

DIGITAL TRANSMISSION SYSTEMS
D4 CHANNEL BANK
SIGNALING COMPATIBILITY

1. GENERAL

1.01 The primary purpose of this section is to furnish information covering the signaling capabilities and limitations of the D4 channel bank of the T-Carrier System and to furnish signaling

compatibility information for this channel bank with switching circuits.

1.02 Whenever this section is reissued, the reason for reissue will be stated in this paragraph.

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IN22
COMMON SYSTEMS
DIGITAL TRANSMISSION SYSTEMS
D4 CHANNEL BANK
SIGNALING COMPATIBILITY
WITH SWITCHING CIRCUITS

BELL TELEPHONE LABORATORIES,
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GENERAL INFORMATION

1. DESCRIPTION OF THIS DRAWING

1.1 General

1.1.1 This document is intended to cover the signaling capabilities and limitations of the D4 channel bank of the T-carrier system and to furnish signaling compatibility information for this channel bank with switching circuits.

1.1.2 The issue 1 drawing, covers the first of the new family of D4 channel units, namely: dial pulse, multifrequency, E&M, foreign exchange, tandem, pulse link repeater and transmission only channel units.

1.1.3 This document was issued primarily to assure signaling compatibility between switching systems and the D4 bank of T-carrier. A laboratory test and field trial program was undertaken to produce and verify the signaling compatibility information herein provided. Although a similar program was not undertaken to verify transmission, it is believed that all circuits and circuit arrangements herein described as compatible will meet any applicable transmission requirements. Channel unit options needed for proper transmission performance of the channel units are covered in the D4 channel bank application schematic SD-3C304-01.

1.1.4 Any questions on signaling or transmission compatibility for circuits connected to these channel banks should be brought to the attention of the local Bell Laboratories Field Representative.

1.1.5 In the interest of economy, D4 type banks have been designed with limited DC signaling capabilities. These signaling design capabilities are described in Section B of this drawing. Section B also includes general compatibility information and working limits for the various channel units.

1.1.6 Section C provides more detailed signaling compatibility information for certain switching circuits, particularly dial pulsing and E&M lead circuits.

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1.1.7 Section D of this drawing lists the compatibility of switching circuits with D4 channel units according to switching circuit number. Section D lists each circuit as compatible (Yes or applicable channel unit) or not compatible (None) in the CHANNEL UNITS column. Most circuits that are listed as compatible show the channel unit or units with which they are normally compatible. Some circuits, such as senders or registers can be compatible with a wide variety of channel units so a (Yes) is shown and the choice of a particular channel unit depends on the type of signaling used. With some circuits certain features or options are needed to make the circuit compatibility with T-carrier. In these cases, the conditions necessary for compatibility are given in the REMARKS column. For those circuits where a (None) is shown the reasons for the incompatibility are given in the REMARKS column. Where explanatory material about a circuit is given in Section B or C this will be referred to in the REMARKS column. For E&M lead channel units the type of interface is given in the REMARKS column (i.e., Type I, Type II or Type III). If no interface type is shown for an E&M lead channel unit it is automatically assumed to be a Type I interface.

1.1.8 When a switching circuit is listed in section D, its compatibility has been determined on the basis of normal application of the channel units at both ends. Any known problems encountered under these conditions are listed and described in sections B and C and are referred to in the REMARKS column in Section D. The use of the channel units in any other arrangement particularly to use the carrier for signaling conversion (e.g., loop to E and M lead) must be carefully studied to ascertain that no new problems are created.

1.1.9 If an existing switching circuit is not listed in Section D, the reason may be that the circuit does not normally connect to a carrier system or that no request has been received to determine its compatibility with the D4 bank.

1.1.10 When a trunk circuit is connected to metallic facilities the proper source of information for compatibility and options is the trunk circuit schematic

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drawing. If the trunk circuit is connected to the D4 Bank carrier facilities, then additional information may be needed for proper signaling compatibility. This additional information will be found in the sections of this drawing (SD-99421-11). When this information apparently conflicts with the information given on the trunk circuit schematic drawing, the information given in this Signaling Compatibility drawing supersedes the trunk circuit drawing information.

2. DESIGN LIMITATIONS OF THE D4 BANK

2.1 General

The D4 channel bank cannot function with the following signaling means:

- (A) PCI
- (B) Revertive pulsing
- (C) 20-cycle ringing (except FX units)
- (D) Reverse battery forward
- (E) Simplex (except 4W DX units)

2.2 Satellite Transmission Facilities

Use of a satellite link in the transmission facility requires increased trunk guard time and anti-pumping features in the trunk circuit because of the long propagation time in the satellite link. Trunk circuit options providing these features must be used when there is a satellite link in the transmission facility.

2.3 End-to-End Compatibility

It should be noted that although two trunk circuits may be individually compatible with carrier channel units, the trunk circuits may not be compatible with each other. When the carrier system is used to interconnect two trunk circuits which would not have been compatible over metallic

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facilities care must be taken to check that each signal furnished by the trunk circuit to one end of the carrier system results in the required signal being received by the distant trunk circuit and in the proper sequence. Furthermore any false signals generated by either trunk circuit must be properly ignored by the other. In particular use of the carrier system as a converter to interconnect loop trunk circuits to E and M lead trunk circuits requires that these checks be made.

2.4 Compatibility With D1, D2, and D3 Channel Banks

The D4 channel bank is compatible with all D1D, D2, or D3 type channel banks at the far end of the PCM system. The D4 coding format is also compatible with the digroup terminal in 4 ESS. The D4 bank is not compatible with D1A and D1B banks since they use a different format.

2.5 Transmission

Since the D4 bank is basically a 4-wire system with separate transmit and receive paths it accommodates itself directly to 4-wire transmission. If 2-wire transmission is required, the voice frequency signals are first split into two transmission directions by a transformer hybrid circuit in the 2-wire channel unit. Trunk circuits arranged to transform a 2-wire circuit to a 4-wire circuit by means of hybrid repeat coils should not connect to T-carrier channel units which also have 2- to 4-wire hybrid transformers. The multiple repeat coils result in poor return loss. The following trunk circuit Schematic Drawings are in this category, 68242-01, 68325-01, 68326-01, 68480-01, 68961-01, and 68962-01.

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CHANNEL UNITS

1. DIAL PULSE ORIGINATING CHANNEL UNIT (DPO)
SD-3C322-01

1.1 Design Intent

1.1.1 This circuit provides the interface between a dial pulse originating trunk circuit on the office side and the D4 bank common circuits on the line side. For signaling and supervision in the transmit direction, it converts high-low loop resistance conditions from the originating trunk circuit into a time slot signal for the D4 common circuits. For signaling and supervision in the receive direction, it converts a time slot signal from the D4 common circuits into reverse battery conditions toward the originating trunk circuit.

1.1.2 The dial pulse originating channel unit is generally applicable to the following one-way loop dial pulsing trunks.

- (a) open and closed pulsing with open and closed or high-low holding and reverse battery supervision.
- (b) battery and ground pulsing with open and closed or high-low holding and reverse battery supervision.
- (c) battery and ground pulsing with battery and ground holding and reverse battery supervision.

1.1.3 The dial pulsing channel units are not generally applicable to trunks using the following supervisory arrangements.

- (a) wet-dry
- (b) low-high

1.1.4 These channel units are designed to work with trunk circuits that can provide battery on the ring conductor for on-hook polarity. These polarity requirements are generally met by the major systems. In those few cases where the trunk circuit cannot furnish the proper polarity by means of standard wiring options, it will be necessary to provide a tip and ring reversal on a job basis.

CHANNEL UNITS

1.1.5 The DPO channel unit will be used in SXS offices where its ability to split the "S" lead from an outgoing trunk circuit and ground the switch side of the "S" lead during a carrier failure is needed. All common control and ESS offices do not require such control of the sleeve lead and should use the DPMO channel unit instead of the DPO unit.

1.2 Actual Capability

1.2.1 Troubles with false seizures and trunk pumping occur on disconnect when the DPO units are used with outgoing trunk circuits having an idle circuit termination (ICT) with 2 mF capacitance. To eliminate these troubles it is necessary to reduce the ICT capacitance to .5 mF or use the DPMO channel unit in the MF mode.

1.2.2 DPO channel units used in delay-dial trunks should preferably be colocated with the outgoing trunk circuit (no VFX). In delay dial trunks the idle circuit termination (ICT) in the outgoing trunk circuit should not exceed 0.5 mF. For those cases where a VFX is needed (up to 600 ohms) the outgoing trunk should not have an ICT. If it has one it may have to be removed. T-carrier provides its own ICT so transmission stability will not be a problem.

1.3 Working Limits for DPO Channel Unit
SD-3C322-01

OFFICE BATTERY	43/53V
MAX LONGITUDINAL AC*	60V RMS
<u>MAX EXTERNAL CKT RES</u>	
LOOP SUPV	2500 OHMS
B/G SUPV	5000 OHMS

*Longitudinal ac voltage is measured by disconnecting T and R of cable from channel unit and connecting T and R together to ground through 500 ohms resistance. Ac voltage is measured across the 500 ohm resistance.

CHANNEL UNITS

MAXIMUM VOICE FREQUENCY EXTENSION FOR DIAL PULSING

OFFICE BATTERY	48/52V
RESISTANCE	600 OHMS
LOOP LENGTH	7 MILES
MIN LEAK RES	30,000 OHMS

1.3.1 The 600 ohm limitation on the originating end is to prevent trunk pumping on disconnect when the calling customer disconnects first. If trunk pumping is not a problem, VFX's of up to 1500 ohms would be possible before dial pulse distortion would become a limiting factor.

2. DIAL PULSE/MULTIFREQUENCY ORIGINATING CHANNEL UNIT
(DPMO) SD-3C333-01

2.1 Design Intent

2.1.1 This circuit provides optional interfaces between a dial pulse or MF originating trunk circuit on the office side and the D4 bank common circuits on the line side. For signaling and supervision in the transmit direction, it converts high-low loop resistance conditions from the originating trunk circuit into a time slot signal for the D4 common circuits. For signaling and supervision in the receive direction, it converts a time slot signal from the D4 common circuits into reverse battery conditions toward the originating trunk circuit.

2.1.2 The dial pulse multifrequency originating channel unit when used in the MF mode, contains transient protection permitting its use with an E&M channel unit at the terminating end. It contains fewer components than the DPO channel unit and can replace it as a dial pulse unit except for use with step-by-step outgoing trunk circuits which require a split "S" lead.

CHANNEL UNITS

2.2 Actual Capability

2.2.1 When the DPMO channel unit is used in the DP mode all the cautions and restrictions pertaining to the DPO channel unit given in Section B1. also apply to the DPMO channel unit.

2.2.2 The DPMO channel unit in the MF mode should be used for providing supervision on multifrequency pulsing trunks not using signaling means given in Section A 2.1.

2.3 Working Limits for DPMO Channel Unit
SD-3C333-01

OFFICE BATTERY	43/53V
MAX. LONGITUDINAL AC*	60V RMS
<u>MAX EXTERNAL CKT RES</u>	
LOOP SUPV	2500 OHMS
B/G SUPV	5000 OHMS

*Longitudinal ac voltage is measured by disconnecting T and R of cable from channel unit and connecting T and R together to ground through 500 ohms resistance. AC voltage is measured across the 500 ohms resistance.

MAXIMUM VOICE FREQUENCY EXTENSION FOR DIAL PULSING

OFFICE BATTERY	48/52V
RESISTANCE	600 OHMS
LOOP LENGTH	7 MILES
MIN LEAK RES	30,000 OHMS

2.3.1 The 600 ohm limitation on the originating end is to prevent trunk pumping on disconnect when the calling customer disconnects first. If trunk pumping is not a problem, VFX's of up to 1500 ohms would be possible before dial pulse distortion would become a limiting factor.

CHANNEL UNITS

3. SLEEVE-GROUND DIAL PULSE ORIGINATING CHANNEL UNIT
(SDPO), SD-3C330-01

3.1 Design Intent

The purpose of this circuit is to provide an interface, between a step-by-step selector or a rotary-out-trunk switch (without the need for an outgoing repeater on the office side) and the D4 bank common circuits on the line side. It provides a ground on the sleeve lead when an incoming closure is detected. Also, it converts loop closure from the trunk circuit into signaling pulses for the D4 common circuits. For signaling and supervision in the receive direction, it converts a signal from the D4 common circuits into reverse battery conditions toward the trunk circuit.

3.1.1 The sleeve-ground dial pulse originating channel unit is intended for use only with SXS where it can be used in lieu of an outgoing repeater and 2-wire DPO channel unit combination. The features of this unit permit its use in place of SXS repeater SD-31779-01 and other SXS repeaters having the same features as SD-31779-01.

3.2 Actual Capability

3.2.1 This unit cannot be used with ground-start arrangements such as are provided by SD-30855-01.

3.2.2 Where sleeve-ground dial pulse channel units are used in lieu of outgoing repeaters in SXS offices and therefore furnish the sleeve holding ground, the sleeve lead resistance, and potential requirements specified in SXS line finder circuits must be met. If these limits cannot be met it will be necessary to use a sleeve repeating trunk circuit such as SD-31421-01.

3.2.3 The D4 bank unit SD-3C330-01 has some pulsing and supervisory ranges greater than those of SD-31779-01. Nominal release time for this unit is the same as that of SD-31779-01 but variations from unit to unit are smaller than with SD-31779-01.

CHANNEL UNITS

3.3 Working Limits for SDPO Channel Unit
SD-3C330-01

OFFICE BATTERY 43/53V

MAX.LONGITUDINAL AC* 60V RMS

*Longitudinal ac voltage is measured by disconnecting T and R of cable from channel unit and connecting T and R together to ground through 500 ohms resistance. Ac voltage is measured across the 500 ohm resistance.

MAXIMUM EXTERNAL CIRCUIT RESISTANCE

LOOP SUPERVISION 2500 OHMS

B/G SUPERVISION 5000 OHMS

MAXIMUM CONDUCTOR LOOP WITH 48/52V

CUSTOMER LOOP PULSING 1500 OHMS

TRUNK B/G PULSING 2000 OHMS

3.3.1 The sleeve lead resistance and potential requirements specified in the circuit drawing notes for the SXS linefinders in the particular installation must be met.

4. DIAL PULSE TERMINATING CHANNEL UNIT (DPT)
SD-3C323-01

4.1 Design Intent

4.1.1 This circuit provides the interface between a dial pulse or multifrequency terminating trunk circuit on the office side and the D4 bank common circuits on the line side. For signaling and supervision in the transmit direction, it converts a battery reversal from the terminating trunk circuit into a time slot signal for the D4 common circuits. For signaling and supervision in the receive direction, it converts a time slot signal from the D4 common circuits into a loop closure toward the terminating trunk circuit.

CHANNEL UNITS

4.1.2 The dial pulse terminating channel unit is generally applicable to one-way loop dial pulsing trunks as well as one-way multifrequency trunks.

4.2 Actual Capability

4.2.1 Although T-carrier is generally incompatible with wet-dry signaling, it can be used between outgoing facilities having wet-dry supervision and incoming facilities having reverse battery supervision with somewhat unorthodox use of T-carrier channel units. For this case a dial pulse terminating unit is used at each end.

4.2.2 T-carrier can also be used with some facilities using high-low reverse battery supervision, where reverse battery is sent forward and the far end returns high-low supervision. For this use it is necessary to reverse the DP units, using the terminating unit at the originating end and using the originating unit at the terminating end.

4.2.3 It should be noted that where a dial pulse terminating unit is used at the originating end, the voice frequency path will not be closed until off-hook (answer) supervision is received from the terminating end.

4.3 Working Limits for DPT Channel Unit
SD-3C323-01

OFFICE BATTERY	43/53V
MAX. LONGITUDINAL AC*	120V RMS
<u>MAXIMUM EXTERNAL CKT RESISTANCE</u>	
SUPERVISION	3000 OHMS

*Longitudinal ac voltage is measured at the tip and ring terminal of the channel unit to ground with the tip and ring leads at the distant end grounded through low impedances.

CHANNEL UNITS

MAXIMUM VOICE FREQUENCY EXTENSION FOR DIAL PULSING
WHEN PULSING DIRECTLY INTO SELECTORS AND CONNECTORS

OFFICE BATTERY	48/52V
RESISTANCE	600 OHMS
LOOP LENGTH	7 MILES
MIN LEAK RES	30,000 OHMS

- 4.3.1 The 600 ohm limitation on the terminating end is for dial pulse distortion.
- 4.3.2 The maximum voice frequency extension at the terminating end when working into a pulse correcting repeater depends on the pulsing capability of the repeater and the make-up of the intervening transmission facility.

5. E&M LEAD CHANNEL UNITS,
4-WIRE SD-3C324-01 AND 2-WIRE SD-3C327-01

5.1 Design Intent

- 5.1.1 These circuits provide the interface between E and M lead trunk circuits on the office side and D4 bank common circuits on the line side. For signaling and supervision in the transmit direction, they convert battery and ground conditions on the M lead from the trunk circuit into signaling pulses for the D4 common circuits. For signaling and supervision in the receive direction, they convert signaling pulses from the D4 common circuits into open and ground conditions on the E lead to the trunk circuits. Proper interface with Type I, II, or III E&M signaling leads is provided by applying appropriate options.
- 5.1.2 Full duplex two-way dialing trunks may be obtained with two-way trunk circuits and E and M lead signaling. The channel units with E and M lead signaling are generally capable of working with all E and M lead trunk circuits. The 4-wire E&M lead channel unit has built-in amplifiers which provide for -16 and +7 dB levels and are suitable for intertoll use. The two-wire E&M lead channel unit has a built-in terminating set but has no amplifiers and no provision for a precision net. They have a built-in

CHANNEL UNITS

capacitor with optional connections to the A and B leads. The capacitor should be used only if no capacitor is provided in the associated trunk circuit.

5.2 Actual Capability

5.2.1 The E&M lead channel units are capable of working with either the originating or terminating dial pulse channel units in such a way as to effectively make a T-carrier channel an E and M to loop, or loop to E and M converter. The DPMO channel unit has been recommended for all applications between common control central offices, where the need for loop-to-E&M conversions exist, because of its superior transient suppression capabilities in the MF mode. However, should the need for loop-to-E&M conversion arise in the DPMO's dial pulse mode or with the DPO channel unit from a SXS office, the cautions recommended in the D3 compatibility drawing, SD-99421-10, should be observed.

5.2.2 T-carrier can be used as an E and M lead to loop converter on one-way toll connecting trunks from Crossbar No. 4A to either Crossbar No. 1 or Crossbar No. 5 provided the incoming trunk circuit is arranged for wink-start and the 4A trunk circuit is one of the following: SD-68513-01, SD-68514-01, SD-68595-01, SD-68596-01. Wink-start also is preferred for economic reasons when using these trunk circuits to ESS No. 1 because delay dial circuits require twice the space and cost 50 percent more than wink start circuits.

5.2.3 T-carrier can be used as an E and M lead to loop converter on non-coin, operator assistance or special toll trunks such as Crossbar No. 5 Outgoing Trunk Circuit SD-27550-01 connected to TSPS Incoming Trunk Circuit SD-1B003-01 if the incoming register is wired to send a wink (timed reverse battery) for the ringback signal.

5.2.4 A 2-way trunk glare detection feature has been added to certain No. 5 Crossbar trunks to reduce the possibility of glare on trunks in which the transit time for signals has been markedly increased by the use of such signaling systems as E and F type signaling. As the signal transit time for T-carrier is low this feature is not needed and cannot be used with T-carrier.

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5.2.5 The channel units with E and M lead signaling together with standard E and M lead converters already available may be used to provide many signaling arrangements. These applications may include foreign exchange lines, ringdown trunks, etc.

5.2.6 The channel units with E and M lead signaling may also be used with appropriate trunk circuits to provide trunks to assistance operators where it is necessary to handle one or more of the following signals.

- (a) Ring forward (rering)
- (b) Controlled ringing start signal
- (c) Forward flashing
- (d) Flashing supervisory signals
- (e) Coin collect and return signals

5.2.7 The T-carrier E&M lead channel units can be used where only their transmission capability is required. In this case either no signaling is required or it is provided by the E or F type SF units operating inband.

5.3 Interconnection of E and M Leads

The present D4 bank E&M lead channel units use the three lead connections known as Type I, Type II and Type III interfaces. They can connect directly to E&M lead trunk circuits which are also designed for Type I, Type II and Type III interfaces.

5.4 Definition of Interface Types

5.4.1 Type I Interface is the original two-wire E and M lead interface. Signaling from trunk circuit to signaling circuit is by means of ground and battery signals (on-hook and off-hook, respectively) over the M lead. Signaling from signaling circuit to trunk circuit is by means of open and ground signals (on-hook and off-hook, respectively) over the E lead. Type I interface is indicated by the fact that one conductor is used for the M lead function.

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5.4.2 Type II Interface is a looped four-wire E and M lead interface arrangement. Signaling in either direction is by means of an open for on-hook and a closure for off-hook. The M and SB leads are used for signaling from trunk circuit to signaling circuit. The E and SG leads are used for signaling from signaling circuit to trunk circuit. Type II interface is indicated by the fact that two conductors are used for the M lead function.

5.4.3 Type III Interface is a compromise partially looped four-wire E and M lead interface arrangement. Signaling over the M lead is similar to that of Type I interface with the distinction being that battery and ground for the signaling are provided to the trunk circuit by the signaling circuit over leads SB and SG, respectively. All aspects and requirements of signaling over the E lead are identical to those of Type I interface. Type III interface is indicated by the fact that three conductors are used for the M lead function.

5.5 Selection of the Signaling Circuit Interface Type
By Means of the [EG] Option

When E&M lead trunk circuits having Type I or Type III signaling interface connect to the D4 E&M lead channel unit, the [EG] option on the channel unit must be connected. With Type II interface, the [EG] option on the channel unit should be disconnected.

CHANNEL UNITS

5.6 Working Limits for E&M Lead Channel Units
SD-3C324-01 and SD-3C327-01

MAXIMUM M-LEAD RESISTANCE FOR TYPE I, II, OR III
INTERFACE

M-LEAD	250 OHMS
SB-LEAD	250 OHMS
SG-LEAD	250 OHMS
OFFICE BATTERY	43/53V
EARTH POTENTIAL	+ or - 5 VOLTS

The allowable E-lead resistance is controlled by the switching circuit.

6. FOREIGN-EXCHANGE STATION-END CHANNEL UNITS (FXS)
4-WIRE SD-3C317-01 AND 2-WIRE SD-3C325-01

6.1 Design Intent

6.1.1 The foreign-exchange station-end (FXS) channel units provide the interface between the station end of special services (foreign exchange lines, off-premises extension or PBX-CO trunks, ground- or loop-start) and the D4 bank common circuits. For signaling and supervision in the transmit direction, these units convert loop closure and ring ground states of the trunk circuit (or station) into signaling logic states for the D4 common circuits. For signaling and supervision in the receive direction, these units convert signaling logic states from the D4 common circuits into tip ground and repeated ringing toward the trunk circuit or station.

6.1.2 These units provide 250/250 ohm talking battery to the loop or trunk (battery on ring, ground on tip).

CHANNEL UNITS

6.1.3 The D4 foreign exchange channel units are capable of working with 2-wire and 4-wire facilities operating on either a ground-start or a loop-start basis. Ringing is detected at the office end and signals are sent to the customer end where local ringing is applied to the line. Ring-trip can take place during either ringing or silent intervals. These units can be used with some one-way ring-down trunk circuits.

6.2 Actual Capability

The D4 FXS channel units have a few shortcomings. These are:

- (a) The units cannot transmit reverse battery, thus being incompatible with some circuits using this feature for toll diversion.
- (b) The units cannot ring into an off-hook at the customer end.
- (c) The units are not compatible with D1A FXO units over tandem facilities. To avoid non-compatible combinations for D1 and D4 tandem channel units used for FX service, follow the guidelines of the figure below.

Allowable Combinations

D1A FXO	-----	D1A TDM	-----	D1D, D3, D4 TDM	-----	D1D FXS
D1A FXO	-----	D1A TDM	-----	D1A TDM	-----	D1A FXS
D1A FXO	-----	D1A TDM	-----	D1B TDM	-----	D1B FXS

Not Allowable Combinations

D1A FXO	-----	D1A TDM	-----	D1D, D3, D4 TDM	-----	D3, D4 FXS
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The general rule is that when tandem T-carrier links are used for FX service and the FXO end is a D1A

CHANNEL UNITS

channel bank, then the FXS end must be D1A, D1B, or D1D - it cannot be D3 or D4. It should be noted that if the FXS-end channel bank is D1B or D1D, the FXS unit must have D1A options selected and will not provide forward disconnect.

6.3 Working Limits for FX Station-End Channel Units
SD-3C317-01 and SD-3C325-01

MAX CONDUCTOR LOOP AT 43/53V

SUPERVISION		2000 OHMS
RINGING		2000 OHMS
TRIPPING		2000 OHMS
PULSING AT 48/52V	12 PPS	1500 OHMS
MIN LEAK RESISTANCE		15,000 OHMS
MAX NUMBER OF RINGERS		FIVE

GROUND START LIMITS AT 43/53V

MAX EXT CKT RES TO GROUND

<u>EARTH POT.</u>	<u>RESISTANCE</u>
-5 TO +20 VOLTS	1500 OHMS

6.3.1 The maximum longitudinal AC induction the FXS channel unit can stand is 60v rms in the loop signaling mode and the ground start mode. This is measured with a high impedance rms voltmeter to ground with the far end T&R's both grounded.

6.3.2 One E6 repeater may be used at any point in the customer-end loop or the line-end loop or both. Use of a repeater will reduce the conductor loop limits by 300 ohms.

CHANNEL UNITS

7. FOREIGN-EXCHANGE OFFICE-END CHANNEL UNITS (FXO)
4-WIRE SD-3C318-01 AND 2-WIRE SD-3C326-01

7.1 Design Intent

The foreign-exchange office-end (FXO) channel units provide the interface between the office end of special service facilities (foreign exchange lines, off-premises extension or PBX-CO trunks, ground- or loop-start) and the D4 bank common circuits. For signaling and supervision in the transmit direction, these units convert tip ground states and ringing states of the office circuits into signaling logic states for the D4 common circuits. For signaling and supervision in the receive direction, these units convert signaling logic states from the D4 common circuits into ring ground and loop closure toward the office circuits.

7.1.2 The D4 foreign-exchange channel units are capable of working with 2-wire and 4-wire facilities operating on either a ground-start or loop-start basis. Ringing is detected at the office end and signals are sent to the customer end where local ringing is applied to the line. Ring-trip can take place during either the ringing or silent interval.

7.2 Actual Capability

7.2.1 The early production FXO units are not compatible with dial long line circuits in the central office regardless of whether the dial long line circuit has, or does not have, a pulse corrector. The reason is the false closure of the LC relay contacts of the FXO unit generated when the RG relay of the FXS unit transfers from the ringing to the silent interval of the ringing cycle. This closure makes operating with dial long line circuits, particularly those provided with pulse correctors, subject to false tripping of the central office ringing. The new (after IIQ77) cost reduced FXO units no longer have this restriction.

CHANNEL UNITS

7.3 Working Limits for FX Office-End Channel Units
SD-3C318-01 and SD-3C326-01

MAX CONDUCTOR LOOP

RINGING	84V AC	1800 OHMS*
PULSING AT 48/52V	12 PPS	1300 OHMS**

*LIMITED BY CO TRIPPING RANGE

**PULSING LIMITED BY CO CAPABILITY

GROUND START LIMITS AT 43/53V

MAX EXT CKT RES TO GROUND

EARTH POT.

RESISTANCE

-5 to +20 VOLTS

850 OHMS

7.3.1 The maximum longitudinal AC induction the FXO channel unit can stand is 120 v rms in the loop signaling mode and 60v rms in the ground start mode. This is measured with a high impedance rms voltmeter to ground with the far end T&R's both grounded.

7.3.2 One E6 repeater may be used at any point in the subscriber end loop or the line end loop or both. Use of a repeater will reduce the conductor loop limits by 300 ohms.

8. 4-WIRE, 600 OHM, TANDEM CHANNEL UNIT (TDM)
SD-3C321-01

8.1 Design Intent

The D4 4-Wire, 600 Ohm Tandem channel unit is designed to enable two T-carrier systems to operate in a tandem fashion with either two or three-state signaling. Connection of two carrier systems in a tandem fashion requires two tandem units. The D4 tandem unit and the D3 and D1 tandem units have identical equipment interfaces, hence a D4-D4 connection requiring two D4 tandem units, or a D4-D3 or a D4-D1 connection requiring one D4 and one D3 or D1 tandem

CHANNEL UNITS

unit can be effected. Tandem unit signaling is compatible with existing carrier group alarm conditioning circuits.

8.2 Actual Capability

The tandem unit provides a 4-wire transmission path and also incorporates primary and secondary channel signaling. The primary signaling channel uses the E and EX leads; the E lead sending open/ground, the EX lead detecting open/ground. The secondary signaling channel uses E1 and EX1 leads which are simplexed onto the T and R, and T1 and R1 leads respectively, the E1 lead sending open/ground and the EX1 lead detecting open/ground.

An open-ground signaling format was chosen so that the present D1 carrier group alarm (CGA) circuit could be used to condition the signaling leads in the event of a carrier failure, including a D1-D4 tandem connection. The D1 CGA has several failure options, all of which require open-ground signaling. The secondary channel signaling information which is transmitted over the voice frequency (VF) transmission path travels in the opposite direction from the associated VF information because the D1 CGA opens only the T and R transmission leads to a unit, and the alarm information is needed in the reverse direction to allow proper CGA processing in the D1 bank.

Compatibility with existing channel units require that the primary signaling channel have the capability of representing the idle state to the channel bank equipment as either a logic "1" or "0" from an E lead consisting of either open or ground. Conversely, an E lead must be able to output an open or a ground from a channel bank logic "1" or "0". Screw options are provided to furnish either one of two modes, E or E'. The E mode implies that an open is equivalent to $RDA = 1$, and a ground equivalent to $RDA = 0$. The E' mode implies the inverse of the E mode. The secondary signaling channel is restricted to the E' mode.

CHANNEL UNITS

8.3 Working Limits for 4-Wire, 600 Ohm TDM CHANNEL UNIT
SD-3C321-01

MAX CONDUCTOR LOOP RESISTANCE VIA THE SIMPLEXES	5K OHMS
MIN LEAK RESISTANCE	30K OHMS

9. PULSE LINK REPEATER CHANNEL UNIT (PLR)
SD-3C325-01

9.1 Design Intent

The D4 4-Wire 600 ohm Pulse Link Repeater channel unit when used in conjunction with a 4-wire 600-ohm E&M lead unit in another carrier system provides a straightforward means of forming a tandem connection of the two systems with two-state signaling. The PLR channel unit can be directly connected to any E&M lead signaling device which has a 4-wire, 600 ohm transmission path with the standard -16, +7 dB level points (TLPs) at the voice frequency (VF) metallic interface.

9.2 Actual Capability

For a Type I interface, these circuits interface the D4 bank common equipment to the VF and signaling information present at the metallic interface, which is composed of the T, R, T1, R1 and E&M leads. These six leads terminate in an E&M signaling unit in another carrier system. Additionally, looped signaling capability has been included in the PLR which allows the unit to be used with a Type II signaling interface. In the looped signaling mode, the SB and SG leads are included in the wiring to the companion E&M signaling unit to provide the required signaling lead return paths.

9.3 Working Limits for 4-Wire 600 Ohm PLR Channel Unit
SD-3C325-01

MAX CONDUCTOR LOOP RESISTANCE VIA THE SIMPLEXES	1000 OHMS
MIN LEAK RESISTANCE	30K OHMS

CHANNEL UNITS

10. TRANSMISSION ONLY CHANNEL UNITS

10.1 2-Wire 900 Ohm Transmission Only Channel Unit (2WTO)

The D4 2-Wire 900 ohm Transmission Only channel unit will provide the interface between a D4 channel bank and a two wire voice frequency extension on private lines with no signaling. It provides transmission level adjustment and impedance matching between a metallic facility and the D4 common equipment.

10.2 4-Wire 600 Ohm Transmission Only Channel Unit (4WTO)

The D4 4-Wire 600 Ohm Transmission Only Channel Unit will provide the interface between a D4 channel bank and a four wire voice frequency extension on private lines with no signaling. This unit can also be used on tandem carrier circuits utilizing end-to-end SF signaling. It provides transmission level adjustment and impedance matching between an F-signaling unit or a metallic facility and the D4 common equipment.

10.3 4-Wire Equalized Transmission Only Channel Unit
(4W ETO)

The D4 4-Wire Equalized Transmission Only Channel Unit will provide a 4-wire ETO capability for the T-carrier system. The principle use will be as a digital/analog carrier interface, and on tandem digital carrier circuits both utilizing end-to-end SF signaling and on private lines with no signaling. It incorporates a modified 4182C network which provides high and low frequency equalization to the transmit portion of the channel unit.

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SWITCHING CIRCUIT COMPATIBILITY

1. DIAL PULSE CHANNEL UNITS

1.1 Dial Pulse Channel Units With Senders and Registers

The D4 channel bank is generally compatible with senders and registers within the limitations described below.

1.2 False Operation of the Sender (TG) Relay

1.2.1 The TG test, made by senders includes a test of the loop for continuity to battery and ground at the terminating end. The TG test is nullified by the T-carrier because the terminating channel unit cannot recognize an open tip or ring condition and consequently normal battery and ground are seen at the originating end.

1.2.2 On calls from Crossbar No. 5 or Crossbar Tandem to Step-by-Step, the sender upon encountering a trunk pair open at the terminating end, will not detect the open and will proceed to pulse into the open trunk. At the end of pulsing, the sender will disconnect itself and return the trunk conductors to the outgoing trunk circuit. The customer will be left high and dry until he hangs up. These failures will continue until the open condition is detected by trunk test maintenance routines or by service observing. On calls from Crossbar No. 5 or Crossbar Tandem to Crossbar senders or registers, the failure of the TG relay to detect an open trunk pair is not as serious because the sender cannot proceed to pulse outward until the change from an off-hook (reverse battery) to an on-hook from the terminating end is detected by the (OF) relay. Therefore, the sender will time out and score the failure on a register, or if the time-out feature is canceled, the sender will become stuck until the trouble is found and cleared.

1.3 Twenty PPS Dialing

Twenty PPS dialing may be used when outgoing to incoming senders or registers.

1.4 Dial Pulse Channel Units With SXS Repeaters

In repeaters where the (A) relay is tuned to meet pulse repeating requirements with simulated trunk conductors, (Figure 1 of BSP 040-012-711), the originating channel unit

SWITCHING CIRCUIT COMPATIBILITY

should be considered to be the distant office relay. The channel unit should be removed when testing or adjusting the outgoing repeater for its pulse repeating requirements. Detailed information on the operation of T-carrier with the more common SXS repeaters is given below. Less common SXS repeaters in general have pulsing and supervisory features similar to one of the more common repeaters covered below and should be treated accordingly.

1.5 Step-by-Step Outgoing Repeater SD-31779-01 - Options

1.5.1 Note: On new installations where the features of SD-31779-01 are adequate, the sleeve ground dial pulse originating channel unit SD-3C330-01 should be used in place of the carrier channel unit -SXS repeater combination.

1.5.2 When working with T-carrier and regardless of the terminating switching circuit, SD-31779-01 should be wired with Q and V options and the (A) relay of SD-31779-01 should be tuned to 48 to 78 percent break measured on the contacts of the test set (A) relay. These options provide 550/550 ohm battery - ground pulsing with no compensating resistance in the supervisory loop. The options that provide 150/150 ohm battery-ground pulsing are satisfactory from a pulsing standpoint but may increase impulse noise.

1.6 Step-by-Step Outgoing Repeater SD-31779-01 - Working Limits

When T-carrier is connected between SD-31779-01 and any of its trunk terminations, a VFX of up to seven miles, 600 ohms can be used either at the originating or terminating end of the T-carrier, but not at both ends. However, when connected to SXS repeaters and selectors the use of VFX at the terminating end will necessitate 'end to end' tuning of the (A) relay in outgoing repeater SD-31779-01 instead of the standard tuning procedure now used. BSP 040-012-711 does not provide for such tuning.

1.7 Step-by-Step Repeater SD-32008-01 - Options

When used as an outgoing repeater working into T-carrier and regardless of the terminating switching circuit SD-32008-01 should preferably be wired with M and H options and the (A) relay should be tuned to 46 to 80 percent break. The

SWITCHING CIRCUIT COMPATIBILITY

channel unit should be removed when testing or adjusting the outgoing repeater for its pulse repeating requirements. These options provide 550/550 ohm battery-ground pulsing with no compensating resistance in the supervisory loop. Options that provide 150/150 ohm battery-ground pulsing are satisfactory from a signaling standpoint but may increase impulse noise. When used as an incoming repeater from T-carrier, SD-32008-01 should be wired with M option.

1.8 Step-by-Step Repeater SD-32008-01 - Working Limits

The working limits for VFX are as described for SD-31779-01 in Section C 1.6.

1.9 Step-by-Step Repeater SD-31648-01 - Compatibility

1.9.1 Step-by-step repeater SD-31648-01 should not be used as an incoming repeater over T-carrier from common control offices. Without T-carrier the operation of this circuit would be as follows: upon disconnect SD-31648-01 releases and then releases the subsequent circuit in tandem. This long release time would provide an unguarded interval during which time the terminating circuit could be resealed by the originating sender. To cover this interval, SD-31648-01 opens the T and R leads to the sender to prevent such reseizure until full release of the terminating circuit has taken place. T-carrier cannot relay the open condition of the T and R leads to the sender and sends battery and ground instead. The (TG) relay in the sender operates to this battery and ground and the sender starts pulsing before the incoming repeater is ready to accept the pulses. This will result in wrong numbers.

1.9.2 SD-31648-01 is compatible with T-carrier when used as an incoming repeater from step-by-step or when used as an outgoing repeater.

1.10 Step-by-Step Repeater SD-32184-01 - Compatibility

1.10.1 If T-carrier is connected to the incoming end of SD-32184-01, the compensating resistance in series with the (A) relay of SD-32184-01 should be zero regardless of which option (221ND or 280FS) is used for the (A) relay.

SWITCHING CIRCUIT COMPATIBILITY

1.10.2 If T-carrier is connected to the outgoing end of SD-32184-01, R wiring option in SD-32184-01 which provides 2MF and 600 ohms across the pulsing contact should be used.

1.11 Step-by-Step Repeater SD-32184-01 - Working Limits

When used incoming from T-carrier the working limits for VFX for ordinary metallic facilities are as given in CD-32184-01. For facilities incorporating other transmission devices such as E or V transmission repeaters see the appropriate signaling compatibility drawing listed in SD-99421-01. When used as an outgoing repeater the limits given in Section B apply.

1.12 Step-by-Step Repeater SD-31147-01 - Compatibility

When working with T-carrier, X option should not be used in SD-31147-01. Option R or M should be used depending on the external circuit resistance as required by note 102 of SD-31147-01.

1.13 Bylink Incoming Trunk Circuits

Bylink trunk circuits are used on calls incoming from a step-by-step office with immediate dialing. There are usually four optional pulsing relays, the AJ-29 or AJ-115 which have 425 ohm windings and the AJ-34 or AJ-136 which have 200 ohm windings. When connected to the T-carrier DPT channel unit the bylink trunk circuit will pulse satisfactorily using any one of these relays.

2. E&M LEAD CHANNEL UNITS

2.1 Non-Conforming E and M Lead Interfaces

Non-conforming E and M lead interfaces may be found on some circuit schematic drawings. Since the signaling compatibility drawings provide information only for standard E and M lead interface arrangements, compatibility information for non-conforming interfaces will be found on the individual circuit schematic drawings.

SWITCHING CIRCUIT COMPATIBILITY

2.2 TSPS Trunk Circuits

There are three generations of certain 4-wire TSPS trunk circuits, each of which requires the trunk circuit to interpose a voice frequency repeater between the trunk circuit and the transmission facility. Signaling from the trunk circuit is loop reverse battery on SX and SX1 leads. These leads connect to simplexes when metallic facilities are used. When carrier is used the loop signals must be converted to E and M lead signals.

2.2.1 The first generation trunk circuits use a 424V4B repeater per SD-97047-01. For carrier applications the loop to E and M lead signaling conversion was originally done by a 333A relay plugged into the 424V4B repeater. This Manufacture Discontinued arrangement produces a non-conforming pseudo Type II interface. Ferrod sensors in the trunk circuit are in series with the M lead and they require a certain minimum M lead current which certain signaling circuits cannot always guarantee, nor are any required to do so. In accordance with paragraph 2.1 above, the compatibility drawings do not provide signaling compatibility information for the 333A relay applications.

2.2.2 Second generation TSPS trunk circuits use a 3-way 4-wire repeater per SD-99782-01. This arrangement requires a separate signal converter and SX inductor circuit, SD-1B145-01, to convert from loop to E and M lead signaling. This circuit can also be used with the 424V4B repeater arrangement instead of using the 333A relay. SD-1B145-01 optionally provides either a true Type II or a Type III interface. However, it also provides a nonconforming pseudo Type I interface with its option Q. In accordance with paragraph 2.1 above, the compatibility drawings do not provide signaling compatibility information for the Q option.

2.2.3 Third generation TSPS trunk circuits use a 3-way 4-wire repeater per SD-7C022-01. The loop to E and M lead conversion is done by a 333B relay plugged into the repeater. This relay has screw switches to permit selection of a true Type II or III interface. The converter circuit, SD-1B145-01, can be used with the SD-7C022-01 repeater for the loop to E and M lead conversion, but the 333B relay is the better choice.

SWITCHING CIRCUIT COMPATIBILITY

2.2.4 The 333B relay can also be used to replace the 333A relay in the 424V4B repeater to provide a true Type II or III interface. If the 333B relay is plugged into the NET1 position it is necessary to make a minor wiring change per option ZH. This application of the 333B relay is recommended on a job basis if low M lead current problems are encountered with the 333A relay.

2.2.5 Signaling facilities never connect directly to the SX and SX1 leads of TSPS trunk circuits; they always connect to the loop to E and M lead converter as described above. Signaling compatibility information will be found in Section D of the compatibility drawings under the appropriate SD number as summarized in the following table.

<u>Associated Repeater</u>	<u>Loop to E&M Converter</u>	<u>For Compatibility See Sect. D Under:</u>
424V4B/SD-97047-01	333A	(Note 1)
	333B	SD-97047-01
	SD-1B145-01	SD-1B145-01
3W 4-wire/SD-99782-01	SD-1B145-01	SD-1B145-01
3W 4-wire/SD-7C022-01	333B	SD-7C022-01
	SD-1B145-01	SD-1B145-01

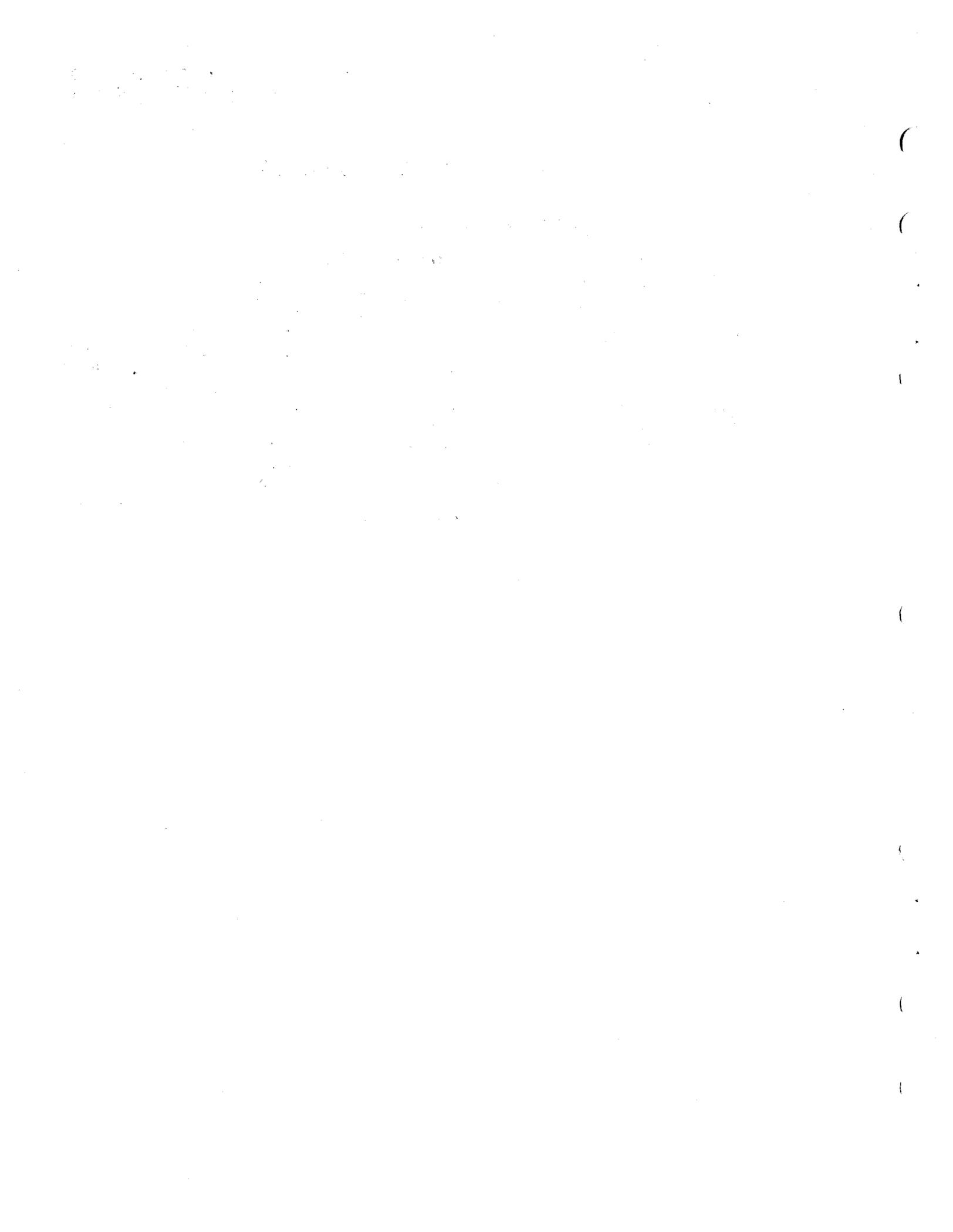
Note 1: Non-conforming interface. See specific TSPS schematic drawing for compatibility information.

2.2.6 Any signaling unit having a Type II or III interface will be compatible with either of the 333B relay applications or with any application of the converter circuit SD-1B145-01. The screw switches on the 333B relay must be set for the desired interface type. In SD-1B145-01 options W and T must be used for Type III interfaces and options W and V must be used for Type II interface.

SWITCHING CIRCUIT COMPATIBILITY

2.3 E&M Lead Applique Circuit

The E&M lead applique circuit SD-99774-01 may be used to reduce the number of prewired wires to the T-carrier bays. At the present time eight wires are prewired (T, R, T1, R1, E, M, SB, SG) for signaling and transmission. If all the channel units are loop type, only T&R are needed and the other six wires are wasted. If the channel units are E&M with a Type I interface then six wires are needed (T, R, T1, R1, E&M) and only two are wasted. If the interface is a Type II or III then all eight wires are used. Experience has shown that there are very few installations that are primarily E&M Type II & III, therefore a simple way of saving two wires per channel unit is to always prewire the E&M channel unit bays for a Type I interface and if later a Type II or III interface is needed, then an applique circuit can be used to make the conversion.



SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-10574-01	DPT	
SD-10730-01	DPMO	
SD-11324-01	None	High-Low supv
SD-11370-01	None	High-Low supv
SD-12139-01	2W E&M	OK with E&M supv (Fig. 1)
SD-12141-01	2W E&M	OK with E&M supv (Fig. 1)
SD-12149-01	None	High-Low supv
SD-12295-01	DPT	OK with rev bat. supv (Fig. 2B)
SD-12460-01	2W E&M	
SD-12715-02	None	PCI and High-Low supv
SD-12718-01	None	PCI and High-Low SX supv
SD-12754-01	None	PCI and SX supv
SD-12826-01	None	20Hz ringing
SD-12884-01	DPT	OK with rev bat. supv (Fig. 4)
SD-12900-01	DPT	OK with rev bat. supv (Fig. 1,2,3,5)
SD-12929-03	DPT	OK with rev bat. supv (Fig. 4)
SD-12929-05	DPT	OK with rev bat. supv (Fig. 4)
SD-12999-01	DPMO	
SD-13332-01	None	Wet-Dry, High-Low supv
SD-13988-01	DPMO	
SD-14021-01	DPT	OK Fig. 1,2,3,5,6, opt. D and 48V
SD-14034-01	None	Wet-Dry rev bat. supv
SD-14044-01	DPMO	
SD-14067-01	2W E&M	OK with E&M supv (Fig. 7)
SD-14068-01	None	High-Low supv
SD-14177-01	None	Ringdown
SD-14194-01	None	High-Low supv
SD-14199-01	None	High-Low supv
SD-14200-01	None	High-Low supv
SD-14217-01	None	SX control of ringing
SD-14225-01	None	Wet-Dry rev bat. supv
SD-15096-01	None	PCI pulsing
SD-15097-01	DPT	OK with rev bat. (B and W wiring)
SD-15098-01	DPT	Tandem Comp. and Call Announc. only
SD-15193-01	DPMO	
SD-15240-01	None	High-Low supv
SD-15288-01	None	20Hz ringing
SD-15289-01	None	20Hz ringing
SD-15327-01	2W E&M	OK with E&M supv (Fig. E or F)
SD-15334-01	2W E&M	
SD-15341-01	2W E&M	

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-15346-01	2W E&M	
SD-15362-01	2W E&M	OK with E&M supv (Fig. 3,5,7)
SD-15367-01	None	Wet-Dry supv
SD-15382-01	DPMO	
SD-15515-01	None	High-Low supv
ES-20009-01	None	Revertive Pulsing
SD-20011-02	None	Revertive Pulsing
ES-20012-02	None	Revertive Pulsing
SD-20042-01	None	Revertive Pulsing
SD-20082-01	None	Revertive Pulsing
SD-20083-01	None	Revertive Pulsing
ES-20139-01	None	Revertive Pulsing
ES-20139-02	None	Revertive Pulsing
ES-20292-01	None	Revertive Pulsing
ES-20293-01	None	Revertive Pulsing
SD-20545-01	None	Revertive Pulsing
ES-20641-01	None	Revertive Pulsing
ES-20734-01	None	20 Hz ringing
ES-20743-01	None	20 Hz ringing
SD-20746-01	DPMO	Reverse T&R. See Sec B 1.1.4
ES-21030-01	None	Revertive Pulsing
ES-21031-01	None	Revertive Pulsing
SD-21031-02	None	Revertive Pulsing
ES-21032-01	None	Revertive Pulsing
SD-21032-02	None	Revertive Pulsing
SD-21032-03	None	Revertive Pulsing
ES-21036-01	None	Revertive Pulsing
ES-21043-01	None	Revertive Pulsing
ES-21043-02	None	Revertive Pulsing
ES-21053-01	None	Revertive Pulsing
SD-21053-02	None	Revertive Pulsing
SD-21077-01	None	Revertive Pulsing
SD-21078-01	None	Revertive Pulsing
SD-21092-01	None	Revertive Pulsing
SD-21115-01	None	Revertive Pulsing
SD-21115-03	None	Revertive Pulsing
SD-21115-05	None	Revertive Pulsing
SD-21115-07	None	Revertive Pulsing
SD-21116-01	None	Revertive Pulsing
SD-21116-03	None	Revertive Pulsing
SD-21123-01	None	20Hz ringing

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-21124-01	None	Revertive Pulsing
SD-21130-01	None	Wet-Dry supv, 20 Hz ringing
SD-21143-01	None	Revertive Pulsing
SD-21147-01	None	Revertive Pulsing
SD-21193-01	DPT	Subscriber Sender - See Sec C 1.1
SD-21193-05	DPT	Subscriber Sender - See Sec C 1.1
SD-21194-01	DPT	Subscriber Sender - See Sec C 1.1
SD-21339-01	None	Ringdown
SD-21349-01	None	High-Low supv - 20 Hz ringing
SD-21364-01	None	Wet-Dry supv
SD-21370-01	None	20 Hz ringing
SD-21441-01	DPMO	Reverse T&R. See Sec B 1.1.4
SD-21451-01	None	Wet-Dry supv
SD-21452-01	None	PCI pulsing
SD-21459-01	None	Wet-Dry supv. 20 Hz rering
SD-21504-01	None	20 Hz remote control ringing
SD-21505-01	None	20 Hz remote control ringing
SD-21542-01	None	Wet-Dry supv, +110, -48 coin
SD-21543-01	None	Wet-Dry supv
SD-21544-01	None	Wet-Dry supv-20 Hz ringing
SD-21545-01	None	Bridged supv
SD-21560-01	None	Rev Bat and SX ringing
SD-21570-01	None	Wet-Dry supv
SD-21572-01	None	PCI pulsing
SD-21573-01	None	Revertive Pulsing
SD-21574-01	None	20 Hz ringing
SD-21576-01	None	20 Hz ringing
SD-21578-01	None	Revertive Pulsing
SD-21600-01	None	Three-wire
SD-21612-01	Yes	Test Circuit
SD-21627-01	None	Revertive Pulsing
SD-21628-01	None	Revertive Pulsing
SD-21630-01	None	Revertive Pulsing
SD-21631-01	None	Revertive Pulsing
SD-21634-01	None	PCI pulsing
SD-21691-01	Yes	Three digit sender - See Sec C 1.1
SD-21733-01	None	Revertive Pulsing
SD-21734-01	None	PCI pulsing
SD-21792-01	None	Requires metallic ckt, and 3 wire
SD-21821-01	None	Revertive Pulsing
SD-21822-01	None	Revertive Pulsing

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-21823-01	None	Wet-Dry supv, 20 Hz ring
SD-21826-01	None	8000 ohm TG Test
SD-21839-01	None	8000 ohm TG Test
SD-21840-01	None	8000 ohm TG Test
SD-21858-01	None	Wet-Dry, High-Low supv
SD-21859-01	None	High-Low supv, 20 Hz ring
SD-21917-01	None	Short Range
SD-21918-01	None	Short range
SD-21924-01	DPT	
SD-21946-01	None	Revertive Pulsing
SD-21949-01	None	Revertive Pulsing
SD-21972-01	DPMO	Reverse T&R. See Sec B 1.1.4
SD-21974-01	None	PCI pulsing
SD-21981-01	None	+130, -48v volt coin control
SD-21982-01	None	+130, -48 volt ringback
SD-25012-01	Yes	Subscriber Sender - See Sec C 1.1
SD-25013-01	Yes	FS Term Sender - See Sec C 1.1
SD-25015-01	Yes	KP Sender-See Sec C 1.1
SD-25020-01	None	Revertive Pulsing
SD-25021-01	None	Revertive Pulsing
SD-25022-01	DPT	
SD-25024-01	None	High-Low supv, 3-wire
SD-25033-01	DPMO	
SD-25119-01	None	Wet-Dry supv
SD-25120-01	FXO	
SD-25124-01	None	Wet-Dry supv, 20 Hz ringing
SD-25127-01	None	Revertive Pulsing
SD-25161-01	None	Auto test ckt - Revertive Pulsing
SD-25181-01	None	Test circuit - Revertive Pulsing
SD-25210-01	None	Revertive Pulsing
SD-25218-01	None	Wet-Dry supv, 20 Hz ringing
SD-25259-01	DPT	
SD-25292-01	DPT	
SD-25295-01	DPT	
SD-25302-01	DPT	Machine ring only
SD-25303-01	None	20 Hz ringing
SD-25304-01	DPT	OK with D1, D2 Res
SD-25305-01	DPT	Use D Res.
SD-25307-01	None	20 Hz rering
SD-25313-01	None	Wet-Dry supv
SD-25314-01	DPT	Use auto ring start.

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-25322-01	None	Three-wire
SD-25329-01	DPT	
SD-25351-01	None	Grd sig over ring - 3-wire
SD-25356-01	None	Through supervision
SD-25357-01	DPT	NG with remote control zone reg.
SD-25359-01	None	RP Sender
SD-25382-01	None	RP Sender
SD-25413-01	None	SX signaling
SD-25420-01	DPT	OK for verification only
SD-25423-01	None	20 Hz or SX ringing
SD-25428-01	None	High-Low, Wet-Dry supv
SD-25429-01	None	Wet-Dry supv
SD-25434-01	Yes	DP Term Sender - See Sec C 1.1
SD-25446-01	None	20 Hz or SX ringing, 3rd wire coin
SD-25447-01	None	Wet-Dry supv
SD-25454-01	None	Wet-Dry supv
SD-25455-01	Yes	MF Term Sender - See Sec C 1.1
SD-25462-01	None	20 Hz or SX ringing, 3rd wire coin
SD-25478-01	Yes	DP Sender - See Sec C 1.1
SD-25481-01	None	Revertive Pulsing
SD-25490-01	2W E&M	
SD-25491-01	2W E&M	
SD-25493-01	None	Built in term set
SD-25503-01	None	Must send Bat and Grd both ways
SD-25512-01	None	Wet-Dry supv
SD-25517-01	DPT	
SD-25519-01	None	130V SX rering
SD-25520-01	None	PCI pulsing
SD-25534-01	Yes	DP Inc Register
SD-25551-01	Yes	DP Orig Register
SD-25552-01	DPT	
SD-25565-01	None	RP Register
SD-25578-01	DPMO	
SD-25578-02	DPMO	
SD-25578-03	DPMO	
SD-25579-01	Yes	DP Sender - See Sec C 1.1
SD-25580-01	Yes	MF Sender - See Sec C 1.1
SD-25581-01	DPT	
SD-25582-01	DPT	
SD-25583-01	DPT	
SD-25620-01	None	Revertive Pulsing

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-25620-02	None	Revertive Pulsing
SD-25634-01	DPMO	
SD-25645-01	DPMO	
SD-25648-01	None	Wet-Dry supv, SX signaling
SD-25651-01	None	20 Hz ringing
SD-25655-01	2W E&M	
SD-25663-01	DPT	OK for verification only
SD-25665-01	None	SX control of ringing
SD-25666-01	None	Needs metal ckt. 3-wire
SD-25667-01	2W E&M	
SD-25673-01	DPMO	
SD-25687-01	None	Wet-Dry supv
SD-25689-01	DPMO	
SD-25690-01	DPMO	
SD-25694-01	DPMO	
SD-25694-02	DPMO	
SD-25696-01	None	High-Low supv
SD-25698-01	None	High-Low supv
SD-25701-01	None	Wet-Dry supv
SD-25708-01	None	Needs metallic ckt for tests
SD-25708-02	None	Needs metallic ckt for tests
SD-25711-01	DPMO	
SD-25721-01	None	130 V coin battery
SD-25729-01	Yes	DP Register
SD-25730-01	Yes	MF Register
SD-25731-01	None	RP Register
SD-25732-01	None	RP Sender
SD-25733-01	None	PCI Sender
SD-25736-01	None	130 V DC
SD-25739-01	DPMO	
SD-25739-02	DPMO	
SD-25739-03	DPMO	
SD-25739-04	DPMO	
SD-25758-01	DPMO	
SD-25766-01	None	Multi-state signaling
SD-25768-01	2W E&M	
SD-25769-01	Yes	MF Sender - See Sec C 1.1
SD-25794-01	DPMO	DPMO on T&R, RP Register
SD-25816-01	DPMO	
SD-25823-01	DPMO	
SD-25823-02	DPMO	

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-25832-01	DPT	
SD-25833-01	DPT	
SD-25842-01	2W E&M	
SD-25842-02	2W E&M	Use diodes on P relay wdgs.
SD-25843-01	2W E&M	
SD-25843-02	2W E&M	
SD-25844-01	2W E&M	
SD-25845-01	2W E&M	
SD-25846-02	2W E&M	
SD-25847-01	2W E&M	
SD-25848-01	DPMO	
SD-25849-01	DPMO	
SD-25850-01	None	Uses T for rering. 3-wire trunk
SD-25851-01	None	SX supv and ringdown
SD-25852-01	None	SX supv and ringdown
SD-25853-01	2W E&M	
SD-25858-01	None	SX supv and 3-wire
SD-25866-01	Yes	DP sender - See Sec C 1.1
SD-25867-01	2W E&M	
SD-25868-01	DPT	
SD-25875-01	DPT	
SD-25887-01	DPT	Use CX rering, Fig. D
SD-25888-01	None	Ring through
SD-25889-01	None	High-Low supv
SD-25893-01	DPT	
SD-25895-01	2W E&M	
SD-25902-01	None	SX and High-Low supv
SD-25904-01	None	CX or SX supv
SD-25905-01	2W E&M	
SD-25906-01	None	CX or SX supv
SD-25908-01	Yes	Trunk test circuit
SD-25909-01	2W E&M	OK without SX rering
SD-25910-01	None	SX ringing
SD-25911-01	None	SX ringing
SD-25913-01	DPMO	
SD-25913-02	DPMO	
SD-25918-01	Yes	Trunk test circuit
SD-25923-01	None	High-Low supv, SX coin control
SD-25923-02	None	High-Low supv, SX coin control
SD-25923-03	None	High-Low supv, SX coin control
SD-25923-04	None	High-Low supv, SX coin control

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-25925-01	DPMO	
SD-25926-01	None	High-Low supv
SD-25928-01	FXO	
SD-25934-01	DPT	OK with Fig E
SD-25939-01	None	SX rering
SD-25943-01	None	Rev bat. signal on phantom
SD-25944-01	2W E&M	
SD-25946-01	DPMO	
SD-25954-01	2W E&M	
SD-25956-01	None	PCI pulsing
SD-25961-01	None	PCI pulsing
SD-25978-01	Yes	MF Sender - See Sec C 1.1
SD-25999-01	Yes	DP Sender - See Sec C 1.1
SD-26017-01	2W E&M	Use FS2
SD-26040-01	Yes	MF Orig Register
SD-26041-01	Yes	DP Inc Register
SD-26042-01	Yes	MF Inc Register
SD-26043-01	None	RP Inc Register
SD-26044-01	None	DP Orig Reg. 4-wire loop signaling
SD-26045-01	Yes	MF Inc Register
SD-26047-01	DPT	Use option 8
	2W E&M	Use option 10
SD-26050-01	Yes	DP Outg Sender. See Sec C 1.1
SD-26051-01	Yes	MF Outg Sender. See Sec C 1.1
SD-26052-01	None	RP Outg Sender.
SD-26053-01	None	PCI Outg Sender
SD-26056-01	Yes	CAMA Sender. See Sec C 1.1
SD-26065-01	DPMO	
SD-26070-01	DPT	
SD-26071-01	DPT	
SD-26073-01	2W E&M	OK with E&M supv (Fig. 3)
SD-26074-01	2W E&M	OK with E&M supv (Fig. 2)
SD-26077-01	DPT	See Sec C 1.13
SD-26078-01	DPMO	
SD-26079-01	DPT	
SD-26083-01	2W E&M	OK with E&M supv (Fig. 3,6,7)
SD-26085-01	DPMO	
SD-26086-01	DPMO	
SD-26087-01	DPMO	
SD-26088-01	DPT	
SD-26090-01	None	High-Low, Wet-Dry supv

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-26090-05	None	High-Low, Wet-Dry supv
SD-26091-01	None	High-Low supv
SD-26094-01	2W E&M	
SD-26095-01	None	High-Low supv
SD-26096-01	2W E&M	
SD-26098-01	2W E&M	OK with Y option
SD-26099-01	2W E&M	
SD-26100-01	DPT	
SD-26101-01	DPT	Use Z option. See Sec C 1.13
	2W E&M	Use W option.
SD-26104-01	DPT	Use FS2. See Sec C 1.13
	2W E&M	Use FS3.
SD-26108-01	None	SX supv
SD-26110-01	2W E&M	
SD-26116-01	DPMO	
SD-26117-01	None	SX supv
SD-26122-01	2W E&M	OK with E&M supv only
SD-26123-01	DPT	Use App Fig. 2
	2W E&M	Use App Fig. 3
SD-26124-01	2W E&M	
SD-26125-01	DPMO	
SD-26126-01	2W E&M	
SD-26127-01	DPMO	
SD-26128-01	2W E&M	
SD-26128-05	2W E&M	
SD-26138-01	None	High-Low, Wet-Dry supv to trunk
	FXO	Towards customer
SD-26144-01	DPMO	
SD-26148-01	DPMO	
SD-26149-01	None	SX ring start
SD-26152-01	DPT	OK without rering feature
SD-26178-01	DPMO	
SD-26183-01	DPT	See Sec C 1.13
SD-26201-01	None	Revertive Pulsing
SD-26204-01	DPT	
SD-26209-01	DPMO	Reverse T&R. See Sec B 1.1.4
SD-26210-01	None	PCI pulsing
SD-26257-01	DPT	
ES-26277-01	DPMO	OK with rev bat supv, opt Y
SD-26282-01	DPT	See Sec C 1.13
ES-26302-01	DPMO	

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-26391-01	2W E&M	
SD-26396-01	None	Rev High-Low supv
SD-26398-01	DPMO	
SD-26399-01	DPT	
SD-26400-01	2W E&M	
SD-26401-01	None	High-Low supv
SD-26402-01	None	High-Low supv
SD-26404-01	2W E&M	Use with E&M only (Fig. 3)
SD-26410-01	DPT	
SD-26413-01	None	3-wire ckt
SD-26416-01	2W E&M	
SD-26417-01	2W E&M	
SD-26418-01	DPT	App Fig. 2. See Sec C 1.13
	2W E&M	App Fig. 3.
SD-26419-01	DPT	Use App Fig. 2. Use only if SX ringing
	2W E&M	Use App Fig. 3. control is not used.
SD-26420-01	2W E&M	
SD-26421-01	2W E&M	
SD-26422-01	2W E&M	
SD-26423-01	2W E&M	
SD-26424-01	DPMO	Only with multi-wink (Fig. 3) and options V,W,X
SD-26425-01	2W E&M	
SD-26426-01	2W E&M	
SD-26427-01	None	High-Low supv
SD-26428-01	2W E&M	
SD-26429-01	2W E&M	
SD-26430-01	2W E&M	
SD-26432-01	None	High-Low supv
SD-26433-01	DPMO	
SD-26445-01	DPT	App Fig. 2
	2W E&M	App Fig. 3
SD-26447-01	None	Wet-Dry, rev bat supv
SD-26448-01	None	Wet-Dry, rev bat supv
SD-27000-01	2W E&M	
SD-27001-01	None	Requires DC path
SD-27003-01	2W E&M	
SD-27008-01	2W E&M	Use T option
SD-27009-01	2W E&M	
SD-27010-01	DPT	See Sec C 1.13
SD-27012-01	None	Requires DC path

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-27014-01	DPT	See Sec C 1.13
SD-27015-01	DPT	
SD-27016-01	None	Rev bat signal on phantom
SD-27024-01	Yes	MF sender - See Sec C1.1
SD-27036-01	2W E&M	
SD-27043-01	None	3-wire trunk
SD-27044-01	2W E&M	
SD-27051-01	2W E&M	
SD-27058-01	Yes	Test Set Circuit
SD-27061-01	DPMO	OK outgoing only
	DPT	OK incoming only
SD-27066-01	FXO	
SD-27067-01	DPT	
SD-27079-01	None	+130, -48 volt ring
SD-27080-01	None	+130, -48 volt ring or coin
SD-27081-01	2W E&M	
SD-27082-01	2W E&M	
SD-27083-01	DPT	OK with wink ringback
SD-27084-01	2W E&M	
SD-27092-01	DPT	Use App Fig. 2
	2W E&M	Use App Fig. 3
SD-27097-01	None	+130, -48 volt ring
SD-27103-01	2W E&M	
SD-27104-01	2W E&M	Use E&M only. NG loop +130, -48 volt ring
SD-27148-01	DPT	
SD-27150-01	2W E&M	
SD-27500-01	4W E&M	
SD-27504-01	None	4-wire loop signaling
SD-27505-01	None	4-wire loop signaling
SD-27506-01	None	4-wire loop signaling
SD-27516-01	4W E&M	
SD-27517-01	4W E&M	
SD-27535-01	4W E&M	OK without SX ring or rering
SD-27546-01	None	High-Low supv, 130V ringback
SD-27547-01	None	High-Low supv
SD-27550-01	2W E&M	See Sec B 5.2.3
SD-27551-01	2W E&M	
SD-27554-01	None	+130, -48 volt ring
SD-27555-01	None	+130, -48 volt ring
SD-27568-01	DPMO	
SD-27579-01	None	130V SX signal

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-27580-01	DPT	
SD-27581-01	DPT	See Sec C 1.13
SD-27593-01	2W E&M	
SD-27611-01	2W E&M	
SD-27614-01	None	DP Sender, 4-wire loop signaling
SD-27617-01	DPMO	
SD-27618-01	None	2-way loop (4-state signal)
SD-27619-01	2W E&M	
SD-27620-01	2W E&M	
SD-27621-01	4W E&M	
SD-27624-01	Yes	FSP Outg sender. NG for Loop-to-E&M conversion, E relay releases too fast.
SD-27625-01	Yes	FSP Inc register
SD-27629-01	DPMO	DP Sender - See Sec C 1.1
SD-27641-01	None	Uses T and R separately
SD-27642-01	4W E&M	
SD-27646-01	2W E&M	
SD-27654-01	2W E&M	
SD-27655-01	2W E&M	See Sec B 5.2.4
SD-27667-01	Yes	STD Register
SD-27669-01	2W E&M	
SD-27686-01	DPT	
SD-27687-01	DPT	See Sec C 1.13
SD-27711-01	4W E&M	
SD-27712-01	2W E&M	
SD-27721-01	None	3-wire trunk
SD-27723-01	DPT	
SD-27729-01	DPMO	With opts X&Y
SD-27730-01	2W E&M	
SD-27732-01	None	4-wire loop signaling
SD-27735-01	4W E&M	
SD-27738-01	4W E&M	
SD-27744-01	4W E&M	
SD-27750-01	DPMO	
SD-27751-01	2W E&M	
SD-27752-01	DPMO	
SD-27753-01	None	2-way loop trunk (Wet-Dry)
SD-27798-01	DPT	NG with rering or SXS MB ckt
SD-27802-01	DPT	
SD-27803-01	4W E&M	
SD-27810-01	Yes	Subscriber Sender - See Sec C 1.1

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-27813-01	DPMO	Loop signaling without ringback
	2W E&M	E&M signaling
SD-27814-01	2W E&M	Use E&M only. NG loop +130, -48V coin voltage
SD-27815-01	DPMO	Loop signaling without ringback
	2W E&M	E&M signaling
SD-27816-01	2W E&M	Use E&M only. NG loop +130, -48V coin voltage
SD-27829-01	DPMO	
SD-27830-01	DPT	Use FS2
	2W E&M	Use FS4. See Sec B 5.2.1
SD-27836-01	2W E&M	
SD-27838-01	2W E&M	
SD-27843-01	4W E&M	
SD-27844-01	4W E&M	
SD-27851-01	None	3-wire line
SD-27858-01	2W E&M	
SD-27866-01	2W E&M	Use option R
SD-27877-01	2W E&M	
SD-27882-01	Yes	MF Sender - See Sec C 1.1
SD-27892-01	2W E&M	
SD-27893-01	DPMO	With opts X&Y
SD-27912-01	2W E&M	
SD-27913-01	2W E&M	
SD-27927-01	DPT	Use FS3
	2W E&M	Use FS2
SD-27928-01	DPT	Use FS2
	2W E&M	Use FS3
SD-27929-01	DPMO	Use FS2
	2W E&M	Use FS3
SD-27933-01	2W E&M	
SD-27942-01	2W E&M	
SD-27945-01	2w E&M	
SD-27946-01	2W E&M	
SD-27963-01	DPMO	
SD-27964-01	2W E&M	
SD-27970-01	2W E&M	
SD-27981-01	2W E&M	OK with E&M lead supv (FS3)
SD-27988-01	4W TO	OK with option Y and 405 type data sets
SD-27989-01	4W TO	OK with option V and 405 type data sets
SD-27996-01	FXO	
SD-28040-01	DPT	Use FS3
	2W E&M	Use FS5. See Sec B 5.2.1

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-28041-01	4W TO	OK with option Y and 405 type data sets
SD-28042-01	4W TO	OK with option Y and 405 type data sets
SD-28043-01	2W E&M FXS	Use Fig. 2 Use Fig. 4
SD-28045-01	2W E&M	OK with E&M lead supv (FS2)
SD-28048-01	2W E&M	OK with E&M lead supv (FS3)
SD-28062-01	2W E&M	
SD-28063-01	DPMO	OK with multi-wink coin control signals (App Fig. 3)
SD-28080-01	DPMO 2W E&M	Use FS2 Use FS4
ES-30052-01	None	Wet-Dry supv on busy
ES-30053-01	None	Wet-Dry supv on busy
ES-30183-01	None	Wet-Dry supv
SD-30200-01	SDPO DPT	Originating end Terminating end
ES-30203-01	None	Wet-Dry supv
SD-30205-01	DPO	
SD-30214-01	DPO	
SD-30215-01	DPT,FXO	Connector
SD-30220-01	DPT,FXO	Connector. NG with busy grd on ring
SD-30228-01	DPT,FXO	Connector. OK for local calls
SD-30243-01	DPT	OK for verification only
SD-30442-01	None	20 Hz ringing
SD-30503-01	DPT	Reverse T&R
SD-30645-01	DPO	
SD-30737-01	FXO	OK incoming only
SD-30816-01	None	Wet-Dry supv
SD-30817-01	None	3- or 4-wire trunk
SD-30855-01	None	Grd start. rev bat. See Sec B 3.2.1
SD-30856-01	SDPO	
SD-30862-01	DPT,FXO	Connector. OK on local calls
SD-30865-01	DPT	OK if VFX not exceeded
SD-30868-01	SDPO	
SD-30868-02	SDPO	
SD-30869-01	SDPO DPT	Originating Terminating
SD-30872-01	SDPO	NG with grd start. Use opt W.
SD-30889-01	None	Sends back short on T and R
SD-30890-01	2W E&M	
SD-30891-01	SDPO	

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-30895-01	DPT	
SD-30900-01	DPO	Towards inc selector. OK one-way only.
	DPT	Towards operator. OK one-way only.
SD-30901-01	2W E&M	OK with E and M supv (Fig. 4)
SD-30902-01	DPT,FXO	Connector. OK with A and ZJ option
SD-30903-01	DPT,FXO	Connector
SD-30904-01	DPT,FXO	Connector
SD-30909-01	DPT,FXO	Connector
SD-30910-01	SDPO	Originating, OK with ZC option
	DPT	Terminating, OK with Z option
SD-30911-01	DPT,FXO	Connector
SD-30912-01	DPT,FXO	Connector
SD-30913-01	SDPO	Originating
	DPT	Terminating
SD-30914-01	None	Signals over one conductor
SD-30915-01	2W E&M	OK with E and M supv (Fig. 3)
SD-30916-01	DPO	OK outgoing only.
	DPT	OK incoming only.
SD-30918-01	DPT,FXO	Connector
SD-30921-01	DPO	OK outgoing only.
	DPT	OK incoming only.
SD-30922-01	DPT,FXO	Connector
SD-30923-01	DPO	OK outgoing only.
	DPT	OK incoming only.
SD-30924-01	DPT,FXO	Connector
SD-30925-01	DPT,FXO	Connector
SD-30927-01	DPT,FXO	Connector
SD-30928-01	DPT,FXO	Connector
SD-30931-01	DPT	OK without ringback
SD-30932-01	DPT,FXO	Connector
SD-30934-01	2W E&M	OK with E and M supv (Fig. 3)
SD-30935-01	SDPO	Originating
	DPT	Terminating
SD-30938-01	DPO	OK outgoing only.
	DPT	OK incoming only.
SD-30939-01	DPT,FXO	Connector
SD-30943-01	2W E&M	OK with E and M supv (Fig. 2)
SD-30944-01	DPT,FXO	Connector
SD-30945-01	DPT	
SD-30946-01	DPT,FXO	Connector
SD-30949-01	None	20 Hz ringing

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-30950-01	DPT, FXO	Connector
SD-30951-01	DPT, FXO	Connector
SD-30952-01	DPT, FXO	Connector
SD-30953-01	DPT	OK without 20 Hz rering
SD-30954-01	DPT, FXO	Connector
SD-30956-01	DPT, FXO	Connector
SD-30957-01	DPT, FXO	Connector
SD-30958-01	DPT, FXO	Connector
SD-30960-01	DPT, FXO	Connector
SD-30961-01	DPO	OK outgoing only.
	DPT	OK incoming only
SD-30971-01	DPO	See Sec C 1.1
SD-30973-01	DPT, FXO	Connector
SD-30974-01	DPT	
SD-30976-01	DPT	
SD-30977-01	DPT, FXO	Connector
SD-30979-01	DPT, FXO	Connector
SD-30990-01	None	Uses two voltage signaling
SD-30991-01	None	SX start signal
SD-30994-01	DPT	
SD-31028-01	None	Uses T and R separately
SD-31088-01	DPT, FXO	Connector
SD-31105-01	SDPO	Originating
	DPT	Terminating
SD-31114-01	None	Busy flash over ring
SD-31123-01	None	Wet-Dry supv
SD-31127-01	None	Wet-Dry supv
SD-31147-01	DPO	See C 1.12
SD-31162-01	None	Dry ckt at term end
SD-31179-01	None	Wet-Dry supv
SD-31180-01	None	20 Hz ring, Wet-Dry supv.
SD-31188-01	None	Wet-Dry supv
SD-31214-01	None	Wet-Dry supv
SD-31225-01	None	Requires dc path
SD-31233-01	DPT	
SD-31241-01	DPT	
SD-31242-01	None	Wet-Dry supv, 20 Hz ringing
SD-31302-01	None	Wet-Dry supv
SD-31314-01	None	Wet-Dry supv, 20 Hz ringing
SD-31315-01	None	20 Hz ringing
SD-31339-01	Yes	Intercept trunk

SWITCHING CIRCUIT COMPATIBILITY LIST

CKT. NUMBER	CHANNEL UNITS	REMARKS
SD-31346-01	SDPO	Originating
	DPT	Terminating
SD-31362-01	Yes	Announcement Trunk
SD-31365-01	SDPO	Originating
	DPT	Terminating
SD-31375-01	None	Wet-Dry supv
SD-31409-01	None	Wet-Dry supv
SD-31410-01	None	Wet-Dry supv
SD-31425-01	None	Uses open loop for test
SD-31428-01	None	Requires 3800 ohm min. trk loop
SD-31432-01	None	Wet-Dry supv, 20 Hz ring
SD-31433-01	DPT	OK with high res sleeve + no ring.
SD-31449-01	None	Ringdown
SD-31454-01	SDPO	Originating
	DPT	Terminating
SD-31457-01	None	Wet-Dry supv
SD-31522-01	None	Wet-Dry supv, 20 Hz ring
SD-31532-01	DPT	
SD-31534-01	None	CX sig and VF repeater
SD-31538-01	None	Wet-Dry supv
SD-31539-01	DPT	
SD-31540-01	None	Wet-Dry supv
SD-31541-01	None	For use with 22 type repeater
SD-31542-01	DPT	
SD-31588-01	None	Wet-Dry supv.
SD-31589-01	None	3-wire trunk
SD-31602-01	None	For use with 22 type repeater
SD-31609-01	None	Opens T and R
SD-31609-02	None	For use with 22 type repeater
SD-31622-01	DPT	No VFX (high res A relay)
SD-31642-01	Yes	Test Line Circuit
SD-31648-01	DPO	See Sec C 1.9
SD-31651-01	None	Wet-Dry supv
SD-31656-01	DPT,FXO	Connector
SD-31658-01	None	TwoWay loop trunk
SD-31668-01	None	Ringdown trunk
SD-31670-01	DPT	
SD-31674-01	DPO	OK outgoing only
SD-31678-01	None	High-Low supv
SD-31678-02	None	Wet-Dry, High-Low supv
SD-31681-01	None	SX pulsing req trk ckt ahead

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-31682-01	SDPO	Originating
	DPT	Terminating
SD-31683-01	DPT	
SD-31692-01	DPO	
SD-31693-01	DPO	Use opt V. See Sec C 1.1
SD-31700-01	Yes	Announcement trunk
SD-31702-01	SDPO	Originating
	DPT	Terminating
SD-31703-01	None	Wet-Dry supv, 20 Hz ring
SD-31708-01	None	20 Hz ringing
SD-31709-01	DPT	
SD-31710-01	2W E&M	
SD-31712-01	DPT	
SD-31714-01	None	3-wire trunk
SD-31722-01	SDPO	Originating
	DPT	Terminating
SD-31723-01	DPT	Use opt S, adjustment C
SD-31726-01	2W E&M	
SD-31737-01	DPT,FXO	Connector
SD-31738-01	DPT,FXO	Connector
SD-31742-01	DPT,FXO	Connector
SD-31744-01	None	4-wire trunk
SD-31745-01	None	Wet-Dry supv
SD-31746-01	DPT	OK on inc end
SD-31747-01	DPT	
SD-31749-01	2W E&M	OK with E&M supv (Fig. 3 or 5)
SD-31752-01	None	Coin battery
SD-31753-01	None	High-Low bridged supv
SD-31767-01	Yes	Compat depends on assoc. trunk
SD-31771-01	None	3- or 4-wire trunk
SD-31773-01	DPT,FXO	Connector
SD-31775-01	2W E&M	
SD-31779-01	DPO	See Secs B 3.1.1, 3.2.3, C 1.4, 1.5, 1.6
SD-31795-01	2W E&M	With option H
SD-31805-01	DPT,FXO	Connector
SD-31810-01	DPT,FXO	Connector
SD-31811-01	DPT,FXO	Local only, NG with busy grd on ring
SD-31815-01	DPT,FXO	Connector
SD-31816-01	DPT,FXO	Connector
SD-31832-01	DPT,FXO	Connector
SD-31833-01	DPT,FXO	Connector

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-31840-01	DPO	
SD-31841-01	DPT	OK with immediate ring and no rering
SD-31842-01	DPO	OK outgoing only
SD-31851-01	None	Interrupted ground on ring
SD-31853-01	None	Coin voltage
SD-31856-01	DPT	
SD-31862-01	DPT	
SD-31865-01	2W E&M	
SD-31866-01	None	GRD outgoing
SD-31867-01	2W E&M	OK with E&M supv (opt Q)
SD-31872-01	Yes	Vacant level or overflow trunk
SD-31874-01	DPT	
SD-31885-01	2W E&M	OK with E&M supv (opt M)
SD-31886-01	DPO	OK outgoing only
SD-31887-01	2W E&M	
SD-31888-01	2W E&M	
SD-31892-01	DPO	
SD-31902-01	None	Wet-Dry, High-Low supv
SD-31906-01	DPT	
SD-31914-01	DPO	NG with grd start
SD-31915-01	None	4-wire selector T, R, S & C
SD-31919-01	DPT,FXO	Connector
SD-31920-01	DPT,FXO	Connector
SD-31925-01	DPT	Use opt G
SD-31928-01	2W E&M	
SD-31929-01	DPO	Outgoing
	DPT	Incoming
SD-31933-01	SDPO	Originating
	DPT	Terminating
SD-31937-01	DPT	
SD-31951-01	SDPO	Rotary Out-Trunk Switch.
SD-31953-01	Yes	Trunk Finder
SD-31955-01	Yes	Sender - See Sec C 1.1
SD-31965-01	None	Uses two voltage signaling
SD-31981-01	DPT,FXO	Connector
SD-31996-01	None	Coin battery
SD-32007-01	DPT	OK for verification
SD-32008-01	DPO	Outgoing. See Sec C 1.7, 1.8
	DPT	Incoming.
SD-32042-01	2W E&M	
SD-32061-01	DPT	Use Fig. 1

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-32061-01	2W E&M	Use Fig. 1&3
SD-32067-01	None	Customer line unit cannot pass rev bat
SD-32077-01	DPT	
SD-32087-01	DPO	Use V or T option
SD-32124-01	None	Ringdown
SD-32133-01	FXO	
SD-32136-01	None	Wet-Dry supv, 20 Hz ring
SD-32162-01	None	Two-Way supv
SD-32163-01	None	3-wire trunk
SD-32167-01	DPO	
SD-32168-01	None	Wet-Dry supv, 20 Hz ring
SD-32170-01	None	Wet-Dry supv
SD-32178-01	DPT	Wet-Dry supv, See Sec B 4.2.1 and 4.2.3
SD-32183-01	DPT	
SD-32184-01	DPO,DPT	See Sec C 1.10, 1.11
SD-32199-01	DPO	Use N,V and W options
SD-32202-01	SDPO	OK with Fig. 2,4,6 only
SD-32204-01	DPO	
SD-32207-01	Yes	AMA sender
SD-32216-01	FXO	
SD-32240-01	DPO	Use M,X,Y or N,J,Y options
SD-32241-01	2W E&M	
SD-32244-01	2W E&M	
SD-32245-01	DPO	Use Y,Z option
SD-32253-01	SDPO	
SD-32255-01	DPT	Use FS2. See Sec C 1.13
	2W E&M	Use FS1.
SD-32256-01	DPT	Use FS2
	2W E&M	Use FS1
SD-32281-01	SDPO	
SD-32288-01	Yes	Comp depends on assoc. trk. ckt.
SD-32289-01	Yes	Comp depends on assoc. trk. ckt.
SD-32298-01	Yes	Comp depends on assoc trk. ckt.
SD-32309-01	2W E&M	
SD-32311-01	2W E&M	
SD-32312-01	2W E&M	
SD-32315-01	Yes	Auto Trunk Test Ckt
SD-32317-01	DPO	
SD-32340-01	2W E&M	
SD-32342-01	2W E&M	OK with E&M supv only
SD-32344-01	DPO	OK with multi-wink coin control only

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-32344-01	2W E&M	OK with E&M supv
SD-32346-01	DPO	
SD-32367-01	2W E&M	Use FS3
	DPO	Use FS2 without ringback
SD-32369-01	DPO	Without option Z
SD-32508-01	2W E&M	Use FS3 for E&M. Not compatible with loop because of ringback.
SD-32532-01	DPO	Use option 2
	2W E&M	Use option 3,Z
SD-32542-01	2W E&M	
SD-32543-01	2W E&M	
SD-33001-01	SDPO	Originating
	DPT	Terminating
SD-33003-01	SDPO	Originating
	DPT	Terminating
SD-33005-01	DPT,FXO	Local connector
SD-33006-01	DPT,FXO	Local connector
SD-33007-01	DPT,FXO	Local connector
SD-33008-01	DPT,FXO	Local connector
SD-33009-01	DPT,FXO	Comb connector
SD-33010-01	DPT,FXO	Comb connector
SD-33011-01	DPT	OK for verification only
SD-33016-01	DPT	
SD-33017-01	DPT	
SD-33018-01	DPT	
SD-33019-01	DPT	
SD-33020-01	DPT	
SD-33021-01	None	3-wire trunk
SD-33022-01	DPT,FXO	Coin Connector
SD-35004-01	FXO	Use option W
SD-35006-01	DPO	Use option 2
	2W E&M	Use option 3Z
SD-35012-01	FXO	
SD-35020-01	DPO	Use FS3
	2W E&M	Use FS1
SD-35021-01	2W E&M	OK with E&M supv only
SD-35022-01	2W E&M	
SD-35023-01	DPO	OK with multi-wink coin control only
	2W E&M	OK with E&M supv
SD-35024-01	2W E&M	
SD-35036-01	2W E&M	

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-35037-01	DPO 2W E&M	Use option 2 Use option 3
SD-35059-01	DPO 2W E&M	Use FS1&2 options Y&Z Use FS1
ES-36009-01	None	Wet-Dry supv
SD-55015-01	None	CX signal without E&M lead
SD-55050-01	2W E&M	
SD-55060-01	DPMO	
SD-55062-01	None	Simplex control
SD-55086-01	DPMO 2W E&M	Loop E&M
SD-55088-01	2W E&M	
SD-55109-01	2W E&M	
SD-55113-01	2W E&M	
SD-55114-01	2W E&M	
SD-55151-01	DPMO 2W E&M	Use Fig. 1&4, 6, 12 or 14 Use Fig. 1&7, 8, 9, 10, 11 or 13
SD-55158-01	DPT 2W E&M	Use Fig. 1&2, 3, or 4 Use Fig. 1&5, 6, 7 or 8
SD-55177-01	None	SX signal without E&M leads
SD-55184-01	None	Wet-Dry supv
SD-55213-01	None	High-Low supv (High too Low)
SD-55224-01	DPMO	Without controlled ringing
SD-55242-01	None	4-wire selector - T, R, S, & SP
SD-55243-01	None	4-wire trunk - T, R, S, & SP
SD-55255-01	DPMO 2W E&M	Use Fig. 2 Use Fig. 3
SD-55256-01	DPMO 2W E&M	Use Fig. 2 Use Fig. 3
SD-55259-01	None	Wet-Dry supv
SD-55275-01	2W E&M	
SD-55291-01	DPMO	OK with Fig. B and rev bat. supv (opt Y)
SD-55301-01	DPMO	OK without opt H
SD-55346-01	DPMO	OK with Fig. 1 and rering control
SD-55358-01	2W E&M	
SD-55379-01	2W E&M	
SD-55380-01	2W E&M	
SD-55381-01	2W E&M	OK E&M supv (Fig. 4)
SD-55382-01	None	20 Hz ringing
SD-55386-01	2W E&M	OK with no ring control
SD-55463-01	None	20 Hz ringing

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
ES-55515-01	Yes	Marine Radio Terminal
SD-55600-01	None	Ringdown
SD-55602-01	None	Ringdown
SD-55609-01	2W E&M	
SD-55615-01	Yes	Compat. depends on assoc. trunk ckt.
SD-55637-01	None	Ringdown
SD-55719-01	None	Thru ringing
SD-55775-01	Yes	Compat. depends on assoc. trunk ckt.
SD-55776-01	None	Wet-Dry supv
SD-55778-01	DPMO	
SD-55793-01	None	20 Hz ring, 24V battery
SD-55844-01	None	130V coin battery
SD-55852-01	2W E&M	
SD-55864-01	None	20 Hz ringing
SD-55872-01	None	Wet-Dry supv
SD-55875-01	None	Wet-dry supv, +110, -48v coin
SD-55879-01	DPMO	Use rev bat supv. NG for controlled ringing, coin cr no-test use
SD-55889-01	None	Multistate signaling
SD-55894-01	None	CX supv
SD-55917-01	DPMO	OK with rev. bat. supv and Fig. B
SD-55921-01	None	SX ring control
SD-55926-01	None	Wet-Dry, rev bat. supv
SD-55952-01	None	Wet-dry, High-Low supv
SD-56009-01	2W E&M	OK outgoing only
SD-56010-01	2W E&M	
SD-56032-01	None	Requires metallic circuit.
SD-56036-01	None	CX or SX supv
SD-56045-01	None	SX rering
SD-56051-01	None	20 Hz ringing
SD-56055-01	None	SX signaling on phantom
SD-56056-01	None	SX signaling on phantom
SD-56057-01	DPT	
SD-56062-01	2W E&M	
SD-56082-01	DPMO	
SD-56105-01	DPMO	OK with auto start ringing
SD-56109-01	2W E&M	
SD-56119-01	None	Multi-state signaling
SD-56121-01	None	Wet-Dry supv
SD-56123-01	None	Uses T&R separately, 130V bat.
SD-56128-01	DPMO	OK with rev bat. supv no ring start signal

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-56131-01	2W E&M	
SD-56146-01	None	SX ringing
SD-56153-01	DPMO	
SD-56154-01	2W E&M	
SD-56155-01	2W E&M	
SD-56159-01	2W E&M	
SD-56163-01	2W E&M	
SD-56172-01	None	Requires two-way loop trunk
SD-56199-01	None	20 Hz applied to T&R
SD-56209-01	None	SX ringing
SD-56210-01	None	SX ringing
SD-56211-01	None	SX ringing
SD-56214-01	2W E&M	
SD-56219-01	None	SX ringing
SD-56225-01	None	Requires DC path
SD-56241-01	None	High-Low supv
SD-56257-01	2W E&M	OK outgoing only
SD-56314-01	2W E&M	
SD-56355-01	None	SX ring control
SD-56358-01	None	Wet-Dry supv
SD-56371-01	None	Test trunk using 2 pairs
SD-56389-01	FXO	
SD-56414-01	2W E&M	
SD-56415-01	2W E&M	OK with AUX VF ring ckts
SD-56420-01	2W E&M	
SD-56421-01	2W E&M	
SD-56422-01	2W E&M	
SD-56423-01	2W E&M	
SD-56424-01	2W E&M	
SD-56434-01	2W E&M	
SD-56435-01	2W E&M	
SD-56474-01	DPMO	
SD-56475-01	2W E&M	
SD-56477-01	2W E&M	
SD-56478-01	2W E&M	
SD-56479-01	2W E&M	
SD-56480-01	DPMO	
SD-56481-01	2W E&M	
SD-56482-01	DPMO	
SD-56483-01	2W E&M	
SD-56487-01	2W E&M	OK without coin control

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-56488-01	2W E&M	OK without coin control
SD-56492-01	None	130V SX battery
SD-56496-01	DPT	
SD-56501-01	FXO	Use option K.
SD-56507-01	2W E&M	
SD-56509-01	2W E&M	
SD-56521-01	2W E&M	
SD-56525-01	DPMO	Use option XF, XH, ZL for Hi-Low supv out. NG with 2-way or REC COMP TRK. NG with 20 Hz, SX rering. Type I (opt A, XN) or Type II (opt A, XO) Ringdown
	2W E&M	
SD-61609-01	None	
SD-62049-01	DPT	
SD-62085-01	None	3-wire trunk
SD-62209-01	None	High-Low supv
SD-62210-01	None	3-wire trunk
SD-62213-01	None	3-wire trunk
SD-62285-01	None	3-wire trunk
SD-62290-01	None	3-wire trunk
SD-62313-01	None	3-wire trunk
SD-62352-01	None	Ringdown
SD-62403-01	None	Wet-Dry supv
SD-62409-01	None	Ringdown trunk
SD-62423-01	None	Wet-Dry, High-Low supv
SD-62487-01	DPT	Use option K
SD-62496-01	None	3-wire trunk
SD-62521-01	None	3-wire trunk
SD-62533-01	None	Ringdown trunk
SD-62576-01	None	CX signaling
SD-62611-01	None	20 Hz ringing
SD-62648-01	None	3-wire trunk
SD-62650-01	None	Wet-Dry, Hi-Low Supv
SD-62717-01	FXO	
SD-62745-01	None	High-Low supv
SD-62825-01	None	Ringdown trunk
SD-62833-01	None	Ringdown trunk
SD-62884-01	None	Ringdown trunk
SD-63820-01	None	High-Low, Wet-Dry supv
SD-63823-01	None	Arr for use with repeater
SD-63824-01	None	Arr for use with repeater
SD-64221-01	None	NG on Hi-Low supv

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-64430-01	Yes	For use with Rec-Comp trunks
SD-64469-01	2W E&M	Drawing issue 34B or later
SD-64472-01	2W E&M	
SD-64473-01	None	20 Hz ringing
SD-64474-01	2W E&M	OK with E&M supv only
SD-64475-01	2W E&M	
SD-64482-01	2W E&M	
SD-64484-01	2W E&M	
SD-64487-01	None	20 Hz ringing
SD-64501-01	FXO	
SD-64531-01	2W E&M	
SD-64538-01	2W E&M	
SD-64539-01	None	Wet-Dry supv
SD-64553-01	DPT	
SD-64568-01	None	3- or 4-wire trunk
SD-64571-01	None	Wet-Dry supv, 20 Hz ringing
SD-64574-01	None	CX signaling
SD-64583-01	DPMO	
SD-64584-01	None	CX signaling
SD-64590-01	2W E&M	
SD-64626-01	DPMO	OK with Figs F and P or S
SD-64645-01	2W E&M	OK with E&M leads only (Fig. 7)
SD-64646-01	2W E&M	
SD-64649-01	DPT	
SD-64662-01	2W E&M	
ES-64663-01	2W E&M	
SD-64664-01	DPT	
SD-64680-01	2W E&M	
SD-64697-01	2W E&M	OK E&M port only
SD-64698-01	2W E&M	
SD-64724-01	Yes	Toll testboard
SD-64767-01	FXS	X option not compatible
SD-64824-01	2W E&M	
SD-64832-01	DPMO	Not compat. with wet-dry supv or controlled ringing
SD-65066-01	None	20 Hz Ringdown
SD-65067-01	None	20 Hz Ringdown
ES-65125-01	None	Wet-Dry supv
SD-65176-01	None	20 Hz Ringdown
SD-65530-01	DPO	OK outgoing only
SD-65531-01	DPO	OK outgoing only

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-65535-01	DPO	OK outgoing only
ES-65602-01	2W E&M	
ES-65625-01	2W E&M	
SD-65652-01	None	20 Hz ringdown
SD-65657-01	FXS	Not good for toll diversion
ES-65669-01	2W E&M	
SD-65680-01	FXS	See Sec B 6
SD-65691-01	None	20 Hz ringdown
SD-65714-01	FXS	See Sec B 6
SD-65718-01	2W E&M	OK with E&M supv only
SD-65718-02	2W E&M	OK with E&M supv only
SD-65733-01	DPO	Use option W with T&R leads reversed.
SD-65752-01	FXS	
SD-65755-01	DPT	
SD-65788-01	None	3-wire trunk
SD-65791-01	DPO	
SD-65792-01	DPT	
SD-65793-01	DPT	
SD-65799-01	DPT	
SD-65812-01	DPT	
SD-65813-01	None	3-wire trunk
SD-65823-01	DPO	Use option Y with T&R leads reversed.
SD-65831-01	DPO	
SD-65893-01	None	20 Hz ringdown
SD-65952-01	DPT	OK for verification only
SD-65978-01	DPT	Reverse T&R. See Sec B 1.1.4
SD-66013-01	None	20 Hz Ringdown
SD-66025-01	None	20 Hz ringdown
SD-66038-01	DPO	
SD-66039-01	DPO	
SD-66040-01	DPO	
SD-66041-01	DPT	OK outgoing only
SD-66042-01	DPT	
SD-66043-01	DPT	
SD-66044-01	None	Wet-Dry supv
SD-66065-01	DPO	Use option F with T&R leads reversed.
SD-66066-01	DPO	Use option ZB with T&R leads reversed.
SD-66068-01	None	20 Hz Ringdown
SD-66098-01	None	Wet-Dry supv
SD-66099-01	None	Wet-Dry supv
SD-66100-01	None	Wet-Dry supv

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-66101-01	None	Wet-Dry supv
SD-66102-01	None	Wet-Dry supv
SD-66104-01	DPO	OK outgoing only
SD-66106-01	DPO	OK outgoing only
SD-66192-01	FXS	Towards subscriber line circuit
	FXO	Towards PBX trunk circuit
SD-66211-01	None	Wet-Dry supv
SD-66241-01	None	Wet-Dry supv
SD-66257-01	None	Wet-Dry supv
SD-66268-01	None	Two-Way ringdown tie trunk
SD-66296-01	None	Wet-Dry supv
SD-66297-01	DPO	
SD-66298-01	DPO	
SD-66299-01	DPT	
SD-66300-01	DPO	OK outgoing only
SD-66305-01	None	Wet-Dry supv
SD-66310-01	None	Wet-Dry supv
SD-66310-02	None	Wet-Dry supv
SD-66311-01	None	Wet-Dry supv
SD-66311-02	None	Wet-Dry supv
SD-66312-01	DPO	OK outgoing only
SD-66359-01	None	Wet-Dry flash
SD-66360-01	None	Wet-Dry flash
SD-66401-01	None	20 Hz ringdown
SD-66431-01	DPO	OK outgoing only
SD-66470-01	None	Two-Way ringdown tie trunk
SD-66470-02	None	Two-Way ringdown tie trunk
SD-66470-03	None	Two-Way ringdown tie trunk
SD-66470-04	None	Two-Way ringdown tie trunk
SD-66470-05	None	Two-Way ringdown tie trunk
SD-66520-01	FXS	See Sec B 6
SD-66523-01	DPO	
SD-66524-01	DPO	Use option F with T&R leads reversed.
SD-66578-01	None	20 Hz Ringdown
SD-66592-01	FXS	
SD-66594-01	DPT	Inc. first selector
SD-66601-01	DPT	OK incoming only
	DPO	OK outgoing only
SD-66605-01	None	Two-way ringdown tie trunk
SD-66606-01	None	Two-Way ringdown tie trunk
SD-66607-01	FXS	

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-66617-01	FXS	NG with option V
SD-66622-01	DPO	Use option ZJ with T&R leads reversed.
SD-66715-01	FXO	
SD-66740-01	DPT	NG with trunk simplexing, see Sec C 1.13
SD-66741-01	DPT	
SD-66749-01	None	20 Hz Ringdown
SD-66766-01	None	20 Hz Ringdown
SD-66777-01	DPT	OK with option Z
SD-66799-01	2W E&M	OK with E&M supv (Y opt)
SD-66861-01	FXS	
SD-66896-01	2W E&M	Compatible, but see Sec B 5
SD-66979-01	None	ACD requires forward disconnect
SD-68012-01	DPMO	OK for rev bat supv
SD-68015-01	Yes	DP Inc Sender. See Sec C 1.1
SD-68018-01	Yes	Rev & PCI Outg Sender. See Sec C 1.1
SD-68019-01	Yes	DP Outg Sender. See Sec C 1.1
SD-68073-01	None	20 Hz ringing
SD-68097-01	DPT	OK with Fig B
	DPMO	OK with Fig C
SD-68102-01	4W E&M	
SD-68135-01	4W E&M	
SD-68142-01	None	Two-way Ringdown
SD-68154-01	4W E&M	
SD-68221-01	Yes	DP Inc Sender. See Sec C 1.1
SD-68222-01	Yes	MF Inc Sender. See Sec C 1.1
SD-68230-01	4W E&M	
SD-68231-01	4W E&M	
SD-68232-01	4W E&M	
SD-68233-01	4W E&M	
SD-68239-01	None	SX rering
SD-68240-01	None	Wet-Dry supv
SD-68242-01	DPMO	See Sec A 2.5
SD-68259-01	4W E&M	
SD-68260-01	None	Ringdown
SD-68289-01	None	SX ringing
SD-68290-01	None	SX ringing
SD-68299-01	None	SX supervision
SD-68302-01	None	SX ringing
SD-68307-01	None	SX ringing
SD-68308-01	4W E&M	
SD-68309-01	None	Simplex signaling

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-68312-01	4W E&M	
SD-68314-01	None	SX supervision
SD-68315-01	None	20 Hz ringing
SD-68318-01	None	20 Hz ringing
SD-68323-01	None	SX supervision
SD-68325-01	DPMO	OK rev bat, no SX rering, see Sec A 2.5
SD-68326-01	DPMO	See Sec A 2.5
SD-68331-01	None	SX rering
SD-68332-01	DPT	
SD-68355-01	4W E&M	
SD-68357-01	None	SX ringing
SD-68358-01	DPT	Use option A, V and ZA. See Sec B 1.1.4 OK without simplex rering.
SD-68362-01	None	Two-way ringdown
SD-68363-01	None	Two-Way supervision
SD-68364-01	None	Ringdown
SD-68366-01	None	Equipped with repeater
SD-68397-01	None	4-wire with SX on phantom
SD-68401-01	None	Requires DC path
SD-68459-01	None	Ringdown
SD-68479-01	4W E&M	
SD-68480-01	DPT	See Sec A 2.5 and Sec C 1.1.3
SD-68481-01	4W E&M	
SD-68482-01	DPT	See Sec A 2.5
SD-68485-01	None	Requires DC path
SD-68508-01	4W E&M	
SD-68513-01	4W E&M	See Sec B 5.2.2
SD-68514-01	4W E&M	See Sec B 5.2.2
SD-68527-01	None	20 Hz or SX ringing
SD-68529-01	4W E&M	
SD-68537-01	4W E&M	
SD-68547-01	None	SX signaling
SD-68564-01	DPMO	
SD-68575-01	Yes	MF Inc Sender
SD-68579-01	4W E&M	
SD-68581-01	4W E&M	
SD-68582-01	4W E&M	
SD-68595-01	4W E&M	See Sec B 5.2.2
SD-68596-01	4W E&M	See Sec B 5.2.2
SD-68621-01	4W E&M	
SD-68623-01	4W E&M	

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-68623-01	DPMO	
SD-68625-01	4W E&M DPT	
SD-68626-01	4W E&M	
SD-68627-01	4W E&M	
SD-68961-01	DPT	OK without SX, or 20 Hz ringing. See Sec A 2.5
SD-68962-01	DPMO	OK with opt R (rev bat). See Sec A 2.5
SD-68966-01	None	4-wire. Simplex supv
SD-69286-01	FXO	Reverse leads 9&10 in Fig. 12
SD-90000-01	DPT	OK (Fig. B,C,D or E)
SD-90036-01	None	Wet-Dry supv
SD-90077-01	FXO	See Sec B 7
SD-90257-01	None	24 volt rev bat supv
SD-90275-01	None	Wet-Dry supv
SD-90403-01	None	Requires metallic loop for test
SD-90434-01	DPT	OK with Fig. 1 rev. T&R. See Sec B 1.1.4
SD-90439-01	None	CX signaling
SD-90451-01	None	High-Low, Wet-Dry supv
SD-90506-01	None	Requires metallic ckt for test
SD-90527-01	None	24v rev bat supv
SD-90555-01	None	3- or 4-wire
SD-90558-01	None	See Sec B 3.2
SD-90566-01	DPT	
SD-90580-01	None	Wet-Dry rev battery
SD-90581-01	None	Wet-Dry rev battery
SD-90647-01	None	PCI pulsing
SD-95037-01	DPO	
SD-95060-01	DPT	Loop Incoming. Loop-to-E&M E&M Outgoing. Converter
SD-95061-01	2W E&M	
SD-95079-01	2W E&M	
SD-95079-01	DPO	OK rev bat supv. Auto start of ring
SD-95095-01	2W E&M 4W E&M	
SD-95405-01	None	T&R used independently
SD-95413-01	None	Grd start trunk.
SD-95425-01	DPMO	
SD-95426-01	None	Wet-Dry, bat and grd supv
SD-95436-01	None	SX and DC ringing control
SD-95443-01	4W E&M	
SD-95459-01	DPMO	

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-95462-01	DPT	OK with Fig. E,C or D
SD-95467-01	DPMO	OK with rev bat. (Fig. B)
SD-95470-01	None	Wet-Dry supv
SD-95471-01	None	20 Hz ringing or SX ringing
SD-95474-01	None	Multi-state signaling on T&R
SD-95475-01	None	SX ringing or 20 Hz ringing
SD-95476-01	Yes	Test Circuit
SD-95481-01	Yes	Sender
SD-95486-01	None	SX ringing
SD-95487-01	None	Works with trunks only (DX-1)
SD-95488-01	2W E&M	(DX-2)
SD-95489-01	4W E&M	
SD-95495-01	None	Wet-Dry supv
SD-95504-01	None	CX or SX supv
SD-95513-01	DPT	OK with Fig. C,D or E
SD-95530-01	None	PCI pulsing
SD-95542-01	DPMO	OK with opt Y
SD-95543-01	DPT	OK with Fig. 7 or 8
SD-95545-01	None	Requires metallic ckt for test
SD-95546-01	DPMO	
SD-95560-01	DPMO	Use Fig. 6 only
SD-95563-01	None	Requires DC path
SD-95564-01	None	Requires DC path
SD-95565-01	None	SX or 20 Hz ringing
SD-95566-01	None	High-Low rev bat. supv
SD-95569-01	DPT	Use Fig A or B
	2W E&M	Use Fig C
SD-95585-01	DPT	OK with rev bat. supv (Fig. C or D)
SD-95615-01	None	High-Low supv
SD-95617-01	DPMO	
ES-95668-01	2W E&M	
SD-95673-01	None	Wet-Dry supv
SD-95691-01	None	Wet-Dry supv
SD-95704-01	None	SX ringing
SD-95711-01	None	SX ringing
SD-95731-01	None	3- or 4-wire
SD-95740-01	None	SX control
SD-95744-01	None	Wet-Dry supv
SD-95745-01	None	Wet-Dry supv
SD-95777-01	DPT	
SD-95782-01	None	Wet-Dry supv

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-95789-01	None	SX and Wet-Dry supv
SD-95793-01	None	3- or 4-wire
SD-95846-01	2W E&M	
SD-95850-01	2W E&M	
SD-95851-01	None	DX signal and coin control
SD-95861-01	DPT	
SD-95862-01	DPT	
SD-95876-01	None	See Sec B 3.2
SD-95890-01	Yes	See assoc. trunk ckt
SD-95974-01	2W E&M	
SD-95976-01	2W E&M	
SD-95979-01	DPMO,FXS	Use DPMO or FXS unit as req. by far end
SD-96098-01	DPT	
SD-96117-01	None	CX signal without E&M leads
SD-96149-01	SDPO	
SD-96169-01	None	High-Low supv
SD-96189-01	DPT	
SD-96195-01	None	3-wire trunk
SD-96202-01	None	PCI pulsing
SD-96209-01	None	Wet-Dry supv
SD-96210-01	None	Bat and Grd and rev bat. supv
SD-96216-01	None	Ringdown
SD-96221-01	None	Ringdown
SD-96250-01	None	Wet-Dry supv
SD-96251-01	2W E&M	
SD-96252-01	2W E&M	
SD-96268-01	DPT	
SD-96279-01	DPT	Announcement Trunk
SD-96283-01	DPMO	
SD-96301-01	None	2-way bat and grd supv
SD-96333-01	DPT	
SD-96334-01	None	20 Hz ringing
SD-96340-01	DPT	
SD-96352-01	None	24V rev bat supv
SD-96355-01	DPT	OK with Fig. B,C or D
SD-96363-01	DPT	OK with Fig. D or H
SD-96365-01	None	Wet-Dry supv, SX coin
SD-96366-01	None	PCI pulsing
SD-96369-01	None	Simplex
SD-96370-01	DPMO	
SD-96384-01	Yes	OK with Fig. 5,6,7,9,11,13,15

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-96389-01	None	PCI pulsing
SD-96394-01	None	Ringdown trunk
SD-96395-01	None	Wet-Dry supv, 20 Hz ringing
SD-96398-01	DPMO 2W E&M	Loop Outgoing. E&M-to-Loop E&M Incoming. Converter
SD-96412-01	None	20 Hz ringing
SD-96413-01	DPT	
SD-96452-01	None	Low return loss
SD-96453-01	Yes	Pulse converter circuit
SD-96459-01	DPMO	
SD-96461-01	None	SX or 20 Hz ringing
SD-96463-01	2W E&M	
SD-96467-01	DPMO	OK with Fig. 3,5,9
SD-96469-01	None	SX ringing
SD-96479-01	Yes	Aux Sender. See Sec C1.1
SD-96481-01	2W E&M	OK with E&M supv only
SD-96482-01	2W E&M	OK with E&M supv only
SD-96487-01	2W E&M	
SD-96488-01	2W E&M	
SD-96517-01	Yes	Compat. depends on connected trunk
SD-96541-01	DPMO	
SD-96544-01	None	Requires DC path
SD-97047-01	4W E&M	Use 333B relay, set screw switches for Type II or III Interface. See Sec C 2.2
SD-97570-01	2W E&M	
SD-97571-01	DPT 2W E&M 4W E&M	Use FS1 Use FS2 Use FS3
SD-97572-01	DPT 2W E&M 4W E&M	Use FS1. NG for High-Low Use FS3 Use FS4
SD-97573-01	None	+130 volts simplex on T&R
SD-97574-01	2W E&M 4W E&M	Use FS1 Use FS2
SD-97577-01	DPT 2W E&M 4W E&M	Use FS1. NG for High-Low or DX conversion Use FS3 Use FS4
SD-97578-01	2W E&M	
SD-98060-01	None	130V SX
SD-98061-01	None	High-Low rev bat supv
SD-99301-01	Yes	FSP Receiver

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-99309-01	DPT 2W E&M	Loop Test Circuit E&M
SD-99311-01	DPMO 2W E&M	Loop Test Circuit E&M
SD-99378-01	DPT	
SD-99388-01	DPMO	OK with opt. Y. See Sec. B 2.
SD-99415-01	2W E&M	
SD-99419-01	2W E&M	
SD-99420-01	DPT	Use DPT unit at orig and term end
SD-99434-01	DPMO	OK with FS 22 or 24
SD-99435-01	2W E&M	E&M to SX converter
SD-99446-01	2W E&M	SX to E&M converter
SD-99782-01	None	Transmission only, see SD-1B145-01 for signaling compatibility. See C 2.2 also.
SD-1A120-01	Yes	AMA circuit
SD-1A156-01	DPT 2W E&M	Use FS2 Use FS3
SD-1A157-01	None	Req metallic ckt for tests
SD-1A163-01	2W E&M	Option Z for type III or option Y for type II interface
SD-1A165-01	DPMO	OK for MF. OK DP except with delay dial trunks. See Sec B 1.2 and B2.
SD-1A165-02	DPMO	Up to Issue 5AC see SD-1A165-01 above. Issue 6B OK for MF or DP.
SD-1A165-05	DPMO	OK for MF or DP.
SD-1A166-01	DPT	
SD-1A166-02	DPT	
SD-1A166-05	DPT	
SD-1A167-01	2W E&M	
SD-1A169-01	None	Wet-Dry supv
SD-1A172-01	Yes	Customer DP Receiver
SD-1A173-01	Yes	TT Call Detector
SD-1A175-01	Yes	MF Transmitter
SD-1A176-01	Yes	Network Access Trunk
SD-1A177-01	None	Wet-Dry and simplex supv
SD-1A178-01	DPT	
SD-1A179-01	Yes	DP Transmitter
SD-1A180-01	None	Revertive Pulsing
SD-1A181-01	None	Revertive Pulsing
SD-1A184-01	None	Simplex rering
SD-1A184-05	None	Simplex rering

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-1A185-01	None	DC ring & coin
SD-1A186-01	None	Simplex and marginal signaling
SD-1A187-01	None	Requires metallic ckt for tests
SD-1A187-05	None	Requires metallic ckt for tests
SD-1A189-01	Yes	Conference circuit
SD-1A190-01	None	High-Low supv
SD-1A190-05	None	High-Low supv
SD-1A192-01	DPT	
	DPT	
SD-1A193-01	DPT	
SD-1A195-01	None	PCI pulsing
SD-1A198-01	None	130V dc SX signaling
SD-1A199-01	Yes	Touch-Tone Station Test Set
SD-1A203-01	DPMO	OK for MF. CK DP except with delay dial trunk See Sec B 1.2 and B2.
SD-1A203-05	DPMO	OK for MF. OK DP except with delay dial trunk See Sec B 1.2 and B2.
SD-1A218-01	Yes	Tone or announcement circuit
SD-1A220-01	DPT	See Sec. C 1.13
SD-1A221-01	Yes	Audible ring circuit
SD-1A222-01	Yes	Perm signal, partial dial holding ckt
SD-1A225-01	Yes	Milliwatt and loop around test ckt
SD-1A226-01	Yes	Continuity Polarity Test ckt
SD-1A227-01	Yes	Transmission Test Termination ckt
SD-1A236-01	4W E&M	Opt W for Type III or opt V for Type II
SD-1A236-05	4W E&M	Type II or Type III interface switch
SD-1A237-01	4W E&M	Opt X for Type III or opt W for Type II
SD-1A237-05	4W E&M	Type II or Type III interface switch
SD-1A238-01	DPT	OK incoming only
	DPMO	OK outgoing only
SD-1A239-01	DPMO	Requires 2 channels
SD-1A240-01	FXS	
SD-1A241-01	FXS	
SD-1A244-01	Yes	Attendant loop circuit
SD-1A245-01	DPMO	
SD-1A246-01	Yes	MF Receiver
SD-1A248-01	None	4-wire loop
SD-1A249-01	Yes	3 port conference circuit
SD-1A252-01	2W E&M	Type III interface only
SD-1A252-05	2W E&M	Type II or Type III interface switch
SD-1A254-01	None	130V battery

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-1A255-01	None	SX signaling
SD-1A264-01	DPMO	OK outgoing only
SD-1A264-01	DPT	OK incoming only
SD-1A266-01	DPT	
SD-1A266-05	DPT	
SD-1A287-01	4W E&M	Opt Z for Type III or OPT Y for Type II
SD-1A301-01	2W E&M	SX signaling, use SD-99435-01
SD-1A311-01	DPT	
SD-1A312-05	4W E&M	Type II or Type III interface switch
SD-1A315-01	DPMO, DPT	Requires DPMO and DPT unit at each end of trunk (2 carrier channels)
SD-1A316-01	4W E&M	Type III interface only
SD-1A318-01	4W E&M	Opt Z for Type III or OPT Y for Type II
SD-1B002-01	DPT	OK only with in-band coin & ringback.
SD-1B003-01	DPT	OK with in-band coin & ringback signals or non-coin with wink ringback. See Sec B 5.2.3
SD-1B004-01	2W E&M	Use CAD 9&12 for Type III or CAD 11&13 for Type II interface. See Sec C 2.2
SD-1B005-01	2W E&M	Use CAD 11 for Type III or CAD 13 for Type II interface. See Sec C 2.2
SD-1B006-01	4W E&M	Toward cust use CAD 6 for Type III or CAD 7 for Type II interface. See Sec C 2.2
SD-1B007-01	4W E&M	Toward office see Sec C 2.2
SD-1B008-01	None	Not recommended for transmission reasons.
SD-1B009-01	4W E&M	See Sec C 2.2
SD-1B010-01	DPMO	OK with loop signaling (Z option)
SD-1B016-01	2W E&M	OK with E&M signaling (FS2) only. Type III interface. Uses two carrier channels. See Sec C 2.2
SD-1B102-01	DPT, DPMO 2W E&M	DPT inc, DPMO outg, use opt Z
SD-1B103-01	DPMO 2W E&M	Use opt Y. Two channels required.
SD-1B110-01	2W E&M	Use Opt Z
SD-1B115-01	DPMO DPT	Use Opt Y. Two channels required.
SD-1B116-01	2W E&M DPMO	Outg. Wink ringforward only. Omit option V. Incoming Inc. Type II (opt S) or Type III (opt T) Outg. Wink ringforward only. Omit option V.

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-1B117-01	4W E&M None	Inc. Type II (opt W) or Type III (opt X) Outg. SX signaling. See Sec. C 2.2
SD-1B118-01	4W E&M 4W E&M	Inc. Type II (opt W) or Type III (opt X) Outg. Type II (opt Y) or Type III (opt Z)
SD-1B145-01	4W E&M	Type II (opt W, V) or Type III (opt W, T) See Sec C 2.2
SD-1B154-01	DPMO	
SD-1B183-01	DPMO	
SD-1B185-01	DPT	Use DPT channel unit, INC & OTG
SD-1B186-01	DPT	
SD-1B188-01	None	SX supv
SD-1B191-01	DPMO	Use DPMO channel unit, INC & OTG
SD-1B193-01	DPMO	
SD-1B195-01	DPMO	
SD-1B197-01	DPMO	
SD-1B250-01	DPMO	
SD-1B276-01	4W E&M	Type I (opt X) or Type II (opt W) interface
SD-1C004-01	2W E&M	SX signaling, use SD-99435-01
SD-1C234-01	2W E&M	SX signaling, use SD-99435-01
SD-1C353-01	2W E&M	Use FS1&3
	4W E&M	Use FS1
SD-1C354-01	2W E&M	Use FS1&3
	4W E&M	Use FS1
SD-1D203-01	Yes	405A Data Set
SD-1D204-01	Yes	405B Data Set
SD-1E000-01	FXO	
SD-1E003-01	DPT	See Sec C 1.1.3
SD-1E004-01	DPT	
SD-1E007-01	2W E&M	SX signaling, use SD-99446-01
SD-1E011-01	FXO	
SD-1E088-01	FXS	
SD-1E201-01	FXS	NG with Toll Conn or Rev Bat.
SD-1E202-01	FXS	
SD-1E213-01	FXS	
SD-1E219-02	None	Two-Way ringdown
SD-1E220-02	2W E&M	Two-wire transmission facility
	4W E&M	Four-wire transmission facility
SD-1E240-01	DPT	
SD-1E304-01	FXO	NG with toll diversion.
SD-1E306-01	FXS	NG with toll diversion.
SD-1E307-01	FXS	NG with toll diversion.

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-1E318-01	None	Two-way ringdown
SD-1E321-01	2W E&M	
SD-1E446-01	None	See Sec C 2.1
SD-1E500-01	None	See Sec C 2.1
SD-1E500-02	None	See Sec C 2.1
SD-1E505-01	2W E&M	SX signaling, use SD-99446-01
SD-1G228-01	None	High-Low supv
SD-1G235-01	4W E&M	
SD-1H027-01	None	SX signaling
SD-1H042-01	2W E&M	
SD-1H043-01	DPT	
SD-1H044-01	None	Wet-Dry supv
SD-1H061-01	2W E&M	
SD-1H065-01	2W E&M	
SD-1H083-01	2W E&M	
SD-1H084-01	2W E&M	
SD-2A014-01	4W E&M	
SD-2H101-01	DPT	
SD-2H103-01	DPMO	
SD-2H103-02	DPMO	
SD-2H104-01	DPT	
SD-2H105-01	None	High-Low, Wet-Dry supv
SD-2H107-01	None	Wet-Dry, High-Low supv
SD-2H108-01	None	Three-Wire, SX rering
SD-2H109-01	None	Sleeve lead supv
SD-2H110-01	DPT	
SD-2H111-01	DPT	
SD-2H112-01	4W E&M	T,J wiring for Type II Interface. S,H wiring for Type III Interface.
SD-2H113-01	None	130V coin battery
SD-2H141-01	None	Sleeve lead supv
SD-2H144-01	DPO	Use option W
SD-2H147-01	None	Wet-Dry supv
SD-2H148-01	None	4-state supv. Incompatible ICT
SD-2H149-01	DPT	
SD-2H151-01	None	Polar duplex signaling
SD-2H154-01	DPT	
SD-2H155-01	None	Supv over sleeve leads
SD-2H156-01	None	Supv over sleeve leads
SD-2H157-01	4W E&M	W wiring for Type II Interface. X wiring for Type III Interface.

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
SD-2H158-01	4W E&M	Z wiring for Type II Interface. Y wiring for Type III Interface.
SD-2H173-01	FXO	
SD-2H174-01	FXS	
SD-2H180-01	None	Signaling on A&B leads
SD-2H186-01	FXO	
SD-3B204-01	4W E&M	
SD-3B205-01	4W E&M	
SD-3H220-01		See CPS's below
CPS-FB360	DPMO	
CPS-FB361	2W E&M	Type II interface only
CPS-FB371	DPT	
CPS-FB382	2W E&M	Type II interface only
CPS-FB391	2W E&M	Type III interface only
CPS-FB399	DPMO	
SD-5E001-01	FXS	NG with toll diversion or cord ckts with ringing feature
SD-5E004-01	2W E&M	
SD-5E028-01	2W E&M	
SD-5E041-01	4W E&M	
	2W E&M	
SD-5E046-01	DPT	
SD-5E047-01	DPT	
SD-7C005-01	4W E&M	Type II interface only
SD-7C022-01	4W E&M	See Sec C 2.2. Use 333B relay, set screw switches for type II or III interface.
ES-226524	None	Revertive Pulsing
ES-239443	None	Revertive Pulsing
ES-240053	None	Low res TG test
ES-240102	None	Revertive Pulsing
ES-240252	None	Short range
ES-358100	None	T and R to 24V bat on return to normal
ES-358101	None	T and R to 24V bat on return to normal
ES-241921	None	Ringdown, Wet-Dry supv
ES-360040	None	Wet-Dry supv
S-30213	Yes	(Stromberg-Carlson trk)
S-30269	Yes	(Stromberg-Carlson trk)

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER</u>	<u>CHANNEL UNITS</u>	<u>REMARKS</u>
S-30299	None	(Stromberg-Carlson trk)
S-30315	Cond	OK with Fig 9(S-C co. ckt)
S-33164	Yes	(Stromberg-Carlson trk)
S-33266	Yes	(Stromberg-Carlson trk)
S-408001	Yes	(Stromberg-Carlson trk)
S-408007	Yes	(Stromberg-Carlson trk)
S-408092	Yes	(Stromberg-Carlson trk)
103A	Yes	Data set
103E	Yes	Data set
103G	Yes	Data set
108A	Yes	Data set
108B	Yes	Data set
108C	Yes	Data set
108D	Yes	Data set
203A	Yes	Data set
405A	Yes	Data set
405B	Yes	Data set