3GPP TSG_CN#7 **NP-000035**

ETSI SMG3 Plenary Meeting #7,

Madrid, Spain

13th – 15th March 2000

Agenda item: **5.2.3**

Source: **TSG_N WG 2**

Title: **CRs to 3G Work Item CAMEL phase 3 (23.078) Part 2**

Introduction:

This document contains **"20"** CRs on **Work Item CAMEL phase 3,** that have been agreed by **TSG_N WG 2,** and are forwarded to **TSG_N Plenary** meeting #7 for approval.

Tdoc	Spec	CR	Rev	Cat	Rel	Old ver	New ver	Subject
N2A000075	23.078	066		F	R99	3.3.0	3.4.0	Addition of Int_Error in DP_O/T_Answer states
N2A000077	23.078	068		F	R99	3.3.0	3.4.0	Correction of the decision box after receiving
N2A000288	23.078	069	1	F	R99	3.3.0	3.4.0	Correction of the description in the creation of a new leg
N2A000289	23.078	070	1	F	R99	3.3.0	3.4.0	Correction of the description of BCSM relationships
N2A000080	23.078	071		F	R99	3.3.0	3.4.0	Correction of the direction of Int_Continue after sending
N2A000082	23.078	073		D	R99	3.3.0	3.4.0	Editorial changes for legs
N2A000292	23.078	076	2	F	R99	3.3.0	3.4.0	Extension of the description of the O_No_Answer
N2A000291	23.078	079	1	F	R99	3.3.0	3.4.0	Inclusion of Release transaction in
N2A000208	23.078	081	1	D	R99	3.3.0	3.4.0	Improved SDLs in GPRS interworking
N2A000097	23.078	082		F	R99	3.3.0	3.4.0	Correction of the description of the SGSN
N2A000195	23.078	084	1	F	R99	3.3.0	3.4.0	Correction of references occurring in the SDL figures
N2A000100	23.078	085		D	R99	3.3.0	3.4.0	Inclusion of CAMEL Phase 1 procedures as targets for
N2A000101	23.078	086		F	R99	3.3.0	3.4.0	modelling of unsuccessful DPs
N2A000144	23.078	090		D	R99	3.3.0	3.4.0	Definitions of service key
N2A000167	23.078	094		F	R99	3.3.0	3.4.0	Removal of Redirection Information from the
N2A000251	23.078	096	2	B	R99	3.3.0	3.4.0	Addition to SDL of user interaction in
N2A000259	23.078	098	1	C	R99	3.3.0	3.4.0	addition of gsmSCF address list to CSI
N2A000262	23.078	101	1	F	R99	3.3.0	3.4.0	Correction of SII2 description
N2A000257	23.078	102	1	F	R99	3.3.0	3.4.0	Clarification on CUG handling
N2A000188	23.078	103		F	R99	3.3.0	3.4.0	Replacement of Figure 4.57g: Process gsmSSF (sheet

TDoc	SPEC	CR	REV	CAT	PHAS	OLD VER	NEW_VERS	SUBJECT
N2A000189	23.078	104		F	R99	3.3.0	3.4.0	Correction of "Figure 6.2: GPRS Attach/Detach FSM"
N2A000190	23.078	105		F	R99	3.3.0	3.4.0	Correction of first state in "Figure 6.14 l: Process GPRS_SS
N2A000272	23.078	106	1	F	R99	3.3.0	3.4.0	Correction of GPRS session description
N2A000298	23.078	108	2	F	R99	3.3.0	3.4.0	Correction of GPRS PDP context FSM
N2A000297	23.078	109	2	F	R99	3.3.0	3.4.0	Enhancement of the SDL for ATM
N2A000284	23.078	110	1	F	R99	3.3.0	3.4.0	Enhancement of the SDL for NCSD
N2A000204	23.078	111		D	R99	3.3.0	3.4.0	Removal of PSI description
N2A000286	23.078	112	1	D	R99	3.3.0	3.4.0	Procedure Handle_SCI_GPRS and
N2A000218	23.078	116		F	R99	3.3.0	3.4.0	O-CSI and D-CSI checks for ORLCF
N2A000285	23.078	119	1	C	R99	3.3.0	3.4.0	Enhancement of the ATSI SDL
N2A000248	23.078	120		D	R99	3.3.0	3.4.0	Transfer of destination address to gsmSCF

N2A000266	23.078	121	1	F	R99	3.3.0	3.4.0	Implementation of retriggering in gsmSSF SDL

3GPP N2 Meeting
Sofia Antipolis, 21-25 Feb 2000

Document N2A000294
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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23.078 CR 064r2 Current Version: 3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	CN#7	for approval	☒	strategic	☐	*(for SMG use only)*
list expected approval meeting # here ↑		for information	☐	non-strategic	☐	

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio ☐ Core Network ☒
(at least one should be marked with an X)

Source: CN WG2 **Date:** 25 Feb 2000

Subject: Addition of Connected number treatment indicator

Work item: CAMEL Phase 3

Category:	F	Correction	☒	**Release:**	Phase 2	☐
	A	Corresponds to a correction in an earlier release	☐		Release 96	☐
(only one category	B	Addition of feature	☐		Release 97	☐
shall be marked	C	Functional modification of feature	☐		Release 98	☐
with an X)	D	Editorial modification	☐		Release 99	☒
					Release 00	☐

Reason for change:

Connected number treatment indicator is used to indicate treatment of the connected number, which can be seen the detail in Q.1601. For interworking with ISUP, this information shall be contained in the Service interaction indicator two IE.
The new procedure CAMEL_Handle_Connected_Number evaluates the Connected number treatment indicator.

Clauses affected: 4.5

Other specs affected:	Other 3G core specifications	☐	→ List of CRs:	29.078-038r2
	Other GSM core specifications	☐	→ List of CRs:	
	MS test specifications	☐	→ List of CRs:	
	BSS test specifications	☐	→ List of CRs:	
	O&M specifications	☐	→ List of CRs:	

Other comments:

***** First Modified Part *****

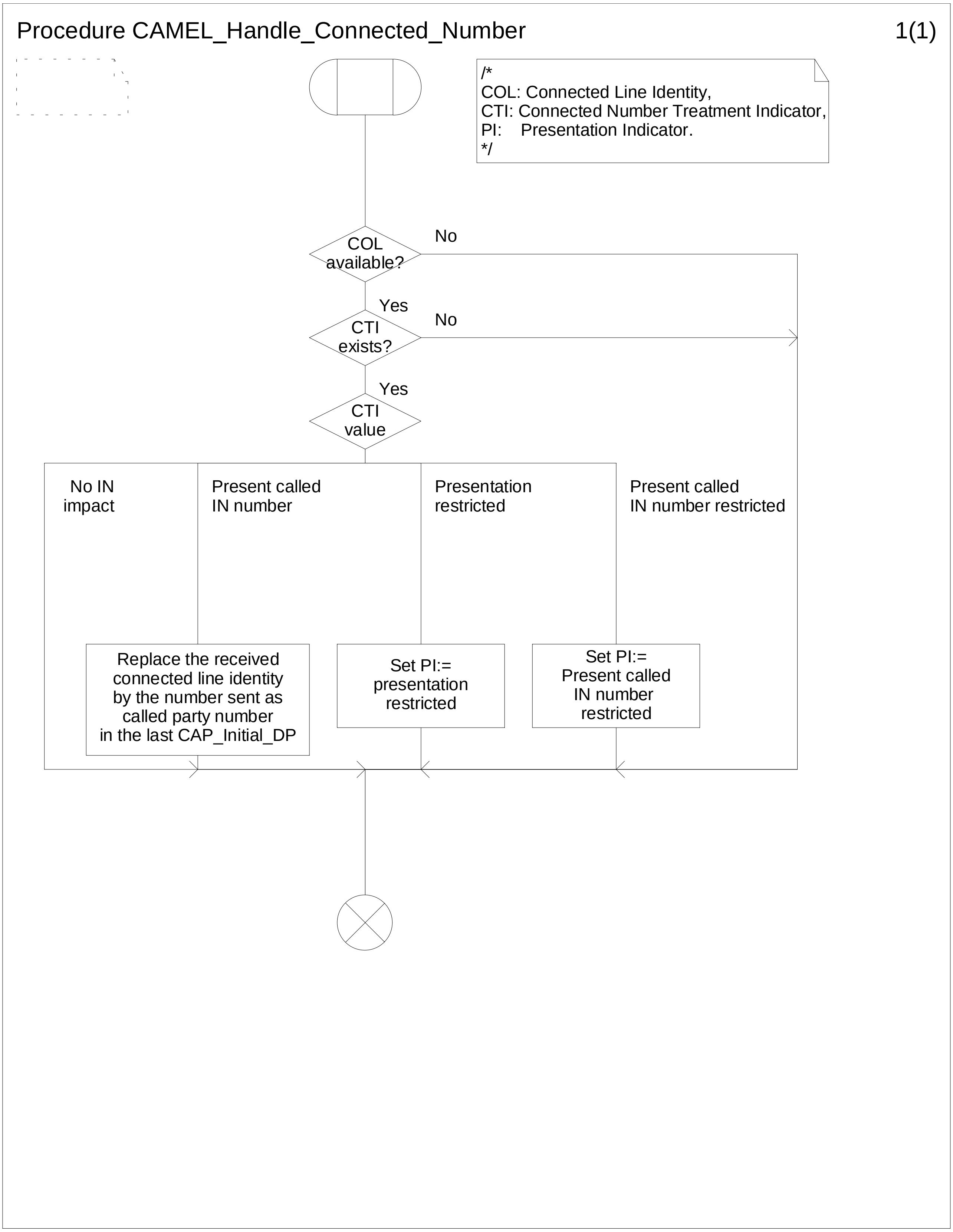
Procedure CAMEL_Handle_Connected_Number
1(1)
/*
COL: Connected Line Identity,
CTI: Connected Number Treatment Indicator,
PI: Presentation Indicator.
*/
COL available?
No
Yes
CTI exists?
No
Yes
CTI value
No IN impact
Present called IN number
Presentation restricted
Present called IN number restricted
Replace the received connected line identity by the number sent as called party number in the last CAP_Initial_DP
Set PI:= presentation restricted
Set PI:= Present called IN number restricted

Figure 4.xx a: Procedure CAMEL_Handle_Connected_ Number (sheet 1) (New figure)

***** Next Modified Part *****

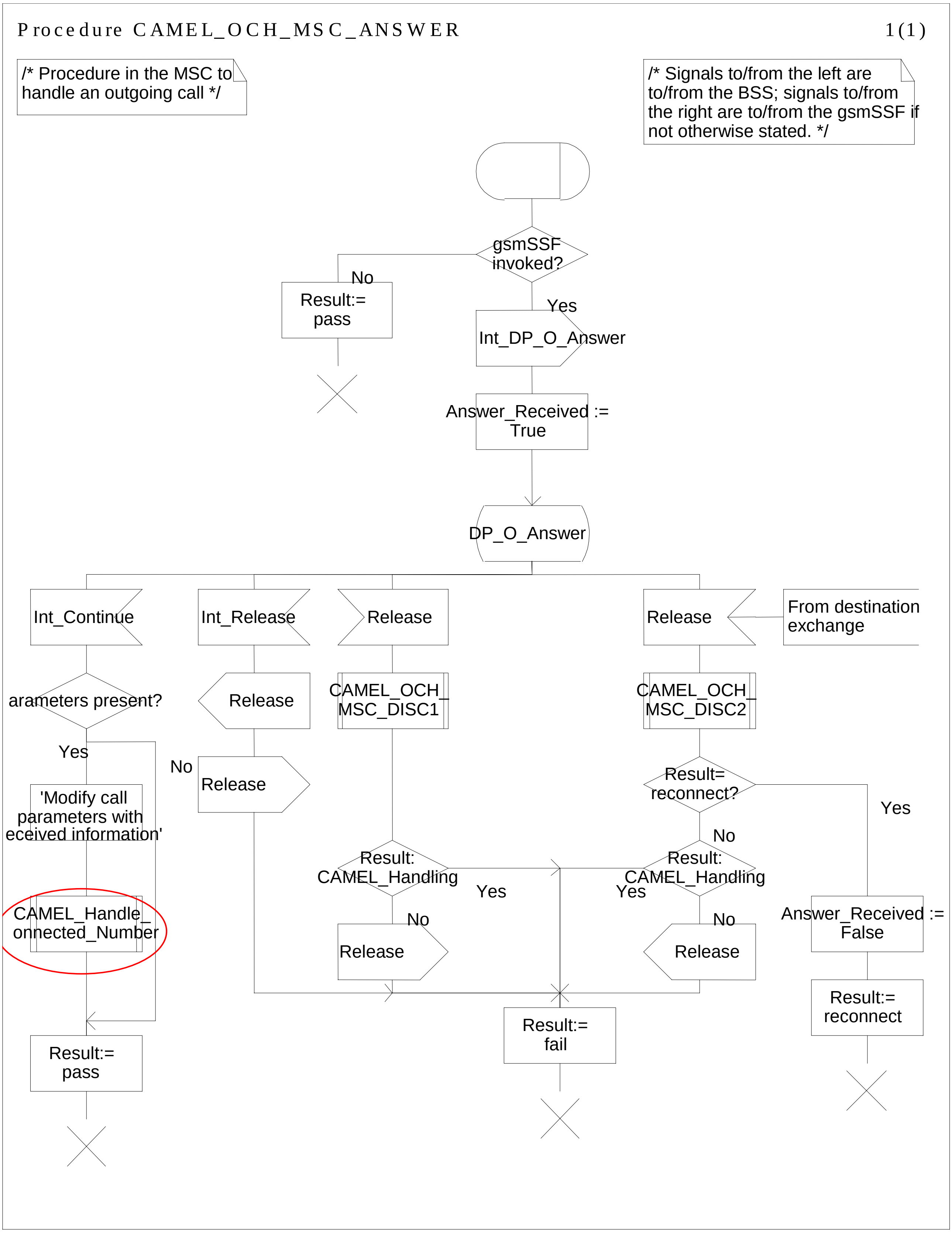
Procedure CAMEL_OCH_MSC_ANSWER
1(1)
/* Procedure in the MSC to handle an outgoing call */
/* Signals to/from the left are to/from the BSS; signals to/from the right are to/from the gsmSSF if not otherwise stated. */
gsmSSF invoked?
No
Result:= pass
Yes
Int_DP_O_Answer
Answer_Received := True
DP_O_Answer
Int_Continue
Int_Release
Release
Release
From destination exchange
arameters present?
Yes
No
'Modify call parameters with eceived information'
CAMEL_Handle_ onnected_Number
Result:= pass
Release
Release
CAMEL_OCH_ MSC_DISC1
CAMEL_OCH_ MSC_DISC2
Result= reconnect?
Yes
No
Result: CAMEL_Handling
Yes
No
Release
Result: CAMEL_Handling
Yes
No
Release
Answer_Received := False
Result:= reconnect
Result:= fail

Figure 4.13a: Procedure CAMEL_OCH_MSC_ANSWER (sheet 1)

***** Next Modified Part *****

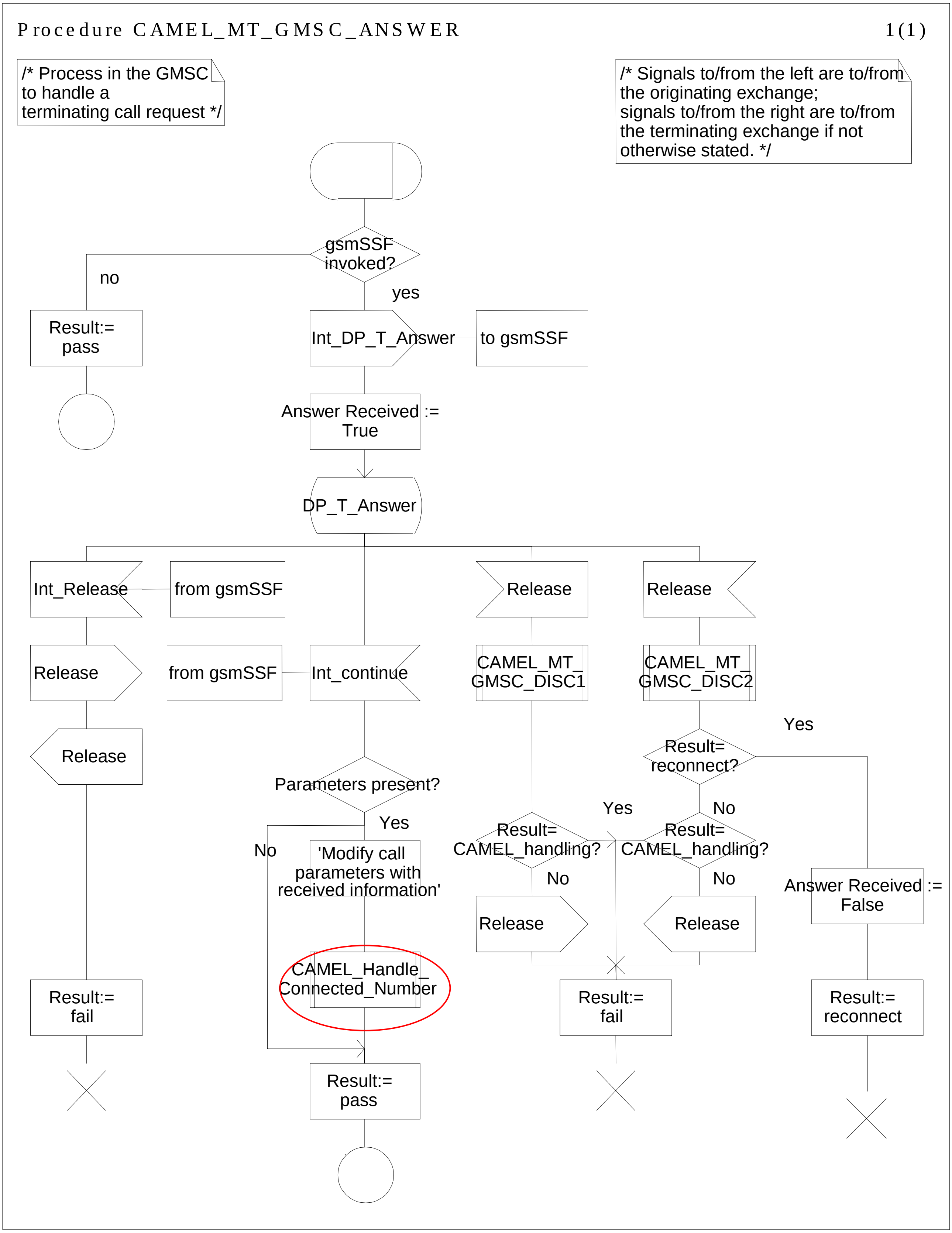
Procedure CAMEL_MT_GMSC_ANSWER
1(1)
/* Process in the GMSC to handle a terminating call request */
/* Signals to/from the left are to/from the originating exchange; signals to/from the right are to/from the terminating exchange if not otherwise stated. */
gsmSSF invoked?
no
yes
Result:= pass
Int_DP_T_Answer
to gsmSSF
Answer Received := True
DP_T_Answer
Int_Release
from gsmSSF
Release
Release
Release
from gsmSSF
Int_continue
CAMEL_MT_GMSC_DISC1
CAMEL_MT_GMSC_DISC2
Release
Yes
Result= reconnect?
Parameters present?
Yes
No
Result= CAMEL_handling?
Yes
No
Result= CAMEL_handling?
No
No
'Modify call parameters with received information'
Release
Release
Answer Received := False
CAMEL_Handle_Connected_Number
Result:= fail
Result:= fail
Result:= reconnect
Result:= pass

Figure 4.28a: Procedure CAMEL_MT_GMSC_ANSWER (sheet 1)

***** Next Modified Part *****

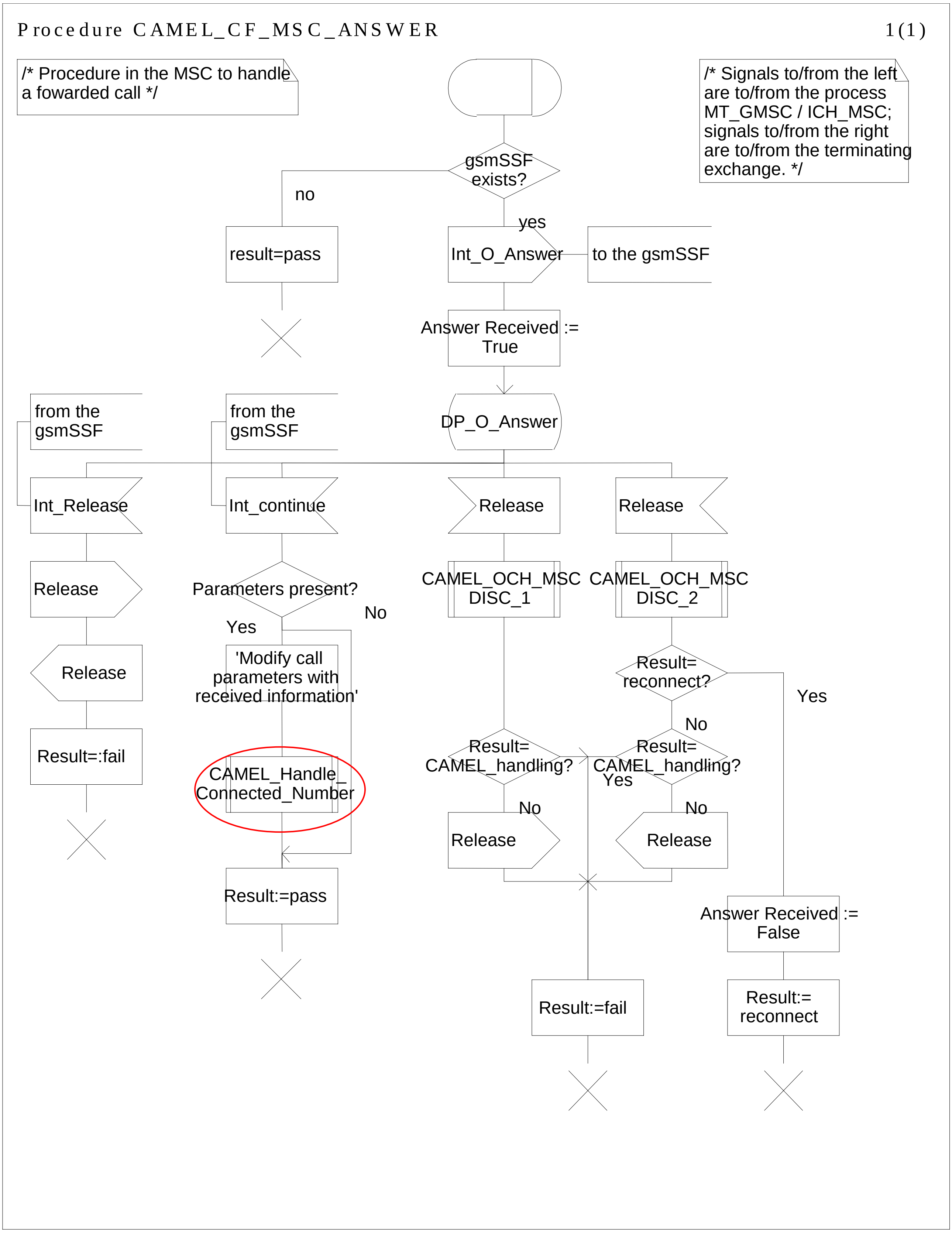
Procedure CAMEL_CF_MSC_ANSWER
1(1)
/* Procedure in the MSC to handle a fowarded call */
/* Signals to/from the left are to/from the process MT_GMSC / ICH_MSC; signals to/from the right are to/from the terminating exchange. */
gsmSSF exists?
no
yes
result=pass
Int_O_Answer
to the gsmSSF
Answer Received := True
DP_O_Answer
from the gsmSSF
from the gsmSSF
Int_Release
Int_continue
Release
Release
Release
Parameters present?
No
Yes
'Modify call parameters with received information'
CAMEL_Handle_Connected_Number
Result:=pass
Release
Result:=fail
CAMEL_OCH_MSC DISC_1
CAMEL_OCH_MSC DISC_2
Result= reconnect?
Yes
No
Result= CAMEL_handling?
No
Result= CAMEL_handling?
Yes
No
Release
Release
Answer Received := False
Result:=fail
Result:= reconnect

Figure 4.53a: Procedure CAMEL_CF_MSC_ANSWER (sheet 1)

***** Next Modified Part *****

4.6.2.5 Connect

4.6.2.5.1 Description

This IF is used to request the gsmSSF to perform the call processing actions to route a call to a specific destination. To do so, the gsmSSF may use destination information from the calling party and existing call set-up information depending on the information provided by the gsmSCF.

4.6.2.5.2 Information Elements

The following information elements are required:

Information element name	MO	MF	MT	VT	Description
Alerting Pattern	-	-	O	O	This parameter indicates the kind of Alerting Pattern to be applied.
Calling Partys Category	O	O	O	O	This IE indicates the type of calling party (e.g., operator, pay phone, ordinary subscriber).
Destination Routing Address	M	M	M	M	This IE contains the called party number towards which the call is to be routed.
Generic Number	O	O	O	O	This IE contains the generic number. Its used to convey the additional calling party number, which e.g. could be used to modify the calling line ID presented to the called user.
NA Carrier Information	O	O	O	O	This IE is described in the next table.
NA Originating Line Information	O	O	O	O	This IE identifies the type of number in the NA Charge Number (e.g. subscriber versus PLMN operator number).
NA Charge Number	O	O	O	O	This IE identifies the chargeable number for the usage of a North American carrier.
O-CSI Applicable	-	-	O	O	This IE indicates that the O-CSI, if present shall be applied on the outgoing leg.
Original Called Party ID	O	O	O	O	This IE carries the dialled digits if the call has met call forwarding on route to the gsmSSF or is forwarded by the gsmSCF.
Redirecting Party ID	O	O	O	O	This IE indicates the directory number the call was redirected from.
Redirection Information	O	O	O	O	This IE contains forwarding related information, such as redirecting counter.
Suppression Of Announcements	-	-	O	O	This IE indicates that announcements or tones generated as a result of unsuccessful call setup shall be suppressed.
Service Interaction Indicators Two	O	O	O	O	This IE is described in a table below.
CUG Interlock Code	O	O	O	O	See 3G TS 23.085 [9] for details of this IE.
Outgoing Access Indicator	O	O	O	O	See 3G TS 23.085 [9] for details of this IE.

O Optional (Service logic dependent)

- Not applicable

NA Carrier Information contains the following information:

Information element name	MO	MF	MT	VT	Description
NA Carrier Identification Code	M	M	M	M	This IE uniquely identifies a North American long distance carrier.
NA Carrier Selection Information	M	M	M	M	This IE indicates the way the carrier was selected e.g.: – dialled – subscribed

M Mandatory (The IE shall always be sent)

Service Interaction Indicators Two contains the following information:

Information element name	MO	MF	MT	VT	Description
Forward Service Interaction Indicator	O	O	O	O	This IE is described in a table below.
Backward Service Interaction Indicator	O	O	O	O	This IE is described in a table below.
HOLD Treatment Indicator	O	-	-	O	This IE indicates whether the CAMEL subscriber can invoke HOLD for the call.
CW Treatment Indicator	O	-	-	O	This IE indicates whether CW can be applied for a call to the CAMEL subscriber whilst this call is ongoing.
ECT Treatment Indicator	O	-	-	O	This IE indicates whether the call leg can become part of an ECT call initiated by the CAMEL subscriber.
Call Completion Treatment Indicator	O	-	-	O	This IE indicates whether a CCBS request can be made for the call.
Connected number treatment indicator	O	O	O	O	This IE indicates the treatment of the connected number at the originating side.

O Optional (Service logic dependent)

- Not applicable

Forward Service Interaction Indicator contains the following information:

Information element name	MO	MF	MT	VT	Description
Conference Treatment Indicator	O	O	O	O	This IE indicates whether the call leg can become part of a MPTY call initiated by the called subscriber.
Call Diversion Treatment Indicator	O	O	O	O	This IE indicates whether the call can be forwarded using the Call Forwarding or Call Deflection Supplementary Services.
Calling Party Restriction Indicator	O	-	-	-	This IE indicates whether the CLI shall be marked as Restricted by CAMEL action for the call.

O Optional (Service logic dependent)

- Not applicable

Backward Service Interaction Indicator contains the following information:

Information element name	MO	MF	MT	VT	Description
Conference Treatment Indicator	O	O	O	O	This IE indicates if the call leg can become part of a MPTY call initiated by the calling subscriber.

O Optional (Service logic dependent)

- Not applicable

3GPP N2 Meeting #13
Kyoto, Japan, 17-21 Jan 2000

***Document* N2A000075**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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23.078 CR 066 Current Version: 3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: CN#7
list expected approval meeting # here ↑

for approval ☒
for information ☐

strategic ☐
non-strategic ☐
(for SMG use only)

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio ☐ Core Network ☒
(at least one should be marked with an X)

Source: CN WG2 **Date:** 13 Jan 2000

Subject: Addition of Int_Error in DP_O/T_Answer states

Work item: CAMEL Phase 3

Category:	F	Correction	☒	**Release:**	Phase 2	☐
	A	Corresponds to a correction in an earlier release	☐		Release 96	☐
(only one category	B	Addition of feature	☐		Release 97	☐
shall be marked	C	Functional modification of feature	☐		Release 98	☐
with an X)	D	Editorial modification	☐		Release 99	☒
					Release 00	☐

Reason for change: During the state of DP_O_Answer or DP_T_Answer, internal event error, Int_Error, could happen but this is not described in the current specification. It is therefore proposed the receiving Int_Error followed by the evaluation of default call handling which results continue or terminating the call process.

Clauses affected: 4.5

Other specs affected:	Other 3G core specifications	☐	→ List of CRs:
	Other GSM core specifications	☐	→ List of CRs:
	MS test specifications	☐	→ List of CRs:
	BSS test specifications	☐	→ List of CRs:
	O&M specifications	☐	→ List of CRs:

Other comments:

***** First Modified Part *****

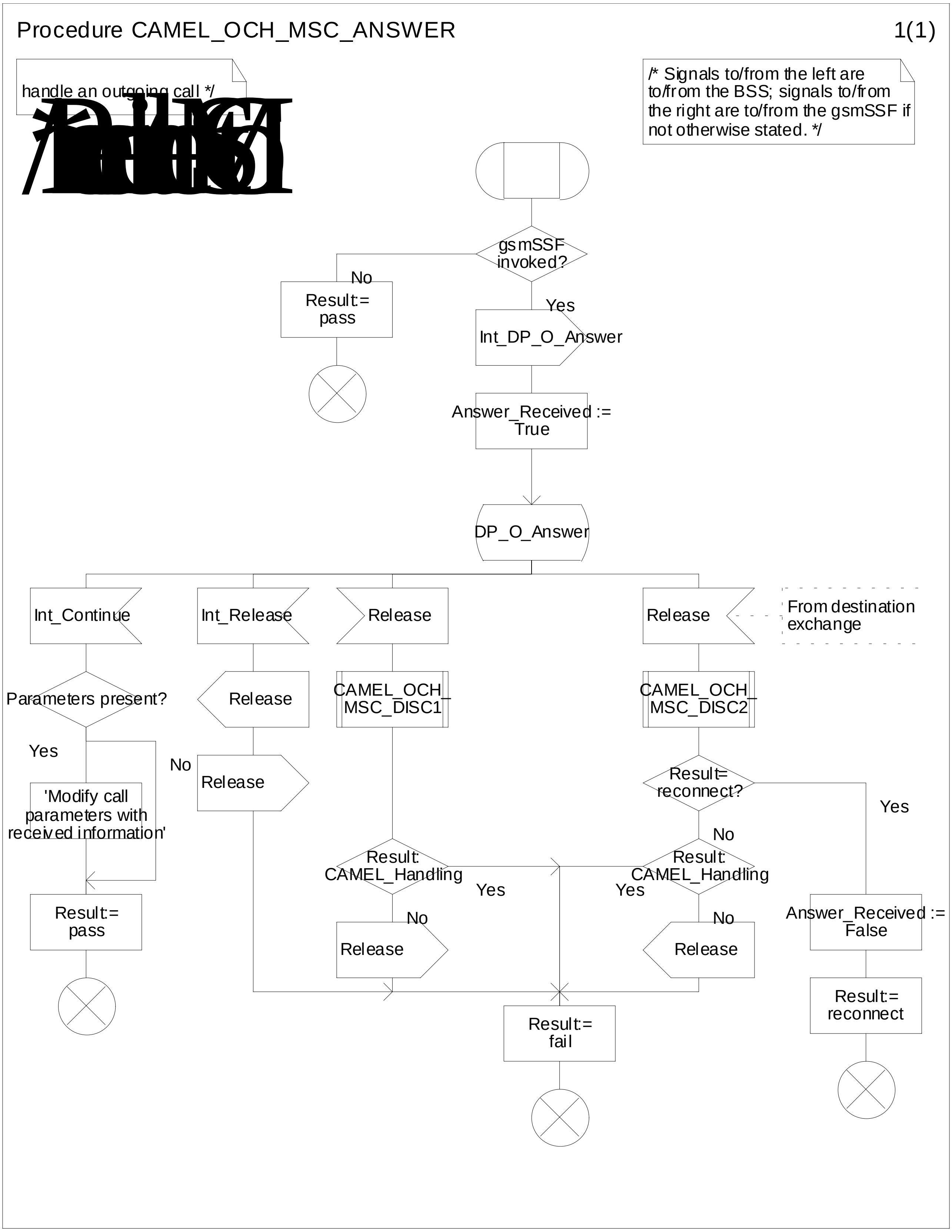
Procedure CAMEL_OCH_MSC_ANSWER
1(1)
handle an outgoing call */
/* Signals to/from the left are to/from the BSS; signals to/from the right are to/from the gsmSSF if not otherwise stated. */
gsmSSF invoked?
No
Yes
Result:= pass
Int_DP_O_Answer
Answer_Received := True
DP_O_Answer
Int_Continue
Int_Release
Release
Release
From destination exchange
Parameters present?
Yes
No
'Modify call parameters with received information'
Result:= pass
Release
Release
CAMEL_OCH_ MSC_DISC1
CAMEL_OCH_ MSC_DISC2
Result= reconnect?
Yes
No
Result: CAMEL_Handling
Yes
No
Release
Result: CAMEL_Handling
Yes
No
Release
Answer_Received := False
Result:= reconnect
Result:= fail

Figure 4.13a: Procedure CAMEL_OCH_MSC_ANSWER (sheet 1)

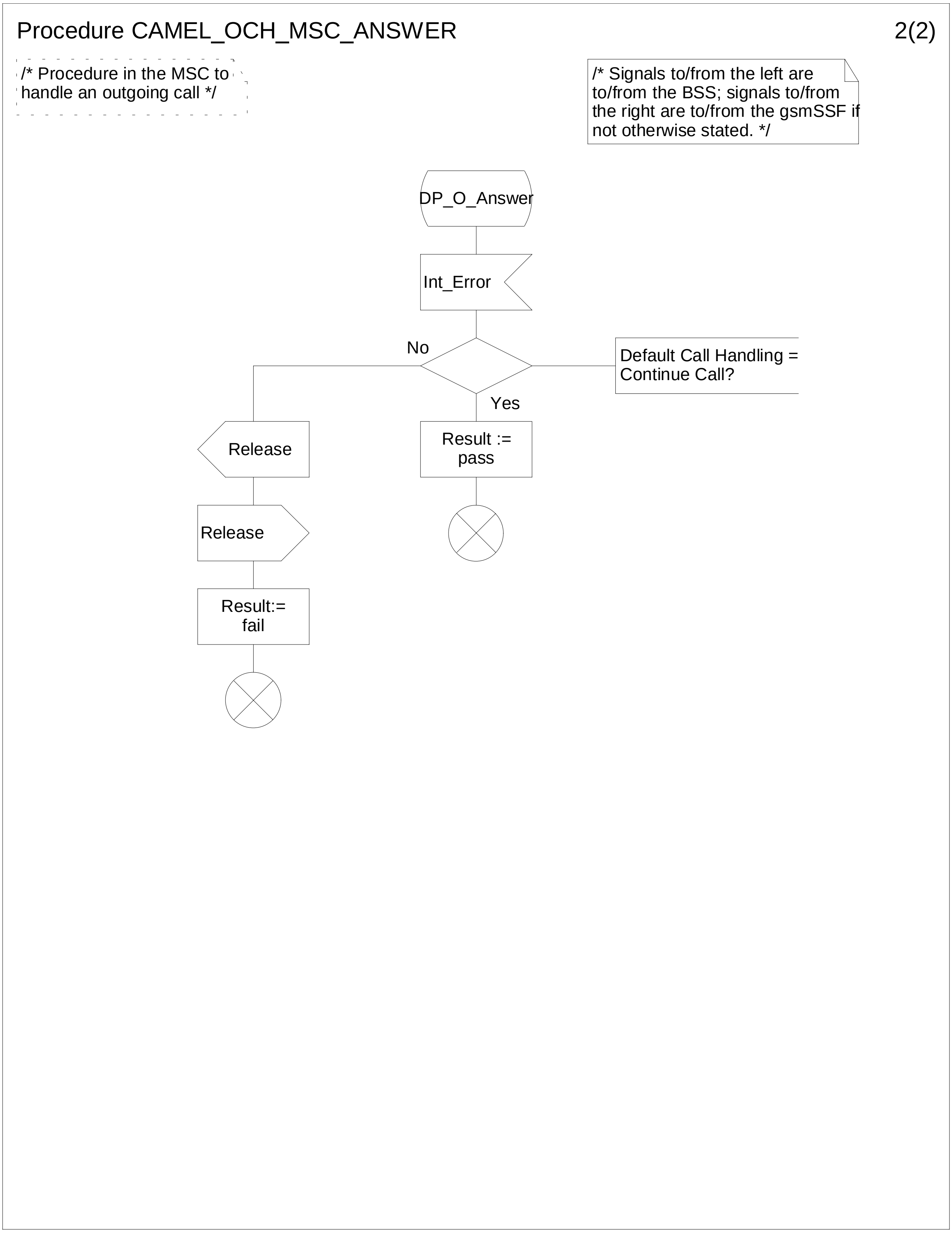
Procedure CAMEL_OCH_MSC_ANSWER
2(2)
/* Procedure in the MSC to handle an outgoing call */
/* Signals to/from the left are to/from the BSS; signals to/from the right are to/from the gsmSSF if not otherwise stated. */
DP_O_Answer
Int_Error
No
Default Call Handling = Continue Call?
Yes
Release
Result := pass
Release
Result:= fail

Figure 4.13b: Procedure CAMEL_OCH_MSC_ANSWER (sheet 2 new)

***** Next Modified Part *****

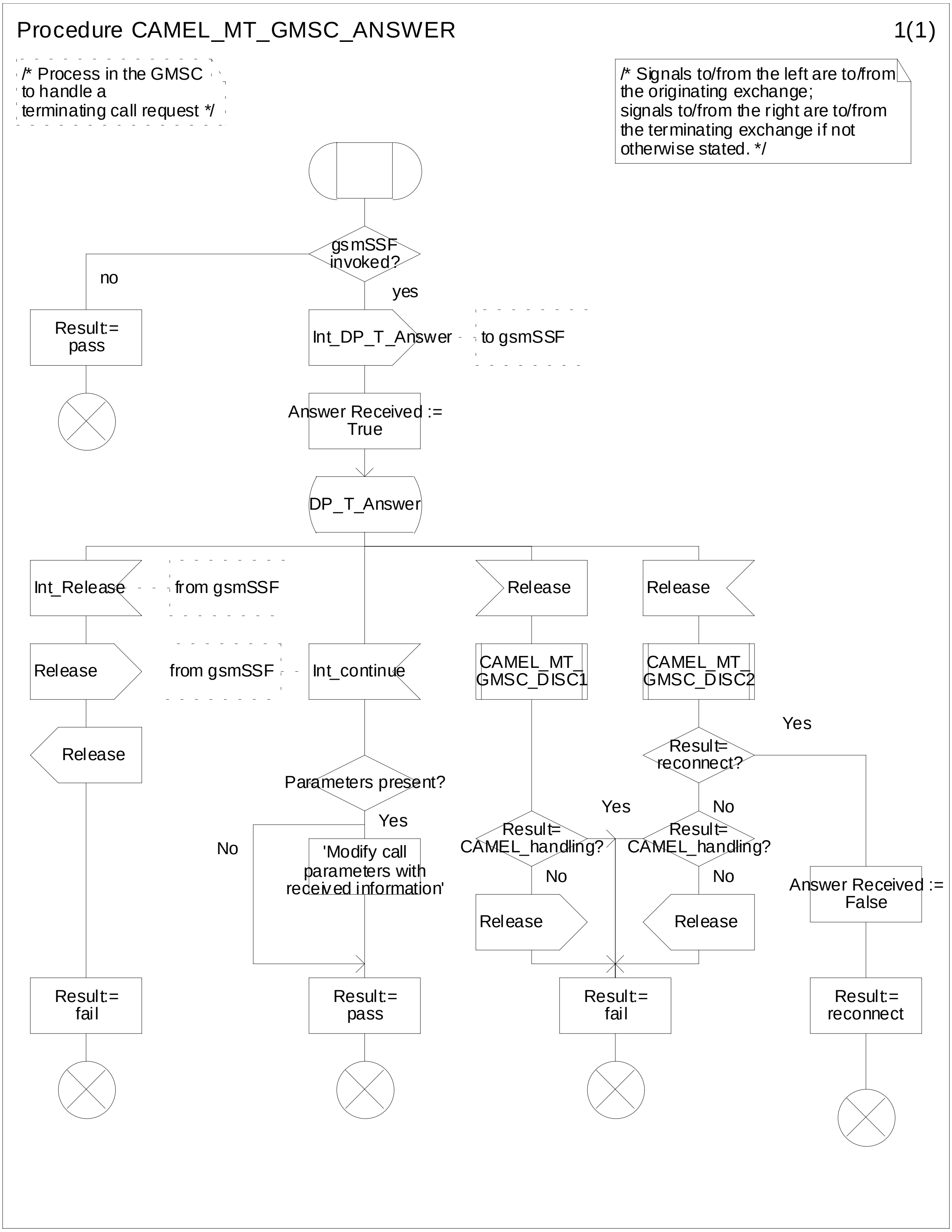
Procedure CAMEL_MT_GMSC_ANSWER
1(1)
/* Process in the GMSC to handle a terminating call request */
/* Signals to/from the left are to/from the originating exchange; signals to/from the right are to/from the terminating exchange if not otherwise stated. */
gsmSSF invoked?
no
yes
Result:= pass
Int_DP_T_Answer
to gsmSSF
Answer Received := True
DP_T_Answer
Int_Release
from gsmSSF
Release
Release
Release
from gsmSSF
Int_continue
CAMEL_MT_GMSC_DISC1
CAMEL_MT_GMSC_DISC2
Release
Yes
Result= reconnect?
Parameters present?
Yes
No
Yes
No
'Modify call parameters with received information'
Result= CAMEL_handling?
Result= CAMEL_handling?
No
No
Answer Received := False
Release
Release
Result:= fail
Result:= pass
Result:= fail
Result:= reconnect

Figure 4.28a: Procedure CAMEL_MT_GMSC_ANSWER (sheet 1)

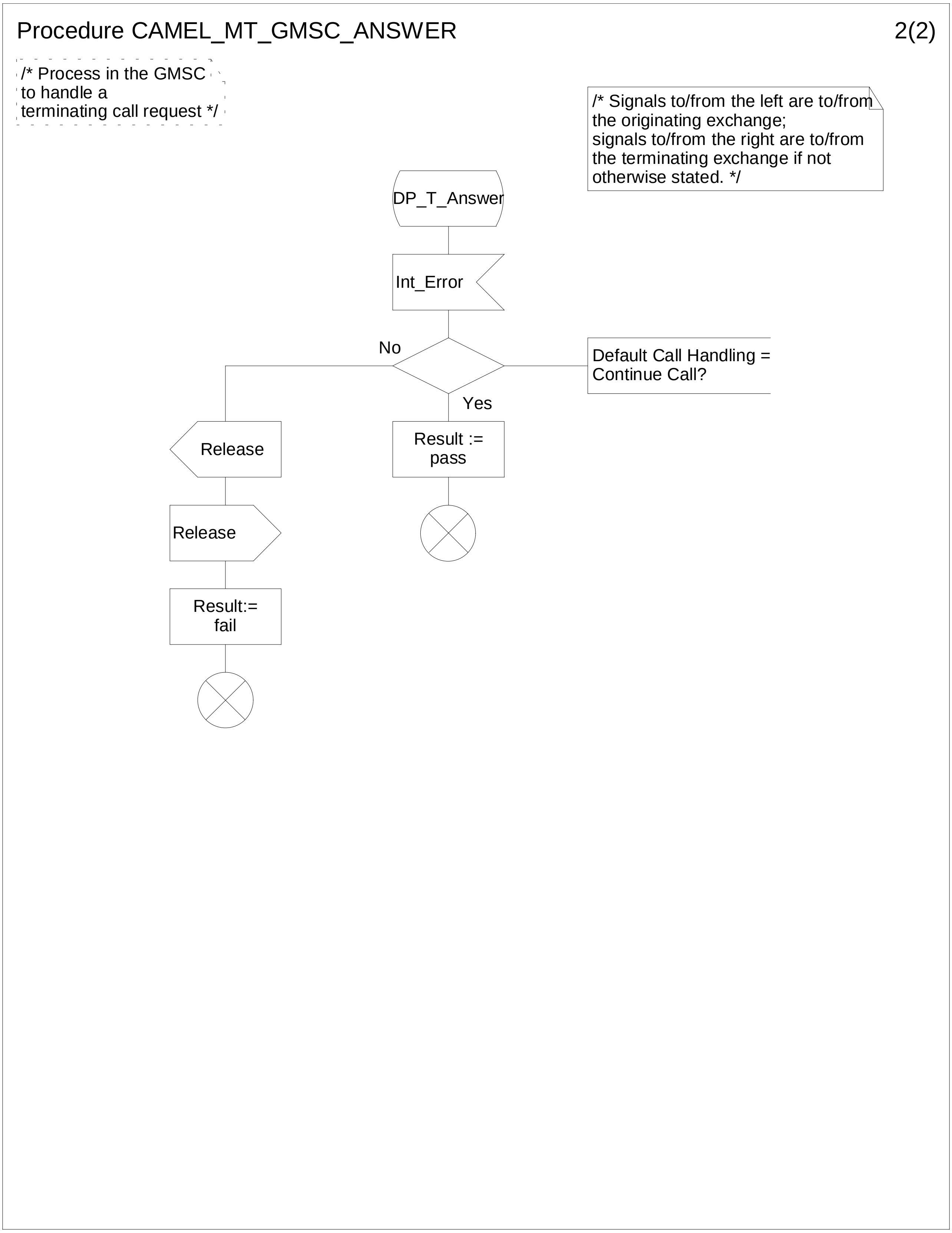
Procedure CAMEL_MT_GMSC_ANSWER
2(2)
/* Process in the GMSC to handle a terminating call request */
/* Signals to/from the left are to/from the originating exchange; signals to/from the right are to/from the terminating exchange if not otherwise stated. */
DP_T_Answer
Int_Error
Default Call Handling = Continue Call?
No
Yes
Release
Release
Result:= fail
Result := pass

Figure 4.28b: Procedure CAMEL_MT_GMSC_ANSWER (sheet 2)

***** Next Modified Part *****

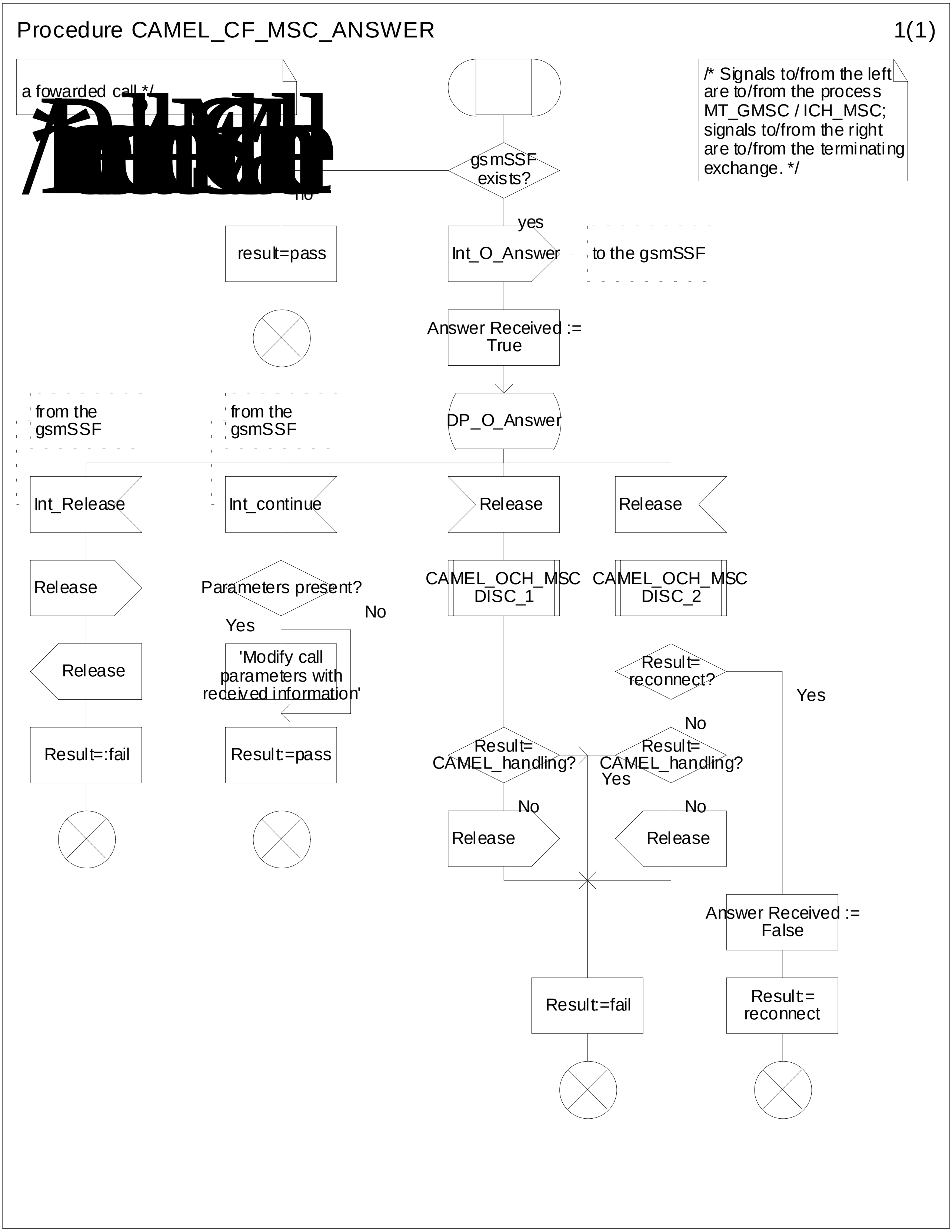
Procedure CAMEL_CF_MSC_ANSWER
1(1)
a fowarded call */
/* Signals to/from the left are to/from the process MT_GMSC / ICH_MSC; signals to/from the right are to/from the terminating exchange. */
gsmSSF exists?
no
yes
result=pass
Int_O_Answer
to the gsmSSF
Answer Received := True
DP_O_Answer
from the gsmSSF
from the gsmSSF
Int_Release
Int_continue
Release
Release
Release
Parameters present?
Yes
No
'Modify call parameters with received information'
CAMEL_OCH_MSC DISC_1
CAMEL_OCH_MSC DISC_2
Release
Result=:fail
Result:=pass
Result= reconnect?
Yes
No
Result= CAMEL_handling?
Result= CAMEL_handling?
Yes
No
No
Release
Release
Answer Received := False
Result:=fail
Result:= reconnect

Figure 4.53a: Procedure CAMEL_CF_MSC_ANSWER (sheet 1)

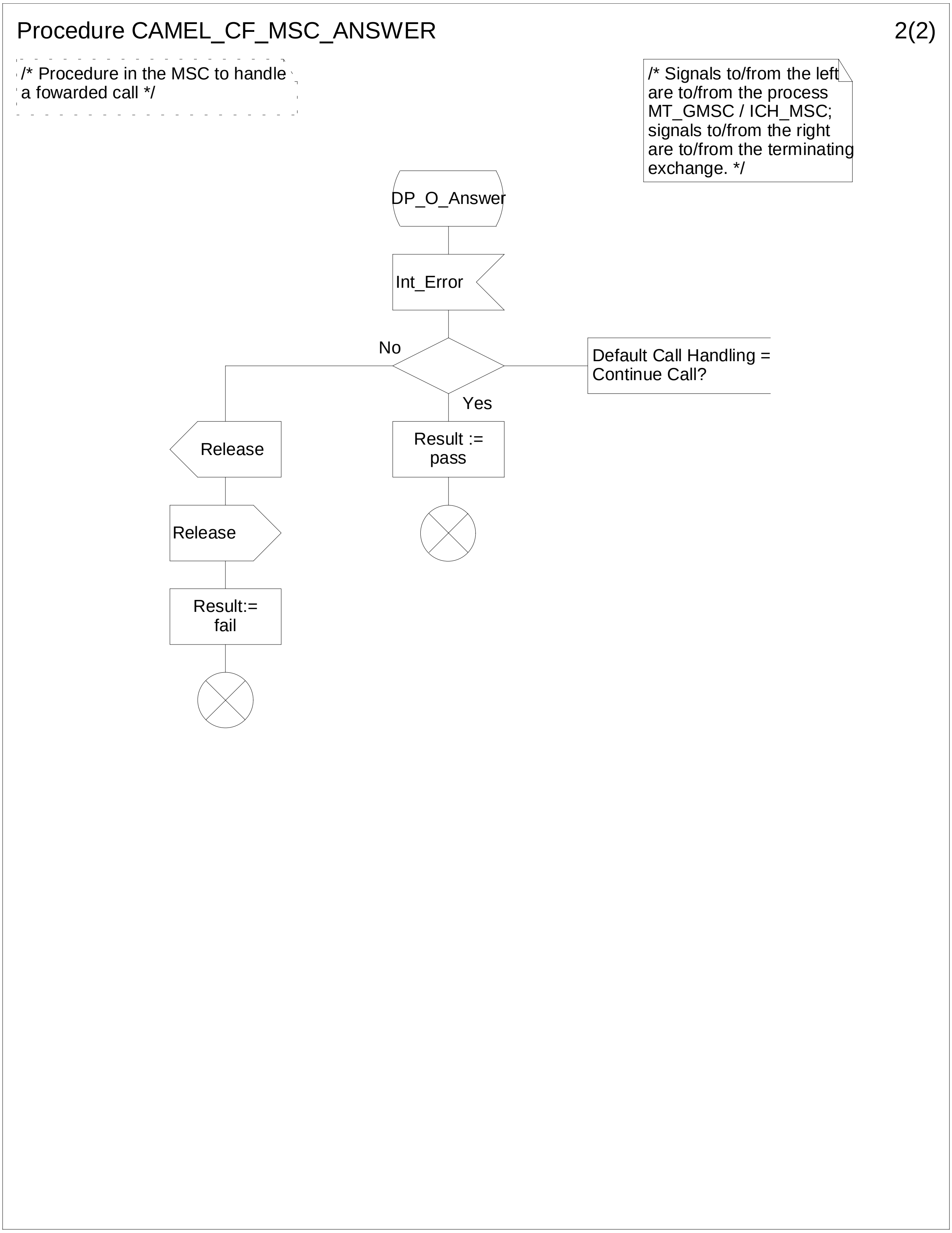
Procedure CAMEL_CF_MSC_ANSWER
2(2)
/* Procedure in the MSC to handle a fowarded call */
/* Signals to/from the left are to/from the process MT_GMSC / ICH_MSC; signals to/from the right are to/from the terminating exchange. */
DP_O_Answer
Int_Error
No
Default Call Handling = Continue Call?
Yes
Release
Result := pass
Release
Result:= fail

Figure 4.53b: Procedure CAMEL_CF_MSC_ANSWER (sheet 2)

3GPP N2 Meeting #13
Kyoto, Japan, 17-21 Jan 2000

Document N2A000077
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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23.078 CR 068 Current Version: 3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: CN#7
list expected approval meeting # here ↑

for approval ☒
for information ☐

strategic ☐
non-strategic ☐
(for SMG use only)

Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio ☐ Core Network ☐
(at least one should be marked with an X)

Source: CN WG2

Date: 13 Jan 2000

Subject: Correction of the decision box after receiving Int_DP_O_Answer and Int_DP_T_Answer in the procedure gsmSSF

Work item: CAMEL Phase 3

Category:
(only one category shall be marked with an X)

F	Correction	☒	**Release:**	Phase 2	☐
A	Corresponds to a correction in an earlier release	☐		Release 96	☐
B	Addition of feature	☐		Release 97	☐
C	Functional modification of feature	☐		Release 98	☐
D	Editorial modification	☐		Release 99	☒
				Release 00	☐

Reason for change: In the figure 4.57v, process gsmSSF, Int_DP_O_Answer and Int_DP_T_Answer should be treated as EDP. Therefore, the check of criteria should be removed.

Clauses affected: 4.5

Other specs affected:

Other 3G core specifications	☐	→ List of CRs:	
Other GSM core specifications	☐	→ List of CRs:	
MS test specifications	☐	→ List of CRs:	
BSS test specifications	☐	→ List of CRs:	
O&M specifications	☐	→ List of CRs:	

Other comments:

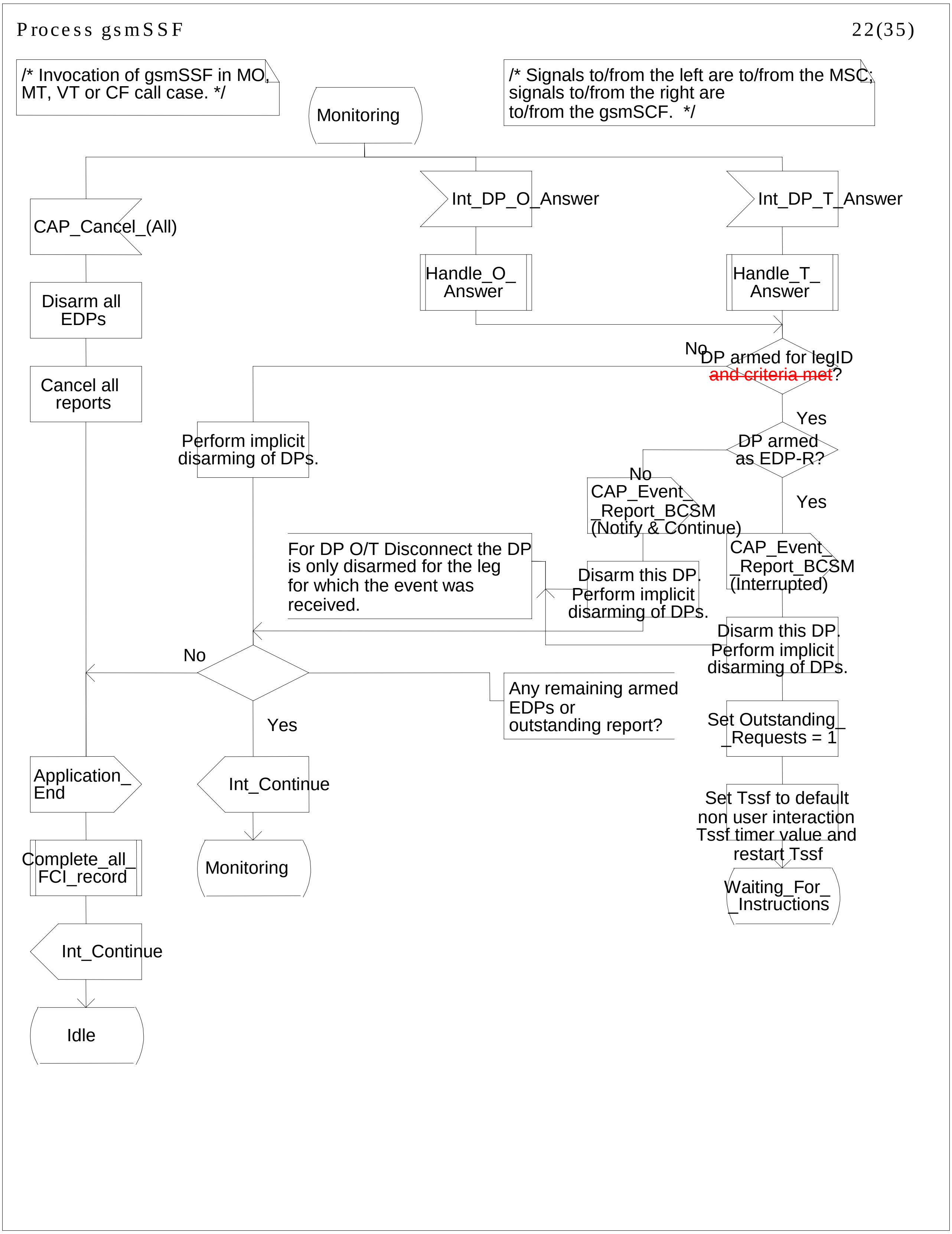
Process gsmSSF
22(35)
/* Invocation of gsmSSF in MO, MT, VT or CF call case. */
Monitoring
/* Signals to/from the left are to/from the MSC; signals to/from the right are to/from the gsmSCF. */
CAP_Cancel_(All)
Int_DP_O_Answer
Int_DP_T_Answer
Handle_O_ Answer
Handle_T_ Answer
Disarm all EDPs
Cancel all reports
No
DP armed for legID ~~and criteria met~~?
Yes
Perform implicit disarming of DPs.
DP armed as EDP-R?
No
CAP_Event_ _Report_BCSM (Notify & Continue)
Yes
CAP_Event_ _Report_BCSM (Interrupted)
For DP O/T Disconnect the DP is only disarmed for the leg for which the event was received.
Disarm this DP. Perform implicit disarming of DPs.
Disarm this DP. Perform implicit disarming of DPs.
No
Any remaining armed EDPs or outstanding report?
Yes
Set Outstanding_ _Requests = 1
Application_ End
Int_Continue
Set Tssf to default non user interaction Tssf timer value and restart Tssf
Complete_all_ FCI_record
Monitoring
Waiting_For_ _Instructions
Int_Continue
Idle

Figure 4.57v: Process gsmSSF (sheet 0)

CR editor'snote: Above 'and criteria met' shall be deleted.

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23.078 CR 069r1 Current Version: 3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: CN#7
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Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio ☐ Core Network ☐
(at least one should be marked with an X)

Source: CN WG2 **Date:** 25 Feb 2000

Subject: Correction of the description in the creation of a new leg in CF

Work item: CAMEL Phase 3

Category:
(only one category shall be marked with an X)

F	Correction	☒	**Release:**	Phase 2	☐
A	Corresponds to a correction in an earlier release	☐		Release 96	☐
B	Addition of feature	☐		Release 97	☐
C	Functional modification of feature	☐		Release 98	☐
D	Editorial modification	☐		Release 99	☒
				Release 00	☐

Reason for change: Trigger criteria has to be satisfied to create a new call leg to a "C" party.

Clauses affected:

Other specs affected:

Other 3G core specifications	☐	→ List of CRs:
Other GSM core specifications	☐	→ List of CRs:
MS test specifications	☐	→ List of CRs:
BSS test specifications	☐	→ List of CRs:
O&M specifications	☐	→ List of CRs:

Other comments:

4.4.5.3 Call Forwarding at the GMSC / VMSC

The T-BCSM for the call from A to B (labelled "T(A-B)") is invoked if the B-party has an active T-CSI (in GMSC) or VT-CSI (in VMSC). A control relationship with gsmSCF (1) will be created. Following processing at the GMSC / VMSC the call will be extended to the VMSC serving the B-party. This VMSC may be physically integrated with the GMSC.

A new call leg to a "C" party is created if:

- a GSM call forwarding supplementary service forwards the call to C. In this case O-BCSM O(B-C) is always invoked for the forwarding party if an O-CSI has been received by the GMSC from the HLR and the trigger criteria are satisfied; or
- a CAMEL service in a control relationship with T(A-B) performs a CAMEL-based call forwarding by using a Connect information flow. In this case O-BCSM O(B-C) is created.
- The O-BCSM opens a control relationship if the following conditions are met:
  - The subscriber has an active O-CSI or there is an active N-CSI or there is an active D-CSI.
  - The triggering criteria are satisfied.
  - The last Connect operation included the "O-CSI applicable" flag. This flag affects to O-CSI only.

A control relationship with gsmSCF (2) will be created.

The relationships with gsmSCF (1) and gsmSCF(2) may exist simultaneously. The two relationships are treated independently at the GMSC. The BCSM T(A-B) and BCSM O(B-C) are linked by an internal interface which is assumed to behave in a similar way to an ISUP interface.

The nodes gsmSCF (1) and gsmSCF (2) may be the same or different physical entities.

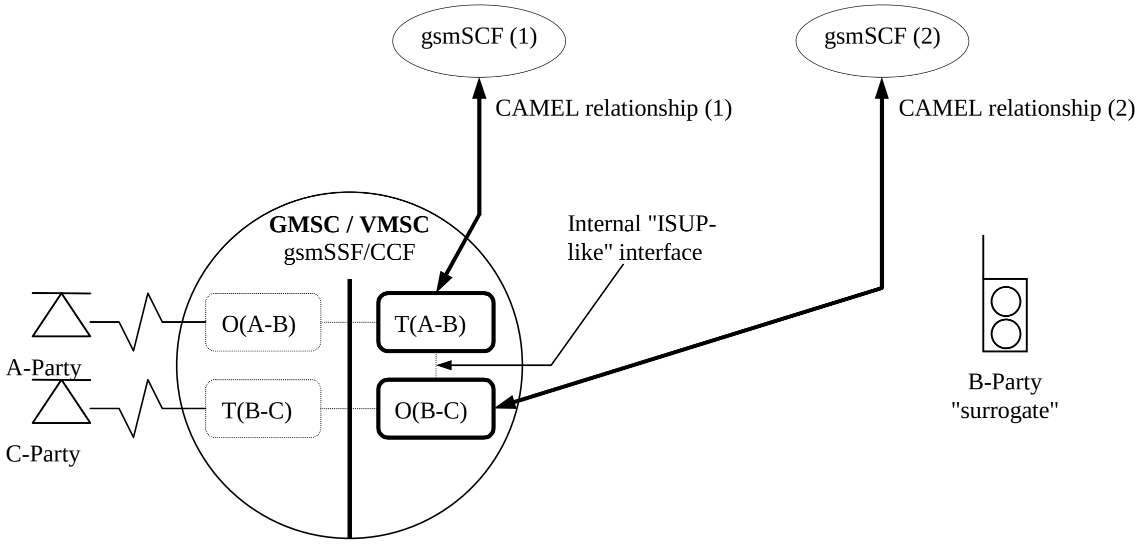

Figure Error! Reference source not found.**.1: BCSM Scenario for Call Forwarding at the GMSC / VMSC**

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Document ***N2A000289***
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23.078 **CR** **070r1** Current Version: 3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: CN#7
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Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio ☐ Core Network ☐
(at least one should be marked with an X)

Source: CN WG2 **Date:** 13 Jan 2000

Subject: Correction of the description of BCSM relationships

Work item: CAMEL Phase 3

Category:	F	Correction	☒	**Release:**	Phase 2	☐
	A	Corresponds to a correction in an earlier release	☐		Release 96	☐
(only one category	B	Addition of feature	☐		Release 97	☐
shall be marked	C	Functional modification of feature	☐		Release 98	☐
with an X)	D	Editorial modification	☐		Release 99	☒
					Release 00	☐

Reason for change: The description of (monitor/control) relationship should be provided in 4.2.1.2.3 and 4.3.1.2.5. For the former, the description is copied from the latter with a minor correction.

Clauses affected: 4.2

Other specs affected:	Other 3G core specifications	☐	→ List of CRs:
	Other GSM core specifications	☐	→ List of CRs:
	MS test specifications	☐	→ List of CRs:
	BSS test specifications	☐	→ List of CRs:
	O&M specifications	☐	→ List of CRs:

Other comments:

4.2.1.2.3 Criteria at DP Route_Select_Failure

The HLR may store a list of up to 5 cause values.

The criteria for a mobile originating call are checked in the originating MSC. The criteria for a mobile forwarded call are checked in the forwarding MSC.

For early forwarded calls in the GMSC, the HLR shall always include the trigger criteria in the subscriber data sent to the GMSC. Reason is that the cause code received from ISUP is used in the trigger criteria check. The cause code is not known at the time of sending the O-CSI to the GMSC.

For optimally routed late forwarded calls, the MSC shall always include the trigger criteria in the RCH message sent to the GMSC. Reason is that the cause code received from ISUP is used in the trigger criteria check. The cause code is not known at the time of sending the O-CSI to the GMSC.

The following criteria are applicable for DP Route_Select_Failure:

- Release cause code

The trigger criteria are met if the cause code received from ISUP is equal to at least one of the cause codes in the trigger criteria list.

If a O-BCSM was already invoked and there is a relationship at that moment, then no Service Logic shall be invoked.

4.2.1.2.4 Criteria at DP Terminating_Attempt_Authorised

The HLR may store a list of up to 5 basic service codes, each of which may represent an individual basic service or a basic service group. This list is a triggering list.

The criteria for DP Terminating_Attempt_Authorised are checked in the HLR for the GMSC or in the VLR for the MSC. The HLR shall only include T-CSI in the CAMEL subscription information sent to the GMSC if the criteria are met. The VLR shall only include VT-CSI in the CAMEL subscription information sent to the MSC if the criteria are met.

The basic service criterion is met if the basic service for the call matches a stored individual basic service code or is a member of the group defined by a stored basic service group code. For the purpose of this paragraph a general bearer service is a member of the corresponding bearer service group.

4.2.1.2.5 Criteria at DP T_Busy and T_No_Answer

The HLR may store a list of up to 5 cause values.

The criteria for a mobile terminating call are checked in the GMSC or in MSC.

For mobile terminating calls in the GMSC, the HLR shall include the trigger criteria in the subscriber data sent to the GMSC. Reason is that the cause code received from ISUP is used in the trigger criteria check. The cause code is not known at the time of sending the T-CSI to the GMSC.
If SRI-Ack includes the Not Reachable FTN, then HLR may decide not to include the trigger criteria, if the HLR has identified that T-CSI includes DP T Busy with cause code Not Reachable.

If SRI-Ack includes the Not Reachable FTN and also T-CSI, including DP T Busy with cause code, then the not reachable condition shall be mapped to an ISUP release code, which shall be used for triggering check.

For Mobile terminating calls in the VMSC, the trigger criteria are received in the VT-CSI from the HLR in Insert Subscriber Data IF. The triggering is based on the ISUP release cause code (call set up result).

The following criteria are applicable for DP T_Busy and T_No_Answer:

- Release cause code

The trigger criteria are met if the cause code received from ISUP or MAP is equal to at least one of the cause codes in the trigger criteria list.

If trigger criteria are satisfied, either in GMSC or VMSC, then the corresponding Service Logic shall be invoked.
If a T-BCSM was already invoked and there is a control relationship at that moment, then no Service Logic shall be invoked.

When a RCH message is received in the GMSC and the subscriber has T-CSI then the forwarding reason in the RCH message shall be used to perform trigger criteria check for DP T Busy or DP T No Answer. If a match is found, then the corresponding Service Logic shall be invoked.
If a T-BCSM was already invoked and there is a ~~control~~ relationship at that moment, then no Service Logic shall be invoked.

4.2.1.3 Relationship

Given that an armed DP was encountered, the gsmSSF provides an information flow via a relationship.

A relationship between the gsmSSF and the gsmSCF for the purpose of operator specific service processing is considered to be a CAMEL relationship. There are two types of CAMEL relationships:

- A CAMEL control relationship if the gsmSCF is able to influence the call processing via the relationship.
- A CAMEL monitor relationship if the gsmSCF is not able to influence the call processing via the relationship.

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23.078 CR 071 Current Version: 3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: CN#7
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Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio ☐ Core Network ☒
(at least one should be marked with an X)

Source: CN WG2

Date: 13 Jan 2000

Subject: Correction of the direction of Int_Continue after sending Int_T-Abandon (additional CR to 23.078-033)

Work item: CAMEL Phase 3

Category:
(only one category shall be marked with an X)

F	Correction	☒
A	Corresponds to a correction in an earlier release	☐
B	Addition of feature	☐
C	Functional modification of feature	☐
D	Editorial modification	☐

Release:

Phase 2	☐
Release 96	☐
Release 97	☐
Release 98	☐
Release 99	☒
Release 00	☐

Reason for change: CR23.078-033, NP-99507, was accepted to fix the errors of the direction of the signal Int_Continue received. In the CR above, one figure was missing to fix. This CR corrects the figure 4.35d: Procedure CAMEL_MT_CTR (sheet 1).

Clauses affected: 4.5

Other specs affected:

Other 3G core specifications	☐	→ List of CRs:
Other GSM core specifications	☐	→ List of CRs:
MS test specifications	☐	→ List of CRs:
BSS test specifications	☐	→ List of CRs:
O&M specifications	☐	→ List of CRs:

Other comments: This CR complements CR 23.078-033 in which the figure was missing.

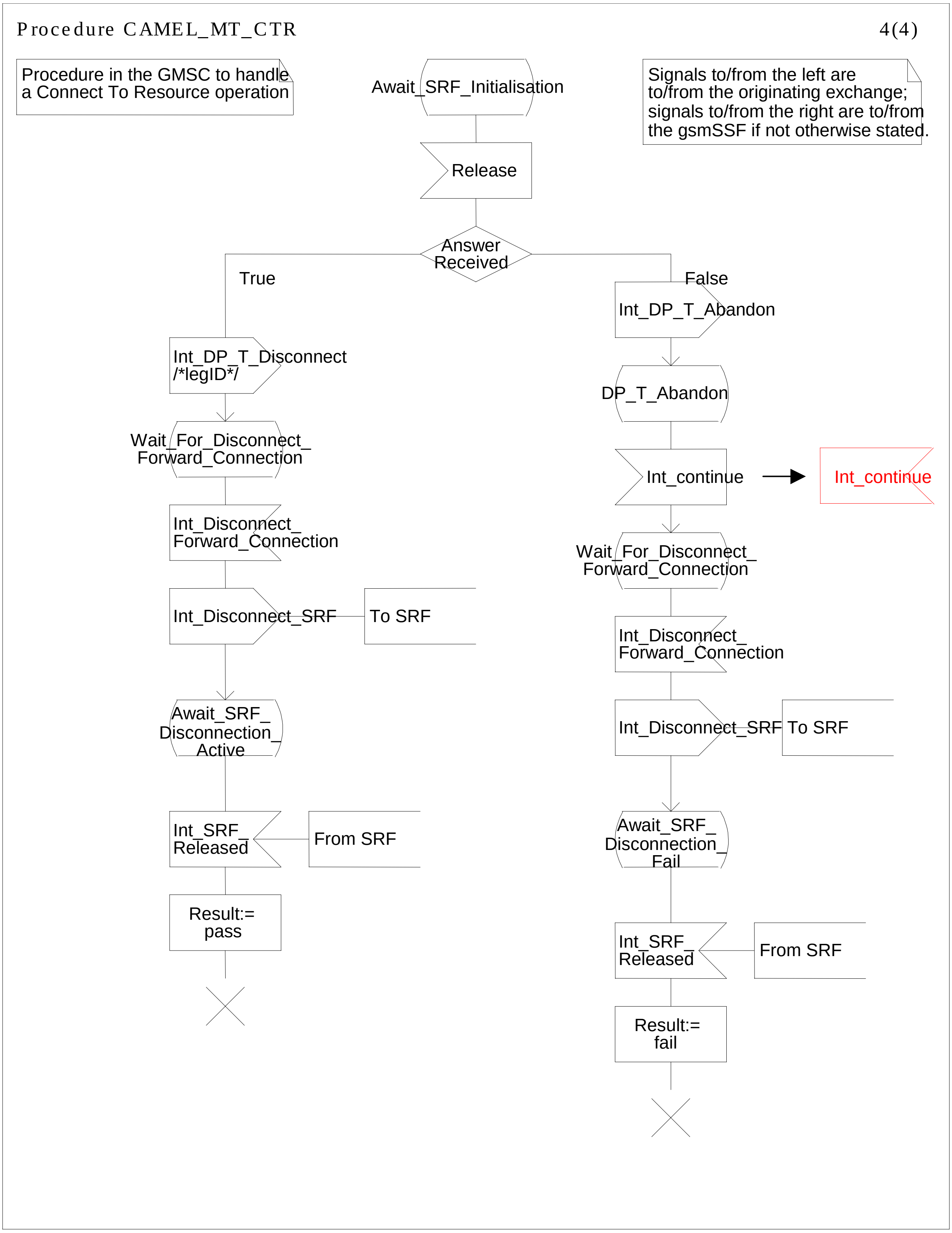
Procedure CAMEL_MT_CTR
4(4)
Procedure in the GMSC to handle a Connect To Resource operation
Await_SRF_Initialisation
Signals to/from the left are to/from the originating exchange; signals to/from the right are to/from the gsmSSF if not otherwise stated.
Release
Answer Received
True
False
Int_DP_T_Abandon
Int_DP_T_Disconnect /*legID*/
DP_T_Abandon
Wait_For_Disconnect_Forward_Connection
Int_continue
Int_continue
Int_Disconnect_Forward_Connection
Wait_For_Disconnect_Forward_Connection
Int_Disconnect_SRF
To SRF
Int_Disconnect_Forward_Connection
Await_SRF_Disconnection_Active
Int_Disconnect_SRF
To SRF
Int_SRF_Released
From SRF
Await_SRF_Disconnection_Fail
Result:= pass
Int_SRF_Released
From SRF
Result:= fail

Figure 4.35d: Procedure CAMEL_MT_CTR (sheet 4)

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23.078 **CR** **073** Current Version: 3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ ↑ *CR number as allocated by MCC support team*

For submission to: CN#7
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for information	☐	non-strategic	☐	

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio ☐ Core Network ☐
(at least one should be marked with an X)

Source: CN WG2 **Date:** 13 Jan 2000

Subject: Editorial changes for legs

Work item: CAMEL Phase 3

Category:	F	Correction	☐	**Release:**	Phase 2	☐
	A	Corresponds to a correction in an earlier release	☐		Release 96	☐
(only one category	B	Addition of feature	☐		Release 97	☐
shall be marked	C	Functional modification of feature	☐		Release 98	☐
with an X)	D	Editorial modification	☒		Release 99	☒
					Release 00	☐

Reason for change: Terms P Leg/C Leg are rarely used. Leg 1/Leg 2 may be used instead.

Clauses affected:

Other specs affected:	Other 3G core specifications	☐	→ List of CRs:
	Other GSM core specifications	☐	→ List of CRs:
	MS test specifications	☐	→ List of CRs:
	BSS test specifications	☐	→ List of CRs:
	O&M specifications	☐	→ List of CRs:

Other comments:

4.4.4 Rules for Implicit Disarming of Event Detection Points'

The following tables give the rules for implicit disarming of event detection points.

Implicit EDP disarming rules are specified in the tables below for Originating BCSM and respectively Terminating BCSM. Each table specifies which EDP's shall be disarmed (i.e. MonitorMode set to Transparent) if/when each EDP is encountered, irrespective of the EDP's MonitorMode (Transparent, NotifyAndContinue, or Request).

When EDP’s armed with MonitorMode ‘Request’ (EDP-R’s) are encountered, any implicit EDP disarming shall take place before reporting the EDP and transiting the gsmSSF to the WFI state (if not already suspended in the WFI state).

If the BCSM has encountered DP O/T_Answer then an originator release must be detected as a DP O/T_Disconnect.

NOTE: The rules are designed for use in a Single Point of Control configuration and may require further enhancements if they were to be used in a Multiple Points of Control configuration. Enhancements to these rules in order to cover all aspects of MPC will have to be catered for in the next CAMEL Phase.

The table entry 'X' means that if one DP occurs (independently of arming and reporting to the gsmSCF) the marked one is implicitly disarmed.

It shall be possible to rearm explicitly an implicitly disarmed DP, e.g. for follow on call.

Table Error! Reference source not found.**.1: Implicit disarmed DPs in the O-BCSM**

Encountered DP	Implicit disarmed DPs						
	DP4	DP 5	DP 6	DP 7	DP 9 ~~C Leg~~ Leg1	DP 9 ~~P Leg~~ Leg 2	DP 10
DP4 Route_Select_Failure	X	X	X	X		X	
DP5 O_Busy	X	X	X	X		X	
DP6 O_No_Answer	X	X	X	X		X	
DP7 O_Answer	X	X	X	X			X
DP9 O_Disconnect~~C Leg~~ Leg1					X		X
DP9 O_Disconnect~~P Leg~~ Leg2	X	X	X	X		X	
DP10 O_Abandon					X		X

Table Error! Reference source not found.**.2: Implicit disarmed DPs in the T-BCSM**

Encountered DP	Implicit disarmed DPs					
	DP 13	DP 14	DP 15	DP 17 ~~P Leg~~ Leg1	DP 17 ~~C Leg~~ Leg2	DP 18
DP13 T_Busy	X	X	X		X	
DP14 T_No_Answer	X	X	X		X	
DP15 T_Answer	X	X	X			X
DP17 T_Disconnect ~~P Leg~~Leg1				X		X
DP17 T_Disconnect ~~C Leg~~Leg2	X	X	X		X	
DP18 T_Abandon				X		X

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23.078 **CR** **076r2** Current Version: 3.3.0

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Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio ☐ Core Network ☒
(at least one should be marked with an X)

Source: CN WG2s **Date:** 25 Feb 2000

Subject: Extension of the description of the O_No_Answer.

Work item: CAMEL Phase 3

Category:	F Correction	☒	**Release:**	Phase 2	☐
	A Corresponds to a correction in an earlier release	☐		Release 96	☐
(only one category	B Addition of feature	☐		Release 97	☐
shall be marked	C Functional modification of feature	☐		Release 98	☐
with an X)	D Editorial modification	☐		Release 99	☒
				Release 00	☐

Reason for change: To inline with the description in 23.018, O_No_Answer should include the indication of the release message sent from the destination exchange.

Clauses affected: 4.4

Other specs affected:	Other 3G core specifications	☐	→ List of CRs:
	Other GSM core specifications	☐	→ List of CRs:
	MS test specifications	☐	→ List of CRs:
	BSS test specifications	☐	→ List of CRs:
	O&M specifications	☐	→ List of CRs:

Other comments:

Table Error! Reference source not found.**.1: Description of O-BCSM DPs in the MSC**

CAMEL Detection Point:	**DP Type**	**Description:**
DP Collected_Info	TDP-R	Indication that the O-CSI is analysed. This DP is also used for gsmSCF initiated call setup. In this case the DP is neither triggered nor reported.
DP Analysed_Information	TDP-R (note 2)	Availability of routeing address and nature of address.
DP Route_Select_Failure	TDP-R (note 3), EDP-N, EDP-R	Indication that the call establishment failed
DP O_Busy	EDP-N, EDP-R	Indication that: - a busy indication is received from the terminating party, - a not reachable event is determined upon a cause IE in the ISUP release message.
DP O_No_Answer	EDP-N, EDP-R	Indication that : - an application timer associated with the O_No_Answer DP expires, - a no answer event is determined upon a cause IE in the ISUP release message.
DP O_Answer	EDP-N, EDP-R	Indication that the call is accepted and answered by the terminating party.
DP O_Disconnect	EDP-N, EDP-R	A disconnect indication is received from the originating party or from the terminating party.
DP O_Abandon	EDP-N, EDP-R	Indication that a disconnect indication is received from the originating party during the call establishment procedure
NOTE 1: The DPs are defined in ITU-T Q.1224 ([6]). NOTE 2: For TDP-R Analysed_Information new relationship to gsmSCF is opened. NOTE 3: DP Route_Select_Failure shall be reported as TDP-R when there is no relationship to gsmSCF. If a relationship to gsmSCF is already open, it shall be reported as EDP-R or EDP-N if armed so.		

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23.078 **CR** **079r1** Current Version: 3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

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Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio ☐ Core Network ☒
(at least one should be marked with an X)

Source: CN WG2 **Date:** 25 Feb 2000

Subject: Inclusion of Release transaction in CAMEL_OCH_MSC_INIT

Work item: CAMEL Phase 3

Category:
(only one category shall be marked with an X)

- F Correction ☒
- A Corresponds to a correction in an earlier release ☐
- B Addition of feature ☐
- C Functional modification of feature ☐
- D Editorial modification ☐

Release:

- Phase 2 ☐
- Release 96 ☐
- Release 97 ☐
- Release 98 ☐
- Release 99 ☒
- Release 00 ☐

Reason for change: As stated in CAMEL_MO_Dialled_Services, the event ‘Release transaction’ can also be received in CAMEL_OCH_MSC_INIT at the corresponding state.

Clauses affected: 4.5

Other specs affected:

Other 3G core specifications	☐	→ List of CRs:
Other GSM core specifications	☐	→ List of CRs:
MS test specifications	☐	→ List of CRs:
BSS test specifications	☐	→ List of CRs:
O&M specifications	☐	→ List of CRs:

Other comments:

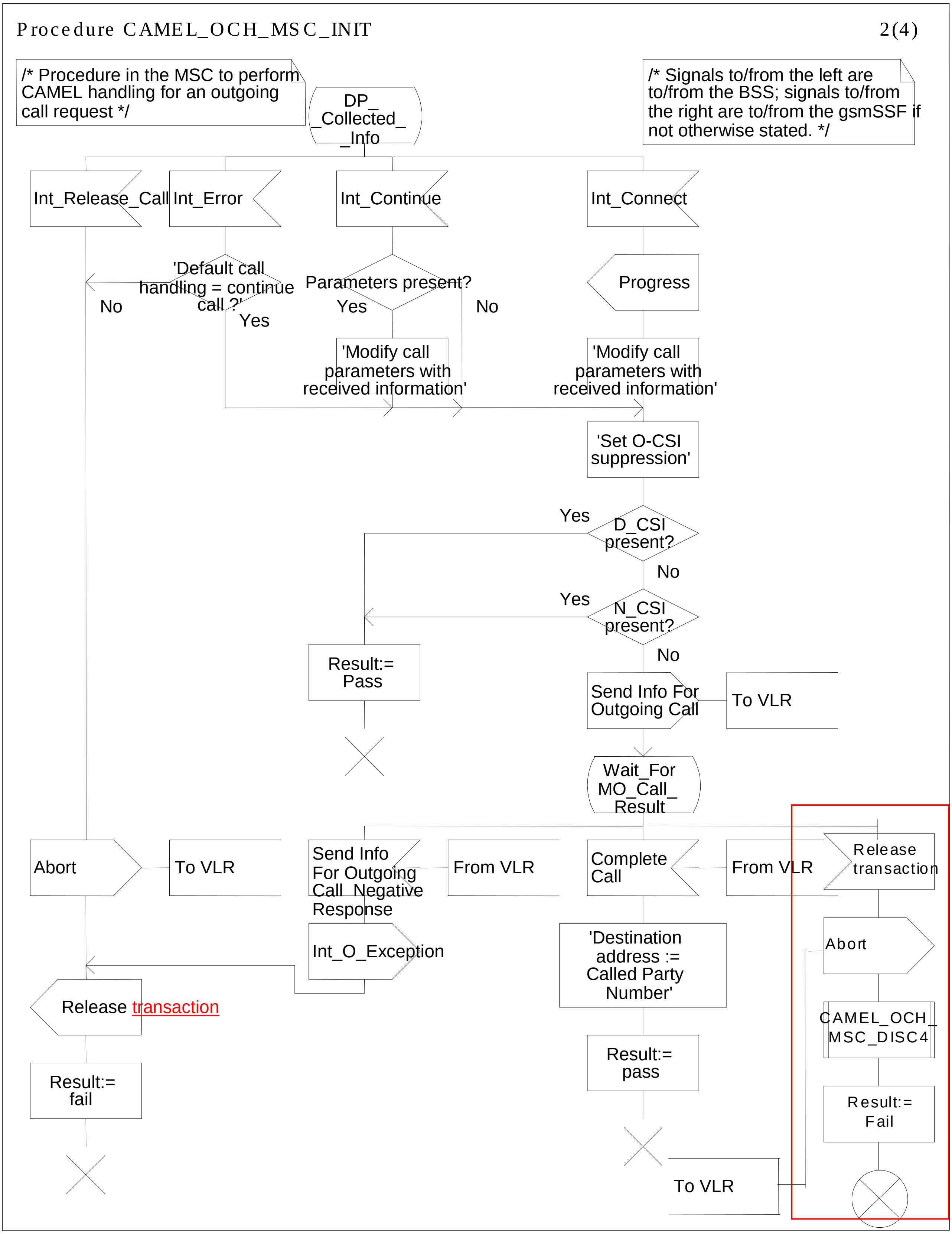
Procedure CAMEL_OCH_MSC_INIT
2(4)
/* Procedure in the MSC to perform CAMEL handling for an outgoing call request */
DP_ _Collected_ _Info
/* Signals to/from the left are to/from the BSS; signals to/from the right are to/from the gsmSSF if not otherwise stated. */
Int_Release_Call
Int_Error
Int_Continue
Int_Connect
'Default call handling = continue call ?'
No
Yes
Parameters present?
Yes
No
Progress
'Modify call parameters with received information'
'Modify call parameters with received information'
'Set O-CSI suppression'
Yes
D_CSI present?
No
Yes
N_CSI present?
No
Result:= Pass
Send Info For Outgoing Call
To VLR
Wait_For MO_Call_ Result
Abort
To VLR
Send Info For Outgoing Call Negative Response
From VLR
Complete Call
From VLR
Release transaction
Int_O_Exception
'Destination address := Called Party Number'
Abort
Release transaction
CAMEL_OCH_ MSC_DISC4
Result:= pass
Result:= fail
Result:= Fail
To VLR

Figure Error! Reference source not found.**b: Procedure CAMEL_OCH_MSC_INIT (sheet 1)**

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23.078 CR 081r1 Current Version: 3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

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non-strategic ☐
(for SMG use only)

Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio ☐ Core Network ☒
(at least one should be marked with an X)

Source: CN WG2

Date: 13 Jan 2000

Subject: Improved SDLs in GPRS interworking

Work item: CAMEL Phase 3

Category:
(only one category shall be marked with an X)

F	Correction	☐
A	Corresponds to a correction in an earlier release	☐
B	Addition of feature	☐
C	Functional modification of feature	☐
D	Editorial modification	☒

Release:

Phase 2	☐
Release 96	☐
Release 97	☐
Release 98	☐
Release 99	☒
Release 00	☐

Reason for change: Due to non-available SDT files for the GPRS interworking during the editing period, the editorial incompatibility has occurred. This CR provides the complete SDLs based on the newly created SDT files.

Clauses affected: 6

Other specs affected:

Other 3G core specifications	☐	→ List of CRs:
Other GSM core specifications	☐	→ List of CRs:
MS test specifications	☐	→ List of CRs:
BSS test specifications	☐	→ List of CRs:
O&M specifications	☐	→ List of CRs:

Other comments: Wording alignment was done in the procedure name.

6 GPRS interworking

Figure 6.1 Functional architecture for support of CAMEL

Figure 6.2: GPRS SM Components

Figure 6.3: GPRS Attach/Detach FSM

Figure 6.4: GPRS PDP Context FSM

6.5 Procedures for CAMEL GPRS

The functional behaviour of the SGSN is specified in 3G TS 29.002 [4]. The procedures specific to CAMEL are specified in this subclause :

- Procedure CAMEL_GPRS_Attach_Request,
- Procedure CAMEL_GPRS_Detach_Indication,
- Procedure CAMEL_GPRS_Routeing_Area_Update
- Procedure CAMEL_GPRS_~~SGSN_~~Context_Acknowledge
- Procedure CAMEL_GPRS_Activate_PDP_Context
- Procedure CAMEL_GPRS_~~SGSN_~~Create_PDP_Context
- ~~Procedure CAMEL_GPRS_Activate_PDP_Context~~
- Procedure CAMEL_GPRS_Modify_PDP_Context
- Procedure CAMEL_GPRS_Deactivate_PDP_Context
- ~~Procedure CAMEL_GPRS_exception_procedure~~
- ~~Procedure CAMEL_GPRS_Modify_PDP_Context~~

~~Note: In the SDLs in the following subclauses, Handle_AC and Handle_ACR shall be renamed Handle_AC_GPRS and Handle_ACR_GPRS respectively, Handle_SCI shall be renamed Handle_SCI_GPRS, Complete_FCI_Record shall be renamed Complete_FCI_Record_GPRS.~~

6.5.1 Actions of the SGSN on receipt of Int_Error

The SGSN checks the default GPRS Handling parameter in GPRS-CSI.

If the default GPRS handling is release, a Detach indication is sent to the MS. The SGSN then releases all resources and the invoked CAMEL procedure ends.

If the default GPRS handling is continue, the SGSN continues processing without CAMEL support.

6.5.2 Actions of the SGSN on receipt of Int_Continue

The SGSN continues processing without any modification of GPRS parameters.

6.5.3 Overall SDL Architecture

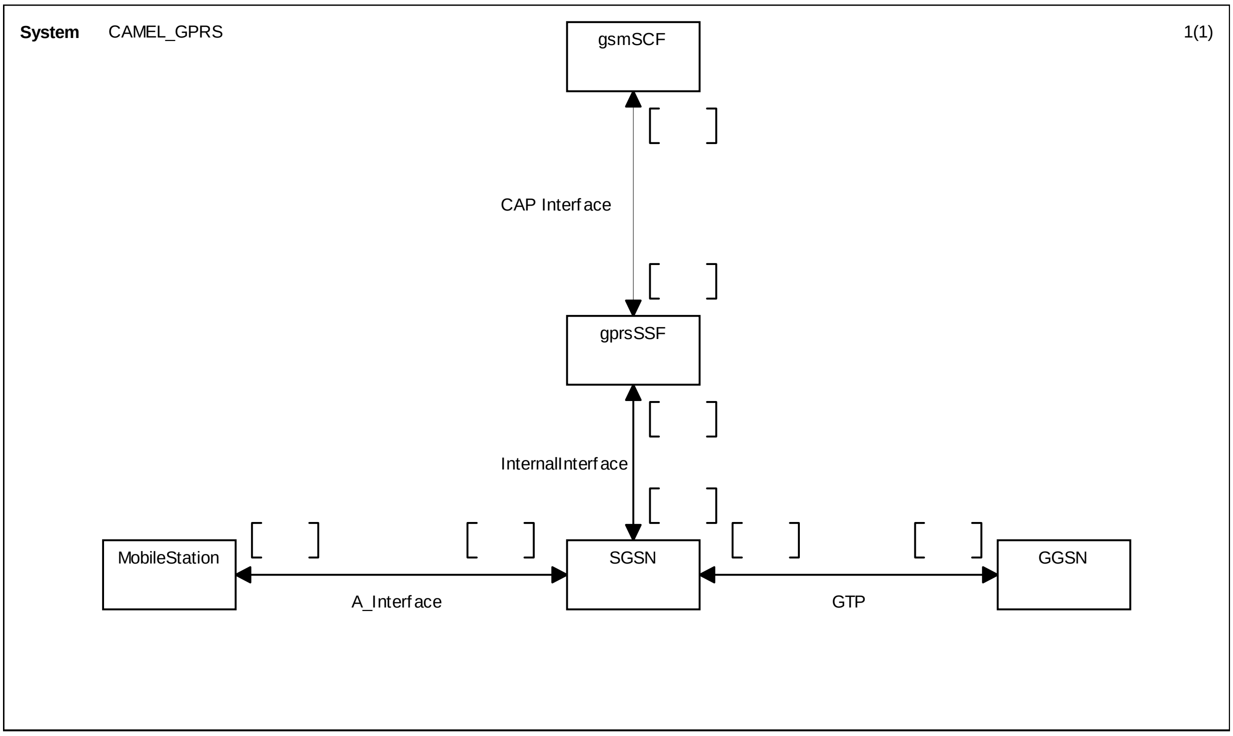
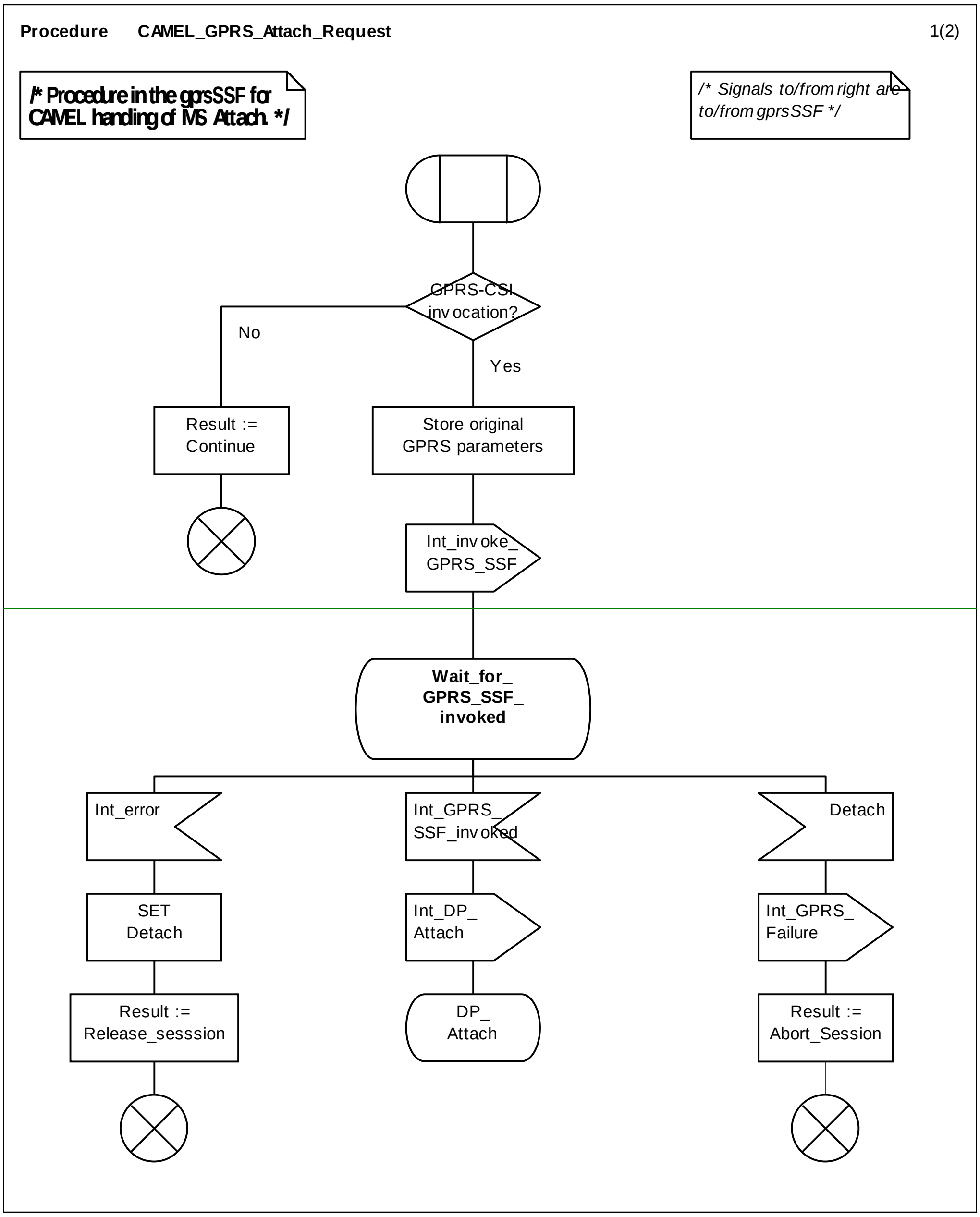

System CAMEL_GPRS
1(1)
gsmSCF
CAP Interface
gprsSSF
InternalInterface
MobileStation
SGSN
GGSN
A_Interface
GTP

Figure 6.5: Architecture for CAMEL/GPRS interworking.

6.5.4 Handling of GPRS Attach/Detach


Procedure CAMEL_GPRS_Attach_Request
1(2)
/* Procedure in the gprsSSF for CAMEL handling of MS Attach */
/* Signals to/from right are to/from gprsSSF */
GPRS-CSI invocation?
No
Yes
Result := Continue
Store original GPRS parameters
Int_invoke_ GPRS_SSF
Wait_for_ GPRS_SSF_ invoked
Int_error
Int_GPRS_ SSF_invoked
Detach
SET Detach
Int_DP_ Attach
Int_GPRS_ Failure
Result := Release_sesssion
DP_ Attach
Result := Abort_Session

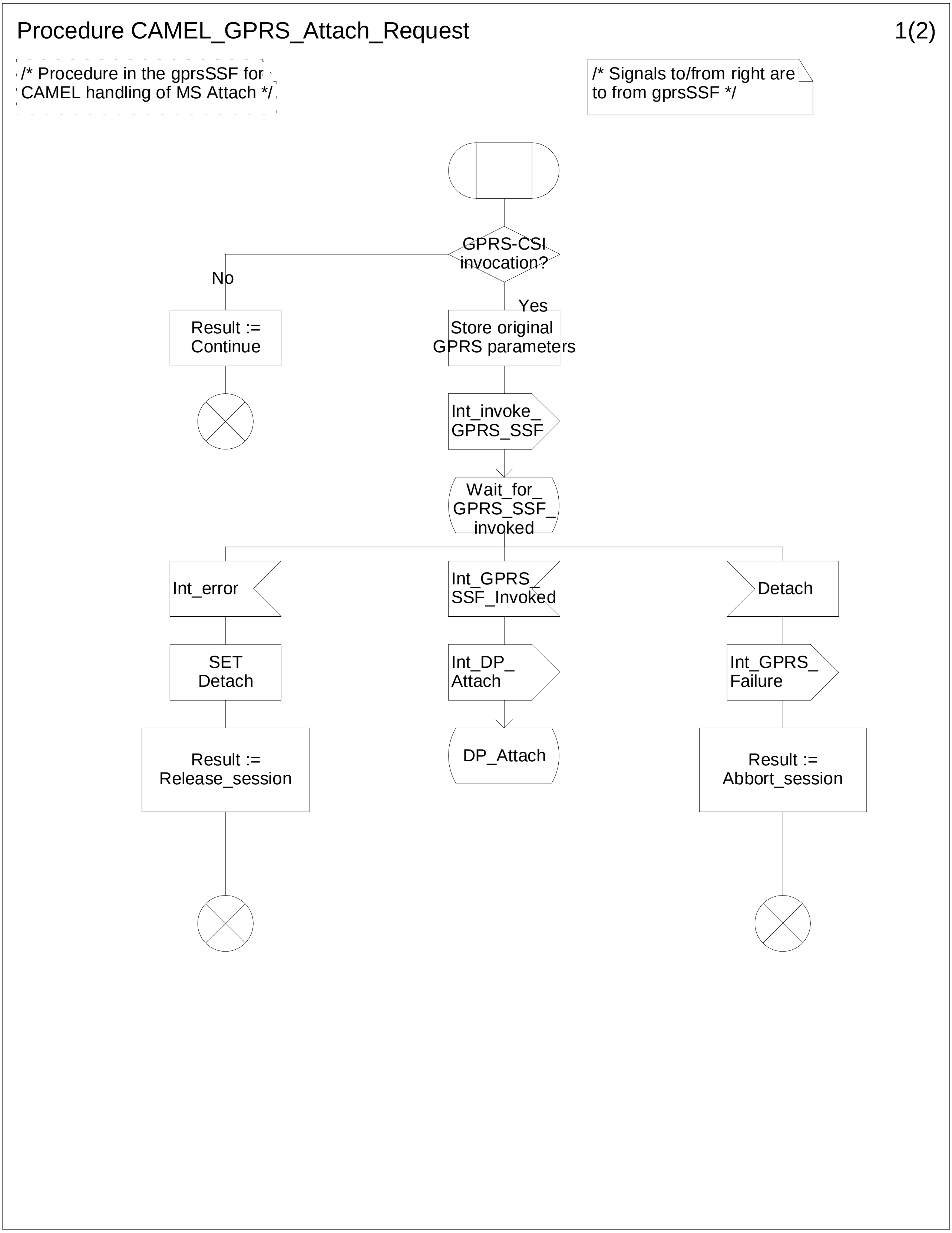
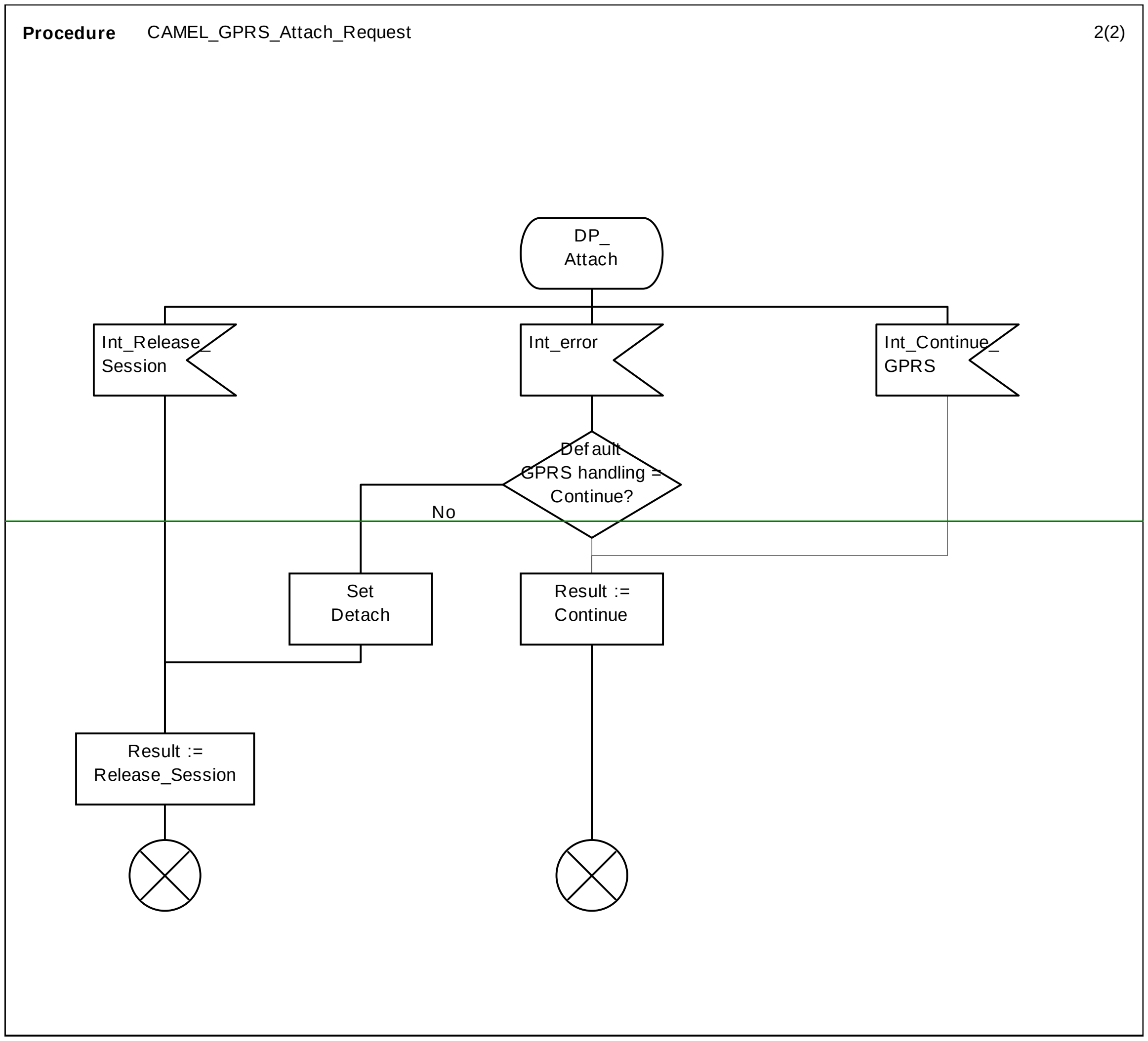

Procedure CAMEL_GPRS_Attach_Request
1(2)
/* Procedure in the gprsSSF for CAMEL handling of MS Attach */
/* Signals to/from right are to from gprsSSF */
GPRS-CSI invocation?
No
Yes
Result := Continue
Store original GPRS parameters
Int_invoke_ GPRS_SSF
Wait_for_ GPRS_SSF_ invoked
Int_error
Int_GPRS_ SSF_Invoked
Detach
SET Detach
Int_DP_ Attach
Int_GPRS_ Failure
Result := Release_session
DP_Attach
Result := Abbort_session

Figure 6.6 a: Procedure CAMEL_GPRS_Attach_Request (sheet 1)


Procedure
CAMEL_GPRS_Attach_Request
2(2)
DP_ Attach
Int_Release_ Session
Int_error
Int_Continue_ GPRS
Default GPRS handling = Continue?
No
Set Detach
Result := Continue
Result := Release_Session

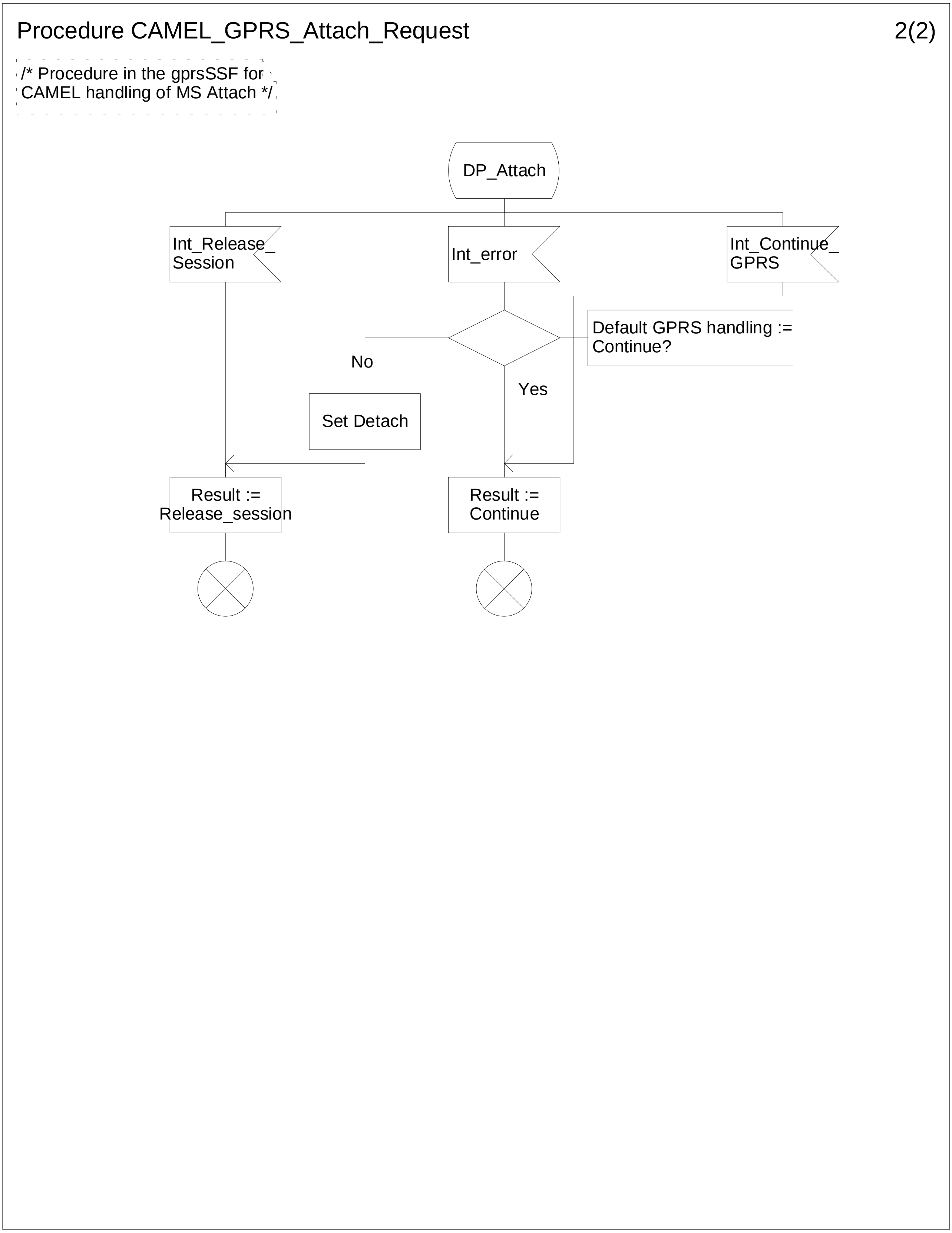
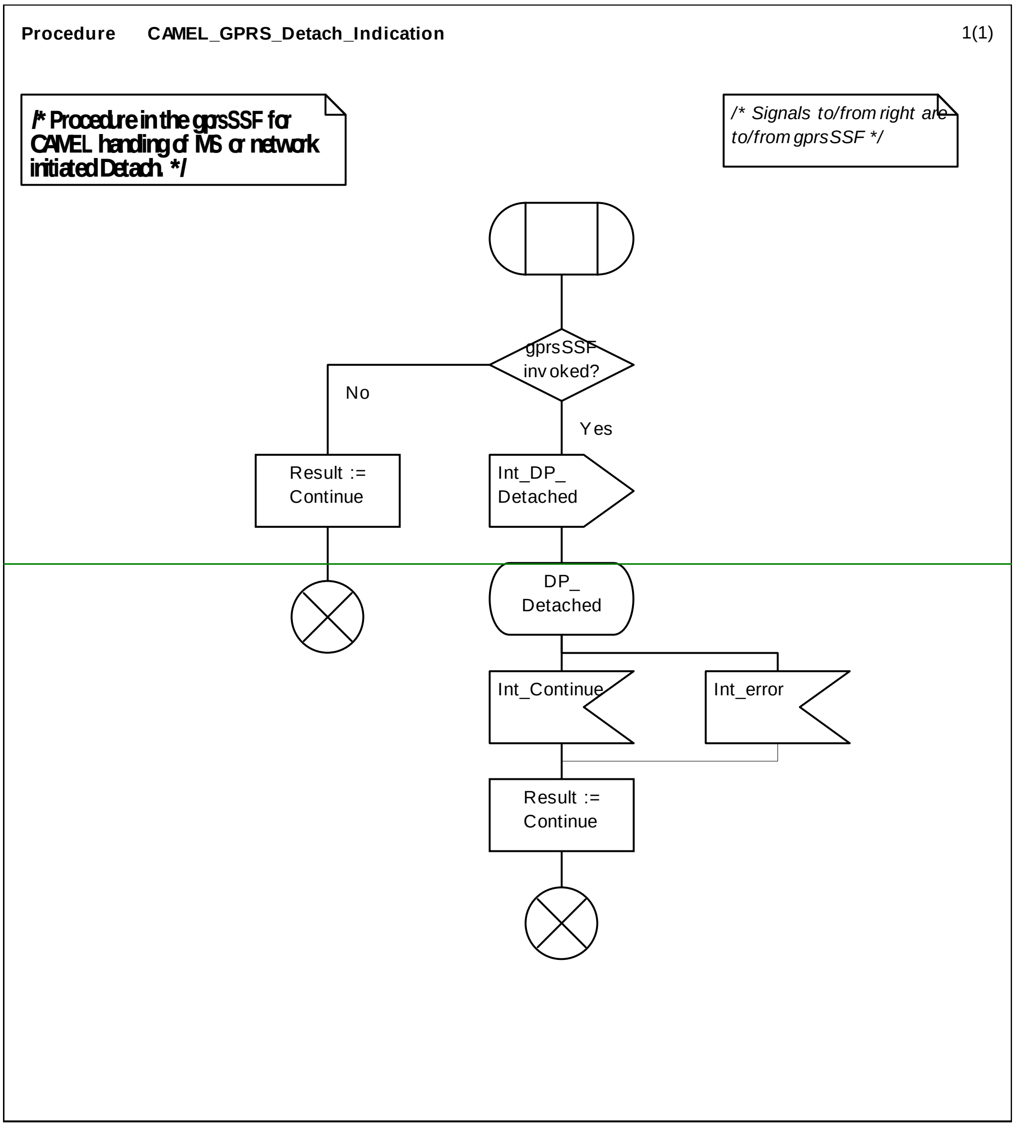

Procedure CAMEL_GPRS_Attach_Request
2(2)
/* Procedure in the gprsSSF for CAMEL handling of MS Attach */
DP_Attach
Int_Release_ Session
Int_error
Int_Continue_ GPRS
Default GPRS handling := Continue?
No
Yes
Set Detach
Result := Release_session
Result := Continue

Figure 6.6 b: Procedure CAMEL_GPRS_Attach_Request (sheet 2)


Procedure CAMEL_GPRS_Detach_Indication
1(1)
/* Procedure in the gprsSSF for CAMEL handling of MS or network initiated Detach. */
/* Signals to/from right are to/from gprsSSF */
gprsSSF invoked?
No
Yes
Result := Continue
Int_DP_ Detached
DP_ Detached
Int_Continue
Int_error
Result := Continue

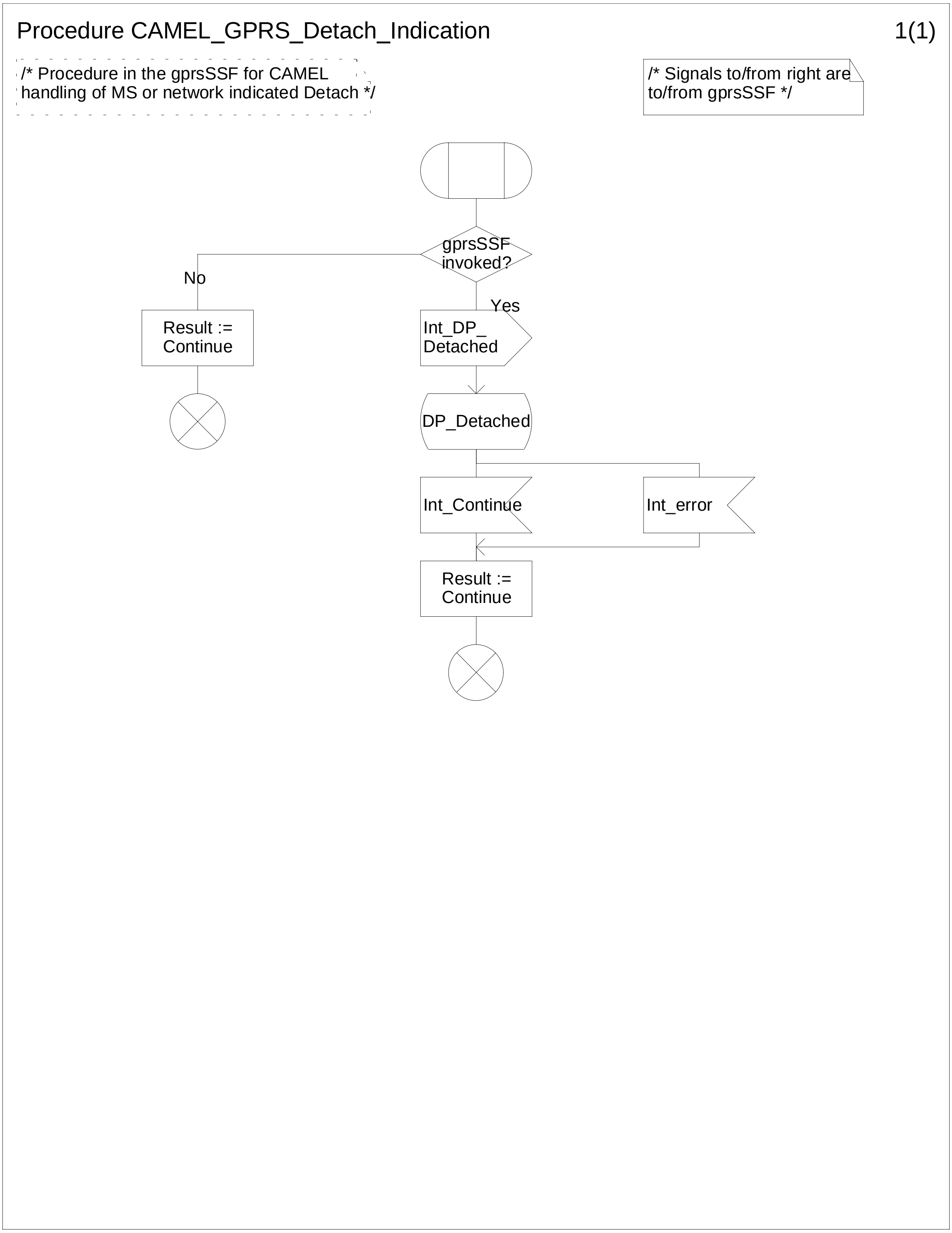
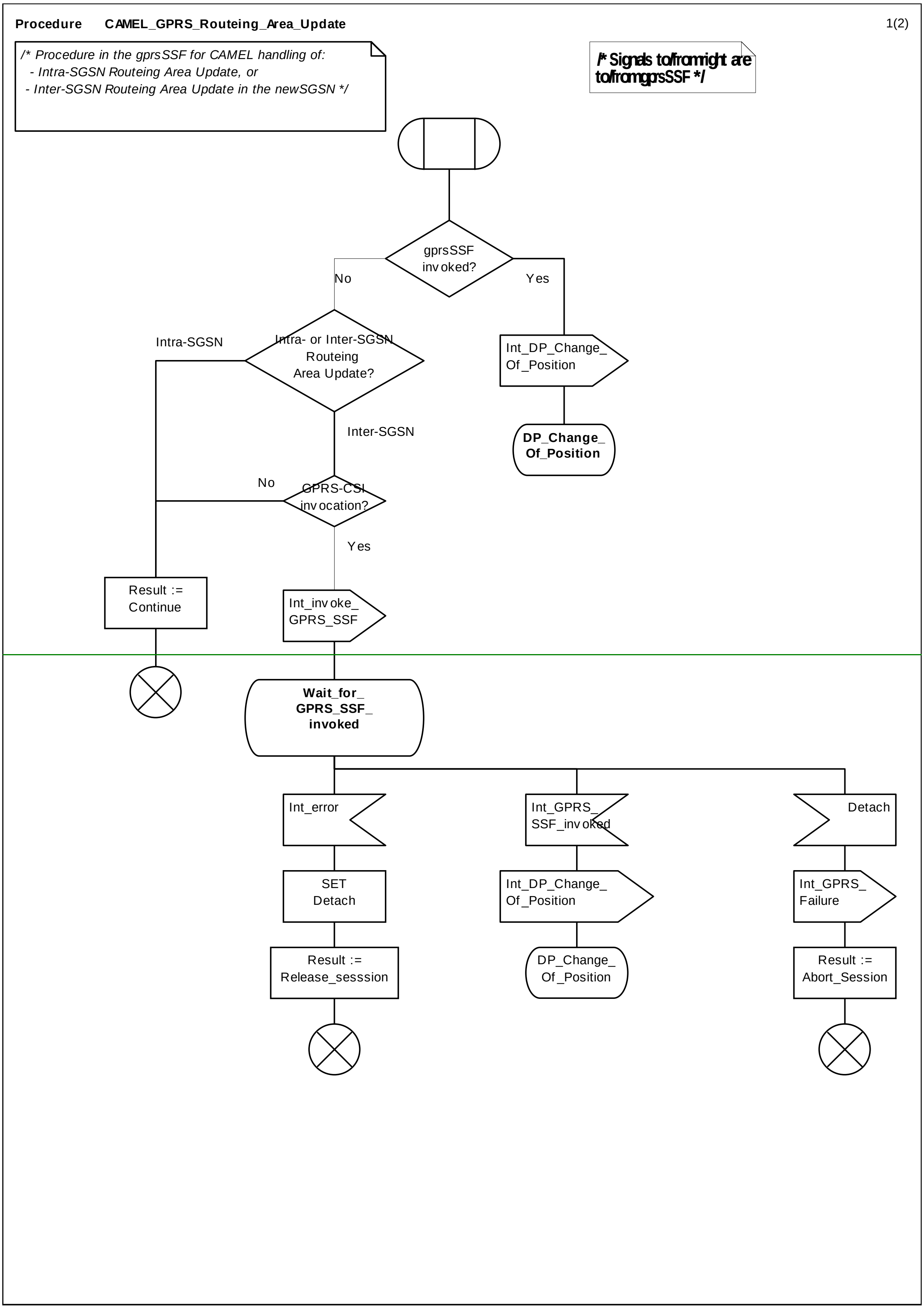

Procedure CAMEL_GPRS_Detach_Indication
1(1)
/* Procedure in the gprsSSF for CAMEL handling of MS or network indicated Detach */
/* Signals to/from right are to/from gprsSSF */
gprsSSF invoked?
No
Yes
Result := Continue
Int_DP_ Detached
DP_Detached
Int_Continue
Int_error
Result := Continue

Figure 6.7: Procedure CAMEL_GPRS_Detach_Indicaton

6.5.5 Handling of GPRS Routeing Area Update


Procedure CAMEL_GPRS_Routeing_Area_Update
1(2)
/* Procedure in the gprsSSF for CAMEL handling of:
- Intra-SGSN Routeing Area Update, or
- Inter-SGSN Routeing Area Update in the newSGSN */
/* Signals to/from right are to/from gprsSSF */
gprsSSF invoked?
No
Yes
Intra-SGSN
Intra- or Inter-SGSN Routeing Area Update?
Int_DP_Change_ Of_Position
Inter-SGSN
DP_Change_ Of_Position
No
GPRS-CSI invocation?
Yes
Result := Continue
Int_invoke_ GPRS_SSF
Wait_for_ GPRS_SSF_ invoked
Int_error
Int_GPRS_ SSF_invoked
Detach
SET Detach
Int_DP_Change_ Of_Position
Int_GPRS_ Failure
Result := Release_sesssion
DP_Change_ Of_Position
Result := Abort_Session

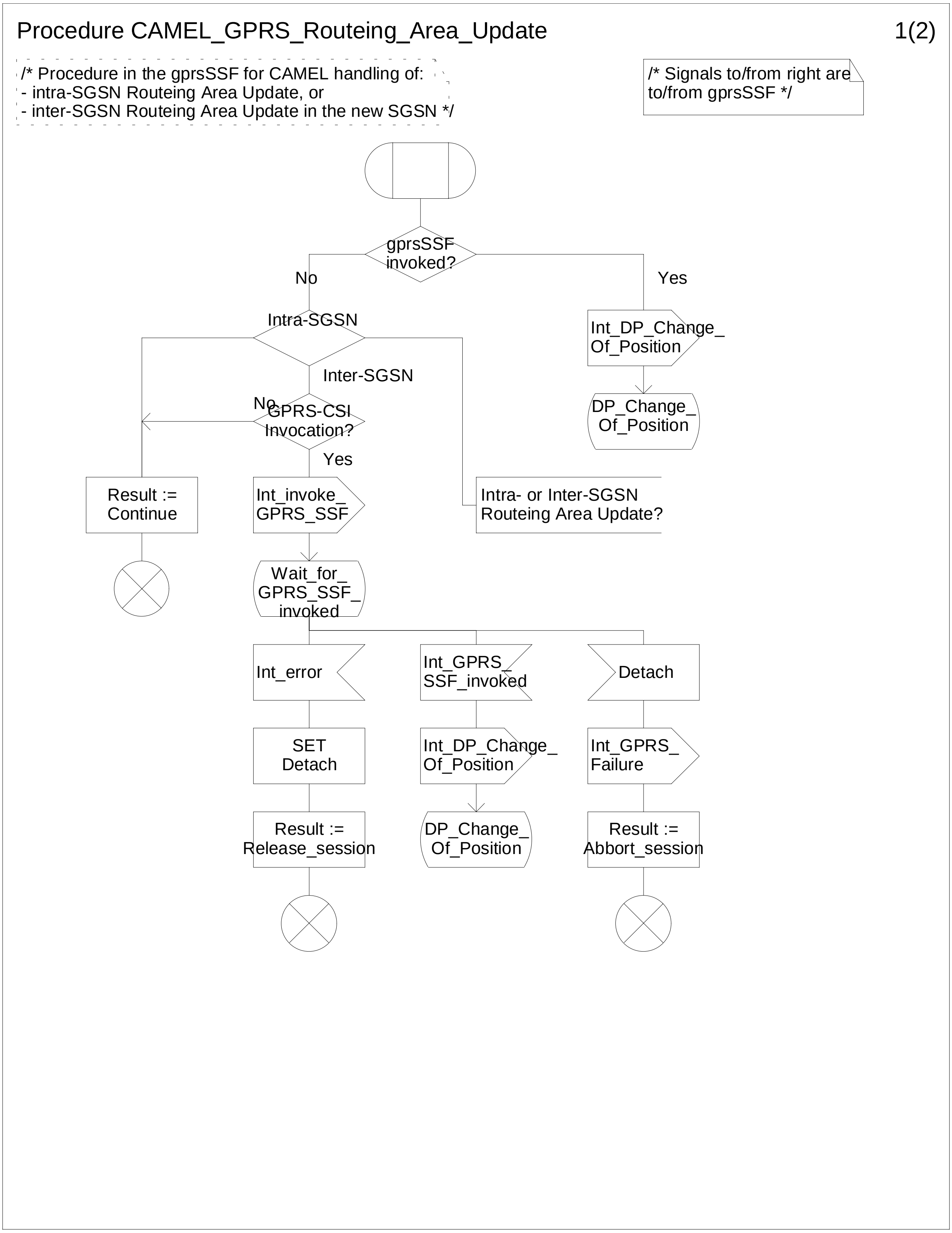
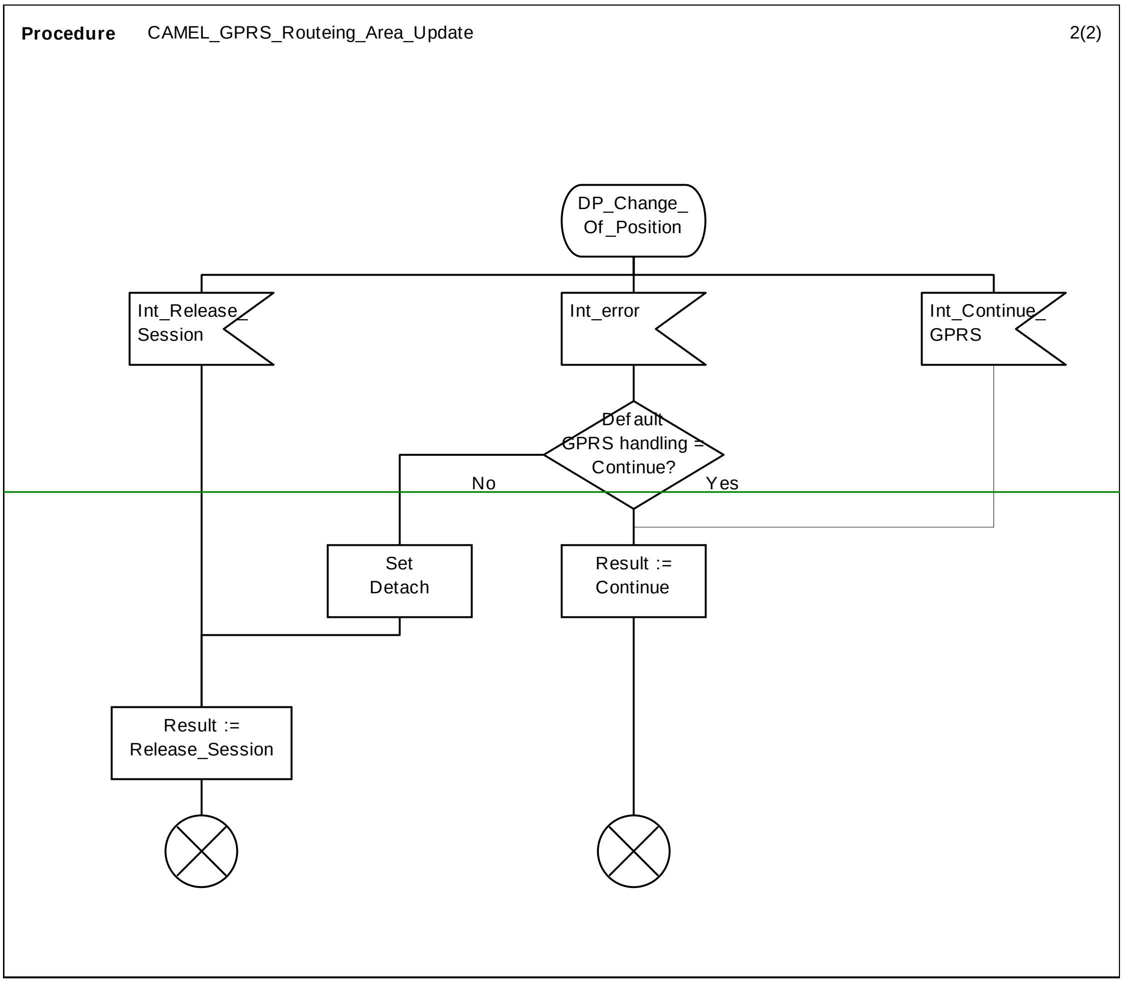

Procedure CAMEL_GPRS_Routeing_Area_Update
1(2)
/* Procedure in the gprsSSF for CAMEL handling of:
- intra-SGSN Routeing Area Update, or
- inter-SGSN Routeing Area Update in the new SGSN */
/* Signals to/from right are to/from gprsSSF */
gprsSSF invoked?
No
Yes
Intra-SGSN
Inter-SGSN
Int_DP_Change_ Of_Position
DP_Change_ Of_Position
No
GPRS-CSI Invocation?
Yes
Result := Continue
Int_invoke_ GPRS_SSF
Intra- or Inter-SGSN Routeing Area Update?
Wait_for_ GPRS_SSF_ invoked
Int_error
Int_GPRS_ SSF_invoked
Detach
SET Detach
Int_DP_Change_ Of_Position
Int_GPRS_ Failure
Result := Release_session
DP_Change_ Of_Position
Result := Abbort_session

Figure 6.8 a: Procedure CAMEL_GPRS_Routeing_Area_Update (sheet 1)


Procedure
CAMEL_GPRS_Routeing_Area_Update
2(2)
DP_Change_ Of_Position
Int_Release_ Session
Int_error
Int_Continue_ GPRS
Default GPRS handling = Continue?
No
Yes
Set Detach
Result := Continue
Result := Release_Session

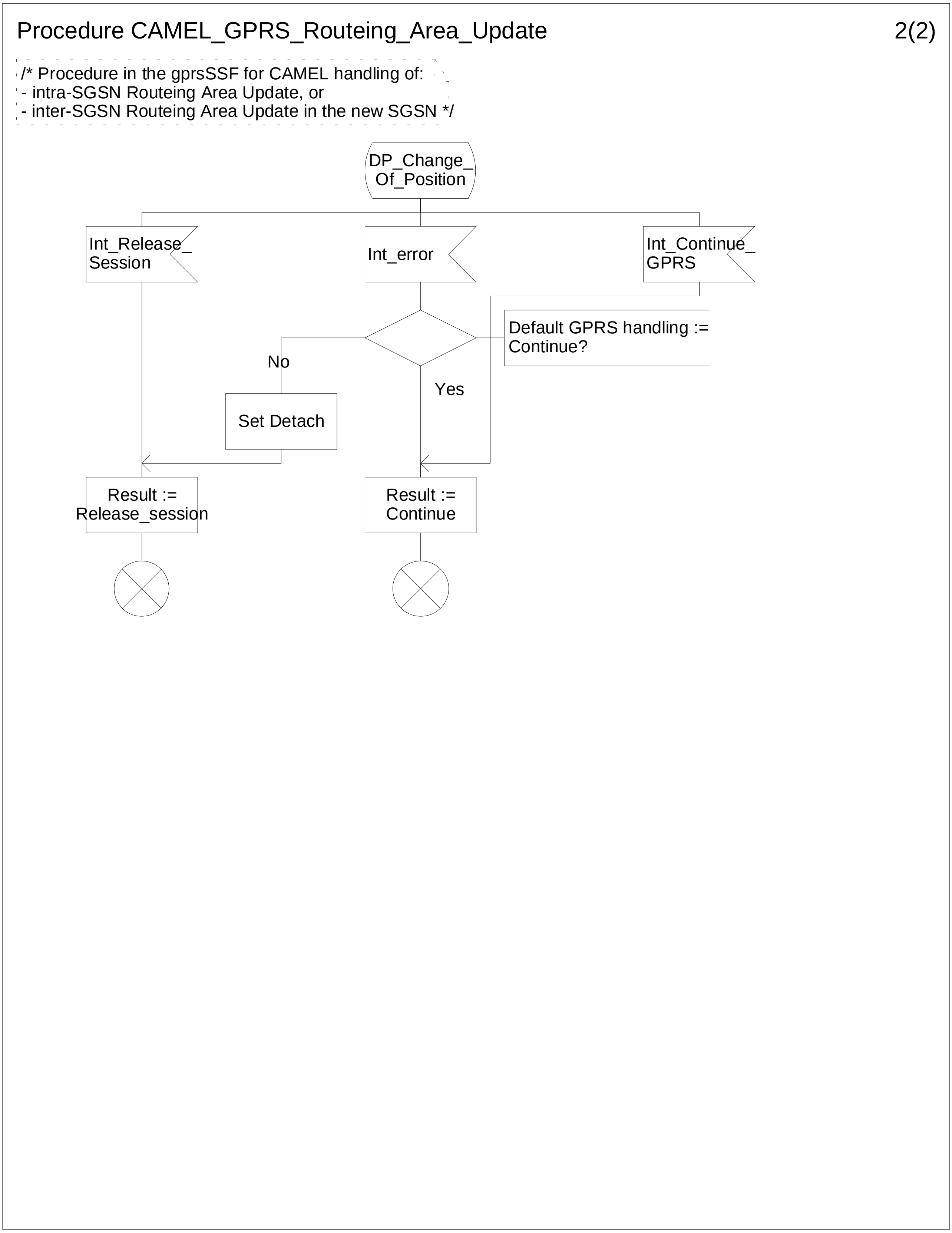
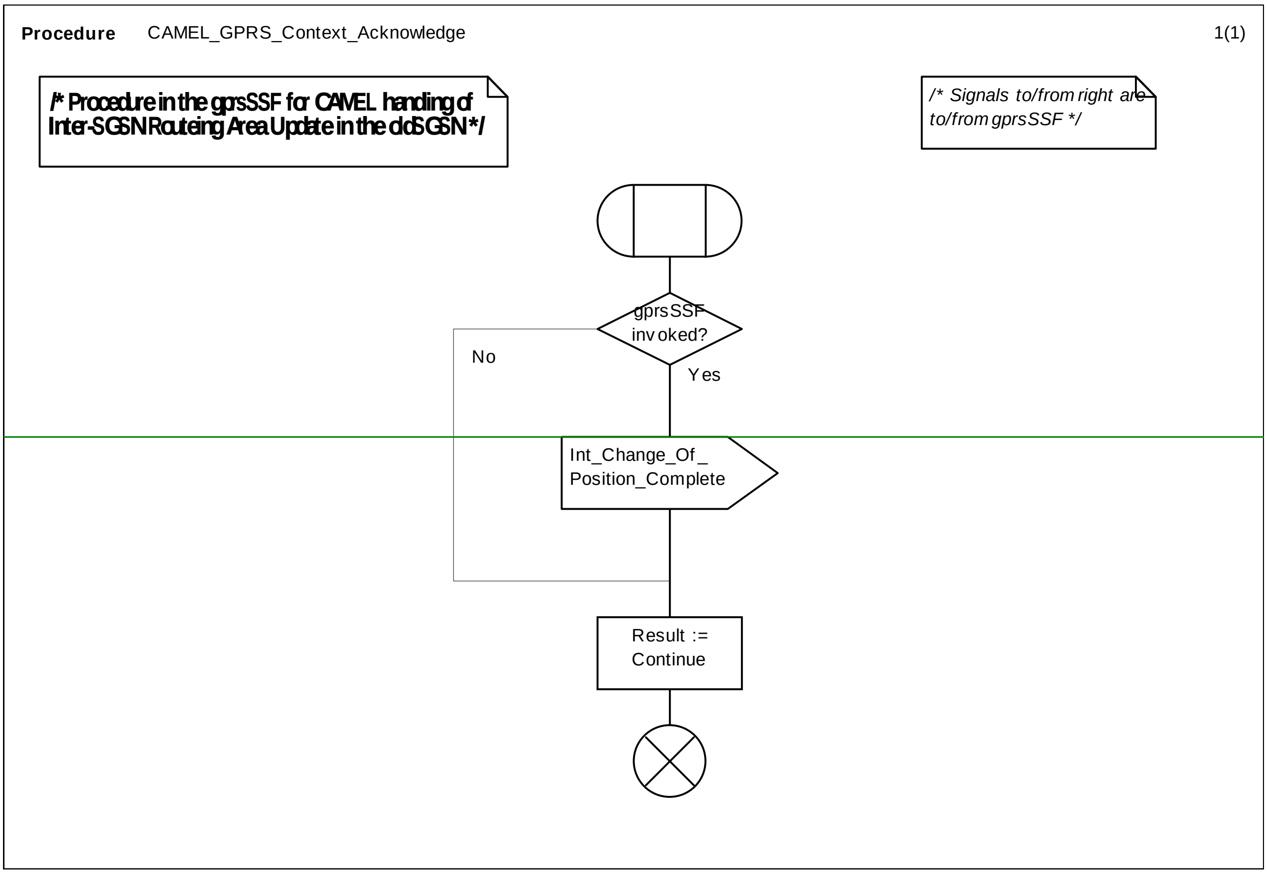

Procedure CAMEL_GPRS_Routeing_Area_Update
2(2)
/* Procedure in the gprsSSF for CAMEL handling of:
- intra-SGSN Routeing Area Update, or
- inter-SGSN Routeing Area Update in the new SGSN */
DP_Change_ Of_Position
Int_Release_ Session
Int_error
Int_Continue_ GPRS
Default GPRS handling := Continue?
No
Yes
Set Detach
Result := Release_session
Result := Continue

Figure 6.8 b: Procedure CAMEL_GPRS_Routeing_Area_Update (sheet 2)


Procedure CAMEL_GPRS_Context_Acknowledge
1(1)
/* Procedure in the gprsSSF for CAMEL handling of Inter-SGSN Routeing Area Update in the old SGSN */
/* Signals to/from right are to/from gprsSSF */
gprsSSF invoked?
No
Yes
Int_Change_Of_ Position_Complete
Result := Continue

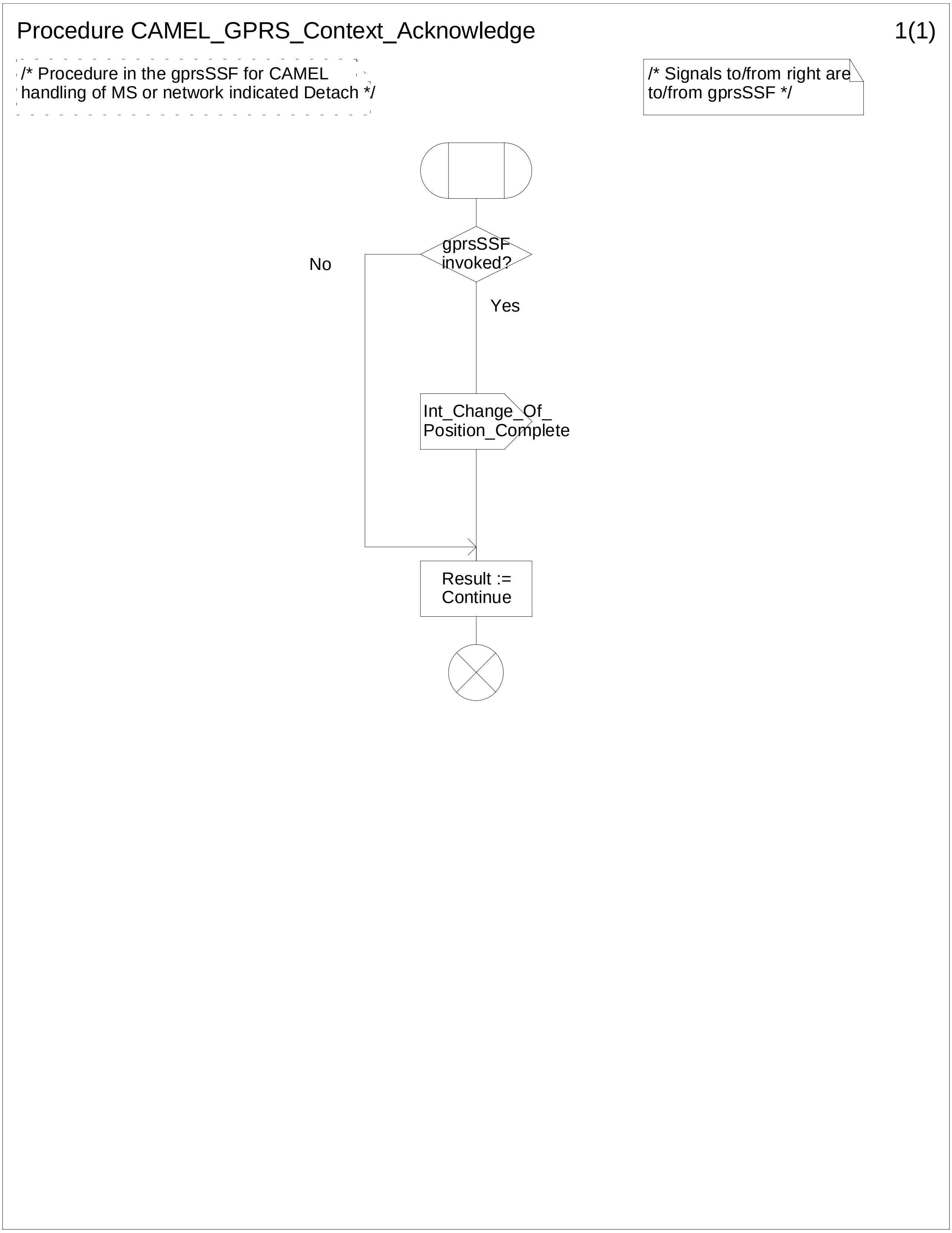
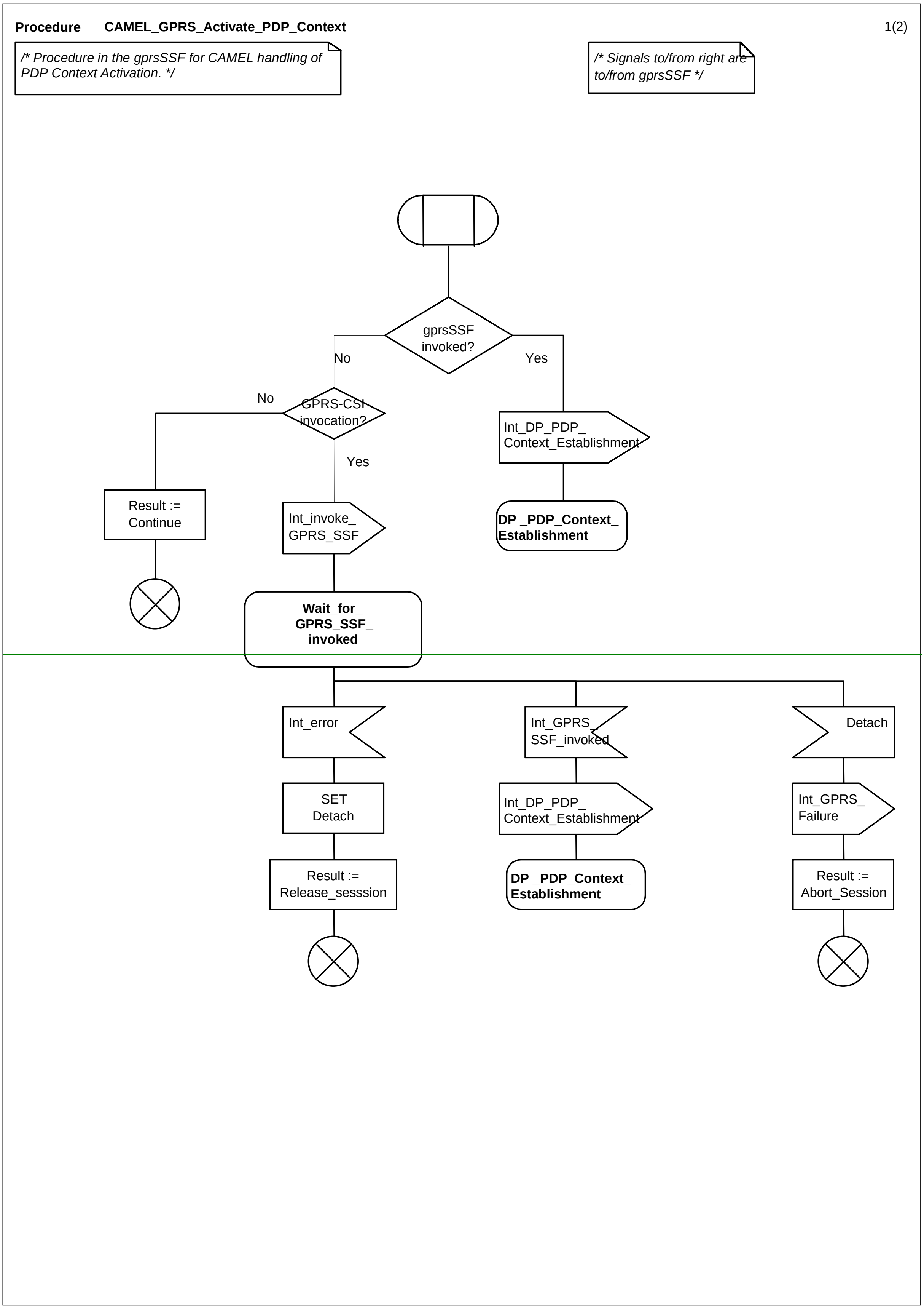

Procedure CAMEL_GPRS_Context_Acknowledge
1(1)
/* Procedure in the gprsSSF for CAMEL handling of MS or network indicated Detach */
/* Signals to/from right are to/from gprsSSF */
gprsSSF invoked?
No
Yes
Int_Change_Of_Position_Complete
Result := Continue

Figure 6.9: Procedure CAMEL_GPRS_Context_Acknowledge

6.5.6 Handling of PDP Context establishment and deactivation


Procedure CAMEL_GPRS_Activate_PDP_Context
1(2)
/* Procedure in the gprsSSF for CAMEL handling of PDP Context Activation. */
/* Signals to/from right are to/from gprsSSF */
gprsSSF invoked?
No
Yes
GPRS-CSI invocation?
No
Yes
Int_DP_PDP_ Context_Establishment
DP _PDP_Context_ Establishment
Result := Continue
Int_invoke_ GPRS_SSF
Wait_for_ GPRS_SSF_ invoked
Int_error
Int_GPRS_ SSF_invoked
Detach
SET Detach
Int_DP_PDP_ Context_Establishment
Int_GPRS_ Failure
Result := Release_sesssion
DP _PDP_Context_ Establishment
Result := Abort_Session

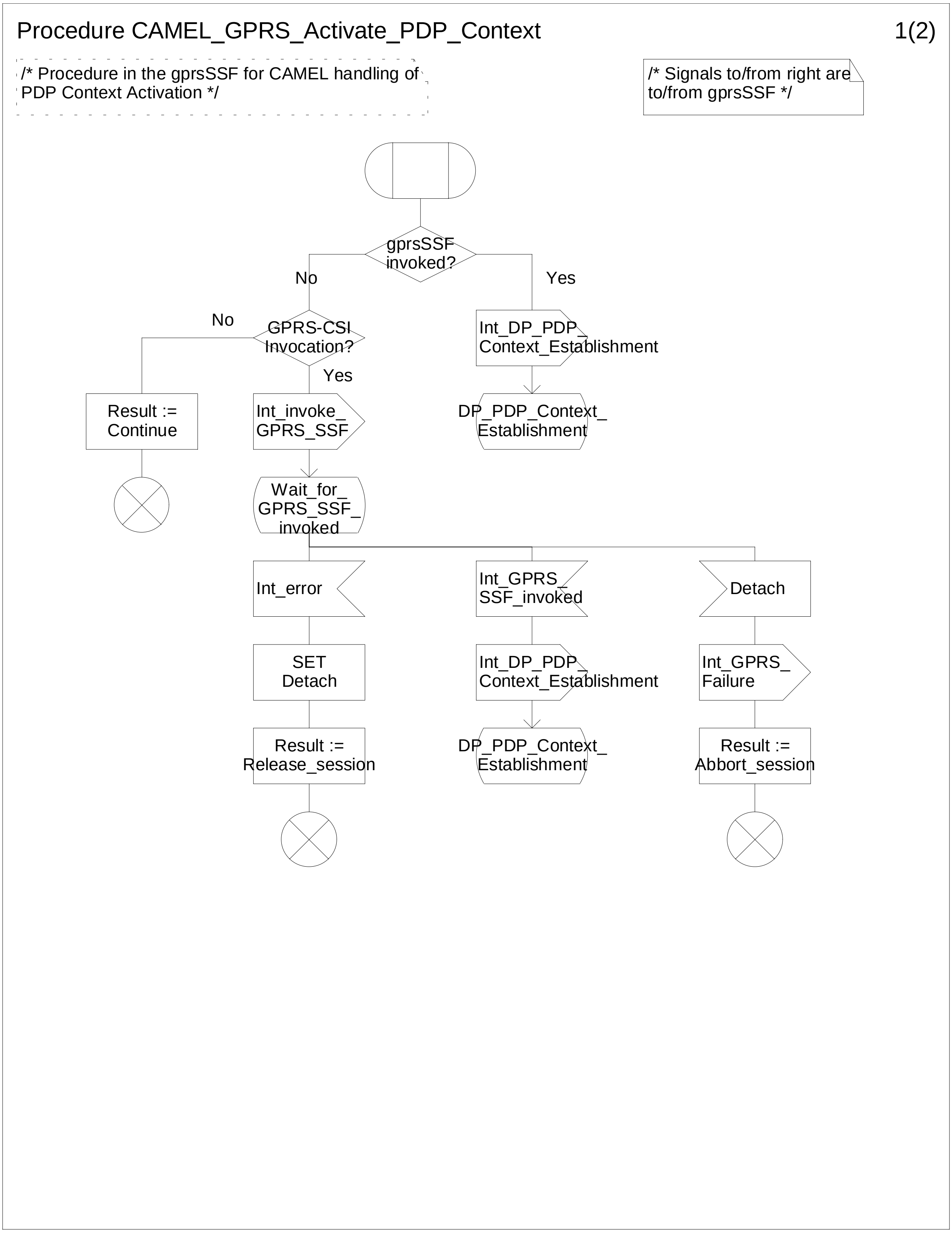
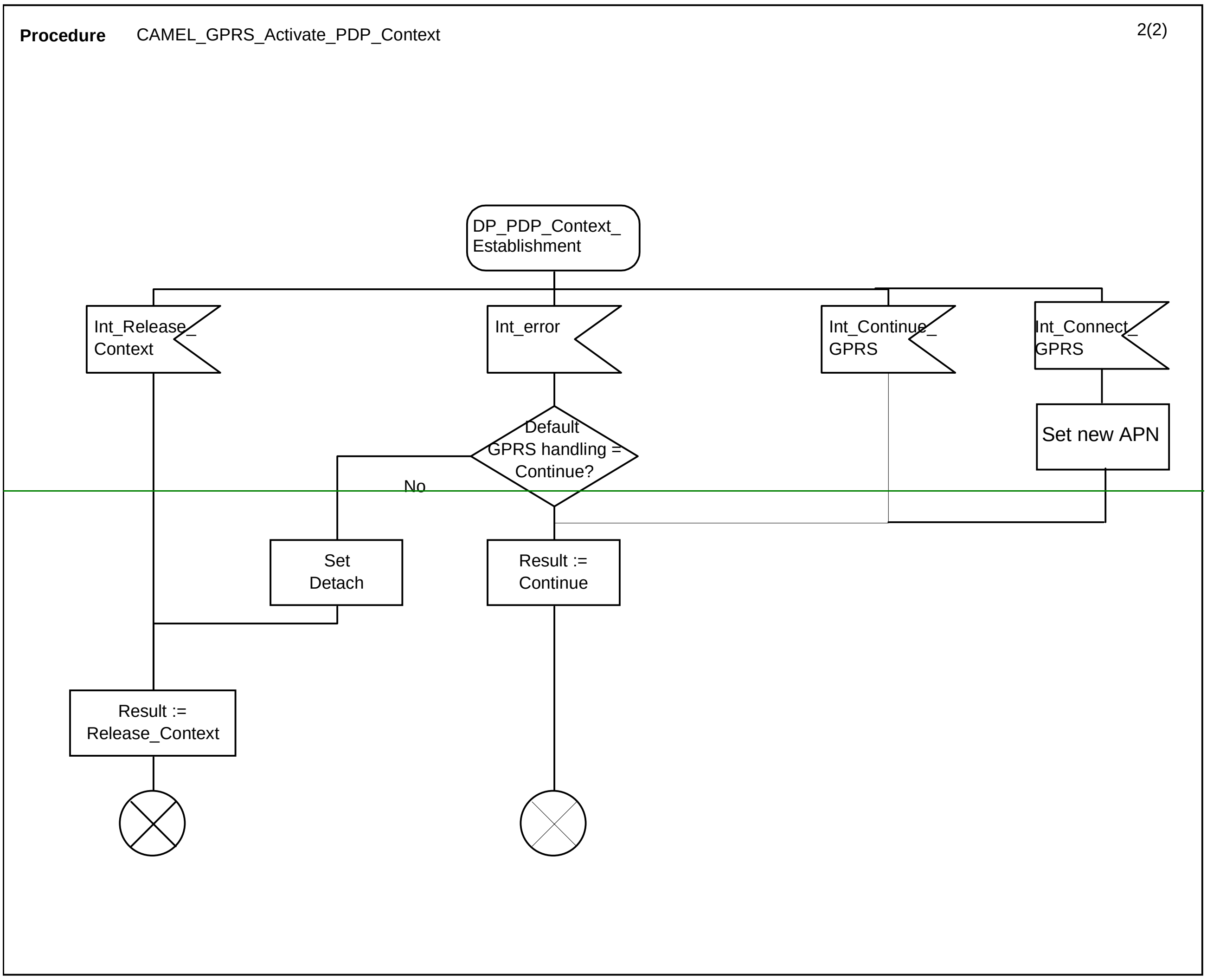

Procedure CAMEL_GPRS_Activate_PDP_Context
1(2)
/* Procedure in the gprsSSF for CAMEL handling of PDP Context Activation */
/* Signals to/from right are to/from gprsSSF */
gprsSSF invoked?
No
Yes
GPRS-CSI Invocation?
No
Yes
Int_DP_PDP_ Context_Establishment
Result := Continue
Int_invoke_ GPRS_SSF
DP_PDP_Context_ Establishment
Wait_for_ GPRS_SSF_ invoked
Int_error
Int_GPRS_ SSF_invoked
Detach
SET Detach
Int_DP_PDP_ Context_Establishment
Int_GPRS_ Failure
Result := Release_session
DP_PDP_Context_ Establishment
Result := Abbort_session

Figure 6.10 a: Procedure CAMEL_GPRS_Activate_PDP_Context (sheet 1)


Procedure CAMEL_GPRS_Activate_PDP_Context
2(2)
DP_PDP_Context_ Establishment
Int_Release_ Context
Int_error
Int_Continue_ GPRS
Int_Connect_ GPRS
Set new APN
Default GPRS handling = Continue?
No
Set Detach
Result := Continue
Result := Release_Context

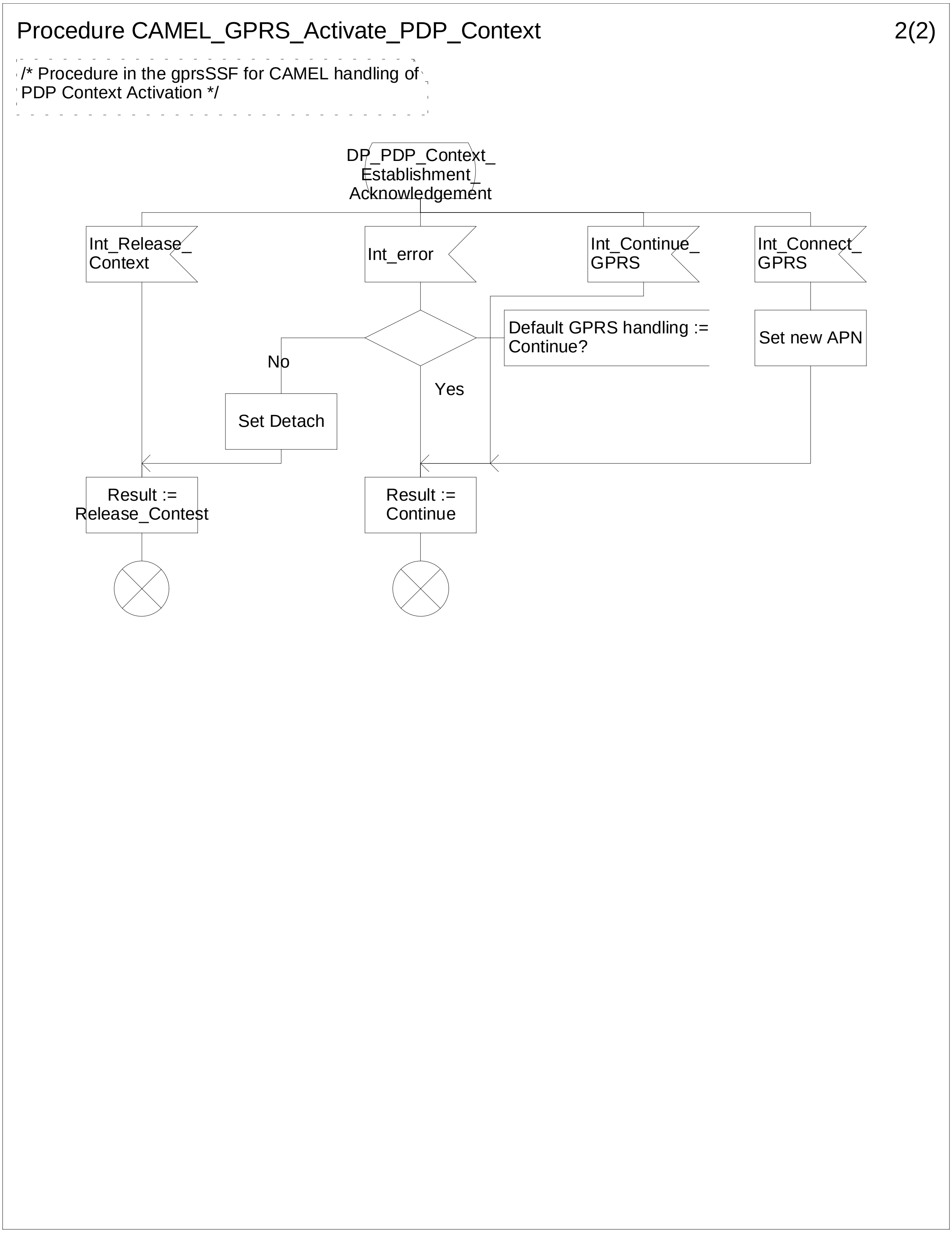
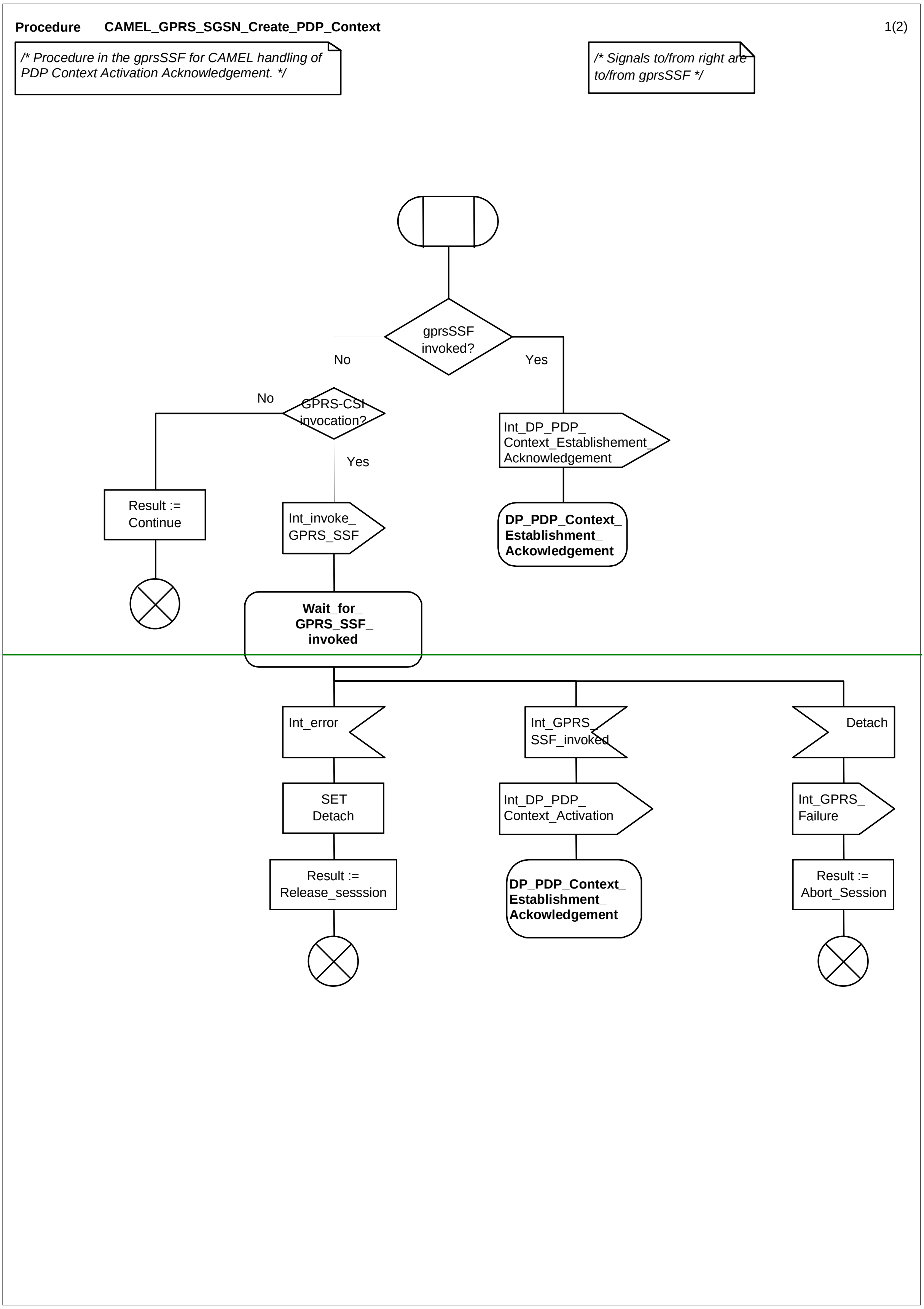

Procedure CAMEL_GPRS_Activate_PDP_Context
2(2)
/* Procedure in the gprsSSF for CAMEL handling of PDP Context Activation */
DP_PDP_Context_ Establishment_ Acknowledgement
Int_Release_ Context
Int_error
Int_Continue_ GPRS
Int_Connect_ GPRS
Default GPRS handling := Continue?
Set new APN
No
Yes
Set Detach
Result := Release_Contest
Result := Continue

Figure 6.10 b: Procedure CAMEL_GPRS_Activate_PDP_Context (sheet 2)


Procedure CAMEL_GPRS_SGSN_Create_PDP_Context
1(2)
/* Procedure in the gprsSSF for CAMEL handling of PDP Context Activation Acknowledgement. */
/* Signals to/from right are to/from gprsSSF */
gprsSSF invoked?
No
Yes
GPRS-CSI invocation?
No
Yes
Int_DP_PDP_ Context_Establishement_ Acknowledgement
Result := Continue
Int_invoke_ GPRS_SSF
DP_PDP_Context_ Establishment_ Ackowledgement
Wait_for_ GPRS_SSF_ invoked
Int_error
Int_GPRS_ SSF_invoked
Detach
SET Detach
Int_DP_PDP_ Context_Activation
Int_GPRS_ Failure
Result := Release_sesssion
DP_PDP_Context_ Establishment_ Ackowledgement
Result := Abort_Session

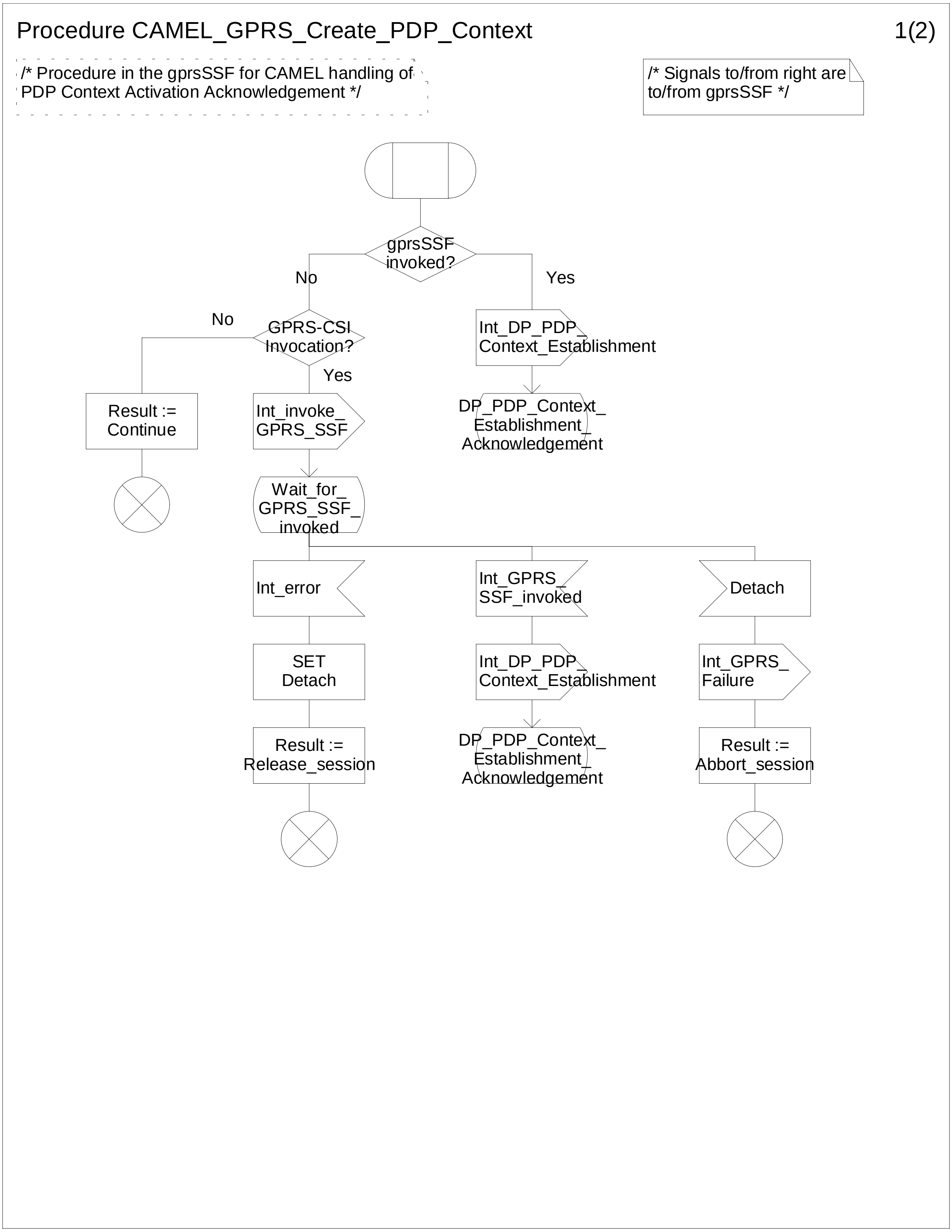
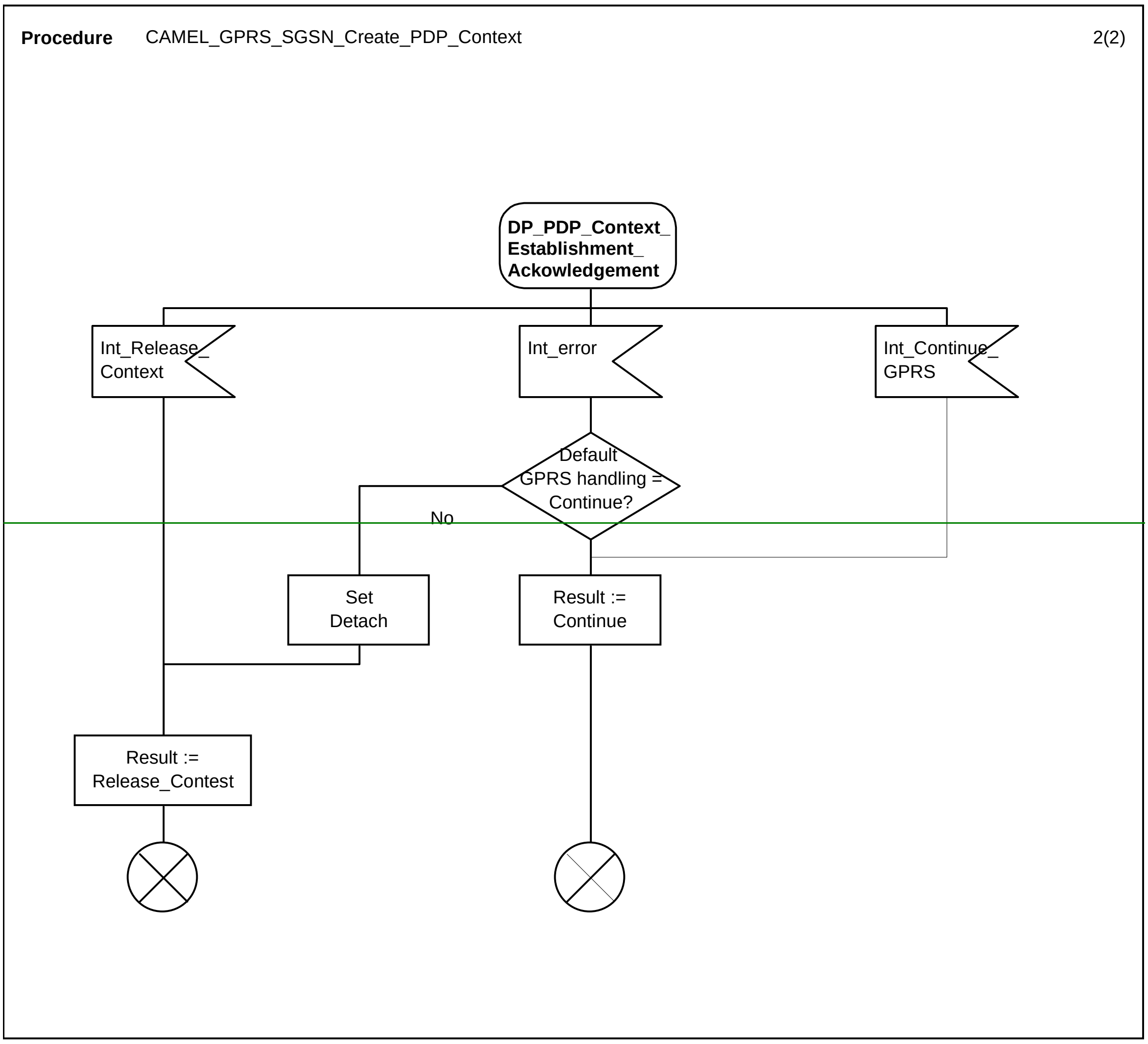

Procedure CAMEL_GPRS_Create_PDP_Context
1(2)
/* Procedure in the gprsSSF for CAMEL handling of PDP Context Activation Acknowledgement */
/* Signals to/from right are to/from gprsSSF */
gprsSSF invoked?
No
Yes
GPRS-CSI Invocation?
No
Yes
Int_DP_PDP_ Context_Establishment
Result := Continue
Int_invoke_ GPRS_SSF
DP_PDP_Context_ Establishment_ Acknowledgement
Wait_for_ GPRS_SSF_ invoked
Int_error
Int_GPRS_ SSF_invoked
Detach
SET Detach
Int_DP_PDP_ Context_Establishment
Int_GPRS_ Failure
Result := Release_session
DP_PDP_Context_ Establishment_ Acknowledgement
Result := Abbort_session

Figure 6.11 a: Procedure CAMEL_GPRS~~SGSN~~_Create_PDP_Context (sheet 1)


Procedure
CAMEL_GPRS_SGSN_Create_PDP_Context
2(2)
DP_PDP_Context_
Establishment_
Ackowledgement
Int_Release_
Context
Int_error
Int_Continue_
GPRS
Default
GPRS handling =
Continue?
No
Set
Detach
Result :=
Continue
Result :=
Release_Contest

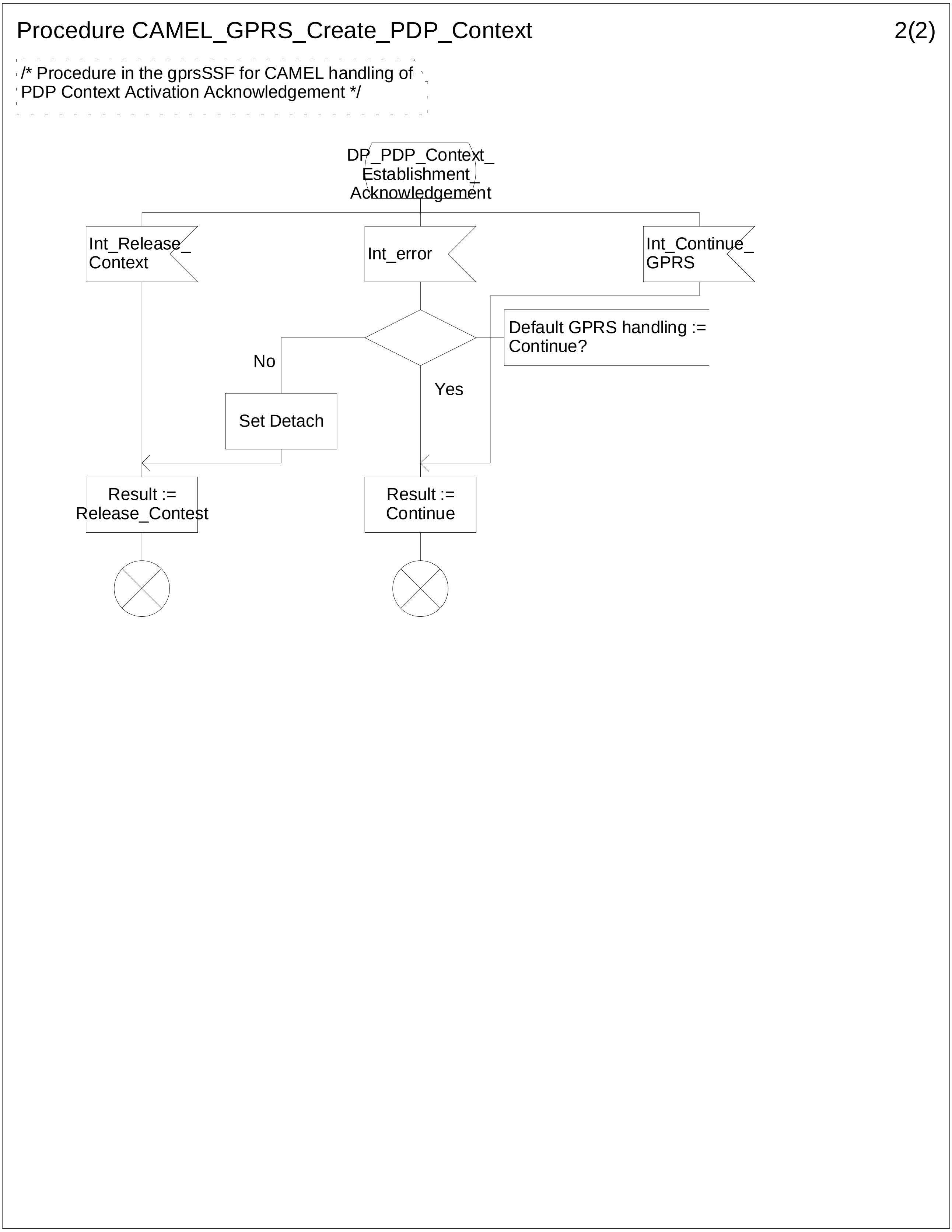
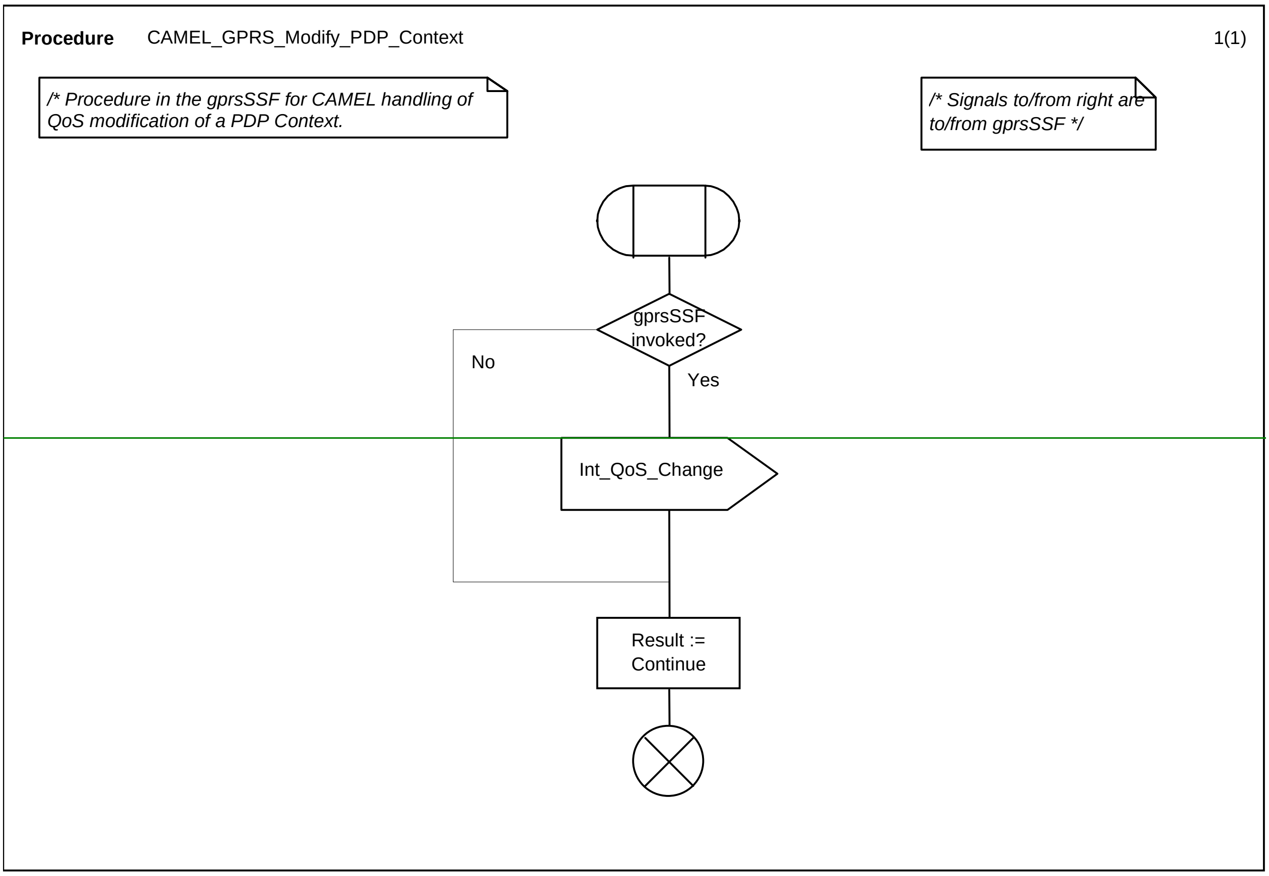

Procedure CAMEL_GPRS_Create_PDP_Context
2(2)
/* Procedure in the gprsSSF for CAMEL handling of PDP Context Activation Acknowledgement */
DP_PDP_Context_ Establishment_ Acknowledgement
Int_Release_ Context
Int_error
Int_Continue_ GPRS
Default GPRS handling := Continue?
No
Yes
Set Detach
Result := Release_Contest
Result := Continue

Figure 6.11 b: Procedure CAMEL_GPRS~~SGSN~~_Create_PDP_Context (sheet 2)


Procedure CAMEL_GPRS_Modify_PDP_Context
1(1)
/* Procedure in the gprsSSF for CAMEL handling of QoS modification of a PDP Context.
/* Signals to/from right are to/from gprsSSF */
gprsSSF invoked?
No
Yes
Int_QoS_Change
Result := Continue

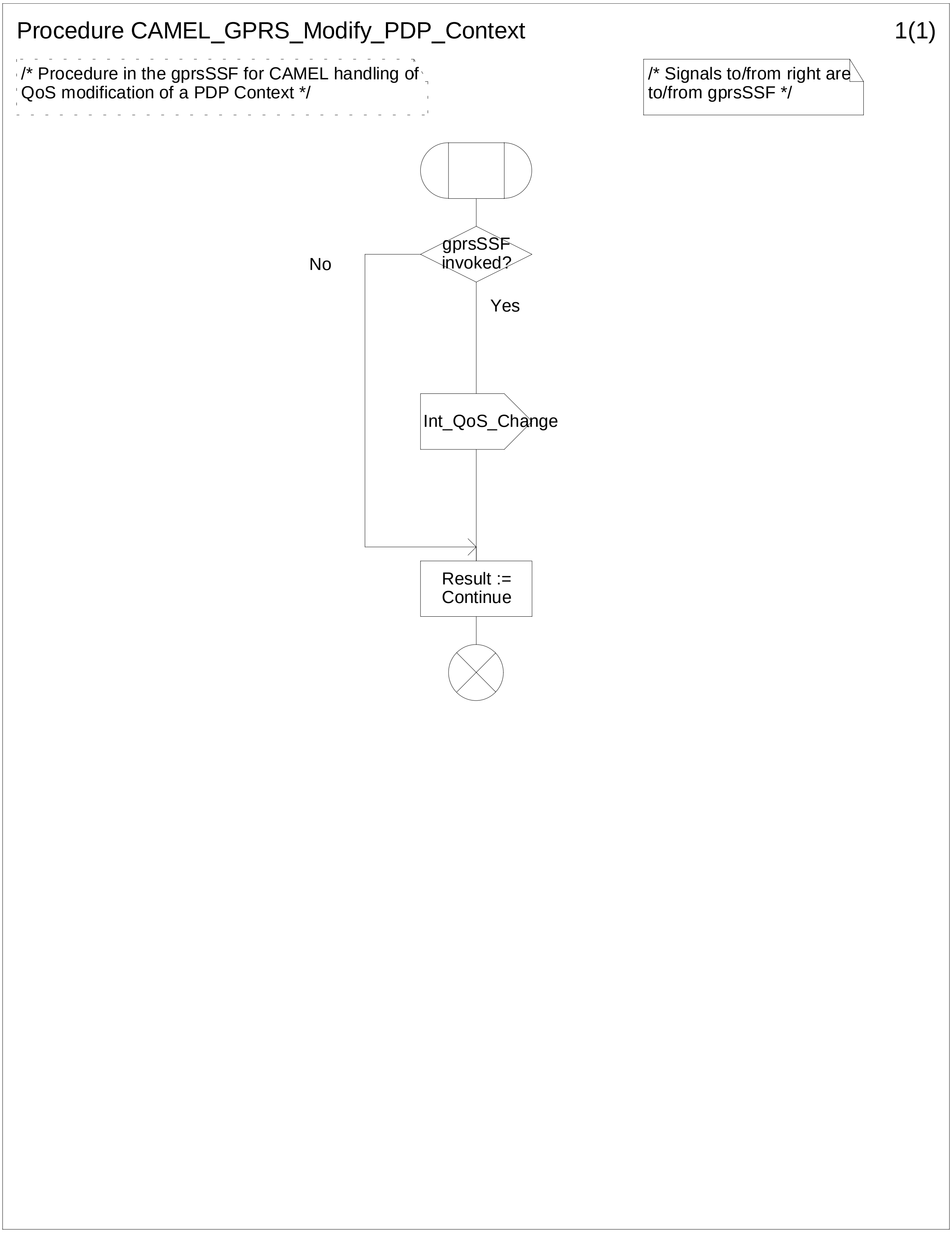
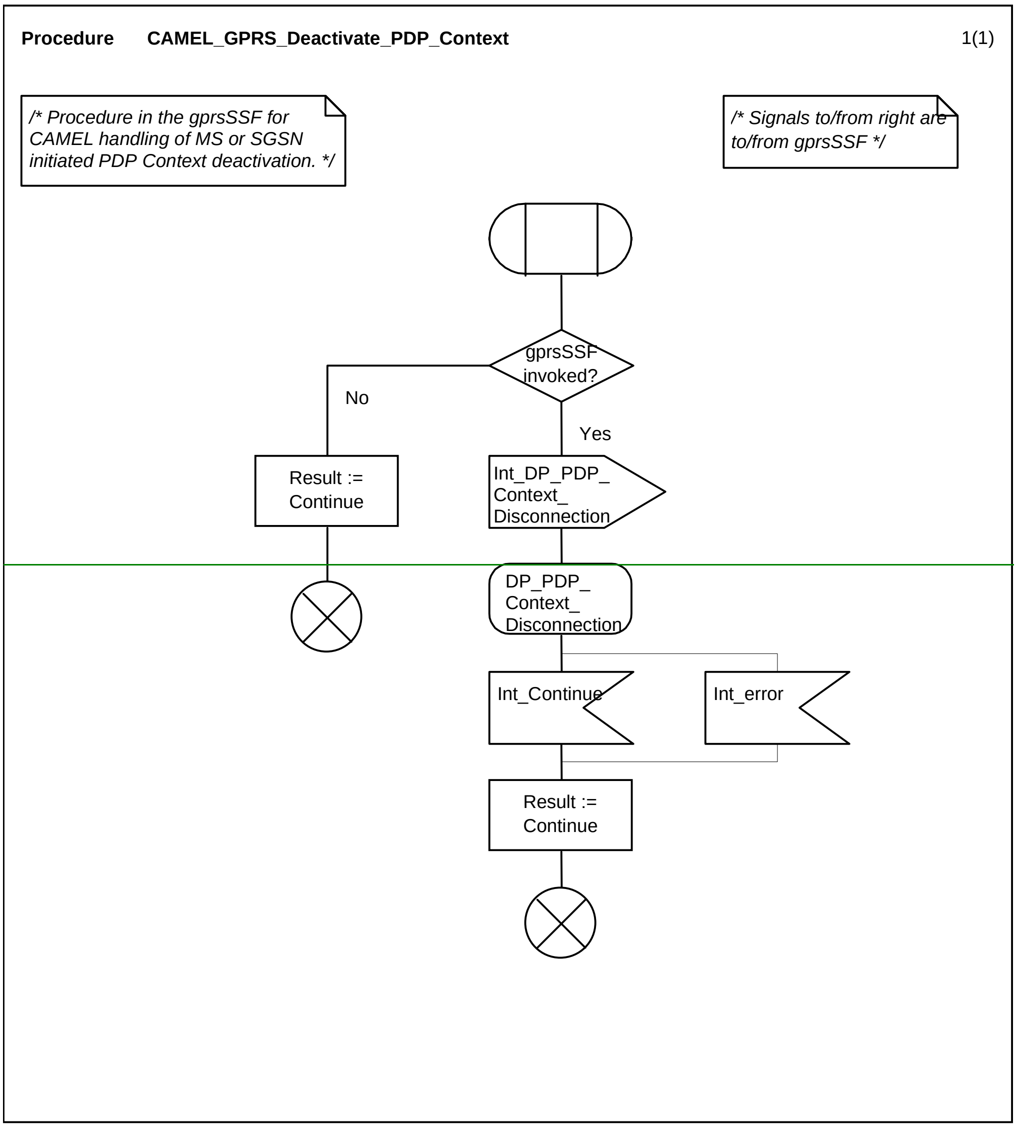

Procedure CAMEL_GPRS_Modify_PDP_Context
1(1)
/* Procedure in the gprsSSF for CAMEL handling of QoS modification of a PDP Context */
/* Signals to/from right are to/from gprsSSF */
gprsSSF invoked?
No
Yes
Int_QoS_Change
Result := Continue

Figure 6.12: Procedure CAMEL_GPRS_Modify_PDP_Context


Procedure CAMEL_GPRS_Deactivate_PDP_Context
1(1)
/* Procedure in the gprsSSF for CAMEL handling of MS or SGSN initiated PDP Context deactivation. */
/* Signals to/from right are to/from gprsSSF */
gprsSSF invoked?
No
Yes
Result := Continue
Int_DP_PDP_ Context_ Disconnection
DP_PDP_ Context_ Disconnection
Int_Continue
Int_error
Result := Continue

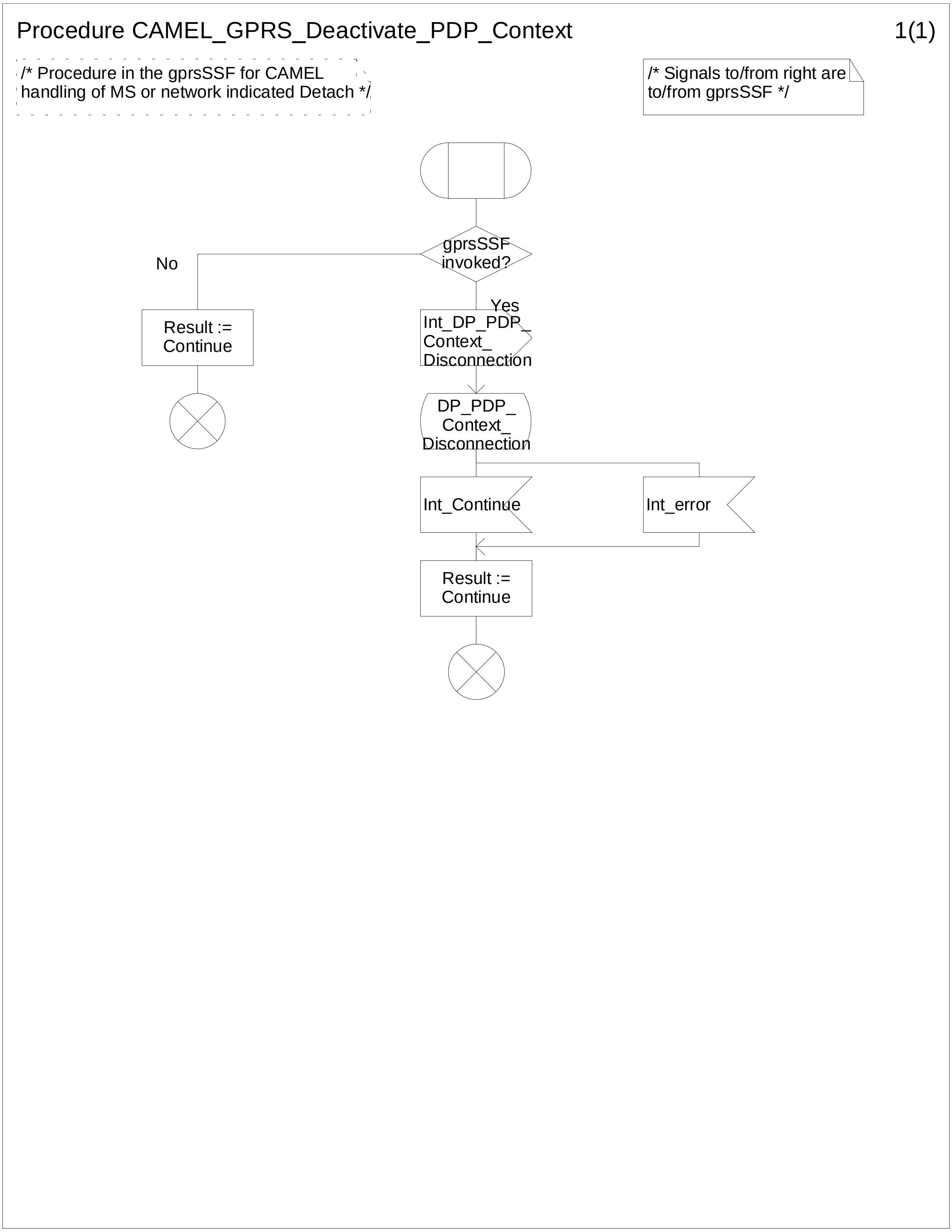
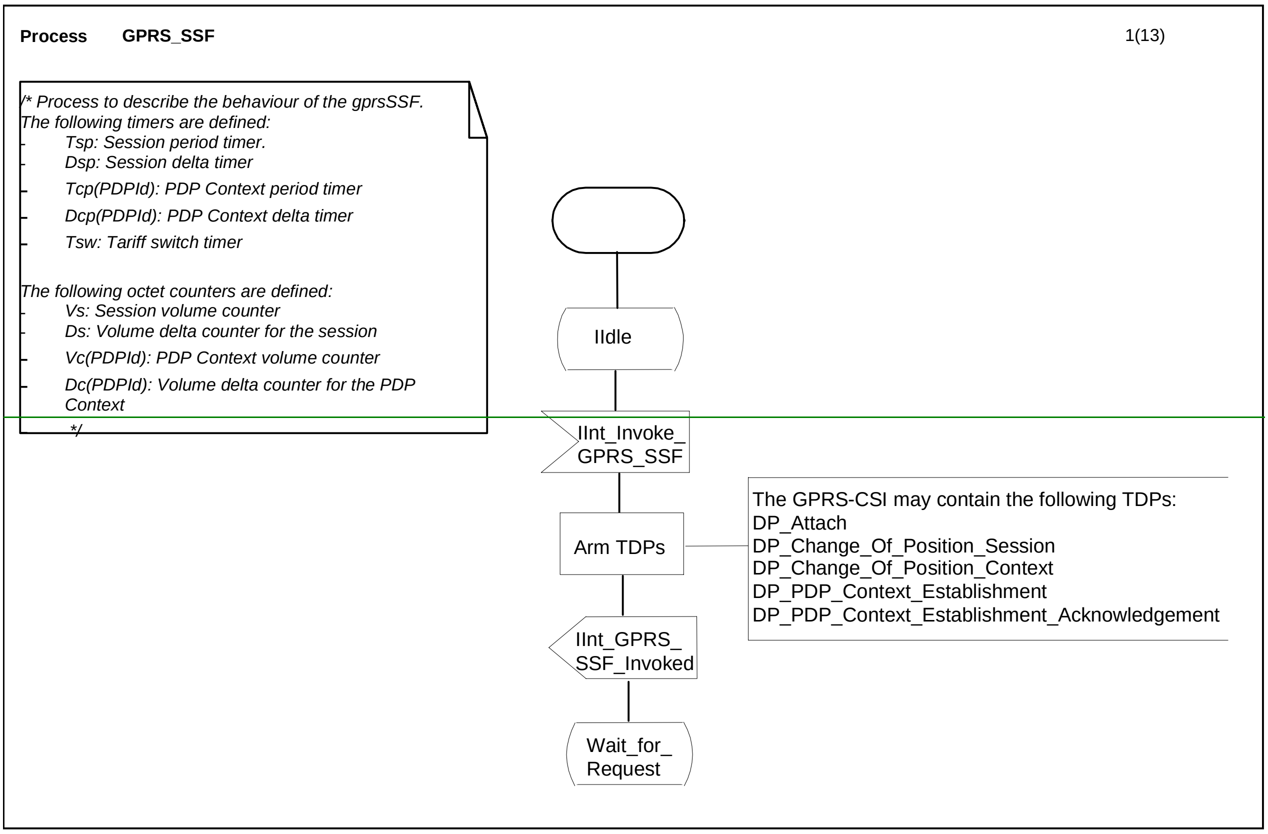

Procedure CAMEL_GPRS_Deactivate_PDP_Context
1(1)
/* Procedure in the gprsSSF for CAMEL handling of MS or network indicated Detach */
/* Signals to/from right are to/from gprsSSF */
gprsSSF invoked?
No
Yes
Result := Continue
Int_DP_PDP_Context_Disconnection
DP_PDP_Context_Disconnection
Int_Continue
Int_error
Result := Continue

Figure 6.13: Procedure CAMEL_~~SGSN~~GPRS_Deactivate_PDP_Context

6.5.6 GPRS SSF

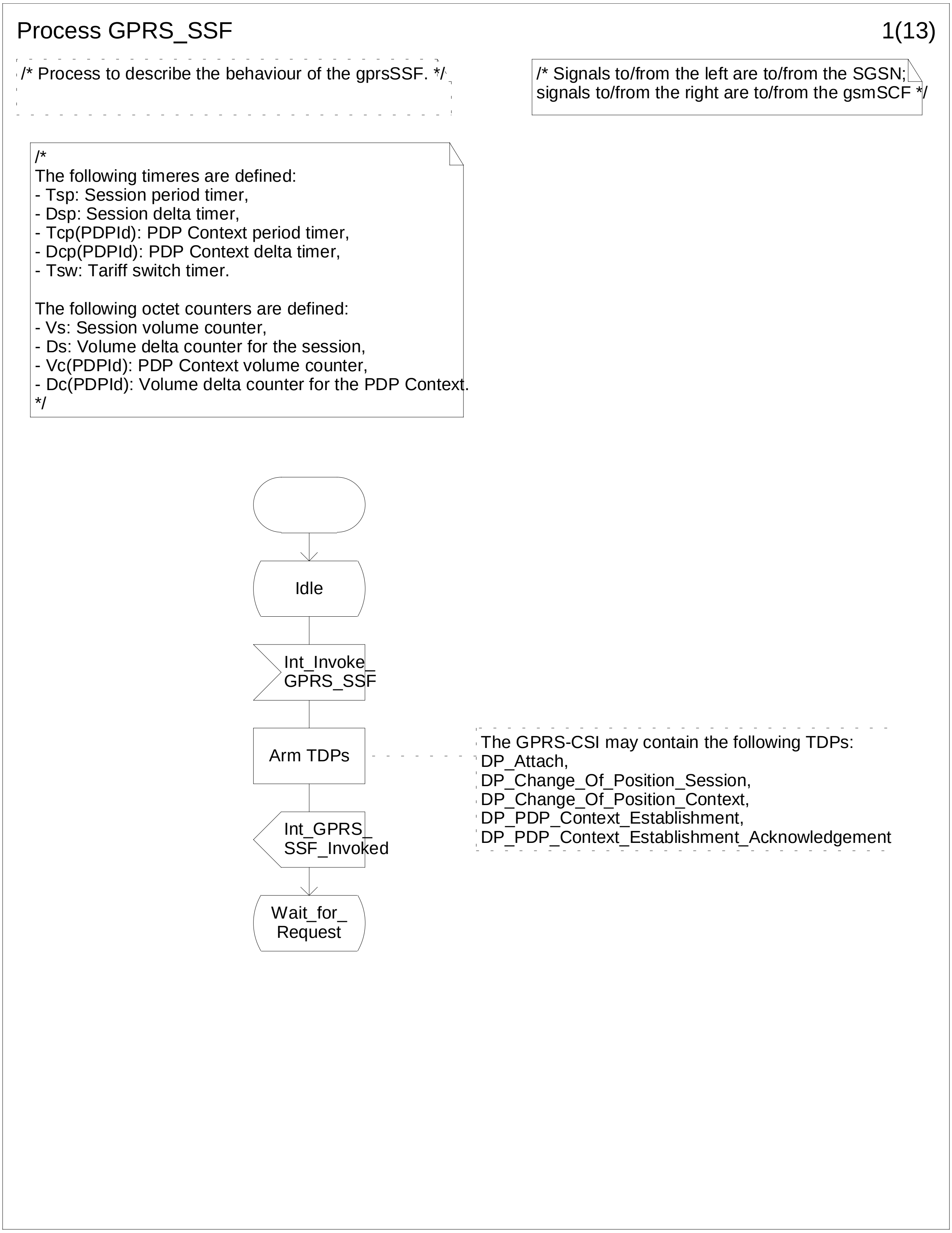

Process GPRS_SSF
1(13)
IIdle
IInt_Invoke_ GPRS_SSF
Arm TDPs
IInt_GPRS_ SSF_Invoked
Wait_for_ Request

/ Process to describe the behaviour of the gprsSSF.*
The following timers are defined:
- *Tsp: Session period timer.*
- *Dsp: Session delta timer*
- *Tcp(PDPId): PDP Context period timer*
- *Dcp(PDPId): PDP Context delta timer*
- *Tsw: Tariff switch timer*

The following octet counters are defined:
- *Vs: Session volume counter*
- *Ds: Volume delta counter for the session*
- *Vc(PDPId): PDP Context volume counter*
- *Dc(PDPId): Volume delta counter for the PDP Context*

**/*

The GPRS-CSI may contain the following TDPs:
DP_Attach
DP_Change_Of_Position_Session
DP_Change_Of_Position_Context
DP_PDP_Context_Establishment
DP_PDP_Context_Establishment_Acknowledgement



/* Process to describe the behaviour of the gprsSSF. */

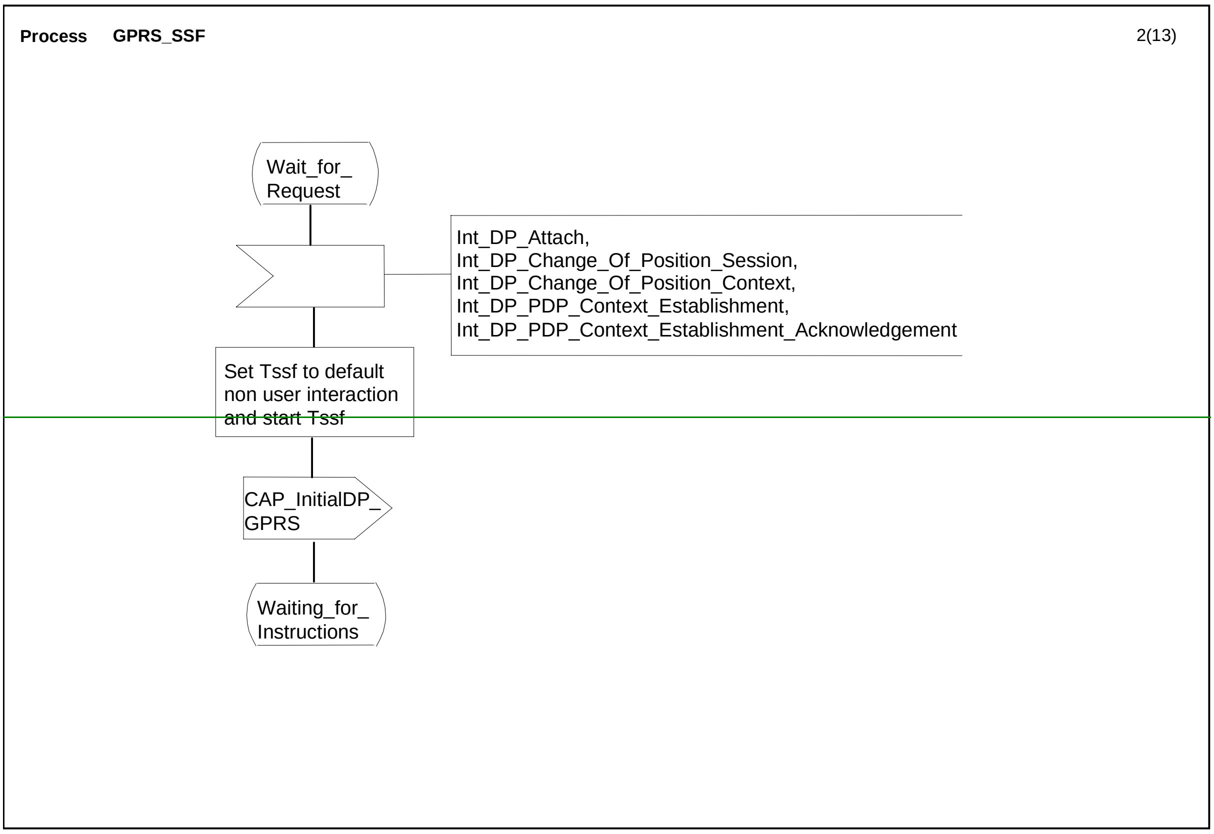
/* Signals to/from the left are to/from the SGSN;
signals to/from the right are to/from the gsmSCF */

/*
The following timeres are defined:
- Tsp: Session period timer,
- Dsp: Session delta timer,
- Tcp(PDPId): PDP Context period timer,
- Dcp(PDPId): PDP Context delta timer,
- Tsw: Tariff switch timer.

The following octet counters are defined:
- Vs: Session volume counter,
- Ds: Volume delta counter for the session,
- Vc(PDPId): PDP Context volume counter,
- Dc(PDPId): Volume delta counter for the PDP Context.
*/

The GPRS-CSI may contain the following TDPs:
DP_Attach,
DP_Change_Of_Position_Session,
DP_Change_Of_Position_Context,
DP_PDP_Context_Establishment,
DP_PDP_Context_Establishment_Acknowledgement

Figure 6.14 a: Process GPRS_SSF (sheet 1)


Process GPRS_SSF
2(13)
Wait_for_
Request
Int_DP_Attach,
Int_DP_Change_Of_Position_Session,
Int_DP_Change_Of_Position_Context,
Int_DP_PDP_Context_Establishment,
Int_DP_PDP_Context_Establishment_Acknowledgement
Set Tssf to default
non user interaction
and start Tssf
CAP_InitialDP_
GPRS
Waiting_for_
Instructions

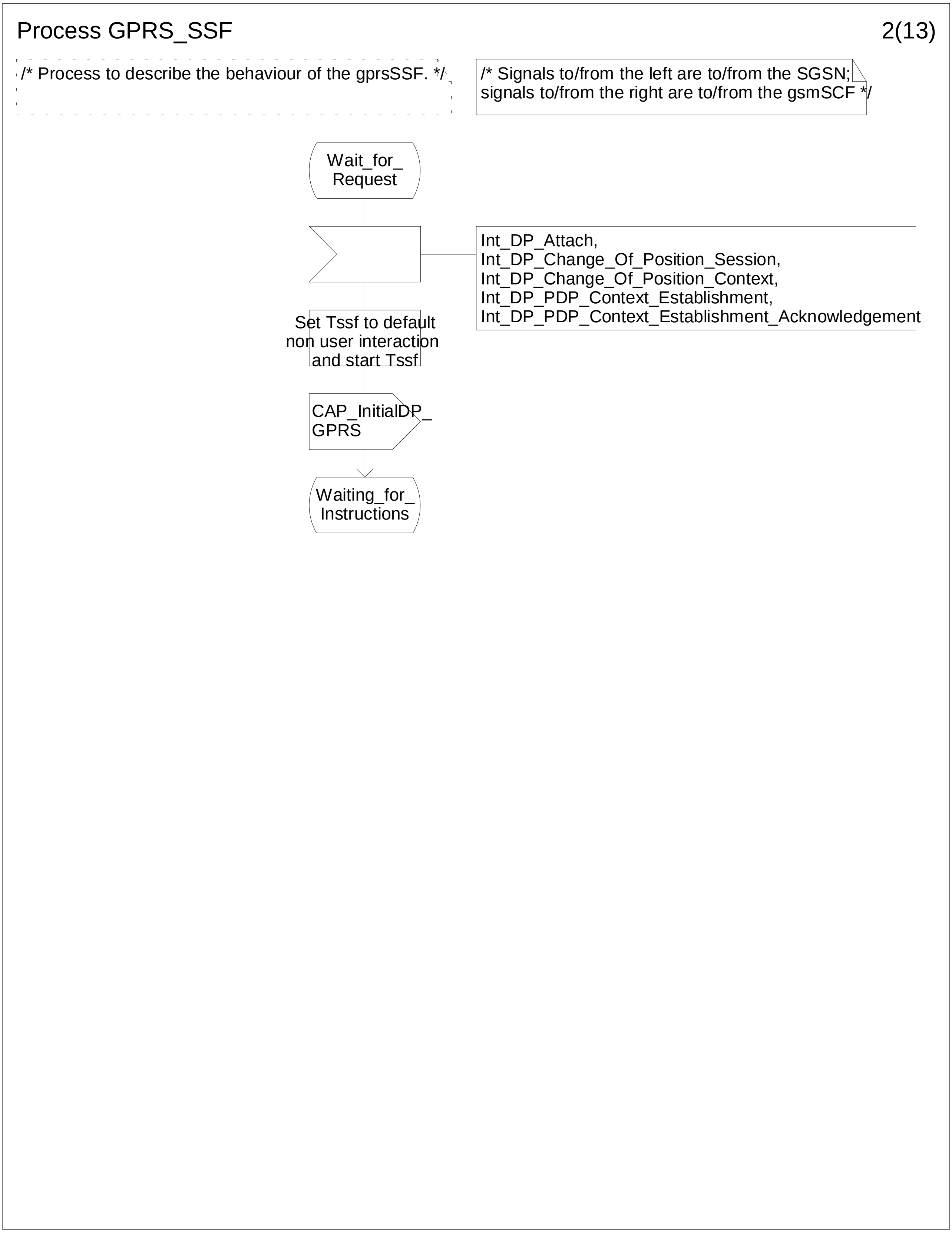
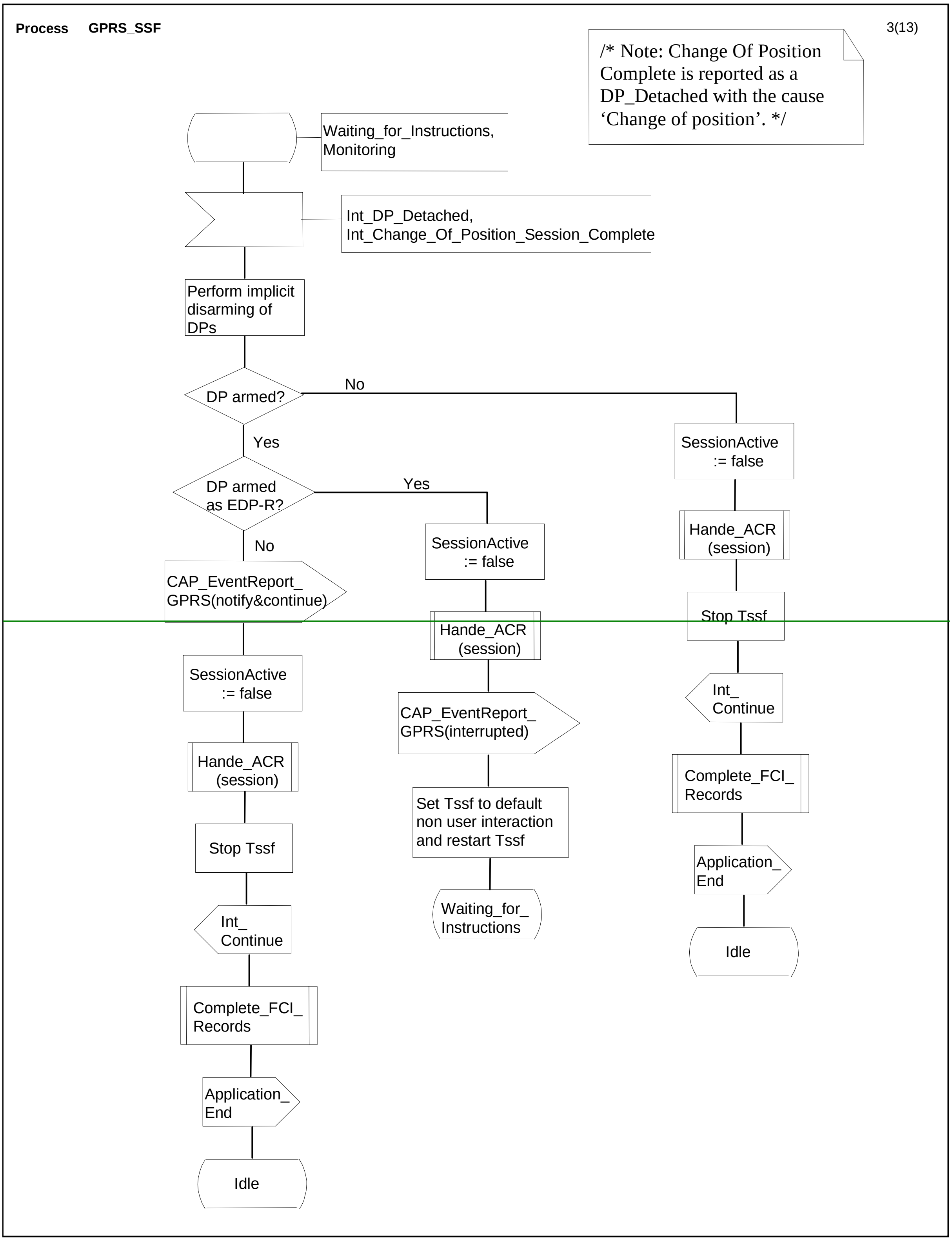

Process GPRS_SSF
2(13)
/* Process to describe the behaviour of the gprsSSF. */
/* Signals to/from the left are to/from the SGSN; signals to/from the right are to/from the gsmSCF */
Wait_for_ Request
Int_DP_Attach, Int_DP_Change_Of_Position_Session, Int_DP_Change_Of_Position_Context, Int_DP_PDP_Context_Establishment, Int_DP_PDP_Context_Establishment_Acknowledgement
Set Tssf to default non user interaction and start Tssf
CAP_InitialDP_ GPRS
Waiting_for_ Instructions

Figure 6.14 b: Process GPRS_SSF (sheet 2)


Process GPRS_SSF
3(13)
/* Note: Change Of Position Complete is reported as a DP_Detached with the cause 'Change of position'. */
Waiting_for_Instructions, Monitoring
Int_DP_Detached, Int_Change_Of_Position_Session_Complete
Perform implicit disarming of DPs
DP armed?
No
Yes
DP armed as EDP-R?
Yes
No
CAP_EventReport_ GPRS(notify&continue)
SessionActive := false
Hande_ACR (session)
Stop Tssf
Int_ Continue
Complete_FCI_ Records
Application_ End
Idle
SessionActive := false
Hande_ACR (session)
CAP_EventReport_ GPRS(interrupted)
Set Tssf to default non user interaction and restart Tssf
Waiting_for_ Instructions
SessionActive := false
Hande_ACR (session)
Stop Tssf
Int_ Continue
Complete_FCI_ Records
Application_ End
Idle

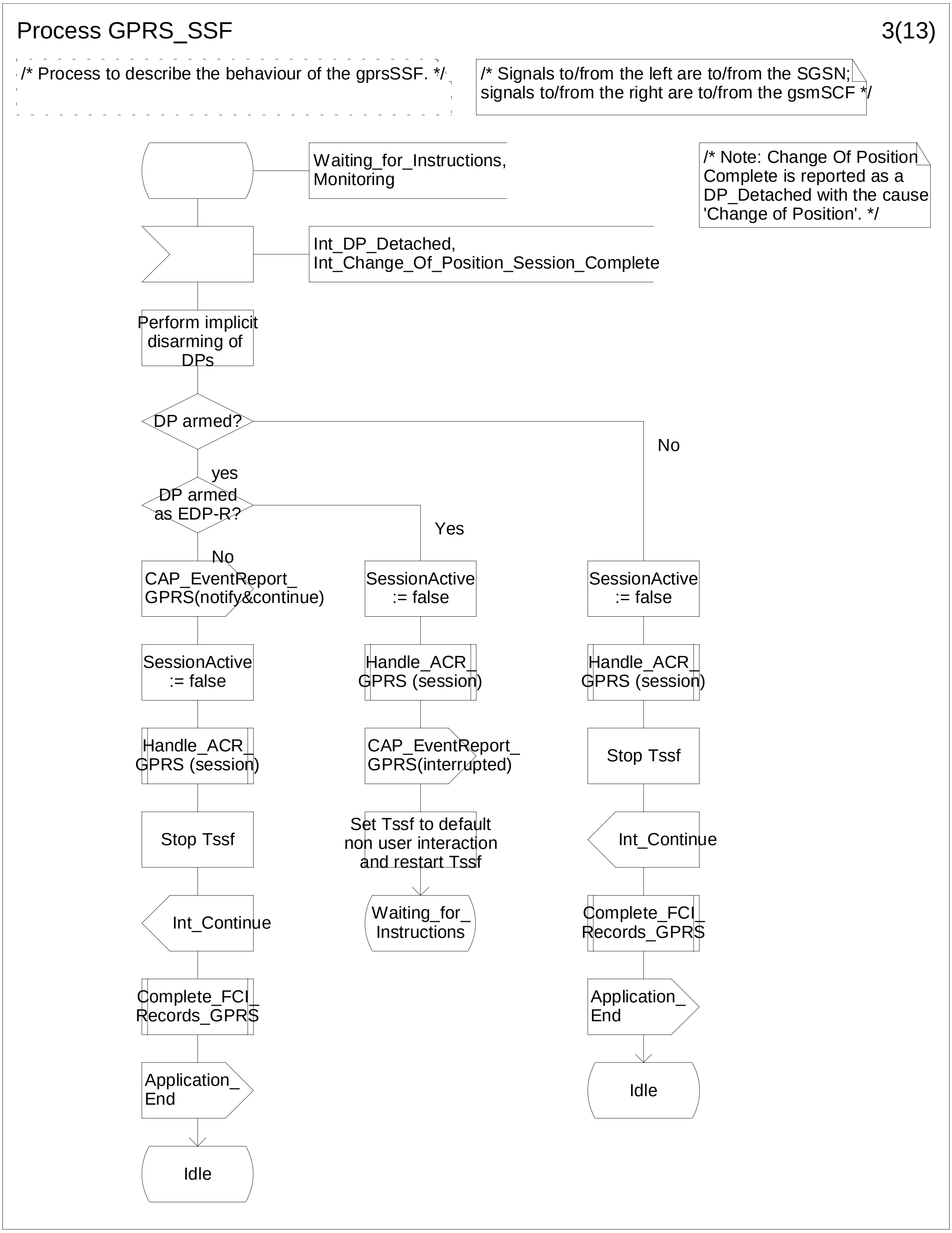
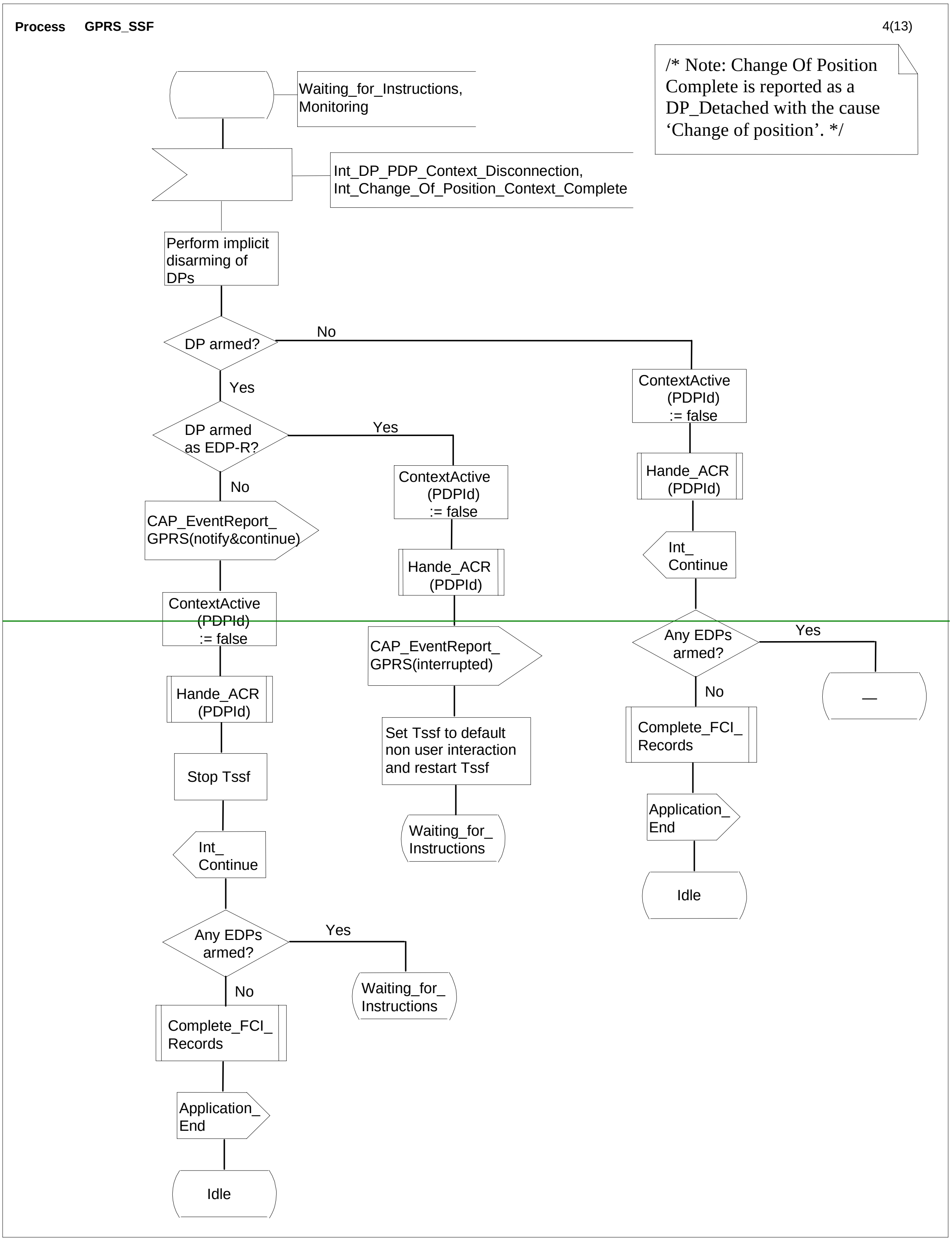

Process GPRS_SSF
3(13)
/* Process to describe the behaviour of the gprsSSF. */
/* Signals to/from the left are to/from the SGSN; signals to/from the right are to/from the gsmSCF */
/* Note: Change Of Position Complete is reported as a DP_Detached with the cause 'Change of Position'. */
Waiting_for_Instructions, Monitoring
Int_DP_Detached, Int_Change_Of_Position_Session_Complete
Perform implicit disarming of DPs
DP armed?
No
yes
DP armed as EDP-R?
Yes
No
CAP_EventReport_ GPRS(notify&continue)
SessionActive := false
Handle_ACR_ GPRS (session)
Stop Tssf
Int_Continue
Complete_FCI_ Records_GPRS
Application_ End
Idle
SessionActive := false
Handle_ACR_ GPRS (session)
CAP_EventReport_ GPRS(interrupted)
Set Tssf to default non user interaction and restart Tssf
Waiting_for_ Instructions
SessionActive := false
Handle_ACR_ GPRS (session)
Stop Tssf
Int_Continue
Complete_FCI_ Records_GPRS
Application_ End
Idle

Figure 6.14 c: Process GPRS_SSF (sheet 3)


Process GPRS_SSF
4(13)
/* Note: Change Of Position Complete is reported as a DP_Detached with the cause 'Change of position'. */
Waiting_for_Instructions, Monitoring
Int_DP_PDP_Context_Disconnection, Int_Change_Of_Position_Context_Complete
Perform implicit disarming of DPs
DP armed?
No
Yes
DP armed as EDP-R?
Yes
No
CAP_EventReport_ GPRS(notify&continue)
ContextActive (PDPId) := false
Hande_ACR (PDPId)
Stop Tssf
Int_ Continue
Any EDPs armed?
Yes
No
Waiting_for_ Instructions
Complete_FCI_ Records
Application_ End
Idle
ContextActive (PDPId) := false
Hande_ACR (PDPId)
CAP_EventReport_ GPRS(interrupted)
Set Tssf to default non user interaction and restart Tssf
Waiting_for_ Instructions
ContextActive (PDPId) := false
Hande_ACR (PDPId)
Int_ Continue
Any EDPs armed?
Yes
No
—
Complete_FCI_ Records
Application_ End
Idle

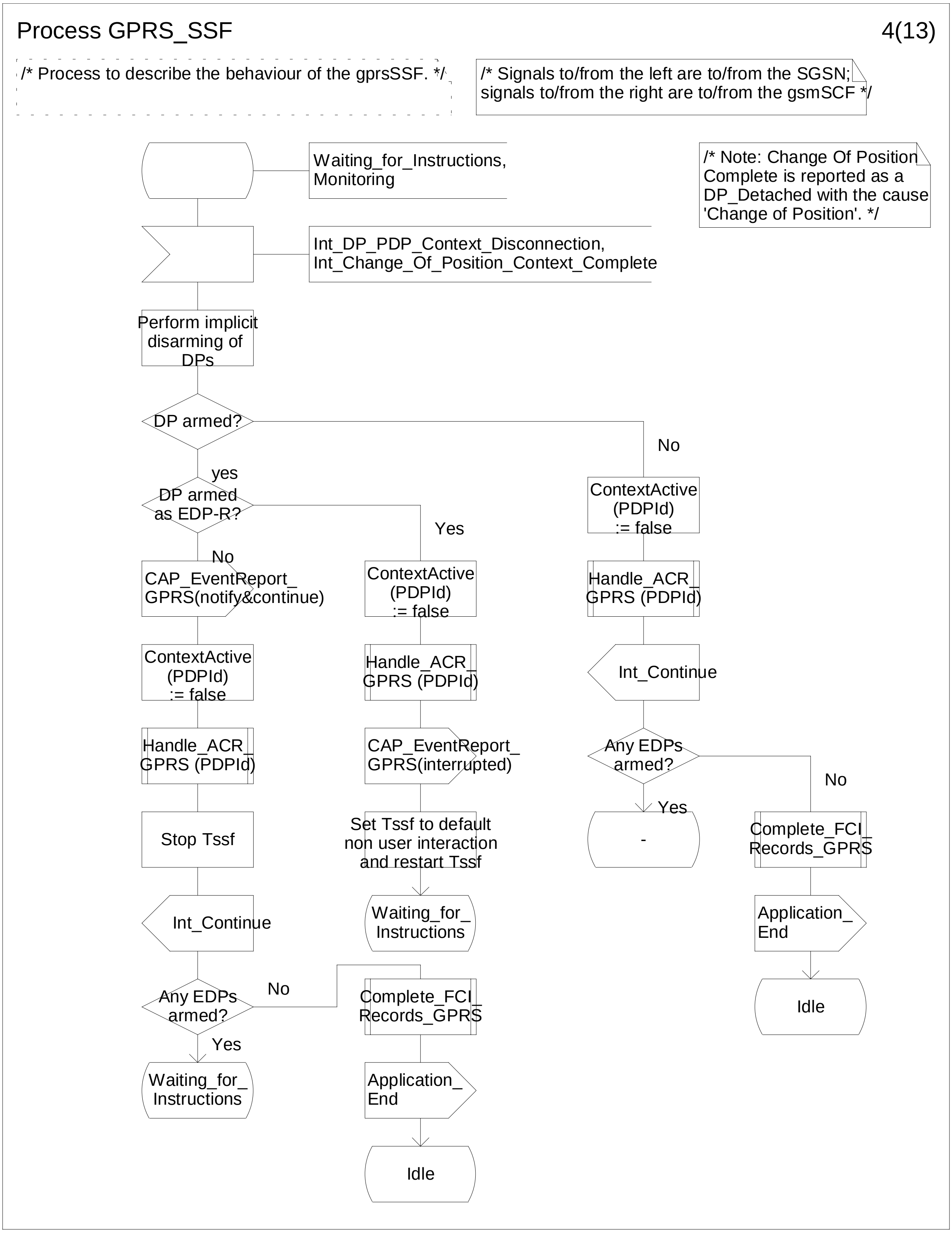
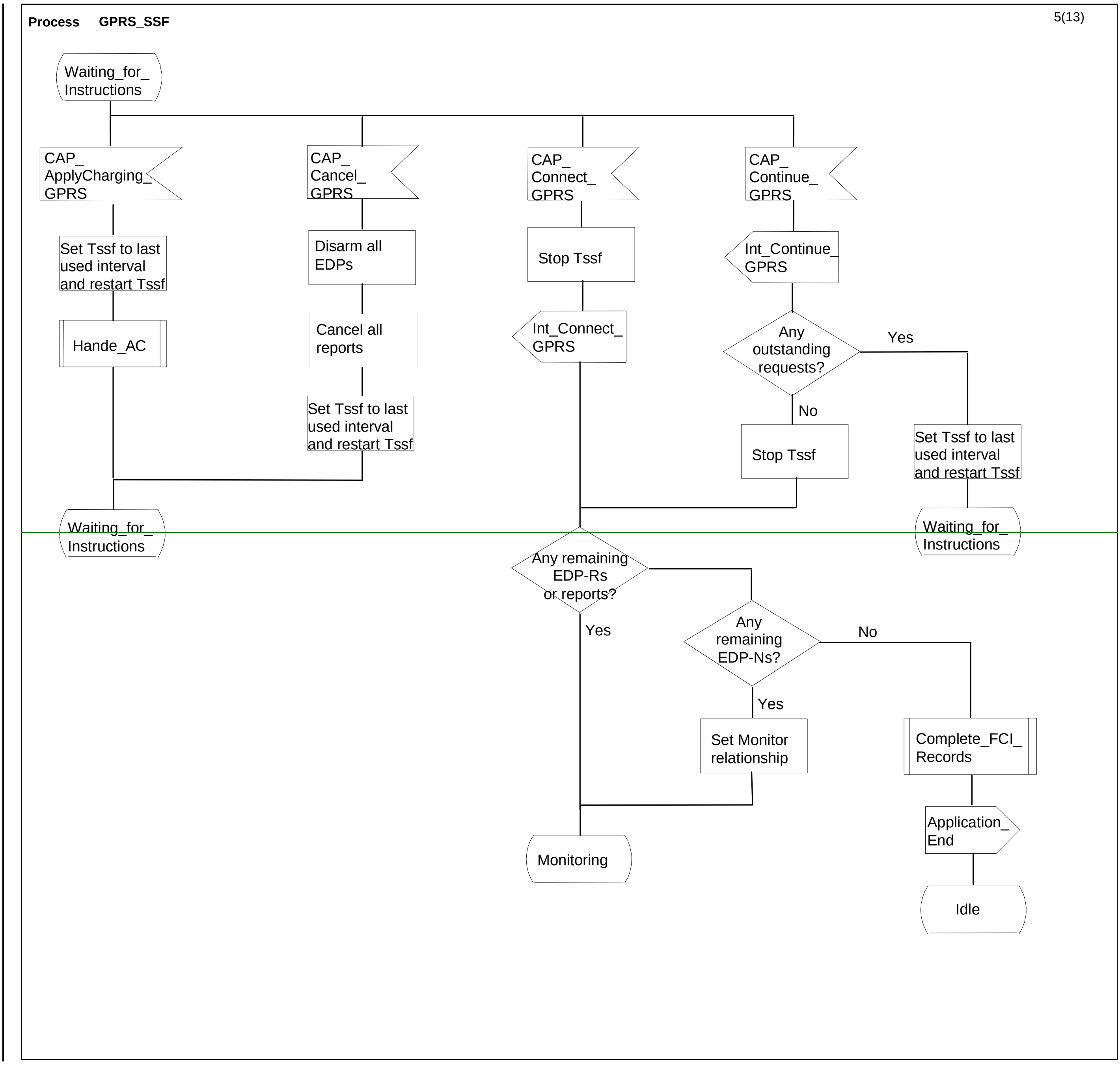

Process GPRS_SSF
4(13)
/* Process to describe the behaviour of the gprsSSF. */
/* Signals to/from the left are to/from the SGSN; signals to/from the right are to/from the gsmSCF */
/* Note: Change Of Position Complete is reported as a DP_Detached with the cause 'Change of Position'. */
Waiting_for_Instructions, Monitoring
Int_DP_PDP_Context_Disconnection, Int_Change_Of_Position_Context_Complete
Perform implicit disarming of DPs
DP armed?
No
yes
DP armed as EDP-R?
Yes
No
ContextActive (PDPId) := false
CAP_EventReport_ GPRS(notify&continue)
ContextActive (PDPId) := false
Handle_ACR_ GPRS (PDPId)
ContextActive (PDPId) := false
Handle_ACR_ GPRS (PDPId)
Int_Continue
Handle_ACR_ GPRS (PDPId)
CAP_EventReport_ GPRS(interrupted)
Any EDPs armed?
No
Yes
Stop Tssf
Set Tssf to default non user interaction and restart Tssf
-
Complete_FCI_ Records_GPRS
Int_Continue
Waiting_for_ Instructions
Application_ End
Any EDPs armed?
No
Complete_FCI_ Records_GPRS
Idle
Yes
Waiting_for_ Instructions
Application_ End
Idle

Figure 6.14 d: Process GPRS_SSF (sheet 4)


Process GPRS_SSF
5(13)
Waiting_for_ Instructions
CAP_ ApplyCharging_ GPRS
Set Tssf to last used interval and restart Tssf
Hande_AC
Waiting_for_ Instructions
CAP_ Cancel_ GPRS
Disarm all EDPs
Cancel all reports
Set Tssf to last used interval and restart Tssf
CAP_ Connect_ GPRS
Stop Tssf
Int_Connect_ GPRS
CAP_ Continue_ GPRS
Int_Continue_ GPRS
Any outstanding requests?
Yes
No
Stop Tssf
Set Tssf to last used interval and restart Tssf
Waiting_for_ Instructions
Any remaining EDP-Rs or reports?
Yes
Any remaining EDP-Ns?
No
Yes
Set Monitor relationship
Monitoring
Complete_FCI_ Records
Application_ End
Idle

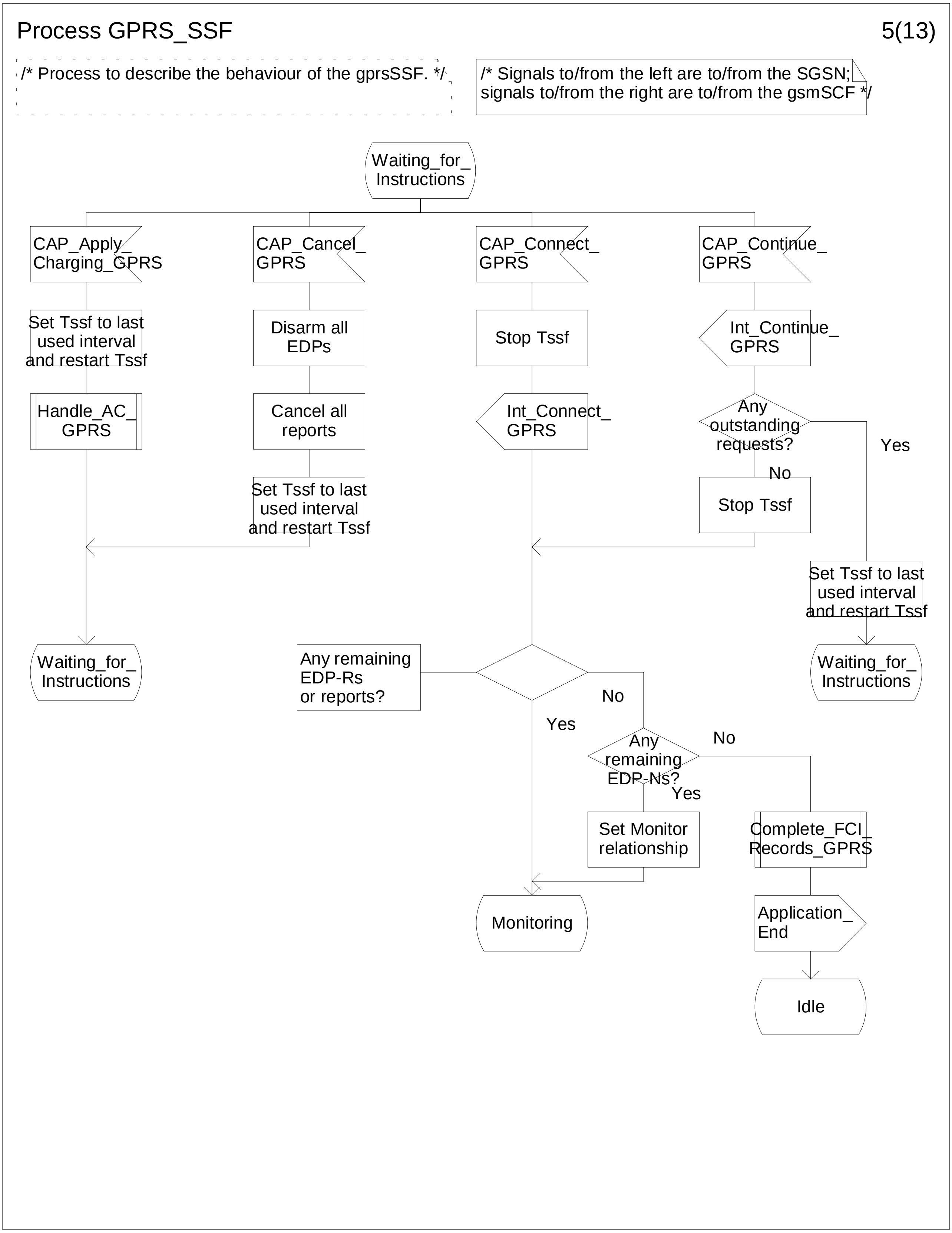
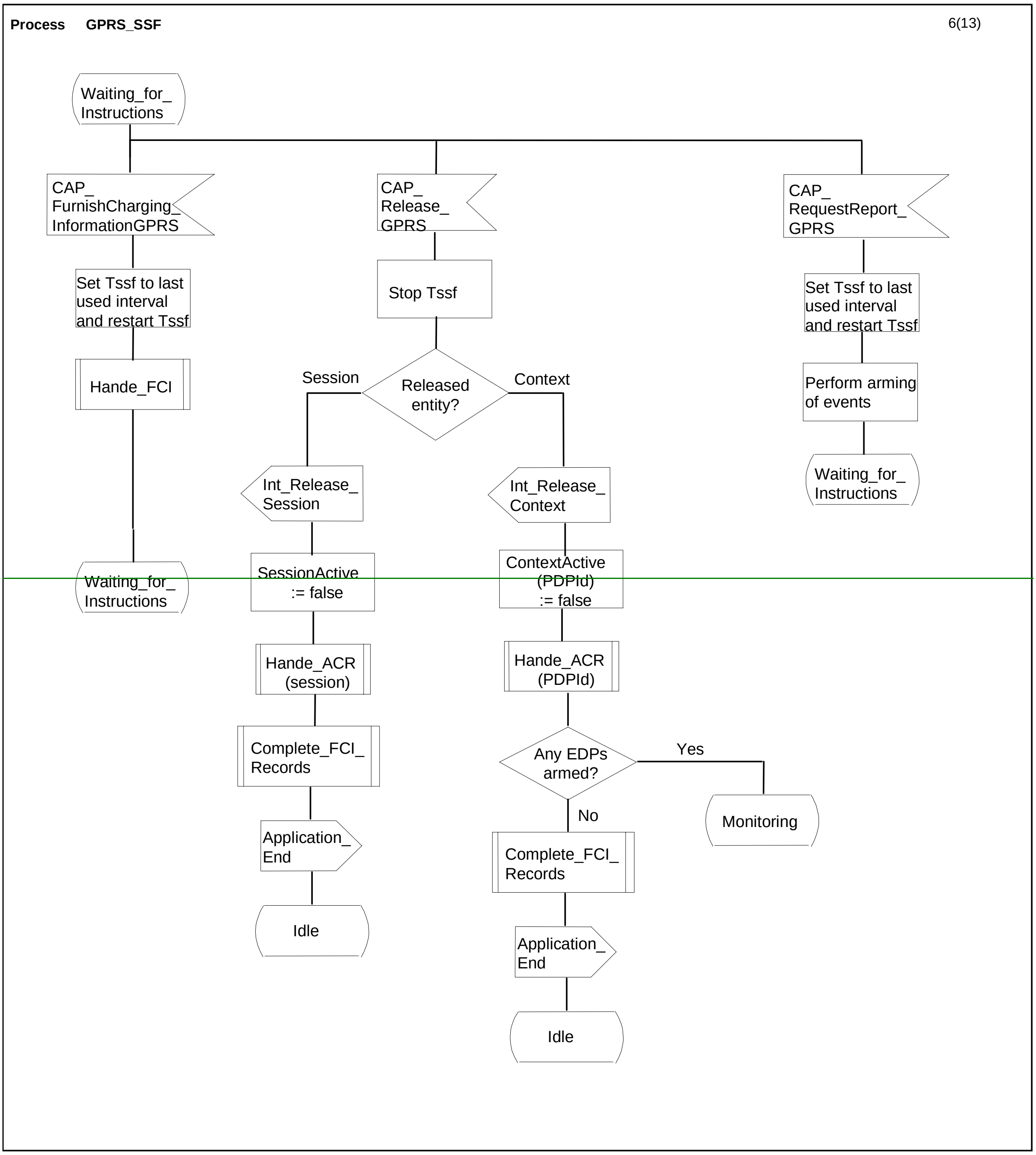

Process GPRS_SSF
5(13)
/* Process to describe the behaviour of the gprsSSF. */
/* Signals to/from the left are to/from the SGSN; signals to/from the right are to/from the gsmSCF */
Waiting_for_ Instructions
CAP_Apply_ Charging_GPRS
CAP_Cancel_ GPRS
CAP_Connect_ GPRS
CAP_Continue_ GPRS
Set Tssf to last used interval and restart Tssf
Disarm all EDPs
Stop Tssf
Int_Continue_ GPRS
Handle_AC_ GPRS
Cancel all reports
Int_Connect_ GPRS
Any outstanding requests?
Yes
No
Stop Tssf
Set Tssf to last used interval and restart Tssf
Set Tssf to last used interval and restart Tssf
Waiting_for_ Instructions
Any remaining EDP-Rs or reports?
Waiting_for_ Instructions
No
Yes
Any remaining EDP-Ns?
No
Yes
Set Monitor relationship
Complete_FCI_ Records_GPRS
Monitoring
Application_ End
Idle

Figure 6.14 e: Process GPRS_SSF (sheet 5)


Process GPRS_SSF
6(13)
Waiting_for_ Instructions
CAP_ FurnishCharging_ InformationGPRS
Set Tssf to last used interval and restart Tssf
Hande_FCI
Waiting_for_ Instructions
CAP_ Release_ GPRS
Stop Tssf
Released entity?
Session
Context
Int_Release_ Session
SessionActive := false
Hande_ACR (session)
Complete_FCI_ Records
Application_ End
Idle
Int_Release_ Context
ContextActive (PDPId) := false
Hande_ACR (PDPId)
Any EDPs armed?
Yes
No
Monitoring
Complete_FCI_ Records
Application_ End
Idle
CAP_ RequestReport_ GPRS
Set Tssf to last used interval and restart Tssf
Perform arming of events
Waiting_for_ Instructions

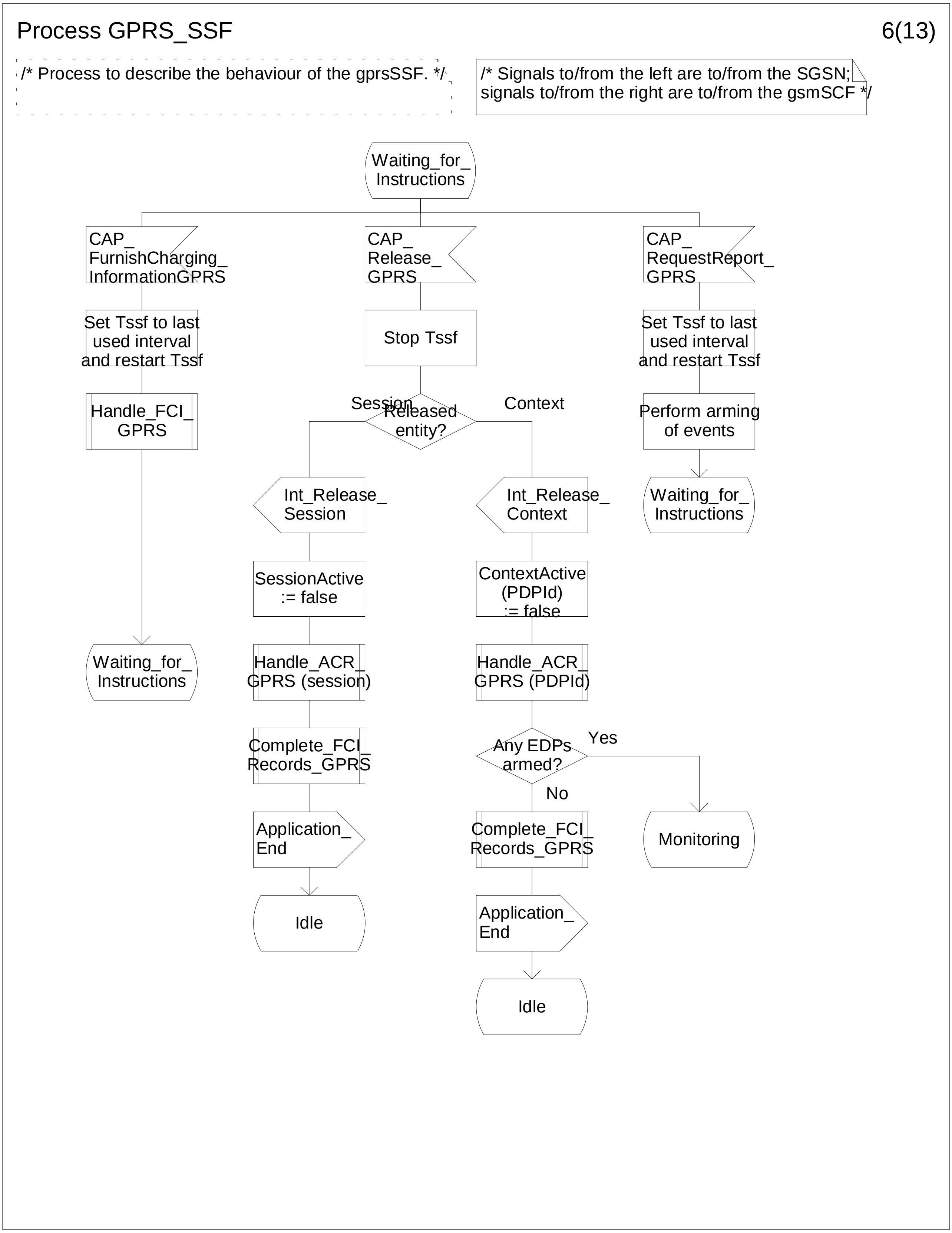
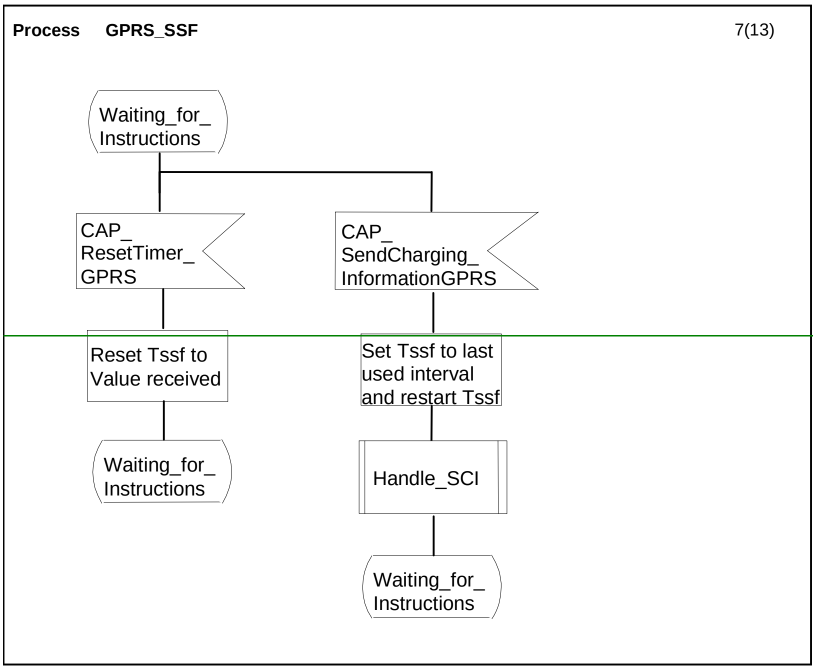

Process GPRS_SSF
6(13)
/* Process to describe the behaviour of the gprsSSF. */
/* Signals to/from the left are to/from the SGSN; signals to/from the right are to/from the gsmSCF */
Waiting_for_ Instructions
CAP_ FurnishCharging_ InformationGPRS
CAP_ Release_ GPRS
CAP_ RequestReport_ GPRS
Set Tssf to last used interval and restart Tssf
Stop Tssf
Set Tssf to last used interval and restart Tssf
Handle_FCI_ GPRS
Released entity?
Session
Context
Perform arming of events
Int_Release_ Session
Int_Release_ Context
Waiting_for_ Instructions
SessionActive := false
ContextActive (PDPId) := false
Waiting_for_ Instructions
Handle_ACR_ GPRS (session)
Handle_ACR_ GPRS (PDPId)
Complete_FCI_ Records_GPRS
Any EDPs armed?
Yes
No
Application_ End
Complete_FCI_ Records_GPRS
Monitoring
Idle
Application_ End
Idle

Figure 6.14 f: Process GPRS_SSF (sheet 6)


Process GPRS_SSF
7(13)
Waiting_for_ Instructions
CAP_ ResetTimer_ GPRS
CAP_ SendCharging_ InformationGPRS
Reset Tssf to Value received
Set Tssf to last used interval and restart Tssf
Waiting_for_ Instructions
Handle_SCI
Waiting_for_ Instructions

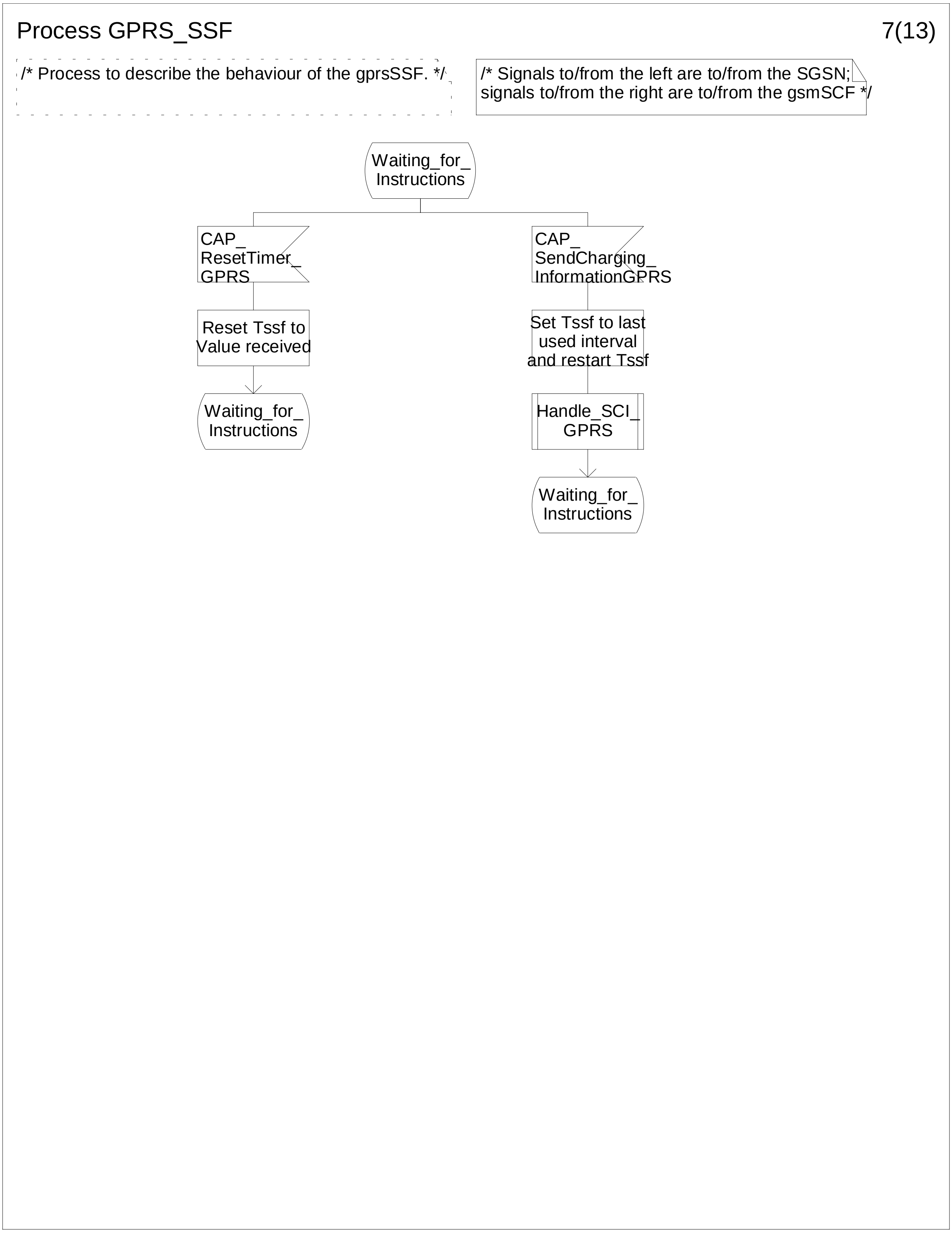
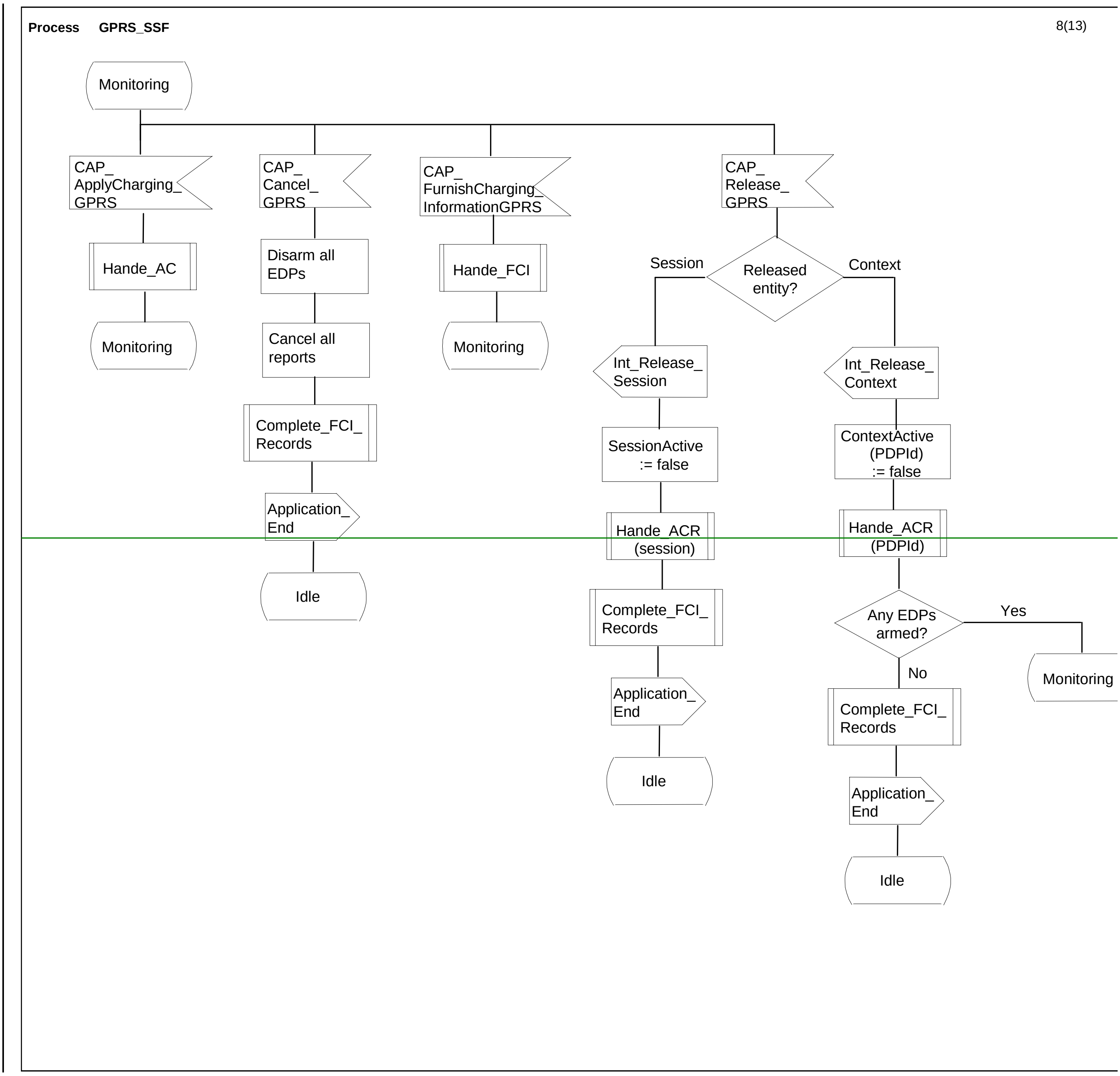

Process GPRS_SSF
7(13)
/* Process to describe the behaviour of the gprsSSF. */
/* Signals to/from the left are to/from the SGSN; signals to/from the right are to/from the gsmSCF */
Waiting_for_ Instructions
CAP_ ResetTimer_ GPRS
Reset Tssf to Value received
Waiting_for_ Instructions
CAP_ SendCharging_ InformationGPRS
Set Tssf to last used interval and restart Tssf
Handle_SCI_ GPRS
Waiting_for_ Instructions

Figure 6.14 g: Process GPRS_SSF (sheet 7)


Process GPRS_SSF
8(13)
Monitoring
CAP_ ApplyCharging_ GPRS
Hande_AC
Monitoring
CAP_ Cancel_ GPRS
Disarm all EDPs
Cancel all reports
Complete_FCI_ Records
Application_ End
Idle
CAP_ FurnishCharging_ InformationGPRS
Hande_FCI
Monitoring
CAP_ Release_ GPRS
Released entity?
Session
Context
Int_Release_ Session
SessionActive := false
Hande_ACR (session)
Complete_FCI_ Records
Application_ End
Idle
Int_Release_ Context
ContextActive (PDPId) := false
Hande_ACR (PDPId)
Any EDPs armed?
Yes
No
Monitoring
Complete_FCI_ Records
Application_ End
Idle

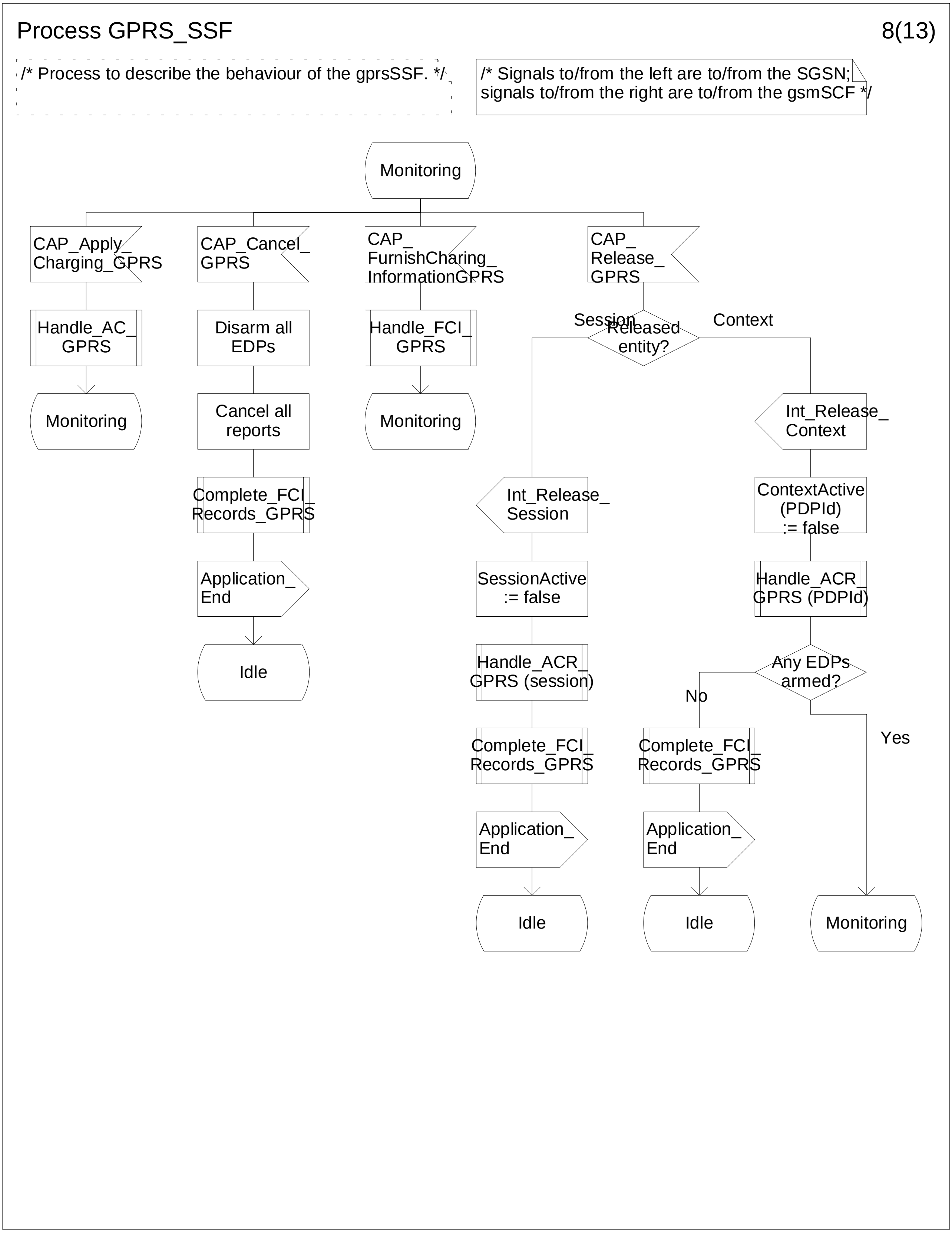
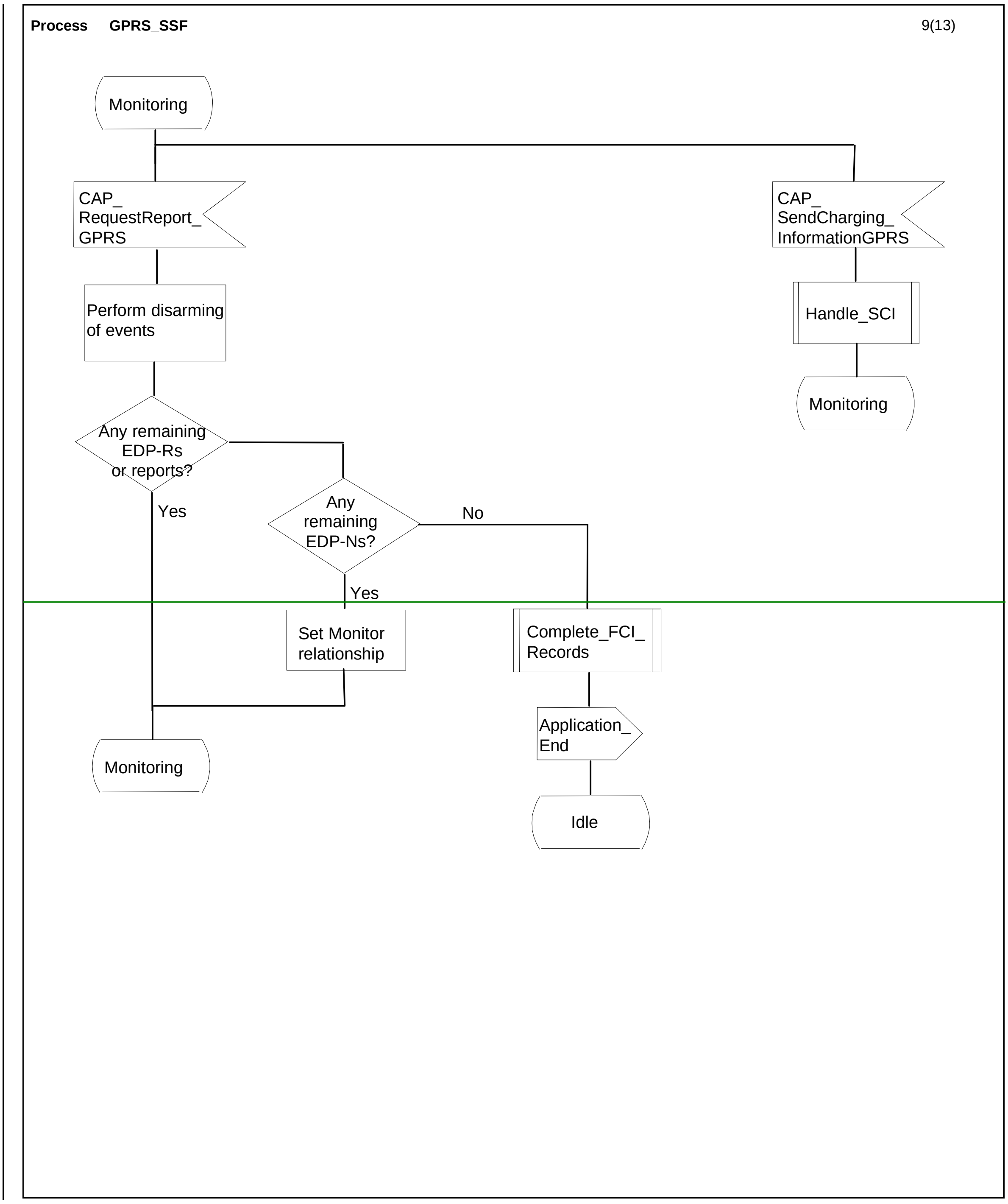

Process GPRS_SSF
8(13)
/* Process to describe the behaviour of the gprsSSF. */
/* Signals to/from the left are to/from the SGSN; signals to/from the right are to/from the gsmSCF */
Monitoring
CAP_Apply_ Charging_GPRS
CAP_Cancel_ GPRS
CAP_ FurnishCharing_ InformationGPRS
CAP_ Release_ GPRS
Handle_AC_ GPRS
Disarm all EDPs
Handle_FCI_ GPRS
Released entity?
Session
Context
Monitoring
Cancel all reports
Monitoring
Int_Release_ Context
Complete_FCI_ Records_GPRS
Int_Release_ Session
ContextActive (PDPId) := false
Application_ End
SessionActive := false
Handle_ACR_ GPRS (PDPId)
Idle
Handle_ACR_ GPRS (session)
Any EDPs armed?
No
Yes
Complete_FCI_ Records_GPRS
Complete_FCI_ Records_GPRS
Application_ End
Application_ End
Idle
Idle
Monitoring

Figure 6.14 h: Process GPRS_SSF (sheet 8)


Process GPRS_SSF
9(13)
Monitoring
CAP_
RequestReport_
GPRS
Perform disarming
of events
Any remaining
EDP-Rs
or reports?
Yes
Any
remaining
EDP-Ns?
No
Yes
Set Monitor
relationship
Complete_FCI_
Records
Application_
End
Idle
Monitoring
CAP_
SendCharging_
InformationGPRS
Handle_SCI
Monitoring

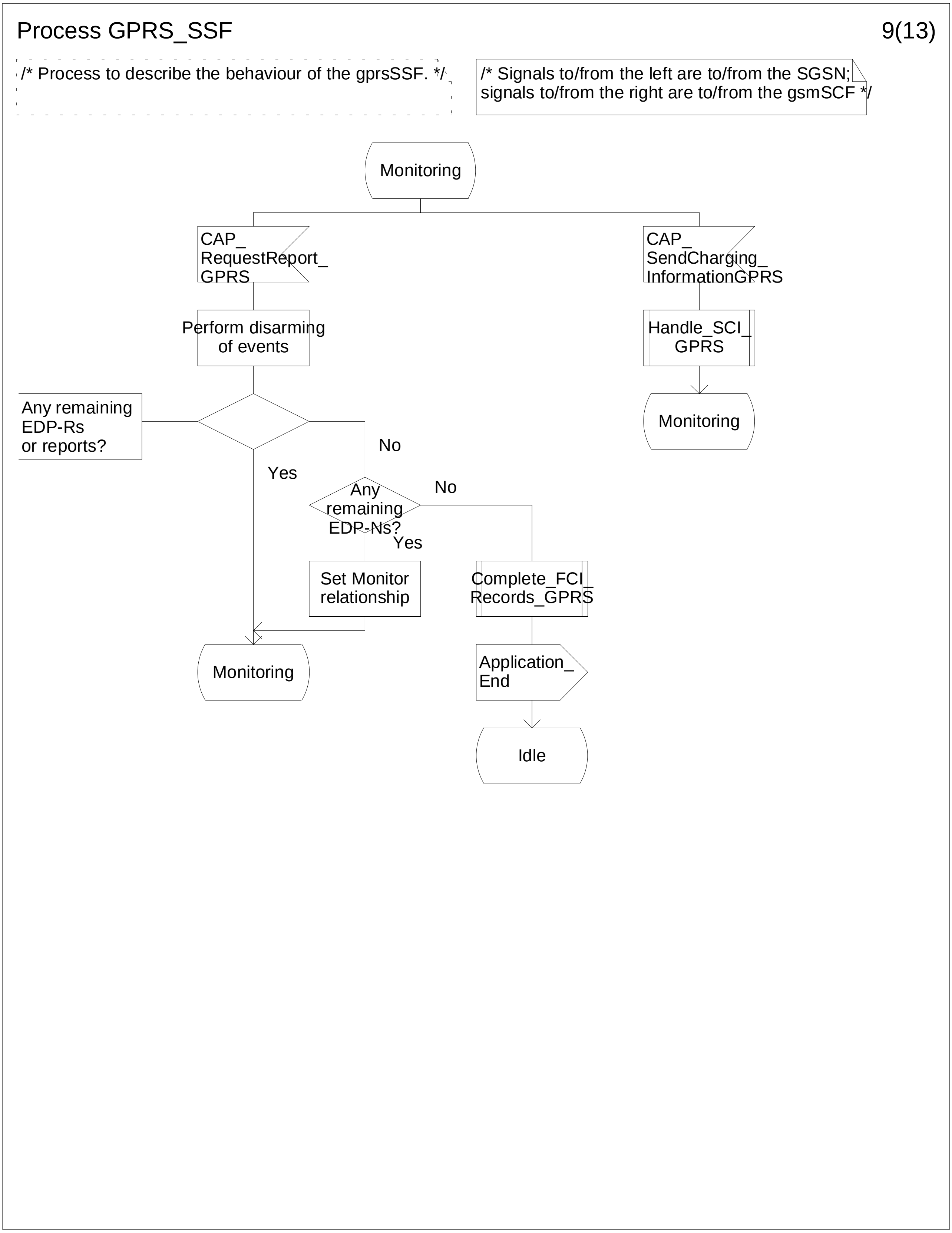
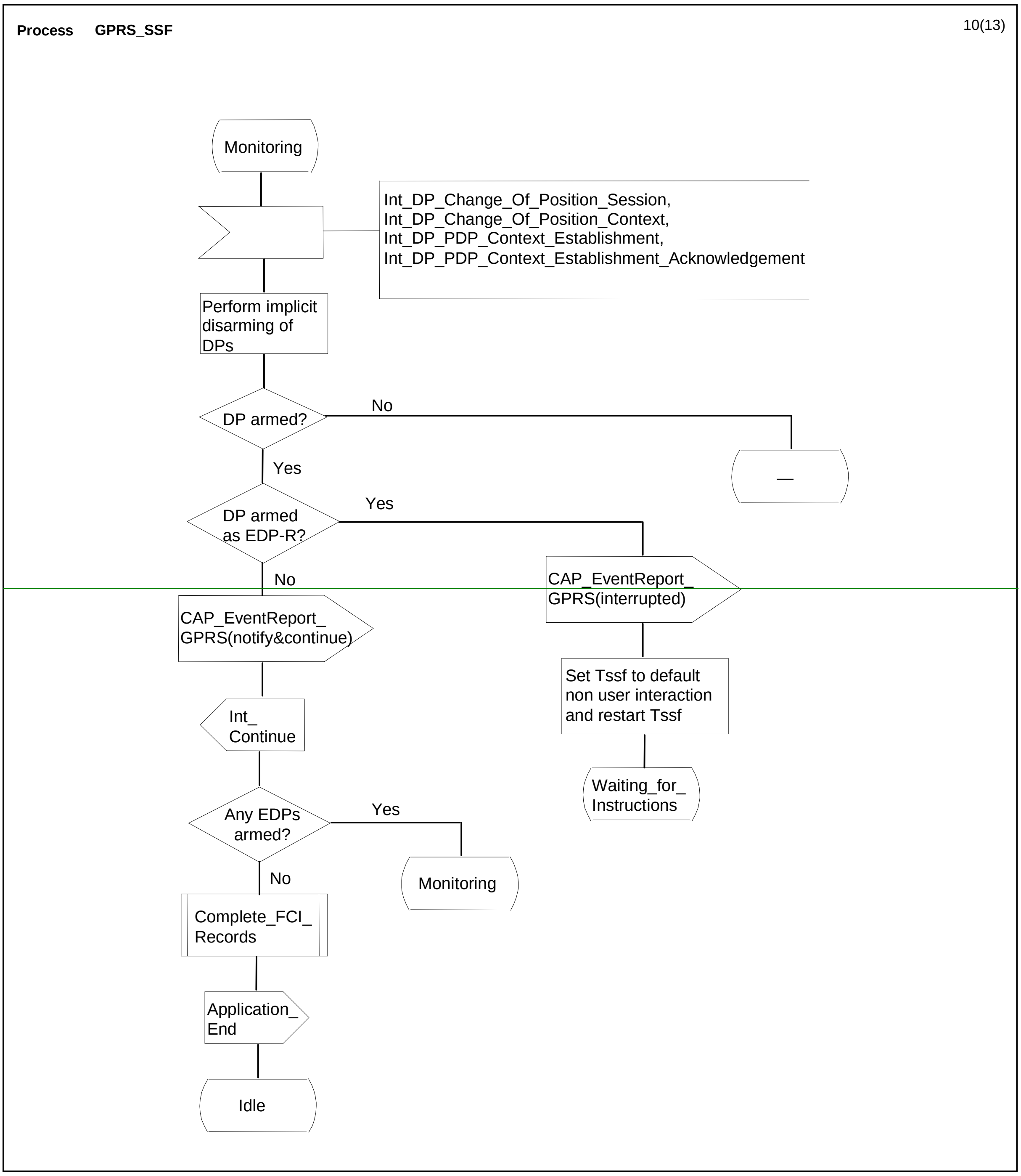

Process GPRS_SSF
9(13)
/* Process to describe the behaviour of the gprsSSF. */
/* Signals to/from the left are to/from the SGSN; signals to/from the right are to/from the gsmSCF */
Monitoring
CAP_ RequestReport_ GPRS
CAP_ SendCharging_ InformationGPRS
Perform disarming of events
Handle_SCI_ GPRS
Monitoring
Any remaining EDP-Rs or reports?
No
Yes
Any remaining EDP-Ns?
No
Yes
Set Monitor relationship
Complete_FCI_ Records_GPRS
Monitoring
Application_ End
Idle

Figure 6.14 i: Process GPRS_SSF (sheet 9)


Process GPRS_SSF
10(13)
Monitoring
Int_DP_Change_Of_Position_Session,
Int_DP_Change_Of_Position_Context,
Int_DP_PDP_Context_Establishment,
Int_DP_PDP_Context_Establishment_Acknowledgement
Perform implicit disarming of DPs
DP armed?
No
—
Yes
DP armed as EDP-R?
Yes
No
CAP_EventReport_GPRS(interrupted)
CAP_EventReport_GPRS(notify&continue)
Set Tssf to default non user interaction and restart Tssf
Int_Continue
Waiting_for_Instructions
Any EDPs armed?
Yes
Monitoring
No
Complete_FCI_Records
Application_End
Idle

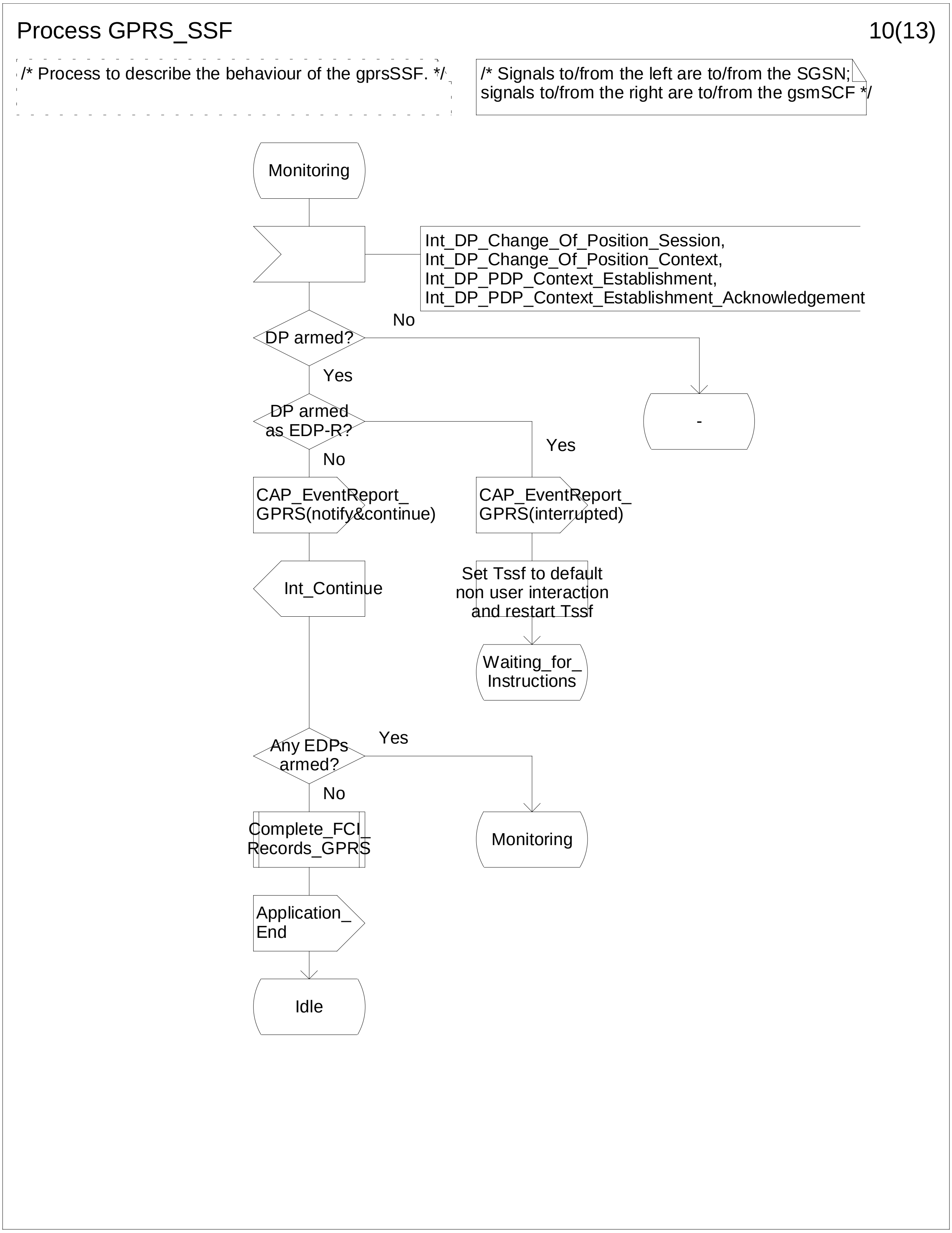
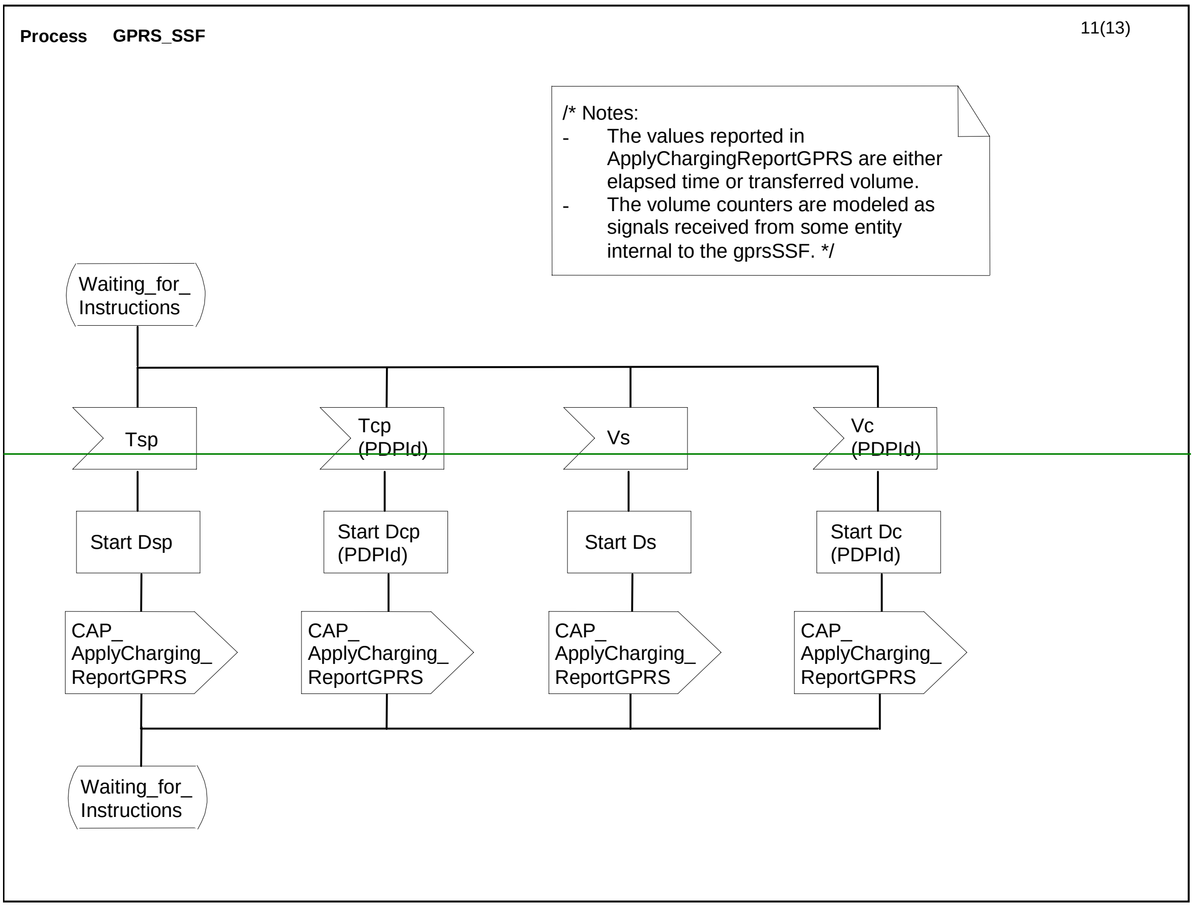

Process GPRS_SSF
10(13)
/* Process to describe the behaviour of the gprsSSF. */
/* Signals to/from the left are to/from the SGSN; signals to/from the right are to/from the gsmSCF */
Monitoring
Int_DP_Change_Of_Position_Session,
Int_DP_Change_Of_Position_Context,
Int_DP_PDP_Context_Establishment,
Int_DP_PDP_Context_Establishment_Acknowledgement
DP armed?
No
Yes
-
DP armed as EDP-R?
Yes
No
CAP_EventReport_GPRS(notify&continue)
CAP_EventReport_GPRS(interrupted)
Int_Continue
Set Tssf to default non user interaction and restart Tssf
Waiting_for_Instructions
Any EDPs armed?
Yes
No
Complete_FCI_Records_GPRS
Monitoring
Application_End
Idle

Figure 6.14 j: Process GPRS_SSF (sheet 10)


Process GPRS_SSF
11(13)
/* Notes:
- The values reported in ApplyChargingReportGPRS are either elapsed time or transferred volume.
- The volume counters are modeled as signals received from some entity internal to the gprsSSF. */
Waiting_for_ Instructions
Tsp
Tcp (PDPId)
Vs
Vc (PDPId)
Start Dsp
Start Dcp (PDPId)
Start Ds
Start Dc (PDPId)
CAP_ ApplyCharging_ ReportGPRS
CAP_ ApplyCharging_ ReportGPRS
CAP_ ApplyCharging_ ReportGPRS
CAP_ ApplyCharging_ ReportGPRS
Waiting_for_ Instructions

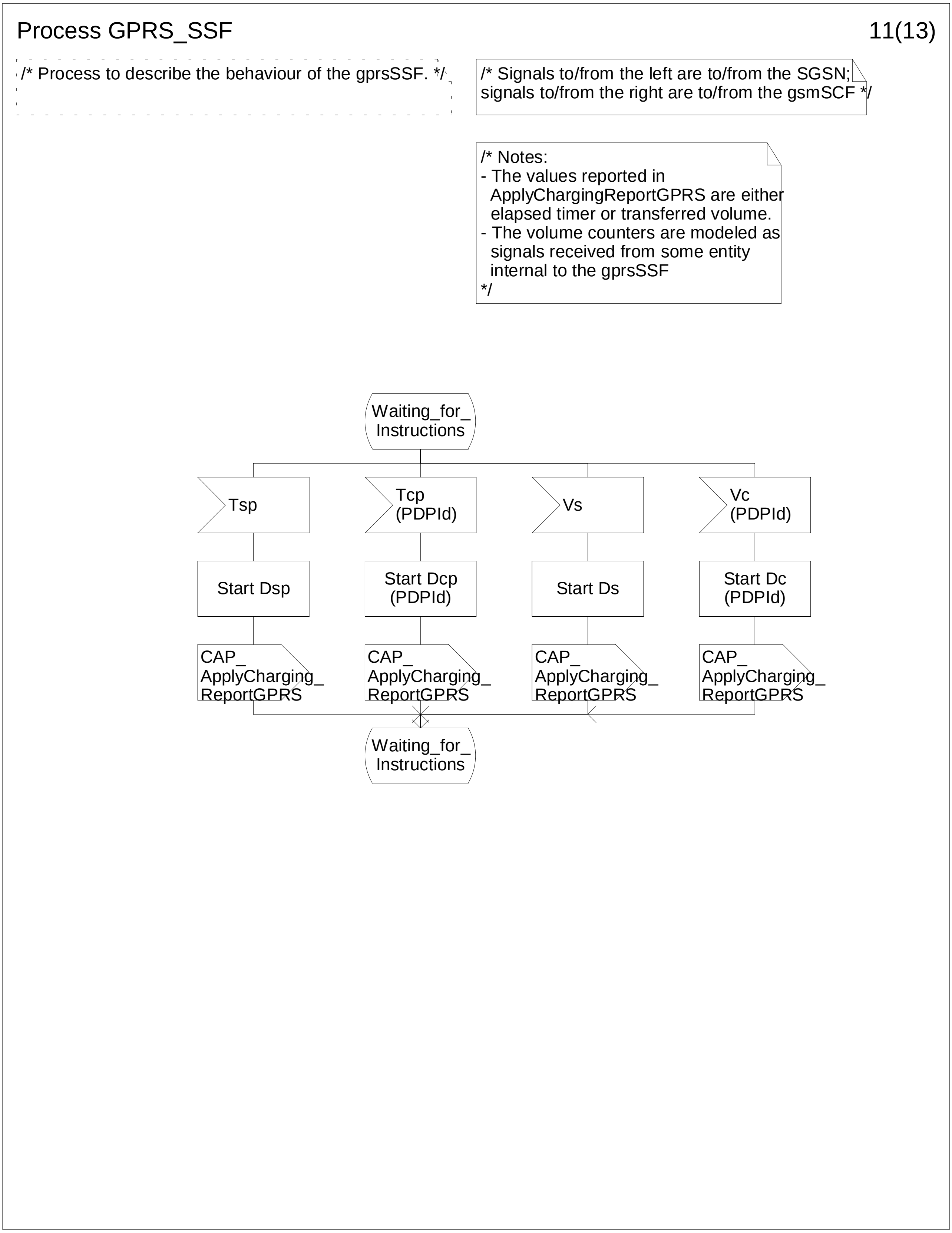
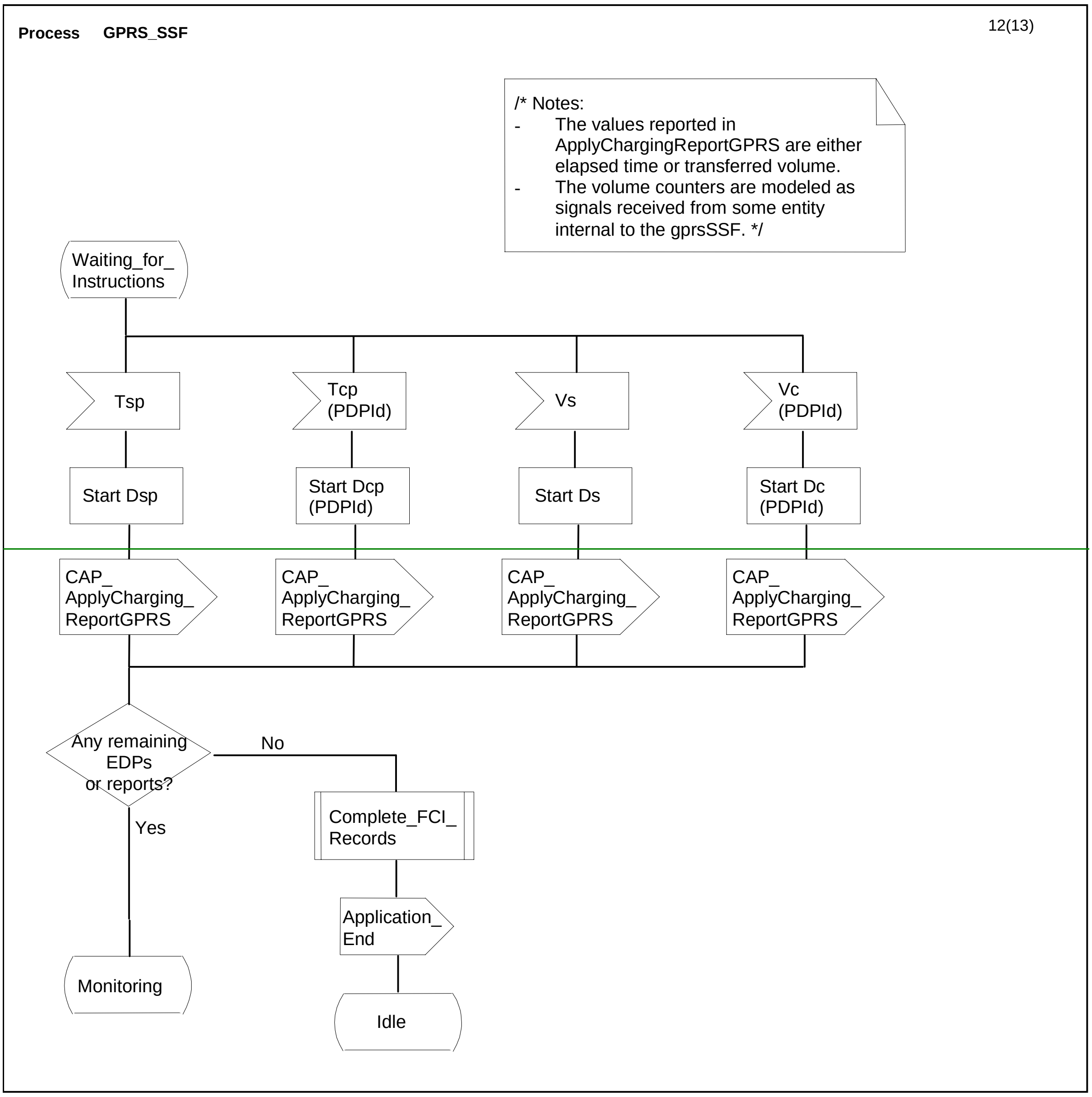

Process GPRS_SSF
11(13)
/* Process to describe the behaviour of the gprsSSF. */
/* Signals to/from the left are to/from the SGSN;
signals to/from the right are to/from the gsmSCF */
/* Notes:
- The values reported in
ApplyChargingReportGPRS are either
elapsed timer or transferred volume.
- The volume counters are modeled as
signals received from some entity
internal to the gprsSSF
*/
Waiting_for_
Instructions
Tsp
Tcp
(PDPId)
Vs
Vc
(PDPId)
Start Dsp
Start Dcp
(PDPId)
Start Ds
Start Dc
(PDPId)
CAP_
ApplyCharging_
ReportGPRS
CAP_
ApplyCharging_
ReportGPRS
CAP_
ApplyCharging_
ReportGPRS
CAP_
ApplyCharging_
ReportGPRS
Waiting_for_
Instructions

Figure 6.14 k: Process GPRS_SSF (sheet 11)


Process GPRS_SSF
12(13)
/* Notes:
- The values reported in ApplyChargingReportGPRS are either elapsed time or transferred volume.
- The volume counters are modeled as signals received from some entity internal to the gprsSSF. */
Waiting_for_ Instructions
Tsp
Tcp (PDPId)
Vs
Vc (PDPId)
Start Dsp
Start Dcp (PDPId)
Start Ds
Start Dc (PDPId)
CAP_ ApplyCharging_ ReportGPRS
CAP_ ApplyCharging_ ReportGPRS
CAP_ ApplyCharging_ ReportGPRS
CAP_ ApplyCharging_ ReportGPRS
Any remaining EDPs or reports?
No
Yes
Complete_FCI_ Records
Application_ End
Monitoring
Idle

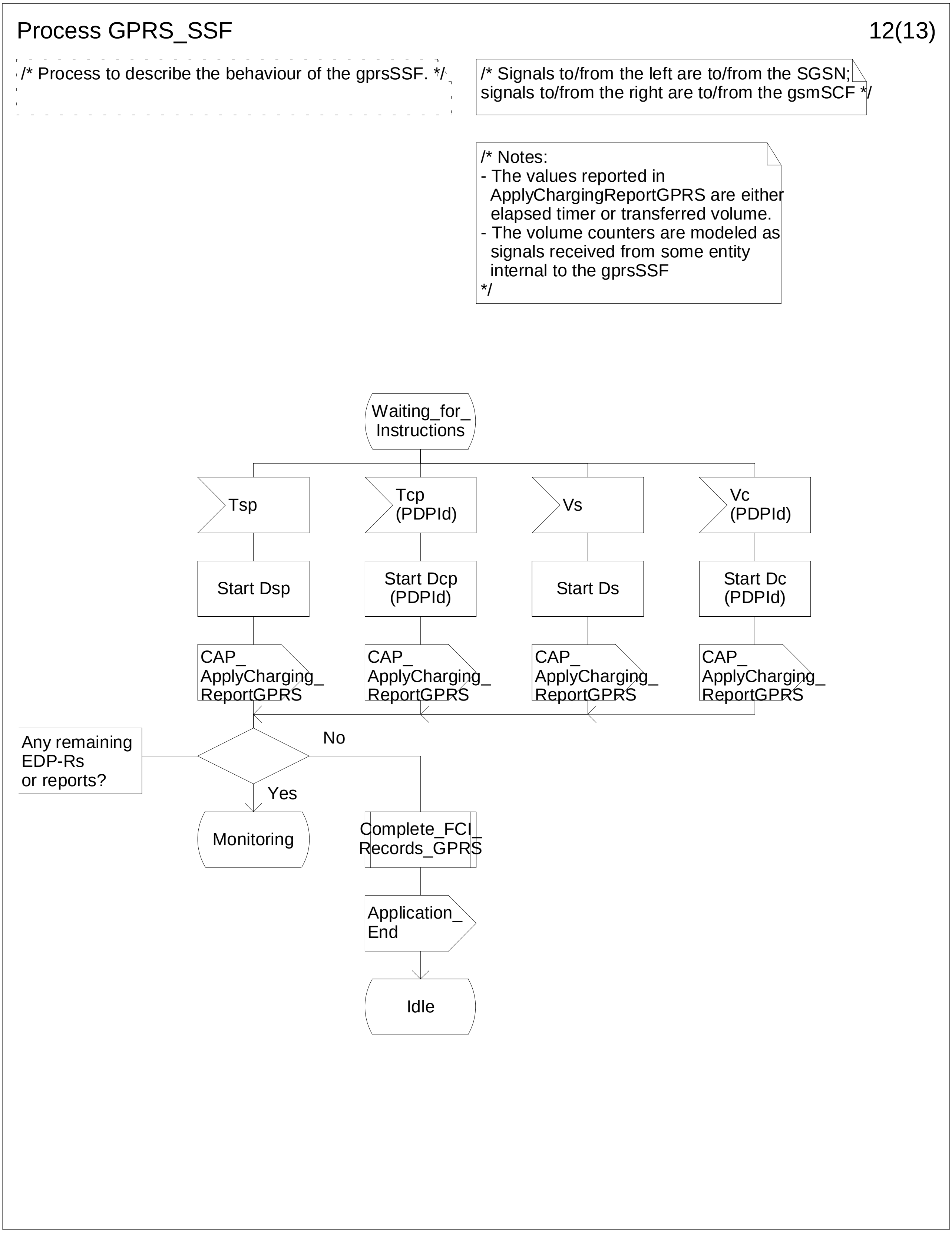
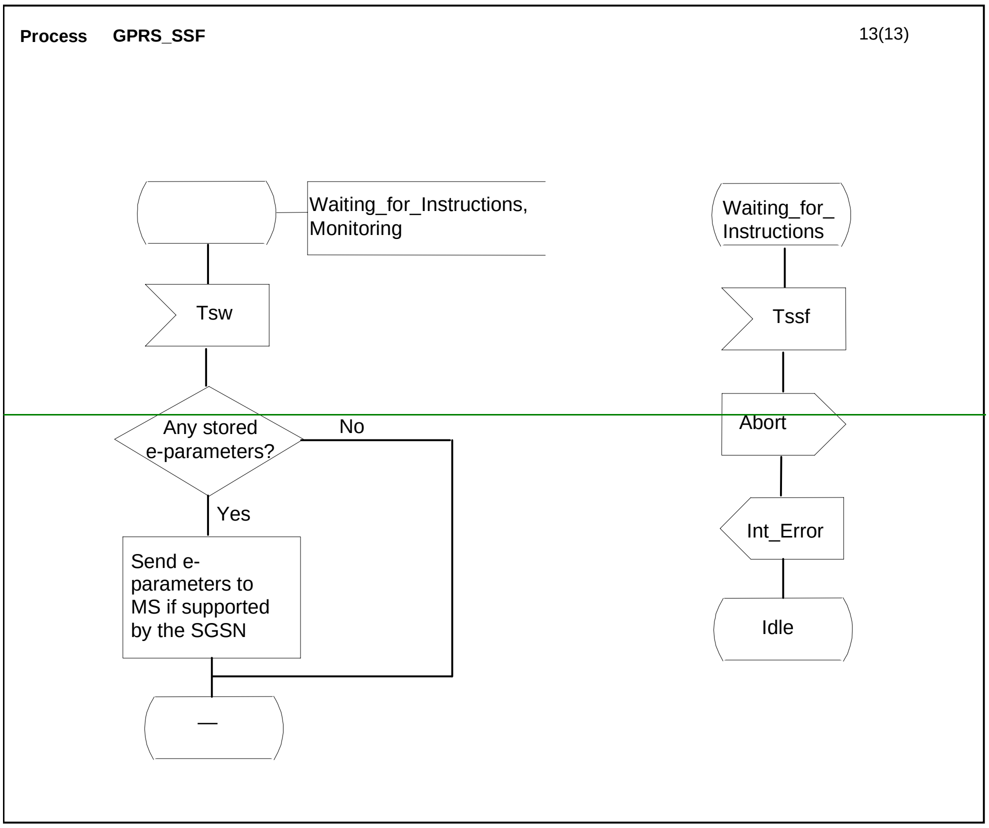

Process GPRS_SSF
12(13)
/* Process to describe the behaviour of the gprsSSF. */
/* Signals to/from the left are to/from the SGSN; signals to/from the right are to/from the gsmSCF */
/* Notes:
- The values reported in ApplyChargingReportGPRS are either elapsed timer or transferred volume.
- The volume counters are modeled as signals received from some entity internal to the gprsSSF
*/
Waiting_for_ Instructions
Tsp
Tcp (PDPId)
Vs
Vc (PDPId)
Start Dsp
Start Dcp (PDPId)
Start Ds
Start Dc (PDPId)
CAP_ ApplyCharging_ ReportGPRS
CAP_ ApplyCharging_ ReportGPRS
CAP_ ApplyCharging_ ReportGPRS
CAP_ ApplyCharging_ ReportGPRS
Any remaining EDP-Rs or reports?
No
Yes
Monitoring
Complete_FCI_ Records_GPRS
Application_ End
Idle

Figure 6.14 l: Process GPRS_SSF (sheet 12)


Process GPRS_SSF
13(13)
Waiting_for_Instructions,
Monitoring
Tsw
Any stored
e-parameters?
No
Yes
Send e-
parameters to
MS if supported
by the SGSN
—
Waiting_for_
Instructions
Tssf
Abort
Int_Error
Idle

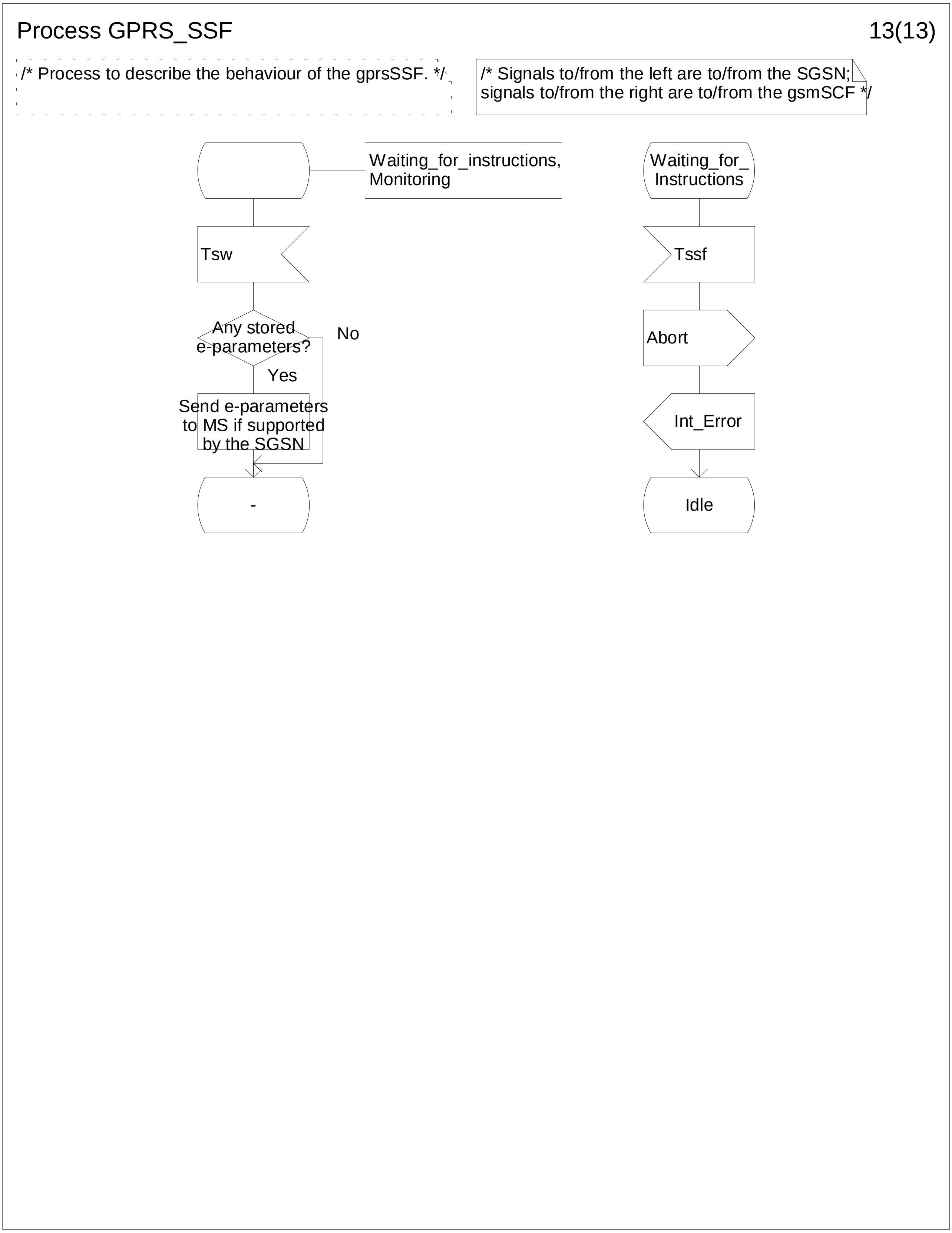
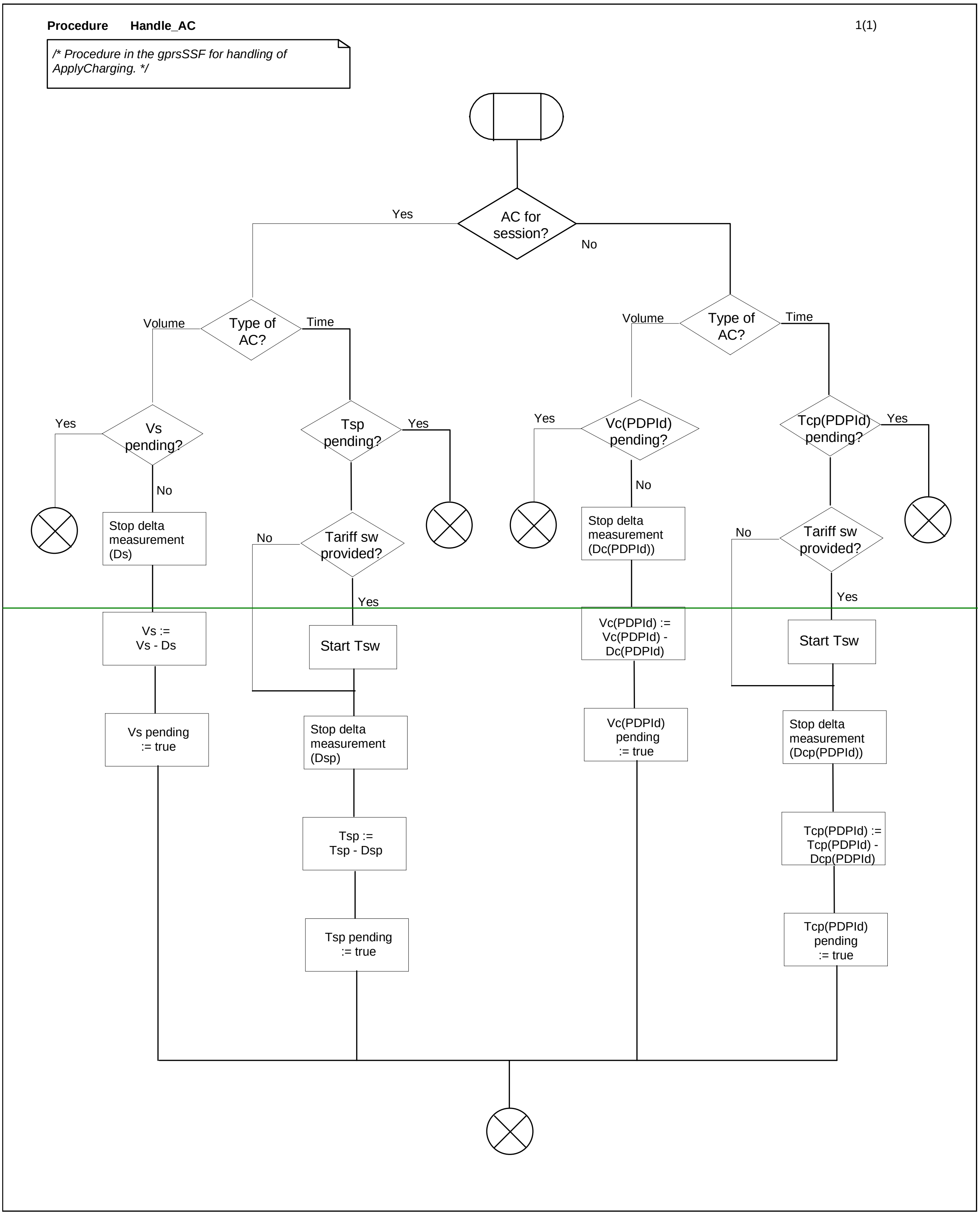

Process GPRS_SSF
13(13)
/* Process to describe the behaviour of the gprsSSF. */
/* Signals to/from the left are to/from the SGSN; signals to/from the right are to/from the gsmSCF */
Waiting_for_instructions, Monitoring
Tsw
Any stored e-parameters?
No
Yes
Send e-parameters to MS if supported by the SGSN
-
Waiting_for_ Instructions
Tssf
Abort
Int_Error
Idle

Figure 6.14 m: Process GPRS_SSF (sheet 13)


Procedure Handle_AC
1(1)
/* Procedure in the gprsSSF for handling of ApplyCharging. */
AC for session?
Yes
No
Type of AC?
Volume
Time
Type of AC?
Volume
Time
Vs pending?
Yes
No
Stop delta measurement (Ds)
Vs := Vs - Ds
Vs pending := true
Tsp pending?
Yes
Tariff sw provided?
No
Yes
Start Tsw
Stop delta measurement (Dsp)
Tsp := Tsp - Dsp
Tsp pending := true
Vc(PDPId) pending?
Yes
No
Stop delta measurement (Dc(PDPId))
Vc(PDPId) := Vc(PDPId) - Dc(PDPId)
Vc(PDPId) pending := true
Tcp(PDPId) pending?
Yes
Tariff sw provided?
No
Yes
Start Tsw
Stop delta measurement (Dcp(PDPId))
Tcp(PDPId) := Tcp(PDPId) - Dcp(PDPId)
Tcp(PDPId) pending := true

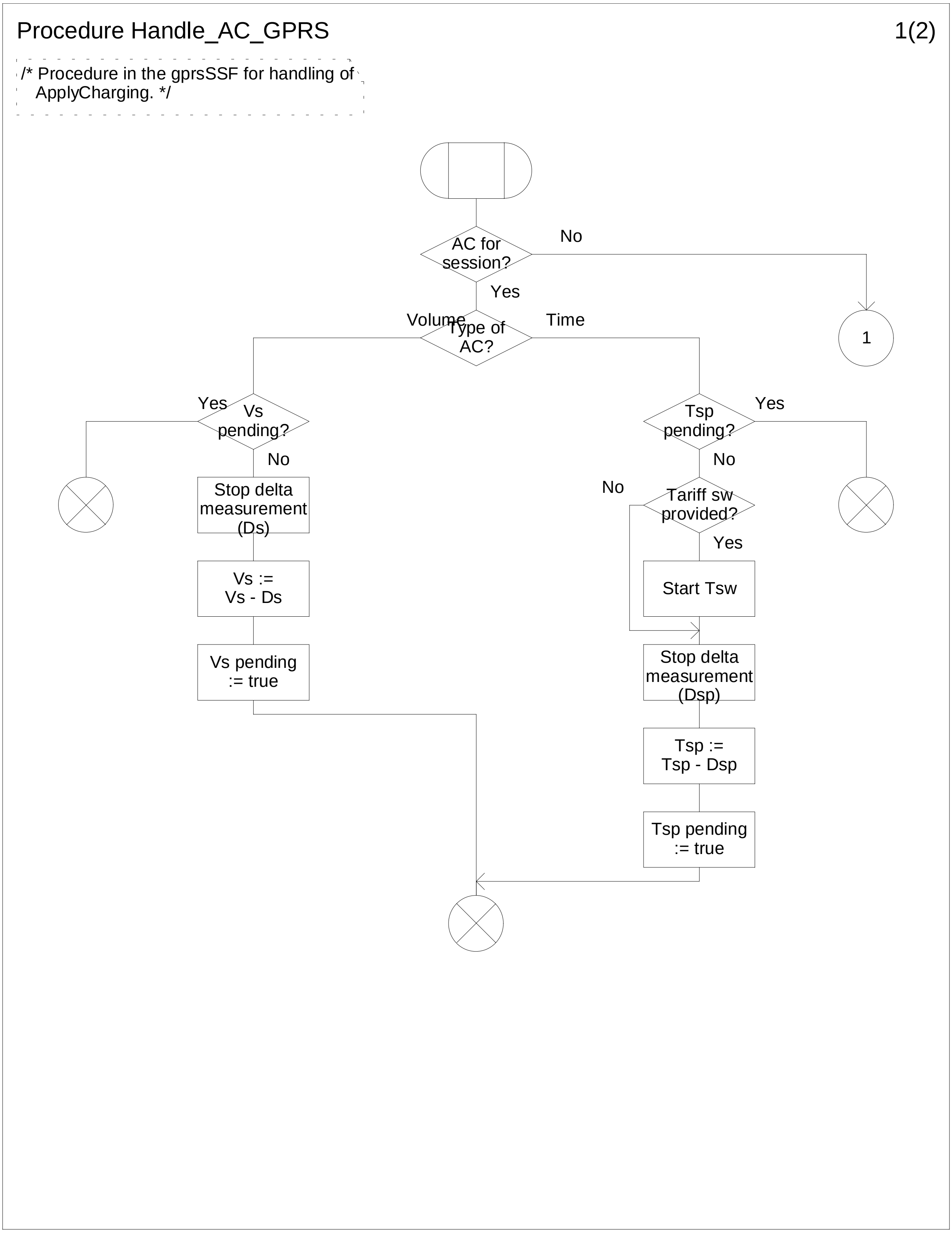

Procedure Handle_AC_GPRS
1(2)
/* Procedure in the gprsSSF for handling of ApplyCharging. */
AC for session?
No
Yes
1
Type of AC?
Volume
Time
Vs pending?
Yes
No
Stop delta measurement (Ds)
Vs := Vs - Ds
Vs pending := true
Tsp pending?
Yes
No
Tariff sw provided?
No
Yes
Start Tsw
Stop delta measurement (Dsp)
Tsp := Tsp - Dsp
Tsp pending := true

Figure 6.15a: Procedure Handle_AC_GPRS

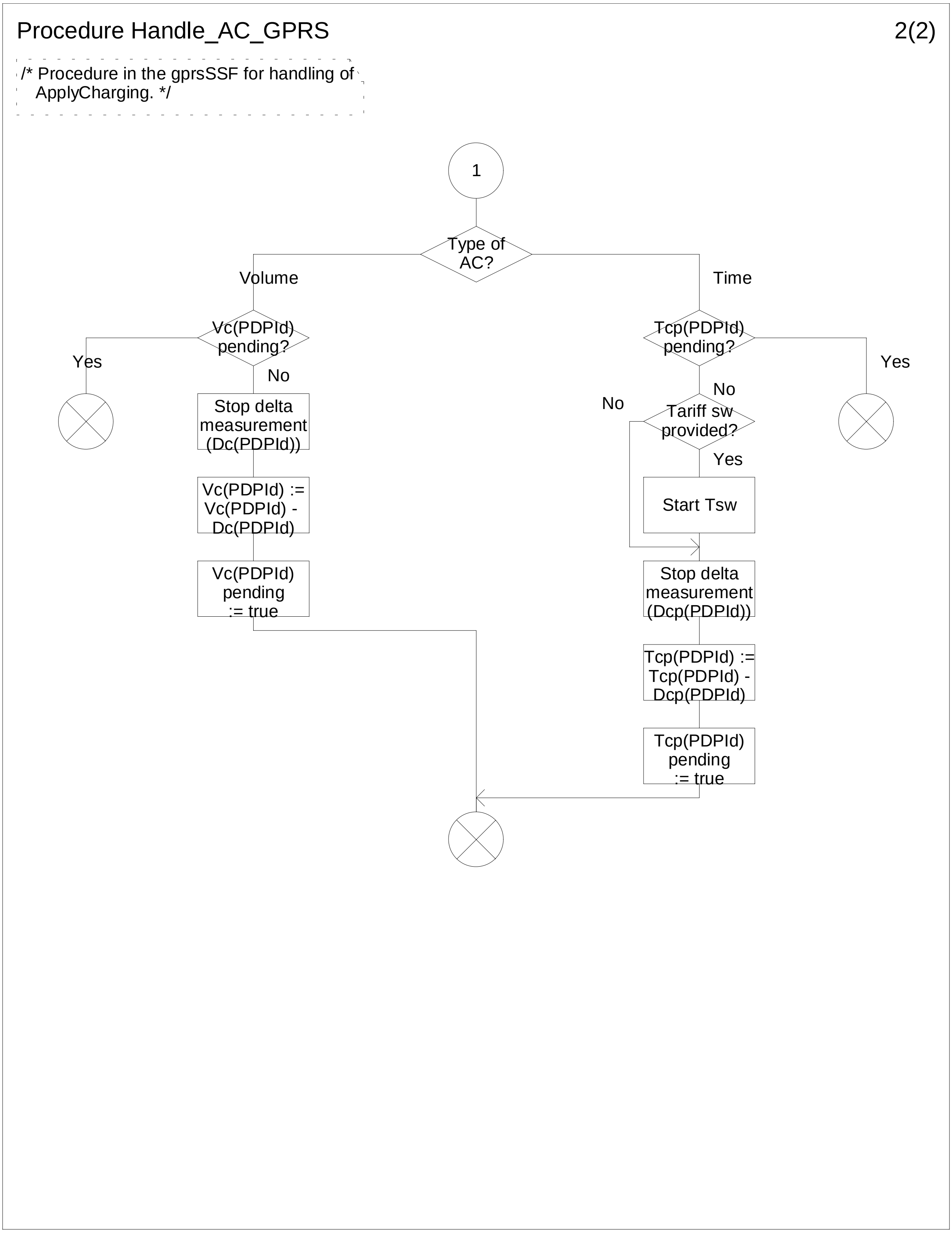
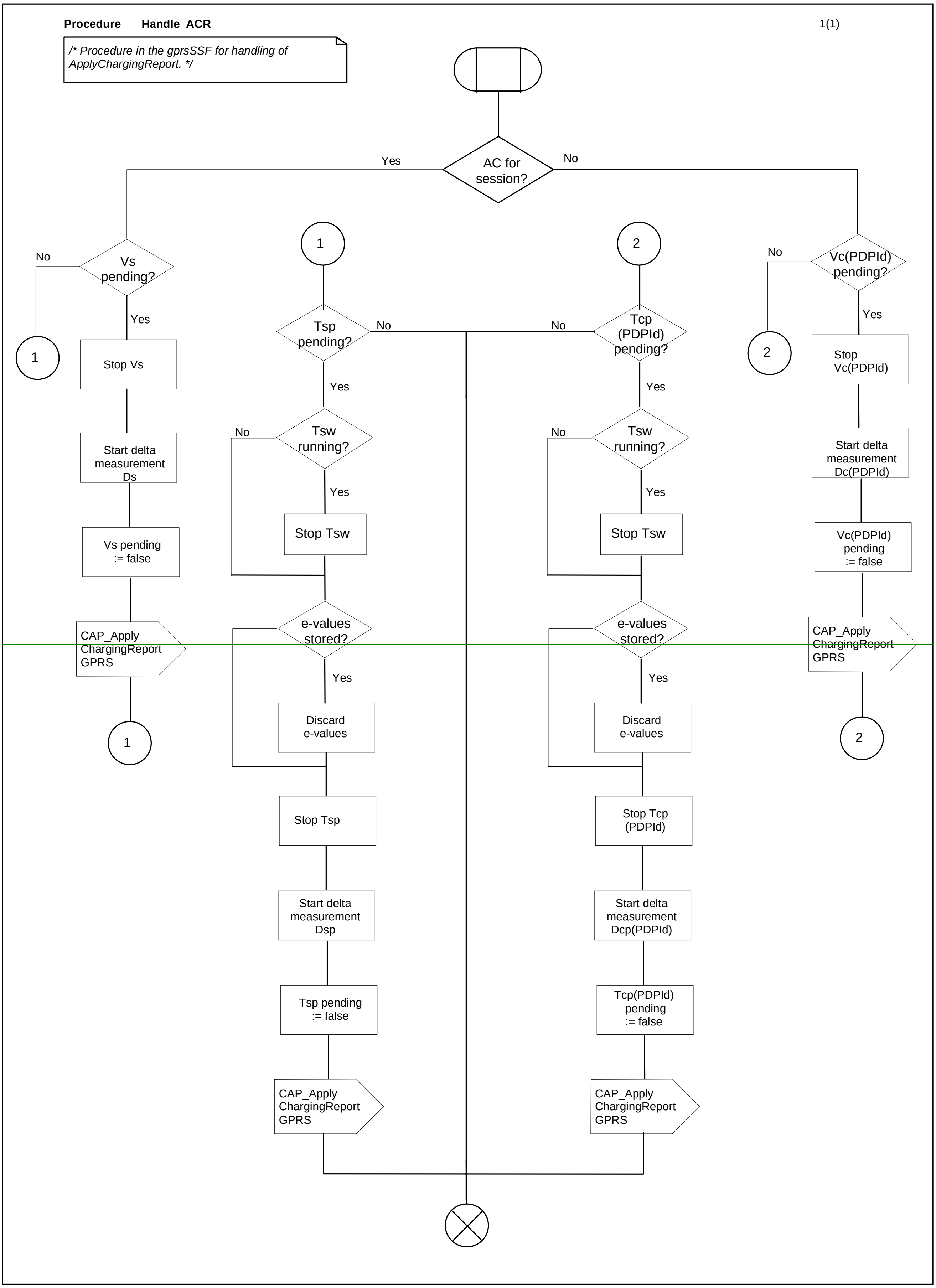

Procedure Handle_AC_GPRS
2(2)
/* Procedure in the gprsSSF for handling of ApplyCharging. */
1
Type of AC?
Volume
Time
Vc(PDPId) pending?
Yes
No
Stop delta measurement (Dc(PDPId))
Vc(PDPId) := Vc(PDPId) - Dc(PDPId)
Vc(PDPId) pending := true
Tcp(PDPId) pending?
Yes
No
Tariff sw provided?
No
Yes
Start Tsw
Stop delta measurement (Dcp(PDPId))
Tcp(PDPId) := Tcp(PDPId) - Dcp(PDPId)
Tcp(PDPId) pending := true

Figure 6.15 b: Procedure Handle_AC_GPRS


Procedure Handle_ACR
1(1)
/* Procedure in the gprsSSF for handling of ApplyChargingReport. */
AC for session?
Yes
No
Vs pending?
No
Yes
1
Stop Vs
Start delta measurement Ds
Vs pending := false
CAP_Apply ChargingReport GPRS
1
1
Tsp pending?
No
Yes
Tsw running?
No
Yes
Stop Tsw
e-values stored?
Yes
Discard e-values
Stop Tsp
Start delta measurement Dsp
Tsp pending := false
CAP_Apply ChargingReport GPRS
2
Tcp (PDPId) pending?
No
Yes
Tsw running?
No
Yes
Stop Tsw
e-values stored?
Yes
Discard e-values
Stop Tcp (PDPId)
Start delta measurement Dcp(PDPId)
Tcp(PDPId) pending := false
CAP_Apply ChargingReport GPRS
Vc(PDPId) pending?
No
Yes
2
Stop Vc(PDPId)
Start delta measurement Dc(PDPId)
Vc(PDPId) pending := false
CAP_Apply ChargingReport GPRS
2

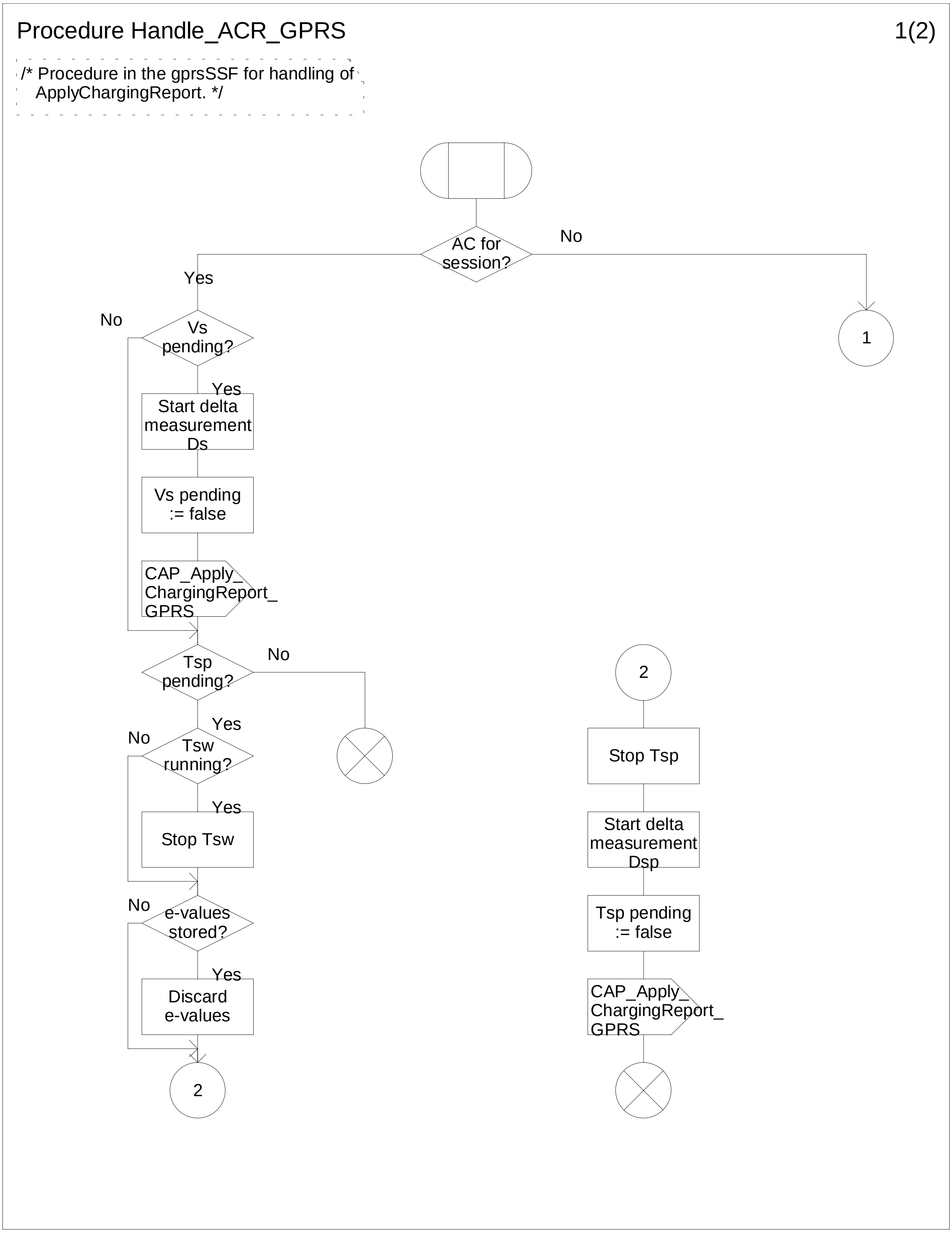

Procedure Handle_ACR_GPRS
1(2)
/* Procedure in the gprsSSF for handling of ApplyChargingReport. */
AC for session?
No
Yes
1
No
Vs pending?
Yes
Start delta measurement Ds
Vs pending := false
CAP_Apply_ ChargingReport_ GPRS
Tsp pending?
No
Yes
No
Tsw running?
Yes
Stop Tsw
No
e-values stored?
Yes
Discard e-values
2
2
Stop Tsp
Start delta measurement Dsp
Tsp pending := false
CAP_Apply_ ChargingReport_ GPRS

Figure 6.16 a: Procedure Handle_ACR_GPRS

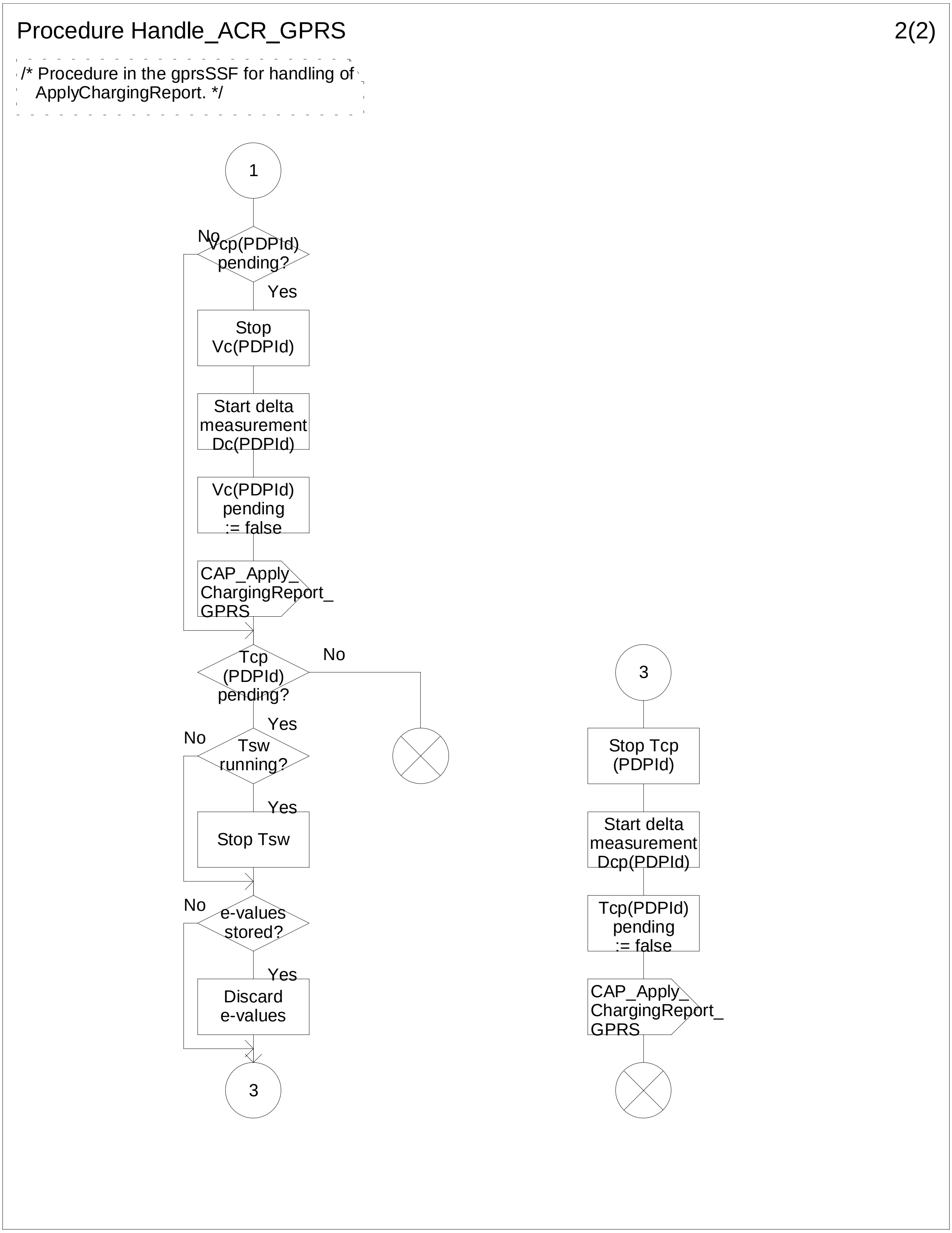

Procedure Handle_ACR_GPRS
2(2)
/* Procedure in the gprsSSF for handling of ApplyChargingReport. */
1
Vcp(PDPId) pending?
No
Yes
Stop Vc(PDPId)
Start delta measurement Dc(PDPId)
Vc(PDPId) pending := false
CAP_Apply_ ChargingReport_ GPRS
Tcp (PDPId) pending?
No
Yes
Tsw running?
No
Yes
Stop Tsw
e-values stored?
No
Yes
Discard e-values
3
3
Stop Tcp (PDPId)
Start delta measurement Dcp(PDPId)
Tcp(PDPId) pending := false
CAP_Apply_ ChargingReport_ GPRS

Figure 6.16 b: Procedure Handle_ACR_GPRS

3GPP N2 Meeting #13
Kyoto, Japan, 17-21 Jan 2000

Document* *N2A000097
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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23.078 CR 082 Current Version: 3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: CN#7
list expected approval meeting # here ↑

for approval ☒
for information ☐

strategic ☐
non-strategic ☐
(for SMG use only)

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio ☐ Core Network ☒
(at least one should be marked with an X)

Source: CN WG2 **Date:** 13 Jan 2000

Subject: Correction of the description of the SGSN

Work item: CAMEL Phase 3

Category:
(only one category shall be marked with an X)

F Correction ☒
A Corresponds to a correction in an earlier release ☐
B Addition of feature ☐
C Functional modification of feature ☐
D Editorial modification ☐

Release:

Phase 2 ☐
Release 96 ☐
Release 97 ☐
Release 98 ☐
Release 99 ☒
Release 00 ☐

Reason for change: The SGSN receives a GPRS-CSI from the HLR only during Attach or Inter-SGSN Routeing Area Update, not during PDP Context Activation. This shall be deleted from the description of the SGSN.

Clauses affected: 6

Other specs affected:

Other 3G core specifications ☐ → List of CRs:
Other GSM core specifications ☐ → List of CRs:
MS test specifications ☐ → List of CRs:
BSS test specifications ☐ → List of CRs:
O&M specifications ☐ → List of CRs:

Other comments:

6 GPRS interworking

6.1. Architecture

6.1.1 Functional Entities used for CAMEL

This subclause describes the functional architecture needed to support GPRS interworking for CAMEL. Figure 6.1 shows the functional entities involved in sessions requiring CAMEL support. The architecture is applicable to the third phase of CAMEL.

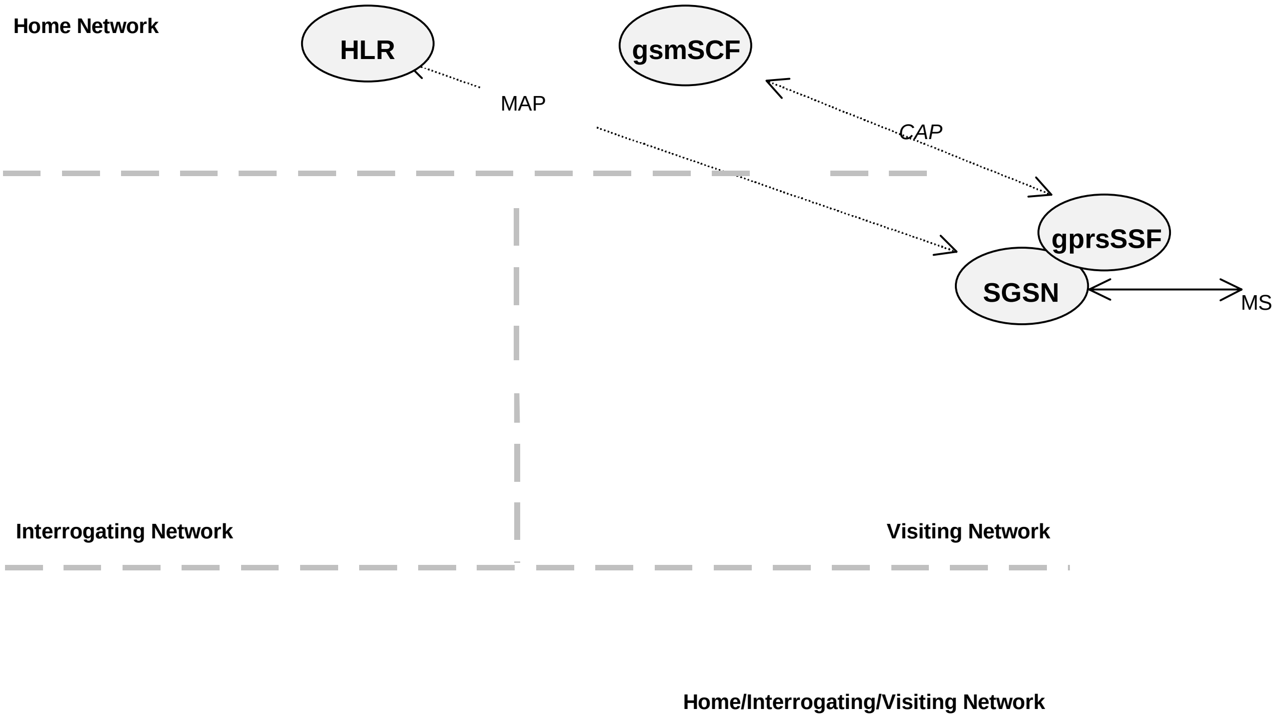

Figure 6.1 Functional architecture for support of CAMEL

HLR: The HLR stores for subscribers requiring CAMEL support the information relevant to the current subscription GPRS-CSI. The GPRS-CSI is stored in the HLR only. The HLR may provide an interface towards the gsmSCF for the Any Time Interrogation procedure.

SGSN: When processing GPRS Attach requests~~, PDP Context Activations~~ or Inter-SGSN Routeing Area Updates for subscribers requiring CAMEL support, the SGSN receives a GPRS-CSI from the HLR, indicating the SGSN to request instructions from the gprsSSF. The SGSN monitors on request the GPRS events and informs the gprsSSF of these events during processing, enabling the gprsSSF to control the execution of the GPRS session or individual PDP contexts in the SGSN.

gprsSSF: see subclause 3.1.

gsmSCF: see subclause 3.1.

3GPP TSG CN WG2 A
Sophia Antipolis, France, 21-25 February 2000

N2A000195
Document rev. N2A0099
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

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23.078 CR 084r1 Current Version: 3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: CN #07
list expected approval meeting # here ↑
for approval ☒
for information ☐
strategic ☐ *(for SMG use only)*
non-strategic ☐

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio ☐ Core Network ☒
(at least one should be marked with an X)

Source: CN WG2 **Date:** 07.02.2000

Subject: Correction of references occurring in the SDL figures

Work item: CAMEL Phase 3

Category:
(only one category shall be marked with an X)
F Correction ☐
A Corresponds to a correction in an earlier release ☐
B Addition of feature ☐
C Functional modification of feature ☐
D Editorial modification ☒

Release:
Phase 2 ☐
Release 96 ☐
Release 97 ☐
Release 98 ☐
Release 99 ☒
Release 00 ☐

Reason for change: Currently the references occurring in the SDL figures are referring to GSM specification rather than to the 3GPP specifications, which would be correct.

Clauses affected: Figures:

Other specs affected:
Other 3G core specifications ☐ → List of CRs:
Other GSM core specifications ☐ → List of CRs:
MS test specifications ☐ → List of CRs:
BSS test specifications ☐ → List of CRs:
O&M specifications ☐ → List of CRs:

Other comments:

help.doc

<--------- double-click here for help and instructions on how to create a CR.

BE CAREFUL ON REFERENCES TO CAMEL PHASE 1 ITEMS.

It is proposed to update the references "03.18" -> "23.018" in the following SDL figures:

Figure 4.19a: Procedure CAMEL_OCH_ETC (sheet 1)

Figure 4.34b: Procedure CAMEL_MT_ETC (sheet 1) 3 times

Figure 4.35a: Procedure CAMEL_MT_CTR (sheet 1) 2 times

Figure 4.37a: Procedure CAMEL_HLR_INIT (sheet 1) 2 times

Figure 4.45c: Procedure CAMEL_ICH_MSC_INIT (sheet 3)

Figure 4.54a: Process CAMEL_CF_ETC (sheet 1)

Figure 4.54b: Procedure CAMEL_CF_ETC (sheet 2) 3 times

Figure 4.55a: Process CAMEL_CF_CTR (sheet 1) 2 times

Figure 4.68c: Process CAMEL_Assisting_MSC (sheet 3) 2 times

Further updates of references:

4.3.6.2.1 Translation Information Flag

A flag (TIF) in the CAMEL Subscriber data in the HLR indicates, when the subscriber registers a forwarded-to number, that the HLR shall not attempt to perform any translation, number format checks, prohibited FTN checks, call barring checks (cf. 4.7.2).

If the flag is absent, this indicates that a translation is needed in the HLR and the usual procedure applies as defined in the current version of 3G TS ~~GSM 03.82~~23.082 [27]. In particular, the interaction with barring services shall be performed by the HLR at the registration of the FTN.

A flag (TIF) in the CAMEL Subscriber data in the VLR indicates, when the subscriber registers a forwarded-to number, that the VLR shall not attempt to perform any translation, number format checks, prohibited DTN checks, call barring checks (cf. 4.7.2).

If the flag is absent, this indicates that a translation is needed in the VLR and the usual procedure applies as defined in the current version of 3G TS ~~GSM 03.82~~23.082 [27]. In particular, the interaction with barring services shall be performed by the VLR at the registration of the DTN.

...

4.5.3.3 Handling of provide roaming number request in the VLR

The functional behaviour of the VLR is specified in ~~GSM 03.18~~ 3G 23.018 [3]. The procedure specific to CAMEL is specified in this subclause :

...

4.6.1.4.2 Information Elements

...

Event Specific Information BCSM contains the following information for the O Answer and T Answer cases:

Information element name	MO	MF	MT	VT	Description
Destination address	M	M	M	M	This IE specifies the destination address for the call leg.
OR	-	C	C	-	This IE indicates that the call was subject to basic

					Optimal Routeing as specified in ~~GSM 03.79~~3G 23.079 [35].
Forwarded call	-	M	C	C	This IE indicates that the call has been subject to GSM call forwarding.

M Mandatory (The IE shall always be sent)

C Conditional (The IE shall be sent if its value is True, otherwise it shall not be sent)

- Not applicable

...

4.6.11.1.1 Description

This IF is described in ~~GSM~~ ~~03.79~~ 3G TS 23.079 [~~4~~35] and is used to request the GMSC to take over handling the call so that it can be forwarded from the GMSC.

...

4.6.12.2.2 Information Elements

Send Info For Reconnected Call contains the following IE

Information element name	Required	Description
Called number	M	E.164 number of the call destination.
Bearer service	C	Bearer service required for the MO call, derived from the GSM bearer capability information received in the setup request from the MS. One of bearer service or teleservice shall be present.
Teleservice	C	Teleservice required for the MO call, derived from the GSM bearer capability information received in the setup request from the MS or from the emergency setup request from the MS. One of bearer service or teleservice shall be present.
CUG index	C	For the definition of this IE, see ~~ETS 300 546~~3G TS 23.085 [9]. Shall be present if it was received in the setup request from the MS.
Suppress preferential CUG	C	For the definition of this IE, see ~~ETS 300 546~~3G TS 23.085 [9]. Shall be present if it was received in the setup request from the MS.
Suppress CUG outgoing access	C	For the definition of this IE, see ~~ETS 300 546~~3G TS 23.085 [9]. Shall be present if it was received in the setup request from the MS.
Suppress O-CSI	C	This IE indicates that O-CSI shall be suppressed. Shall always be sent in the second interrogation.

M Mandatory (The IE shall always be sent)

C Conditional (The IE shall be sent if applicable)

...

4.6.13.2.1 Description

This IF is described in ~~GSM~~ 3G TS ~~03.18~~23.018 [3] and is used to instruct the MSC to continue the connection of a waiting call.

...

4.7.2.1 Registration of Call Forwarding

The functional behaviour for the registration of the Call Forwarding supplementary service is defined in ~~GSM 03.82~~3G TS 23.082 [27]. The procedure specific to CAMEL is defined in this subclause:

...

4.6.2.15.2 Information Elements

...

AOC Before Answer is defined as:

Information element name	MO	MF	MT	VT	Description
AOC Initial	M	-	-	M	This IE contains CAI elements as defined in 3G TS 22.024 [31]~~GSM 02.24~~.
AOC Subsequent	O	-	-	O	See definition in the next table.

M Mandatory (The IE shall always be sent)

O Optional (Service logic dependent)

AOCSubsequent is defined as:

Information element name	MO	MF	MT	VT	Description
CAI Elements	M	-	-	M	This IE contains CAI elements as defined in 3G TS 22.024 [31]~~GSM 02.24~~
Tariff Switch Interval	O	-	-	O	This IE indicates the tariff switch time until the next tariff switch applies.

M Mandatory (The IE shall always be sent)

O Optional (Service logic dependent)

AOCAfterAnswer is defined as:

Information element name	MO	MF	MT	VT	Description
CAI Elements	M	-	-	M	This IE contains CAI elements as defined in 3G TS 22.024 [31]~~GSM 02.24~~
Tariff Switch Interval	O	-	-	O	This IE indicates the tariff switch time until the next tariff switch applies.

M Mandatory (The IE shall always be sent)

...

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Kyoto, Japan, 17 - 21 Jan 2000

Tdoc 3GPP N2A000100

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23.078 CR 085 Current Version: 3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: CN#7	for approval	☒	strategic	☐	*(for SMG use only)*
list expected approval meeting # here ↑	for information	☐	non-strategic	☐	

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio ☐ Core Network ☒
(at least one should be marked with an X)

Source: CN WG2 **Date:** 12/01/2000

Subject: Inclusion of CAMEL Phase 1 procedures as targets for references in 3G TS 23.018

Work item: CAMEL Phase 3

Category:				**Release:**		
	F	Correction	☐		Phase 2	☐
	A	Corresponds to a correction in an earlier release	☐		Release 96	☐
(only one category	B	Addition of feature	☐		Release 97	☐
shall be marked	C	Functional modification of feature	☐		Release 98	☐
with an X)	D	Editorial modification	☒		Release 99	☒
					Release 00	☐

Reason for change: 3G TS 23.018 currently references GSM 03.78 (for CAMEL Phase 1) when calling the procedures CAMEL_OCH_MSC_DISC3 and CAMEL_MT_GMSC_DISC3. However, the references in 3G TS 23.018 need to be updated to 3G specifications, hence the procedures need to be present in 3G TS 23.078.

Clauses affected: 4.5.2.1, 4.5.3.1

Other specs affected:			
	Other 3G core specifications	☐	→ List of CRs:
	Other GSM core specifications	☐	→ List of CRs:
	MS test specifications	☐	→ List of CRs:
	BSS test specifications	☐	→ List of CRs:
	O&M specifications	☐	→ List of CRs:

Other comments:

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<---------- Double-click here for help and instructions on how to create a CR.

****** First Modified Section ******

4.5.2.1 Handling of mobile originated calls in the originating MSC

The functional behaviour of the originating VMSC is specified in 3G TS 23.018 [3]. The procedures specific to CAMEL are specified in this subclause:

- Procedure CAMEL_OCH_MSC_INIT,
- Procedure CAMEL_OCH_MSC_ANSWER,
- Procedure CAMEL_OCH_MSC1,
- Procedure CAMEL_OCH_MSC2,
- Procedure CAMEL_OCH_MSC_DISC1,
- Procedure CAMEL_OCH_MSC_DISC2,
- Procedure CAMEL_OCH_MSC_DISC3,
- Procedure CAMEL_OCH_MSC_DISC4,
- Procedure CAMEL_OCH_ETC,
- Procedure CAMEL_OCH_CTR,
- Procedure CAMEL_Start_TNRy,
- Procedure CAMEL_Stop_TNRy.
- Procedure CAMEL_Store_Destination_Address

NOTE: Procedure CAMEL_OCH_MSC_DISC3 applies to CAMEL Phase 1 only.

The procedure Send_Access_Connect_If_Required is specified in 3G TS 23.018 [3].

The following paragraphs give~~s~~ details on the behaviour of the MSC in the procedure CAMEL_OCH_MSC_INIT, CAMEL_OCH_ETC, CAMEL_OCH_ANSWER and CAMEL_Store_Destination_Address.

…

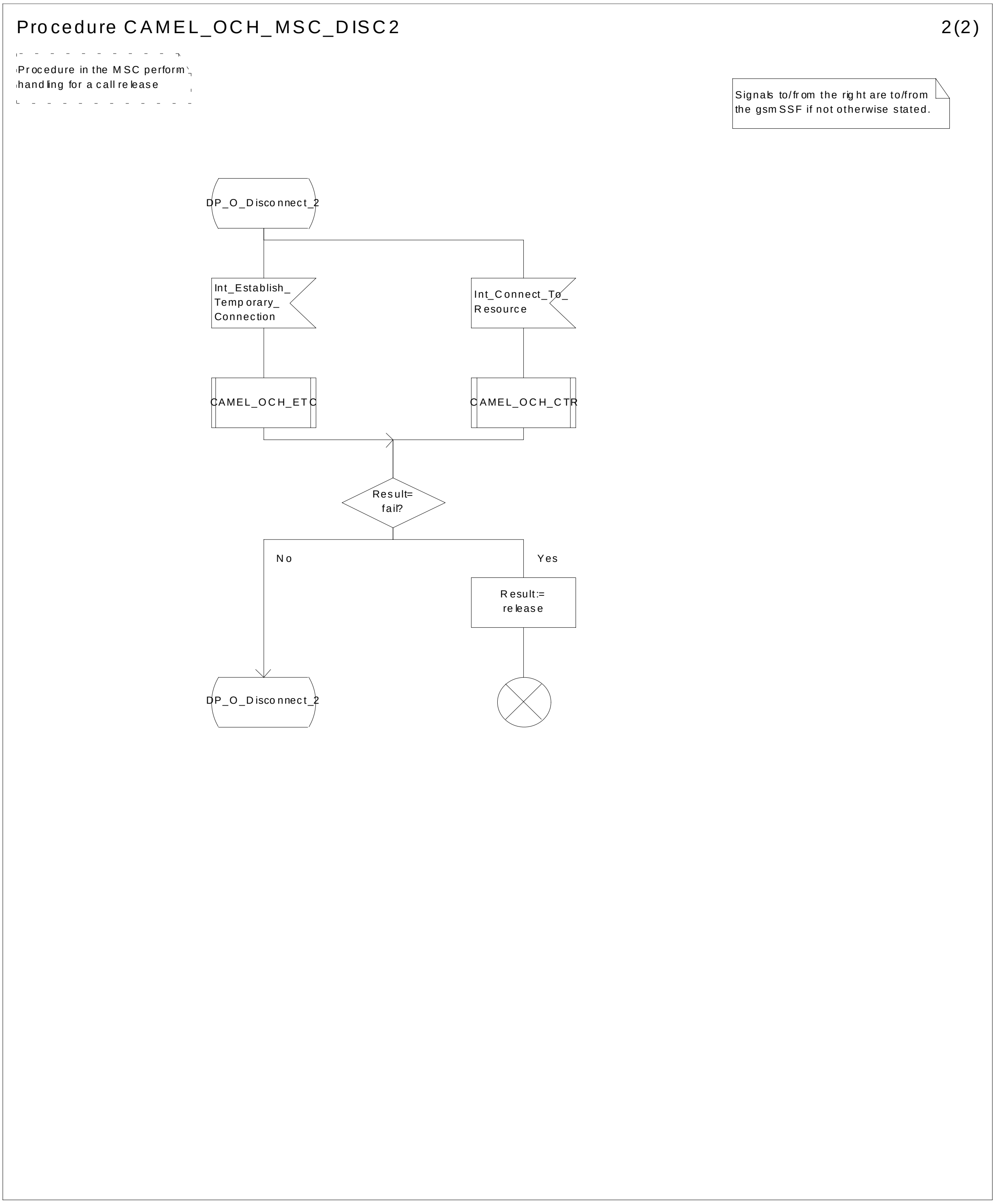

Procedure CAMEL_OCH_MSC_DISC2
2(2)
Procedure in the MSC perform handling for a call release
Signals to/from the right are to/from the gsmSSF if not otherwise stated.
DP_O_Disconnect_2
Int_Establish_Temporary_Connection
Int_Connect_To_Resource
CAMEL_OCH_ETC
CAMEL_OCH_CTR
Result= fail?
No
Yes
Result:= release
DP_O_Disconnect_2

Figure 4.17b: Procedure CAMEL_OCH_MSC_DISC2 (sheet 2)

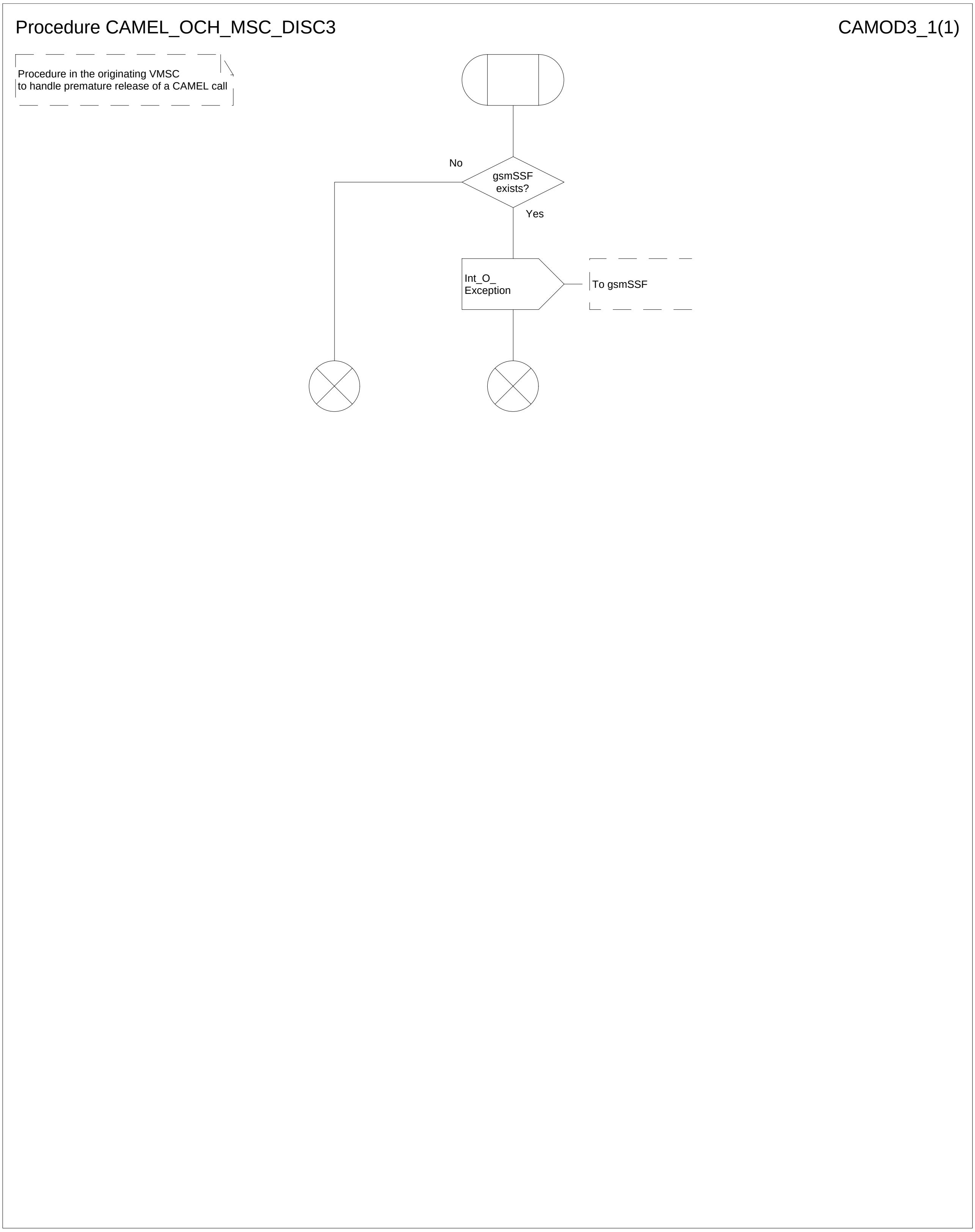

Procedure CAMEL_OCH_MSC_DISC3
CAMOD3_1(1)
Procedure in the originating VMSC
to handle premature release of a CAMEL call
No
gsmSSF
exists?
Yes
Int_O_
Exception
To gsmSSF

Figure 4.xx: Procedure CAMEL_OCH_MSC_DISC3 (sheet 1)

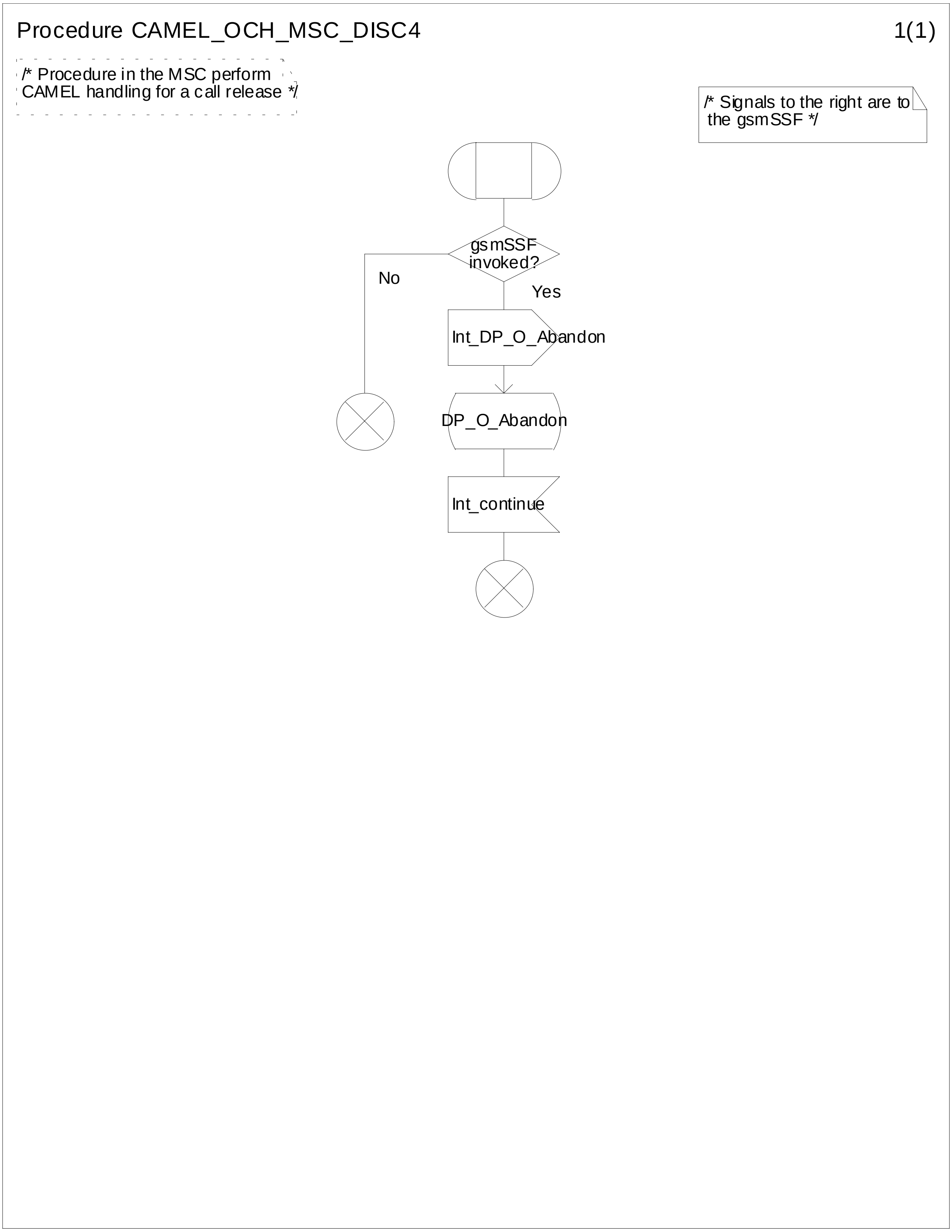

Procedure CAMEL_OCH_MSC_DISC4
1(1)
/* Procedure in the MSC perform CAMEL handling for a call release */
/* Signals to the right are to the gsmSSF */
gsmSSF invoked?
No
Yes
Int_DP_O_Abandon
DP_O_Abandon
Int_continue

Figure 4.18 a: Procedure CAMEL_OCH_MSC_DISC4 (sheet 1)

…

**** Last Modified Section ****

4.5.3.1 Retrieval of routeing information in the GMSC

The functional behaviour of the GMSC is specified in 3G TS 23.018 [3]. The procedures specific to CAMEL are specified in this subclause:

- Procedure CAMEL_Set_ORA_Parameters,
- Procedure CAMEL_MT_GMSC_INIT,
- Procedure CAMEL_MT_GMSC_ANSWER,
- Procedure CAMEL_MT_GMSC_DISC1,
- Procedure CAMEL_MT_GMSC_DISC2,
- Procedure CAMEL_MT_GMSC_DISC3,
- Procedure CAMEL_MT_GMSC_DISC4,
- Procedure CAMEL_MT_GMSC_DISC5,
- Procedure CAMEL_MT_GMSC_DISC6,
- Procedure CAMEL_MT_CTR,
- Procedure CAMEL_MT_ETC,
- Procedure CAMEL_Start_TNRy,
- Procedure CAMEL_Stop_TNRy.
- Procedure CAMEL_MT_GMSC_Notify_CF

NOTE: Procedure CAMEL_MT_GMSC_DISC3 applies to CAMEL Phase 1 only.

The procedure Send_ACM_If_Required is specified in 3G TS 23.018 [3].

The following paragraphs give~~s~~ details on the behaviour of the GMSC in the procedure CAMEL_MT_GMSC_INIT.

…

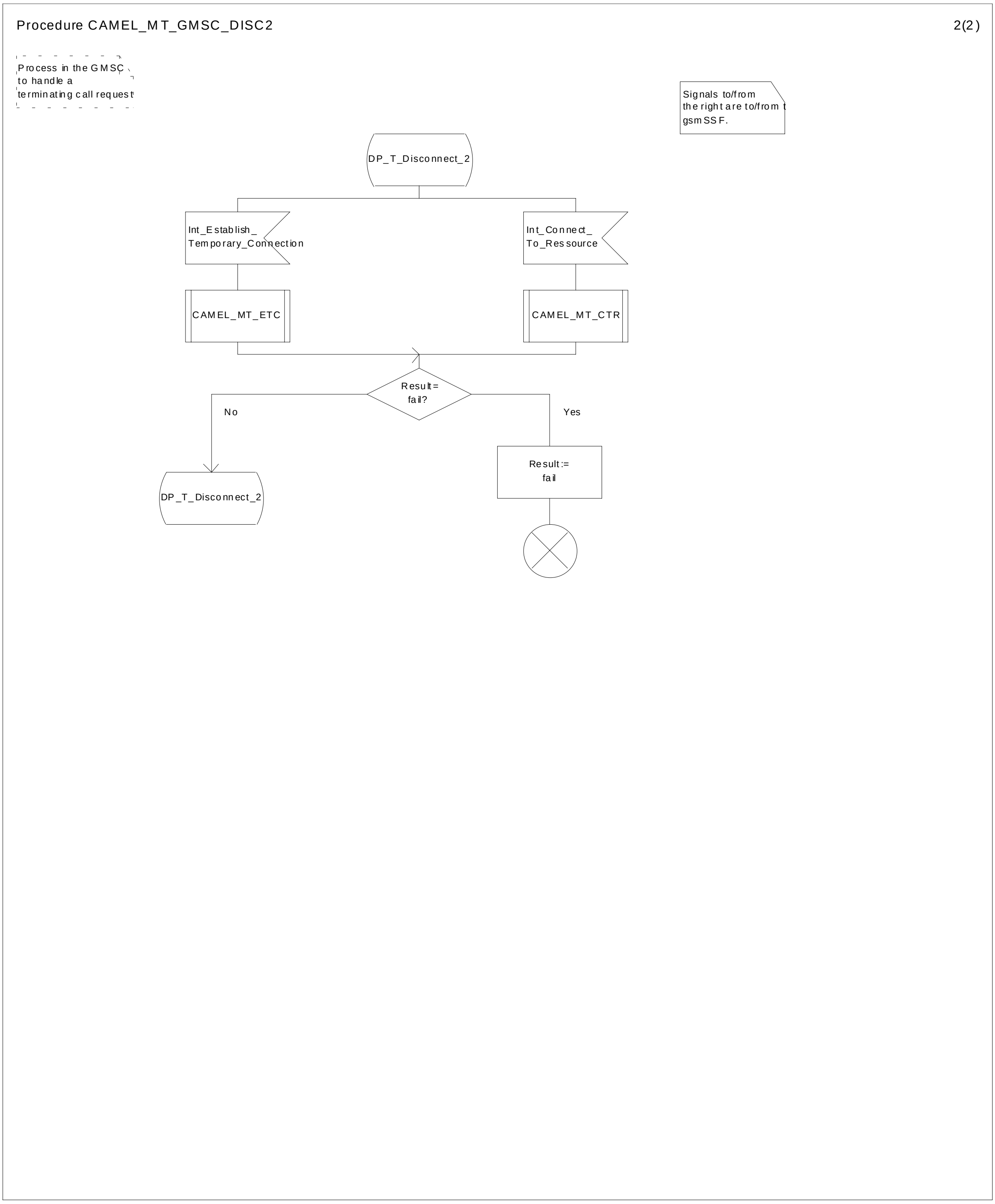

Procedure CAMEL_MT_GMSC_DISC2
2(2)
Process in the GMSC to handle a terminating call request
Signals to/from the right are to/from the gsmSSF.
DP_T_Disconnect_2
Int_Establish_Temporary_Connection
Int_Connect_To_Ressource
CAMEL_MT_ETC
CAMEL_MT_CTR
Result= fail?
No
Yes
Result:= fail
DP_T_Disconnect_2

Figure 4.30b: Procedure CAMEL_MT_GMSC_DISC2 (sheet 2)

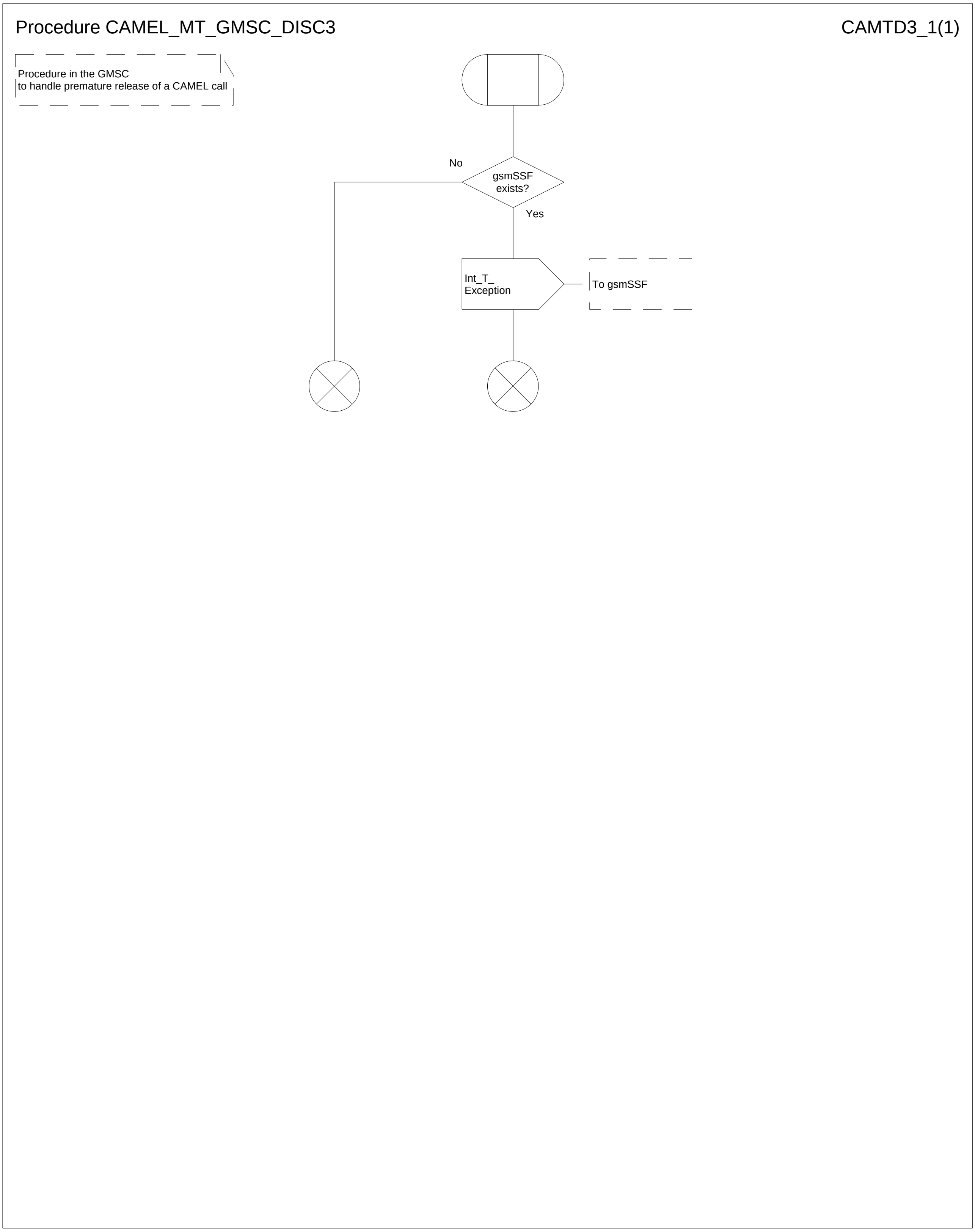

Procedure CAMEL_MT_GMSC_DISC3
CAMTD3_1(1)
Procedure in the GMSC
to handle premature release of a CAMEL call
gsmSSF exists?
No
Yes
Int_T_Exception
To gsmSSF

Figure 4.xx: Procedure CAMEL_MT_GMSC_DISC3 (sheet 1)

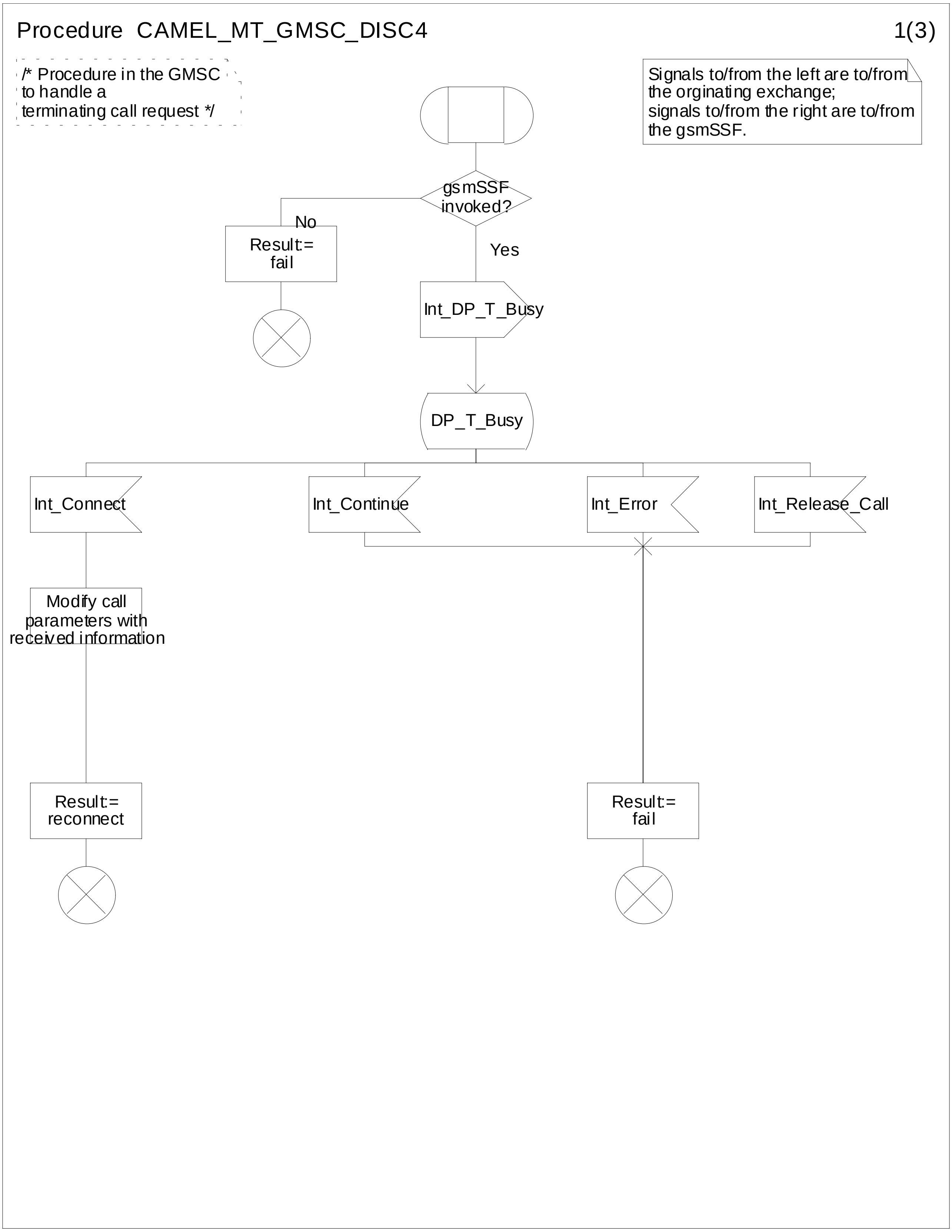

Procedure CAMEL_MT_GMSC_DISC4
1(3)
/* Procedure in the GMSC to handle a terminating call request */
Signals to/from the left are to/from the orginating exchange; signals to/from the right are to/from the gsmSSF.
gsmSSF invoked?
No
Yes
Result:= fail
Int_DP_T_Busy
DP_T_Busy
Int_Connect
Int_Continue
Int_Error
Int_Release_Call
Modify call parameters with received information
Result:= reconnect
Result:= fail

Figure 4.31 a: Procedure CAMEL_MT_GMSC_DISC4 (sheet 1)

…

3GPP TSG CN WG2
Sophia Antipolis, France 21-25 February 2000

Document ***N2A00101***
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

23.078 **CR** **086** Current Version: 3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: TSGN#07
list expected approval meeting # here ↑

for approval ☒
for information ☐

strategic ☐
non-strategic ☐
(for SMG use only)

Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio ☐ Core Network ☒
(at least one should be marked with an X)

Source: CN WG2 **Date:** 16.02.1999

Subject: unsuccessful Dps call model

Work item: CAMEL Phase 3

Category:
(only one category shall be marked with an X)

F	Correction	☒
A	Corresponds to a correction in an earlier release	☐
B	Addition of feature	☐
C	Functional modification of feature	☐
D	Editorial modification	☐

Release:

Phase 2	☐
Release 96	☐
Release 97	☐
Release 98	☐
Release 99	☒
Release 00	☐

Reason for change: The purpose of this change request is to include unsuccessful DPs in the PIC description.

Clauses affected:

Other specs affected:

Other 3G core specifications	☒	→ List of CRs:
Other GSM core specifications	☐	→ List of CRs:
MS test specifications	☐	→ List of CRs:
BSS test specifications	☐	→ List of CRs:
O&M specifications	☐	→ List of CRs:

Other comments:

help.doc

<---------- double-click here for help and instructions on how to create a CR.

For the Originating Basic Call State Model (O-BCSM) :

4.4.2.1.1 Description of the call model (PICs)

This subclause describes the call model for originating and forwarded calls. For each PIC a description can be found of the entry events, functions and exit events.
It should be noted that although the names used for PICs match those used in ITU-T Q.1214 [6] the specific descriptions differ.

4.4.2.1.1.1 O_Null & Authorise_Origination_Attempt_Collect_Info

Entry events:

- Disconnection and clearing of a previous call (DP O_Disconnect) or default handling of exceptions by gsmSSF/(G)MSC completed.
- Abandon event is reported from Analyse_Information or Routing and Alerting PIC.

Exception event is reported.Actions:

- Interface is idled.
- Originating call: SETUP message containing the dialled number is received from MS.
- Originating call: The supplementary service "barring of all outgoing calls" is checked and invoked if necessary.
- Originating call: The ODB category "barring of all outgoing calls" is checked and ODB is invoked if necessary.

NOTE: the ODB category "barring of all outgoing calls when roaming" causes the HLR to send the category "barring of all outgoing call" if the VLR is not in the HPLMN.

- Originating call: CUG checks done in the originating MSC/VLR are performed.
- Information being analysed e.g., O-CSI is analysed.

Exit events:

- Originating CSI is analysed.
- An exception condition is encountered. For this PIC, if the call encounters one of these exceptions during the PIC processing, the exception event is not visible because there is no corresponding DP. Example exception condition: Calling party abandons call.

4.4.2.1.1.2 Analyse_Information

Entry events:

- Originating CSI is analysed. (DP Collected Info).
- New routeing information is received when Busy event(DP_O_Busy), Route Select Failure event(DP_Route_Select_Failure), Not Reachable event(DP_O_Busy) or No Answer event(DP_O_No_Answer) is reported from Routing and Alerting PIC.
- New routeing information is received when Disconnect event is reported from O_Active PIC.

Actions:

- Compare the called party number with the dialled services information.

Exit events:

- Availability of routeing address and nature of address. (DP Analysed_Information)
- An exception condition is encountered (e.g. wrong number)- this leads to the O_Exception PIC.
- Calling party abandons the call- this leads to the O_Abandon DP.

4.4.2.1.1.3 Routing & Alerting

Entry events:
- Availability of routeing address and nature of address. (DP Analysed_Information).

Actions:
- Information is being analysed and/or translated according to dialling plan to determine routeing address.
- Routeing address being interpreted.
- Originating call: Outgoing barring services and ODB categories not already applied are checked and invoked if necessary.
- Call is being processed by the terminating half BCSM. Continued processing of call setup (e.g., ringing) is taking place. Waiting for indication from terminating half BCSM that the call has been answered by terminating party.

Exit events:
- Indication from the terminating half BCSM that the call is accepted and answered by terminating party. (DP O_Answer)
- An exception condition is encountered - this leads to the O_Exception PIC.
- Calling party abandons the call- this leads to the O_Abandon DP.
- A busy indication is received from the terminating party - this leads to the O_Busy DP.
- A not reachable indication is received from the terminating party - this leads to the O_Busy DP.
- Attempt to select the route for the call fails - this leads to the Route_Select_Failure DP.
- If the no reply timer expires and DP O_No_Answer is armed - this leads to the O_No_Answer DP.

4.4.2.1.1.4 O_Active

Entry events:
- Indication from the terminating half BCSM that the call is accepted and answered by the terminating party. (DP O_Answer)

Actions:
- Connection established between originating party and terminating party. Call supervision is provided.
- Call release is awaited.

Exit events:
- A disconnection indication is received from the originating party, or received from the terminating party via the terminating half BCSM. (DP9 - O_Disconnect)
- An exception condition is encountered.

4.4.2.1.1.5 O_Exception

Entry events:
- exception condition is encountered. In addition to specific examples listed above, exception events include any type of failure, which means that the normal exit events for a PIC can not be met.

Actions:

- Default handling of the exception condition is being provided. This includes general actions necessary to ensure that no resources remain inappropriately allocated such as:
  - If any relationship exists between the gsmSSF and the gsmSCF send an error information flow closing the relationships and indicating that any outstanding call handling instructions will not run to completion

  - The (G)MSC/gsmSSF should make use of vendor-specific procedures to ensure release of resources within the (G)MSC/gsmSSF, so that line, trunk and other resources are made available for new calls.

Exit events:

- Default handling of the exception condition by gsmSSF/(G)MSC completed.

For the Terminating Basic Call State Model (T-BCSM) :

4.4.3.1.1 Description of the call model (PICs)

This subclause describes the call model for terminating calls in the GMSC and in the VMSC. For each PIC a description can be found of the entry events, functions, information available and exit events. It should be noted that although the names used for PICs match those used in ITU-T Q.1224 [6] the specific descriptions differ.

4.4.3.1.1.1 T_Nulll

Entry events:

- Disconnection and clearing of a previous call (DP T_Disconnect) or default handling of exceptions by gsmSSF / GMSC / VMSC completed.
- Abandon event is reported from Terminating Call Handling PIC ;
- Exception event is reported.

Actions:

- Interface is idled.
- ISUP_IAM is received, the appropriate information is analysed.
- Send_Routeing_Info information flow is sent to HLR in case of GMSC.
- Send_Info_For_Incoming_Call information flow is sent to VLR in case of VMSC.
- In case of GMSC:
  - The supplementary services "barring of all incoming calls" and "barring of incoming calls when roaming" are checked and invoked if necessary.
  - The ODB categories "barring of all incoming calls" and "barring of incoming calls when roaming" are checked and ODB is invoked if necessary.
  - The supplementary service "CUG" is checked and invoked if necessary.
- T-CSI/VT-CSI is received and analysed.

Exit events:

- Response is received from HLR / VLR and terminating CSI (if available) is analysed.
- An exception condition is encountered. For this PIC, if the call encounters one of these exceptions during the PIC processing, the exception event is not visible because there is no corresponding DP.

  Example exception condition is:

  - Calling party abandons call.

4.4.3.1.1.2 Terminating Call Handling

Entry events:

- Response is received from HLR / VLR and terminating CSI (if available) is analysed. (DP Terminating_Attempt_Authorised),

- New routeing information is received when Busy event(DP_T_Busy) or No Answer(DP_T_No_Answer) event is reported from Terminating Call Handling PIC,

- New routeing information is received when Disconnect event is reported from T_Active PIC.

- New routeing information is received when the terminating party not reachable is reported from Terminating Call Handling PIC.

NOTE: The HLR may use MAP signalling to indicate to the GMSC before the call is extended to the destination VMSC that the terminating party is not reachable, or the destination VMSC may use telephony signalling to indicate to the GMSC after the call has been extended to the destination VMSC that the terminating party is not reachable.

Actions:

- The response from HLR / VLR is analysed.

- Routeing address and call type being interpreted. The next route or terminating access is being selected.

- The terminating party is being alerted. Waiting for the call to be answered by terminating party.

- The GSM supplementary service call forwarding is invoked if necessary.

-

Exit events:

- Call is accepted and answered by terminating party.

- An exception condition is encountered - this leads to the T_Exception PIC. Example exception conditions: the call setup to the MSC/GMSC was not successful.

- Calling party abandons the call - this leads to the T_Abandon DP.

- The terminating access is busy in the VMSC or a busy indication is received from the destination exchange in the GMSC - this leads to the T_Busy DP.

- Not reachable event detected or failure of attempt to select the route for the terminating leg in GMSC or the MS cannot be reached in the VMSC - this leads to the T_Busy DP.

- If no reply timer expires and DP T_No_Answer is armed - this leads to the T_No_Answer DP.

4.4.3.1.1.3 T_Active

Entry events:

- Indication that the call is accepted and answered by the terminating party. (DP T_Answer)

Actions:

- Connection established between originating party and terminating party. Call supervision is being provided.

- Call release is awaited.

Exit events:

- A disconnection indication is received from the terminating party, or received from the originating party via the originating half BCSM. (DP T_Disconnect)

- An exception condition is encountered. In addition to specific examples listed above, exception events include any type of failure that means that the normal exit events for a PIC can not be met.

4.4.3.1.1.4 T_Exception

Entry events:

- An exception condition is encountered. In addition to specific examples listed above, exception events include any type of failure, which means that the normal exit events for PIC cannot be met.

Actions:

- Default handling of the exception condition is being provided. This includes general actions necessary to ensure that no resources remain inappropriately allocated such as:
    - If any relationship exists between the gsmSSF and the gsmSCF send an error information flow closing the relationships and indicating that any outstanding call handling instructions will not run to completion
    - The GMSC / VMSC / gsmSSF should make use of vendor-specific procedures to ensure release of resources within the GMSC / VMSC / gsmSSF, so that line, trunk and other resources are made available for new calls.

Exit events:

- Default handling of the exception condition by gsmSSF/GMSC completed.

3GPP-CN2 Meeting #13 ***Document N2A0000144***
Kyoto, Japan, 17 - 21 January 2000

CHANGE REQUEST

23.078 CR 090 Current Version: 3.3.0

For submission to:	CN#7	for approval	☒	strategic	☐
		for information	☐	non-strategic	☐

Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio ☐ Core Network ☒

Source:	CN WG2	**Date:**	19-01-2000
Subject:	Correcting the description of Service Key in Initial DP		
Work item:	CAMEL Phase 3		

Category:				**Release:**		
	F	Correction	☐		Phase 2	☐
	A	Corresponds to a correction in an earlier release	☐		Release 96	☐
	B	Addition of feature	☐		Release 97	☐
	C	Functional modification of feature	☐		Release 98	☐
	D	Editorial modification	☒		Release 99	☒
					Release 00	☐

Reason for change: This CR rephrases the description of Service Key in Initial DP, Initial DP GPRS and Initial DP SMS.

Clauses affected:

Other specs affected:			
	Other 3G core specifications	☐	→ List of CRs:
	Other GSM core specifications	☐	→ List of CRs:
	MS test specifications	☐	→ List of CRs:
	BSS test specifications	☐	→ List of CRs:
	O&M specifications	☐	→ List of CRs:

Other comments:

****** First Modified Section ******

4.6.1.5 Initial DP

4.6.1.5.1 Description

This IF is generated by the gsmSSF when a trigger is detected at a DP in the BCSM, to request instructions from the gsmSCF.

4.6.1.5.2 Information Elements

The following information elements are required:

Information element name	MO	MF	MT	VT	Description
Additional Calling Party Number	-	C	C	C	The calling party number provided by the access signalling system of the calling user.
Bearer Capability	M	C	C	C	This IE indicates the type of the bearer capability connection to the user.
Called Party Number	-	M	M	M	This IE contains the number used to identify the called party in the forward direction. For the VT calls this is the MSISDN received in the Provide Roaming Number; if the MSISDN is not available, the basic MSISDN is used.
Called Party BCD Number	M	-	-	-	This IE contains the number used to identify the called party in the forward direction. The number contained in this IE shall be identical to the number received over the access network. It may e.g. include service selection information, such as ∗ and # digits, or carrier selection information dialled by the subscriber.
Calling Party Number	M	C	C	C	This IE carries the calling party number to identify the calling party or the origin of the call.
Calling Partys Category	M	C	C	C	Indicates the type of calling party (e.g., operator, pay phone, ordinary subscriber).
Call Reference Number	M	M	M	M	This IE may be used by the gsmSCF for inclusion in a network optional gsmSCF call record. It has to be coupled with the identity of the MSC which allocated it in order to define unambiguously the identity of the call. For MO calls, the call reference number is set by the serving VMSC and included in the MO call record. For MT calls, the call reference number is set by the GMSC and included in the RCF call record in the GMSC and in the MT call record in the terminating MSC. For VT calls, the call reference number is set by the GMSC and included in the RCF call record in the GMSC and in the MT call record in the terminating MSC. For CF calls, the call reference number is set by the GMSC and included in the CF record in the forwarding MSC.
Cause	C	C	C	C	This IE indicates the cause specific to the armed BCSM DP event. This IE is applicable to DP Route_Select_Failure and DP T_Busy. The cause may be used by the SCF to decide about the further handling of the call.
Event Type BCSM	M	M	M	M	This IE indicates the armed BCSM DP event, resulting in the Initial DP IF.

Information element name	MO	MF	MT	VT	Description
Ext-Basic Service Code	C	C	C	C	This IE indicates the type of basic service i.e., teleservice or bearer service.
High Layer Compatibility	C	C	C	C	This IE indicates the type of the high layer compatibility, which will be used to determine the ISDN-teleservice of a connected ISDN terminal.
IMSI	M	M	M	M	This IE identifies the mobile subscriber.
IP SSP Capabilities	C	C	C	C	This IE indicates which SRF resources are supported within the gsmSSF and are available. If this IE is absent, this indicates that no gsmSRF is attached and available.
Location Information	M	-	C	M	This IE is described in the next table.
Location Number	M	C	C	C	For mobile originated calls this IE represents the location of the calling party. For all other call scenarios this IE contains the location number received in incoming ISUP signalling.
MSC Address	M	M	M	M	For MO calls, the MSC Address carries the international E.164 address of the serving VMSC. For MT calls, the MSC Address carries the international E.164 address of the GMSC. For VT calls, the MSC Address carries the international E.164 address of the serving VMSC. For CF calls, the MSC Address carries the international E.164 address of the forwarding MSC.
GMSC Address	-	M	-	M	For CF calls, the GMSC Address carries the international E.164 address of the GMSC. For VT calls, the GMSC Address carries the international E.164 address of the GMSC.
NA Carrier Information	C	C	C	C	The content of this IE is described in the next table. The IE may be sent when the VPLMN and the HPLMN of the subscriber are both North American. For MO calls, this IE shall contain any carrier that was dialed by the calling subscriber. If no carrier was dialed, the IE shall contain the calling subscriber’s subscribed carrier. For MT and VT calls, the IE shall contain the carrier subscribed to by the called subscriber. For CF calls, the IE shall contain the carrier subscribed to by the forwarding subscriber.
Original Called Party ID	-	C	C	C	This IE carries the dialled digits if the call has met call forwarding on the route to the gsmSSF.
Redirecting Party ID	-	M	C	C	This IE indicates the directory number the call was redirected from.
Redirection Information	-	M	C	C	This IE contains forwarding related information, such as redirection counter.

Information element name	MO	MF	MT	VT	Description
Service Key	M	M	M	M	~~This IE identifies for the gsmSCF the requested set of one or more CAMEL services. It is used to address the correct application/SLP within the gsmSCF.~~ This IE indicates to the gsmSCF the requested CAMEL Service. It is used to address the required application/SLP within the gsmSCF.
Subscriber State	-	-	C	C	This IE indicates the status of the MS. The states are: - CAMELBusy: The MS is engaged on a transaction for a mobile originating or terminated circuit-switched call. - NetworkDeterminedNotReachable: The network can determine from its internal data that the MS is not reachable. - AssumedIdle: The state of the MS is neither "CAMELBusy" nor "NetworkDeterminedNotReachable". - Not provided from VLR.
Time And Timezone	M	M	M	M	This IE contains the time that the gsmSSF was triggered, and the time zone the gsmSSF resides in.
GSM Forwarding Pending	-	-	C	C	This parameter indicates that a forwarded-to-number was received and the call will be forwarded due to GSM supplementary service call forwarding in the GMSC/VMSC.
Service Interaction Indicators Two	C	C	C	C	This IE is sent if it is received in the ISUP message or due to previous CAMEL processing. The IE is described in a table below.
CUG Information	-	C	C	C	See 3G TS 23.085 [9] for details of this IE.
CUG Index	C	-	-	-	See 3G TS 23.085 [9] for details of this IE.

M Mandatory (The IE shall always be sent)

C Conditional (The IE shall be sent, if available)

- Not applicable

Location Information contains the following information:

Information element name	MO	MF	MT	VT	Description
Location Number	-	-	C	C	See 3G TS 23.018 [3].
CellIdOrLAI	M	-	C	C	See 3G TS 23.018 [3].
Geographical Information	C	-	C	C	See 3G TS 23.018 [3].
Geodetic Information	C	-	C	C	See 3G TS 23.018 [3].
Age Of Location Information	M	-	C	C	See 3G TS 23.018 [3].
VLR number	M	-	C	M	See 3G TS 23.018 [3].
Selected LSA Identity	C	-	C	C	This IE indicates the LSA identity associated with the current position of the MS. Send if the LSA ID of subscription and LSA ID of the used cell matches. In the case of multiple matches the one with the highest priority is sent. See 3G TS 23.073 [23]. The IE shall only be sent, if SoLSA is supported.

M Mandatory (The IE shall always be sent)

C Conditional (The IE shall be sent, if available. Further conditions are in the description column.)

- Not applicable

NA Carrier Information contains the following information:

Information element name	MO	MF	MT	VT	Description
NA Carrier Identification Code	M	M	M	M	This IE uniquely identifies a North American long distance carrier.
NA Carrier Selection Information	M	M	M	M	This IE indicates the way the carrier was selected e.g.: – dialled – subscribed

M Mandatory (The IE shall always be sent)

Service Interaction Indicators Two contains the following information:

Information element name	MO	MF	MT	VT	Description
Forward Service Interaction Indicator	C	C	C	C	This IE is described in a table below.
HOLD Treatment Indicator	C	C	C	C	This IE indicates whether the CAMEL subscriber can invoke HOLD for the call.
CW Treatment Indicator	C	C	C	C	This IE indicates whether CW can be applied for a call to the CAMEL subscriber whilst this call is ongoing.
ECT Treatment Indicator	C	C	C	C	This IE indicates whether the call leg can become part of an ECT call initiated by the calling subscriber.
Call Completion Treatment Indicator	C	C	C	C	This IE indicates whether a CCBS request can be made for the call.

C Conditional (The IE shall be sent, if available)

- Not applicable

Forward Service Interaction Indicator contains the following information:

Information element name	MO	MF	MT	VT	Description
Conference Treatment Indicator	C	C	C	C	This IE indicates whether the call leg can become part of a MPTY call initiated by the called subscriber.
Call Diversion Treatment Indicator	C	C	C	C	This IE indicates whether the call can be forwarded using the Call Forwarding or Call Deflection Supplementary Services.

****** Next Modified Section ******

6.6.1.5 Initial DP GPRS

6.6.1.5.1 Description

This IF is generated by the gprsSSF when a trigger is detected at a DP in the GPRS state machines, to request instructions from the gsmSCF.

6.6.1.5.2 Information Elements

The following information elements are required:

Information element name	Required	Description
Service Key	M	~~This IE identifies for the gsmSCF the requested set of one or more CAMEL services. It is used to address the correct application/SLP within the gsmSCF.~~ This IE indicates to the gsmSCF the requested CAMEL Service. It is used to address the required application/SLP within the gsmSCF.
GPRS Event Type	M	This IE indicates the armed GPRS DP event resulting in the Initial Data Event IF.
MSISDN	M	This IE contains the basic MSISDN of the MS.
IMSI	M	This IE identifies the mobile subscriber.
Time and Time zone	M	This IE contains the time that the gprsSSF was triggered, and the time zone the gprsSSF resides in.
GPRS MS Class	C	This IE contains the MS network and radio access capabilities.
PDP Type	C	This IE identifies the PDP Type, e.g. X.25 or IP.
Quality of Service	C	This IE identifies the QoS (subscribed, requested or negotiated).
Access Point Name	C	This IE identifies the address Access Point Name the MS has requested to connect to.
Routeing Area Identity	C	This IE contains the location information of the MS.
Charging ID	C	This IE contains the Charging ID received from the GGSN for the PDP context.
SGSN Capabilities	C	This IE specifies the capabilities of the SGSN node to support the CAMEL interwork, e.g. support of Advice of Charge.

M Mandatory (The IE shall always be sent)

C Conditional (The IE shall be sent, if available)

****** Next Modified Section ******

7.6.1.3 Initial DP SMS

7.6.1.3.1 Description

This IF is generated by the gsmSSF/gprsSSF when a trigger is detected at a DP in the state model, to request instructions from the gsmSCF.

7.6.1.3.2 Information Elements

Information element name	**MO SMS**	**Description**
Destination Subscriber Number	M	This IE contains a number to identify the Destination short message entity. The Destination Subscriber Number shall be retrieved from the SMS-SUBMIT TPDU which is specified in 3G TS 23.040 [21].
Calling Party Number	M	This IE carries the MSISDN of the subscriber who sent the short message.
Event Type	M	This IE indicates the armed event (i.e., *SMS_Collected_Info*) resulting in the Initial DP SMS IF.
IMSI	M	This IE identifies the mobile subscriber.
Location Information in MSC	C	This IE is described in the next table.
Location Information in SGSN	C	This IE is described in the table below.
Service Key	M	~~The Service Key identifies to the gsmSCF the service logic.~~ This IE indicates to the gsmSCF the requested CAMEL Service. It is used to address the required application/SLP within the gsmSCF.
Time And Timezone	M	This IE contains the time that the gsmSSF/gprsSSF was triggered, and the time zone the gsmSSF/gprsSSF resides in.
TP Short Message Submission Specific Information	M	This IE contains the 1st octect of the SMS-SUBMIT TPDU which is specified in 3G TS 23.040 [21]. The 1st octet includes the following information: – Message Type Indicator – Reject Duplicates – Validity Period Format – Status Report Request – User Data Header Indicator – Reply Path
TP Protocol Identifier	M	This IE indicates the protocol used above SM-Transfer Layer. The TP Protocol Identifier shall be retrieved from the SMS-SUBMIT TPDU which is specified in 3G TS 23.040 [21].
TP Data Coding Scheme	M	This IE indicates the data coding scheme of the TP-User Data field, and may indicate a message class. The message class may indicate e.g. the originator of Short Message. The TP Data Coding Scheme shall be retrieved from the SMS-SUBMIT TPDU which is specified in 3G TS 23.040 [21].
TP Validity Period	C	This IE indicates the length of the validity period or the absolute time of the validity period termination. The TP Validity Period shall be retrieved from the SMS-SUBMIT TPDU which is specified in 3G TS 23.040 [21].
SMSC Address	M	This I.E defines the address of the SMSC to which the MO short message is intended to be submitted.

M Mandatory (The IE shall always be sent)

C Conditional (The IE shall be sent, if available)

Location Information in MSC contains the following information:

Information element name	MO SMS	Description
CellIdOrLAI	M	See 3G TS 23.018 [3].
Geographical Information	C	See 3G TS 23.018 [3].
Geodetic Information	C	See 3G TS 23.018 [3].
VLR number	M	See 3G TS 23.018 [3].
Selected LSA Identity	C1	This IE indicates the LSA identity associated with the current position of the MS. Send if the LSA ID of subscription and LSA ID of the used cell matches. In the case of multiple matches the one with the highest priority is sent. See 3GPP TS 23.073[23]

M Mandatory (The IE shall always be sent)

C Conditional (The IE shall be sent, if available)

C1 Conditional (The IE shall be sent, if available and SoLSA is supported)

Location Information in the GPRS case contains the following information:

Information element name	MO SMS	Description
CellIdOrRAI	M	See 3G TS 23.018 [3] and 3G TS 23.060 [11].
Geographical Information	C	See 3G TS 23.018 [3].
SGSN number	M	Global Title of the Serving GPRS Service Node. See 3G TS 23.060 [11].

M Mandatory (The IE shall always be sent)

C Conditional (The IE shall be sent, if available)

3GPP/SMG Meeting #?
Sophia Antipolis, france, 21-25 Feb 2000

Document* *N2a000167
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

23.078	**CR**	**094**	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: CN#7
list expected approval meeting # here ↑

for approval ☒
for information ☐

strategic ☐
non-strategic ☐
(for SMG use only)

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio ☐ Core Network ☒
(at least one should be marked with an X)

Source:	CN WG2
Date:	10 Feb 2000
Subject:	Removal of Redirection Information from the ContinueWithArgument operation
Work item:	CAMEL phase 3

Category:
(only one category shall be marked with an X)

F	Correction	☒
A	Corresponds to a correction in an earlier release	☐
B	Addition of feature	☐
C	Functional modification of feature	☐
D	Editorial modification	☐

Release:

Phase 2	☐
Release 96	☐
Release 97	☐
Release 98	☐
Release 99	☒
Release 00	☐

Reason for change:

The CWA operation in the latest version includes OriginalCalledPartyNumber (OCD#), RedirectingNumber, RedirectionCounter, RedirectingReason and Original Reason. However, CS-2 CWA does not include these information elements. If we have these IEs, then the MSC/SSP functionality should be defined more carefully:

1. Does the MSC increment counters, set redirecting and original reason, and set the OCD# and RedirectingNumber; prior or after the SCP visit?

2. What shall MSC/SSP do when it receives partial information, e.g. Redirection counter but no RedirectingNumber? I.e. shall it update those fields as it does normally in the GSM Call Forwarding, or use the original values?

Note that as part of normal functionality forwarding MSC sets the **all** the redirecting information in a regular GSM based call forwarding. If the SCP/CSE is allowed to modify RedirectingInformation also in GSM CF, then the interaction with these settings needs more detailed specification. Since there is no real service requirement to modify redirection information also in the GSM based CF, Nokia proposes to rely on the MSC/SSP settings of the redirection information. Note also that the SCP can modify redirection information in the CAMEL based CFs already in CAMEL phase 2.

Clauses affected: 4.6.2.8.2

Other specs affected:

Other 3G core specifications	☐	→ List of CRs:
Other GSM core specifications	☐	→ List of CRs:
MS test specifications	☐	→ List of CRs:
BSS test specifications	☐	→ List of CRs:
O&M specifications	☐	→ List of CRs:

Other comments:

****** FIRST MODIFIED SECTION ******

4.6.2.8 Continue With Argument

4.6.2.8.1 Description

This information flow requests the gsmSSF to proceed the call processing with modified information at the DP at which it previously suspended call processing to await gsmSCF instructions. The gsmSSF completes DP processing, and continues basic call processing (i.e., proceeds to the next point in call in the BCSM) with the modified call setup information as received from the gsmSCF.

4.6.2.8.2 Information Elements

The following information elements are required:

Information element name	MO	MF	MT	VT	Description
Alerting Pattern	-	-	O	O	This parameter indicates the kind of Alerting Pattern to be applied.
Calling Partys Category	O	O	O	O	This IE indicates the type of calling party (e.g., operator, pay phone, ordinary subscriber).
Generic Number	O	O	O	O	This IE contains the generic number. Its used to convey the additional calling party number, which e.g. could be used to modify the calling line ID presented to the called user.
NA Carrier Information	O	O	O	O	This IE is described in the next table.
NA Originating Line Information	O	O	O	O	This IE identifies the type of number in the NA Charge Number (e.g. subscriber versus PLMN operator number).
NA Charge Number	O	O	O	O	This IE identifies the chargeable number for the usage of a North American carrier.
~~Original Called Party ID~~	~~O~~	~~O~~	~~O~~	~~O~~	~~This IE carries the dialled digits if the call has met call forwarding on route to the gsmSSF or is forwarded by the gsmSCF.~~
~~Redirecting Party ID~~	~~O~~	~~O~~	~~O~~	~~O~~	~~This IE indicates the directory number the call was redirected from.~~
~~Redirection Information~~	~~O~~	~~O~~	~~O~~	~~O~~	~~This IE contains forwarding related information, such as redirecting counter.~~
Suppression Of Announcements	-	-	O	O	This IE indicates that announcements or tones generated as a result of unsuccessful call setup shall be suppressed.
Service Interaction Indicators Two	O	O	O	O	See the Information Flow table of the Connect operation for an explanation of this parameter. For Mobile Terminated calls, this parameter may only be sent to the VMSC.
CUG Interlock Code	O	O	O	O	See 3G TS 23.085 [9] for details of this IE.
Outgoing Access Indicator	O	O	O	O	See 3G TS 23.085 [9] for details of this IE.

O Optional (Service logic dependent)

- Not applicable

NA Carrier Information contains the following information:

Information element name	MO	MF	MT	VT	Description
NA Carrier Identification Code	M	M	M	M	This IE uniquely identifies a North American long distance carrier.
NA Carrier Selection Information	M	M	M	M	This IE indicates the way the carrier was selected e.g.: - dialled - subscribed

M Mandatory (The IE shall always be sent)

3GPP TSG CN WG2 Subgroup A
Sophia Antipolis, France, 21-25 February 2000

Document N2A000251
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

23.078 CR 096r2 Current Version: 3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: CN#7
list expected approval meeting # here ↑

for approval	☒	strategic	☐	*(for SMG use only)*
for information	☐	non-strategic	☐	

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio ☐ Core Network ☒
(at least one should be marked with an X)

Source: CN WG2 **Date:** 25/02/00

Subject: Addition to SDL of user interaction in Waiting_for_Instructions_for_DS

Work item: CAMEL Phase 3

Category: *(only one category shall be marked with an X)*

F	Correction	☐	Phase 2	☐
A	Corresponds to a correction in an earlier release	☐	Release 96	☐
B	Addition of feature	☒	Release 97	☐
C	Functional modification of feature	☐	Release 98	☐
D	Editorial modification	☐	Release 99	☒
			Release 00	☐

Release:

Reason for change:

The user interaction is essential part of CAMEL capability from service point of view. As an IMT user should feel the same capability for dialed services as well as the services that will be invoked from DP2, It is proposed to refine the capability for dialed trigger in CAMEL Ph3.
New SDLs are added as ETC and CTR reception processing in the Waiting_for_Instructions_For_DS condition.
New following conditions are added to the section 4.5.6.4

- Waiting_For_End_Of_User_Instruction_WFI_For_DS
- Waiting_For_End_Of_Temporary_Connection_WFI_For_DS

In the Procedure CAMEL_SDS_MO_INIT and CAMEL_NDS_MO_INIT: The reception of Int_ETC and Int_CTR should become possible in the DP_Analyzed_Info state. The same correction applies to Procedure CAMEL_SDS_CF_INIT and CAMEL_NDS_CF_INIT.

Clauses affected: 4.5.2, 4.5.5, 4.5.6.4

Other specs affected:

Other 3G core specifications	☐	→ List of CRs:
Other GSM core specifications	☐	→ List of CRs:
MS test specifications	☐	→ List of CRs:
BSS test specifications	☐	→ List of CRs:
O&M specifications	☐	→ List of CRs:

Other comments:

help.doc

<--------- double-click here for help and instructions on how to create a CR.

<<Next modified section>>

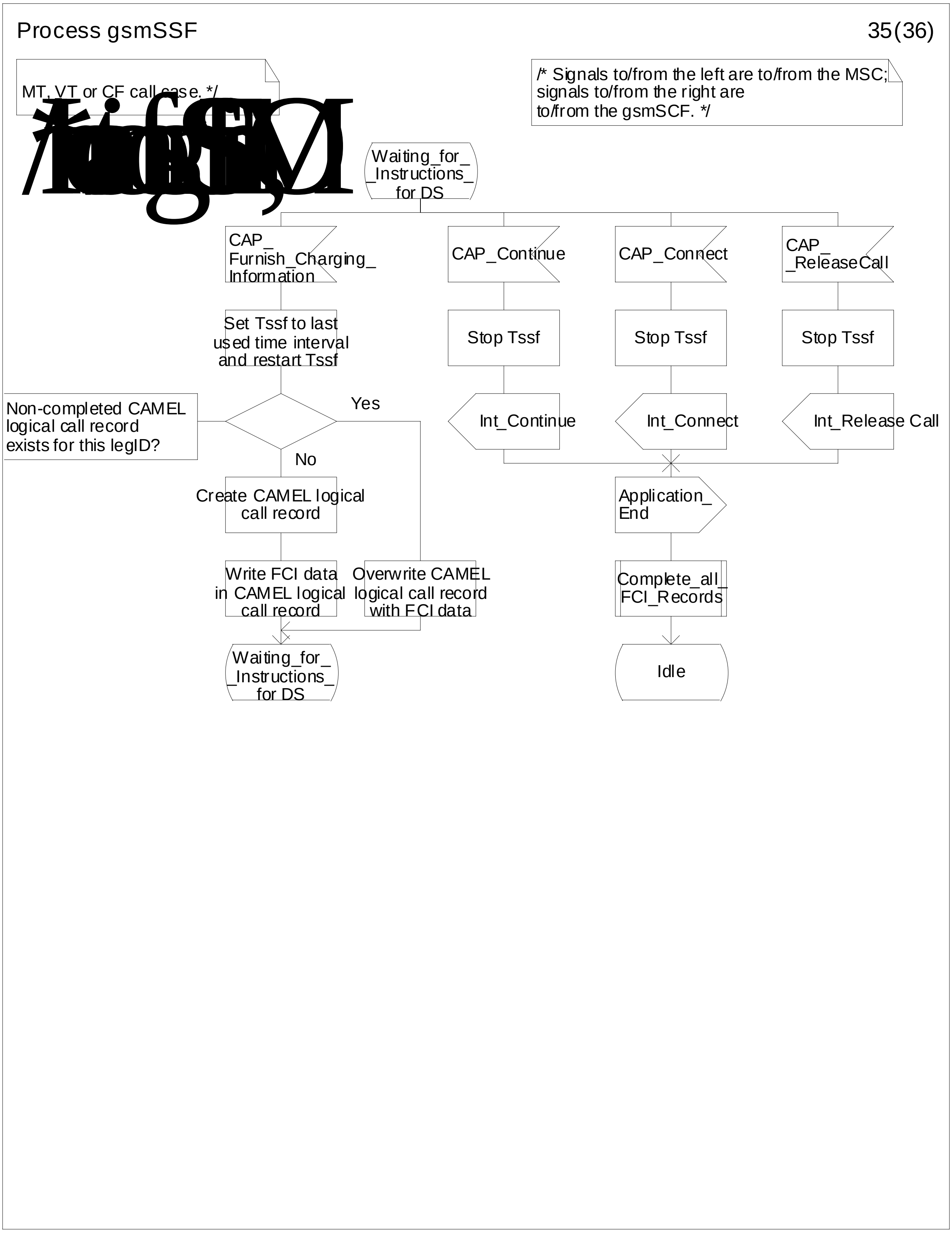

Process gsmSSF
35(36)
MT, VT or CF call case. */
/* Signals to/from the left are to/from the MSC; signals to/from the right are to/from the gsmSCF. */
Waiting_for_ _Instructions_ for DS
CAP_ Furnish_Charging_ Information
CAP_Continue
CAP_Connect
CAP_ _ReleaseCall
Set Tssf to last used time interval and restart Tssf
Stop Tssf
Stop Tssf
Stop Tssf
Non-completed CAMEL logical call record exists for this legID?
Yes
No
Int_Continue
Int_Connect
Int_Release Call
Create CAMEL logical call record
Application_ End
Write FCI data in CAMEL logical call record
Overwrite CAMEL logical call record with FCI data
Complete_all_ FCI_Records
Waiting_for_ _Instructions_ for DS
Idle

Figure 4.57hh: Process gsmSSF (sheet 34)

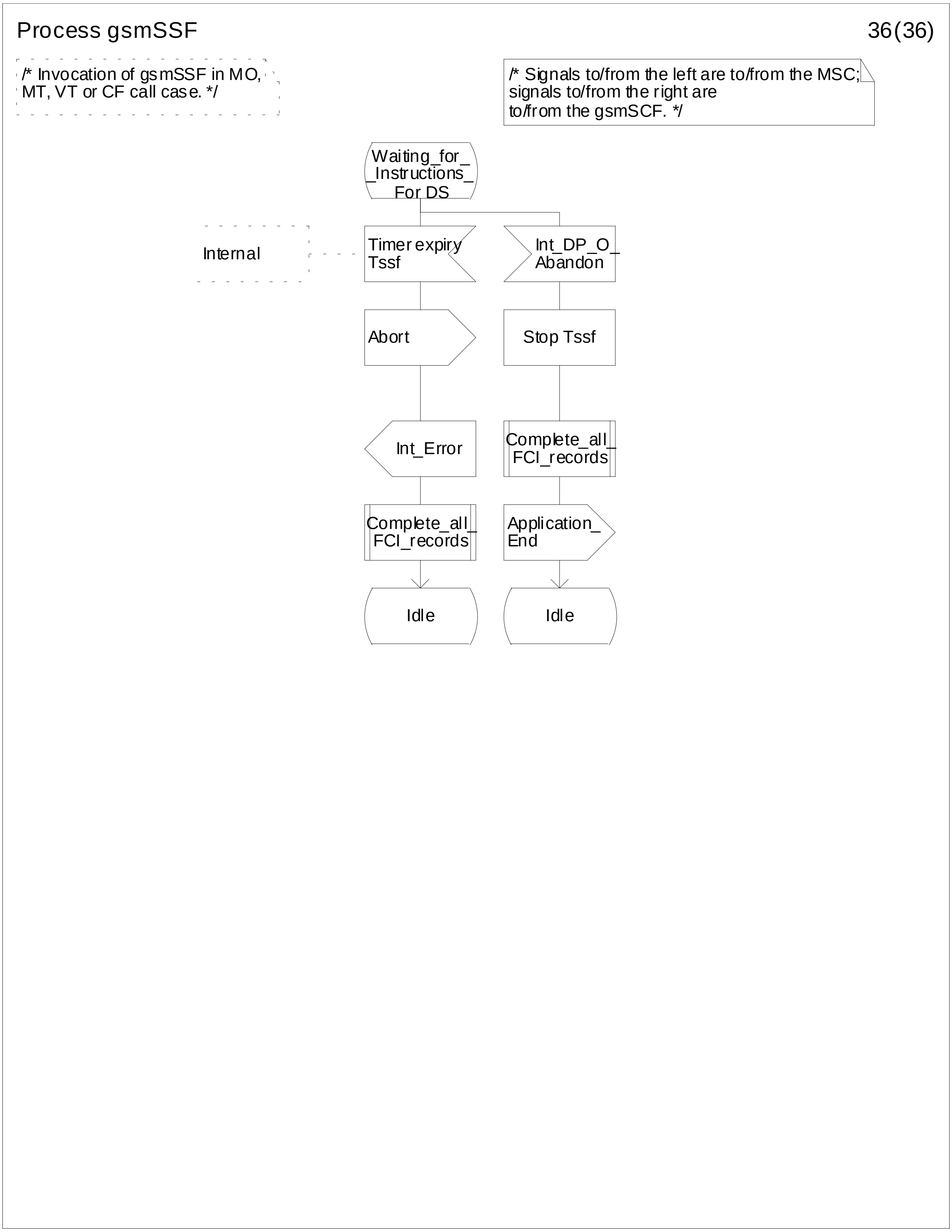
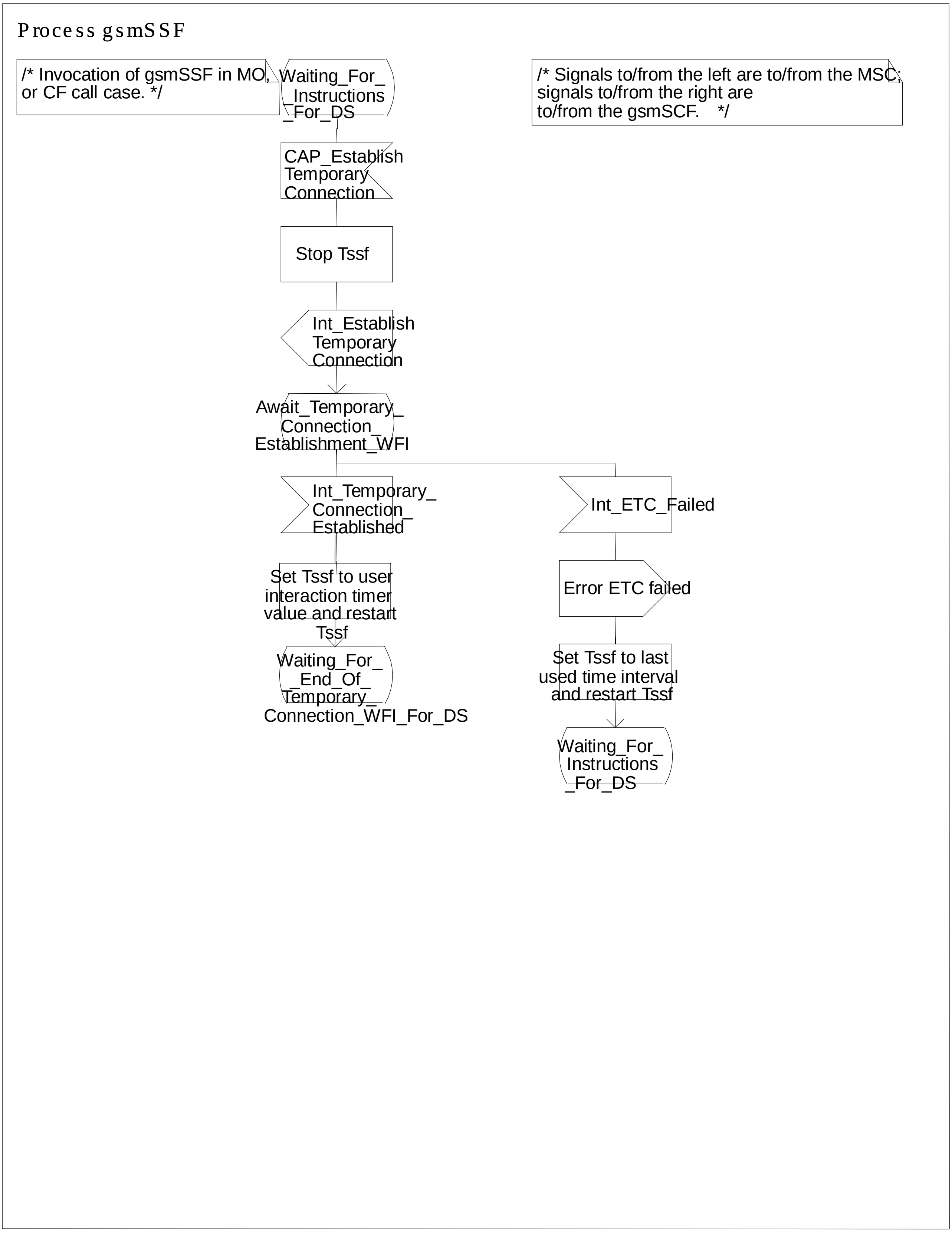

Process gsmSSF
36(36)
/* Invocation of gsmSSF in MO, MT, VT or CF call case. */
/* Signals to/from the left are to/from the MSC; signals to/from the right are to/from the gsmSCF. */
Waiting_for_ _Instructions_ For DS
Internal
Timer expiry Tssf
Int_DP_O_ Abandon
Abort
Stop Tssf
Int_Error
Complete_all_ FCI_records
Complete_all_ FCI_records
Application_ End
Idle
Idle

Figure 4.57ii: Process gsmSSF (sheet 35)



Process gsmSSF
/* Invocation of gsmSSF in MO, or CF call case. */
Waiting_For_ _Instructions _For_DS
/* Signals to/from the left are to/from the MSC; signals to/from the right are to/from the gsmSCF. */
CAP_Establish Temporary Connection
Stop Tssf
Int_Establish Temporary Connection
Await_Temporary_ Connection_ Establishment_WFI
Int_Temporary_ Connection_ Established
Int_ETC_Failed
Set Tssf to user interaction timer value and restart Tssf
Error ETC failed
Waiting_For_ _End_Of_ Temporary_ Connection_WFI_For_DS
Set Tssf to last used time interval and restart Tssf
Waiting_For_ Instructions _For_DS

Figure 4.xx: Process gsmSSF (sheet XX)

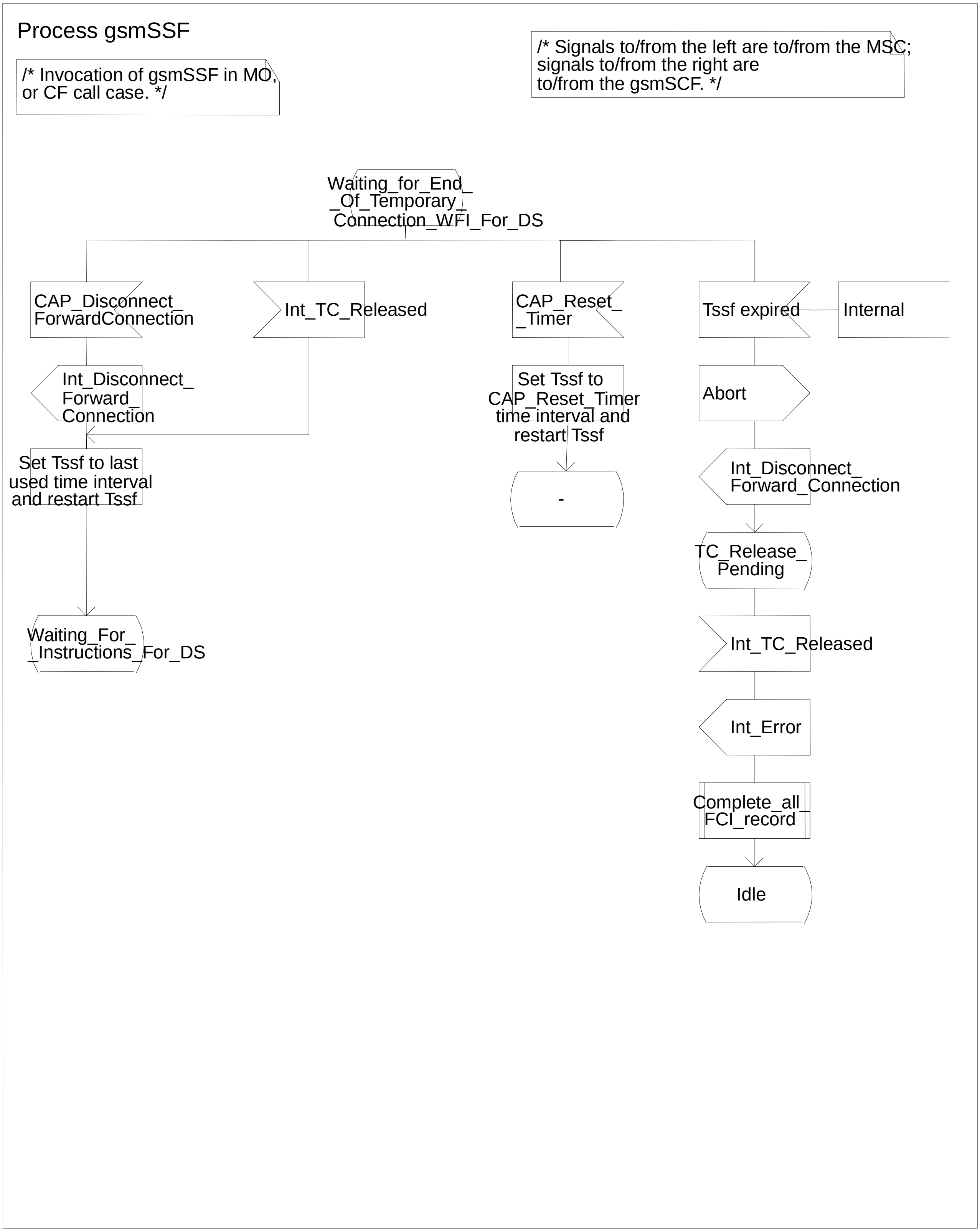

Process gsmSSF
/* Invocation of gsmSSF in MO, or CF call case. */
/* Signals to/from the left are to/from the MSC; signals to/from the right are to/from the gsmSCF. */
Waiting_for_End_ _Of_Temporary_ Connection_WFI_For_DS
CAP_Disconnect_ ForwardConnection
Int_TC_Released
CAP_Reset_ _Timer
Tssf expired
Internal
Int_Disconnect_ Forward_ Connection
Set Tssf to CAP_Reset_Timer time interval and restart Tssf
Abort
Set Tssf to last used time interval and restart Tssf
-
Int_Disconnect_ Forward_Connection
TC_Release_ Pending
Waiting_For_ _Instructions_For_DS
Int_TC_Released
Int_Error
Complete_all_ FCI_record
Idle

Figure 4.xx: Process gsmSSF (sheet XX)

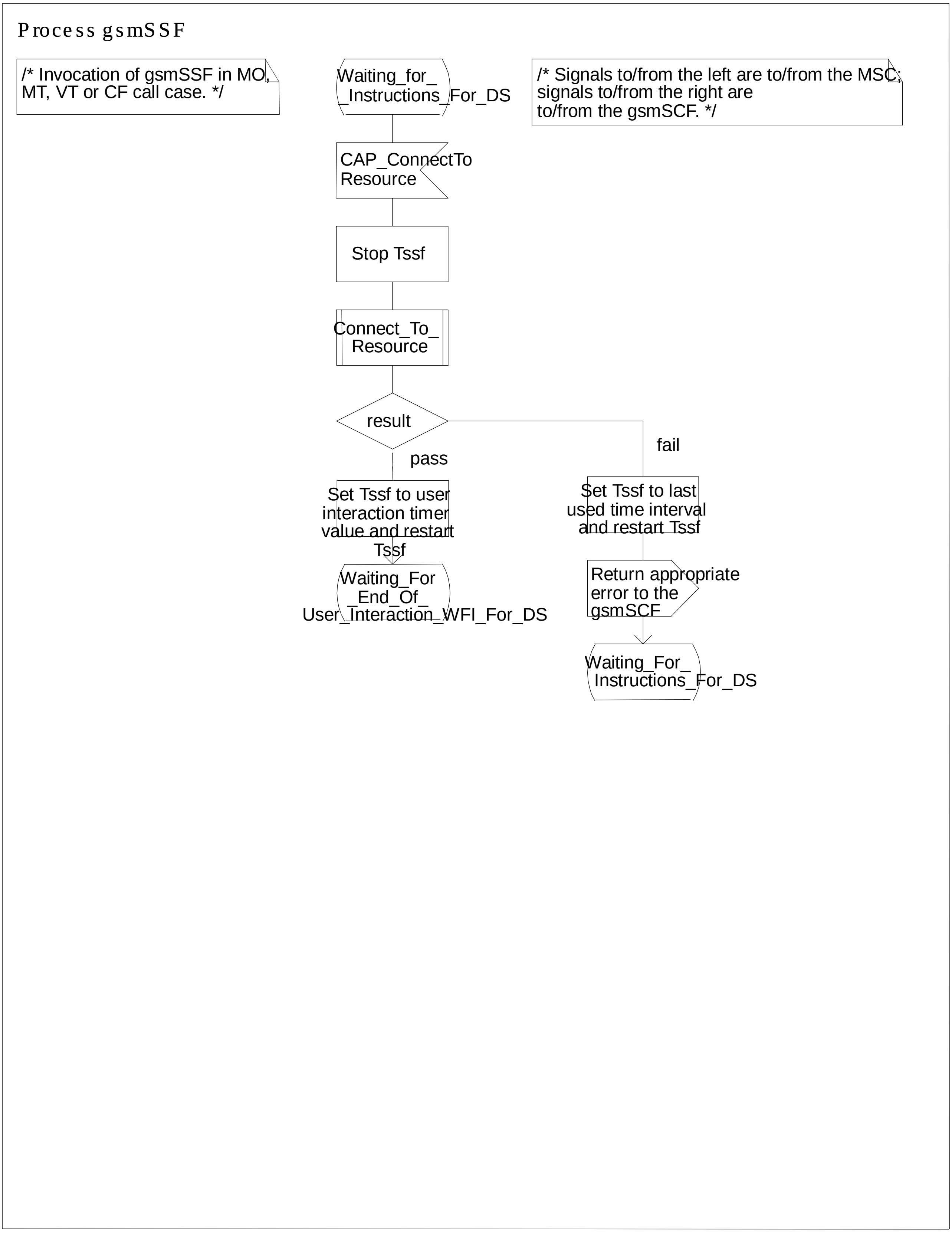

Process gsmSSF
/* Invocation of gsmSSF in MO, MT, VT or CF call case. */
Waiting_for_ _Instructions_For_DS
/* Signals to/from the left are to/from the MSC; signals to/from the right are to/from the gsmSCF. */
CAP_ConnectTo Resource
Stop Tssf
Connect_To_ Resource
result
pass
fail
Set Tssf to user interaction timer value and restart Tssf
Set Tssf to last used time interval and restart Tssf
Return appropriate error to the gsmSCF
Waiting_For _End_Of_ User_Interaction_WFI_For_DS
Waiting_For_ Instructions_For_DS

Figure 4.xx: Process gsmSSF (sheet XX)

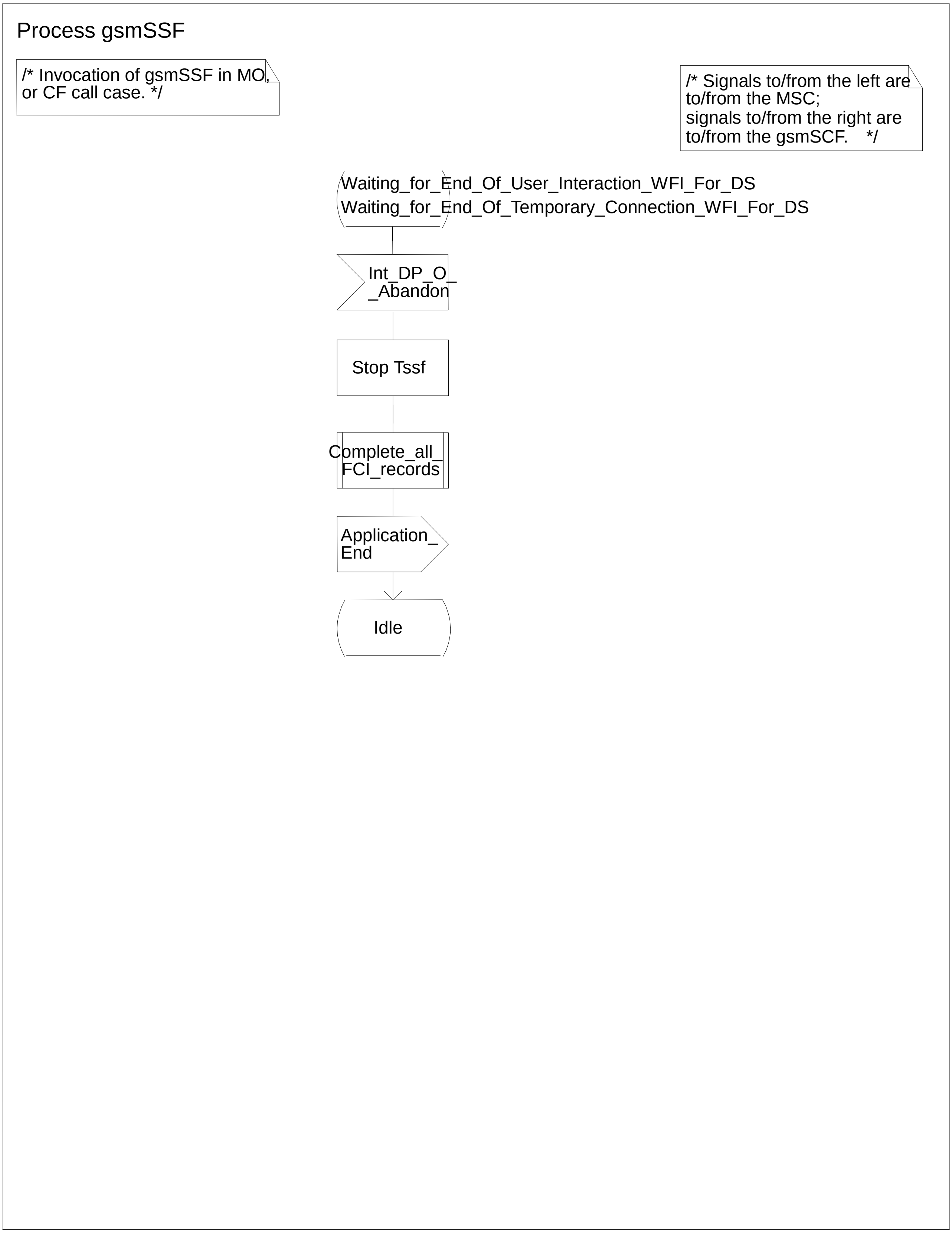

Process gsmSSF
/* Invocation of gsmSSF in MO, or CF call case. */
/* Signals to/from the left are to/from the MSC; signals to/from the right are to/from the gsmSCF. */
Waiting_for_End_Of_User_Interaction_WFI_For_DS
Waiting_for_End_Of_Temporary_Connection_WFI_For_DS
Int_DP_O_ _Abandon
Stop Tssf
Complete_all_ FCI_records
Application_ End
Idle

Figure 4.xx: Process gsmSSF (sheet XX)

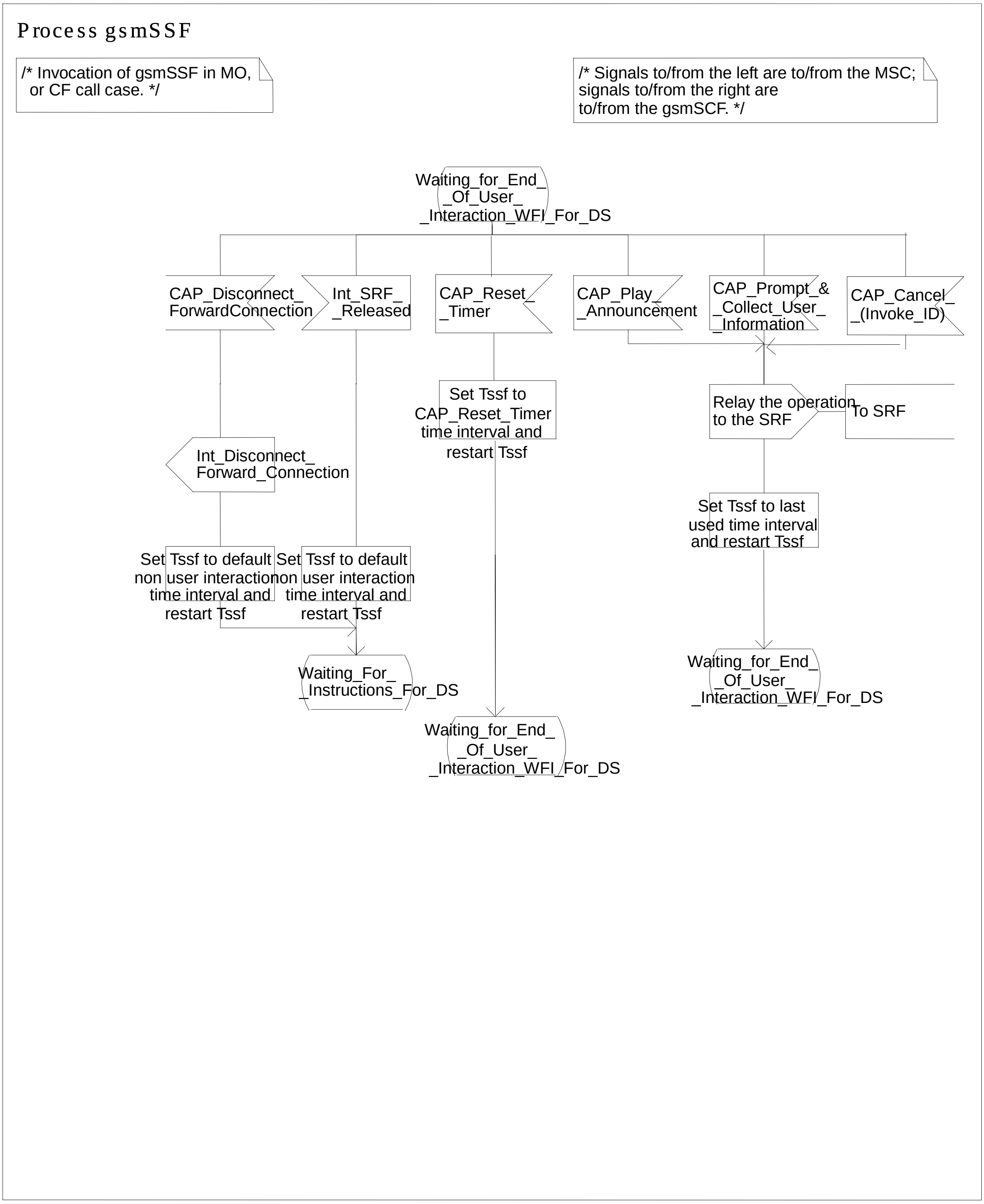

Process gsmSSF
/* Invocation of gsmSSF in MO, or CF call case. */
/* Signals to/from the left are to/from the MSC; signals to/from the right are to/from the gsmSCF. */
Waiting_for_End_ _Of_User_ _Interaction_WFI_For_DS
CAP_Disconnect_ ForwardConnection
Int_SRF_ _Released
CAP_Reset_ _Timer
CAP_Play_ _Announcement
CAP_Prompt_& _Collect_User_ _Information
CAP_Cancel_ _(Invoke_ID)
Set Tssf to CAP_Reset_Timer time interval and restart Tssf
Relay the operation to the SRF
To SRF
Int_Disconnect_ Forward_Connection
Set Tssf to last used time interval and restart Tssf
Set Tssf to default non user interaction time interval and restart Tssf
Set Tssf to default non user interaction time interval and restart Tssf
Waiting_For_ _Instructions_For_DS
Waiting_for_End_ _Of_User_ _Interaction_WFI_For_DS
Waiting_for_End_ _Of_User_ _Interaction_WFI_For_DS

Figure 4.xx: Process gsmSSF (sheet XX)

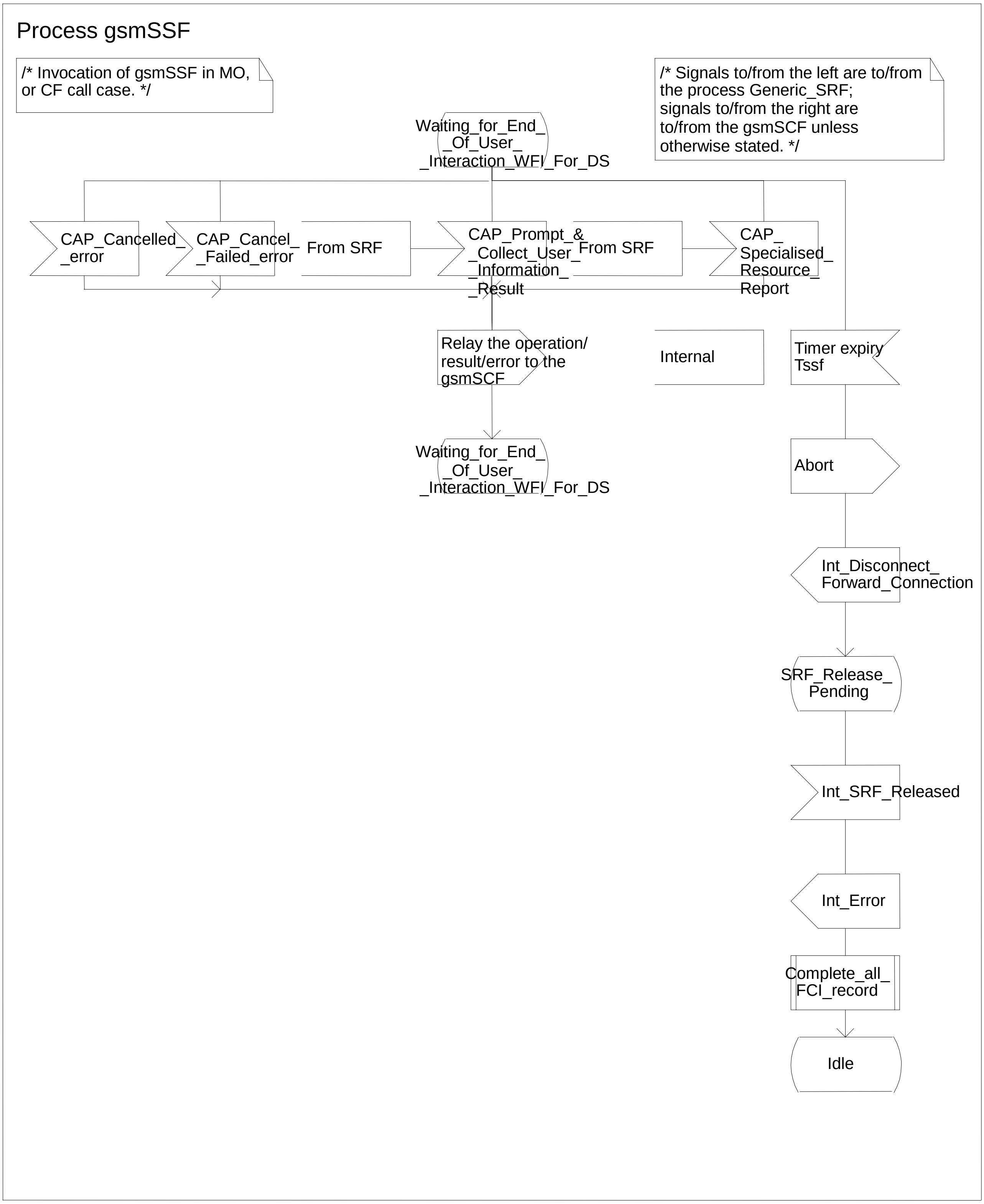

Process gsmSSF
/* Invocation of gsmSSF in MO, or CF call case. */
/* Signals to/from the left are to/from the process Generic_SRF; signals to/from the right are to/from the gsmSCF unless otherwise stated. */
Waiting_for_End_ _Of_User_ _Interaction_WFI_For_DS
CAP_Cancelled_ _error
CAP_Cancel_ _Failed_error
From SRF
CAP_Prompt_& _Collect_User_ _Information_ _Result
From SRF
CAP_ Specialised_ Resource_ Report
Relay the operation/ result/error to the gsmSCF
Internal
Timer expiry Tssf
Waiting_for_End_ _Of_User_ _Interaction_WFI_For_DS
Abort
Int_Disconnect_ Forward_Connection
SRF_Release_ Pending
Int_SRF_Released
Int_Error
Complete_all_ FCI_record
Idle

Figure 4.xx: Process gsmSSF (sheet XX)

<<Next modified section>>

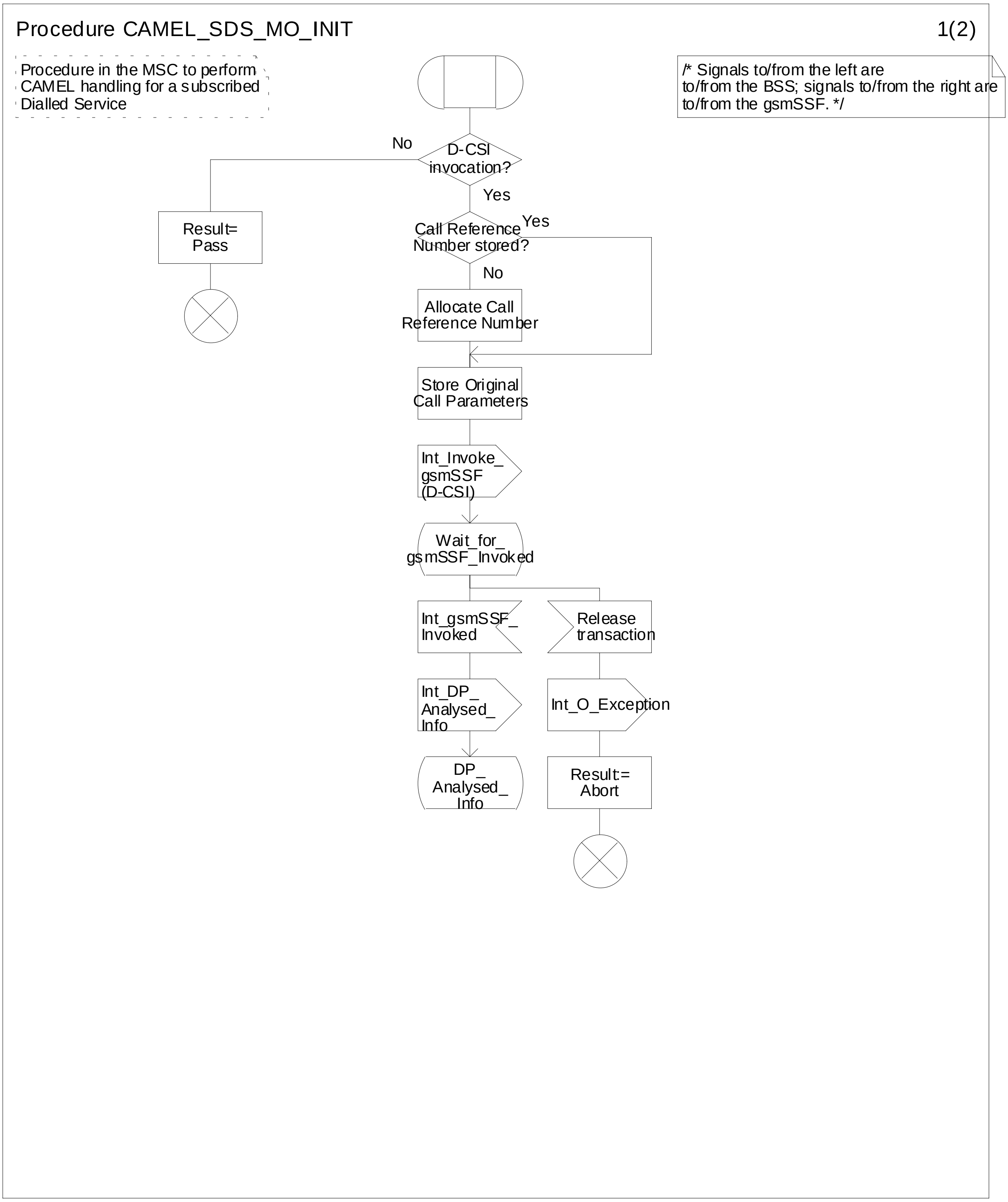

Procedure CAMEL_SDS_MO_INIT
1(2)
Procedure in the MSC to perform CAMEL handling for a subscribed Dialled Service
/* Signals to/from the left are to/from the BSS; signals to/from the right are to/from the gsmSSF. */
D-CSI invocation?
No
Yes
Result= Pass
Call Reference Number stored?
Yes
No
Allocate Call Reference Number
Store Original Call Parameters
Int_Invoke_ gsmSSF (D-CSI)
Wait_for_ gsmSSF_Invoked
Int_gsmSSF_ Invoked
Release transaction
Int_DP_ Analysed_ Info
Int_O_Exception
DP_ Analysed_ Info
Result:= Abort

Figure 4.11a: Procedure CAMEL_SDS_MO_Init (sheet 1)

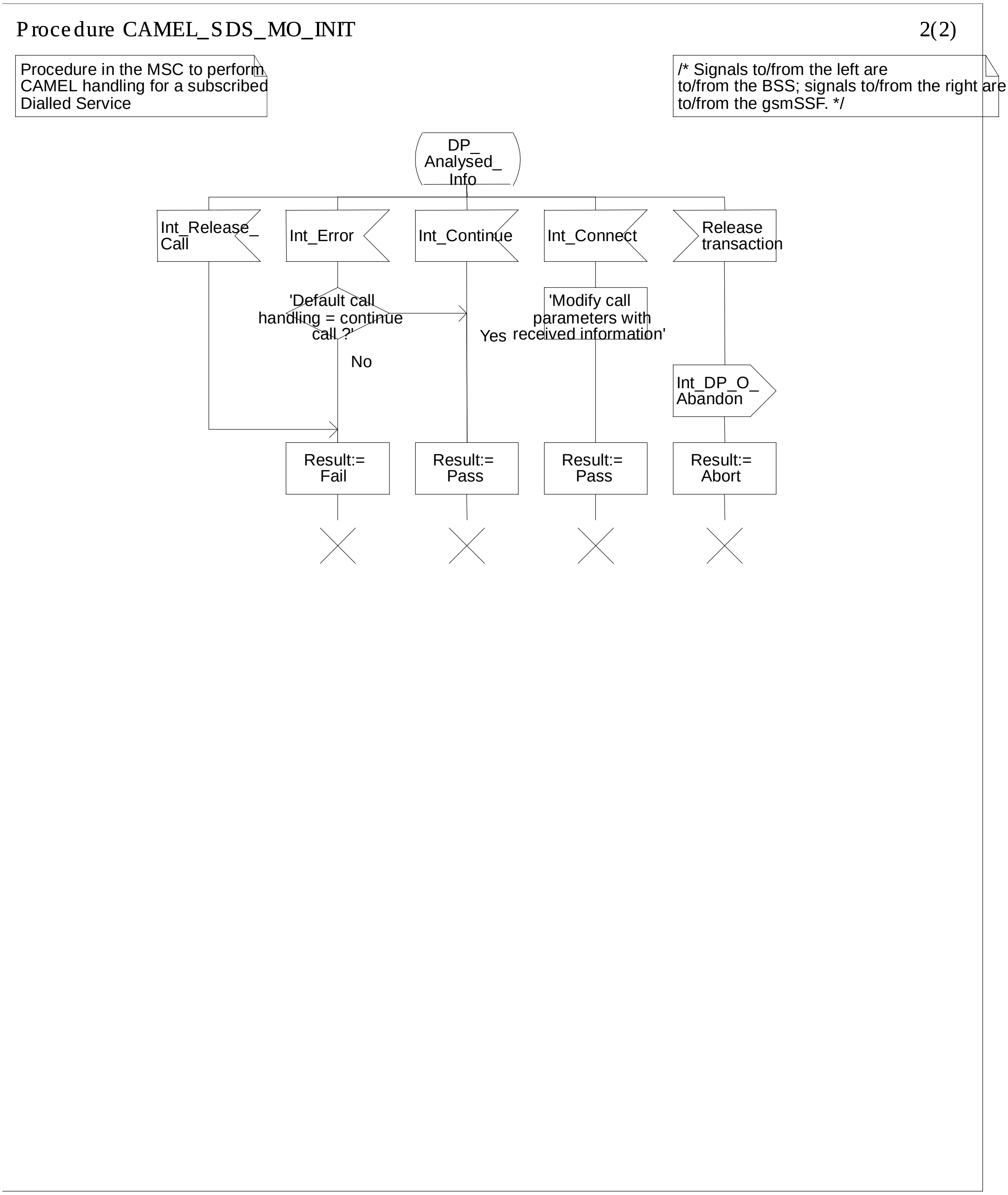

Procedure CAMEL_SDS_MO_INIT
2(2)
Procedure in the MSC to perform CAMEL handling for a subscribed Dialled Service
/* Signals to/from the left are to/from the BSS; signals to/from the right are to/from the gsmSSF. */
DP_ Analysed_ Info
Int_Release_ Call
Int_Error
Int_Continue
Int_Connect
Release transaction
'Default call handling = continue call ?'
Yes
No
'Modify call parameters with received information'
Int_DP_O_ Abandon
Result:= Fail
Result:= Pass
Result:= Pass
Result:= Abort

Figure 4.11b: Procedure CAMEL_SDS_MO_Init (sheet 2)

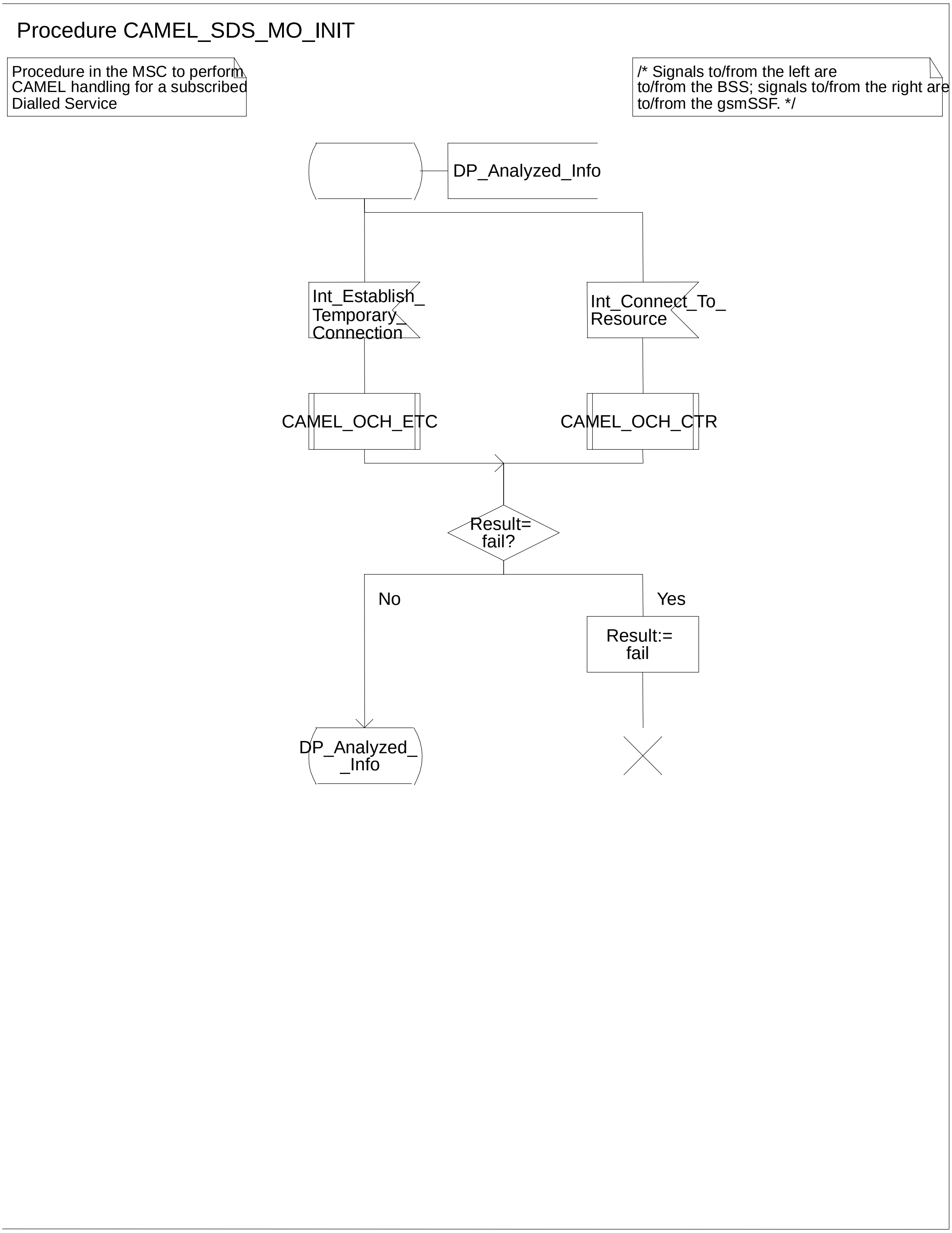

Procedure CAMEL_SDS_MO_INIT
Procedure in the MSC to perform CAMEL handling for a subscribed Dialled Service
/* Signals to/from the left are to/from the BSS; signals to/from the right are to/from the gsmSSF. */
DP_Analyzed_Info
Int_Establish_Temporary_Connection
Int_Connect_To_Resource
CAMEL_OCH_ETC
CAMEL_OCH_CTR
Result= fail?
No
Yes
Result:= fail
DP_Analyzed_ _Info

Figure 4.11c: Procedure CAMEL_SDS_MO_Init (sheet 3)

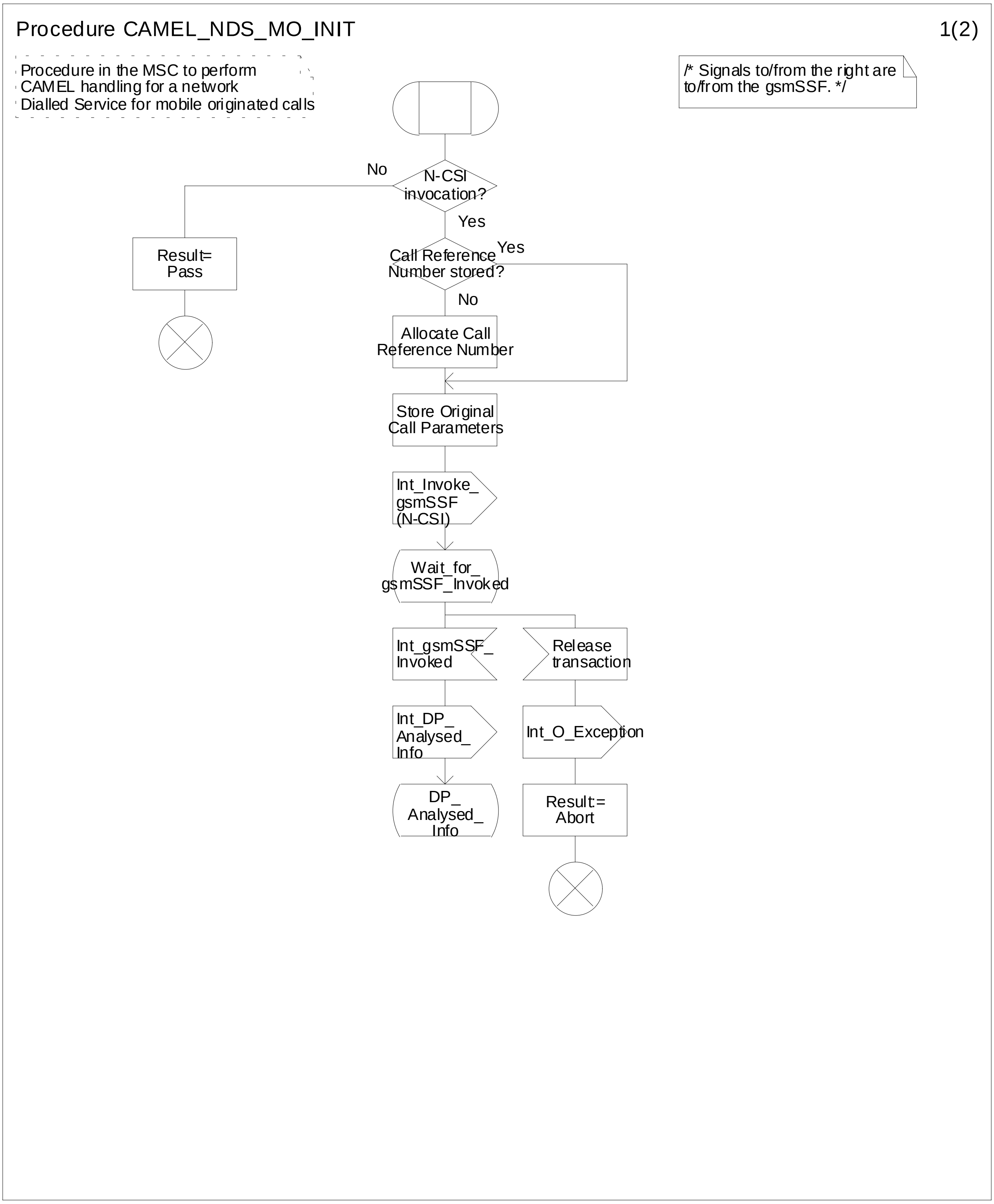

Procedure CAMEL_NDS_MO_INIT
1(2)
Procedure in the MSC to perform CAMEL handling for a network Dialled Service for mobile originated calls
/* Signals to/from the right are to/from the gsmSSF. */
N-CSI invocation?
No
Yes
Result= Pass
Call Reference Number stored?
Yes
No
Allocate Call Reference Number
Store Original Call Parameters
Int_Invoke_ gsmSSF (N-CSI)
Wait_for_ gsmSSF_Invoked
Int_gsmSSF_ Invoked
Release transaction
Int_DP_ Analysed_ Info
Int_O_Exception
DP_ Analysed_ Info
Result:= Abort

Figure 4.12a: Procedure CAMEL_NDS_MO_INIT (sheet 1)

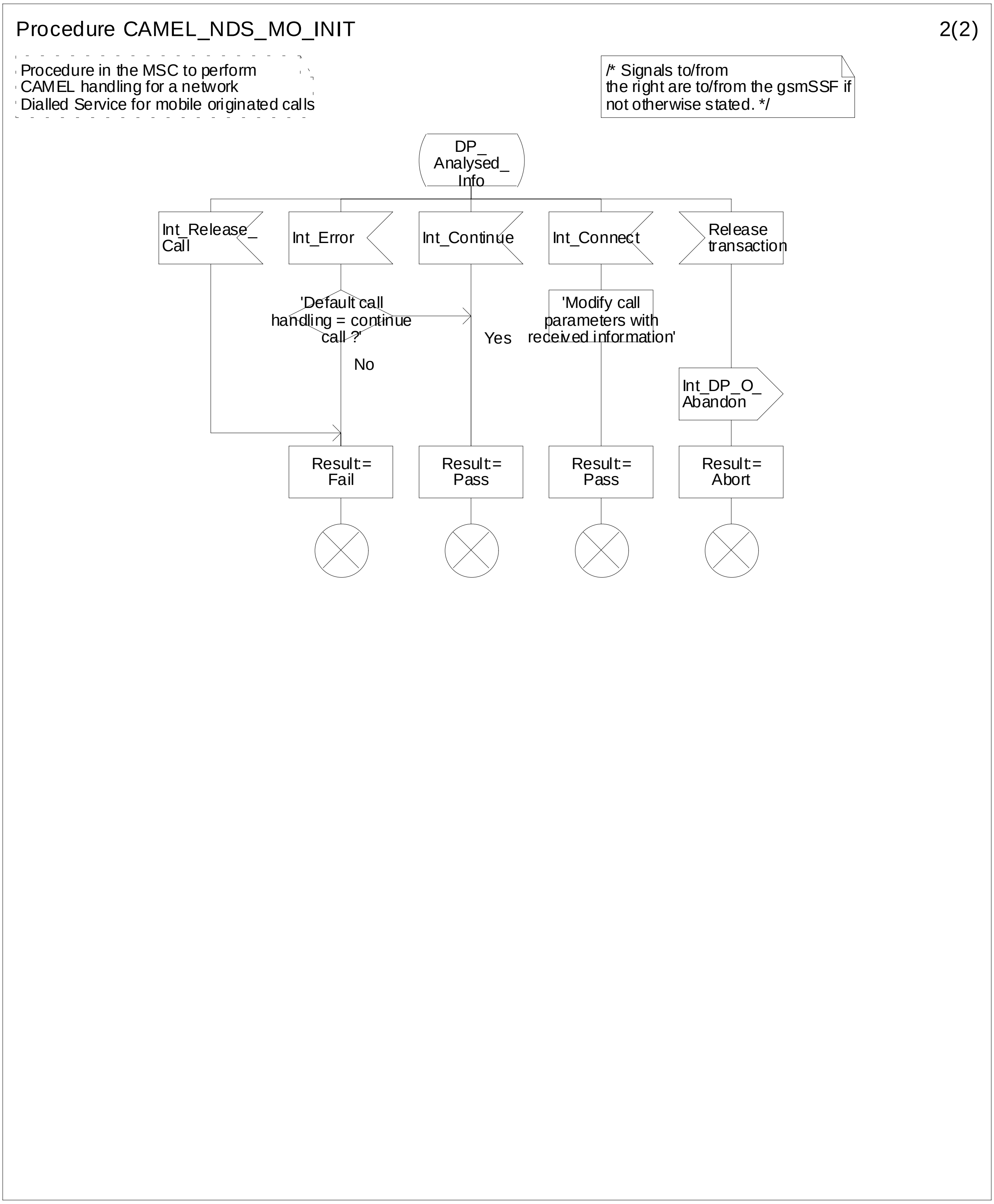

Procedure CAMEL_NDS_MO_INIT
2(2)
Procedure in the MSC to perform CAMEL handling for a network Dialled Service for mobile originated calls
/* Signals to/from the right are to/from the gsmSSF if not otherwise stated. */
DP_ Analysed_ Info
Int_Release_ Call
Int_Error
Int_Continue
Int_Connect
Release transaction
'Default call handling = continue call ?'
Yes
No
'Modify call parameters with received information'
Int_DP_O_ Abandon
Result:= Fail
Result:= Pass
Result:= Pass
Result:= Abort

Figure 4.12b: Procedure CAMEL_NDS_MO_INIT (sheet 2)

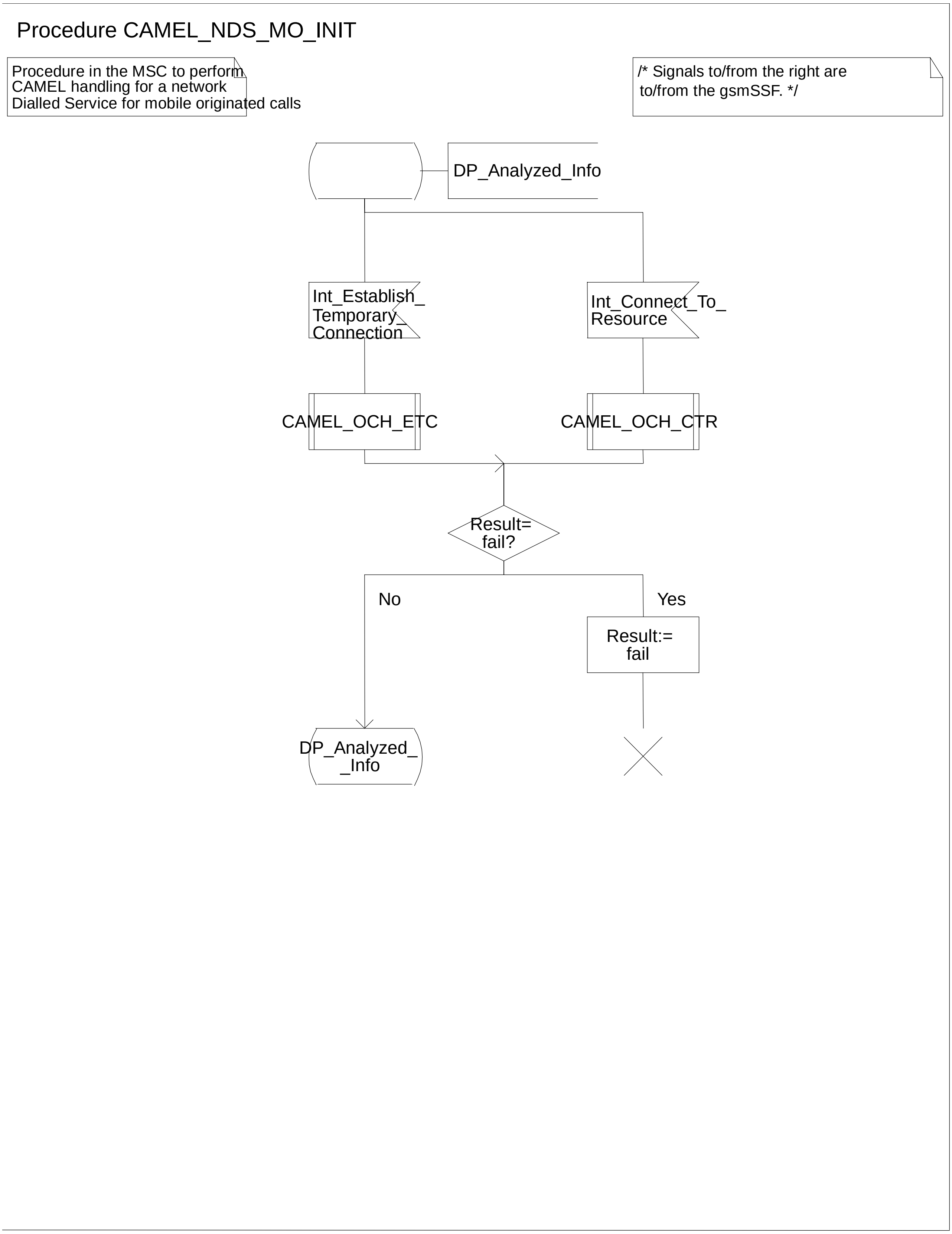

Procedure CAMEL_NDS_MO_INIT
Procedure in the MSC to perform CAMEL handling for a network Dialled Service for mobile originated calls
/* Signals to/from the right are to/from the gsmSSF. */
DP_Analyzed_Info
Int_Establish_Temporary_Connection
Int_Connect_To_Resource
CAMEL_OCH_ETC
CAMEL_OCH_CTR
Result= fail?
No
Yes
Result:= fail
DP_Analyzed_ _Info

Figure 4.12c: Procedure CAMEL_NDS_MO_INIT (sheet 3)

<<Next modified section>>

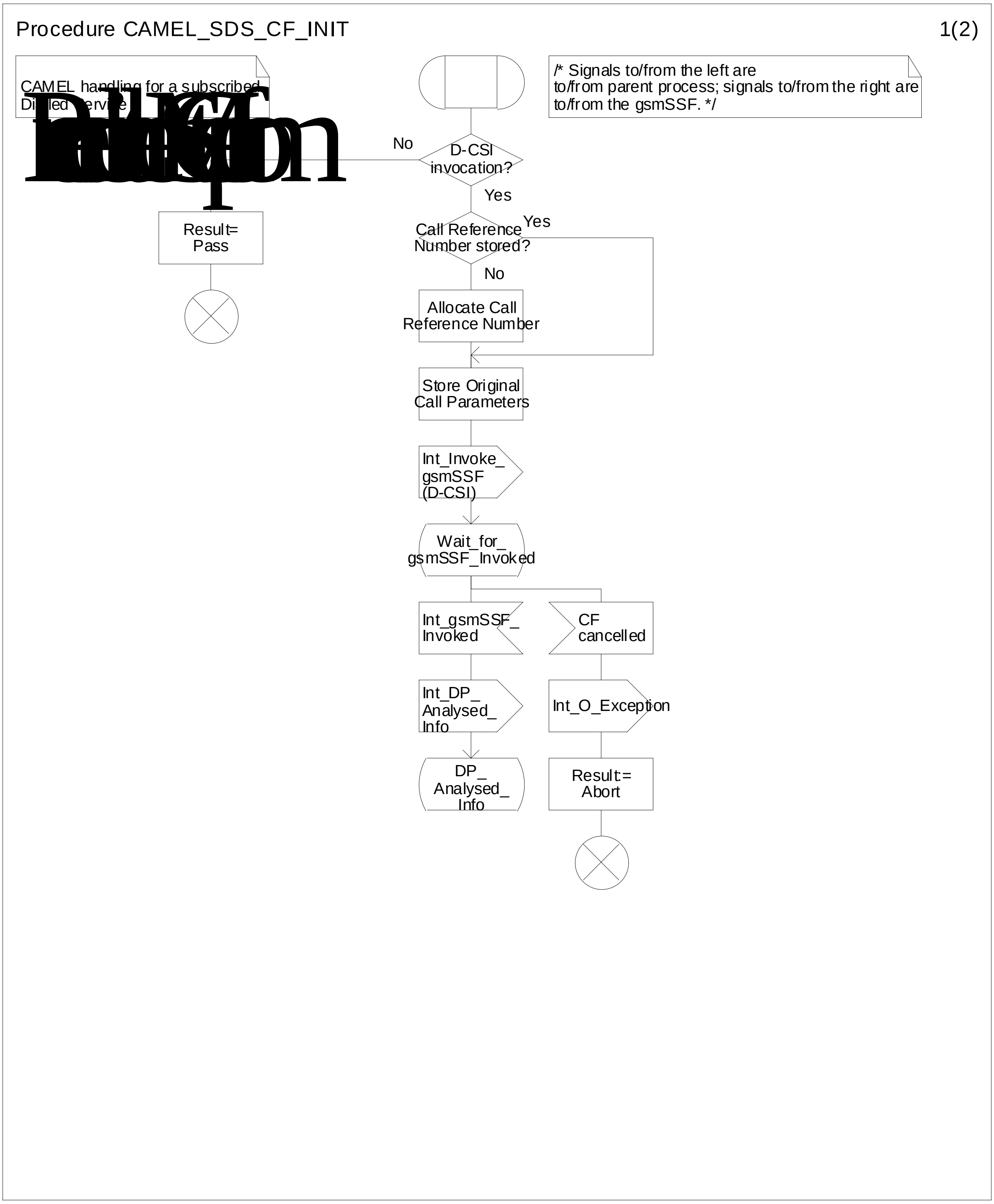

Procedure CAMEL_SDS_CF_INIT
1(2)
CAMEL handling for a subscribed Dialled Service
/* Signals to/from the left are to/from parent process; signals to/from the right are to/from the gsmSSF. */
No
D-CSI invocation?
Yes
Result= Pass
Call Reference Number stored?
Yes
No
Allocate Call Reference Number
Store Original Call Parameters
Int_Invoke_ gsmSSF (D-CSI)
Wait_for_ gsmSSF_Invoked
Int_gsmSSF_ Invoked
CF cancelled
Int_DP_ Analysed_ Info
Int_O_Exception
DP_ Analysed_ Info
Result:= Abort

Figure 4.51a: Procedure CAMEL_SDS_CF_INIT (sheet 1)

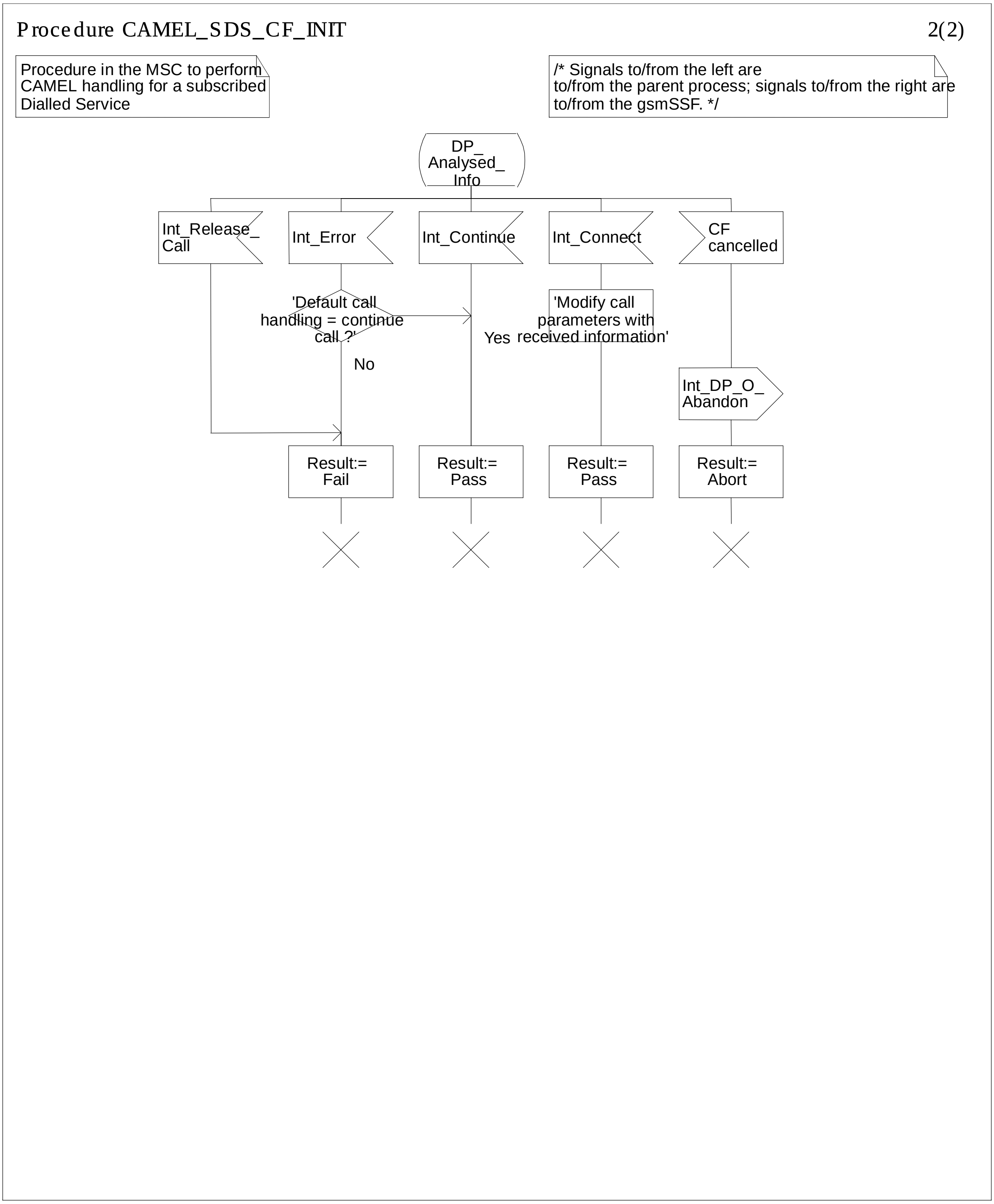

Procedure CAMEL_SDS_CF_INIT
2(2)
Procedure in the MSC to perform CAMEL handling for a subscribed Dialled Service
/* Signals to/from the left are to/from the parent process; signals to/from the right are to/from the gsmSSF. */
DP_ Analysed_ Info
Int_Release_ Call
Int_Error
Int_Continue
Int_Connect
CF cancelled
'Default call handling = continue call ?'
Yes
No
'Modify call parameters with received information'
Int_DP_O_ Abandon
Result:= Fail
Result:= Pass
Result:= Pass
Result:= Abort

Figure 4.51b: Procedure CAMEL_SDS_CF_INIT (sheet 2)

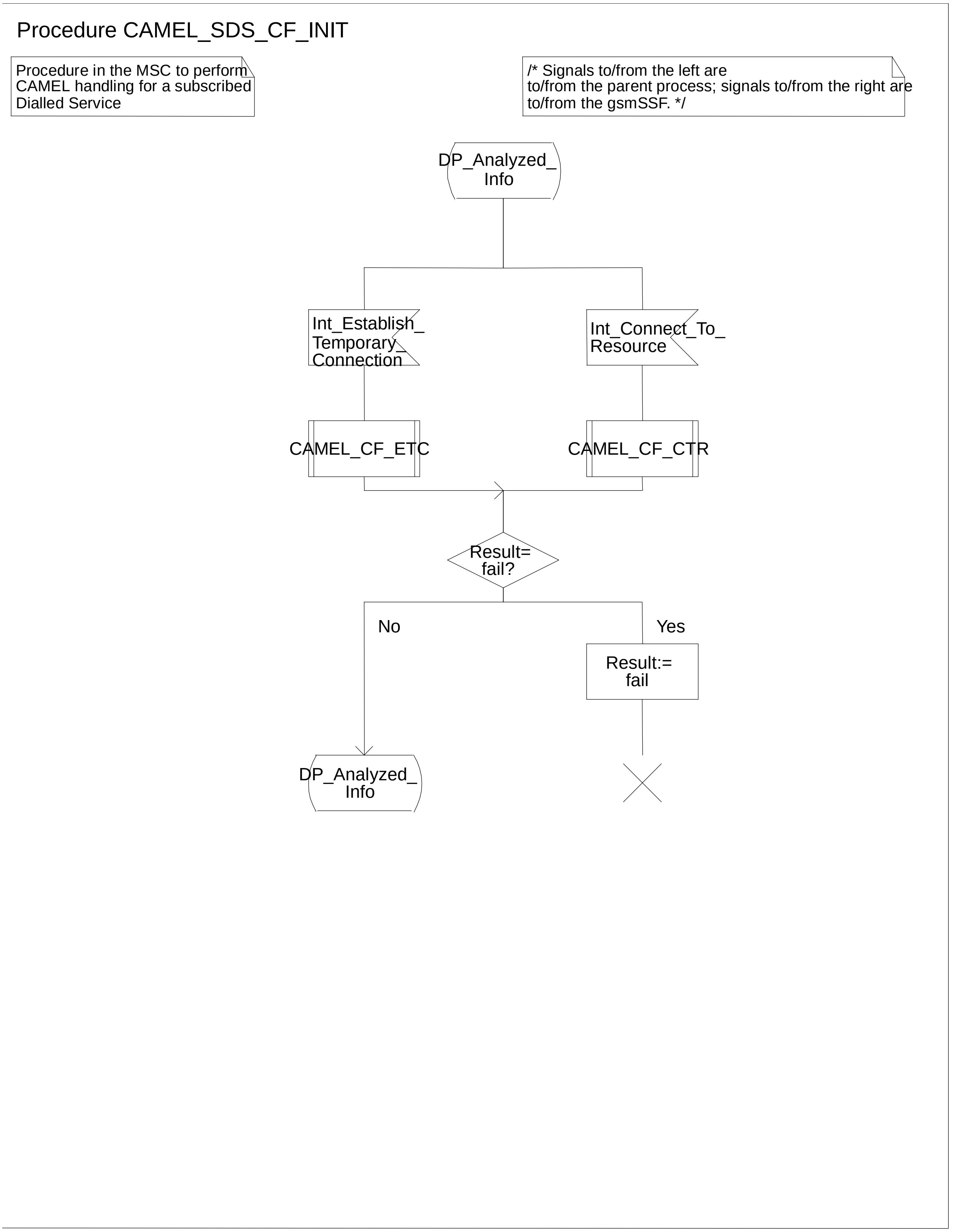

Procedure CAMEL_SDS_CF_INIT
Procedure in the MSC to perform CAMEL handling for a subscribed Dialled Service
/* Signals to/from the left are to/from the parent process; signals to/from the right are to/from the gsmSSF. */
DP_Analyzed_ Info
Int_Establish_ Temporary_ Connection
Int_Connect_To_ Resource
CAMEL_CF_ETC
CAMEL_CF_CTR
Result= fail?
No
Yes
Result:= fail
DP_Analyzed_ Info

Figure 4.51c: Procedure CAMEL_SDS_CF_INIT (sheet 3)

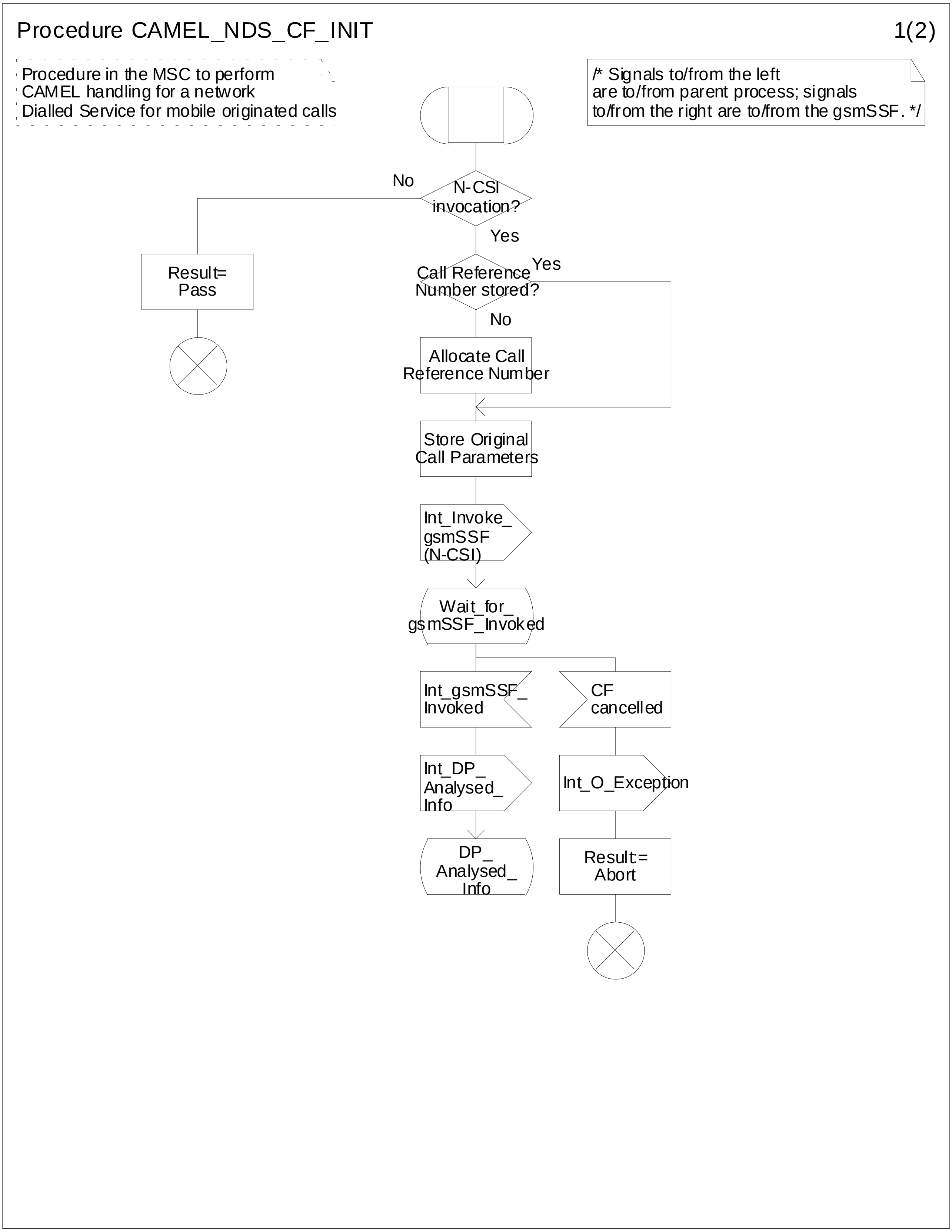

Procedure CAMEL_NDS_CF_INIT
1(2)
Procedure in the MSC to perform CAMEL handling for a network Dialled Service for mobile originated calls
/* Signals to/from the left are to/from parent process; signals to/from the right are to/from the gsmSSF. */
N-CSI invocation?
No
Yes
Result= Pass
Call Reference Number stored?
Yes
No
Allocate Call Reference Number
Store Original Call Parameters
Int_Invoke_ gsmSSF (N-CSI)
Wait_for_ gsmSSF_Invoked
Int_gsmSSF_ Invoked
CF cancelled
Int_DP_ Analysed_ Info
Int_O_Exception
DP_ Analysed_ Info
Result:= Abort

Figure 4.52a: Procedure CAMEL_NDS_CF_INIT (sheet 1)

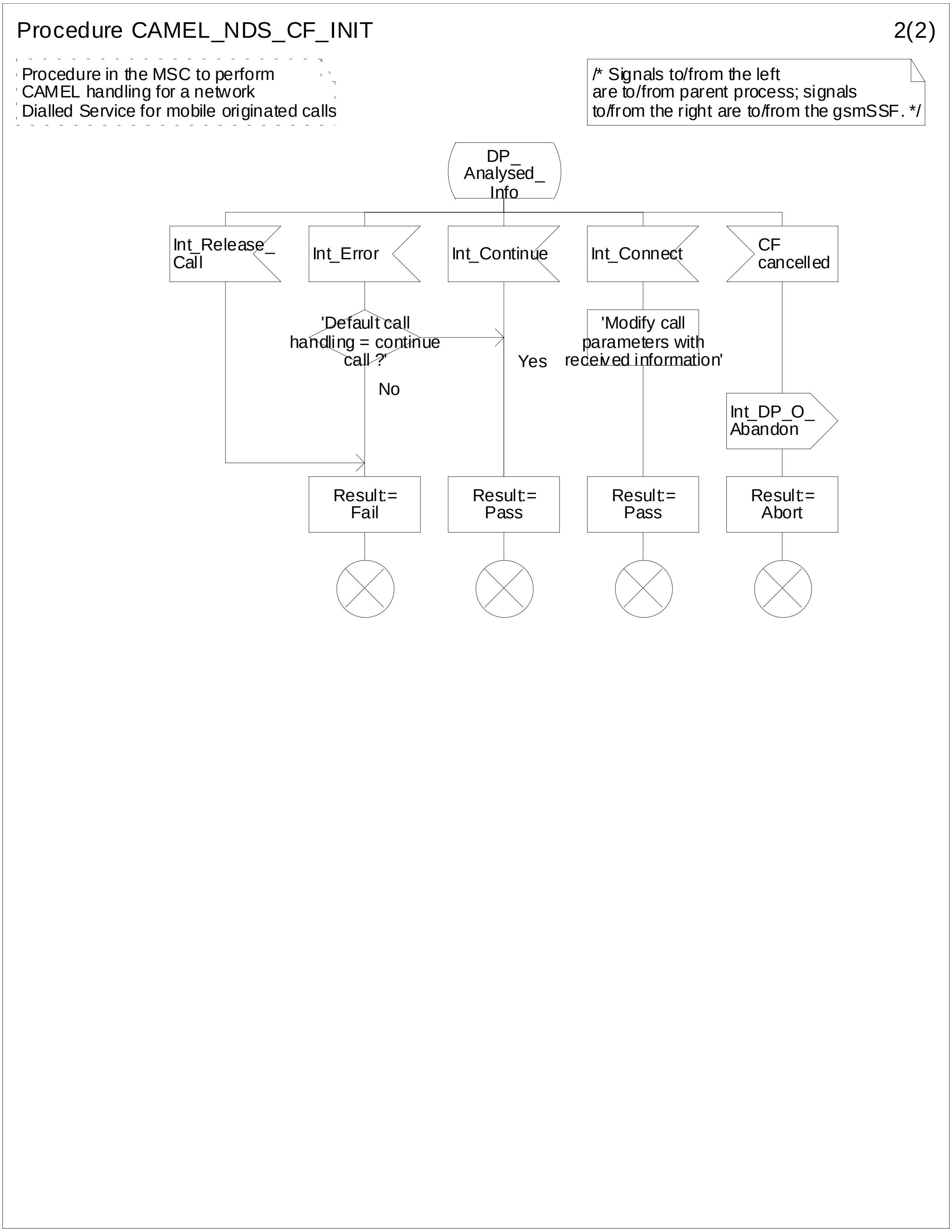

Procedure CAMEL_NDS_CF_INIT
2(2)
Procedure in the MSC to perform CAMEL handling for a network Dialled Service for mobile originated calls
/* Signals to/from the left are to/from parent process; signals to/from the right are to/from the gsmSSF. */
DP_ Analysed_ Info
Int_Release_ Call
Int_Error
Int_Continue
Int_Connect
CF cancelled
'Default call handling = continue call ?'
Yes
No
'Modify call parameters with received information'
Int_DP_O_ Abandon
Result:= Fail
Result:= Pass
Result:= Pass
Result:= Abort

Figure 4.52b: Procedure CAMEL_NDS_CF_INIT (sheet 2)

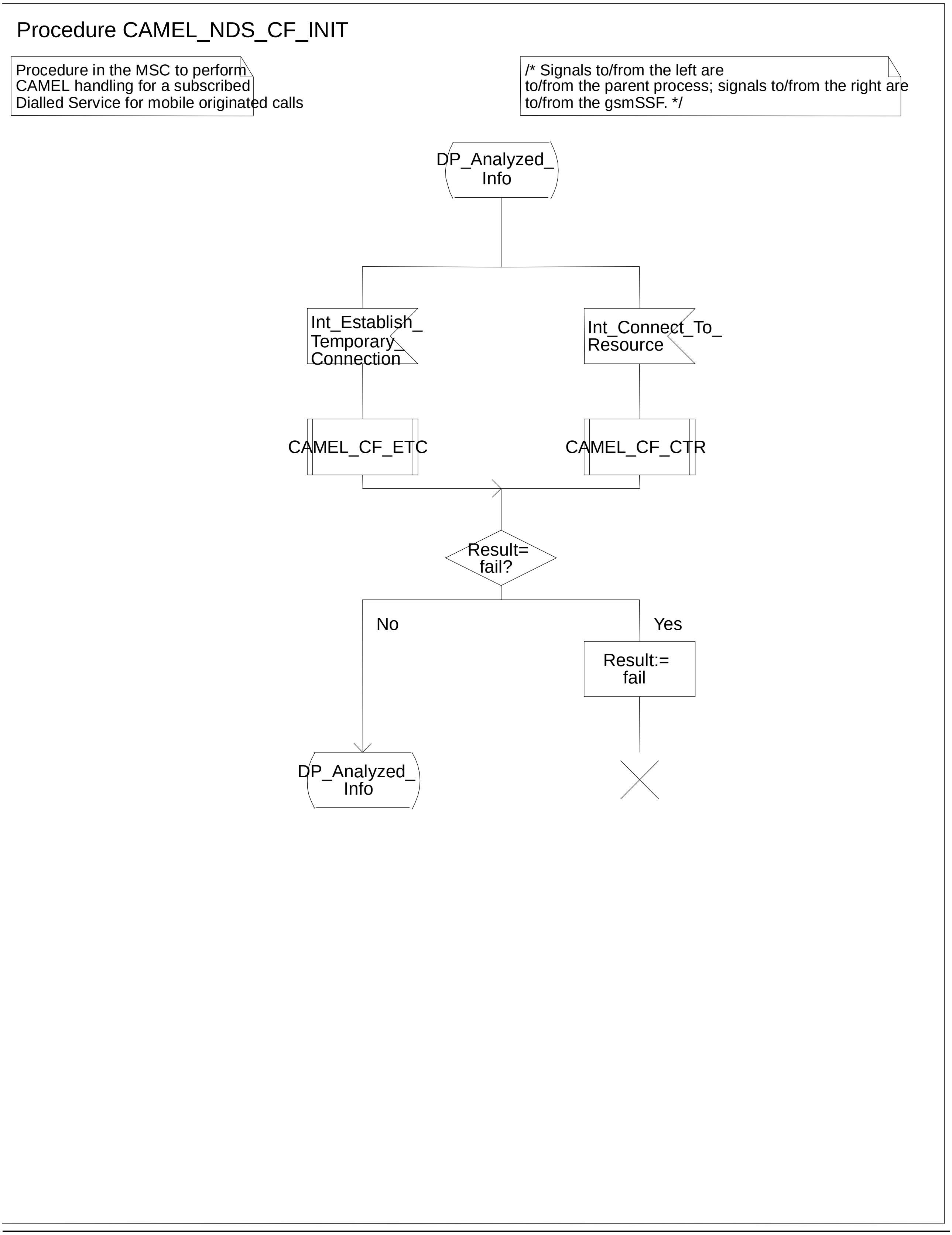

Procedure CAMEL_NDS_CF_INIT
Procedure in the MSC to perform CAMEL handling for a subscribed Dialled Service for mobile originated calls
/* Signals to/from the left are to/from the parent process; signals to/from the right are to/from the gsmSSF. */
DP_Analyzed_ Info
Int_Establish_ Temporary_ Connection
Int_Connect_To_ Resource
CAMEL_CF_ETC
CAMEL_CF_CTR
Result= fail?
No
Yes
Result:= fail
DP_Analyzed_ Info

Figure 4.52c: Procedure CAMEL_NDS_CF_INIT (sheet 3)

3GPP TSG CN2A/ETSI SPAN3
Sophia Antipolis, France, 21-25 February 2000

Document* *N2A000259
Revise of N2A000174

CHANGE REQUEST

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23.078 CR 098r1 Current Version: 3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: CN#7
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for approval ☒
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strategic ☐
non-strategic ☐
(for SMG use only)

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio ☐ Core Network ☒
(at least one should be marked with an X)

Source: CN WG2 **Date:** 24 Feb. 2000

Subject: CR 23.078-098 on addition of gsmSCF address list to CSI

Work item: CAMEL phase 3

Category:
(only one category shall be marked with an X)

F	Correction	☐	
A	Corresponds to a correction in an earlier release	☐	
B	Addition of feature	☐	
C	Functional modification of feature	☒	
D	Editorial modification	☐	

Release:

Phase 2	☐
Release 96	☐
Release 97	☐
Release 98	☐
Release 99	☒
Release 00	☐

Reason for change:

In the N2A, it was agreed to consider following things as working assumptions on NSDC. (N2-99H23)

- As to the gsmSCFs which are notified the change of the CSI data, the HLR has the pre-defined gsmSCF address list for each CSI.

But since the memory impact anxiety was expressed, so the above assumption changed to define one list for all CSIs.

Clauses affected: 4.3.6], 6.3.1, 7.3.1, 8.2.1.1, 9.2.1.1

Other specs affected:

Other 3G core specifications	☒	→ List of CRs:	23.008
Other GSM core specifications	☐	→ List of CRs:	
MS test specifications	☐	→ List of CRs:	
BSS test specifications	☐	→ List of CRs:	
O&M specifications	☐	→ List of CRs:	

Other comments:

help.doc

<--------- double-click here for help and instructions on how to create a CR.

4 Circuit switched Call Control

4.1 Architecture

4.2 Detection Points (DPs)

4.3 Description of CAMEL Subscriber Data

4.3.1 Originating CAMEL Subscription Information (O -CSI)

4.3.2 Dialled Service CAMEL Subscription Information (D-CSI)

4.3.3 Network Service CAMEL Subscription Information (N-CSI)

4.3.4 Terminating CAMEL Subscription Information (in the GMSC) (T-CSI)

4.3.5 VMSC Terminating CAMEL Subscription Information (VT-CSI)

4.3.6 Other CAMEL data

4.3.6.1 Location information/Subscriber state Interrogation

This data indicates whether additional subscriber information shall be sent to the GMSC as part of the terminating call handling.

- an indication that the HLR shall send the location information of the called subscriber.
- an indication that the HLR shall send the subscriber state of the called subscriber.

4.3.6.2 Translation Information Flag CAMEL Subscription Information (TIF-CSI)

4.3.6.2.1 Translation Information Flag

A flag (TIF) in the CAMEL Subscriber data in the HLR indicates, when the subscriber registers a forwarded-to number, that the HLR shall not attempt to perform any translation, number format checks, prohibited FTN checks, call barring checks (cf. 4.7.2).

If the flag is absent, this indicates that a translation is needed in the HLR and the usual procedure applies as defined in the current version of TS GSM 03.82. In particular, the interaction with barring services shall be performed by the HLR at the registration of the FTN.

A flag (TIF) in the CAMEL Subscriber data in the VLR indicates, when the subscriber registers a forwarded-to number, that the VLR shall not attempt to perform any translation, number format checks, prohibited DTN checks, call barring checks (cf. 4.7.2).

If the flag is absent, this indicates that a translation is needed in the VLR and the usual procedure applies as defined in the current version of TS GSM 03.82. In particular, the interaction with barring services shall be performed by the VLR at the registration of the DTN.

4.3.6.2.2 Notification flag

The notification flag indicates whether the change of the TIF-CSI is notified to the gsmSCF or not.

4.3.6.3 gsmSCF address list for CSI

The gsmSCF address list for CSI indicates a list of gsmSCF addresses to which Notification on Change of Subscriber Data is to be sent. This list is common to all CSI.

4.4 Description of CAMEL BCSMs

****** Next Modified Section ******

6.3 Description of CAMEL Subscriber Data

6.3.1 GPRS CAMEL Subscription Information (GPRS-CSI)

This subclause defines the contents of the GPRS CAMEL Subscription Information.

6.3.1.1 gsmSCF Address

Address to be used to access the gsmSCF for a particular subscriber. The address shall be an E.164 number to be used for routeing.

6.3.1.2 Service Key

The Service Key identifies to the gsmSCF the service logic that shall apply.

6.3.1.3 Default Session Handling

The Default Session Handling indicates whether the session shall be released or continued as requested in case of error in the gprsSSF to gsmSCF dialogue.

6.3.1.4 TDP List

The TDP List indicates on which detection point triggering shall take place.

6.3.1.5 CAMEL Capability Handling

CAMEL Capability Handling indicates the phase of CAMEL which is asked by the gsmSCF for the service.

6.3.1.6 CSI state

The CSI state indicates whether the GPRS-CSI is active or not.

6.3.1.7 Notification flag

The notification flag indicates whether the change of the GPRS-CSI shall trigger Notification on Change of Subscriber Data or not.

6.3.1.8 gsmSCF address list for CSI

The gsmSCF address list indicates a list of gsmSCF addresses to which Notification on Change of Subscriber Data is to be sent. This list is common to all CSI.

****** Next Modified Section ******

7.3 Description of CAMEL Subscriber Data

7.3.1 CAMEL Subscription Information for MO SMS (SMS-CSI)

This subclause defines the contents of the Short Message Service CAMEL Subscription Information.

7.3.1.1 gsmSCF address

Address to be used to access the gsmSCF for a particular subscriber. The address shall be an E.164 number to be used for routeing.

7.3.1.2 Service Key

The Service Key identifies to the gsmSCF the service logic.

7.3.1.3 Default SMS Handling

The Default SMS Handling indicates whether the Short Message submission shall be released or continued as requested in the case of error in the dialogue between gsmSCF and gsmSSF or gprsSSF.

7.3.1.4 TDP List

The TDP List indicates on which detection point triggering shall take place. For SMS-CSI only DP - SMS_Collected_Info is used.

7.3.1.5 CAMEL Capability Handling

CAMEL Capability Handling indicates the phase of CAMEL which is asked by the gsmSCF for the service.

7.3.1.6 CSI state

The CSI state indicates whether the SMS-CSI is active or not.

7.3.1.7 Notification flag

The notification flag indicates whether the change of the SMS-CSI shall trigger Notification on Change of Subscriber Data or not.

7.3.1.8 gsmSCF address list for CSI

The gsmSCF address list indicates a list of gsmSCF addresses to which Notification on Change of Subscriber Data is to be sent. This list is common to all CSI.

****** Next Modified Section ******

8.2 Description of CAMEL Subscriber Data

8.2.1 Supplementary Service Invocation Notification CAMEL Subscription Information (SS-CSI)

8.2.1.1 Content of the SS-CSI

This subclause defines the contents of the Supplementary Service Invocation Notification CAMEL Subscription Information (SS-CSI).

8.2.1.1.1 Notification criteria

This data indicates for which supplementary services notifications shall be sent. The supplementary services which may be indicated are ECT, CD, CCBS and MPTY.

8.2.1.1.2 gsmSCF address

Address to be used to access the gsmSCF for a particular subscriber. The address shall be an E.164 number to be used for routeing.

8.2.1.1.3 CSI state

The CSI state indicates whether the SS-CSI is active or not.

8.2.1.1.4 Notification flag

The notification flag indicates whether the change of the SS-CSI shall trigger Notification on Change of Subscriber Data or not.

8.2.1.1.5 gsmSCF address list for CSI

The gsmSCF address list indicates a list of gsmSCF addresses to which Notification on Change of Subscriber Data is to be sent. This list is common to all CSI.

****** Next Modified Section ******

9.2 Description of CAMEL Subscriber Data

9.2.1. Mobility Management CAMEL Subscription Information (M-CSI)

9.2.1.1 Content of the M-CSI

This subclause specifies the contents of the Mobility Management CAMEL Subscription Information (M-CSI).

9.2.1.1.1 Mobility Management Triggers

This data indicates which Mobility Management events shall result in a notification to the gsmSCF. One or more events may be marked per subscriber. One or more events may be marked per subscriber. One or more events may be marked per subscriber. The following events may be marked for a subscriber:

- Location update in the same VLR service area

- Location update to ananother VLR service area

- IMSI attach

- MS initiated IMSI detach (explicit detach)

- Network initiated IMSI detach (implicit detach)

9.2.1.1.2 gsmSCF address

Address to be used to access the gsmSCF for a particular subscriber. The address shall be an E.164 number to be used for routing.

9.2.1.1.3 Service Key

The Service Key is included in the notification message to the gsmSCF. It indicates to the gsmSCF which Service Logic shall be applied.

9.2.1.1.4 CSI state

The CSI state indicates whether the M-CSI is active or not.

9.2.1.1.5 Notification flag

The notification flag indicates whether the change of the M-CSI shall trigger Notification on Change of Subscriber Data or not.

9.2.1.1.6 gsmSCF address list for CSI

The gsmSCF address list indicates a list of gsmSCF addresses to which Notification on Change of Subscriber Data is to be sent. This list is common to all CSI.

3GPP TSG CN WG2 A
Sophia Antipolis, France, 21-25 February 2000

Document ***N2A000262***
rev of N2A000185
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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23.078	**CR**	**101r1**	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: CN #07
list expected approval meeting # here ↑

for approval ☒
for information ☐

strategic ☐
non-strategic ☐
(for SMG use only)

Form: CR cover sheet, version 2 for 3GPP and SMG   The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc

Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio ☐ Core Network ☒
(at least one should be marked with an X)

Source: CN WG2   **Date:** 24.02.2000

Subject: Correction of SII2 description

Work item: CAMEL Phase 3

Category: *(only one category shall be marked with an X)*

F Correction ☒
A Corresponds to a correction in an earlier release ☐
B Addition of feature ☐
C Functional modification of feature ☐
D Editorial modification ☐

Release:

Phase 2 ☐
Release 96 ☐
Release 97 ☐
Release 98 ☐
Release 99 ☒
Release 00 ☐

Reason for change:

- To align stage 2 and stage 3; i.e. to put the Call Completion Treatment Indicator into the Forward Service Interaction Indicator and Backward Service Interaction Indicator rather than into the Service Interaction Indicators Two.
- To allow the Call Completion Treatment Indicator for all call cases in the Backward Service Interaction Indicator. There is no restriction necessary.
- According to MSP2 the Call Completion Indicator is not required in the Initial DP Information flow.

Clauses affected: 4.6.1.5 Initial DP; 4.6.2.5 Connect

Other specs affected:

Other 3G core specifications ☐ → List of CRs:
Other GSM core specifications ☐ → List of CRs:
MS test specifications ☐ → List of CRs:
BSS test specifications ☐ → List of CRs:
O&M specifications ☐ → List of CRs:

Other comments:

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<--------- double-click here for help and instructions on how to create a CR.

— First modified section —

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

...

[37] 3G TS 23.093: "3rd Generation Partnership Project; Technical Specification Group Core Network; Technical realization of Completion of Calls to Busy Subscriber (CCBS) - Stage 2"

— Next modified section —

4.6.1.5 Initial DP

4.6.1.5.1 Description

This IF is generated by the gsmSSF when a trigger is detected at a DP in the BCSM, to request instructions from the gsmSCF.

4.6.1.5.2 Information Elements

The following information elements are required:

Information element name	MO	MF	MT	VT	Description
Additional Calling Party Number	-	C	C	C	The calling party number provided by the access signalling system of the calling user.
Bearer Capability	M	C	C	C	This IE indicates the type of the bearer capability connection to the user.
Called Party Number	-	M	M	M	This IE contains the number used to identify the called party in the forward direction. For the VT calls this is the MSISDN received in the Provide Roaming Number; if the MSISDN is not available, the basic MSISDN is used.
Called Party BCD Number	M	-	-	-	This IE contains the number used to identify the called party in the forward direction. The number contained in this IE shall be identical to the number received over the access network. It may e.g. include service selection information, such as ∗ and # digits, or carrier selection information dialled by the subscriber.
Calling Party Number	M	C	C	C	This IE carries the calling party number to identify the calling party or the origin of the call.
Calling Partys Category	M	C	C	C	Indicates the type of calling party (e.g., operator, pay phone, ordinary subscriber).
Call Reference Number	M	M	M	M	This IE may be used by the gsmSCF for inclusion in a network optional gsmSCF call record. It has to be coupled with the identity of the MSC which allocated it in order to define unambiguously the identity of the call. For MO calls, the call reference number is set by the serving VMSC and included in the MO call record. For MT calls, the call reference number is set by the GMSC and included in the RCF call record in the GMSC and in the MT call record in the terminating MSC. For VT calls, the call reference number is set by the GMSC and included in the RCF call record in the GMSC and in the MT call record in the terminating MSC. For CF calls, the call reference number is set by the GMSC and included in the CF record in the forwarding MSC.
Cause	C	C	C	C	This IE indicates the cause specific to the armed BCSM DP event. This IE is applicable to DP Route_Select_Failure and DP T_Busy. The cause may be used by the SCF to decide about the further handling of the call.
Event Type BCSM	M	M	M	M	This IE indicates the armed BCSM DP event, resulting in the Initial DP IF.

Information element name	MO	MF	MT	VT	Description
Ext-Basic Service Code	C	C	C	C	This IE indicates the type of basic service i.e., teleservice or bearer service.
High Layer Compatibility	C	C	C	C	This IE indicates the type of the high layer compatibility, which will be used to determine the ISDN-teleservice of a connected ISDN terminal.
IMSI	M	M	M	M	This IE identifies the mobile subscriber.
IP SSP Capabilities	C	C	C	C	This IE indicates which SRF resources are supported within the gsmSSF and are available. If this IE is absent, this indicates that no gsmSRF is attached and available.
Location Information	M	-	C	M	This IE is described in the next table.
Location Number	M	C	C	C	For mobile originated calls this IE represents the location of the calling party. For all other call scenarios this IE contains the location number received in incoming ISUP signalling.
MSC Address	M	M	M	M	For MO calls, the MSC Address carries the international E.164 address of the serving VMSC. For MT calls, the MSC Address carries the international E.164 address of the GMSC. For VT calls, the MSC Address carries the international E.164 address of the serving VMSC. For CF calls, the MSC Address carries the international E.164 address of the forwarding MSC.
GMSC Address	-	M	-	M	For CF calls, the GMSC Address carries the international E.164 address of the GMSC. For VT calls, the GMSC Address carries the international E.164 address of the GMSC.
NA Carrier Information	C	C	C	C	The content of this IE is described in the next table. The IE may be sent when the VPLMN and the HPLMN of the subscriber are both North American. For MO calls, this IE shall contain any carrier that was dialed by the calling subscriber. If no carrier was dialed, the IE shall contain the calling subscriber’s subscribed carrier. For MT and VT calls, the IE shall contain the carrier subscribed to by the called subscriber. For CF calls, the IE shall contain the carrier subscribed to by the forwarding subscriber.
Original Called Party ID	-	C	C	C	This IE carries the dialled digits if the call has met call forwarding on the route to the gsmSSF.
Redirecting Party ID	-	M	C	C	This IE indicates the directory number the call was redirected from.
Redirection Information	-	M	C	C	This IE contains forwarding related information, such as redirection counter.
Service Key	M	M	M	M	This IE identifies for the gsmSCF the requested set of one or more CAMEL services. It is used to address the correct application/SLP within the gsmSCF.

Information element name	MO	MF	MT	VT	Description
Subscriber State	-	-	C	C	This IE indicates the status of the MS. The states are: - CAMELBusy: The MS is engaged on a transaction for a mobile originating or terminated circuit-switched call. - NetworkDeterminedNotReachable: The network can determine from its internal data that the MS is not reachable. - AssumedIdle: The state of the MS is neither "CAMELBusy" nor "NetworkDeterminedNotReachable". - Not provided from VLR.
Time And Timezone	M	M	M	M	This IE contains the time that the gsmSSF was triggered, and the time zone the gsmSSF resides in.
GSM Forwarding Pending	-	-	C	C	This parameter indicates that a forwarded-to-number was received and the call will be forwarded due to GSM supplementary service call forwarding in the GMSC/VMSC.
Service Interaction Indicators Two	C	C	C	C	This IE is sent if it is received in the ISUP message or due to previous CAMEL processing. The IE is described in a table below.
CUG Information	-	C	C	C	See 3G TS 23.085 [9] for details of this IE.
CUG Index	C	-	-	-	See 3G TS 23.085 [9] for details of this IE.

M Mandatory (The IE shall always be sent)

C Conditional (The IE shall be sent, if available)

- Not applicable

Location Information contains the following information:

Information element name	MO	MF	MT	VT	Description
Location Number	-	-	C	C	See 3G TS 23.018 [3].
CellIdOrLAI	M	-	C	C	See 3G TS 23.018 [3].
Geographical Information	C	-	C	C	See 3G TS 23.018 [3].
Geodetic Information	C	-	C	C	See 3G TS 23.018 [3].
Age Of Location Information	M	-	C	C	See 3G TS 23.018 [3].
VLR number	M	-	C	M	See 3G TS 23.018 [3].
Selected LSA Identity	C	-	C	C	This IE indicates the LSA identity associated with the current position of the MS. Send if the LSA ID of subscription and LSA ID of the used cell matches. In the case of multiple matches the one with the highest priority is sent. See 3G TS 23.073 [23]. The IE shall only be sent, if SoLSA is supported.

M Mandatory (The IE shall always be sent)

C Conditional (The IE shall be sent, if available. Further conditions are in the description column.)

- Not applicable

NA Carrier Information contains the following information:

Information element name	MO	MF	MT	VT	Description
NA Carrier Identification Code	M	M	M	M	This IE uniquely identifies a North American long distance carrier.
NA Carrier Selection Information	M	M	M	M	This IE indicates the way the carrier was selected e.g.: – dialled – subscribed

M Mandatory (The IE shall always be sent)

Service Interaction Indicators Two contains the following information:

Information element name	MO	MF	MT	VT	Description
Forward Service Interaction Indicator	C	C	C	C	This IE is described in a table below.
HOLD Treatment Indicator	C	C	C	C	This IE indicates whether the CAMEL subscriber can invoke HOLD for the call.
CW Treatment Indicator	C	C	C	C	This IE indicates whether CW can be applied for a call to the CAMEL subscriber whilst this call is ongoing.
ECT Treatment Indicator	C	C	C	C	This IE indicates whether the call leg can become part of an ECT call initiated by the calling subscriber.
~~Call Completion Treatment Indicator~~	~~C~~	~~C~~	~~C~~	~~C~~	~~This IE indicates whether a CCBS request can be made for the call.~~

C Conditional (The IE shall be sent, if available)

- Not applicable

Forward Service Interaction Indicator contains the following information:

Information element name	MO	MF	MT	VT	Description
Conference Treatment Indicator	C	C	C	C	This IE indicates whether the call leg can become part of a MPTY call initiated by the called subscriber.
Call Diversion Treatment Indicator	C	C	C	C	This IE indicates whether the call can be forwarded using the Call Forwarding or Call Deflection Supplementary Services.

C Conditional (The IE shall be sent, if available)

— Next modified section —

4.6.2.5 Connect

4.6.2.5.1 Description

This IF is used to request the gsmSSF to perform the call processing actions to route a call to a specific destination. To do so, the gsmSSF may use destination information from the calling party and existing call set-up information depending on the information provided by the gsmSCF.

4.6.2.5.2 Information Elements

The following information elements are required:

Information element name	MO	MF	MT	VT	Description
Alerting Pattern	-	-	O	O	This parameter indicates the kind of Alerting Pattern to be applied.
Calling Partys Category	O	O	O	O	This IE indicates the type of calling party (e.g., operator, pay phone, ordinary subscriber).
Destination Routing Address	M	M	M	M	This IE contains the called party number towards which the call is to be routed.
Generic Number	O	O	O	O	This IE contains the generic number. Its used to convey the additional calling party number, which e.g. could be used to modify the calling line ID presented to the called user.
NA Carrier Information	O	O	O	O	This IE is described in the next table.
NA Originating Line Information	O	O	O	O	This IE identifies the type of number in the NA Charge Number (e.g. subscriber versus PLMN operator number).
NA Charge Number	O	O	O	O	This IE identifies the chargeable number for the usage of a North American carrier.
O-CSI Applicable	-	-	O	O	This IE indicates that the O-CSI, if present shall be applied on the outgoing leg.
Original Called Party ID	O	O	O	O	This IE carries the dialled digits if the call has met call forwarding on route to the gsmSSF or is forwarded by the gsmSCF.
Redirecting Party ID	O	O	O	O	This IE indicates the directory number the call was redirected from.
Redirection Information	O	O	O	O	This IE contains forwarding related information, such as redirecting counter.
Suppression Of Announcements	-	-	O	O	This IE indicates that announcements or tones generated as a result of unsuccessful call setup shall be suppressed.
Service Interaction Indicators Two	O	O	O	O	This IE is described in a table below.
CUG Interlock Code	O	O	O	O	See 3G TS 23.085 [9] for details of this IE.
Outgoing Access Indicator	O	O	O	O	See 3G TS 23.085 [9] for details of this IE.

O Optional (Service logic dependent)

- Not applicable

NA Carrier Information contains the following information:

Information element name	MO	MF	MT	VT	Description
NA Carrier Identification Code	M	M	M	M	This IE uniquely identifies a North American long distance carrier.
NA Carrier Selection Information	M	M	M	M	This IE indicates the way the carrier was selected e.g.: – dialled – subscribed

M Mandatory (The IE shall always be sent)

Service Interaction Indicators Two contains the following information:

Information element name	MO	MF	MT	VT	Description
Forward Service Interaction Indicator	O	O	O	O	This IE is described in a table below.
Backward Service Interaction Indicator	O	O	O	O	This IE is described in a table below.
HOLD Treatment Indicator	O	-	-	O	This IE indicates whether the CAMEL subscriber can invoke HOLD for the call.
CW Treatment Indicator	O	-	-	O	This IE indicates whether CW can be applied for a call to the CAMEL subscriber whilst this call is ongoing.
ECT Treatment Indicator	O	-	-	O	This IE indicates whether the call leg can become part of an ECT call initiated by the CAMEL subscriber.
~~Call Completion Treatment Indicator~~	~~O~~	-	-	~~O~~	~~This IE indicates whether a CCBS request can be made for the call.~~

O Optional (Service logic dependent)

- Not applicable

Forward Service Interaction Indicator contains the following information:

Information element name	MO	MF	MT	VT	Description
Conference Treatment Indicator	O	O	O	O	This IE indicates whether the call leg can become part of a MPTY call initiated by the called subscriber.
Call Diversion Treatment Indicator	O	O	O	O	This IE indicates whether the call can be forwarded using the Call Forwarding or Call Deflection Supplementary Services.
Calling Party Restriction Indicator	O	-	-	-	This IE indicates whether the CLI shall be marked as Restricted by CAMEL action for the call.
Call Completion Treatment Indicator	O	-	-	-	This IE indicates whether the calling user can made a CCBS request for this call. See also 3G TS 23.093 [37] for further details.

O Optional (Service logic dependent)

- Not applicable

Backward Service Interaction Indicator contains the following information:

Information element name	MO	MF	MT	VT	Description
Conference Treatment Indicator	O	O	O	O	This IE indicates if the call leg can become part of a MPTY call initiated by the calling subscriber.
Call Completion Treatment Indicator	O	O	O	O	This IE indicates whether a CCBS request can be made for the call. See also Q.1601 for description.

O Optional (Service logic dependent)

- Not applicable

3GPP TSG CN WG2 A
Sophia Antipolis, France, 21-25 February 2000

Document ***N2A000257***
rev of N2A000186
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

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23.078 CR 102r1 Current Version: 3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: CN #07
list expected approval meeting # here ↑

for approval ☒
for information ☐

strategic ☐
non-strategic ☐
(for SMG use only)

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM ☐ ME ☐ UTRAN / Radio ☐ Core Network ☒
(at least one should be marked with an X)

Source: CN WG2 **Date:** 23.02.2000

Subject: Clarification on CUG handling

Work item: CAMEL Phase 3

Category:
(only one category shall be marked with an X)

F Correction ☒
A Corresponds to a correction in an earlier release ☐
B Addition of feature ☐
C Functional modification of feature ☐
D Editorial modification ☐

Release:

Phase 2 ☐
Release 96 ☐
Release 97 ☐
Release 98 ☐
Release 99 ☒
Release 00 ☐

Reason for change:

Currently the Initial DP Information Flow contains the CUG Information and CUG Index Information Elements. A reference to 23.085 (CUG stage 2) is made. However 23.085 uses the term "CUG Information" in a broad sence. In general it can be deduced that it is like the CUG Index, CUG Interlock Code and the Outgoing Access. 23.078 does not specify the CUG handling in respect to Initial DP. 29.078 references the CUG relevant datatypes, but does not import neither define them. 29.002 uses CUG-Info as containing all information about CUG.
In the MF, MT and VT case the information send in the Initial DP is the information received in the incoming call or from a previous Connect IF and as this information consist of the CUG Interlock Code and the Outgoing Access it is proposed to specify CUG Information to be this one.
In the MO case it is proposed to use the same information. It is proposed to receive the CUG Interlock code from the VLR via the CUG Index available from the user and send this info.

Clauses affected:

Other specs affected:

Other 3G core specifications ☐ → List of CRs: CR 29.078-052r1
Other GSM core specifications ☐ → List of CRs:
MS test specifications ☐ → List of CRs:
BSS test specifications ☐ → List of CRs:
O&M specifications ☐ → List of CRs:

Other comments:

help.doc

<--------- double-click here for help and instructions on how to create a CR.

— First modified section —

4.6.1.5 Initial DP

4.6.1.5.1 Description

This IF is generated by the gsmSSF when a trigger is detected at a DP in the BCSM, to request instructions from the gsmSCF.

4.6.1.5.2 Information Elements

The following information elements are required:

Information element name	MO	MF	MT	VT	Description
Additional Calling Party Number	-	C	C	C	The calling party number provided by the access signalling system of the calling user.
Bearer Capability	M	C	C	C	This IE indicates the type of the bearer capability connection to the user.
Called Party Number	-	M	M	M	This IE contains the number used to identify the called party in the forward direction. For the VT calls this is the MSISDN received in the Provide Roaming Number; if the MSISDN is not available, the basic MSISDN is used.
Called Party BCD Number	M	-	-	-	This IE contains the number used to identify the called party in the forward direction. The number contained in this IE shall be identical to the number received over the access network. It may e.g. include service selection information, such as * and # digits, or carrier selection information dialled by the subscriber.
Calling Party Number	M	C	C	C	This IE carries the calling party number to identify the calling party or the origin of the call.
Calling Partys Category	M	C	C	C	Indicates the type of calling party (e.g., operator, pay phone, ordinary subscriber).
Call Reference Number	M	M	M	M	This IE may be used by the gsmSCF for inclusion in a network optional gsmSCF call record. It has to be coupled with the identity of the MSC which allocated it in order to define unambiguously the identity of the call. For MO calls, the call reference number is set by the serving VMSC and included in the MO call record. For MT calls, the call reference number is set by the GMSC and included in the RCF call record in the GMSC and in the MT call record in the terminating MSC. For VT calls, the call reference number is set by the GMSC and included in the RCF call record in the GMSC and in the MT call record in the terminating MSC. For CF calls, the call reference number is set by the GMSC and included in the CF record in the forwarding MSC.
Cause	C	C	C	C	This IE indicates the cause specific to the armed BCSM DP event. This IE is applicable to DP Route_Select_Failure and DP T_Busy. The cause may be used by the SCF to decide about the further handling of the call.
Event Type BCSM	M	M	M	M	This IE indicates the armed BCSM DP event, resulting in the Initial DP IF.

Information element name	MO	MF	MT	VT	Description
Ext-Basic Service Code	C	C	C	C	This IE indicates the type of basic service i.e., teleservice or bearer service.
High Layer Compatibility	C	C	C	C	This IE indicates the type of the high layer compatibility, which will be used to determine the ISDN-teleservice of a connected ISDN terminal.
IMSI	M	M	M	M	This IE identifies the mobile subscriber.
IP SSP Capabilities	C	C	C	C	This IE indicates which SRF resources are supported within the gsmSSF and are available. If this IE is absent, this indicates that no gsmSRF is attached and available.
Location Information	M	-	C	M	This IE is described in the next table.
Location Number	M	C	C	C	For mobile originated calls this IE represents the location of the calling party. For all other call scenarios this IE contains the location number received in incoming ISUP signalling.
MSC Address	M	M	M	M	For MO calls, the MSC Address carries the international E.164 address of the serving VMSC. For MT calls, the MSC Address carries the international E.164 address of the GMSC. For VT calls, the MSC Address carries the international E.164 address of the serving VMSC. For CF calls, the MSC Address carries the international E.164 address of the forwarding MSC.
GMSC Address	-	M	-	M	For CF calls, the GMSC Address carries the international E.164 address of the GMSC. For VT calls, the GMSC Address carries the international E.164 address of the GMSC.
NA Carrier Information	C	C	C	C	The content of this IE is described in the next table. The IE may be sent when the VPLMN and the HPLMN of the subscriber are both North American. For MO calls, this IE shall contain any carrier that was dialed by the calling subscriber. If no carrier was dialed, the IE shall contain the calling subscriber’s subscribed carrier. For MT and VT calls, the IE shall contain the carrier subscribed to by the called subscriber. For CF calls, the IE shall contain the carrier subscribed to by the forwarding subscriber.
Original Called Party ID	-	C	C	C	This IE carries the dialled digits if the call has met call forwarding on the route to the gsmSSF.
Redirecting Party ID	-	M	C	C	This IE indicates the directory number the call was redirected from.
Redirection Information	-	M	C	C	This IE contains forwarding related information, such as redirection counter.
Service Key	M	M	M	M	This IE identifies for the gsmSCF the requested set of one or more CAMEL services. It is used to address the correct application/SLP within the gsmSCF.

Information element name	MO	MF	MT	VT	Description
Subscriber State	-	-	C	C	This IE indicates the status of the MS. The states are: - CAMELBusy: The MS is engaged on a transaction for a mobile originating or terminated circuit-switched call. - NetworkDeterminedNotReachable: The network can determine from its internal data that the MS is not reachable. - AssumedIdle: The state of the MS is neither "CAMELBusy" nor "NetworkDeterminedNotReachable". - Not provided from VLR.
Time And Timezone	M	M	M	M	This IE contains the time that the gsmSSF was triggered, and the time zone the gsmSSF resides in.
GSM Forwarding Pending	-	-	C	C	This parameter indicates that a forwarded-to-number was received and the call will be forwarded due to GSM supplementary service call forwarding in the GMSC/VMSC.
Service Interaction Indicators Two	C	C	C	C	This IE is sent if it is received in the ISUP message or due to previous CAMEL processing. The IE is described in a table below.
~~CUG Information~~	-	~~C~~	~~C~~	~~C~~	~~See 3G TS 23.085 [9] for details of this IE.~~
CUG Index	C	-	-	-	See 3G TS 23.085 [9] for details of this IE.
CUG Interlock Code	C	C	C	C	See 3G TS 23.085 [9] for details of this IE. In the MO case this IE is received from the VLR.
Outgoing Access Indicator	C	C	C	C	See 3G TS 23.085 [9] for details of this IE. In the MO case this IE is received from the VLR.

M Mandatory (The IE shall always be sent)

C Conditional (The IE shall be sent, if available)

- Not applicable

Location Information contains the following information:

Information element name	MO	MF	MT	VT	Description
Location Number	-	-	C	C	See 3G TS 23.018 [3].
CellIdOrLAI	M	-	C	C	See 3G TS 23.018 [3].
Geographical Information	C	-	C	C	See 3G TS 23.018 [3].
Geodetic Information	C	-	C	C	See 3G TS 23.018 [3].
Age Of Location Information	M	-	C	C	See 3G TS 23.018 [3].
VLR number	M	-	C	M	See 3G TS 23.018 [3].
Selected LSA Identity	C	-	C	C	This IE indicates the LSA identity associated with the current position of the MS. Send if the LSA ID of subscription and LSA ID of the used cell matches. In the case of multiple matches the one with the highest priority is sent. See 3G TS 23.073 [23]. The IE shall only be sent, if SoLSA is supported.

M Mandatory (The IE shall always be sent)

C Conditional (The IE shall be sent, if available. Further conditions are in the description column.)

- Not applicable

NA Carrier Information contains the following information:

Information element name	MO	MF	MT	VT	Description
NA Carrier Identification Code	M	M	M	M	This IE uniquely identifies a North American long distance carrier.
NA Carrier Selection Information	M	M	M	M	This IE indicates the way the carrier was selected e.g.: – dialled – subscribed

M Mandatory (The IE shall always be sent)

Service Interaction Indicators Two contains the following information:

Information element name	MO	MF	MT	VT	Description
Forward Service Interaction Indicator	C	C	C	C	This IE is described in a table below.
HOLD Treatment Indicator	C	C	C	C	This IE indicates whether the CAMEL subscriber can invoke HOLD for the call.
CW Treatment Indicator	C	C	C	C	This IE indicates whether CW can be applied for a call to the CAMEL subscriber whilst this call is ongoing.
ECT Treatment Indicator	C	C	C	C	This IE indicates whether the call leg can become part of an ECT call initiated by the calling subscriber.
Call Completion Treatment Indicator	C	C	C	C	This IE indicates whether a CCBS request can be made for the call.

C Conditional (The IE shall be sent, if available)

- Not applicable

Forward Service Interaction Indicator contains the following information:

Information element name	MO	MF	MT	VT	Description
Conference Treatment Indicator	C	C	C	C	This IE indicates whether the call leg can become part of a MPTY call initiated by the called subscriber.
Call Diversion Treatment Indicator	C	C	C	C	This IE indicates whether the call can be forwarded using the Call Forwarding or Call Deflection Supplementary Services.