

F-TYPE SIGNALING SYSTEM SIGNALING COMPATIBILITY

1. GENERAL

1.02 This section is reissued to provide the latest compatibility information.

1.01 This section furnishes information on the signaling compatibility of F-type signaling systems with various switching circuits.

THE FOLLOWING PARAGRAPHS AND CIRCUITS
HAVE BEEN ADDED OR REVISED.

GENERAL INFORMATION
3.3, 3.7

DETAILED CIRCUIT INFORMATION
NONE

COMPATIBILITY LISTING

SD25663	SD66740	SD1E003
SD25721	SD66741	SD1E004
SD25736	SD68355	SD1G235
SD25766	SD68401	SD2H147
SD26047	SD68485	SD2H149
SD26257	SD68529	ES6G108
SD26282	SD68966	
SD27001	SD90257	
SD27012	SD95459	
SD27015	SD95546	
SD27148	SD95563	
SD27516	SD95564	
SD27517	SD95979	
SD27729	SD96544	
SD31693	SD99388	
SD55275	SD99419	
SD55379	SD99420	
SD55844	SD99435	
SD55889	SD99446	
SD56032	SD1A301	
SD56119	SD1B010	
SD56123	SD1B110	
SD56225	SD1C234	
SD64221	SD1C353	
ES65669	SD1C354	

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1N29
COMMON SYSTEMS

TYPE F SIGNALING SYSTEM
FW- UNITS
SIGNALING COMPATIBILITY
WITH SWITCHING CIRCUITS

BELL TELEPHONE LABORATORIES,
INCORPORATED

AT&T CO STANDARD
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GENERAL INFORMATION

1.0 DESCRIPTION OF THIS DRAWING

1.0.1 VERTICAL LINES IN THE MARGIN ARE USED TO INDICATE CHANGES OR ADDITIONS IN THE TEXT SINCE THE LAST ISSUE OF THE DRAWING.

1.1 THE COMPATIBILITY INFORMATION IN THIS DRAWING APPLIES TO FOUR WIRE E+M LEAD UNITS WHICH ARE USED IN A BAY WHICH IS DESIGNED FOR A SINGLE TYPE F SF UNIT PER CIRCUIT. THIS EQUIPMENT ARRANGEMENT IS PROVIDED PRIMARILY FOR USE IN FOUR WIRE SWITCHING OFFICES ON INTER-TOLL TRUNKS. NO LOOP OR CUSTOMER LINE TYPE F SF UNITS ARE AVAILABLE IN THIS SINGLE UNIT ARRANGEMENT. WHERE COMPATIBILITY IS SHOWN FOR TWO WIRE E+M LEAD CIRCUITS AN EXTERNAL FOUR WIRE TERMINATING SET IS REQUIRED.

IN TWO-WIRE SWITCHING OFFICES AND WHERE CUSTOMER LINE OR LOOP ARRANGEMENTS ARE REQUIRED A BAY THAT USES AN FU- UNIT PLUS AUXILIARY UNIT PER CIRCUIT SHOULD BE PROVIDED. THESE ARRANGEMENTS ARE COVERED IN SD-99421-08 (BSP-179-100-308).

1.2 SECTION B OF THIS DRAWING DESCRIBES CERTAIN TYPE F SIGNALING UNITS AND CERTAIN OF THEIR CHARACTERISTICS. SECTION C PROVIDES DETAILED SIGNALING COMPATIBILITY INFORMATION ON TYPE F SIGNALING UNITS WHEN WORKING WITH CERTAIN CLASSES OF SWITCHING CIRCUITS. SECTION D PROVIDES STILL MORE DETAILED INFORMATION IN THAT IT LISTS THE COMPATIBILITY RATING OF SWITCHING CIRCUITS WITH TYPE F SIGNALING UNITS.

1.3 SECTION D LISTS SWITCHING CIRCUIT NUMBERS FOLLOWED BY THE TYPE F SIGNALING UNIT CODE WITH WHICH THEY ARE COMPATIBLE. THE STANDARD OR PREFERRED UNIT IS LISTED. IN SOME CASES ANOTHER UNIT MAY BE SUBSTITUTED AS COVERED IN SECTIONS B AND C. WHERE SPECIAL PROVISIONS ARE REQUIRED FOR COMPATIBLE OPERATION, THESE ARE LISTED UNDER NOTES OR A REFERENCE IS MADE TO SECTION B OR C OF THIS DRAWING. IF NO UNITS ARE COMPATIBLE, THE MAJOR REASONS ARE LISTED UNDER NOTES.

2.0 DESCRIPTION OF TYPE F SIGNALING UNITS.

2.1 TYPE F SINGLE-FREQUENCY SIGNALING UNITS CONVERT DC SIGNALING TO 2600 HZ TONE WHICH THEN USES THE NORMAL SPEECH TRANSMISSION PATH OF A CARRIER-CHANNEL OR 4-WIRE VOICE FREQUENCY LINE FACILITY. IN GENERAL, SF TONE-ON SIGNIFIES ON-HOOK. THIS DRAWING COVERS 4-WIRE E+M LEAD UNITS ONLY. THESE TYPE F UNITS ARE COMPATIBLE WITH TYPE F AND MOST OF THE TYPE E UNITS AT THE OTHER END OF THE CIRCUIT. DIAL PULSING IS LIMITED TO DIALS OR SENDERS WITH A NOMINAL SPEED OF 10 PULSES PER SECOND.

2.2 A MISUNDERSTANDING SOMETIMES ARISES IN THE WORDS THAT ARE USED IN CD'S, SD'S AND BSP'S TO DESCRIBE SIGNALING FUNCTIONS. FOR EXAMPLE, WHEN AN ON-HOOK SIGNAL IS PASSED FORWARD, THE SF SYSTEM SENDS TONE-ON WHICH OPERATES THE TERMINATING SF RECEIVER WHICH, IN TURN, RELEASES OR DISCONNECTS THE TERMINATING SWITCHING CIRCUIT; ALSO CONVERSELY. IN THIS DRAWING THE WORDS THAT ARE USED ARE THOSE THAT ARE MOST APPROPRIATE TO THE FUNCTION BEING DESCRIBED.

GENERAL INFORMATION

3.0 TYPE F SIGNALING CHARACTERISTICS.

FOR COMPATIBLE OPERATION OF TYPE F SIGNALING WITH SWITCHING EQUIPMENT, THE FOLLOWING CHARACTERISTICS AND REQUIREMENTS MUST BE CONSIDERED.

3.1 VOICE SIMULATION OF SF TONE (TALK-OFF)

3.1.1 VOICE SIMULATION OF SINGLE FREQUENCY TONE MAY CAUSE CLICKS, FALSE DISCONNECTS, OR FALSE RINGING SIGNALS. PROTECTION AGAINST TALK-OFF IS PROVIDED PARTLY BY GUARD ACTION IN THE SF RECEIVER AND PARTLY BY TIMING. THE TIMING THAT CAN BE PROVIDED IN THE SF UNIT IS LIMITED BY THE NEED TO PASS DIAL PULSES AND RING-FORWARD SIGNALS. CONSEQUENTLY, THE DRAWINGS OF ALL STANDARD INCOMING TRUNK CIRCUITS (EXCEPT REVERTIVE PULSING CIRCUITS), AND ALL OUTGOING CAMA TRUNK CIRCUITS WHICH CAN BE DISCONNECTED BY AN ON-HOOK SIGNAL FROM THE TERMINATING END, HAVE BEEN MODIFIED TO PROVIDE A MINIMUM OF 140 MS DISCONNECT TIME TO ASSIST IN PREVENTING FALSE DISCONNECTS DUE TO TALK-OFF. THIS LONG DISCONNECT TIME WAS ACHIEVED ON SOME CIRCUITS BY CHANGING THE DISCONNECT RELAY, ON OTHERS BY ADDING A DIODE ACROSS THE RELAY WINDING. ON EXISTING CIRCUITS A 446F OR SIMILAR DIODE MAY BE USED, RATHER THAN REPLACING THE RELAY, PROVIDED THE 140MS MINIMUM RELEASE TIME IS ACHIEVED.

3.1.2 ON NON-COIN E+M LEAD TYPE RECORDING-COMPLETING, TSP, TSPS, AND CONTROLLED-RING TOLL-SWITCHING TRUNKS, A WINK SIGNAL IS USED TO CONTROL RINGING TO THE CUSTOMER. WHEN SF SIGNALING IS USED ON THESE TRUNKS, A LOW PROBABILITY EXISTS THAT A VOICE SIMULATION OF THE SIGNALING TONE CAN CAUSE A FALSE RING DURING THE CALL.

THESE TRUNK CIRCUITS ARE RATED COMPATIBLE BECAUSE THE PROBABILITY OF A FALSE RING IS SO LOW THAT CIRCUIT MODIFICATIONS TO IMPROVE THE SITUATION ARE NOT CONSIDERED JUSTIFIED. HOWEVER, CONSIDERATION SHOULD BE GIVEN TO ASSIGNING THESE TRUNKS TO FACILITIES THAT DO NOT USE SF SIGNALING, WHEN SUCH FACILITIES ARE AVAILABLE.

3.1.3 ALTHOUGH SXS CIRCUITS PROVIDE AMPLE DISCONNECT TIME TO OVER-RIDE FALSE ON-HOOKS GENERATED BY VOICE-SIMULATED SIGNALS, ANY FALSE ON-HOOK GENERATED IN AN SF LINK BETWEEN SXS CIRCUITS WILL BE PASSED ALONG IMMEDIATELY. THUS, WHEN SXS IS USED AS A TANDEM TO ANY MACHINE SWITCHING OFFICE HAVING FAST DISCONNECT TRUNKS, THESE TRUNKS MUST ALSO BE MODIFIED TO BE SLOW DISCONNECT IF SF SIGNALING IS USED IN THE SXS LINK. SIMILARLY, FOR BUILT-UP TRUNKS HAVING E+M LINKS, A SLOW DISCONNECT TRUNK CIRCUIT MUST BE PROVIDED IN THE CONNECTING LOOP FACILITY EVEN THOUGH THE SF SIGNALING EQUIPMENT IS IN THE E+M LINKS.

3.2 AVAILABILITY OF TRANSMISSION PATH.

3.2.1 CUT CIRCUITS WITHIN THE TYPE F SIGNALING UNITS ARE USED TO CUT AND TERMINATE THE TRANSMITTING TRANSMISSION PATH WHEN BOTH ENDS ARE ON-HOOK AND ALSO MOMENTARILY AFTER ANY CHANGE IN SIGNALING STATE. THE DURATION OF THIS CUT MUST BE CONSIDERED WHEN TONES ARE SENT FROM THE SWITCHING EQUIPMENT AFTER A CHANGE IN SIGNALING STATE. THEREFORE AUDIBLE TONE WITH FLASH CANNOT BE SENT THROUGH TYPE F SIGNALING SYSTEMS. THE FLASH WILL BE REPRODUCED BUT THE TONE WILL EITHER BE SHORTENED OR

GENERAL INFORMATION

ELIMINATED. STANDARD MF PULSING IS NOT AFFECTED BY THESE CUT CIRCUITS BECAUSE THE DELAY OF THE SF SYSTEM PLUS THE TIME REQUIRED TO ATTACH A REGISTER IS IN EXCESS OF THE CUT TIMING.

3.2.2 FWA AND FWB UNITS

THE FWA AND FWB 4-WIRE E+M SIGNALING UNITS HAVE THE TRANSMITTING TRANSMISSION PATH CONTINUOUSLY CUT WHEN BOTH ENDS ARE ON-HOOK. WHEN THE NEAR END GOES OFF-HOOK, THE TRANSMITTING TRANSMISSION PATH AT THE NEAR END IS REESTABLISHED IN 90 TO 160 MS, AT THE FAR END THE TRANSMITTING TRANSMISSION PATH IS REESTABLISHED IN 400 TO 750 MS. IF THE FAR END GOES OFF-HOOK DURING THIS INTERVAL THE CUT TIMING IS CHANGED TO THE SHORTER 90 TO 160 MS INTERVAL

IF BOTH ENDS ARE OFF-HOOK AND THE NEAR END GOES ON-HOOK, THE TRANSMITTING TRANSMISSION PATH IS CUT AND THEN REESTABLISHED IN 400 TO 750MS.

3.3 SIGNALING DELAY

3.3.1 SIGNALING DELAY THROUGH AN SF SYSTEM CONSISTS OF THE DELAY FROM THE CHANGE OF STATE OF THE DC INPUT TO APPLICATION OR REMOVAL OF SIGNALING TONE, THE TRANSIT TIME OF THE TRANSMISSION FACILITY AND THE RESPONSE TIME OF THE DISTANT UNIT TO PRESENCE OR ABSENCE OF TONE.

WITH FWA OR FWB UNITS

THE DELAY FROM ON-HOOK TO OFF-HOOK IS 14 TO 20 MILLI-SECONDS FROM THE TIME THE M-LEAD IS CHANGED FROM GROUND TO BATTERY UNTIL SIGNALING TONE IS REMOVED + THE TRANSIT TIME OF THE FACILITY + 39 TO 61 MILLI-SECONDS RECOGNITION OF TONE REMOVAL AND GROUNDING THE E-LEAD. A TOTAL OF 53 TO 81 MILLI-SECONDS + TRANSIT TIME.

THE DELAY FROM OFF-HOOK TO ON-HOOK WITH EITHER AN FWA OR FWB AT THE TRANSMITTING END AND AN FWA AT THE RECEIVING END IS 14 TO 20 MILLI-SECONDS FROM THE TIME THE M-LEAD IS CHANGED FROM BATTERY TO GROUND UNTIL TONE IS TRANSMITTED + THE TRANSIT TIME OF THE FACILITY + 31 TO 35 MILLI-SECONDS RECOGNITION OF TONE PRESENCE AND REMOVAL OF GROUND FROM THE E-LEAD. A TOTAL OF 45 TO 55 MILLI-SECONDS + TRANSIT TIME. WITH AN FWB UNIT AT THE RECEIVING END THE RESPONSE TIME IS 48 TO 52 MILLI-SECONDS GIVING A TOTAL DELAY OF 62 TO 72 MILLI-SECONDS + TRANSIT TIME.

3.4 COMPATIBILITY OF LEADS

3.4.1 COMPATIBILITY MUST BE ASSURED BETWEEN THE SIGNALING LEADS OF THE SF UNITS AND THE SWITCHING EQUIPMENT. THAT IS, THESE LEADS MUST HAVE THE PROPER POLARITY, VOLTAGE AND RESISTANCE AND EACH CIRCUIT MUST PROVIDE THE SIGNALS NEEDED BY THE OTHER IN PROPER TIMING AND IN-PROPER SEQUENCE.

3.5 COMPATIBILITY OF TYPE F SF UNITS WITH OTHER SF UNITS

3.5.1 SF SIGNALING UNITS ARE USED IN PAIRS WITH ONE AT EACH END OF THE CIRCUIT. ASSUMING THE COMPATIBILITY OF THE SPECIFIC SF UNIT WITH THE SWITCHING CIRCUITS AND TYPE OF PULSING INVOLVED, THE TYPE F E+M UNITS ARE COMPATIBLE WITH OTHER E+M OR LOOP TYPE F UNITS OR ANY MODIFIED TYPE E E+M OR LOOP UNITS EXCEPT THE E1D. SEE SECTION C 2.0 FOR CUSTOMER LINE APPLICATIONS. ADDITIONAL INFORMATION ON COMPATIBILITY BETWEEN UNITS MAY BE FOUND IN CD-1C240-01.

GENERAL INFORMATION

3.6 GLARE DETECTION

TWO WAY E+M TRUNKS ALWAYS HAVE THE POSSIBILITY OF SIMULTANEOUS SEIZURES AT BOTH ENDS. WHEN SF SIGNALING IS USED, THE PROBABILITY OF SUCH AN OCCURRENCE IS INCREASED BECAUSE OF THE DELAY IN TRANSMITTING A SIGNAL THROUGH THE SYSTEM. SOME CROSSBAR NO. 5 OFFICES HAVE A GLARE DETECTION FEATURE WHICH CAN BE USED TO MINIMIZE THIS UNGUARDED INTERVAL, PROVIDED THE ROUND TRIP DELAY THROUGH THE SIGNALING SYSTEM EXCEEDS 100 MILLISECONDS. THIS FEATURE, WHEN AVAILABLE, SHOULD BE USED WITH SF SIGNALING BECAUSE THE ROUND TRIP TIME ALWAYS EXCEEDS THIS VALUE.

3.7 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.

DETAILED CIRCUIT INFORMATION

1.0 E+M LEAD UNITS FWA AND FWB

1.0.1 THE FWA IS FOR USE WITH STANDARD E+M SWITCHING CIRCUITS. THE FWB IS FOR USE ON AUTOVON INTER-OFFICE CIRCUITS. IT MAY HOWEVER BE SUBSTITUTED FOR THE FWA ON MF CIRCUITS OR AT THE ORIGINATING END OF ONE WAY DP CIRCUITS.

1.1 AT ORIGINATING END

1.1.1 ALL DIAL-PULSE ORIGINATING E+M UNITS REQUIRE M-LEAD PULSE CORRECTOR, SD-99766-01, WHEN THE DIAL PULSES ORIGINATE FROM CUSTOMER DIALS WITHOUT ADEQUATE PULSE CORRECTION. THE M-LEAD PULSE CORRECTOR IS NOT REQUIRED IF THE DIAL PULSES ORIGINATE FROM SENDERS WITH LOOP OPTION OR FROM SENDERS DIRECTLY AS M-LEAD PULSES, OR FROM OPERATOR DIALS, UNLESS THE PULSES HAVE BEEN REPEATED BY TWO OR MORE TRUNK CIRCUITS WITHOUT ADEQUATE PULSE CORRECTION.

OUTGOING TRUNK CIRCUIT SD-31795-01, FIG. 2, (PULSE CORRECTION OPTION) DOES NOT PROVIDE ADEQUATE PULSE CORRECTION FOR E+M SF UNITS AND REQUIRES THE USE OF THE M-LEAD PULSE CORRECTOR.

WHEN PULSING FROM A SENDER INTO A TRUNK CIRCUIT WHICH REPEATS PULSES TO THE M LEAD, THE LOOP PULSING OPTION IN THE SENDER SHOULD NORMALLY BE USED. WHERE IT IS ESSENTIAL THAT BATTERY AND GROUND PULSING BE USED ON SPLIT TRUNK GROUPS BECAUSE SOME OF THE TRUNKS ARE ON LOOP PHYSICAL FACILITIES, AN M-LEAD PULSE CORRECTOR IS REQUIRED ON THOSE TRUNKS WHICH USE E+M TYPE SF.

WHEN PULSING DIRECTLY FROM E+M PBX TRUNK OR TIE TRUNK CIRCUITS, AN M-LEAD PULSE CORRECTOR IS NOT REQUIRED PROVIDED ALL OF THE PBX STATIONS HAVE MODERN DIALS (6-TYPE OR HIGHER) WITH A SPEED RANGE OF

8 TO 11 PULSES PER SECOND AND A PERCENT BREAK RANGE OF 58 TO 64 PERCENT AND NO MORE THAN THREE RINGERS ARE USED ON ANY STATION.

1.1.2 ALL E+M LEAD UNITS ARE COMPATIBLE FOR MF PULSING

1.2 AT TERMINATING END

1.2.1 ALL E+M UNITS ARE COMPATIBLE FOR MF PULSING BUT REQUIRE SLOW DISCONNECT TRUNK CIRCUITS.

1.2.2 THE FWA UNIT IS COMPATIBLE FOR DIAL PULSING WHEN THE DIAL PULSES ORIGINATE FROM SENDERS OR OPERATORS. NO PULSE CORRECTION IS REQUIRED IN THE STEP-BY-STEP INCOMING TRUNK CIRCUIT FOR SUCH DIAL PULSES. SLOW DISCONNECT TRUNK CIRCUITS ARE REQUIRED.

1.2.3 THE FWA UNIT IS COMPATIBLE FOR ALL DIAL-PULSING BUT REQUIRES PULSE CORRECTION IN THE INCOMING TRUNK CIRCUIT FOR STEP-BY-STEP WHEN THE PULSING ORIGINATES FROM CUSTOMER DIALS. AN M-LEAD PULSE CORRECTOR AT THE ORIGINATING END DOES NOT OBVIATE THE NEED FOR THIS INCOMING TRUNK CIRCUIT PULSE CORRECTION. SLOW DISCONNECT TRUNK CIRCUITS ARE REQUIRED.

1.2.4 TERMINATING END DIAL PULSE UNITS REQUIRE THE PROVISION OF A CONTACT PROTECTION OR PULSE SHAPING NETWORK ON THE E LEAD OF THE ASSOCIATED TRUNK CIRCUIT IN ORDER TO ASSURE ADEQUATE CONTACT LIFE ON THE MINIATURE WIRE SPRING RELAY USED IN THE TYPE F SYSTEM. MOST DIAL PULSE RECEIVING TRUNK CIRCUITS PROVIDE SUCH PROTECTION. WHERE IT IS PROVIDED ON AN OPTIONAL BASIS THE SPECIFIC OPTION REQUIRED IS SHOWN IN SECTION D.

DETAILED CIRCUIT INFORMATION

1.2.5 THE FWB UNIT IS NOT COMPATIBLE AT THE TERMINATING END OF DIAL-PULSE TRUNKS.

2.0 CUSTOMER-LINES, PBX TRUNKS AND PBX OFF-PREMISES STATIONS.

2.1 STATION END

2.1.1 THE FWA IN CONJUNCTION WITH DIAL LONG LINE CIRCUIT SD-96252-01 MAY BE USED AT THE STATION END OF A CUSTOMER-LINE, LOOP START PBX TRUNK OR PBX OFF-PREMISES STATION WITH ANY OF THE APPROVED UNITS AT THE OTHER END.

2.1.2 MODERN DIALS (6-TYPE OR HIGHER) WITH A SPEED RANGE OF 8 TO 11 PULSES PER SECOND AND A PERCENT BREAK RANGE OF 58 TO 64 PERCENT SHOULD BE USED.

2.1.3 THE LOOP RESISTANCE BETWEEN THE DIAL LONG LINE CIRCUIT, SD-96252-01 AND THE STATION SHOULD NOT EXCEED 3000 OHMS AND THE LEAK RESISTANCE ON THIS LOOP SHOULD BE MAINTAINED TO A MINIMUM OF 30K OHMS.

2.1.4 THE RECEIVE T1 AND R1 LEADS OF THE 4-WIRE TERM SET MUST BE CONNECTED TO THE SHORTING LEADS PROVIDED BY THE DIAL LONG LINE CIRCUIT IN THE IDLE CONDITION. THE RESISTANCE OF THESE LEADS SHOULD NOT EXCEED 25 OHMS.

2.1.5 THE OPTION THAT PROVIDES A DIODE SHUNT ON THE E RELAY OF DIAL LONG LINE CIRCUIT SD-96252-01 SHOULD NORMALLY BE USED. THIS PROVIDES ADDITIONAL DELAY IN THE APPLICATION OF RINGING AND THEREFORE MINIMIZES THE POSSIBILITY OF FALSE RINGS DUE TO VOICE SIMULATION OF THE SIGNALING TONE. THE RINGING INTERVAL IS OF COURSE SHORTENED BY THE TOTAL DELAY IN THE SYSTEM, INCLUDING

THAT ADDED BY THE DIODE. THIS IS NOT SERIOUS PROVIDED THAT A STANDARD TWO SECOND RINGING INTERVAL IS USED. IN THOSE CASES WHERE THE NUMBER ASSIGNMENT IS SUCH THAT ONE HALF SECOND CODE RINGING IS USED IT MAY BE NECESSARY TO REMOVE THE DIODE AND TOLERATE THE HIGHER PROBABILITY OF FALSE RINGS.

2.1.6 THIS ARRANGEMENT CANNOT BE USED ON TWO PARTY OR MULTI-PARTY LINES. NO MORE THAN 3 C4A RINGERS SHOULD BE USED ON THE STATION LOOP.

2.1.7 WHEN AN FWA IS USED WITH THE E2L OR E1P AT THE OTHER END, THE LOOP LIMITS AT THAT END ARE THOSE SHOWN FOR THE E2L OR E1P WHEN USED WITH AN E4B. SEE SD-99421-04 (BSP-179-100-304).

2.1.8 NO M LEAD PULSE CORRECTOR IS REQUIRED WITH THIS ARRANGEMENT

2.2 CENTRAL OFFICE OR PBX LINE CIRCUIT END

2.2.1 THE FWA IN CONJUNCTION WITH DIAL LONG LINE CIRCUIT SD-96251-01 MAY BE USED ON CUSTOMER-LINES, LOOP START PBX TRUNKS OR PBX OFF-PREMISES STATIONS WITH EITHER AN E4B, E3B, FWA, FA- OR FB- AT THE OTHER END.

2.2.2 THE LOOP LIMIT BETWEEN THE DIAL LONG LINE CIRCUIT AND THE SWITCHING EQUIPMENT IS DEPENDENT ON THE ASSOCIATED SWITCHING EQUIPMENT.

2.2.3 THIS ARRANGEMENT CANNOT BE USED ON TWO PARTY OR MULTI-PARTY LINES.

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT.NUMBER AND TYPE OF PULSING</u>	<u>COMPATIBILITY</u>	<u>NOTES</u>
ES-20139-01	NO	LOOP
ES-20139-02	NO	LOOP
ES-20292-01	NO	LOOP
ES-20293-01	NO	LOOP
ES-20545-01	NO	LOOP
SD-20746-01	NO	LOOP
ES-21030-01	NO	LOOP
SD-21031-01	NO	LOOP
SD-21031-02	NO	LOOP
SD-21032-02	NO	LOOP
SD-21032-03	NO	LOOP
SD-21036-01	NO	LOOP
SD-21043-01	NO	LOOP
SD-21053-01	NO	LOOP
SD-21053-02	NO	LOOP
SD-21115-01	NO	LOOP
SD-21115-03	NO	LOOP
SD-21115-05	NO	LOOP
SD-21115-07	NO	LOOP
SD-21116-01	NO	LOOP
SD-21116-03	NO	LOOP
SD-21130-01	NO	LOOP
SD-21339-01	NO	LOOP
SD-21349-01	NO	LOOP
SD-21364-01	NO	LOOP
SD-21370-01	NO	LOOP
SD-21441-01	NO	LOOP
SD-21451-01	NO	LOOP
SD-21504-01	NO	LOOP
SD-21504-02	NO	LOOP
SD-21504-03	NO	LOOP
SD-21504-04	NO	LOOP
SD-21504-05	NO	LOOP
SD-21504-06	NO	LOOP
SD-21505-01	NO	LOOP
SD-21505-02	NO	LOOP
SD-21505-03	NO	LOOP
SD-21542-01	NO	LOOP
SD-21544-01	NO	LOOP
SD-21545-01	NO	LOOP
SD-21560-01	NO	LOOP
SD-21572-01	NO	LOOP
SD-21578-01	NO	LOOP
SD-21600-01	NO	LOOP
SD-21627-01	NO	LOOP
SD-21628-01	NO	LOOP
SD-21630-01	NO	LOOP
SD-21821-01	NO	LOOP
SD-21822-01	NO	LOOP
SD-21823-01	NO	LOOP

ATTACHMENT TO
SEC.179-100-306

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT.NUMBER AND TYPE OF PULSING</u>	<u>COMPATIBILITY</u>	<u>NOTES</u>
SD-21859-01	NO	LOOP
SD-21917-01	NO	LOOP
SD-21918-01	NO	LOOP
SD-21946-01	NO	LOOP
SD-21949-01	NO	LOOP
SD-21972-01	NO	LOOP
SD-21974-01	NO	LOOP
SD-21981-01	NO	LOOP
SD-21982-01	NO	LOOP
SD-25020-01	NO	LOOP
SD-25022-01	NO	LOOP
SD-25024-01	NO	LOOP
SD-25119-01	NO	LOOP
SD-25120-01	NO	LOOP
SD-25124-01	NO	LOOP
SD-25127-01	NO	LOOP
SD-25210-01	NO	LOOP
SD-25218-01	NO	LOOP
SD-25259-01	NO	LOOP
SD-25292-01	NO	LOOP
SD-25295-01	NO	LOOP
SD-25302-01	NO	LOOP
SD-25303-01	NO	LOOP
SD-25304-01	NO	LOOP
SD-25305-01	NO	LOOP
SD-25329-01	NO	LOOP
SD-25351-01	NO	LOOP
SD-25356-01	NO	LOOP
SD-25357-01	NO	LOOP
SD-25420-01	NO	LOOP
SD-25428-01	NO	LOOP
SD-25446-01	NO	LOOP
SD-25462-01	NO	LOOP
SD-25503-01	NO	LOOP
SD-25517-01	NO	LOOP
SD-25519-01	NO	LOOP
SD-25520-01	NO	LOOP
SD-25552-01	NO	LOOP
SD-25578-02	NO	LOOP
SD-25581-01	NO	LOOP
SD-25582-01	NO	LOOP
SD-25583-01	NO	LOOP
SD-25663-01	NO	LOOP
SD-25655-01	FWA	
SD-25665-01	NO	LOOP
SD-25666-01	NO	LOOP
SD-25667-01	FWA	
SD-25689-01	NO	LOOP
SD-25690-01	NO	LOOP
SD-25694-02	NO	LOOP

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER AND TYPE OF PULSING</u>	<u>COMPATIBILITY</u>	<u>NOTES</u>
SD-25696-01	NO	LOOP
SD-25698-01	NO	LOOP
SD-25708-01	NO	LOOP
SD-25708-02	NO	LOOP
SD-25708-03	NO	LOOP
SD-25711-01	NO	LOOP
SD-25721-01	NO	REQUIRES METALLIC PATH
SD-25736-01	NO	REQUIRES METALLIC PATH
SD-25739-01	NO	LOOP
SD-25739-02	NO	LOOP
SD-25739-03	NO	LOOP
SD-25739-04	NO	LOOP
SD-25766-01	NO	REQUIRES METALLIC PATH
SD-25768-01	FWA	
SD-25816-01	NO	LOOP
SD-25823-01	NO	LOOP
SD-25823-02	NO	LOOP
SD-25832-01	NO	LOOP
SD-25833-01	NO	LOOP
SD-25842-02	FWA	
SD-25843-01	FWA	
SD-25844-01	FWA	
SD-25845-01	FWA	
SD-25846-02	FWA	
SD-25847-01	FWA	
SD-25849-01	NO	LOOP
SD-25850-01	NO	LOOP
SD-25851-01	NO	LOOP
SD-25853-01	FWA	
SD-25868-01	NO	LOOP
SD-25875-01	NO	LOOP
SD-25887-01	NO	LOOP
SD-25889-01	NO	LOOP
SD-25893-01	NO	LOOP
SD-25895-01	FWA	
SD-25902-01	NO	LOOP
SD-25905-01	FWA	
SD-25909-01	FWA	
SD-25910-01	NO	LOOP
SD-25911-01	NO	LOOP
SD-25913-01	NO	LOOP
SD-25913-02	NO	LOOP
SD-25923-01	NO	LOOP
SD-25925-01	NO	LOOP
SD-25926-01	NO	LOOP
SD-25928-01	NO	LOOP
SD-25934-01	NO	LOOP
SD-25943-01	NO	LOOP
SD-25956-01	NO	LOOP

ATTACHMENT TO
SEC. 179-100-306

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER AND TYPE OF PULSING</u>	<u>COMPATIBILITY</u>	<u>NOTES</u>
SD-26047-01 LP	NO	LOOP
SD-26047-01 E+M	FWA	WHEN WORKING WITH SD-96482 AND N OPTION IS USED (STANDARD WIRING PRIOR TO ISSUE 13D) TRANSPOSE E+M LEADS OF TALK AND KP PATHS
SD-26070-01	NO	LOOP
SD-26071-01	NO	LOOP
SD-26073-01 E+M	FWA	
SD-26073-01 LP	NO	LOOP
SD-26074-01 LP	NO	LOOP
SD-26074-01 E+M	FWA	SEE SECT B 3.1.2
SD-26077-01	NO	LOOP
SD-26078-01	NO	LOOP
SD-26079-01	NO	LOOP
SD-26083-01 E+M	NO	ON-HOOK TONE RINGING
SD-26083-01 LP	NO	LOOP
SD-26085-01	NO	LOOP
SD-26086-01	NO	LOOP
SD-26087-01	NO	LOOP
SD-26090-01	NO	LOOP
SD-26091-01	NO	LOOP
SD-26094-01	FWA	
SD-26095-01	NO	LOOP
SD-26096-01	FWA	
SD-26098-01	FWA	SEE SECT B 3.1.2
SD-26099-01	FWA	
SD-26100-01	NO	LOOP
SD-26101-01 E+M	FWA	
SD-26101-01 LP	NO	LOOP
SD-26104-01 E+M	FWA	
SD-26104-01 LP	NO	LOOP
SD-26108-01	NO	LOOP
SD-26110-01	FWA	
SD-26116-01	NO	LOOP
SD-26117-01	NO	LOOP
SD-26122-01 E+M	FWA	
SD-26122-01 LP	NO	LOOP
SD-26123-01 LP	NO	LOOP
SD-26123-01 E+M	FWA	
SD-26126-01	FWA	
SD-26127-01	NO	LOOP
SD-26144-01	NO	LOOP
SD-26148-01	NO	LOOP
SD-26149-01	NO	LOOP
SD-26152-01	NO	LOOP
SD-26183-01	NO	LOOP
SD-26201-01	NO	LOOP
SD-26204-01	NO	LOOP
SD-26209-01	NO	LOOP

SWITCHING CIRCUIT COMPATIBILITY LIST

CKT. NUMBER AND TYPE OF PULSING	COMPATIBILITY	NOTES
SD-26210-01	NO	LOOP
SD-26257-01	NO	LOOP
SD-26282-01	NO	LOOP
ES-26289-01	NO	CUSTOMER LINE
SD-27000-01	FWA	
SD-27001-01	NO	LOOP
SD-27003-01	FWA	
SD-27008-01	FWA	K OPTION REQUIRED SEE SECT C 1.2
SD-27009-01	FWA	
SD-27010-01	NO	LOOP
SD-27012-01	NO	LOOP
SD-27015-01	NO	LOOP
SD-27016-01	NO	LOOP
SD-27036-01	FWA	
SD-27043-01	NO	LOOP
SD-27044-01	FWA	
SD-27051-01	FWA	
SD-27061-01	NO	LOOP
SD-27067-01	NO	LOOP
SD-27079-01	NO	LOOP
SD-27080-01	NO	LOOP
SD-27081-01	FWA	SEE SECT B 3.1.2
SD-27082-01	FWA	SEE SECT B 3.1.2
SD-27083-01	NO	LOOP
SD-27084-01	FWA	SEE SECT B 3.1.2
SD-27092-01 LP	NO	LOOP
SD-27092-01 E+M	FWA	
SD-27097-01	NO	LOOP
SD-27103-01	FWA	
SD-27104-01 LP	NO	LOOP
SD-27104-01 E+M	FWA	
SD-27148-01	NO	LOOP
SD-27516-01	FWA	
SD-27517-01	FWA	
SD-27546-01	NO	LOOP
SD-27550-01	FWA	SEE SECT B 3.1.2
SD-27551-01	FWA	
SD-27554-01	NO	LOOP
SD-27555-01	NO	LOOP
SD-27580-01	NO	LOOP
SD-27581-01	NO	LOOP
SD-27593-01	FWA	SEE SECT B 3.1.2
SD-27611-01	FWA	
SD-27617-01	NO	LOOP
SD-27669-01	FWA	
SD-27686-01	NO	LOOP
SD-27687-01	NO	LOOP
SD-27711-01	FWA	
SD-27723-01	NO	LOOP

SWITCHING CIRCUIT COMPATIBILITY LIST

CKT. NUMBER AND TYPE OF PULSING	COMPATIBILITY	NOTES
SD-27729-01	NO	LOOP
SD-27735-01	FWB	
SD-27738-01	FWA	
SD-27744-01	FWA	
SD-27750-01	NO	LOOP
SD-27751-01	FWA	
SD-27752-01	NO	LOOP
SD-27753-01	NO	LOOP
SD-27798-01	NO	LOOP
SD-27802-01	NO	LOOP
SD-27813-01 LP	NO	LOOP
SD-27813-01 E+M	FWA	SEE SECT B 3.1.2
SD-27814-01 LP	NO	LOOP
SD-27814-01 E+M	FWA	
SD-27815-01 LP	NO	LOOP
SD-27815-01 E+M	FWA	SEE SECT B 3.1.2
SD-27816-01 LP	NO	LOOP
SD-27816-01 E+M	FWA	
SD-27829-01	NO	LOOP
SD-27830-01 E+M	FWA	
SD-27830-01 LP	NO	LOOP
SD-27836-01	FWA	
SD-27838-01	FWA	
SD-27843-01	FWA	
SD-27844-01	FWA	
SD-27851-01	NO	LOOP
SD-27858-01	FWA	
SD-27877-01	FWA	SEE SECT B 3.1.2
SD-27892-01	FWA	
SD-27893-01	NO	LOOP
SD-27912-01	FWA	
SD-27913-01	FWA	
SD-27927-01 LP	NO	LOOP
SD-27927-01 E+M	FWA	
SD-27928-01 E+M	FWA	
SD-27928-01 LP	NO	LOOP
SD-27929-01 LP	NO	LOOP
SD-27929-01 E+M	FWA	
SD-27933-01	FWA	
SD-27942-01	FWA	
SD-27945-01	FWA	
SD-27946-01	FWA	
SD-27963-01	NO	LOOP
SD-27964-01	FWA	
SD-30200-01	NO	LOOP
SD-30205-01	NO	LOOP
SD-30214-01	NO	LOOP
SD-30503-01	NO	LOOP
SD-30855-01	NO	MAKE BUSY CKT
SD-30865-01	NO	LOOP

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER AND TYPE OF PULSING</u>	<u>COMPATIBILITY</u>	<u>NOTES</u>
SD-30868-01	NO	LOOP
SD-30974-01	NO	LOOP
SD-30990-01	NO	LOOP
SD-30991-01	NO	LOOP
SD-31123-01	NO	LOOP
SD-31127-01	NO	LOOP
SD-31147-01	NO	LOOP
SD-31180-01	NO	LOOP
SD-31188-01	NO	LOOP
SD-31225-01	NO	LOOP
SD-31233-01	NO	LOOP
SD-31241-01	NO	LOOP
SD-31242-01	NO	LOOP
SD-31314-01	NO	LOOP
SD-31315-01	NO	LOOP
SD-31375-01	NO	LOOP
SD-31410-01	NO	LOOP
SD-31428-01	NO	LOOP
SD-31432-01	NO	LOOP
SD-31449-01	NO	LOOP
SD-31522-01	NO	LOOP
SD-31532-01	NO	LOOP
SD-31540-01	NO	LOOP
SD-31542-01	NO	LOOP
SD-31588-01	NO	LOOP
SD-31602-01	NO	LOOP
SD-31609-01	NO	LOOP
SD-31648-01	NO	LOOP
SD-31658-01	NO	LOOP
SD-31670-01	NO	LOOP
SD-31674-01	NO	LOOP
SD-31683-01	NO	LOOP
SD-31692-01	NO	LOOP
SD-31693-01	NO	LOOP
SD-31703-01	NO	LOOP
SD-31709-01	NO	LOOP
SD-31712-01	NO	LOOP
SD-31723-01	NO	LOOP
SD-31726-01	FWA	SEE SECTION C1.2 WHEN FIG B IS USED M OPTION IS REQUIRED
SD-31744-01	NO	LOOP
SD-31747-01	NO	LOOP
SD-31749-01	FWA	REQUIRES ZE OPTION SEE SECT C 1.2
SD-31775-01	FWA	ZO OPTION REQUIRED SEE SECT C 1.2
SD-31779-01	NO	LOOP
SD-31795-01	FWA	SEE SECTION C1.1
SD-31840-01	NO	LOOP

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SWITCHING CIRCUIT COMPATIBILITY LIST

CKT. NUMBER AND TYPE OF PULSING	COMPATIBILITY	NOTES
SD-31841-01	NO	LOOP
SD-31856-01	NO	LOOP
SD-31865-01	FWA	
SD-31867-01	FWA	SEE SECT C 1.1,1.2 REQUIRES E OPTION
SD-31874-01	NO	LOOP
SD-31885-01	FWA	F OPTION REQUIRED SEE SECT C 1.1,1.2
SD-31887-01	FWA	SEE SECT B 3.1.2
SD-31888-01	FWA	
SD-31902-01	NO	LOOP
SD-31925-01	NO	LOOP
SD-31929-01	NO	LOOP
SD-31965-01	NO	LOOP
SD-32007-01	NO	LOOP
SD-32008-01	NO	LOOP
SD-32042-01	FWA	SEE SECT B 3.1.2
SD-32061-01 LP	NO	LOOP
SD-32061-01 E+M	FWA	
SD-32067-01	NO	CUSTOMER LINE
SD-32087-01	NO	LOOP
SD-32136-01	NO	LOOP
SD-32167-01	NO	LOOP
SD-32168-01	NO	LOOP
SD-32170-01	NO	LOOP
SD-32178-01	NO	LOOP
SD-32183-01	NO	LOOP
SD-32184-01 OGT	NO	LOOP
SD-32199-01	NO	LOOP
SD-32204-01	NO	LOOP
SD-32240-01	NO	LOOP
SD-32241-01	FWA	SEE SECTION C1.1
SD-32244-01	FWA	SEE SECTION C1.1
SD-32245-01	NO	LOOP
SD-32255-01 LP	NO	LOOP
SD-32255-01 E+M	FWA	
SD-32256-01 LP	NO	LOOP
SD-32256-01 E+M	FWA	
SD-32288-01	NO	LOOP
SD-32289-01	NO	LOOP
SD-32309-01	FWA	
SD-32311-01	FWA	
SD-32312-01	FWA	
SD-32342-01 LP	NO	LOOP
SD-32342-01 E+M	FWA	SEE SECT B 3.1.2,C 1.1
SD-32344-01 LP	NO	LOOP
SD-32344-01 E+M	FWA	SEE SECT C 1.1
SD-32346-01	NO	LOOP
SD-32367-01 E+M	FWA	SEE SECT B 3.1.2,C 1.1
SD-32367-01 LP	NO	LOOP

SWITCHING CIRCUIT COMPATIBILITY LIST

CKT.NUMBER AND TYPE OF PULSING	COMPATIBILITY	NOTES
SD-32508-01 LP	NO	LOOP
SD-32508-01 E+M	FWA	SEE SECT B 3.1.2,C 1.1
SD-32532-01 LP	NO	LOOP
SD-32532-01 E+M	FWA	
SD-33017-01	NO	LOOP
SD-33018-01	NO	LOOP
SD-33019-01	NO	LOOP
SD-55109-01	FWA	SEE SECT C1.1
SD-55113-01	FWA	SEE SECT B 3.1.2
SD-55151-01 LP	NO	LOOP
SD-55151-01 E+M	FWA	SEE SECT C1.1
SD-55158-01 LP	NO	LOOP
SD-55158-01 E+M	FWA	
SD-55184-01	NO	LOOP
SD-55213-01	NO	LOOP
SD-55224-01	NO	LOOP
SD-55255-01 LP	NO	LOOP
SD-55255-01 E+M	FWA	SEE SECT C1.1
SD-55256-01 LP	NO	LOOP
SD-55256-01 E+M	FWA	SEE SECT C1.1
SD-55275-01	FWA	
SD-55291-01	NO	LOOP
SD-55301-01	NO	LOOP
SD-55346-01	NO	LOOP
SD-55358-01	FWA	
SD-55379-01	FWA	SEE SECT B 3.1.2
SD-55380-01	FWA	SEE SECT B 3.1.2
SD-55381-01	FWA	REQUIRES FWA AT DIST END WINK RING TOO SHORT FOR E-TYPE
SD-55386-01	FWA	LOOP OPTION ZN OR ZP IF CONTROLLED RING IS REQUIRED SEE SECT B 3.1.2
SD-55776-01	NO	LOOP
SD-55778-01	NO	LOOP
SD-55844-01	NO	REQUIRES METALLIC PATH
SD-55852-01	FWA	
SD-55872-01	NO	LOOP
SD-55875-01	NO	LOOP
SD-55879-01	NO	LOOP
SD-55889-01	NO	REQUIRES METALLIC PATH
SD-55952-01	NO	LOOP
SD-56010-01	FWA	
SD-56032-01	NO	REQUIRES METALLIC PATH
SD-56045-01	NO	LOOP
SD-56055-01	NO	LOOP
SD-56056-01	NO	LOOP
SD-56062-01	FWA	REQUIRES G OPTION
SD-56105-01	NO	LOOP
SD-56109-01	FWA	ZD OPTION REQUIRED

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER AND TYPE OF PULSING</u>	<u>COMPATIBILITY</u>	<u>NOTES</u>
SD-56119-01	NO	REQUIRES METALLIC PATH
SD-56121-01	NO	LOOP
SD-56123-01	NO	REQUIRES METALLIC PATH
SD-56128-01	NO	LOOP
SD-56131-01	FWA	
SD-56133-01	FWA	REQUIRES FWA AT DIST END WINK RING TOO SHORT FOR E-TYPE
SD-56146-01	NO	LOOP
SD-56153-01	NO	LOOP
SD-56154-01	FWA	SEE SECT C1.1
SD-56159-01	FWA	
SD-56163-01	FWA	REQ. FIG 5 OR M&H OPTION
SD-56199-01	NO	20 HZ APPLIED TO T+R
SD-56209-01	NO	LOOP
SD-56210-01	NO	LOOP
SD-56225-01	NO	LOOP
SD-56241-01	NO	LOOP
SD-56257-01	FWA	REQUIRES ZA WIRING SEE SECT C1.1
SD-56314-01	FWA	SEE SECT B 3.1.2
SD-56355-01	NO	LOOP
SD-56358-01	NO	LOOP
SD-56371-01	NO	LOOP
SD-56389-01	NO	CUSTOMER LINE
SD-56413-01	NO	ON HOOK TONE RINGING
SD-56414-01	NO	ON HOOK TONE RINGING
SD-56415-01	NO	ON HOOK TONE RINGING
SD-56416-01	NO	ON HOOK TONE RINGING
SD-56420-01	NO	ON HOOK TONE RINGING
SD-56421-01	NO	ON HOOK TONE RINGING
SD-56422-01	NO	ON HOOK TONE RINGING
SD-56423-01	NO	ON HOOK TONE RINGING
SD-56424-01	FWA	
SD-56434-01	FWA	SEE SECT B 3.1.2
SD-56435-01	FWA	SEE SECT B 3.1.2
SD-56475-01	FWA	
SD-56477-01	FWA	
SD-56478-01	FWA	
SD-56479-01	FWA	
SD-56480-01	NO	LOOP
SD-56481-01	FWA	
SD-56482-01	NO	LOOP
SD-56483-01	FWA	
SD-56487-01	FWA	SEE SECT B 3.1.2
SD-56488-01	FWA	SEE SECT B 3.1.2
SD-56492-01	NO	LOOP
SD-56496-01	NO	LOOP
SD-56501-01	NO	CUSTOMER LINE
SD-56507-01	FWA	
SD-56509-01	FWA	

SWITCHING CIRCUIT COMPATIBILITY LIST

CKT.NUMBER AND TYPE OF PULSING	COMPATIBILITY	NOTES
SD-56525-01 LP	NO	LOOP
SD-56525-01 E+M	FWA	SEE SECT B 3.1.2
SD-62085-01	NO	LOOP
SD-62209-01	NO	LOOP
SD-62285-01	NO	LOOP
SD-62409-01	NO	LOOP
SD-62423-01	NO	LOOP
SD-62496-01	NO	LOOP
SD-62533-01	NO	LOOP
SD-62611-01	NO	LOOP
SD-64221-01	NO	LOOP
SD-64472-01	FWA	SEE SECT C1.1
SD-64474-01	FWA	SEE SECT C1.1
SD-64482-01	NO	LOOP
SD-64538-01	FWA	REQUIRES ZX OPTION SEE SECT C1.1
SD-64539-01	NO	LOOP
SD-64571-01	NO	LOOP
SD-64590-01	FWA	
SD-64626-01	NO	LOOP
SD-64697-01	NO	20 HZ APPLIED TO T+R
SD-64698-01	NO	OFF HOOK RING
SD-64767-01	NO	CUSTOMER LINE
SD-64824-01	FWA	SEE SECT C1.2
SD-64832-01	NO	LOOP
SD-65531-01	NO	LOOP
SD-65535-01	NO	LOOP
ES-65602-01	FWA	REQUIRES FWA AT DIST END WINK RING TOO SHORT FOR E-TYPE
ES-65625-01	FWA	REQUIRES FWA AT DIST END WINK RING TOO SHORT FOR E-TYPE
ES-65669-01	FWA	REQUIRES TYPE F AT DIST END
SD-65718-01	FWA	OPTION UP REQUIRED SEE SECT C 1.1, 1.2
SD-65718-02	FWA	OPTION ZY REQUIRED SEE SECT C 1.1, 1.2
SD-65755-01	NO	LOOP
SD-65788-01	NO	LOOP
SD-65978-01	NO	LOOP
SD-66065-01	NO	LOOP
SD-66241-01	NO	LOOP
SD-66298-01	NO	LOOP
SD-66470-01	NO	LOOP
SD-66578-01	NO	LOOP
SD-66592-01	NO	CUSTOMER LINE
SD-66740-01	NO	LOOP
SD-66741-01	NO	LOOP
SD-66777-01	NO	LOOP
SD-66896-01	FWA	

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER AND TYPE OF PULSING</u>	<u>COMPATIBILITY</u>	<u>NOTES</u>
SD-68097-01	NO	LOOP
SD-68102-01	FWA	REQUIRES FWA AT DIST END WINK RING TOO SHORT FOR E-TYPE
SD-68135-01	FWA	
SD-68154-01	FWA	REQUIRES FWA AT DIST END WINK RING TOO SHORT FOR E-TYPE
SD-68230-01	FWA	
SD-68231-01	FWA	
SD-68232-01	FWA	
SD-68233-01	FWA	
SD-68239-01	NO	LOOP
SD-68240-01	NO	LOOP
SD-68242-01	NO	LOOP
SD-68259-01	FWA	REQUIRES FWA AT DIST END WINK RING TOO SHORT FOR E-TYPE
SD-68260-01	NO	LOOP
SD-68289-01	NO	LOOP
SD-68290-01	NO	LOOP
SD-68308-01	FWA	REQUIRES FWA AT DIST END WINK RING TOO SHORT FOR E-TYPE
SD-68309-01	NO	LOOP
SD-68312-01	FWA	REQUIRES FWA AT DIST END WINK RING TOO SHORT FOR E-TYPE
SD-68315-01	NO	LOOP
SD-68318-01	NO	LOOP
SD-68325-01	NO	LOOP
SD-68326-01	NO	LOOP
SD-68331-01	NO	LOOP
SD-68332-01	NO	LOOP
SD-68355-01	FWA	
SD-68357-01	NO	LOOP
SD-68358-01	NO	LOOP
SD-68401-01	NO	LOOP
SD-68479-01	FWA	
SD-68480-01	NO	LOOP
SD-68482-01	NO	LOOP
SD-68485-01	NO	LOOP
SD-68513-01	FWA	
SD-68514-01	FWA	
SD-68527-01 LP	NO	LOOP
SD-68527-01 E+M	NO	SX RING ON TRANS PAIR Q OPTION REQUIRED
SD-68529-01	FWA	
SD-68537-01	FWA	
SD-68579-01	FWA	
SD-68581-01	FWA	
SD-68582-01	FWA	
SD-68595-01	FWA	
SD-68596-01	FWA	
SD-68962-01	NO	LOOP
SD-68966-01	NO	LOOP

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT.NUMBER AND TYPE OF PULSING</u>	<u>COMPATIBILITY</u>	<u>NOTES</u>
SD-90000-01	NO	LOOP
SD-90070-01	NO	CUSTOMER LINE
SD-90257-01	NO	LOOP
SD-90275-01	NO	LOOP
SD-90434-01	NO	LOOP
SD-90439-01	NO	FOR USE ON PHANTOM GROUP
SD-90451-01	NO	LOOP
SD-90506-01	NO	LOOP
SD-90527-01	NO	LOOP
SD-90566-01	NO	LOOP
SD-90647-01	NO	LOOP
SD-95037-01	NO	LOOP
SD-95060-01	FWA	SEE SECT C 1.1
SD-95061-01	FWA	REQUIRES M OPTION FOR DP OPERATION.SEE SECT C 1.2
SD-95095-01	FWA	
SD-95405-01	NO	LOOP
SD-95413-01	NO	LOOP
SD-95425-01	NO	LOOP
SD-95426-01	NO	LOOP
SD-95436-01	NO	LOOP
SD-95443-01	FWA	4 WIRE END
SD-95459-01	NO	LOOP
SD-95462-01	NO	LOOP
SD-95467-01	NO	LOOP
SD-95470-01	NO	LOOP
SD-95471-01	NO	LOOP
SD-95475-01	NO	LOOP
SD-95487-01	NO	SIGNAL CKT
SD-95488-01	FWA	SEE SECT C 1.1,1.2 FIG 1 NOT COMP,K OPTION REQUIRED WITH FIG 2
SD-95495-01	NO	LOOP
SD-95513-01	NO	LOOP
SD-95530-01	NO	LOOP
SD-95542-01	NO	LOOP
SD-95543-01	NO	LOOP
SD-95546-01	NO	LOOP
SD-95560-01	NO	LOOP
SD-95563-01	NO	LOOP
SD-95564-01	NO	LOOP
SD-95565-01	NO	LOOP
SD-95566-01	NO	LOOP
SD-95569-01 LP	NO	LOOP
SD-95569-01 E+M	FWA	
SD-95585-01	NO	LOOP
SD-95615-01	NO	LOOP
ES-95668-01	NO	WINK RING TOO SHORT
SD-95673-01	NO	LOOP
SD-95691-01	NO	LOOP

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT.NUMBER AND TYPE OF PULSING</u>	<u>COMPATIBILITY</u>	<u>NOTES</u>
SD-95731-01	NO	LOOP
SD-95740-01	NO	LOOP
SD-95744-01	NO	LOOP
SD-95745-01	NO	LOOP
SD-95777-01	NO	LOOP
SD-95789-01	NO	LOOP
SD-95846-01	FWA	
SD-95850-01	FWA	
SD-95974-01	FWA	
SD-95976-01	FWA	
SD-95979-01	NO	LOOP
SD-96169-01	NO	LOOP
SD-96189-01	NO	LOOP
SD-96209-01	NO	LOOP
SD-96210-01	NO	LOOP
SD-96250-01	NO	LOOP
SD-96251-01	FWA	SEE SECT C 2.0 REQUIRES ZG,T OR W OPTION
SD-96252-01	FWA	SEE SECT C 2.0
SD-96283-01	NO	LOOP
SD-96301-01	NO	LOOP
SD-96352-01	NO	LOOP
SD-96365-01	NO	LOOP
SD-96366-01	NO	LOOP
SD-96384-01		COMP DEPENDS ON ASSOCIATED TRUNK CKTS
SD-96394-01	NO	LOOP
SD-96398-01 LP	NO	LOOP
SD-96398-01 E+M	FWA	SEE SECT C 1.1
SD-96412-01	NO	LOOP
SD-96459-01	NO	LOOP
SD-96467-01	NO	LOOP
SD-96469-01	NO	LOOP
SD-96481-01 LP	NO	LOOP
SD-96481-01 E+M	FWA	WHEN WORKING WITH SD-96482 AND T OPTION IS USED (STANDARD WIRING PRIOR TO ISSUE 4D) TRANSPOSE E+M LEADS OF TALK AND KP PATHS
SD-96482-01 LP	NO	LOOP
SD-96482-01 E+M	FWA	WHEN N OPTION IS USED (STANDARD WIRING PRIOR TO ISSUE 2D) TRANSPOSE E+M LEADS OF TALK AND KP PATHS
SD-96487-01	FWA	
SD-96488-01	FWA	
SD-96544-01	NO	LOOP
SD-98061-01	NO	LOOP
SD-99378-01	NO	LOOP
SD-99388-01	NO	LOOP
SD-99421-06-D14	ISS 4	

SWITCHING CIRCUIT COMPATIBILITY LIST

CKT. NUMBER AND TYPE OF PULSING	COMPATIBILITY	NOTES
SD-99415-01	FWA	
SD-99419-01	FWA	REQUIRES T OPTION
SD-99420-01	FWA	REQUIRES SD-95061-01
SD-99435-01	FWA	REQUIRES OPTION Z IN SD-1C004-01 OR SD-1C234-01
SD-99446-01	FWA	REQUIRES OPTION YI IN SD-1E007-01
SD-1A163-01	FWA	
SD-1A165-01	NO	LOOP
SD-1A166-01	NO	LOOP
SD-1A167-01	FWA	
SD-1A169-01	NO	LOOP
SD-1A177-01	NO	LOOP
SD-1A184-01	NO	LOOP
SD-1A185-01	NO	LOOP
SD-1A186-01	NO	LOOP
SD-1A187-01	NO	LOOP
SD-1A190-01	NO	LOOP
SD-1A192-01	NO	LOOP
SD-1A198-01	NO	LOOP
SD-1A203-01	NO	LOOP
SD-1A220-01	NO	LOOP
SD-1A236-01	FWA	
SD-1A237-01	FWA	
SD-1A238-01	NO	LOOP
SD-1A239-01	NO	LOOP
SD-1A241-01	NO	CUSTOMER LINE
SD-1A248-01	NO	LOOP
SD-1A254-01	NO	LOOP
SD-1A264-01	NO	LOOP
SD-1A266-01	NO	LOOP
SD-1A301-01	NO	SX SIGNALING, USE SD-99435-01
SD-1B002-01	NO	LOOP
SD-1B003-01	NO	LOOP
SD-1B004-01	FWA	
SD-1B005-01	FWA	
SD-1B006-01	FWA	
SD-1B007-01	FWA	
SD-1B010-01	NO	LOOP
SD-1B016-01 LP	NO	LOOP
SD-1B016-01 E+M	FWA	
SD-1B102-01 LP	NO	LOOP
SD-1B102-01 E+M	FWA	TWO CHANNELS REQUIRED
SD-1B103-01 LP	NO	LOOP
SD-1B103-01 E+M	FWA	TWO CHANNELS REQUIRED
SD-1B110-01	FWA	
SD-1B154-01	NO	LOOP
SD-1B183-01	NO	LOOP
SD-1B185-01	NO	LOOP
SD-1B186-01	NO	LOOP

ATTACHMENT TO
SEC. 179-100-306

SWITCHING CIRCUIT COMPATIBILITY LIST

<u>CKT. NUMBER AND TYPE OF PULSING</u>	<u>COMPATIBILITY</u>	<u>NOTES</u>
SD-1B188-01	NO	LOOP
SD-1B191-01	NO	LOOP
SD-1B193-01	NO	LOOP
SD-1B197-01	NO	LOOP
SD-1B198-01	NO	LOOP
SD-1B250-01	NO	LOOP
SD-1C004-01	NO	LOOP, USE SD-99435-01
SD-1C234-01	NO	LOOP, USE SD-99435-01
SD-1C353-01	FWA	
SD-1C354-01	FWA	
SD-1E003-01	NO	LOOP
SD-1E004-01	NO	LOOP
SD-1E007-01	NO	LOOP, USE SD-99446-01
SD-1E213-01	NO	CUSTOMER LINE
SD-1E240-01	NO	LOOP
SD-1G235-01	FWA	REQUIRES W OR Y WIRING
SD-2A014-01	FWA	USE FWB FOR AUTOVON INTEROFFICE TRKS
SD-2H103-01	NO	LOOP
SD-2H104-01	NO	LOOP
SD-2H107-01	NO	LOOP
SD-2H109-01	NO	LOOP
SD-2H110-01	NO	LOOP
SD-2H111-01	NO	LOOP
SD-2H112-01	FWA	
SD-2H113-01	NO	LOOP
SD-2H141-01	NO	LOOP
SD-2H144-01	NO	LOOP
SD-2H147-01	NO	LOOP
SD-2H149-01	NO	LOOP
SD-2H151-01	NO	LOOP
SD-5E028-01	FWA	
SD-5E041-01	FWA	E+M OPTION ONLY
SD-5E046-01	NO	LOOP
SD-5E047-01	NO	LOOP
ES-6G108-01	FWA	FOR ASSOCIATED AUDIO FAC.