MINIATURE BRIDGED JACKS
PHASES 1 THROUGH 6
DESCRIPTION

1. GENERAL

1.01 This section provides descriptive and installation information for the Federal Communications Commission (FCC) approved miniature bridged jacks (GTE AE Phases 1 through 6) used to connect registered terminal equipment to the telephone communication network. Some examples of this equipment are telephone sets, alarm systems (fire alarms, equipment failure alarms), telephone answering sets, conferencing devices, call diverters, automatic dialers, traffic measuring equipment, recorders, call restricters, and permissive data sets. This section also provides a description of the various design changes made by GTE AE since the introduction of its miniature plug and jack hardware.

1.02 For specific connections for miniature Universal Service Order Code (USOC) bridged jacks, refer to Section 491-300-111.

1.03 This section should be retained for general information purposes. Although the majority of the hardware described herein has been manufacture-discontinued, there are existing installations where this hardware is still used. Wherever possible and practical, the older-type jacks should be removed from service and replaced with Phase 7 hardware (refer to Section 491-300-112).

1.04 This section is reissued to incorporate updated information on GTE AE Phase 1 through 6 miniature bridged jacks. Due to the extensive changes involved, marginal indicators are omitted. Remove the previous issue of this section from the binder or microfiche file and replace it with this issue.

2. HISTORY

2.01 The original miniature plugs and jacks manufactured by GTE AE were designed to be incompatible with those manufactured by the Bell System. When Part 68 of the FCC Rules and Regulations was formulated (see the Federal Register of July 12, 1976, Docket 20774), it became necessary for GTE AE to discontinue its line of incompatible hardware.

2.02 Initially, the GTE AE hardware was developed in response to the introduction of the Phone Mart concept within the General Telephone System. Following introduction of the miniaturized hardware for Phone Mart usage, various design changes were made; some were the result of product improvement, while others were due to the FCC mandate requiring all miniature jack hardware to be fully compatible with that designed and manufactured by Western Electric Company (WECo). The various hardware items that make up the GTE AE line of miniature modular plugs and jacks are not marked with their respective part numbers. For this reason, field identification of the phase of manufacture of a given part, to determine its compliance with FCC rules (or lack thereof), requires knowledge of the various jack wiring, marking, and related changes by installation personnel. The following descriptive material, in conjunction with the information listed in Tables 1, 2, and 3, will permit installation and maintenance personnel to identify compatibility aspects of all Phase 1 through 6 hardware currently in the field:

(a) Phase 1. The miniature plugs and jacks developed in this phase were never installed in the field.

(b) Phases 2 and 3. The miniature plugs and jacks developed in these phases are installed in the field but do not meet FCC mechanical or wiring regulations. For example, miniature plugs manufactured by WECo will plug into GTE AE's Phase 2 and 3 jacks, but will not lock into place. Thus, any movement of the line cord could cause the inadvertent loss of connection to the CO line. When encountered during customer visits to a customer's premises, this hardware should be removed and replaced with Phase 7 (or later) hardware (refer to Section 491-300-112).

(c) Phase 4. Phase 4 hardware is exactly the same as Phase 3 hardware in appearance, except for the lettering that is molded into the plastic parts. Phase 3 hardware is identified by the statement "GTE- - Not For Sale," and Phase 4 hardware is marked "GTE Automatic Electric." The Phase 4 jack is mechanically, but not electrically, compatible with FCC requirements. When a Phase 4 jack is rewired in the field to meet FCC requirements, an adhesive black dot is affixed by the installer and the jack is then equivalent to Phase 5 production as noted in (d) below. The black dots are also used to identify the plugs of those sets that have been wired in the field to conform to the FCC requirements. These dots are stocked under Material Code No. 432475, part No. HZ-1368-1.

(d) Phases 5 and 6. The GTE AE Phase 5 and 6 hardware is fully compatible with WECo-manufactured hardware and FCC requirements. Phase 5 hardware resulted from rewiring Phase 4 jacks to conform with the FCC standards. After rewiring in the factory, each Phase 5 jack was marked with a black dot to provide a means of field identification; Phase 6 incorporated a molded dot for identification.

2.03 The following tables are provided for reference purposes:

(a) Table 1. GTE AE Hardware Production Intervals.

(b) Table 2. GTE AE Hardware Phase Change References and Ordering Numbers.
(c) Table 3. Line Cord Phase Change References and Ordering Numbers.

3. DESCRIPTION

3.01 During the FCC meetings on equipment standards for Part 68, it was agreed that the wiring standards shown in Figure 1 would apply to all six-position miniaturized bridged jacks.

NOTE: The six-position reference indicates the maximum contact capacity of either a plug or a jack; it will be noted that not all plugs or jacks are fully equipped (Tables 2 and 3).

3.02 The GTE AE miniaturized hardware consists of prewired jacks assemblies, cover plates, and line cords with attached miniature plugs; no special tools are required for installation.

3.03 The ordering numbers for the hardware described in paragraphs 3.04 through 3.08 are listed in Tables 2 and 3. All mounting screws are included with each assembly, except for the surface miniature jacks described in paragraph 3.04.

Miniature Jacks for Indoor Installation

3.04 The two types of miniature jack configurations are surface mount (Figures 2 and 3) and flush mount (Figures 4 and 5 and Table 2).

3.05 For installation of wall telephones, a wall adapter plate (Figure 6) is secured to the baseplate of the instrument; the adapter plate then connects to a wall jack.

3.06 If these older jacks are found in an installation, they should be removed and replaced with Phase 7 hardware (refer to Section 491-300-112).

Miniature Jacks for Outdoor Installation

3.07 Jack assemblies are available for outdoor installations, permitting telephone service at patios, terraces, or other exposed locations. Figure 7 shows the miniature round flush-mounted jack assembly installed in an outdoor standard recessed utility box. Figure 8 shows outdoor surface-mount jack assemblies. If these older jacks are found in an installation, they should be replaced with Phase 7 hardware (refer to Section 491-300-112).

Miniature Plug-Ended Line Cords

3.08 A typical six-position miniature plug is shown in Figure 9. This plug is permanently molded on the telephone line cord, and line cord assemblies are available in 7-, 14-, and 25-foot lengths (Table 3). Retrofit plugs (Figure 10) are available to convert spade-terminated line cords for use with miniature jacks. The spade terminals are folded double and inserted into the jack body; a cover then snaps over the body.

Single-Line, Two-Line, and Multiple-Line Applications

3.09 There are three general classifications of miniature bridged plugs and jacks as follows:

(a) Single-line.
(b) Two-line.
(c) Multiple-line.

The miniature plugs and jacks described in paragraphs 3.04 through 3.08 are used for either single-line or two-line applications, depending on the USOC arrangement specified by the customer for connection of a registered device. It should be noted that USOC jack arrangements also apply for the termination of all telephone-company-provided equipment (except ringers) associated with individual line service. Single-line applications permit the connection of one device per jack location. Two-line applications permit the connection of a two-line telephone to either line, or one telephone and one ancillary or permissive data device (Section 491-300-100) per line, providing proper line cord connections are made.

3.10 Refer to Sections 491-300-111 and 491-300-112 for information on connecting miniature bridged jacks (single-line, two-line, and multiple-line).

3.11 Refer to Section 491-300-140 for a description of the miniature jack adapter.

3.12 Refer to Section 491-305-200 for the connection of bridged weatherproof jacks for boats and recreational vehicles.

3.13 The retrofit plug (Figure 10), which is available in four- or six-contact versions, was designed to permit the connection of telephone sets equipped with spade-ended line cords to miniature wall jacks. To minimize the presence of loose or noisy connections, it is important that proper spade-bending procedures be followed when attaching a cord to the retrofit plug. In no event shall long-nosed pliers be used to bend the spade preparatory to insertion.

3.14 Terminal designation nomenclature applied to the retrofit plug body has been changed several times since the original design. Figure 10a shows the current method of terminal identification that is to be applied in the connection of all cords notwithstanding the possible presence of the obsolete terminal identification. The numerals 1 through 6 conform to the jack contact numbering plan shown in Figure 1.

3.15 Figures 11 through 15 provide installation information and are included in this section for reference purposes. Table 4 lists typical adapter plate connections.

Table 1. GTE AE Hardware Production Intervals.

PHASE	PRODUCTION BEGAN	PRODUCTION ENDED
1	2nd quarter 1973	3rd quarter 1973
2	3rd quarter 1973	3rd quarter 1974
3	3rd quarter 1974	3rd quarter 1975
4	3rd quarter 1975	2nd quarter 1976
5	2nd quarter 1976	3rd quarter 1976
6	3rd quarter 1976	3rd quarter 1978

Table 2. GTE AE Hardware Phase Change References and Ordering Numbers.

DESCRIPTION	PHASE 1/2		PHASE 3		PHASE 4		PHASE 5		PHASE 6	
	MATERIAL CODE NO.	ORDER NO.	MATERIAL CODE NO.	ORDER NO.	MATERIAL CODE NO.	ORDER NO.	MATERIAL CODE NO.	ORDER NO.	MATERIAL CODE NO.	ORDER NO.
Retrofit Plug, 4-Conductor	556210 556214	HD-570023-A HD-570023-AS	556210 556214	HD-570023-A HD-570023-AS	556217 556217	HD-570032-A HD-570032-A	556217 556217	HD-570032-A HD-570032-A	556217 556217	HD-570032-A HD-570032-A
Retrofit Plug, 6-Conductor	556205 556215	HD-570023-B HD-570023-BS	556205 556215	HD-570023-B HD-570023-BS	556218 556218	HD-570032-B HD-570032-B	556218 556218	HD-570032-B HD-570032-B	556218 556218	HD-570032-B HD-570032-B
Surface Jack Cover Assembly, 4-Conductor	553625	HD-660014-A	553625	HD-660014-A	553651	HD-660014-D	553655	HD-660014-G	556663	HD-660043-A
Surface Jack Cover Assembly, 6-Conductor	553622	HD-660014-B	553622	HD-660014-B	553652	HD-660014-E	553656	HD-660014-H	556664	HD-660043-B
Surface Jack Assembly, 4-Conductor			553629	HD-660031-A	553653	HD-660031-D	553661	HD-660031-G	553667	HD-660046-A
Surface Jack Assembly, 6-Conductor			553630	HD-660031-A	553654	HD-660031-E	553662	HD-660031-H	553668	HD-660046-B
Miniature Flush-Mount Jack Assembly, 4-Conductor	No Code	HD-660026-A	No Code	HD-660026-A	553627	HD-660035-A	553659	HD-660035-G	553669	HD-660047-A
Miniature Flush-Mount Jack Assembly, 6-Conductor	553623	HD-660026-B	553623	HD-660026-B	553628	HD-660035-B	553660	HD-660035-H	553670	HD-660047-B
Miniature Jack Faceplate									556181	HD-780127-A
Wall Block Adapter Bracket	550746	HD-731060-A	550746	HD-731060-A	550746	HD-731060-A	550746	HD-731060-A	550746	HD-731060-A
Shim Washer	558053	HD-170011-A	558053	HD-170011-A	558053	HD-170011-A	558053	HD-170011-A	558053	HD-170011-A
Locking Pin	556120	HD-370025-A	556120	HD-370025-A	556120	HD-370025-A	556120	HD-370025-A	556120	HD-370025-A
Spacer Ring, Type 90			556696	HD-650016-A	556696	HD-650016-A	556696	HD-650016-A	556696	HD-650016-A
Spacer Ring, Type 192 and 982	556697	HD-650015-A	556694	HD-650017-A	556694	HD-650017-A	556694	HD-650017-A	556694	HD-650017-A HD-650999-A
Wall Telephone Adapter Plate, Type 90	550068	HD-781005-A	550068	HD-781005-A	550080	HD-781005-B			550085	HD-781020-A HD-731998-A
Wall Telephone Adapter Plate, Type 192 and 982	550067	HD-781004-A	550070	HD-781013-A	550081	HD-781013-B			550086 556182	HD-781021-A HD-731023-A
Surface-Mount Wall Box	553056	HD-480031-A	553056	HD-480031-A	553056	HD-480031-A	553056	HD-480031-A	553056	HD-480031-A
Adjusting Plate	556178	HD-731080-A	556178	HD-731080-A	556178	HD-731080-A	556178	HD-731080-A	556178	HD-731080-A
Wall Mask	554706	HD-180004-A	554706	HD-180004-A	554706	HD-180004-A	554706	HD-180004-A	554706	HD-180004-A
Single-Piece Flush-Mount Wall Jack, 4-Conductor	No Code	HD-660030-A	553631 553635	HD-660030-A HD6650030-AS	553647 553648	HD-660030-D HD-660030-DS	No Code 553657	HD-660030-G HD-660030-GS	556665 556665	HD-660045-A HD-660045-A
Single-Piece Flush-Mount Wall Jack, 6-Conductor		HD-660030-B	553636	HD-660030-BS	553649 553650	HD-660030-E HD-660030-ES	No Code 553658	HD-660030-H HD-660030-HS	556666 556666	HD-660045-B HD-660045-B
Two-Piece Flush-Mount Wall Jack, 4-Conductor		HD-660016-A								
Two-Piece Flush-Mount Wall Jack, 6-Conductor	553621	HD-660016-B								
Wall Cover		HD-780067-A								

Table 3. Line Cord Phase Change References and Ordering Numbers.

LINE CORD DESCRIPTION	PHASE 1/2		PHASE 3		PHASE 4		PHASE 5		PHASE 6	
	MATERIAL CODE NO.	ORDER NO.	MATERIAL CODE NO.	ORDER NO.	MATERIAL CODE NO.	ORDER NO.	MATERIAL CODE NO.	ORDER NO.	MATERIAL CODE NO.	ORDER NO.
3-Conductor, Type 80 (7')			433894	HD-540100-A	432750	HD-540130-A	432703	HD-540145-A	432703	HD-540145-A
3-Conductor, Type 80 (14')			433895	HD-540100-B	432751	HD-540130-B	432704	HD-540145-B	432704	HD-540145-B
3-Conductor, Type 182 (7')			433897	HD-540100-C	432753	HD-540130-C	432706	HD-540145-C	432706	HD-540145-C
3-Conductor, Type 182 (14')			433898	HD-540100-D	432754	HD-540130-D	432707	HD-540145-D	432707	HD-540145-D
3-Conductor, Type 80 (25')			433896	HD-540100-G	432753	HD-540130-G	432705	HD-540145-G	432705	HD-540145-G
3-Conductor, Type 182 (25')			433899	HD-540100-H	432755	HD-540130-H	432708	HD-540145-H	432708	HD-540145-H
3-Conductor, Type 981 (7')			433903	HD-540100-J	432759	HD-540130-J	432709	HD-540145-J	432709	HD-540145-J
3-Conductor, Type 981 (14')			433904	HD-540100-K	432760	HD-540130-K	432710	HD-540145-K	432710	HD-540145-K
3-Conductor, Type 981 (25')			433905	HD-540100-L	432761	HD-540130-L	432711	HD-540145-L	432711	HD-540145-L
4-Conductor, Type 182 (7')							No Code	HD-540144-C	432715	HD-540146-C
4-Conductor, Type 182 (14')							No Code	HD-540144-D	432716	HD-540146-D
4-Conductor, Type 182 (25')							No Code	HD-540144-H	432717	HD-540146-H
4-Conductor, Type 981 (7')							No Code	HD-540144-J	432718	HD-540146-J
4-Conductor, Type 981 (14')							No Code	HD-540144-K	432719	HD-540146-K
4-Conductor, Type 981 (25')							No Code	HD-540144-L	432720	HD-540146-L
5-Conductor, Type 182 (7')			433900	HD-540101-C	432756	HD-540131-C	No Code	No Code	No Code	HD-540147-C*
5-Conductor, Type 182 (14')			433901	HD-540101-D	432757	HD-540131-D	No Code	No Code	No Code	HD-540147-D
5-Conductor, Type 182 (25')			433902	HD-540101-H	432758	HD-540131-H	No Code	No Code	No Code	HD-540147-H
5-Conductor, Type 981 (7')			433906	HD-540101-J	432762	HD-540131-J	No Code	No Code	No Code	HD-540147-J
5-Conductor, Type 981 (14')			433907	HD-540101-K	432763	HD-540131-K	No Code	No Code	No Code	HD-540147-K
5-Conductor, Type 981 (25')			433908	HD-540101-L	432764	HD-540131-L	No Code	No Code	No Code	HD-540147-L
6-Conductor, Type 182 (7')									432697	HD-540148-C
6-Conductor, Type 182 (14')									432698	HD-540148-D
6-Conductor, Type 182 (25')									432699	HD-540148-G
6-Conductor, Plug to Plug (7')									432700	HD-540149-A
6-Conductor, Plug to Plug (14')									432701	HD-540149-B
6-Conductor, Plug to Plug (25')									432702	HD-540149-C

*Not manufactured.

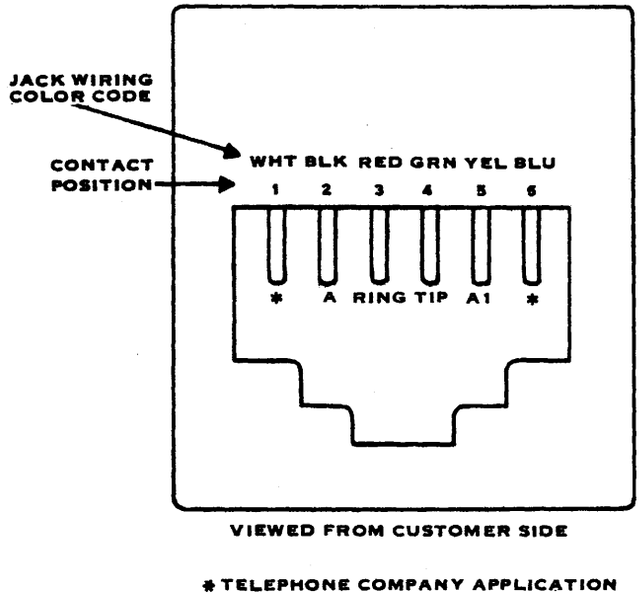


Figure 1. Standard Wiring Arrangement for Six-Position Bridged Jacks.

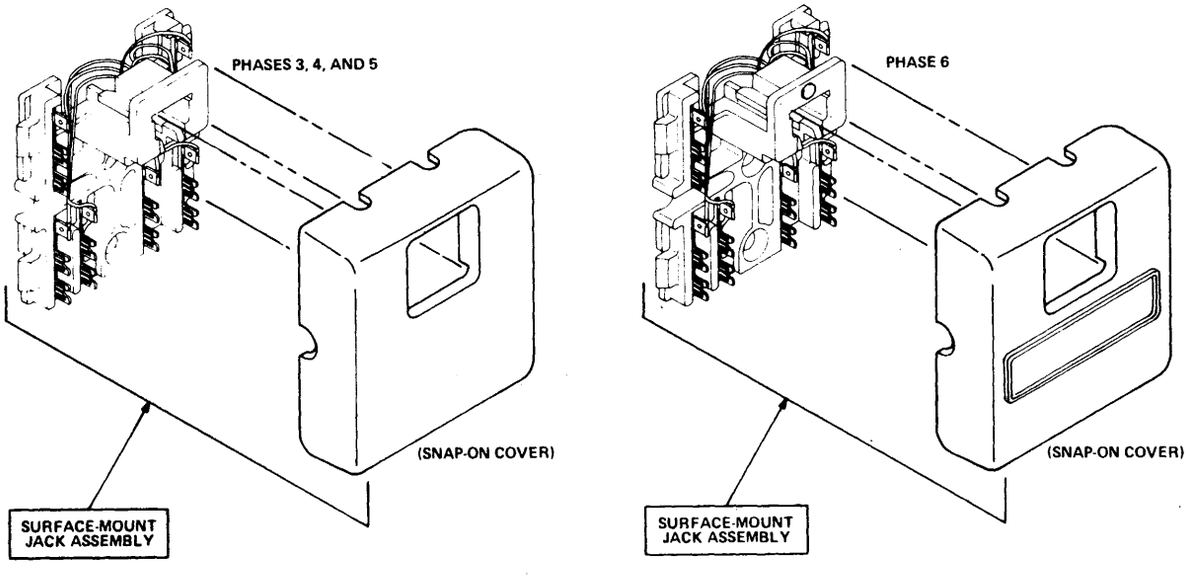


Figure 2. Surface-Mount Jack Assembly.

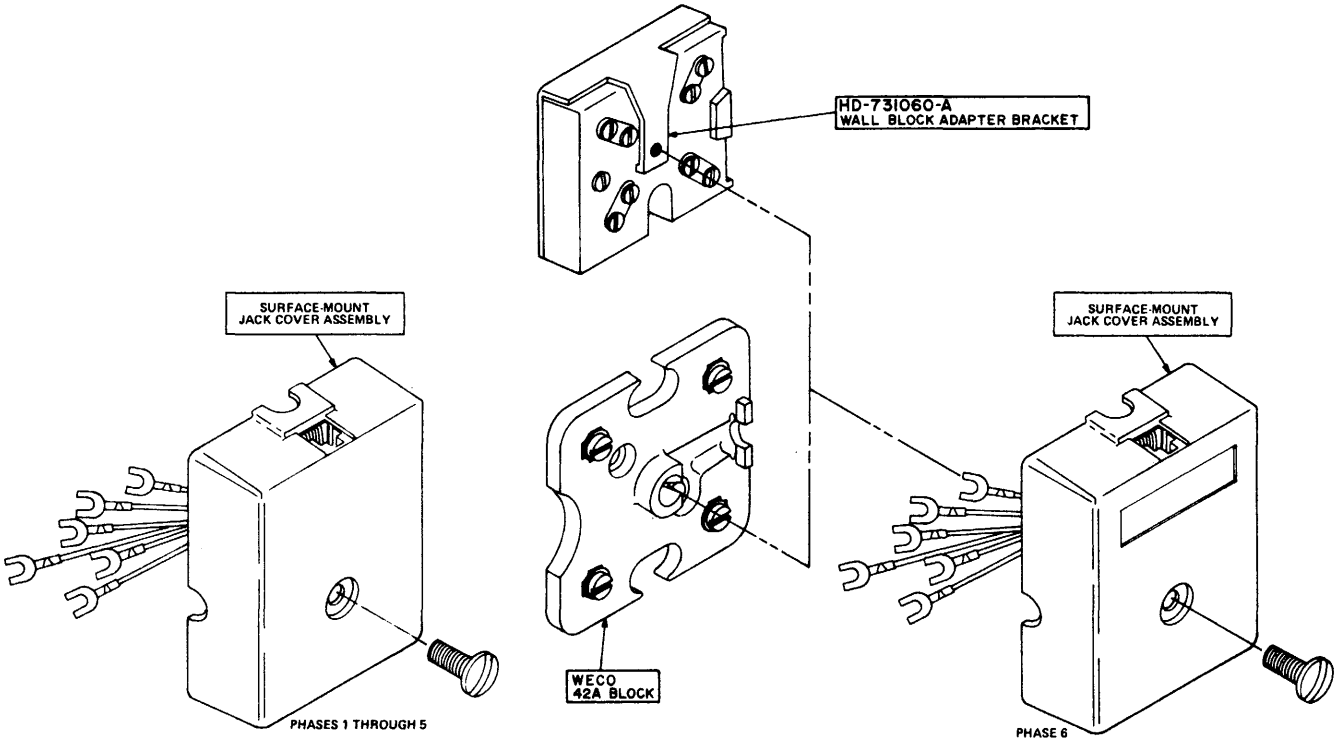


Figure 3. Surface-Mount Jack Cover Assembly.

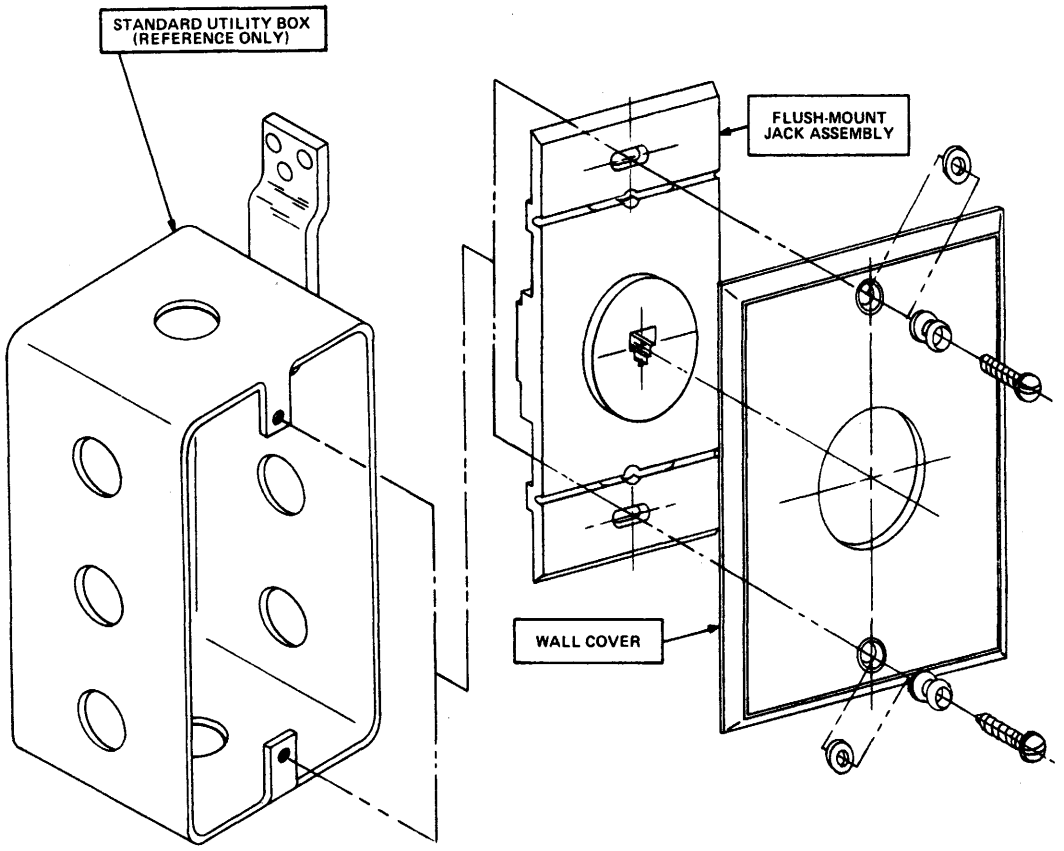


Figure 4a. Phases 1 and 2.
Figure 4. Flush-Mount Jack Assembly.

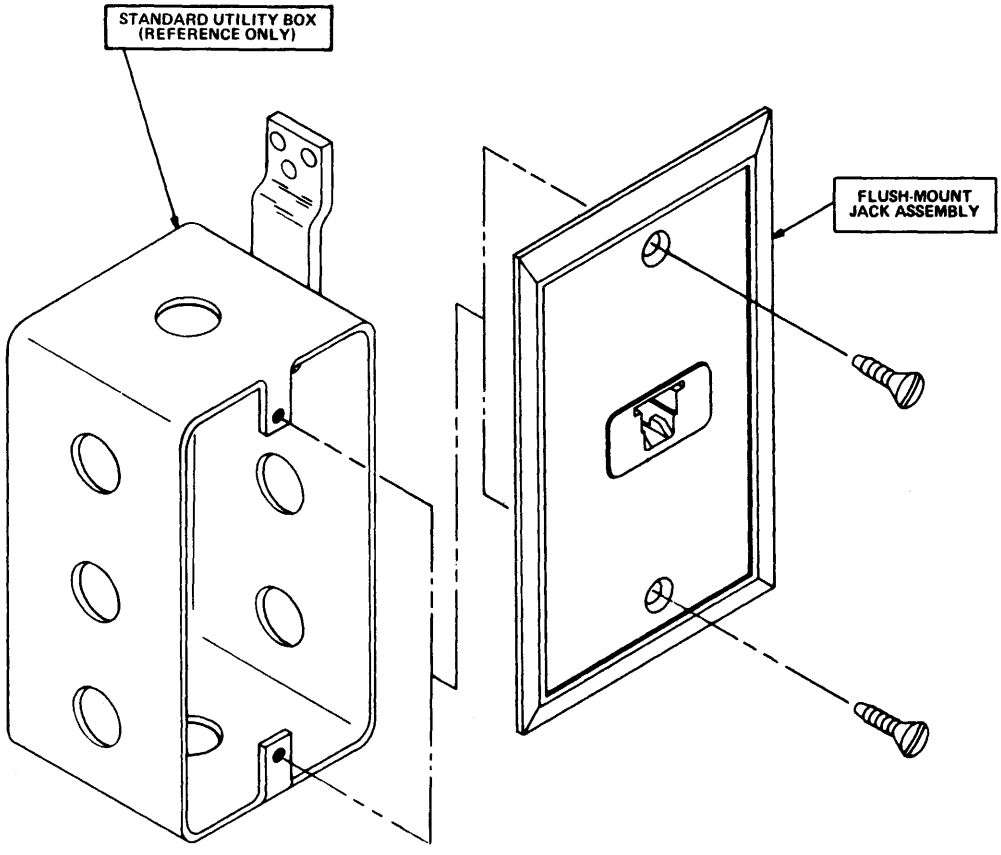


Figure 4b. Phases 3, 4, and 5.

Figure 4. Flush-Mount Jack Assembly (Continued).

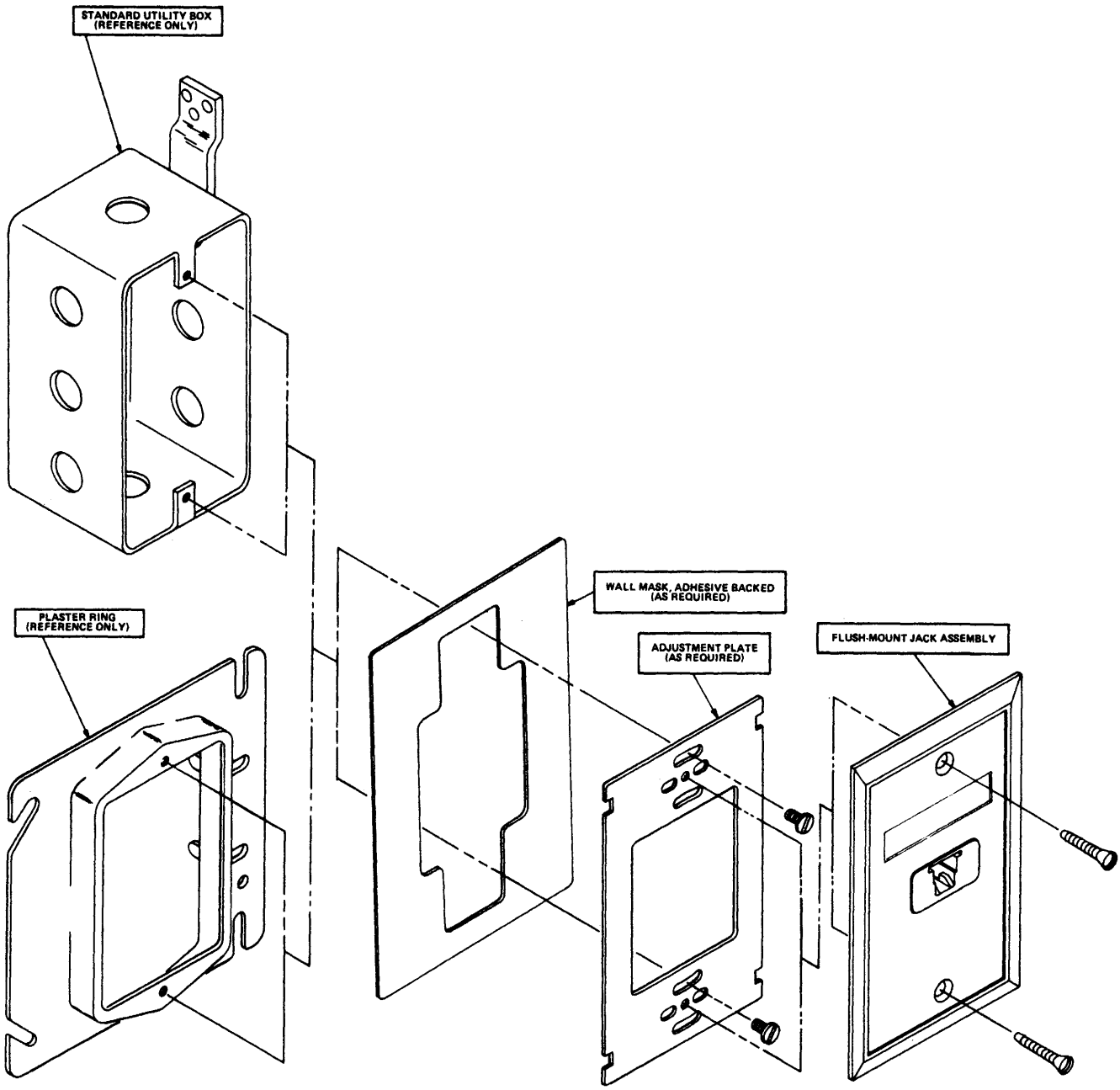


Figure 4c. Phase 6.

Figure 4. Flush-Mount Jack Assembly (Continued).

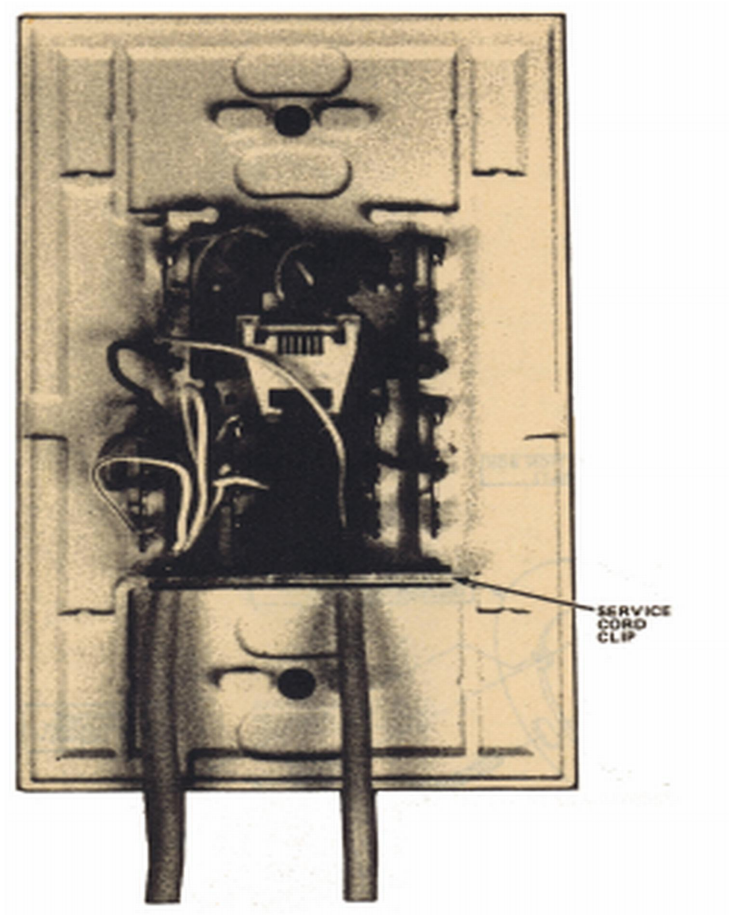


Figure 4d. Service Cord Clip Location.

Figure 4. Flush-Mount Jack Assembly (Continued).

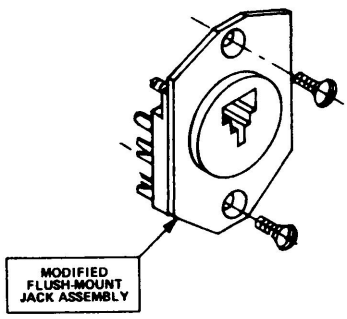


Figure 5a. Phases 1, 2, and 3.

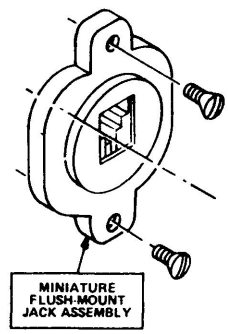


Figure 5b. Phases 4 and 5.

Figure 5. Miniature Round Flush-Mount Jack Assemblies.

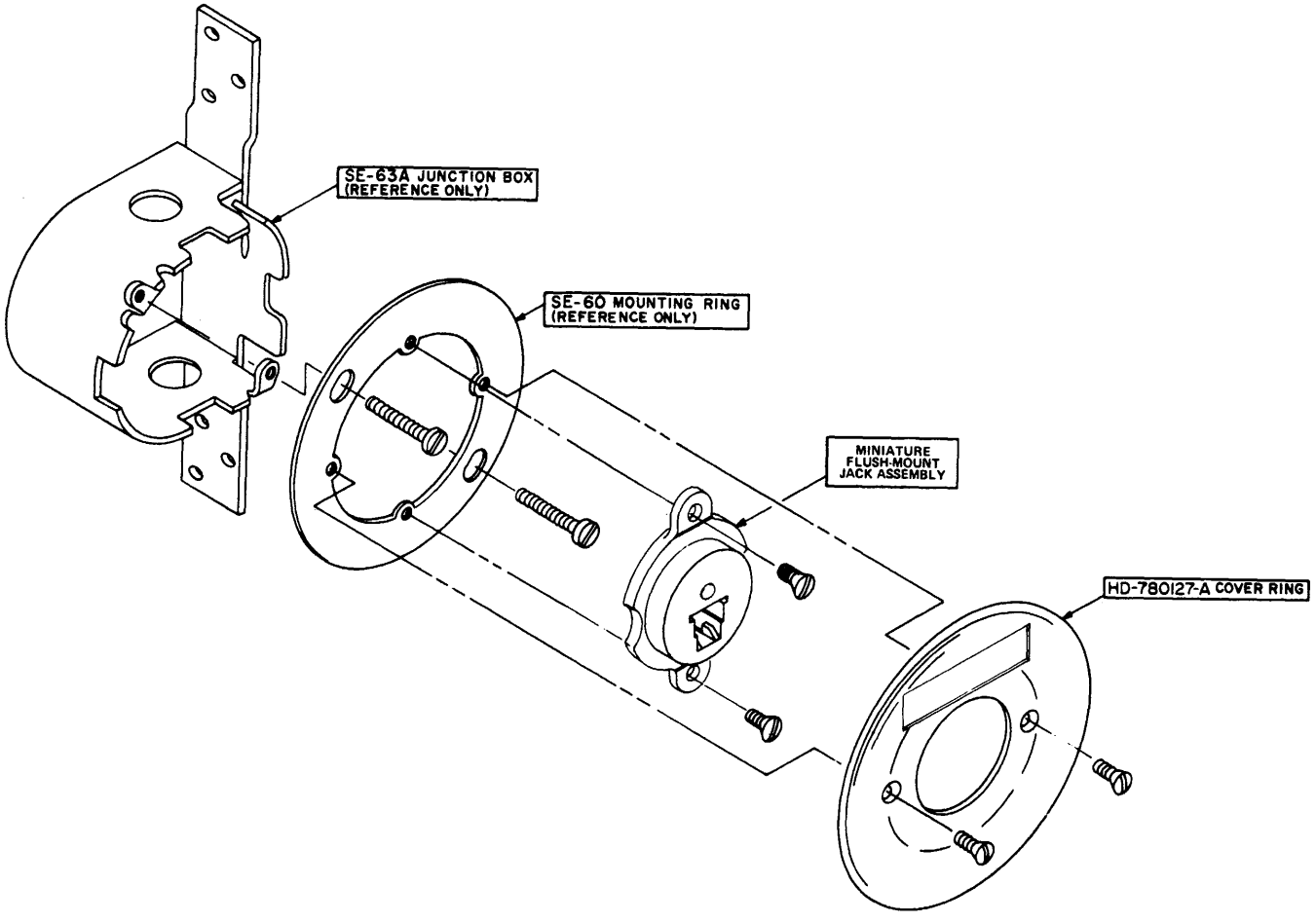
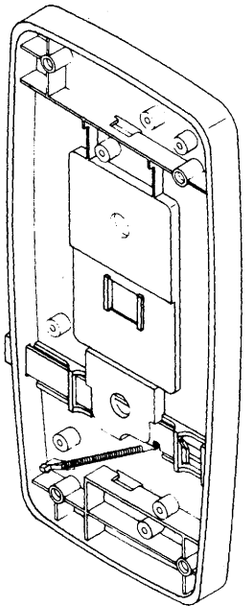
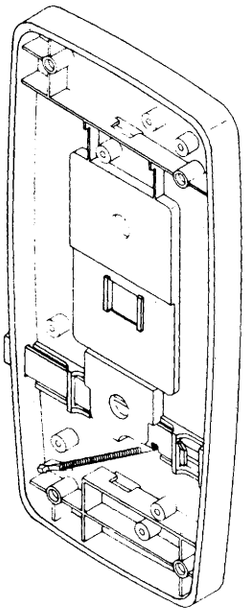


Figure 5c. Phase 6.

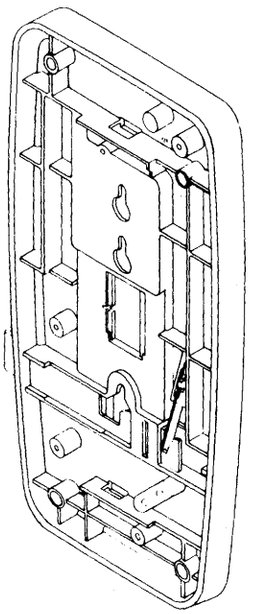
Figure 5. Miniature Round Flush-Mount Jack Assemblies (Continued).



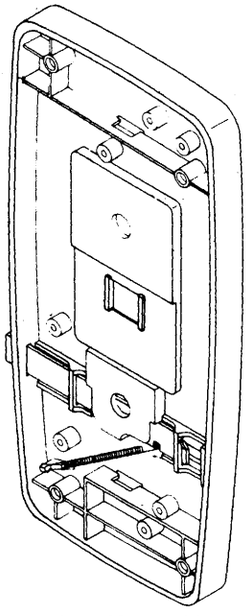
BASEPLATE ADAPTER
HD-781005 (PREVIOUS)
TYPE 90 TELEPHONE



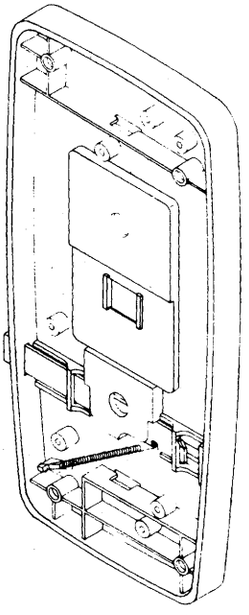
BASEPLATE ADAPTER
HD-781020 (PREVIOUS)
TYPE 90 TELEPHONE



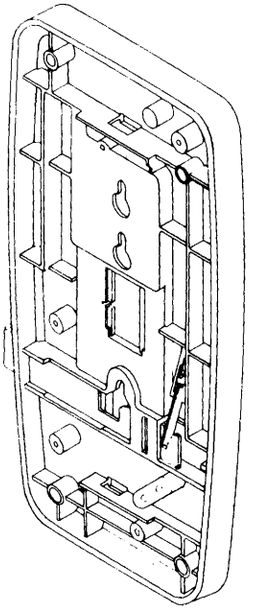
BASEPLATE ADAPTER
HD-781998 (CURRENT)
TYPE 90 TELEPHONE



BASEPLATE ADAPTER
HD-781013 (PREVIOUS)
TYPE 192 / 982 TELEPHONES



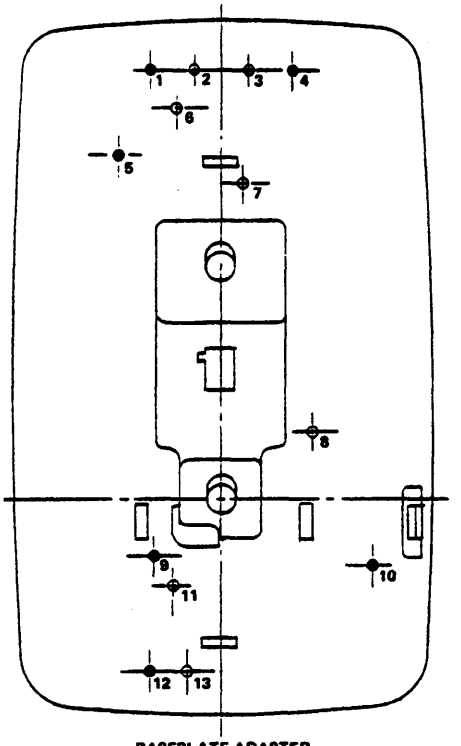
BASEPLATE ADAPTER
HD-781021 (PREVIOUS)
TYPE 192 /982 TELEPHONES



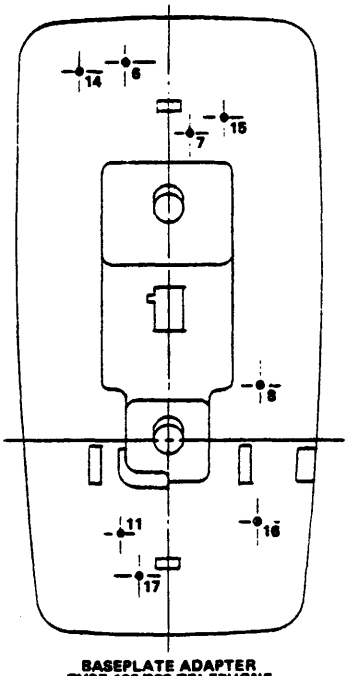
BASEPLATE ADAPTER
HD-781023 (CURRENT)
TYPE 192 / 982 TELEPHONES

Figure 6a. Adapter Plates.

Figure 6. Installation of Wall Telephones.



BASEPLATE ADAPTER
TYPE 90 TELEPHONE



BASEPLATE ADAPTER
TYPE 192/982 TELEPHONE

CHART		
TYPE TELEPHONE	HOLE LOCATION	
	PREVIOUS	CURRENT
TYPE 982	7-11	7-11
TYPE 192	6-8	6-8-17
TYPE 90M	1-4-12	
NORTHERN ELECTRIC CONTEMPORARY	5-9-10	
WECO 554D2M	2-13-3	
WECO 255482M		14-16
WECO TRIMLINE AD2M		15-11

Figure 6b. Telephone Hole Locations in Adapter Plates.

Figure 6. Installation of Wall Telephones (Continued).

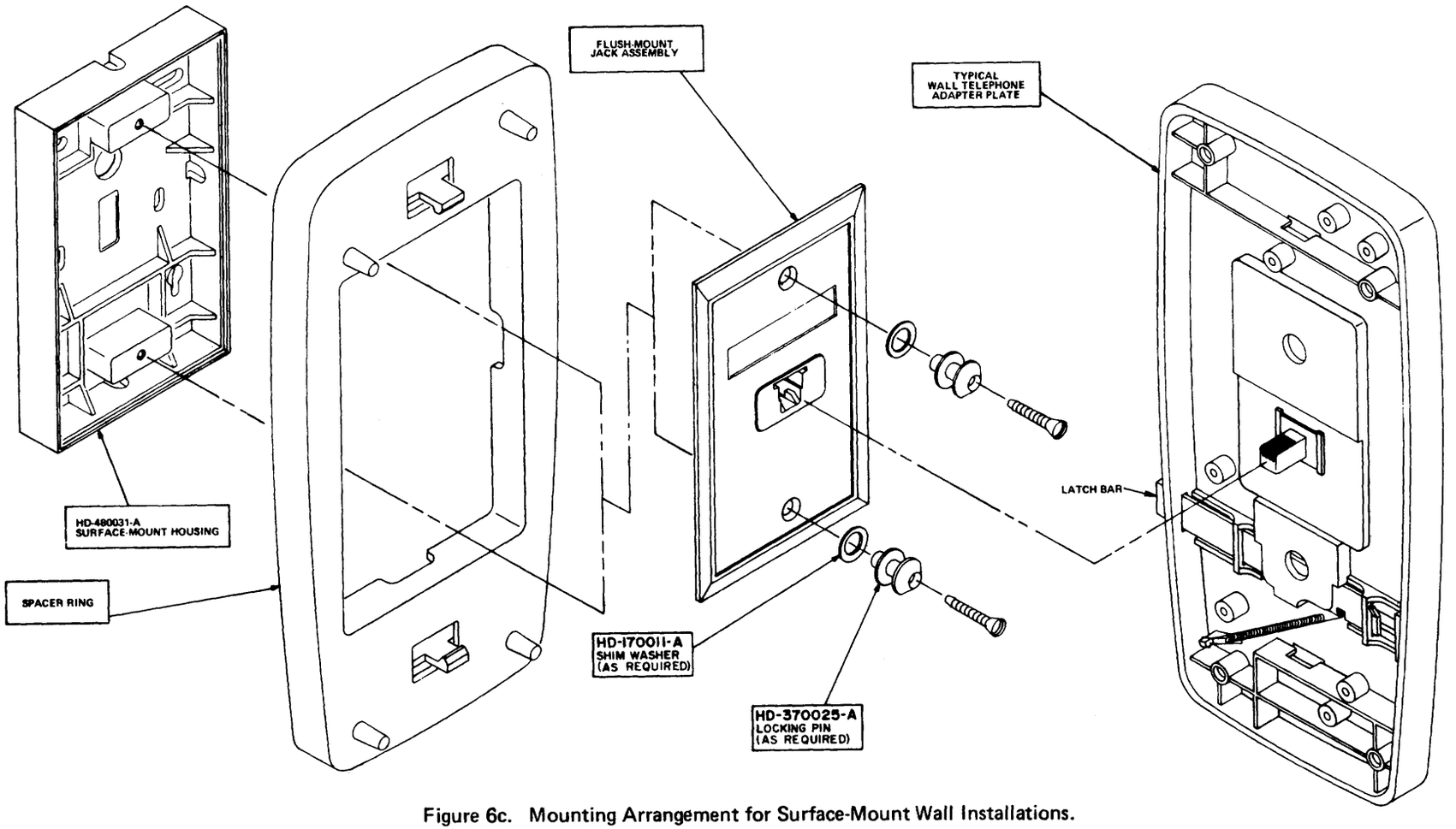


Figure 6c. Mounting Arrangement for Surface-Mount Wall Installations.

Figure 6. Installation of Wall Telephones (Continued).

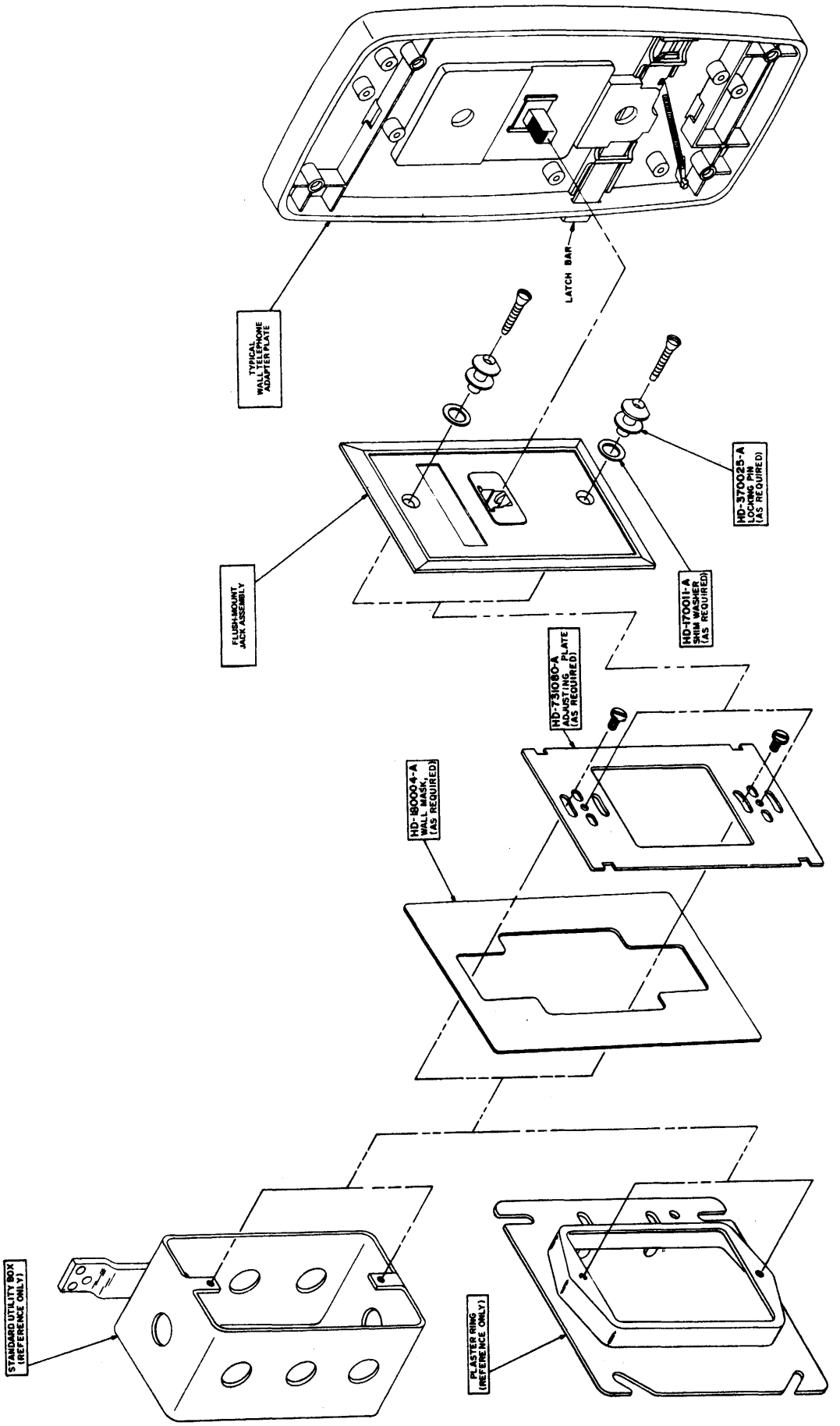


Figure 6. Installation of Wall Telephones (Continued).

Figure 6d. Prewire Installation for Flush-Mount Jack.

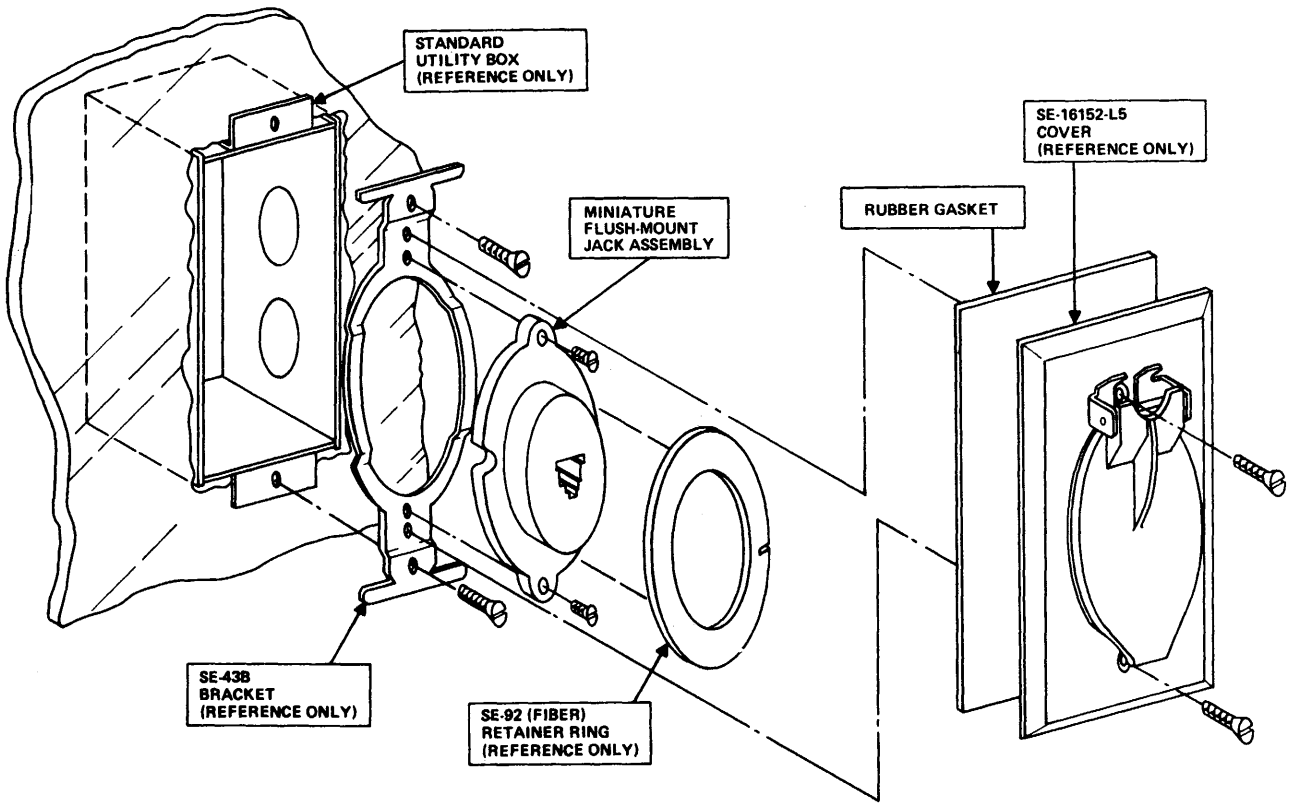


Figure 7. Outdoor Flush-Mount Jack Assembly.

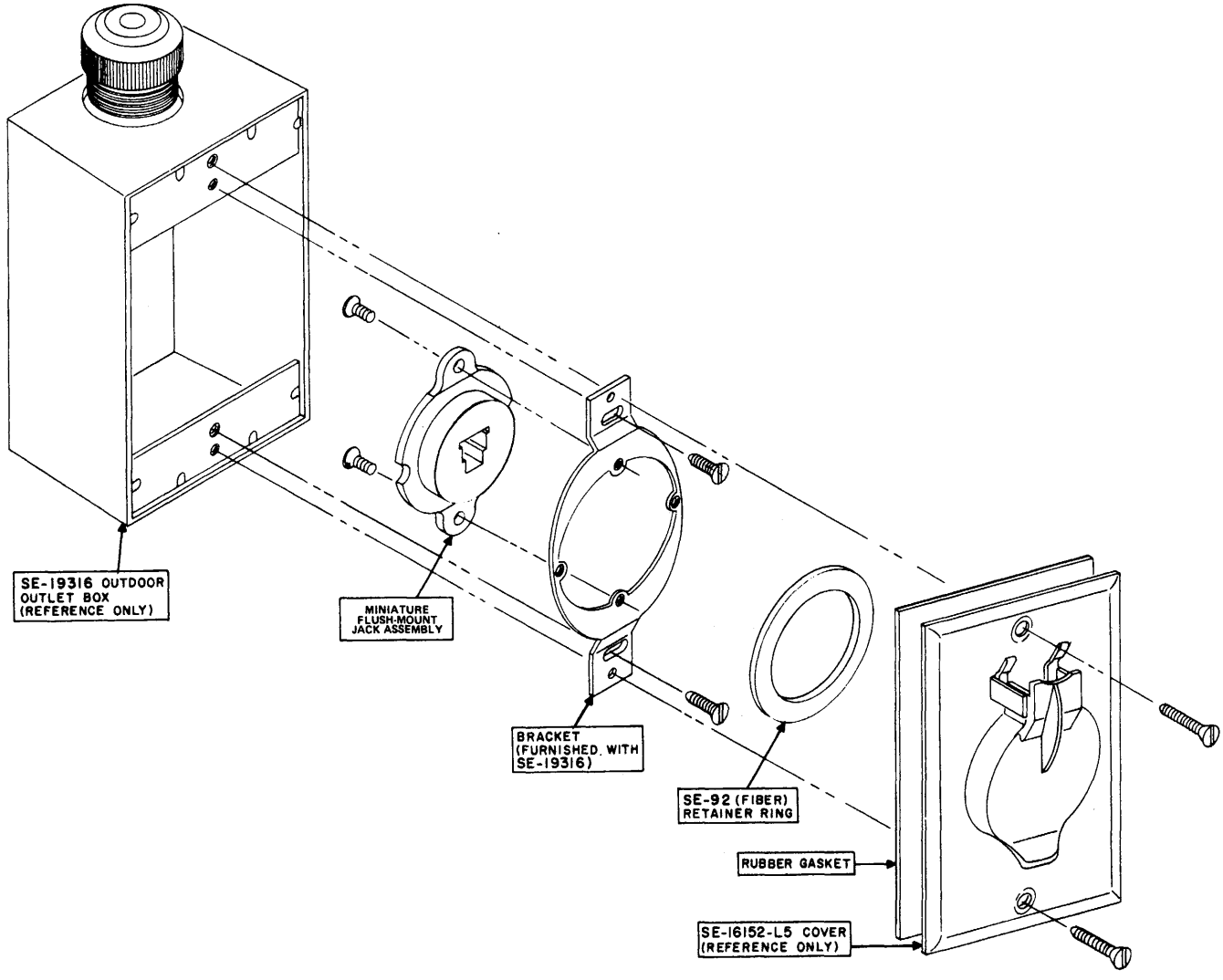


Figure 8a. Pole or Wall Mount.

Figure 8. Outdoor Surface-Mount Jack Assemblies.

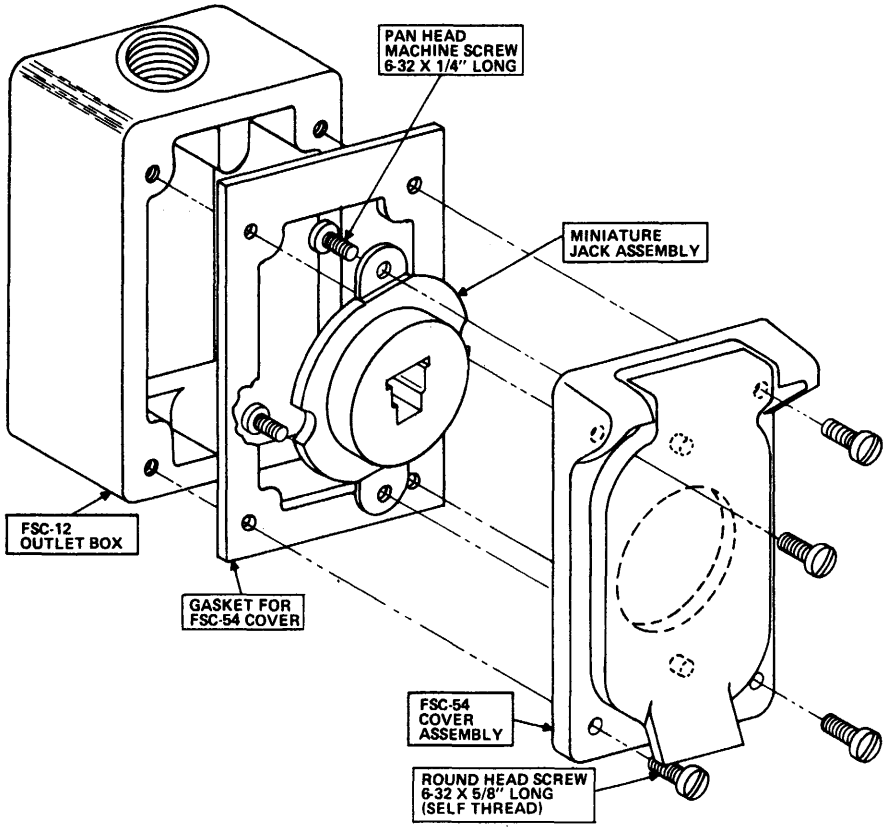


Figure 8b. Flush Mount.

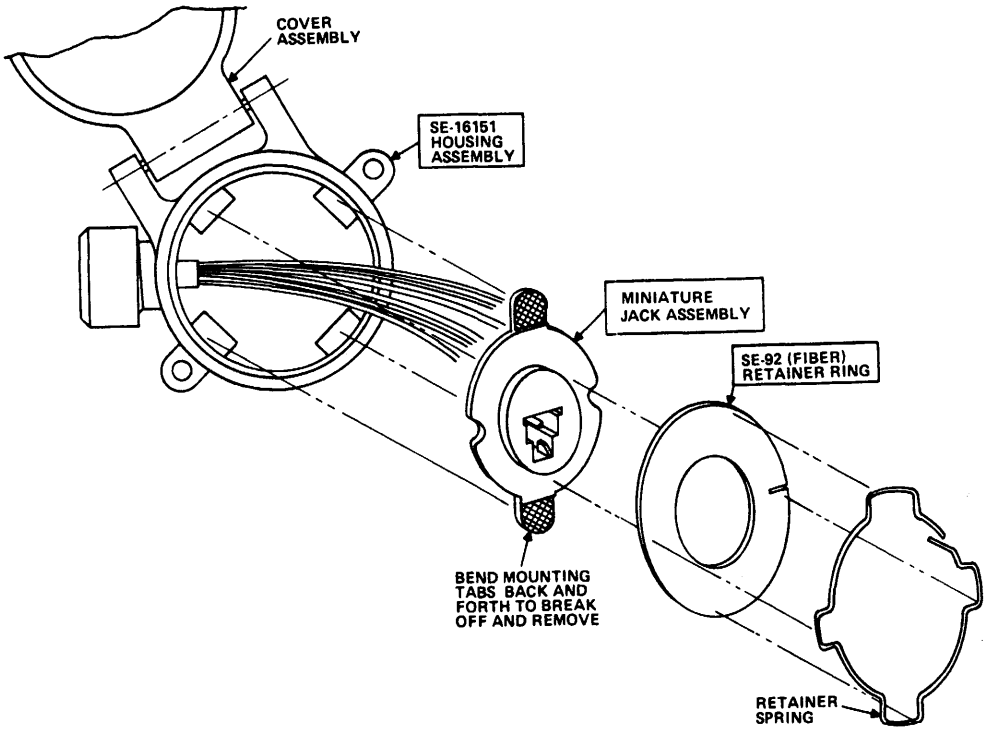
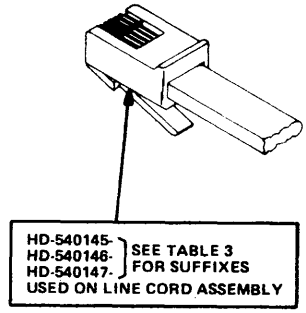


Figure 8c. In-Wall Mount.

Figure 8. Outdoor Surface-Mount Jack Assemblies (Continued).

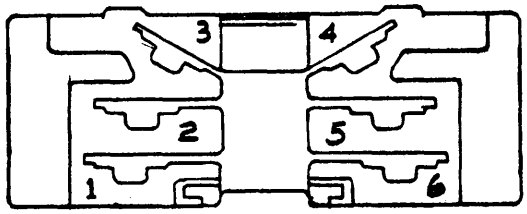


MINIATURE PLUG IDENTIFICATION

NO. AND POSITION OF CONDUCTORS		PLUG COLOR
NO.	POSITION	
2	3R, 4T	RED
3	3R, 4T, 5G(A1)	ORANGE
4	2A, 3R, 4T, 5G(A1)	YELLOW
5	2A, 3R, 4T, 5G(A1), 6*	GREEN
6	1*, 2A, 3R, 4T, 5G(A1), 6*	BLUE

* TELEPHONE COMPANY APPLICATION

Figure 9. Miniature Plug.



NOTE:
REFER TO FIGURE 1 FOR WIRE DESIGNATIONS.

Figure 10a. Top View Letter Locations.

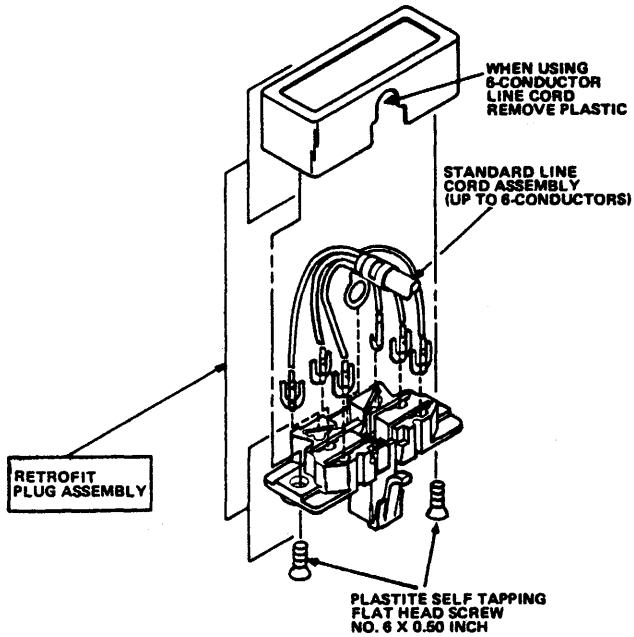


Figure 10b. Retrofit Plug Assembly (HD-570023-A or -B).
Figure 10. Retrofit Plug Installation.

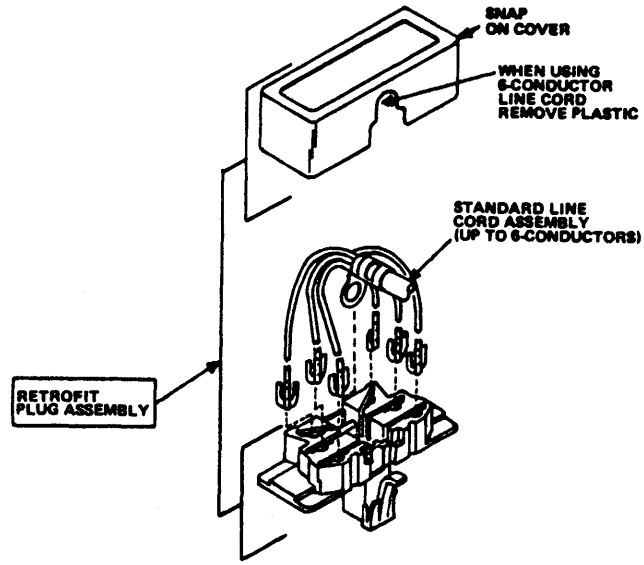


Figure 10c. Retrofit Plug Assembly (HD-570032-A or -B).
Figure 10. Retrofit Plug Installation (Continued).

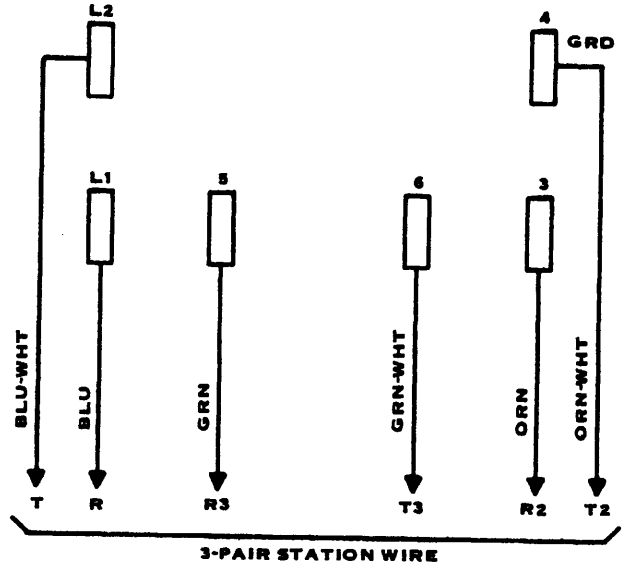


Figure 11. Non-FCC Standard Jack and I/O Wiring.

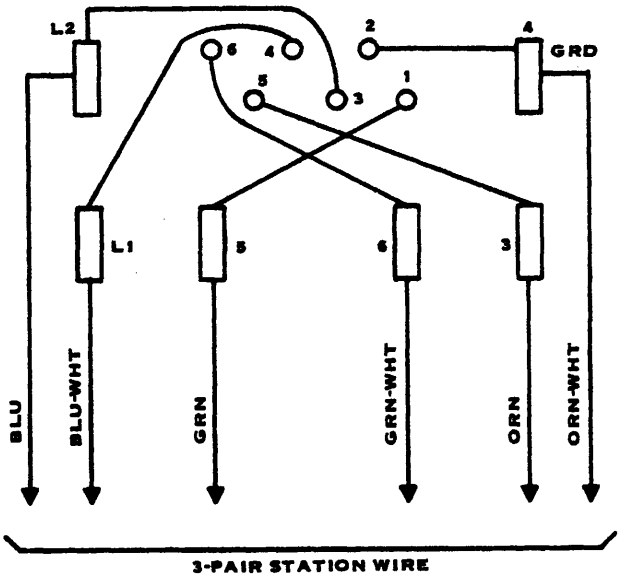


Figure 12. Non-FCC Standard Phase 4 Jack Wiring Modified for FCC Compatibility by I/O Wire Connections.

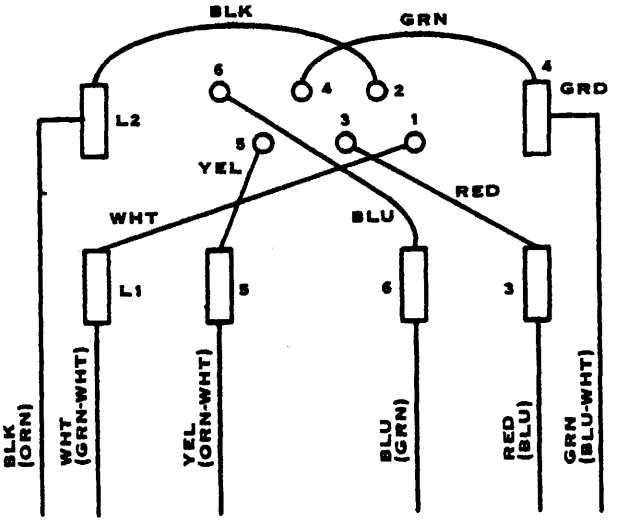


Figure 13. Phase 6 Surface and Flush Jack and I/O Wiring Connections.

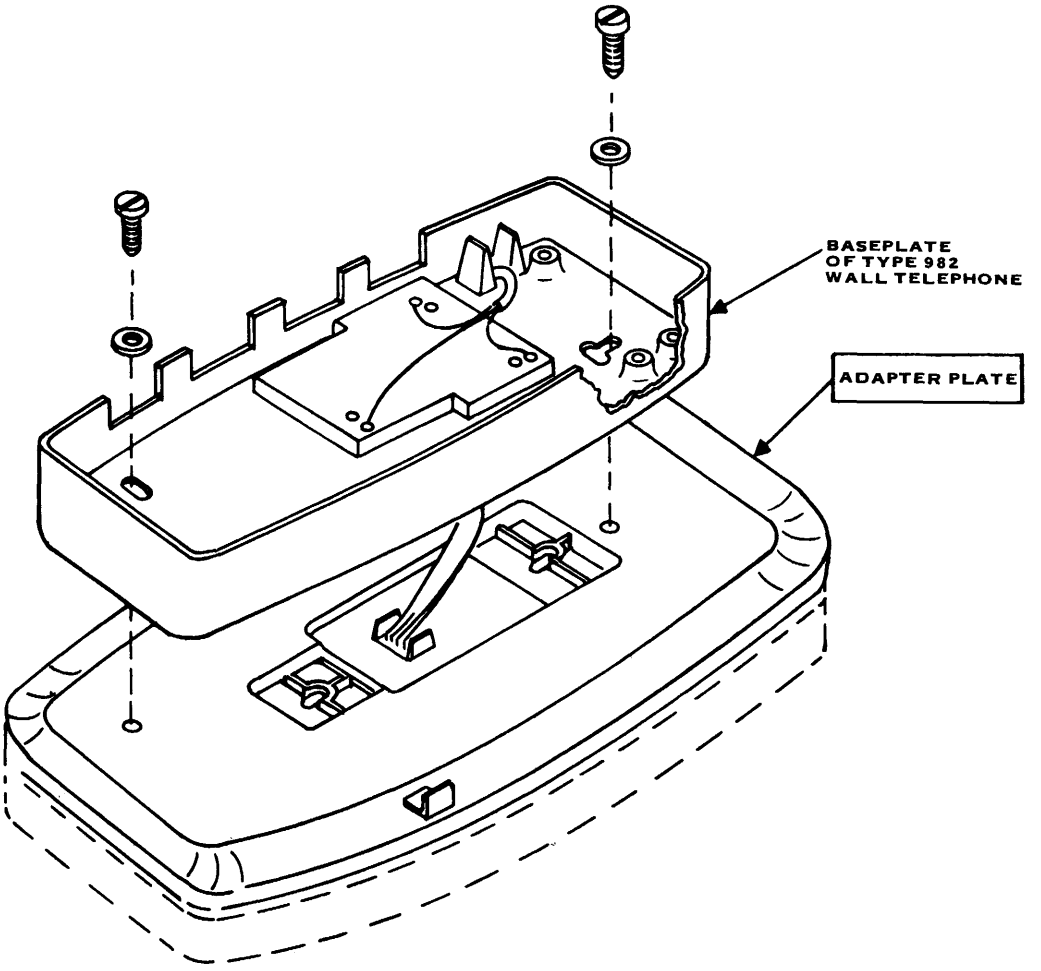


Figure 14. Installation of Type 982A Wall Telephone on Adapter Plate.

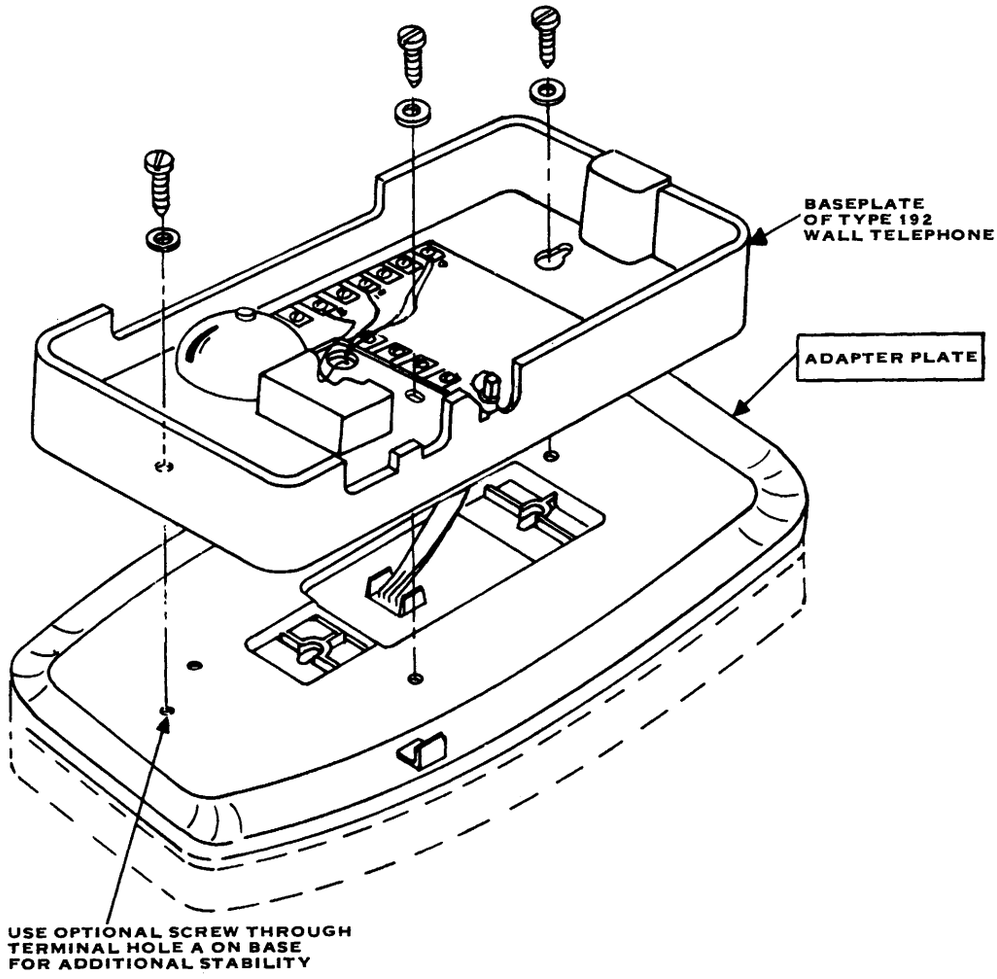


Figure 15. Installation of Type 192A Wall Telephone on Adapter Plate.

Table 4. Typical Adapter Plate Terminal Connections.

COLOR	NETWORK TERMINAL NO.
Green	8
Red	10
Yellow	9
Black	8
White	A
Blue	Tape

Three-Conductor Plug

Six-Conductor Plug

NOTE: Move ringer capacitor lead from terminal 9 to terminal 8.