

E-TYPE
AC TRUNK 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 framework, equipment, circuits, and bay equipments to be used in the manufacture and installation of E-type ac trunk signaling equipment for use in common systems.

1.02 The E-type signaling system consists of converters that accept dc supervisory and dial pulse signals, change them to ac signals within the voiceband for transmission over a carrier or voice facility, and then convert these ac signals at the distant receiver back to a form suitable for the associated switching machine at the terminating office.

1.03 Reasons for reissue are listed at the end of this specification.

DESCRIPTION

General

1.04 The E-type ac trunk signaling system is a transistorized system operating on -48 volts dc to provide an inband signaling system for passing supervisory and dial pulse signals. The system consists basically of different types of signaling units, each designed to convert E&M or loop dc signals to suitable ac signals for transmission over the normal speech path of a carrier channel or voice-frequency line facility. After the called end answers, there is no degradation of the voice path. The units contain a receiver and, in one case, two receivers for receiving ac signals from the distant end and reconverting to the corresponding dc signals.

1.05 The ac tone is supplied by a transistorized oscillator. Normally two oscillators are furnished connected by an automatic transfer circuit so that, in the event of failure of an oscillator, the load connected to that oscillator will be automatically connected to the remaining oscillator.

1.06 The units described herein are arranged to mount on 23-inch relay racks drilled for 2-inch mounting plates. The J98613DD bay is mounted on an unequal-flange cable-duct relay rack. The J98613AP bay is mounted on a bulb-angle bay. For miscellaneous mounting arrangements, 16-type apparatus mountings may be used for wall mounting of oscillator transfer units and tone-supply resistor units.

1.07 The signaling units are assembled on die-cast chassis and mount on 2-inch horizontal centers and 12-inch vertical centers. Connections are established on a plug-in basis, and units are held in position by two captive mounting screws.

WEIGHT

1.08 An 11-foot 6-inch bay wired with common equipment weighs approximately 230 pounds without signaling units. Signaling units vary in weight but are approximately 5 pounds each.

HEAT DISSIPATION

1.09 During busy-hour operation, the amount of power dissipated in a fully equipped 11-foot 6-inch bay will vary with the types of signaling units but is not normally expected to exceed 600 watts.

CABLING

1.10 The revertive-terminating bay connectors are shop-wired directly to the switchboard cables

which run to the distributing frame. From here cross-connections are made to connecting circuits.

1.11 The unequal-flange cable-duct bay provides bay terminal strips for all talking and signaling leads (12 per connector). The installer may cable these terminal strips to the distributing frame or, as provided in the application schematic, may directly cable them to connecting circuits.

1.12 Wiring shall be 24 gauge unless otherwise specified. Battery and ground leads shall be 22-gauge wire.

POWER AND FUSING

1.13 A -48 volt dc talk battery is required for this system. The cable-duct bay coded in this specification comes equipped with a decentralized battery filter which provides suitably filtered battery for this system.

1.14 The 2B signaling test set requires a source of +130 volts dc which may be obtained from the office supply, if available. Otherwise an ac-operated power supply delivering +130 volts dc should be made available. (See J64730 specification for the 2B signaling test set.)

1.15 Power is distributed by means of 70-type fuses mounted on fuse panels in each signaling bay.

FLOOR PLAN ARRANGEMENTS

1.16 Signaling bays may be located so as to grow in either direction or may be located isolated from other signaling bays. One condition applies, however, which affects location: no signaling unit mounted in its operating position shall be separated by more than two single bays from either a monitoring unit or a testing unit which may be operated as a monitoring unit, unless a connector for a portable monitoring or testing unit is provided within this distance. Testing and monitoring positions in the same aisle should not be directly opposite each other.

BAY LAYOUTS

1.17 The J98613DD signaling bay provides all the facilities required for a maximum of 90 signaling units. In addition, it is provided with a local decentralized battery filter and bay terminal

strips. Switchboard cables terminate on the bay terminal strips. The relay rack is of the unequal-flange cable-duct type.

1.18 The J98613AP signaling bay was designed for revertive-terminating units only. It provides all the facilities required for a maximum of 90 signaling units, including the 2000-Hz oscillator-transfer unit.

STONE SUPPLIES

2000-Hz Supply Unit

1.19 The J98613AJ unit consists of one or two 2000-Hz transistorized oscillators operated from a -48 volt dc supply and is designed to provide the 2000-Hz tone required for the operation and testing of the revertive signaling units. Each oscillator has a normal capacity of 60 signaling units but may, under trouble conditions, supply twice this number.

2600-Hz Supply Unit

1.20 The J98613AL unit is mechanically similar to the J98613AJ unit but has a frequency of 2600 Hz.

2000-Hz Oscillator and Transfer Unit

1.21 The J98613BU unit consists of two 2000-Hz oscillators and a transfer circuit which interconnects the oscillators with the distributing circuit. In the event of trouble in either oscillator, the load is automatically transferred to the other oscillator and the office alarm is activated. The unit is also equipped with lamps for a local alarm. A network equipped with jacks is provided for making beat-frequency comparisons between the two oscillators or between one oscillator and an outside source. Each unit will supply a maximum of 120 E-type signaling units.

2600-Hz Oscillator and Transfer Unit

1.22 The J98613BW unit provides the same facilities as the J98613BU unit except that it operates at 2600 Hz. In addition, it may be ordered equipped with tone supply resistors for a maximum of 40 signaling units.

TOLL UNITS

1.23 The E4B signaling unit is coded J98613DE and is designed to function with E&M lead circuits to provide 2-way supervision and 2-way dialing or multifrequency pulsing over the voice path. These units are designed for 4-wire operation, and external 4-wire terminating circuits must be provided for 2-wire switching. The units provide a signal receiver which converts incoming tone signals to dc signals suitable for application to an E lead, a transmitter which converts dc signals received from an M lead to outgoing tone signals, and a voice amplifier.

1.24 The E1J is similar to the E4B signaling unit with preempt signaling capability, designed for use with Autovon, and is coded J98613CU.

LOOP UNITS

1.25 The loop originating units provide a signal receiver which converts incoming tone signals to battery reversals in the 2-wire loop for supervisory signals, a transmitter which converts dc signals in the form of loop opens and closures from the 2-wire loop to outgoing tone signals, a 4-wire terminating circuit, and a voice amplifier. The units will function for originating traffic only, with traffic normally terminating in loop terminating or 2600-Hz E&M lead units.

1.26 The loop terminating units provide a signal receiver which converts incoming tone signals to dc signals in the form of loop opens and closures suitable for application to the 2-wire loop, a transmitter which converts reverse-battery signals from the 2-wire loop to outgoing tone signals, a 4-wire terminating circuit, and a voice amplifier. The units will function for terminating traffic only, with traffic normally originating in loop originating or 2600-Hz E&M lead units.

1.27 These loop-type units are designed to function with N-type carrier exchange area applications to provide for one-way loop reverse-battery supervision and either dial or multifrequency pulsing over the voice path.

1.28 The E3C signaling unit (J98613DA) provides improved transmission, adjustable gain in the 2-wire to 4-wire transmitting path, an improved voice amplifier, and talk-off improvements including addition of a G relay to make the unit suitable

for CAMA applications. It is intended to be used in multifrequency applications.

1.29 The E4C signaling unit (J98613DB) has an originating pulsing corrector in addition to the circuitry provided in the E3C signaling unit. It is designed for both dial and multifrequency pulsing applications. Both units are for use at the originating end only.

1.30 The E3D signaling unit (J98613CJ) incorporates a transmission path cut feature. It is required for use in multifrequency pulsing applications with short disconnect time trunks and with either a loop originating or 2600-Hz E&M lead unit at the distant end. The E4D signaling unit (J98613DL) provides improved transmission, adjustable gain in the 2-wire to 4-wire transmitting path, an improved voice amplifier, transmission path cut circuit, and reverse make-busy feature for CAMA applications, and is for use with both dial and multifrequency pulsing applications in association with long disconnect-time trunks having a release current in excess of 3.7 milliamperes. The E5D signaling unit (J98613DN) is the same as the E4D except that the reverse make-busy feature is not provided. It is also suitable for both dial and multifrequency pulsing. The above units are for the terminating end.

1.31 Specific restrictions for the use of all of the above loop-type units are covered on the associated circuit and applications schematic drawings, to which reference should be made, rather than to the brief summary above.

REVERTIVE UNITS

1.32 The E1E and E1F signaling units are coded J98613CR and CS and are designed to provide a means of converting dc loop supervisory and revertive pulsing signals to ac tone pulse signals suitable for transmission over the transmitting pair of a 4-wire transmission facility. Provision is also made for converting tone signals incoming from the receiving pair of the 4-wire transmission facility into dc signals suitable for reverse-battery supervision in revertive pulsing offices. A 4-wire terminating circuit is included to complete the voice transmission path.

1.33 The J98613CR unit functions as an originating end unit and will only work with a J98613CS unit or its predecessor, the J98613J unit, at the

distant end as a terminating unit. It transmits only 2600-Hz tone, but receives 2000- and 2600-Hz tones.

1.34 The J98613CS unit functions as a terminating end unit and will only work with a J98613CR unit or its predecessor, the J98613H unit, at the distant end as an originating unit. It transmits both 2000- and 2600-Hz tones, but receives only 2600-Hz tones.

CUSTOMER LINE UNITS

1.35 The E2L (J98613CL) and E3S (J98613CY) signaling units are designed to function on foreign exchange facilities to convert local signals to 2600 Hz for transmission over local carrier facilities and to reconvert to local signals at the distant end of the carrier facilities.

1.36 The J98613CL unit basically consists of a transmitter, a receiver, a voice amplifier, and a 4-wire terminating set. It converts 20-Hz ringing to 2600-Hz pulses for transmission and converts received 2600-Hz pulses to dc signals. It is designed to function at the office end of a customer line with a J98613CY unit at the station end. It is suitable for either telephone message or DTWX applications.

1.37 The J98613CY unit basically consists of a transmitter, a receiver, a voice amplifier, a 4-wire terminating set, and a ringing circuit. In addition, the J98613CY unit contains a pulse connector circuit which makes it suitable for both telephone message and DTWX applications. It converts dc supervisory and dial pulse signals to 2600-Hz tone pulse signals for transmission to the distant end, and converts received 2600-Hz pulses into ringing signals. It is designed to function at the station end of a customer line with a J98613CL unit at the office end.

1.38 The J98613DP unit (E1P) basically consists of a transmitter, a receiver, a signal detector, and a pulse corrector. It is primarily intended for message foreign exchange service, but is also suitable for DTWX applications. It is a 4-wire unit capable of operating in either ground-start or loop-start mode under switch control. The unit is capable of functioning with A and B leads for either ground-start or loop-start and with E&M leads for loop-start. It requires an external 1-type terminating set or equivalent and is capable of being used with

4-wire extension circuits. It will replace the E2L/E2L-A combination with a single unit which will function at the office end with either an E1R unit or the E3S/E2S-A combination at the station end. For other compatible combinations, depending on loop-start or ground-start mode of operation, see SD-98151-01.

1.39 The J98613DR unit (E1R) basically consists of a transmitter, a receiver, a loop detector, and a ring-trip detector. It is primarily intended for message foreign exchange service, but is also suitable for DTWX applications. It is a 4-wire unit capable of operating in either ground-start or loop-start mode under switch control. The unit is capable of functioning with A and B leads for either ground-start or loop-start and with E and M leads for loop-start. It requires an external 1-type terminating set or equivalent and is capable of being used with 4-wire extension circuits. It will replace the E3S/E2S-A combination with a single unit which will function at the station end with either the E1P or the E2L/E2L-A combination at the office end. For other compatible combinations, depending on loop-start mode of operation, see SD-98151-01.

RESISTOR UNITS

1.40 The J98613CB unit consists of printed wiring board assemblies of resistors selected to provide the proper level of 2600-Hz tone to all circuits in the J98613DD bay.

1.41 The J98613AM unit consists of Miniplas assemblies of resistors selected to provide the same functions as above for the J98613AP bay.

TESTING UNITS

Monitoring Unit

1.42 The J98613Y unit provides all facilities for in-service monitoring of a single-frequency signaling unit. It includes a voice-frequency amplifier and the necessary jack circuits to establish connections between the amplifier and signaling unit. It also provides jacks for connecting a 2B signaling test set to a -48 volt supply. The basic unit mounts in the space provided for two signaling units.

1.43 Supplementary lists are provided to convert the rack-mounted monitoring unit to a portable unit and to provide a connector as a

power source. This connector may be mounted on a signaling bay, on a test bench, or as required. It will also act as a power source for the portable testing unit described hereafter.

TESTING UNIT

1.44 The J98613AY unit provides all the facilities required for all testing and monitoring of all E-type signaling units. This unit includes a folding test fixture for mounting the unit under test, is completely self-contained in one unit, and mounts on the standard mounting shelf for E-type units in the space of six of these units. The J98613AY unit is also provided with a battery supply filter required for a 2B signaling test set in the same mounting space.

1.45 This unit may also be provided with a covered case converting it to a portable testing set complete with folding test fixture, power cord, and plug. The unit will plug into a connector provided separately which mounts on a signaling bay, test bench, or as required, and provides power for either this portable testing set or the portable monitoring set. Every office should have at least one testing unit or connector mounted in the office. When the connector is provided, a portable testing set should be available, as required. This testing unit, either portable or rack mounted, provides all facilities of the monitoring unit and may be used in its place when desired.

Test Extender Unit

1.46 The J98613DM test extender unit provides a means of mounting an E-type signaling unit; a means of connecting it, while so mounted, to its normal operating position; a means of connecting battery, ground, and signaling tone supplies; and a means of obtaining splitting jack access to all SF ports. Associated with the unit is an extender test cord assembly for connecting auxiliary units to their associated signaling units while the test extender unit is in use. The unit is for use with all E-type signaling units.

FUSE AND FILTER UNIT

1.47 The J98613BG fuse panel provides all the fuses required for any combination of E-type

signaling equipment which would normally be mounted in one signaling bay or relay rack in small installations. This unit contains local alarm lamps as well as 70-type fuses for -48 volt dc talk and +130 volt signal battery. It is arranged so that five signaling units will be supplied through a single fuse.

1.48 The J98613CM panel provides a filter circuit for use on a -48 volt office battery and the necessary distribution fuses for a full signaling bay for offices other than ESS offices. It also provides all necessary resistance lamps and fuses for a 20-Hz ringing supply required by a full signaling bay.

MISCELLANEOUS

1.49 The J98613CT mounting shelf provides facilities for mounting ten E-type signaling unit connectors. It provides support and electrical connections for ten units above it and support for ten units below it.

1.50 The J98613CW unit is an E&M lead applique unit designed to reduce noise due to ground currents in ESS offices. It also provides an M-lead pulse repeater to extend the M-lead cable resistance range. The pulse repeater is used with plug-in PWB assemblies per ED-99661-30 or ED-99991-30.

1.51 The J98613DF unit is a mounting shelf for M-lead pulse correctors. These pulse correctors correct the pulse characteristics on the M lead of E-type signaling units. They are plug-in units per ED-99791-30, G1.

1.52 The J98613DK unit is a mounting shelf designed to mount transmission path cut units per ED-99574-30, G1 or ED-99583-30, G1 for use with E1B and E1A signaling units, respectively, in dial pulsing applications. It will mount a maximum of ten units which are used to prevent switching and pulsing transients from interfering.

1.53 The J98613DS unit is a mounting shelf designed to mount E&M lead applique units per ED-2C026-30, G1, for use in No. 4 ESS applications to convert E&M leads to looped E&M leads. It will mount a maximum of 20 applique units.

SUBDIVISIONS OF EQUIPMENT AND DETAILED INDEX

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

EQUIPMENT CODE	RATING OF UNIT	TITLE	EQUIPMENT DRAWING	CIRCUIT DRAWING
ED-99574-30	A&M Only	Transmission Path Cut Unit for Use With E1B Signaling Units	ED-99574-30	SD-99778-01
ED-99583-30	A&M Only	Transmission Path Cut Unit for Use With E1A Signaling Units	ED-99583-30	SD-99778-01
ED-99661-30	AT&TCo Std	E&M Lead Applique PWB Assembly	ED-99661-30	SD-99774-01
ED-99791-30	AT&TCo Std	M- Lead Pulse Corrector PWB Assembly	ED-99791-30	SD-99766-01
ED-99983-30	AT&TCo Std	Plug-In Adaptor for Testing M- Lead Pulse Corrector	ED-99983-30	SD-99766-01
ED-99991-30	AT&TCo Std	E&M Lead Applique PWB Assembly	ED-99991-30	SD-99774-01
ED-2C026-30	AT&TCo Std	E&M Lead Applique PWB Assembly	ED-2C026-30	SD-99774-01
J98613Y	A&M Only	Monitoring Unit	J98613Y-()	SD-96519-02
J98613AJ	A&M Only	2000-Hertz Supply Unit	J98613AJ-()	SD-98081-01
J98613AL	A&M Only	2600-Hertz Supply	J98613AL-()	SD-98092-01
J98613AM	A&M Only	Tone Supply Resistor Unit for Revertive-Terminating Signaling Bays	J98613AM-()	SD-98122-01
J98613AP	A&M Only	Revertive-Terminating Signaling Bay	J98613AP-()	SD-56134-02 SD-95072-01 SD-96519-02 SD-98081-01 SD-98091-01 SD-98092-01 SD-98122-01 SD-98151-01
J98613AY	A&M Only	Testing Unit	J98613AY-()	SD-56134-02 SD-96519-02
J98613BG	A&M Only	Fuse Panel	J98613BG-()	SD-31974-01 SD-95072-01

EQUIPMENT CODE	RATING OF UNIT	TITLE	EQUIPMENT DRAWING	CIRCUIT DRAWING
J98613BU	A&M Only	2000-Hertz Oscillator and Transfer Unit	J98613BU-()	SD-98081-01 SD-98091-01
J98613BW	A&M Only (AT&TCo Spl for Intl Trk Supr)	2400/2600-Hertz Oscillator and Transfer Unit	J98613BW-()	SD-98091-01 SD-98092-01 SD-98122-01
J98613CB	A&M Only	Tone Supply Resistor Unit for Other Than Revertive-Terminating Units	J98613CB-()	SD-98122-01
J98613CC	A&M Only	Tone Supply Resistor Units for Revertive-Terminating Units	J98613CC-()	SD-98122-01
J98613CF	A&M Only	Fuse and Filter Panel for Use in No. 1 ESS Offices	J98613CF-()	SD-96602-01
J98613CJ	A&M Only	E1D, E2D, and E3D Signaling and 4-Wire Terminating Units — Loop Type — Terminating End	J98613CJ-()	SD-98087-02
J98613CL	A&M Only	E2L Signaling and 4-Wire Terminating Unit for Customer Lines — Office End	J98613CL-()	SD-98137-02
J98613CM	A&M Only	Battery Filter and Fuse Alarm Unit	J98613CM-()	SD-96602-01
J98613CR	A&M Only	E1E Signaling and 4-Wire Terminating Unit — Revertive Type — Originating End	J98613CR-()	SD-98088-02
J98613CS	A&M Only	E1F Signaling and 4-Wire Terminating Unit — Revertive Type — Terminating End	J98613CS-()	SD-98089-02
J98613CT	A&M Only	E-Type Signaling Shelf — 10-Unit Mounting	J98613CT-()	SD-98151-01
J98613CU	A&M Only	E1J Signaling Unit	J98613CU-()	SD-99762-01
J98613CW	AT&TCo Std	E&M Lead Applique Unit	J98613CW-()	SD-99774-01
J98613CY	A&M Only	E3S Signaling and 4-Wire Terminating Unit for Customer Lines — Station End	J98613CY-()	SD-98138-02

EQUIPMENT CODE	RATING OF UNIT	TITLE	EQUIPMENT DRAWING	CIRCUIT DRAWING
J98613DA	A&M Only	E3C Signaling and 4-Wire Terminating Unit — Reverse Battery Supervision — Originating End	J98613DA-()	SD-99767-01
J98613DB	A&M Only	E4C Signaling and 4-Wire Terminating Unit — Reverse Battery Supervision — Originating End	J98613DB-()	SD-99767-01
J98613DD	A&M Only	Signaling Bay, 11 Feet 6 Inches High	J98613DD-()	SD-56134-02 SD-96519-02 SD-96602-01 SD-98081-01 SD-98091-01 SD-98092-01 SD-98122-01 SD-98151-01
J98613DE	A&M Only	E4B Signaling Unit		SD-98124-03
J98613DF	AT&TCo Std	M Lead Pulse Corrector	J98613DF-()	SD-99766-01
J98613DK	A&M Only	Mounting Shelf for Transmission Path Cut Unit	J98613DK-()	SD-99778-01
J98613DL	A&M Only	E4D Signaling and 4-Wire Terminating Unit — Reverse Battery Supervision — Terminating End	J98613DL-()	SD-99764-01
J98613DM	A&M Only	Test Extender Unit	J98613DM-()	SD-99384-01
J98613DN	A&M Only	E5D Signaling and 4-Wire Terminating Unit — Reverse Battery Supervision — Terminating End	J98613DN-()	SD-99764-01
J98613DP	A&M Only	E1P Signaling Unit for Customer Lines — Office End	J98613DP-()	SD-99779-01
J98613DR	A&M Only	E1R Signaling Unit for Customer Lines — Station End	J98613DR-()	SD-99780-01
J98613DS	AT&TCo Std	E&M Lead Applique Unit for No. 4 ESS Applications	J98613DS-()	SD-99774-01

Circuit Schematic Index

CIRCUIT DRAWING	J98613 EQPT CODE
SD-31974-01	BG
SD-56134-02	AP, AY, DD
SD-95072-01	AP, BG
SD-96519-02	Y, AP, AY, DD
SD-96602-01	CM, DD
SD-98081-01	AJ, AP, BU, DD
SD-98087-02	CJ
SD-98088-02	CR
SD-98089-02	CS
SD-98091-01	AP, BU, BW, DD
SD-98092-01	AL, AP, BW, DD
SD-98122-01	AM, AP, BW, CB, DD
SD-98124-03	DE
SD-98137-02	CL
SD-98138-02	CY
SD-98151-01	AP, CT, DD
SD-99384-01	DM
SD-99762-01	CU
SD-99764-01	DL, DN
SD-99766-01	DF, ED-99791-30, ED-99983-30
SD-99767-01	DA, DB
SD-99774-01	CW, DS, ED-99661-30, ED-99991-30, ED-2C026-30
SD-99778-01	DK, ED-99574-30, ED-99583-30
SD-99779-01	DP
SD-99780-01	DR

2. SUPPLEMENTARY INFORMATION

- 179-000-000—Numerical Index Signaling Circuit Testing Sections
- 800-600-000—List of General Equipment Requirement Sections
- 859-000-000—Numerical Index—Division 859—Signal Transmission Engineering Considerations
- 975-000-000—Numerical Index of Signaling Systems—General Descriptive Information Sections
- Floor Plan Data—Section 7.1, Sheets 143 and 144

3. DRAWINGS

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

Printed Wiring Board Assemblies

- ED-95236-30—E1L Signaling Unit
- ED-95244-30—E1E Signaling Unit
- ED-95245-30—E1F Signaling Unit
- ED-99754-30—E1D Signaling Unit
- ED-99755-30—E1D Signaling Unit
- ED-99757-30—E1L Auxiliary Unit
- ED-99766-30—Revertive-Terminating Tone Supply Resistor Unit
- ED-99767-30—Test Tone Supply Resistor Unit
- ED-99778-30—Tone Supply Resistor Unit
- ED-99779-30—Revertive-Terminating Tone Supply Resistor Unit
- ED-99783-30—E2D-10 Applique
- ED-99784-30—E2D-15 Applique
- ED-99791-30—Timing Module
- ED-99793-30—E2D Applique
- ED-99856-30—E2S Signaling Unit
- ED-99857-30—E2S Applique
- ED-99971-30—E1J Applique
- ED-99972-30—E1J Auxiliary
- ED-99973-30—E1J Auxiliary

Cord Assemblies

- ED-99696-10—Test Extender Cord

4. EQUIPMENT

ED-99574-30—A&M Only—Transmission Path Cut Unit for Use With E1B Signaling Units

Equipment—ED-99574-30

Group 1—Common equipment, apparatus, and assembly for one transmission path cut unit for use with E1B signaling units. Provides CP2 of SD-99778-01.

ED-99583-30—A&M Only—Transmission Path Cut Unit for Use With E1A Signaling Units

Equipment—ED-99583-30

Group 1—Common equipment, apparatus, and assembly for one transmission path cut unit for use with E1A signaling units. Provides CP1 of SD-99778-01.

ED-99661-30—AT&TCo Std—E&M Lead Applique PWB Assembly

Equipment—ED-99661-30

Group 1—Common equipment, apparatus, and assembly for one E&M lead applique PWB assembly per Fig. 2 and 3 of SD-99774-01.

ED-99791-30—AT&TCo Std—M- Lead Pulse Corrector PWB Assembly

Equipment—ED-99791-30

Group 1—Common equipment, apparatus, and assembly for one M- lead pulse corrector PWB assembly per CP1 of SD-99766-01.

ED-99983-30—AT&TCo Std—Plug-In Adaptor for Testing M- Lead Pulse Corrector

Equipment—ED-99983-30

Group 1—Framework, assembly, and wiring for one plug-in adaptor per SD-99766-01, for testing M- lead pulse corrector, designed for use with the J98613AY testing unit.

ED-99991-30—AT&TCo Std—E&M Lead Applique PWB Assembly

Equipment—ED-99991-30

Group 1—Common equipment, apparatus, and assembly for one E&M lead applique PWB assembly per Fig. 2 of SD-99774-01.

ED-2C026-30—AT&TCo Std—E&M Lead Applique PWB Assembly

Equipment—ED-2C026-30

Group 1—Common equipment, apparatus, and assembly for one E&M lead applique PWB assembly per Fig. 4 of SD-99774-01.

J98613Y—A&M Only—Monitoring Unit

Equipment—J98613Y-()

List 4—Framework, equipment, assembly, and wiring for one rack-mounted monitoring

unit per SD-96519-02, Fig. 2, 3, and 13.

List 5—Framework, assembly, and wiring required in addition to list 4 to provide a portable monitoring set for use in systems which do not require balanced milliwatt supply start leads. Provides Fig. 5 of SD-96519-02.

List 6—Equipment and wiring required to provide a plug-in connector for the portable monitoring set for use in systems which do not require balanced milliwatt supply start leads. Provides Fig. 6 of SD-96519-02. (See Note A.)

List 7—Equipment required in addition to list 4 to meet the requirements of Section 800-610-157.

List 8—Framework, assembly, and wiring required in addition to list 4 to provide a portable monitoring set for use in systems similar to No. 1 ESS which require balanced milliwatt supply start leads. Provides Fig. 9 of SD-96519-02.

List 9—Equipment and wiring required to provide a plug-in connector for the portable monitoring set for use in systems similar to No. 1 ESS which require balanced milliwatt supply start leads. Provides Fig. 10 of SD-96519-02. (See Note A.)

Note

A. The connectors provided herewith serve as the power source for the portable testing set J98613AY as well as this portable monitoring set. Connectors wired for balanced milliwatt supply start leads are incompatible with connectors not wired for balanced milliwatt supply start leads. Some of these connectors have not been provided with 130V and, thus, are not suitable for use with older electron tube sets.

J98613AJ—A&M Only—2000-Hertz Supply Unit

Equipment—J98613AJ-()

List 1—Framework, assembly, equipment, and surface wiring for one 2000-Hz supply unit consisting of two 2000-Hz oscillators per SD-98081-01, Fig. 1, T option.

List 2—Equipment and assembly required in addition to list 1 to meet the requirements of Section 800-610-157.

List 3—Framework, equipment, assembly, and wiring for one 2000-Hz supply unit consisting

of one 2000-Hz oscillator per Fig. 1 of SD-98081-01, T option. (See Note 5.09.)

J98613AL—A&M Only—2600-Hertz Supply Unit

Equipment—J98613AL-()

List 1—Framework, assembly, equipment, and surface wiring for one 2600-Hz supply unit consisting of two 2600-Hz supply circuits, each per SD-98092-01, Fig. 1, T option.

List 2—Equipment and assembly required in addition to list 1 to meet the requirements of Section 800-610-157.

List 3—Framework, equipment, assembly, and wiring for one 2600-Hz supply unit consisting of one 2600-Hz oscillator per Fig. 1 of SD-98092-01. (See Note 5.09.)

J98613AM—A&M Only—Tone Supply Resistor Unit for Revertive-Terminating Signaling Bays

Equipment—J98613AM-()

List 1—Framework, assembly, equipment, and wiring for one tone supply resistor unit providing tone supply for a maximum of 90 signaling units per J98613CS, one testing unit per J98613AY, and/or one monitoring unit per J98613Y as required for the bay in which the resistor unit is mounted per SD-98122-01.

J98613AP—A&M Only—Revertive-Terminating Signaling Bay

Equipment—J98613AP-()

List 4—Framework, assembly, local cable, and common equipment for a signaling bay arranged for a maximum of 90 revertive-terminating signaling units. Provides J98613BG fuse panel, J98613BU 2000-Hz oscillator and transfer unit, J98613BW 2600-Hz oscillator and transfer unit, J98613AM tone supply resistor unit, and 90 Fig. 1, Y option of SD-98151-01.

List 7—Wiring and equipment required in addition to list 4 when a rack-mounted monitoring unit is to be provided per J98613Y. Provides SD-96519-02, Fig. 2 and 3.

List 8—Equipment and wiring required in addition to list 4 when a rack-mounted testing unit

is required in the bay per J98613AY. Provides Fig. 1 and 2 of SD-96519-02 and Fig. 2 of SD-56134-02.

List 9—Equipment and wiring required in addition to list 4 when a connector is required for the portable monitoring unit J98613Y and/or the portable testing unit J98613AY in offices which do not require balanced milliwatt supply start leads. Provides Fig. 6 of SD-96519-02. (See Note A.)

List 10—Equipment and wiring required in addition to list 4 when a connector is required for the portable monitoring unit J98613Y and/or the portable testing unit J98613AY in offices similar to No. 1 ESS which require balanced milliwatt supply start leads. Provides Fig. 10 of SD-96519-02. (See Note A.)

Note

A. If list 7 or 8 is furnished, list 9 or 10 is not required. These connectors are not provided with 130V, and electron tube testing or monitoring units will not function when connected to them.

J98613AY—A&M Only—Testing Unit

Equipment—J98613AY-()

List 7—Framework, equipment, assembly, and wiring for a rack-mounted testing unit to perform all in-service and all out-of-service tests required on all E-type signaling units when associated with other than revertive-terminating signaling bays. Provides SD-96519-02, Fig. 1, 2, 12, 13, and P option. (See Note A.)

List 8—Assembly, equipment, and local cable always required in addition to list 7 for one battery supply filter for a 2B signaling test set per SD-56134-02, Fig. 2.

List 9—Framework, equipment, assembly, and wiring required in addition to lists 7 and 8 for one portable test set for use in systems not requiring balanced milliwatt supply start leads. Provides SD-96519-02, Fig. 4.

List 10—Equipment required for a plug-in connector for a portable testing set for use in systems not requiring balanced milliwatt supply start leads. Provides SD-96519-02, Fig. 6. (See Note B.)

List 11—Equipment required in addition to list 7 to meet the requirement of Section 800-610-157.

List 12—Framework, equipment, assembly, and wiring per Fig. 8 of SD-96519-02 required in addition to lists 7 and 8 to provide a portable testing unit for use in systems similar to No. 1 ESS requiring balanced milliwatt supply start leads.

List 13—Equipment and wiring per Fig. 10 of SD-96519-02 required for a plug-in connector for a portable testing unit for use in systems similar to No. 1 ESS requiring balanced milliwatt supply start leads. (See Note B.)

Notes

A. N wiring is provided when balanced milliwatt supply start leads are required in systems similar to No. 1 ESS. R wiring is provided when balanced milliwatt supply start leads are not required. Connectors wired for one option are incompatible with connectors wired for the other option.

B. The connectors provided herewith serve as the power source for the portable monitoring set J98613Y as well as this portable testing set. These connectors are not provided with 130V, and electron tube testing or monitoring units will not function when connected to them.

J98613BG—A&M Only—Fuse Panel

Equipment—J98613BG-()

List 1—Framework, apparatus, assembly, and wiring for one fuse panel for E-type signaling bays for common aisle alarm per Fig. 9 and 10 of SD-95072-01. (See Note A.)

List 2—Framework, apparatus, assembly, and wiring for one fuse panel for E-type signaling bays for connection to the 355A step-by-step alarm system per Fig. 36, 38, and Z option of SD-31974-01. (See Note A.)

Note

A. The 70-type fuse shall be replaced by a 72A dummy fuse, and the designation pin shall be removed from any fuse block not wired to a load.

J98613BU—A&M Only—2000-Hertz Oscillator and Transfer Unit

Equipment—J98613BU-()

List 1—Framework, equipment, assembly, and wiring for a combined 2000-Hz oscillator and transfer unit. Provides two Fig. 1 of SD-98081-01 and one Fig. 1 of SD-98091-01.

J98613BW—A&M Only (AT&T Co Special for International Trunk Supervision)—2400/2600-Hertz Oscillator and Transfer Unit

Equipment—J98613BW-()

List 1—Framework, equipment, assembly, and wiring for a combined 2400/2600-Hz oscillator and transfer unit. Provides two Fig. 1 of SD-98092-01 and one Fig. 1 of SD-98091-01.

List 2—Equipment, assembly, and wiring required in addition to list 1 to provide 20 tone supply resistor circuits for signaling units other than revertive-terminating units. Provides 20 Fig. 1 of SD-98122-01. (See Note A.)

List 3—Mounting details required in addition to list 1 when one or two list 2 are provided.

List 4—Equipment and assembly required in addition to list 1 (also lists 2 and 3 if provided) to meet the requirements of Section 800-610-157.

List 5—Apparatus, assembly, and wiring required in addition to lists 1 and 3 to provide ten tone supply resistor circuits for signaling units and tone supply resistor circuits required for testing facilities. Signaling unit tone supply provides ten Fig. 1 of SD-98122-01, and tone supply for the testing facilities provides one each of Fig. 3, 4, 5, and 6, and two Fig. 9 of SD-98122-01. (See Note A.)

Note

A. Specify a maximum of two list 2 and one list 3 for each list 1. If list 5 is specified, only one list 2 may be specified.

J98613CB—A&M Only—Tone Supply Resistor Unit for Other Than Revertive-Terminating Units

Equipment—J98613CB-()

List 1—Framework, apparatus, assembly, and wiring for one tone supply resistor unit for other than revertive-terminating signaling units. Provides 20 Fig. 1 of SD-98122-01. (See Note 5.09.)

List 2—Apparatus and wiring required in addition to list 1 for 20 additional signaling unit positions. Provides 20 Fig. 1 of SD-98122-01. (See Note A.)

List 4—Apparatus and wiring required in addition to list 1 to provide the tone supply resistors required for testing facilities. Provides one each of Fig. 3, 4, 5, and 6, and two Fig. 9 of SD-98122-01.

Note

A. Provide a maximum of four list 2 per each list 1.

J98613CJ—A&M Only—E1D, E2D, and E3D Signaling and 4-Wire Terminating Units—Loop Type—Terminating End

Equipment—J98613CJ-()

List 2—Framework, apparatus, assembly, and wiring per Fig. 1, Y and W options of SD-98087-02, to provide a basic unit for one E3D signaling and 4-wire terminating unit per ED-99755-30 for multifrequency pulsing. (See Note B.)

List 3—Framework, apparatus, assembly, and wiring per Fig. 2 and 3, W option of SD-98087-02, required in addition to list 2 to provide an E3D unit for multifrequency pulsing. (See Note A.)

Notes

A. List 3 should be ordered whenever list 2 is ordered. In addition, list 3 may be used to modify units in the field not already so equipped.

B. See circuit schematic for connecting circuit restrictions.

J98613CK—Mfr Disc.—E3S Signaling and 4-Wire Terminating Unit for Customer Lines—Station End

Equipment—J98613CK-()

List 4—Mfr Disc.—Apparatus and wiring required in addition to lists 1 and 3 to field modify an E2S unit to an E3S unit, required for all applications involving station loops with total external resistance less than 650 ohms. Provides J and K options of SD-98138-02.

J98613CL—A&M Only—E2L Signaling and 4-Wire Terminating Unit for Customer Lines—Office End

Equipment—J98613CL-()

List 1—Framework, apparatus, assembly, and wiring per Fig. 1 of SD-98137-02, for one E2L signaling and 4-wire terminating unit for customer lines, office end.

J98613CM—A&M Only—Battery Filter and Fuse Alarm Unit

Equipment—J98613CM-()

List 1—Framework, apparatus, assembly, and wiring for a battery filter and fuse alarm unit for E-type signaling applications. Provides one Fig. 1 and 18 Fig. 4 of SD-96602-01. (See Note 5.09.)

List 2—Equipment, assembly, and wiring required in addition to list 1 for 20-Hz ringing supply. Provides one Fig. 3, 18 Fig. 5, and 4 Fig. 6 of SD-96602-01.

J98613CR—A&M Only—E1E Signaling and 4-Wire Terminating Unit—Revertive Type—Originating End

Equipment—J98613CR-()

List 1—Framework, apparatus, assembly, and wiring per Fig. 1 of SD-98088-02 for one E1E signaling and 4-wire terminating unit for the originating end of revertive trunks.

J98613CS—A&M Only—E1F Signaling and 4-Wire Terminating Unit—Revertive Type—Terminating End

Equipment—J98613CS-()

List 1—Framework, apparatus, assembly, and wiring per Fig. 1 of SD-98089-02 for one

E1F signaling and 4-wire terminating unit for the terminating end of revertive trunks.

J98613CT—A&M Only—E-Type Signaling Shelf—10-Unit Mounting

Equipment—J98613CT-()

List 1—Framework, apparatus, and assembly for one mounting shelf assembly for E-type signaling units. Provides support and electrical connections for ten units above it and support for ten units below it. (See Note A.)

Note

A. A P17C219 top mounting shelf is required to support the tops of the uppermost signaling units in a group of shelves.

J98613CU—A&M Only—E1J Signaling Unit

Equipment—J98613CU-()

List 1—Framework, apparatus, assembly, and wiring for one E1J signaling unit per Fig. 1 of SD-99762-01.

List 2—Equipment and assembly required in addition to list 1 to meet the requirements of Section 800-610-157.

J98613CW—AT&TCo Std—E&M Lead Applique Unit

Equipment—J98613CW-()

List 1—Framework, apparatus, assembly, and wiring for one E&M lead applique unit. Provides 80 Fig. 1 of SD-99774-01.

List 2—Framework, apparatus, and assembly for one mounting shelf for a maximum of 10 E&M lead applique PWB assemblies per ED-99661-30 or 20 per ED-99991-30. (See Note A.)

Note

A. E&M lead applique PWB assemblies shall be ordered separately as required.

J98613CY—A&M Only—E3S Signaling and 4-Wire Terminating Unit for Customer Lines—Station End

Equipment—J98613CY-()

List 1—Framework, apparatus, assembly, and wiring for one E3S signaling and 4-wire terminating unit for message foreign exchange and DTWX service. Provides Fig. 1, 2, and 3, X option of SD-98138-02 as ED-99856-30 and ED-99857-30.

List 2—Apparatus and wiring required in addition to lists 1 and B for field modification of an E2S unit to an E3S unit, required for all applications involving station loops with total external resistance less than 650 ohms. Provides J option of SD-98138-02. (See Note A.)

Note

A. List 2 must be applied to any unit to which list B (K option) has been applied and vice versa.

J98613DA—A&M Only—E3C Signaling and 4-Wire Terminating Unit—Reverse Battery Supervision—Originating End

Equipment—J98613DA-()

List 1—Framework, apparatus, assembly, and wiring for one E3C signaling and 4-wire terminating unit for MF pulsing applications. Provides Fig. 1 and 3 of SD-99767-01 as ED-99570-30 and ED-99572-30.

J98613DB—A&M Only—E4C Signaling and 4-Wire Terminating Unit—Reverse Battery Supervision—Originating End

Equipment—J98613DB-()

List 1—Framework, apparatus, assembly, and wiring for one E4C signaling and 4-wire terminating unit for MF or DP applications. Provides Fig. 1 and 2 of SD-99767-01 as ED-99570-30 and ED-99571-30.

**J98613DD—A&M Only—Signaling Bay, 11 Feet
6 Inches High**

Equipment—J98613DD-()

List 1—Framework, apparatus, assembly, and wiring for a signaling bay arranged for a maximum of 90 E-type signaling unit positions. Provides local battery filter, fuse and local fuse alarm equipment, oscillator and transfer equipment, tone supply resistor equipment, 90 signaling unit positions, and a bay local cable providing all wiring for all lists. (See Note 5.09.)

List 2—Framework, apparatus, assembly, and wiring required in addition to list 1 to provide rack-mounted testing facilities for all E-type signaling units. (See Note 5.09.)

List 3—Framework, apparatus, assembly, and wiring required in addition to list 1 to provide rack-mounted monitoring facilities for all E-type signaling units. (See Note 5.09.)

List 4—Framework, apparatus, and assembly required in addition to list 1 to provide a power connector for both the portable testing unit and the portable monitoring unit for use in systems not requiring balanced milliwatt supply start leads. (See Note 5.09.)

List 5—Framework, apparatus, and assembly required in addition to list 1 to provide a power connector for both the portable testing unit and the portable monitoring unit for use in systems which require balanced milliwatt supply start leads. (See Note 5.09.)

List 7—Framework, apparatus, assembly, and wiring required in addition to list 1 to provide a 2000-Hz oscillator unit required for testing revertive-originating units when a 2000-Hz supply is not readily available elsewhere in the office. (See Note 5.09.)

J98613DE—A&M Only—E4B Signaling Unit

Equipment—J98613DE-()

List 1—Framework, apparatus, assembly, and wiring for one E4B signaling unit. Provides Fig. 1 of SD-98124-03.

List 2—Equipment and assembly required in addition to list 1 to meet the requirements of Section 800-610-157.

J98613DF—AT&T Co Std—M Lead Pulse Corrector

Equipment—J98613DF-()

List 1—Framework, apparatus, assembly, and wiring for one M lead pulse corrector shelf to mount a maximum of 20 pulse corrector PWB assemblies ED-99791-30 per Fig. 1 of SD-99766-01. (See Note A.)

Note

A. Pulse corrector PWB assembly ED-99791-30 shall be ordered separately, as required.

**J98613DK—A&M Only—Mounting Shelf for
Transmission Path Cut Unit**

Equipment—J98613DK-()

List 1—Framework, apparatus, assembly, and wiring to provide a mounting shelf for a maximum of ten transmission path cut units per ED-99574-30, G1 or ED-99583-30, G1 and SD-99778-01. (See Note A.)

Note

A. ED-99574-30, G1 and ED-99583-30, G1 PWB assemblies shall be ordered separately as required.

**J98613DL—A&M Only—E4D Signaling and
4-Wire Terminating Unit—Reverse
Battery Supervision—Terminating
End**

Equipment—J98613DL-()

List 1—Framework, apparatus, assembly, and wiring for one E4D signaling and 4-wire terminating unit with reverse make-busy feature. Provides Fig. 1, 2, and 3, Z option, of SD-99764-01 as ED-99579-30 and ED-99580-30.

J98613DM—A&M Only—Test Extender Unit

Equipment—J98613DM-()

List 1—Framework, apparatus, assembly, and wiring for one test extender unit for E-type units. Provides one Fig. 1 of SD-99384-01. (See Note A.)

Note

- A. A test cord per ED-99696-10, G1 is required when the test extender unit is used with ground start foreign exchange units and should be specified as required.

J98613DN—A&M Only—E5D Signaling and 4-Wire Terminating Unit—Reverse Battery Supervision—Terminating End

Equipment—J98613DN-()

- List 1**—Framework, apparatus, assembly, and wiring for one E5D signaling and 4-wire terminating unit without reverse make-busy feature. Provides Fig. 1 and 2, Y option, of SD-99764-01 as ED-99579-30 and ED-99580-30.

J98613DP—A&M Only—E1P Signaling Unit for Customer Lines—Office End

Equipment—J98613DP-()

- List 1**—Framework, apparatus, assembly, and wiring for one E1P signaling unit for customer lines—office end with A and B or E and M lead control. Provides one each of Fig. 1, 2, 3, and 4 of SD-99779-01.

J98613DR—A&M Only—E1R Signaling Unit for Customer Lines—Station End

Equipment—J98613DR-()

- List 1**—Framework, apparatus, assembly, and wiring for one E1R signaling unit for customer lines—station end with A and B or E and M lead control. Provides one each of Fig. 1, 2, 3, and 4 of SD-99780-01.

J98613DS—AT&TCo Std—E&M Lead Applique Unit for No. 4 ESS Applications

Equipment—J98613DS-()

- List 1**—Framework, apparatus, assembly, and wiring for one E&M lead applique unit to provide mounting arrangements for a maximum of 20 E&M lead applique printed wiring board assemblies. (See Note A.)

Note

- A. E&M lead applique printed wiring board assemblies per ED-2C026-30 shall be ordered separately as required.

Miscellaneous Equipment

J99278A—Decentralized Filter Unit for 24- or 48-Volt Filament or Talking Battery Supply, 15-Ampere Capacity—Arranged for Superstructure Mounting

Equipment—J99278A-()

- List 1**—Framework, equipment, assembly, and wiring for one 48-volt filament or talking battery supply filter unit per SD-97102-01, A option.

- List 2**—Framework, equipment, assembly, and wiring for one 24-volt filament or talk battery supply filter unit per SD-97102-01, B option.

5. GENERAL NOTES

- 5.01** A 603A tool is required for removing mercury relays from their sockets, as used in the E-type signaling units, and shall be provided when specified by the customer.

- 5.02** A 602D tool is required for removing J68647A and 227-type amplifiers from their sockets and shall be provided when specified by the customer.

- 5.03** A 725A tool to aid in disengaging the signaling units from the bay shall be ordered separately as required.

- 5.04** A 216B tool is suggested for use in tightening or loosening the signaling unit mounting screws.

- 5.05** The R-8210 screwdriver or a similarly sized one should be used to adjust the potentiometers mounted on the printed wiring board assembly.

- 5.06** P1P testing cord (equipped with a 347A plug) and P8E monitoring cord are required for testing and monitoring, respectively, the signaling units and should be ordered separately, as required.

5.07 E-type signaling units shall be shipped in approved containers only. These units shall never be shipped mounted in relay racks or cabinets.

5.08 The mercury relays which are part of the E-type signaling units are furnished with the units and are shipped already mounted in place. The mercury relays which are part of the oscillator and transfer units are furnished with the units but may be shipped separately.

5.09 Unit specifications which make reference to this note meet the requirements of Section 800-610-157 as manufactured.

5.10 Portable writing shelves and/or brackets per ED-90507-70 shall be specified as required by customer.

EQUIPMENT	RATING	DETAILS LAST SHOWN IN ISSUE	REPLACING EQUIPMENT
J98613AG	Mfr Disc.	5	—
J98613AH	Mfr Disc.	6	—
J98613AJ	A&M Only	14	—
J98613AK	Mfr Disc.	9	—
J98613AL	A&M Only	14	—
J98613AM	A&M Only	14	—
J98613AN	Mfr Disc.	13	—
J98613AP	A&M Only	14	—
J98613AP,L1	Mfr Disc.	7	—
L3			
J98613AP,L2	Mfr Disc.	9	—
J98613AP,L5	Mfr Disc.	9	—
L6			
J98613AR	Mfr Disc.	6	J98613AP
J98613AS	Mfr Disc.	6	J98613AP
J98613AT	Mfr Disc.	13	—
J98613AU	Mfr Disc.	6	—
J98613AW	Mfr Disc.	6	—
J98613AY	A&M Only	14	—
J98613AY,L1	Mfr Disc.	8	—
J98613AY,L2	Mfr Disc.	10	—
J98613AY,L3	Mfr Disc.	9	—
L4,L5,L6			
J98613AY,L14	Mfr Disc.	10	—
J98613BA	Mfr Disc.	6	J98613AY
J98613BB	Mfr Disc.	10	—
J98613BC	Mfr Disc.	6	—
J98613BD	Mfr Disc.	10	—
J98613BE	Mfr Disc.	10	—
J98613BF	Mfr Disc.	9	—
J98613BG	A&M Only	14	—
J98613BH	Mfr Disc.	9	—
J98613BJ	Mfr Disc.	13	—
J98613BK	Mfr Disc.	13	—
J98613BL	Mfr Disc.	10	J98613CL
J98613BM	Mfr Disc.	9	—
J98613BN	Mfr Disc.	13	—
J98613BP	Mfr Disc.	13	—
J98613BR	Mfr Disc.	13	—
J98613BS	Mfr Disc.	12	—
J98613BT	Mfr Disc.	13	—
J98613BU	A&M Only	14	—
J98613BW	A&M Only	14	—
(AT&TCo Spl for Intl Trk Supv)			
J98613BY	Mfr Disc.	10	—
J98613CA	Mfr Disc.	10	—
J98613CB	A&M Only	14	—
J98613CB,L3	Mfr Disc.	13	—

List of A&M Only and Mfr Disc. Equipment

EQUIPMENT	RATING	DETAILS LAST SHOWN IN ISSUE	REPLACING EQUIPMENT
J98613A	Mfr Disc.	10	—
J98613B	Mfr Disc.	13	—
J98613C	Mfr Disc.	2	—
J98613D	Mfr Disc.	10	—
J98613E	Mfr Disc.	11	—
J98613F	Mfr Disc.	11	J98613CJ
J98613G	Mfr Disc.	10	—
J98613H	Mfr Disc.	10	J98613CR
J98613J	Mfr Disc.	10	J98613CS
J98613K	Mfr Disc.	5	—
J98613L	Mfr Disc.	5	—
J98613M	Mfr Disc.	5	—
J98613N	Mfr Disc.	5	—
J98613P	Mfr Disc.	6	J98613AY
J98613R	Mfr Disc.	6	—
J98613S	Mfr Disc.	9	—
J98613T	Mfr Disc.	9	—
J98613U	Mfr Disc.	4	—
J98613W	Mfr Disc.	8	J98613BW
J98613Y	A&M Only	14	—
J98613Y,L1	Mfr Disc.	9	—
L2,L3			
J98613AA	Mfr Disc.	5	—
J98613AB	Mfr Disc.	7	J98613AY
J98613AC	Mfr Disc.	5	J98613AY
J98613AD	Mfr Disc.	4	—
J98613AE	Mfr Disc.	4	—
J98613AF	Mfr Disc.	4	—

EQUIPMENT	RATING	DETAILS		REPLACING EQUIPMENT
		LAST SHOWN IN ISSUE		
J98613CC	Mfr Disc.	13		—
J98613CD	Mfr Disc.	11		J98613DE
J98613CE	Mfr Disc.	13		—
J98613CF	Mfr Disc.	13		—
J98613CG	Mfr Disc.	10		—
J98613CH	Mfr Disc.	11		J98613DA, DB
J98613CJ	A&M Only	12		—
J98613CJ,L1	Mfr Disc.	11		—
J98613CK	Mfr Disc.	13		—
J98613CL	A&M Only	14		—
J98613CM	A&M Only	14		—
J98613CN	Mfr Disc.	10		—
J98613CP	Mfr Disc.	13		—
J98613CR	A&M Only	14		—
J98613CS	A&M Only	14		—
J98613CT	A&M Only	14		—
J98613CU	A&M Only	14		—
J98613CY	A&M Only	14		—
J98613DA	A&M Only	14		—
J98613DB	A&M Only	14		—
J98613DC	*	—		—
J98613DD	A&M Only	14		—
J98613DD,L6	Mfr Disc.	13		—
J98613DE	A&M Only	14		—
J98613DG	Mfr Disc.	13		—
J98613DH	Mfr Disc.	13		—
J98613DJ	Mfr Disc.	13		—
J98613DK	A&M Only	14		—
J98613DL	A&M Only	14		—
J98613DM	A&M Only	14		—
J98613DN	A&M Only	14		—
J98613DP	A&M Only	14		—
J98613DR	A&M Only	14		—

*Assigned but later abandoned.

The above equipment has been replaced as indicated. Where replacing equipment is not shown, refer to J99335 for superseding equipment in the type F signaling system. Where A&M Only items appear, the issue numbers shown are those of the issue in which the rating was first applied.

Bell Telephone Laboratories, Incorporated

Dept 4134

6. REASONS FOR REISSUE

- To rate the following codes Mfr Disc.: J98613B, AN, AT, BJ, BK, BN, BP, BR, BT, CC, CE, CF, CP, DG, DH, and DJ.
- To rate the following codes A&M Only: J98613Y, AJ, AL, AM, AP, AY, BU, BW, CB, CC, CF, CJ, CL, CM, CR, CS, CT, CU, CY, DA, DB, DD, DE, DK, DL, DM, DN, DP, and DR.
- To rate J98613BW A&M Only and AT&TCo Special for international trunk supervision.
- To add J98613DS, the E&M lead applique unit for No. 4 ESS applications, and to add ED-99661-30, the E&M lead applique PWB assembly.
- To remove all reference to 2400 Hz, which is no longer approved for Bell System use, except for J98613BW as used in international trunk supervision.
- To add reference to floor plan data sheets and signal transmission engineering considerations under 2. Supplementary Information.
- To add the test extender cord under 3. Drawings.
- To make minor corrections in Part 4 under J98613Y, List 4, J98613AY, Lists 7 and 13, and in the title of J98613BW.
- To include the information which was announced in the DLs as appearing in Issue 13.
- To rate ED-99574-30 and ED-99583-30 A&M Only.
- To reinstate J98613BG, rated A&M Only.
- To reinstate J98613CK to provide a field modification kit to convert an E2S to an E3S unit.