KEY PULSING SENDER LINK FRAME OR COIN SUPERVISORY LINK FRAME EQUIPMENT DESIGN REQUIREMENTS NO. 1 CROSSBAR SYSTEM

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 engineering, manufacture, and installation of the key pulsing sender link frame or coin supervisory link frame in No. 1 crossbar offices. This specification also covers requirements for the key pulsing or coin supervisory selector unit and the various coin supervisory units listed under Subdivisions of Equipment.

1.02 This section is reissued to bring it in conformity with other Plant Series sections and to revise J21551C and J21551D to conform with the change made on coin supervisory circuit SD-25061-02, Issue 26D to provide for remote monitoring of stuck coin and overtime and for machine announcement on initial overtime conditions.

Capacity

1.03 The key pulsing sender link frame has a capacity of 40 primary-secondary links (20 on each bay) which have access on the primary switches to 100 key pulsing district junctors or trunks and on the secondary switches to 20 or 40 key pulsing senders. The key pulsing district junctors or trunks are multipled on the primary switches of both bays so that each bay has equal access to them. Separate key pulsing senders may be terminated on the secondary switches of each bay to provide access to a maximum of 40 senders or the same senders may be multipled on the secondary switches of both bays to provide access to a maximum of 20 senders.

1.04 The frame may also be used as a coin supervisory link frame, in which case the primary switches provide access to coin district junctors and the secondary switches provide access to coin supervisory circuits.

1.05 The capacities of the miscellaneous units covered herein are:

KP or CN Supv. Sel. Unit	5 KP Sdrs. or 5 CN Supv. Ckts.
CN Supv. Units	2 CN Supv. Ckts.
CN Supv. Release Unit	4 CN Supv. Conn. Ckts. & 40 Overtime CN Supv. Ckts.
CN Supv. Time ALM Unit	1 T. ALM Ckt.
CN Supv. ALM Release Units	2 ALM RLS Ckts.

Description

1.06 The function of the key pulsing sender link frame is to associate an operator's position and key pulsing district junctor, or key pulsing incoming trunk, or key pulsing outgoing trunk with an idle key pulsing sender.

1.07 The same frame when used as a coin supervisory link associates a calling line and a coin district junctor with an idle coin supervisory circuit.

1.08 The key pulsing sender link frame or coin supervisory link frame is a single-sided structure 11′ 6″ high and 5′ 4-1/4″ long. It is divided into bays each of the 30-1/2″ type, the length being determined by the space requirements of the 200-point crossbar switch which the frame is primarily intended to accommodate.

1.09 The left and right bays contain similar equipment known as "A" group links and "B" group links, respectively. The equipment of each bay consists of two 200-point 4-wire primary switches, two 200-point 4-wire secondary switches, a strip of multicontact relays, control circuit equipment, a fuse panel, and the required terminal strips, jacks, keys, and lamps.

1.10 The primary switch verticals are strapped together in pairs. Each of the 10 levels of a pair of verticals is connected to a district junctor or trunk. Two sets of switch verticals are required for each group of 10 junctors or trunks since each switch level consists of 4 contacts whereas 8 contacts are required for each junctor or trunk. The verticals of each primary switch provide 10 link outlets for the 50 district junctors or trunks on that switch. Since the district junctors or trunks are multipled on both bays a total of 20 link outlets is provided for the 50 district junctors or trunks appearing on each switch. The horizontal multiple of the secondary switches is split at the midpoint, providing a left group and a right group of 10 link terminations per switch, one of each of which is required per link as outlined above. The links between primary verticals and secondary verticals find their outlets at the secondary horizontals which provide access to sender or coin supervisory circuit multiple. Each key pulsing sender or coin supervisory circuit is connected to the left and right halves of the switch (4 leads per circuit to each half) one circuit per switch level. Key pulsing senders or coin supervisory circuits are provided in subgroups of 5 or less circuits each. Each subgroup is connected to switch levels 0 to 4 or 5 to 9.

1.11 The multicontact relays perform a connector function, one group functioning in connection with the district junctor or trunk groups and the other group functioning in connection with the sender or coin supervisory circuit subgroups.

1.12 The key pulsing sender link frame or coin supervisory link frame constitutes a fully wired shipping unit. The equipment of the frame is variable only insofar as the district junctor or trunk equipment is concerned. The junctor or trunk connector equipment is variable for use with a minimum of 2 and a maximum of 10 trunk groups, a minimum of one and a maximum of 5 district junctor or trunk connector multicontact relays per bay being furnished. The primary switches are variable for use with 5 or less or 6 or more district junctor or trunk groups, a minimum of one and a maximum of 2 primary switches per bay being furnished. Local cable leads are furnished from the primary switches to terminal strips at the top of the frame for connection to district junctors or trunks.

Related Units

1.13 One key pulsing sender selector unit or coin supervisory selector unit is required for each subgroup of five or less senders or coin supervisory circuits. This unit, under the control of the link frame, serves to select on a preference basis an idle sender or coin supervisory circuit in a subgroup of five circuits.

1.14 Two coin supervisory units are available. One is wired universally for: (a) Non-overtime coin collection with either local DSA Board operation or with Central "A" Board operation requiring stuck coin signal appearances at the sender make busy frame and (b) Overtime with a local DSA Switchboard or with a concentrator and trunk circuit to a remote toll switchboard No. 3, 3C, or 3CL or remote DSA Switchboard No. 13C, 13D, 14C, 14D, 15C, or 15D. In addition, initial overtime monitoring may be made by machine announcement using a system equivalent to 9A for large centralized networks or 8A for small per building networks. The second unit is arranged for overtime with central DSA Board operation. These units are used to collect or return the coins on dial coin lines and perform other functions such as signaling an operator if no coin is present either for the initial or overtime period. With Central "A" Board operation stuck coin signals appear at the sender make busy frame for the attention of the maintenance force.

1.15 The coin supervisory time alarm unit is common to four or six coin supervisory circuits and is used to bring in a maintenance alarm when any of the associated circuits are held off normal beyond a certain time interval.

1.16 The coin supervisory release unit acts to automatically release all coin supervisory circuits serving unanswered coin overtime calls during periods of peak traffic, and to operate signals at the sender make busy frame and at the "A" board. The unit is common to as many as 40 coin supervisory circuits.

1.17 The coin supervisory alarm release units are required with coin supervisory circuits SD-25061-01 and SD-25444-01 when provision is made for alarm transfer. The units are common to four or six coin supervisory circuits.

1.18 All of the above units are mounted on the miscellaneous frame in accordance with requirements illustrated on ED-26746-01.

Subdivisions of Equipment

J21551A (AT&TCo Std.) — Key Pulsing Sender Link Frame
J21551B (AT&TCo Std.) — Key Pulsing Sender Selector Unit or Coin Supervisory Selector Unit
J21551C (AT&TCo Std.) — Coin Supervisory Unit
J21551D (AT&TCo Std.) — Coin Supervisory Time Alarm Unit
J21551E (AT&TCo Std.) — Coin Supervisory Release Unit
J21551F (AT&TCo Std.) — Coin Supervisory Link Frame
J21551G (AT&TCo Std.) — Coin Supervisory Unit (Overtime Coin Collection — Central "A" Switchboard)
J21551H (AT&TCo Std.) — Coin Supervisory Alarm Release Unit
J21551J (AT&TCo Std.) — Coin Supervisory Alarm Release Unit (Overtime Coin Collection—Central "A" Switchboard)

2. SUPPLEMENTARY INFORMATION

816-000-000 — No. 1 Crossbar System Index

J23051 (816-024-150) — Miscellaneous Frame Equipment

Floor Plan Data — Section 9.1, Sheet 7
Section 9.2, Sheet 6

3. DRAWINGS

Key Sheet

SD-25000-01 — No. 1 Crossbar System

Framework

ED-25020-01 — Miscellaneous Mounting Details and Cable Brackets
ED-25021-01 — Jack, Key, and Lamp Panels
ED-25022-01 — Multicontact Relay Mounting
ED-25023-01 — Frame Details
ED-25025-01 — Fuse Panel Assembly
ED-25028-01 — Unit Assembly
ED-25066-01 — Frame Assembly
ED-90978-01 — Unit Casing

Equipment

ED-25067-01 — Sender Selector Unit or Coin Supervisory Selector Unit
ED-25072-01 — Coin Supervisory, Time Alarm and Alarm Release Units
ED-25113-01 — KP or CN Supv. Link Frame Equipment
ED-25212-01 — Designation Cards
ED-25356-01 — Coin Supervisory Release Unit
ED-25525-01 — Coin Supervisory and Alarm Release Units (Overtime Coin Collection — Central "A" Switchboard)
ED-26746-01 — Miscellaneous Frame Equipment

Wiring and Cabling

ED-25030-01 — Unit Local Cable
ED-25135-01 — Link Frame Local Cable
ED-25150-01 — Link Frame General Cabling Plan
ED-25155-01 — Link Frame Switchboard Cabling Details
ED-25265-01 — Miscellaneous Frame Switchboard Cabling Details
ED-25346-01 — Method of Running Power Feeders
ED-25430-01 — Sender Multiple or Coin Multiple
ED-90757-03 — Unit Local Cable

4. EQUIPMENT

J21551A (AT&TCo Std.)—Key Pulsing Sender Link Frame

Equipment — ED-25113-01
Local Cable — ED-25135-01

List 1 — Framework, assembly, wiring, and common equipment for a key pulsing sender link frame wired for use with 100 district junctors or trunks and equipped for use with 20 district junctors or trunks.

	WIRE	EQUIP	SEE NOTE
Framework ED-25066-01, Item 1		1	
Unit Casing ED-90978-01, G3011		2	
Multicontact Relay Mounting ED-25022-01, Item 4		2	
Fuse Panel ED-25025-01, Item 2		2	
Jack, Key, and Lamp Panel ED-25021-01:			
Item 2		4	
Item 10		1	
Link and Controller Ckt. SD-25029-01:			
Link Primary Switch Ckt. Fig. 1	4	2	A
Link Secondary Switch Ckt. Fig. 2	4	4	
Junctor or Trunk Group Ckt. Fig. 3	10	2	A,C
Sender Group Ckt. Fig. 7	8	8	
Sender Grp. Conn. Ckt. Fig. 5	8	8	
Cont. Ckt. Fig. 4	2	2	
Alarm Ckt. Figs. 13 & B	2	2	
Link Lockout Ckt. Fig. 4A, 4B, or 4C	8	8	
Link Release Ckt. Fig. 10	4	4	
Busy Guard Ckt. Fig. 12	1	1	
Misc. Frame Ckt. SD-25265-01:			
Figs. 2, 3, & 5	1	1	
Fig. 6	2	2	

List 2 — Equipment per SD-25029-01, Fig. 1, for 2 link primary switch circuits required when more than 5 trunk or junctor groups are associated with the key pulsing sender link frame (see note B).

List 3 — Equipment per SD-25029-01, Fig. 3, [(HA) and (HB) multicontact relays and (F) resistance only], required in addition to list 1 for 2 junctor or trunk group circuits for each even numbered trunk or junctor group (see notes B and C).

List 4 — Equipment per SD-25029-01, Fig. 3, (Less (HA) and (HB) multicontact relays and (F) resistance), required in addition to list 1 for one junctor or trunk group circuit for each additional group of trunks or junctors (see note B).

List 5 — Wiring required in addition to list 1 to extend, between the bays of a frame, a 20-capacity sender multiple (see note D).

Notes

A. The primary switch, in each bay, associated with district junctor or trunk groups 0 to 4 is included in list 1. District junctor or trunk group circuits 0 and 1 are included in list 1.

B. List 2 is required when more than 5 groups of 10 or less district junctors or trunks are associated with the key pulsing sender link frame. One list 3 is required in connection with each even numbered district junctor or trunk group in excess of two (i.e. groups 2, 4, 6, and 8). One list 4 is required for each group of district junctors or trunks in excess of two.

C. The strapping of the multicontact relays and associated terminal strips of the group circuit shall be continuous for all (HA) or (HB) multicontact relays equipped on each initial order and shall be applied in the shop. Arrangements shall be provided for the future extension of these multiples as indicated in the wiring and cabling specification.

D. List 5 is required on only the first of any number of frames included in a multiple arranged for 20 key pulsing senders capacity. It comprises three local cable forms as shown on ED-25135-01, two of them identical and interconnecting secondary switches and their associated terminal strips and one interconnecting the (C) multicontact relays. Each of the two identical forms contains multiple wiring for 10 senders and shall be mounted and connected in the shop. The other form contains multiple wiring for 20 senders and shall be mounted but not connected in the shop. It is cut in by the installer together with switchboard cabling.

J21551B (AT&TCo Std.) — Key Pulsing Sender Selector Unit or Coin Supervisory Selector Unit

Equipment — ED-25067-01 (see note A)
Local Cable — ED-25030-01

List 1 — Framework, assembly, wiring, and common equipment for a key pulsing sender selector or coin supervisory selector unit, wired for use with 5 senders or coin supervisory circuits and equipped for use with one sender or coin supervisory circuit (see note B).

	WIRE	EQUIP	SEE NOTE
Framework ED-25028-01, Item 4		1	
T.S. Mtg. Det. ED-25020-01, Item 1		1	
Cable Bracket ED-25020-01, Item 12		1	C
Sender or Coin Supervisory Selector Ckt. SD-25029-01, Fig. 6	1	1	
Sender or Coin Supervisory Relay Ckt. SD-25029-01, Fig. 6A, 6B, or 6C	5	1	D,E

List 2 — Equipment per SD-25029-01, Fig. 6B or 6C, required in addition to list 1 for one sender or coin supervisory relay circuit to equip circuits 1 to 4.

Notes

A. This unit shall be mounted on a miscellaneous bay following the arrangement shown on ED-26746-01.

B. One sender selector unit or coin supervisory selector unit shall be provided for each subgroup of five or less key pulsing senders or coin supervisory circuits.

C. A cable bracket per ED-25020-01, Item 12 shall be provided for supporting the local cable, and mounted on the rear of the bay after the unit is installed.

D. Ten punchings are provided on the terminal strip to facilitate changing of the order of preference in which the sender or coin supervisory circuits are to be used. Punchings 60-64 have been assigned for the "P0" to "P4" leads and 70-74 for the five "S" leads. Unless otherwise specified by the telephone company, the order of preference shall be bottom up. Therefore, on a fully equipped unit, 60 shall be connected to 70, 61 to 71, 62 to 72, 63 to 73, and 64 to 74. On partially equipped units the "P0" to "P4" punchings shall be apportioned among "S" punchings that are associated with equipped figures.

E. The sender relay circuits or coin supervisory relay circuits shall be equipped from 0 up. Circuits 1 to 4 shall be universally wired in accordance with Figs. 6B and 6C so that any of these may be equipped as the last circuit of a subgroup.

J21551C (AT&TCo Std.) — Coin Supervisory Unit

Equipment — ED-25072-01, Fig. 1
Local Cable — ED-25030-01

List 1 — Framework, assembly, wiring, and common equipment for a coin supervisory unit wired for two coin supervisory circuits.

	WIRE	EQUIP	SEE NOTE
Framework ED-25028-01, Item 10		1	
Cable Bracket ED-25020-01, Item 12		1	B
Coin Supervisory Ckt. SD-25061-01, Figs. 1, E, F, and SD-25061-02, Figs. 1, D, F, J, K, L, M, O	2	0	D,G,H

List 2 — Equipment per SD-25061-01, Fig. 1, required in addition to list 1 for one coin supervisory circuit not arranged for overtime coin collection (see note E).

List 3 — Equipment per SD-25061-02, Figs. 1, D, F, and O required in addition to list 1 for one coin supervisory circuit arranged for overtime collection (see notes F and J).

List 4 — Equipment per SD-25061-02, Fig. M and ZK wiring required in addition to list 3 to provide machine announcement for initial overtime monitoring (see notes K and L).

Notes

A. The coin supervisory units shall be mounted on the miscellaneous frame in accordance with the requirements illustrated on ED-26746-01.

B. A cable bracket per ED-25020-01, Item 12 is provided for supporting the unit local cable; it is mounted on the rear of the bay after the unit is installed.

C. The (CC) and (CR) resistance lamps and the fuses for the tone and 24V battery supply are located at the miscellaneous fuse bay.

D. This unit is wired universally for SD-25061-01 and SD-25061-02, i.e. for district junctors not arranged for overtime coin collection, and for district junctors arranged for overtime coin collection (see notes E and F).

E. With list 2: (1) furnish apparatus per Fig. E of the circuit when the DSA switchboard is 13 or 15 type in the same building or the coin supervisory circuits are arranged for connection to the sender make-busy frame, (2) furnish apparatus per Fig. F when the DSA switchboard is 3C or 3CL type in same building. Figs. E and F are arranged to deal with either 5- or 10-cent initial coin deposits, whereas Figs. C and D, rated Mfr. Disc., provide for 5-cent initial coin deposits only.

F. With list 3: (1) furnish apparatus per Fig. J when local DSA switchboard is 13 or 15 type and associated cord circuits are arranged to close both tip and ring conductors under control of a sleeve relay, (2) furnish apparatus per Fig. K when local DSA switchboard is 13 or 15 type and associated cord circuits are not arranged to close both tip and ring conductors under control of a sleeve relay, (3) furnish apparatus per Fig. L when local DSA switchboard is 3C or 3CL.

G. One time-alarm unit per J21551D is required for each six or less coin supervisory circuits per SD-25061-01 or SD-25061-02.

H. One coin supervisory alarm release circuit per SD-25061-01, Fig. 6 (J21551H) is required for each six or less coin supervisory circuits per SD-25061-01 when arranged for alarm transfer.

J. When remote monitoring is required use ZI option and provide Fig. J, K or L to agree with type of local A switchboard. Where no local A board exists Fig. L is preferred. Additional equipment required for remote monitoring is a KS-8512 L2A 51.1 ohm resistor.

K. See J21551D for additional equipment required to provide machine announcement for initial overtime monitoring.

L. This circuit is arranged to connect to Machine Announcement System 8A or 9A. When these systems are used in this manner, all coin supervisory circuits within a building connect directly to the building distributing and alarm circuit and, in effect, are the trunk circuits. The following typical arrangements are provided (see J95419 and J95420).

(1) System 8A with single or dual channel on a per office or per building basis for a maximum of 20 coin supervisory circuits.

(2) System 8A with dual channel (same as system 9A Main Center) on a per building basis when arrangement (1) is inadequate.

(3) System 9A with dual channel on a centralized basis.

J21551D (AT&TCo Std.) — Coin Supervisory Time Alarm Unit

Equipment — ED-25072-01, Fig. 2 (see note A)
Local Cable — ED-90757-03

List 1 — Assembly, wiring, and common equipment for a unit of one time-alarm circuit per SD-25061-01, Fig. 5, SD-25061-02, Fig. 5, or SD-25444-01, Fig. 3 (see note B).

List 3 — Equipment and wiring per SD-25061-02, Fig. 6 required in addition to list 1 to provide for machine announcement of initial coin overtime.

List 4 — Equipment and wiring per SD-25061-02, Fig. 7 required in addition to the first list 3 of each office (see note C).

Notes

A. This unit shall be mounted on a miscellaneous frame with the associated coin supervisory units.

B. One time-alarm unit shall be provided for each six or less coin supervisory circuits per SD-25061-01 or SD-25061-02 or for each four or less circuits per SD-25444-01.

C. This equipment shall be mounted on the first T.A. unit associated with the office.

J21551E (AT&TCo Std.) — Coin Supervisory Release Unit

Equipment — ED-25356-01
Local Cable — ED-25030-01

List 1 — Framework, assembly, wiring, and common equipment for a coin supervisory release unit wired for four connector circuits (for use with 40 overtime coin supervisory circuits) and equipped with one connector (for use with 10 overtime coin supervisory circuits) (see note A).

	WIRE	EQUIP	SEE NOTE
Framework ED-25028-01, Item 5		1	
Term. Strip Mtg. Detail ED-25020-01, Item 1		1	
Cable Bracket ED-25020-01, Item 12		1	B
Coin Supervisory Release Ckt. SD-25310-01:			
Connector Ckt. Fig. 1	4	1	
Release Control Ckt. Fig. 2 (Less "Z" App.)	1	1	

List 2 — Equipment per SD-25310-01, Fig. 1, required in addition to list 1 to equip one connector.

List 3 — Equipment per SD-25310-01, Fig. 2, "Z" apparatus, required in addition to list 1 for connecting to a local "A" switchboard.

Notes

A. This unit shall be mounted with the overtime coin supervisory circuits on the miscellaneous frame following the arrangement shown on ED-26746-01.

B. A cable bracket per ED-25020-01, Item 12 shall be provided for supporting the local cable, and mounted on the rear of the bay after the unit is installed.

J21551F (AT&TCo Std.) — Coin Supervisory Link Frame

Equipment — ED-25113-01
Local Cable — ED-25135-01

List 1 — Framework, assembly, wiring, and common equipment for a coin supervisory link frame wired for use with 100 district junctors and equipped for use with 20 district junctors.

	WIRE	EQUIP	SEE NOTE
Framework ED-25066-01, Item 1		1	
Unit Casing ED-90978-01, G3011		2	
Multicontact Relay Mounting ED-25022-01, Item 4		2	
Fuse Panel ED-25025-01, Item 2		2	
Jack, Key, and Lamp Panel ED-25021-01:			
Item 2		5	
Item 10		1	
Link and Controller Ckt. SD-25029-01:			
Link Primary Switch Ckt. Fig. 1	4	2	A
Link Secondary Switch Ckt. Fig. 2	4	4	
Junctor Group Ckt. Fig. 3	10	2	A,C
Coin Supervisory Grp. Ckt. Fig. 7	8	8	
Coin Supervisory Grp. Conn. Ckt. Fig. 5	8	8	
Cont. Ckt. Fig. 4	2	2	
Alarm Ckt. Figs. 13 & B	2	2	
Link Lockout Ckt. Fig. 4A, 4B, or 4C	8	8	
Link Release Ckt. Fig. 10	4	4	
Link Busy Alm. Ckt. Fig. 11	1	1	
Busy Guard Ckt. Fig. 12	1	1	

	WIRE	EQUIP	SEE NOTE
Misc. Frame Ckt. SD-25265-01:			
Figs. 2, 3, 5, & 7	1	1	
Fig. 6	2	2	

List 2 — Equipment per SD-25029-01, Fig. 1, for 2 link primary switch circuits required when more than five junctor groups are associated with the coin supervisory link frame (see note B).

List 3 — Equipment per SD-25029-01, Fig. 3 [(HA) and (HB) multicontact relays and (F) resistance only], required in addition to list 1 for 2 junctor group circuits for each even numbered junctor group (see notes B and C).

List 4 — Equipment per SD-25029-01, Fig. 3 (Less (HA) and (HB) multicontact relays and (F) resistance), required in addition to list 1 for one junctor group circuit for each additional group of junctors (see note B).

List 5 — Wiring required in addition to list 1 to extend, between the bays of a frame, a 20-capacity coin supervisory multiple (see note D).

Notes

A. The primary switch, in each bay, associated with district junctor groups 0 to 4 is included in list 1. District junctor group circuits 0 and 1 are included in list 1.

B. List 2 is required when more than five groups of 10 or less district junctors are associated with the coin supervisory link frame. One list 3 is required in connection with each even-numbered district junctor group in excess of two (i.e. groups 2, 4, 6, and 8). One list 4 is required for each group of district junctors in excess of two.

C. The strapping of the multicontact relays and associated terminal strips of the group circuit shall be continuous for all (HA) or (HB) multicontact relays equipped on each initial order and shall be applied in the shop. Arrangements shall be provided for the future extension of these multiples as indicated in the wiring and cabling specification.

D. List 5 is required on only the first of any number of frames included in a multiple arranged for 20 coin supervisory circuits capacity. It comprises three local cable forms as shown on ED-25135-01, two of them identical and interconnecting secondary switches and their associated terminal strips and one interconnecting the (C) multicontact relays. Each of the two identical forms contains the multiple wiring for 10 coin supervisory circuits and shall be mounted and connected in the shop. The other form contains multiple wiring for 20 coin supervisory circuits and shall be mounted but not connected in the shop. It is cut in by the installer together with switchboard cabling.

J21551G (AT&TCo Std.) — Coin Supervisory Unit (Overtime Coin Collection — Central "A" Switchboard)

Equipment — ED-25525-01, Fig. 1
Local Cable — ED-25030-01

List 1 — Framework, assembly, wiring, and common equipment for a coin supervisory unit wired for two coin supervisory circuits.

	WIRE	EQUIP	SEE NOTE
Framework ED-25028-01, Item 15		1	
Terminal Strip Mtg. Detail ED-25020-01, Item 1		1	
Cable Bracket ED-25020-01, Item 12		1	B
Coin Supervisory Ckt., SD-25444-01, Figs. 1, A, B, & D	2	0	E,F

List 2 — Equipment per SD-25444-01, Fig. 1 & D, less "W" or "X" apparatus, required in addition to list 1 for one coin supervisory circuit not arranged for ringback.

List 3 — Equipment per SD-25444-01, Fig. B, required in addition to list 2 to arrange one coin supervisory circuit for ringback.

List 4 — Equipment per SD-25444-01, Fig. 1, "W" apparatus, required in addition to list 2 when trunks to central "A" switchboard are 1100 ohms or less (see note E).

List 5 — Equipment per SD-25444-01, Fig. 1, "X" apparatus, required in addition to list 2 when trunks to central "A" switchboard are greater than 1100 ohms (see note E).

Notes

A. The coin supervisory units shall be mounted on the miscellaneous frame in accordance with the requirements illustrated on ED-25746-01.

B. A cable bracket per ED-25020-01, Item 12 is provided for supporting the unit local cable; it is mounted on the rear of the bay after the unit is installed.

C. The (CC) and (CR) resistance lamps, and the fuses for the tone and 48V talking battery supply are located at the miscellaneous fuse bay, as are also the (R) resistance lamp and the fuse for the 105-volt ringing supply.

D. The type of repeating coil required shall be specified by the telephone company.

E. One time alarm unit per J21551D is required for each 4 or less coin supervisory circuits per SD-25444-01.

F. One coin supervisory alarm release circuit per SD-25444-01, Fig. 5 (J21551J) is required for each four or less coin supervisory circuits per SD-25444-01 when provision is made for alarm transfer.

J21551H (AT&TCo Std.) — Coin Supervisory Alarm Release Unit

Equipment — ED-25072-01, Fig. 3

List 1 — Assembly, equipment, and wiring per SD-25061-01, Fig. 6 for one coin supervisory alarm release circuit and common equipment for one additional circuit.

List 2 — Equipment and wiring per SD-25061-01, Fig. 6 for one additional coin supervisory alarm release circuit.

Notes

A. This unit is required with coin supervisory circuits per SD-25061-01 when the coin boxes in the area are arranged for ten cent initial coin deposit, and provision is made for alarm transfer. One alarm release circuit will serve a maximum of six coin supervisory circuits.

B. The unit is surface wired and is mounted on the miscellaneous frame.

J21551J (AT&TCo Std.) — Coin Supervisory Alarm Release Unit (Overtime Coin Collection — Central "A" Switchboard)

Equipment — ED-25525-01, Fig. 2

List 1 — Assembly, equipment, and wiring per SD-25444-01, Fig. 5 for one coin supervisory alarm release circuit and common equipment for one additional circuit.

List 2 — Equipment and wiring per SD-25444-01, Fig. 5 for one additional coin supervisory alarm release circuit.

Notes

A. This unit is required with coin supervisory circuits per SD-25444-01, when provision is made for alarm transfer. One alarm release circuit will serve a maximum of four coin supervisory circuits.

B. The unit is surface wired and is mounted on the miscellaneous frame.

5. GENERAL NOTES

Equipment

5.01 The key pulsing sender link frame J21551A has facilities for associating 100 key pulsing outgoing trunks similar to J23052J, key pulsing incoming trunks similar to J28650A, List 149 and key pulsing district junctors per J27551F, with a maximum of 40 key pulsing senders. The coin supervisory link frame J21551F provides access for 100 coin district junctors similar to J27551L, to a maximum of 40 coin supervisory circuits.

5.02 The order of assignment of coin district junctors within each group shall correspond to the order of assignment on the subscriber sender link frame.

Wiring

Local

5.03 Wiring and strapping shall be in accordance with the wiring and cabling specification. No. 24 gauge type "C" wire shall be used for all local cable wiring except for battery and ground leads and for coin collect and returns supply, which shall be No. 22 gauge type "C" wire.

Ground Leads

5.04 Ground leads shall be provided for each bay of equipment as follows:

A	Cont. & Alarm Ckt. SD-25029-01, Figs. 4, 7, & 8
B	Group Ckt. SD-25029-01, Fig. 3, less (H) relay and Group Conn. Ckt. SD-25029-01, Fig. 5, less (C) relay
C	Group Ckt. SD-25029-01, Fig. 3, (H) relay only, Group Conn. Ckt. SD-25029-01, Fig. 5, (C) relay only
HD	Primary Switch SD-25029-01, Fig. 1 (one per bay)
TBS	Misc. Ckt. SD-25265-01, Fig. 3 (one per frame)
D0-D3	Link Lockout Relay, Fig. 4A, 4B, or 4C, and Associated Switch Subgroup Terminal Strip

Cabling

5.05 The code numbers of the switchboard cables ordinarily used in cabling the various circuits are shown on the switchboard cabling drawings. The circuits should, however, be checked to insure that the proper codes are specified to meet the latest circuit requirements. The cross-connecting information of the circuits shows the grouping of the leads in the switchboard cables.

5.06 The cabling of the "GB," "GT," and "RT" leads from the link frames to selector units is arranged to distribute the load over a number of relay contacts when a large number of link frames have access to the same sender or coin supervisory subgroup. For uniformity of cabling and ease in adding link frames it is recommended that in all cases, the cable from the selector units and the multiple cable between frames containing these leads shall be specified for the full complement of 18 appearances of the sender multiple or coin supervisory multiple on link frames.

Sender Multiple or Coin Supervisory Multiple

5.07 Each link frame will accommodate a maximum of 40 key pulsing senders or coin supervisory circuits arranged in 8 subgroups of 5 senders or coin supervisory circuits each.

5.08 Each sender or coin supervisory subgroup requires the following cabling between link frame appearances.

Sender or Coin Supervisory Multiple on Crossbar Switch	
Link Lockout (LL) Relay Chains	On Terminal Strip With Crossbar Switch
Sender or Coin Supervisory Subgroup Busy Multiple "GB" Lead	
Reserve Test Multiple "GT" and "RT" Leads	
Sender or Coin Supervisory Connector Multiple on (C) Multicontact Relay	

All 5 items listed above are cabled together, the cable being formed as required over the apparatus indicated.

5.09 Corresponding switch subgroups of all link frames are multipled together as shown on the typical multiple layout ED-25430-01, to provide four chains of "A" link appearances and four chains of "B" link appearances.

5.10 The key pulsing sender and coin supervisory circuit groups are each divided as evenly as possible among four or eight subgroups depending upon the respective ultimates foreseen for the specific job. Four subgroups provide for an ultimate of 20 circuits and eight subgroups provide for an ultimate of 40 circuits. Where four subgroups are required, corresponding chains of "A" and "B" link appearances are interconnected by means of supplementary local cable forms directly across the first frame as shown on ED-25135-01 and ED-25430-01 to provide access to the same sender or coin supervisory subgroup.

5.11 The senders or coin supervisory circuits of a subgroup shall be assigned to the switch levels from 0 up and from 5 up. The same order of assignment shall be followed with respect to the sender selector or coin supervisory selector relay circuits. Unequipped sender or coin supervisory multiple terminals of a partially equipped switch subgroup are not multipled to equipped terminals.

5.12 Cables from the sender frames or coin supervisory units (one cable per five or less circuits) and cables from the associated sender selector or coin supervisory selector units (1-5 circuit capacity cable per unit) shall be distributed among the "A" and "B" link frame bays of the first and last initial frames as shown on ED-25430-01. This is done to minimize the effect of hazards producing service reaction. The sender frame or coin supervisory unit cables and associated selector unit cables shall, of course, enter at the same link frame bay.

5.13 In distributing the circuit loads on the "GT," "RT," and "GB" leads, the No. 0 leads shall be used on frames 0, 3, etc, the No. 1 leads on frames 1, 4, etc, and the No. 2 leads on frames 2, 5, etc. This is equivalent, in the eight subgroup case, to assigning the associated link frame numbers to the successive appearances of a subgroup. It is equivalent, in the four subgroup case, to assigning the associated link frame numbers to the successive "A" link frame appearances of a subgroup and numbering the "B" link frame appearances similarly, starting with the number 9.

5.14 The direction of the (LL) relay chains shall be as follows for both the four and eight subgroup cases: "A" group chains shall start on the lowest numbered frame and end on the highest. "B" group chains shall be the reverse. This will permit the interconnection of corresponding "A" and "B" group chains on the first frame as covered in paragraph 5.10 without affecting the direction of the (LL) relay chains.

List of "A&M Only" and "Mfr. Disc." Equipment

5.15 The following equipment has been replaced as indicated:

EQUIPMENT	RATING	COVERED IN ISS.	REPLACING EQUIPMENT
J21551D, L2	Mfr. Disc.		

Bell Telephone Laboratories, Inc.

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