

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.

NOTICE

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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 MIC. 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 permissible 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.

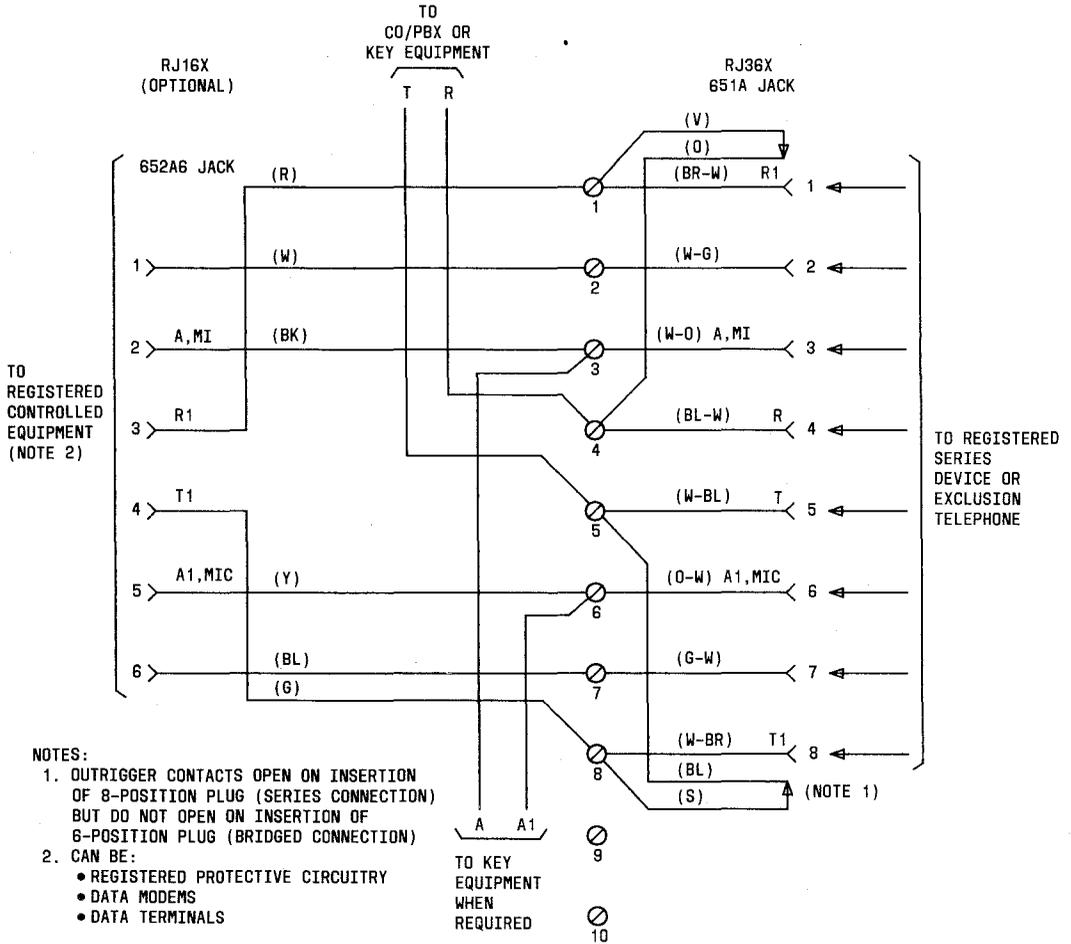
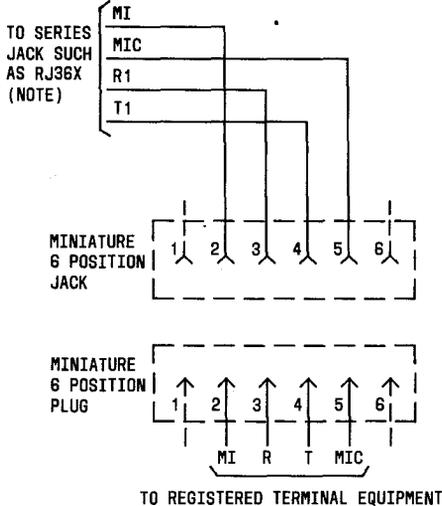


Fig. 1—Schematic Diagram, 635B Connecting Block (652A6 Jack for Controlled Station, Mounted in 635B Connecting Block Cover or Externally Mounted)



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

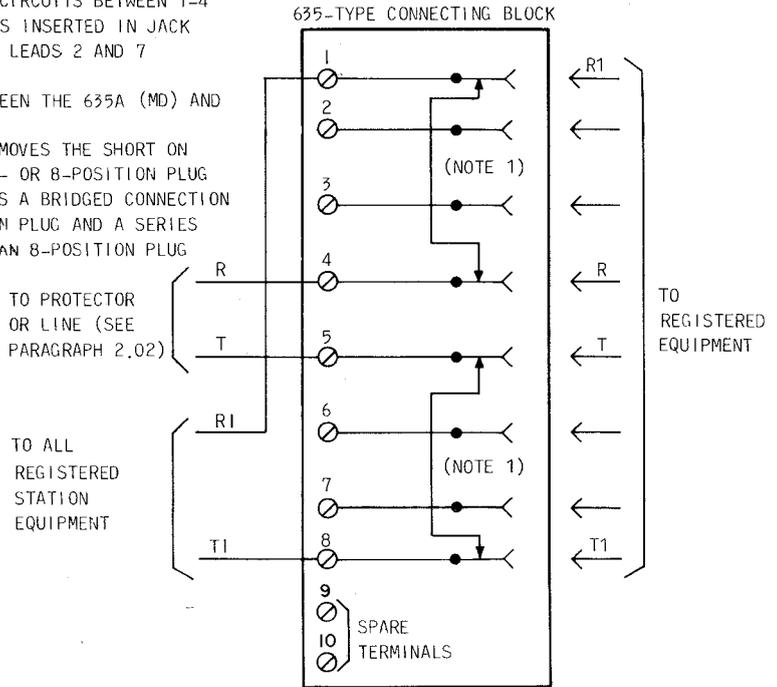


Fig. 3—Connections for USOC RJ31X

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

INSIDE WIRE FROM PROTECTOR (SEE PARAGRAPH 2.03)

TO REGISTERED STATION EQUIPMENT

635-TYPE CONNECTING BLOCK

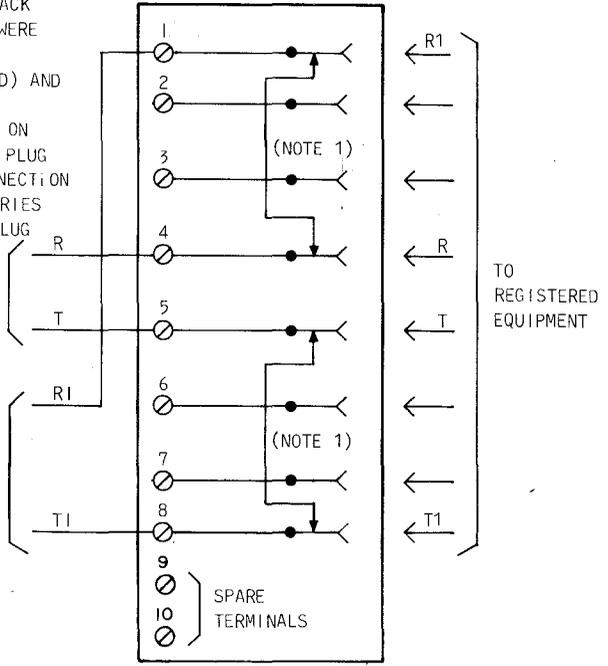
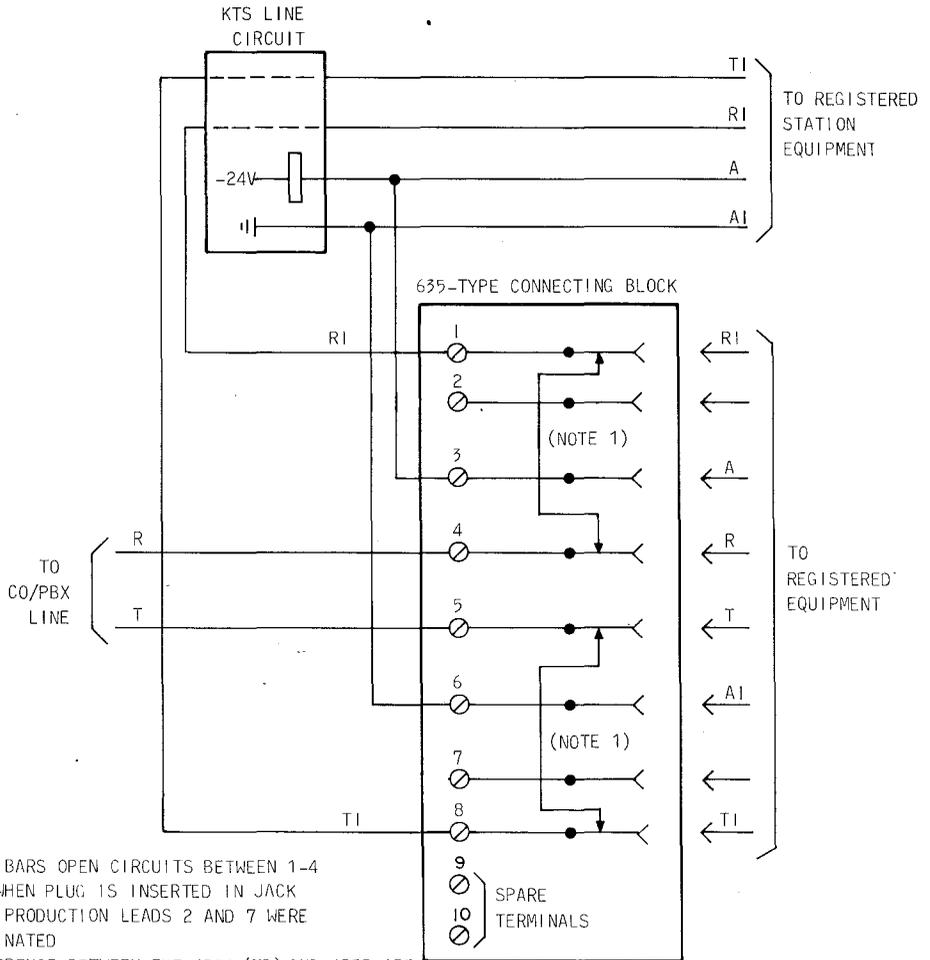


Fig. 4—Connections for USOC RJ32X



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

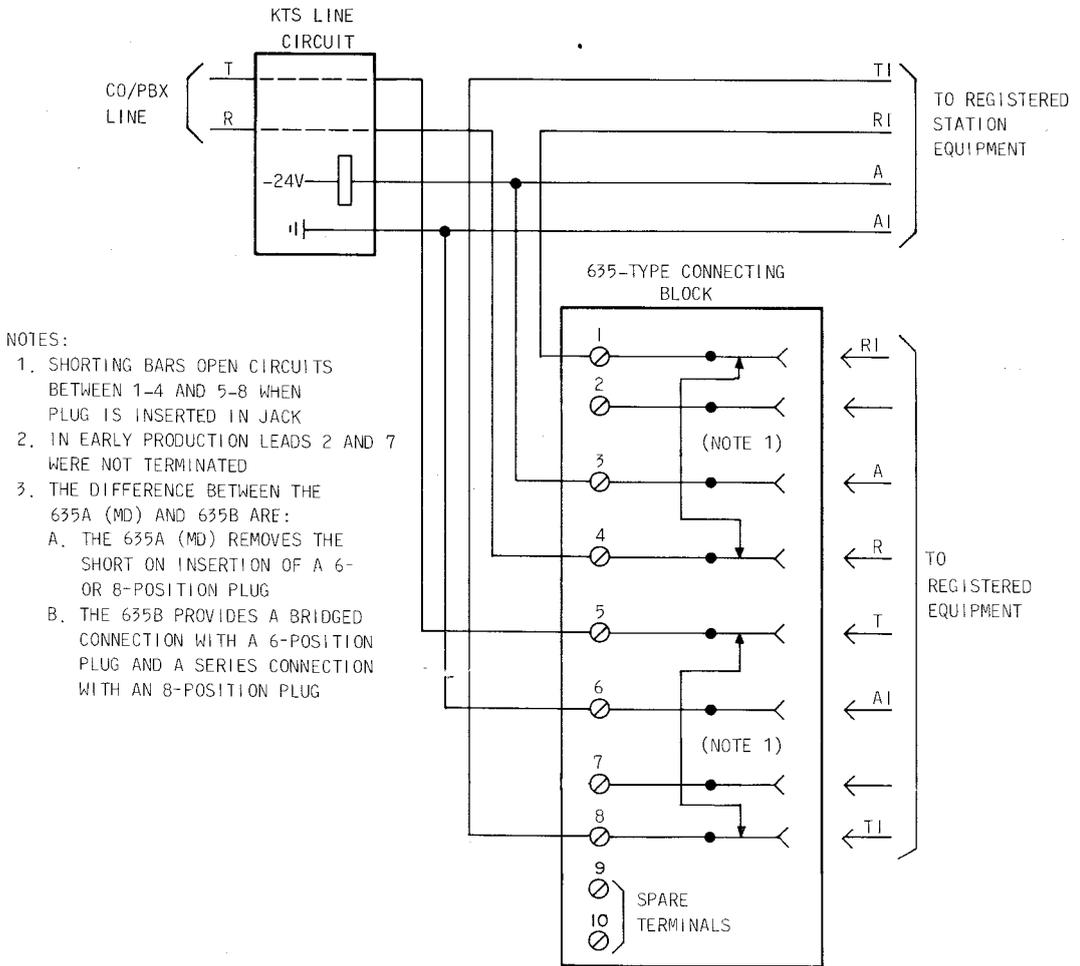
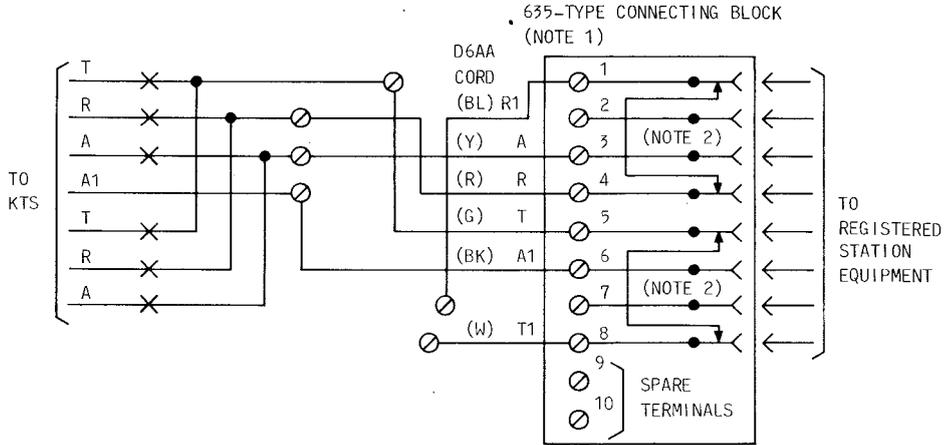


Fig. 6—Connections for USOC RJ34X



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		(G)	(R)	(Y)	(BK)
	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 F4

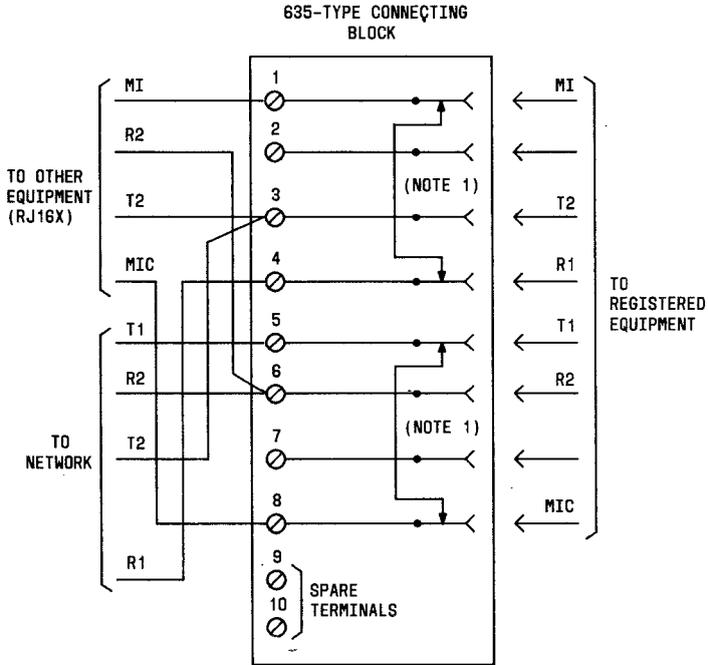
2-LINE TELEPHONE SETS

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-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:
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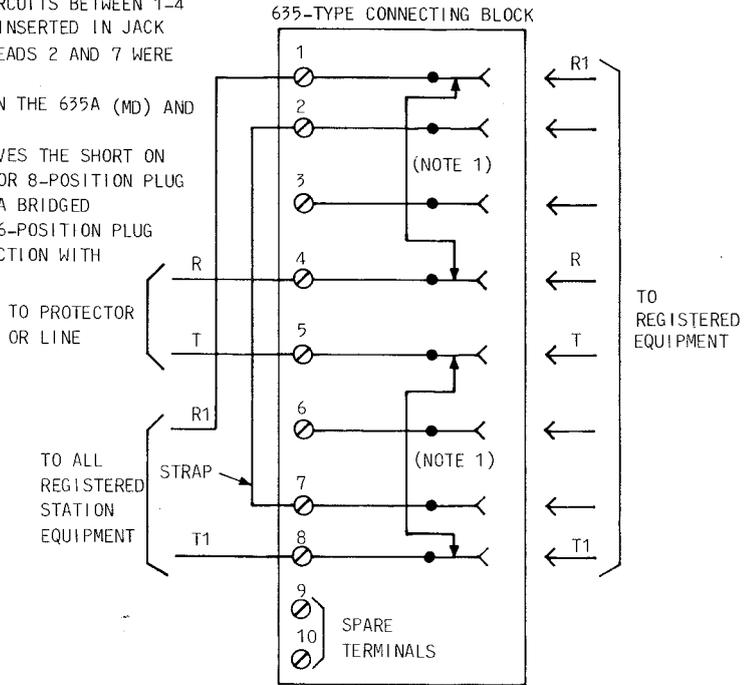


Fig. 10—Connections for USOC RJ38X