

PFA Products Release Notes for V5.1.0

PFA 020

PFA 120

PFA 030

PFA 130

PFA 230

PFA 660

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1. Safety/Operational Notices

SAFETY WARNINGS in PFA V5.1.0 System Manual:

It is important that all earthing wiring is carried out with the shortest possible wire lengths. Splices in earthing wire must be permanently made by bolting or crimping the wires together. Connectors that can be disconnected without tools are NOT allowed in the ground wire.	30
This equipment is not for connection to an IT power system unless a suitable isolating transformer is used.	32
This equipment is designed to permit connection between the earthed conductor of the DC supply and the earthing conductor at the equipment.	32
The power feed cables must be protected at source; e.g. by a suitable Listed Branch Circuit Protector. The circuit protector should not exceed 6A capacity.	32
When connecting DC cabling to the PFA care must be taken to ensure that the cabling has adequate mechanical fixing and protection. Cables should be fixed in place by the use of approved UL cable fixings.	33
For safe operation, blanking plates must be fitted to any rear panel port positions which are not fitted with a POP PAK.	35
All serial ports should only be connected to SELV ports as defined in EN 60950/IEC 950.	35
This equipment is for installation in a "RESTRICTED ACCESS LOCATION" as defined in IEC 950. Only qualified "SERVICE PERSONNEL" should have access to the equipment.	28
When being installed into a rack or cabinet, care must be taken to ensure that the ventilation and air flow requirements of the equipment are maintained. The vents on the front underside of the equipment and the exhaust vent at the rear must not be obstructed and the fan must be allowed to vent into free space.	29
When installing units in a rack, always ensure that the rack remains stable and safe. It must be loaded in accordance with the instructions of the rack manufacturer. Ensure the rack does not become unstable due to uneven or top heavy loading.	29
A suitable earth ground point can normally be found in the mains power centre feeding the installation. Check carefully that the earthing wire is of sufficient cross-sectional area, and that it cannot be disconnected accidentally. The product has to be earthed in compliance with "ETSI ETS 300 253. Equipment Engineering (EE); Earthing and bonding of telecommunication equipment in telecommunication centres; January 1995". (Note - for AC units the safety earth will be provided by the mains lead).	29

OPERATIONAL WARNINGS in PFA V5.1.0 System Manual:

Damage to equipment by untrained personnel might render any warranty or maintenance contract invalid. Always power down before removing motherboards, PEBs or IRBs. Do not remove the top cover from the equipment (except PFA 020/120), only the front cover should be removed for possible board replacement/additions. Front panels should be removed with the unit power off, except with regard to PFA 660 dual PSU maintenance as described in Section 4. Always observe anti-static precautions when	
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removing front panels. Do not attempt to repair or carry out alterations to the equipment yourself other than by replacing the motherboard, PEBs or IRB, and then only if you have received the proper instruction.....	27
The unit is rated to operate at a maximum ambient temperature of 40oC. Ambient temperatures in excess of this may cause the unit to malfunction.....	28
Failure to adhere to correct earthing procedures will invalidate the CE MARK approval of the unit.....	29
As part of the PFA 660 power-up sequence, the red rightmost LED (see Figure 3-2) will be lit red briefly. This is normal operation.	36
The installation of SIMMS obtained from other sources may cause memory errors.....	72
To satisfy approval requirements, only Ericsson network cables and POP PAKS detailed in section 1 can be used.....	83
In order to satisfy CE Mark approval requirements, all Ericsson network cables have protective ground and screen connected at both ends.....	92

2. Product Description

2.1 Introduction

These release notes are intended to offer the local Ericsson company information concerning the current release of PFA products. The PFA product range for this release is as follows:

PFA 020

A cost-effective desktop unit supporting up to three serial ports with line speeds of up to 2 Mbps (protocols listed below).

PFA 120

A cost-effective desktop unit supporting up to 2 serial ports and 1 LAN port to allow access to Ethernet-based LAN protocols (protocols listed below).

PFA 030

A six-port desktop/rack mount version of the PFA 230 in a smaller enclosure (protocols listed below).

PFA 130

Provides all the features of the PFA 030 but with a physical LAN1 port allowing access to Ethernet-based LAN protocols.

PFA 230

Provides all the features of the PFA 130 but includes:

- Up to 18 serial ports (protocols listed below)
- Up to 2 LAN ports
- Integrated Router Board (Ethernet or Token Ring)
- Hot-swap Fan

PFA 660

Provides all the features of the PFA 230 but includes:

- 1 ATM port (34Mbps E3 or 45Mbps DS3)
- Hot-Swap Fan
- AC-AC or DC-DC PSU Redundancy

Protocol Set

Frame Relay SVC, sPVC and PVC (FUI/FDI/FNI/FII)

X.25 Switching

TCP/IP over X.25/X.75

X.75(E)

SDLC over LLC2

SDLC

ISDN BRI

X.28

TPAD

RIP

SLIP

TIP

TELNET

All major LAN protocols (CISCO technology – PFA 230/660)

ATM AAL-5 with Frame Relay FRF.5 (PFA 660)

Feature Set

X.25/X.75 over Frame Relay (PVC or sPVC)

TCP/IP over Frame Relay (PVC, sPVC or SVC)

Frame Relay switching (PVC or SVC)

Frame Relay backup via ISDN (FII ports only)

Frame Relay Virtua Call Preference (VCP)

IP switching for X.25/Frame Relay

Traffic priorities

Alarms

Load Control

Switched Access

Dial Back

Online Software Update

Statistics

Traffic/Echo Ports

Port Monitor

Ethernet Bridging

Accounting

SNMP Network Management

HTTP management

Line/Network Testing

X.25 HVCs/PVCs

CUGs

Call Barring

3. Release Description

The V5.1.0 release differs from the V5.0.0 release as follows:

New functionality:

IP over Frame Relay via SVCs and sPVCs.

X.25/X.75(E) over Frame Relay via sPVCs.

IP Switching (IPS) for Frame Relay.

Frame Relay backup over ISDN (FII ports only).

Virtual Call Preference (VCP). Secondary routes automatically switch back to designated route when route becomes operational again.

Topology signalling including automatic discovery of physical X.75E/Frame Relay FII connections in DNA topology table.

Functionality enhancements:

Partitioning of DLCI values between PVCs/sPVCs and SVCs.

Frame Relay FDI, FNI and FUIs can now be assigned an NTN and a ROT simultaneously.

The number of LCNs per X.25/X.75 NP has been increased from 256 to 1024.

The number of blind connections on FR and X.25/X.75 NIs has been increased from 250 to 1000.

The max. number of possible FR SVC connections has been increased from 500 to 1000.

Optional summarisation of static and/or RIP routes.

Extended port monitor decoding of SVC/sPVC messages.

Congestion avoidance (receipt of BECN now reduces transmit rate to CIR until congestion is relieved).

Bug fixes included (reported from previous releases).

3.1 Basic Components

This release is for the following products (software not included):

Product Product Number

PFA 020 BFE 301 544/1 R1B (for AC supply)

PFA 120 BFE 301 544/2 R1B (for AC supply)

PFA 030 BFE 301 539/3 R2B (for AC supply)
BFE 301 539/4 R2B (for DC supply)

PFA 130 BFE 301 539/5 R2B (for AC supply)
BFE 301 539/6 R2B (for DC supply)

PFA 230 BFE 301 542/3 R1A (for AC supply)
BFE 301 542/4 R1A (for DC supply)

PFA 660 BFE 301 546/1 R1A (for AC supply)
BFE 301 546/2 R1B (for DC supply)

The PFA products can be ordered from your local Ericsson Regional Logistics Centre.

3.2 Numbering Conventions

3.2.1 Release Versions

The numbering of release versions in the PFA products is carried out as follows:

X.Y.Z

Where:

- X Version (e.g., 5). This X value would be incremented to indicate a major change in development, e.g. changing from Phase1 to Phase2 of a Product Development.
- Y Revision (e.g., 0). The Y value would be incremented in the event of additional functionality being added to the product.
- Z Error Correction (e.g., 1). The Z value would be incremented if problems existed with the product to indicate a bug-fix release.

3.2.2 Software Image Names

The default software image despatched in every PFA product will be shown as "PFA PROM IMAGE" with the UIDIP command.

For **downloadable** software images available from upgrade diskette, the image names are structured as follows:

PRODUCT	PRO-CESSOR TYPE	RELEASE VERSION	REVISION	FILE EXT.	EXAMPLE
PFA 020/120	68020	V510	R36	DOS	2V510R36.DOS
PFA 030/130/ 230	68030	V510	R36	DOS	3V510R36.DOS
PFA 660	i960	V510	R36	DOS	6V510R36.DOS
PFA 660	i960	V400	R7	SAR	6V400R7.SAR

The PFA PROM IMAGE or 6V510R36.DOS file and 6V400R7.SAR must both be present when a PFA 660 is operating with an ATM daughter board.

It is advised that image names should indicate processor type, release version and revision number at all times.

3.3 Corrected or Remaining Problems

3.3.1 Corrected V4.0.1 and V5.0.0 Problems

The problem numbers (format CBEan0xxxx where xxxx is the problem number) are shown below.

4.0.1 Description

- 4035 ICMP routes not deleted by IPRPD.
- 4040 Switched access ports for ISDN backup do not work. Previously reported in V3.2.0 as problem number CBEan00282.
- 4036 Occasional fragmentation of memory on all PFAs can cause momentary freezes in protocol operation.
- 4042 The PFA 660 thinks the config needs saving when LILAP is issued. Also occurs with SNMP manager get request on LILAP variables.
- 3996 POP PAKs cannot be live inserted into PFA 660. Fixed by execution of ECD No. 491.1.23 on PFA 660 motherboard (to ROA 219 8186/1 R2A). Contact your local Ericsson company for further details.

5.0.0 Description

- 0245 Frame Relay ports produce incorrect SNMP LinkUp trap when deblocked even when no cable is connected.
- 0294 MP-LCP stack termination problem. An MP bundle can be terminated without previous termination of connected LCPs. This causes an MP error log entry and an LCP config error when entering a UILOP command.
- 0332 FR sPVC N201 default value of 1600 and LIPPS N1 default value of 261 produce error message when deblocking sPVC. This is because N201 default value is not set correctly.
- 0339 Incorrect routing of SVCs through Frame Relay FUI/FDI ports by partial matching of FR NTNs causes temporary fault condition.
- 0520 Ctrl.-C does not stop MML output following a IPPIP command. Applies to PFA 660 only.
- 0921 Wrong handling of X.21/V.11 DCE. The signals C and I are not signalled properly.

3.3.2 Remaining Problems

The problem numbers quoted are of the format ER1xxxx where xxxx is the problem number shown below, e.g. 0423.

5.1.0 5.0.0 Description

0423	0422	PFA 660 local upgrade to V5.1.0 with Win95 with Hyperterminal experiences problems. Workaround: use other terminal program or Hyperterminal on WindowsNT.
0465	0464	No STATR command for reset of ATM port statistics.
0484	0483	X.21/V.11 POP PAK on Frame Relay port sometimes reports AB with the LIPPP command after both ends are reset at the same time.
0490	0489	No password protection on TELNET ports.
0488	0487	RIP2 Multicast addressing not supported. Workaround: If possible, configure other equipment to use broadcast addresses instead of multicast addresses.
0492	0491	Rate enforcement discards long frames in Frame Relay.
0494	0493	NO CONIND_CFM causes problems for incoming call when NP blocked on V25bis port.
0496	0495	An incoming call with no PID signalling and no call priority set will not be assigned the box default priority.
0498	0497	NTN facilities not checked after a Switched Access Dial Back using NUI.
0500	0499	No logon control to MTP port for network management.
0504	0503	Fan/PSU SNMP traps not sent on power up.
0510	-	A dynamically created remote gateway, created by Inverse ARP for IP over Frame Relay, can be deleted with IPGAT command.
0515	0513	LOCIP parameter in the IPGAP command accepts invalid local IP addresses.
0517	0516	Frame Relay PVCs can be in Conditionally Blocked state (CB) when underlying FP port is Automatically Blocked (AB).
0534	0534	The PSAGP command does not indicate what USER/ROT is used by async port.

Utfärdad av/Issued by

Datum/Date

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Dok. nrpr/Doc.no.

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31/03/2000

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-
- 0538 0537 UIPDS command does not work for NALOS parameters.
 - 0580 - FNI port sends LINKUP trap when link not really up.
 - 0645 - DNA topology table can incorrectly show FUI port entries.
 - 0646 - X.75 ports are wrongly automatically discovered in DNA topology table.
 - 0849 - SNMP getnext request on dnaInterfaceMyNeighbourIfName causes fault condition.
 - 0859 - A PVC with DLCI outside the configured PVC DLCI range can still become Working Order (WO).
 - 0872 - FRPCB command on deblocked sPVC with both ends set to /0873 SIDEA=X25SPVC causes permanent fault condition due to misconfiguration. Workaround: always connect sPVC with SIDEA=X25SPVC locally and SIDEB=X25SPVC remotely.
 - 0914 - FUI/FDI port goes to status AB when N1 is exceeded.
 - 0916 - FR sPVC connect messages lost between PFA 660 and PFA 230s.
 - 0931 - FUI does not send async status (when PVCSTATUS=YES) for attached sPVCs when deblocked.
 - 0939 - An IP gateway can occasionally switch between WO and AB states for a PFA 230 with IRB. The IP gateway must be configured on the IRB.
 - 0940 - Some frames <CIR are discarded during rate enforcement on FII port with X.25 sPVCs.
 - 0941 - LIPOP command always wrongly shows ATM port status to be AB. Workaround: Use LIATP to display correct ATM port status.
 - 0942 - IPNIB command on FR SVC NI does not clear active SVCs. Workaround: Clear all SVCs by blocking PFA port rather than the FR SVC NI. Alternatively, re-configure the remote gateway inactivity timer to expire.

3.3.3 Problems in TransISDN POP PAK (Version PANAF)

- 02092 CLI not supported on TransISDN POP PAKs.
- 02184 TransISDN POP PAK software not remotely downloadable.
- 2321 128K bonding not available on TransISDN POP PAKs.
- 0954 HELP on TransISDN POP PAK does not show SET MODE POINT/MULTI commands.

4. Upgrade Procedures

Upgrade procedures are fully documented on the appropriate upgrade diskette for V5.1.0.

The following diskettes are available from Ericsson Intracom (E-mail: intracom@terminus.ericsson.se):

- PFA 020/120 V5.1.0 Upgrade diskette (EN/LZY 208 0513 R3A)
- PFA 030/130/230 V5.1.0 Upgrade diskette (EN/LZY 208 0450 R11A)
- PFA 660 V5.1.0 Upgrade diskette (EN/LZY 208 0512 R3A)

NOTE: All upgrades to V5.1.0 from V4.0.0 and before require a new BOOTER file to be installed.

PFA 030/130/230 products, equipped with 481 motherboard, now require 16Mbytes DRAM (2 x 8Mbytes SIMMs) to operate V5.0.0. Also note that 481 motherboards must have STATUS B4 or C4 or higher (physical inspection of motherboard needed) to operate 16Mbytes DRAM.

In order to avoid Frame Relay PVC configuration errors Ericsson Intracom Ltd. recommend manually blocking all FR PVCs (using the FRPCB command) before restarting the PFA Product with the new image.

5. Hardware

5.1 Motherboard Maintenance

If any motherboard has to be returned for a hardware upgrade, please send to:

Ericsson Telecommunicatie B.V.
ESC
Ericssonstraat 2
5121 ML Rijen
Netherlands

5.2 Displaying Hardware Status

The hardware status of the delivered PFA product can be displayed by using the NAHSP command. Note that this may not indicate the minimum level of hardware but the hardware ordered according to customer requirements, e.g. a PFA 660 may be ordered with 32 Mbytes packet DRAM instead of 16 Mbytes.

5.3 9-pin G.703 DTE POP PAK (75 W) clocking

This unbalanced POP PAK may be supplied to end users instead of a G.703 BNC POP PAK (75 Ω); both POP PAKs have identical functionality. The jumpers J1 to J4 must be fitted. The following clocking information should be noted:

- J3 connects the RX-Shield to ground. This connection is optional under the requirements of G.703 and is left to the discretion of the local operating regulations.
- J4 connects the TX-Shield to ground.
- The external clocks synchronisation interface is not implemented on this POP PAK.

Utfärdad av/Issued by

Datum/Date

Rev

Dok. npr/Doc.no.

CBE/ Andy Capstick

31/03/2000

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EN/LZT 103 8311

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6. Approvals

ITEM	ORDER CODE	ST	EN5 5022 Radi ated	EN5 5022 Con duct ed	EN6 1000 -3-2	EN6 1000 -3-3	FCC Part 15	IEC8 01-2	IEC8 01-3	IEC8 01-4	EN6 1000 -4-2	EN6 1000 -4-3	EN6 1000 -4-4	EN6 1000 -4-5	EN6 1000 -4-6	EN6 1000 -4- 11	ETS 300- 132- 2
Chassis Products																	
PFA020/120 AC	BFE 301 544/1/2	R1B	B	B				⊗	⊗	⊗	⊗	⊗	⊗				
PFA030/130 AC	BFE 301 539/3/5	R2B	B	B			A	⊗	⊗	⊗			⊗				
PFA030/130 DC	BFE 301 539 /4/6	R2B	B					⊗	⊗	⊗			⊗				
PFA230 AC	BFE 301 542/3	R1A	B	B				⊗	⊗	⊗	⊗	⊗	⊗				
PFA230 DC	BFE 301 542/4	R1A	B					⊗	⊗	⊗	⊗	⊗	⊗				
PFA660 AC	BFE 301 546/1	R1A	B	B	⊗	⊗					⊗	⊗	⊗	⊗	⊗	⊗	⊗
PFA660 DC	BFE 301 546/2	R1B	B								⊗	⊗	⊗	⊗	⊗	⊗	⊗
WAN Pop-Paks																	
V.11 DTE	ROA 219 5181/1	R1B	B								⊗	⊗	⊗	⊗	⊗	⊗	
V.11 DCE	ROA 219 5182/1	R1B	B								⊗	⊗	⊗	⊗	⊗	⊗	
V.28 DTE	ROA 219 5183/1	R1C	B								⊗	⊗	⊗	⊗	⊗	⊗	
V.28 DCE	ROA 219 5184/1	R1C	B								⊗	⊗	⊗	⊗	⊗	⊗	
V.35 DTE	ROA 219 5185/1	R2B	B								⊗	⊗	⊗	⊗	⊗	⊗	
V.35 DCE	ROA 219 5186/1	R2B	B								⊗	⊗	⊗	⊗	⊗	⊗	
V.36 DTE	ROA 219 5187/1	R1C	B								⊗	⊗	⊗	⊗	⊗	⊗	
V.36 DCE	ROA 219 5188/1	R1C	B								⊗	⊗	⊗	⊗	⊗	⊗	
G.703 64k	ROA 219 5189/1	R2A	B								⊗	⊗	⊗	⊗	⊗	⊗	
G.703 2M BNC 75 ohm	ROA 219 8198/1	R1A	B								⊗	⊗	⊗	⊗	⊗	⊗	
G.703 2M RJ45 120 ohm	ROA 219 8199/1	R1A	B								⊗	⊗	⊗	⊗	⊗	⊗	
CHANNELISER (master)	ROA 219 8177/1	R2A	B					⊗	⊗	⊗	⊗	⊗	⊗				
CHANNELISER (slave)	ROA 219 8178/1	R2A	B					⊗	⊗	⊗	⊗	⊗	⊗				
Fractional E1 (FE1)	ROA 219 8197/1	R1A	B								⊗	⊗	⊗	⊗	⊗	⊗	
ISDN Pop-Paks																	
Single ISDN TA	ROA 219 8157/1	R2A	A					⊗	⊗	⊗							
Dual ISDN TA	ROA 219 8158/1	R2A	A					⊗	⊗	⊗							
Ethernet Pop-Paks																	
10Base-2	ROA 219 5190/1	R1B	A					⊗	⊗	⊗							
10 Base-T	ROA 219 5196/1	R1B	B								⊗	⊗	⊗	⊗	⊗	⊗	
Token Ring	ROA 219 8150/1	R1A	B					⊗	⊗	⊗							
ATM Pop-Paks																	
E3	ROA 219 8184/1	R1A	B								⊗	⊗	⊗				
DS3	ROA 219 8185/1	R1A	B								⊗	⊗	⊗				

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 Datum/Date
 31/03/2000
 Rev
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 Dok. nprrr/Doc.no.
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ITEM	ORDER CODE	ST	EN6095 0	UL1950	CTR2	CTR3	CTR12
Chassis Products							
PFA020/120 AC	BFE 301 544/1/2	R2A	☺				
PFA030/130 AC	BFE 301 539/3/5	R2B	☺				
PFA030/130 DC	BFE 301 539 /4/6	R2B	☺				
PFA230 AC	BFE 301 542/1/3	R2A	☺				
PFA230 DC	BFE 301 542/2/4	R2A	☺				
PFA660 AC	BFE 301 546/1	R1A	☺	☺			
PFA660 DC	BFE 301 546/2	R1A	☺	☺			
WAN Pop-Paks							
V.11 DTE	ROA 219 5181/1	R1B	☺	☺	☺		
V.11 DCE	ROA 219 5182/1	R1B	☺	☺			
V.28 DTE	ROA 219 5183/1	R1C	☺	☺	☺		
V.28 DCE	ROA 219 5184/1	R1C	☺	☺			
V.35 DTE	ROA 219 5185/1	R2B	☺	☺	☺		
V.35 DCE	ROA 219 5186/1	R2B	☺	☺			
V.36 DTE	ROA 219 5187/1	R1C	☺	☺	☺		
V.36 DCE	ROA 219 5188/1	R1C	☺	☺			
G.703 64k	ROA 219 5189/1	R2A	☺	☺			
G.703 2M BNC 75 ohm	ROA 219 8198/1	R1A	☺	☺			
G.703 2M RJ45 120 ohm	ROA 219 8199/1	R1A	☺	☺			☺
CHANNELISER (master)	ROA 219 8177/1	R2A	☺	☺			
CHANNELISER (slave)	ROA 219 8178/1	R2A	☺	☺			
Fractional E1 (FE1)	ROA 219 8197/1	R1A	☺	☺			
ISDN Pop-Paks							
Single ISDN TA	ROA 219 8157/1	R2A	☺	☺		☺	
Dual ISDN TA	ROA 219 8158/1	R2A	☺	☺		☺	
Ethernet Pop-Paks							
10Base-2	ROA 219 5190/1	R1B	☺	☺			
10 Base-T	ROA 219 5196/1	R1B	☺	☺			
Token Ring	ROA 219 8150/1	R1A	☺	☺			
ATM Pop-Paks							
E3	ROA 219 8184/1	R1A	☺	☺			
DS3	ROA 219 8185/1	R1A	☺	☺			

If a Declaration of Conformity is required please contact either your local Ericsson company or Ericsson Intracom Ltd. at the address specified below.

Ericsson Intracom Ltd.
 1 Bede Island Road
 Leicester, LE2 7EU
 United Kingdom

Tel: +44 (0) 116 254 2400
 Fax: +44 (0) 116 204 6111
 E-mail: intracom@terminus.ericsson.se

7. User Documentation

The following CD-ROM is required to install, operate and maintain the PFA products.

PFA Products User Documentation CD-ROM
(EN/LZY 203 12 R6A). Contains User Guide, System Manual plus PFA picture gallery and the PFA datasheets. Archive user documentation also present.

Please order CD-ROM through the usual Ericsson ordering process quoting the product number.

Any errors existing in the user documentation are listed for each publication below.

7.1 System Manual Fault Log

p. 32. DC Cabling. The recommended DC cable size for field wiring of the PFA 660 should be a minimum of AWE 14.

p. 60-62. The Fractional E1 (FE1) POP PAK has not been released.

7.2 User Guide Fault Log

- P. 254. The BUFFERS parameter range should read 50-1000 rather than 50-200.
- p. 286. Figure 10-14. PFA1 (901) ROT=4 should read ROT=11.
- p. 288. The PSROI commands in **Configuration in PFA 2** should read as follows:
PSROI:ROT=5,FP=1-1-1-1;
PSROI:ROT=6,FP=1-1-1-2;
- p. 291, Figure 10-15. PFA4 should be called PFA5.
- P. 310. The number of BLIND connections on FR and X.25/X.75 NIs should read 1000 and not 256.
- New parameter RIPSUM added to IPRPS and IPRPP commands. This parameter summarises any RIP routes to

the same destination and selects the best route. Possible values are YES/NO (YES).

- New parameter STATICSUM added to IPRPS and IPRPP commands. This parameter allows the user to summarise all static routes in addition to RIP routes. Possible values are YES/NO (NO).
- New functionality on TransISDN POP PAK.
- The latest release of ISDN software (i.e. PANAF) operating on the TransISDN POP PAK has the following additional functionality:

SET MODE POINT/MULTI (default)

The SET MODE POINT command enables point to point operation. This is for use on networks where point to point is the only operation supported. Automatic TE1 is suppressed in this mode, with the TEI always being set to 0. All other functions operate normally.

The SET MODE MULTI command, as the default mode of operation, enables automatic assignment of TEIs to TEs, point to multipoint.

8. PFA Product Support

All enquiries and requests for support in connection with this product must be directed to the local Ericsson company or distributor.