

MISCELLANEOUS RELAY RACK UNITS EQUIPMENT DESIGN REQUIREMENTS PANEL SYSTEMS

1. GENERAL

Scope

1.01 This specification, together with the supplementary information listed herein, covers the equipment design requirements for the framework, equipment, and circuits, to be used in the manufacture and installation of miscellaneous relay rack units for use in panel central offices. Requirements for miscellaneous equipment not arranged on a unit basis are also covered herein.

1.02 This specification is reissued to add new equipment codes J29201AR, J29201AS, J29201AT and J29201AU.

Capacity

1.03 The height of the frame, in general, shall be 11 feet 6 inches and arranged for sixty-eight 1-3/4 inch mounting plates per bay. The panel local bays shall be either 1 foot 7-1/2 inches or 1 foot 11-1/2 inches wide, while the panel tandem bays shall be 1 foot 7-1/2 inches wide only.

1.04 Circuits having a large demand are arranged on 10-circuit units, while others with a smaller demand or those having a larger amount of apparatus per circuit are arranged on a 5-circuit unit basis. Phantom groups are arranged on a 3-circuit unit basis. Other circuits, including certain of those used in very small numbers, are arranged on a single-circuit basis.

Description

1.05 The units listed herein, as summarized under Subdivisions of Equipment and Detailed Index, cover the equipment for recording completing trunks, free lines, free trunks, auxiliary subscriber lines, long subscriber lines, tandem outgoing trunks, incoming and outgoing phantom trunks, and a number of miscellaneous circuits, some of which are furnished on an installer-wired basis. Equipment that is not arranged on shop-wired units shall be arranged on the relay rack in accordance with the drawings listed herein and wired by the installer.

Subdivisions of Equipment and Detailed Index

WECo J drawings should be ordered by referring to the prefix and base numbers and requesting the current dash (—) number.

EQUIPMENT CODE	RATING OF UNIT	TITLE	EQUIPMENT DRAWING	CIRCUIT DRAWING	CKTS PER UNIT
J29201N	A&M Only	Unit for Five Subscriber Line Overflow Register Circuits	ED-20661-01	SD-21580-01	5
J29201AA	A&M Only	Unit for Five 2-Wire Recording Completing Trunks — Arranged for Coin Control	J29201AA-()	SD-21130-01	5

EQUIPMENT CODE	RATING OF UNIT	TITLE	EQUIPMENT DRAWING	CIRCUIT DRAWING	CKTS PER UNIT
J29201AB	A&M Only	Unit for Ten 2-Wire Recording Completing Trunks — Arranged to Recall the Subscriber	J29201AB-()	SD-21349-01	10
J29201AC	A&M Only	Unit for Ten 2-Wire Recording Completing Trunks Outgoing to Toll Office — Not Arranged to Recall the Subscriber	J29201AC-()	SD-20545-01	10
J29201AD	A&M Only	Unit for Ten 2-Wire Recording Completing Trunks — Arranged for Number Checking	ED-21459-01	SD-21459-01	10
J29201AM	A&M Only	Unit for One Alarm Transfer Circuit — Battery on CO Relay Offices— 2-Inch Mounting Plates	J29201AM-() Fig. 1	SD-20733-01	1
J29201AN	A&M Only	Unit for One Permanent Signal Alarm Circuit for Use With Permanent Signal Holding Trunks	J29201AN-()	SD-20745-01	1
J29201AO	A&M Only	Unit for One Alarm Transfer Circuit for Ground on CO Relay Offices	J29201AO-() Fig. 1	SD-20736-01	1
J29201AP	A&M Only	Outgoing Trunk Unit for Direct Distant Dialing to Non-AMA Offices	J29201AP-()	SD-20746-01	1
J29201AR	A&M Only	Alarm Unit for Trouble Grounds on Tip & Ring	J29201AR-()	SD-21990-01	2
J29201AS	A&M Only	Intercept Trunk Unit — TRK Finder to AIC — GCO Office W/WO PBX Sleeve Hunt Provisions	J29201AS-()	SD-21990-01	10
J29201AT	A&M Only	Intercept Trunk Unit — TRK Finder to AIC — BCO Office Without PBX Sleeve Hunt Provisions	J29201AT-()	SD-21990-01	10
J29201AU	A&M Only	Intercept Trunk Unit — Trk Finder to AIC — BCO Office With PBX Sleeve Hunt Provisions	J29201AU-()	SD-21990-01	10
J29201BD	A&M Only	Unit for Ten Free Lines — Arranged for 2-Way Service	J29201BD-()	SD-21296-01	10

EQUIPMENT CODE	RATING OF UNIT	TITLE	EQUIPMENT DRAWING	CIRCUIT DRAWING	CKTS PER UNIT
J29201BE	A&M Only	Unit for Ten Free Lines — Arranged for Inward Service Only	J29201BE-() Fig. 2	SD-21446-01	10
J29201BF	A&M Only	Unit for Ten Free Lines — Arranged for 2-Way Service	J29201BF-() Fig. 2	SD-21446-01	10
J29201CA	A&M Only	Unit for Ten Auxiliary Subscriber Lines	J29201CA-()	SD-21294-01	10
J29201MA	A&M Only	Unit for Ten Outgoing Trunks to Official PBX	ED-20645-01 Fig. 1	SD-21572-01	10
J29201UA	A&M Only	Unit for One Revertive Pulsing Relay Interrupter Circuit	ED-20867-01 Fig. 2	SD-21837-01	1
J29201UB	A&M Only	Unit for One Keypulsing Relay Interrupter Circuit	ED-20867-01 Fig. 3	SD-21838-01	1
J29201UC	A&M Only	Unit for One Dial Pulsing Interrupter Circuit	ED-21856-01	SD-21856-01	1
J29201UD	A&M Only	Unit for Three Semi-mechanical A Switchboard Outgoing Trunk MF Keypulsing Circuits — Arranged to Mount on 19-Inch Relay Racks	ED-21001-01	SD-20740-01	3
J29201UE	A&M Only	Unit for Four Semi-mechanical Outgoing Trunk MF Keypulsing Circuits — Arranged to Mount on 23-Inch Relay Racks	ED-20916-01	SD-20740-01	4
J29201UF	A&M Only	Unit for Two Coin Line Circuits — Ground on the Cutoff Relays — Arranged to Mount on 19-Inch Relay Racks	ED-20921-01 Fig. 1	SD-21968-01 Fig. 1	2
J29201UG	A&M Only	Unit for Two Coin Check Circuits — Ground on the Cutoff Relays — Arranged to Mount on 19-Inch Relay Racks	ED-20921-01 Fig. 1	SD-21968-01 Fig. 2	2
J29201VA	A&M Only	Unit for Three Outgoing Trunks — From Sender Tandem or Distant Office Beyond Sender Tandem to Step-by-Step Office — Arranged for Pulsing — Type B Composite Signaling	ED-21866-01	SD-21866-01	3

EQUIPMENT CODE	RATING OF UNIT	TITLE	EQUIPMENT DRAWING	CIRCUIT DRAWING	CKTS PER UNIT
Installer-Wired	A&M Only	Stop Hunt Circuit	ED-20777-01	SD-20701-01	3
Installer-Wired	A&M Only	Alarm Transfer Circuit for BCO Offices — 2-Inch Mounting Plates	J29201AM-() Fig. 3	SD-20733-01	11
Installer-Wired	A&M Only	Alarm Transfer Circuit for BCO Offices — 1-3/4 Inch Plates	J29201AH-() Fig. 3	SD-20733-01	10
Installer-Wired	A&M Only	Alarm Transfer Circuit GCO Offices	J29201AO-() Fig. 2	SD-20736-01	11
Installer-Wired	A&M Only	Alarm Transfer Circuit GCO Offices	J29201AO-() Fig. 3	SD-20736-01	1
Installer-Wired	A&M Only	Vacant Code Trunk	ED-21038-01	SD-21038-01	5
Installer-Wired	A&M Only	Call Distributor B Recorder and Alarm Signal Circuit	ED-20777-01 Fig. 5	SD-21135-01	6
Installer-Wired	Special	Administrative OGT Circuit to Manual Straight-forward Trunks	ED-20519-01	SD-21168-01	5
Installer-Wired	A&M Only	Transformer Panel	ED-20924-01 Fig. 2	SD-21204-05	1
Installer-Wired	A&M Only	Distant Office Test Line	ED-20777-01 Fig. 6	SD-21226-01	1
Installer-Wired	A&M Only	Subscriber Line Circuit for Incoming Service Only, for Use with Indirect Lines or Trunks to PBX Boards Other Than 550C, 550SC, 551A, 551B, or 551D	ED-20777-01 Fig. 4	SD-21295-01	40
Installer-Wired	A&M Only	Subscriber Line Circuit — for Incoming Service Only, for Use With Lines to 550C, 550SC, 551A, 551B, or 551D PBX Boards or 100 Key Equipment	ED-20777-01 Fig. 3	SD-21297-01	10
Installer-Wired	Prov	Subscriber Line Overflow for Use Where Terminal Above is Vacant	ED-20777-01 Fig. 1	SD-21314-01	8
Installer-Wired	A&M Only	Miscellaneous Extension Alarms From Step-by-Step Office, Step-by-Step PBX, or 101B Power Plant	ED-20656-01 Fig. 1 to 4 Each	SD-21482-01	1

EQUIPMENT CODE	RATING OF UNIT	TITLE	EQUIPMENT DRAWING	CIRCUIT DRAWING	CKTS PER UNIT
Installer-Wired	A&M Only	Local Frame Line Circuit	ED-20777-01 Fig. 2	SD-21501-01	1
Installer-Wired	A&M Only	B Switchboard Delayed Start Circuit	ED-21649-01	SD-21649-01	5
Installer-Wired	A&M Only	Trunk Circuits From Final Multiple to Desks	ED-21654-01	SD-21654-01	3
Installer-Wired	A&M Only	Time Alarm Circuit	ED-20777-01 Fig. 7 and 8	SD-21668-01	1
Installer-Wired	A&M Only	Auxiliary Line Circuit	ED-20777-01 Fig. 9	SD-21725-01	5
Installer-Wired	Prov	Incoming Trunk to Tandem Distribution for Use With CX Signal With or Without 22-type Telephone Repeaters	ED-21782-01	SD-21782-01	10
Installer-Wired	A&M Only	Alarm Transfer Circuit — 2-inch Mounting Plates	J29201AM-() Fig. 4	SD-20733-01	11
Installer-Wired	A&M Only	Alarm Transfer Circuit for GCO Offices	J29201AO-() Fig. 4	SD-20736-01	11
Installer-Wired	Prov	Vacant Code Trunks	ED-21832-01	SD-21832-01	5
Installer-Wired	A&M Only	Make-Busy Circuit for Permanently Vacant Final Terminals	ED-20777-01 Fig. 11	SD-21842-01	17
Installer-Wired	A&M Only	PBX Trunk Make-Busy Circuit (See Notes 5.07 and 5.24)	ED-20777-01 Fig. 14	SD-21842-01	5
Installer-Wired	A&M Only	Toll Subscriber Line for Use With No. 1 Toll Switchboard Where the Toll and the Local Office Are Not in the Same Building	ED-90390-01	SD-90077-01	1 to 5
Installer-Wired	A&M Only	Vacant Code Trunk Arranged for Recorded Announcement (See 5.23)	ED-95081-01 Fig. 1	SD-96510-01 Fig. 1	7

Circuit Schematic Index

CIRCUIT DRAWING	J29201 EQUIP. CODE	CIRCUIT DRAWING	J29201 EQUIP. CODE
SD-20545-01	AC	SD-20745-01	AN
SD-20701-01	ED-20777-01	SD-20746-01	AP
SD-20733-01	AM,AH	SD-21038-01	ED-21038-01
SD-20736-01	AO	SD-21130-01	AA
SD-20740-01	UD,UE	SD-21135-01	ED-20777-01
		SD-21168-01	ED-20519-01
		SD-21204-05	ED-20924-01

CIRCUIT DRAWING	J29201 EQUIP. CODE	Framework
SD-21226-01	ED-20777-01	ED-21856-01 — Dial Pulsing — Relay Inter- rupter Unit — Equipment
SD-21294-01	CA	ED-25260-01 — Steel Panels
SD-21295-01	ED-20777-01	ED-90185-01 — Repeating Coil Mounting Details
SD-21296-01	BD	ED-90273-70 — Mounting Plate Unit Adapter Details
SD-21297-01	ED-20777-01	ED-90283-70 — Resistance Shield Assembly
SD-21314-01	ED-20777-01	ED-90395-() — Unit Assembly — 181- or 140-Type Terminal Strips
SD-21349-01	AB	ED-90414-01 — Relay Rack Coil Guard Assembly
SD-21446-01	BE,BF	ED-91183-30 — Relay Rack Assembly
SD-21459-01	AD	ED-92243-70 — Unit Framework — 2-Inch Mounting Plates
SD-21482-01	ED-20656-01	Equipment
SD-21501-01	ED-20777-01	ED-20474-01 — Schematic Layout of Cabling Between Frames and Desks
SD-21572-01	MA	ED-20597-01 — Typical Relay Rack Equipment
SD-21580-01	N	ED-20612-01 — Equipment for Free Line Circuit
SD-21649-01	ED-21649-01	ED-20645-01 — Equipment for Outgoing Trunk Circuits
SD-21654-01	ED-21654-01	ED-20661-01 — Equipment for Subscriber Line Overflow Register Circuit
SD-21668-01	ED-20777-01	ED-20867-01 — Relay Interrupter Units — Equipment
SD-21725-01	ED-20777-01	ED-20916-01 — Outgoing Trunk Unit — Equipment
SD-21782-01	ED-21782-01	ED-20921-01 — Subscriber Line Unit — Equipment
SD-21832-01	ED-21832-01	ED-21001-01 — Outgoing Trunk Unit — Equipment
SD-21837-01	UA	ED-21459-01 — Subscriber Recording Complet- ing — Trunk 2-Wire — Equipment
SD-21838-01	UB	ED-21866-01 — Outgoing Trunk from Sender Tandem or Distant Office Beyond Sender Tandem to Step-by-Step Office — Trunk Unit
SD-21842-01	ED-20777-01	ED-90305-01 — Relay Rack MTD Unit — Cabling Plan
SD-21856-01	UC	Wiring and Cabling
SD-21866-01	VA	ED-20252-01 — Schematic Layout — Battery on CO Relay Offices
SD-21968-01	UF,UG	ED-20637-01 — Cabling Plan Relay Rack Units Using Local Wiring for Double Coils
SD-21990-01	AR,AS,AT,AU	ED-25030-01 — Unit Local Cable
SD-90077-01	ED-90390-01	ED-90440-02 — Cabling Plan Relay Rack Units Using Vertical Local Wiring on 140-Type Terminal Strips
SD-96510-01	ED-95081-01	ED-90440-03 — Cabling Plan Relay Rack Units Using Horizontal Local Wiring on 181-Type Terminal Strips

2. SUPPLEMENTARY INFORMATION

815-000-000 — Panel Systems Index

AA128.002 — List of Equipment Design
Requirements Sections

AA128.006 — List of General Equipment
Requirements Sections

Floor Plan Data — Section 4.4, Sheet 9

Current Drain Data —

SD-21300-01 — Panel Office — Battery Cutoff
(Not Available for Panel
Offices — Ground Cutoff)

SD-25000-02 — Crossbar No. 1 Office

3. DRAWINGS

For additional drawings forming a part of this
specification, see listings under Subdivisions of
Equipment and Detailed Index.

Keysheets

SD-21300-01 — Battery on the CO Relay —
Panel Local Office

SD-21301-01 — Panel Tandem Office

SD-21680-01 — Ground on the CO Relay —
Panel Local Office

- ED-90440-04 — Cabling Plan Relay Rack Units — Phantom Group Circuits Using Vertical Local Wiring
- ED-90440-05 — Cabling Plan Relay Rack Units Using Vertical Local Wiring With Common Arm at Top on 181-Type Terminal Strips
- ED-90440-10 — Cabling Plan Relay Rack Units Using Vertical Local Wiring on 181-Type Terminal Strips
- ED-90709-01 — Cabling Plan Relay Rack Units— Phantom Group Circuits Using Horizontal Local Wiring
- ED-90757-02 — Cabling Plan Relay Rack Units Using Vertical Wiring With 203-Type Terminal Strips
- ED-90757-03 — Cabling Plan Relay Rack Units Using Horizontal Wiring With 203-Type Terminal Strips
- ED-90757-06 — Cabling Plan Relay Rack Units Using Horizontal Wiring — Horizontal Mounting Plates in Line With 206-Type Selector— 203-Type Terminal Strips —
- ED-90782-01 — Relay Rack Unit Framework Framework
- ED-91601-01 — Cabling Plan Relay Rack Unit — Horizontal Local Wiring — 203- and 223-Type Terminal Strips
- ED-92224-01 — Switchboard Cabling Plan — Relay Racks

4. EQUIPMENT

J29201N (A&M Only) — Unit for Five Subscriber Line Overflow Register Circuits

Equipment — ED-20661-01, Fig. 1
Local Cable — ED-90440-10, Fig. 4

List 1 — Framework, assembly, wiring, and common equipment for one unit of five subscriber line overflow register circuits.

	WIRE	EQUIP	
Framework, ED-90395-51, Fig. 1		1	
Sub Line Overflow Register Ckt, SD-21580-01	5	0	

List 2 — Equipment required in addition to list 1 for one subscriber line overflow register circuit per SD-21580-01.

J29201AA (A&M Only) — Unit for Five 2-Wire Recording Completing Trunks — Arranged for Coin Control

Equipment and Local Cable — J29201AA-()

List 3 — Framework, assembly, wiring, and common equipment for one unit of five 2-wire recording completing trunks.

	WIRE	EQUIP	SEE NOTES
Framework, ED-90395-51, Fig. 1		1	
2-Wire Rec Comp Trk Ckt, SD-21130-01, Fig. 1, 2, B & C	5	0	5.09
ZG Option	1	1	C
ZJ Option	1	0	

List 4 — Equipment required in addition to list 3 for one 2-wire recording completing trunk circuit per SD-21130-01, Fig. 1, 2, B, and C. (See Note B and 5.09.)

Notes

- A. When the operator controls the coin collection, a trunk control unit per J99206C shall be furnished for each ten recording completing trunks.
- B. Repeating coils shall be furnished as required for the particular type of loading.
- C. Furnish ZJ wiring and equipment when automatic return of initial deposit is not required and omit ZG apparatus of list 3.

J29201AB (A&M Only) — Unit for Ten 2-Wire Recording Completing Trunks — Arranged to Recall the Subscriber

Equipment and Local Cable — J29201AB-()

List 3 — Framework, assembly, wiring, and common equipment for one unit of ten 2-wire recording completing trunks.

	WIRE	EQUIP	SEE NOTES
Framework, ED-90395-51, Fig. 1		1	
2-Wire Rec Comp Trk Ckt, SD-21349-01, Fig. 1 & 2, with Fig. A	10	0	5.09

List 4 — Equipment required in addition to list 3 for one 2-wire recording completing trunk circuit per SD-21349-01, Fig. 1 and 2, with Fig. A. (See Note A and 5.09.)

Note

- A. Repeating coils shall be furnished as required for the particular type of loading.

J29201AC (A&M Only) — Unit for Ten 2-Wire Recording Completing Trunks Outgoing to Toll Office — Not Arranged To Recall the Subscriber

Equipment and Local Cable — J29201AC

- List 3** — Framework, assembly, wiring, and common equipment for one unit of ten 2-wire recording completing trunks.

	WIRE	EQUIP	SEE NOTES
Framework, ED-90305-01, Fig. 1		1	
2-Wire Rec Comp Trk Ckt, SD-20545-01, Fig. 1 & 2	10	0	5.09

- List 4** — Equipment required in addition to list 3 for one 2-wire recording completing trunk circuit per SD-20545-01, Fig. 1 and 2. (See Note A and 5.09.)

Note

- A. Repeating coils shall be furnished as required for the particular type of loading.

J29201AD (A&M Only) — Unit for Ten 2-Wire Recording Completing Trunks — Arranged for Number Checking

Equipment — ED-21459-01, Fig. 1
Local Cable — ED-90440-10, Fig. 2 & 3

- List 5** — Framework, assembly, wiring, and common equipment for one unit of ten 2-wire recording completing trunks.

	WIRE	EQUIP	SEE NOTES
Framework, ED-90395-51, Fig. 1		1	
2-Wire Rec Comp Trk Ckt, SD-21459-01, Fig. 1 & 2 with Fig. A, B, C, & F	10	0	5.09

- List 6** — Equipment required in addition to list 5 for one 2-wire recording completing trunk circuit, less the number checking apparatus, per SD-21459-01, Fig. 1, 2, B, C, and F. (See Note A and 5.09.)

- List 7** — Equipment per SD-21459-01, Fig. A, required in addition to list 6 to equip one circuit for number checking.

Note

- A. Repeating coils shall be furnished as required for the particular type of loading.

J29201AM (A&M Only) — Unit for One Alarm Transfer Circuit — Battery on CO Relay Offices — 2-Inch Mounting Plates

Equipment — J29201AM-(), Fig. 1

- List 1** — Framework, assembly, wiring, and common equipment for one unit of one alarm transfer circuit for battery on CO relay offices arranged for mounting on 2-inch by 23-inch mounting plates.

	WIRE	EQUIP	SEE NOTES
Framework, ED-92243-70, G1 Alarm Transfer Ckt, SD-20733-01: Fig. 1, 2, 5, 7, 8, 10, 11, 12, 14, 15, 18, 23, 25, & 30		1	
Fig. 3, 6, 9, & 21	1	1	C
Fig. 4	2	1	
Fig. 16 & 17	5	1	
Fig. 13, 19, 20, 22, 27, 28, & 29	1	0	A
		0	D

- List 2** — Equipment per SD-20733-01, Fig. 3 and 6, required in addition to list 1 when one alarm transfer circuit is required to serve two power plants.

- List 3** — Equipment per SD-20733-01, Fig. 4, required in addition to list 1 for each additional floor alarm board served by the same alarm transfer circuit.

- List 4** — Equipment per SD-20733-01, Fig. 13, required in addition to list 1 when 4C buzzer is wired on sender make-busy frame.

- List 5** — Equipment per SD-20733-01, Fig. 9, required in addition to list 1 for an additional 40 or less subgroups of subscriber links.

List 6 — Equipment per SD-20733-01, Fig. 19, required in addition to list 1 when it is desired to transfer CDO alarms in connection with the use of the extension alarm circuit.

List 7 — Equipment per SD-20733-01, Fig. 20, required in addition to list 1 when it is desired to transfer PBX alarms in connection with the extension alarm circuit.

List 8 — Equipment per SD-20733-01, Fig. 21, required in addition to list 1 for an additional ten or less (up to 20 coin control circuits).

List 9 — Equipment per SD-20733-01, Fig. 22, required in addition to list 1 to provide for the transfer of alarms, associated with No. 3A and 4A announcement systems, when office alarms are transferred with tone distinction.

List 10 — Wiring and equipment per SD-20733-01, Fig. 26, required in addition to list 1 to provide for transfer of alarms within the same building. (See Note C.)

List 11 — Equipment per SD-29733-01, Fig. 27, required in addition to list 1 to equip first preference local option relay circuit. (See Note D.)

List 12 — Equipment per SD-20733-01, Fig. 28, required in addition to list 1 to equip third preference local option relay circuit. (See Note D.)

List 13 — Equipment per SD-20733-01, Fig. 29, required in addition to list 1 to equip second preference local option relay circuit. (See Note D.)

List 14 — Equipment per SD-20733-01, Fig. 31, required in addition to list 1 when carrier alarm signals are required.

List 15 — Equipment per SD-20733-01, Fig. 32, required in addition to list 1 to provide a carrier alarm transfer relay for an aisle (two maximum).

List 16 — Equipment per SD-20733-01, Fig. 33, required in addition to list 1 to provide for the transfer of ANI alarms.

List 17 — Wiring and equipment per SD-20733-01, Fig. 34, ZC and ZE options, to provide for retiring, at the alarm receiving center, alarms caused by troubles originating in announcement system equipment.

List 18 — Wiring and equipment per SD-20733-01, Fig. 36, required in addition to list 1 to provide for retiring, at the alarm receiving center, alarms caused by trouble originating in the concentrating equipment.

Notes

- A. SD-20733-01, Fig. 16 and 17, shall be universally wired and equipped, as required, to meet the job requirements.
- B. SD-20733-01, Fig. 24, shall be furnished as required to meet job requirements. The equipment for this figure is installer-wired and is shown on J29201AM-(), Fig. 3.
- C. Provide K wiring connected per SD-20733-01, Fig. 25, when list 26 is furnished.
- D. Equipment per SD-20733-01, Fig. 27, 28, and 29, shall be furnished as required by the customer to meet job requirements.

J29201AN (A&M Only) — Unit for One Permanent Signal Alarm Circuit for Use With Permanent Signal Holding Trunks

Equipment — J29201AN-() (Surface-Wired)

List 1 — Framework, assembly, wiring, and equipment for one unit for one permanent signal alarm circuit per SD-20745-01, Fig. 1, with Q, R, S, T, V, W, X, Y, and Z wiring. (See Notes A, B, and C.)

Notes

- A. Q wiring at the terminal strip shall be cut by the installer when the alarm transfer unit is provided.
- B. R, S, T, V, W, X, Y, and Z wiring shall be cut as required by the installer in accordance with Note 102 of SD-20745-01, depending upon the number of permanent signals required for operating the alarm circuit.

C. A 10-amp NEC cartridge-type fuse and a 1-1/3-amp fuse designated A shall be mounted as near this unit as possible in order to minimize the voltage drop in the supply lead.

J29201AO (A&M Only) — Unit for One Alarm Transfer Circuit for Ground on CO Relay Offices

Equipment — J29201AO-(), Fig. 1

List 1 — Framework, assembly, wiring, and common equipment for one unit of one alarm transfer circuit for use in ground on cutoff relay offices.

	WIRE	EQUIP
Framework, ED-92243-70, G12 (P-424412)		1
Alarm Transfer Ckt, SD-20736-01: Fig. 1, 7, 8, 12, 13, 14, 15, 28, 29, 30, 32, & 34 Each	1	1
Fig. 2 & 9	2	1
Fig. 3, 10, 11, 16, 17, 19, 21, 26, & 27 Each	1	0
Fig. 4, 5, 24, & 33	2	0
Fig. 18	3	0
Fig. 20, 23, & 25	3	1

List 2 — Equipment per SD-20736-01, Fig. 2, required in addition to list 1 when one alarm transfer circuit is required to serve two decoder groups.

List 3 — Equipment per SD-20736-01, Fig. 3, required in addition to list 1 when the office alarms of a GCO panel office and a No. 1 crossbar office are combined and are to be transferred to a receiving center.

List 5 — Equipment per SD-20736-01, Fig. 9, required in addition to list 1 for an additional 40 or less subgroups of links.

List 6 — Equipment per SD-20736-01, Fig. 10, required in addition to list 1 when it is desired to transfer CDO alarms in connection with the use of the extension alarm circuit.

List 7 — Equipment per SD-20736-01, Fig. 11, required in addition to list 1 when it is desired to transfer PBX alarms in connection with the use of the extension alarm circuit.

List 8 — Equipment per SD-20736-01, Fig. 16, required in addition to list 1 when it is desired to transfer keypulsing sender stuck sender alarms.

List 9 — Equipment per SD-20736-01, Fig. 17, required in addition to list 1 when it is desired to transfer alarms for No. 3A and 4A announcement systems.

List 10 — Equipment per SD-20736-01, Fig. 18, required in addition to list 1 when it is desired to transfer PBX 24-volt and ringing battery fuse alarms.

List 11 — Equipment per SD-20736-01, Fig. 19, required in addition to list 1 when it is desired to release keypulsing A switchboard selector and OGT circuits test lead alarms.

List 12 — Equipment per SD-20736-01, Fig. 20, 23, and 25, required in addition to list 1 for each additional floor (maximum 3) served by the same alarm transfer circuit.

List 13 — Equipment per SD-20736-01, Fig. 21, required in addition to list 1 when it is desired to transfer maintenance incoming call alarms.

List 14 — Equipment per SD-20736-01, Fig. 26, required in addition to list 1 for first preference local option alarm signal circuit. (See Note B.)

List 15 — Equipment per SD-20736-01, Fig. 27, required in addition to list 1 for third preference local option alarm signal circuit. (See Note B.)

List 16 — Equipment per SD-20736-01, Fig. 31, required in addition to list 1 for second preference local option alarm signal circuit. (See Note B.)

List 17 — Equipment per SD-20736-01, Fig. 4, 5, 24, and 33, required in addition to list 1 for each power plant served by the same alarm transfer circuit (maximum 2).

List 18 — Equipment per SD-20736-01, Fig. 37, required in addition to list 1, when carrier alarm signals are required.

List 19 — Equipment per SD-20736-01, Fig. 38, required in addition to list 1, to provide a carrier alarm transfer relay for an aisle (maximum 2).

List 20 — Equipment per SD-20736-01, Fig. 38, required in addition to list 1, to provide for the transfer of ANI alarms.

List 21 — Wiring and equipment per SD-20736-01, Fig. 40, required in addition to list 1 to provide for retiring, at the alarm receiving center, alarms caused by trouble originating in No. 23-type operating desk incoming trunk switching equipment.

List 22 — Wiring and equipment per SD-20736-01, Fig. 41, required in addition to list 1 to provide for retiring, at the alarm receiving center, alarms caused by trouble originating announcement system equipment.

Notes

- A. Equipment per SD-20736-01, Fig. 22, shall be furnished as required to meet job requirements. The equipment for this figure is installer-wired and is shown on J29201AO-(), Fig. 2. This installer-wired unit shall be mounted as close as possible to the main unit, J29201AO.
- B. Equipment per SD-20736-01, Fig. 26, 27, and 31, shall be furnished as required by the customer to meet job requirements.
- C. Equipment per SD-20736-01, Fig. 35 and 36, shall be furnished as required to meet job requirements. The equipment for these figures is installer-wired and is shown on J29201AO-(), Fig. 3. This installer-wired unit should be mounted as close as possible to the main unit J29201AO.

J29201AP (A&M Only) — Outgoing Trunk Unit for Direct Distant Dialing to Non-AMA Offices

Equipment — J29201AP-() (Surface-wired)

List 1 — Framework, assembly, wiring, and equipment per SD-20746-01, Fig. 1, required for one outgoing trunk for use in panel offices to complete direct distance dialing calls through non-AMA

crossbar tandem offices. This circuit provides trunk closure during district talking selections to hold the incoming trunk during these selections.

J29201AR (A&M Only) — Panel Systems — Alarm Unit for Trouble Grounds on Tip and Ring

Equipment — J29201AR-()

List 1 — Assembly, wiring, and equipment per SD-21990-01, two Fig. 5, for two alarm circuits for trouble grounds on tip and ring.

J29201AS (A&M Only) — Panel Systems — Intercept Trunk Unit—Trunk Finder to Automatic Intercept Center — Ground Cutoff Office With and Without PBX Sleeve Hunt Provisions

Equipment — J29201AS-()

List 1 — Framework, assembly and common equipment per SD-21990-01, ten Fig. 1 or 2 for 10 intercept trunk circuits.

List 2 — Equipment and wiring per SD-21990-01, ten Fig. 1, required in addition to list 1 for ten intercept trunk circuits without provisions for PBX sleeve hunt conditions.

List 3 — Equipment and wiring per SD-21990-01, ten Fig. 2, required in addition to list 1 for ten intercept trunk circuits with provisions for PBX sleeve hunt conditions. (See note A.)

Note

A. Specify "Z" wiring for last equipped trunk.

J29201AT (A&M Only) — Panel Systems — Intercept Trunk Unit—Trunk Finder to Automatic Intercept Center — Battery Cutoff Office Without PBX Sleeve Hunt Provisions

Equipment — J29201AT-()

List 1 — Framework, assembly, equipment and wiring per SD-21990-01, ten Fig. 3, for ten intercept trunks without provisions for PBX sleeve hunt conditions.

J29201AU (A&M Only) — Panel Systems — Intercept Trunk Unit — Trunk Finder to Automatic Intercept Center — Battery Cutoff Office with PBX Sleeve Hunt Provisions

Equipment — J29201AU-()

List 1 — Framework, assembly, equipment and wiring per SD-21990-01, ten Fig. 4, for ten intercept trunks with provisions for PBX sleeve hunt conditions. (See note A.)

Note

A. Specify "X" wiring for last equipped trunk.

J29201BD (A&M Only) — Unit for Ten Free Lines — Arranged for 2-Way Service

Equipment — J29201BD-()

Local Cable — ED-90440-10, Fig. 2

List 2 — Framework, assembly, and common equipment for one unit of ten free lines.

	WIRE	EQUIP	SEE NOTES
--	------	-------	-----------

Framework, ED-90395-51		1	
Free Line Ckt, SD-21296-01, Fig. B and H	10	1	5.09

List 3 — Equipment required in addition to list 2 for one free line circuit arranged for 2-way service per SD-21296-01 and Fig. B, less F, G, and W options.

List 4 — Equipment required in addition to list 2 for one free line circuit per SD-21296-01, option G only, when operation with ANI is not required.

List 5 — Framework and assembly required in addition to list 2 to provide one unit of ten free line circuits for operation with ANI. (See Note A.)

List 6 — Equipment required in addition to list 5 for one free line circuit per SD-21296-01, options F and W only, when operation with ANI is required.

Note

A. List 1 includes the mounting bars and mounting plates which may be remote from the basic unit. This unit shall be installer-wired.

J29201BE (A&M Only) — Unit for Ten Free Lines — Arranged for Inward Service Only

Equipment — ED-20612-01, Fig. 1

Local Cable — ED-90440-10, Fig. 2

List 3 — Framework, assembly, wiring, and common equipment for one unit of ten free lines.

	WIRE	EQUIP	SEE NOTES
--	------	-------	-----------

Framework, ED-90395-50, Fig. 1		1	
Free Line Ckt, SD-21446-01 and Fig. A & C	10	0	5.09, A

List 4 — Equipment required in addition to list 3 for one free line circuit per SD-21446-01, and Fig. A, arranged for inward service only on any line except a 550C or 550SC PBX. (See 5.09.)

List 5 — Equipment per SD-21446-01, Fig. C, required in addition to list 4 to equip one free line circuit for inward service only for a 550C or 550SC PBX.

Note

A. This unit shall be specified for additions to ground on the cutoff relay offices only.

J29201BF (A&M Only) — Unit for Ten Free Lines — Arranged for 2-Way Service

Equipment — J29201BF-()

Local Cable — ED-90440-10, Fig. 2

List 2 — Framework, assembly, wiring, and common equipment for one unit of ten free lines.

	WIRE	EQUIP	SEE NOTES
--	------	-------	-----------

Framework, ED-90395-50, Fig. 1		1	
Free Line Ckt, SD-21446-01 and Fig. B	10	0	5.09, A

List 3 — Equipment required in addition to list 2 for one free line circuit arranged for 2-way service per SD-21446-01 and Fig. B, Y or Z option, less S option, when operation with ANI is not required.

List 4 — Framework and assembly required in addition to list 2 to provide one unit of ten free lines for operation with ANI. (See Note B.)

List 5 — Equipment required in addition to list 4 for one free line circuit per SD-21446-01, S option only, when operation with ANI is required.

Notes

- A. This unit shall be specified for additions to ground on the cutoff relay offices only.
- B. This list includes the mounting bars and mounting plates which may be remote from the basic unit. This unit shall be installer-wired.

J29201CA (A&M Only) — Unit for Ten Auxiliary Subscriber Lines

Equipment — J29201CA-()
Local Cable — ED-90440-10, Fig. 2

List 1 — Framework, assembly, and common equipment for one unit of ten auxiliary subscriber line circuits.

	WIRE	EQUIP
Framework, ED-90395-51		1
Auxiliary Line Ckt, SD-21294-01	10	0

List 2 — Equipment required in addition to list 1 for one auxiliary subscriber line circuit SD-21294-01, less Y and Z options.

List 3 — Equipment required in addition to list 1 for one auxiliary subscriber line circuit SD-21294-01, Z option only, when operation with ANI is not required.

List 4 — Framework and assembly required in addition to list 1 to provide one unit of ten auxiliary subscriber line circuits for operation with ANI. (See Note A.)

List 5 — Equipment required in addition to list 4 for one auxiliary subscriber line circuit SD-21294-01, option Y only, when operation with ANI is required.

Note

- A. This list includes the mountings, bars, and mounting plates for a supplementary unit which may be remote from the basic unit. This unit shall be installer-wired.

J29201MA (A&M Only) — Unit for Ten Outgoing Trunks to Official PBX

Equipment — ED-20645-01, Fig. 1
Local Cable — ED-90440-10, Fig. 4

List 2 — Framework, assembly, wiring, and common equipment for one unit of ten outgoing trunks to official PBX.

	WIRE	EQUIP
Framework, ED-90395-51, Fig. 1		1
Outgoing Trk Ckt, SD-21572-01	10	0

List 3 — Equipment required in addition to list 2 for one outgoing trunk circuit to official PBX per SD-21572-01.

J29201UA (A&M Only) — Unit for One Revertive Pulsing Relay Interrupter Circuit

Equipment — ED-20867-01, Fig. 2
Local Cable — ED-90757-03

List 1 — Framework, assembly, wiring, and equipment for one unit of one revertive pulsing relay interrupter circuit.

	WIRE	EQUIP	SEE NOTES
Framework, ED-25081-01, Fig. 1		1	5.08
Revertive Pulsing Relay Int Ckt, SD-21837-01, Y and Z Wiring	1	1	5.20

J29201UB (A&M Only) — Unit for One Key pulsing Relay Interrupter Circuit

Equipment — ED-20867-01, Fig. 3
Local Cable — ED-90757-03

List 1 — Framework, assembly, wiring, and equipment for one unit of one key pulsing relay interrupter circuit.

	WIRE	EQUIP	SEE NOTES
Framework, ED-25081-01, Fig. 1		1	5.08
Key pulsing Relay Int Ckt, SD-21838-01, Fig. 1	1	1	5.20

J29201UC (A&M Only) — Unit for One Dial Pulsing Interrupter Circuit

Equipment — ED-21856-01
Local Cable — ED-90440-10

List 1 — Framework, assembly, wiring, and equipment for one unit of one dial pulsing relay interrupter circuit.

	WIRE	EQUIP	SEE NOTES
Framework, ED-25081-01, Fig. 1		1	
Dial Pulsing Relay Int Ckt, SD-21856-01:			
Int Ckt, Fig. 1	1	1	A
Pulsing Cont Relay, Fig. 2	12	0	A
Misc Types, L Sdr Relays Fig. 3 and Fig. 5 to 11			
Each	1	0	A,B,C

Notes

- A. Fig. 2, 3, and 5 to 10 shall be equipped in list 1 in accordance with the table shown in Circuit Note 107 on SD-21856-01 to meet particular job conditions.
- B. In Fig. 1 and 7, furnish B apparatus and connect B wiring when the senders to be tested have code E827, L relays, and are arranged for an external loop of 1200 ohms; otherwise omit B apparatus and connect A wiring.
- C. When all senders under test have the same code L relay and the same dialing range, Fig. 3, 5, 6, and 7 shall be omitted. One 203A terminal strip and 28B bracket shall be provided for connecting purposes in the rear of the mounting plate which is used to mount these relays, so that the operated condition of a relay per one of these figures can be simulated. The 203A terminal strip and 28B bracket shall be located in the position of the relay being simulated.

J29201UD (A&M Only)—Unit for Three Semimechanical A Switchboard Outgoing Trunk MF Keypulsing Circuits—Arranged to Mount on 19-Inch Relay Racks

Equipment — ED-21001-01
Local Cable — ED-91601-01, Fig. 3

- List 1** — Assembly, wiring, and common equipment for one unit of three semimechanical A switchboard outgoing MF keypulsing trunks arranged for mounting on a 19-inch relay rack bay.

	WIRE	EQUIP
--	------	-------

Semimechanical A Switchboard Outgoing Trunk Circuit MF Pulsing, SD-20740-01, Fig. 1	3	0
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- List 2** — Equipment required in addition to list 1 for one semimechanical A switchboard outgoing trunk MF keypulsing circuit per SD-20740-01, Fig. 1.

J29201UE (A&M Only) — Unit for Four Semimechanical Outgoing Trunk MF Keypulsing Circuits—Arranged to Mount on 23-Inch Relay Racks

Equipment — ED-20916-01
Local Cable — ED-91601-01, Fig. 3

- List 1** — Assembly, wiring, and common equipment for one unit of four semimechanical A switchboard outgoing MF keypulsing trunks arranged for mounting on a 23-inch relay rack bay.

	WIRE	EQUIP
--	------	-------

Semimechanical A Swbd Outg Trk Ckt, MF Pulsing, SD-20740-01, Fig. 1	4	0
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- List 2** — Equipment required in addition to list 1 for one semimechanical A switchboard outgoing trunk MF keypulsing circuit per SD-20740-01, Fig. 1.

J29201UF (A&M Only) — Unit for Two Coin Line Circuits — Ground on the Cutoff Relays — Arranged to Mount on 19-Inch Relay Racks (See Note A)

Equipment — ED-20921-01, Fig. 1
Local Cable — ED-91601-01, Fig. 1

- List 1** — Assembly, wiring, and common equipment for one unit of two coin line circuits. (See J29201UG.)

	WIRE	EQUIP
--	------	-------

Framework, ED-90782-01, G3 Coin Line Ckt, SD-21968-01, Fig. 1	2	0
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- List 2** — Equipment required in addition to list 1 for one coin line circuit per SD-21968-01, Fig. 1.

Note

- A. This coin line unit is used with coin subscriber lines having 191-type or equivalent coin collector, conductor loops between 685 and 785 ohms, and B1 supervision relays on incoming selectors which have 24-volt transmission.

J29201UG (A&M Only) — Unit for Two Coin Check Circuits — Ground on the Cutoff Relays — Arranged to Mount on 19-Inch Relay Racks

Equipment — ED-20921-01, Fig. 2
Local Cable — ED-91601, Fig. 3

- List 1** — Assembly, wiring, and common equipment for one unit of two coin check circuits. (See Note A.)

	WIRE	EQUIP
--	------	-------

Coin Check Ckt, SD-21968-01, Fig. 2	2	0
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List 2 — Equipment required in addition to list 1 for one coin check circuit.

Note

A. Coin check circuits shall be furnished for use with coin lines J29201UF when coin return potential is required at the end of each terminating call.

J29201VA (A&M Only)—Unit for Three Outgoing Trunks — From Sender Tandem or Distant Office Beyond Sender Tandem to Step-by-Step Office — Arranged for Pulsing — Type B Composite Signaling

Equipment — ED-21866-01, Fig. 1
Local Cable — ED-90757-01, Fig. 1

List 1 — Framework, assembly, wiring, and common equipment for one unit of three outgoing trunks.

	WIRE	EQUIP	SEE NOTES
Framework, ED-90782-01, Fig. 1		1	
Aux Trk Ckts, SD-21866-01, Fig. 1	3	0	B, 5.09

List 2 — Equipment required in addition to list 1 for one auxiliary trunk circuit per SD-21866-01, Fig. 1. (See Note A and 5.09.)

Notes

- A. The TV, RV, TW, and RW resistors shall be provided in all cases and the straps across them cut as required for the particular loop limits over which the circuit is to operate.
- B. The trunk unit covered under this code together with the line balancing composite and repeating coil set unit J98602E or F and the composite signaling unit per J98602H will form a phantom group of outgoing trunks from sender tandem to step-by-step office.

5. GENERAL NOTES

Equipment

5.01 Units shall be arranged on the relay rack in such a manner as to make use as far as possible of all available space. If large units are specified and all the space has not been used, a smaller unit or a nonunit circuit employing two or three plates of equipment shall be specified to fill up the unused portion of the bay.

5.02 In order to facilitate cabling, one mounting plate space shall be left between units which occupy ten or more mounting plate units on 23-inch relay bays.

5.03 Adapter details per ED-90273-01 shall be specified for mounting 19-inch mounting plate units on 23-1/2 inch relay bays.

5.04 Terminal strips on trunk units shall be numbered from top down as shown on equipment drawings. The units on a bay shall be equipped from bottom up. The growth of bays may be in any direction, depending on the floor plan layout.

5.05 No. 33C connecting blocks for 24-volt and No. 33B connecting blocks for 48-volt battery shall be mounted approximately 6 feet 0 inch above the floor on the apparatus side of each third bay, beginning with the second bay of relay rack.

5.06 A 162 jack mounting shall be mounted approximately 6 feet 0 inch above the floor on the apparatus side of each third bay, beginning with the second bay of the relay rack, when a battery supply per SD-90619-01 is required to supply battery to test sets for testing trunk circuits such as 2-wire recording completing trunks.

5.07 On some circuits, where the demand is small or where there is only a small amount of equipment and local wiring, no unit has been provided. In these cases, the installer shall wire the equipment on the job and terminate the switchboard cable directly on the relay terminals. In general, all equipment of this character should be confined to one bay of the relay rack.

5.08 The relay interrupter units shall be mounted in a 23-inch relay rack bay near the sender test frames. To avoid the effects of vibration on the relay interrupter units, the bay should be free from vibration caused by motor drives, mechanical interrupters, or 206-type selectors, either in the bay or on frames immediately adjacent.

5.09 Unit local cables shall contain all optional wiring, but optional equipment shall be furnished in accordance with job requirements.

Fuses for Relay Rack Equipment

5.10 Fuse panels associated with relay rack equipment shall be mounted either on relay rack framework by means of adapters or on fuse board framework. In general, one bay of fuse panels will serve two adjacent line-ups of relay rack. However, where relay rack line-ups

are not adjacent, one fuse board or fuse bay per line-up shall be provided. Where relay rack bays are used to fill out rows of panel frames, a common fuse board may be provided for these bays.

5.11 For fuse bays located at the head of a line-up relay rack, the regular 23-1/2 inch relay rack framework should be provided if the alternate fuse requirements for a relay rack line-up will not exceed 17 fuse and resistance lamp panels, otherwise a standard fuse board framework should be provided. With the regular fuse board framework, fuse panels may be mounted without the use of adapters; a more satisfactory bus bar arrangement is obtained, and it is possible to use a larger-capacity panel if it is so desired.

5.12 For relay rack fuse board framework, 60-capacity fuse panels with adapters shall be specified, and for the fuse board framework, 60-, 80-, or 120-capacitor fuse panels without adapters shall be specified.

5.13 Where relay rack fuse board framework is used, any vacant space above the ultimate fuse requirements shall be used for mounting relay rack units or miscellaneous circuits.

5.14 All ringing and coin control circuits shall be fused with 35-type fuses which have their fuse wire protected by a porcelain tube; that is, 35J, 35K, etc.

5.15 Fuses for all types of ringing, tones, coin collect, test battery supply, and other miscellaneous fuses which are common to a number of circuits in each relay rack line-up shall be located centrally with respect to more than one line-up of relay rack. When relay racks are located on more than one floor, the above fuses shall be centrally located on each floor.

5.16 In addition to the fuses mentioned in 5.15, fuses and punchings for tone leads, also fuses and resistance lamps for ringing associated with the various selector, link, and sender frames, shall be located on the fuse boards.

5.17 *Resistance lamps* shall be mounted on resistance lamp panels on fuse board framework and on mounting plates on relay rack framework and shall be located at the top of the same bay as their associated fuses.

5.18 *Fuse-alarm aisle pilots* for fuse boards shall be located in the aisle occupied by the row of relay rack bays and associated fuse boards. If the relay rack or fuse board does not extend to the main aisle, the aisle pilot shall be suspended in the aisle from the cable rack.

Wiring and Cabling

5.19 Battery leads shall be run in switchboard cable from the relay rack equipments to the associated fuse panels. In general, it will be desirable to have one cable form over a number of relay rack units. Cables of 22-type C wire may be used where the maximum length between the soldered connection on the fuse panel and relay equipment does not exceed 60 feet for a single No. 22 gauge conductor with a common ground return or 50 feet for paired leads. This requirement is based on an allowable 1/2-volt drop between the fuse and associated relay equipment for a single conductor and 3/4-volt drop on the lead for paired conductors and assumes a maximum current drain of 1/2 ampere. In case the maximum distance and allowable voltage drop would be exceeded by using No. 22 gauge wire, cables of a larger gauge of wire shall be specified.

5.20 The length of the No. 22 gauge cable between the revertive pulsing relay interrupter unit and the associated test frame should not exceed 80 feet. When, because of particular job conditions, it is necessary to exceed 80 feet of cable, leads 7 and 8 between the test frame and revertive pulsing circuit SD-21837-01 should be doubled up so that the loop resistance does not exceed 3 ohms. The resistance in any of the other leads between the associated test frame and the revertive pulsing, dial pulsing, and key-pulsing relay interrupter units should not exceed 10 ohms.

5.21 Phantom composite circuits require a constant potential ground for balancing the circuit. This ground, which is known as the CX ground, may be connected to the relay rack ground unless trouble develops from noise in the circuits due to the variations of potential in the relay rack ground. In this case, it will be necessary to run a No. 6 braided rubber-covered wire per KS-5482 (in accordance with standard protective practices) to the office ground. If CX trunks from other systems are located on the relay rack with panel CX trunks, the same ground should be used for all the CX trunks.

5.22 In general, the switchboard cables for the various groups of equipment shall be of 5- or 10-circuit capacity, depending upon whether the unit is arranged for five or ten circuits. However, larger switchboard cables may be furnished to serve several relay rack units, provided the arrangement of equipment at both ends of the cable will permit. A cable per bay shall be furnished for phantom equipment.

5.23 When vacant code trunks are arranged for recorded announcement, equipment per SD-96510-01, Fig. 3 and 4 and Note 102 shall be furnished.

5.24 Codes J29201L, M, AV through AY, BG through BY, CC through GY, HB through JY, KB through KY, LC through LY, ME through TY, UH through UY, and VB through VY are unassigned.

5.25 During periods of light traffic where PBX positions are shut down, the limited traffic may be restricted to the remaining attended positions by making busy a predetermined number using PBX trunk make-busy circuit SD-21842-01, Fig. 1 and 2 for GCO and BCO offices, respectively. The operation of a key at the PBX will enable this circuit to cause a trunk to appear during hunting sequence as a last rather than an intermediate number. Where a slip multiple is provided between final frames for large PBX groups, the slip should be re-arranged to cause the selected last trunk to appear in the same hunting sequence of each frame. This circuit requires a separate cable pair between the local office and the PBX and is cross-connectable at the local office IDF.

List of A&M Only and Mfr Disc. Equipment

The following equipment has been replaced as indicated. Where A&M Only items appear, the issue numbers shown are those of the issue in which the rating was first applied.

EQUIPMENT	RATING	DETAILS LAST SHOWN IN ISSUE	REPLACING EQUIPMENT
J29201A	Mfr Disc.	2	J29201AA,L3 & L4 J29201AB,L3 & L4 J29201AC,L3 & L4

EQUIPMENT	RATING	DETAILS LAST SHOWN IN ISSUE	REPLACING EQUIPMENT
J29201B	Mfr Disc.	2	J29201LA,L2 & L3 J29201LB,L2 & L3
J29201C	Mfr Disc.	3	J29201CA,L1 & L2
J29201D	Mfr Disc.	11	J29201CB
J29201E	Mfr Disc.	2	—
J29201F	Mfr Disc.	2	—
J29201G	Mfr Disc.	2	—
J29201H	Mfr Disc.	6	J29201VA J98602E J98602H
J29201J	Mfr Disc.	12	—
J29201K	Mfr Disc.	12	—
J29201P	Mfr Disc.	12	—
J29201R	Mfr Disc.	5	J29201V,L1 & L2
J29201S	Mfr Disc.	6	J98602E
J29201T	Mfr Disc.	12	J98602L
J29201U	Mfr Disc.	5	J29201UC
J29201V	Mfr Disc.	6	J29201VA
J29201W	Mfr Disc.	6	J68622C J68623M J98602L ED-95015-01
J29201X	Mfr Disc.	5	J99206F,L1
J29201Y	Mfr Disc.	5	J99206G,L1
J29201AA,L1 & L2	Mfr Disc.	4	J29201AA,L3 & L4
J29201AB,L1 & L2	Mfr Disc.	4	J29201AB,L3 & L4
J29201AC,L1 & L2	Mfr Disc.	4	J29201AC,L3 & L4
J29201AD,L1 to L4	Mfr Disc.	4	J29201AD,L5 to L7
J29201AE	Mfr Disc.	7	J29201AA
J29201AF	Mfr Disc.	11	J29201AB
J29201AG	Mfr Disc.	11	J29201AC
J29201AH	Mfr Disc.	7	—
J29201AJ	Mfr Disc.	9	J29201AH
J29201AK	Mfr Disc.	11	J29201AO
J29201AL	Mfr Disc.	13	—
J29201AO,L4	Mfr Disc.	12	J29201AO,L17
J29201BA	Mfr Disc.	3	—

EQUIPMENT	RATING	DETAILS LAST SHOWN IN ISSUE	REPLACING EQUIPMENT	EQUIPMENT	RATING	DETAILS LAST SHOWN IN ISSUE	REPLACING EQUIPMENT
J29201BB	Mfr Disc.	3	—	J29201HA	Mfr Disc.	6	J68622C J68623M J98602H ED-95015-01
J29201BC	Mfr Disc.	13	—				
J29201BD,L1	Mfr Disc.	4	J29201BD,L2 & L3	J29201KA	Mfr Disc.	12	—
J29201BE,L1 & L2	Mfr Disc.	4	—	J29201LA	Mfr Disc.	12	—
J29201BF,L1	Mfr Disc.	4	J29201BF,L2 & L3	J29201LB	Mfr Disc.	13	—
J29201CB	Mfr Disc.	13	—	J29201MA,L1	Mfr Disc.	4	J29201MA,L2 & L3
				J29201MB	Mfr Disc.	12	—
				J29201MC	Mfr Disc.	13	—
				J29201MD	Mfr Disc.	12	—

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