

**SUBSCRIBER ROTARY LINE SWITCH AND
22-POINT LINE OR TRUNK FINDER
RELAY RACK UNITS
EQUIPMENT DESIGN REQUIREMENTS
STEP-BY-STEP SYSTEMS**

1. GENERAL

SCOPE

1.01 This specification, together with the supplementary information listed herein, covers the equipment design requirements for the manufacture and installation of rotary line switches, line switch units and associated subscriber line relay units, and 22-point line and trunk finder units.

1.02 This specification is reissued to:

- (a) Revise J33020A List 6 and 7
- (b) Add J33020A List 8 and 9
- (c) Add J33020C List 15
- (d) Revise J33020E List 4
- (e) Add J33020E List 5 and 6
- (f) Revise J33020F List 1, 2, 3, 4
- (g) Add J33020F List 7
- (h) Revise J33020G List 2
- (i) Add J33020G List 4.

DESCRIPTION

1.03 This specification covers relay rack units for rotary line switch and 22-point line or trunk finder units which are arranged on 2-inch wide mounting plates.

1.04 These relay rack units consist of one or more mounting plates, 2 inches by 23 inches long, on which the apparatus for one or more circuits is

mounted and, unless otherwise specified, surface-wired to one or more unit terminal strips. The terminal strips facilitate shop testing of the circuit, provide a place for strapping used to obtain circuit options, and serve as a convenient place for the installer to make the necessary external connections. These 2-inch units may be mounted on relay racks drilled for 1-3/4 inch mounting plates by using adapters per ED-92242-() as illustrated on ED-92242-01.

1.05 Units covered by this specification are surface-wired.

1.06 The units included in this specification provide relay rack concentrating equipment, the use of which is covered in **1. GENERAL** of J32003.

2. SUPPLEMENTARY INFORMATION

814-000-000—Numerical Index—Step-by-Step Systems
800-600-000—Checking List—General Equipment Requirements
J32003—814-415-150—Intercepting Trunks and Trunk Finder Equipment
J93001—801-006-153—Relay Rack Unit Framework and Local Cable

3. DRAWINGS

WE J drawings should be ordered by referring to the prefix and base number and requesting the current dash (-) number.

Keysheets

SD-31359-01— No 1 Offices
SD-31364-01— No 350A Offices
SD-31780-01— No 355A Offices
SD-32150-01— No 360A Offices

NOTICE

Not for use or disclosure outside the
Bell System except under written agreement

Circuits

SD-31259-01—Subscriber Line Circuit
 SD-31793-01—Line or Trunk Finder Circuit
 SD-31898-01—Subscriber Line Circuit
 SD-31974-01—Fuse Alarm
 SD-32133-01—Subscriber Line Circuit
 SD-35031-01—Sleeve Relay Circuit Board

Equipment

J33020A-()—Subscriber Rotary Line Switch Unit for Dial Lines with Arrangement for Connection to Manual Prepay Coin Box Lines
 J33020B-()—Subscriber Rotary Line Switch Unit with Provision for Releasing Trunk to Operator Office on Permanent Signal
 J33020C-()—22-Point Line or Trunk Finder—3- or 5-Circuit Relay Rack Units
 J33020D-()—Subscriber Line Relay Unit for Use with 22-Point Line Finder—Arrange for Loop Start or Ground Start on the Ring
 J33020E-()—Subscriber Rotary Line Switch Unit for Dial Lines with Arrangement for Connection to Manual Prepay Coin Box Lines (Capacity Ten Lines)
 J33020F-()—Subscriber Rotary Line Switch Unit for Dial Lines with Arrangement for Connection to Dial Long Line Circuit (Capacity Three and Five Lines)
 J33020G-()—Subscriber Rotary Line Switch Unit for Dial Lines with Arrangement for Connection to Dial Long Line Circuit (Capacity Ten Lines)

Cabling

ED-92224-01—Relay Rack Cabling
 ED-92494-01—Typical Local Cable for 2- by 23-Inch Mounting Plate Units with Short Plates in Line with 206 Selectors, or 206 Selectors Only in Line

4. EQUIPMENT

J33020A—AT&T Co Std—Subscriber Rotary Line Switch Unit for Dial Lines with Arrangement for Connection to Manual Prepay Coin Box Lines (Capacity Three and Five Lines)

List 3—Wiring and equipment per SD-31259-01, Fig 1, Y wiring and apparatus only, required in addition to list 6 (three lists 3 furnished) or list 7 (five lists 3 furnished) for use with manual prepay coin lines (omit option X).

List 6—Framework, assembly, wiring, and equipment for one subscriber rotary line switch unit of three circuits. (Five mounting plates, three circuits.)

	WIRE	EQUIP	NOTES
Framework, ED-92243-01, GR5 and GR7 Sub Line Ckt, SD-31259-01, Fig 1, C and D with Option K, W, X, and ZF	3	1 3	A,B, C,D

List 7—Framework, assembly, wiring, and equipment for one subscriber rotary line switch unit of five circuits. (Five mounting plates, five circuits.)

	WIRE	EQUIP	NOTES
Framework, ED-92243-01, GR5 and GR7 Sub Line Ckt, SD-31259-01, Fig 1, C and D, with Option K, W, X, and ZF	5	1 5	A,B, C,D

List 8—Wiring and apparatus per SD-31259-01, option ZC required in addition to lists 6 or 7 when option X or Y is furnished and connection to coin trunks per SD-32539-01 is required.

List 9—Wiring and apparatus per SD-31259-01, option ZD required in addition to lists 6 or 7 when option V is furnished and connection to coin trunk per SD-32539-01 is required.

Notes

A. The units per lists 6 and 7 shall be equipped and wired universally so that installer wiring only at the unit terminal strip, as indicated in the circuit cross-connection figure, is required for option Z, Fig B, and Fig C, per SD-31259-01. When installer wiring per Fig C for resistance ground on lead A or per Fig B for connection to a message register is required, the installer shall cut the lo-

cal wiring strap (Fig A) at the unit terminal strip that is provided for Direct ground on lead A.

- B. When installer connection, option Z, to traffic register (peg count) is required, omit option W.
- C. When use with 10-cent dial prepayment coin lines is required, provide option V in addition to lists 6 and 7 and omit option X. With either option V or X, A, B, C, or D adjustments for relay L shall be applied in accordance with the Working Limits Table on the circuit drawing.
- D. Units per lists 6 and 7 are arranged for the assignment of bank terminals 1 to 20 only to working circuits. Terminals within 1 to 20 not assigned to working circuits shall be multiplied to the last assigned terminal. Terminal 21 is reserved exclusively for connection to peg count register, when specified.
- E. Specify equipment per J33020F for use with connection to dial long line circuit.

J33020B—AT&T Co Std—Subscriber Rotary Line Switch Unit with Provision for Releasing Trunk to Operator Office on Permanent Signal

List 1—Framework, assembly, wiring, and equipment for one subscriber rotary line switch unit of two circuits. (Five mounting plates, two circuits.)

	WIRE	EQUIP	NOTES
Framework, ED-92243-01, GR5 and GR37		1	
Sub Line Ckt, SD-31898-01, Fig 1 and 3 with Option Z	2	2	A

List 2—Framework, assembly, wiring, and equipment for one subscriber rotary line switch unit of four circuits. (Six mounting plates, four circuits.)

	WIRE	EQUIP	NOTES
Framework, ED-92243-01, GR6 and GR37		1	
Sub Line Ckt, SD-31898-01, Fig 1 and 3 with Option Z	4	4	A

List 3—Wiring and equipment per SD-31898-01, Fig. 4, required in addition to list 1 or 2 for one permanent signal trunk release circuit. (See Note B.)

List 4—Permanent signal battery, fuse, and fuse alarm equipment required in addition to list 1 or 2 when connected to permanent signal alarm circuits. (See Note C.)

	WIRE	EQUIP	NOTES
Sub Line Ckt, SD-31898-01, Fig. 1, R App Only (Omit Option Z)	1	1	
48-Volt Fuse Alm (Major), SD-31974-01, Fig 39	1	1	

Notes

- A. When resistance ground is not required on lead A to operator office trunk for class-of-service indication, resistance in Fig 3 shall be strapped out.
- B. List 3 is required once per office and located on lowest numbered unit.
- C. List 4 is required once per eight circuits.

J33020C—AT&T Co Std—22-Point Line or Trunk Finder—3- or 5-Circuit Relay Rack Units

List 1—A&M Only—Framework, assembly, wiring, and equipment for one line or trunk finder unit of three circuits (for 360A offices only). (See Notes A, B, and D.) (Five mounting plates, three circuits.)

	WIRE	EQUIP	NOTES
Framework, ED-92243-01, GR5 and GR37		1	
Line or Trunk Finder Ckt, SD-31793-01, Finder Ckt, Fig 1, with Option S	3	3	B
Call Blocked Alm Rel, Fig 2	1	0	

List 2—A&M Only—Framework, assembly, wiring, and equipment for one line or trunk finder unit of five circuits (for 360A offices only). (See Notes A, B, and D.) (Six mounting plates, five circuits.)

	WIRE	EQUIP	NOTES
Framework, ED-92243-01, GR6 and GR37 Line or Trunk Finder Ckt, SD-31793-01, Finder Ckt, Fig 1, with Option S	5	5	B
Call Blocked Alm Rel, Fig 2	1	0	

List 7—Framework, assembly, wiring, and equipment for one line or trunk finder unit of three circuits. (See Notes B and D.) (Five mounting plates, three circuits.)

	WIRE	EQUIP	NOTES
Framework, ED-92243-01, GR5 and GR37 Line or Trunk Finder Ckt, SD-31793-01, Finder Ckt, Fig 1, with Option S	3	3	B
Call Blocked Alm Rel, Fig 2	1	0	A
All Finder Busy Alm, Fig 4	1	0	A

List 8—Framework, assembly, wiring, and equipment for one line or trunk finder unit of five circuits. (See Notes B and D.) (Six mounting plates, five circuits.)

	WIRE	EQUIP	NOTES
Framework, ED-92243-01, GR5 and GR37 Line or Trunk Finder Ckt, SD-31793-01, Finder Ckt, Fig 1, with S Wiring	5	5	B
Call Blocked Alm Rel, Fig 2	1	0	A
All Finders Busy Alm, Fig 4	1	0	A

List 9—Equipment per SD-31793-01, Fig 2 and 4, with G apparatus, to be furnished in all cases with each unit per list 7 for call blocked and all finders busy alarms for No 1 and 350A offices. (See Note E.)

List 10—Equipment per SD-31793-01, Fig 2 and 4, with G apparatus, to be furnished in all cases with each unit per list 8 for call blocked and

all finders busy alarms for No 1 and 350A offices. (See Note E.)

List 11—Equipment per SD-31793-01, Fig 2 and 4, with J apparatus and F wiring, to be furnished in all cases with each unit per list 7 for call blocked and all finders busy alarms for No 355A offices. (See Notes E and F.)

List 12—Equipment per SD-31793-01, Fig 2 and 4, with J apparatus and F wiring to be furnished in all cases with each unit per list 8 for call blocked and all finders busy alarms for No 355A offices. (See Notes E and F.)

List 15—Wiring and equipment required in addition to lists 1, 2, 7, or 8 when AMARS is required. SD-31793-01, option A (omit option B) and SD-35031-01. Fig 1. (One list 15 per each line finder equipped.)

Notes

A. In Issue 4 of this specification, lists 1 and 2 are rated A&M Only and specified for 360A offices only. Lists 3 to 6 for SD-31793-01, Fig 2 only, previously required in addition to list 1 or 2 as specified, are rated Mfr Disc. since they are not required for 360A offices. Lists 7 to 12 shall be furnished for new equipment in all offices except for 360A.

B. When this unit is to be used as a 22-point line finder, two units per line finder group may be employed where required, the banks of which shall be multiplied together and additional interconnecting wiring provided to permit operating these two units as one group. Line circuits per SD-32133-01, equipped per J33020D, shall be furnished. One, two, or three of these equipment units shall be provided, as required, per line finder group and mounted on a 23-inch relay rack adjacent to the 22-point line finder equipment. The line circuit units shall be connected to the initial line finder unit bank multiple terminal strip and cabled to the distributing frame for cross-connection to lines and connector terminals, the switchboard cable being connected to the terminal strip of the line circuit unit. Bank multiple terminal 22 shall be made busy.

C. The installer shall disconnect S wiring from individual terminals on the No 1 arc of each A switch for terminals connected to prepay coin lines asso-

ciated with dial long lines circuits and add R wiring as required. In cases of other than prepay coin lines, option S is not required but shall be left on No 1 arc for possible future use.

- D. When this unit is used as a trunk finder, trunk units per J33061L may be used.
- E. When there is more than one unit in the same line or trunk finder group, equipment per list 9, 10, 11, or 12 furnished in each unit shall be utilized only in the last unit associated with a group.
- F. In offices not equipped with miscellaneous alarm circuits (alarm control and sender circuit), the installer shall disregard option F.

J33020D—AT&TCo Std—Subscriber Line Relay Unit for Use with 22-Point Line Finder—Arrange for Loop Start or Ground Start on the Ring

- List 1—Assembly, wiring, and equipment for one unit of seven subscriber line circuits per SD-32133-01, Fig 9, arranged for loop start. (One mounting plate, seven circuits.)
- List 2—Assembly, wiring, and equipment for one unit of seven subscriber line circuits per SD-32133-01, Fig 10, arranged for ground start on the ring. (One mounting plate, seven circuits.)
- List 3—Assembly, wiring, and equipment required in addition to list 1 or 2 to arrange one line for class-of-service tone in 35-E-97 offices per SD-32133-01, Fig 9 (list 1) loop start or Fig 10 (list 2) ground start on the ring.
- List 4—Wiring and equipment per SD-32133-01, option ZC, required in addition to list 1 or 2 when office is arranged for receiver off-hook tone feature and a reduced level of tone is required on a chosen line.

J33020E—AT&TCo Std—Subscriber Rotary Line Switch Unit for Dial Lines with Arrangement for Connection to Manual Prepay Coin Box Lines (Capacity Ten Lines)

- List 2—Wiring and equipment per SD-31259-01, Fig 1, Y apparatus only, required in addition to

list 4 for use with manual prepay coin lines (omit option X).

- List 4—Framework, assembly, wiring, and equipment for one subscriber rotary line switch unit of ten circuits. (Eight mounting plates, ten circuits.)

	WIRE	EQUIP	NOTES
Framework, ED-92243-01, GR8		1	
Sub Line Ckt, SD-31259-01, Fig 1, C and D with Option K, W, X, and ZF	10	10	A,B, C,D

- List 5—Wiring and apparatus per SD-31259-01, option ZC, required in addition to list 4 when options X or Y is furnished and connection to coin trunk per SD-32539-01 is required.

- List 6—Wiring and apparatus per SD-31259-01, option ZD, required in addition to list 4 when option V is furnished and connection to coin trunk per SD-32539-01 is required.

Notes

- A. The unit per list 4 shall be equipped and wired universally so that installer wiring only at the unit terminal strip, as indicated in the circuit cross-connection figure, is required for option Z, Fig B and Fig C, per SD-31259-01. When installer wiring per Fig C for resistance ground on lead A, or per Fig B for connection to a message register is required, the installer shall cut the local wiring strap (Fig A) at the unit terminal strip, which is provided for direct ground on lead A.
- B. When installer connection, option Z, to traffic register (peg count) is required, omit option W.
- C. When used with 10-cent dial prepayment coin lines is required, provide option V in addition to list 4 and omit option X, with either option V or X, A, B, C, or D adjustments for relay L shall be applied in accordance with the Working Limits Table on the circuit drawing.
- D. The unit per list 4 is arranged for the assignment of bank terminals 1 or 20 only to working circuits. Terminal 21 is reserved exclusively for connection to peg count register, when specified. Terminals

within 1 to 20 not assigned to working circuits shall be multiplied to the last assigned terminal.

E. Specify equipment per J33020G for use with connection to dial long line circuit.

J33020F—AT&T Co Std—Subscriber Rotary Line Switch Unit for Dial Lines with Arrangement for Connection to Dial Long Line Circuit (Capacity Three and Five Lines)

List 1—Framework, assembly, wiring, and equipment for one subscriber rotary line switch unit of three circuits. (Five mounting plates, three circuits.)

	WIRE	EQUIP	NOTES
Framework, ED-92243-01, GR5 and GR37		1	
Sub Line Ckt, SD-31259-01, Fig 1, C and E with Options J, L, M, R, W, X, and ZF	3	3	A,B,D

List 2—Framework, assembly, wiring, and equipment for one subscriber rotary line switch unit of five circuits. (Five mounting plates, five circuits.)

	WIRE	EQUIP	NOTES
Framework, ED-92243-01, GR5 and GR37		1	
Sub Line Ckt, SD-31259-01, Fig 1 C and E With Options J, L, M, R, W, X, and ZF	5	5	A,B,D

List 3—Framework, assembly, wiring, and equipment for one subscriber rotary line switch unit of three circuits for hotel/motel service. (Five mounting plates, three circuits.)

	WIRE	EQUIP	NOTES
Framework, ED-92243-01, GR5 and GR37		1	
Sub Line Ckt, SD-31259-01, Fig 1, C and D with Options J, M, N, R, W, X, and ZF	3	3	A,B,D

List 4—Framework, assembly, wiring, and equipment for one subscriber rotary line switch unit of five circuits for hotel/motel service. (Five mounting plates, five circuits.)

	WIRE	EQUIP	NOTES
Framework, ED-92243-01, GR5 and GR37		1	
Sub Line Ckt, SD-31259-01, Fig 1 C and D with Options J, M, N, R, W, X, and ZF	5	5	A,B,D

List 5—Assembly, wiring, and equipment required in addition to list 3 or 4 to provide for return of busy tone to the subscriber when hotel/motel service is required per SD-31259-01, Fig F (maximum one list 5 per three lists 3 or maximum one list 5 per two lists 4).

List 6—Wiring and equipment required in addition to list 5 to provide for a 2-circuit auxiliary relay per SD-31259-01, two Fig H.

List 7—Wiring and apparatus per SD-31259-01, option ZC required in addition to lists 1, 2, 3, and 4 when coin trunk per SD-325-39-01 is required.

Notes

A. The units per lists 1, 2, 3, and 4 shall be equipped so that installer wiring only at the unit terminal strip, as indicated in the circuit cross-connection figure, is required for option Z, Fig B, and Fig C, per SD-32159-01. When installer wiring per Fig C for resistance ground on lead A, or per Fig B for connection to a message register, is required, the installer shall cut the local wiring strap (Fig A) at the unit terminal strip, which is provided for direct ground on the A lead.

B. When installer connection, option Z, to traffic register (peg count) is required, omit option W.

C. Units per lists 1, 2, 3, and 4 are arranged for the assignment of bank terminals 1 to 20 only to working circuits. Terminals within 1 to 20 not assigned to working circuits shall be multiplied to the last assigned terminal. Terminal 21 is reserved exclusively for connection to peg count register, when specified.

D. Specify equipment per J33020A for use with connection to manual prepay coin box lines.

J33020G—AT&T Co Std—Subscriber Rotary Line Switch Unit for Dial Lines with Arrangement for Connection to Dial Long Line Circuit (Capacity Ten Lines)

List 1—Framework, assembly, wiring, and equipment for one subscriber rotary line switch unit of ten circuits. (Eight mounting plates, ten circuits.)

	WIRE	EQUIP	NOTES
Framework, ED-92243-01, GR8		1	
Sub Line Ckt, SD-31259-01, Fig 1, C and E with Options J, L, M, R, W, X, and ZF			A,B,D

List 2—Framework, assembly, wiring, and equipment for one subscriber rotary line switch unit of ten circuits for hotel/motel service.

	WIRE	EQUIP	NOTES
Framework, ED-92243-01, GR8		1	
Sub Line Ckt, SD-31259-01, Fig 1, C and D with Options J, M, N, R, W, X, and ZF	10	10	A,B,D

List 3—Assembly, wiring, and equipment required in addition to list 2 to provide for return of busy tone to the subscriber.

	WIRE	EQUIP	NOTES
Sub Line Ckt, SD-31259-01, Fig F	1	1	
Fig H	10	10	

List 4—Wiring and apparatus per SD-31259-01, option ZC, required in addition to lists 1 and 2 when coin trunk per SD-32539-01 is required.

Notes

A. The unit per lists 1 and 2 shall be equipped so that installer wiring only at the unit terminal

strip, as indicated in the circuit cross-connection figure, is required for option Z, Fig B and Fig C, per SD-31259-01. When installer wiring per Fig C for resistance ground on lead A, or per Fig B for connection to a message register, is required, the installer shall cut the local wiring strap (Fig A) at the unit terminal strip, which is provided for direct ground on the A lead.

B. When installer connection, option Z, to traffic register (peg count) is required, omit option W.

C. The unit per lists 1 and 2 is arranged for the assignment of bank terminals 1 to 20 only to working circuits. Terminals within 1 to 20 not assigned to working circuits shall be multipled to the last assigned terminal. Terminal 21 is reserved exclusively for connection to peg count register, when specified.

D. Specify equipment per J33020E for use with connection to manual prepay coin box lines.

5. GENERAL NOTES AND INDEXES

5.01 Since some of the units listed in this specification are equipped with local cables, it is advisable to mount them as high as possible on the relay racks.

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
J33020A,L1 and L2	Mfr Disc	2	J33020A,L4 and L5
J33020A,L4 and L5	Mfr Disc	3	J33020A,L6 and L7
J33020C,L1 and L2	A&M Only*	2	—
L5 and L6	A&M Only	2	—
J33020C,L1 and L2	A&M Only	3	J33020C,L7 and L8
J33020C,L3	Mfr Disc	3	J33020C,L9 and L11
L4	Mfr Disc	3	L10 and L12
L5 and L6	Mfr Disc	3	L13 and L14

EQUIPMENT	RATING	DETAILS LAST SHOWN IN ISSUE	REPLACING EQUIPMENT
J33020C,L13 and L14	Mfr Disc	3	—
J33020E,L1	Mfr Disc	2	J33020E,L3
J33020E,L3	Mfr Disc	3	J33020E,L4

*For 360A offices only.

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