PRIVATE LINE TELEPHONE SERVICE 600/1500-CYCLE SELECTIVE SIGNALING SYSTEM TYPICAL EQUIPMENT LAYOUTS RIGHT-OF-WAY (ROW) COMPANIES

1.00 GENERAL

- 1.01 This section contains general information on equipment requirements at locations where 600/1500-cycle selective signaling is used for the dial selection of stations on 4-wire private lines terminating in station sets. Where these lines multiple to PBX on the same premises, equipment requirements covering these terminations are included. The information covered herein applies principally to those installations involving ROW companies.
- 1.02 The station relay equipment associated with the 600/1500-cycle selective signaling is arranged on a feature basis, ie, each installation, instead of being coded as a complete plan, consists of different combinations of features, selected as required and connected together at the time of installation. Various equipment layouts, representative of the features requested by ROW companies, have been included in this section. It is felt that the typical layouts covered herein should be helpful in the planning of other installations where the layouts may differ slightly due to varying feature requirements.
- 1.03 Information on the selection of battery supply arrangements, apparatus cabinets, and relay racks is included in this section.
- 1.04 Conduit and power wiring between the commercial power supply distribution box and the power supply receptacles in apparatus cabinets or on relay racks should be arranged for by the customer.

- 1.05 Reference information listing other sections and drawings that contain material helpful to the installer has been included in Part 5.
- ly damaged by reversed polarity dc voltage. Therefore, fuses are to be added and loop length and wire size limited. Should the dc voltage from the reserve battery be connected to the 101G power plant with reversed polarity, the 24C 2-amp fuses will operate, preventing any damage to the polarized electrolytic capacitors within the 101G power plant.

2.00 LOCATING

General

- 2.01 Apparatus located at the telephone set location should include only that necessary for its operation, ie, the telephone set, audible and visual signals, keys, etc.
- 2.02 The relay equipment should be located in one apparatus cabinet of adequate size or on a relay rack. If the latter is provided, it should be located in a telephone equipment room if available. If space limitations exist which necessitate locating the relay rack where the equipment or wiring is exposed to accidental damage by the personnel, a railing or other protective arrangements should be provided by the customer to minimize this possibility.
- 2.03 If a power plant for dc battery supply is provided, it should be floor- or wall-mounted, depending on the type, in close proximity to the relay equipment. A typical wall-mounted arrangement of the 101G power plant and emergency dry cell reserve is shown in Fig. 1.

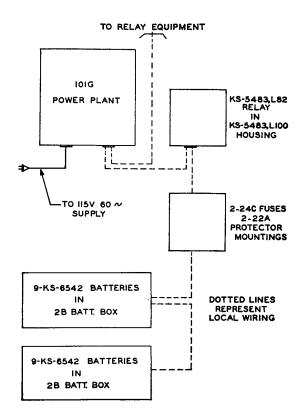


Fig. 1—Typical Wall-mounted Arrangement of the 101G Power Supply and Fused Emergency Dry Cell Battery Reserve

3.00 SELECTION

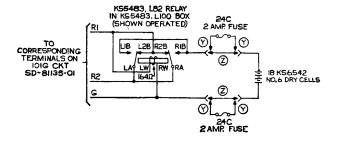
Apparatus Cabinet and Relay Racks

- 3.01 Every effort should be made to determine the customer's future anticipated growth before selecting the type of mounting arrangement. In general, when one cabinet such as the 45-plate capacity type is not adequate, the use of relay racks is recommended. In some cases, however, where a separate equipment room is not provided and the two-tone equipment must be mounted in the operating room, the provision of two apparatus cabinets may be desirable from an appearance standpoint.
- 3.02 To aid in the proper selection of an apparatus cabinet or relay rack, typical equipment layouts specifying the mounting plate space requirements are shown in Fig. 3 to 7.

3.03 Information on the types of apparatus cabinets recommended, relay rack, and adapter details for mounting 19-inch mounting plates on framework designed for 23-inch mounting plates is listed in Part 5 in this section.

Power Supply Arrangements

- 3.04 The use of dry cell batteries as a regular source of talking or signaling battery is not recommended.
- 3.05 Where existing PBX supply, building battery, or cable feeders are available, this source of supply should be used.
- 3.06 Where no existing supply is available, the use of the 101G power plant is recommended. To protect against commercial power failure, an emergency dry cell battery reserve with automatic transfer (or customer emergency power supply, if available) should be provided in accordance with Fig. 2, and 24C 2-amp fuses or equivalent should be used. One 22A protector mounting is required for each 24C fuse. Restrict the wire to 16-gauge minimum and loop length to 50-feet maximum. This change should be made at all existing installations. The dry cells will only supply a dc reserve to the equipment receiving its dc battery from the 101G power plant. They do not provide complete service during a commercial power failure.



Note 1: Use No. 16 minimum lead size with 50-foot maximum loop length.

Note 2: "Z" option is superseded by "Y" option.

Fig. 2—Transfer Circuit with Fused Dry Battery
Reserve for Use with 101G Power Plant

Automatic Time-out of Signals

At locations not attended on a 24-hour basis, an automatic time-out circuit per Fig. 66 of SD-69167-01 should be provided. This will eliminate, in the case of an unanswered call during the unattended hours, the continuous operation of the buzzer.

4.00 TYPICAL EQUIPMENT LAYOUTS

- 4.01 Typical equipment layouts are shown in Fig. 3 to 7. In accordance with the recommendations set forth in 3.01, relay rack mounting arrangements are specified where one apparatus cabinet would not be adequate. Where the mounting space requirements are less, either relay rack or apparatus cabinet may be selected.
- Fig. A to L cover various features that may be requested. Unless otherwise specified, this equipment consists of angle bracket assembled equipment or key telephone units which are mounted on mounting assemblies per ED-69143-01, G1 for bars 19 inches long or ED-69143-01, G2 for bars 23 inches long. The connections between the units are made in accordance with SD-69167-01.
- The notations and abbreviations in Fig. A to L are interpreted as follows:
 - -29(G) Equipment Unit ED-91929-01 (Group)
 - -38(G) Equipment Unit ED-91938-01 (Group)

KTU — Key Telephone Unit

Letter in Corresponds to circuit desigparentheses nations and figures on SD-69167-01. Figure number

Front and

Rear Refers to equipment mounted on the front or rear of the mounting assemblies per ED-69143-01, G1 or G2.

- 4.04 Where two Fig. A to H are provided, only one time-out circuit per Fig. 66 of SD-69167-01 is required.
- Tie trunk, auxiliary trunk, and signaling connector units associated with the multiple- or dial-type PBXs such as the 552A, 552D, 605A, 700C, or 701A are not covered in this sec-

tion, as it is assumed that these units will be located in all cases with their associated PBX equipment either on relay rack or in the rear of the switchboard section.

- 4.06 Tie trunk, auxiliary trunk, and signaling connector units associated with the nonmultiple PBXs such as the 551A, 551B, 551D, etc. are covered herein and should be mounted in the rear of the PBX section if space is available and fused locally from the PBX battery supply; otherwise they should be mounted as shown in Fig. 3, 4, 5, or 7 and fused from the fuse panel provided on associated framework.
- 4.07 The space of two 1-3/4 inch mounting plates above the 600/1500-cycle receiving unit should be unequipped to provide clearance for maintaining the 60-type selectors.

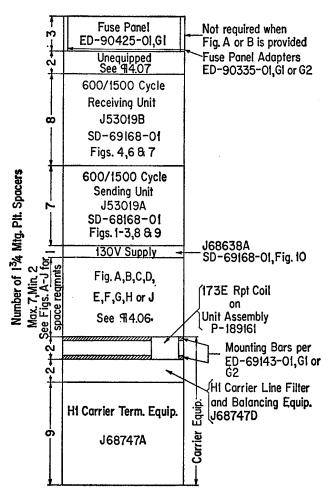


Fig. 3 - One 4-wire Private Line with or without H1 **Carrier Equipment for Various Terminations** as Covered in Fig. A to J

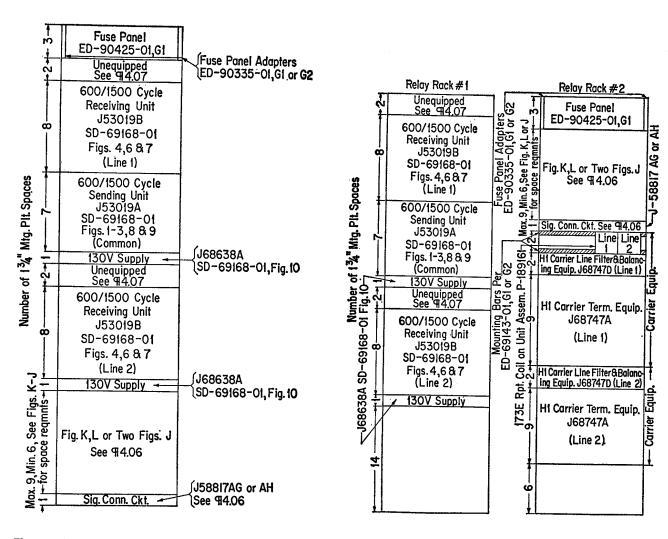
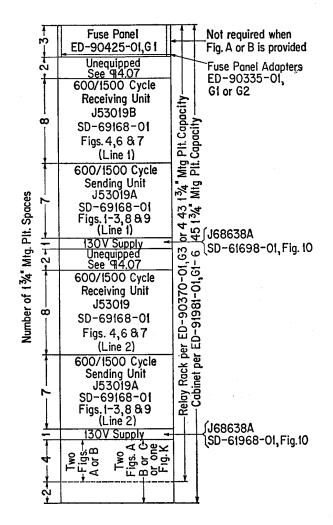


Fig. 4 — Two 4-wire Private Lines with Common Sending Unit for Terminations as Covered in Fig. J, K, and L

Fig. 5 — Two 4-wire Private Lines with Common Sending Unit and H1 Carrier Equipment for Terminations as Covered in Fig. J, K, and L



Relay Rack#2 Relay Rack#1 ments g. Aor B is provided Unequipped See 94.07 Fuse Panel Panel Adapte D-90335-01, GI or G2 ED-90425-01, G1 600/1500 Cycle -Max.7, Min.2, See Figs.A-J for space req Unequipped See 94.07 Receiving Unit J53019B 600/1500 Cycle SD-69168-01 Receiving Unit Fuse P Figs.4,6 & 7 J53019B (Line 2) SD-69168-01 600/1500 Cycle Figs. 4,6 & 7 Sending Unit J53019A (Line 1) J68638A SD-69168-01 Fig.10 600/1500 Cycle SD-69168-01 Spaces Sending Unit Figs. 1-3,8 &9 (Line 2) J53019A ~ 1.2, See Figs. A-L for the firm of the fir SD-69168-01 130V Supply Figs. 1-3,8 & 9 (Line 1) 130V Supply Fig. A-J (Line 2) 88 See 914.06 Fig. A-J (Line 1) E Rpt. Coil Assem.P18 or Number of Max.9, Min.2 space reg'r Fig.KorL (Line 1&2) HI Carrier Line Filter& Balanc-ing Equip. J68747D (Line 2) 173E Unit / See 914,06 H1 Carrier Term. Equip. Carrier H1 Carrier Line Filter & Balanc ing Equip. J68747D (Line 1) .62 62 J68747A Equip. Mounting Bars po ED-69143-01,61or(5 (Line 2) H1 Carrier Term. Equip. Carrier 9 J68747A (Line 1)

Fig. 6—Two 4-wire Private Lines, Each with Separate Sending Units for Terminations as Covered in Fig. A, B, C, and K (See Fig. 7 for another typical arrangement employing same terminations.)

Fig. 7—Two 4-wire Private Lines, Each with Separate
Sending Units, with or without H1 Carrier
Equipment for Terminations as Covered in
Fig. A to L

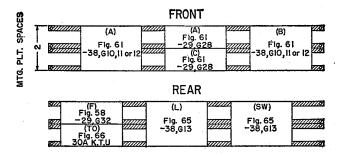


Fig. A—One Line, One Station with Dry Cell Battery
Talking Supply

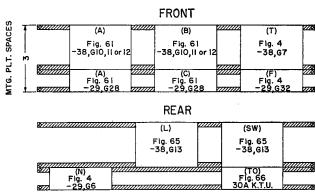


Fig. B — One Line, One Station with Following Fea-

- 1. Dry Cell Battery Talking Supply
- 2. Push-to-talk Operation

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							FRON	Т				
53	Ŧ	8////	////	(A))		(E	3)		(T)	122
SPA(13		<i> </i> -	Fig. 38,GIO	61 ,11 or 12		Fig. -38,GIO	61 ,11 or 12		Fig. -38,	4 ,G7	7
WTG. PLT. SPACES	Ϊ	<i>####</i>	<i>W</i>	(A Flg. -29.() 61_		(C Fig.	61 628		(F Fig. -29.0)4	238
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		%	-2 F1	g. 4 9,66 (D) g. F			Fig. 65 38,G13		<u> </u>	ig. 65 38,GI3		
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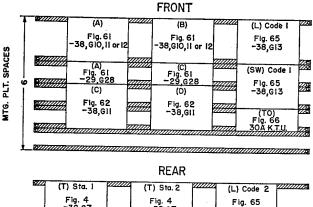
Fig. C — One Line, One Station with Following Features:

1. Common Battery Talking and Signaling
Supply

				FR	ONT					
T	9///////	(A)	2//	11112	(B)	72		(L)		123
	\$ #####	Fig. 6 -38,GIO,		-38,	Fig. 61 ,GIO,II d	or 12		Flg. (-38,		#
TO.		_:(A)			(C)			(SW)	2
	<i>#####################################</i>	Fig. 6 -29 g (C)		-	Fiĝ. 61 <u>29,628</u> (D)			Flg. 6	35	
Į.		Fig. 6 -38,6			Fig. 62 -38,GII			(TO Fig. (30A K	66	
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		Fig. 4 ·38,G7		27A K			(D)	9,66 Sta. 2		
	,) Sta. I Fig. 4		(T) Sto			(E)	g. F 9.Gl Sta. 2 g. F		W)
	(V	29,632 i) Šta. i Fig. 4		Fig. 4 -38,6			27A	K.T.U.		W)
	(C	29.G6 1) Sta. I Fig. F -29.GI		(F) Sto	ı. 2					W.

Fig. D — One Line, Two Stations with Following Features:

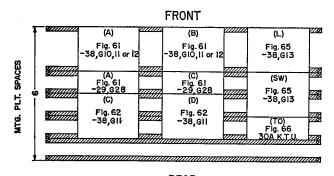
- 1. Common Battery Talking and Signaling Supply
- 2. Push-to-talk Operation
- 3. One Incoming Code Common to Both Stations



6 222	(T) Sta. 1	411111	(T) Sta. 2		(L) Code 2	
	Fig. 4 -38,G7		Fig. 4 -38,67		Fig. 65 -38,GI3	
8		mm		,,,,,,,,		
10	(F) Sta. I Fig. 4 -29,G32		(F) Sta. 2 Fig. 4		(SW) Code 2	
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	(N) Sta. Í Fig. 4	1111111	(N) Sta. 2 Fig. 4	1111111	-38,GI3	
- 20	29,G6	77777	29,G6	mm		////////os
	(D) Sta. I Fig. F		(D) Sta. 2 Fig. F -29,G1			
827-	-29,GI	77777		TITITITI TO		mmms.
	(E) Sta. I Fig. F	*******	(E) Sta. 2 Fig. F			
2 22	27A K.T.U.		27A. K.T.U.	TITITI I		//////////////////////////////////////

Fig. E—One Line, Two Stations with Following Features:

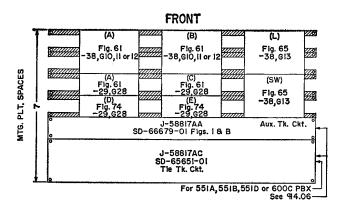
- 1. Common Battery Talking and Signaling Supply
- 2. Push-to-talk Operation
- 3. Separate Incoming Codes for Each Station



			REAR			
922	(T) Sta. I		(T) Sta. 2	111111	(T) Sta.3	THE STATE OF THE S
	Fig. 4 -38,G7		Fig. 4 -38,G7		Fig. 4 -38,G7	1
22		man		mm		7777778
182 24	(F) Sta. I Fig. 4		(F) Sta. 2 Fig. 4		(F) Sta. 3 Fig. 4	///////////////////////////////////////
822	-29,G32		29,G32		-29.G32	
60224	(N) Sta. I Flg. 4		(N) Sta. 2 Fig. 4		(N) Sta. 3 Fig. 4	- FIIIIII
822	-29,G6	<i>anna</i>	29.G6	mm	-29,G6	77777778
10224	(D) Sta. I Fig. F		(D) Sta. 2 Fig. F	7/////	(D) Sta. 3 Fig. F	7///////81
*****	-29,G1	<i></i>	-29.GI	anna .	29,GI	77777778
2022	(E) Sta. l Fig. F		(E) Sta. 2 Fig. F		(E) Sta. 3 Fig. F	77777778
822	27A K.T.U.	<i>Juma</i>	27A K.T.U.		27A K.T.U.	

Fig. F — One Line, Three Stations with Following Features:

- 1. Common Battery Talking and Signaling Supply
- 2. Push-to-talk Operation
- 3. One Incoming Code Common to Three Stations



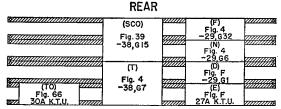
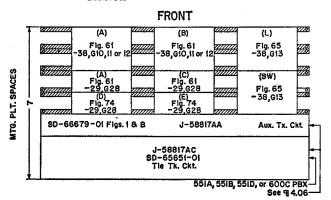


Fig. G—One Line, PBX, and One Station Termination with Following Features:

- 1. Common Battery Talking and Signaling Supply
- 2. Push-to-talk Operation at Station
- 3. Station Cutoff Circuit
- 4. One Incoming Code Common to PBX and Station



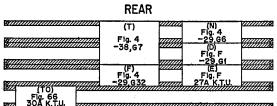


Fig. H—One Line, PBX, and One Station Termination with Following Features:

- 1. Common Battery Talking and Signaling Supply
- 2. Push-to-talk Operation at Station
- 3. Separate Incoming Codes for PBX and Station

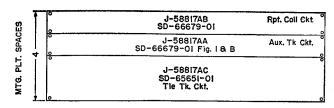
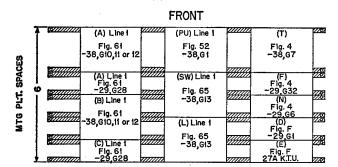


Fig. J—One Line Terminating at 551A, 551B, 551D, or 600C PBX (See 4.06.)



	REAR			
	(PU) Line 2		(A) Line 2	
	Fig. 52 -38,G1		Fig. 61 -38,GIO,II or I2	
	(SW) Line 2		(A) Line 2 Fig. 61	
	Fig. 65 -38,613		Fig. 61 -29,628 (B) Line 2	
	(L) Line 2		Fig. 61 -38,G10,11 or 12	
(TO) Fig. 66	Fig. 65 -38,GI3		(C) Line 2 Fig. 61	
30A K.T.U.		TIIIII)	-29,G28	

Fig. K—Two Lines, One Station Termination with Following Features:

- 1. Key to Pick up Both Lines
- 2. Common Battery Talking and Signaling Supply
- 3. Push-to-talk Operation

MTG. PLT. SPACES

				FRONT			
	811111111	(A) Line f		(B) Line ((T) Sta. 1	// Ø
		Fig. 61 -38,GIO,11 or 12		Fig. 61 -38,G10,11 or 12		Fig. 4 -38,67	
		(A) Line 1		(C) Line 1		(F) Sta.1	7 /8
	8//////	Fig. 61 -29,628		Fig. 61 -29,G28	,,,,,,,,	Fig. 4 -29,G32	7781
	& <i>1111111</i>	(C) Line 1		(D) ∟ine l		(N) Sta.1 Fig. 4	
6	<i>\$/////////</i>	Fig. 62 -38,611		Fig. 62 -38,GH		-29,G6 (D) Sta.1 Fig. F	28
	8//////				4111111	-29,G1	-
- 1		(PU) Line 1,Sta. 1	222	(SW) Line f	********	(E) Sta. (Fig. F	222
		Fig. 52 -38,G1		Fig. 65 -38,G13		27A K.T.U. (TO)	/////////////////////////////////////
	8//////		77777		,,,,,,,	FÌg. 66 30A K.T.U.	222
- [21111111	(PU) Line 1,Sta. 2		(L) Line 1			////8
		Fig. 52 -38,61		Fig. 65 -38,G13			
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			REAR			
SZZ	(T) Sta.2		(B) Line 2	<i>/////////////////////////////////////</i>	(A) Line 2	
	Fig. 4 -38,67		Fig. 61 -38,G10,11 or 12		Fig. 61 -38,GIO,11 or 12	
8		<i>,,,,,,,,,</i>			-	///////// ///
	(F) Sta.2 Fig. 4	////////	(C) Line 2 Fig. 61		(A) Line 2 Fig. 61	
	-29,G32 (N) Sta 2		-29,G28 (D) Line 2		-29,G28 (C) Line 2	
	Fig. 4 -29,66 (D)Sta. 2		Fig. 62 -38,G11		Fig. 62 -38,GH	
89	Fig. F -29.Gf	777777		777777	'	////////8I
1822	(E) Sta. 2 Fig. F	7/////	(SW) Line 2		(PU) Line 2,Sta.1	
8	27A K.T.U.		Fig. 65 -38,G13		Fig. 52 -38,G1	
% ////				<i>,,,,,,</i> ,,		///////
			(L) Line 2	44444	(PU) Line 2,Sta.2	(//////////////////////////////////////
			Fig. 65 -38,G13		Fig. 52 -38,G1	
97777		mm		,,,,,,,,		777777781

Fig. L — Two Lines, Two Stations with Following Features:

- 1. Key to Pick up Both Lines
- 2. Common Battery Talking and Signaling Supply
- 3. Push-to-talk Operation
- 4. One Incoming Code per Line Common to Both Stations

5.00 REFERENCES

Section or Drawing Number

ltem

310-430-200 — Installation — 600/1500-cycle Selective Signaling Equipment

ED-69143-01 — Mounting Bar Assemblies for mounting equipment and key telephone units on 19- and 23-inch framework

ED-90273-01 — Adapter Details for mounting 19inch mounting plates on 21-5/8 inch or 23-inch framework

ED-91180-01 — 18-plate Apparatus Cabinet

ED-92185-01 — 26-plate Apparatus Cabinet

ED-91981-01 — 45-plate Apparatus Cabinet ED-90370-01 — 19- or 23-inch Relay Rack 7 Feet High

ED-90425-01 — Fuse Panel

ED-90335-01 — Fuse Panel Adapters for mounting ED-90425-01 fuse panel on 19- or 23-inch framework

SD-69167-01 — 4-wire Private Line Circuit Arranged for Receiving and Transmitting 600/1500-cycle Selective Signals

SD-69168-01 — 600/1500-cycle Selective Signaling Circuit

SD-64691-01 — 600/1500-cycle Oscillator Circuit

SD-65655-01 — Signaling Connector Circuit

SD-65651-01 — Tie Trunk Circuit

SD-66679-01 — Auxiliary Trunk Circuit

SD-81135-01 - 101G Power Plant

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