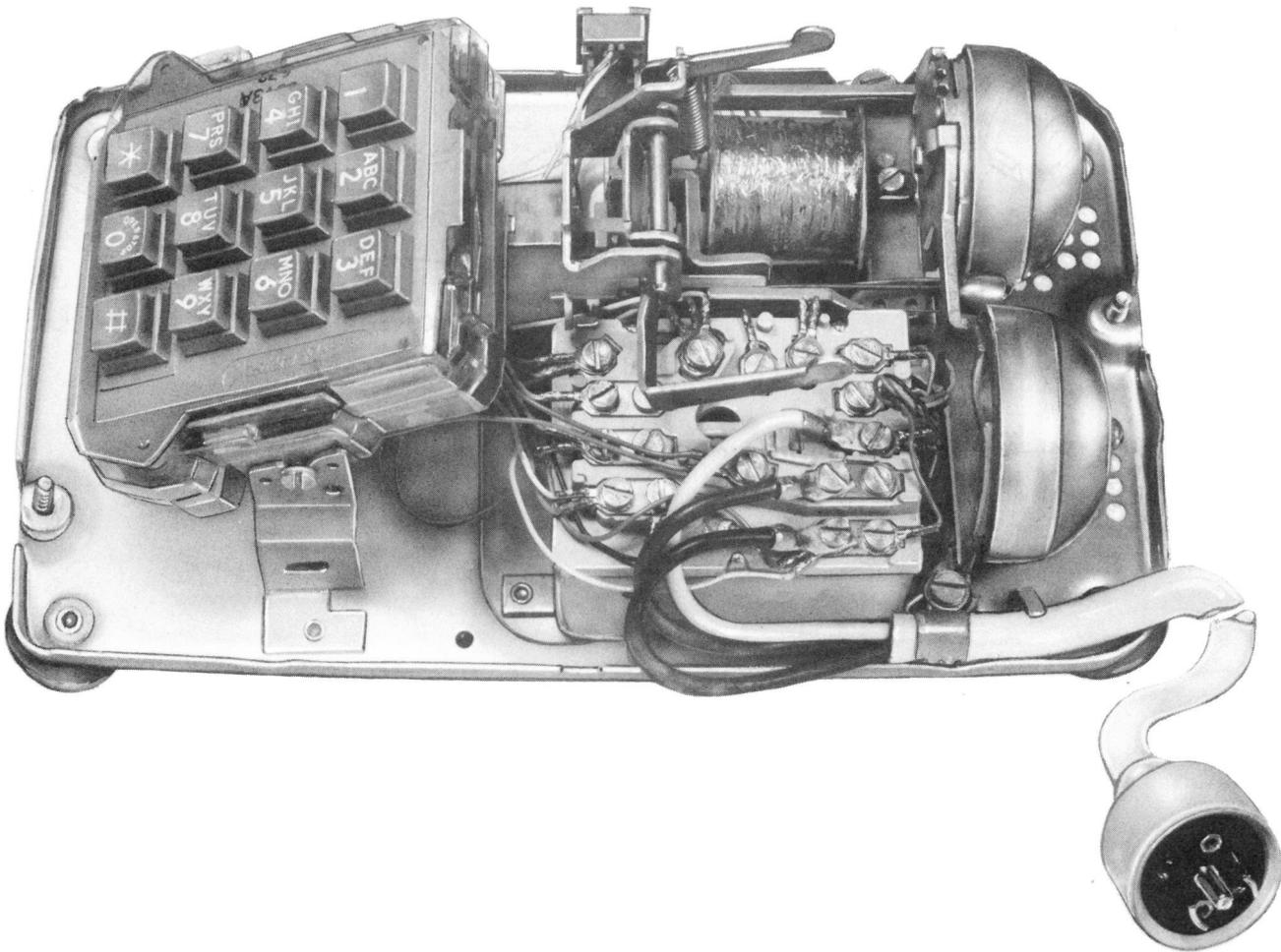


Fig. 56—C Weatherproof Cord

**TABLE D**  
**CONNECTIONS TO 4-PIN JACKS**

INSIDE WIRE	4-PIN JACK
(G) Tip	G
(R) Ring	R
(Y) Ground and/or Transformer	Y
(B) Transformer	B

**TABLE E**  
**CONNECTIONS TO 8- AND 12-PIN JACKS**

INSIDE WIRE QUAD		D AND E INSIDE WIRING CABLE	NO. TERMINALS	
			8	1
		TERMINAL DESIGNATIONS		
1st	Red	BL-W	R	1
	Green	W-BL	G	2
	Yellow	O-W	Y	3
	Black	W-O	BK	4
2nd	Red	G-W	W	5
	Green	W-G	R-R	6
	Yellow	BR-W	Y-Y	7
	Black	W-BR	BK-BK	8
3rd	Red	S-W		9
	Green	W-S		10
	Yellow	BL-R		11
	Black	R-BL		12

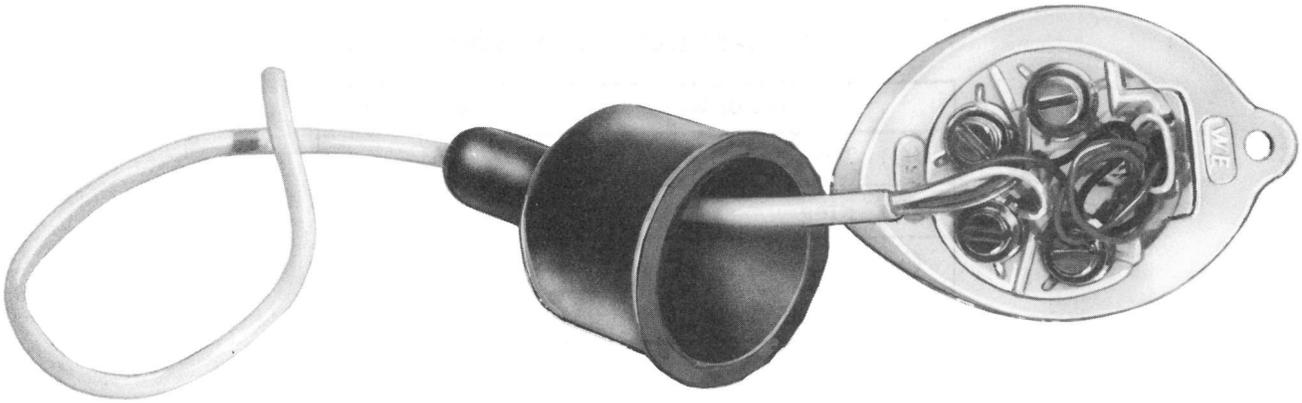
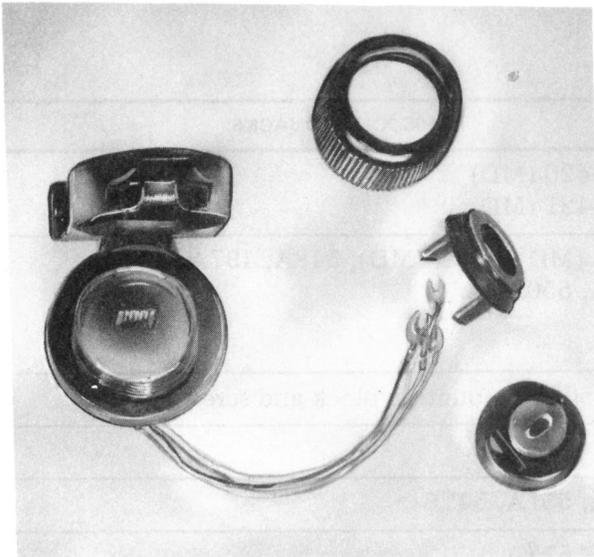
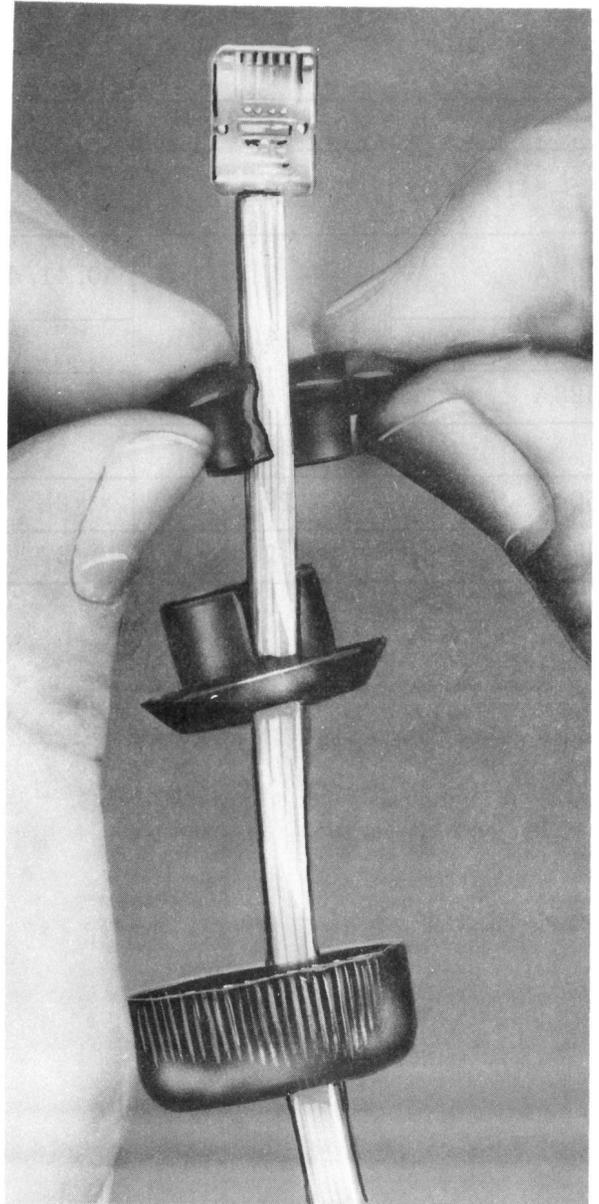


Fig. 57—158A Cover



**Fig. 58—652WP4 Jack**



NOTE:  
NOT FOR USE ON MOBILE HOMES,  
IN MARINAS OR ON RECREATIONAL  
VEHICLES. FOR SUCH APPLICATIONS  
SEE FIG. 55 AND 56.

**Fig. 59—Installing 652WP4 Jack Parts on Modular Cord**

TABLE F

## PLUGS

TYPE	NO. OF CONTACTS	FIGURE NO.	ASSOCIATED JACKS
KS-8419 (MD)	3	43	KS-8420 (MD) KS-8421 (MD)
505A	4	40, 41, 42	404B (MD), 493A (MD), 548A, 497A (MD), 549A, 550A,
423A		36	814450550 mounting block and screw assembly
	8		
504A	12	38	541A, 551A, 547B
478A, 478B	2	37	476A, 517A