

SIGNALING AND PACKET SWITCHING SYSTEMS  
 COMMON NETWORK INTERFACE  
 DIGITAL FACILITY ACCESS CABINET  
 CIRCUIT

CHANGES

Superseded (Cont) Superseded By

A. Changed and added functions

A.01 A new DSU power converter circuit pack (code TF10B), that incorporates contact closure when the output voltage fails, replaces the existing circuit pack (code TF10). The new circuit pack will cause the major alarm scan point loop to be closed by the existing alarm circuit when the DSU power converter output voltage fails.

A.02 The -48 volt input fuse to the DSU power converter circuit pack, code TF10 or TF10B, is changed to limit power to the DSUs.

A.03 The transmission leads from the DSU to the distributing frame, previously run as eight circuits in a single cable, option T, are now run as a single circuit in a single cable, option S, to allow for diverse cable routing.

B. Changes in Apparatus

<u>Superseded</u>	<u>Superseded By</u>
Power Converter Circuit Pack Code TF10, Option P	Power Converter Circuit Pack Code TF10B, Option N
2A Fuse, Code 70B, Option R,	0.5A Fuse, Code 70G, Option Q,

(Fuse No. A25,A27,  
A29,B24,B26,B28)

<u>Cable, Code</u>	<u>Cable, Code</u>
ED-3F004-35, G49 ( ), Option T	ED-3F004-35, G102 ( ), Option S

F. Changes in CD SECTIONS

F.01 In SECTION II, under 4. CABINET POWER, in paragraphs 4.01, 4.04, and 4.05 change reference to TF10 to read:

TF10B, option N, or TF10, option P, discontinued.

F.02 In SECTION II, under 4. CABINET POWER, change the last sentence of paragraph 4.04 to read:

Each TF10B or TF10 (TF10 discontinued) is separately fused (see 4.01) with a 0.5 amp fuse, option Q, 2 amp fuse, option R, discontinued.

F.03 In SECTION II under 5. ALARMS, add paragraph 5.02 to read:

5.02 Any blown fuse or malfunctioning power converter (TF10B) will activate the alarm scan leads via optoisolator circuits. The alarm scan leads are duplicated to the redundant central processors.

F.04 In SECTION III, under 2. FUNCTIONAL DESIGNATIONS, in paragraph 2.02, change reference to TF10 to read TF10B.

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F. Changes in CD SECTION II:

F.01 Under 5. ALARMS change paragraph 5.01 to read as follows:

5.01 The alarm circuitry for the DFA cabinet activates the major scan points to the central processor. The central processor does not have scan points dedicated to the DFA circuit alone, but does have scan points assigned to both the RN circuit and the DFA circuit. Cabling from this circuit to the central processor is via the RN circuit where the DFA circuit scan leads double-up with RN scan leads on the rear of a RN unit. For major alarms, the circuitry also activates the Fuse Alarm (FA) LED lamps at the top of the cabinet both front and rear.

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Page 1  
1 Page

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CHANGES

D. Description of Changes

D.01 This change provides terminals for ESD grounding points for the J3F010F-1 cabinet, and adds ESD labels identifying these grounding points.

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Page 1  
1 Page

CIRCUIT DESCRIPTION

CD-3F027-01  
ISSUE 2B  
APPENDIX 1A  
DWG ISSUE 4A  
DISTN CODE AW03

SIGNALING AND PACKET SWITCHING SYSTEM  
COMMON NETWORK INTERFACE  
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CIRCUIT

CHANGES

D. Description of Changes

D.01 This change covers the drawing issue only.  
For circuit information refer to CD Issue 2B.

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Page 1  
1 Page

SIGNALING AND PACKET SWITCHING  
 SYSTEM  
 COMMON NETWORK INTERFACE  
 DIGITAL FACILITY ACCESS CABINET  
 CIRCUIT

TABLE OF CONTENTS	PAGE
<u>SECTION I - GENERAL DESCRIPTION</u> .....	1
1. <u>PURPOSE OF CIRCUIT</u> .....	1
2. <u>GENERAL DESCRIPTION OF OPERATION</u> .....	1
<u>SECTION II - DETAILED DESCRIPTION</u> .....	2
1. <u>DIGITAL SERVICE ADAPTER</u> .....	2
2. <u>DATA SERVICE UNIT</u> .....	3
3. <u>TELEPHONE JACKS</u> .....	3
4. <u>CABINET POWER</u> .....	3
5. <u>ALARMS</u> .....	4
<u>SECTION III - REFERENCE DATA</u> .....	4
1. <u>WORKING LIMITS</u> .....	4
2. <u>FUNCTIONAL DESIGNATIONS</u> .....	4
3. <u>FUNCTIONS</u> .....	4
4. <u>CONNECTING CIRCUITS</u> .....	4
5. <u>MANUFACTURING TESTING REQUIREMENTS</u> .....	5
<u>SECTION IV REASONS FOR REISSUE</u> .....	5

SECTION I - GENERAL DESCRIPTION

1. PURPOSE OF CIRCUIT

1.01 The purpose of this circuit is to:

- (a) Provide circuitry for digital facility access.
- (b) Provide signal level translations between a Common Network Interface (CNI) and a digital transmission facility.

- (c) Power digital service units.
- (d) Power digital service adapters.
- (e) Monitor the status of cabinet DC power.
- (f) Provide scan point indications to the central processor to report power status of the cabinet.

2. GENERAL DESCRIPTION OF OPERATION

2.01 The Digital Facility Access Cabinet (DFAC) circuit provides the trunking function and the signal level translation between the CNI and the transmission facility. It provides the CNI office with a 56 kb/s digital access to the signaling links.

2.02 A digital transmission reaching a No. 5E toll office appears on a 2556 Data Service Unit (DSU) which also includes channel service unit functions. When accessing a synchronous transmission (long haul) facility the CSU function provides equalization and transmission loopback for network maintenance of that facility. The DSU translates the incoming baseband bipolar signal to a V.35 signal and passes the signal to the DSA. The DSA translates the V.35 signal to a RS449 signal level and passes it on to the associated link interface on an Intermessage switch User Node (IUN) on a ring node cabinet.

2.03 Physically, up to 24 DFA circuits may be contained in a DFA cabinet. These circuits appear in three J3F010FA-1, DFA units numbered 0-2. Units 0-2 provide a maximum of eight DFA circuits each with a total growth of up to 24 DFA circuits possible.

**SECTION II - DETAILED DESCRIPTION**

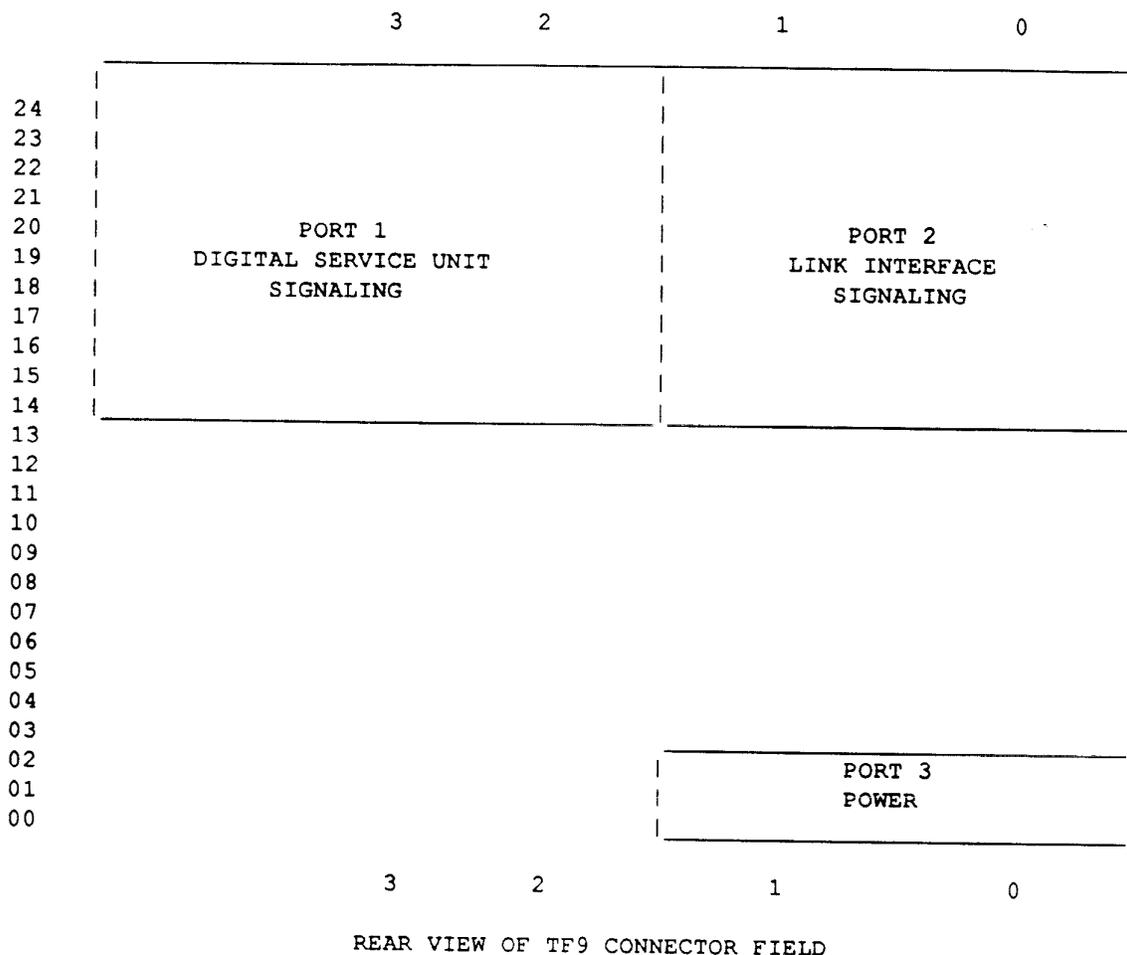
J3F010FA-1 units. These connector fields are divided into ports and these ports are grouped for connectorized cabling. (See Table A.)

**1. DIGITAL SERVICE ADAPTER**

1.01 The DSA (TF9) plugs onto backplane connector fields of the DSA mounting on the

TABLE A

CONNECTOR FIELD PORTS AND CONNECTOR PATTERN



1.02 The circuit description of the TF9 circuit pack is covered in CD TF9.

**2. DATA SERVICE UNIT**

2.01 A 56 kb/s Z2556A, L1A/2 Data Service Unit (DSU) is used in the DFAC circuit. This unit is inserted into the front of the Z108A2 data mounting (part of J3F010FA-1) until it is locked in place by a spring latch. All connections are made at the rear of the data mounting using connectorized cables. The DSU combines the functions of both data service and channel service units in one entity.

2.02 The DSU 12-position DIP switch settings should be set per Fig. 2, pp. 10-11, of the 2500-series Data Service Units User Manual No. 999-100-188, Issue 3, January, 1988, with one exception - switch position 9 should be enabled. This provides "continuous request-to-send".

2.03 The DSU is sent from the factory with 2 of 4 strap plug options incorrectly set for this application. Local loopback is factory-set disabled; it should be enabled. Signal Ground/Frame Ground (SG/FG) is factory-set with signal ground connected to frame ground; SG/FG should be disabled, i.e., no connection between SG/FG. The Test Mode (TM) and the front panel disable are factory-set enabled; it is suggested that these options be left intact although the user may exercise discretion in these connections.

**3. TELEPHONE JACKS**

3.01 Office telephone jacks and jacks for two portable data terminals are provided at the top of the cabinet as part of the fuse/filter unit.

**4. CABINET POWER**

4.01 Two -48 volt feeders (A and B) are brought into the DFA cabinet. They are filtered, fused, and distributed in the fuse/filter panel at the top of the cabinet. These feeders are distributed with the following assignments.

<u>Voltage</u>	<u>Assignment</u>
-48VA01,03,05,07	DSA, Unit 0 TF9-1,3,5,7
-48VA09,11,13,15	DSA, Unit 1, TF9-9,11,13,15
-48VA17,19,21,23	DSA, Unit 2, TF9-17,19,21,23
-48VA25,27,29	DFA, Unit 0-2, Pwr A (TF10)
-48VB02,04,06,08	DSA, Unit 0, TF9-2,4,6,8
-48VB10,12,14	DSA, Unit 1 TF9-10,12,14,16
-48VB16,18,20,22	DSA, Unit 2, TF9-18,20,22,24
-48VB24,26,28,30	DFA, Unit 0-2, Pwr B (TF-10)

4.02 The 48-volt return leads are NOT connected to frame or chassis ground.

4.03 (AC Power Discontinued) Two 120-volt ac power supplies A and B are required for the digital transmission equipment. These supplies are terminated on the A and B outlet strips which are located behind the left and right uprights, respectively, (as viewed from front of the cabinet). These feeders are distributed as follows:

<u>DSUs</u>	<u>120V Bus</u>
1-4	A
9-12	
5-8	B
13,14,15	

4.04 The cabinet is now powered completely by -48 volts. The TF10 circuit pack provides the necessary +/-12 volts to the DSUs. Each TF10 supplies power to four DSUs; the ac power packs are no longer required. Each TF10 is separately fused (see 4.01) with a 2-amp fuse.

4.05 The circuit description of the TF10 circuit pack is covered in CD TF10.

**5. ALARMS**

5.01 The alarm circuitry for the DFA cabinet activates the major scan points to the central processor. For major alarms, the circuitry also activates the Fuse Alarm (FA) LED lamps at the top of the cabinet both front and rear.

5.02 Any blown fuse will activate the optoisolator circuits, redundant scan points for the central processor.

**SECTION III - REFERENCE DATA**

**1. WORKING LIMITS**

1.01 This circuit works from -42.75 to -52.50 volts dc.

1.02 (AC Power Discontinued) AC power shall have a voltage range of 105 to 129 volts and frequency shall be between 57 and 63 Hz.

**2. FUNCTIONAL DESIGNATIONS**

**2.01 Units**

<u>Designation</u>	<u>Meaning</u>
DFA Unit 0	Lowermost equipment group to provide the first eight access circuits.
DFA Unit 1	Next to the lowest equipment group to provide the next eight access circuits.
DFA Unit 2	Uppermost equipment group to provide the next eight access circuits.

**2.02 Circuit Packs**

<u>Designation</u>	<u>Meaning</u>
TF9 (DSA)	Digital Service Adapter (Code TF9)
TF10	DSU Power Converter

**2.03 Digital Units**

<u>Designation</u>	<u>Meaning</u>
Z2556 L1A/2 (DSU)	56 kb/s Data Service Unit (Code 2556A L1A/2)

**2.04 Alarm System**

<u>Designation</u>	<u>Meaning</u>
FA	Fuse Alarm
MJ( )	Major Alarm
SCA( )	Scan Point A (Major Alarm)

**3. FUNCTIONS**

- 3.01 Provides -48 volts DC to equipment for 24 access circuits.
- 3.02 Provides office alarms.
- 3.03 Provides power status indications to the main processor.
- 3.04 Provides visual indications of power status.

**4. CONNECTING CIRCUITS**

- 4.01 The following circuits connect to the digital facility access unit:
  - (a) Link Node Circuit - SD-3F009-01.
  - (b) Link Node Circuit - SD-3F010-01.
  - (c) 3B Processor Basic IOP Circuit - SD-4C101-01.
  - (d) 3BI Unit Circuit - SD-3F008-01.
  - (e) 3B Processor Growth IOP Circuit - SD-4C097-01.
  - (f) Power Distribution Circuit - SD-5D005-01.
  - (g) Application Schematic for 5ESS - SD-5D014-01.
  - (h) 5ESS Switching Equipment Assignment Rules - SD-5D007-01.

**5. MANUFACTURING TESTING  
REQUIREMENTS**

- 5.01 Manufacturing testing requirements for this circuit are shown in X-80158.

**SECTION IV - REASONS FOR REISSUE**

**D. Description of Changes**

- D.01 To add -48V dc powering as standard configuration for this DFA cabinet.

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