

**TELEPHONE ORDER WIRE EQUIPMENT**  
**USING SS1 SELECTIVE SIGNALING SYSTEM**  
**EQUIPMENT DESIGN REQUIREMENTS**  
**COMMON SYSTEMS**

**1. GENERAL**

**Scope**

**1.01** This specification, together with the supplementary information listed herein, covers the equipment design requirements for the engineering, manufacture, and installation of SS1 selective signaling and telephone order wire equipment.

**Description**

**1.02** This order wire is intended for the use of plant maintenance personnel to establish communication between offices. It provides means whereby any office on the order wire may signal selectively any maintenance center in another office or group of offices by dialing two digits.

**1.03** Signaling is under control of dials which actuate the pulse counting and interdigital control circuit of the SS1 Selective Signaling System. This circuit in turn actuates a single-frequency signaling circuit which sends out 2600-cycle pulses corresponding to the dial digits. The single-frequency signaling circuits at each distant office on the order wire respond to the pulses and actuate its associated pulse counting circuit. If the digits recorded by the pulse counting circuit corresponded to any of the 81 codes that may be assigned to the office, a corresponding lead to the order wire equipment is marked. The order wire equipment recognizes this mark and (1) lights the associated answering lamps, (2) operates the associated audible and visual signals, and (3) connects a loudspeaker to the line. These signals are locked in until they are released by insertion of a cord or telephone set in the answering jack or by the operation of the release key. The loudspeaker is disconnected

from the line at the same time the above signals are released.

**1.04** The selection of an order wire for an outgoing call is accomplished by inserting a position cord or telephone set into the order wire jack. This causes the dial located at the position to be associated with the selected order wire for a timed interval. A lockout chain prevents more than one dial to be connected to the order wire at any given time. The dial may be reassociated with the order wire by reinserting the cord or telephone set into the jack.

**1.05** At each office the various maintenance centers, such as the telegraph testboards, testboards, patching bays, or other locations as required, are each considered as a separate code area and are assigned separate codes. Each code area may have the answering lamps, and associated jacks and keys assigned to a maximum of 11 positions. In addition to the regular code assigned to an area, a group code may also be used. A given group code, consisting of two digits, will cause signals to be energized in not more than one code area in as many offices as required.

**1.06** A loudspeaker is furnished in each code area for each order wire. If one loudspeaker does not provide adequate coverage in its area, multiple speakers, maximum of five, may be furnished as requested by the customer.

**Equipment Arrangement**

**1.07** The arrangement of the order wire equipment and associated equipment is as follows:

- (a) The SS1 and order wire units are mounted together on a miscellaneous bay which is fused from a miscellaneous fuse bay. A typical bay layout is shown on ED-95014-( ).

- (b) The line jacks and lamp, the RLS (release key) and the LS (loudspeaker key) are all mounted adjacent to each other on a miscellaneous jack and lamp strip at the associated position.
- (c) A dial is mounted at each position not already equipped with a dial.
- (d) The loudspeakers are mounted in each code area as directed by the customer.
- (e) The toll transmission equipment, such as repeaters, SF signaling circuit, and 4-way bridge are mounted in their usual locations in the office.

#### Interconnections

**1.08** Connections between the various equipment units is arranged as follows:

- (a) Cross-connection arrangements are provided at the order wire bay to facilitate reassignment of order wires. The order wire units are provided with D-type solderless wrap terminal strips and the SS1 units are provided with 224-type terminal strips. The installer provides the initial cross connection between the terminal strips, and as order wires are reassigned, the customer changes the cross connections accordingly.
- (b) Cross connections through the office distributing frame are used to connect to jack, lamp, and keys at each appearance, and to the sleeve relays. Connections to the toll transmission equipment, such as the repeaters, the 4-way bridge circuit, and the SF signaling circuit, are also made through the office distributing frame.
- (c) Direct cabling is used between the dial transfer relay on the order wire frame when this relay is provided, or between the dial and a terminal strip on the order wire bay when the dial transfer relay is not provided.

#### Details of Equipment

##### 1.09 General

- (a) *Coded units* of this equipment comprise coded mounting plates which are 23 inches wide and are multiples of 2 inches in height.

Wiring is either entirely "SW1" surface wiring or is a combination of surface wiring and local cable. Wiring is terminated on D-type solderless wrap terminal strips. *Fusing* is obtained from miscellaneous fuse bays. *Location* of the units shall be on miscellaneous relay rack bays, and a typical arrangement is shown on ED-95014-( ).

- (b) *Miscellaneous equipment* includes jacks, keys, lamps, miscellaneous audible signal, dial, loudspeakers, etc. *Location* of this equipment is in miscellaneous bays, or face equipment and keyshelves of testboards, or on walls or desks as required. Typical arrangements are shown on ED-95014-( ). *Wiring* of this equipment will be run and connected by the installer.

**1.10** *The J98614A timing and terminating unit* comprises apparatus for one order wire. It includes the apparatus required to disconnect a position dial from the SS1 circuit after a timed interval, and various 600-ohm line terminations and the relays required for their control.

**1.11** *The J98614B code area unit* comprises the apparatus required for one code area for recognizing an incoming call or recall, and for connecting the loudspeaker to the order wire.

**1.12** *The J98614C 1800-ohm sleeve unit* contains sleeve relays for use by positions requiring this type of sleeve relay. The lists are arranged so that one to 12 sleeve relays may be provided on the unit as specified by the customer.

**1.13** *The J98614D 100-ohm sleeve unit* contains sleeve relays for use by positions requiring this type of sleeve relay. The lists are arranged so that one to 12 sleeve relays may be provided on the unit as specified by the customer.

**1.14** *The J98614E 500-ohm sleeve unit* contains sleeve relays for use by positions requiring this type of sleeve relay. The lists are arranged so that one to 12 sleeve relays may be provided on the unit as specified by the customer.

**1.15** *The J98614F hybrid coil unit* comprises the apparatus required to convert the 2-wire order wire appearance to four wire for use with the No. 17C testboard. The lists are arranged so that one or two order wires may be accommodated.

**1.16** *The J98614G loudspeaker multiple bridge unit* contains the apparatus required when more than one loudspeaker is required in a code area. The unit accommodates connections to a maximum of five loudspeakers. A 600-ohm resistor is used as a substitute termination for each loudspeaker that is not furnished. The lists are arranged so that one to three code areas may be accommodated.

**1.17** *The J98614H dial transfer unit* comprises the apparatus required to transfer the dial from its regular circuit at a position to the order wire circuits. One to ten dial transfer circuits may be accommodated.

**1.18** *The J98614J dial connecting unit* comprises the apparatus required to connect the dial to the SS1 signaling equipment. The

lists are arranged so that one to four dial connecting circuits may be furnished on the unit. A small local cable is included in the basic list to eliminate removal of wires when additions are made on the unit. All dial connecting circuits on a unit are associated with the same order wire, but they may be assigned to any position in any code area by intra-unit cross connections.

**1.19** *The J98614K telephone unit* comprises the apparatus required for a telephone circuit when the order wire appears at locations not already equipped with a telephone circuit. One telephone circuit serves one code area for one order wire. The lists are arranged so that one or two telephone circuits may be accommodated.

#### SUBDIVISIONS OF EQUIPMENT AND DETAILED INDEX

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

CIRCUIT DRAWING	EQUIPMENT CODE	RATING OF UNIT	TITLE	EQUIPMENT DRAWING	CKTS PER UNIT	2- BY 23-INCH MTG PLT SPACES PER UNIT
SD-96508-01	J98614A	AT&TCo Std	Timer and Termination Unit	J98614A-( )	1	1
SD-96508-01	J98614B	AT&TCo Std	Code Area Unit	J98614B-( )	1	2
SD-96508-01	J98614C	AT&TCo Std	1800-ohm Sleeve Relay Unit	J98614C-( )	12	1
SD-96508-01	J98614D	AT&TCo Std	100-ohm Sleeve Relay Unit	J98614D-( )	12	1
SD-96508-01	J98614E	AT&TCo Std	500-ohm Sleeve Relay Unit	J98614E-( )	12	1
SD-96508-01	J98614F	AT&TCo Std	Hybrid Coil Unit	J98614F-( )	2	1
SD-96508-01	J98614G	AT&TCo Std	Loudspeaker Multiple Bridge Unit	J98614G-( )	3	1
SD-96508-01	J98614H	AT&TCo Std	Dial Transfer Relay Unit	J98614H-( )	10	1
SD-96508-01	J98614J	AT&TCo Std	Dial Connecting Unit	J98614J-( )	4	1
SD-96508-01	J98614K	AT&TCo Std	Telephone Unit	J98614K-( )	2	1

**2. SUPPLEMENTARY INFORMATION**

- 800-600-000 — List of General Equipment Requirements Sections
- 801-000-000 — Equipment Design and General Equipment Requirements and Engineering Information — Common Systems
- J68625 — Mfr Disc. — Line and Balancing
- J68642 — Mfr Disc. — Multistation Line Equipment
- J68649 — 804-004-155 — V3 Telephone Repeater Bay Equipment
- J68651 — 804-004-156 — V3 Telephone Repeaters
- J68655 — Mfr Disc. — 2400-2600 Cycle Signaling Bays
- J98613 — 801-642-150 — E-type AC Trunk Signaling System
- J99252 — 801-605-150 — SS1 Selective Signaling System

**3. DRAWINGS**

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

**Equipment**

- ED-61037-01 — Dial Mounting Details for I-Beam Relay Rack
- ED-61078-01 — Dial Mounting Details for Channel Relay Rack
- ED-61508-01 — Mounting Assemblies and Details
- ED-90210-01 — Dial Mounting Details for Shelves
- ED-92243-01 — Relay Rack Unit Framework Assembly
- ED-95014-( ) — Telephone Order Wire — SS1 Selective Signaling System — Typical Equipment Arrangements

**4. EQUIPMENT****J98614A — AT&TCo Std — Timer and Termination Unit**

Equipment — J98614A-( )

**List 1** — Assembly, common equipment, surface wiring, and equipment for timer and terminations for one order wire per SD-96508-01, Fig. 2, 8, 17, and 20.

**J98614B — AT&TCo Std — Code Area Unit**

Equipment — J98614B-( )

**List 1** — Assembly, common equipment, surface wiring, and equipment for one code area per order wire in accordance with SD-96508-01, Fig. 1, 6, 7, 12, 18, and 28. (See note A.)

**Note**

A. The installer shall connect "J," "K," "M," "N," "R," and "S" wiring as required.

**J98614C — AT&TCo Std—1800-ohm Sleeve Relay Unit**

Equipment — J98614C-( )

**List 1** — Assembly, common equipment, surface wiring, and equipment for one 1800-ohm sleeve relay per SD-96508-01, Fig. 26 for No. 8 test and control board, No. 17B or 18B secondary testboard, No. 18B primary testboard with No. 309 plugs, No. 17B or 18B testboard modified for use with No. 1 toll switchboard, No. 1, 2, 2A telegraph testboard or other circuit requiring an 1800-ohm sleeve relay.

**List 2** — Surface wiring and equipment in addition to list 1 for an additional 1800-ohm sleeve relay per SD-96508-01, Fig. 26 (maximum 11).

**J98614D — AT&TCo Std — 100-ohm Sleeve Relay Unit**

Equipment — J98614D-( )

**List 1** — Assembly, common equipment, surface wiring, and equipment for one 100-ohm sleeve relay per SD-96508-01, Fig. 24 for circuits requiring a 100-ohm sleeve relay.

**List 2** — Surface wiring and equipment in addition to list 1 for an additional sleeve relay per SD-96508-01, Fig. 24 (maximum 11).

**J98614E — AT&TCo Std — 500-ohm Sleeve Relay Unit**

Equipment — J98614E-( )

**List 1** — Assembly, common equipment, surface wiring, and equipment for one 500-ohm sleeve relay per SD-96508-01, Fig. 5 for No. 17C testboard.

**List 2** — Surface wiring and equipment in addition to list 1 for an additional sleeve relay per SD-96508-01, Fig. 5 (maximum 11).

**J98614F — AT&TCo Std — Hybrid Coil Unit**

Equipment — J98614F-( )

**List 1** — Assembly, common equipment, surface wiring, and equipment for one hybrid coil circuit for No. 17C testboard per SD-96508-01, Fig. 19.

**List 2** — Surface wiring and equipment in addition to list 1 for one additional hybrid coil circuit per SD-96508-01, Fig. 19.

**J98614G — AT&TCo Std — Loudspeaker Multiple Bridge Unit**

Equipment — J98614G-( )

**List 1** — Assembly, common equipment, surface wiring, and equipment for one loudspeaker bridge (maximum five speakers) for one code area in accordance with SD-96508-01, Fig. 11.

**List 2** — Equipment and surface wiring required in addition to list 1 for one additional loudspeaker bridge in accordance with SD-96508-01, Fig. 11 (maximum two).

**List 3** — Equipment required in addition to list 1 or 2 when the third, fourth, or fifth loudspeaker is not furnished in a code area in accordance with SD-96508-01, Fig. 25 (maximum three for each list 1 or 2).

**J98614H — AT&TCo Std—Dial Transfer Relay Unit**

Equipment — J98614H-( )

**List 1** — Assembly, common equipment, surface wiring, and equipment for one dial transfer relay in accordance with SD-96508-01, Fig. 9. (See 5.04.)

**List 2** — Surface wiring and equipment required in addition to list 1 for one additional dial transfer relay in accordance with SD-96508-01, Fig. 9 (maximum nine).

**List 3** — Common equipment required in addition to lists 1 and 2 when the ninth dial transfer relay is provided.

**J98614J — AT&TCo Std—Dial Connecting Unit**

Equipment — J98614J-( )

**List 1** — Assembly, common equipment, local cable, surface wiring, and equipment for one dial connecting circuit in accordance with SD-96508-01, Fig. 10. (See notes A and B.)

**List 2** — Surface wiring and equipment required in addition to list 1 for one additional dial connecting circuit in accordance with SD-96508-01, Fig. 10 (maximum three). (See note B.)

**List 3** — Common equipment required in addition to lists 1 and 2 when the third dial connecting circuit is provided.

**Notes**

- A. The local cable of list 1 consists of a cable for the "OG" and "TB" leads for all circuits on the unit.
- B. The installer shall connect "G," "H," "X," "Y," and "Z" strapping as required.

**J98614K — AT&TCo Std — Telephone Unit**

Equipment — J98614K-( )

**List 1** — Assembly, common equipment, surface wiring, and equipment for one telephone circuit in accordance with SD-96508-01, Fig. 3.

**List 2** — Surface wiring and equipment required in addition to list 1 for one additional telephone circuit in accordance with SD-96508-01, Fig. 3 (maximum one).

**5. GENERAL NOTES**

- 5.01 Local cables on units, where specified, shall be No. 22 gauge type "BU" wire.

Unit wiring not in local cable shall be "SW1" wiring.

**5.02** Telephone set jacks, lamps, keys, loudspeakers, buzzers, and fuses required for the equipment described herein shall be ordered separately.

**5.03** The fusing for the equipment described herein shall be on a miscellaneous fuse bay.

**5.04** When the position is provided with a dial as part of its regular equipment, this dial is used for signaling on the order wires and dial transfer relay unit J98614H is required. Otherwise the dial per SD-96508-01, Fig. 23 and associated termination per ED-95014-( ), Fig. A are required.

**5.05** When the position is equipped with a dial pilot lamp as part of its regular equip-

ment, this lamp shall be associated with the order wire as indicated by its schematic drawing. Otherwise one dial pilot lamp per position shall be furnished in accordance with SD-96508-01, Fig. 15 and located with the other order wire jacks, keys, and lamps.

**5.06** Cross connections between the units listed in this specification shall be run through the wire guide on the front of the units. Cross connections between units listed in this specification and the SS1 selective signaling equipment shall be run on the rear of the uprights. This wiring shall be No. 24 gauge type "BG" wire.

**5.07** A No. 6 bare-tinned copper wire shall be run down the right rear upright and supported by P-401965 clips spaced approximately 1 foot 6 inches apart. This lead shall be connected to the ground bar at the top of the frame.

Bell Telephone Laboratories, Incorporated  
Dept 2746