BLEDSOE

REGISTRATION SERVICE MANUAL

Bell System

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REGISTRATION SERVICE MANUAL

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Introduction

This manual is a compilation of the BSPs covering the Federal Communications Commission Registration Program. The manual is intended to support the Plant Craftsperson in his daily work operations while installing and maintaining Registration Arrangements.

For information not contained in this manual, refer to the standard BSP files.

REGISTRATION

Registration—an FCC Program that permits connection of FCC approved equipment to the telecommunications network. The program applies to one and two line telephone sets, data, ancillary equipment (eg, Answering Set, Dialer), and communications systems, as well as protective circuitry associated with such equipment. The program also includes extension cords, adapters, and patch-panels. Excluded are connections to public coin telephone and party line services. The FCC Registration Program applies equally to equipment provided by the telephone company or by the customer. The customer is required to notify the telephone company when connecting FCC approved equipment to the network.

FOR ALL TELEPHONE TERMINAL EQUIPMENT ***EXCEPT SYSTEMS***

- Direct connection to the network is permitted if the equipment is Registered with the FCC. Registered equipment must be equipped with a standard plug and must have a label affixed showing:

  (a) Compliance with Part 68—FCC rules.

  (b) FCC registration number (14 alphanumeric characters; eg, AS593M-62914-MT-T) Ringer Equivalence Number (2 digits plus 1 letter; eg, 1.0A).

- Registered equipment must be connected to the network through telephone company-provided standard jacks.

- Direct connection is also permitted if the equipment has been classified as grandfathered under one of the conditions following:

  (a) Was directly connected to the network in accordance with telephone company tariffs as of October 17, 1977 ***or***

  (b) Is of a ***type*** that was directly connected as of October 17, 1977 ***and*** was directly connected for the first time in the period between October 17, 1977 and July 1, 1979.

  (c) Equipment which has grandfather status and was directly connected to the network prior to the Register-Only date (July 1, 1979), may be disconnected and reconnected unless it is subsequently modified.

- Grandfather status applies to the equipment and not to its ownership.

AS OF JULY 1, 1979

- The FCC established July 1, 1979 as their Register-Only (RO) date.

- ***All terminal equipment being directly connected*** to the ***network for the first time must be Registered***—this applies even if the new equipment is identical to equipment which was previously grandfathered.

- Grandfathered equipment may remain in service and may be disconnected and reconnected for its normal life.

The customer must notify the telephone company, eg, before connecting any FCC approved customer-provided equipment, either Registered or grandfathered, to the network, as follows:

- For Registered equipment—the customer must provide the equipment Registration information (Registration Number and Ringer Equivalence Number) plus the USOC code for the standard jack to be used in connecting the equipment. The USOC (Jack) code is obtained from the manufacturer customer instruction material, which also includes information on the use and maintenance of the product and the customer responsibilities.

- For grandfathered equipment—the customer must provide the manufacturer name and model number. The means of connection for this type of equipment, which will vary depending upon its vintage, must be obtained from the customer. The customer may be asked to provide the address or location where the set was previously connected.

Customer-provided equipment that is neither Registered nor grandfathered:

- Can be connected only through customer-provided registered or previously connected grandfathered protective circuitry, or

- Can be connected through telephone company-provided grandfathered protective circuitry, if available, only if the equipment had been previously connected through telephone company-provided protective circuitry before the Register-Only date.

The customer must notify the telephone company upon the final disconnection of customer-provided equipment.

NOTE

Systems are included within the Federal Program for which similar rules and a different Register-Only date applies.

Detailed questions relative to the Registration Program should be referred to your local Installation and Maintenance Registration Specialists.

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700-SERIES
INTERFACE FACILITIES
IDENTIFICATION, INSTALLATION, AND MAINTENANCE

1. GENERAL

1.01 This section provides information on the 700A-66-B1-25, 700A-66-P1-50, 700A-R-B1-100, and 700B-66-B1-12 interface jacks.

1.02 Whenever this section is reissued, the reason(s) for reissue will be listed in this paragraph.

2. IDENTIFICATION

2.01 The 700-series jacks are intended to serve as network interface units as required for the Federal Communications Commission (FCC) Registration Program for interface between the Bell System network and the telephone company or customer-provided terminal facilities (Section 463-400-100).

2.02 The equipment for the 700-series jacks are mounted on orange colored modular panels 10-inches high by 8.5-inches wide. The 700A-66-B1-25 and 700B-66-B1-12 are mounted on a 183C6 backboard. The 700A-66-P1-50 and 700A-R-B1-100 use hinged panels. The orange colored panels will indicate the interface field at telephone company installations using color-coded backboards.

2.03 The 700A-66-B1-25, 700A-66-P1-50, and 700A-R-B1-100 jacks provide bridged multiple tip and ring arrangements (RJ21X, RJ22X, RJ23X, and RJ24X in Section 463-400-141). The 700B-66-B1-12 jack provides a series multiple tip and ring arrangement (RJ71C in Section 463-400-150).

2.04 The 700A-66-B1-25 jack (Fig. 1) is used to interface a maximum of 25 pairs of conductors from the Bell System network to customer- or telephone company-provided terminal equipment. The numbering system of the jack designates the output, input, and connect through options, also the design issue and the maximum number of pairs of wires served (Table A). For example, the 700A-66-B1-25 jack would break down as follows:

700 = Design family

A = Output option—50-pin miniature ribbon connector

66 = Input option—66-type connecting block

B = Connect through option—Bridging clip on 66-type connecting block

1 = Design issue

25 = Maximum number of pairs interfaced

2.05 The 700A-66-P1-50 jack (Fig. 2) is a special purpose interface which provides a 50-pair 66-type connecting block for input option, two 50-pin ribbon connectors for output option, and a receptacle panel which accepts plug-in units for sneak current protection. The panel is separated into two fields, A and B, which coincide with the two output connectors A and B (Fig. 6). The block, connectors, and panel are mounted on a hinged faceplate which allows the input cables to be dressed up the back of the panel and fed through an access hole to the connecting block. The plug-in units (79A fuse or 4C12C dummy protector [Fig. 9]) must be ordered separately as required.

2.06 The 700A-R-B1-100 jack (Fig. 3) is a 100-pair interface. It consists of four 50-pin ribbon connector plugs on the back of the panel for input, four 50-pin ribbon connector receptacles on the front for output, and a 100-pair 66-type connecting block for connect through option. The hinged faceplate allows the connectorized input cables to be dressed up the back of the panel and connected to the input plugs. The 66-type block is color coded in columns to corre-

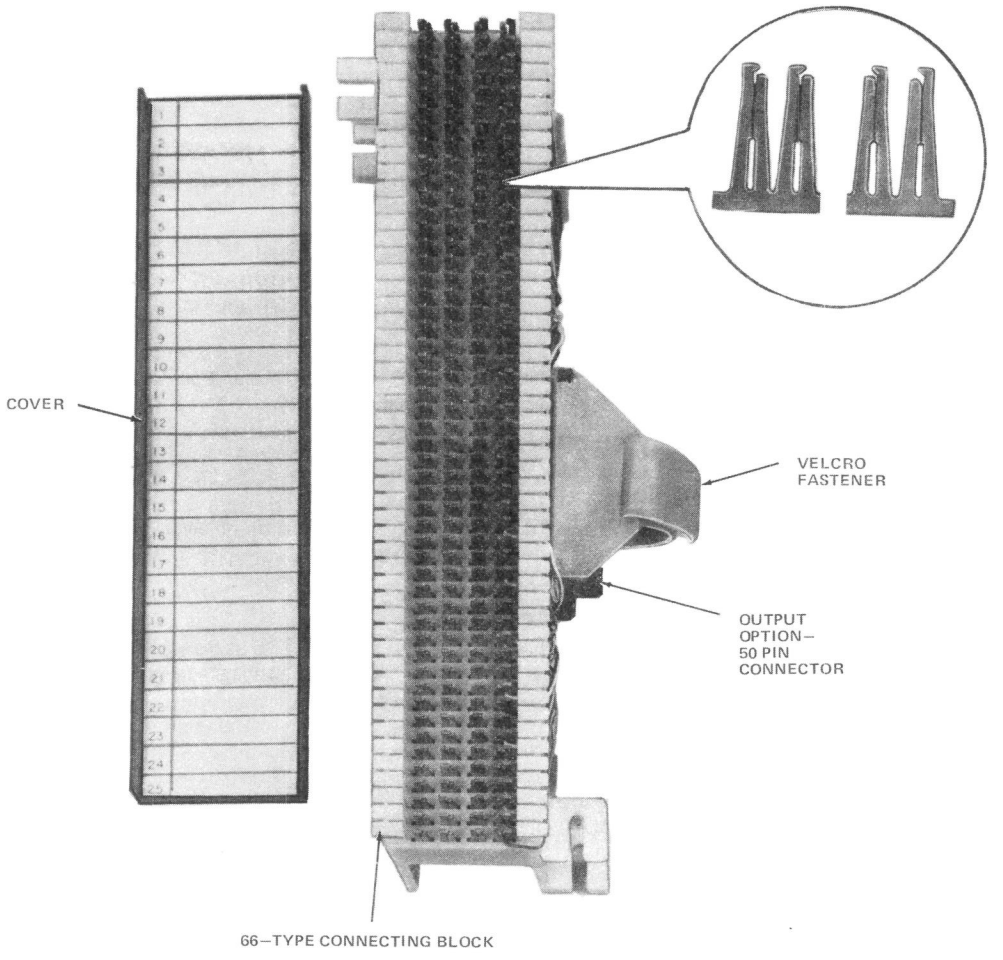


Fig. 1—700A-66-B1-25 Jack

spond with color codings on the jacks and plugs (for wiring, see Fig. 7).

2.07 The 700B-66-B1-12 jack (Fig. 4) is also a special purpose interface (USOC RJ71C). It allows customer equipment to be placed in series with terminal equipment for control, intercept, accounting, or measuring purposes. There is a 66-type block for input and output to terminal equipment, and a 50-pin ribbon connector for customer special purpose equipment (Fig. 8). The incoming lines terminate on pairs 1 through 12 of column A on 66-type block. Pair 13 has no terminals and the outgoing lines to terminating equipment are on pairs 14 through 25 in column A. Column C terminals are connected to ribbon connector receptacle for connection to customers special purpose series equipment. Cut through with C bridging clips must be made between terminals of column B and C in both the input portion (pairs 1 through 12) and the output portion (pairs 14 through 25) of each line to be installed.

TABLE A

CODING STRATEGY OF 700-TYPE JACKS

BASIC DESIGN FAMILY	OUTPUT JACK OPTION	INPUT CONNECTOR OPTION	CONNECT THROUGH OPTION	DESIGN ISSUE	NUMBER OF PAIRS INTERFACED
700	A = 50-pin miniature ribbon connector(s) *or* B = 50-pin miniature ribbon shorting connector	66 = 66-type connecting block *or* R = 50-pin miniature ribbon plug(s)	B = bridging clip on 66-type connecting block *or* P = plug-in units on receptacle panel	1 *or* 2 *or* etc	25 *or* 50 *or* 100

2.08 Order as follows:

NOMENCLATURE	COMCODE
Jack, 700A-66-B1-25	103551776
Jack, 700A-66-P1-50	103551800
Jack, 700A-R-B1-100	103551735
Jack, 700B-66-B1-12	103551818
Fuse, 79A	103551610
Protector, 4C12C	—
Clip, Bridging, C	400807459
Backboard, 183C6	103562021
Cord, P2FL	103105276

3. INSTALLATION

3.01 The 700-type jacks should be installed within 25 feet of the customer- or telephone company-provided equipment with which they are to be used.

3.02 Mount 700A-66-B1-25 and 700B-66-B1-12 jacks on a 183C6 backboard. The 66-type terminals are marked TOP on the top left corner for easy orientation.

3.03 The 700A-R-B1-100 and 700A-66-P1-50 jacks should always be mounted with the stationary portion on the right side and the 66-type blocks on the left as the craftsperson faces the jack. The network lines should be terminated in the sequence specified by the customer without skipping any positions.

3.04 Provide network lines by connecting cable or wire to input option (ribbon connectors or 66-type block) as appropriate.

Note: All terminations on 66-type blocks must be made with 714B or equivalent tool.

3.05 On 700A-66-B1-25, 700A-R-B1-100, and 700B-66-B1-12 jacks, the cut-through option is applied by placing C bridging clips on terminals of adjacent columns. On 700A-66-B1-25 and 700B-66-B1-12 jacks, the C bridging clips (AT-8596) will go between columns B and C as necessary. On the 700A-R-B1-100, the C bridging clips will go on the adjacent terminals in each of the color-coded columns as necessary.

Note: On 700B-66-B1-12 connecting block, column B must be cut through to column C on both the incoming and outgoing pairs to have continuity. In addition, if the plug to the control equipment is not in place, the bridging adapter supplied with the jack must be installed.

3.06 The 700A-66-P1-50 jack uses plug-in units for cut-through option. The plug-in unit has a key way to aid proper insertion into the panel and prevent improper insertion. The plug-in units will be installed in the panel to coincide with input pairs as shown on Fig. 6 and as needed for service orders. The 79A fuse is used where sneak current protection is needed and the 4C12C protector (dummy) where protection is not needed.

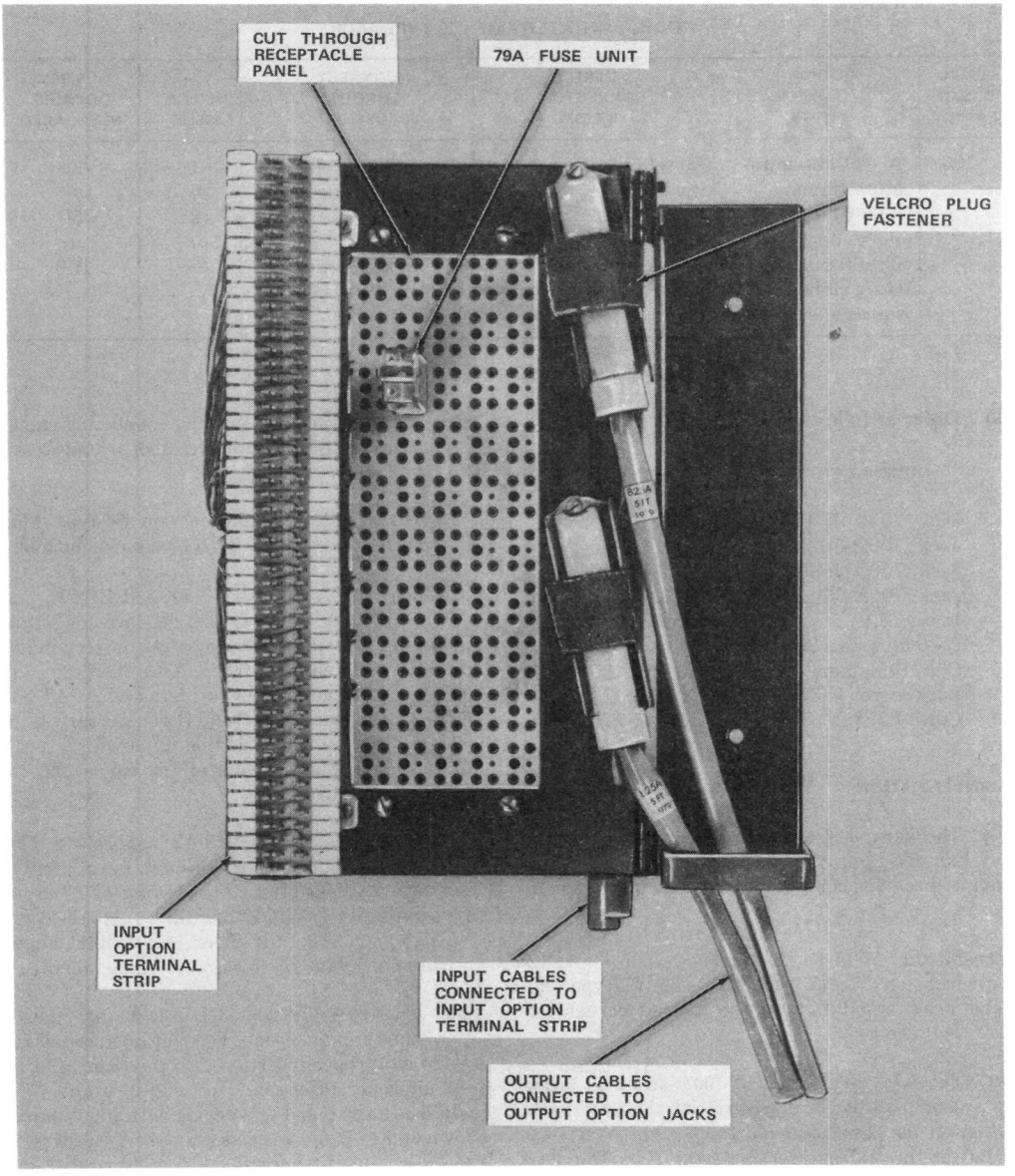


Fig. 2—700A-66-P1-50 Jack

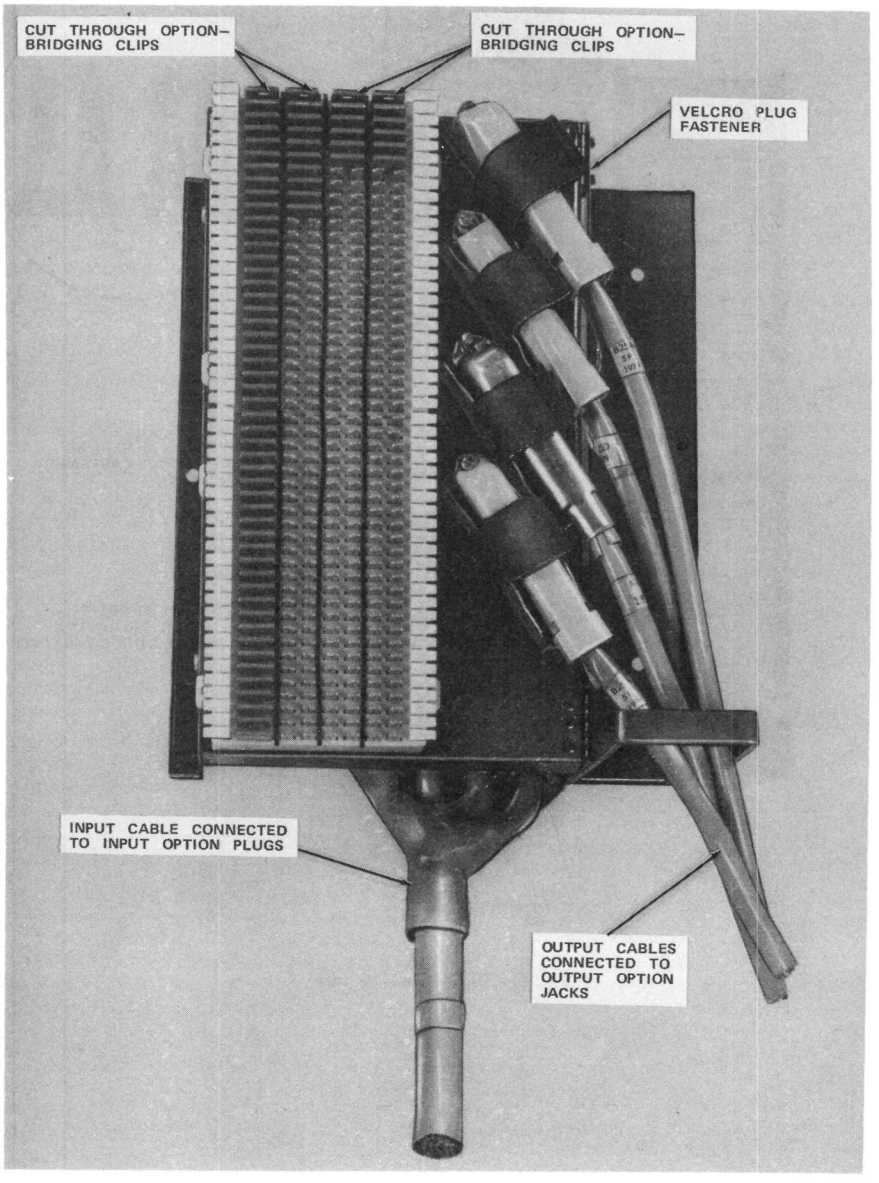


Fig. 3—700A-R-B1-100 Jack

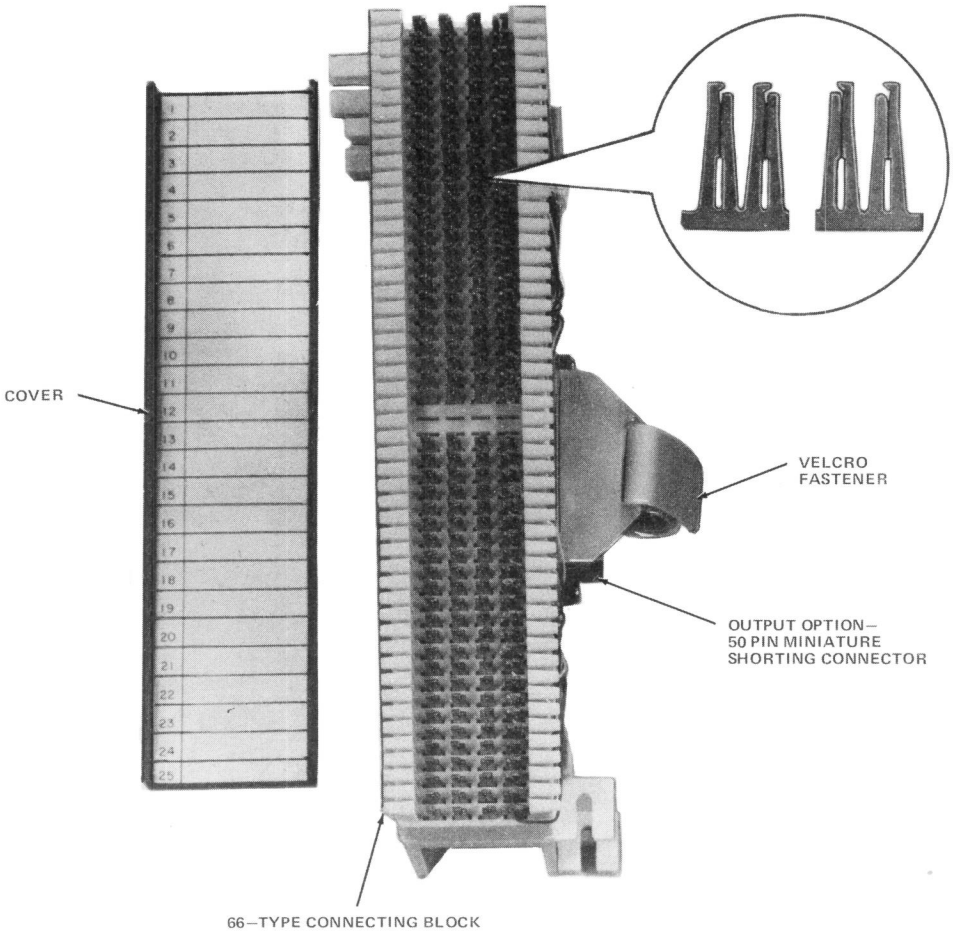


Fig. 4—700B-66-B1-12 Jack

NOTES:
1. CROSS-CONNECT COLUMNS B AND C WITH C BRIDGING CLIP AS REQUIRED
2. J1 (KS16672-L3 CONNECTOR) IS TERMINAL EQUIP. ACCESS POINT

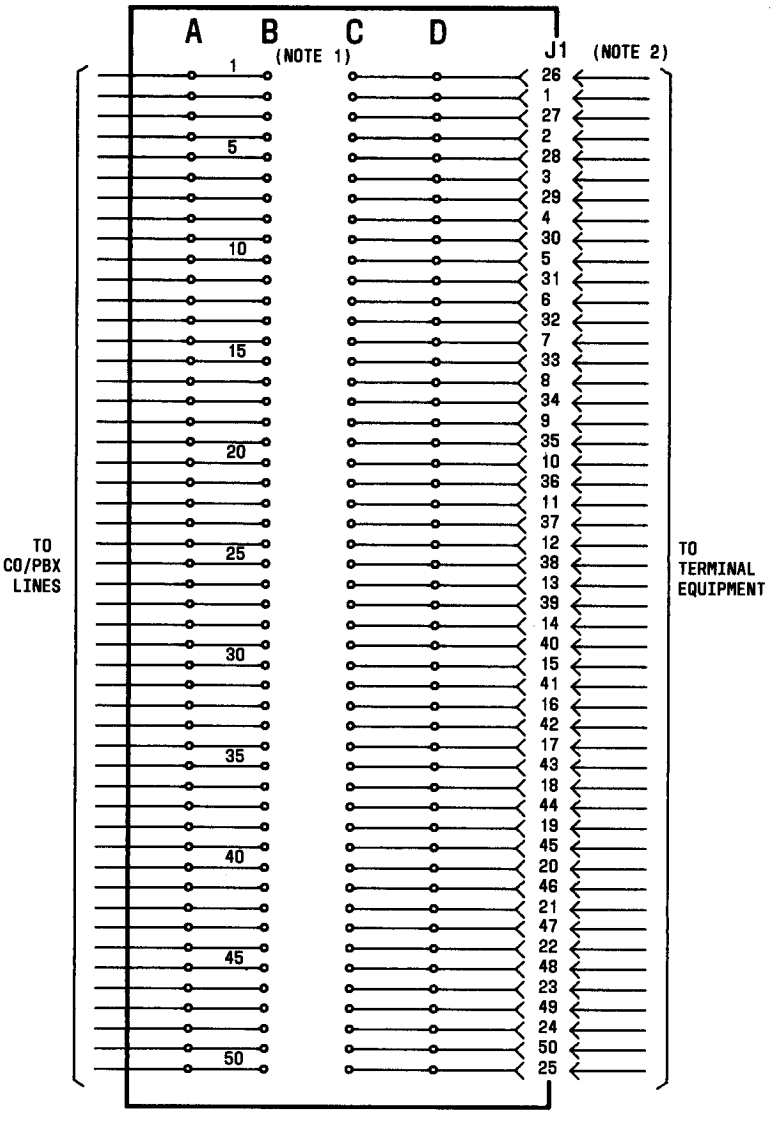


Fig. 5—Wiring of 700A-66-B1-25 Jack

3.07 Any pair may be sectionalized for testing at the 700-type jacks by removing the appropriate bridging clip, fuse, or protector. The 79A fuse and the 4C12C protector have test ports on the top which may be accessed with a P2FL cord. For testing on the receptacle panel of the 700A-66-P1-50 jack, place the P2FL cord on the top of either a 79A fuse or a 4C12C protector. The fuse or protector is then plugged into the receptacle panel in the position of the circuit to be tested, as far as the detent position (long terminals making contact—short terminals not making contact). The circuit may then be tested in either direction by reversing the fuse or protector.

3.08 The 700A-66-B1-25, 700A-R-B1-100, and 700B-66-B1-12 jacks should be labeled by writing the USOC number, customers name, and jack and plug number on the front of the protective cover as appropriate and the identity of each binding post pair on the inside of the cover (Fig. 10, 11, and 12). The protective cover should be kept in place on all blocks not being serviced to prevent accidental service interruptions.

3.09 The jack number printed on the face of the protective cover should also be printed on the moulded plastic of the 66-type block to facilitate correct replacement of protective covers.

3.10 The output option ribbon connectors serve as the access jack to which the terminating or control equipment (as in the 700B-66-B1-12 jack) compatible plug is installed. The plug is held in place by Velcro fasteners attached to the ribbon connectors.

4. MAINTENANCE

4.01 Maintenance of the 700-type jacks is limited to:

- Checks of cross-connections
- Continuity testing between terminals and connectors
- Realignment and cleaning of terminals
- Replacement of bridging clips or plug-in units
- Replacement of cover.

4.02 Bent, misaligned, or obviously deformed terminals may be corrected by using long-nose pliers. The bent beam should be moved until it aligns with its mate or with other terminals of the same column. Care should be taken not to move beams or terminals in a direction which could spring or open the contact surfaces between the two beams.

4.03 Terminals which have been damaged or sprung, resulting in an obvious gap between the two contact surfaces, should not be used. There is no prescribed method for correcting this condition; therefore, an assigned circuit must be wired to spare terminals or the connecting block replaced. In either case, the customer may have to be consulted to coordinate the change.

4.04 Field replacement of terminals or KS connectors in connecting blocks is impractical. Connecting blocks which are damaged and cannot be repaired will have to be replaced.

4.05 Remove small pieces of insulation and wire-ends remaining at base of terminals with an insulated tool. The 724A tool is designed to remove conductors from 66-type connecting blocks and serves to extract sizable bits of insulation and wire-ends while reducing the possibility of disturbing or degrading adjacent wire connections.

> ***Note:*** Never use pliers to squeeze terminal beams together in an attempt to improve terminal contact or tension. This destroys the terminal for future use.

4.06 When in the judgment of repair personnel, the trouble is located in or caused by the CPE, the Repair Service Bureau should be notified so proper Maintenance of Service Charge Billing can be initiated as required and as outlined in the following:

- Section 660-101-312—Maintenance of Service Charge on Services With Customer-Provided Equipment (CPE)
- Section 660-101-318—Tariff and Registration Violation Notice Procedures.

CONNECTING BLOCK AND RECEPTACLE PANEL PAIRS		MIN. RIBBON CONN. TERM. EACH GROUP	CABLE PAIR COLOR EACH GROUP
A	B		
1	26	26 1	W-BL BL-W
2	27	27 2	W-O O-W
3	28	28 3	W-G G-W
4	29	29 4	W-BR BR-W
5	30	30 5	W-S S-W
6	31	31 6	R-BL BL-R
7	32	32 7	R-O O-R
8	33	33 8	R-G G-R
9	34	34 9	R-BR BR-R
10	35	35 10	R-S S-R
11	36	36 11	BK-BL BL-BK
12	37	37 12	BK-O O-BK
13	38	38 13	BK-G G-BK
14	39	39 14	BK-BR BR-BK
15	40	40 15	BK-S S-BK
16	41	41 16	Y-BL BL-Y
17	42	42 17	Y-O O-Y
18	43	43 18	Y-G G-Y
19	44	44 19	Y-BR BR-Y
20	45	45 20	Y-S S-Y
21	46	46 21	V-BL BL-V
22	47	47 22	V-O O-V
23	48	48 23	V-G G-V
24	49	49 24	V-BR BR-V
25	50	50 25	V-S S-V

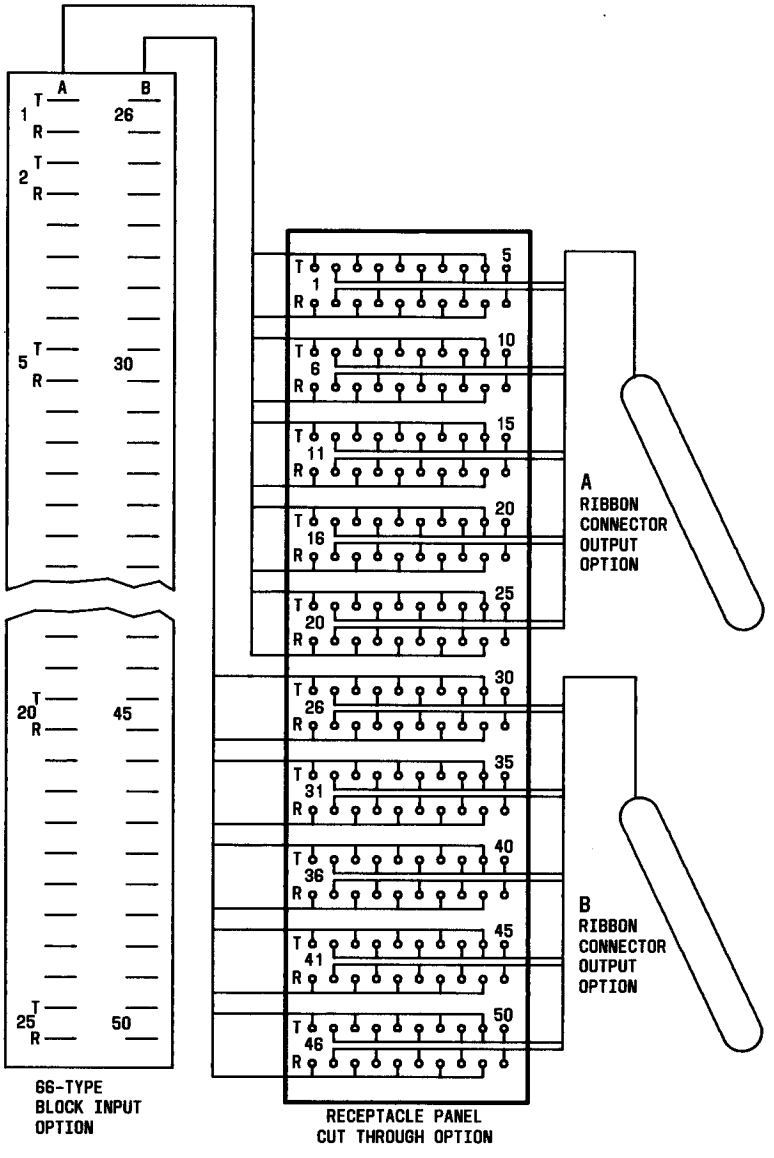


Fig. 6—Wiring of 700A-66-P1-50 Jack

MINIATURE RIBBON CONNECTOR TERMINAL	CABLE PAIR EACH BINDER GROUP		CONNECTING BLOCK TERMINAL
	PAIR	COLOR	
26	1	W-BL	1
1		BL-W	2
27	2	W-O	3
2		O-W	4
28	3	W-G	5
3		G-W	6
29	4	W-BR	7
4		BR-W	8
30	5	W-S	9
5		S-W	10
31	6	R-BL	11
6		BL-R	12
32	7	R-O	13
7		O-R	14
33	8	R-G	15
8		G-R	16
34	9	R-BR	17
9		BR-R	18
35	10	R-S	19
10		S-R	20
36	11	BK-BL	21
11		BL-BK	22
37	12	BK-O	23
12		O-BK	24
38	13	BK-G	25
13		G-BK	26
39	14	BK-BR	27
14		BR-BK	28
40	15	BK-S	29
15		S-BK	30
41	16	Y-BL	31
16		BL-Y	32
42	17	Y-O	33
17		O-Y	34
43	18	Y-GN	35
18		GN-Y	36
44	19	Y-BR	37
19		BR-Y	38
45	20	Y-S	39
20		S-Y	40
46	21	V-BL	41
21		BL-V	42
47	22	V-O	43
22		O-V	44
48	23	V-GN	45
23		GN-V	46
49	24	V-BR	47
24		BR-V	48
50	25	V-S	49
25		S-V	50

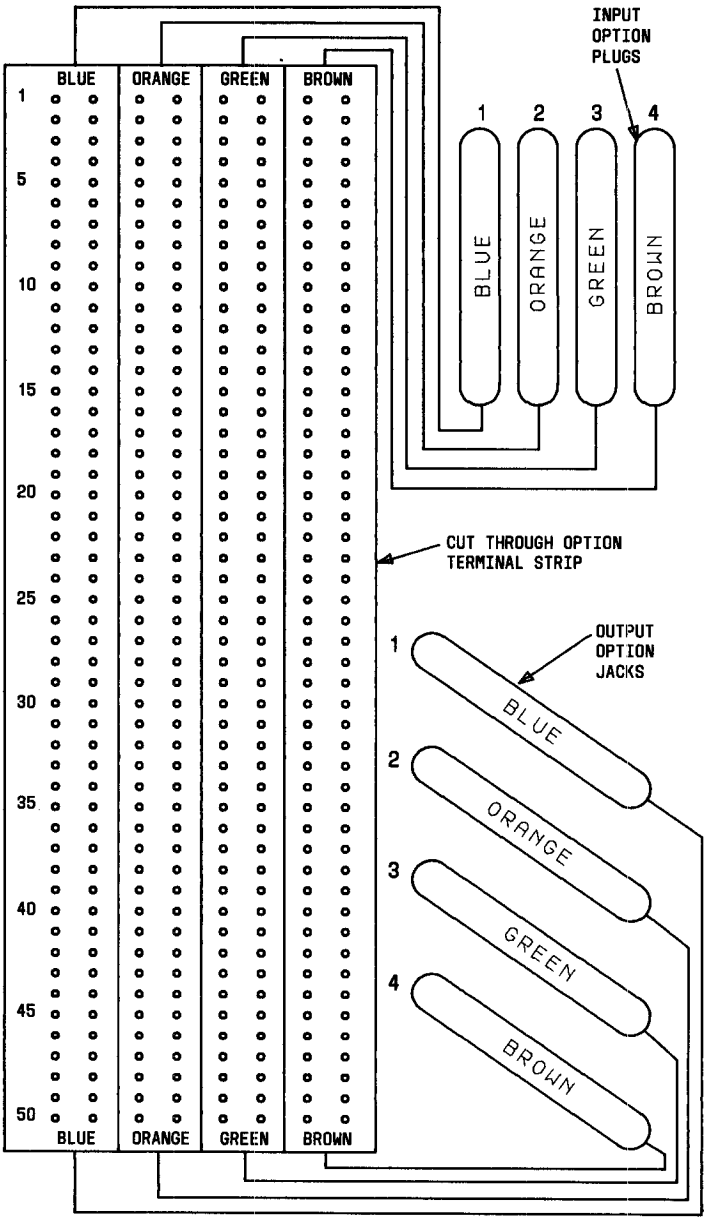


Fig. 7—Wiring of 700A-R-B1-100 Jack

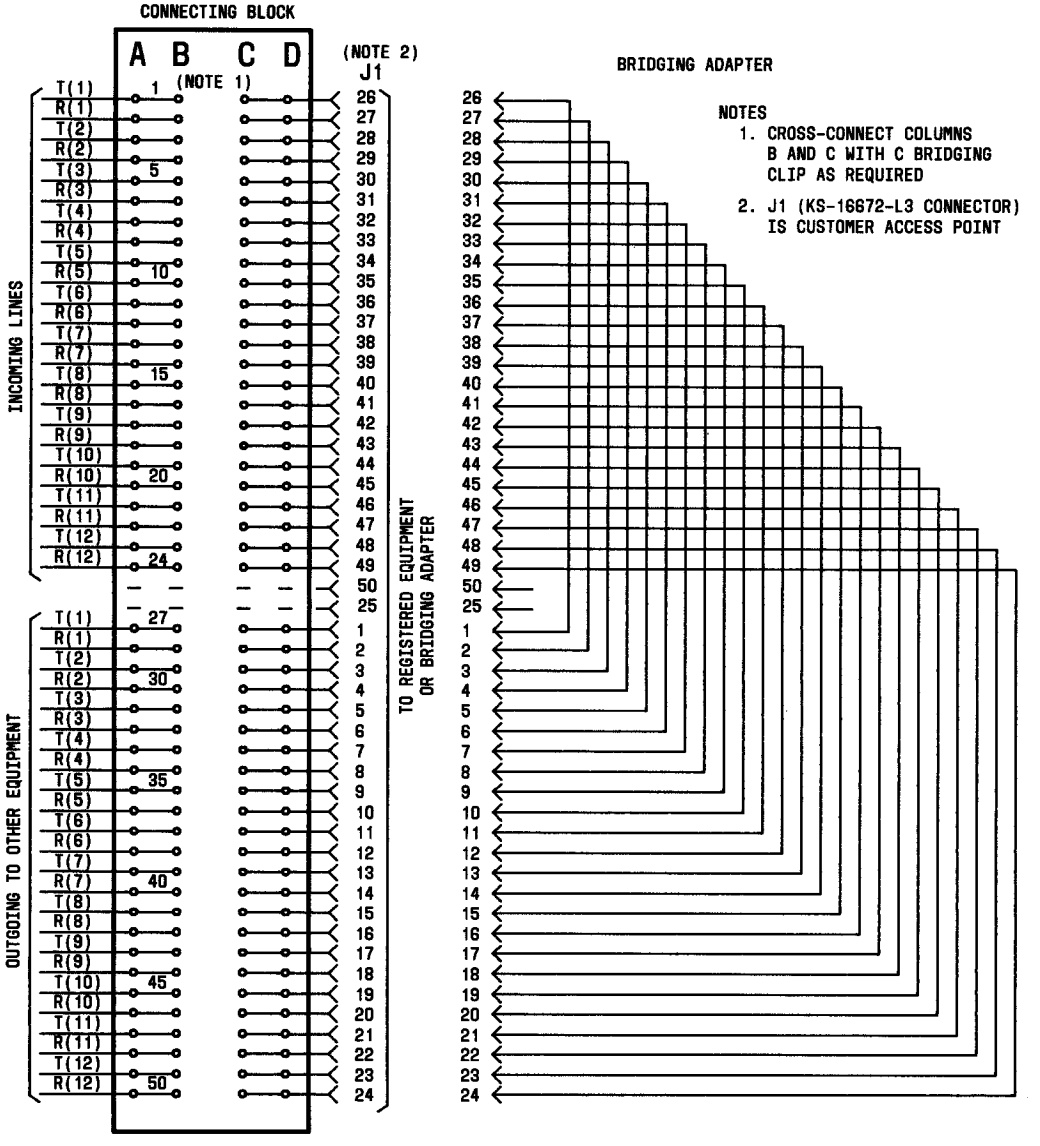


Fig. 8—Wiring of 700B-66-B1-12 Jack

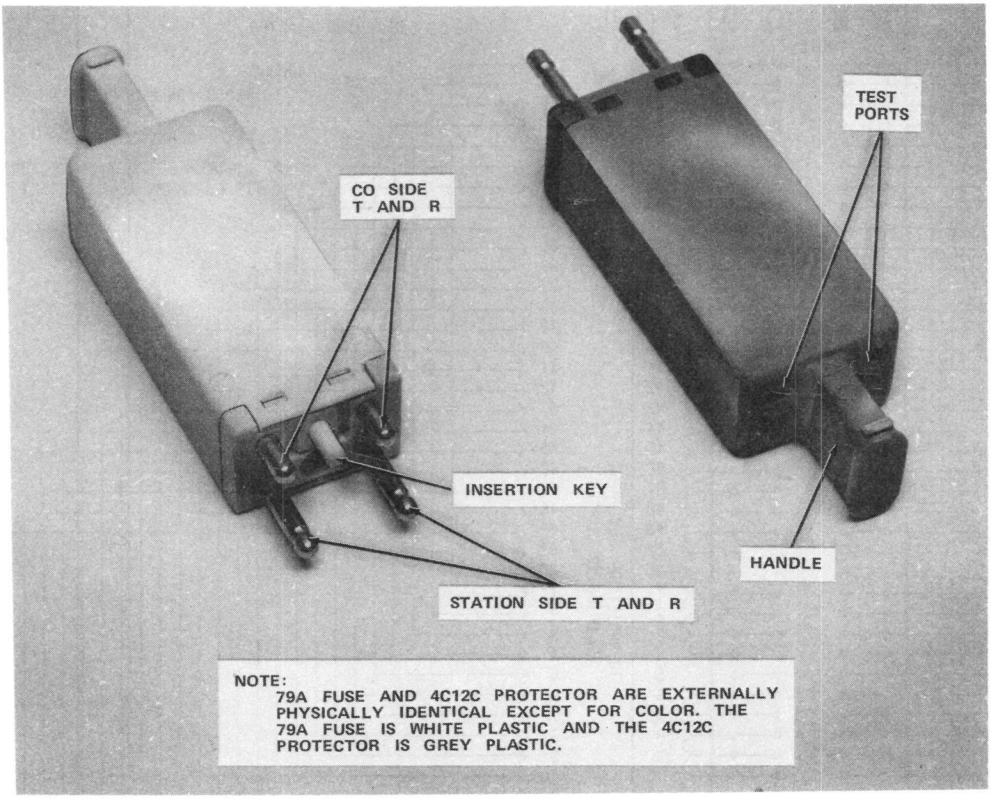


Fig. 9—Plug-In Units for 700A-66-P1-50 Jack

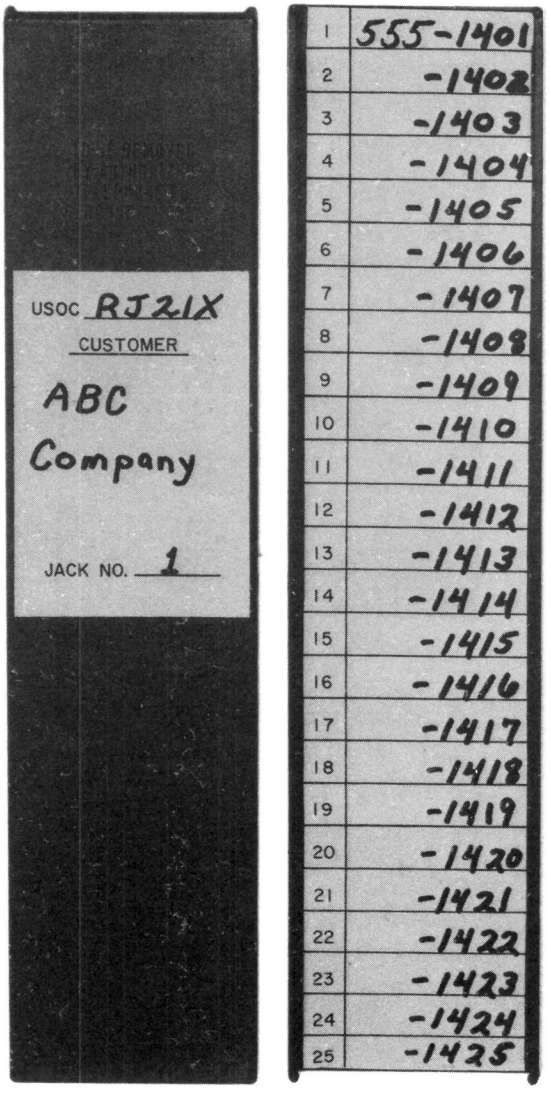


Fig. 10—Labeling of Cover for 700A-66-B1-25 Jack

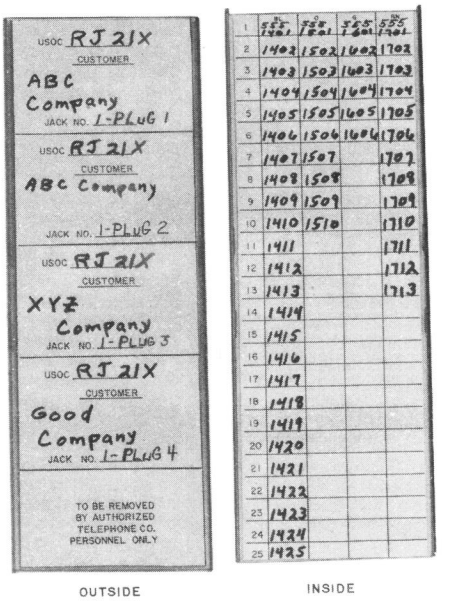


Fig. 11—Labeling of Cover for 700A-R-B1-100 Jack

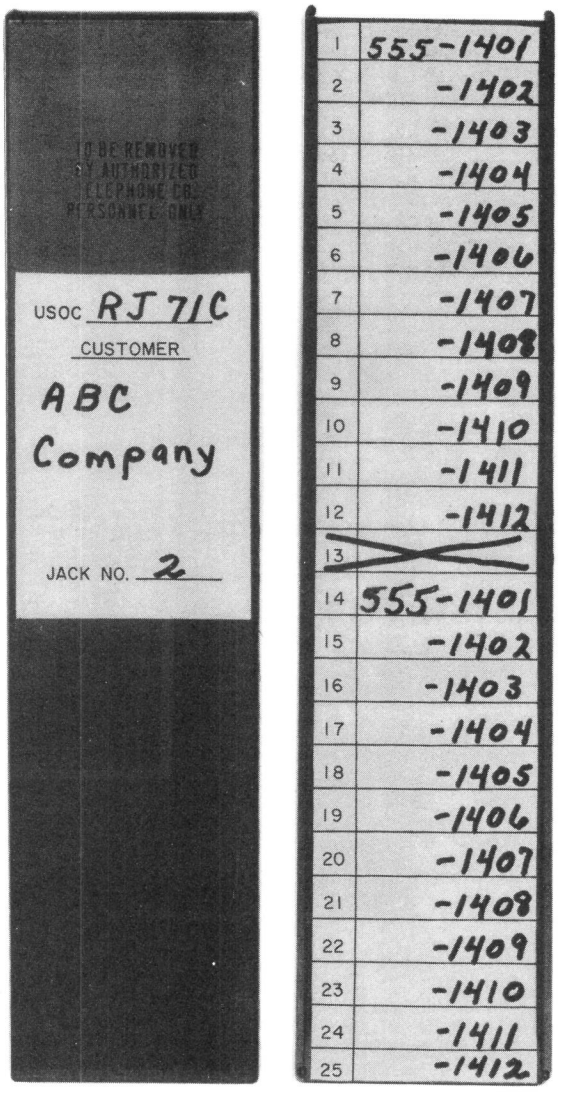


Fig. 12—Labeling of Cover for 700B-66-B1-12 Jack

REGISTRATION INTERFACE

SELECTION AND GENERAL INFORMATION

1. GENERAL

1.01 This section provides information for the identification and selection of interface apparatus required to provide standard Registration Program jacks under the Federal Communications Commission (FCC) Registration Program. The FCC Registration Program covers registered terminal equipment, systems, and protective circuitry including the following types of equipment: telephones, ancillary, data, PBX, key telephone systems (KTSs), multifunction, and protective circuitry. The registered equipment can be either telephone company or customer-provided equipment.

> ***Note:*** Telephone company- or customer-provided data equipment connected to the network via the interfaces in this section must have a nonadjustable signal power level no greater than −9 dBm. See Section 590-101-103 for connection of other data devices.

1.02 This section is reissued for a major revision of this section. Since this reissue is a general revision, no revision arrows have been used to denote significant indicate changes.

1.03 The FCC Registration Program permits the direct electrical connection to the telecommunications network of certain telephone, ancillary, and data equipment (telephone company- or customer-provided equipment) which meet FCC registration standards (registered) or the type which has previously been connected to the network (grandfathered). There is a distinct difference of connection for registered terminal equipment and grandfathered equipment as authorized by Part 68 of the FCC Registration Program. Identification and connection of registered and grandfathered equipment and systems are described in the following paragraphs.

1.04 Registered terminal equipment and systems, whether telephone company or customer provided, must be directly connected to the telecommunications network through telephone company-provided standard jacks as specified in, or authorized by, Part 68, with three exceptions. Connections through standard jacks are not required for the following:

(a) Registered telephone company- or customer-provided equipment or systems located in hazardous or inaccessible locations

(b) Registered telephone company- or customer-provided equipment or systems for which a specific waiver has been granted by the FCC

(c) Registered telephone company-provided and installed bells or ringers.

1.05 The FCC Registered equipment will have the FCC Registration number attached to a visible surface of the equipment. The registration number will consist of 14 alphanumerical characters made up as follows:

(a) Three alphanumerical characters that identify the grantee of the registration.

(b) Three alphanumerical characters that identify the manufacturer of the device.

(c) Five numerals that make the registration number unique.

(d) Two alphabetical characters that will identify the type of registered equipment. For systems, the second character will identify that type of premises wiring protection.

(e) A single alphabetical character that identifies the type of network signaling (ie, tone type or dial pulse), if any, employed by the device.

(f) A typical registration number will look like AS593M-70230-TE-T.

1.06 The ringer equivalence number may follow the registration number or be displayed elsewhere on the equipment as follows.

(a) A typical example of the ringer equivalence being displayed after the registration number would be AS593M-70230-TE-T-REN 1.5A.

(b) A typical example of the ringer equivalence being displayed elsewhere on the equipment would be REN 1.5A or ringer equivalence number 1.5A.

1.07 Grandfathered terminal equipment and systems, whether telephone company or customer provided, may be directly connected to the telecommunications network through telephone company-provided standard jacks and nonstandard jacks (4-prong, 8-prong, etc) or as otherwise determined by the telephone company (hardwiring, etc).

1.08 Bell System Practices covering the standard jack interfaces under the FCC Registration Program are as follows:

- Section 463-400-110 — Adapter Arrangements — RJA1X, RJA2X, and RJA3X
- Section 463-400-120 — RJ11C, RJ11W, RJ12C, RJ12W, RJ13C, RJ13W, RJ17C, RJ18C, RJ19C, RJ1DC — Bridged Single Line Tip and Ring Arrangements
- Section 463-400-121 — Bridged Single Line Weatherproof Tip and Ring Arrangements — RJ15C
- Section 463-400-130 — Uniform Service Order Codes — RJ16X, RJ31X, RJ32X, RJ33X, RJ34X, RJ35X, RJ36X, RJ37X, and RJ38X — Series Single Line Tip and Ring Arrangements
- Section 463-400-140 — Uniform Service Order Codes — RJ14C and RJ14W — Bridged 2-Line Tip and Ring Arrangements
- Section 463-400-141 — RJ21X, RJ22X, RJ23X, RJ24X, RJ2DX, RJ2EX, RJ2FX, RJ2GX, and RJ2HX — Bridged Multiple Tip and Ring Arrangements
- Section 463-400-142 — RJ25C — Bridged 3-Line Tip and Ring Arrangements
- Section 463-400-150 — RJ71C — Series Multiple Tip and Ring Arrangements.

1.09 The apparatus required to provide standard jack interfaces used under the FCC Registration Program are covered in the following sections.

- Adapters — Section 461-200-102
- Connector Cables — Section 461-200-101
- Telephone Sets — Modular Type — Section 503-100-100
- Jacks and Plugs — Section 461-630-100
- 625-, 630-, and 635-Type Connecting Blocks — Section 461-610-100
- 66M3-50R (MD) and 66M4-50R (MD) Connecting Blocks — Section 461-604-105
- 700-Series, Interface Facilities — Section 461-604-106
- 74-Type Connecting Blocks — Section 461-606-100.

2. DESCRIPTION

2.01 Table A provides Uniform Service Order Codes (USOCs), equipment used, technical references, Bell System Practice numbers, description, and typical equipment to be connected.

3. INSTALLATION

3.01 Each standard Registration Program jack requires a specific wiring arrangement. See Table A for reference to the Bell System Practice applicable which includes complete descriptive information and wiring diagrams of each standard Registration Program jack. Wiring diagrams of jacks, adapters, or ribbon connectors used will designate the contacts by number. The numbering arrangement for modular jacks and adapters is established by looking into the jack with the release clip opening at the bottom, counting the contacts from left-to-right. Numbering will be on the basis of the maximum number of contact positions although all positions of the jack may not be equipped. Unused contacts are reserved for telephone company use and are handled according to local instructions. Multiple lines connected to ribbon-type connectors should be terminated as determined by the customer and shown on the service order. All circuits should be identified either on a label or designation strip.

To assure that proper interfaces are furnished, each USO-coded termination (standard jack) MUST BE wired according to the Bell System Practice covering that USOC.

3.02 Concurrent with the expansion of the FCC Registration Program to include certain private line services, a policy of allowing intermixing of USOCs in some standard jacks under certain rules has been adopted. The USOCs that can be intermixed are limited to RJ11C, RJ14C, RJ25C, RJ21X, RJ2DX, RJ2EX, RJ2FX, RJ2GX, and RJ2HX. The rules governing intermixing are:

(a) Intermixing will only be allowed for lines for which the lead structure is clearly defined, eg, T, R, E, M.

(b) Intermixing will only be allowed in jacks for which the lead structure can be accommodated.

(c) When a line position is assigned in a jack and the circuit uses less than its full allocation of leads for the line position, the remaining contacts cannot be used since the lead structure of the jack would be changed. For detailed information on applying the intermix option, refer to the Bell System Practice covering the specific standard Registration Program jack.

3.03 All wiring required for connection of standard Registration Program jacks in these Bell System Practices is to be furnished and installed by the telephone company. Registered equipment must be modular plug-ended or ribbon connector ended and connected to the telephone company network only through the telephone company-provided standard Registration Program jack. Under the FCC program, the network includes the switched network and certain private line services.

3.04 The interface equipment should be located as close as feasible to the customer key or PBX common equipment. In all cases, an attempt should be made to locate the interface within 25 feet of the customer equipment. In those cases where this is not practical or reasonable, the placement of the final telephone company interface should be equal to the location the telephone company would select if it were providing the systems in question. It should be a site that is readily accessible to the telephone company installation or repair technician and the customer. Where possible and agreeable with the customer, locate the interface jack as near as possible (approximately 12 inches) to an electrical outlet.

3.05 Surface-mounted connecting blocks should be mounted with the modular jack facing downward if the connecting block is at a sufficient height to permit a plug to be inserted with ease.

> ***Note:*** It is recommended that wherever possible, connecting blocks be mounted 12 inches or more above the floor. In areas of high corrosion, it is also recommended the 625S connecting block be used. The increased height also makes for easier customer plug orientation.

As a second choice, the jack should face to either side. ***Do not*** mount a connecting block with the jack facing up — this allows contaminants to enter the jack more easily. A minimum clearance of 3 inches is required directly in front of the modular jack entry to allow for connection and disconnection of equipment, including the possible use of adapters.

3.06 Each installation of a standard jack(s) should be tested for dial tone, audible noise, ringback, proper tip and ring polarity, and A lead control if applicable. Series type jacks should be tested for proper mechanical contact closure to verify that telephone company-provided equipment connected on the field side of the series connection will operate properly with or without the registered equipment connected to the standard jack. With RJ71C, it will be necessary to manually connect the furnished bridging adapter to the 66M4-50R connecting block (MD) to test continuity with the registered equipment disconnected.

> ***Note:*** The telephone company is not responsible if registered customer-provided equipment fails to maintain continuity through a series connection, thus causing any equipment beyond the series jack to malfunction.

After the standard Registration Program jack has been properly tested and found to be in working order, advise the customer that the type of jack ordered is installed and working properly. If the registered customer-provided equipment device is readily available and can be quickly and conveniently connected, request the customer to connect the device(s) and verify to their satisfaction that the jack and their equipment work properly. If a problem with the customer-provided equipment, other than ringing is apparent, the customer should be advised to disconnect the registered equipment, verify with the manufacturer or supplier whether the correct standard jack has been ordered, and to follow the manufacturer recommended repair procedures.

> ***Note:*** The total number of telephone company- and customer-provided equipment ringers

bridged across the central office or PBX line must not exceed the limitations outlined in Section 500-114-100 for individual line, capacitor-coupled ringers. If the ringer limitation is exceeded, the customer can do one or a combination of the following:

(a) Arrange to have the ringer(s) in the customer-provided equipment disconnected if possible, or arrange to obtain a similar device with a lesser ringer equivalence. This is not to be done by telephone company personnel.

(b) Request the ringer(s) in the telephone company equipment be disconnected.

(c) Cancel the existing service order.

INSTALLATION AND MAINTENANCE RESPONSIBILITIES

3.07 Service orders requiring jacks will be issued with the appropriate jack USOC on the order, as determined by the telephone company negotiator and the customer.

3.08 As previously noted, all telephone company-provided registered terminal equipment and communications systems must be connected to the network via standard jacks. In order to assure proper billing, the installer must report actual and correct jack installations.

3.09 Installation and Maintenance will be responsible for positive reporting which includes the following:

(a) Removing jack information from the order when it is not provided and installed

(b) Adding jack information if appropriate

(c) Change type of jack(s) (USOC) if appropriate

(d) Changing quantity of jack(s) ordered if appropriate.

4. MAINTENANCE

Danger: Telephone company employees must be sure that commercially powered customer-provided equipment is disconnected from power and from the telephone company jack before working on a standard interface or its associated inside wiring.

4.01 The telephone company is responsible for providing standard interface as described in Sections 463-400-100 through 463-400-150. The telephone company has no responsibility for customer-provided equipment devices connected to the network via these interfaces. The customer is responsible for the repair of any customer-provided equipment. No attempt should be made to install, test, modify, or repair customer-owned and maintained equipment.

4.02 When in the judgment of repair personnel the trouble is located in or caused by the customer-provided equipment, Maintenance of Service Charge Billing should be initiated as required and as outlined in Section 660-101-312 — Maintenance of Service Charge on Services With Customer-Provided Equipment (CPE) and Section 660-101-318 — Tariff and Registration Violation Notice Procedures.

MAINTENANCE OF SERVICE CHARGE — RESPONSIBILITIES OF PLANT REPAIR TECHNICIAN

4.03 The maintenance of service charge provides for billing when we have dispatched a repair technician and the trouble locates in the customer-owned equipment in the following manner:

(a) Under no circumstances should the repair technician make negative comments regarding the quality of the customer-owned equipment.

(b) The plant repair technician will notify the customer that they may be billed in each instance where trouble locates in, or is caused by, or results from customer-provided equipment.

(c) It is not the responsibility of the plant repair technician to discuss with the customer the reason for the existence of the maintenance of service charge. Questions regarding the rationale of the maintenance of service charge should be referred to the Business Office.

WHEN A MAINTENANCE OF SERVICE CHARGE APPLIES

4.04 The maintenance of service charge applies when a trouble report has been received, or a service difficulty noted, a visit has been made, and any one or more of the following apply:

(a) The trouble report of service difficulty resulted from the use of authorized or unautho-

rized customer-provided equipment such as the following:

- Improper dialing from a customer-provided equipment device
- Customer-provided equipment which gave an erroneous off-hook condition
- Failure of commercial ac power, power plug removed, or circuit breaker operated when only the customer-provided equipment was affected
- Failure to disconnect because of trouble in the customer-provided equipment
- Improper operation of the customer-provided equipment
- Improper methods or programs used by customer regarding the customer-provided equipment
- Failure or malfunction of customer-provided equipment
- Improper attachment of customer-provided equipment to telephone company facilities.

(b) The trouble report or service difficulty resulted from failure of a customer-owned adapter.

4.05 Improper use of authorized customer-provided terminal equipment by the customer which results in a trouble report should be assigned Disposition Code 12. The maintenance of service charge will apply if a premises visit was made and the trouble was not located in telephone company-provided equipment and/or facilities.

4.06 Demand dispatch is when a line with customer-provided equipment tests or verifies okay (no trouble indication) and discussion with the customer reveals no telephone company trouble, the trouble report shall not be dispatched unless the customer or vendor insist upon a repair visit. If the customer or vendor insist upon a repair visit, they should be advised that the maintenance of service charge will apply if no trouble is found in telephone company-provided equipment and/or facilities when tested at the demark point at the time of the visit.

5. TARIFF VIOLATIONS

5.01 Tariff violation notice procedures in Section 660-101-318 (issued March 1976) provides for the preparation of a notice (Form E-6670) whenever any telephone company employee observes a tariff violation and a formal follow-up is warranted. Tariff violation notices are not prepared for cases identified during unauthorized equipment testing programs.

WHEN A TARIFF VIOLATION NOTICE APPLIES

5.02 A tariff violation notice, Form E-6670, should be prepared whenever a tariff violation has been observed. Examples of when Form E-6670 should be prepared include, but are not limited to, the following cases:

(a) All trouble reports which resulted from the use of unauthorized customer-provided equipment, trouble reports closed to disposition Code 13

(b) When an installation or maintenance premises visit is made and equipment is observed to be connected in violation of the tariffs

(c) Whenever unauthorized equipment is detected or observed on either a test or premises visit.

TABLE A

GENERAL INFORMATION STANDARD REGISTRATION JACKS

USOC	EQUIPMENT USE	DESCRIPTION	TYPICAL EQUIPMENT TO BE CONNECTED	SECTION NUMBER	TECHNICAL REFERENCE
RJA1X	225AW Adapter	Adapts a modular plug to a 4-prong jack*	Telephones, Ancillary Devices	463-400-110	PUB 47101
RJA2X	267AW Adapter	Converts one modular jack to two modular jacks*			
RJA3X	224AW Adapter	Adapts a modular plug to a 12-prong jack*			
RJ11C	†	Bridged connection of a single-line tip and ring — surface or flushed mounted		463-400-120	
RJ11W	630A Connecting Block	Same as above except for portable wall-mounted device			
RJ12C	†	Bridged connection of a single-line tip and ring ahead of the line circuit with A lead control — surface or flush mounted			
RJ12W	630A Connecting Block	Same as above except for portable wall-mounted device			
RJ13C	153AM2 and 153BM2	Bridged connection of a single-line tip and ring behind the line circuit with A lead control — surface or flush mounted			
RJ13W	630A Connecting Block	Same as above except for portable wall-mounted device			
RJ14C	†	Bridged connections of 2-line tip and ring — surface or flush mounted	Telephones, Two-Line Ancillary Devices, KTS	463-400-140	
RJ14W	630A Connecting Block	Same as above except for portable wall-mounted device			
RJ15C	B Weatherproof Female Jack AT-8732	Bridged connection of a single-line weatherproof tip and ring arrangement	Single-Line Telephone Set at Marinas and on Recreational Vehicles	463-400-121	
RJ16X	†	Bridged connection of a single-line tip, ring, MI, and MIC leads (used with RJ36X)	−9 dBm (permissive) Data Equipment With MI (Mode Indication) and MIC (Mode Indication Common) Leads	463-400-130	

TABLE A (Contd)

GENERAL INFORMATION STANDARD REGISTRATION JACKS

USOC	EQUIPMENT USE	DESCRIPTION	TYPICAL EQUIPMENT TO BE CONNECTED	SECTION NUMBER	TECHNICAL REFERENCE
RJ17C	625H Connecting Block	Bridged connection of a single-line tip and ring	Special Nonkey Telephone Sets for use in Hospital Critical Care Areas	463-400-120	PUB 47101
RJ18C	74D Connecting Block (MD) or Equivalent and 625S6 Connecting Block	Bridged connection of single-line tip and ring and make-busy MB/MB1 leads	Answering Sets or Other Ancillary Equipment Requiring Make-busy Arrangement		
RJ19C		Bridged connection of single-line tip and ring behind line circuit with A lead control and make-busy MB/MB1 leads			
RJ1DC	625 or 625WP4 Connecting Block	Bridged connection of single-line 4-wire T/R and T1/R1	Terminal Equipment and 4-Wire Exchange Access		
RJ21X	KS-16690, L1 Connector or Equivalent	Bridged connections of the tip and ring of a multiple number of central office or PBX trunks (maximum 25)	Traffic Data Recording Equipment Key and PBX Systems	463-400-141	
RJ22X		Bridged connections of up to 12 central office or PBX trunks with the tip and ring bridged ahead of the line circuit with A lead control	Multiple Ancillary Devices, Telephones		
RJ23X		Same as above except T, R, A, and A1 are bridged behind the line circuit			
RJ24X		Provides same T, R, and A appearances plus A1 of a standard 5-line key telephone set	Telephones		
RJ2DX		Multiple line bridged connections of 4-wire T/R and T1/R1	Terminal Equipment, PBXs, ACDs, and Systems Requiring 4-Wire Exchange Access		

TABLE A (Contd)

GENERAL INFORMATION STANDARD REGISTRATION JACKS

USOC	EQUIPMENT USE	DESCRIPTION	TYPICAL EQUIPMENT TO BE CONNECTED	SECTION NUMBER	TECHNICAL REFERENCE
RJ2EX	KS-16690, L1 Converter or Equivalent	Multiple 2-wire tie trunks with E and M type I signaling	PBXs and Channel Derivation Devices	463-400-141	PUB 47101
RJ2FX		Multiple 2-wire tie trunks with E and M type II signaling			
RJ2GX		Bridged tie trunks, multiple 4-wire T/R, T1/R1, and E and M type I signaling			
RJ2HX		Bridged tie trunks, multiple 4-wire T/R, T1/R1, and E and M type II signaling			
RJ25C	74D Connecting Block (MD) and 625S6 Connecting Block	Bridged connections of maximum of three lines — tip and ring only	Nonkey Telephone Sets or Ancillary Devices	463-400-142	
RJ31X	635A or 635B Connecting Blocks‡	When plugged in, customer-provided equipment is placed in series with tip and ring ahead of all station equipment	Alarm Dialers	463-400-130	
RJ32X		Same as above except customer-provided equipment is connected in series with one station	Series Dialers		
RJ33X		Series tip and ring connection ahead of a KTS line circuit plus bridged A and A1 behind line circuit			
RJ34X		Series tip and ring plus bridged A and A1 behind KTS line circuit			
RJ35X		Provides a series tip and ring connection of all lines appearing in a key telephone set plus bridged A and A1 leads			
RJ36X		Series tip and ring with mode indication behind series connection (used with RJ16X, RJ41S, and RJ45S)	Mode Indication (Exclusion Key) Telephone Set in Series With Data Jack		
RJ37X		Bridged connections of 2-line tip and ring with exclusion on line 1	Two-line Telephones With Exclusion on One Line for Use With Data Sets Requiring Telephones With Exclusion Feature		

TABLE A (Contd)

GENERAL INFORMATION STANDARD REGISTRATION JACKS

USOC	EQUIPMENT USE	DESCRIPTION	TYPICAL EQUIPMENT TO BE CONNECTED	SECTION NUMBER	TECHNICAL REFERENCE
RJ38X	635-Type Connecting Block	When an 8-position plug is inserted, customer-provided equipment is placed in series with tip and ring ahead of all station equipment — also has a continuity circuit	Alarm Dialers	463-400-130	PUB 47101
RJ71C	66M4-50R Connecting Block (MD)	When plugged in, customer-provided equipment is placed in series with tip and ring ahead of all station equipment — maximum of 12 lines	Toll Restrictors	463-400-150	

* The adapters are customer owned in all cases and may be purchased from either the telephone company or an outside supplier.

† For surface-mounted installations, use a 625A, 625S, or 625WP connecting block. For flush-mounted installations, use a 625B or 625FS connecting block. The 625S and 625FS connecting blocks have spring-loaded covers which protect the contacts from contamination. If existing wiring terminates in connector cable equipped with a KS-type connector, use a 153AM2 or 153BM2 adapter.

‡ An 8-position plug must be used to obtain a series circuit.

REGISTRATION INTERFACE
ADAPTER ARRANGEMENTS
RJA1X, RJA2X, AND RJA3X

1. GENERAL

1.01 This section contains information on the standard wiring arrangements, using a modular jack adapter as an interface, to be provided under the Federal Communications Commission's (FCC) Registration Program for registered telephone, ancillary, data, and protective circuitry of the type associated with telephone, ancillary, and data customer-provided equipment (CPE).

Note: Customer-provided data equipment connected to the network via the interfaces in this section must have a fixed signal power level under -9 dBm. See Section 590-101-103 for connection of other data devices.

1.02 This section is reissued to revise Fig. 1, 2, 3, 4, and 6 to indicate new Bell System Logo.

1.03 Under the registration program, customers can purchase certain standard adapters from either the telephone company or an outside supplier. The adapters can be used with either telephone company or customer-provided devices. Adapters that are manufactured for sale to the customer (or other common carriers) will carry a W code (224AW, 225AW, 267AW), will have an imprint showing they were manufactured by Western Electric, and will be ▶translucent with a Bell System Logo.◀ Adapters that are not for sale will be ivory or translucent, will carry a standard code (224A, 225A, 267A), and will be imprinted with the Bell System ▶Logo◀ stamped on them. The differences in marking are intended as aids in establishing ownership of adapters should the occasion arise at a later date; for example, on a repair visit.

Adapters are NOT to be installed when a customer orders a standard jack.

1.04 These arrangements provide:

- A means of adapting a modular telephone or ancillary device to an existing 4- or 12-contact non-modular jacks to modular type
- Two modular jacks in one adapter housing.

The telephone company equipment or registered CPE must terminate in a modular plug to be physically compatible. If the CPE is terminated in a 4- or 12-prong plug and a modular jack is in place, the equipment is not compatible for use with the adapters.

1.05 In these arrangements, tip and ring only are to be furnished to the CPE and appear on contacts 4 and 3 of the adapters, respectively. In 2-line jacks, T2 and R2 appear on contacts 2 and 5. Otherwise, contacts 2 and 5 are reserved for telephone company use. Disposition of these leads should be per local instructions.

Note: Circuit incompatibility may occur involving the spare leads if a change of service is installed, ie, a party line with dial light power installed originally would not be compatible with a subsequent installation of 2-line service. Whenever service is altered at an installation involving registration Uniform Service Order Codes (USOCs), check that all appearances are properly wired.

2. DESCRIPTION OF ADAPTERS SOLD TO CUSTOMERS

2.01 ***USOC RJA1X:*** This arrangement uses a ◗translucent◖ 225AW adapter (Fig. 1) with a Bell System Logo to provide physical compatibility between the modular plug on the CPE and an existing 4-prong jack such as a 548A or 549A (Fig. 4). Tip and ring are always connected through to the CPE. A and A1 or other leads will appear in the adapter if connected in the existing jack.

2.02 ***USOC RJA2X:*** Uses a 267AW (Fig. 2) adapter to connect two modular jacks to one modular plug. Four leads are multipled to the same contacts in the plug and both jacks (Fig. 5). Tip and ring are always connected through to the multiple jacks. A and A1 or other leads will appear in the multiple jacks if wired into the existing jack. Leads 1 and 6 are multiplied between the two jack ports only and are reserved for Telco use.

2.03 ***USOC RJA3X:*** Used to adapt a modular telephone to an existing 12-pin jack, such as a 541A or 551A, to a 6-pin modular jack (Fig. 6). A 224AW adapter (Fig. 3) is plugged into the 12-pin jack, and the modular plug on the telephone company- or customer-provided equipment plugs into the adapter. Tip and ring are always connected through to the CPE. A and A1 or other leads will appear in the adapter if wired into the existing jack. Adapter is provided by either the telephone company or the customer. Pins 1 and 6 are reserved for Telco use.

3. DISTRIBUTION OF ADAPTERS SOLD TO CUSTOMERS

3.01 Registration program standard USO codes have been assigned to the adapters that can be purchased by the customer. These codes make it easier for the customer to order the appropriate adapter and will enable proper billing.

3.02 The USOCs for the adapters described in Part 2 will appear on a service order only when a customer has placed an order to buy the adapter from the telephone company. These codes will not be used under any circumstance for any other purpose.

3.03 Customer requests to purchase adapters should be handled in the same manner as requests for standard jacks used with CPE, that is, the customer should specify the appropriate USOC as advised by the CPE supplier. Requests for adapters received by an installer while on the premises should be referred to the Business Office. Purchased adapters will ordinarily be distributed to customers by mailing.

3.04 Adapters available for purchase are not normally carried on installation and repair vehicles. However, if the customer orders an adapter in conjunction with other installation work, the ◗translucent with a Bell System Logo◖ W-coded adapter should be stocked on the truck with the other equipment needed to complete the order.

4. MAINTENANCE

4.01 Maintenance of all arrangements is limited to verification of the telephone company wiring and equipment. Check that the required leads are supplied to the interface used for CPE connection. No attempt should be made to test, modify, or repair customer-owned and maintained equipment. The mounting cord on a CPE device is always customer-owned and maintained.

4.02 Maintenance of service charges will not be made on customer-owned adapters purchased from the telephone company if they become defective within 30 days of the purchase date. After 30 days have elapsed, the charge will apply if a visit to the premises is made.

4.03 When in the judgment of repair personnel the trouble is located in or caused by the CPE, or the customer's adapter (including adapters purchased from the telephone company), the Repair Service Bureau should be notified so that proper Maintenance of Service Charge Billing can be initiated as required and as outlined in the following:

- Section 660-101-312—Maintenance of Service Charge on Services With Customer-Provided Equipment (CPE)
- Section 660-101-318—Tariff and Registration Violation Notice Procedures.

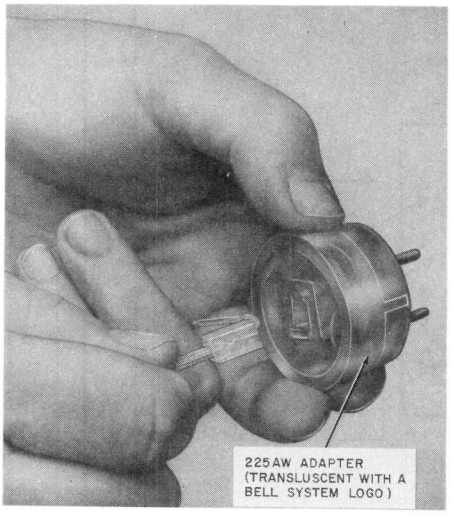


Fig. 1—225AW Adapter

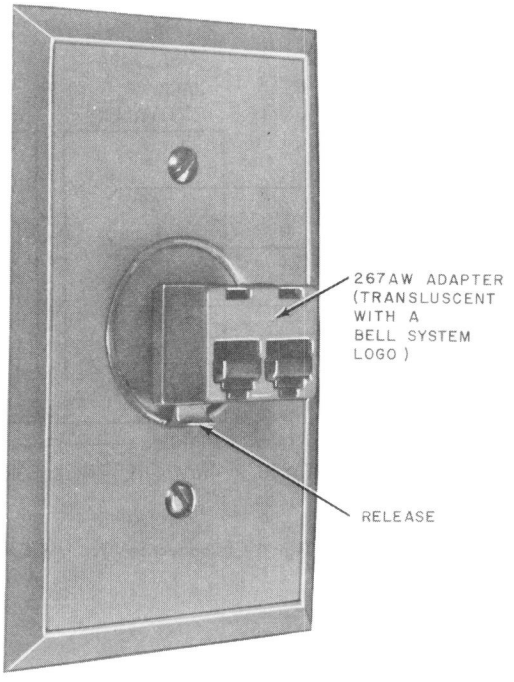


Fig. 2—267AW Adapter Mounted on 625-Type Connecting Block

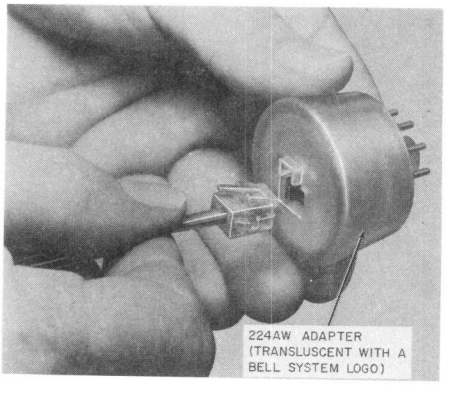


Fig. 3—224AW Adapter

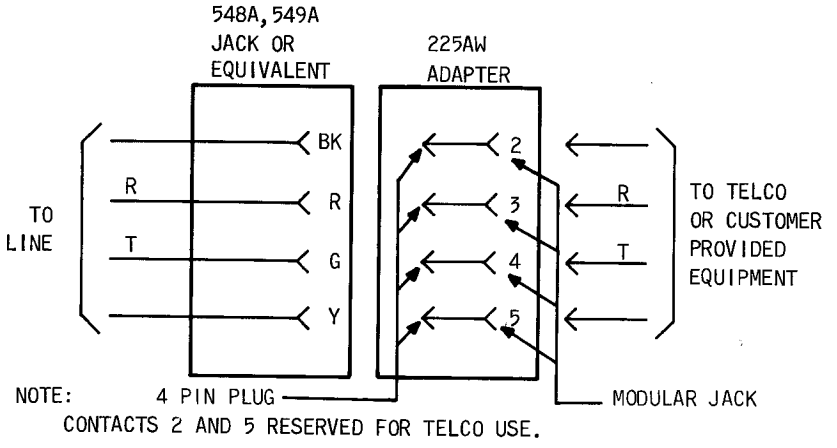


Fig. 4—Connections for USOC RJA1X, 4-Pin Jack to Modular Jack

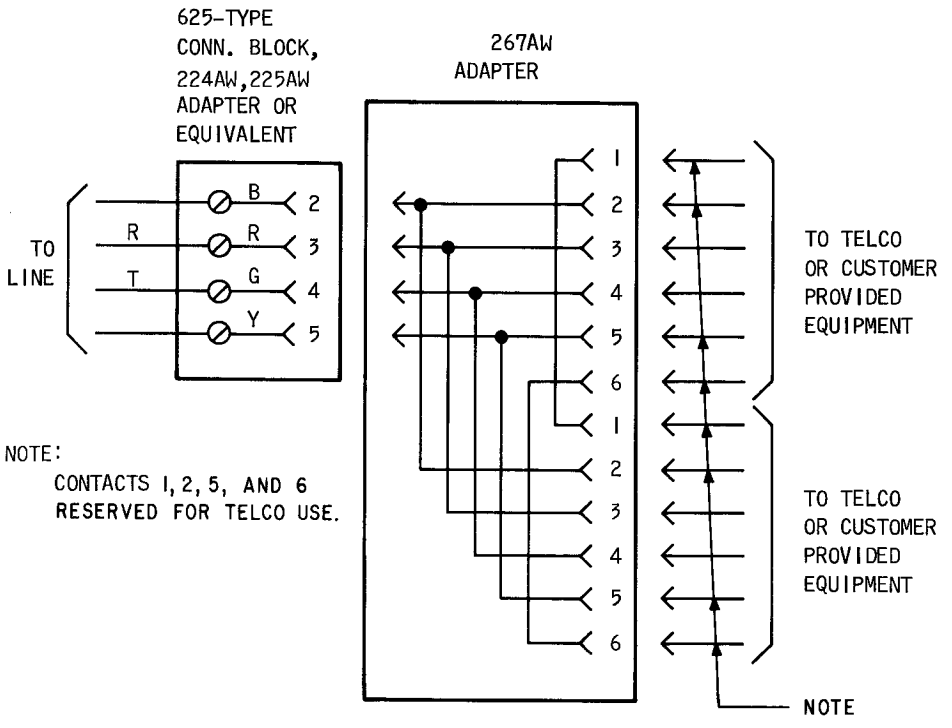
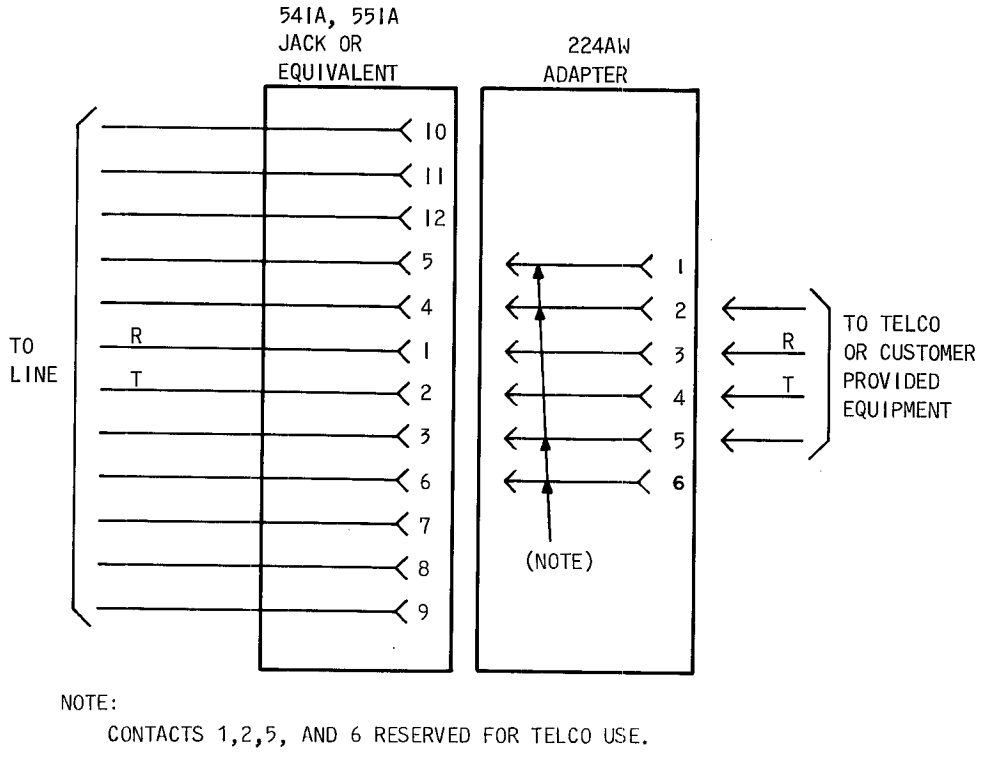


Fig. 5—Connections for USOC RJA2X, Modular Plug to Dual Modular Jack



NOTE:
CONTACTS 1,2,5, AND 6 RESERVED FOR TELCO USE.

Fig. 6—Connections for USOC RJA3X, 12-Pin Jack to Modular Jack

REGISTRATION INTERFACE

RJ11C, RJ11W, RJ12C, RJ12W, RJ13C, RJ13W, RJ17C, RJ18C, RJ19C, AND RJ1DC BRIDGED SINGLE LINE TIP AND RING ARRANGEMENTS

1. GENERAL

1.01 This section provides information on the standard wiring arrangements to be provided under the Federal Communications Commission (FCC) Registration Program for registered telephone, ancillary, data, private line, and protective circuitry of the type associated with telephone, ancillary, data, telephone company (TELCO), and customer-provided equipment (CPE).

> ***Note:*** Data equipment connected to the network via the jacks in this section must have a fixed signal power level under −9 dBm. See Section 590-101-103 for connection of other data devices.

1.02 This section is reissued to add:

(a) Information on Uniform Service Order Code (USOC) RJ1DC

(b) Photograph of 625C connecting block

(c) Information on 153-type adapter

(d) Photograph of 153-type adapter.

1.03 The arrangements in this section provide a termination of a single line in a modular jack. A bridged connection of the tip and ring is always furnished on contacts 4 and 3, respectively. In addition, where required ▶for 4-wire service, T1 and R1 are furnished or◀ in a key telephone system (KTS), A and A1 leads are furnished. Where make-busy leads MB/MB1 are required, they will appear on contacts 1 and 6, respectively. The equipment must terminate in a modular plug for compatibility. Where A and A1 leads are not furnished, contacts 2 and 5 are reserved for telephone company use. Disposition of these leads should be per local instructions.

> ***Note:*** Circuit incompatibility may occur involving the spare leads if a change of service is installed, ie, a line with A lead control installed originally would not be compatible with a subsequent installation of 2-line service. Whenever service is altered at an installation involving registration USOCs, check that all appearances are properly wired.

1.04 Unless otherwise specifically required by a particular wiring arrangement, access to the required leads can be at any access point. If installed in a large key system with color-keyed backboards, the auxiliary (yellow) field should be used; otherwise, access will be at satellite closets, distribution boxes, connecting blocks, etc.

1.05 The manufacturer of telephone or ancillary equipment intended for use on a key system has the option of designing equipment to be compatible with connections to the tip and ring, either ahead of or behind the KTS line circuit. Certain electrical characteristics of the tip and ring (such as voltages during the ringing cycle and voltages during the holding period) are different, depending on the type of key system. Thus, eg, it is conceivable that a registered answering set would require an RJ12C for COM KEY® systems (tip and ring ahead of the line circuit) or an RJ13C for 1A1-type systems (tip and ring behind the line circuit). Further, it is also possible that a different manufacturer of an answering set would require just the opposite.

1.06 Select the appropriate (compatible) interface USOC, using a knowledge of the type of KTS (1A, 1A1, 1A2, or COM KEY) ▶or circuit◀ and the selection information provided on the service order; then wire the interface according to the wiring diagram for that specific USOC.

1.07 When necessary to access leads in COM KEY installations, wire as follows:

(a) COM KEY 718—Tip and ring ahead of the line circuit can be obtained at the incoming

CO/PBX line terminations on block 3 using 183B2 adapters. If T, R, A, and A1 leads are required behind the line circuit, they can be accessed per line at any of the line appearances of the station terminations on blocks 3, 4, or 5. Again use 183B2 adapters. For information on COM KEY 718, refer to Section 518-450-100.

(b) COM KEY 1434—Tip and ring ahead of the line circuit can be accessed at the incoming line terminations on block 7 using 183B2 adapters. The T and R leads behind the line circuit and A and A1 leads for a particular line can be accessed at any of the line appearances of the station terminations on blocks 6 through 15 using 183B2 adapters. For information on COM KEY 1434, refer to Section 518-450-102.

(c) COM KEY 2152—Because of insufficient clearance between the connecting blocks and the closed gate, 183B2 adapters cannot be used on the connecting units of COM KEY 2152. To access T and R leads ahead of the line circuit, route the incoming CO/PBX line to an external 66-type connecting block, then to block 3 of the 100A1 or 101A-type connecting unit. The 66-type connecting block is then used to provide a multiple of the line. To access T and R leads behind the line circuit, use an idle station code termination which must be sacrificed for system use. If no idle station terminations are available, use any station code by running a jumper cable to external 66-type connecting blocks and transferring the station cable to these blocks. The blocks are then used to provide the line appearance multiple. For information on COM KEY 2152, refer to Sections 518-450-110 and 518-450-111.

1.08 These arrangements use a standard modular type connecting block (Fig. 1 through 4) as the interface with the CPE as follows:

- For surface-mounted installations (RJ11C, RJ12C, RJ13C, ▶and RJ1DC◀)—use 625A, 625C, 625S*, or 625T* connecting block. For surface-mounted installations requiring contacts 1 and 6 (RJ18C and RJ19C), use the 74D connecting block or equivalent.

- For flush-mounted installations (RJ11C, RJ12C, and RJ13C)—use 625B, 625F, or 625FS* connecting block.

*The 625FS, 625H, 625S, and 625T connecting blocks have spring-loaded covers which protect the contacts from contamination.

- For flush-mounted installations (RJ17C)—use 625H connecting block.

- For wall-mounted telephone set installations (RJ11W, RJ12W, and RJ13W)—use 630A connecting block.

1.09 ▶At existing key system installations wired using connector cables, a 153-type adapter may be used to furnish RJ11C, RJ12C, or RJ13C (Fig. 5 and 6).◀

2. DESCRIPTION

2.01 ***USOC RJ11C:*** Provides a bridged connection of the tip and ring only of a single line to the equipment (Fig. 2, 3, 4, 7, and 9). Used where customer requires a surface- or flush-mounted installation. Requires installation of a 625-type connecting block at location of connection to equipment. Connection to tip and ring can be at any convenient access point.

2.02 ▶***USOC RJ11C*** can also be used as private line services. Only tip and ring are provided through the interface (Fig. 10). The complete lead designation will depend on the private line service as follows: Message Registration—T(MR), R(MR); Off-Premises Station—T(OPS), R(OPS); or Automatic Identification Outward Dialing—T(AI), R(AI).◀

2.03 ▶***USOC RJ11C*** can also be intermixed with other properly structured jack arrangements. Specifically, RJ11C can be intermixed with RJ14C, RJ25C, RJ21X, RJ2EX, RJ2FX, RJ2GX, RJ2HX, or RJ2DX. For information on other jack arrangements, refer to Sections 463-400-100 through 463-400-150. If RJ11C is intermixed in any of the listed arrangements having more leads, the unused leads cannot be assigned since the lead structure of the jack would be changed. For instance, if RJ11C (having T, R leads) is intermixed with RJ2DX (having T, R, T1, R1 leads) the pins assigned to the T1, R1 leads in that particular circuit position must be left vacant.◀

2.04 ***USOC RJ11W:*** Same as RJ11C but installed at wall-mounted installations using 630A connecting block (Fig. 8 and 9).

2.05 ***USOC RJ12C:*** Provides a bridged connection of a single tip and ring with A lead control (Fig. 2, 3, 4, 7, and 10). Tip and ring are bridged ***ahead*** of the line circuit because the registered

equipment requires CO/PBX ringing. The A and A1 leads are obtained behind the line circuit. The T, R, A, and A1 leads are supplied at a surface- or flush-mounted installation using a 625-type connecting block. Connection to the required leads must be made at the KTS multiple for proper access. Typically used for connecting ancillary equipment requiring A lead control where the equipment is not compatible with tip and ring behind the line circuit.

2.06 ***USOC RJ12W:*** Same as RJ12C except requires installation of a 630A connecting block for wall-mounted installations (Fig. 8 and 10).

2.07 ***USOC RJ13C:*** Provides a bridged connection of the tip and ring ***behind*** the KTS line circuit with A lead control to the equipment (Fig. 2, 3, 4, 7, and 12). Connection to the leads is made anywhere access to T, R, A, and A1 leads can be obtained, such as the KTS, distribution field, connecting blocks, etc and uses a 625-type connecting block for surface- or flush-mounted installations. Primarily used for connecting ancillary devices with A lead control where the registered equipment is located near the key set.

2.08 ***USOC RJ13W:*** Same as RJ13C except installed at wall-mounted installations using a 630A connecting block (Fig. 8 and 12).

2.09 ***USOC RJ17C:*** Provides a bridged connection of the tip and ring only of a single line to special telephone sets or ancillary equipment (eg, ECG machines) in hospital critical care areas (Fig. 7 and 13). It provides a standard connecting configuration that will only permit connection to the network of equipment conforming to Article 517 of the 1981 National Electrical Code.

2.10 ***USOC RJ18C:*** Provides a bridged connection of single-line tip and ring and make-busy leads MB/MB1 (Fig. 14). Used where customer requires surface-mounted installation. Requires installation of a 74D connecting block (Fig. 1) or equivalent at location of connection to equipment. Connection to the network should be made per operating company make-busy circuit drawings.

Note: Do no connect MB/MB1 leads directly across tip and ring of the network.

2.11 ***USOC RJ19C:*** Provides a bridged connection of single-line tip and ring behind a line circuit with A lead control and make-busy leads MB/MB1 (Fig. 15). Used where customer requires surface-mounted installation. Requires installation of a 74D connecting block (Fig. 1) or equivalent at location of connection to equipment. Connection to the network should be made per operating company make-busy circuit drawings.

Note: Do not connect MB/MB1 leads directly across tip and ring of the network.

2.12 ***USOC RJ1DC:*** Provides a bridged connection of the T/R and T1/R1 of a single line to the equipment (Fig. 16). Used where there is terminal equipment requiring 4-wire exchange access. Requires use of 625-type connecting blocks at location of connection to registered terminal equipment. Connection to transmit and receive pairs can be of any convenient access point.

3. MAINTENANCE

3.01 Maintenance of the wiring arrangements covered in this section is limited to:

- Verification of the telephone company wiring and equipment
- Assurance that the required leads are supplied in the interface used for equipment connection.

No attempt should be made to test, modify, or repair customer-owned and maintained equipment.

3.02 When in the judgment of repair personnel the trouble is located in or caused by the CPE, the Repair Service Bureau should be notified so proper Maintenance of Service Charge Billing can be initiated as required and as outlined in the following:

- Section 660-101-312—Maintenance of Service Charge on Services With Customer-Provided Equipment (CPE)
- Section 660-101-318—Tariff and Registration Violation Notice Procedures.

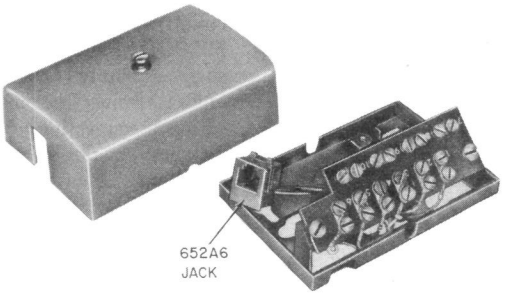
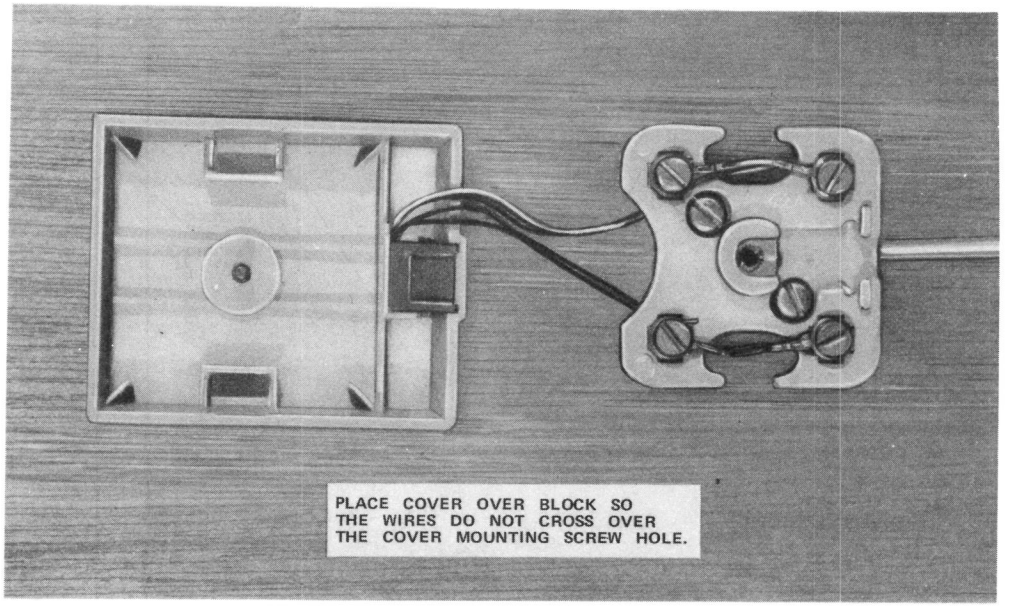


Fig. 1—74D Connecting Block



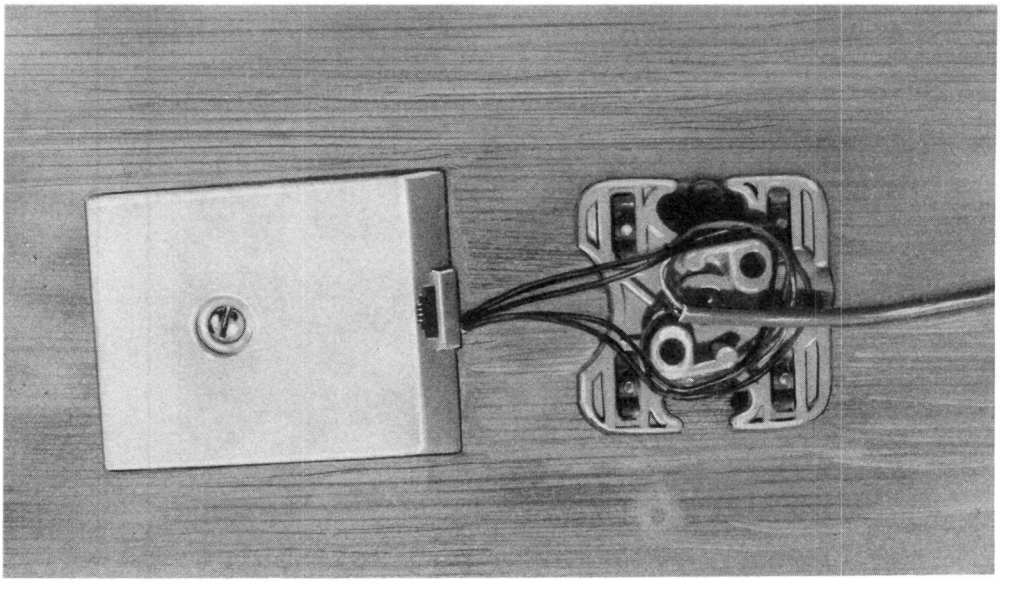


Fig. 2—◗625C Connecting Block◖

(1) 63-TYPE BRACKET
(2) GEM BOX AND NORMAL WALL SURFACE
(3) OR (4) WEEK WALLS, OVER SIZE WIRING HOLE, LOCAL DAMAGE, ETC.
(5) 1034A MOUNTING PLATE
NOTE:
IF MORE THAN 2 FASTENERS ARE USED ADDITIONAL MOUNTING HOLES AS REQUIRED

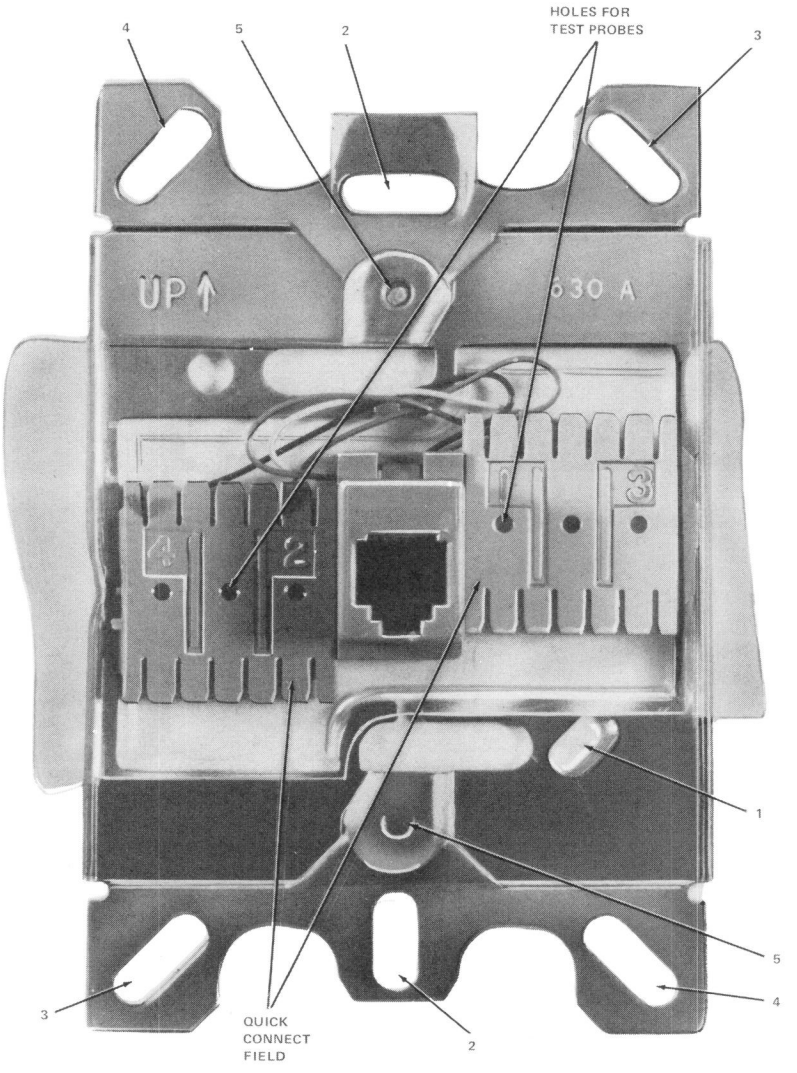


Fig. 3—625F Connecting Block

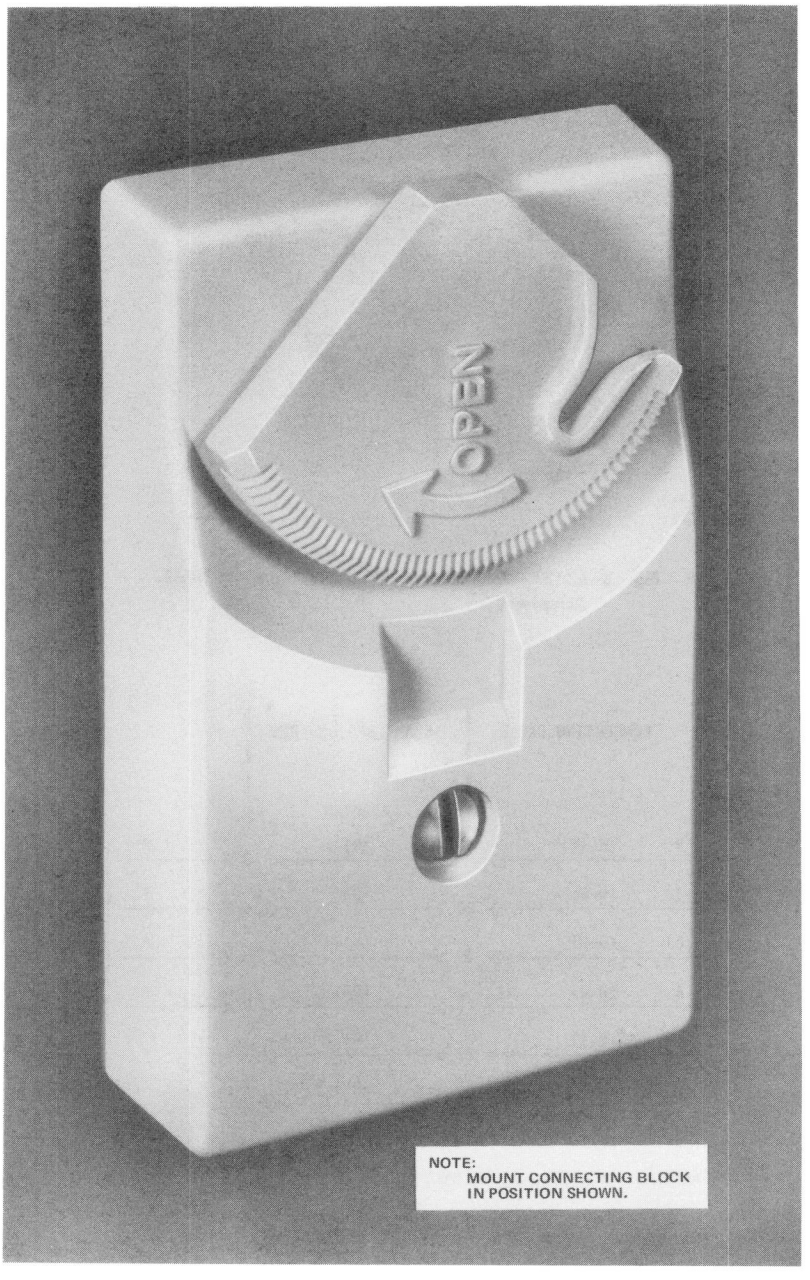


Fig. 4—625S and 625T Connecting Blocks

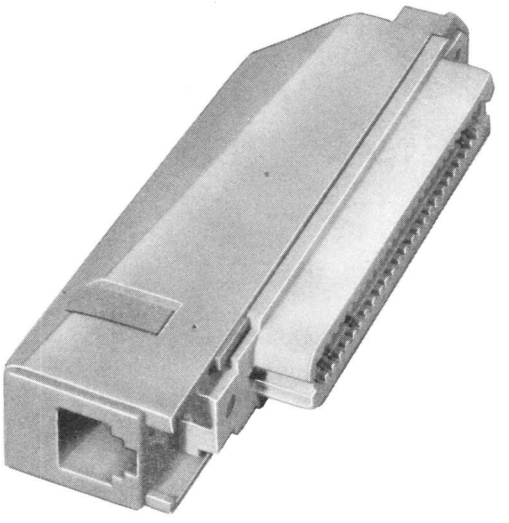


Fig. 5—153AM2, 153BM2, 153AM3, and 153BM3 Adapters

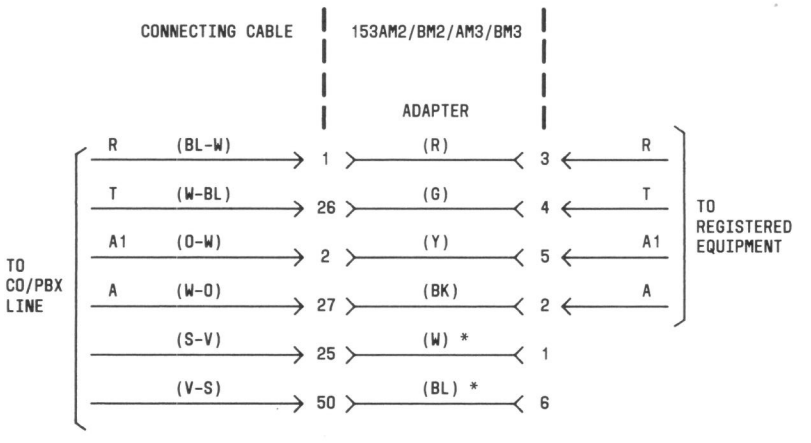
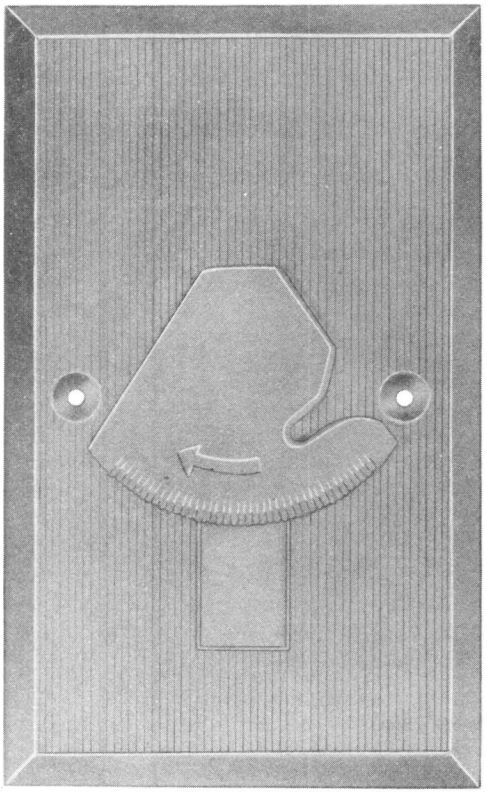
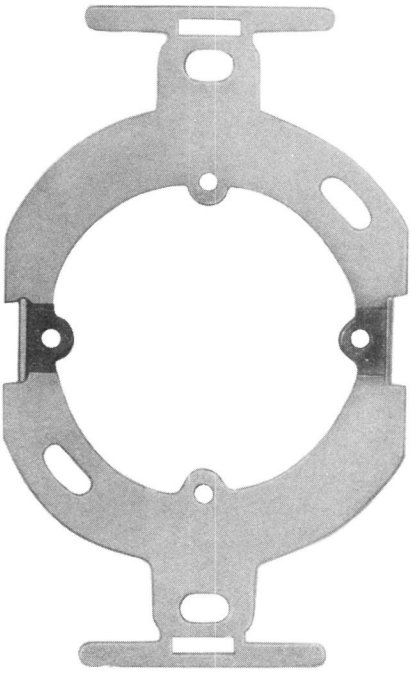


Fig. 6—153-Type Adapter Wiring



BRACKET
(PROVIDED WITH CONNECTING BLOCK)



NOTE:
BRACKET IS USED TO MOUNT 625FS OR 625H TO GEM BOX, 63A, OR 63B MOUNTING BRACKET.

Fig. 7—625FS or 625H Connecting Block

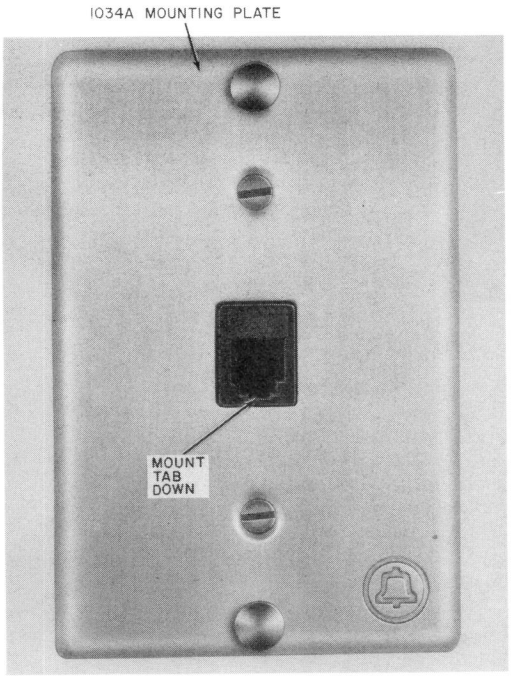


Fig. 8—630-Type Connecting Block

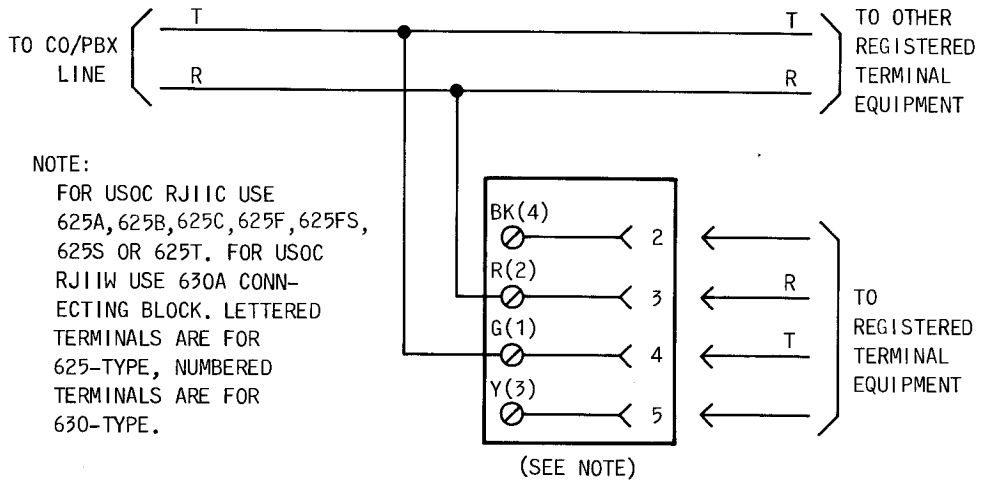
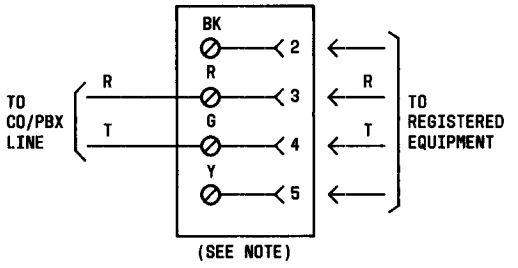
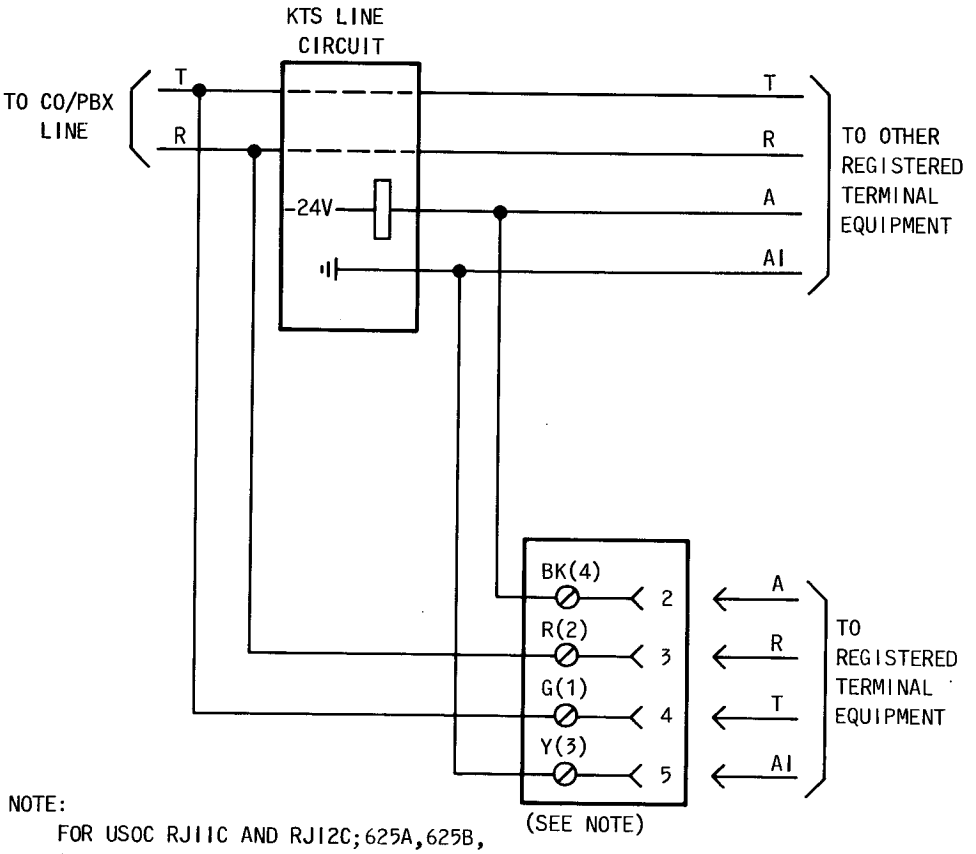


Fig. 9—Connections for USOC RJ11C and RJ11W—Bridged Tip and Ring



NOTE:
FOR USOC RJ11C
USE 625A, 625B,
625C, 625F, 625FS,
625S, 625T, OR
625WP

Fig. 10—USOC RJ11C Used as Network Interface



NOTE:
FOR USOC RJ11C AND RJ12C; 625A, 625B,
625C, 625F, 625FS, 625S OR 625T CONNECTING BLOCK.
FOR USOC RJ12W USE 630A CONNECTING BLOCK.
LETTERED TERMINALS ARE FOR 625-TYPE,
NUMBERED TERMINALS ARE FOR 630-TYPE.

Fig. 11—Connections for USOC RJ12C and RJ12W—Bridged Tip and Ring Ahead of Line Circuit With A Lead Control

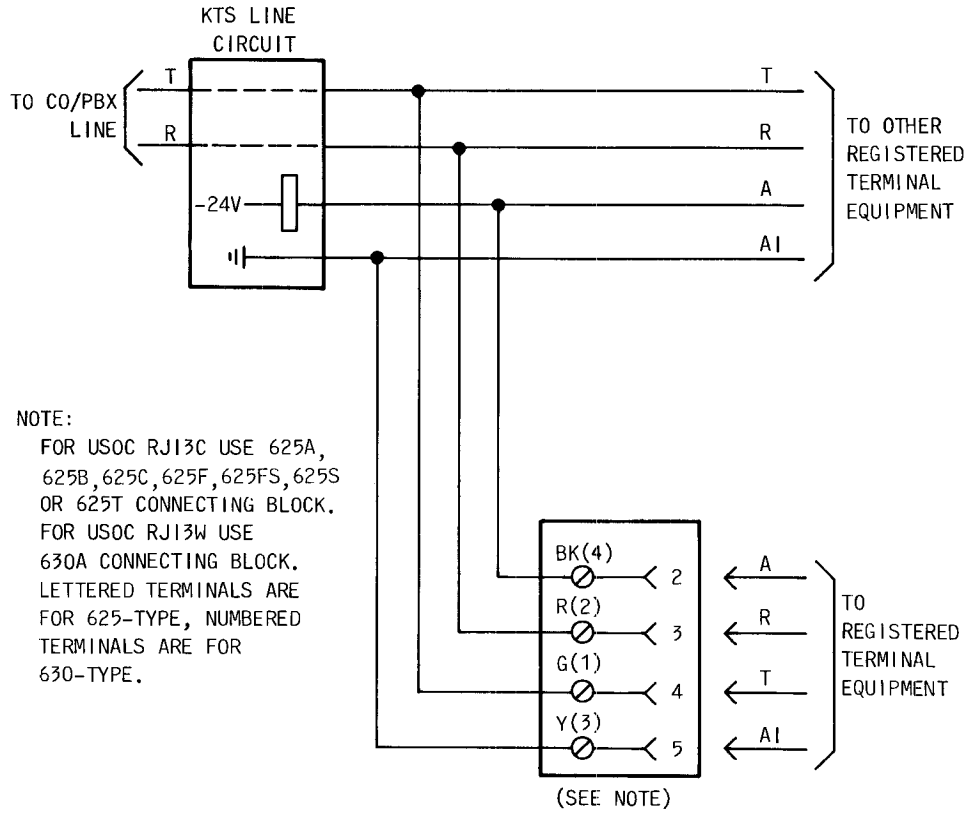
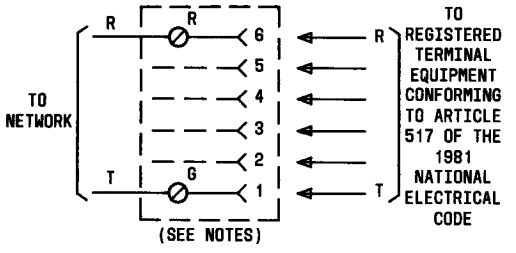


Fig. 12—Connections for USOC RJ13C and RJ13W—Bridged Tip and Ring Behind Line Circuit With A Lead Control



NOTE:
1. FOR USOC RJ17C USE 625H CONNECTING BLOCK
2. ONLY POSITIONS 1 AND 6 IN THE JACKS ARE EQUIPPED WITH CONTACTS

Fig. 13—Connections for USOC RJ17C—Bridged Tip and Ring

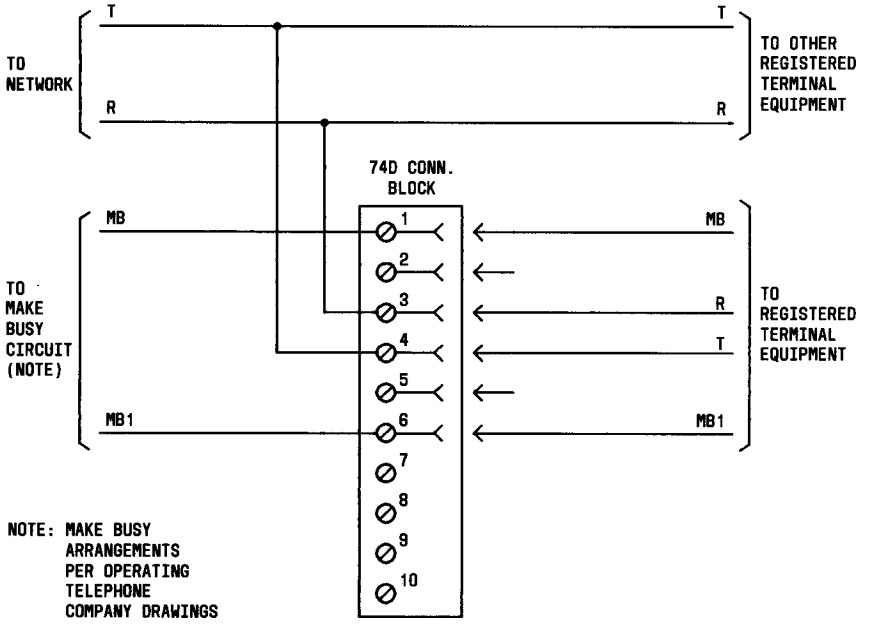


Fig. 14—Connections for USOC RJ18C—Bridged Tip and Ring With Make-Busy Leads

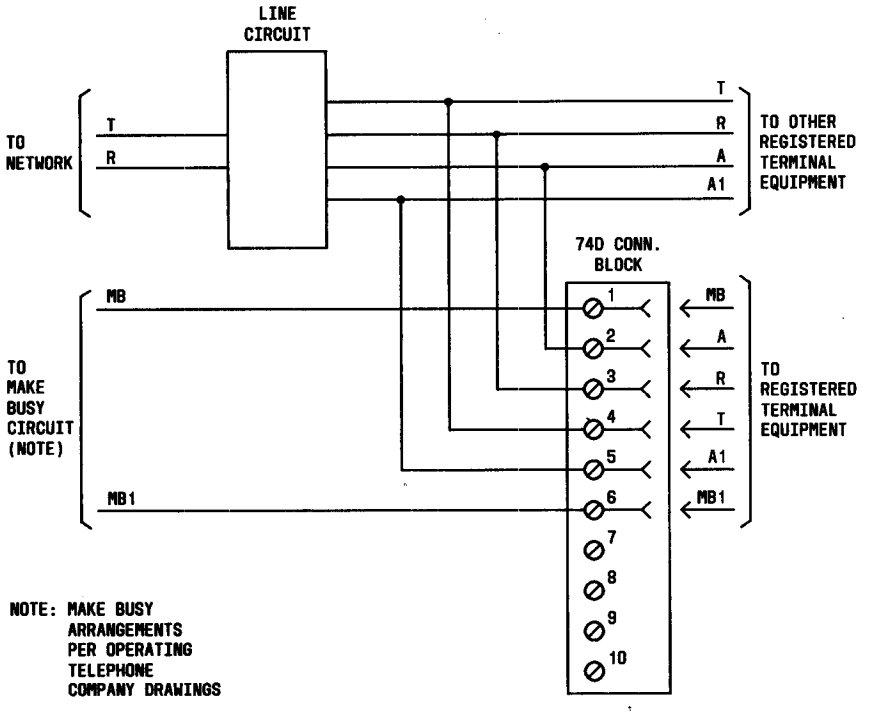


Fig. 15—Connections for USOC RJ19C—Bridged Tip and Ring With A Lead Control and Make-Busy Leads

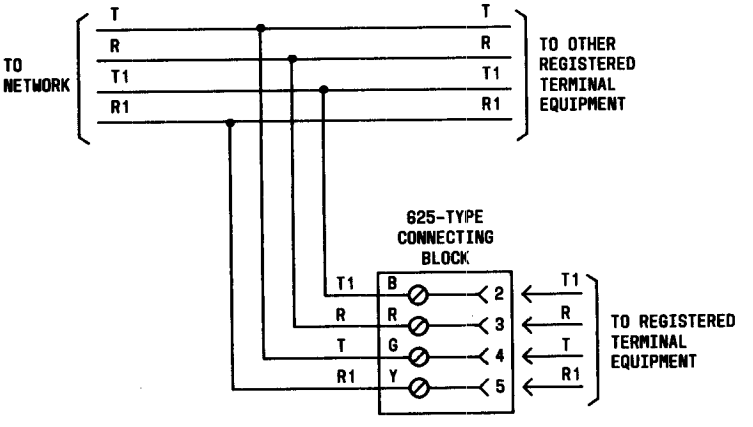


Fig. 16—Connections for USOC RJ1DC—Single Line Bridged 4-Wire T/R and T1/R1

REGISTRATION INTERFACE
BRIDGED SINGLE LINE WEATHERPROOF
TIP AND RING ARRANGEMENTS
RJ15C

1. GENERAL

1.01 This section contains information on the standard arrangement to be provided under the Federal Communications Commission's (FCC) Registration Program for telephone, ancillary, and protection circuitry of the type associated with telephone and ancillary customer-provided equipment (CPE).

1.02 This section is reissued to:

- Update text
- Change Fig. 1.

1.03 For arrangement RJ15C, provide the following:

- At existing installations where the brass outlet box used with a KS-8421 jack is in place—use a B Weatherproof Female Jack Adapter, AT-8732 (Fig. 3)
- At all other installations—use a B Outlet Box, AT-8732, and a B Weatherproof Female Jack, ▶Adapter◀ AT-8732 (Fig. 1 and 2).

2. IDENTIFICATION

2.01 ***USOC RJ15C:*** Provides a bridged connection of the tip and ring only of a single line to the CPE (Fig. 4). Used at docks or marinas to provide connections to boats having no "on-board" wiring. Uses a B Weatherproof Female jack, AT-8732 ▶(Fig. 2 or 3)◀ as the interface to the CPE.

3. MAINTENANCE

3.01 Maintenance of the wiring arrangements covered in this section is limited to:

- Verification of the telephone company wiring and equipment
- Assurance that the required leads are supplied in the interface used for CPE connection.

No attempt should be made to test, modify, or repair customer-owned and maintained equipment.

3.02 When in the judgment of repair personnel the trouble is located in or caused by the CPE, the Repair Service Bureau should be notified so that proper Maintenance of Service Charge Billing can be initiated as required and as outlined in the following:

- Section 660-101-312—Maintenance of Service Charge on Services With Customer-Provided Equipment (CPE)
- Section 660-101-318—Tariff and Registration Violation Notice Procedures.

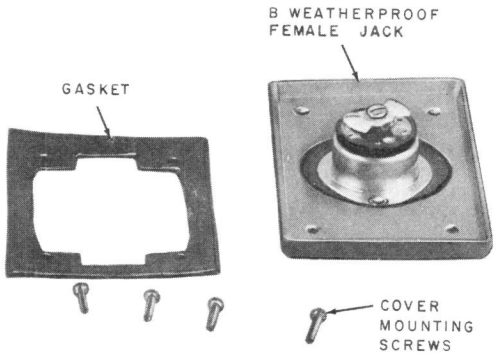


Fig. 1—B Weatherproof Female Jack

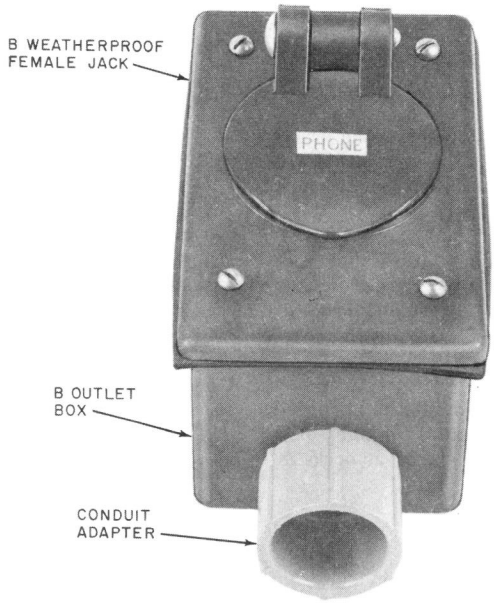


Fig. 2—B Weatherproof Female Jack on B Outlet Box

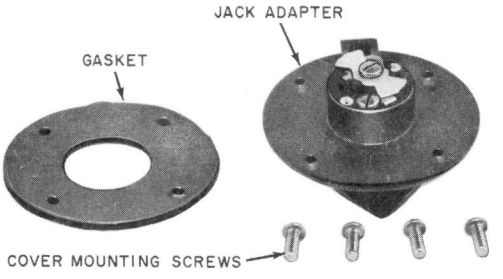


Fig. 3—B Weatherproof Female Jack Adapter

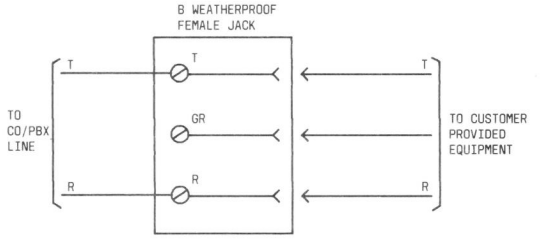


Fig. 4—Connections for USOC RJ15C—Bridged Tip and Ring

UNIFORM SERVICE ORDER CODES (USOCs)

RJ16X, RJ31X, RJ32X, RJ33X, RJ34X, RJ35X, RJ36X, RJ37X, AND RJ38X

IDENTIFICATION AND MAINTENANCE

SERIES SINGLE LINE TIP AND RING ARRANGEMENTS

1. GENERAL

1.01 This section provides information on the standard arrangements to be provided under the Federal Communications Commission (FCC) Registration Program for registered telephone, ancillary, data, and protective circuitry of the type associated with telephone, ancillary, and data telephone company (TELCO) or customer-provided equipment (CPE).

> ***Note:*** The telephone company or customer-provided data equipment connected to the network via the jacks in this section must have a fixed signal power level under −9 dBm. See Section 590-101-103 for connection of other data devices.

1.02 This section is reissued to:

(a) Show 635A connecting block as manufacture discontinued (MD)

(b) Add Table F for 2-line sets that can be wired for A lead control.

Revision arrows are used to emphasize the more significant changes. The Equipment Test List (ETL) is not affected.

1.03 The arrangements covered in this section require the installation of a 635-type connecting block. The RJ16X uses a 625-type connecting block and is used with a 635-type connecting block. The difference between the 635A (MD) and 635B are:

(a) The 635A (MD) removes the short on insertion of a 6- or 8-position plug.

(b) The 635B provides a bridged connection with a 6-position plug and a series connection with an 8-position plug.

(c) The 635A (MD) uses a shorting bar while the 635B uses outrigger contacts. This connecting block is designed to place the registered equipment in series with the telephone line and the CPE or TELCO-provided equipment (8-position plug) when the plug from the registered equipment is inserted into the modular jack. In the series mode, loop continuity must be maintained through the registered equipment. When the plug is removed, the circuit is restored between the line and the CPE or TELCO-provided equipment by the shorting bars or outrigger contacts.

> ***Note:*** In some instances (RJ35X, RJ16X) the telephone company provides an exclusion set which controls a customer-provided data set.

1.04 In all the arrangements, tip and ring of a single line are supplied through the interface. Where the arrangement is used with a key telephone system (KTS), the A and A1 leads are also furnished on a bridged basis.

1.05 All unused leads and terminals are reserved for telephone company use. Disposition of spare leads should be per local instructions. All contact positions of the modular jack used in the 635-type connecting block are equipped with leads. In early production, the leads associated with contacts 2 and 7 were not terminated but were insulated and stored, since there are only six contacts on the connecting block terminal.

> ***Note:*** Circuit incompatibility may occur involving spare leads if a change in service is installed, ie, a line with A lead control installed originally would not be compatible with a subsequent installation involving a data set. Whenever service is altered at an installation involving registration USOCs, check that all appearances are properly wired.

1.06 Unless otherwise specifically required by a particular wiring arrangement, access to the required leads can be at any access point. The USOC RJ35X must be accessed in the telephone set in order to provide the series tip and ring connection of all lines appearing in the set. Figure 7 provides typical connections. For the other arrangements, if installed in a large KTS with color-keyed backboards, the auxiliary (yellow) field should be used; otherwise, access at satellite closets, distribution boxes, connecting blocks, etc.

1.07 When necessary to access leads in COM KEY® key telephone systems, wire as follows:

(a) COM KEY 718 Telephone System — Tip and ring ahead of the line circuit can be obtained at the incoming CO/PBX line terminations on block 3 using 183B2 adapters. If T, R, A, and A1 are required behind the line circuit, they can be accessed per line at any of the line appearances of the station terminations on block 3, 4, or 5. Again use 183B2 adapters. For information on COM KEY 718 Telephone System, refer to Section 518-450-100.

(b) COM KEY 1434 Telephone System — Tip and ring ahead of the line circuit can be accessed at the incoming line terminations on block 7 using 183B2 adapters. T and R behind the line circuit and A and A1 for a particular line can be accessed at any of the line appearances of the station terminations on blocks 6 through 15 using 183B2 adapters. For information on COM KEY 1434 telephone system, refer to Section 518-450-102.

(c) COM KEY 2152 Telephone System — Because of insufficient clearance between the connecting blocks and the closed gate, 183B2 adapters cannot be used on the connecting units of COM KEY 2152 telephone system. To access T and R ahead of the line circuit, route the incoming CO/PBX line to an external 66-type connecting block, then to block 3 of the 100A1 or 101A1 connecting unit. The 66-type connecting block is then used to provide a multiple of the line. To access T and R behind the line circuit, use an idle station code termination which must be sacrificed for system use. If no idle station terminations are available, use any station code by running a jumper cable to external 66-type connecting blocks and transferring the station cable to these blocks. The blocks are then used to provide the line appearance multiple. For information on COM KEY 2152 telephone system, refer to Section 518-450-111.

2. IDENTIFICATION

2.01 ***USOC RJ16X:*** This arrangement in connection with a series jack such as RJ36X provides "mode indication" leads (M1 and M1C) for data sets using the "permissive" mode of transmission (Fig. 1 and 2). This arrangement uses a 625-type connecting block.

2.02 ***USOC RJ31X:*** This arrangement is wired so that when the registered equipment is plugged into the 635-type connecting block, the equipment is placed in series with the tip and ring of the line (Fig. 3). When the plug is removed, tip and ring are cut through to the station equipment. ***The 635-type connecting block must be wired in the circuit, ahead of ALL station equipment, to prevent false operation of the registered device and to cut off ALL station equipment from the line.*** Typical usage is an alarm dialer.

2.03 ***USOC RJ32X:*** This arrangement (Fig. 4) also provides a series tip and ring connection through the 635-type connecting block but is used where the registered equipment is connected in series with a single station, such as an automatic dialer.

2.04 ***USOC RJ33X:*** Provides a series connection of the tip and ring of a KTS line ahead of the line circuit because the registered equipment requires CO/PBX ringing and a bridged connection of A and A1 from behind the line circuit. It provides the busy feature at other stations in the same KTS (Fig. 5). Tip and ring are the only leads opened when the plug is inserted in the 635-type connecting block. Typical usage would be for registered automatic dialers or call restrictors. Access to the required leads can be anywhere leads are available, but tip and ring must be ahead of the line circuit.

2.05 ***USOC RJ34X:*** This arrangement provides a series tip and ring connection and a bridged A and A1 to the registered equipment. All leads are connected behind the line circuit (Fig. 6). Typical usage is for automatic dialers and call restrictors.

2.06 ***USOC RJ35X:*** Provides a series tip and ring connection to whatever line has been selected in a key telephone set plus a bridged A and A1. The arrangement requires that the set wiring be

modified as shown in Fig. 7 and Tables A through F to put the registered equipment in series with the T and R multiple from the key(s) and the T and R going to the speech network. Connections between the 635-type connecting block and the telephone set terminals can be made using a D6AA cord or equivalent.

> ***Note:*** When USOC RJ35X is installed using a telephone set having a new line switch that breaks both sides of the line and having speakerphone or a headset adjunct, it may be necessary to strap out the line switch contact in the tip side of the line (BL leads) for proper operation.

2.07 ***USOC RJ36X:*** This arrangement provides a connection for a telephone set equipped with an exclusion key where the telephone line is also to be used with a registered data set. The arrangement provides a series connection to the tip and ring, plus mode indication leads M1 and M1C. The exclusion key can be used to transfer the telephone line between the data set and the telephone set. This arrangement will be associated with a TELCO-provided voice jack (Fig. 8) used for permissable data.

2.08 ***USOC RJ37X:*** This arrangement provides for the connection of two lines. The tip and ring of both lines are bridged at the jack which provides the ability to exclude one line. The TELCO will wire the jack in the sequence designated by the customer. Typical usage is for two line telephones with exclusion on one line for use with data sets requiring telephones with the exclusion feature (Fig. 9).

2.09 ***USOC RJ38X:*** This arrangement provides a series single-line arrangement ahead of all station equipment and has a continuity circuit. A strap must be added between terminals 2 and 7 of the 635-type connecting block (Fig. 10) — terminals 3 and 6 are reserved for TELCO use. When the registered equipment is plugged into the 635-type connecting block, the equipment is placed in series with the tip and ring of the line. When the plug is removed, tip and ring are cut through to the station equipment. ***The 635-type connecting block must be wired in the circuit ahead of ALL station equipment, to prevent false operation of the registered device and to cut off ALL station equipment from the line.*** Typical usage is alarm reporting devices.

3. MAINTENANCE

3.01 Maintenance of the wiring arrangements covered in this section is limited to verification of the telephone company wiring and equipment and assurance that the required leads are supplied in the interface used for the connection.

No attempt should be made to test, modify, or repair customer-owned and maintained equipment.

3.02 When in the judgment of repair personnel the trouble is located in or caused by the CPE, the Repair Service Bureau should be notified so that proper Maintenance of Service Charge Billing can be initiated as required and as outlined in Section 660-101-312 — Maintenance of Service Charge on Services With Customer-Provided Equipment (CPE) and Section 660-101-318 — Tariff and Registration Violation Notice Procedures.

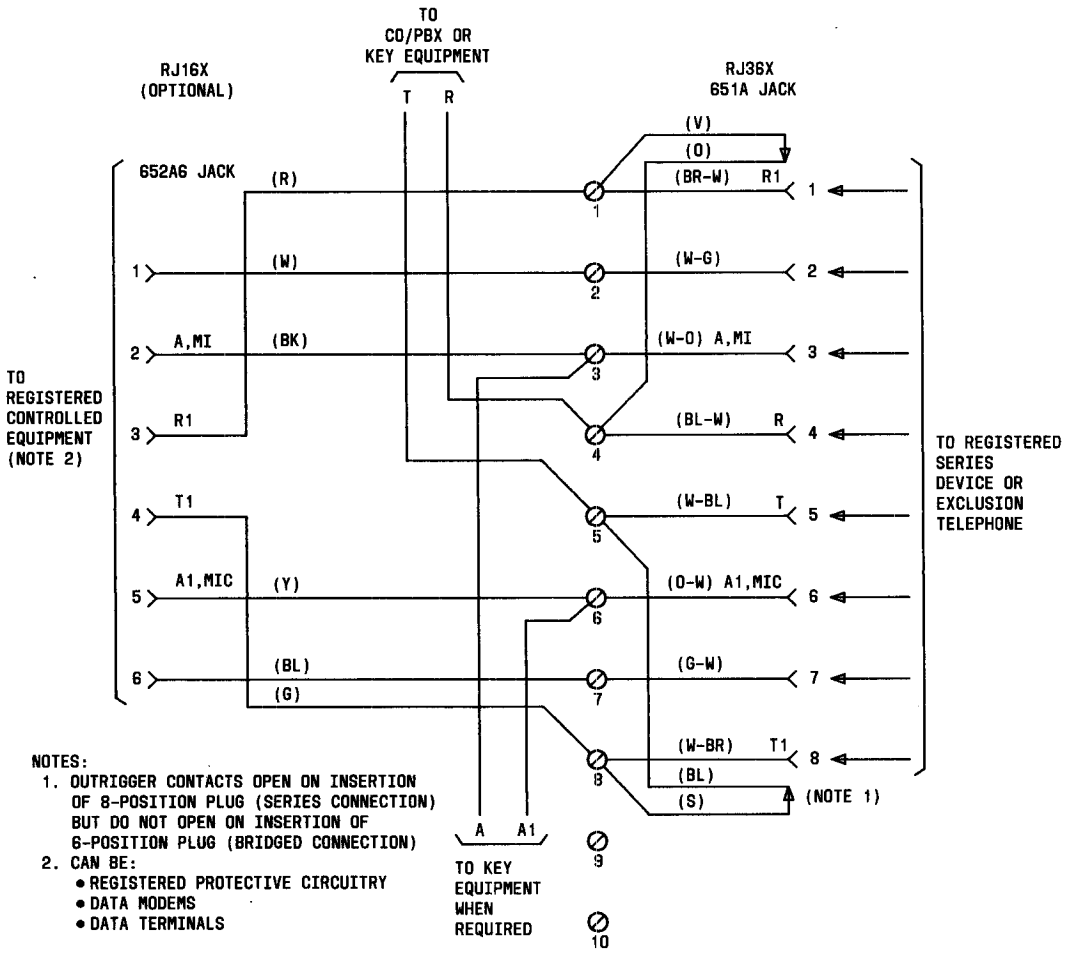
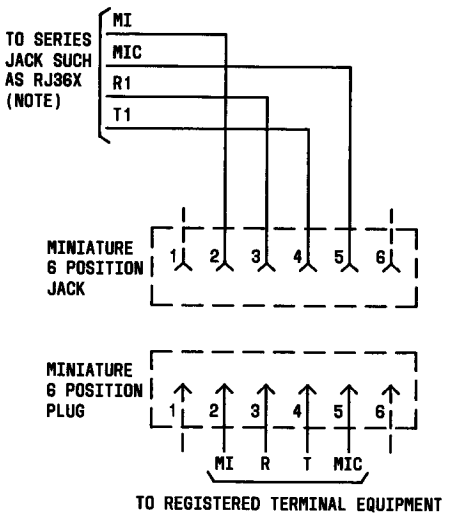


Fig. 1—Schematic Diagram, 635B Connecting Block (652A6 Jack for Controlled Station, Mounted in 635B Connecting Block Cover or Externally Mounted)



NOTE:
MI AND MIC LEADS ARE TYPICALLY WIRED TO AN RJ36X SERIES JACK WHICH CAN BE USED TO CONNECT AN EXCLUSION KEY TELEPHONE SET AHEAD OF THE DATA EQUIPMENT.

Fig. 2—Connections for USOC RJ16X

NOTES:

1. SHORTING BARS OPEN CIRCUITS BETWEEN 1-4 AND 5-8 WHEN PLUG IS INSERTED IN JACK
2. IN EARLY PRODUCTION LEADS 2 AND 7 WERE NOT TERMINATED
3. THE DIFFERENCE BETWEEN THE 635A (MD) AND 635B ARE:
   A. THE 635A (MD) REMOVES THE SHORT ON INSERTION OF A 6- OR 8-POSITION PLUG
   B. THE 635B PROVIDES A BRIDGED CONNECTION WITH A 6-POSITION PLUG AND A SERIES CONNECTION WITH AN 8-POSITION PLUG

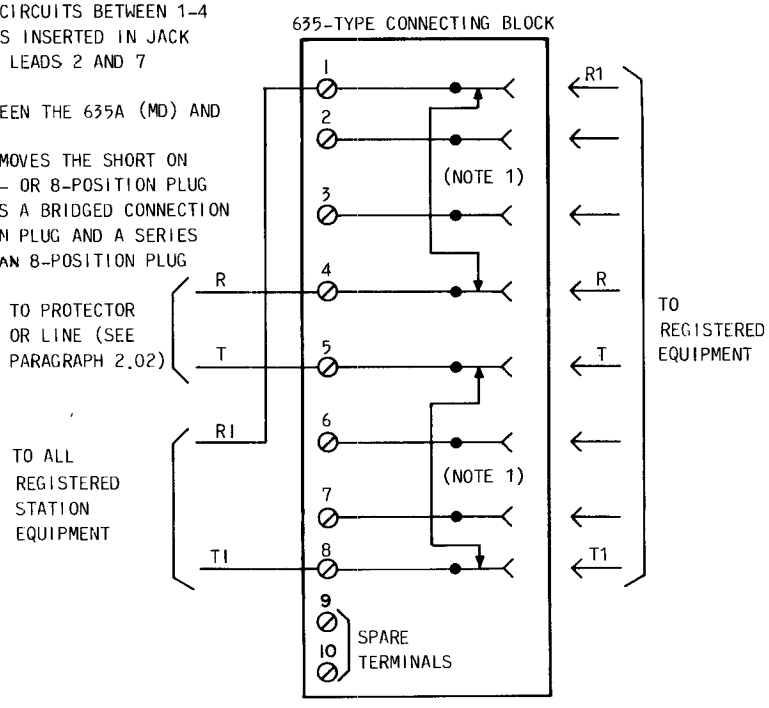


Fig. 3—Connections for USOC RJ31X

NOTES:

1. SHORTING BARS OPEN CIRCUITS BETWEEN 1-4 AND 5-8 WHEN PLUG IS INSERTED IN JACK
2. IN EARLY PRODUCTION LEADS 2 AND 7 WERE NOT TERMINATED
3. THE DIFFERENCE BETWEEN THE 635A (MD) AND 635B ARE:
   A. THE 635A (MD) REMOVES THE SHORT ON INSERTION OF A 6- OR 8-POSITION PLUG
   B. THE 635B PROVIDES A BRIDGED CONNECTION WITH A 6-POSITION PLUG AND A SERIES CONNECTION WITH AN 8-POSITION PLUG

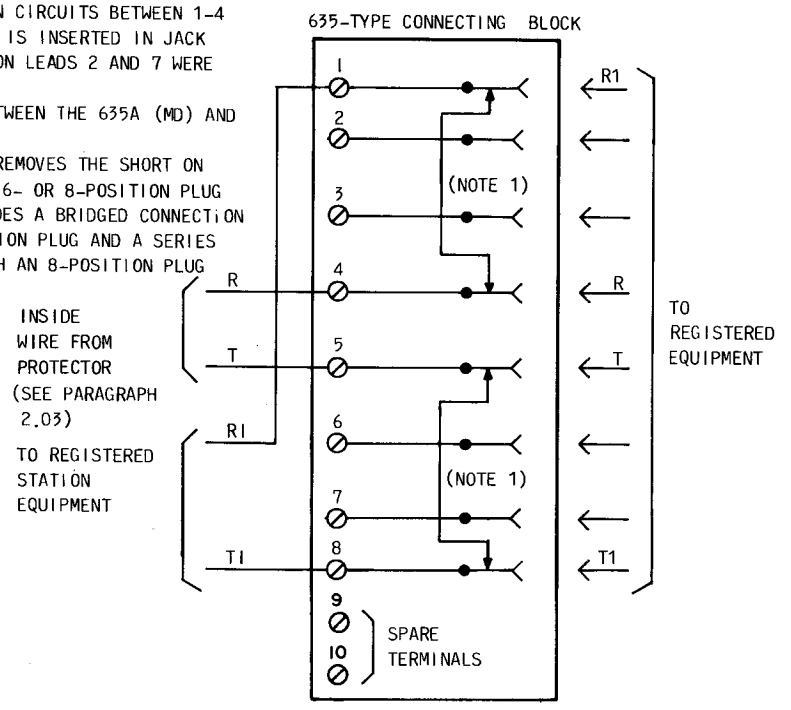
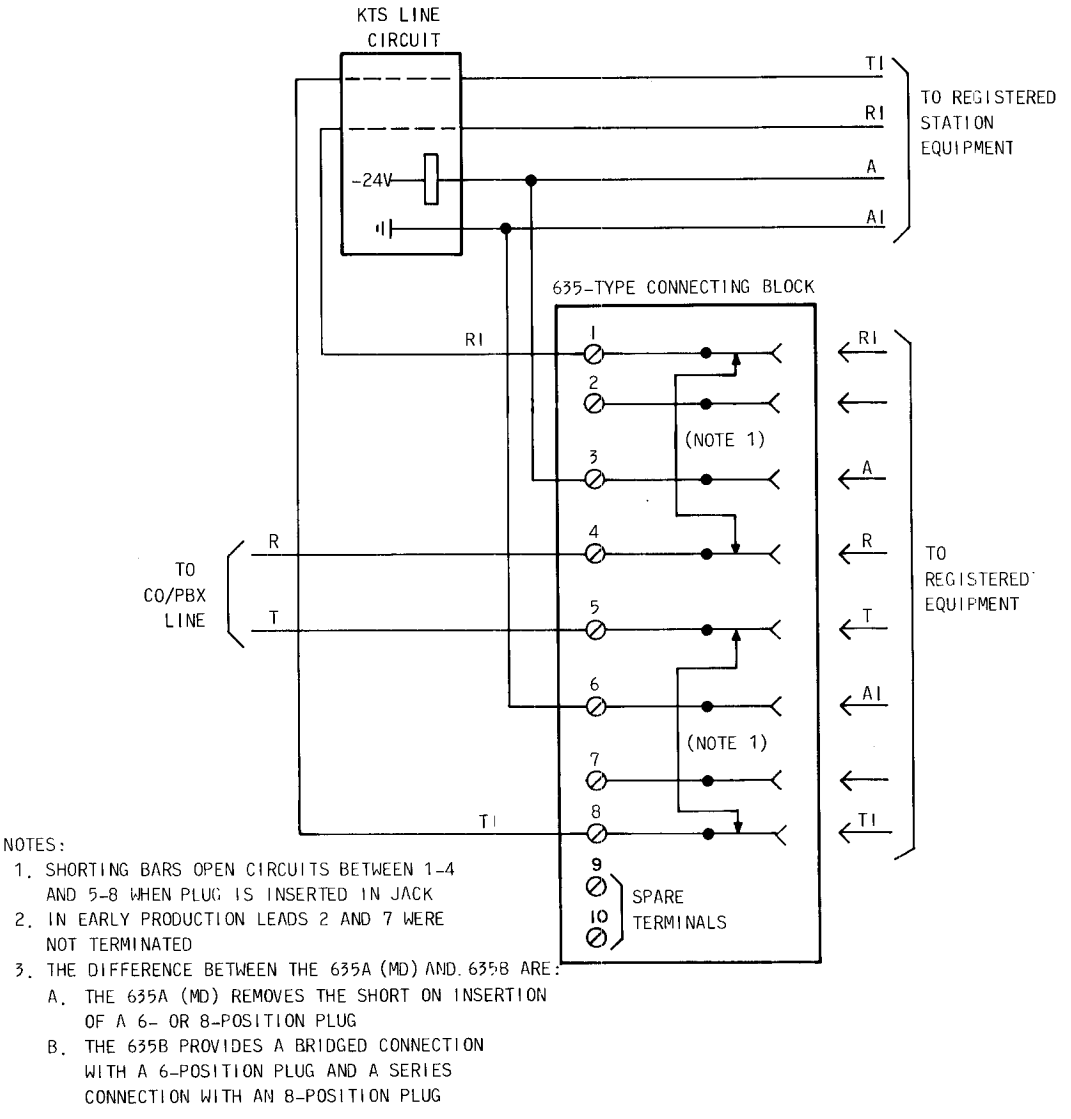


Fig. 4—Connections for USOC RJ32X



NOTES:

1. SHORTING BARS OPEN CIRCUITS BETWEEN 1-4 AND 5-8 WHEN PLUG IS INSERTED IN JACK
2. IN EARLY PRODUCTION LEADS 2 AND 7 WERE NOT TERMINATED
3. THE DIFFERENCE BETWEEN THE 635A (MD) AND 635B ARE:
   A. THE 635A (MD) REMOVES THE SHORT ON INSERTION OF A 6- OR 8-POSITION PLUG
   B. THE 635B PROVIDES A BRIDGED CONNECTION WITH A 6-POSITION PLUG AND A SERIES CONNECTION WITH AN 8-POSITION PLUG

Fig. 5—Connections for USOC RJ33X

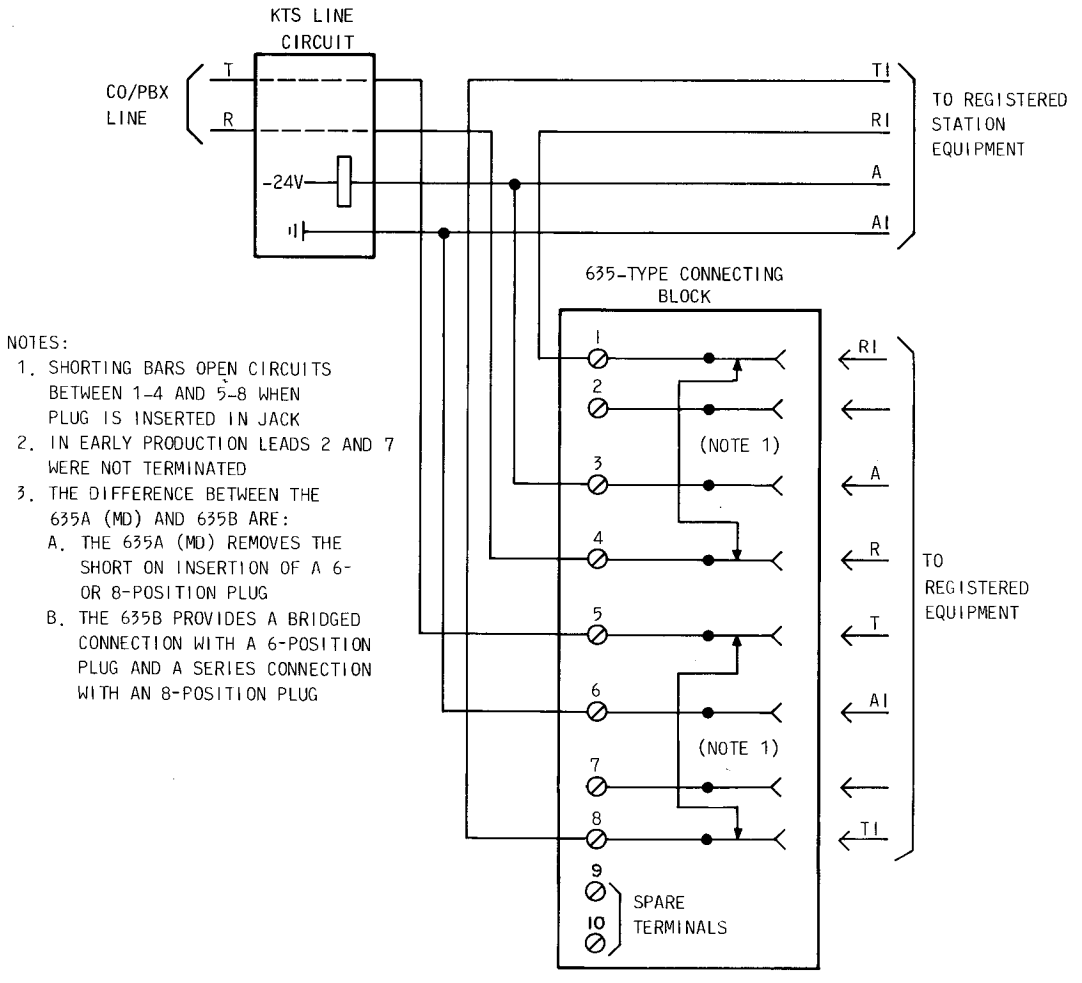
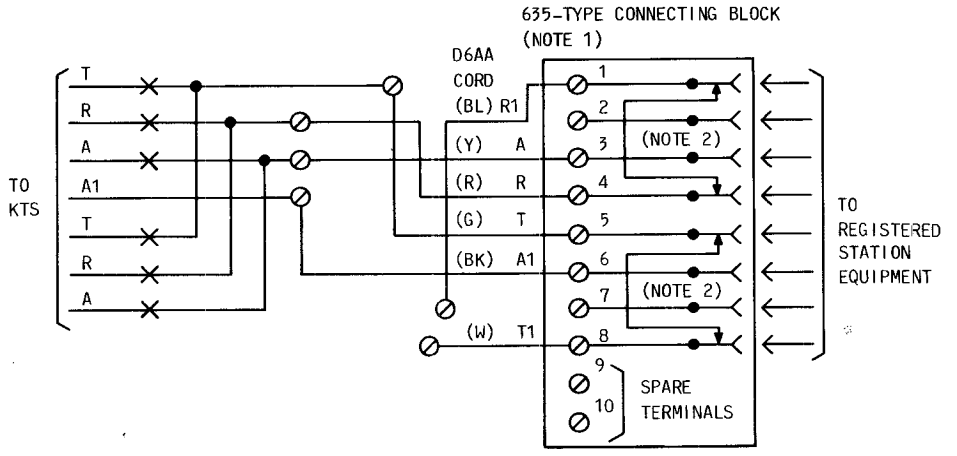


Fig. 6—Connections for USOC RJ34X



NOTES:

1. REFER TO TABLES A THROUGH E FOR SPECIFIC TERMINATING POINTS DEPENDING ON TELEPHONE SET USED
2. SHORTING BARS OPEN CIRCUITS BETWEEN 1-4 AND 5-8 WHEN PLUG IS INSERTED IN JACK
3. THE DIFFERENCE BETWEEN THE 635A (MD) AND 635B ARE:
   A. THE 635A (MD) REMOVES THE SHORT ON INSERTION OF A 6- OR 8-POSITION PLUG
   B. THE 635B PROVIDES A BRIDGED CONNECTION WITH A 6-POSITION PLUG AND A SERIES CONNECTION WITH 8-POSITION PLUG

Fig. 7—Connections for USOC RJ35X

TABLE A

6-BUTTON TELEPHONE SETS

TELEPHONE SET CODES	TELEPHONE SET TERMINATIONS										D6AA CORD			
	T1*						R1*				T	R	A	A1
	(BL)-DIAL		(G)-DIAL		(BL)-LINE SW		(G)-LINE SW		(R) FLASH KEY					
	FROM	CONNECT TO D6AA	FROM	CONNECT TO D6AA	FROM	CONNECT TO D6AA	FROM	CONNECT TO D6AA	FROM	CONNECT TO D6AA	(G)	(R)	(Y)	(BK)
563HB,HBM	F	(W)							9	(BL)	F	9	M	1B
565GK,GKM	F	(W)					N	(BL)			F	N	M	1B
565GKMS†	F	(W)					N	(BL)			F	N	M	1B
565HK,HKM,LK,LKM	F	(W)					9	(BL)			F	9	M	1B
565HKMS,LKMS†	F	(W)					9	(BL)			F	9	M	1B
2563HB,HBM			L1	(W)					9	(BL)	L1	9	M	1B
2565GK,GKM			L2	(W)			N	(BL)			L2	N	M	1B
2565GKMS†			L2	(W)			N	(BL)			L2	N	M	1B
2565HK,HKM,LK,LKM			L2	(W)			9	(BL)			L2	9	M	1B
2565HKMS,LKMS†			L2	(W)			9	(BL)			L2	9	M	1B
851BT,B,BM	F	(W)					13	(BL)			F	13	9	4
851CM					2	(W)	13	(BL)			2	13	9	4
2851BT,B,BM			20	(W)			13	(BL)			20	13	9	4
2851CM					2	(W)	13	(BL)			2	13	9	4

* Remove designated leads from terminals in "T1" and "R1" columns—connect to (W) and (BL) leads from D6AA cord using spare terminals or D-161488 connectors. Connect other cord leads to terminals shown in "D6AA cord" column.

† When using these sets with speakerphone or headset adjunct, it may be necessary to strap out the line switch contact in the tip of the line (BL leads).

TABLE B

10- OR 20-BUTTON TELEPHONE SETS

TELEPHONE SET CODES	TELEPHONE SET TERMINATIONS								D6AA CORD			
	T1*						R1*		T	R	A	A1
	(BL)-DIAL		(G)-DIAL		(BL)-LINE SW		(G)-LINE SW					
	FROM	CONNECT TO D6AA	FROM	CONNECT TO D6AA	FROM	CONNECT TO D6AA	FROM	CONNECT TO D6AA	(G)	(R)	(Y)	(BK)
830A1M,C,CT,CM	F	(W)					6	(BL)	F	6	7	10
830CM†§					16	(W)	6	(BL)	16	6	7	10
830CM‡§,DM,FM					8	(W)	6	(BL)	8	6	7	10
831A1M,B1M,C,CT,CM	F	(W)					6	(BL)	F	6	7	10
831CM†§					16	(W)	6	(BL)	16	6	7	10
831CM‡§,DM,FM					8	(W)	6	(BL)	8	6	7	10
2830A1M,B1M,C,CT,CM			8	(W)			6	(BL)	8	6	7	10
2830CM†§					16	(W)	6	(BL)	16	6	7	10
2830CM‡§,DM,FM					8	(W)	6	(BL)	8	6	7	10
2831A1M,B1M,C,CT,CM			8	(W)			6	(BL)	8	6	7	10
2831CM‡§,DM					8	(W)	6	(BL)	8	6	7	10
852A	F	(W)					1	(BL)	F	1	12	3
2852A			4	(W)			1	(BL)	4	1	12	3
852AM,2852AM					4	(W)	1	(BL)	4	1	12	3

* Remove designated leads from terminals in "T1" and "R1" columns—connect to (W) and (BL) leads from D6AA cord using spare terminals or D-161488 connectors.

† New line switch—manufactured before 2/77.

‡ New line switch—manufactured after 2/77.

§ When using these sets with speakerphone or headset adjunct, it may be necessary to strap out the line switch contact in the tip of the line (BL leads).

TABLE C

"CALL DIRECTOR®" TELEPHONES

TELEPHONE SET CODES	TELEPHONE SET TERMINATIONS												D6AA CO			
	T1*								R1*				T	R	A	A1
	(BL)-DIAL		(G)-DIAL		(BL)-LINE SW		(W-BL)-CORD		(G)-LINE SW		(BL-W)-FLASH					
	FROM	CONNECT TO D6AA	FROM	CONNECT TO D6AA	FROM	CONNECT TO D6AA	FROM	CONNECT TO D6AA	FROM	CONNECT TO D6AA	FROM	CONNECT TO D6AA	(G)	(R)	(Y)	(BK)
630D/631D/632A,C	F	(W)							2	(BL)			F	2	A-H	1
630DAM/631DAM	F	(W)							13	(BL)			F	13	10	8
630DAMS/631DAMS†					G	(W)			13	(BL)			G	13	10	8
2630D/2631D/2632C			4	(W)					2	(BL)			4	2	A-H	1
2630DA,DAM/2631DA,DAM			12	(W)					13	(BL)			12	13	10	8
2630DAMS/2631DAMS†					1	(W)			13	(BL)			1	13	10	8
634D/635D	F	(W)							2	(BL)			F	2	5	1
634DA,DAM/635DA,DAM	F	(W)							13	(BL)			F	13	2	10
634DAMS/635DAMS†							G	(W)	13	(BL)			G	13	2	10
2634D/2635D			4	(W)					2	(BL)			4	2	5	1
2634DA,DAM/2635DA,DAM			L2	(W)					13	(BL)			L2	13	2	10
2634DAMS/2635DAMS†					1‡	(W)			13	(BL)			1	13	2	10
636C/637D	F	(W)									2	(BL)	F	2	A-H	1
636CA,CAM/637DA,DAM	F	(W)									9	(BL)	F	9	10	8
636CAMS/637DAMS†					G	(W)					9	(BL)	G	9	10	8
2636C/2637D			4	(W)							2	(BL)	4	2	A-H	1
2636CA,CAM/2637DA,DAM			12	(W)							9	(BL)	12	9	10	8
2636CAMS/2637DAMS†					1‡	(W)					9	(BL)	1	9	10	8

* Remove designated leads from terminals in "T1" and "R1" columns—connect to (W) and (BL) leads from D6AA cord using spare terminals or D-161488 connectors.

† When using these sets with speakerphone or headset adjunct, it may be necessary to strap out the line switch contact in the tip of the line (BL leads).

‡ Also move (BL) headset jack lead.

TABLE D

"COM KEY" TELEPHONE SYSTEMS (NOTE)

TELEPHONE SET CODES	TELEPHONE SET TERMINATIONS						D6AA CORD			
	T1*				R1*		T	R	A	A1
	(BL)-LINE SW		(O)-STRAP		(G)-LINE SW					
	FROM	CONNECT TO D6AA	FROM	CONNECT TO D6AA	FROM	CONNECT TO D6AA	(G)	(R)	(Y)	(BK)
832A,B,C			22	(W)	4	(BL)	22	4	15	10
832BM,CM,DM,EM†	22	(W)			4	(BL)	22	4	15	10
2832A,B,C			22	(W)	4	(BL)	22	4	15	10
2832BM,CM,DM,EM†	22	(W)			4	(BL)	22	4	15	10
833B,C			22	(W)	4	(BL)	22	4	15	10
833BM,CM,DM,EM†	22	(W)			4	(BL)	22	4	15	10
2833B,C			22	(W)	4	(BL)	22	4	15	10
2833BM,CM,DM,EM†	22	(W)			4	(BL)	22	4	15	10

Note: RJ35X should not be connected in COM KEY telephone systems equipped with privacy because of possible circuit incompatibility.

* Remove designated leads from terminals in "T1" and "R1" columns—connect to (W) and (BL) leads from D6AA cord using spare terminals or D-161488 connectors. Connect other cord leads to terminals shown in "D6AA cord" column.

† When using these sets with speakerphone or headset adjunct, it may be necessary to strap out the line switch contact in the tip of the line (BL leads).

TABLE E

"TOUCH-A-MATIC®" TELEPHONES

TELEPHONE SET CODES	TELEPHONE SET TERMINATIONS				D6AA CORD			
	T1*		R1*		T	R	A	A1
	(G)-KEY LEAD		(R)-KEY LEAD					
	FROM	CONNECT TO D6AA	FROM	CONNECT TO D6AA	(G)	(R)	(Y)	(BK)
872A1M	TB1-8	(W)	PSB-9	(BL)	TB1-8	PSB-9	TB1-3	TB1-12
2872A1M,A2M	TB1-8	(W)	PSB-12	(BL)	TB1-8	PSB-12	TB1-3	TB1-12

* Remove designated leads from terminals in "T1" and "R1" columns—connect to (W) and (BL) leads from D6AA cord using spare terminals or D-161488 connectors. Connect other cord leads to terminals shown in "D6AA cord" column.

TABLE F

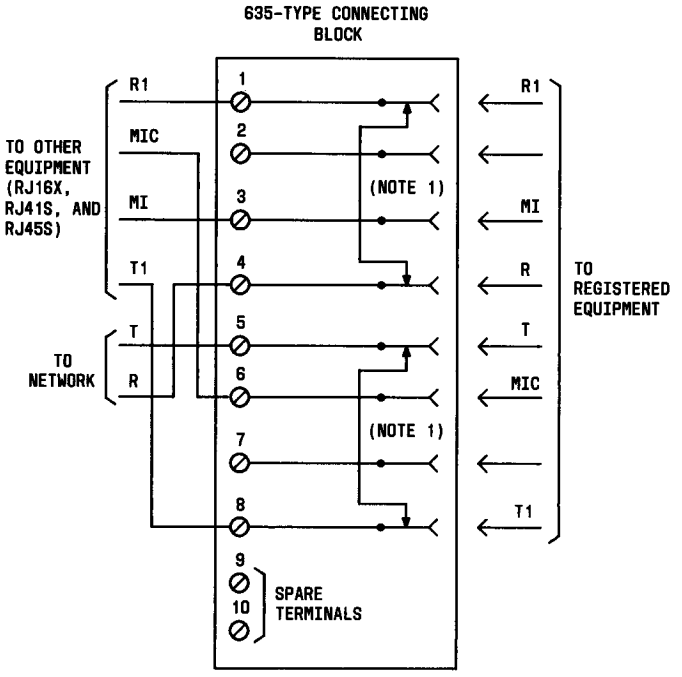
2-LINE TELEPHONE SETS

TELEPHONE SET CODES	TELEPHONE SET TERMINATIONS						D6AA CORD			
	T1*				R1*		T	R	A	A1
	(BL)-DIAL		(G)-DIAL		(G)-LINE SW					
	FROM	CONNECT TO D6AA	FROM	CONNECT TO D6AA	FROM	CONNECT TO D6AA	(G)	(R)	(Y)	(BK)
511HM	F	(W)			15	(BL)	F	15	20	L2†
2511HM			F	(W)	15	(BL)	F	15	20	L2†
558FM	F	(W)			15	(BL)	F	15	20	4
2558DM			F	(W)	L1‡	(BL)	F	L1	G‡	7

* Remove designated leads from terminals in "T1" and "R1" columns—connect to (W) and (BL) leads from D6AA cord using spare terminals or D-161488 connectors. Connect other cord leads to terminals shown in "D6AA cord" column.

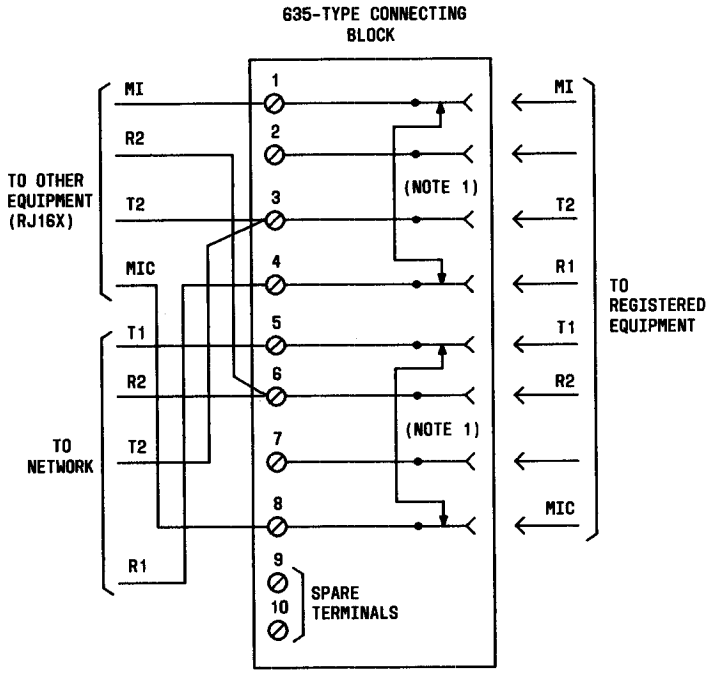
† If (S) lead of line switch is terminated on L2, remove and store.

‡ Network terminals.



NOTES:
1. SHORTING BARS OPEN CIRCUITS BETWEEN 1-4 AND 5-8 WHEN PLUG IS INSERTED IN JACK
2. IN EARLY PRODUCTION LEADS 2 AND 7 WERE NOT TERMINATED
3. THE DIFFERENCE BETWEEN THE 635A (MD) AND 635B ARE:
   A. THE 635A (MD) REMOVES THE SHORT ON INSERTION OF A 6- OR 8-POSITION PLUG
   B. THE 635B PROVIDES A BRIDGED CONNECTION WITH A 6-POSITION PLUG AND A SERIES CONNECTION WITH AN 8-POSTTION PLUG

Fig. 8—Connections for USOC RJ36X



NOTES:
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   B. THE 635B PROVIDES A BRIDGED CONNECTION WITH A 6-POSITION PLUG AND A SERIES CONNECTION WITH AN 8-POSITION PLUG

Fig. 9—Connections for USOC RJ37X

NOTES:

1. SHORTING BARS OPEN CIRCUITS BETWEEN 1-4 AND 5-8 WHEN PLUG IS INSERTED IN JACK
2. IN EARLY PRODUCTION LEADS 2 AND 7 WERE NOT TERMINATED
3. THE DIFFERENCE BETWEEN THE 635A (MD) AND 635B ARE:
   A. THE 635A (MD) REMOVES THE SHORT ON INSERTION OF A 6- OR 8-POSITION PLUG
   B. THE 635B PROVIDES A BRIDGED CONNECTION WITH A 6-POSITION PLUG AND A SERIES CONNECTION WITH AN 8-POSITION PLUG

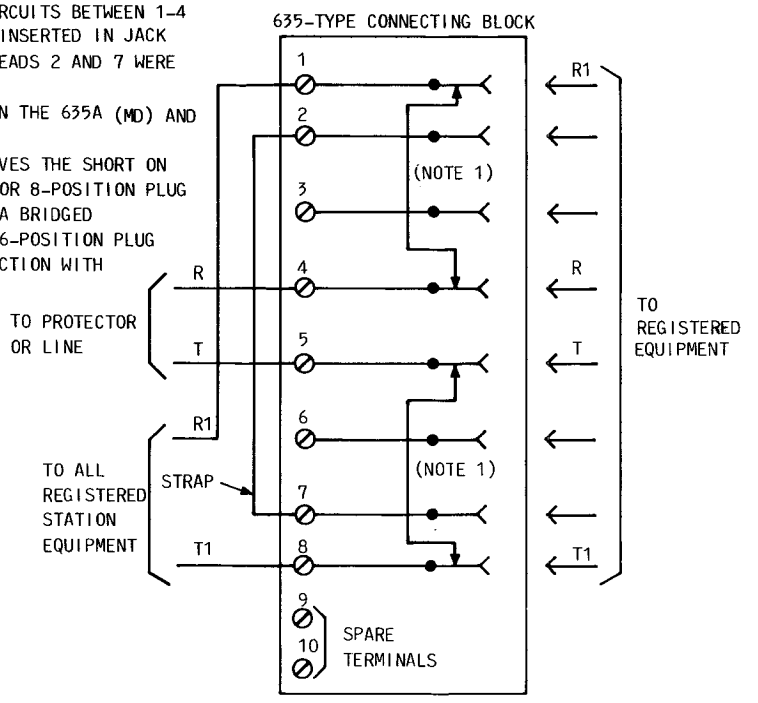


Fig. 10—Connections for USOC RJ38X

UNIFORM SERVICE ORDER CODES (USOCs) RJ14C AND RJ14W IDENTIFICATOIN AND MAINTENANCE BRIDGED 2-LINE TIP AND RING ARRANGEMENTS

1. GENERAL

1.01 This section provides information on the standard wiring arrangements to be provided under the Federal Communications Commission (FCC) Registration Program for registered telephone, ancillary, data, and protective circuitry of the type associated with telephone, ancillary, data, telephone company, and customer-provided equipment (CPE).

> ***Note:*** Telephone company or registered data equipment connected to the network via the jacks in this section must have a fixed signal power level under −9 dBm. See Section 590-101-103 for connection of other data devices.

1.02 This section is reissued to add information on:

(a) The use of 153-type adapters to furnish RJ14C

(b) Providing RJ14C as the network interface for designated private line services.

Revision arrows are used to emphasize the more significant changes. The Equipment Test List (ETL) is not affected.

1.03 This section covers 2-line interface connections. For information on multiple (more than two lines) connections, refer to Section 463-400-141.

> ***Note:*** Circuit incompatibility may occur involving the spare leads if a change of service is installed, eg, a line with A lead control installed originally would not be compatible with a subsequent installation of 2-line service. Whenever service is altered at an installation involving registration USOCs, check that all appearances are properly wired.

1.04 These arrangements use a standard modular-type connecting block (Fig. 1, 2, 3, 4, 5, and 6) as the interface with the ▶registered equipment◀ as follows:

- For surface-mounted installations (RJ14C) — use 625A, 625C, 625S, or 625T connecting block
- For flush-mounted installations (RJ14C) — use 625B, 625F, or 625FS connecting block
- For wall-mounted telephone set installations (RJ14W) — use 630A connecting block.

> ***Note:*** The 625S, 625FS, and 625T connecting blocks have spring-loaded covers which protect the contacts from contamination.

1.05 ▶At installations wired using connector cables (where service has been downgraded to nonkey sets), a 153-type adapter (Fig. 7) may be used to furnish RJ14C. The 153-type adapter wiring is shown in Fig. 8.◀

2. IDENTIFICATION

2.01 ***USOC RJ14C:*** Provides bridged connections of the tips and rings of two lines to the ▶registered equipment◀ (Fig. 1, 2, 3, 4, or 5). Used where customer requires a surface- or flush-mounted installation. Requires installation of a 625-type connecting block at location of connection to ▶registered equipment◀. Connection to ▶registered equipment◀ can be at any convenient point. Connections for RJ14C are shown in Fig. 9.

2.02 ▶***USOC RJ14C:*** Can be used as the network interface of designated private line services. Only the tips and rings are provided through the interface (Fig. 10). The complete lead designation will depend on the private line service as follows: Message Registration — T(MR), R(MR); Off-Premises Station — T(OPS), R(OPS); or Automatic Identification Outward Dialing — T(A1), R(A1).

2.03 Those services similar to RJ14C can also be intermixed with other properly instructured jack arrangements. For information on other jack arrangements, refer to Sections 463-400-100 through 463-400-150. If these services are intermixed in any of the arrangements having more leads than tip and ring, the unused leads cannot be assigned since the lead structure of the jack would be changed. For instance, if RJ14C (having T, R leads) is intermixed with RJ2EX (having T, R, E, M leads), the pins assigned to the E, M leads in that particular circuit position must be left vacant. For additional information, refer to paragraphs 1.05 and 1.06 in Section 463-400-141.◀

2.04 ***USOC RJ14W:*** Same as RJ14C except installed at wall-mounted installations using 630A connecting block (Fig. 6). Connections for RJ14W are shown in Fig. 9.

3. MAINTENANCE

3.01 Maintenance of the wiring arrangements covered in this section is limited to verification of the telephone company wiring and equipment and assurance that the required leads are supplied in the interface used for ▶registered equipment◀ connection.

No attempt should be made to test, modify, or repair customer-owned and maintained equipment.

3.02 When in the judgment of repair personnel the trouble is located in or caused by the CPE, the Repair Service Bureau should be notified so proper Maintenance of Service Charge Billing can be initiated as required and outlined in Section 660-101-312 — Maintenance of Service Charge on Services With Customer-Provided Equipment (CPE) and Section 660-101-318 — Tariff and Registration Violation Notice Procedures.

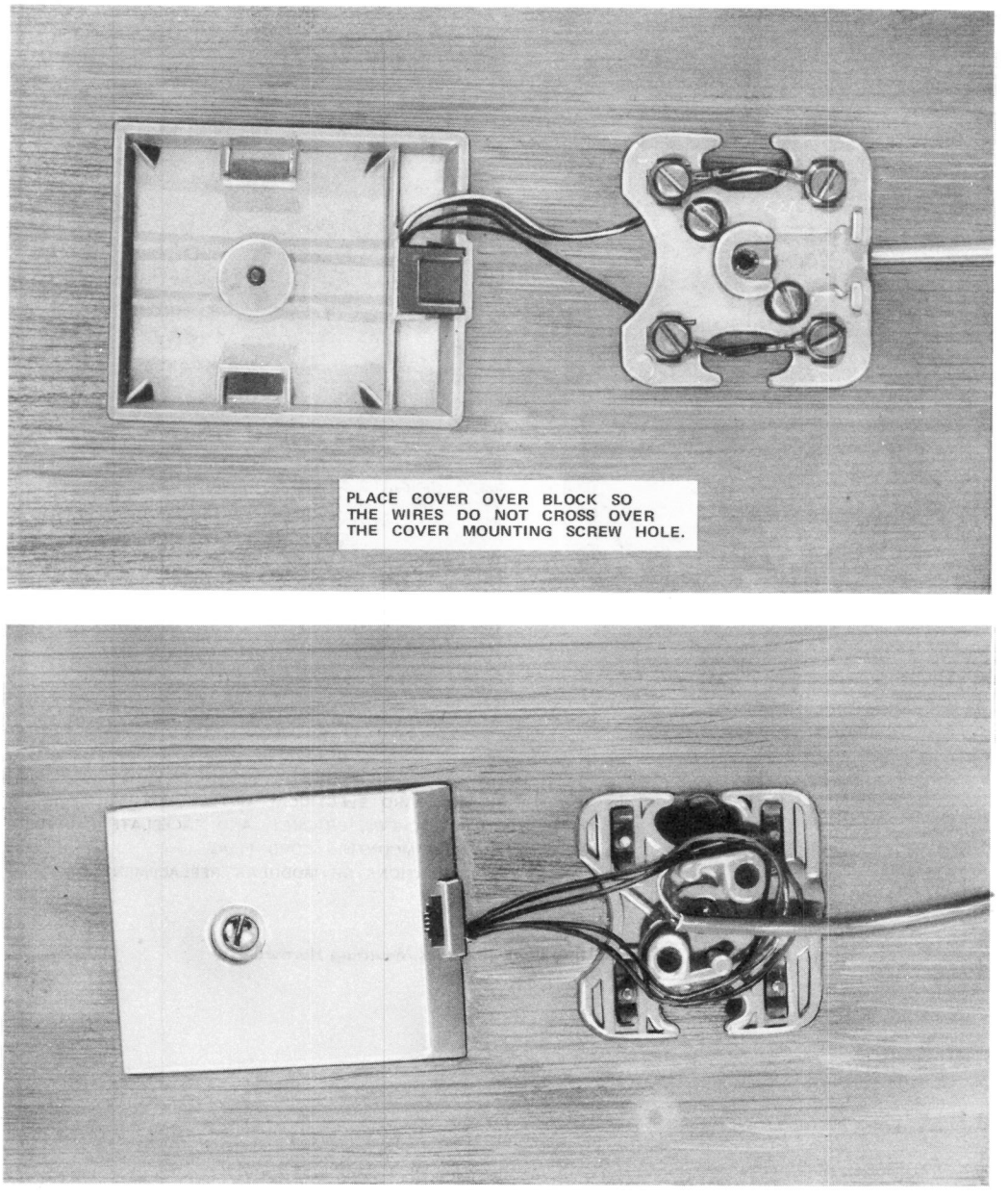
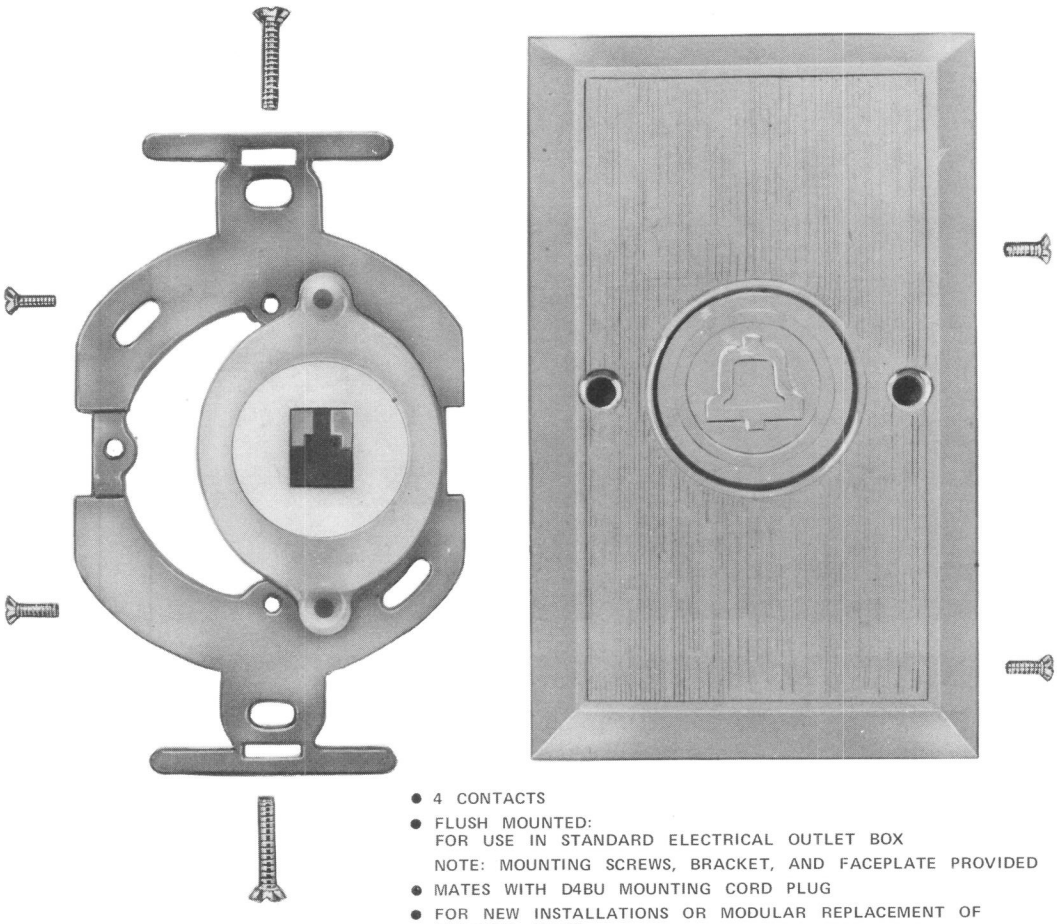
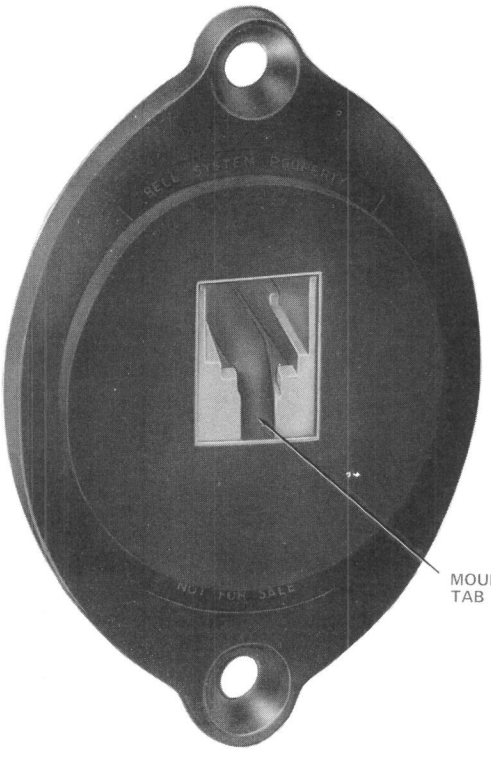


Fig. 1—625-Type Connecting Block

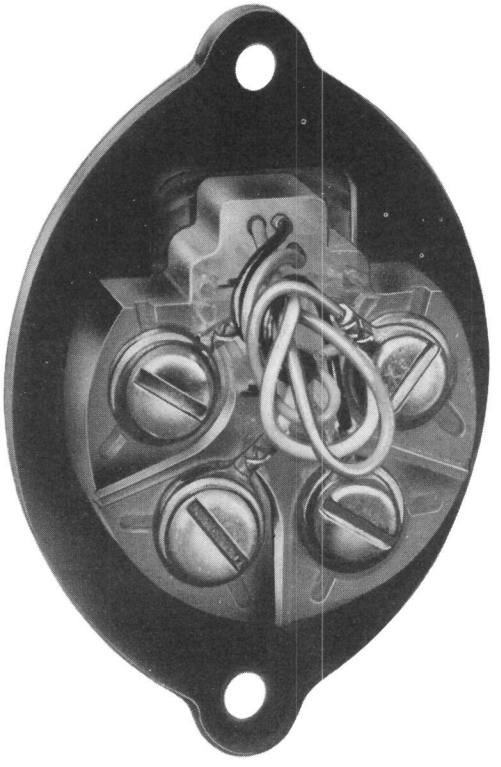


- 4 CONTACTS
- FLUSH MOUNTED:
  FOR USE IN STANDARD ELECTRICAL OUTLET BOX
  NOTE: MOUNTING SCREWS, BRACKET, AND FACEPLATE PROVIDED
- MATES WITH D4BU MOUNTING CORD PLUG
- FOR NEW INSTALLATIONS OR MODULAR REPLACEMENT OF 548–TYPE JACKS

Fig. 2—▶625B Connecting Block (Includes Mounting Hardware)◀



FRONT VIEW



REAR VIEW

- 4 CONTACTS
- FLUSH MOUNTED:
  USING 63-TYPE OR KS-20502, L2 BRACKET AND 16A FACEPLATE OR IN STANDARD ELECTRICAL OUTLET BOX USING 65B FACEPLATE ASSEMBLY OR IN WOODWORK USING 1-1/4 INCH HOLE
- MATES WITH D4BU MOUNTING CORD PLUG
- MOUNTING SCREWS SUPPLIED
- FOR NEW INSTALLATIONS OR MODULAR REPLACEMENT OF 548-TYPE JACKS

Fig. 3—625F Connecting Block

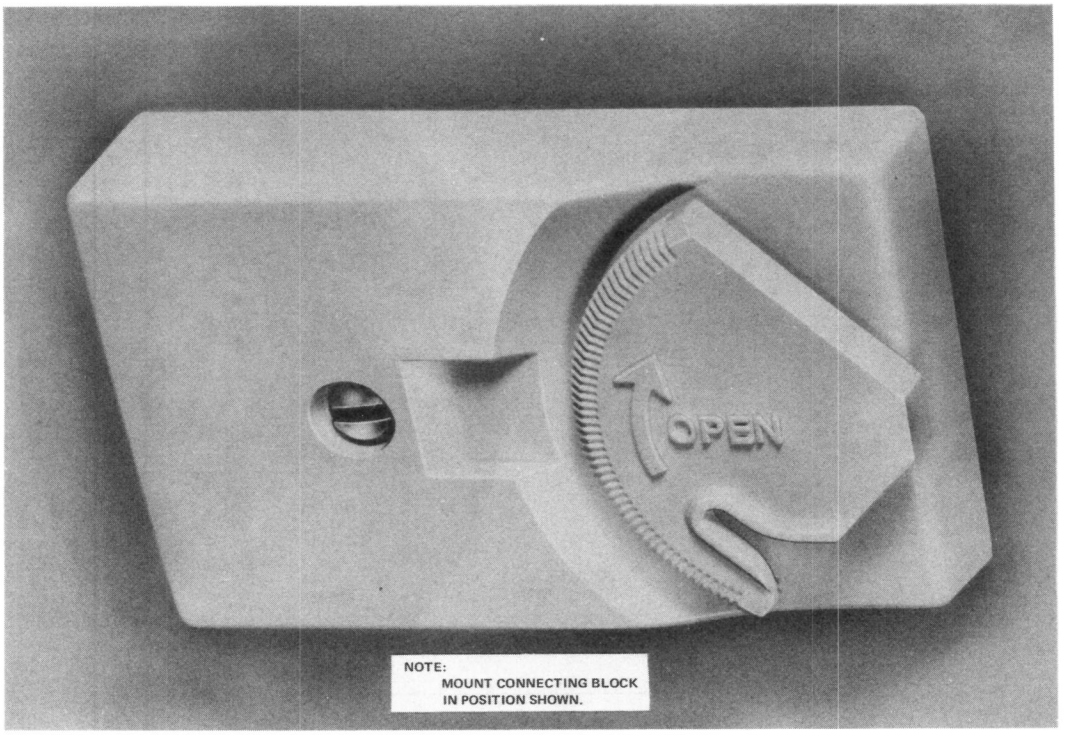
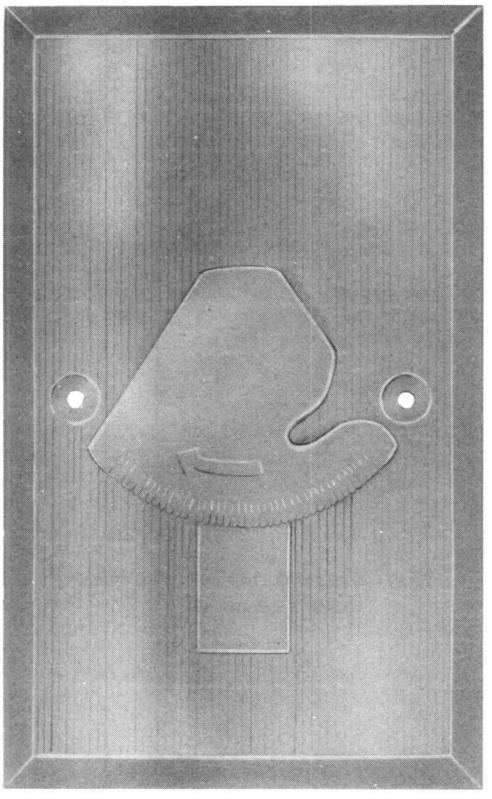
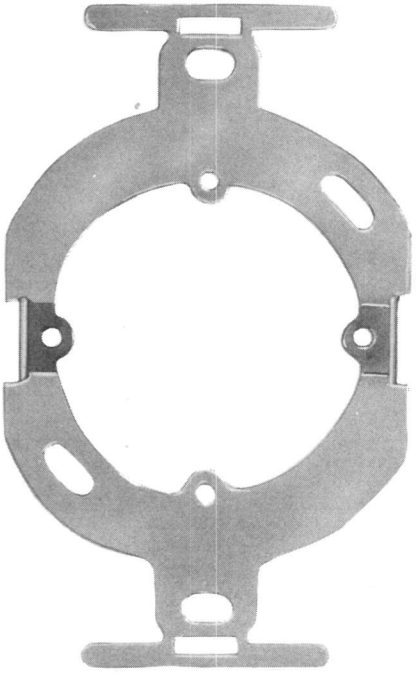


Fig. 4—625S Connecting Block



BRACKET
(PROVIDED WITH 625FS CONNECTING BLOCK)



NOTE: BRACKET IS USED TO MOUNT 625FS TO GEM BOX, 63A (MD), OR 63B MOUNTING BRACKET

Fig. 5—625FS Connecting Block

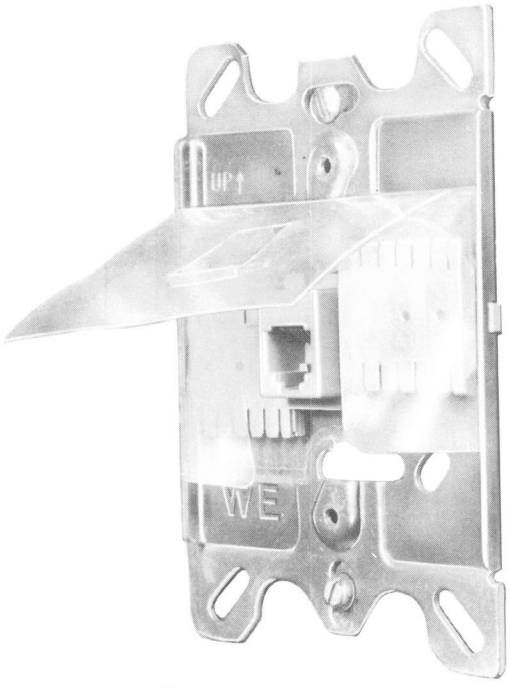


Fig. 6—630-Type Connecting Block (With Faceplate)

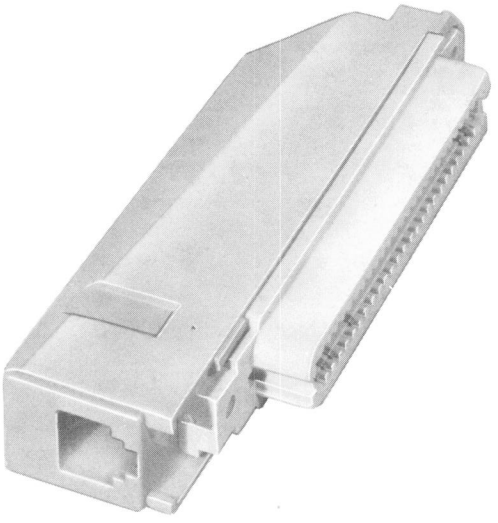


Fig. 7—153AM2, 153BM2, 153AM3, and 153BM3 Adapters

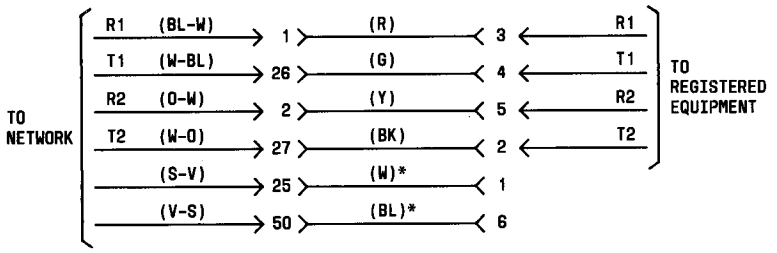


Fig. 8—153-Type Adapter Wiring

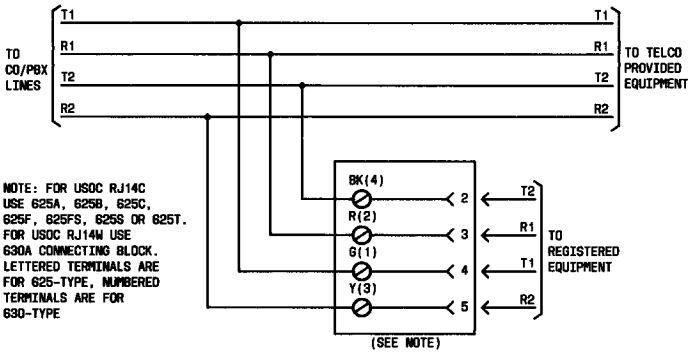
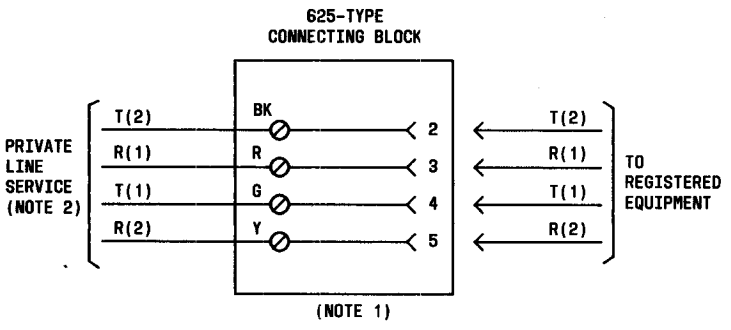


Fig. 9—Connections for USOC RJ14C and RJ14W — Bridged Tip and Ring of Two Lines



NOTES:
1. FOR USOC RJ14C USE 625A, 625B, 625C, 625F, 625FS, 625S, 625T, OR 625WP
2. THE LEAD DESIGNATION WILL DEPEND ON THE PRIVATE LINE SERVICES AS FOLLOWS: MESSAGE REGISTRATION T(MR), R(MR), OFF-PREMISES STATION T(OPS), R(OPS), AND AIOD T(A1), R(A1)

Fig. 10—USOC RJ14C Used as Network Interface

RJ21X, RJ22X, RJ23X, RJ24X, RJ2DX, RJ2EX, RJ2FX, RJ2GX, AND RJ2HX IDENTIFICATION AND MAINTENANCE BRIDGED MULTIPLE TIP AND RING ARRANGEMENTS REGISTRATION INTERFACE

1. GENERAL

1.01 This section provides information on the standard wiring arrangements to be provided under the Federal Communications Commission (FCC) Registration Program for registered telephone, ancillary, data equipment, protective circuitry, PBX, and key telephone systems (KTSs). This section covers multiple (more than three lines) connections. For information on 2-line interface connections, see Section 463-400-140. For information on 3-line interface connections, see Section 463-400-142.

> ***Note:*** Registered data equipment connected to the network via the jacks in this section must have a fixed signal power level under −9 dBm. See Section 590-101-103 for connection of other data devices.

1.02 This section is reissued to:

(a) Add connections for interfaces RJ2DX, RJ2EX, RJ2FX, RJ2GX, and RJ2HX

(b) Expand the use of RJ21X as a network interface to include Message Registration (MR), Off-Premises Service (OPS), and Automatic Identification Outward Dialing (AIOD)

(c) Include intermixing of circuits in some jacks.

Revision arrows are used to emphasize the more significant changes. The Equipment Test List (ETL) is not affected.

1.03 A 50-pin miniature ribbon connector (female) is used to provide a bridged tip and ring connection of several telephone lines. The connections are furnished through a connector such as the KS-16690 connector or equivalent, as part of an A25B connector cable. A 66M3-50R connecting block, which is equipped with a connector wired to a 66-type connecting block, can also be used (Fig. 6). Where KTSs are involved, the A and A1 leads may also be supplied. The plug (male) in the registered terminal equipment must be a compatible 50-pin miniature ribbon connector.

1.04 An aid in establishing the position and numbering in the connector is provided in Fig. 1. The lead to pin assignments differs for each arrangement, requiring care be taken that the jacks be wired ▶properly. Connections showing only one type of interface being furnished in the KS-type connector is provided in Fig. 2 through 11.◀ Interfaces RJ22X, RJ23X, and RJ24X are to be wired in this manner with designated lines ***consecutively*** wired into the jack in the ***sequence*** specified by the customer, starting with the first position and not skipping any positions.

1.05 ▶Interface RJ21X, RJ2EX, RJ2FX, RJ2GX, RJ2HX, and RJ2DX, however, can be intermixed in the same connector (Table A) and positions can be skipped as long as the following conditions are met:

(a) Intermixing will only be allowed for lines which the lead structure is clearly defined.

(b) The proper leads can be accommodated in the interface jack.

For example: RJ2GX is structured for leads T, R, T1, R1, E, and M (Fig. 10). Since RJ21X (T, R) or RJ2EX (T, R, E, M) use these leads, they could be intermixed in RJ2GX. Interface RJ2FX (T, R, E, SG, M, SB) could not be intermixed in RJ2GX since RJ2GX is not structured for the SG, SB leads.◀

1.06 ▶When circuits are intermixed in a jack, one other condition must be met. If a circuit as-

signed a position in a jack has less leads than the structured interface, the unused leads cannot be assigned since the lead structure of the jack would be changed. Again, using RJ2GX as an example, line 1 is assigned pins 26, 1, 27, 2, 28, 3 (Fig. 10). If a RJ2EX is wired to line 1, it would be connected to pins 26, 1, 27, 2. Pins 28, 3 would be left vacant. Whether intermixed or not, the order of appearance of circuits in the jack should be determined by the customer and shown on the service order.◀

1.07 When necessary to access leads in COM KEY® key telephone system installations, wire as follows:

(a) COM KEY 718 telephone system—Tip and ring ahead of the line circuit can be obtained at the incoming CO/PBX line terminations on block 3 using 183B2 adapters. If T, R, A, or A1 are required behind the line circuit, they can be accessed per line at any of the line appearances of the station terminations on blocks 3, 4, or 5. Use 183B2 adapters. For information on COM KEY 718 telephone system, refer to Section 518-450-100.

(b) COM KEY 1434 telephone system—Tip and ring ahead of the line circuit can be accessed at the incoming line terminations on block 7 using 183B2 adapters. T and R behind the line circuit and A and A1 for a particular line can be accessed at any of the line appearances of the station terminations on blocks 6 through 15 using 183B2 adapters. For information on COM KEY 1434 telephone system, refer to Section 518-450-102.

(c) COM KEY 2152 telephone system—Because of insufficient clearance between the connecting blocks and the closed gate, 183B2 adapters cannot be used on the connecting units of COM KEY 2152 telephone system. To access T and R ahead of the line circuit, route the incoming CO/PBX line to an external 66-type connecting block, then to block 3 of the 100A1 or 101A1 connecting block. The 66-type connecting block is then used to provide a multiple of the line. To access T and R behind the line circuit, use an idle station code termination which must be sacrificed for system use. If no idle station terminations are available, use any station code by running a jumper cable to external 66-type connecting blocks and transferring the station cable to these blocks. The blocks are then used to provide the line appearance multiple. For information on COM KEY 2152 telephone system, refer to Section 518-450-110.

2. IDENTIFICATION

2.01 ***Uniform Service Order Code (USOC) RJ21X:*** This arrangement provides a bridged connection of the tip and ring of a multiple number of CO or PBX trunks ▶and MR, OPS, and AIOD services to the registered terminal equipment.◀ The connection is furnished through a female ribbon connector, such as the KS-16690 connector or equivalent, as part of an A25B connector cable. Up to 25 trunks or lines can be furnished (Fig. 2 and 6). Bridging to the tip and ring may be at various locations. Typical usage for RJ21X would be for connection of registered traffic data recording equipment ▶or a PBX installation.◀

2.02 ***USOC RJ22X:*** Provides up to 12 CO/PBX circuits to the registered terminal equipment where the tip and ring must be bridged ahead of the line circuit and A lead control is required. Leads furnished to the registered terminal equipment on a per line basis are T, R, A, and A1 using a KS-16690 connector or equivalent (Fig. 3 and 6). Access to leads will probably be at the KTS to permit connecting tip and ring ahead of the line circuit and A and A1 behind line circuit. Primary use of arrangement will be to provide for connection of multiple units of registered devices, requiring A lead control.

2.03 ***USOC RJ23X:*** This arrangement is similar to RJ22X except the tip and ring, as well as A and A1, are connected behind the line circuit. Up to 12 circuits are connected using the KS-16690 connector or equivalent (Fig. 4 and 6).

2.04 ***USOC RJ24X:*** Provides the same T, R, and A appearances plus A1 as a standard 5-line key telephone set to the registered terminal equipment (Fig. 5 and 6). The L and LG appearances must be omitted to be in conformance with tariffs. Connection to the registered terminal equipment is through a KS-16690 connector or equivalent. All connections are bridged behind the line circuit.

Note: Some multibutton key sets are terminated in other than the standard wiring arrangement. When accessing the leads for this arrangement, care must be taken that the desired leads will appear on the connector as required.

2.05 ***USOC RJ2DX:*** This arrangement provides up to 12 bridged 4-wire exchange wires (T/R

and T1/R1). This arrangement is typically used with registered terminal equipment and systems requiring 4-wire exchange access.

2.06 ***USOC RJ2EX:*** Provides multiple 2-wire tie trunks with E and M, type I signaling. This arrangement provides up to 12 bridged tie trunks and is basically used with registered PBXs, channel derivation devices, and similar systems.

2.07 ***USOC RJ2FX:*** This arrangement has multiple 2-wire tie trunks with E and M, type II signaling. The RJ2FX provides up to 8 bridged tie trunks and is typically used with registered PBXs, channel derivation devices, and similar systems.

2.08 ***USOC RJ2GX:*** This arrangement provides up to 8 bridged 4-wire trunks (T/R and T1/R1) and E and M, type I signaling. The typical usage for this arrangement is with registered PBXs, channel derivation devices, and similar systems.

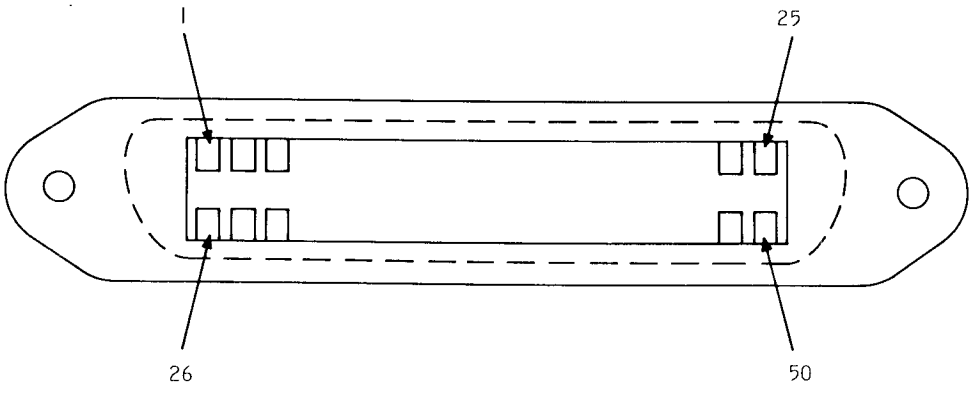
2.09 ***USOC RJ2HX:*** Provides up to 6 bridged 4-wire tie trunks (T/R and T1/R1) and E and M, type II signaling. The typical usage for this arrangement is with registered PBXs, channel derivation devices, and similar systems.

3. MAINTENANCE

3.01 Maintenance of the wiring arrangements covered in this section is limited to verification of the telephone company wiring and equipment and assurance that the required leads are supplied in the interface used for registered terminal equipment connection.

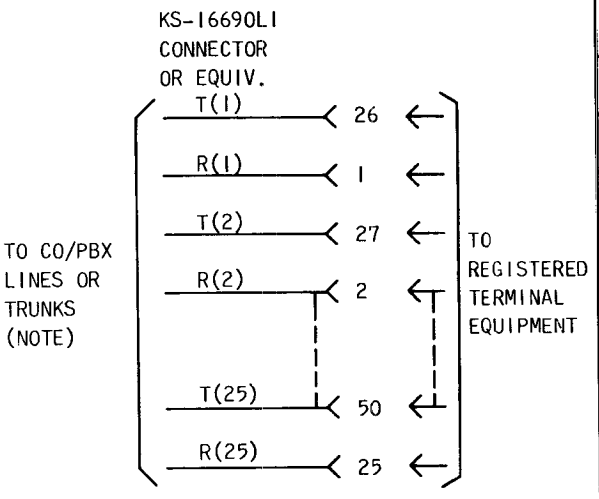
No attempt should be made to test, modify, or repair customer-owned and maintained equipment.

3.02 When in the judgment of repair personnel the trouble is located in or caused by the customer-provided equipment (CPE), the Repair Service Bureau should be notified so proper Maintenance of Service Charge Billing can be initiated as required and as outlined in Section 660-101-312 — Maintenance of Service Charge on Services With Customer-Provided Equipment (CPE) and Section 660-101-318 — Tariff and Registration Violation Notice Procedures.



NOTE:
CONNECTOR VIEWED FROM WIRING SIDE

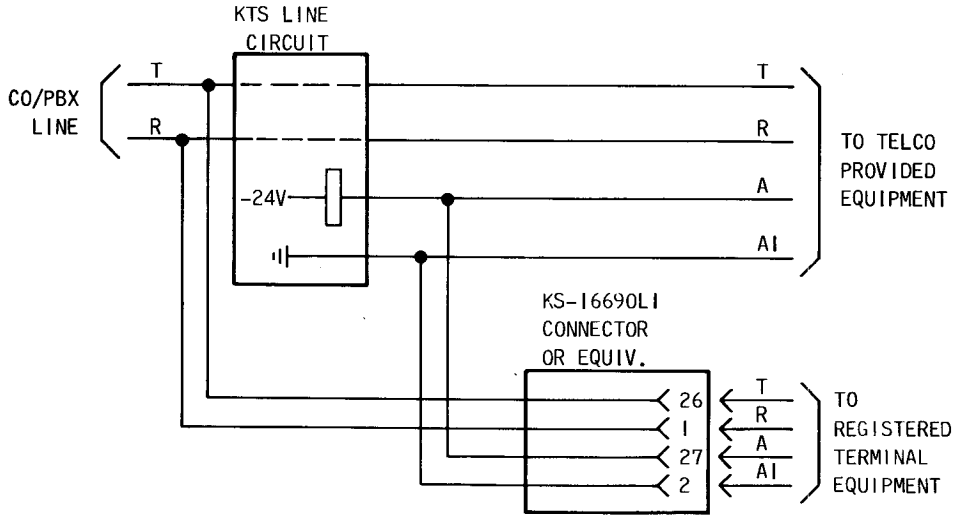
Fig. 1—Location of Contacts in KS-16690 Connector



NOTE:
CONNECT CIRCUITS
AS REQUIRED

CKT	LEAD	PIN	CKT	LEAD	PIN
1	T	26	14	T	39
	R	1		R	14
2	T	27	15	T	40
	R	2		R	15
3	T	28	16	T	41
	R	3		R	16
4	T	29	17	T	42
	R	4		R	17
5	T	30	18	T	43
	R	5		R	18
6	T	31	19	T	44
	R	6		R	19
7	T	32	20	T	45
	R	7		R	20
8	T	33	21	T	46
	R	8		R	21
9	T	34	22	T	47
	R	9		R	22
10	T	35	23	T	48
	R	10		R	23
11	T	36	24	T	49
	R	11		R	24
12	T	37	25	T	50
	R	12		R	25
13	T	38			
	R	13			

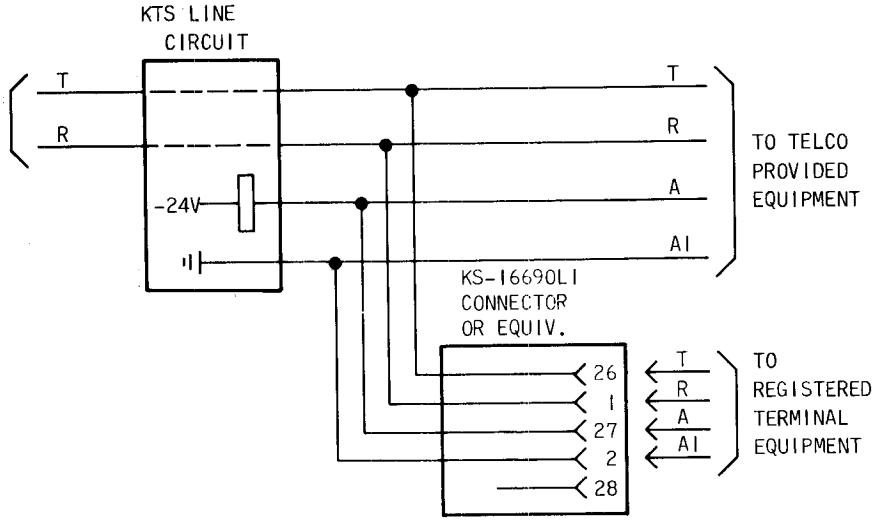
Fig. 2—Connections for USOC RJ21X—Multiple Bridged Tip and Ring



CKT	LEAD	PIN
1	T	26
	R	1
	A	27
	AI	2
2	T	28
	R	3
	A	29
	AI	4
3	T	30
	R	5
	A	31
	AI	6
4	T	32
	R	7
	A	33
	AI	8
5	T	34
	R	9
	A	35
	AI	10
6	T	36
	R	11
	A	37
	AI	12
7	T	38
	R	13
7	A	39
	AI	14
8	T	40
	R	15
	A	41
	AI	16
9	T	42
	R	17
	A	43
	AI	18
10	T	44
	R	19
	A	45
	AI	20
11	T	46
	R	21
	A	47
	AI	22
12	T	48
	R	23
	A	49
	AI	24
		50
		25

NOTE:
CONNECT CIRCUITS AS REQUIRED. ONLY IST CIRCUIT SHOWN CONNECTED

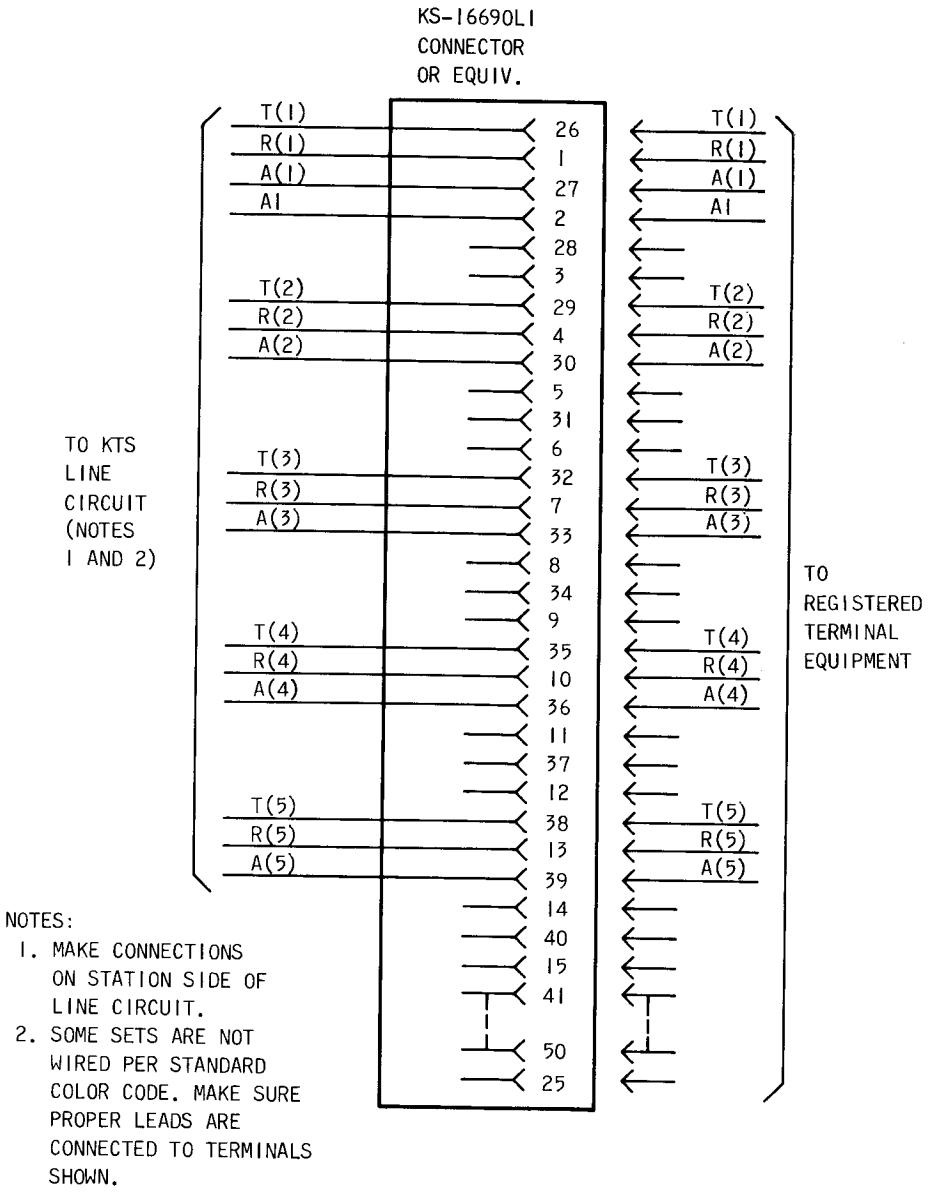
Fig. 3—Connections for USOC RJ22X—Multiple Bridged Tip and Ring Ahead of Line Circuit With A Lead Control



CKT	LEAD	PIN	CKT	LEAD	PIN
1	T	26	7	A	39
	R	1		AI	14
	A	27			
	AI	2	8	T	40
2	T	28		R	15
	R	3		A	41
	A	29		AI	16
	AI	4	9	T	42
3	T	30		R	17
	R	5		A	43
	A	31		AI	18
	AI	6	10	T	44
4	T	32		R	19
	R	7		A	45
	A	33		AI	20
	AI	8	11	T	46
5	T	34		R	21
	R	9		A	47
	A	35		AI	22
	AI	10	12	T	48
6	T	36		R	23
	R	11		A	49
	A	37		AI	24
	AI	12			50
7	T	38			25
	R	13			

NOTE:
CONNECT CIRCUITS AS REQUIRED. ONLY 1ST CIRCUIT SHOWN CONNECTED.

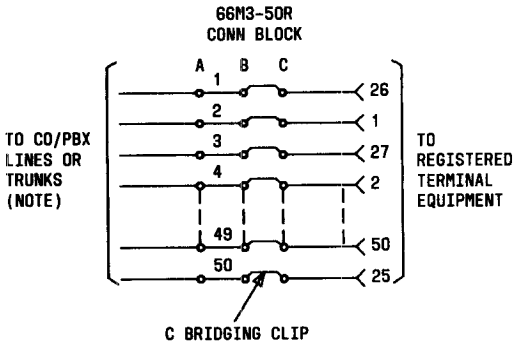
Fig. 4—Connections for USOC RJ23X—Multiple Bridged Tip and Ring Behind Line Circuit With A Lead Control



NOTES:

1. MAKE CONNECTIONS ON STATION SIDE OF LINE CIRCUIT.
2. SOME SETS ARE NOT WIRED PER STANDARD COLOR CODE. MAKE SURE PROPER LEADS ARE CONNECTED TO TERMINALS SHOWN.

Fig. 5—Connections for USOC RJ24X—Multiple Bridged Tip and Ring With A Lead Control, Standard Appearance



66M3-50R CONN. BLOCK		RJ21X		RJ22X		RJ23X		RJ24X	
CLIP	CONN. TERM.	CIR-CUIT	LEAD DESIG	CIR-CUIT	LEAD DESIG	CIR-CUIT	LEAD DESIG	CIR-CUIT	LEAD DESIG
1	26	1	T	1	T	1	T	1	T
2	1		R		R		R		R
3	27	2	T		A		A		A
4	2		R		A1		A1		A1
5	28	3	T	2	T	2	T		
6	3		R		R		R		
7	29	4	T		A		A	2	T
8	4		R		A1		A1		R
9	30	5	T	3	T	3	T		A
10	5		R		R		R		
11	31	6	T		A		A		
12	6		R		A1		A1		
13	32	7	T	4	T	4	T	3	T
14	7		R		R		R		R
15	33	8	T		A		A		A
16	8		R		A1		A1		
17	34	9	T	5	T	5	T		
18	9		R		R		R		
19	35	10	T		A		A	4	T
20	10		R		A1		A1		R
21	36	11	T	6	T	6	T		A
22	11		R		R		R		
23	37	12	T		A		A		
24	12		R		A1		A1		

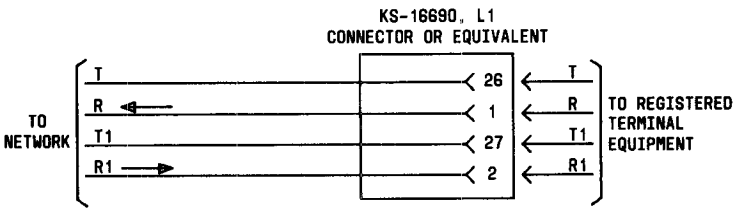
Fig. 6— Connections for RJ21X, RJ22X, RJ23X, and RJ24X Using 66M3-50R Connecting Block (Sheet 1 of 2)

66M3-50R CONN. BLOCK		RJ21X		RJ22X		RJ23X		RJ24X	
CLIP	CONN. TERM.	CIR-CUIT	LEAD DESIG	CIR-CUIT	LEAD DESIG	CIR-CUIT	LEAD DESIG	CIR-CUIT	LEAD DESIG
25	38	13	T	7	T	7	T	5	T
26	13		R		R		R		R
27	39	14	T		A		A		A
28	14		R		A1		A1		
29	40	15	T	8	T	8	T		
30	15		R		R		R		
31	41	16	T		A		A		
32	16		R		A1		A1		
33	42	17	T	9	T	9	T		
34	17		R		R		R		
35	43	18	T		A		A		
36	18		R		A1		A1		
37	44	19	T	10	T	10	T		
38	19		R		R		R		
39	45	20	T		A		A		
40	20		R		A1		A1		
41	46	21	T	11	T	11	T		
42	21		R		R		R		
43	47	22	T		A		A		
44	22		R		A1		A1		
45	48	23	T	12	T	12	T		
46	23		R		R		R		
47	49	24	T		A		A		
48	24		R		A1		A1		
49	50	25	T						
50	25		R						

NOTE:

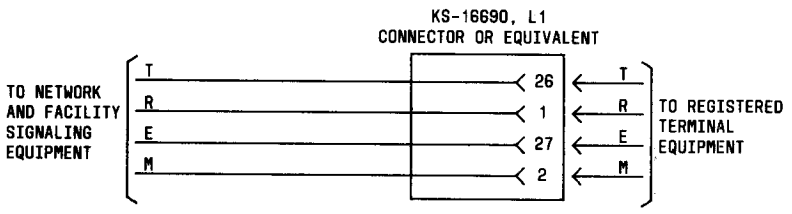
CONNECT CIRCUITS AS REQUIRED

Fig. 6— Connections for RJ21X, RJ22X, RJ23X, and RJ24X Using 66M3-50R Connecting Block (Sheet 2 of 2)



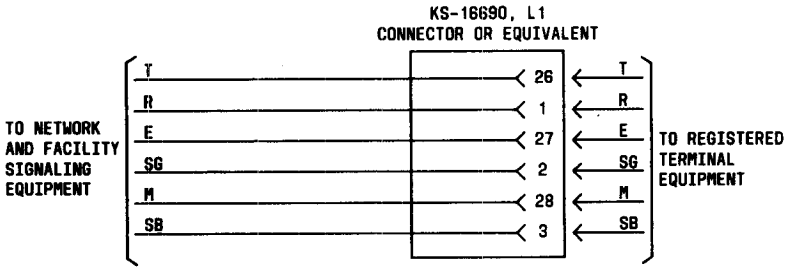
LINE	LEAD	PIN	LINE	LEAD	PIN
1	T	26	7	T	38
	R	1		R	13
	T1	27		T1	39
	R1	2		R1	14
2	T	28	8	T	40
	R	3		R	15
	T1	29		T1	41
	R1	4		R1	16
3	T	30	9	T	42
	R	5		R	17
	T1	31		T1	43
	R1	6		R1	18
4	T	32	10	T	44
	R	7		R	19
	T1	33		T1	45
	R1	8		R1	20
5	T	34	11	T	46
	R	9		R	21
	T1	35		T1	47
	R1	10		R1	22
6	T	36	12	T	48
	R	11		R	23
	T1	37		T1	49
	R1	12		R1	24

Fig. 7—Connections for USOC RJ2DX—Multiple Line Bridged 4-Wire T/R and T1/R1



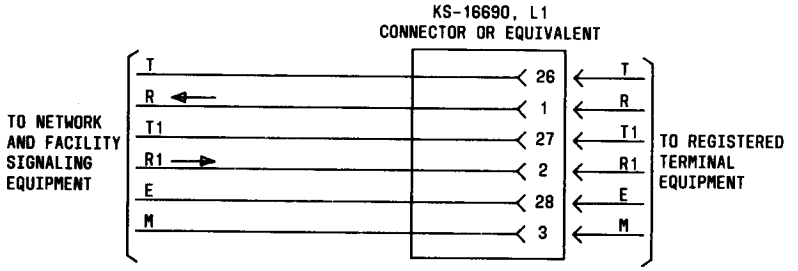
LINE	LEAD	PIN	LINE	LEAD	PIN
1	T	26	7	T	38
	R	1		R	13
	E	27		E	39
	M	2		M	14
2	T	28	8	T	40
	R	3		R	15
	E	29		E	41
	M	4		M	16
3	T	30	9	T	42
	R	5		R	17
	E	31		E	43
	M	6		M	18
4	T	32	10	T	44
	R	7		R	19
	E	33		E	45
	M	8		M	20
5	T	34	11	T	46
	R	9		R	21
	E	35		E	47
	M	10		M	22
6	T	36	12	T	48
	R	11		R	23
	E	37		E	49
	M	12		M	24

Fig. 8—Connections for USOC RJ2EX—Multiple 2-Wire Tie Trunks With E and M, Type I Signaling



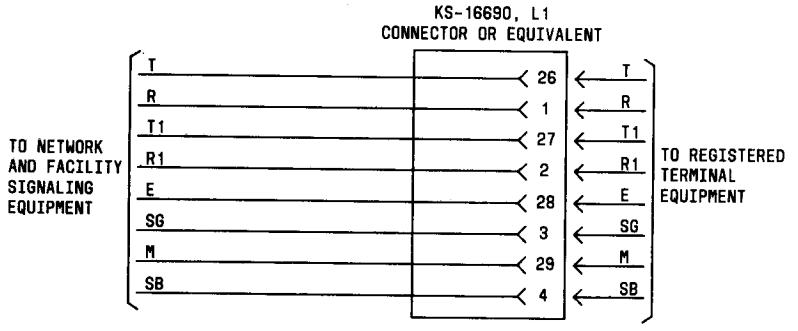
LINE	LEAD	PIN	LINE	LEAD	PIN
1	T	26	5	T	38
	R	1		R	13
	E	27		E	39
	SG	2		SG	14
	M	28		M	40
	SB	3		SB	15
2	T	29	6	T	41
	R	4		R	16
	E	30		E	42
	SG	5		SG	17
	M	31		M	43
	SB	6		SB	18
3	T	32	7	T	44
	R	7		R	19
	E	33		E	45
	SG	8		SG	20
	M	34		M	46
	SB	9		SB	21
4	T	35	8	T	47
	R	10		R	22
	E	36		E	48
	SG	11		SG	23
	M	37		M	49
	SB	12		SB	24

Fig. 9—Connections for USOC RJ2FX—Multiple 2-Wire Tie Trunks With E and M, Type II Signaling



LINE	LEAD	PIN	LINE	LEAD	PIN
1	T	26	5	T	38
	R	1		R	13
	T1	27		T1	39
	R1	2		R1	14
	E	28		E	40
	M	3		M	15
2	T	29	6	T	41
	R	4		R	16
	T1	30		T1	42
	R1	5		R1	17
	E	31		E	43
	M	6		M	18
3	T	32	7	T	44
	R	7		R	19
	T1	33		T1	45
	R1	8		R1	20
	E	34		E	46
	M	9		M	21
4	T	35	8	T	47
	R	10		R	22
	T1	36		T1	48
	R1	11		R1	23
	E	37		E	49
	M	12		M	24

Fig. 10—Connections for USOC RJ2GX—Multiple 4-Wire Tie Trunks With E and M, Type I Signaling



LINE	LEAD	PIN	LINE	LEAD	PIN
1	T	26	4	T	38
	R	1		R	13
	T1	27		T1	39
	R1	2		R1	14
	E	28		E	40
	SG	3		SG	15
	M	29		M	41
	SB	4		SB	16
2	T	30	5	T	42
	R	5		R	17
	T1	31		T1	43
	R1	6		R1	18
	E	32		E	44
	SG	7		SG	19
	M	33		M	45
	SB	8		SB	20
3	T	34	6	T	46
	R	9		R	21
	T1	35		T1	47
	R1	10		R1	22
	E	36		E	48
	SG	11		SG	23
	M	37		M	49
	SB	12		SB	24

Fig. 11—Connections for USOC RJ2HX—Multiple 4-Wire Tie Trunks With E and M, Type II Signaling

66M3-50R CONN. BLOCK SEE NOTE		RJ2DX		RJ2EX		RJ2FX		RJ2GX		RJ2HX	
CLIP	CONN TERM.	CIRCUIT	LEAD DESIG	CIRCUIT	LEAD DESIG	CIRCUIT	LEAD DESIG	CIRCUIT	LEAD DESIG	CIRCUIT	LEAD DESIG
1	26	1	T	1	T	1	T	1	T	1	T
2	1		R		R		R		R		R
3	27		T1		E		E		T1		T1
4	2		R1		M		SG		R1		R1
5	28	2	T	2	T		M		E		E
6	3		R		R		SB		M		SG
7	29		T1		E	2	T	2	T		M
8	4		R1		M		R		R		SB
9	30	3	T	3	T		E		T1	2	T
10	5		R		R		SG		R1		R
11	31		T1		E		M		E		T1
12	6		R1		M		SB		M		R1
13	32	4	T	4	T	3	T	3	T		E
14	7		R		R		R		R		SG
15	33		T1		E		E		T1		M
16	8		R1		M		SG		R1		SB
17	34	5	T	5	T		M		E	3	T
18	9		R		R		SB		M		R
19	35		T1		E	4	T	4	T		T1
20	10		R1		M		R		R		R1
21	36	6	T	6	T		E		T1		E
22	11		R		R		SG		R1		SG
23	37		T1		E		M		E		M
24	12		R1		M		SB		M		SB
25	38	7	T	7	T	5	T	5	T	4	T
26	13		R		R		R		R		R
27	39		T1		E		E		T1		T1
28	14		R1		M		SG		R1		R1

Fig. 12—Connections for RJ2DX, RJ2EX, RJ2FX, RJ2GX, and RJ2HX Using 66M3-50R Connecting Block (Sheet 1 of 2)

66M3-50R CONN. BLOCK SEE NOTE		RJ2DX		RJ2EX		RJ2FX		RJ2GX		RJ2HX	
CLIP	CONN TERM.	CIRCUIT	LEAD DESIG	CIRCUIT	LEAD DESIG	CIRCUIT	LEAD DESIG	CIRCUIT	LEAD DESIG	CIRCUIT	LEAD DESIG
29	40	8	T	8	T	5	M	5	E	4	E
30	15		R		R		SB		M		SG
31	41		T1		E	6	T	6	T		M
32	16		R1		M		R		R		SB
33	42	9	T	9	T		E		T1	5	T
34	17		R		R		SG		R1		R
35	43		T1		E		M		E		T1
36	18		R1		M		SB		M		R1
37	44	10	T	10	T	7	T	7	T		E
38	19		R		R		R		R		SG
39	45		T1		E		E		T1		M
40	20		R1		M		SG		R1		SB
41	46	11	T	11	T		M		E	6	T
42	21		R		R		SB		M		R
43	47		T1		E	8	T	8	T		T1
44	22		R1		M		R		R		R1
45	48	12	T	12	T		E		T1		E
46	23		R		R		SG		R1		SG
47	49		T1		E		M		E		M
48	24		R1		M		SB		M		SB
49	50										
50	25										

NOTE: CONNECTIONS SHOW ONLY ONE TYPE OF INTERFACE IN EACH JACK. FOR INFORMATION ON INTERMIXING OF INTERFACES, REFER TO PARAGRAPH 1.04 THROUGH 1.06 AND TABLE A.

Fig. 12—Connections for RJ2DX, RJ2EX, RJ2FX, RJ2GX, and RJ2HX Using 66M3-50R Connecting Block (Sheet 2 of 2)

TABLE A

INTERMIXABLE SERVICES AND JACKS

SERVICE	JACK (NOTES 1 AND 2)								
	RJ11C	RJ14C	RJ25C	RJ21X	RJ2EX	RJ2FX	RJ2GX	RJ2HX	RJ2DX
2-Wire Private Line Services*	•	•	•	•	•	•	•	•	•
Message Registration	•	•	•	•	•	•	•	•	•
Automatic Identification Outward Dialing	•	•	•	•	•	•	•	•	•
Off-Premises Service	•	•	•	•	•	•	•	•	•
Tie Trunk T, R, E, M Leads					•	•	•	•	
Tie Trunk T, R, E, SG, M, SB Leads						•		•	
Tie Trunk T, R, T1, R1, E, M Leads							•	•	
Tie Trunk T, R, T1, R1, E, SG, M, SB Leads								•	
4-Wire Private Line Services†							•	•	•

Note 1: For additional information, refer to paragraphs 1.04 through 1.08.

Note 2: Refer to the following sections for jacks not covered in this section:

RJ11C 463-400-120
RJ14C 463-400-140
RJ25C 463-400-142

* Includes Foreign Message Toll Telephone Service (MTS), Wide Area Telephone Service (WATS), Foreign Exchange (FX), and Common Control Switching Arrangement (CCSA).

† Includes MTS, WATS, FX, and Foreign Central Office (FCO).

RJ25C

IDENTIFICATION AND MAINTENANCE

REGISTRATION INTERFACE BRIDGED 3-LINE TIP AND RING ARRANGEMENTS

1. GENERAL

1.01 This section provides information on the standard wiring arrangements to be provided under the Federal Communications Commission (FCC) Registration Program for registered telephone, ancillary, data, and protective circuitry of the type associated with telephones, ancillary equipment, systems, or data equipment which is provided by the telephone company or the customer.

> ***Note:*** Registered data equipment connected to the network via the jack in this section must have a fixed signal power level under −9 dBm. See Section 590-101-103 for connection of other data devices.

1.02 This section is reissued to:

(a) Add 153AM3 and BM3 adapters for use where connector cable is in place (Fig. 5)

(b) Show 625S6 connecting block replacing the 74D connecting block (Fig. 4)

(c) Revise information on Uniform Service Order Code (USOC) RJ25C to show it as the network interface for designated private line services.

Revision arrows are used to emphasize the more significant changes. The Equipment Test List (ETL) is not affected.

1.03 This section covers 3-line bridged tip and ring arrangements. For information on other bridged tip and ring arrangements, refer to the following:

- Single line — Section 463-400-120
- Two line — Section 463-400-140
- Multiple (more than three) — Section 463-400-141.

1.04 A 74D ▶manufacture discontinued (MD)◀ (Fig. 1) or ▶625S6 (Fig. 2)◀ connecting block or equivalent can be used to provide the 6-position modular jack required for this arrangement. ▶Where connector cable is in place, the 153AM3 and BM3 (Fig. 5) may be used.◀

2. IDENTIFICATION

2.01 USOC RJ25C provides a bridged connection of the tip and ring of up to three lines to the ▶registered equipment (Fig. 3 and 4). It can also be used as the network interface of designated private line services. Only the tips and rings are provided through the interface. The complete lead designation will depend on the private line service as follows: Message Registration — T(MR), R(MR), Off-Premises Station — T(OPS), R(OPS), or Automatic Identification Outward Dialing — T(AI), R(AI).

2.02 Those services similar to RJ25C can also be intermixed with other properly structured jack arrangements. For information on other jack arrangements, refer to Sections 463-400-100 through 463-400-150. If the services are intermixed in any of the arrangements having more leads, the unused leads cannot be assigned since the structure of the jack would be changed. For instance, if services for RJ25C (having T, R leads) is intermixed with services for RJ2DX (having T, R, T1, R1 leads), the pins assigned to the T1, R1 leads in that particular circuit position must be left vacant.◀

3. MAINTENANCE

3.01 Maintenance of the wiring arrangements covered in this section is limited to verification of the telephone company wiring and equipment and assurance that the required leads are supplied in the interface used for ▶registered equipment connection.◀

No attempt should be made to test, modify, or repair customer-owned and maintained equipment.

3.02 When in the judgment of repair personnel the trouble is located in or caused by the customer-provided equipment (CPE), the Repair Service Bureau should be notified so proper Maintenance of Service Charge Billing can be initiated as required and outlined in Section 660-101-312 — Maintenance of Service Charge on Services With Customer-Provided Equipment (CPE) and Section 660-101-318 — Tariff and Registration Violation Notice Procedures.

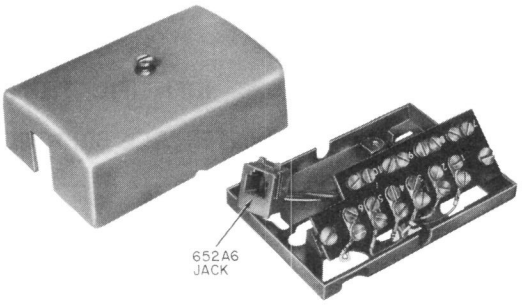


Fig. 1—74D (MD) Connecting Block

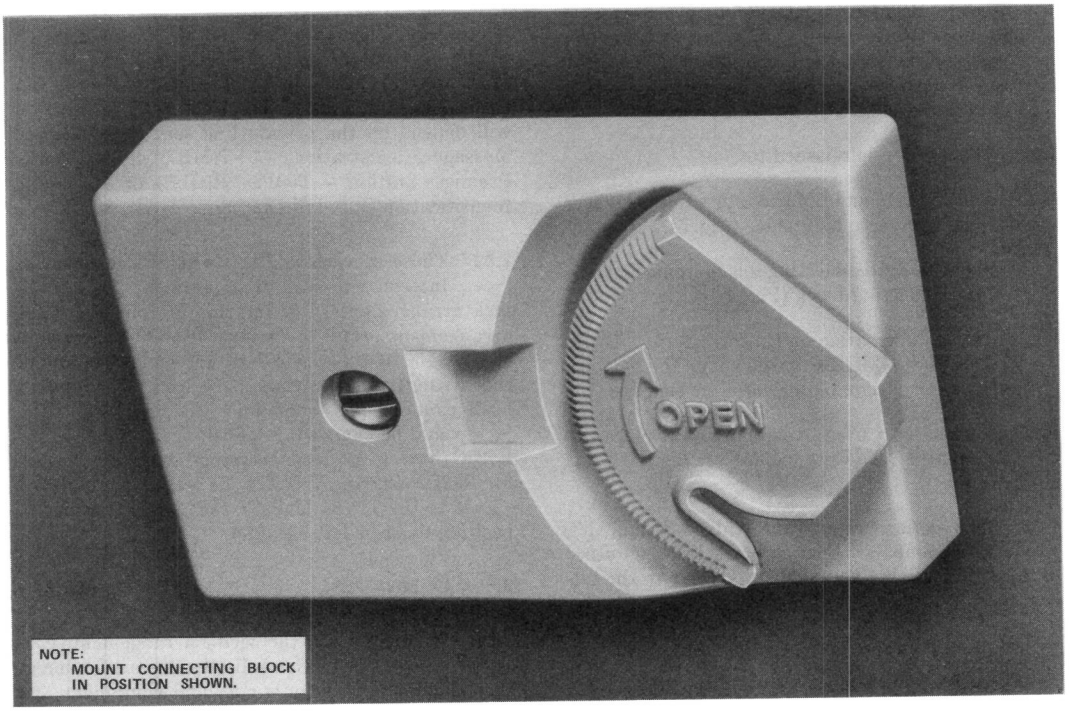


Fig. 2—▶625S6 Connecting Block◀

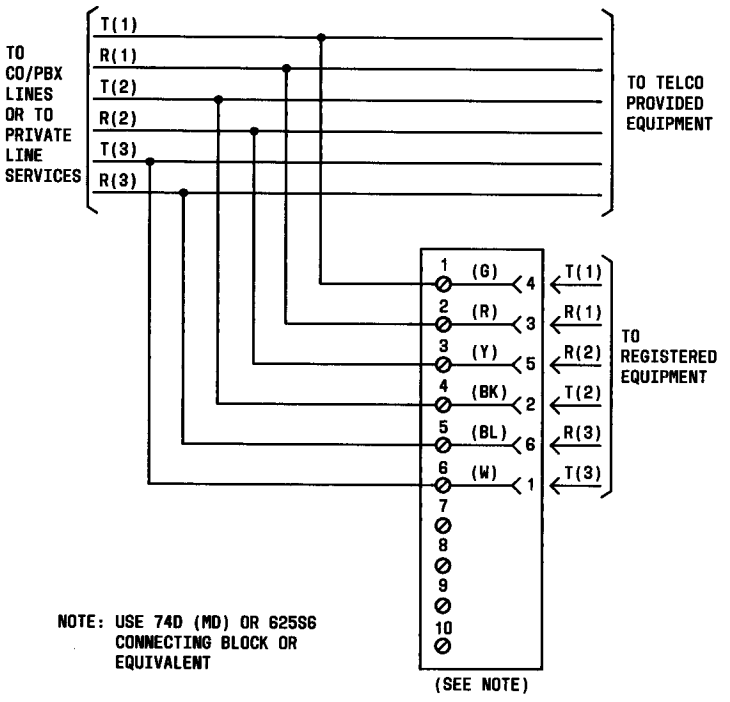


Fig. 3—Connections for USOC RJ25C Using 74D (MD) Connecting Block

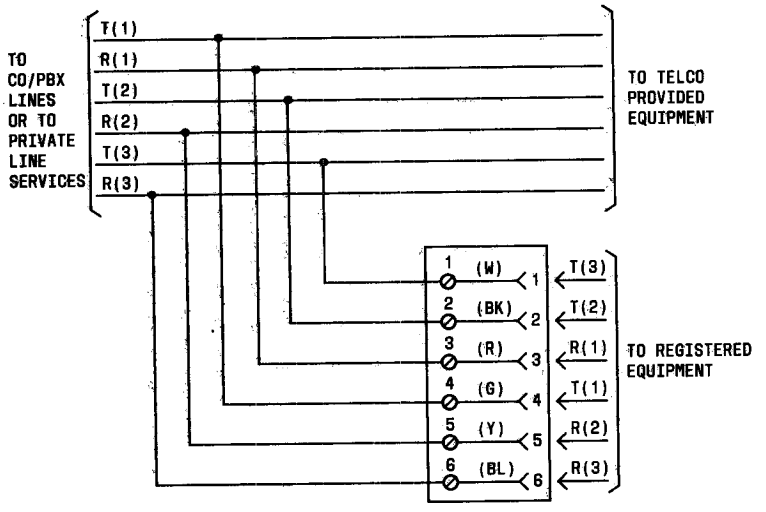


Fig. 4—Connections for USOC RJ25C Using 625S6 Connecting Block

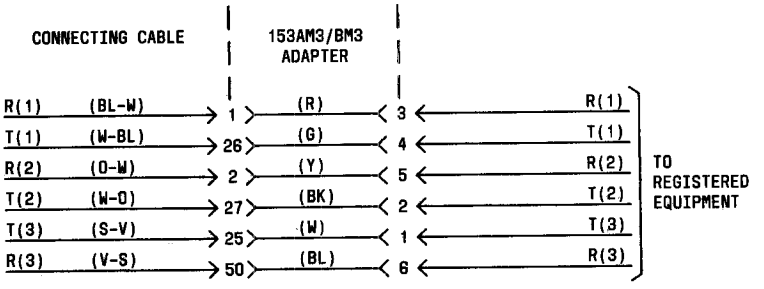


Fig. 5—Connections for 153AM3 and BM3 Adapters

REGISTRATION INTERFACE
INSTALLATION, CONNECTIONS, AND MAINTENANCE
RJ71C
SERIES MULTIPLE TIP AND RING ARRANGEMENTS

1. GENERAL

1.01 This section provides information on a standard jack arrangement to be provided under the Federal Communications Commission (FCC) Registration Program for use with registered terminal equipment, such as telephones, ancillary equipment, data equipment, and protective circuitry and to registered systems, such as PBXs and key telephone systems (KTSs).

> ***Note:*** Registered data equipment connected to the network via the connecting block in this section must have a fixed signal power level under −9 dBm. See Section 590-101-103 for connection of other data devices.

1.02 This section is reissued to:

(a) Rate 66M4-50R connecting block manufacture discontinued (MD)

(b) Add information on the 700B-66-B1-12 jack.

Revision arrows are used to emphasize the more significant changes.

1.03 Arrangement RJ71C provides a series connection of tip and ring only for a maximum of 12 lines. The A and A1 leads for KTSs are not supplied. The plug (male) in the registered equipment must be a compatible 50-pin miniature ribbon connector.

1.04 Uniform Service Order Code (USOC) RJ71C requires the installation of a 66M4-50R connecting block ▶(MD)◀ or a 700B-66-B1-12 jack◀. These interfaces consist of a 66M-type connecting block wired to a 50-pin ribbon connector (female) which provides the means of connecting to the registered equipment. A prewired bridging adapter is shipped loose for use in providing the series connection when the plug to the registered equipment is not connected. The bridging adapter is fastened to the ▶interface◀ during installation to avoid misplacement.

> ***Note:*** The 66M4-50 connecting block ▶(MD)◀ is very similar in appearance to the 66M3-50R ▶connecting block (MD) and the 700A-66-B1-25 jack is very similar in appearance to the 700B-66-B1-12 jack.◀ However, the internal wiring between the ▶terminals◀ of the connecting block and the ▶pins of the◀ 50-pin ribbon connector is different and the two are not interchangeable. ***Do not attempt to use a 66M3-50R ▶connecting block (MD)◀ in installations requiring a 66M4-50R ▶connecting block (MD) or a 700A-66-B1-25 jack requiring a 700B-66-B1-12 jack.◀***

1.05 The USOC RJ71C provides a series connection from the incoming tip and ring, through the customer-provided equipment (CPE) or telephone company (TELCO)-provided equipment connected to the ribbon connector, to the outgoing tip and ring. With the plug inserted in the connector, loop continuity must be maintained through the registered equipment either by a metallic series circuit or by transformer coupling. Any time the plug is removed from the connector, the bridging adapter must be plugged into the connector or the tip and ring will be open on all lines beyond that point.

1.06 ▶On the 66M4-50R connecting block (MD) and the 700B-66-B1-12 jack incoming lines are terminated on the first 12 pairs of terminals of column A (rows 1 through 24). On the 66M4-50R (MD) outgoing lines to other CPE or TELCO-provided equipment are terminated on the next 12 pairs of terminals of column A (rows 25 through 48). Rows 49 and 50 are unwired. On the 700B-66-B1-12 jack outgoing lines to

other CPE or TELCO-provided equipment are terminated on rows 27 through 50. Rows 25 and 26 are unwired.◀ The incoming lines should be terminated in the sequence specified by the customer without skipping any positions. The C bridging clips must then be installed between columns B and C ***on both the incoming and outgoing clips.*** Refer to Section 461-604-105 for complete information on interface type connecting blocks.

1.07 If the plug to the registered equipment is not available at the time of installation, the bridging adapter supplied with the connecting block must be plugged into the connector to provide continuity to any downstream equipment.

2. CONNECTIONS

2.01 Install the 66M4-50R connecting block (MD) as follows:

(1) Install the 66M4-50R connecting block (MD) in a location mutually agreeable to the TELCO and the customer. The 66M4-50R connecting block (MD) is applicable to color-coded modular backboards, but a size variance will not permit mounting of additional 66M-type blocks butting directly above or below it.

(2) Connect the incoming lines and outgoing lines to other equipment on column A as shown in Table A. Place C bridging clips between columns B and C on all rows — both incoming and outgoing. Install cover on connecting block. Fasten the bridging adapter to one of the clips on the 89C bracket using the fastener supplied.

(3) Plug the bridging adapter into the ribbon connector and test all connected lines for continuity. If the customer is not ready, secure the bridging adapter in place. If the customer has the registered equipment wired at the time of installation, have them connect their plug to the ribbon connector and secure in place. Internal wiring of the 66M4-50R connecting block (MD) is shown in Fig. 1.

2.02 ▶Install the 700B-66-B1-12 jack as follows:

(1) Install the 700B-66-B1-12 jack on a 183C6 backboard in a location mutually agreeable to the TELCO and the customer.

(2) Connect the incoming lines and outgoing lines to other equipment on column A as shown in Table B. Place C bridging clips betweeen columns B and C on all rows — both incoming and outgoing. Install cover on connecting block. Fasten the bridging adapter using the fastener supplied.

(3) Plug the bridging adapter into the ribbon connector and test all connected lines for continuity. If the customer is not ready, secure the bridging adapter in place. If the customer has the registered equipment wired at the time of installation, have them connect their plug to the ribbon connector and secure in place. Internal wiring of the 700B-66-B1-12 jack is shown in Fig. 2.◀

3. MAINTENANCE

3.01 Maintenance of the wiring arrangements covered in this section is limited to verification of the TELCO wiring and equipment and assurance the required leads are supplied in the interface used for CPE connection.

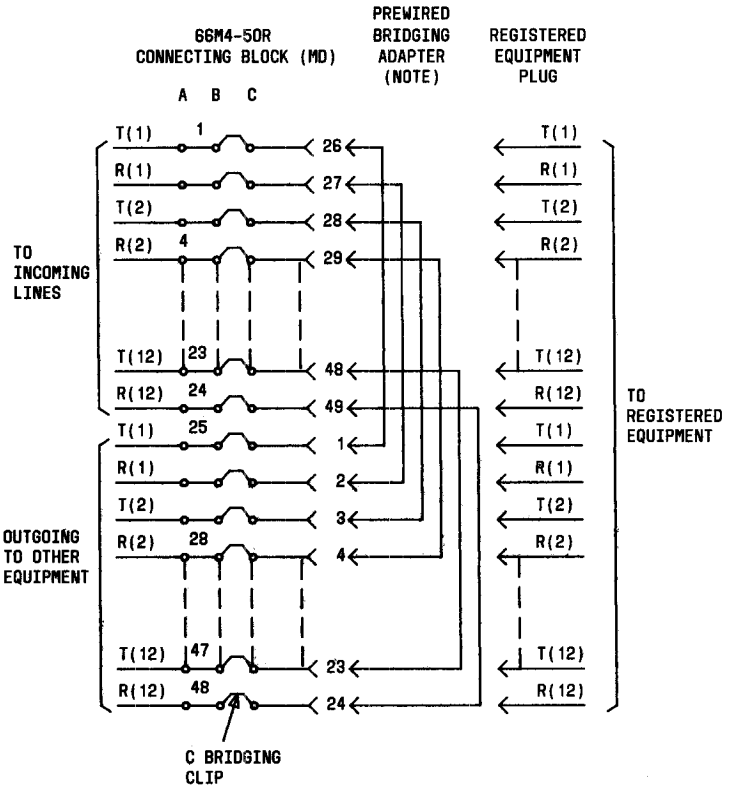
No attempt should be made to test, modify, or repair customer-owned and maintained equipment.

3.02 When in the judgment of repair personnel the trouble is located in or caused by the CPE, the Repair Service Bureau should be notified so proper Maintenance of Service Charge Billing can be initiated as required and as outlined in Section 660-101-312 — Maintenance of Service Charge on Services With Customer-Provided Equipment (CPE) and Section 660-101-318 — Tariff and Registration Violation Notice Procedures.

TABLE A

TERMINATIONS FOR RJ71C IN 66M4-50R CONNECTING BLOCK (MD)

LINE	INCOMING TERMINATIONS			OUTGOING TERMINATIONS		
	COLUMN A/B	COLUMN C	CONNECTING TERMINAL	COLUMN A/B	COLUMN C	CONNECTING TERMINAL
T(1)	1	1	26	25	25	1
R(1)	2	2	27	26	26	2
T(2)	3	3	28	27	27	3
R(2)	4	4	29	28	28	4
T(3)	5	5	30	29	29	5
R(3)	6	6	31	30	30	6
T(4)	7	7	32	31	31	7
R(4)	8	8	33	32	32	8
T(5)	9	9	34	33	33	9
R(5)	10	10	35	34	34	10
T(6)	11	11	36	35	35	11
R(6)	12	12	37	36	36	12
T(7)	13	13	38	37	37	13
R(7)	14	14	39	38	38	14
T(8)	15	15	40	39	39	15
R(8)	16	16	41	40	40	16
T(9)	17	17	42	41	41	17
R(9)	18	18	43	42	42	18
T(10)	19	19	44	43	43	19
R(10)	20	20	45	44	44	20
T(11)	21	21	46	45	45	21
R(11)	22	22	47	46	46	22
T(12)	23	23	48	47	47	23
R(12)	24	24	49	48	48	24



NOTE:
BRIDGING ADAPTER MUST BE CONNECTED TO MAINTAIN CONTINUITY WHENEVER PLUG TO REGISTERED EQUIPMENT IS DISCONNECTED

Fig. 1—Schematic for USOC RJ71C Using 66M4-50R Connecting Block (MD)

♦TABLE B♦

TERMINATIONS FOR RJ71C IN 700B-66-B1-12 JACK

LINE	INCOMING TERMINATIONS			OUTGOING TERMINATIONS		
	COLUMN A/B	COLUMN D	CONNECTING TERMINAL	COLUMN A/B	COLUMN D	CONNECTING TERMINAL
T(1)	1	1	26	27	27	1
R(1)	2	2	27	28	28	2
T(2)	3	3	28	29	29	3
R(2)	4	4	29	30	30	4
T(3)	5	5	30	31	31	5
R(3)	6	6	31	32	32	6
T(4)	7	7	32	33	33	7
R(4)	8	8	33	34	34	8
T(5)	9	9	34	35	35	9
R(5)	10	10	35	36	36	10
T(6)	11	11	36	37	37	11
R(6)	12	12	37	38	38	12
T(7)	13	13	38	39	39	13
R(7)	14	14	39	40	40	14
T(8)	15	15	40	41	41	15
R(8)	16	16	41	42	42	16
T(9)	17	17	42	43	43	17
R(9)	18	18	43	44	44	18
T(10)	19	19	44	45	45	19
R(10)	20	20	45	46	46	20
T(11)	21	21	46	47	47	21
R(11)	22	22	47	48	48	22
T(12)	23	23	48	49	49	23
R(12)	24	24	49	50	50	24

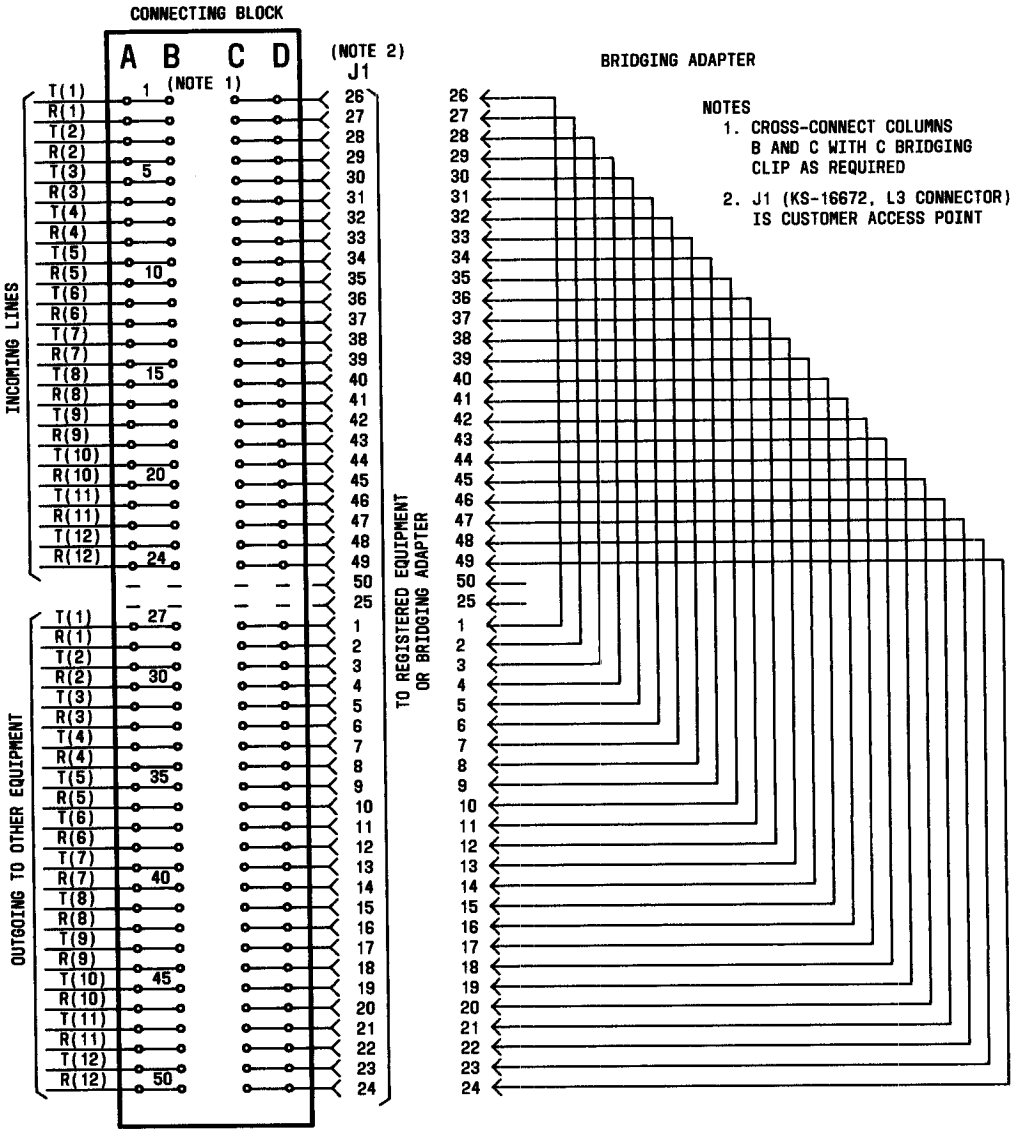


Fig. 2—Wiring of 700B-66-B1-12 Jack

JACKS FOR REGISTERED DATA EQUIPMENT
SINGLE AND MULTILINE INSTALLATIONS

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1. GENERAL

1.01 This section contains information on jacks for registered data sets or registered protective circuitry to be provided under the Federal Communications Commission (FCC) Registration Program. The jacks described herein are for use with data equipment registered as fixed loss loop (FLL) type, programmable type or equipment with an output not to exceed -9 dBm.

The FCC Registration Program requires that telephone-company provided or customer-provided data equipment be connected to the switched telecommunications network by means of a standard jack and plug with the jack to be installed by the telephone company (telco).

The FCC Registration Program rules do not permit data jacks behind PBXs or key telephone systems. Registered data sets with an output not exceeding -9 dBm may be connected using voice jacks in these situations.

1.02 This section is reissued for the following reasons.

- To incorporate information on the 97A3 data mounting.
- To indicate 97A1 data mounting is rated Manufactured Discontinued (MD).
- To make changes in Fig. 13 and 14.
- To update Table C.
- To make other minor deletions and changes.

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

1.03 The fixed loss loop type of data equipment must transmit at an output level of -4 dBm and a pad will be included in the data jack so that the total of loop loss plus pad loss will range between 8 and 9 dB. The programmed type of data equipment will adjust the output level in accordance with a programming resistor in the data jack. Both types of registered data equipment, when used with the appropriate data jacks, result in signal levels no greater than -12 dBm at the serving central office. A third type of registered data equipment must transmit at a non-adjustable level not to exceed -9 dBm for use on voice loops via a standard miniature voice jack. Since the mean attenuation of business loops is on the order of 3 dB, the -12 dBm objective will be met at

the central office. Registered data equipment with this fixed output level of -9 dBm may be used with either type of data jack and all of the 6- and 8-position miniature voice jacks to be provided under the registration program. The miniature voice jacks are described in the 463-400-ZZZ series of Bell System Practices.

1.04 In addition to providing the physical interface to the switched network, the 97-type connecting blocks provide the following:

- Physical termination of the line
- Miniature keyed 8-position jack
- Programming resistor.

The 97A-type connecting block also provides a fixed loss loop pad and a switch to allow the user to select operation with either fixed loop loss or programmed data equipment.

2. IDENTIFICATION

A. 97-Type Connecting Blocks

2.01 The 97A-type, and 97B connecting blocks provide a means for connecting registered data equipment to the switched network. The 97A-type (Fig. 1) is for use with data equipment registered as either fixed loss loop type or programmed and is also referred to as the universal data jack. The 97B (Fig. 2) connecting block is for use with data equipment registered as programmed and is also referred to as the programmed data jack.

2.02 The 97A-type and 97B connecting blocks are for use with single line installations.

2.03 The 97A-type and 97B connecting blocks measure 3.9 inches long by 1 inch high by 2.4 inches wide.

2.04 The 97A-type and 97B connecting blocks have a pair of screw terminals for the telephone line tip and ring leads. They also have a second pair of screw terminals for auxiliary telephone connections, such as mode indication, from an exclusion key-type telephone set. The mode indication function indicates to the customer's registered data equipment whether the telephone line is in the voice or data mode. As an alternative, if the customer chooses, the mode indication function can indicate operation of the switchhook contacts only.

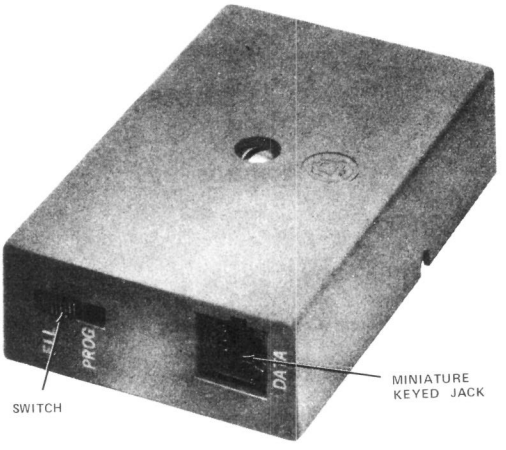


Fig. 1—97A-Type Connecting Block

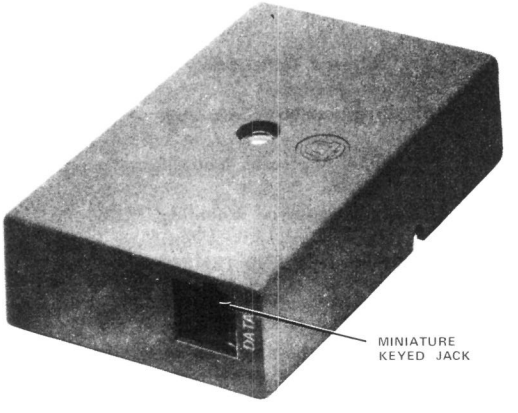


Fig. 2—97B Connecting Block

2.05 The 97A-type and 97B connecting blocks are equipped with an 8-position miniature jack which is specially keyed for use with data equipment. The jack also accepts the miniature nonkeyed 6-position standard telephone plug.

Note: Starting third quarter 1977, the 97A-type and 97B connecting blocks are shipped with a sliding door which cover the jack opening to keep out dust and dirt, etc. The door is spring-loaded and automatically closes unless a plug is inserted.

2.06 When the 97A-type connecting block is provided, the associated switch must be in the correct position to ensure proper operation. Should the switch be in the programmed position with fixed loss loop data equipment, the data signal will not reach the line. Should the customer attempt to connect fixed loss loop type data equipment through a programmed data jack, the signal will not reach the line. If the switch on the 97A-type (universal) data jack is in the fixed loss loop position with programmable data equipment, the data signal may have an additional loss of up to 3 dB due to the bridged open circuit impedance of the pad.

2.07 The 97A-type connecting block is available in nine versions coded 97A1 through 97A9, with each code having the appropriate pad and programming resistor for a particular loop loss. The last digit of the code represents the loss of the loop rounded up to the next whole dB. The resulting loop loss is between 8 and 9 dB, as illustrated in Fig. 3. The 97B connecting block is shipped with a complete set of programming resistors.

B. 97A-Type Data Mounting

2.08 The 97A1 (MD) data mounting (Fig. 4) is a multiple mounting for up to eight D97A-type circuit packs connected via 910B connectors that are mounted on a printed wiring board backplane. One 50-position connector mounted on the backplane provides means for connecting registered data equipment. The other 50-position connector is for the connection of telephone line facilities.

2.09 The 97A3 data mounting (Fig. 5) replaces and is similar to the 97A1. The 97A3 data mounting is equipped with a 2-foot cable assembly and clamp instead of the telephone interface connector mounted on the backplane as on the 97A1.

2.10 The overall dimensions of the 97A1 (MD) and 97A3 data mounting are 5 inches long, 1.85 inches high, and 5 inches deep.

2.11 A gray plastic cover and base pan (D-180935 mounting kit) may be used to house a 97A-type data mounting to facilitate wall mounting (Fig. 6). The cover has eight slots which allows the D97A-type circuit pack switches to protude and a writing surface under each switch position to write in telephone line number and loop loss. The switches provide a means for selection of operation with either fixed loss loop or programmed data equipment. A fully equipped 97A-type data mounting in a D-180935 mounting kit weighs approximately 3 pounds.

2.12 A bracket and a clamp, to lock connecting cables to the 97A-type data mounting, are provided as part of the 97A-type data mounting. An adhesive pad (842309643) to allow mounting to a metal wall without drilling, is provided as part of the D-180935 mounting kit.

2.13 The 97A-type data mounting has been designed for both 19- and 23-inch rack mounting as well as wall mounting. In a 19-inch rack, a number 842310781 2-inch mounting plate accommodates three 97A-type data mountings providing up to 24 lines. A 23-inch rack application requires the use of a number 842310773 2-inch mounting plate which holds four 97A-type data mountings providing up to 32 lines.

2.14 The 97A-type data mounting was designed to serve the same purpose as the 97A-type and 97B connecting block, except the 97A-type data mounting has these advantages:

- Is more compact
- Provides a more attractive multiline arrangement.

C. D97A-Type Circuit Pack

2.15 The D97A-type circuit pack (Fig. 7) is electrically equivalent to the 97A-type connecting block, except for the absence of the 8-position miniature jack, provides a fixed loss loop pad and a switch to allow the user to select operation with either fixed loss loop or programmed data equipment.

2.16 The D97A-type circuit pack is available in nine versions, coded D97A1 through D97A9, with each code having the appropriate pad and programming resistor for a particular loop loss

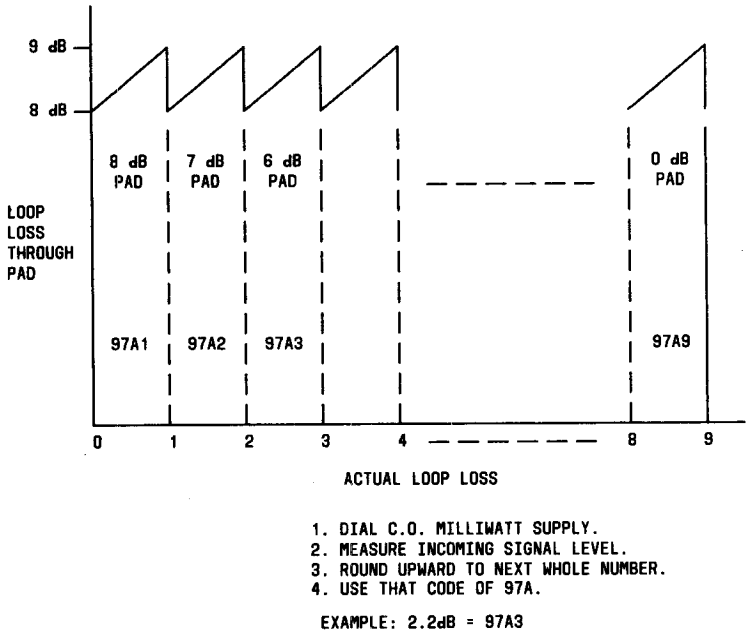


Fig. 3—Determining Correct 97A-Type Connecting Block

(Table A). The last digit of the code represents the loss of the loop rounded up to the next whole dB. The resulting loop loss (loop plus pad) is between 8 and 9 dB.

D. Summary of USOC Designations

2.17 The data jacks have been assigned USOC designations in the RJ family. The remaining characters identify a specific interface and physical arrangement. An arrangement can be provided to interconnect a data jack and an exclusion key telephone set. Each of the data jacks and the telephone arrangement is described in the following paragraphs.

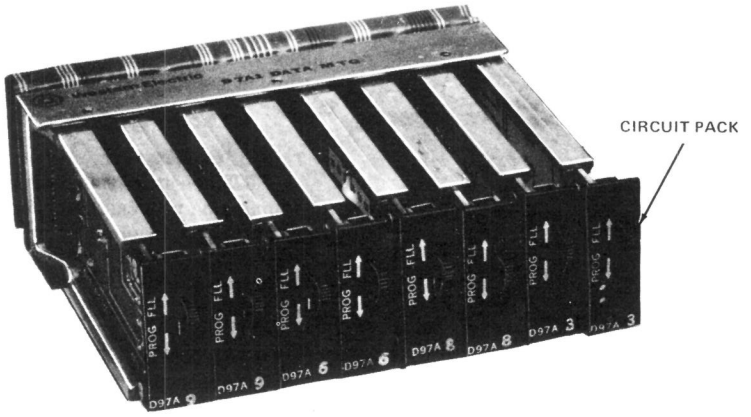
2.18 ***USOC RJ41S:*** RJ41S is the universal data jack (requires the 97A-type connecting block) for single-line applications of both fixed loss loop and programmed data equipment. The jack is an 8-position miniature keyed jack and is shown schematically in Fig. 8.

2.19 ***USOC RJ45S:*** RJ45S is the programmed data jack (requires the 97B connecting block) for single-line applications of the programmable type data equipment only. The jack is an 8-position miniature keyed jack and is shown schematically in Fig. 9.

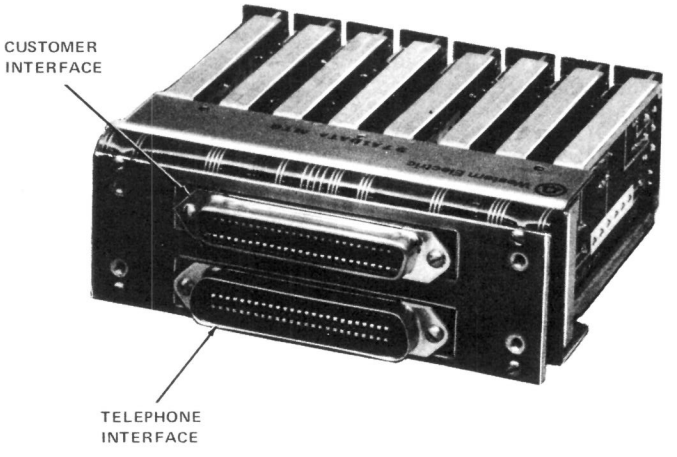
2.20 ***USOC RJ16X:*** This arrangement in connection with a series jack such as RJ36X provides "mode indication" leads (MI and MIC) for data sets using the "permissive" mode of transmission (shown schematically in Fig. 10). This is a miniature 6-position connector.

2.21 ***USOC RJ41M:*** RJ41M is the multiple mounting arrangement equipped with up to eight universal data jacks. This USOC is implemented with the 103A apparatus mounting (RJM2X) and the appropriate number of 97A-type connecting blocks (RJ41S). A 103A apparatus mounting accommodates up to 16 single universal data jacks.

2.22 ***USOC RJ45M:*** RJ45M is the multiple mounting arrangement equipped with up to



A. D97A CIRCUIT PACK VIEW



B. INTERFACE VIEW

Fig. 4—97A1 Data Mounting

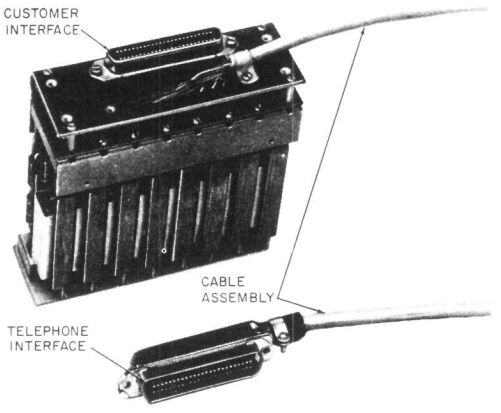


Fig. 5—97A3 Data Mounting

eight programmed data jacks. This USOC is implemented with a 103A apparatus mounting (RJM2X) and the appropriate number of 97B connecting blocks (RJ45S). A 103A apparatus mounting accommodates up to 16 single programmed data jacks.

2.23 ***USOC RJ26X:*** As an interim arrangement, RJ26X is implemented with the M48A-87 cord for combining up to eight single-line universal data jacks into one 50-position miniature ribbon connector. RJ26X can also be implemented with the new 97A3 data mounting. In this case, the following USOCs would apply:

USOC RJ26X: Multiple line universal data jack for up to 8 lines—common equipment (97A3 data mounting). The connector that the data equipment connects to is shown schematically in Fig. 11. The pin assignment

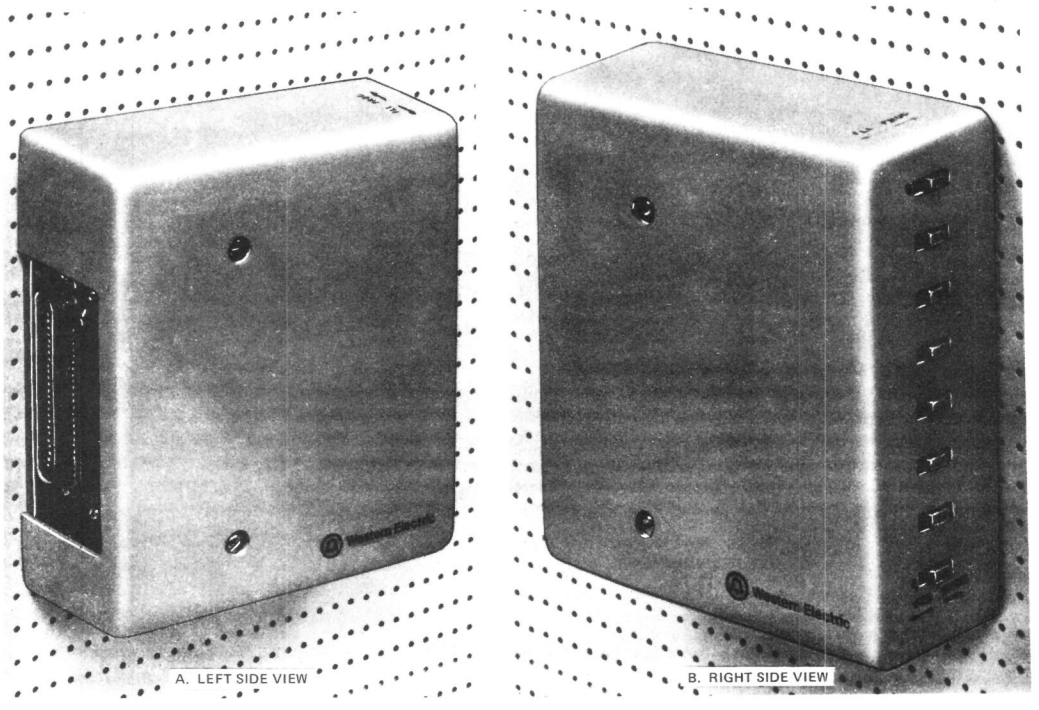
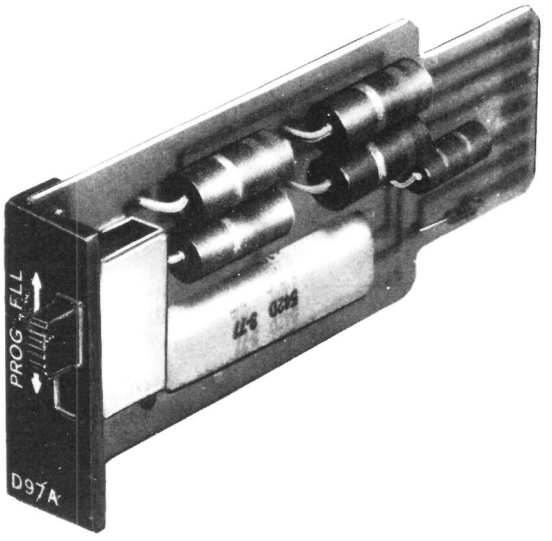
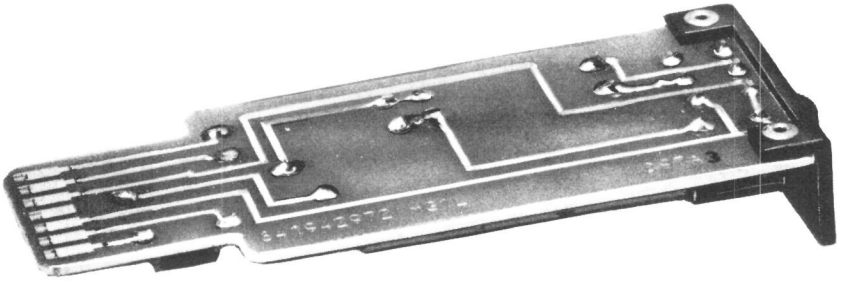


Fig. 6—97A1 Data Mounting E/W Eight D97A-Type Circuit Packs Installed in a D-180935 Mounting Kit



A. FRONT VIEW



B. BACK VIEW

Fig. 7—D97A-Type Circuit Pack

TABLE A

PAD AND PROGRAMMING RESISTOR CODE LISTINGS FOR PARTICULAR LOOP LOSS OF D97A-TYPE CIRCUIT PACKS

CODE	LOOP LOSS IN dB
D97A1	0.0-1.0
D97A2	1.1-2.0
D97A3	2.1-3.0
D97A4	3.1-4.0
D97A5	4.1-5.0
D97A6	5.1-6.0
D97A7	6.1-7.0
D97A8	7.1-8.0
D97A9	8.1-9.0

for the connector that the telephone facilities connect to is shown in Table B.

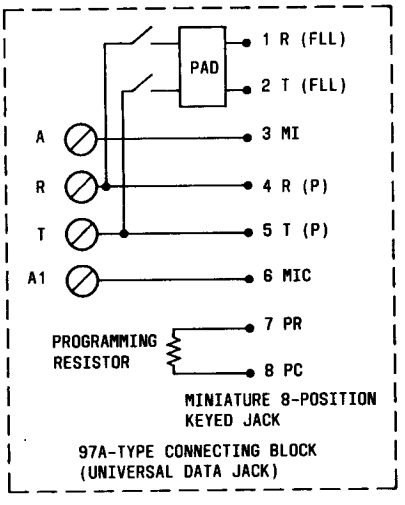
USOC RJ26S: Line circuits for use with RJ26X on a per line basis (D97A-type circuit pack).

USOC RJM3X: Wall mounting arrangement for use with an 8-line multiple data jack (D-180935 mounting kit).

USOC RJM4X: Rack mounting for use with multiple line data jack (19- or 23-inch rack mounting).

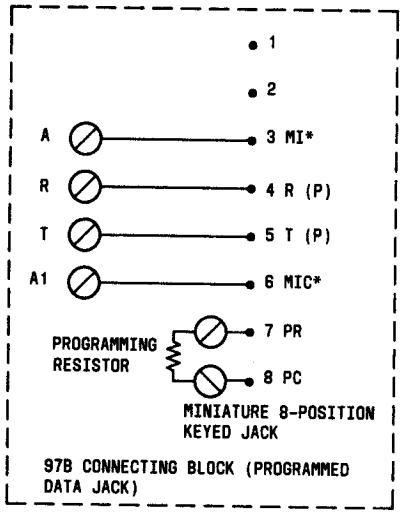
2.24 ***USOC RJ27X:*** As an interim arrangement, RJ27X is implemented with the M48A-87 cord for combining up to eight programmed data jacks (97B connecting blocks) into one 50-position miniature ribbon connector.

2.25 ***USOC RJ36X:*** RJ36X is a miniature 8-position series jack (635-type connecting block) shown schematically in Fig. 12.



LOOP LOSS IN dB	SELECT
0.0-1.0	97A1
1.1-2.0	97A2
2.1-3.0	97A3
3.1-4.0	97A4
4.1-5.0	97A5
5.1-6.0	97A6
6.1-7.0	97A7
7.1-8.0	97A8
8.1-9.0	97A9

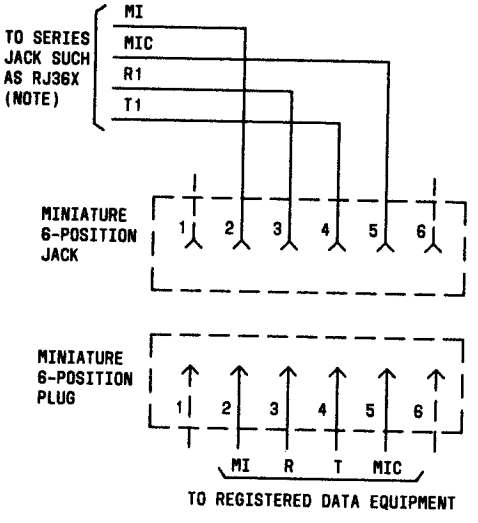
Fig. 8—USOC RJ41S, Schematic



LOOP LOSS IN dB	PROGRAMMING RESISTOR VALUE (OHMS)	RESISTOR MARKING
0.0-1.0	NONE	NONE
1.1-2.0	19,800	19K8
2.1-3.0	9,200	9K20
3.1-4.0	5,490	5K49
4.1-5.0	3,610	3K61
5.1-6.0	2,520	2K52
6.1-7.0	1,780	1K78
7.1-8.0	1,240	1K24
8.1-9.0	866	866R

*MI IS LABELLED "A" AND MIC IS LABELLED "A1" ON CONNECTING BLOCK.

Fig. 9—USOC RJ45S, Schematic



NOTE:
MI AND MIC LEADS ARE TYPICALLY WIRED TO AN RJ36X SERIES JACK WHICH CAN BE USED TO CONNECT AN EXCLUSION KEY TELEPHONE SET AHEAD OF THE DATA EQUIPMENT.

Fig. 10—Connections for USOC RJ16X

2.26 ***USOC RJM2X:*** RJM2X is implemented with the 103A apparatus mounting for up to sixteen 97A-type and 97B connecting blocks.

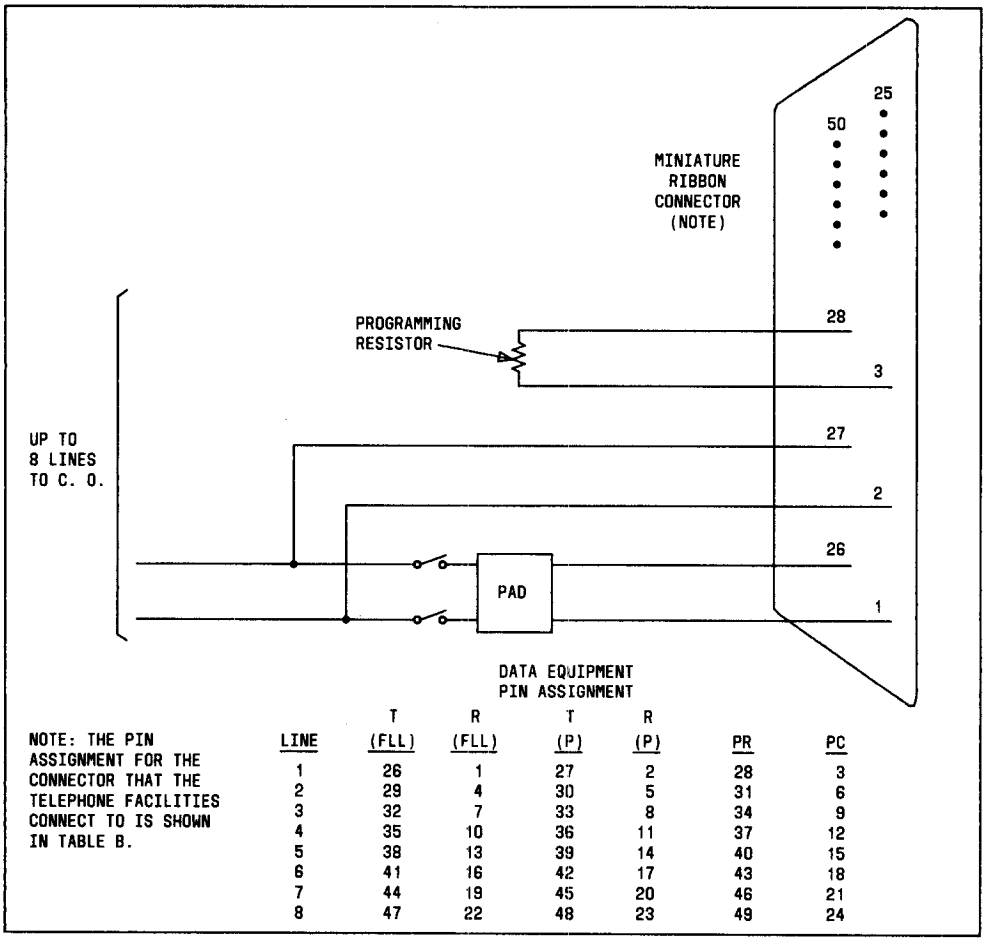
2.27 ***USOC RJA5X:*** RJA5X is implemented with a M48A-87 adapter cord with a 50-position miniature ribbon connector attached.

2.28 A summary of the USOCs for registered data equipment jacks is presented in Table C.

2.29 ***USOC RTC:*** This is the USOC for the 503CM or 2503CM telephone set which provides exclusion key transfer of the line to either the telephone set or the data equipment and provides a mode indication to the data equipment. The set is connected by means of a D8AA-87 cord which plugs into a miniature 8-position series jack (635-type connecting block, USOC RJ36X) and which connects to the data jack as shown in Fig. 13 for the 503CM telephone set or Fig. 14 for the 2503CM telephone set.

E. Associated Telephone Arrangement

2.30 A telephone set can be connected to the data line and used for voice or call origination and answering. The telephone line is connected



DATA EQUIPMENT
PIN ASSIGNMENT

NOTE: THE PIN ASSIGNMENT FOR THE CONNECTOR THAT THE TELEPHONE FACILITIES CONNECT TO IS SHOWN IN TABLE B.

LINE	T (FLL)	R (FLL)	T (P)	R (P)	PR	PC
1	26	1	27	2	28	3
2	29	4	30	5	31	6
3	32	7	33	8	34	9
4	35	10	36	11	37	12
5	38	13	39	14	40	15
6	41	16	42	17	43	18
7	44	19	45	20	46	21
8	47	22	48	23	49	24

Fig. 11—USOC RJ26X, Schematic

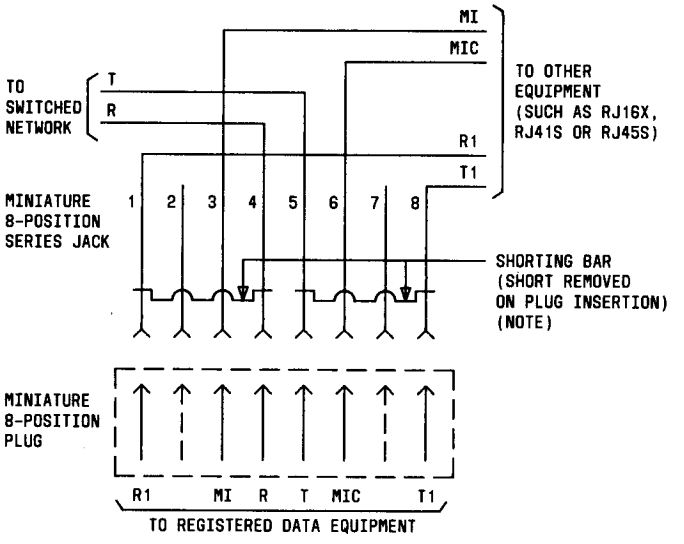
to either the telephone set or the data equipment under control of the exclusion key. With this arrangement, an indication of the voice mode can be given to the customer through the mode indication positions of the data jack. As an alternative, the mode indication pins can provide an indication of the operation of switchhook contacts. The customer must specify whether the telephone set or the data equipment controls the line. The customer must also specify whether or not aural monitoring is desired. Refer to Table D for items requiring a customer decision. With aural monitoring, the 503CM or 2503CM telephone set can monitor the line (on a high impedance basis) while the data equipment is in the data mode.

2.31 Refer to Fig. 13 or 14 for wiring and connection diagrams for the telephone set. With wiring option B (Fig. 13 or 14) the telephone handset is lifted from the switchhook and the exclusion key lifted for the voice mode. This is usually described as "data equipment controls the

TABLE B

PIN ASSIGNMENT CONNECTING THE
EIGHT CENTRAL OFFICE LINES
TO 97A-TYPE DATA MOUNTING

LINE NO.	PIN ASSIGNMENT OF:	
	97A1 DATA MOUNTING W/O M16M CORD	97A1 DATA MOUNTING E/W M16M CORD AND 97A3 DATA MOUNTING
1	24-49	1-26
2	21-46	2-27
3	18-43	3-28
4	15-40	4-29
5	12-37	5-30
6	9-34	6-31
7	6-31	7-32
8	3-28	8-33



NOTE: THE DIFFERENCE BETWEEN THE 635A AND 635B ARE
1. THE 635A REMOVES THE SHORT ON INSERTION OF A 6- OR 8-POSITION PLUG.
2. THE 635B PROVIDES A BRIDGED CONNECTION WITH A 6-POSITION PLUG AND A SERIES CONNECTION WITH AN 8-POSITION PLUG.

Fig. 12—Connections for USOC RJ36X

TABLE C

STANDARD CONFIGURATIONS FOR CONNECTION
TO THE SWITCHED TELEPHONE NETWORK

USOC	PLUG/JACK	DESCRIPTION	METHOD OF IMPLEMENTATION
RJ41S	Miniature 8-position keyed	Single line universal data jack for fixed loss loop or programmable data equipment.	97A-type connecting block.
RJ45S	Miniature 8-position keyed	Single line programmed data jack for programmable data equipment.	97B connecting block.
RJ41M	Up to eight miniature 8-position keyed	Multiple mounting arrangement and up to eight single line universal data jacks.	103A apparatus mounting (RJM2X) and the appropriate number of 97A-type connecting blocks (RJ41S). The 103A apparatus mounting will hold up to 16 single line data jacks.
RJ45M	Up to eight miniature 8-position keyed	Multiple mounting arrangement and up to eight single line programmed data jacks.	103A apparatus mounting (RJM2X) and the appropriate number of 97B connecting blcoks (RJ45S). The 103A apparatus mounting will hold up to 16 single line data jacks.
RJ26X* (interim)	50-position miniature ribbon connector	Adapter cord which provides miniature ribbon connectors and up to eight single line universal data jacks.	M48A-87 adapter cord (RJA5X) and up to eight 97A-type connecting blocks (RJ41S). The 97A connecting blocks may be wall mounted or they may be housed in a 103A apparatus mounting (RJM2X) at added cost. The 103A will hold up to sixteen 97As.
RJ26X† (new) consists of:			
RJ26X	50-position miniature ribbon connector	Multiple line universal data jack for up to eight lines — common equipment.	97A3 data mounting.
RJ26S		Line circuits for use with RJ26X on a per line basis.	D97A-type circuit pack.
RJM3X		Wall mounting arrangement for use with an 8-line multiple data jack.	D-180935 mounting kit (includes plastic cover and base pan with mounting screws and adhesive pad).
RJM4X		Rack mounting for use with multiple line data jacks.	842310781 mounting plate — 19 inch, 842310773 mounting plate — 23 inch.

TABLE C (Contd)

STANDARD CONFIGURATIONS FOR CONNECTION TO THE SWITCHED TELEPHONE NETWORK

USOC	PLUG/JACK	DESCRIPTION	METHOD OF IMPLEMENTATION
RJ27X (interim)	50-position miniature ribbon connector	Adapter cord which provides 50-position miniature ribbon connector and up to eight single line programmed data jacks.	M48A-87 adapter cord (RJA5X) and up to eight 97B connecting blocks (RJ45S). The 97B connecting blocks may be wall mounted or they may be housed in a 103A apparatus mounting (RJM2X) at added cost. The 103A will hold up to sixteen 97Bs.
RJ36X	Miniature 8-position unkeyed	Series jack to connect 503CM or 2503CM exclusion key telephone set ahead of jack provided for data equipment..	635-type connecting block.
RJ16X	Miniature 6-position	Voice jack with connection to RJ36X series jack.	625-type connecting block.

*RJ26X (interim) is the original implementation of the 50-position connector.

†RJ26X (new) provides those features in a self-contained arrangement.

line" because, until the telephone set exclusion key is lifted, the data equipment has control over incoming and outgoing calls, as it is directly connected to the line. Operation of the telephone set can be inverted by reversing the exclusion key wiring (Fig. 13 or 14, wiring option A), so that the telephone set controls the line and the exclusion key must be operated to allow data equipment connection to the line. With aural monitoring (wiring option C), the telephone handset is bridged on the line on a high impedance basis whenever the handset is off-hook and the exclusion key is in the data position. With wiring option E, the mode indication function indicates to the data equipment that the handset is off-hook through the MI and MIC leads.

2.32 When customers request a telephone set as an adjunct to the data jack, an exclusion key telephone set (503CM or 2503CM or equivalent) is recommended.

2.33 An exclusion key telephone set (RTC) is recommended when customers request a telephone set ahead of a data jack. This is because room noise and switchhook operation can cause data errors if an ordinary bridged telephone set is used. Also, calls can be dropped if the transfer between talk and data modes are not carefully coordinated.

2.34 Requests for regular bridged telephone sets should not be denied if the customer is aware of the possible problems, and feels that the telephone set will be used properly. The telephone set should be located not more than 6 feet from the data equipment to minimize data transmission errors and false disconnects.

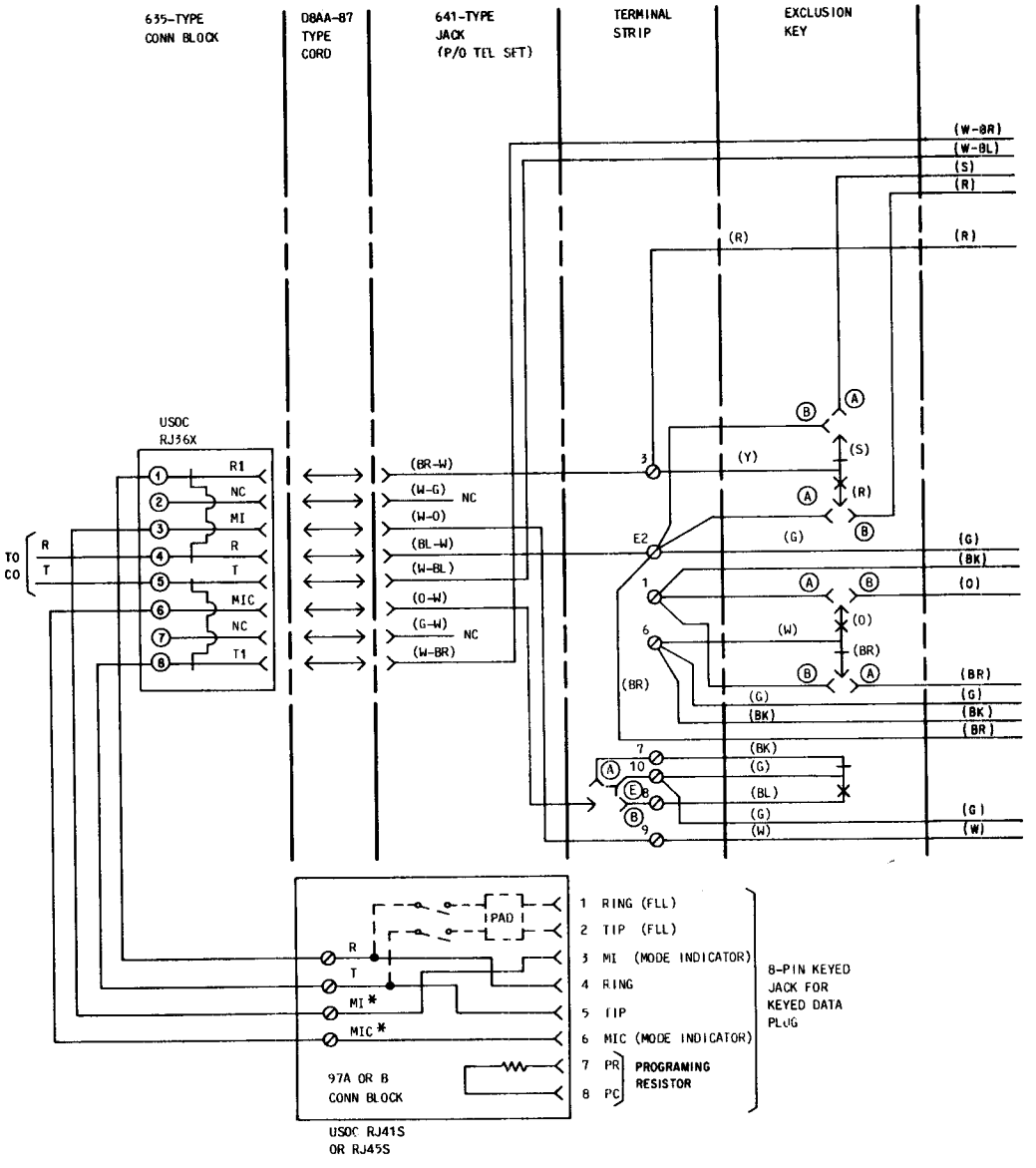
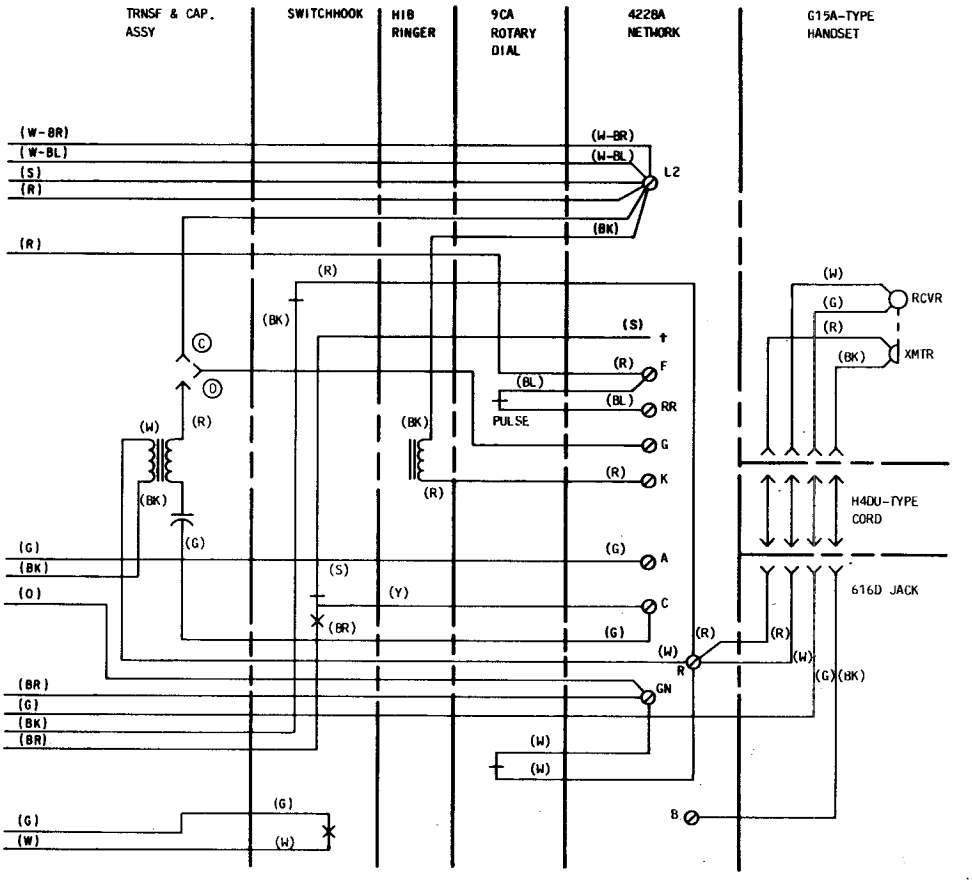


Fig. 13—503CM Telephone Set—Registration Jack Connections (Sheet 1 of 2)



NOTE:
VOICE MODE INDICATION IS THE ABSENCE OF WIRING OPTION E.

* MI IS LABELLED "A" ON 97-TYPE CONNECTING BLOCKS AND MIC IS LABELLED "A1"

† INSULATED AND STORED

OPTIONS:

- (A) TELEPHONE SET CONTROLS LINE
- (B) DATA SET CONTROLS LINE
- (C) AURAL MONITORING PROVIDED
- (D) NO AURAL MONITORING PROVIDED
- (E) SWITCHHOOK INDICATION E SUPERSEDES A AND B ON TERMINAL STRIP WHEN BOTH A AND E OR B AND E ARE TO BE USED.

Fig. 13—503CM Telephone Set—Registration Jack Connections (Sheet 2 of 2)

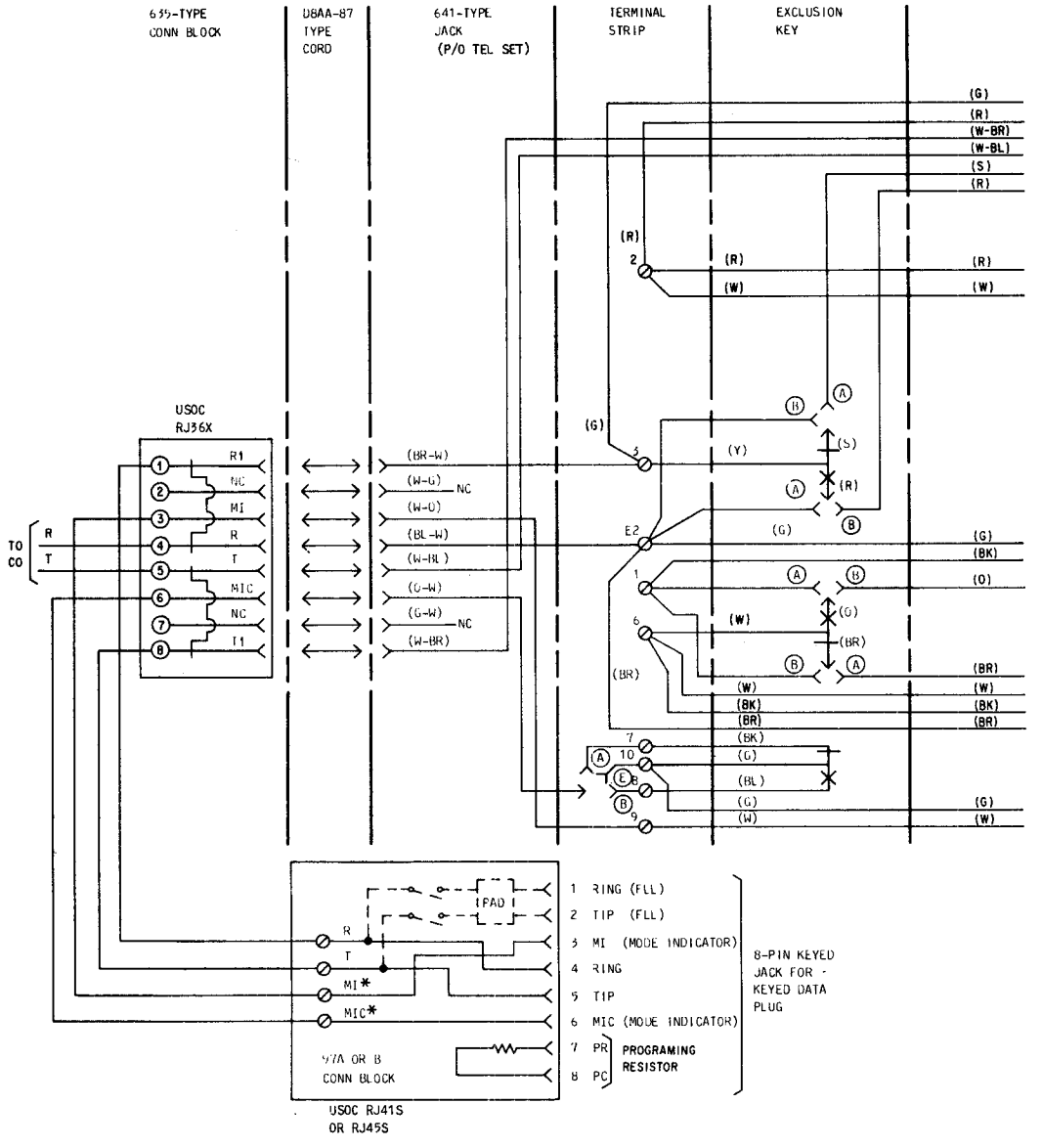


Fig. 14—2503CM Telephone Set—Registration Jack Connections (Sheet 1 of 2)

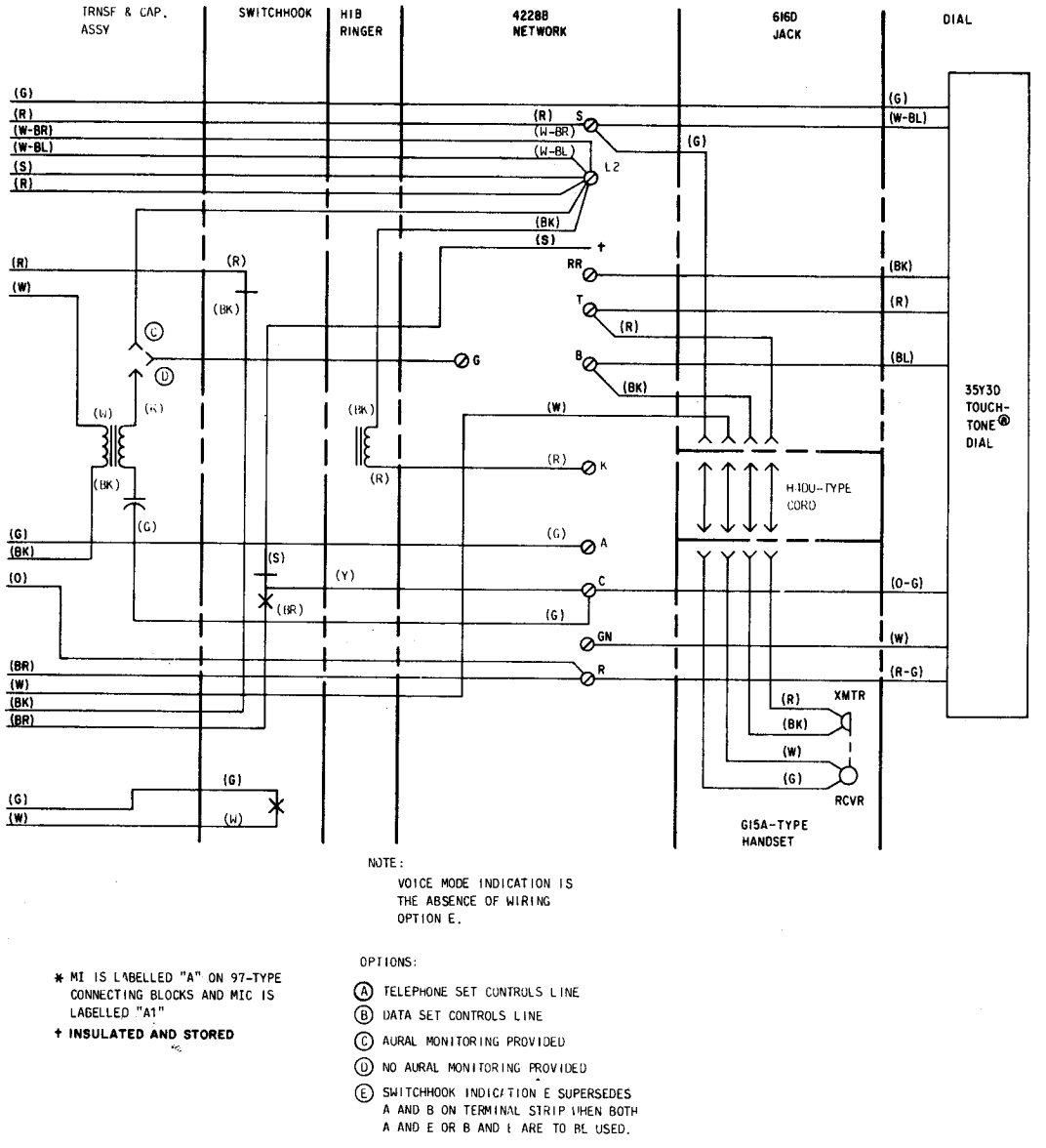


Fig. 14—2503CM Telephone Set—Registration Jack Connections (Sheet 2 of 2)

TABLE D

CUSTOMER DECISION TABLE

DECISION		DESCRIPTION	OPTION*
I	1	Telephone Set Controls Line	A
	2	Data Set Controls Line†	B
II	3	Aural Monitoring Not Provided	D
	4	Aural Monitoring Provided†	C
III	5	TOUCH-TONE® Dial	—
	6	Rotary Dial	—
IV	7	Switchhook Indication Only	E
	8	Voice Mode Indication	B

*Connections for listed options are shown in Fig. 13 and Fig. 14.

†Factory-furnished for telephone set.

3. INSTALLATION

3.01 Prior to installing the data jack, ensure that the loop meets requirements specified in Section 314-205-501. The telco data sets operating at speeds higher than 300 bps require conditioned access lines. In addition, it is assumed that customers with data equipment operating at speeds higher than 300 bps will order data jacks and request conditioned access lines. The procedures described applies to data jacks installed on foreign exchange (FX) lines as well as regular switched network loops.

> ***Note:*** The FX lines are normally designed to have a nominal 4.5 dB loss to the central office.

3.02 Determine the loop loss as follows.

(1) Dial the central office milliwatt supply or request the testboard, at the central office, to send a 1004-Hz tone at 0 dBm on the loop.

(2) Use a transmission test set with a 900-ohm termination (TTS-4 or equivalent) to measure the level of the incoming signal. The numerical reading is equal to the loop loss in dB. (For example, -6 dBm on the meter is equal to 6-dB loop loss.)

(3) When the measured loop loss is not a whole number, round off the fraction to the next higher whole number (for example, 5.4 dB becomes 6 dB).

(4) Record the loop loss (to the nearest tenth of a dB) and leave this information with the data jack.

A. Universal Data Jack

3.03 When the loop loss has been determined, select the proper 97A-type connecting block as directed in the table in Fig. 8. Connect the 97A-type connecting block to the data line. Operate the switch to the position appropriate for the type of data equipment being connected. Instruct the customer as to the proper switch position and leave a copy of the How-to-Operate card (999-100-117).

B. Programmable Data Jack

3.04 When the loop loss has been determined, select the proper programming resistor from those provided in the plastic bag, which corresponds to the loop loss, using the table in Fig. 9. Install this resistor between terminals PR and PC of the 97B connecting block. Store the bag of unused resistors under the circuit board of the connecting block or other convenient location. Connect the connecting block to the data line.

> ***Note 1:*** A 97A-type connecting block can be used in an emergency if a 97B is not readily available.
>
> ***Note 2:*** A chart similar to that shown in Fig. 9 is included in the plastic envelope which contains the programming resistors. Starting first quarter 1977, the chart was etched on th noncomponent side of the circuit board of the 97B connecting block instead of being shipped as a ship-loose item.

3.05 Select a flat mounting surface and install the 97B connecting block using the two No. 6 pan-head wood/metal tapping screws or the double coated adhesive pad included as ship-loose items. The preferred mounting position is on a vertical surface with the jack opening to the lower left.

3.06 Record loop loss (as measured in paragraph 3.02) and the telephone line number on the matte surface on the side of the cover above the jack opening of the 97B connecting block using a No. 2 lead pencil or a ball-point pen. All 97A-type and 97B connecting blocks manufactured starting in second quarter 1978 have an enlarged matte writing area. Designations LPL (loop loss) and TLN (telephone line number) are stamped on the surface for convenience.

C. 103A Apparatus Mounting

3.07 Where several 97A-type and 97B connecting blocks are to be installed in the same location, a 103A apparatus mounting may be used (Fig. 15).

3.08 The 103A apparatus mounting provides a multiple arrangement for up to sixteen 97A-type and 97B connecting blocks. The 103A apparatus mounting can be mounted in any of the following configurations (Fig. 16).

(a) Wall-mounted with the rear of the unit against the wall.

(b) Rack-mounted in a 19-inch cabinet with the front of the unit flush with the mounting surface.

(c) Rack-mounted in a 19-inch cabinet with the front of the unit either 4.33 or 4.95 inches forward of the mounting surface.

(d) Rack-mounted in a 23-inch cabinet with the front of the unit 4.95 inches forward of the mounting surface.

Note 1: Each 103A apparatus mounting requires 6.0 inches (1/2 inch above and 1-3/4 inches below) to allow the cover to open properly.

Note 2: When installing 97A-type and 97B connecting blocks, leave about 6 inches slack in the wiring to allow the jack to be removed from the mounting without interrupting service.

3.09 The M48A-87 cord (ordered separately) can be used to combine eight connecting blocks to one 50-position female miniature ribbon connector (Fig. 17). To attach the M48A-87 cord to the 103A cover, remove the nuts from the screws holding

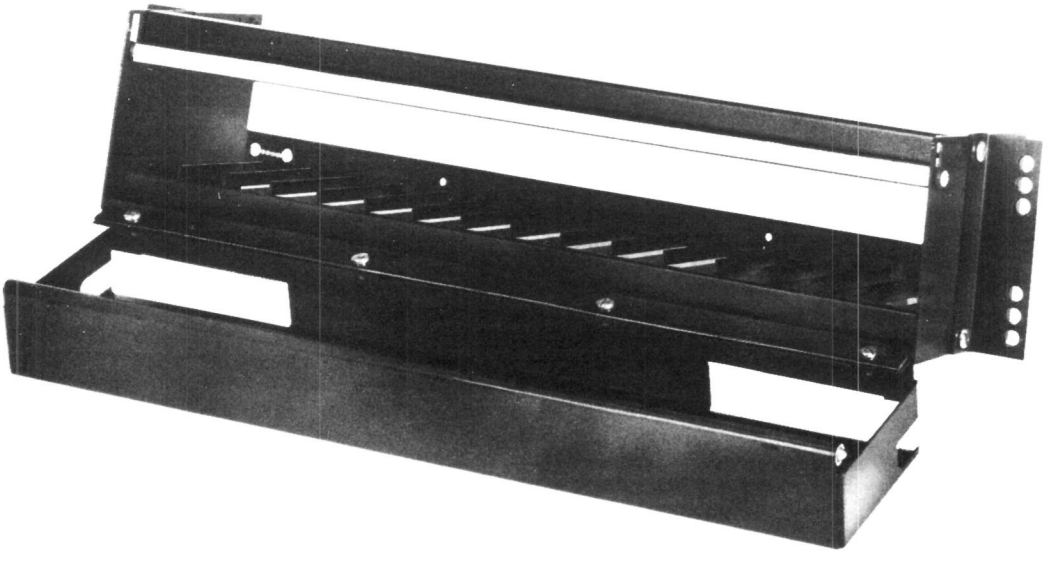


Fig. 15—103A Apparatus Mounting

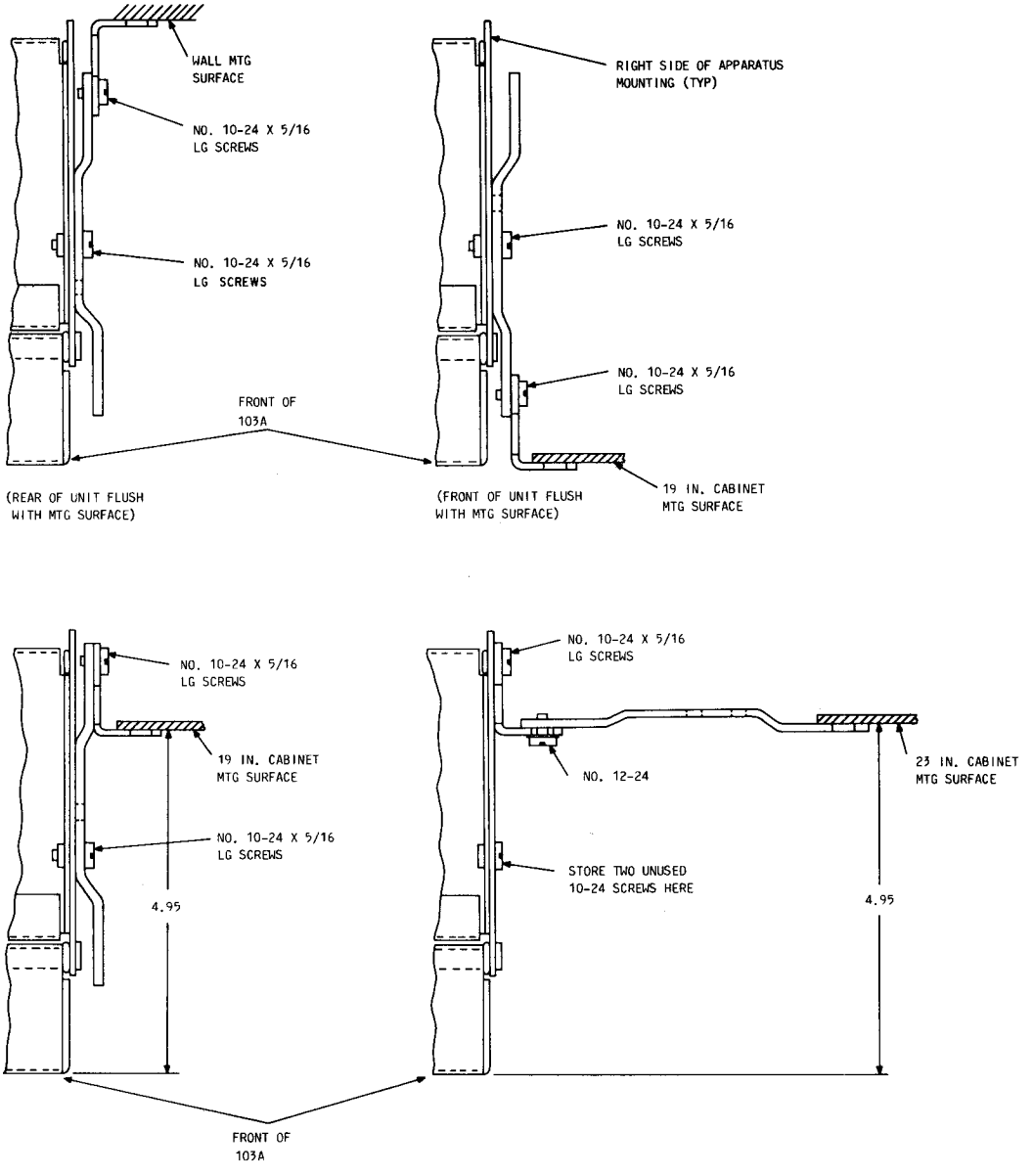


Fig. 16—103A Apparatus Mounting Brackets

the connector retainer bracket to the mounting bracket on the 103A apparatus mounting. Place the ribbon connector of the M48A-87 cord over the screw ends and replace the nut on the outer screw. The mounting screw toward the center of the cover threads into the connector body. (The nut may be discarded.) Clamp the retainer bracket between the connector and the mounting bracket on the 103A cover.

Fig. 17—M48A-87 Cord

3.10 Eight 97A-type or 97B connecting blocks may be wall-mounted using an M48A-87 cord to provide a 50-position interface.

3.11 A wall-mounted arrangement similar to that described in paragraph 3.10 but using an M48A-87 cord and a KS-20458,L14 cover to provide a 50-position interface is shown in Fig. 18.

D. Rack and Wall Mounting

3.12 The 97A1 and 97A3 data mounting have been designed for both 19- and 23-inch rack mounting as well as wall mounting. In a 19-inch rack, a number 842310781 2-inch mounting plate accommodates a total of three (3) data mountings or connecting blocks providing up to 24 lines. A 23-inch rack application requires the use of a number 842310773 2-inch mounting plate which holds a total of four data mountings or connecting blocks providing up to 32 lines.

3.13 A bracket and a clamp are available to lock connecting cables to the 97A1 and 97A3 data mounting, and an adhesive pad (842309643) is provided to allow mounting to a metal wall without drilling. These items are provided as part of the D-180935 mounting kit.

4. MAINTENANCE AND TESTING

4.01 Maintenance of the data jack on the customer premises is limited to local tests, testing with the serving or test offices, or replacing a defective connecting block or data mounting.

4.02 Repair forces should be familiar with the tariff provisions which generally provide for a "Maintenance of Service Charge" for each customer-requested repair visit to a data jack installation. When the customer requests such a repair visit and it is subsequently determined that the trouble is ***not*** in the telco facilities, advise the customer and notify the Plant Service Center to fill out Form E-5855 in conformance with the section entitled Maintenance of Service Charge on Service With Customer-Provided Equipment (CPE) (660-101-312).

4.03 The following test may be performed during repair visits to verify continuity of the data jack. Access to the positions of the 97A-type or 97B connecting block can be obtained by using an M8P-87 cord which terminates in a miniature 8-position keyed plug on one end and color-coded spade-tipped conductors on the other. The pin assignments and colors are as follows.

PIN	COLOR
1	Blue
2	Orange
3	Black
4	Red
5	Green
6	Yellow
7	Brown
8	Slate

(1) Verify continuity and ohmic value of the programming resistor with an ohmmeter via jack pins 7 and 8.

(2) Verify continuity through the 97A-type or 97B connecting blocks to the telephone line screw terminals (T and R) with an ohmmeter

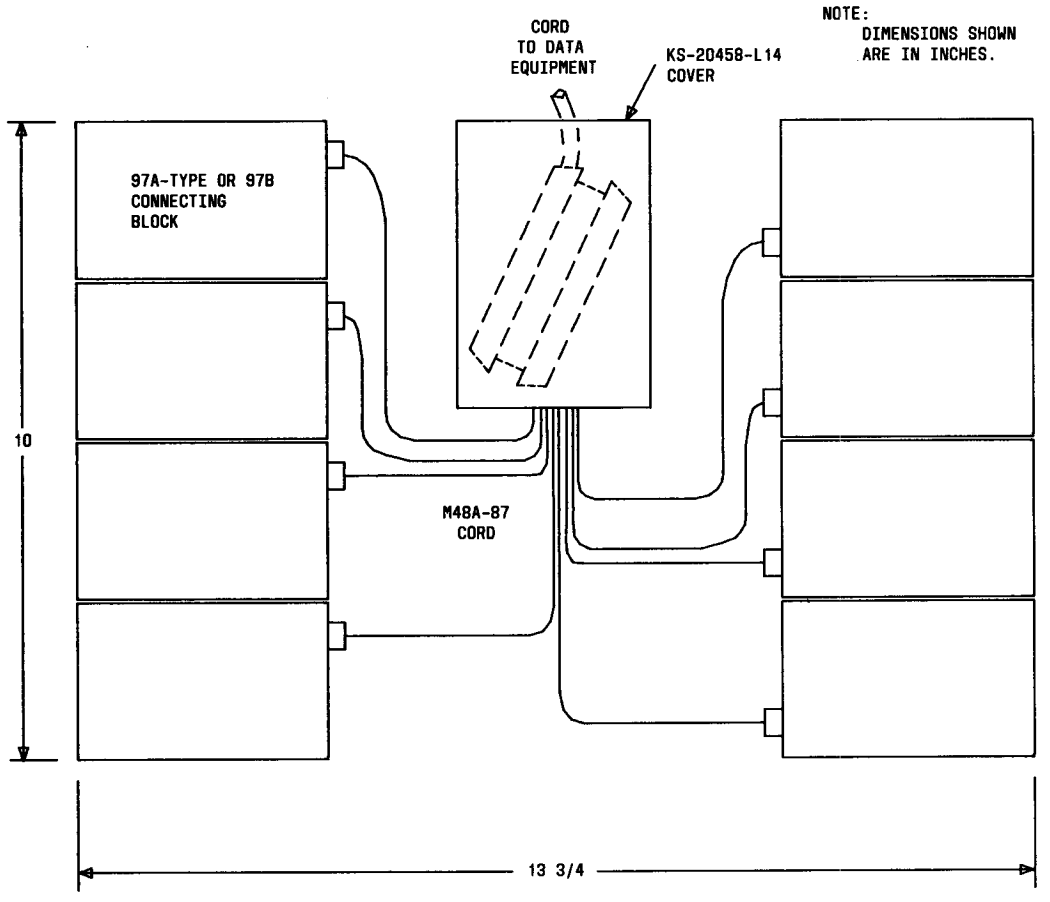


Fig. 18—Wall-Mounting Data Jacks and Adapter Cord

via jack pins 4 and 5 for programmed data equipment. Level measurements of the milliwatt supply may be made via these pins also. (The switch on the 97A-type should be in the programmed position.) The data jack itself should introduce no loss.

(3) Verify continuity to the telephone line screw terminals (T and R) for fixed loss loop data equipment of 97A-types via jack pins 1 and 2. Level measurements of the milliwatt supply may be made via these pins also. (The switch on the data jack should be in the FLL position.) The received level should be in a range between -8 and -9 dBm.

(4) If a 503CM or 2503CM telephone set is provided, verify the mode indication function via pins 3 and 6 with an ohmmeter. A short should appear when the line is in the voice mode and an open should appear when the line is in the data mode. If the "switchhook only" option has been provided in the telephone set, a short should appear on pins 3 and 6 whenever the handset is taken off-hook.