3GPP TSG CN Plenary Meeting #18 **NP-020532**
4th - 6th December 2002. New Orleans, USA.

Source: TSG CN WG2

Title: CRs to Rel-5 WI IMS-CAMEL, Pack 3

Agenda item: 8.1

Document for: APPROVAL

Introduction:

This document contains 9 CRs on Rel-5 WI IMS-CAMEL. These CRs have been agreed by TSG CN WG2 and are forwarded to TSG CN Plenary meeting #18 for approval.

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
23.278	022		N2-020987	Rel-5	SDL Procedure for Connect To Resource	F	5.0.0
23.278	025		N2-021039	Rel-5	Number comparison for D-CSI	F	5.0.0
23.278	012	1	N2-021047	Rel-5	IF Description for gsmSRF-related operations for IMS	F	5.0.0
29.278	003	1	N2-021048	Rel-5	Correction of ConnectToResource operation procedure for IMS.	F	5.0.0
23.278	003	2	N2-021049	Rel-5	Correction and improvement in MO procedures	F	5.0.0
23.278	023	1	N2-021051	Rel-5	Stage 2 specifications for Call Gap for IMS	F	5.0.0
23.278	026		N2-021059	Rel-5	Correction to Dialled Services criteria	F	5.0.0
23.278	024	2	N2-021090	Rel-5	Clarification of DP destination number trigger criteria for IMS	F	5.0.0
23.278	004	3	N2-021091	Rel-5	Correction and improvement in MT procedures	F	5.0.0

3GPP TSG-CN WG2 Meeting #27 **Tdoc ⌘N2-020987**
Bangkok, Thailand, 11th - 15th November 2002.

CR-Form-v7

CHANGE REQUEST

⌘ **23.278** **CR** 022 ⌘ **rev** **-** ⌘ Current version: **5.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	SDL Procedure for Connect To Resource
Source:	⌘	Lucent Technologies
Work item code:	⌘	IMS-CAMEL
Date:	⌘	28/10/2002
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change: ⌘ The IM-SSF procedures CAMEL_OCH_CTR and CAMEL_MT_CTR for handling of gsmSCF request to Connect To Resource are missing in 23.278.

Summary of change: ⌘ Added the following SDL procedures:
a) CAMEL_OCH_CTR for outgoing call handling of Connect To Resource request.

b) CAMEL_MT_CTR for mobile termination handling of Connect To Resource

Both SDL procedures were modelled after the procedures for CS CN and modified for IMS handling.l

Background information (reference used: TS 23.218 and 23.228):

An Application Server, such as the IM-SSF, may interact with the MRFC by sending session control requests via the S-CSCF using the ISC and Mr interfaces. Both ISC and Mr interfaces are based on the SIP protocol. In a summary, a SIP INVITE is sent from an Application Server to the MRFC (see step 8 in Figure B.2.1.1 of TS 23.218), via the S-CSCF, to establish a session for the purpose of playing announcements/tones. The announcements/tones are played to the UE after the SIP ACK is received at the MRFC (steps 26&27 in Figure B.2.1.1). The SIP BYE message is used to indicate end of the session with the MRFC. Either the MRFC or the Application Server (e.g. IM-SSF) may send the SIP BYE message to indicate end of the session. In addition, the SIP CANCEL is used to indicate end of the session with the MRFC prior to receipt of the ACK message.

CAVEAT: Although 3GPP has standardized the use of SIP protocol for service control based interactions with the MRFC, the details of how the SIP protocol methods shall be used to transport the additional information related to the

		specifics of the announcements/tones to be played has not been defined yet in Rel-5. Summary of proposed changed: The proposed IM-SSF procedures for handling of Connect To Resource request from the SCF is based on the same principle for MRFC interface with Application Servers in general as specified in 3GPP TS 23.218 and 23.228. When the IM-SSF receives the CAP ConnectToResource, the IM-SSF shall wait for the further instruction (e.g. PlayAnnouncement) from the gsmSCF before sending a SIP INVITE to start the session with the MRFC. The SIP INVITE sent to the MRFC (with the S-CSCF acting as a proxy to the MRFC) shall include the data received from the gsmSCF for playing the announcement/tone. Transporting of the data between an Application Server (i.e. IM-SSF) and the MRFC using the SIP message is currently not standardized in Rel-5. Proprietary solutions using existing SIP methods (e.g. BYE, INFO, UPDATE) may be used but this shall be left to the operators on how they would implement this in Rel-5.
Consequences if not approved:	⌘	No support for Connect To Resource operation.

Clauses affected:	⌘	5.1.3 and 5.1.4				
		Y	**N**			
Other specs affected:	⌘	**Y**		Other core specifications	⌘	29.278 CR#003
			X	Test specifications		
			X	O&M Specifications		
Other comments:	⌘					

Additional Information:

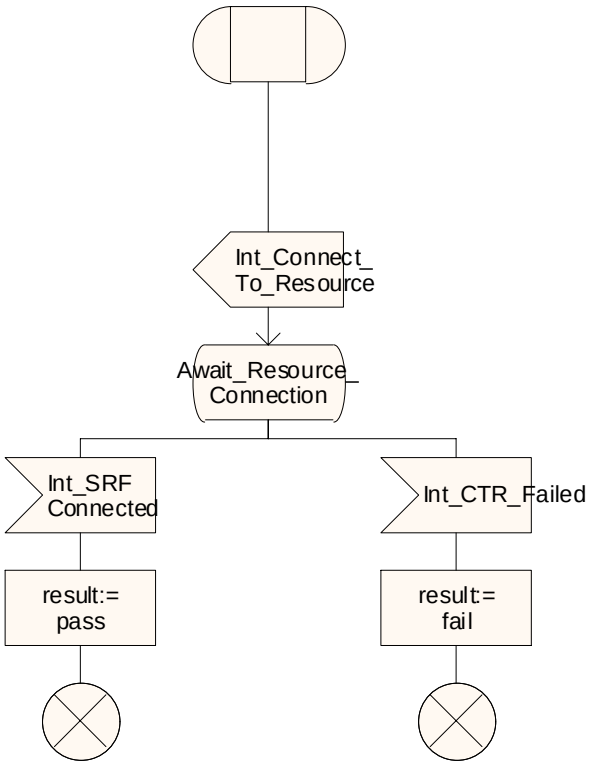
Procedure Connect_To_Resource is called from Process imcnSSF when the CAP ConnectToResource request is received from the SCF as specified in subclause 5.1.5 of TS 23.278. The same procedure specified in TS 23.078 Rel-99 for CS CN shall be used for IMS except in the IMS network, the IM-SSF takes the role of the MSC and the terminology "SRF" (Specialized Resource Function) would indicate an MRFC.

The following is the procedure for Connect_To_Resource as specified in TS 23.078 Rel-99:

Procedure Connect_To_Resource 1(1)

This procedure is called, when the ConnectToResource request is received in Wfl or Mon state.

/* Signals to/from the left are to from the Call Control Function in the MSC. */



****** First modified section ******

5.1.3 Handling of Mobile Originated Calls in the IM-SSF

The functional behaviour of the S-CSCF is specified in 3GPP TS 23.218 [5]. The procedures specific to CAMEL are specified in this subclause:

- Procedure CAMEL_IMCN_MO_INVITE;
- Procedure CAMEL_IMCN_MO_BYE;
- Procedure CAMEL_IMCN_MO_CANCEL;
- Procedure CAMEL_IMCN_MO_Response_Code~~.~~;
- Procedure CAMEL_OCH_CTR.

Internal interface indicated with the "Int_SRF_" prefix within this subclause indicates internal interface with the MRFC.

5.1.3.1 Actions of the IM-SSF on receipt of Int_Error

The IM-SSF checks the default Call Handling parameter in the relevant CSI.

If the default call handling is release, a BYE indication is sent to the MS. The IM-SSF then releases all resources and the invoked CAMEL procedure ends.

If the call handling is continue, the IM-SSF continues processing without CAMEL support.

5.1.3.2 Actions of the IM-SSF on receipt of Int_Continue

The IM-SSF continues processing without any modification of call parameters.

5.1.3.3 Actions of the IM-SSF on receipt of Int_Continue_With_Argument

The IM-SSF continues processing with modified call parameters. The IM-SSF shall modify the call parameters by the information received in the Int_Continue_With_Argument message. Call parameters that are not included in the Int_Continue_With_Argument_Message are unchanged.

5.1.3.4 Actions of the IM-SSF on receipt of Int_Connect

The IM-SSF continues processing with modified call parameters. The IM-SSF shall transparently modify the call parameters with the received information. Call parameters which are not included in the Int_Connect message are unchanged.

5.1.3.5 Actions of the IM-SSF on receipt of Int_Release_Call

A BYE is sent to the MS, and a BYE is sent to the destination CSCF. The release cause received in the Int_Release_Call is used. The IM-SSF then releases all call resources and all CAMEL processing ends.

5.1.3.6 Handling of procedure CAMEL_OCH_CTR, sheet 1

The IM-SSF behaves as a B2BUA (Back-2-Back User Agent) when a SIP INVITE is received for an outgoing call and SIP INVITE is sent to the MRFC (via S-CSCF) as a result of a CAP ConnectToResource request received from the SCF.

A SIP response 100 Trying is sent after each INVITE but is not shown in the SDLs.

The IM-SSF shall handle the 200 OK response from the MRFC as specified in TS 23.218.

5.1.3.7 Handling of procedure CAMEL_OCH_CTR, sheet 5

The specifics on transporting information between the MRFC and the Application Server such as the IM-SSF, has not been standardised in 3GPP Rel-5 specifications for IMS. i.e. the SIP method to return the Prompt_and_Collecet result from the MRFC to the IM-SSF, and the SIP method for sending notification of play announcement completion to the IM-SSF when a request for a Specialised Resource Report was received, are not standardised.

(Editor's note: Add the following SDL procedure as part of this subclause.)

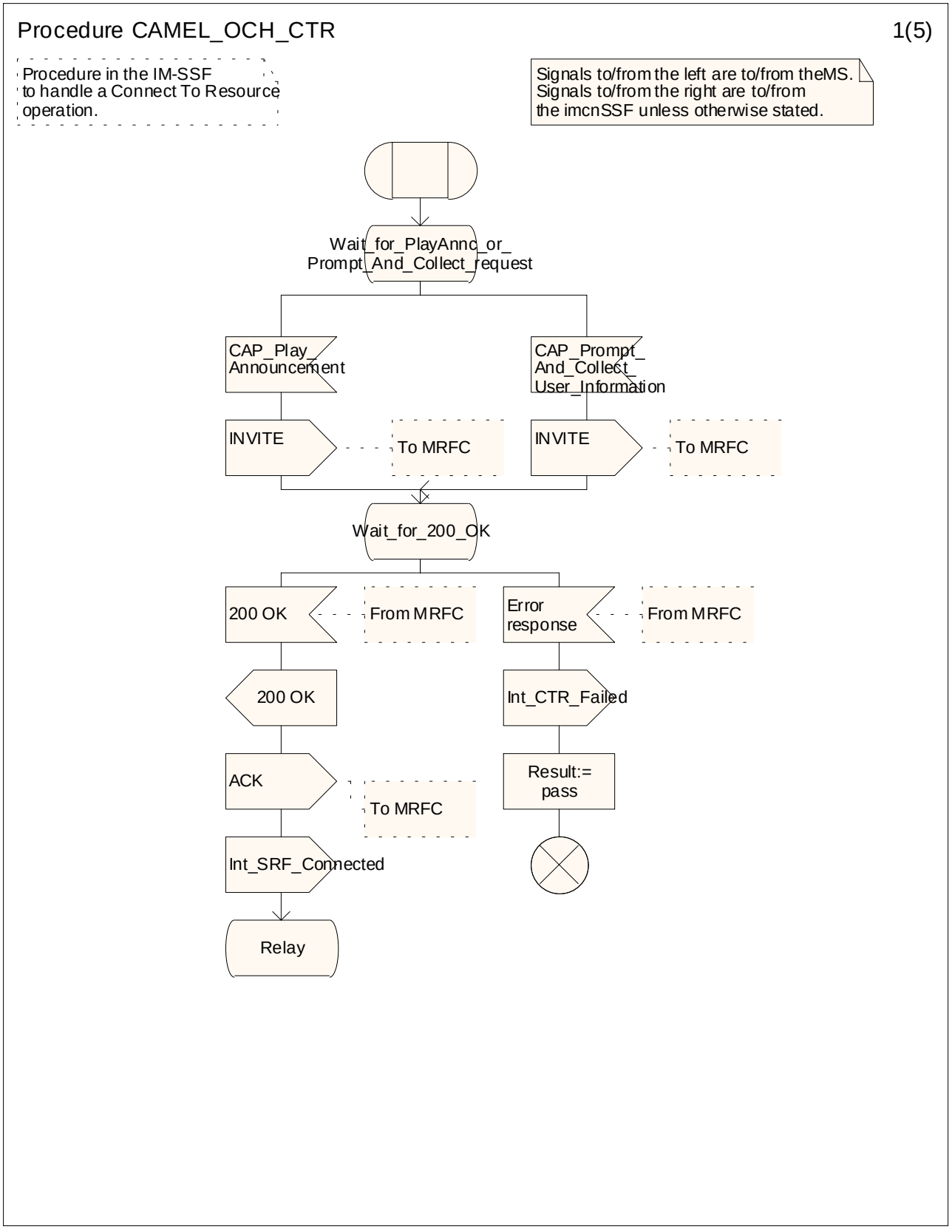


Figure 5.1.3.?: Procedure CAMEL_OCH_CTR (sheet 1)

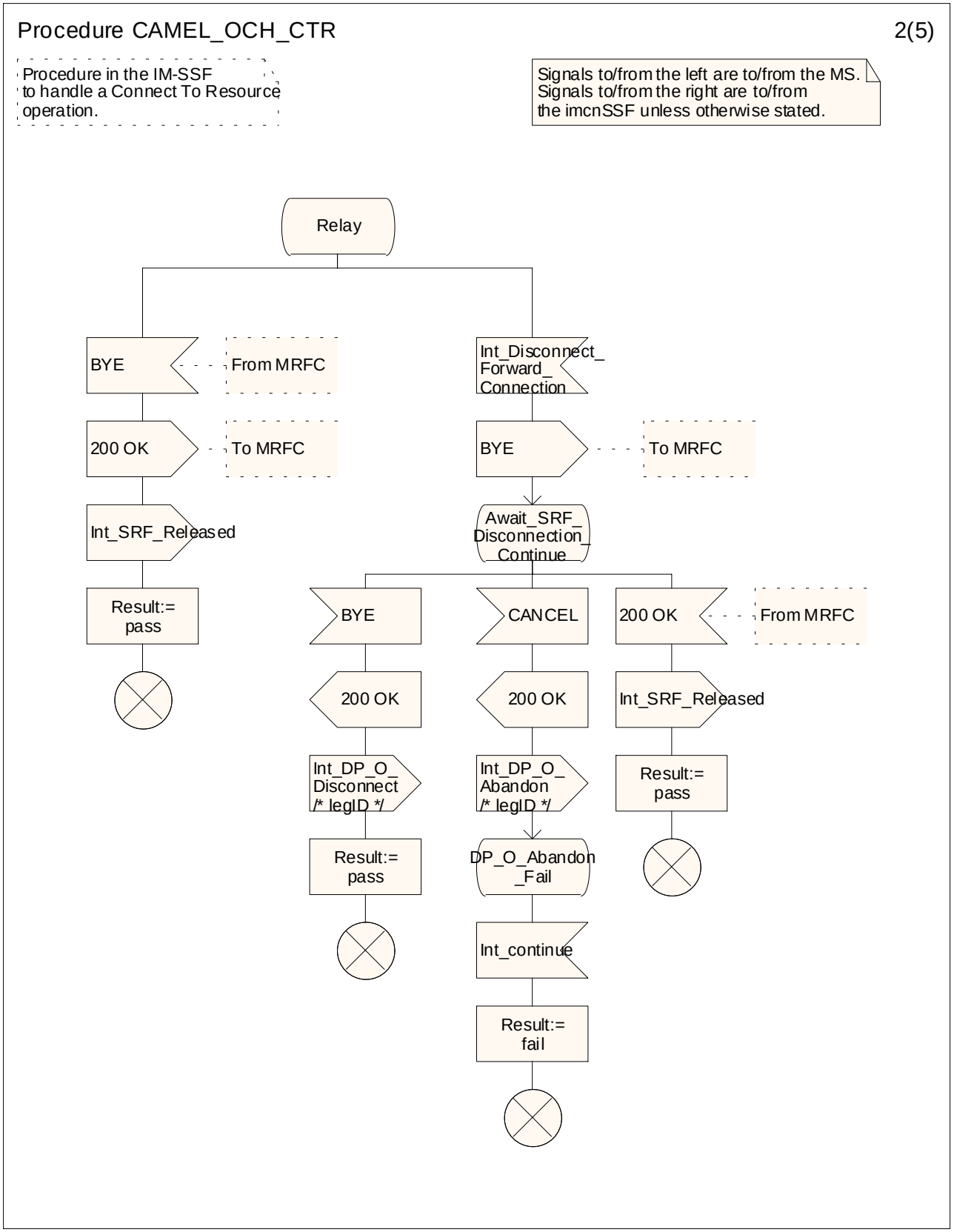


Figure 5.1.3.?: Procedure CAMEL_OCH_CTR (sheet 2)

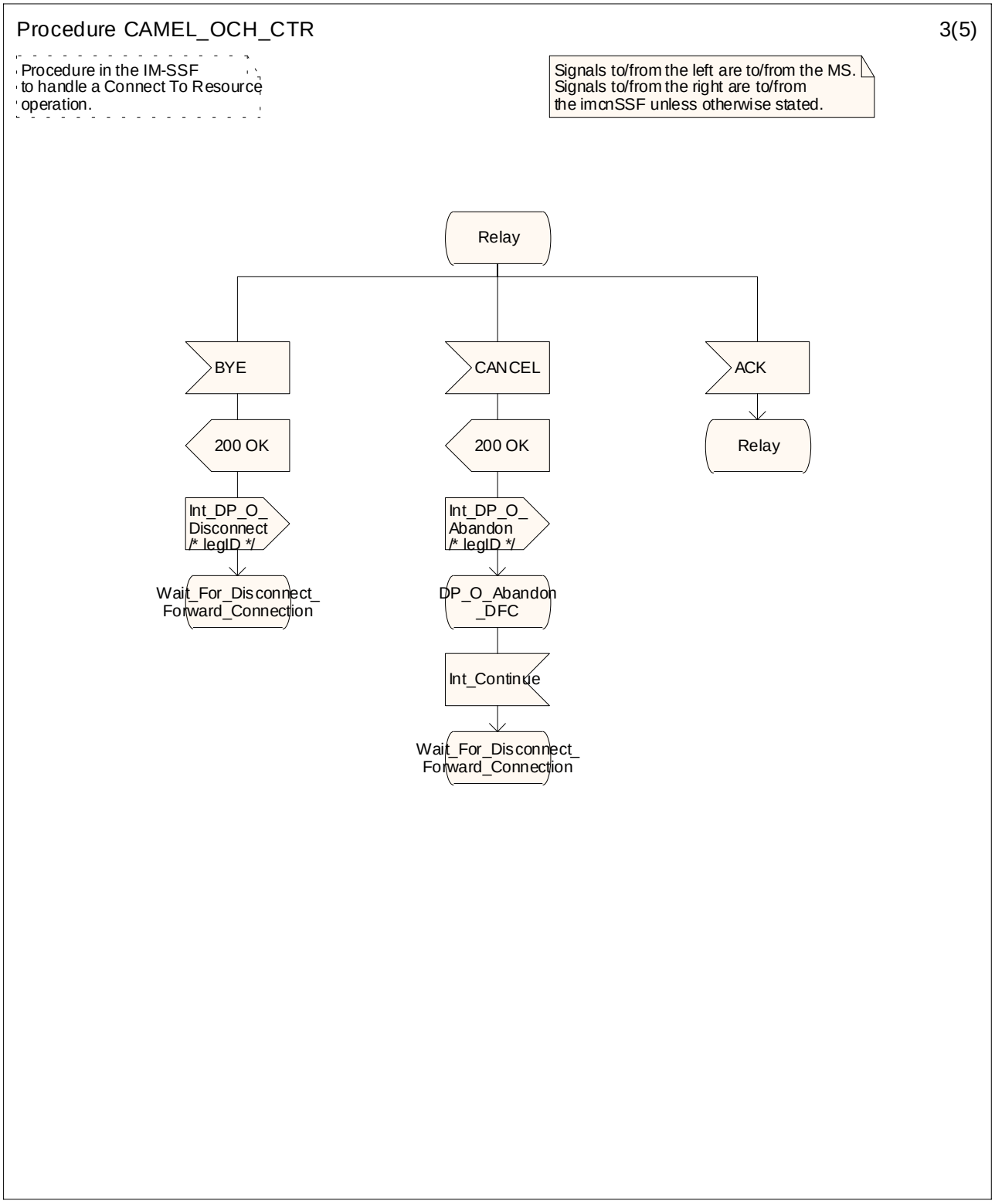


Figure 5.1.3.?: Procedure CAMEL_OCH_CTR (sheet 3)

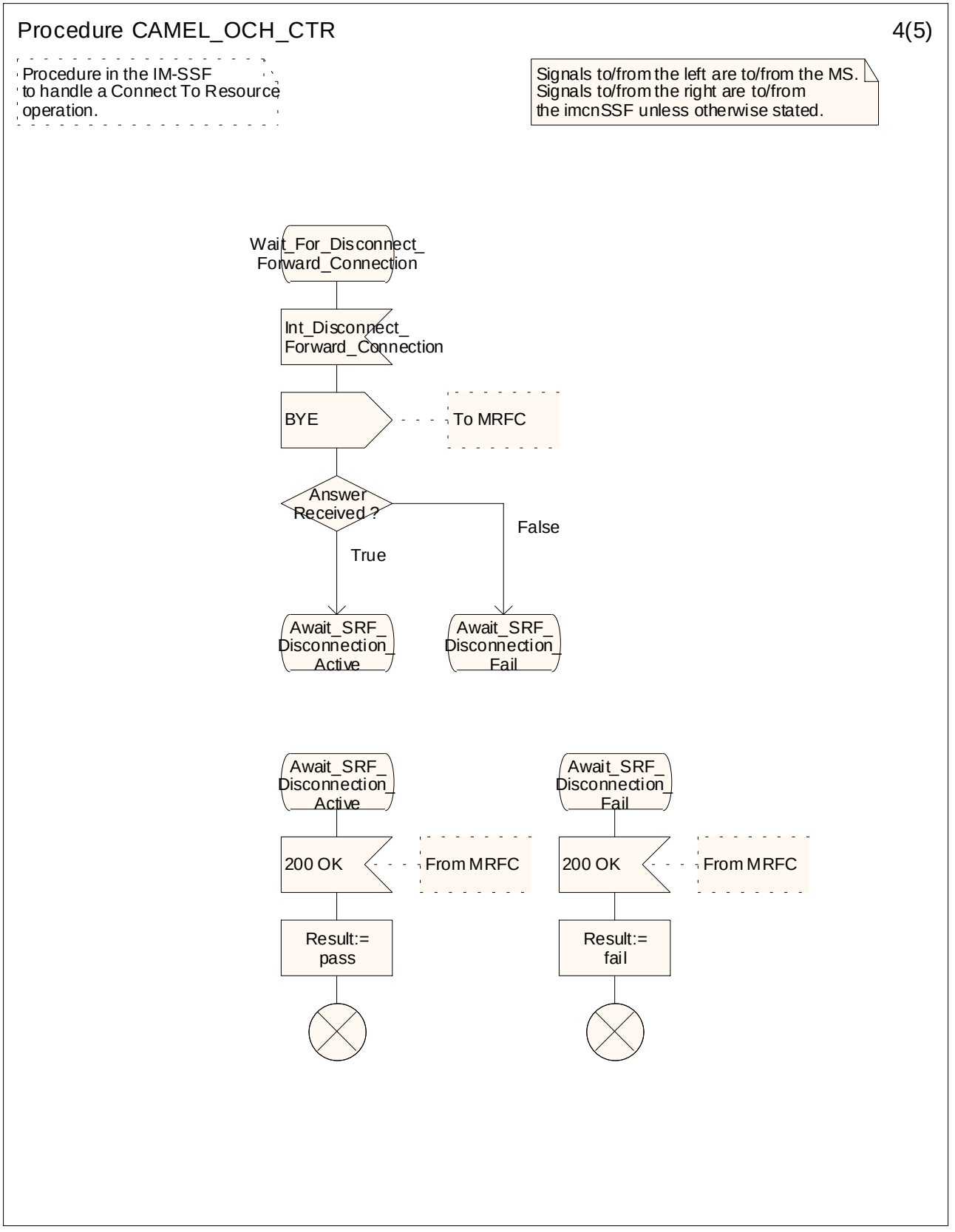


Figure 5.1.3.?: Procedure CAMEL_OCH_CTR (sheet 4)

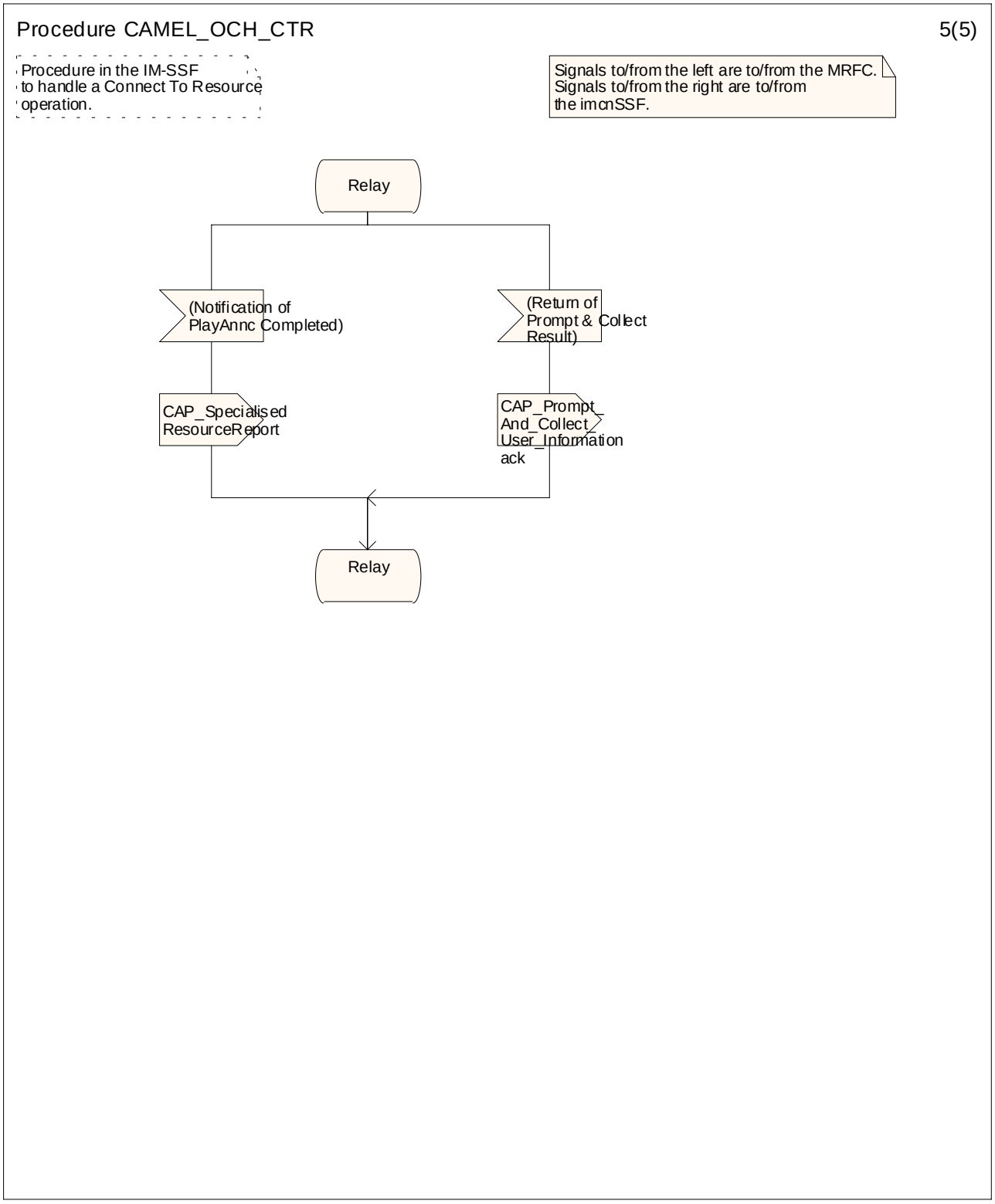


Figure 5.1.3.?: Procedure CAMEL_OCH_CTR (sheet 5)

****** Next modified section ******

5.1.4 Handling of Mobile Terminated IP Multimedia sessions in the IM-SSF

The functional behaviour of the S-CSCF for handling terminating calls is specified in 3GPP TS 23.218 [5]. The procedures specific to CAMEL are specified in this subclause:

- Procedure CAMEL_IMCN_MT_INVITE;
- Procedure CAMEL_IMCN_MT_BYE;
- Procedure CAMEL_IMCN_MT_CANCEL;
- Procedure CAMEL_IMCN_MT_Response_Code.
- Procedure CAMEL_MT_CTR.

Internal interface indicated with the "Int_SRF_" prefix within this subclause indicates internal interface with the MRFC.

5.1.4.1 Actions of the IM-SSF on receipt of Int_Error

The IM-SSF checks the default Call Handling parameter in the relevant CSI.

If the default call handling is release, a BYE indication is sent to the originating CSCF. The IM-SSF then releases all resources and the invoked CAMEL procedure ends.

If the call handling is continue, the IM-SSF continues processing without CAMEL support.

5.1.4.2 Actions of the IM-SSF on receipt of Int_Release_Call

The IM-SSF BYE message is sent to the originating CSCF and resources are released.

5.1.4.3 Actions of the IM-SSF on receipt of Int_Continue_With_Argument

The IM-SSF shall replace the call parameters by the information received in the Int_Continue_With_Argument message. Call parameters that are not included in the Int_Continue_With_Argument_Message are unchanged.

5.1.4.4 Actions of IM-SSF in procedure CAMEL_IMCN_MT_INVITE for Unregistered Subscriber

When querying the HSS for the subscriber's IM CSI data, the IM-SSF does not have to wait for the HSS's response on the first query before the subsequent queries are done. i.e Sending of multiple Any Time Interrogation operations can be done in parallel. However, the IM-SSF shall wait for all the responses from the HSS before it shall continue with the handling of the terminating IP multimedia session.

5.1.4.5 Handling of procedure CAMEL_MT_CTR, sheet 1

The IM-SSF behaves as a B2BUA (Back-2-Back User Agent) when a SIP INVITE is received for an terminating call and SIP INVITE is sent to the MRFC (via S-CSCF) as a result of a CAP ConnectToResource request received from the SCF.

A SIP response 100 Trying is sent after each INVITE but is not shown in the SDLs.

The IM-SSF shall handle the 200 OK response from the MRFC as specified in TS 23.218.

5.1.4.6 Handling of procedure CAMEL_MT_CTR, sheet 5

The specifics on transporting information between the MRFC and the Application Server such as the IM-SSF, has not been standardised in 3GPP Rel-5 specifications for IMS. i.e. the SIP method to return

Prompt_And_Collect result from the MRFC to the IM-SSF, and the SIP method for sending notification of play announcement completion to the IM-SSF when a request for a Specialised Resource Report was received, are not standardised.

(Editor's note: Add the following SDL procedure as part of this subclause.)

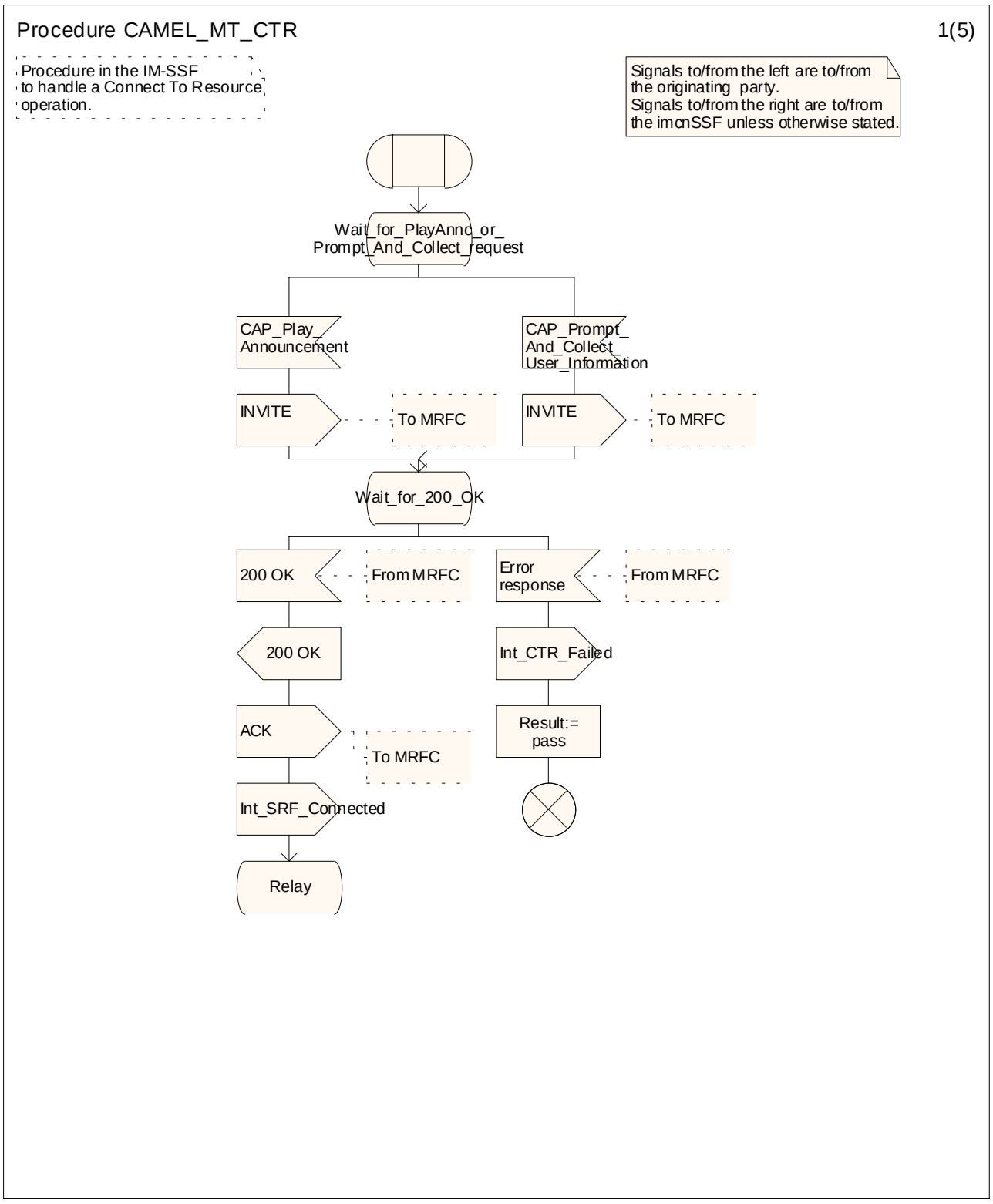


Figure 5.1.4.?: Procedure CAMEL_MT_CTR (sheet 1)

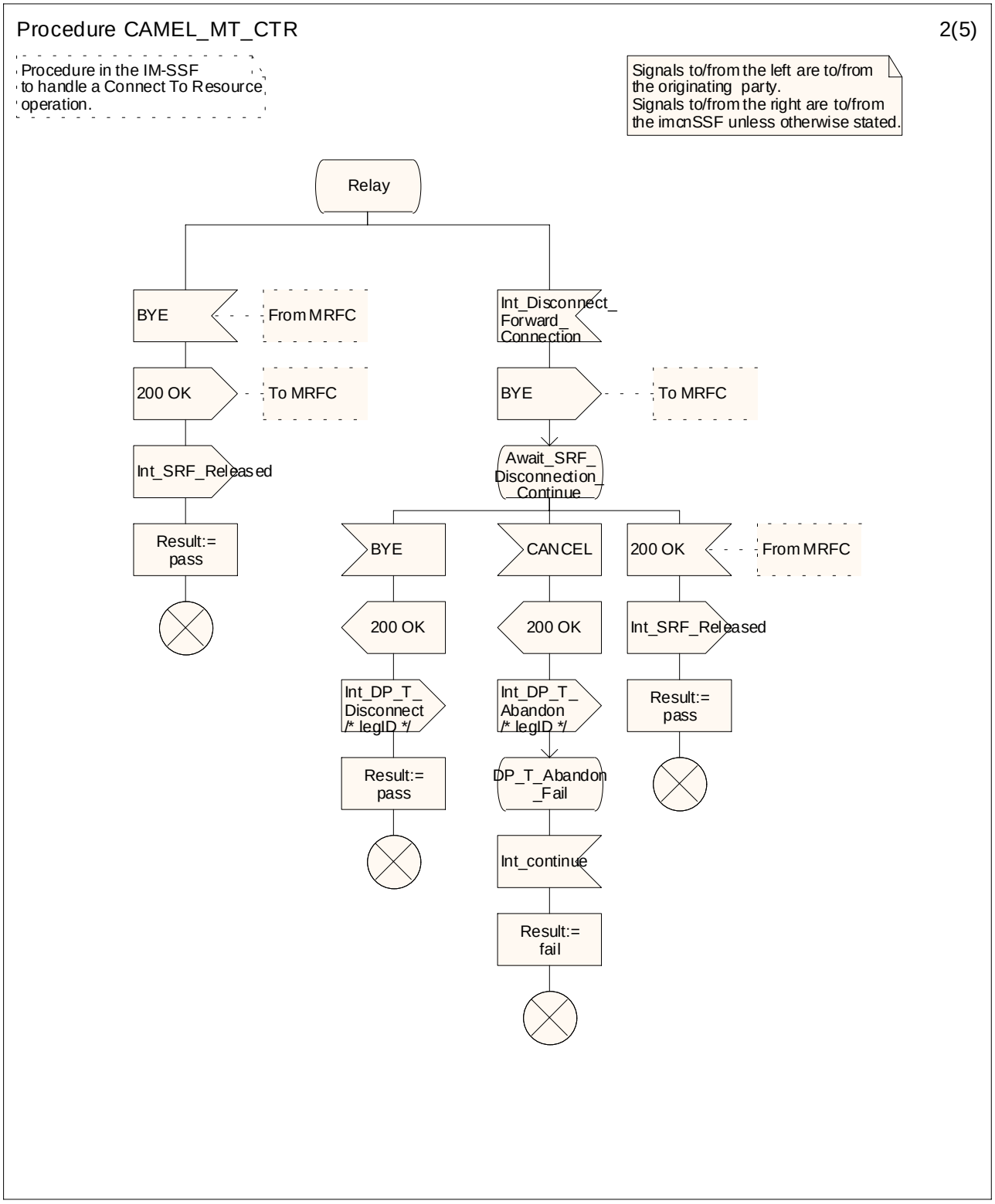


Figure 5.1.4.?: Procedure CAMEL_MT_CTR (sheet 2)

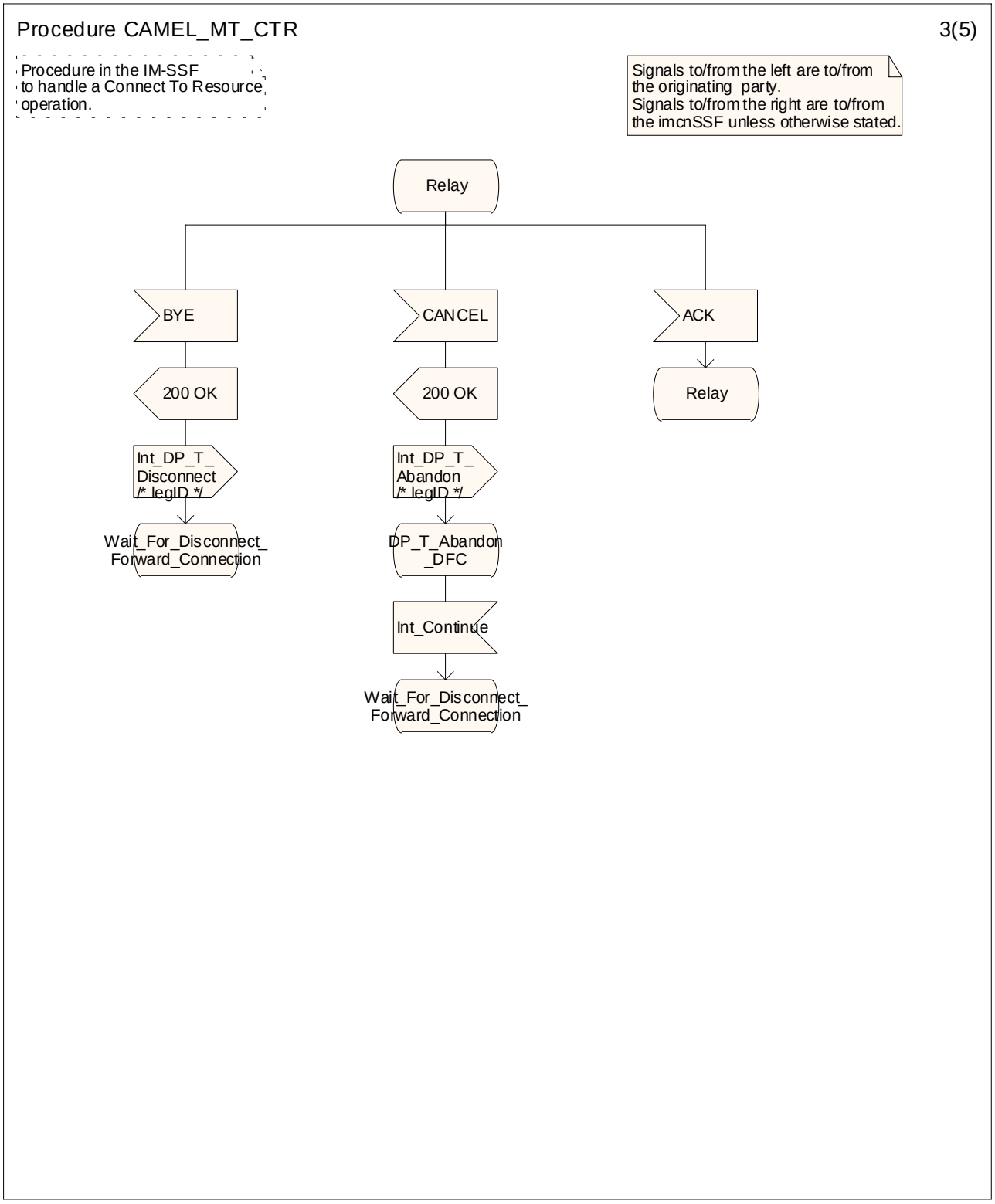


Figure 5.1.4.?: Procedure CAMEL_MT_CTR (sheet 3)

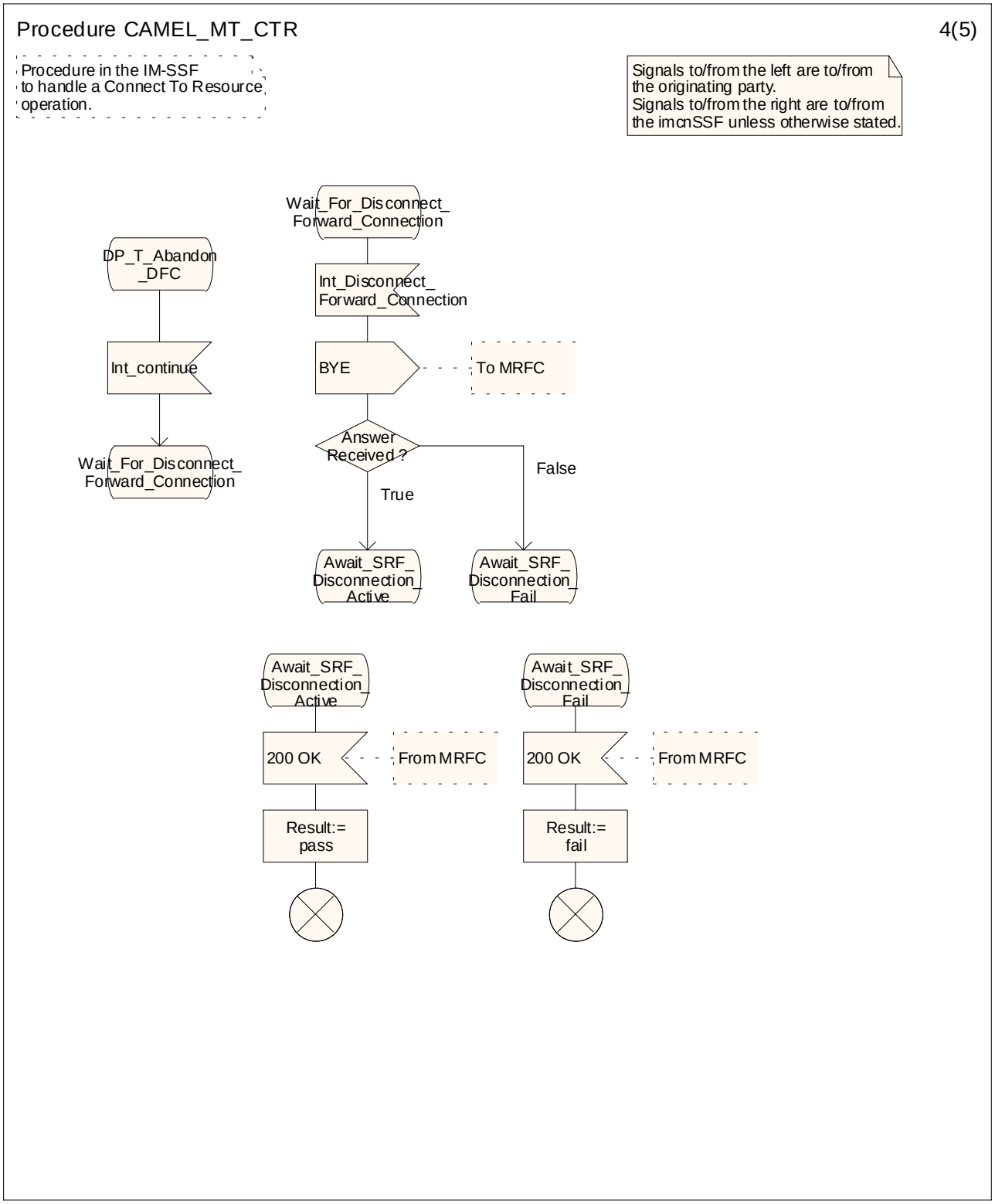


Figure 5.1.4.?: Procedure CAMEL_MT_CTR (sheet 4)

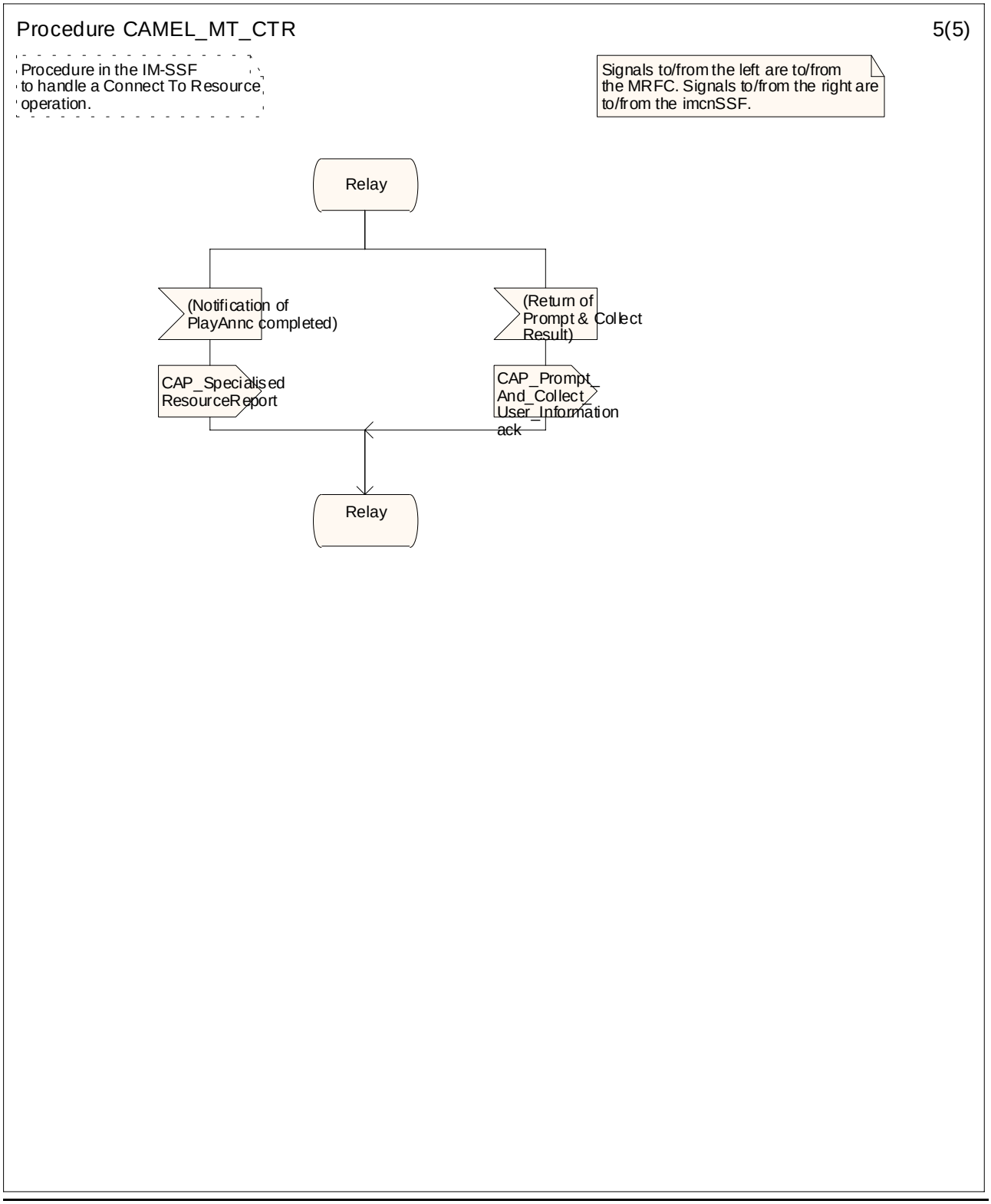


Figure 5.1.4.?: Procedure CAMEL_MT_CTR (sheet 5)

*****End of modified section ******

3GPP TSG-CN WG2 Meeting #27 ***Tdoc ⌘N2-021039***
Bangkok, Thailand, 11th - 15th November 2002.

CR-Form-v7

CHANGE REQUEST

⌘ **23.078** **CR** **025** ⌘ **rev** **-** ⌘ Current version: **5.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Number comparison for D-CSI
Source:	⌘	ALCATEL
Work item code:	⌘	IMS-CAMEL
Date:	⌘	11/11/2002
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	In the TS 23.278 in the procedure performed for the comparison of the destination number triggering criterion and the address information, it is unclear whether the modification of number has to be done on the address information and on destination number triggering criterion or only on the address information.
Summary of change:	⌘	The modification of number has to be done on the address information and on the destination number triggering criterion as well.
Consequences if not approved:	⌘	Many interpretations may be done by different providers and may lead to unpredictable behaviour So the subscriber will not have their subscribed IN services in roaming cases.

Clauses affected:	⌘	§ 4.3.2.2.2

	Y	N		
Other specs affected: ⌘		X	Other core specifications	⌘
		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘

— For information—

4.3.2.2 Criteria at DP Analysed_Information

4.3.2.2.1 General

The following criteria are applicable for DP Analysed_Information:

- Destination number triggering criterion: The HLR may store a list of up to 10 destination numbers. There is no restriction on the nature of address. There is no restriction on the numbering plan indicator.

For MO calls, triggering at DP Analysed_Info shall be based on the destination number received in the Connect operation from the gsmSCF during a Mobile Originating CAMEL Service.

— modified section—

4.3.2.2.2 Number comparison

The following procedure shall be performed for the comparison of the destination number triggering criterion and the address information in the given order.

1. The numbering plan indicators of both numbers are ignored.

2. The type of number/nature of address indicators of both numbers are compared. If there is a match of the type of number indicator, then the check shall be performed by comparing the digits as defined in step 6. If there is no match of the type of number the comparison procedure shall continue as follows.

3. If either or both of the address information and destination number triggering criterion includes ~~If there are other~~ a type of number/nature of address indicator~~s present~~ other than "unknown", "national (significant) number" or "international number" then the destination number does not match the destination number triggering criterion. Otherwise the comparison procedure shall continue as follows.

4. If there is a number (address information or destination number triggering criterion) with type of number/nature of address "unknown" this number shall be translated based on the numbering plan of the serving entity in either of the following ways:

   - if the leading digits refer to an international prefix, those digits shall be removed and the type of number/nature of address shall be set to "international number".

   - if the leading digits refer to a national (trunk) prefix, those digits shall be removed and the type of number/nature of address shall be set to "national (significant) number".

   If the leading digits refer neither to an international prefix nor to a national (trunk) prefix, then the destination number does not match the destination number triggering criterion.

   If there is a match of the type of number/nature of address indicator after this number modification, then the check shall be performed by comparing the digits as defined in step 6, otherwise the comparison procedure shall continue as follows.

5. If ~~there is a number with~~ the type of number/nature of address of the address information or of the destination number triggering criterion is "national (significant) number" this number shall be translated based on the numbering plan of the serving entity to international format by adding the country code of the serving entity to the number string. After this modification both numbers shall be in international format and shall be checked by comparing the digits as defined in step 6.

6 If the number digits of the address information are compared with the number digits of the destination number triggering criterion, then there is a match if:

   - the destination number is at least as long as the destination number string of the destination number triggering criterion; and

   - all the digits in the destination number string of the destination number triggering criterion match the leading digits of the destination number.

The check described in this clause shall be repeated for every number contained in the destination number triggering criterion of the D-IM-CSI until a match is recognised and DP Analysed_Info is triggered, or until all the destination numbers have been checked without a match being recognised. In the latter case DP Analysed_Info is not triggered.

— End of CR —

3GPP TSG CN WG2 Meeting #27 ***N2-021047***
Bangkok, Thailand, 11th - 15th November 2002. **(Revised N2-020988)**

CR-Form-v7

CHANGE REQUEST

⌘ **23.278** **CR** **012** ⌘ **rev** **1** ⌘ Current version: **5.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	IF Description for gsmSRF-related operations for IMS
Source:	⌘	Lucent Technologies
Work item code:	⌘	IMS-CAMEL
Date:	⌘	28/10/2002
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The Information flow descriptions for the gsmSCF-gsmSRF related operations for IMS are missing from CAMEL/IMS stage 2 specification.
Summary of change:	⌘	Add the IF descriptions for Play Announcement, Prompt and Collect User Information, and Specialised Resource Report.
Consequences if not approved:	⌘	Incomplete specification.

Clauses affected:	⌘	5.2.3

		Y	N			
Other specs affected:	⌘	X		Other core specifications	⌘	23.278, CR#022 , 29.278, CR#003
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

****** First modified section ******

5.2.3 ~~Optional (service logic dependant) gsmSCF to gsmSRF information flows~~gsmSCF – IM-SSF information flows for MRFC related operations

In an IMS Core Network, the Multimedia Resource Function Controller (MRFC) is used for providing specialised resource functions like playing announcements and tones. Requests from the gsmSCF that requires a specialised resource function are sent to the MRFC via the IM-SSF and S-CSCF using SIP signalling as specified in the functional requirements of the MRFC found in TS 23.218 [5].

This subclause contains the information flows descriptions between the gsmSCF and the IM-SSF for MRFC-related operations.

5.2.3.1 Cancel

5.2.3.1.1 Description

This IF is used by the gsmSCF to request the IM-SSF to cancel a correlated previous operation in the MRFC.

5.2.3.1.2 Information Elements

The following information elements are used:

Information element name	Status	Description
Invoke ID	M	This IE specifies the operation to be cancelled.

5.2.3.2 Play Announcement

5.2.3.2.1 Description

This IF is sent from the gsmSCF to the IM-SSF and is used to specify information for playing announcements or tones in the MRFC. is used for inband interaction.

5.2.3.2.2 Information Elements

The following information elements are required:

Information element name	Status	Description
Information To Send	M	This IE indicates an announcement or a tone to be sent to the end user by the MRFC.
Disconnect From IP Forbidden	M	This IE indicates whether or not the MRFC may be disconnected from the user when all information has been sent.
Request Announcement Complete	M	This IE indicates whether or not a SpecializedResourceReport shall be sent to the gsmSCF when all information has been sent.

Information To Send contains the following information:

Information element name	Status	Description
Inband Info	C	This IE indicates the inband information to be sent.
Tone	C	This IE indicates the tone to be sent. The mapping from the code points of this IE to tones is a matter for agreement between the gsmSCF operator and the MRFC operator.

Inband Info contains the following information:

Information element name	Status	Description
Message ID	M	This IE is described in the next table.
Number Of Repetitions	M	This IE indicates the maximum number of times the message shall be sent to the end-user.
Duration	O	This IE indicates the maximum duration time in seconds that the message shall be played/repeated. Zero indicates endless repetition.
Interval	O	This IE indicates the time interval in seconds between two repetitions.

Message ID contains the following information:

Information element name	Status	Description
Elementary Message ID	C	This IE indicates a single announcement
Text	C	This IE indicates a text to be sent. The text shall be transformed to inband information (speech) by the MRFC.
Elementary Message IDs	C	This IE indicates a sequence of announcements
Variable Message	C	This IE indicates an announcement with one or more variable parts.

Tone contains the following information:

Information element name	Status	Description
Tone ID	M	This IE indicates the tone to be sent.
Duration	O	This IE indicates the maximum duration time in seconds that the message shall be played/repeated. Zero indicates endless repetition.

5.2.3.3 Prompt And Collect User Information (received information)

5.2.3.3.1 Description

This IF is sent from the gsmSCF to the IM-SSF and is used to interact with a call party in order to collect information.

5.2.3.3.2 Information Elements

The following information elements are required:

Information element name	Status	Description
Collected Info	M	This IE is described in the next table.
Information To Send	O	This IE indicates an announcement or a tone to be sent to the end user by the MRFC.
Disconnect From IP Forbidden	M	This IE indicates whether the MRFC may be disconnected from the user when all information has been sent.

Collected Info contains the following information:

Information element name	Status	Description
Collected Digits	M	This IE is described in the next table.

Collected Digits contains the following information:

Information element name	Status	Description
Minimum Number Of Digits	M	This IE indicates the minimum number of valid digits to be collected.
Maximum Number Of Digits	M	This IE specifies the maximum number of valid digits to be collected
End Of Reply Digit	O	This IE indicates the digit(s) used to signal the end of input.
Cancel Digit	O	If this IE is present, the cancel digit can be entered by the user to request a possible retry
Start Digit	O	If this IE is present, the start digit(s) indicates the start of the valid digits to be collected.
First Digit Time Out	O	If this IE is present, the first digit shall be received before the expiration of the first digit timer expiration
Inter Digit Time Out	O	If this IE is present, any subsequent valid or invalid digit shall be received by the MRFC before the inter digit timer expires.
Error Treatment	O	This IE indicates what specific action shall be taken by the MRFC in the event of error conditions occurring.
Interruptable Ann Ind	O	If this IE is set to TRUE (default value) the announcement is interrupted after the first valid or invalid digit received by the MRFC. If this IE is present and explicitly set to FALSE, the announcement will not be interrupted after the first digit is received by the MRFC
Voice Information	O	This IE is optional, where the default value is specified being FALSE. If the VoiceInformation IE is set to FALSE, all valid or invalid digits are entered by DTMF If this IE is present and explicitly set to TRUE, calling user is required to provide all valid or invalid information by speech
Voice Back	O	This IE is optional, where the default value is specified being FALSE. If the VoiceBack IE is set to FALSE, no voice back information is given by the MRFC If this IE is present and explicitly set to TRUE, the valid input digits received by the MRFC will be announced back to the calling user immediately after the end of input is received

InformationToSend is defined in clause 4.6.3.3. 5.2.3.2.2.

5.2.3.4 Prompt And Collect User Information ack (received information)

5.2.3.4.1 Description

This IF is used by the IM-SSF to indicate the result a Prompt And Collect User Information IF to the gsmSCF.

5.2.3.4.2 Information Elements

The following information elements are required:

Information element name	Status	Description
Digits Response	C	This IE indicates the digit sequence received from the end user

5.2.3.5 Specialized Resource Report

5.2.3.5.1 Description

This IF is used by the IM-SSF to response to a PlayAnnouncement IF when the announcement complete indication is set.

5.2.3.5.2 Information Elements

This IF contains no information elements.

****** End of document ******

3GPP TSG CN WG2 Meeting #27 ***N2-021048***
Bangkok, Thailand, 11th - 15th November 2002. **(Revised N2-020989)**

CR-Form-v7

CHANGE REQUEST

⌘ **29.278** **CR** **003** ⌘ **rev** **1** ⌘ Current version: **5.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Correction of ConnectToResource operation procedure for IMS
Source:	⌘	Lucent Technologies
Work item code:	⌘	IMS-CAMEL
Date:	⌘	28/10/2002
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	The current operation description in 29.278 for Connect To Resource is misleading.
Summary of change:	⌘	The current description of Connect To Resource in 29.278 uses the following phrase "… IM-SSF relays all operations for the gsmSRF…". The use of the word "relays" in this statement is misleading because the IM-SSF does not exactly pass the CAP operation Connect To Resource to the MRFC but rather, creates a SIP-based message (ie INVITE) that would be used to transport the information received from the gsmSCF. This CR removes the text description indicating that the CAP operations such as the ConnectToResource is relayed to the MRFC. This CR also proposes that the term "gsmSRF" be replaced with "MRFC". If agreed by CN2, replacement of "gsmSRF" with "MRFC" in other subsclause shall be done as an editorial CR to 29.278.
Consequences if not approved:	⌘	Incorrect/ambiguous specification.

Clauses affected:	⌘	9.9			
		Y	**N**		
Other specs affected:	⌘	**X**		Other core specifications	23.278, CR022 23.278, CR012
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

****** First modified section ******

9.9 ConnectToResource procedure

9.9.1 General description

This operation is used to connect a call from the IM-SSF to a specialized resource. When the ConnectToResource request is received, the IM-SSF waits for CAP PlayAnnouncement or CAP PromptAndCollectUerInteraction, before setting up the MRFC connection via the SIP INVITE method. After successful connection to the ~~gsmSRF~~MRFC, the interaction with the caller can take place. ~~The IM-SSF relays all operations for the gsmSRF and all responses from the gsmSRF.~~

9.9.1.1 Parameters

None.

9.9.2 Responding entity (IM-SSF)

9.9.2.1 Normal procedure

IM-SSF precondition:

(1) A control relationship has been established.

(2) The IM-SSF is in the state "Waiting for Instructions".

IM-SSF postcondition:

(1) The call is switched to the ~~gsmSRF~~MRFC.

(2) A control relationship to the ~~gsmSRF~~ MRFC is established.

(3) The IM-SSF moves to the state "Waiting for End of User Interaction (WFI)". T_{SSF} is set.

NOTE: The successful connection to the ~~gsmSRF~~ MRFC causes a state transition in the ~~gsmSRF~~ MRFC FSM from "Idle" to "Connected".

9.9.2.2 Error handling

Generic error handling for the operation related errors are described in clause 8 and the TC services which are used for reporting operation errors are described in clause 12 in TS 29.078 [11].

****** End of document ******

3GPP TSG-CN WG2 Meeting #27
Bangkok, Thailand, 11th - 15th November 2002.

Tdoc ⌘N2-021049

CR-Form-v7

CHANGE REQUEST

⌘ **23.278** **CR** **003** ⌘ **rev** **2** ⌘ Current version: **5.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Correction and improvement in MO procedures
Source:	⌘	Siemens AG
Work item code:	⌘	IMS-CAMEL
Date:	⌘	13/11/2002
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	SDL for MO call currently does not work. As the IM-SSF handles the forwarded INVITE message by S-CSCF until the call is established, the IM-SSF would contain the process and or procedures for basic call handling similar to those in 23.018 (OCH_MSC) as well as the CAMEL procedures.
Summary of change:	⌘	New process, "MO_IM_SSF", is proposed as the entry point of INVITE. The procedures called within the process are the existing procedures re-used or improved or newly created. See detail below.
Consequences if not approved:	⌘	IM-SSF would not be able to handle MO call.

Clauses affected:	⌘	5

Other specs affected: ⌘	Y	N	
		X	Other core specifications
		X	Test specifications
		X	O&M Specifications

⌘

Other comments:	⌘	This CR partly (MO part) includes “Removal of ETC processing from IM-SSFSDL Procedures” which was approved at CN2#26 (N2-020866, CR 23.278-009) Re-numbering and re-formatting the figure numbers needed throughout the whole document.

New process and procedures proposed

- Process MO_IM_SSF (new) as an entry of SIP: INVITE for MO. In this process, the following procedures are called.
  - Procedure CAMEL_IMCN_MO_O_IM_CSI_INIT (CAMEL_IMCN_MO_OCSI_INIT renamed and modified) as O-IM-CSI handling
  - Procedure CAMEL_IMCN_MO_D_IM_CSI_INIT (CAMEL_IMCN_MO_DCSI_INIT renamed and modified) as D-IM-CSI handling
  - Procedure CAMEL_IMCN_MO_CANCEL (CAMEL_IMCN_MO_CANCEL modified) as SIP:CANCEL handling
  - Procedure CAMEL_IMCN_MO_ANSWER (new, maybe the replacement of CAMEL_IMCN_MO_200OK) as Answer handling
  - Procedure CAMEL_IMCN_MO_UNSUCCESSFUL (new, maybe the replacement of CAMEL_IMCN_MO_ResponseCode) as unsuccessful (4xx, 5xx, 6xx, timer expiry) handling
  - Procedure CAMEL_IMCN_MO_DISK1 (new, a part of existing CAMEL_MO_IMCN_BYE) as BYE by A party handling
  - Procedure CAMEL_IMCN_MO_DISK2 (new, a part of existing CAMEL_MO_IMCN_BYE) as BYE by B party handling

The SDLs have been created such that the signals are visible within the process MO_IM_SSF as much as possible for the readability, however not well successful.

5.1.3 Handling of Mobile Originated Calls in the IM-SSF

The functional behaviour of the S-CSCF is specified in 3GPP TS 23.218 [5]. The process and the procedures specific to CAMEL are specified in this subclause:

- Process MO_IM_SSF;
- Procedure CAMEL_IMCN_MO_O_IM_CSI_INIT;
- Procedure CAMEL_IMCN_MO_D_IM_CSI_INIT;
- Procedure CAMEL_IMCN_MO_CANCEL;
- Procedure CAMEL_IMCN_MO_ANSWER;
- Procedure CAMEL_IMCN_MO_UNSUCCESSFUL;
- Procedure CAMEL_IMCN_MO_DISC1;
- Procedure CAMEL_IMCN_MO_DISC2.

~~Procedure CAMEL_IMCN_MO_INVITE;~~

~~Procedure CAMEL_IMCN_MO_BYE;~~

~~Procedure CAMEL_IMCN_MO_CANCEL;~~

~~Procedure CAMEL_IMCN_MO_Response_Code.~~

5.1.3.1 Actions of the IM-SSF on receipt of Int_Error

The IM-SSF checks the default Call Handling parameter in the relevant CSI.

If the default call handling is release, a BYE indication is sent to the MS. The IM-SSF then releases all resources and the invoked CAMEL procedure ends.

If the call handling is continue, the IM-SSF continues processing without CAMEL support.

5.1.3.2 Actions of the IM-SSF on receipt of Int_Continue

The IM-SSF continues processing without any modification of call parameters.

5.1.3.3 Actions of the IM-SSF on receipt of Int_Continue_With_Argument

The IM-SSF continues processing with modified call parameters. The IM-SSF shall modify the call parameters by the information received in the Int_Continue_With_Argument message. Call parameters that are not included in the Int_Continue_With_Argument_Message are unchanged.

5.1.3.4 Actions of the IM-SSF on receipt of Int_Connect

The IM-SSF continues processing with modified call parameters. The IM-SSF shall transparently modify the call parameters with the received information. Call parameters which are not included in the Int_Connect message are unchanged.

5.1.3.5 Actions of the IM-SSF on receipt of Int_Release_Call

A BYE is sent to the MS, and a BYE is sent to the destination CSCF. The release cause received in the Int_Release_Call is used. The IM-SSF then releases all call resources and all CAMEL processing ends.

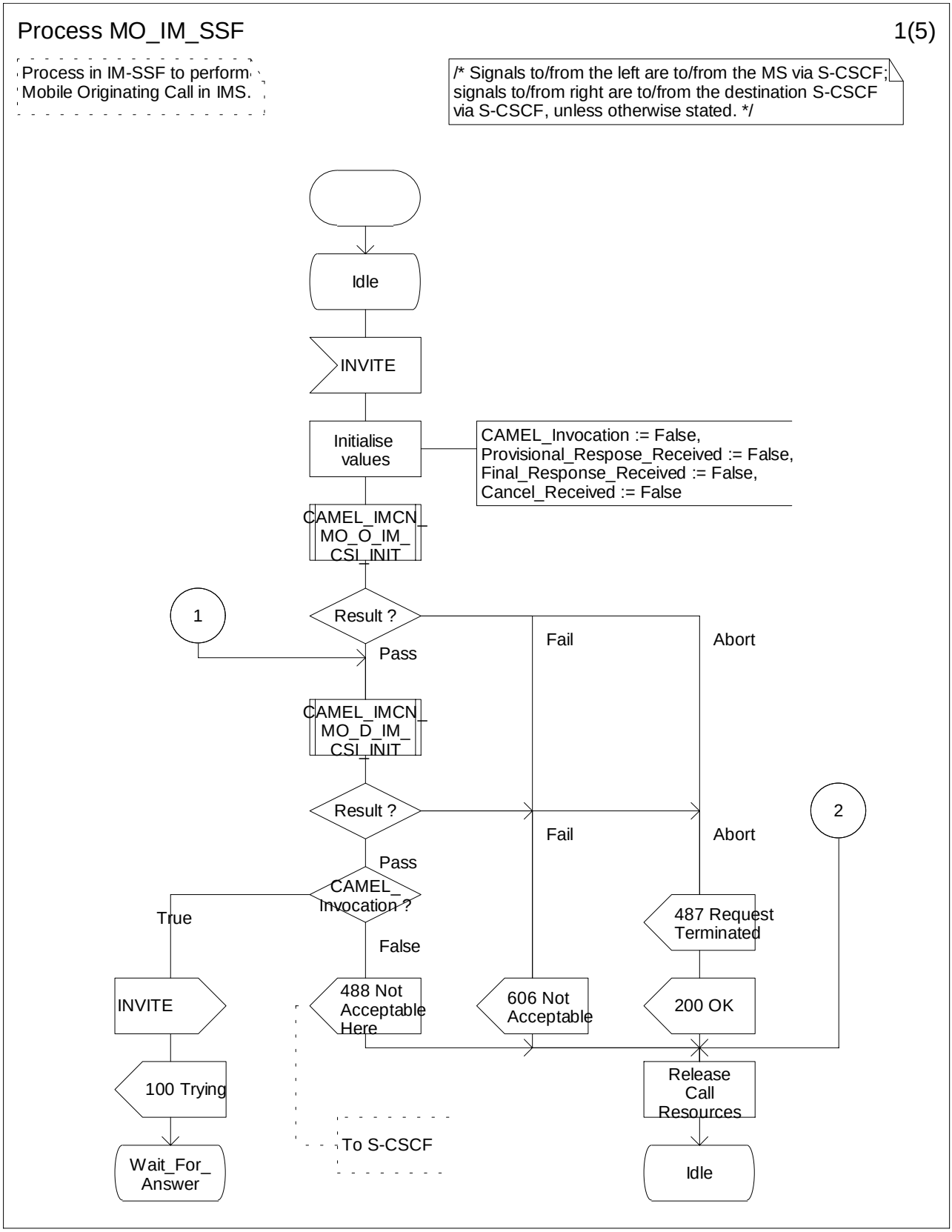


Figure A.a: Process MO_IM_SSF (sheet 1)

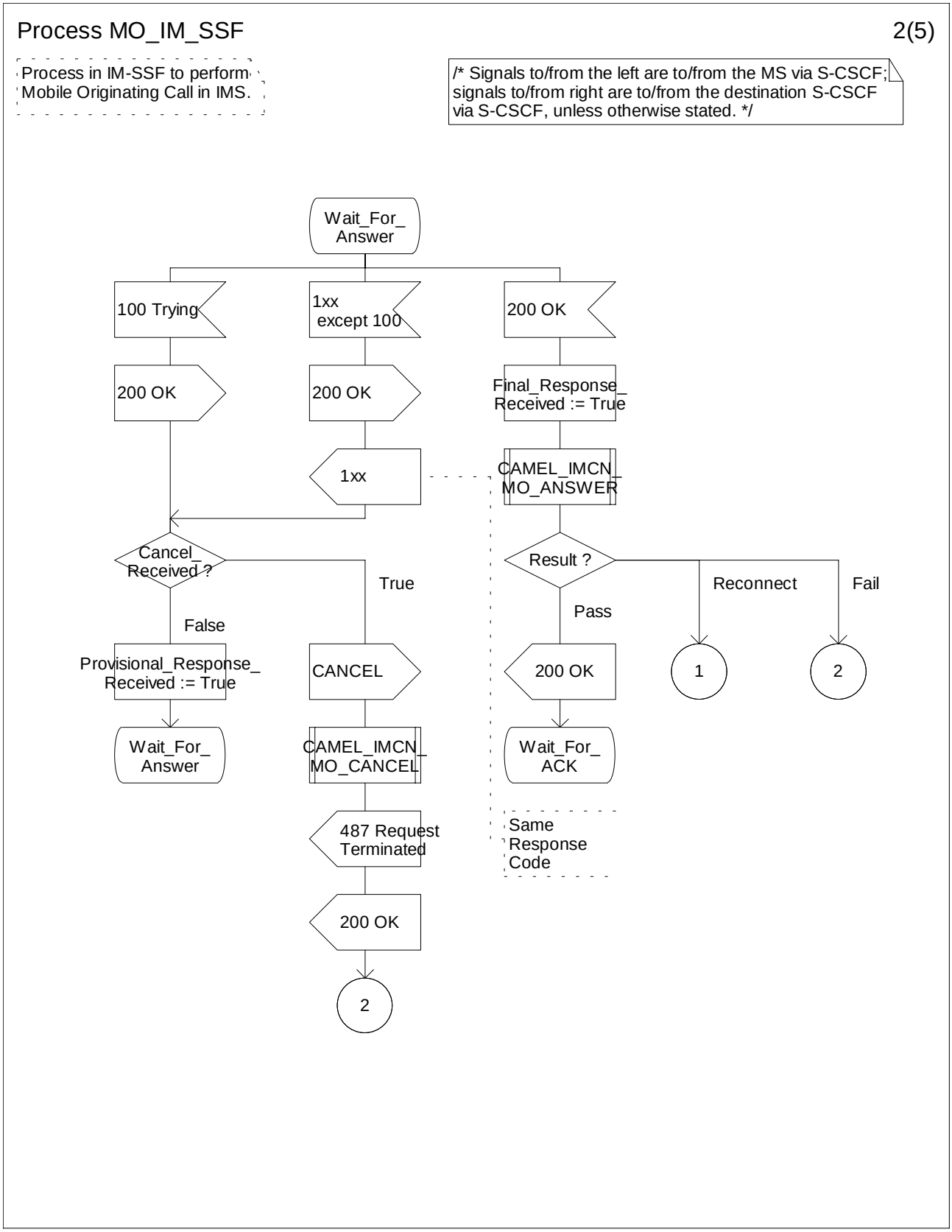


Figure A.b: Process MO_IM_SSF (sheet 2)

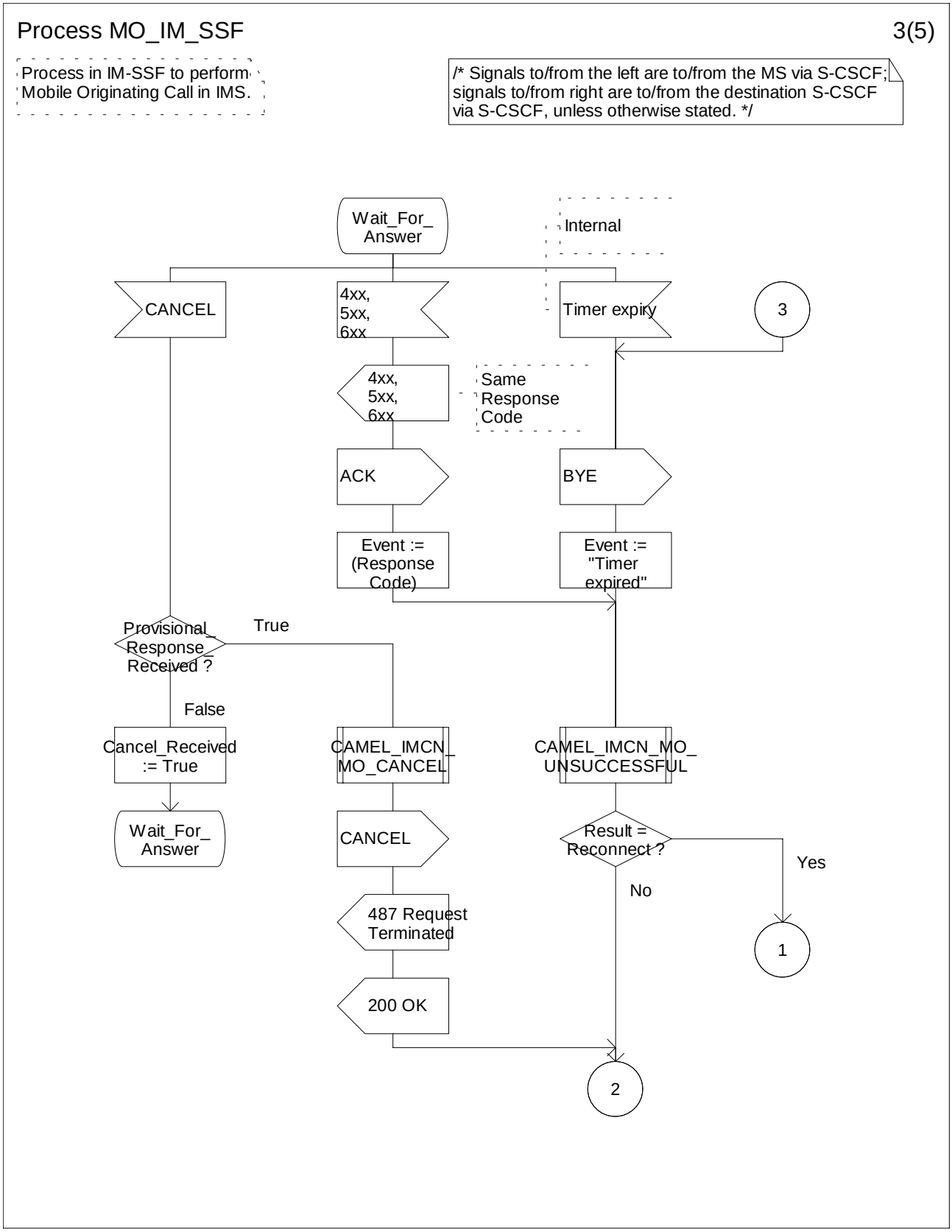


Figure A.c: Process MO_IM_SSF (sheet 3)

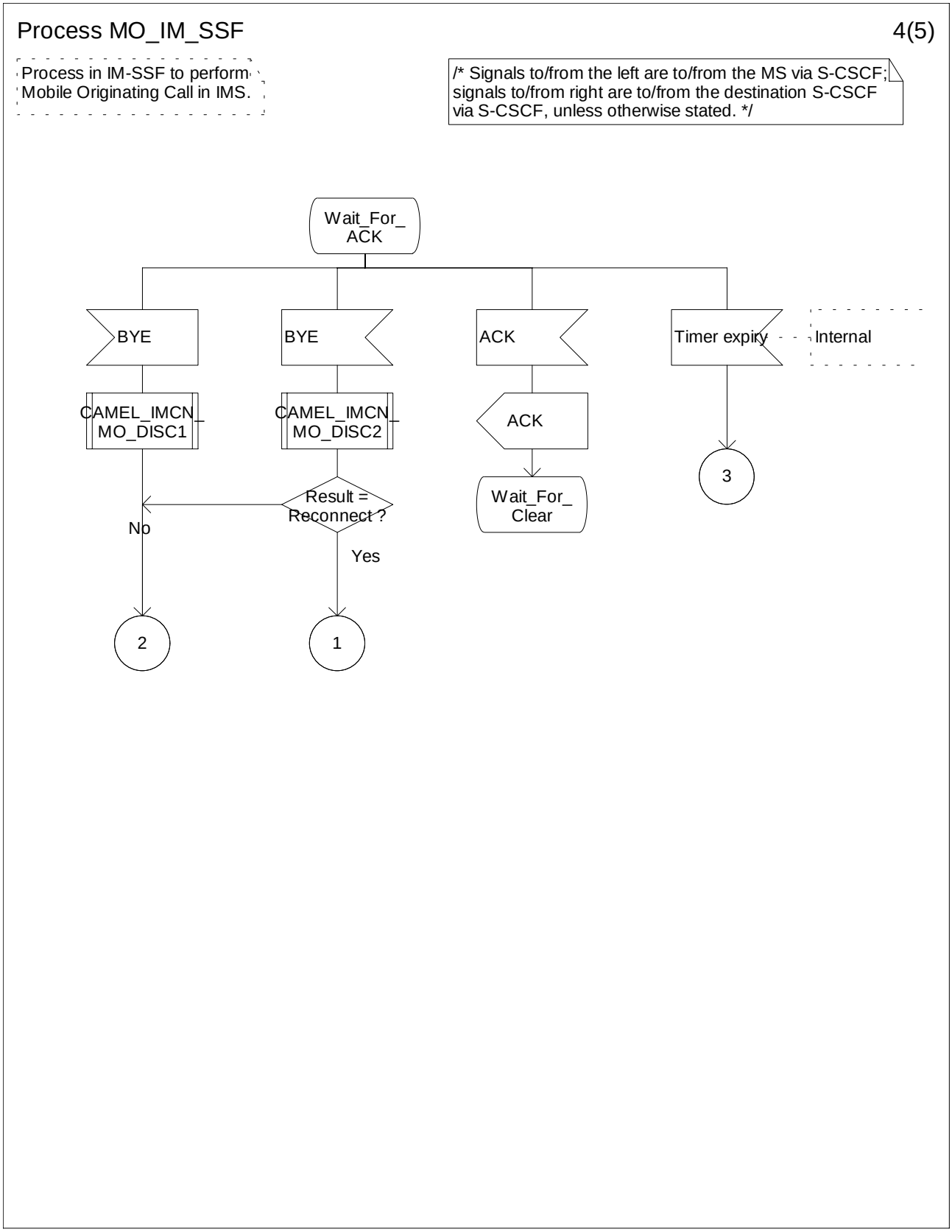


Figure A.d: Process MO_IM_SSF (sheet 4)

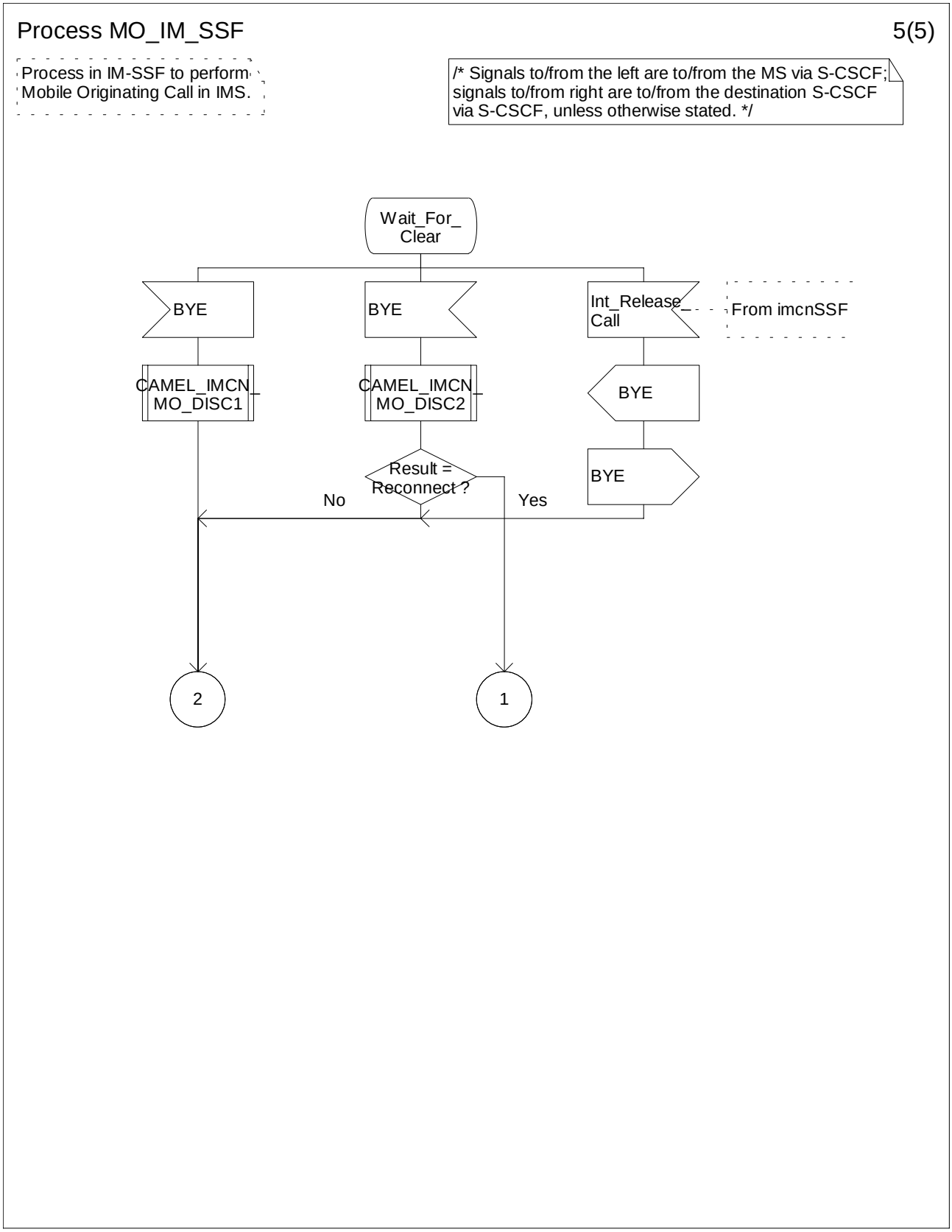
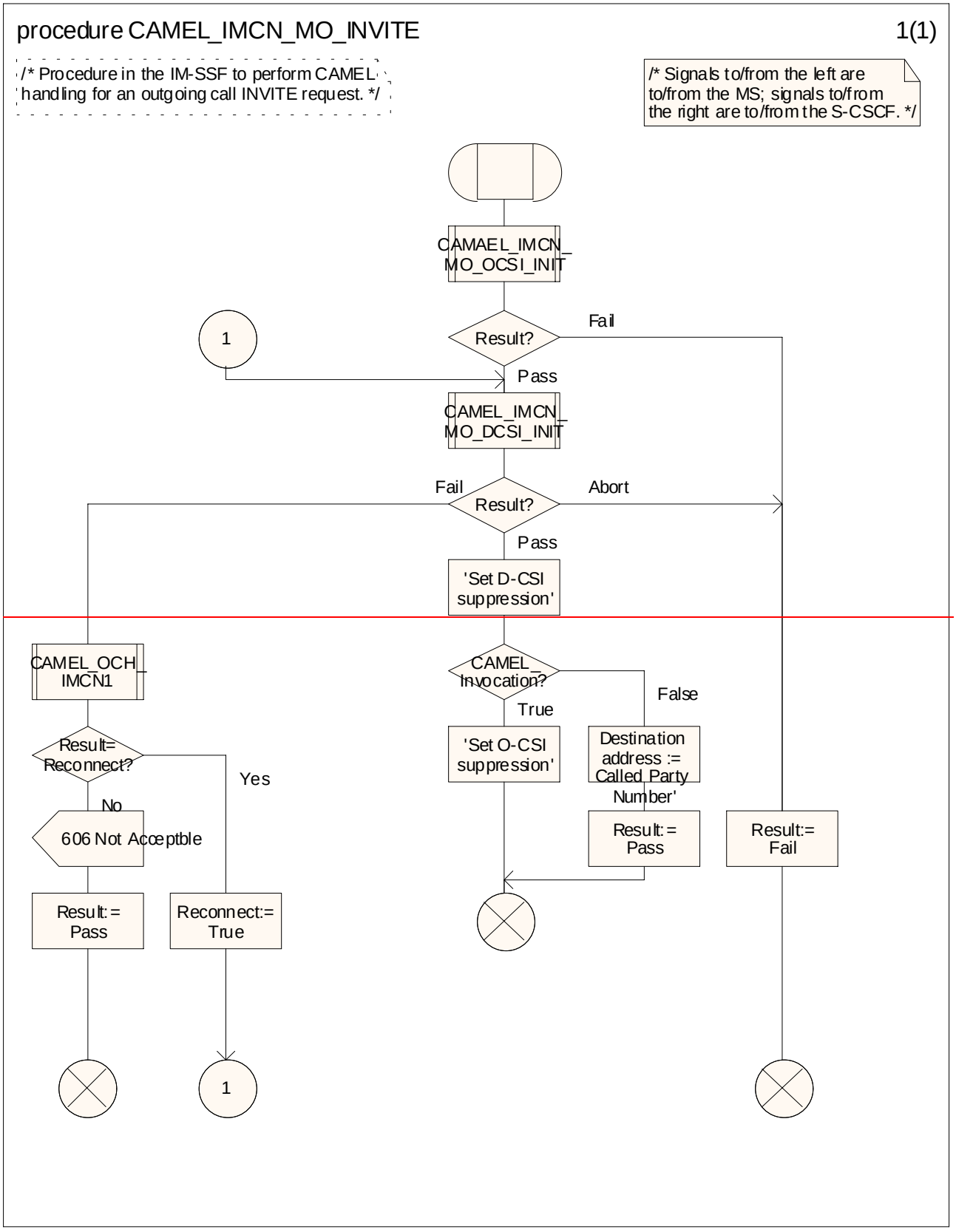
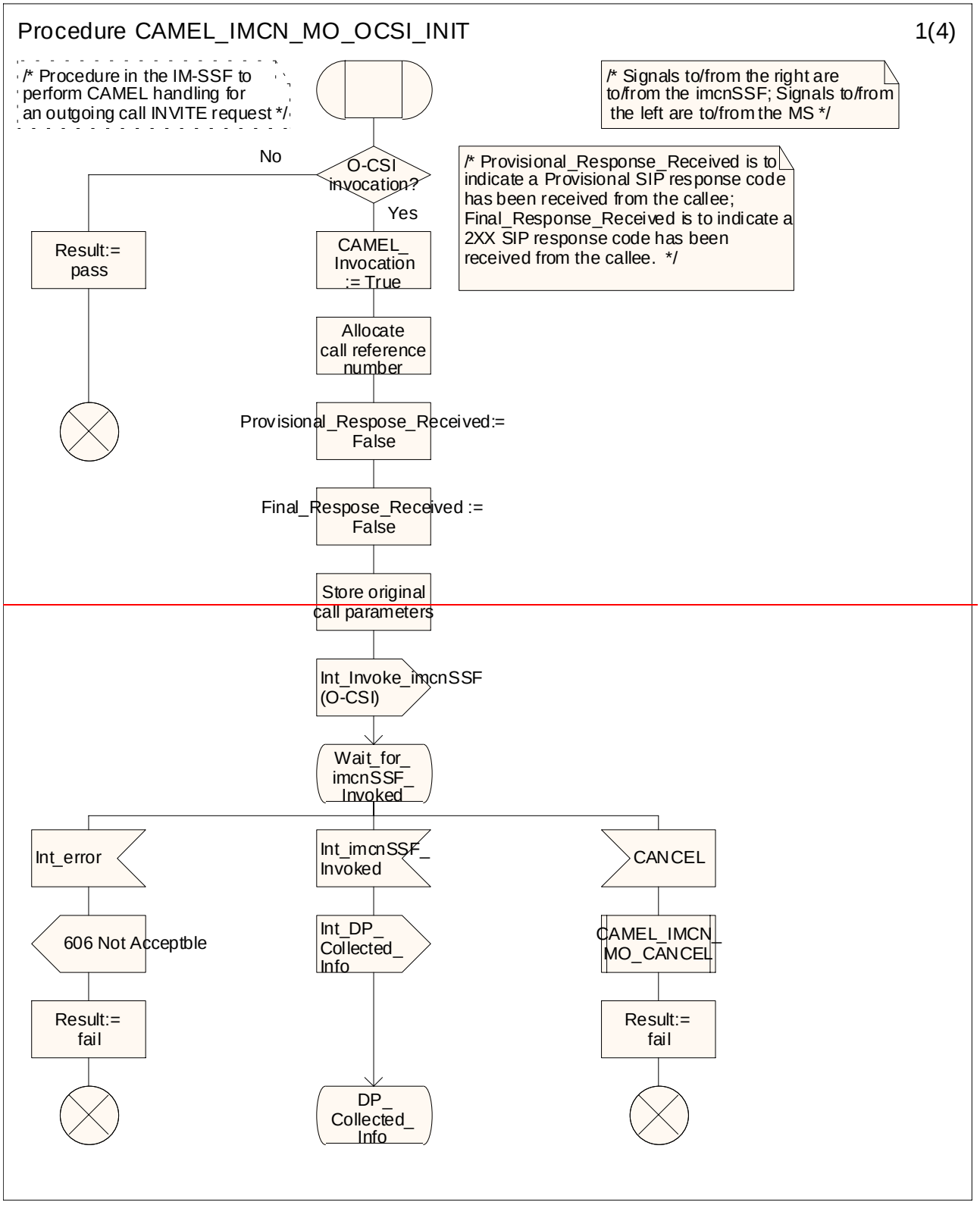


Figure A.e: Process MO_IM_SSF (sheet 5)



~~Figure 5.1.3.1a: Procedure CAMEL_IMCN_MO_INVITE (sheet 1)~~


Procedure CAMEL_IMCN_MO_OCSI_INIT
1(4)
/* Procedure in the IM-SSF to perform CAMEL handling for an outgoing call INVITE request */
/* Signals to/from the right are to/from the imcnSSF; Signals to/from the left are to/from the MS */
/* Provisional_Response_Received is to indicate a Provisional SIP response code has been received from the callee; Final_Response_Received is to indicate a 2XX SIP response code has been received from the callee. */
O-CSI invocation?
No
Yes
Result:= pass
CAMEL_ Invocation := True
Allocate call reference number
Provisional_Respose_Received:= False
Final_Respose_Received := False
Store original call parameters
Int_Invoke_imcnSSF (O-CSI)
Wait_for_ imcnSSF_ Invoked
Int_error
Int_imcnSSF_ Invoked
CANCEL
606 Not Acceptble
Int_DP_ Collected_ Info
CAMEL_IMCN_ MO_CANCEL
Result:= fail
Result:= fail
DP_ Collected_ Info

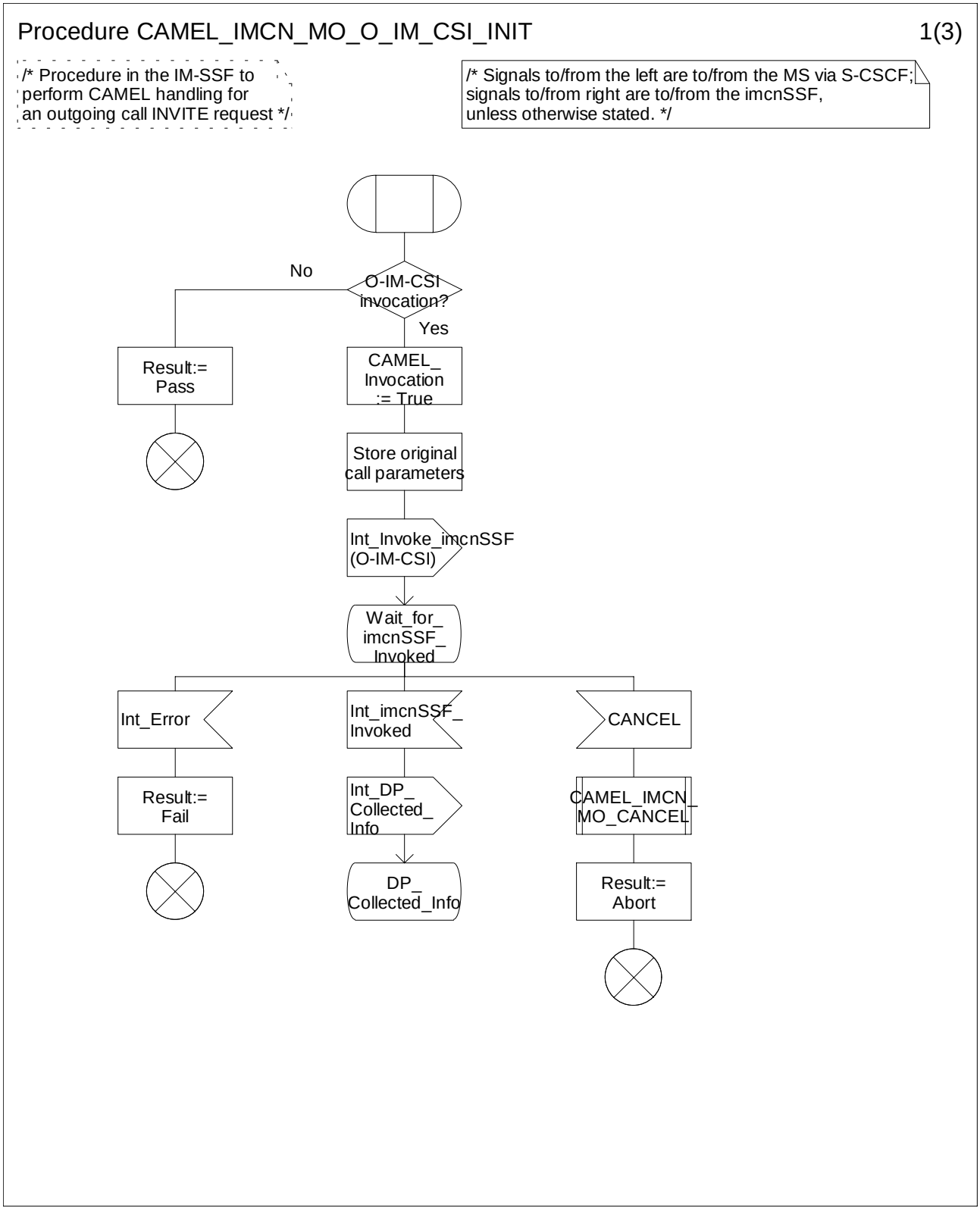
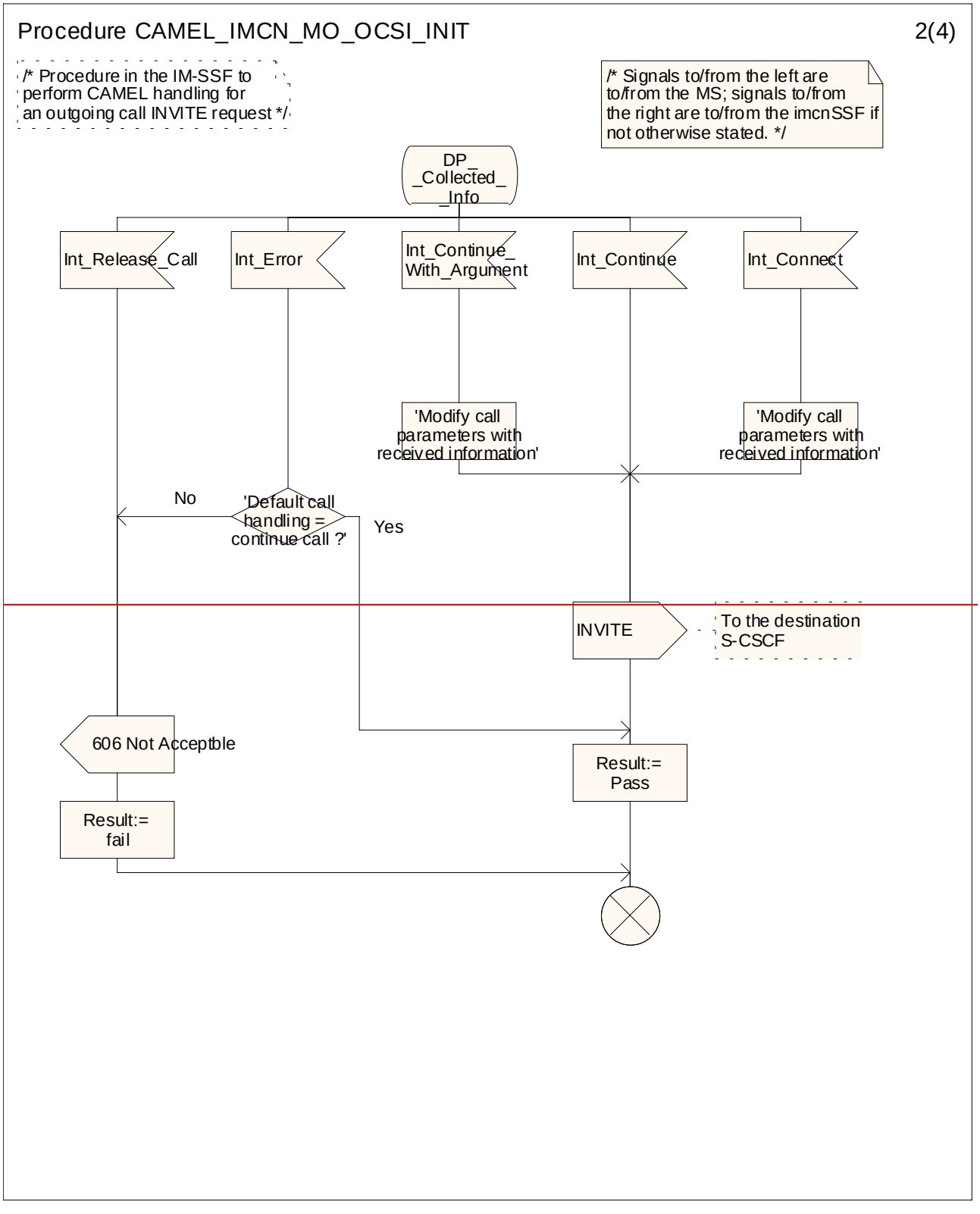


Figure 5.1.3.2a: Procedure CAMEL_IMCN_MO_O_IM_CSI_INIT (sheet 1)


Procedure CAMEL_IMCN_MO_OCSI_INIT
2(4)
/* Procedure in the IM-SSF to perform CAMEL handling for an outgoing call INVITE request */
/* Signals to/from the left are to/from the MS; signals to/from the right are to/from the imcnSSF if not otherwise stated. */
DP_ _Collected_ _Info
Int_Release_Call
Int_Error
Int_Continue_ With_Argument
Int_Continue
Int_Connect
'Modify call parameters with received information'
'Modify call parameters with received information'
No
'Default call handling = continue call ?'
Yes
INVITE
To the destination S-CSCF
606 Not Acceptble
Result:= Pass
Result:= fail

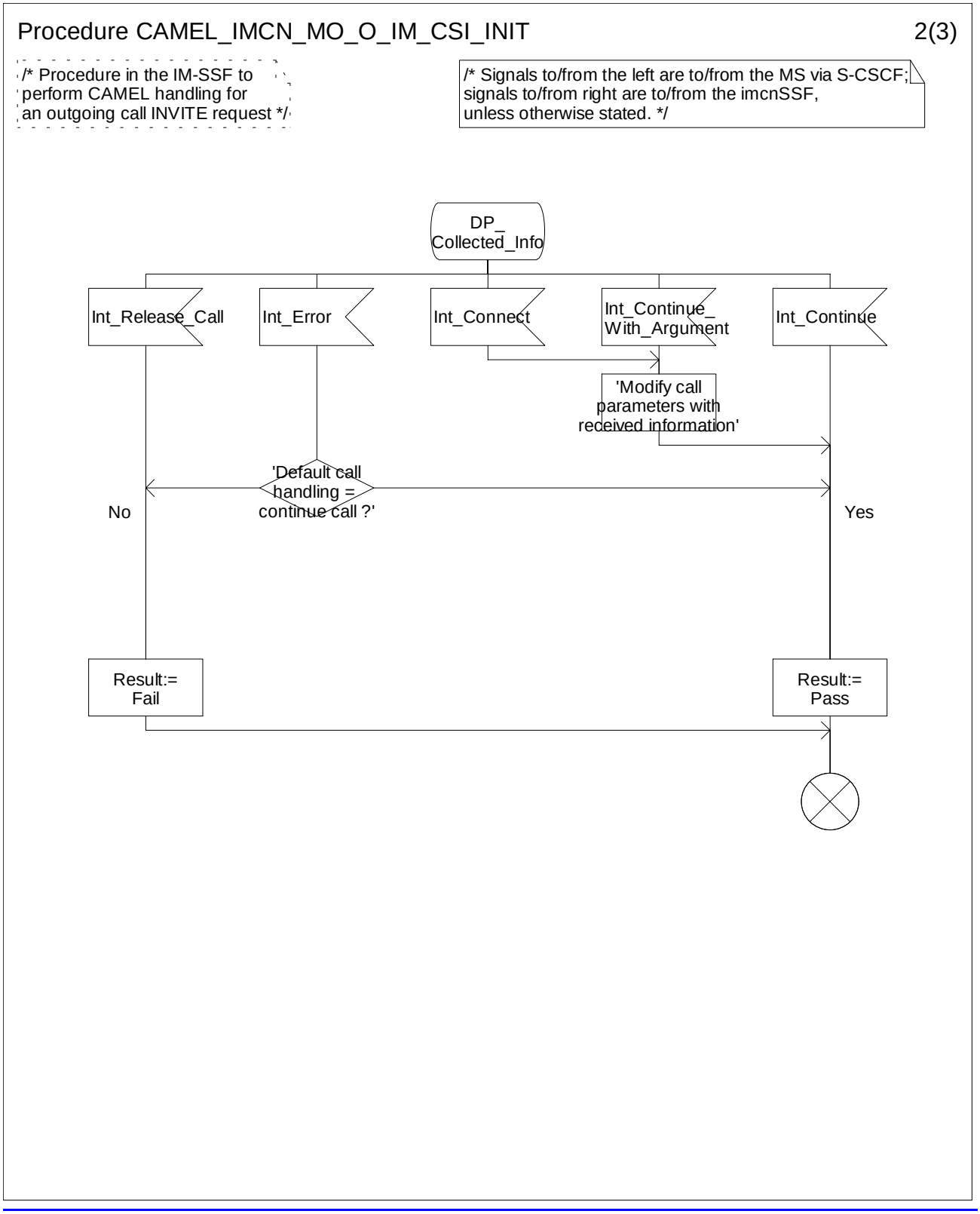
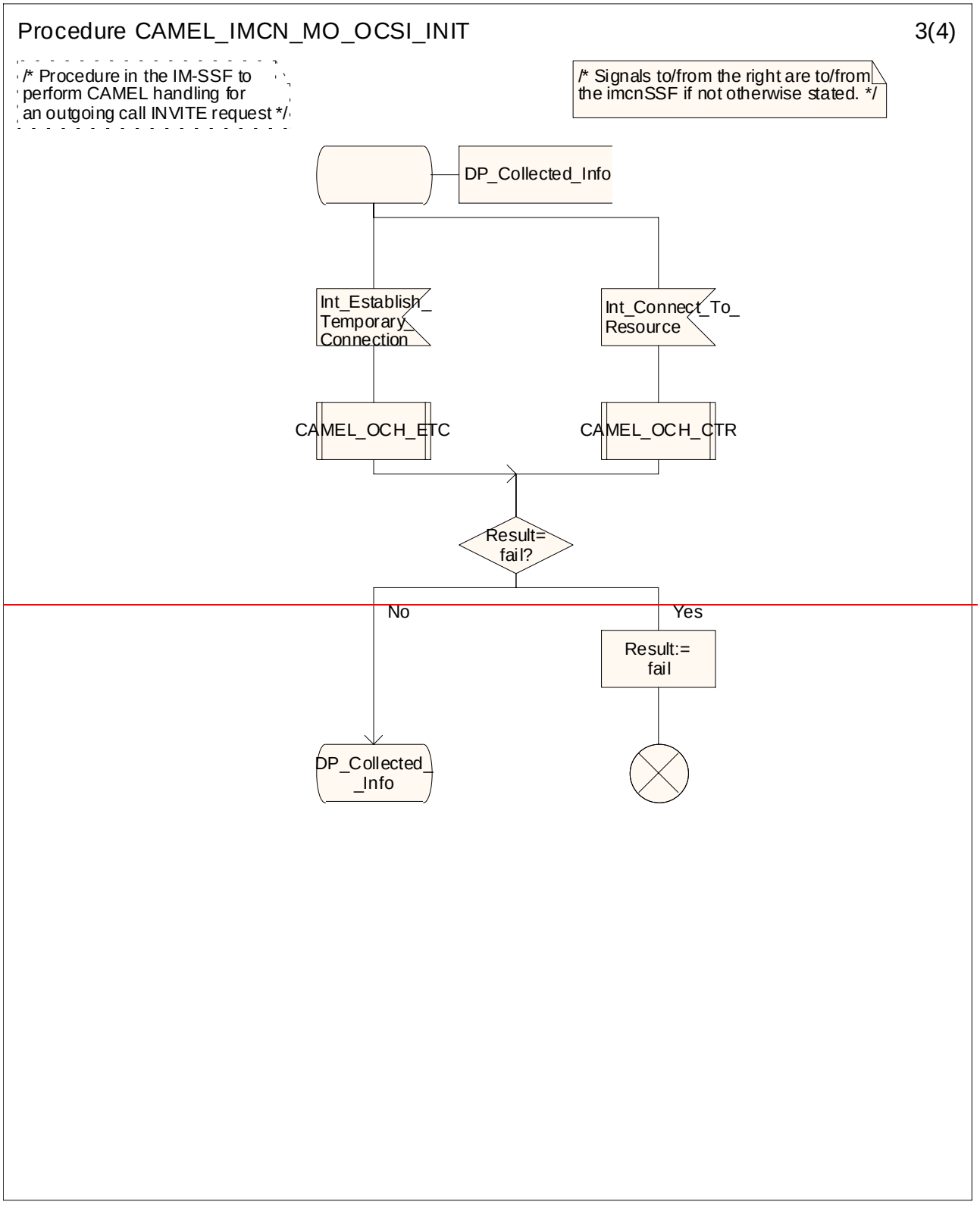


Figure 5.1.3.2b: Procedure CAMEL_IMCN_MO_O_IM_CSI_INIT (sheet 2)

Procedure CAMEL_IMCN_MO_OCSI_INIT 3(4)



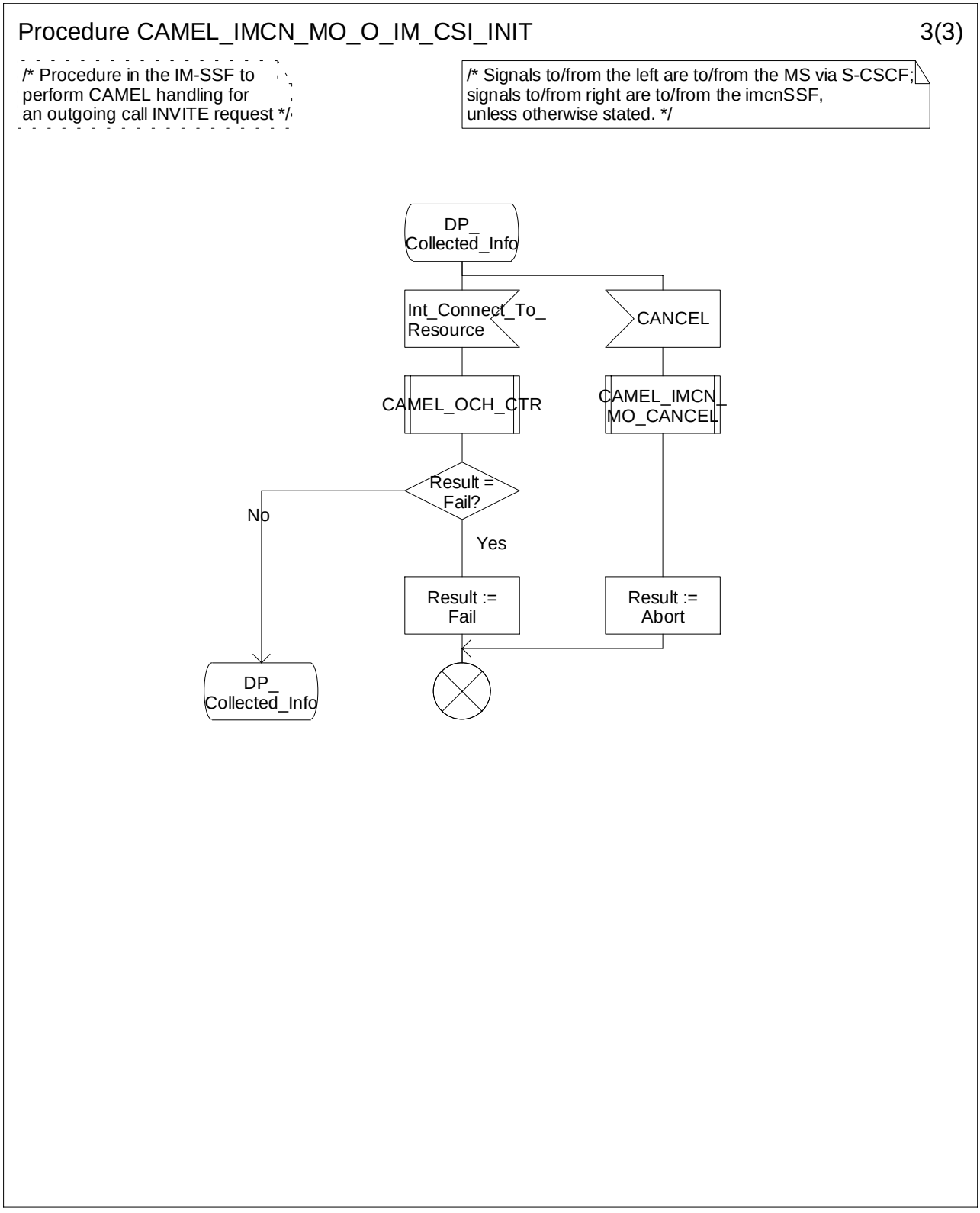
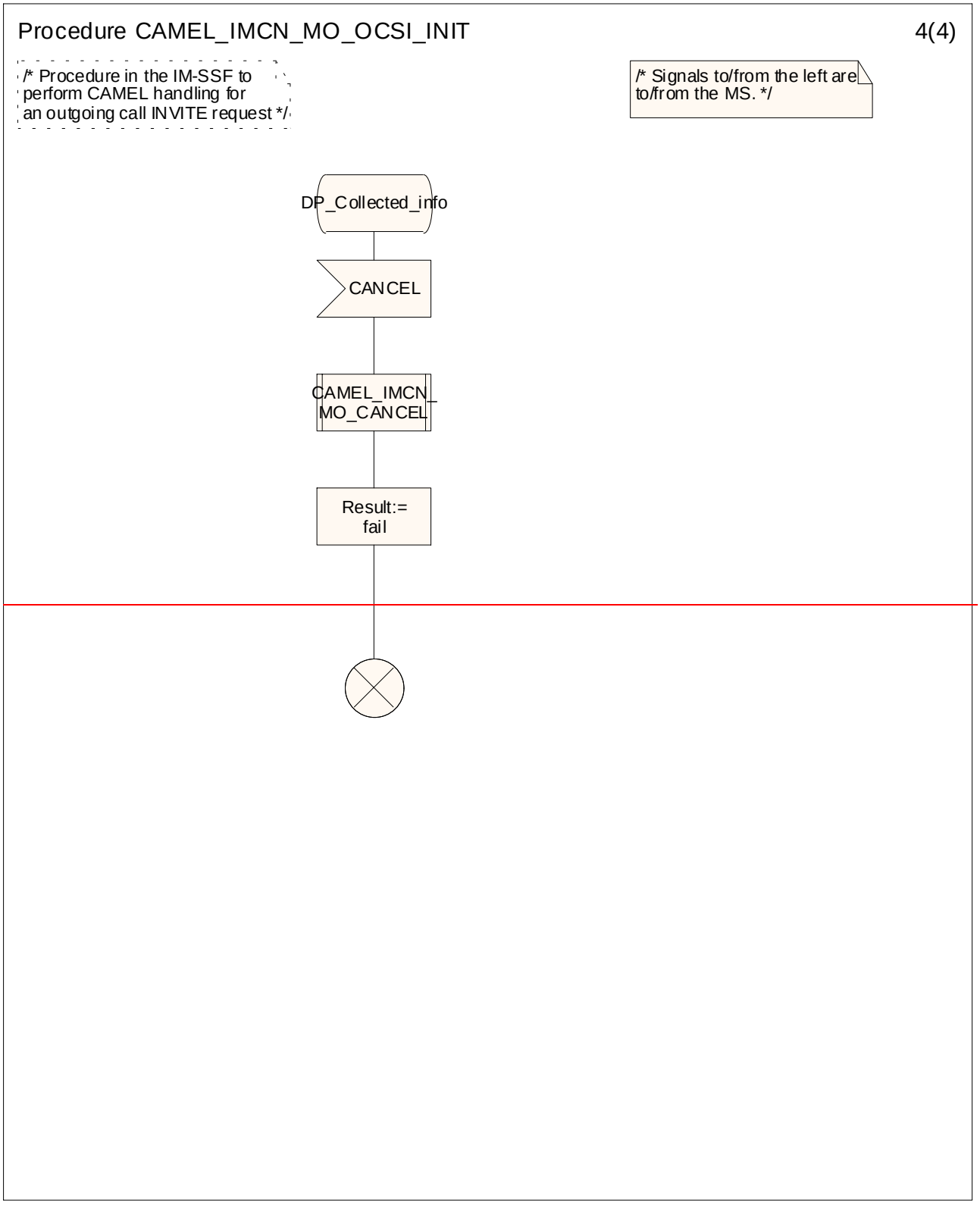
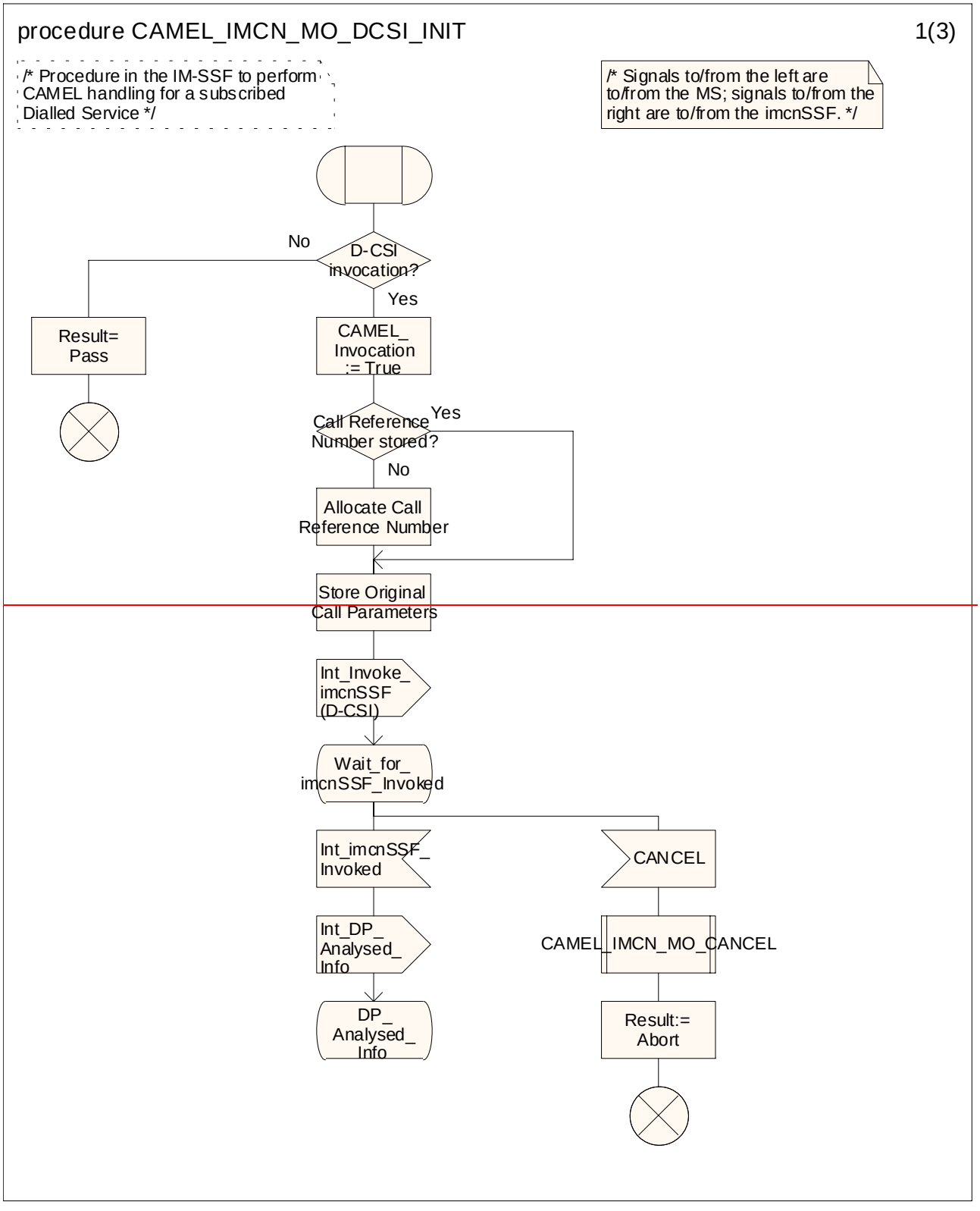


Figure 5.1.3.2c: Procedure CAMEL_IMCN_MO_O_IM_CSI_INIT (sheet 3)



~~Figure 5.1.3.2d: Procedure CAMEL_IMCN_MO_OCSI_INIT (sheet 4)~~


procedure CAMEL_IMCN_MO_DCSI_INIT
1(3)
/* Procedure in the IM-SSF to perform CAMEL handling for a subscribed Dialled Service */
/* Signals to/from the left are to/from the MS; signals to/from the right are to/from the imcnSSF. */
No
D-CSI invocation?
Yes
Result= Pass
CAMEL_ Invocation := True
Call Reference Number stored?
Yes
No
Allocate Call Reference Number
Store Original Call Parameters
Int_Invoke_ imcnSSF (D-CSI)
Wait_for_ imcnSSF_Invoked
Int_imcnSSF_ Invoked
CANCEL
Int_DP_ Analysed_ Info
CAMEL_IMCN_MO_CANCEL
DP_ Analysed_ Info
Result:= Abort

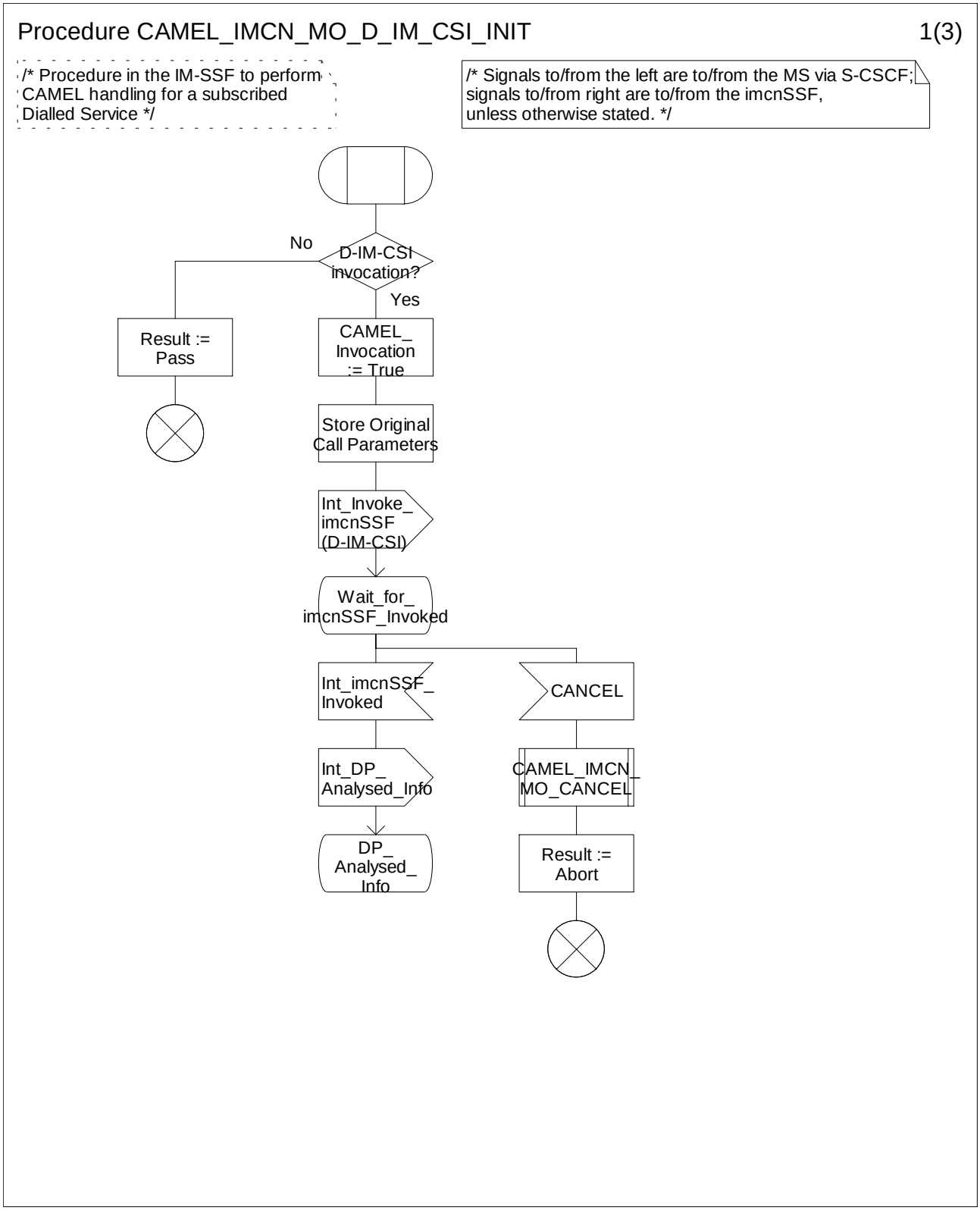
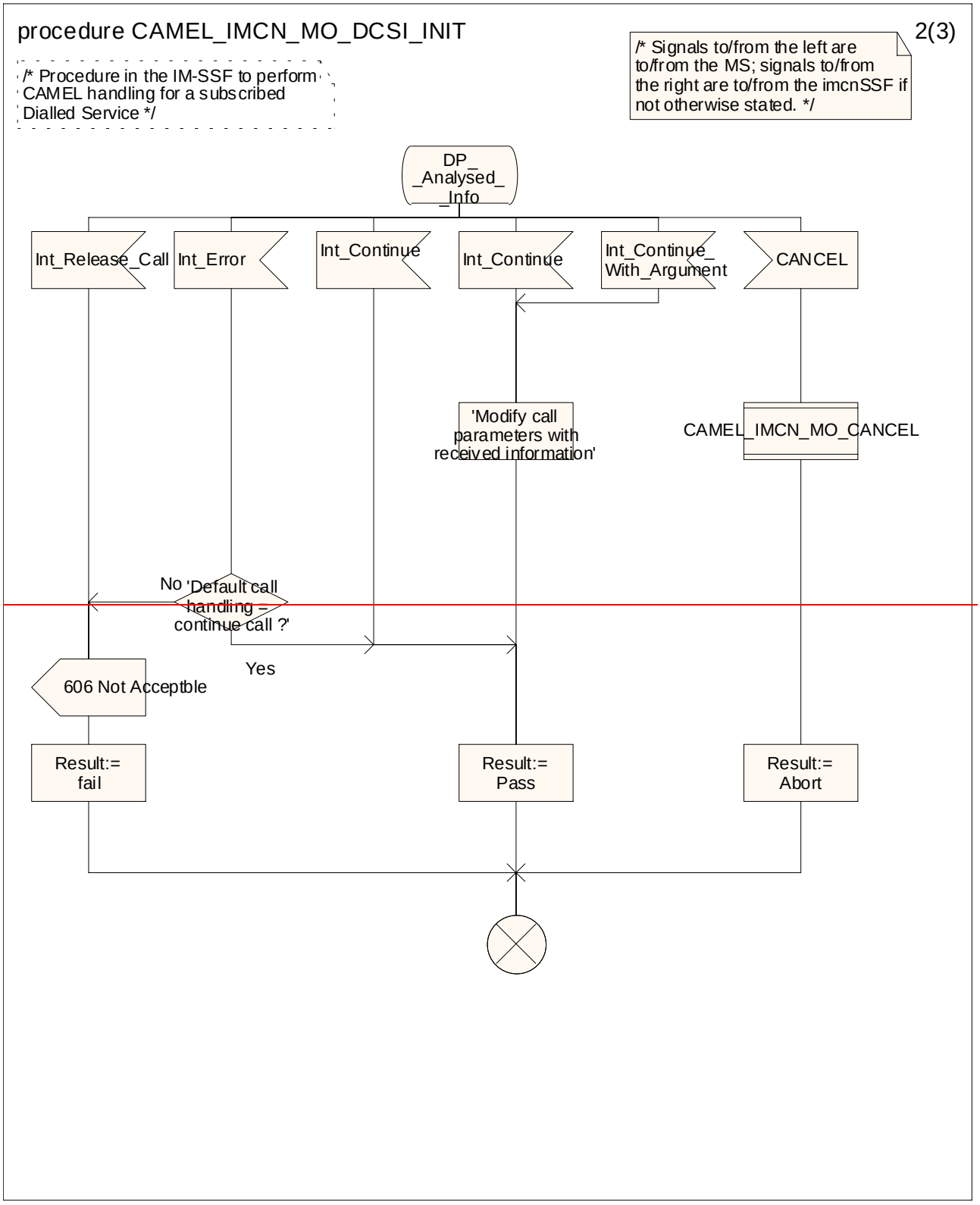


Figure 5.1.3.3a: Procedure CAMEL_IMCN_MO_D_IM_CSI_INIT (sheet 1)


procedure CAMEL_IMCN_MO_DCSI_INIT
2(3)
/* Procedure in the IM-SSF to perform CAMEL handling for a subscribed Dialled Service */
/* Signals to/from the left are to/from the MS; signals to/from the right are to/from the imcnSSF if not otherwise stated. */
DP_ _Analysed_ _Info
Int_Release_Call
Int_Error
Int_Continue
Int_Continue
Int_Continue_ With_Argument
CANCEL
'Modify call parameters with received information'
CAMEL_IMCN_MO_CANCEL
No
'Default call handling – continue call ?'
Yes
606 Not Acceptble
Result:= fail
Result:= Pass
Result:= Abort

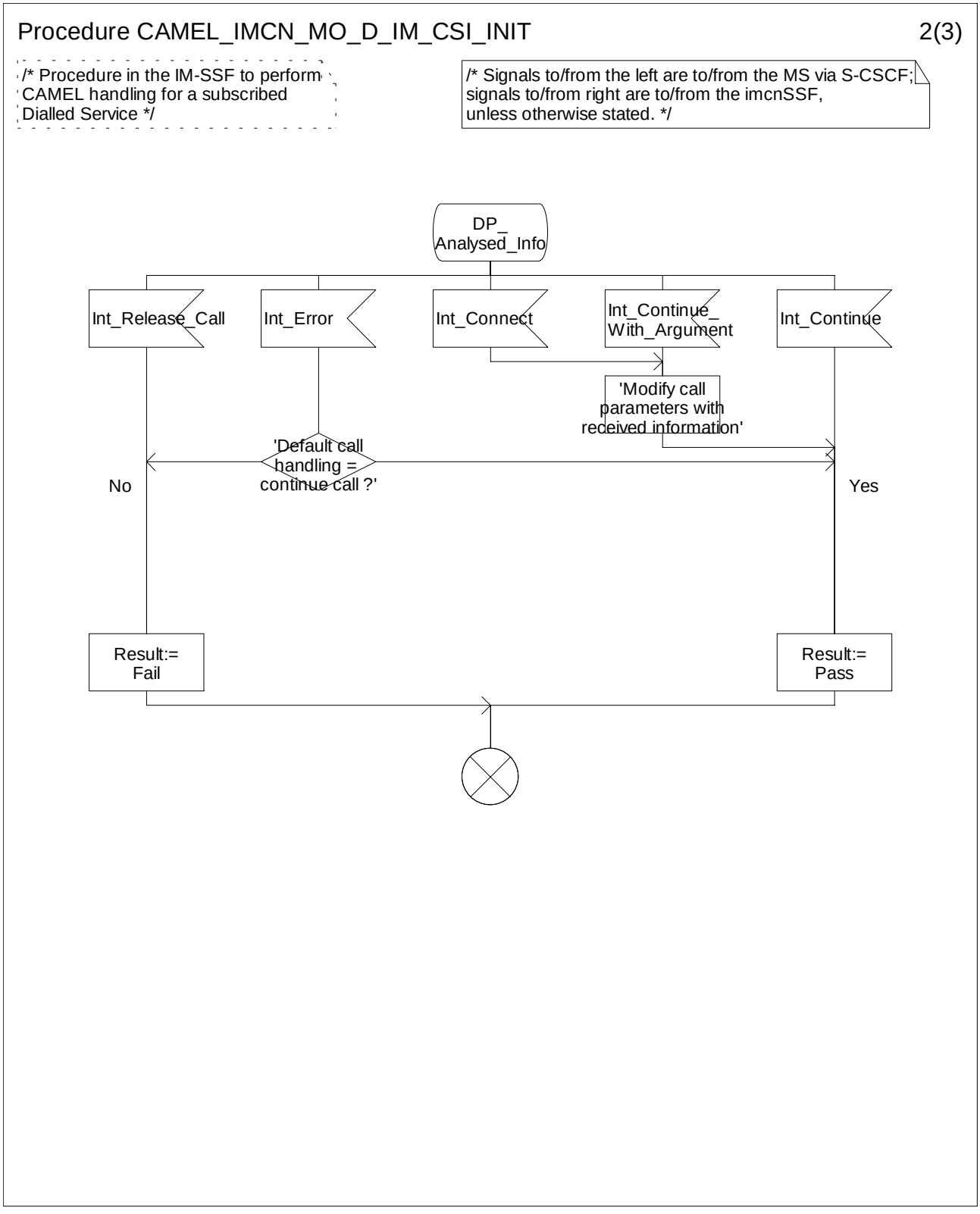
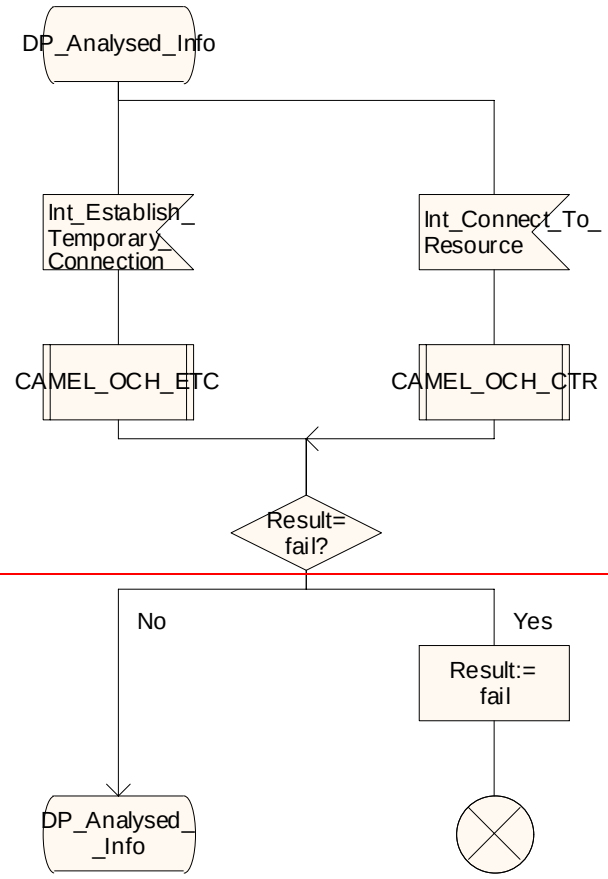


Figure 5.1.3.3b: Procedure CAMEL_IMCN_MO_D_IM_CSI_INIT (sheet 2)

procedure CAMEL_IMCN_MO_DCSI_INIT 3(3)

/* Procedure in the IM-SSF to perform CAMEL handling for a subscribed Dialled Service */

/* Signals to/from the right are to/from the imcnSSF if not otherwise stated. */



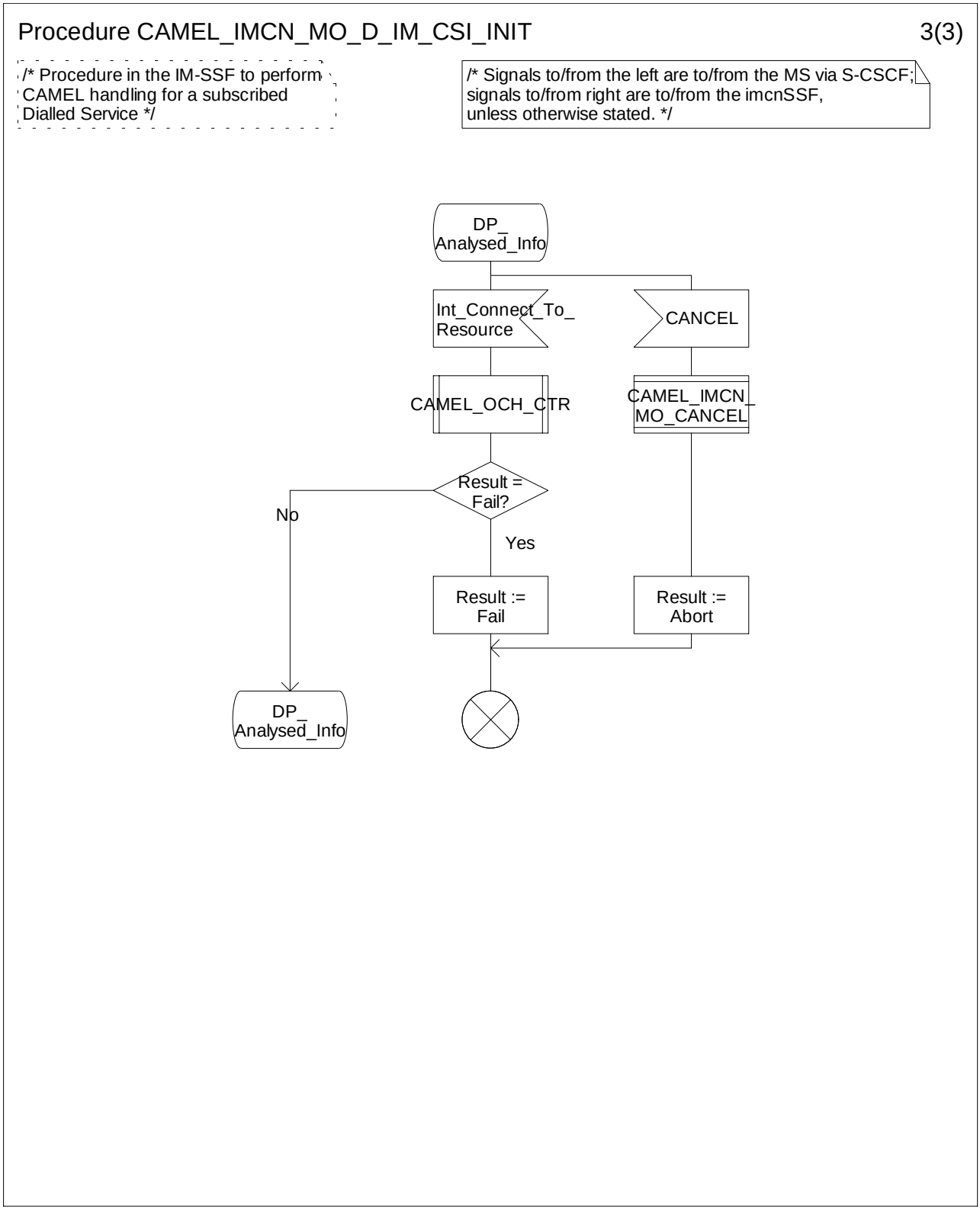
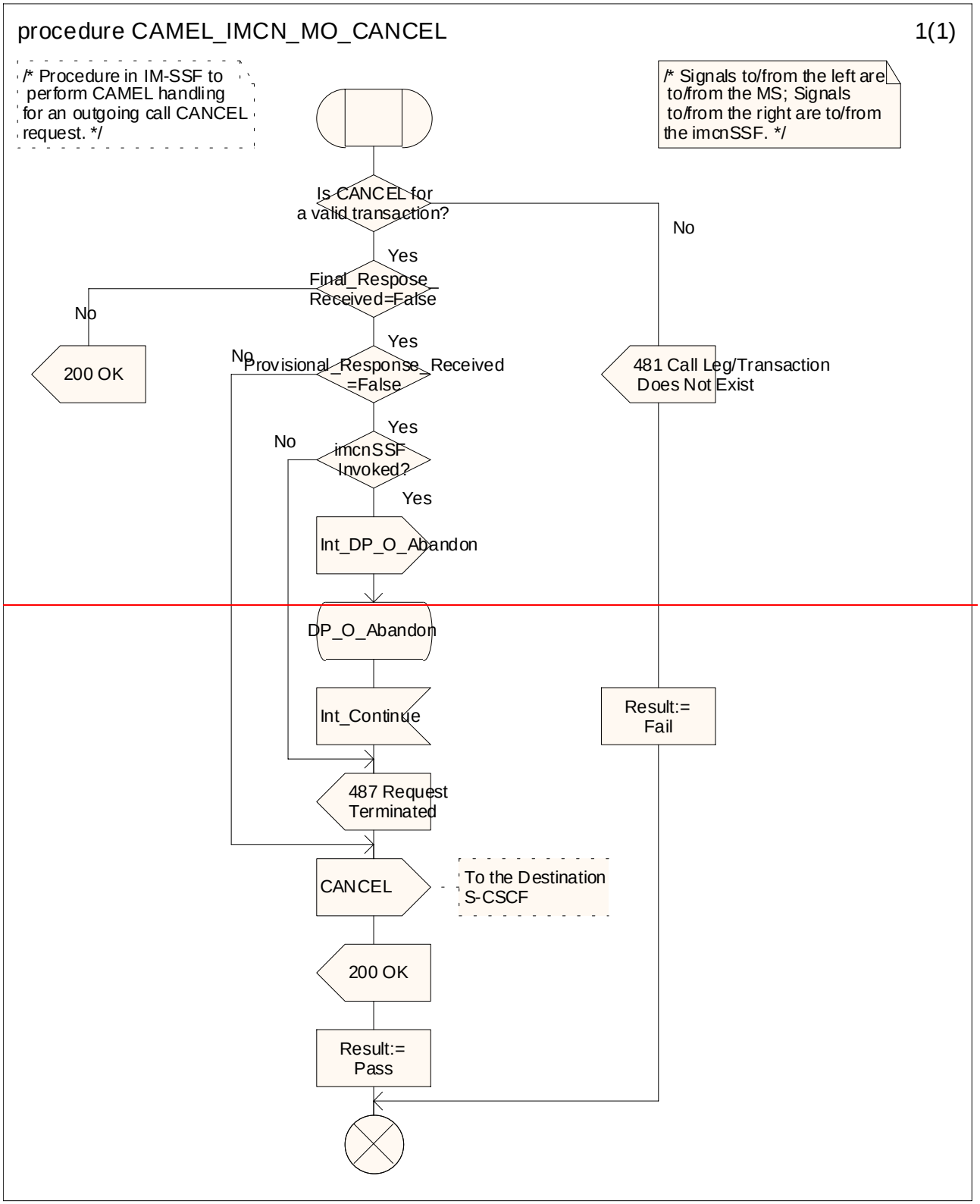


Figure 5.1.3.3c: Procedure CAMEL_IMCN_MO_D_IM_CSI_INIT (sheet 3)


procedure CAMEL_IMCN_MO_CANCEL
1(1)
/* Procedure in IM-SSF to perform CAMEL handling for an outgoing call CANCEL request. */
/* Signals to/from the left are to/from the MS; Signals to/from the right are to/from the imcnSSF. */
Is CANCEL for a valid transaction?
No
Yes
Final_Response_Received=False
No
200 OK
Yes
No
Provisional_Response_Received =False
481 Call Leg/Transaction Does Not Exist
Yes
No
imcnSSF Invoked?
Yes
Int_DP_O_Abandon
DP_O_Abandon
Int_Continue
Result:= Fail
487 Request Terminated
CANCEL
To the Destination S-CSCF
200 OK
Result:= Pass

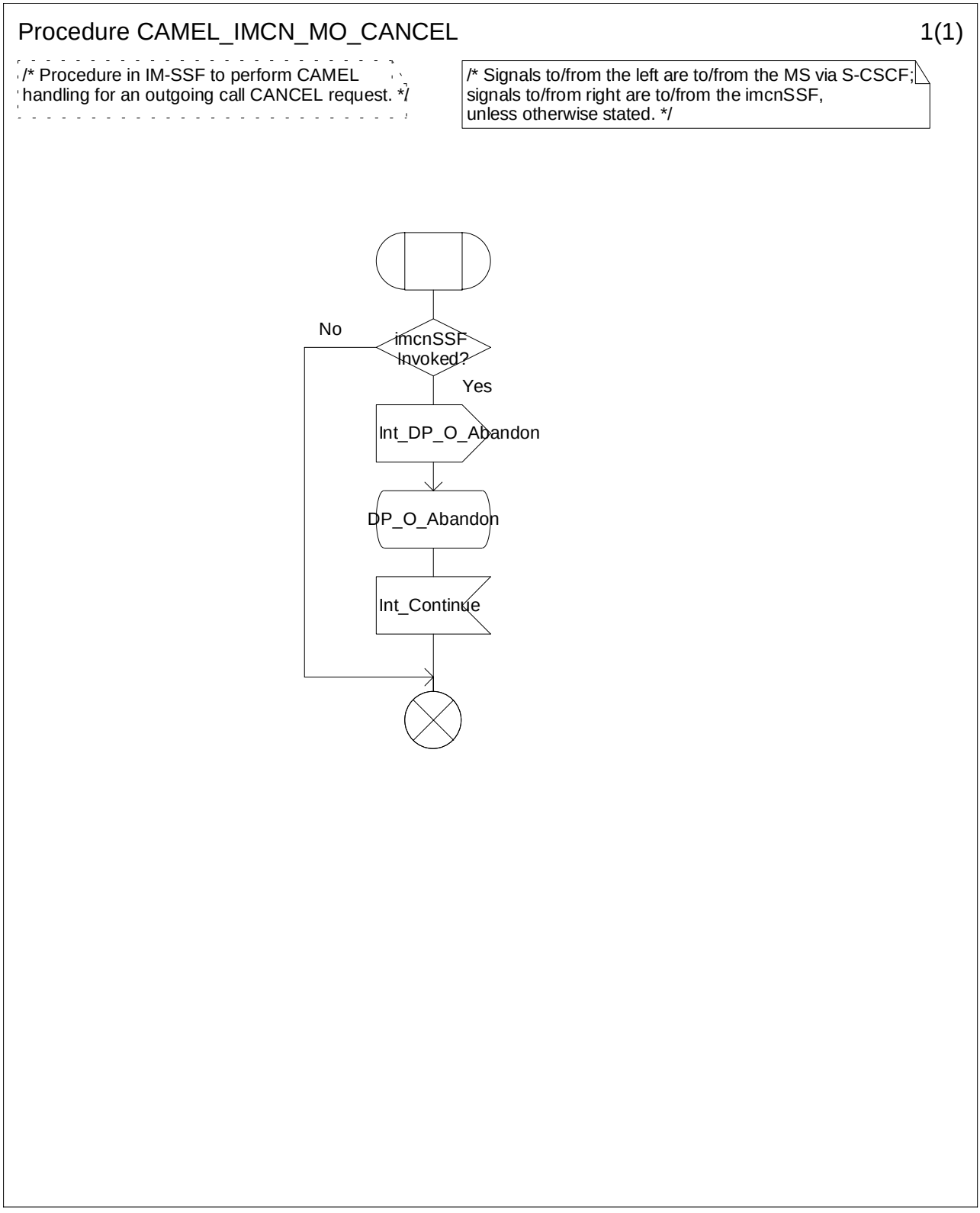


Figure 5.1.3.4a: Procedure CAMEL_IMCN_MO_CANCEL (sheet 1)

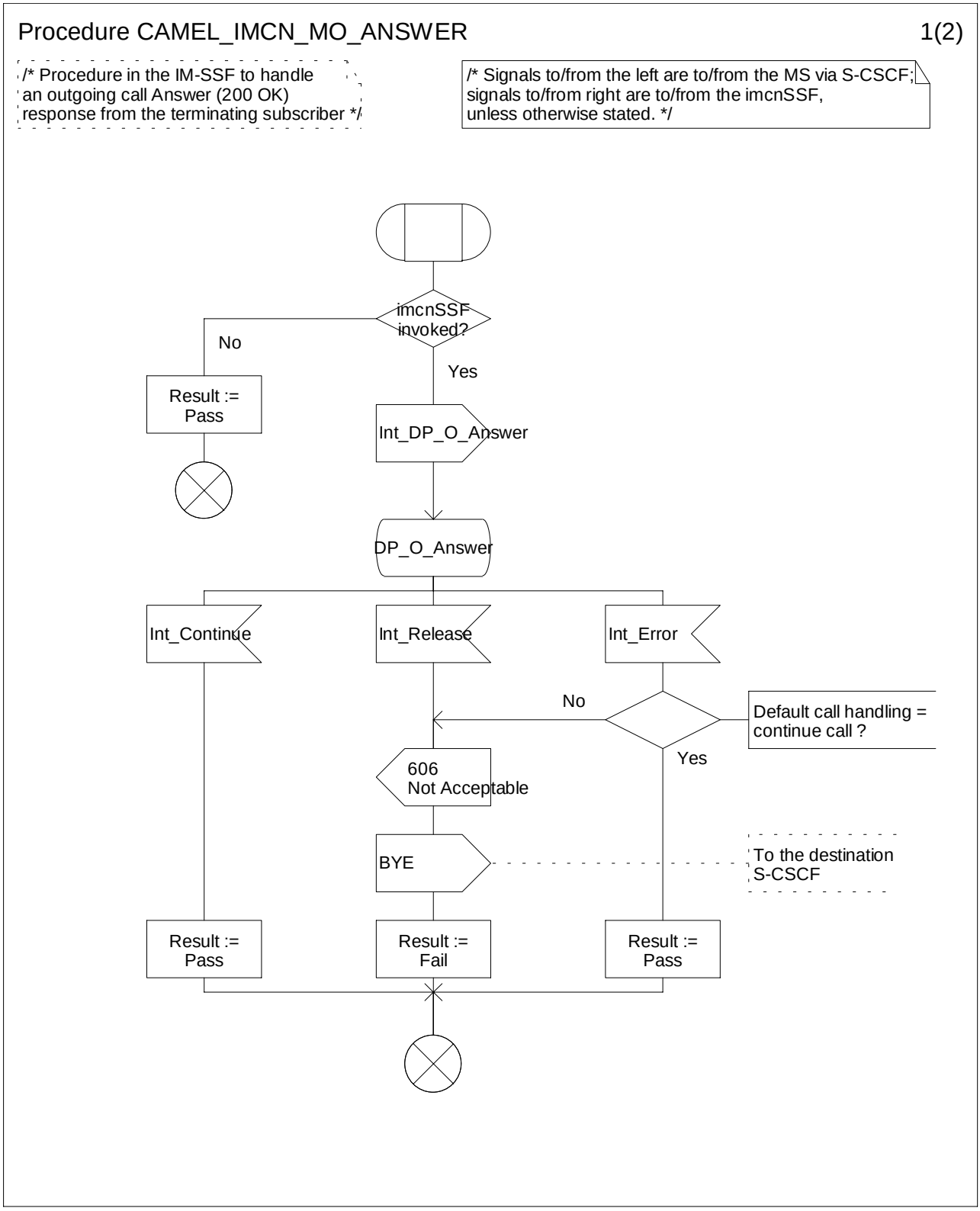


Figure B.a: Procedure CAMEL_IMCN_MO_ANSWER (sheet 1)

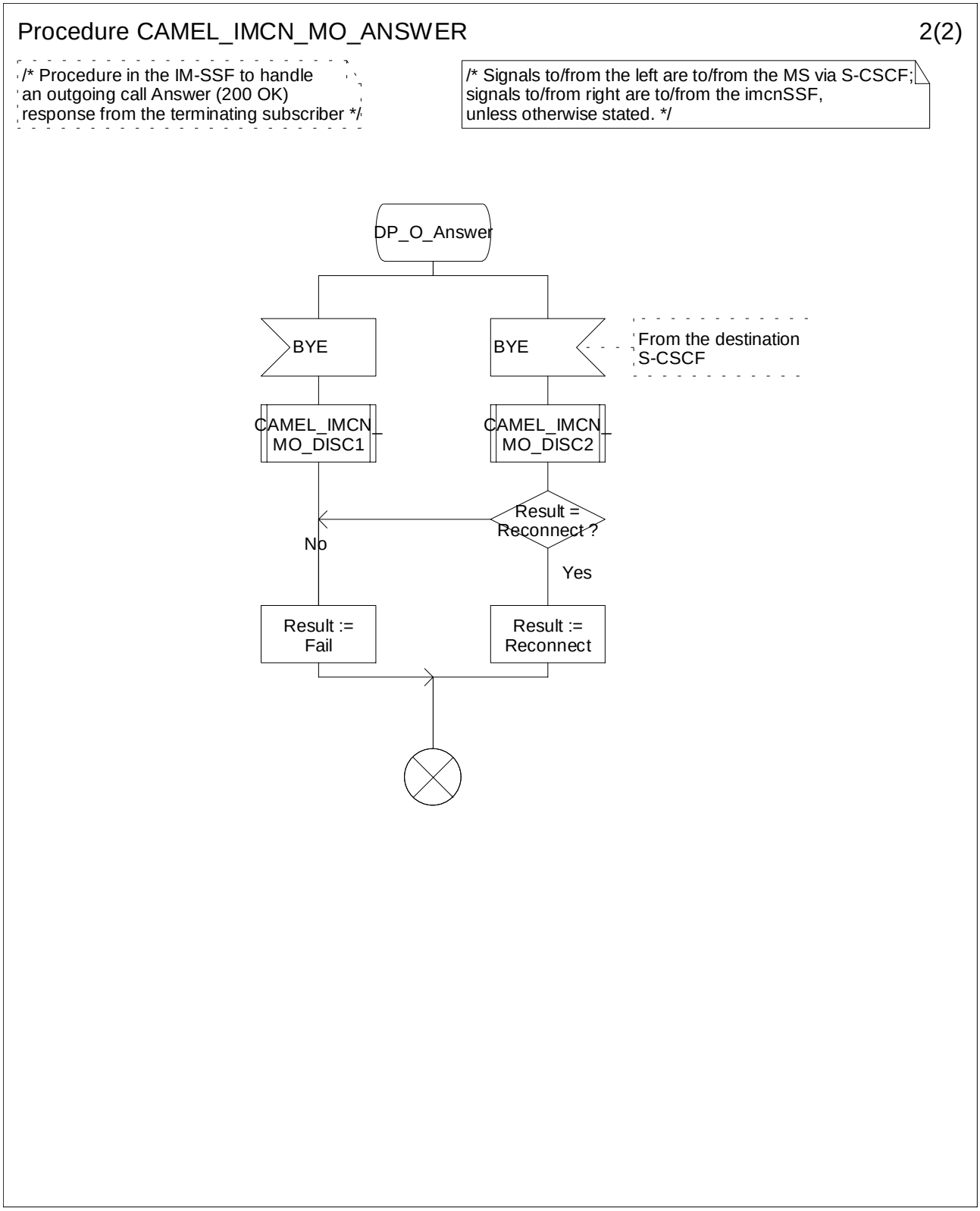


Figure B.b: Procedure CAMEL_IMCN_MO_ANSWER (sheet 2)

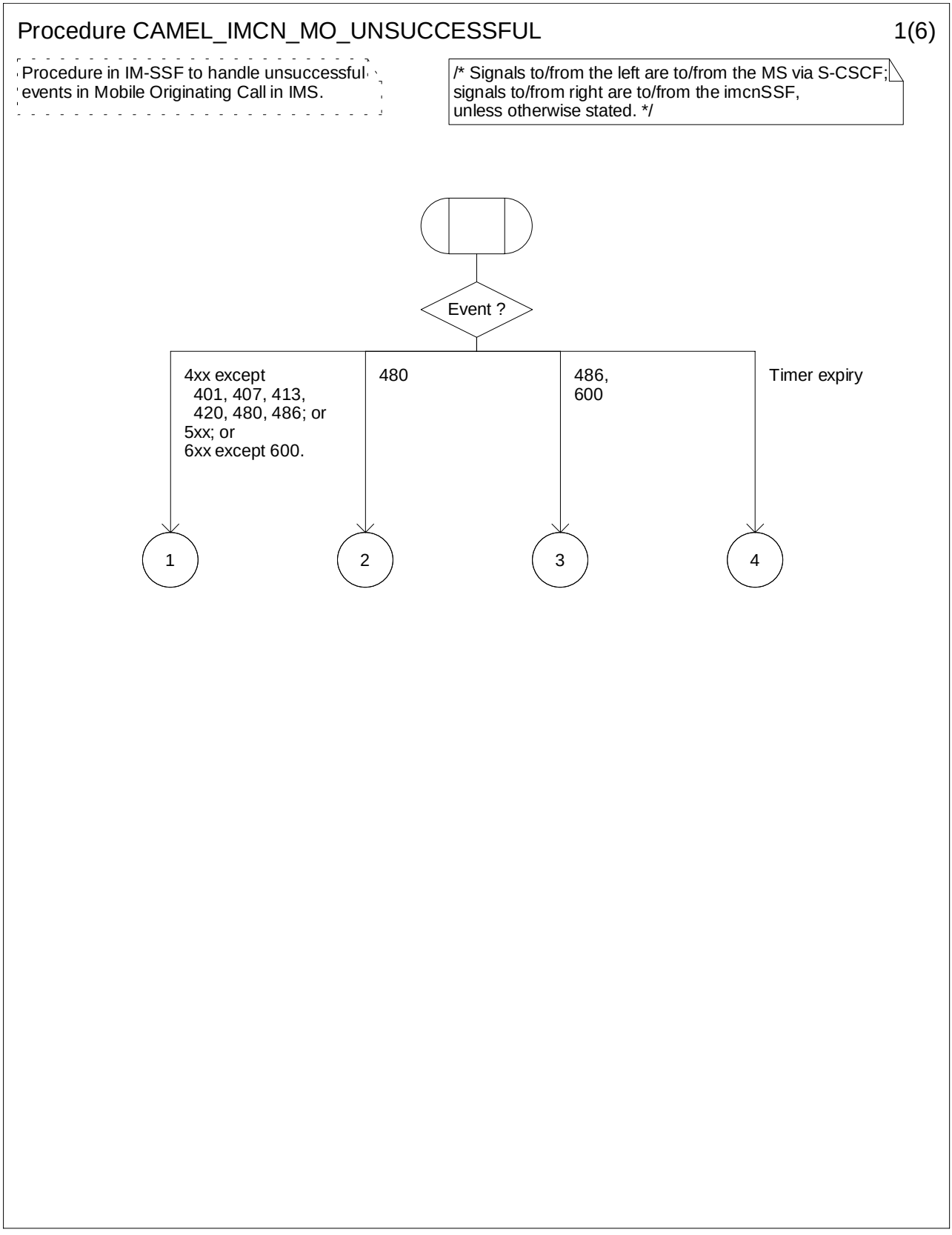


Figure C.a: Procedure CAMEL_IMCN_MO_UNSUCCESSFUL (sheet 1)

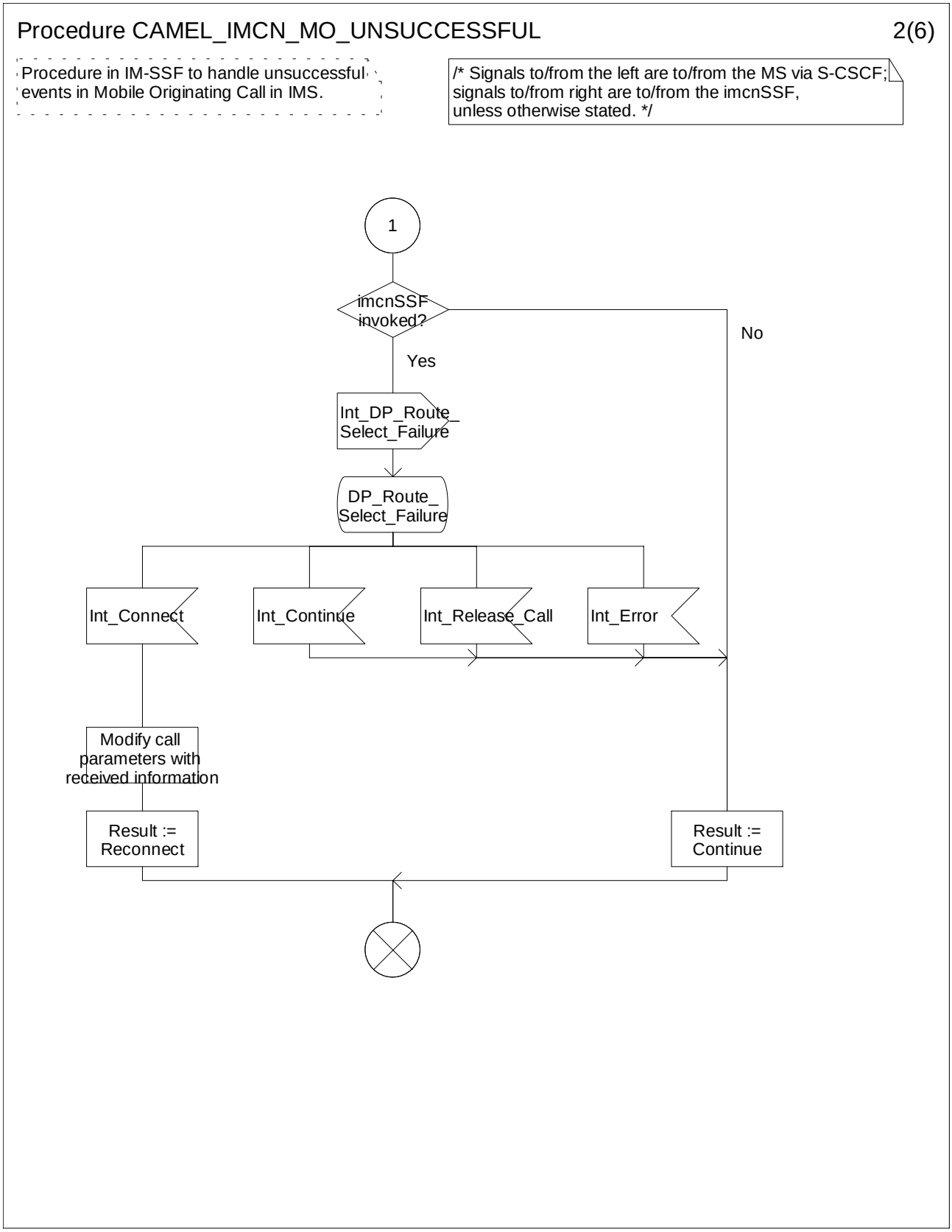


Figure C.b: Procedure CAMEL_IMCN_MO_UNSUCCESSFUL (sheet 2)

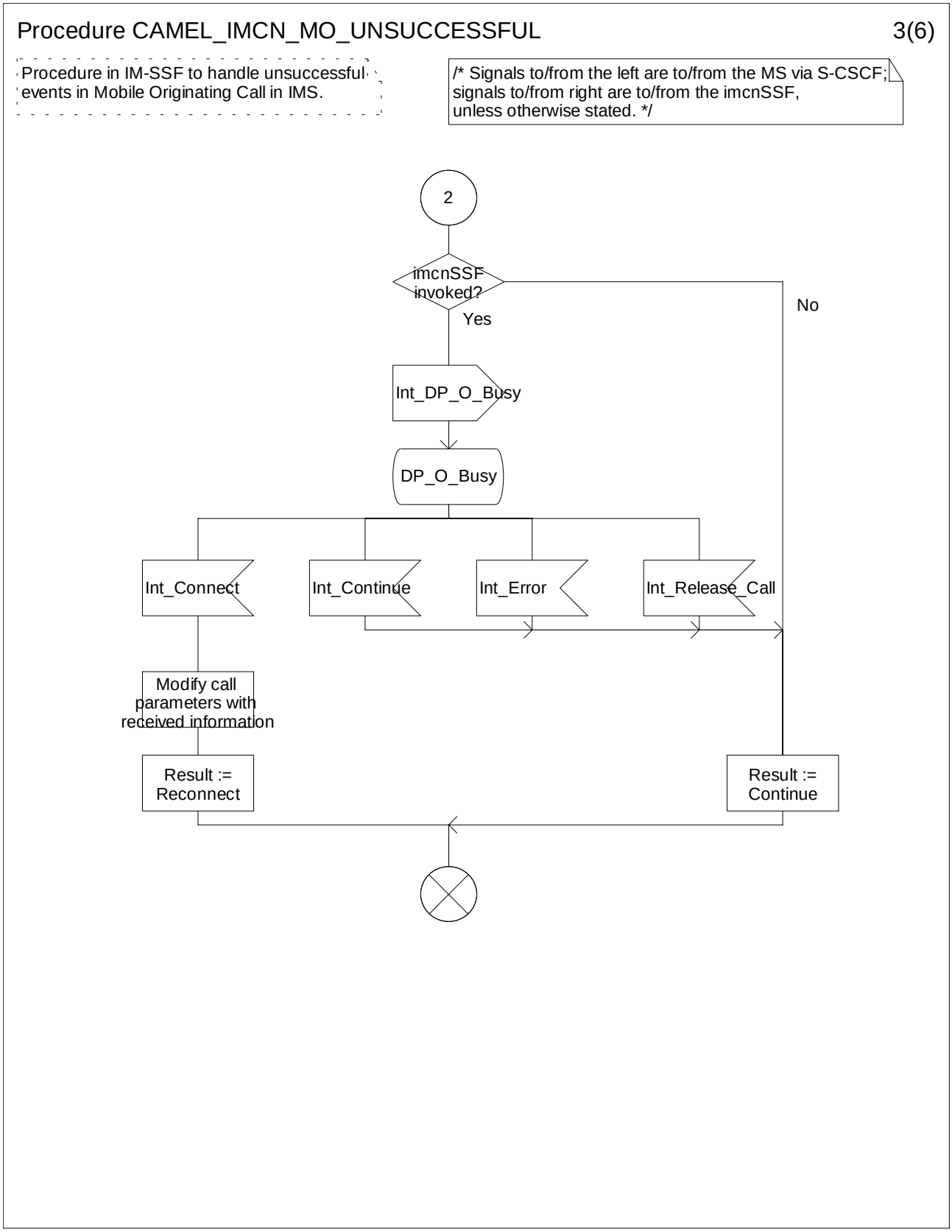


Figure C.c: Procedure CAMEL_IMCN_MO_UNSUCCESSFUL (sheet 3)

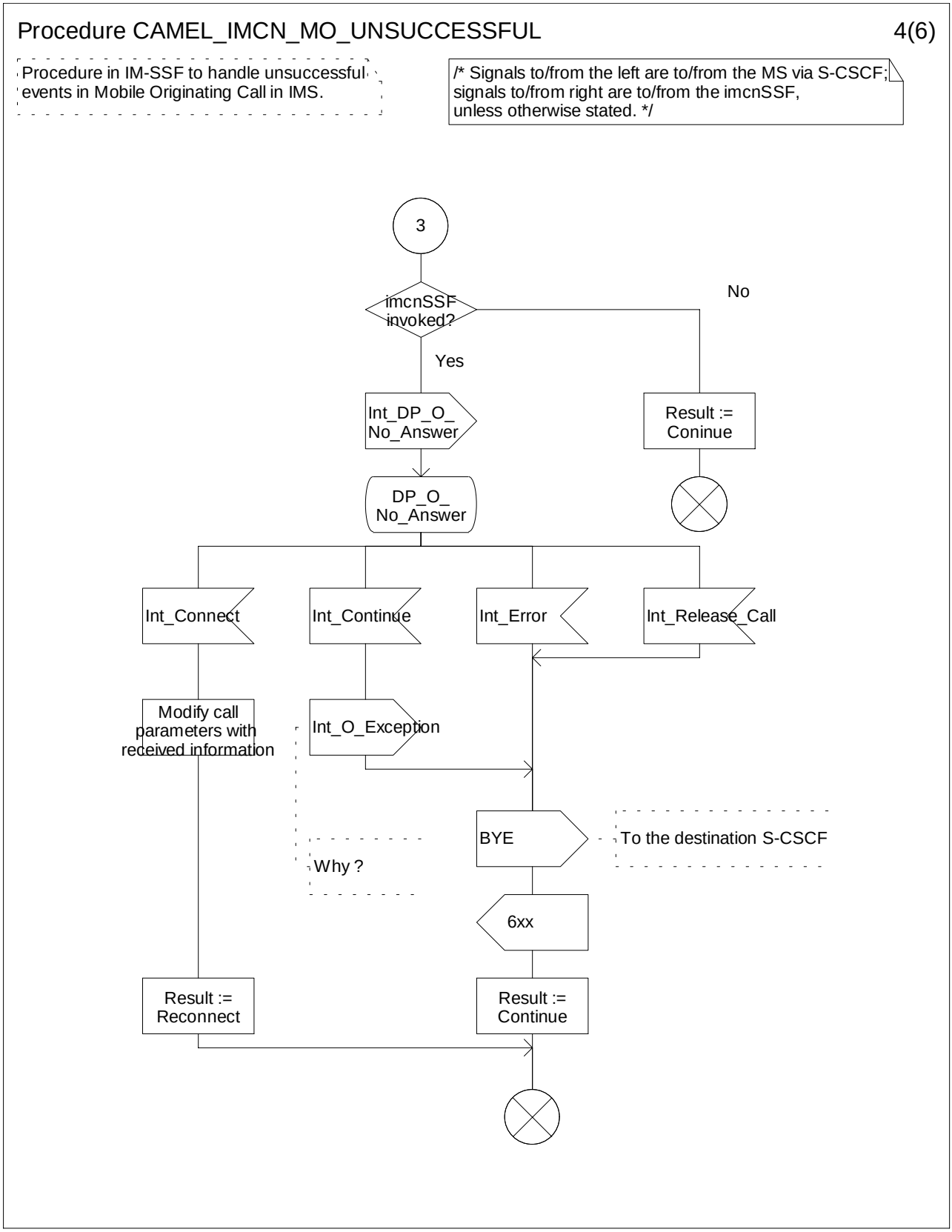


Figure C.d: Procedure CAMEL_IMCN_MO_UNSUCCESSFUL (sheet 4)

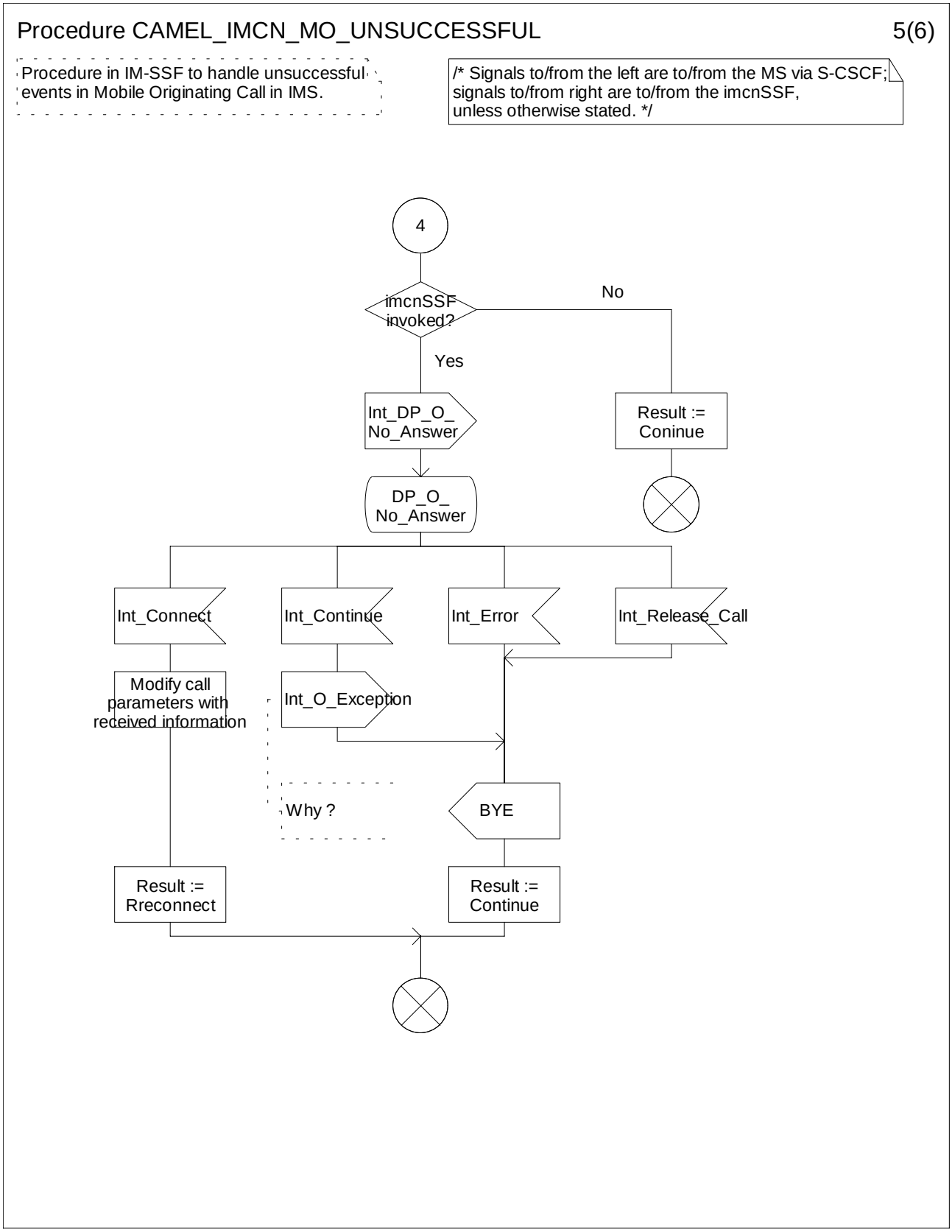


Figure C.e: Procedure CAMEL_IMCN_MO_UNSUCCESSFUL (sheet 5)

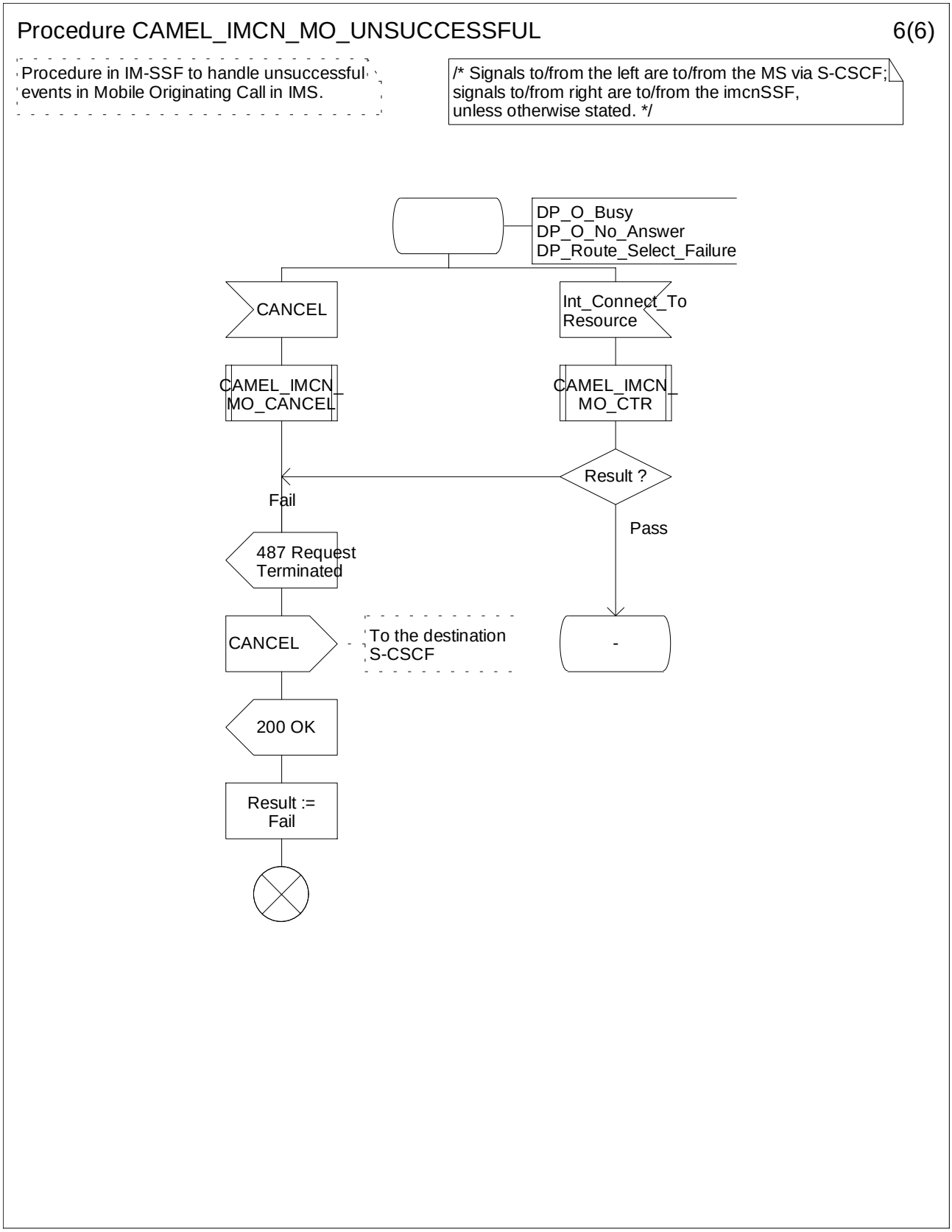
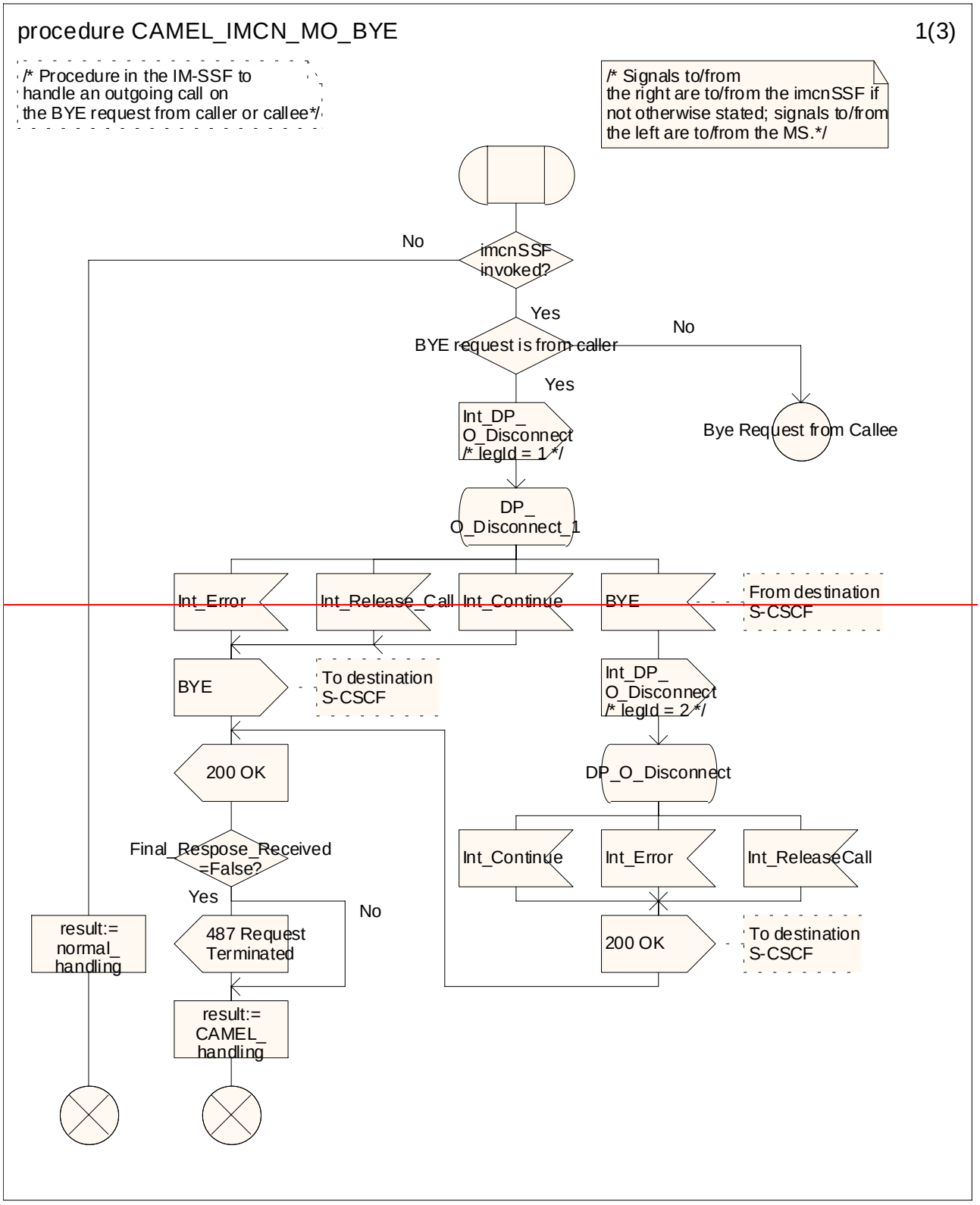


Figure C.f: Procedure CAMEL_IMCN_MO_UNSUCCESSFUL (sheet 6)


procedure CAMEL_IMCN_MO_BYE
1(3)
/* Procedure in the IM-SSF to handle an outgoing call on the BYE request from caller or callee*/
/* Signals to/from the right are to/from the imcnSSF if not otherwise stated; signals to/from the left are to/from the MS.*/
imcnSSF invoked?
No
Yes
BYE request is from caller
No
Yes
Int_DP_ O_Disconnect /* legId = 1 */
Bye Request from Callee
DP_ O_Disconnect_1
Int_Error
Int_Release_Call
Int_Continue
BYE
From destination S-CSCF
BYE
To destination S-CSCF
Int_DP_ O_Disconnect /* legId = 2 */
200 OK
DP_O_Disconnect
Final_Respose_Received =False?
Int_Continue
Int_Error
Int_ReleaseCall
Yes
No
result:= normal_ handling
487 Request Terminated
200 OK
To destination S-CSCF
result:= CAMEL_ handling

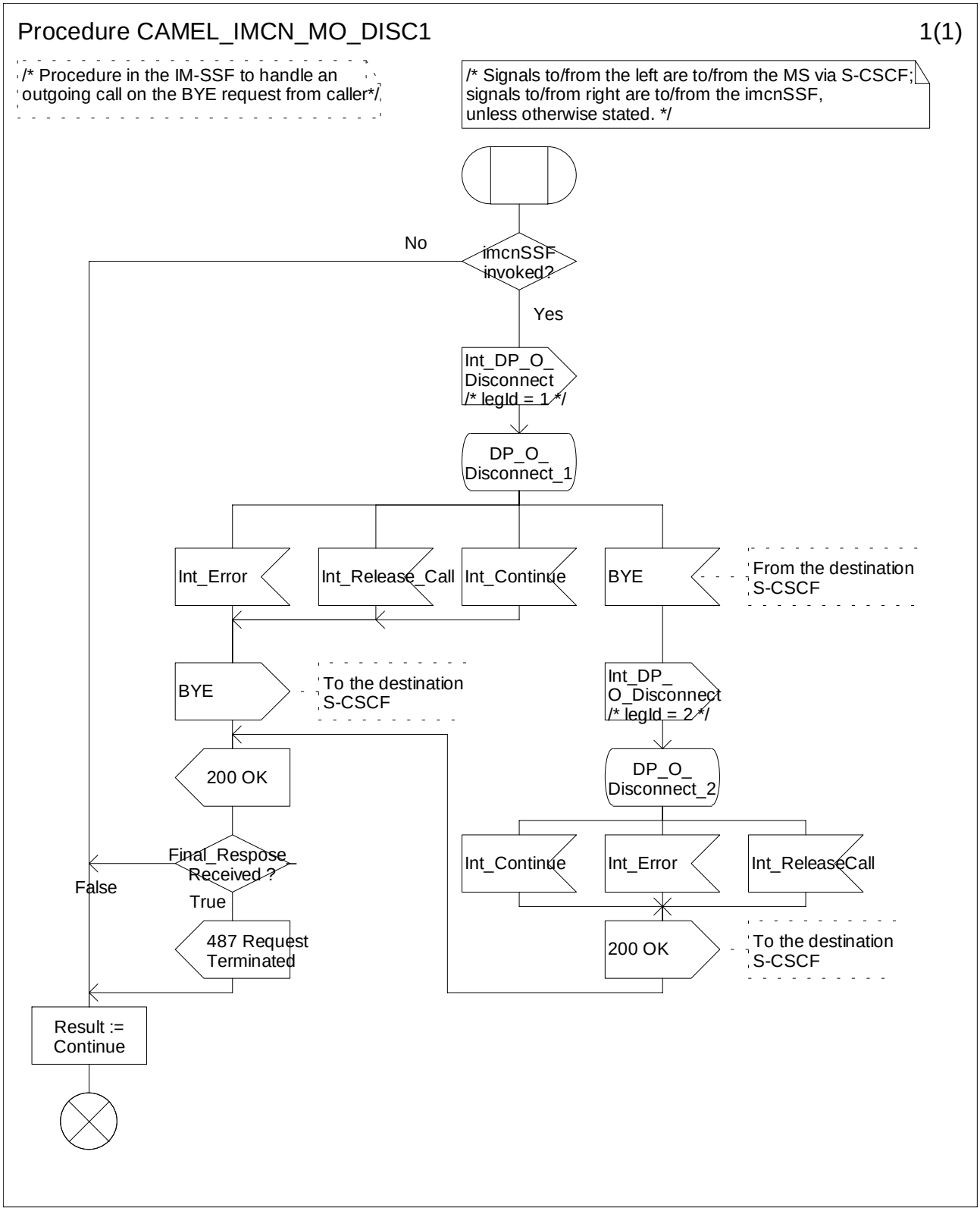
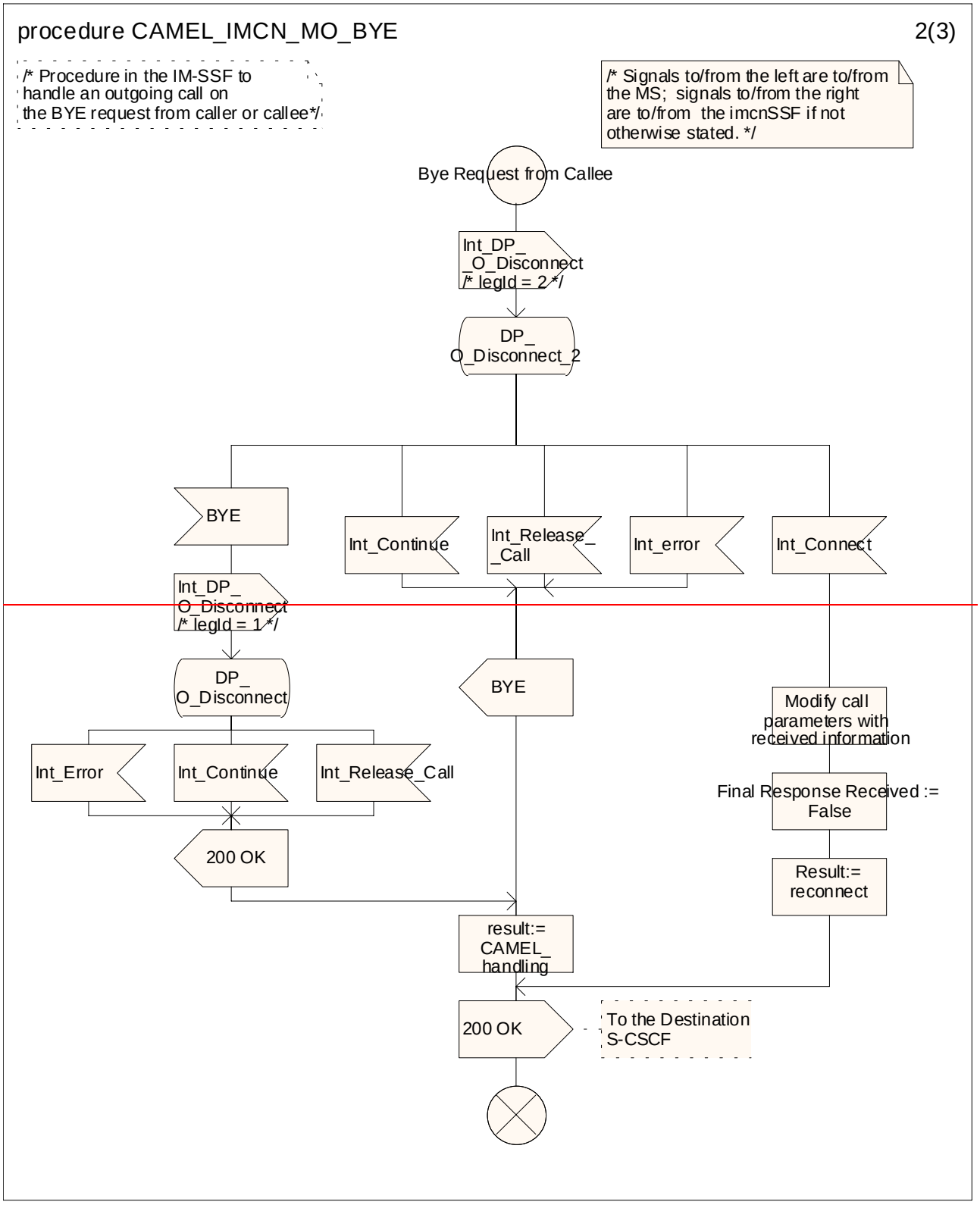


Figure ~~5.1.3.5~~D.a: Procedure CAMEL_IMCN_MO_DISC1~~BYE~~ (sheet 1)


procedure CAMEL_IMCN_MO_BYE
2(3)
/* Procedure in the IM-SSF to handle an outgoing call on the BYE request from caller or callee*/
/* Signals to/from the left are to/from the MS; signals to/from the right are to/from the imcnSSF if not otherwise stated. */
Bye Request from Callee
Int_DP_ _O_Disconnect /* legId = 2 */
DP_ O_Disconnect_2
BYE
Int_Continue
Int_Release_ _Call
Int_error
Int_Connect
Int_DP_ O_Disconnect /* legId = 1 */
DP_ O_Disconnect
BYE
Modify call parameters with received information
Int_Error
Int_Continue
Int_Release_Call
Final Response Received := False
200 OK
Result:= reconnect
result:= CAMEL_ handling
200 OK
To the Destination S-CSCF

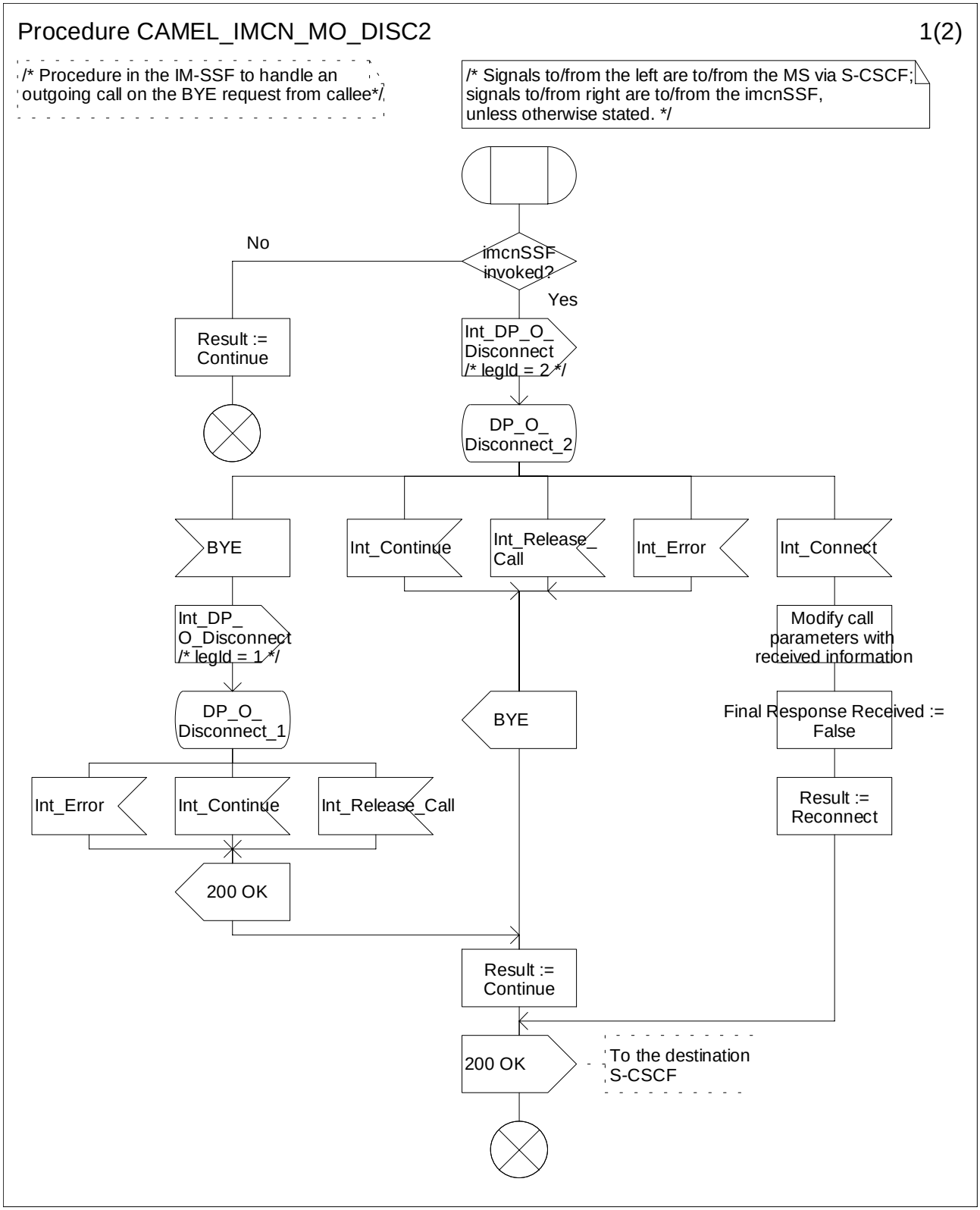
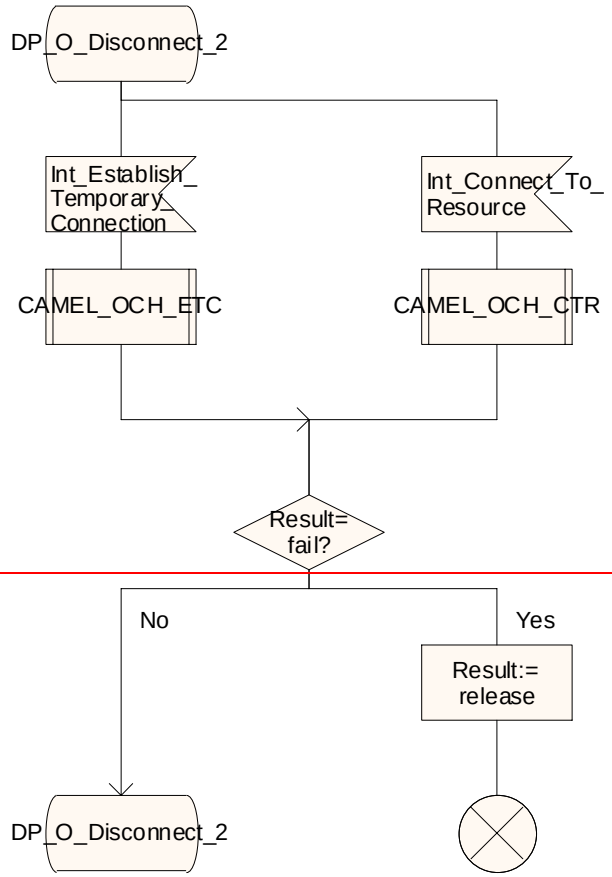


Figure ~~5.1.3.5~~E.~~b~~a: Procedure CAMEL_IMCN_MO_~~BYE~~DISC2 (sheet ~~2~~1)

procedure CAMEL_IMCN_MO_BYE 3(3)

/* Procedure in the IM-SSF to handle an outgoing call on the BYE request from caller or callee*/

Signals to/from the right are to/from the imcnSSF if not otherwise stated.



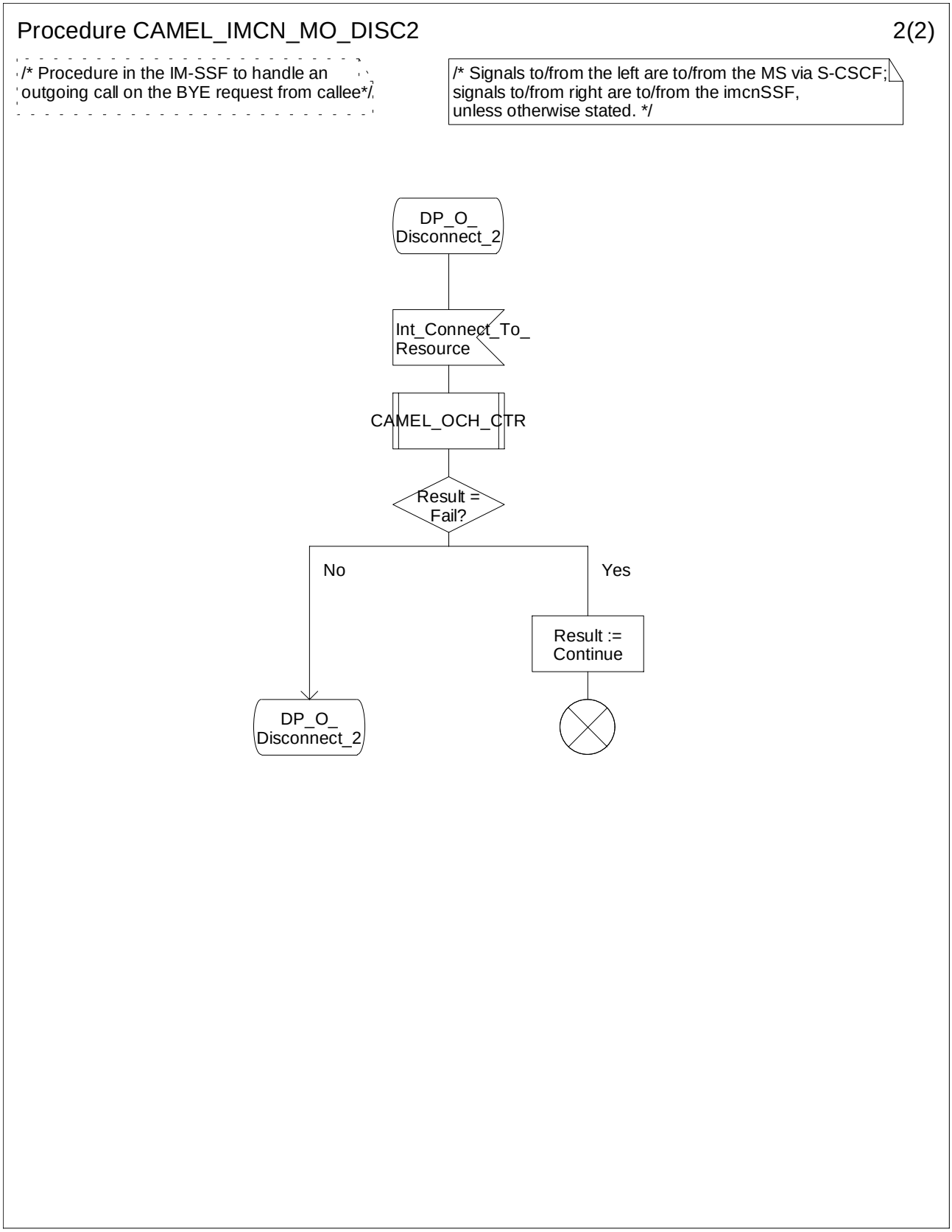
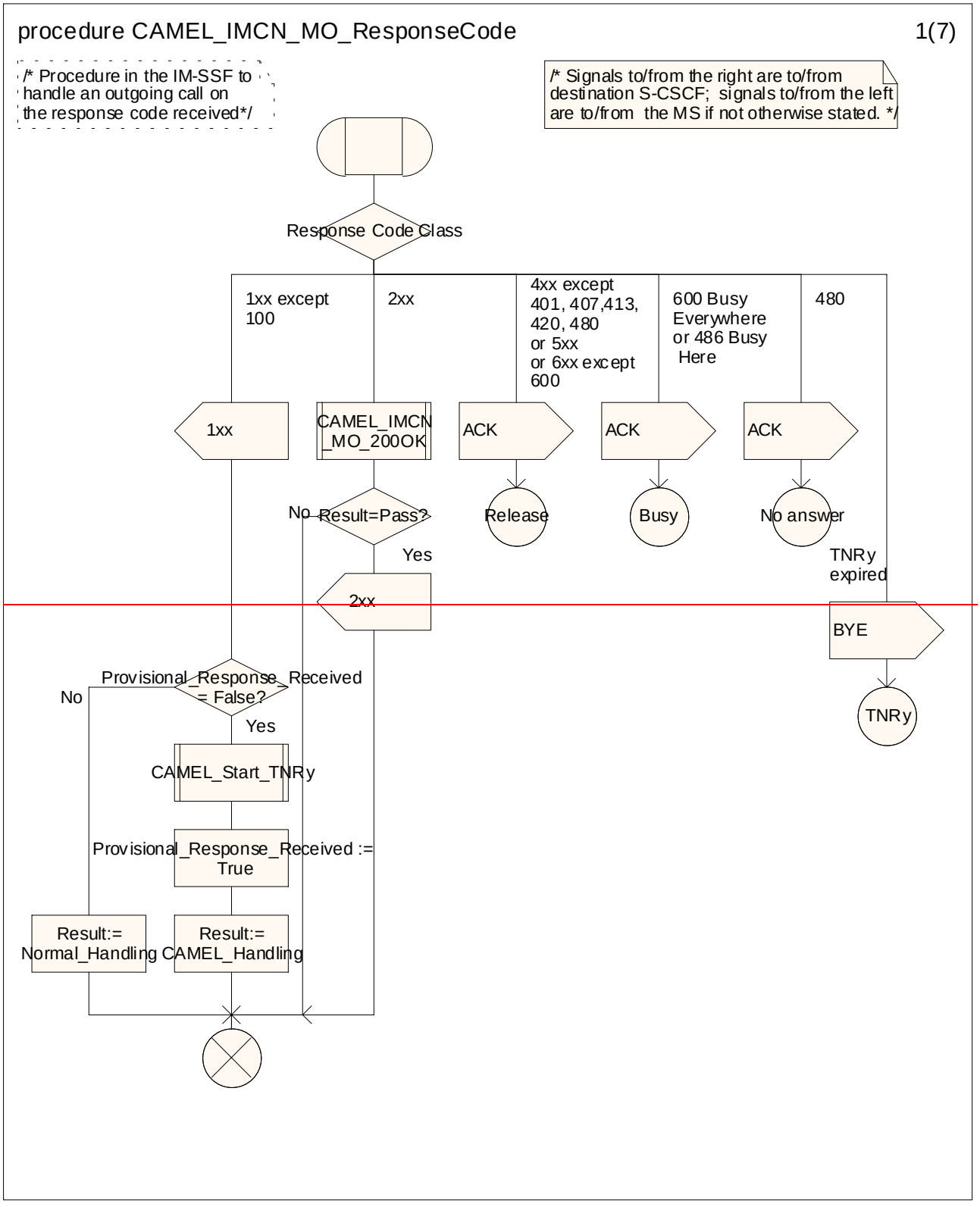
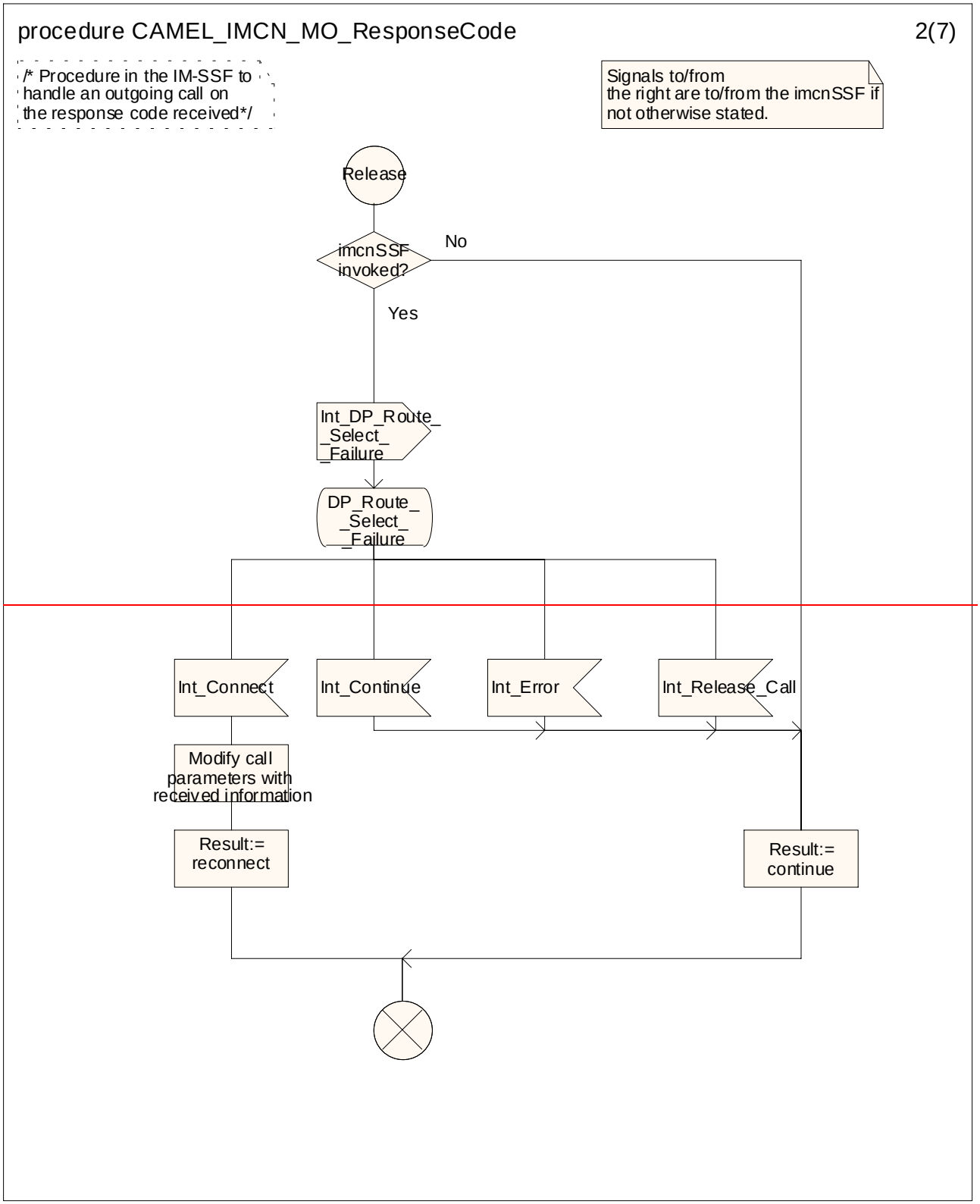


Figure ~~5.1.3.5~~E.~~c~~b: Procedure CAMEL_IMCN_MO_~~BYE~~DISC2 (sheet ~~3~~2)



~~Figure 5.1.3.6a: Procedure CAMEL_IMCN_MO_ResponseCode (sheet1)~~



~~Figure 5.1.3.6b: Procedure CAMEL_IMCN_MO_ResponseCode (sheet 2)~~

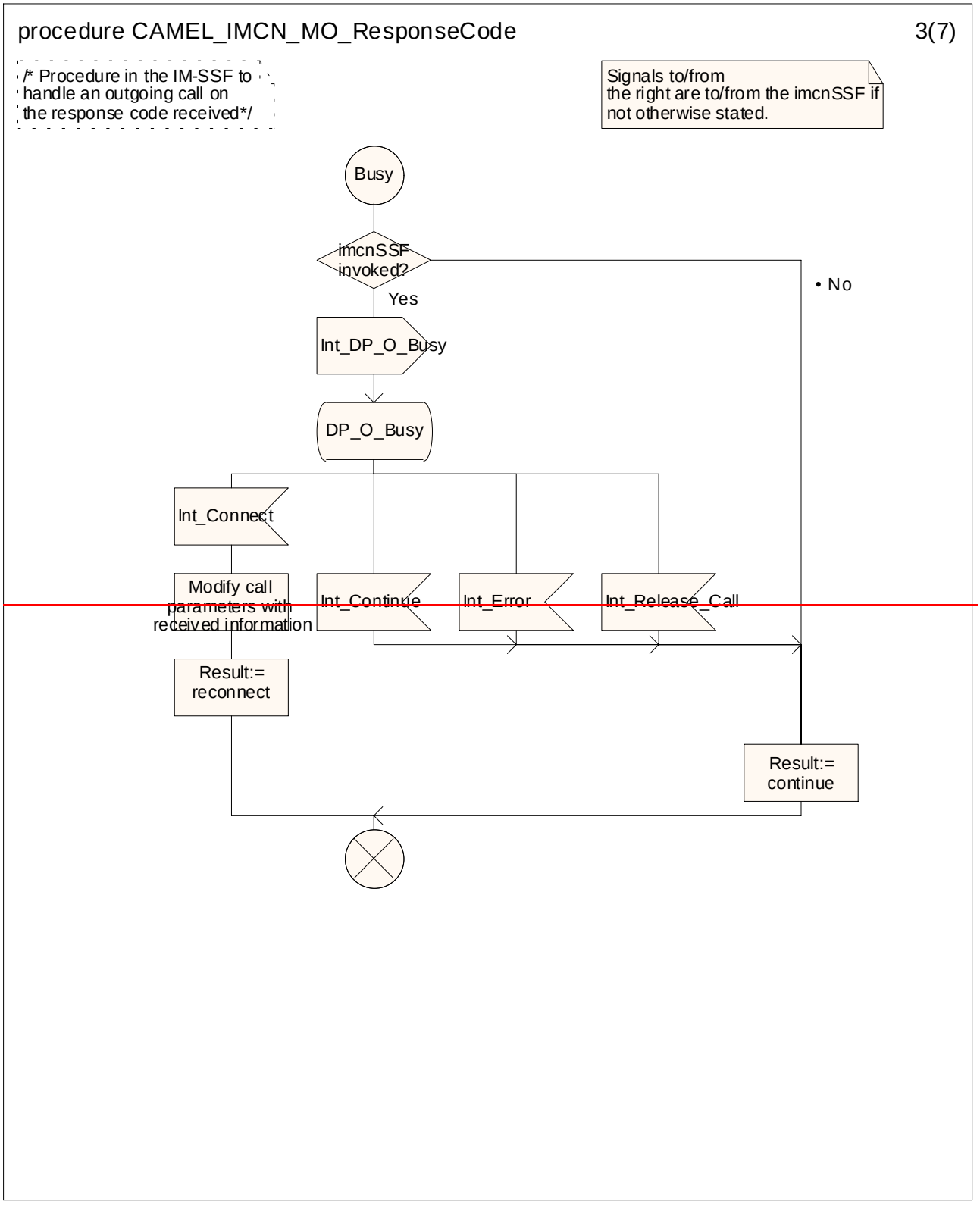
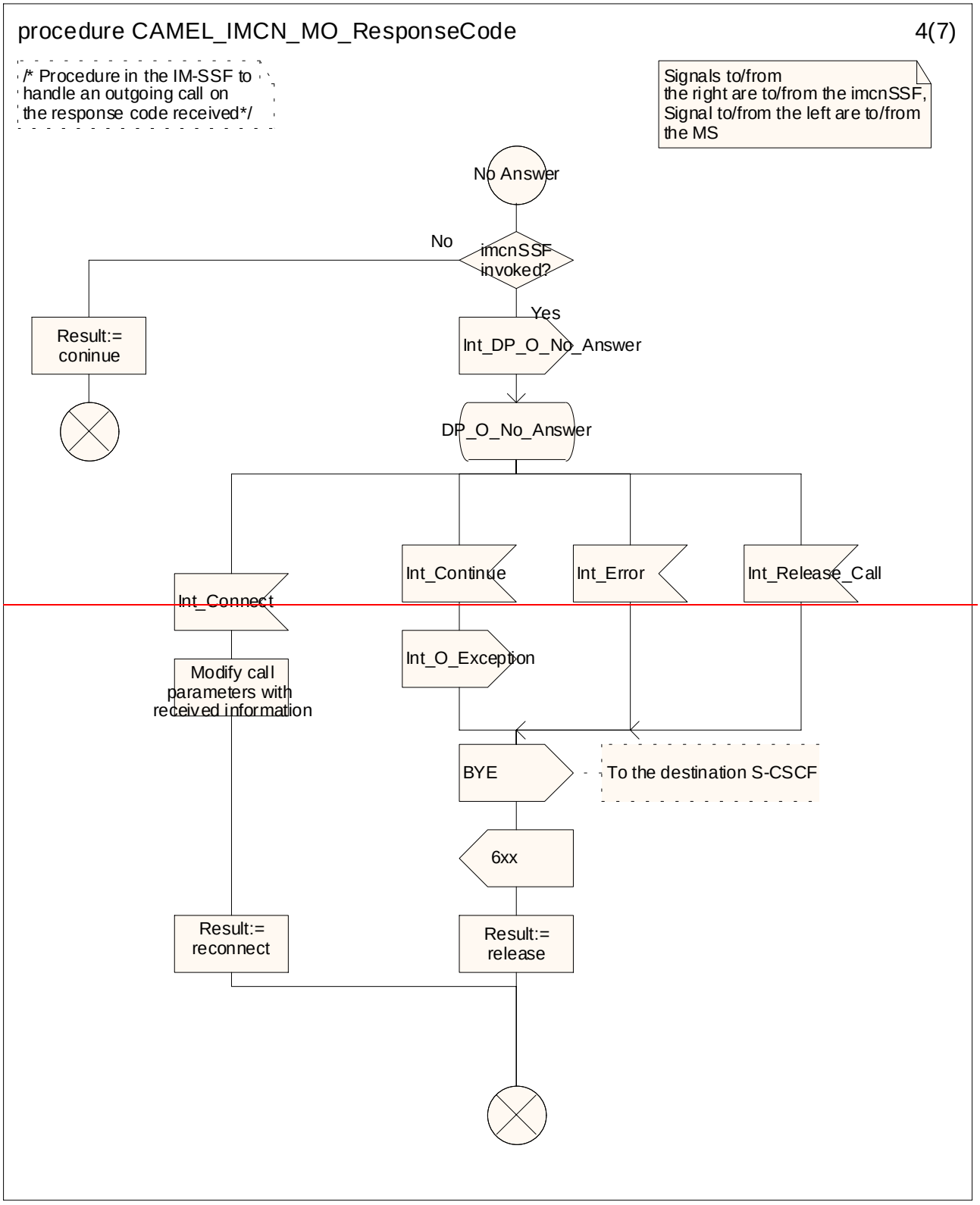
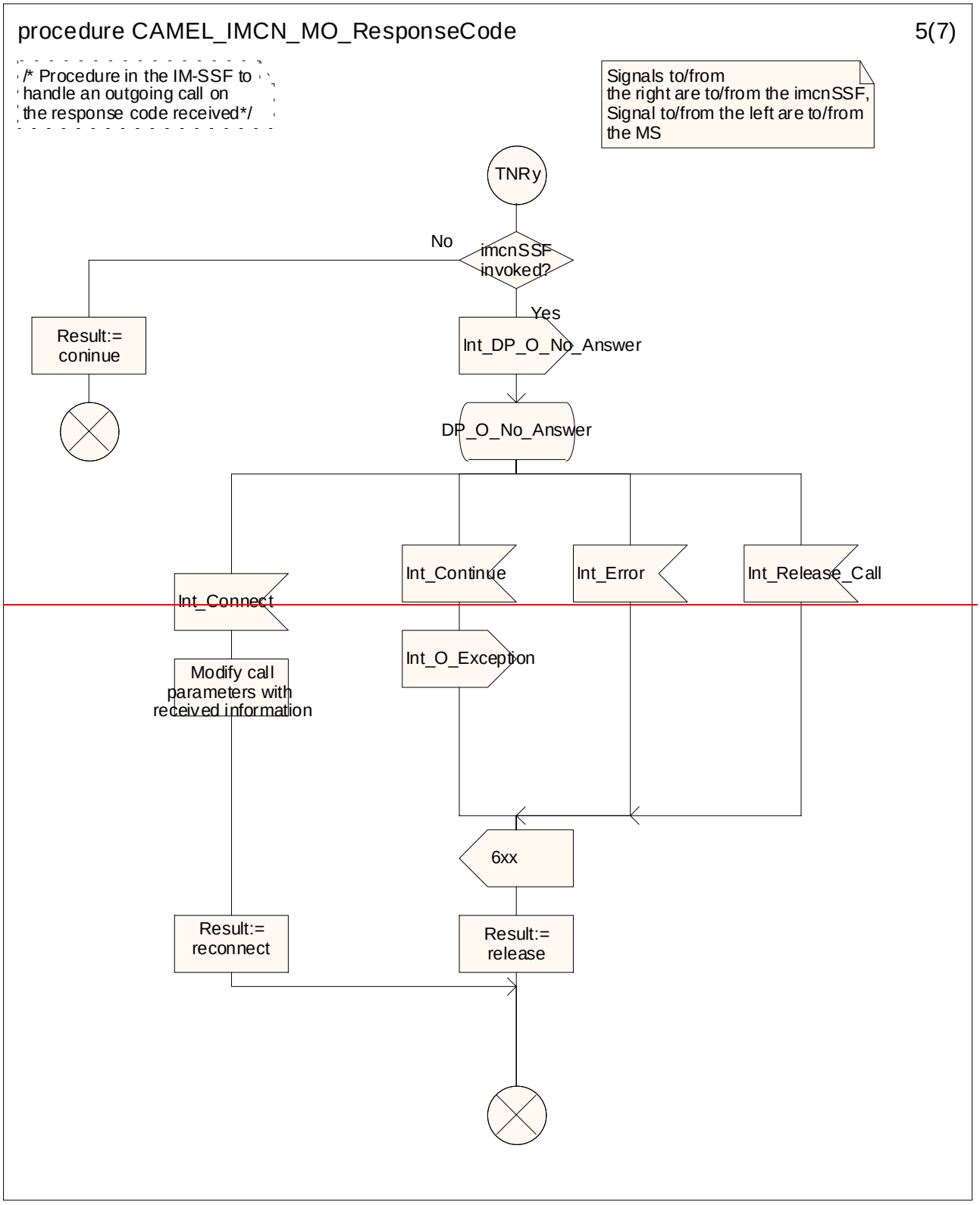


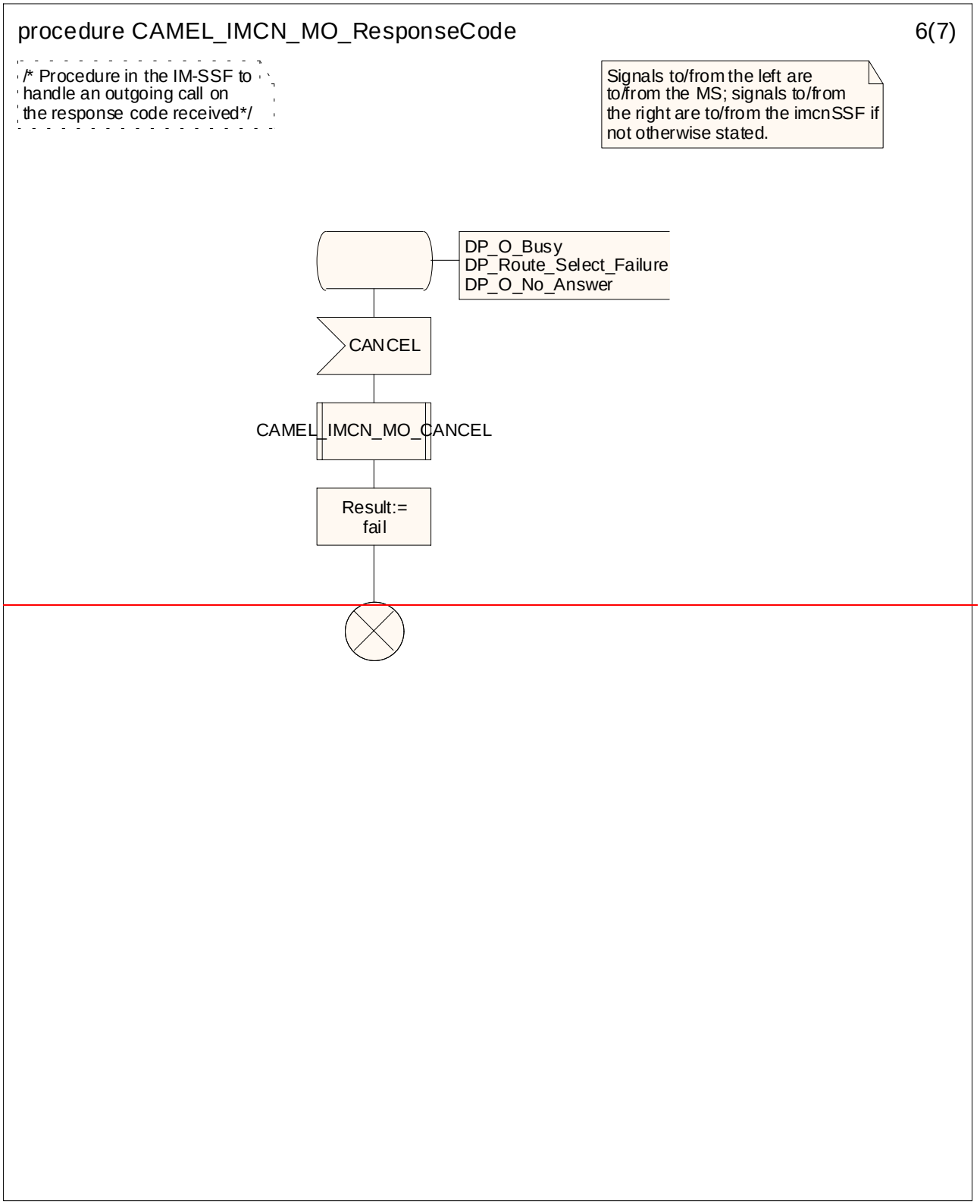
Figure 5.1.3.6c: Procedure CAMEL_IMCN_MO_ResponseCode (sheet 3)



~~Figure 5.1.3.6d: Procedure CAMEL_IMCN_MO_ResponseCode (sheet 4)~~



~~Figure 5.1.3.6e: Procedure CAMEL_IMCN_MO_ResponseCode (sheet 5)~~



~~Figure 5.1.3.6f: Procedure CAMEL_IMCN_MO_ResponseCode (sheet 6)~~

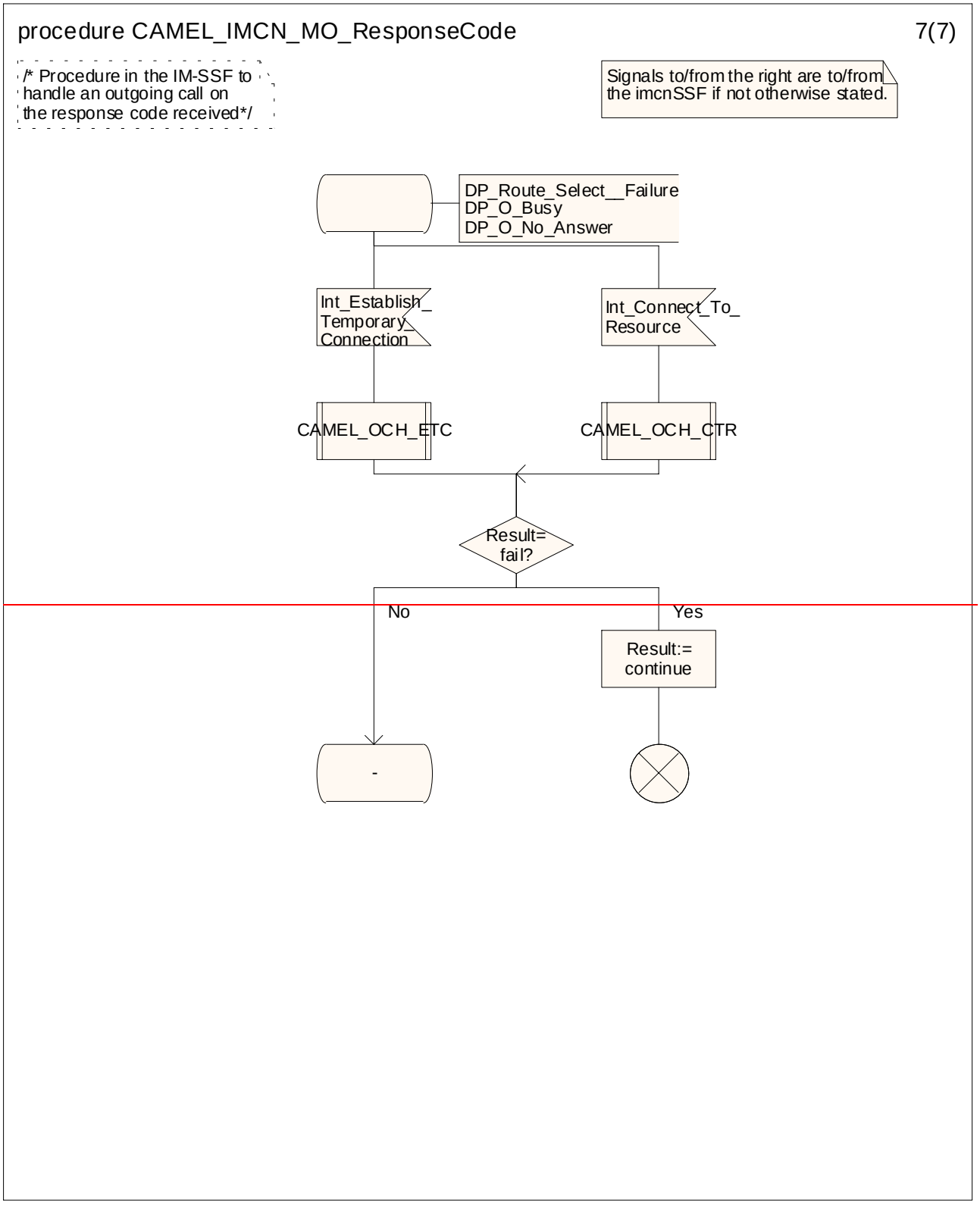
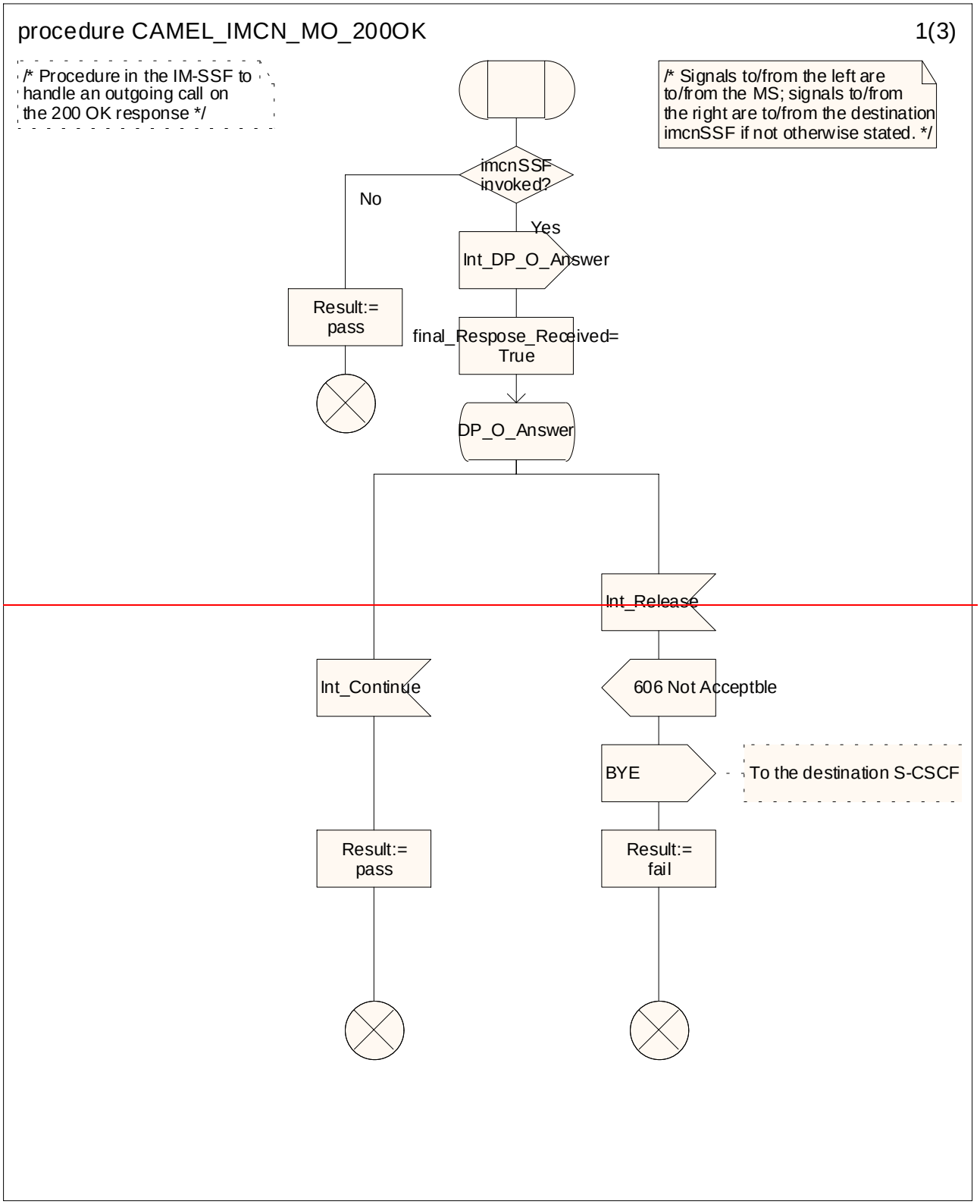
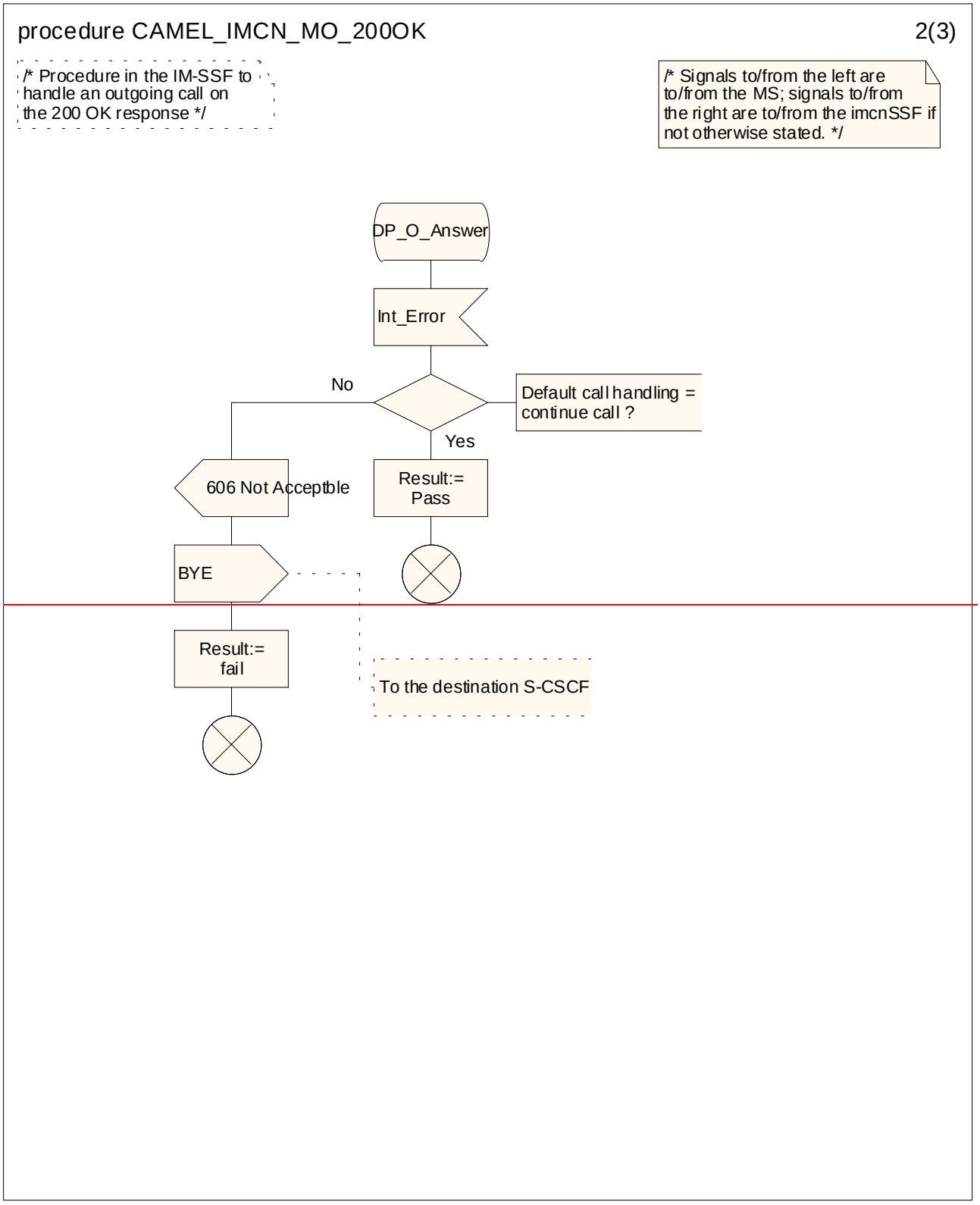


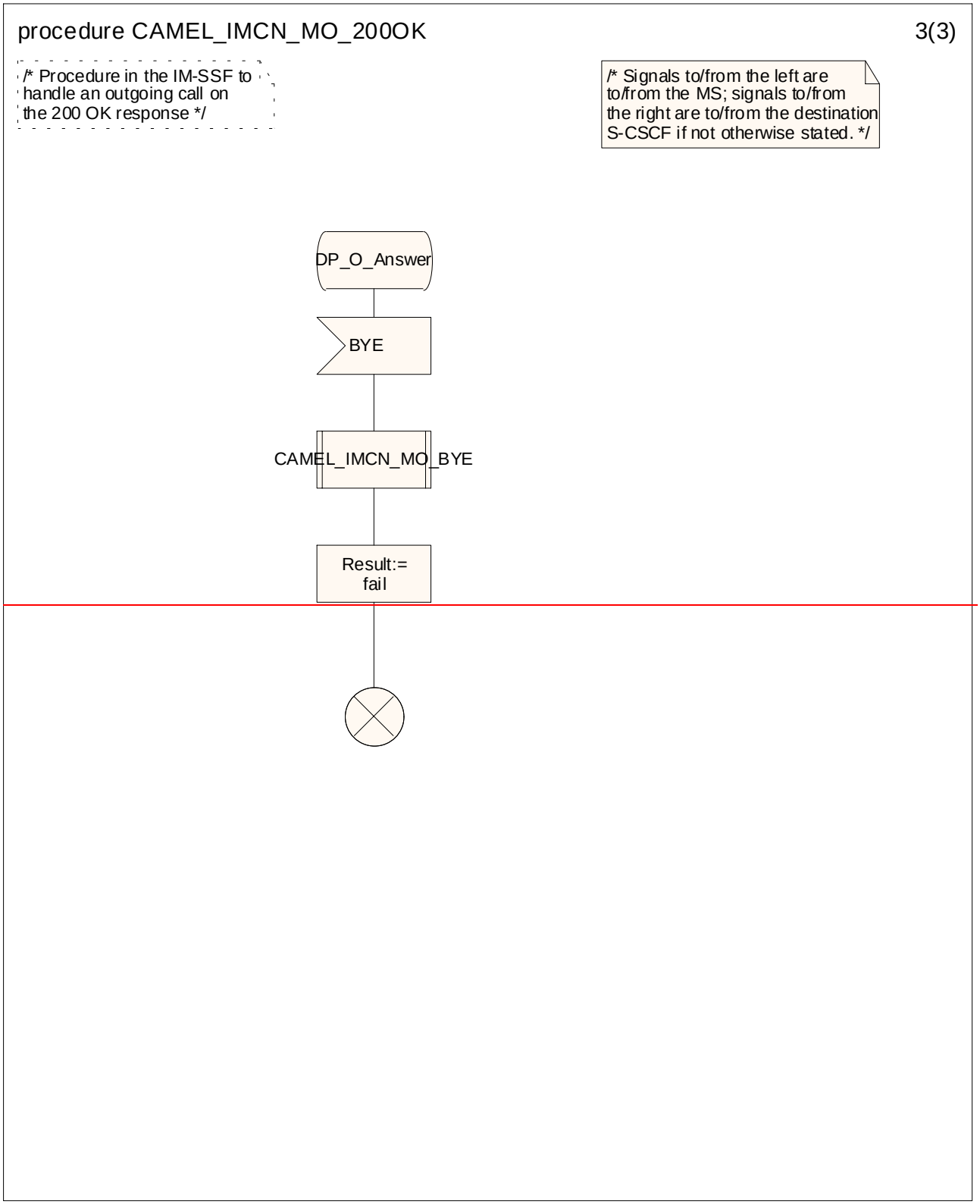
Figure 5.1.3.6g: Procedure CAMEL_IMCN_MO_ResponseCode (sheet 7)



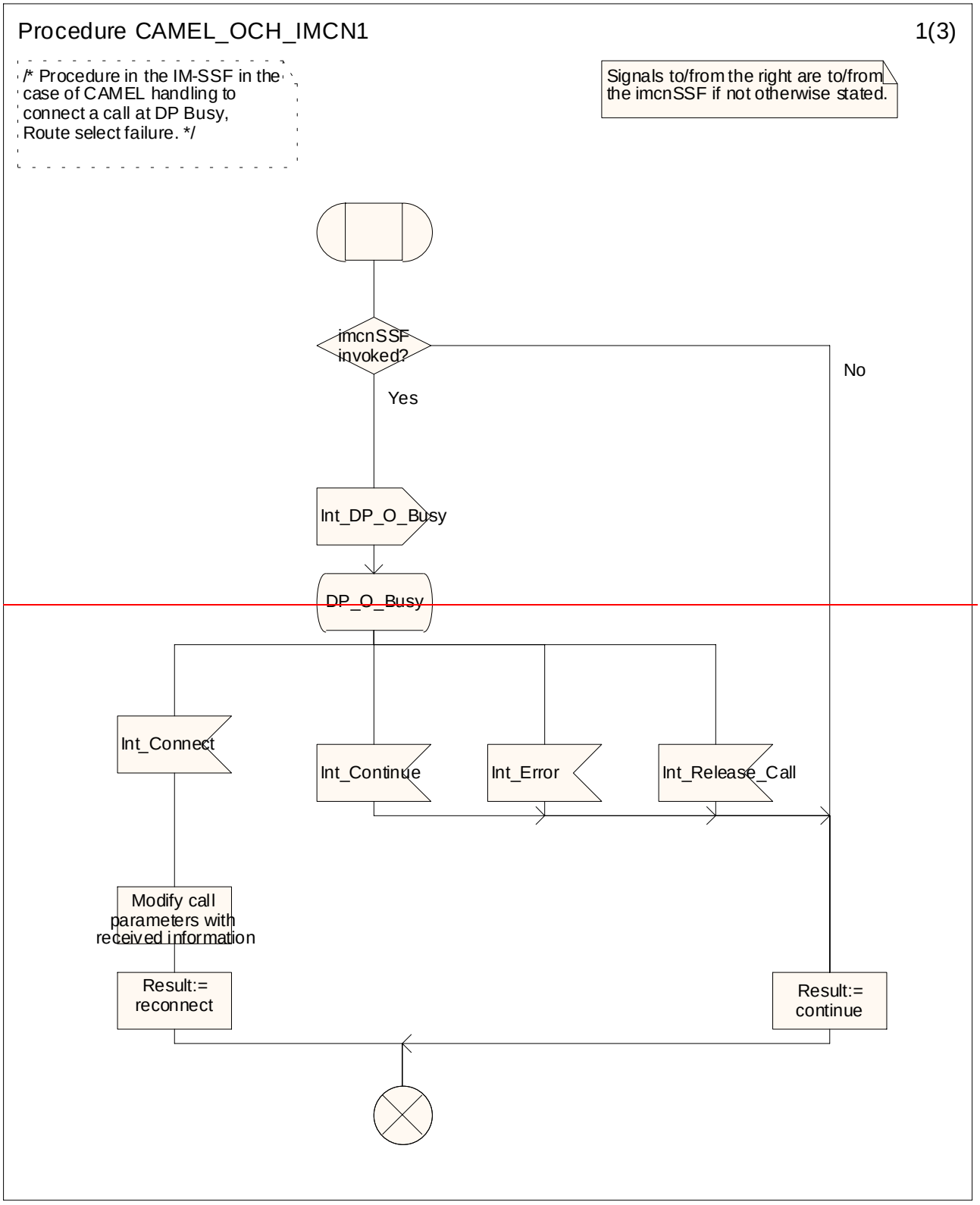
~~Figure 5.1.3.7a: Procedure CAMEL_IMCN_MO_200OK (sheet 1)~~



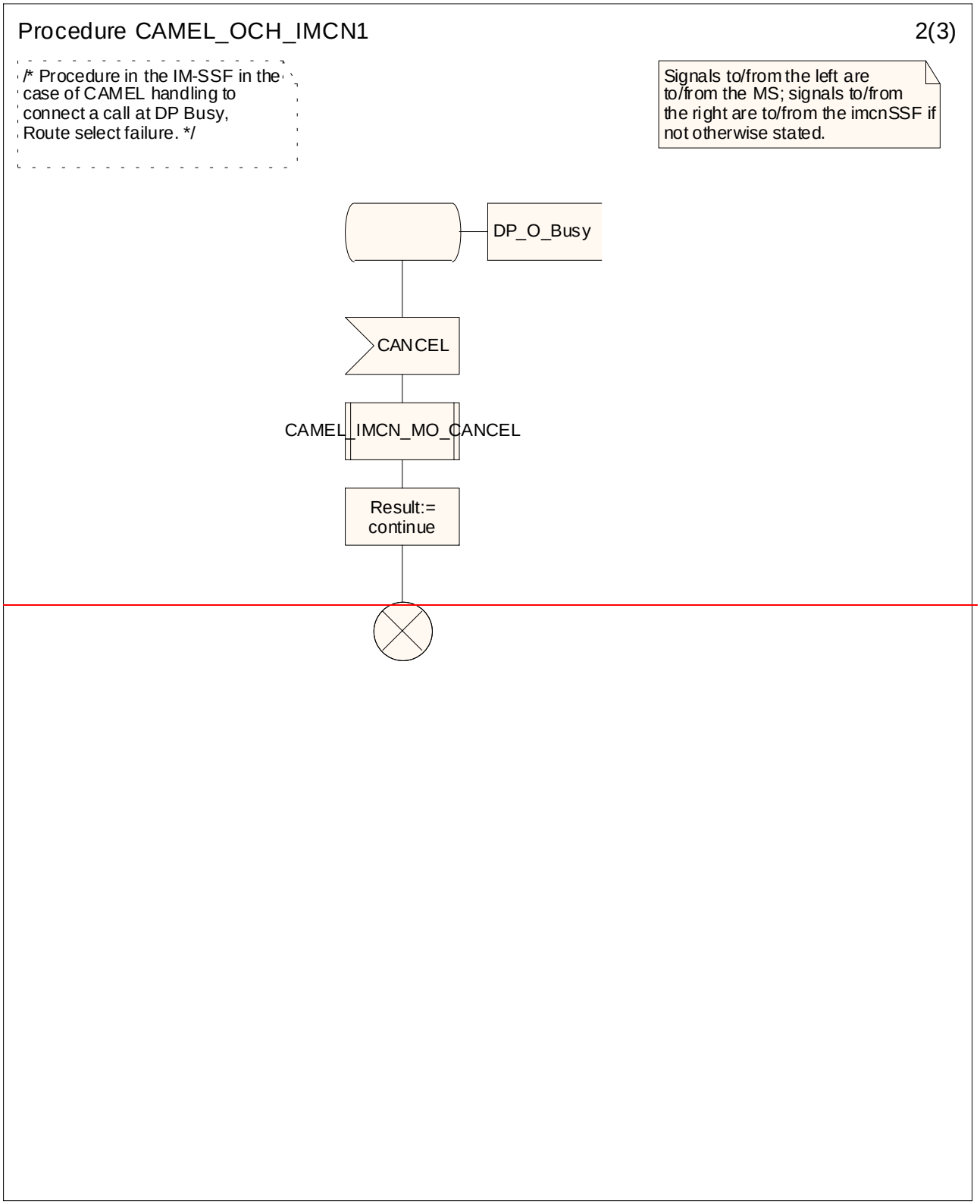
~~Figure 5.1.3.7b: Procedure CAMEL_IMCN_MO_200OK (sheet 2)~~



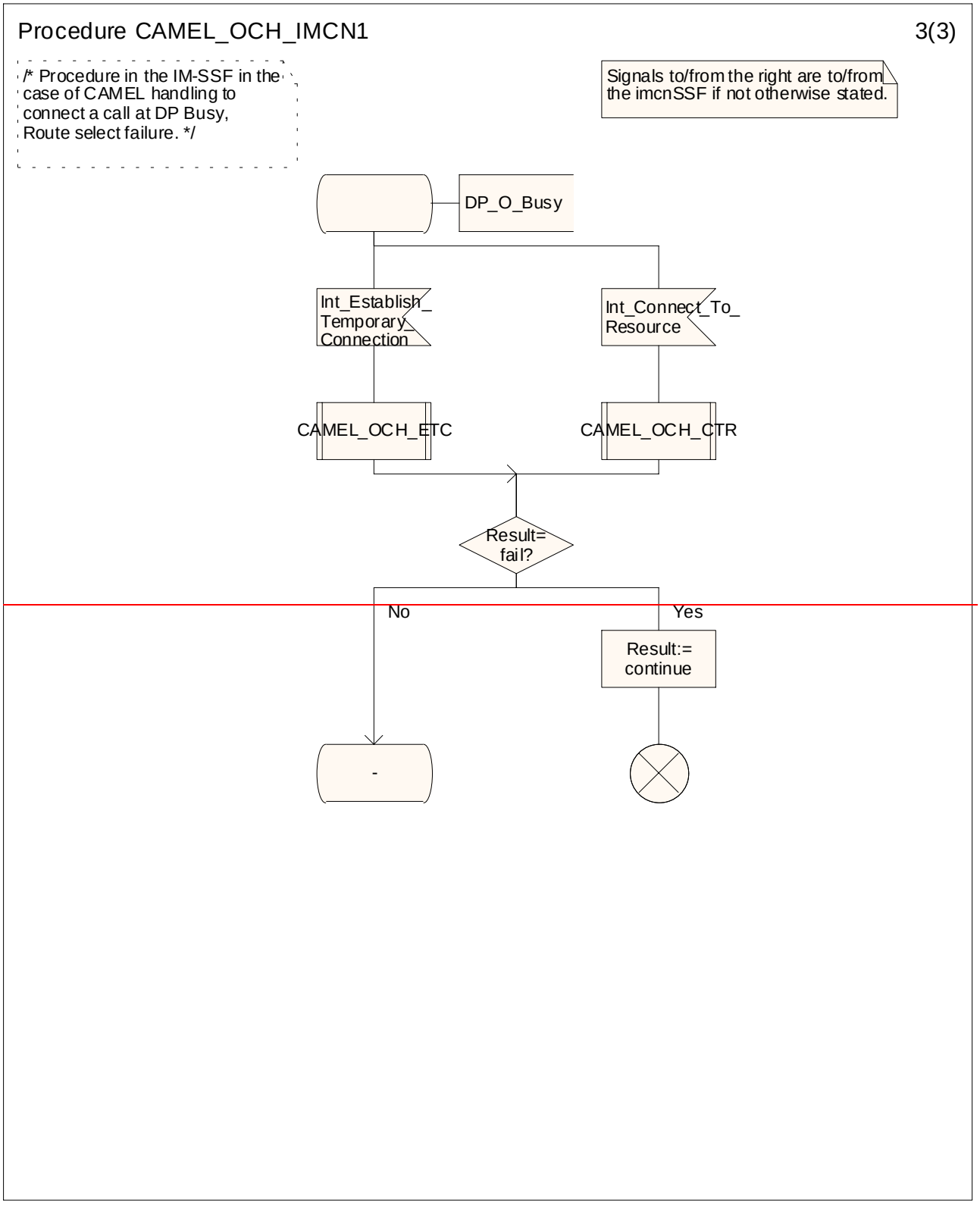
~~Figure 5.1.3.7c: Procedure CAMEL_IMCN_MO_200OK (sheet 3)~~



~~Figure 5.1.3.8a: Procedure CAMEL_OCH_IMCN1 (sheet 1)~~



~~Figure 5.1.3.8b: Procedure CAMEL_OCH_IMCN1 (sheet 2)~~



~~Figure 5.1.3.8c: Procedure CAMEL_OCH_IMCN1 (sheet 3)~~

3GPP TSG-CN WG2 Meeting #27
Bangkok, Thailand, 11th - 15th November 2002.

Tdoc ⌘N2-021051
(Revised N2-020996)

CR-Form-v7

CHANGE REQUEST

⌘ **23.278** **CR** **023** ⌘ **rev** **1** ⌘ Current version: **5.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Stage 2 specifications for Call Gap for IMS
Source:	⌘	Lucent Technologies
Work item code:	⌘	IMS-CAMEL
Date:	⌘	29 October 2002
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	The IF description and SDL process for Call Gap for IMS is missing from TS 23.278.
Summary of change:	⌘	The following have been added to 23.278: 1) A new process for handling of Call Gapping at the IM-SSF has been included. For the Call Gap procedures Store_Call_Gap_Criteria and Check_Gap_Criteria, a reference to Rel-99 23.078 is included instead of duplicating the SDL procedures in 23.278. 2) The IF description for the CallGap operation has been included. Also, this CR modifies the Abbreviation list.
Consequences if not approved:	⌘	Incomplete specification.

Clauses affected:	⌘	3.2, 5.1, 5.2.1

Other specs affected: ⌘	Y	N	
		X	Other core specifications
		X	Test specifications
		X	O&M Specifications

⌘

Other comments:	⌘	The proposal is to add the IF description for Call Gap as subsclause 5.2.1.3, and renumber the existing 5.2.1.3 - 5.2.1.6 to 5.2.1.4 – 5.2.1.7. Renumbering of the 5.2.1.* subsclauses will be done as editorial changes.

****** Modified section ******

3.2 Abbreviations

(Editor's note: Add the following in the existing list.)

SSME Service Switching Function Management Entity

****** Next modified section ******

5.1.6 Process imcn_SSME_SSF and procedures

One process is instantiated at the IM-SSF for each Call Gap message received from a gsmSCF.

This subsclause contains the SDL process for IM-SSF handling of the CallGap operation received from a gsmSCF.

The following Call Gap procedures specified in TS 23.078 [11] shall also be applicable for IM-SSF. The IM-SSF shall take the role of the gsmSSF in the following:

- Procedure Store_Call_Gap_Criteria
- Procedure Check_Gap_Criteria

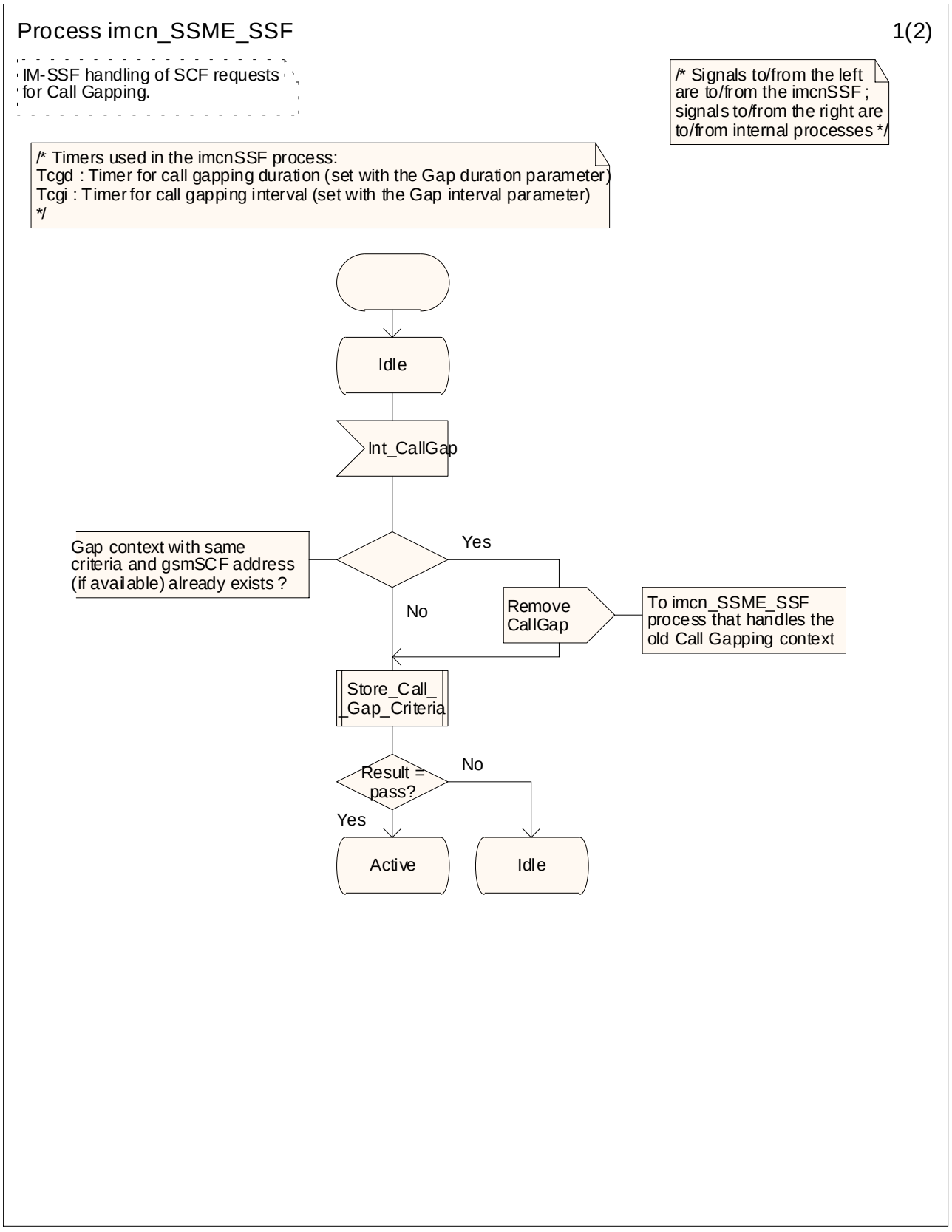


Figure 5.1.6.1a: Process imcn_SSME_SSF (sheet 1)

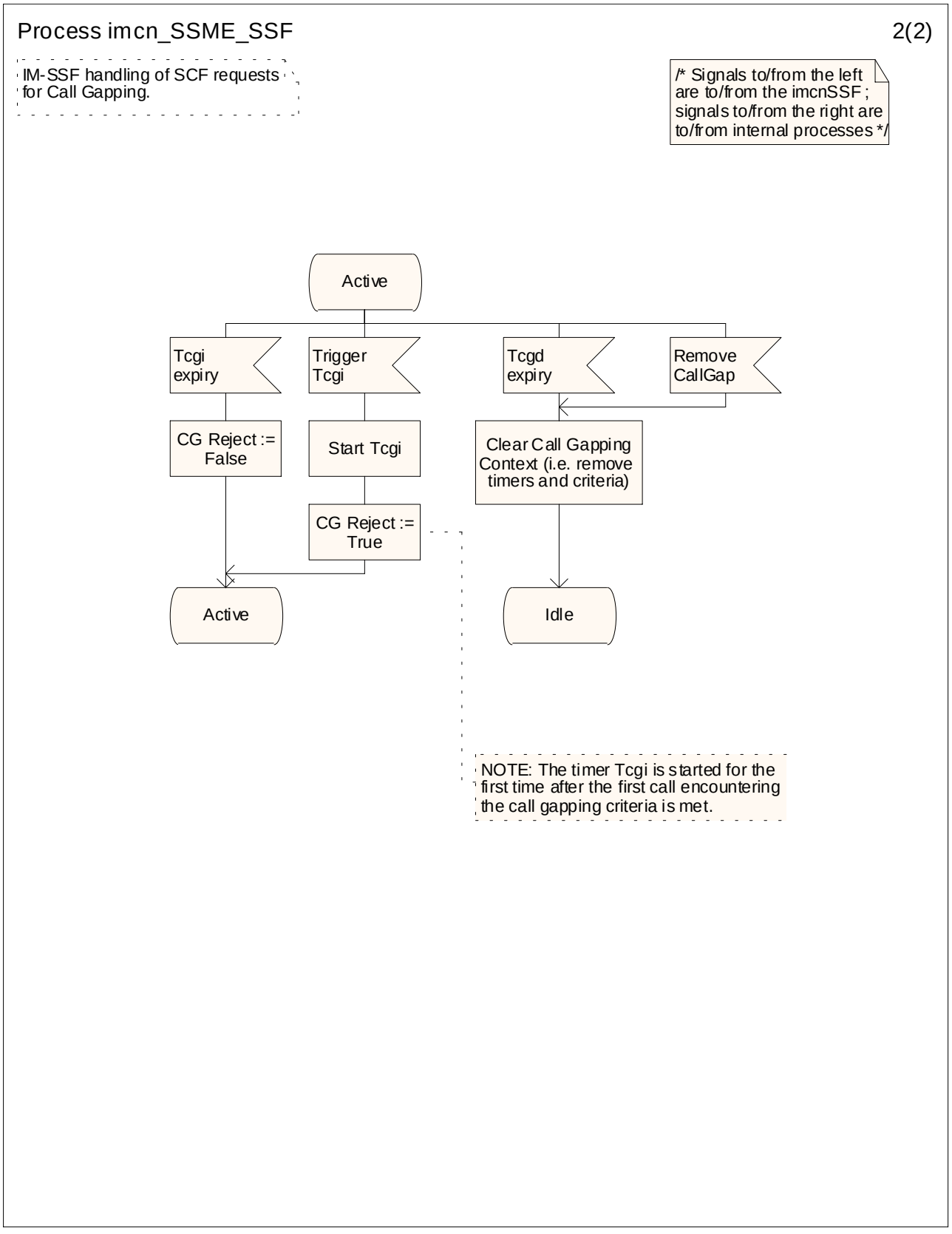


Figure 5.1.6.1b: Process imcn_SSME_SSF (sheet 2)

****** Next modified section ******

5.2.1.x Call Gap

5.2.1.x.1 Description

This IF is used to activate/modify/remove a call gap mechanism in the IM-SSF. The call gap mechanism is used to reduce the rate at which specific service requests are sent to a gsmSCF.

A Call Gap operation can only be sent on an opened dialogue between a gsmSCF and the IM-SSF.

It is possible to have several call gapping conditions applicable to the same IM-SSF (i.e. each conditions were activated for a defined Service (identified by the serviceKey) by a defined gsmSCF (identified by the gsmSCFAddress).

5.2.1.x.2 Information Elements

Information element name	Status	Description
Gap Criteria	M	This IE specifies the criteria for a call to be subject to call gapping.
Gap Indicators	M	This parameter indicates the gapping characteristics.
Control Type	O	This parameter indicates the reason for activating call gapping. The value "sCPOverloaded" indicates that an automatic congestion detection and control mechanism in the SCP has detected a congestion situation. The value "manuallyInitiated" indicates that the service and or network/service management centre has detected a congestion situation, or any other situation that requires manually initiated controls. The controlType "manuallyInitiated" will have priority over "sCPOverloaded" call gap.
Gap Treatment	O	This parameter indicates how calls that were rejected due to the call gapping condition and for which the Default Call Handling was set to "Release Call" shall be treated.
M Mandatory (The IE shall always be sent). O Optional (Service logic dependent).		

Gap Criteria contains one of the following (Choice):

Information element name	Status	Description
Basic Gap Criteria	O	This IE is a choice of various basic criteria.
Compound Gap Criteria	O	This IE is a choice of various criteria including a ScfID.
O Optional (Service logic dependent).		

Compound Gap Criteria contains the following Information:

Information element name	Status	Description
Basic Gap Criteria	M	This IE is a choice of various criteria.
ScfID	O	This IE contains the address of the gsmSCF which initiated the CallGapping.
M Mandatory (The IE shall always be sent). O Optional (Service logic dependent).		

Basic Gap Criteria contains one of the following (Choice):

Information element name	Status	Description
Called Address	O	This parameter contains a string of digits. At each call attempt, when the leading digits of the dialled number match this specific value, the call gapping treatment shall be applied to this call.
Service	O	This parameter contains a service key value. At each call attempt, when the service key match this specific value, the call gapping treatment shall be applied to this call.
Called Address and Service	O	This parameter contains a specific string of digits and a service key value. At each call attempt, when the leading digits of the dialled number and the service key of a call match these specific values, the call gapping treatment shall be applied to this call.
Calling Address and Service	O	This parameter contains a specific string of digits and a service key value. At each call attempt, when the leading digits of the calling party number and the service key match these specific values, the call gapping treatment shall be applied to this call.
O Optional (Service logic dependent).		

Gap Indicators contains the following information:

Information element name	Status	Description
Duration	M	Duration specifies the total time interval during which call gapping for the specified gap criteria will be active. A duration of 0 indicates that gapping is to be removed. A duration of -2 indicates a network specific duration. Other values indicate duration in seconds.
Interval	M	This parameter specifies the minimum time between calls being allowed through. An interval of 0 indicates that calls meeting the gap criteria are not to be rejected. An interval of -1 indicates that all calls meeting the gap criteria are to be rejected. Other values indicate interval in milliseconds.
M Mandatory (The IE shall always be sent).		

Gap Treatment contains one of the following (choice):

Information element name	Status	Description
Information To Send	O	This parameter indicates an announcement or a tone to be sent to the calling party. At the end of information sending, the call shall be released.
Release Cause	O	If the call is to be released, this IE indicates a specific cause value to be sent in the release message. See ETSI EN 300 356-1 [20] for the coding.
O Optional (Service logic dependent).		

Information To Send contains one of the following (choice):

Information element name	Status	Description
In-band Info	O	This parameter specifies the in-band information to be sent.
Tone	O	This parameter specifies a tone to be sent to the end-user.
O Optional (Service logic dependent).		

In-band Info contains the following information:

Information element name	Status	Description
Message Id	M	This parameter indicates the message(s) to be sent, it can be one of the following.
Message Duration	O	This parameter indicates the maximum time duration in seconds that the message shall be played/repeated. ZERO indicates endless repetition.
M Mandatory (The IE shall always be sent). O Optional (Service logic dependent).		

Message Id contains one of the following (choice):

Information element name	Status	Description
Elementary Message Id	O	This parameter indicates a single announcement.
O Optional (Service logic dependent).		

****** End of modified section ******

3GPP TSG-CN WG2 Meeting #27
Bangkok, Thailand, 11th - 15th November 2002.

Tdoc ⌘N2-021059

CR-Form-v7

CHANGE REQUEST

⌘ **23.278** **CR** **026** ⌘ **rev** **-** ⌘ Current version: **5.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Correction to Dialled Services criteria
Source:	⌘	T-Mobile Deutschland
Work item code:	⌘	IMS-CAMEL
Date:	⌘	13/11/2002
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change: ⌘

In the last two CN2 meetings, there were several discussions on the order in which the individual Dialled Service criteria (in D-IM-CSI) shall be checked by the IM-SSF.

It was recognized that the order in which the criteria are checked may affect the outcome of the check. Example:

criterion 1 = 0800 [Service 1]
criterion 2 = 0800123 [Service 2]

or

criterion 1 = 0800123 [Service 2]
criterion 2 = 0800 [Service 1]

When the subscriber dials "0800123", then this will lead to different results. In the former case, 0800123 will result in Service 1 being triggered. In the latter case, 0800123 will result in Service 2 being triggered.

In the CN2 #26 meeting CN2 decided that no specific order shall be mandated for the number criteria check. However, a health warning should be added, in order to avoid the usage of overlapping number criteria.

The present CR provides this health warning.

Summary of change: ⌘ A health warning is introduced concerning overlapping number criteria.

Consequences if not approved:	⌘	Operators and/or service designers are not informed about unpredictable behaviour arising from overlapping number criteria.

Clauses affected:	⌘	4.2.1.2.2			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	23.078 CR 508
		X /	Other core specifications		
		/ **X**	Test specifications		
		/ **X**	O&M Specifications		
Other comments:	⌘				

*** *First Modification* ***

4.3.2.2 Criteria at DP Analysed_Information

4.3.2.2.1 General

The following criteria are applicable for DP Analysed_Information:

- Destination number triggering criterion: The HLR may store a list of up to 10 destination numbers. There is no restriction on the nature of address. There is no restriction on the numbering plan indicator.

NOTE: The order in which the destination number criteria are checked in the IM-SSF is not determined. Hence, overlapping destination number criteria (e.g. use of "0800" and "0800123" for two different services) should be avoided, because they lead to unpredictable behaviour (i.e. either service might be triggered).

For MO calls, triggering at DP Analysed_Info shall be based on the destination number received in the Connect operation from the gsmSCF during a Mobile Originating CAMEL Service.

4.3.2.2.2 Number comparison

The following procedure shall be performed for the comparison of the destination number triggering criterion and the address information in the given order.

1. The numbering plan indicators of both numbers are ignored.

2. The type of number/nature of address indicators of both numbers are compared. If there is a match of the type of number indicator, then the check shall be performed by comparing the digits as defined in step 6. If there is no match of the type of number the comparison procedure shall continue as follows.

3. If there are other type of number/nature of address indicators present than "unknown", "national (significant) number" or "international number" then the destination number does not match the destination number triggering criterion. Otherwise the comparison procedure shall continue as follows.

4. If there is a number with type of number/nature of address "unknown" this number shall be translated based on the numbering plan of the serving entity in either of the following ways:

   - if the leading digits refer to an international prefix, those digits shall be removed and the type of number/nature of address shall be set to "international number".

   - if the leading digits refer to a national (trunk) prefix, those digits shall be removed and the type of number/nature of address shall be set to "national (significant) number".

   If the leading digits refer neither to an international prefix nor to a national (trunk) prefix, then the destination number does not match the destination number triggering criterion.

   If there is a match of the type of number/nature of address indicator after this number modification, then the check shall be performed by comparing the digits as defined in step 6, otherwise the comparison procedure shall continue as follows.

5. If there is a number with type of number/nature of address "national (significant) number" this number shall be translated based on the numbering plan of the serving entity to international format by adding the country code of the serving entity to the number string. After this modification both numbers shall be in international format and shall be checked by comparing the digits as defined in step 6.

6 If the number digits of the address information are compared with the number digits of the destination number triggering criterion, then there is a match if:

   - the destination number is at least as long as the destination number string of the destination number triggering criterion; and

   - all the digits in the destination number string of the destination number triggering criterion match the leading digits of the destination number.

The check described in this clause shall be repeated for every number contained in the destination number triggering criterion of the D-IM-CSI until a match is recognised and DP Analysed_Info is triggered, or until all the destination numbers have been checked without a match being recognised. In the latter case DP Analysed_Info is not triggered.

****** End of Document ******

3GPP TSG-CN WG2 Meeting #27
Bangkok, Thailand, 11th - 15th November 2002.

Tdoc ⌘N2-021090
(Revised N2-021052)

CR-Form-v7

CHANGE REQUEST

⌘ **23.278** **CR** **024** ⌘ **rev** **2** ⌘ Current version: **5.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Clarification of DP destination number trigger criteria for IMS
Source:	⌘	Lucent Technologies
Work item code:	⌘	IMS-CAMEL
Date:	⌘	29 October 2002
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change:	⌘	For CAMEL service in IMS, the DP destination number trigger criteria used for Collected_Info and Analysed_Information TDPs shall be applicable only for ISDN numbers. Clarification is needed to indicate this.
Summary of change:	⌘	Additional text is added to 23.278 to indicate that destination number trigger criteria shall only be for ISDN called/destination numbers. The underlying assumption is that the destination number trigger criteria shall be used for IN services using ISDN numbers like Prepaid, VPN.
Consequences if not approved:	⌘	Unclear specification.

Clauses affected:	⌘	4.3.2

Other specs affected: ⌘	Y	N	
		X	Other core specifications
		X	Test specifications
		X	O&M Specifications

⌘

Other comments: ⌘

**** Modified section ****

4.3.2 Criteria

Criteria are the conditions that must be met in order for the IM-SSF to request instructions from the gsmSCF.

DP criteria are checked in the IM-SSF. Criteria for originating DPs (i.e. Collected_Info, Analysed_Information, and Route_Select_Failure TDPs) are checked in the IM-SSF associated with the originating UE's S-CSCF. Criteria for terminating DPs (i.e. T_Busy and T_No_Answer) are checked in the IM-SSF associated with the terminating UE's S-CSCF.

Based on the Initial Filter Criteria information, the S-CSCF forwards the SIP message to the IM-SSF. The DP encountered is identified based on the SIP message received from the S-CSCF. Refer to Table 4.2 and Table 4.4 for mapping of SIP messages to CAMEL -IM-BCSM Detection Points.

4.3.2.1 Criteria at Collected_Info

The following criteria are applicable for DP Collected_Info:

- Destination number triggering criterion: The HLR may store a list of up to 10 destination numbers and/or up to 3 number lengths. There is no restriction on the nature of address. There is no restriction on the numbering plan indicator. This criterion may be defined to be either "enabling" or "inhibiting". This criterion does not match when the destination number received from the S-CSCF is not an ISDN number. In this case, a dialogue with the gsmSCFmay or may not be established depending on whether the criterion is inhibiting or enabling respectively.

Triggering at DP Collected_Info shall be strictly based on the destination number received from the S-CSCF.

The destination number received from the S-CSCF shall not be modified before conditional triggering check takes place.

If the destination number triggering criterion is enabling, then the IM-SSF may establish a dialogue with the gsmSCF if:

- the destination number matches one of the destination number strings defined in the list; or
- the length of the destination number matches one of the destination number lengths defined in the list.

In this test the destination number matches one of the destination number strings in the list if:

- the nature of address of destination number is the same as the nature of address of the destination number string;
- the destination number is at least as long as the destination number string in the list; and
- all the digits in the destination number string in the list match the leading digits of the destination number.

If the destination number triggering criterion is inhibiting, then the IM-SSF may establish a dialogue with the gsmSCF if:

- the destination number does not match any of the destination number strings defined in the list; and
- the length of the destination number does not match any of the destination number lengths defined in the list.

In this test the destination number matches one of the destination number strings in the list if:

- the nature of address of destination number is the same as the nature of address of the destination number string;
- the destination number is at least as long as the destination number string in the list; and
- all the digits in the destination number string in the list match the leading digits of the destination number.

4.3.2.2 Criteria at DP Analysed_Information

4.3.2.2.1 General

The following criteria are applicable for DP Analysed_Information:

- ~~—~~Destination number triggering criterion: The HLR may store a list of up to 10 destination numbers. There is no restriction on the nature of address. There is no restriction on the numbering plan indicator. This criterion does not match when the destination number received from the S-CSCF or the gsmSCF is not an ISDN number.

~~For MO calls, triggering~~Triggering at DP Analysed_Info shall be based on the destination number received in the Connect operation from the gsmSCF during a Mobile Originating CAMEL Service.

4.3.2.2.2 Number comparison

The following procedure shall be performed for the comparison of the destination number triggering criterion and the address information in the given order.

1. The numbering plan indicators of both numbers are ignored.

2. The type of number/nature of address indicators of both numbers are compared. If there is a match of the type of number indicator, then the check shall be performed by comparing the digits as defined in step 6. If there is no match of the type of number the comparison procedure shall continue as follows.

3. If there are other type of number/nature of address indicators present than "unknown", "national (significant) number" or "international number" then the destination number does not match the destination number triggering criterion. Otherwise the comparison procedure shall continue as follows.

4. If there is a number with type of number/nature of address "unknown" this number shall be translated based on the numbering plan of the serving entity in either of the following ways:

   - if the leading digits refer to an international prefix, those digits shall be removed and the type of number/nature of address shall be set to "international number".

   - if the leading digits refer to a national (trunk) prefix, those digits shall be removed and the type of number/nature of address shall be set to "national (significant) number".

   If the leading digits refer neither to an international prefix nor to a national (trunk) prefix, then the destination number does not match the destination number triggering criterion.

   If there is a match of the type of number/nature of address indicator after this number modification, then the check shall be performed by comparing the digits as defined in step 6, otherwise the comparison procedure shall continue as follows.

5. If there is a number with type of number/nature of address "national (significant) number" this number shall be translated based on the numbering plan of the serving entity to international format by adding the country code of the serving entity to the number string. After this modification both numbers shall be in international format and shall be checked by comparing the digits as defined in step 6.

6 If the number digits of the address information are compared with the number digits of the destination number triggering criterion, then there is a match if:

   - the destination number is at least as long as the destination number string of the destination number triggering criterion; and

   - all the digits in the destination number string of the destination number triggering criterion match the leading digits of the destination number.

The check described in this clause shall be repeated for every number contained in the destination number triggering criterion of the D-IM-CSI until a match is recognised and DP Analysed_Info is triggered, or until all the destination numbers have been checked without a match being recognised. In the latter case DP Analysed_Info is not triggered.

****** End of modified section ******

3GPP TSG-CN WG2 Meeting #27 ***Tdoc ⌘N2-021091***
Bangkok, Thailand, 11th - 15th November 2002.

CR-Form-v7

CHANGE REQUEST

⌘ **23.278** **CR** **004** ⌘ **rev** **3** ⌘ Current version: **5.0.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Correction and improvement in MT procedures
Source:	⌘	Siemens AG
Work item code:	⌘	IMS-CAMEL
Date:	⌘	15/11/2002
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	SDL for MT call currently does not work. As the IM-SSF handles the forwarded INVITE message by S-CSCF until the call is established, the IM-SSF would contain the process and or procedures for basic call handling similar to those in 23.018 (ICH_MSC) as well as the CAMEL procedures.
Summary of change:	⌘	New process, namely "MT_IM_SSF", is proposed as the entry point of INVITE. The procedures called within the process are the existing procedures re-used or improved or newly created. See detail below.
Consequences if not approved:	⌘	IM-SSF would not be able to handle MT call.

Clauses affected:	⌘	5

Other specs affected: ⌘	Y	N	
		X	Other core specifications
		X	Test specifications
		X	O&M Specifications

⌘

Other comments:	⌘	This CR partly (MO part) includes “Removal of ETC processing from IM-SSFSDL Procedures” which was approved at CN2#26 (N2-020866, CR 23.278-009) Re-numbering and re-formatting the figure numbers needed throughout the whole document.

New process and procedures proposed

- Process MT_IM_SSF (new) as an entry of SIP: INVITE for MT. In this process, the following procedures are called.
  - Procedure Check_Registration (new, a part of CAMEL_IMCN_MT_INVITE) to check the availability of VT-IM-CSI
  - Procedure CAMEL_IMCN_MT_VT_IM_CSI_INIT (new, a part of CAMEL_IMCN_MT_INVITE) as VT-IM-CSI handling
  - Procedure CAMEL_IMCN_MT_RECONNECT (new) as reconnection handling
  - Procedure CAMEL_IMCN_MT_CANCEL (CAMEL_IMCN_MT_CANCEL modified) as SIP:CANCEL handling
  - Procedure CAMEL_IMCN_MT_ANSWER (new, maybe the replacement of CAMEL_IMCN_MO_200OK) as Answer handling
  - Procedure CAMEL_IMCN_MT_UNSUCCESSFUL (new, maybe the replacement of CAMEL_IMCN_MT_ResponseCode) as unsuccessful (4xx, 5xx, 6xx, timer expiry) handling
  - Procedure CAMEL_IMCN_MT_DISC1 (new, a part of existing CAMEL_MT_IMCN_BYE) as BYE by A party handling
  - Procedure CAMEL_IMCN_MT_DISC2 (new, a part of existing CAMEL_MT_IMCN_BYE) as BYE by B party handling

The SDLs have been created such that the signals are visible within the process MO_IM_SSF as much as possible for the readability, however not well successful.

5.1.4 Handling of Mobile Terminated IP Multimedia sessions in the IM-SSF

The functional behaviour of the S-CSCF for handling terminating calls is specified in 3GPP TS 23.218 [5]. The process and the procedures specific to CAMEL are specified in this subclause:

- Process MT_IM_SSF;
- Procedure Check_Registration;
- Procedure CAMEL_IMCN_MT_VT_IM_CSI_INIT;
- Procedure CAMEL_IMCN_MT_RECONNECT;
- Procedure CAMEL_IMCN_MT_CANCEL;
- Procedure CAMEL_IMCN_MT_ANSWER;
- Procedure CAMEL_IMCN_MT_UNSUCCESSFUL;
- Procedure CAMEL_IMCN_MT_DISC1;
- Procedure CAMEL_IMCN_MT_DISC2;

~~- Procedure CAMEL_IMCN_MT_INVITE;~~

~~- Procedure CAMEL_IMCN_MT_BYE;~~

~~- Procedure CAMEL_IMCN_MT_CANCEL~~

~~- Procedure CAMEL_IMCN_MT_Response_Code.~~

5.1.4.1 Actions of the IM-SSF on receipt of Int_Error

The IM-SSF checks the default Call Handling parameter in the relevant CSI.

If the default call handling is release, a BYE indication is sent to the originating CSCF. The IM-SSF then releases all resources and the invoked CAMEL procedure ends.

If the call handling is continue, the IM-SSF continues processing without CAMEL support.

5.1.4.2 Actions of the IM-SSF on receipt of Int_Release_Call

The IM-SSF BYE message is sent to the originating CSCF and resources are released.

5.1.4.3 Actions of the IM-SSF on receipt of Int_Continue_With_Argument

The IM-SSF shall replace the call parameters by the information received in the Int_Continue_With_Argument message. Call parameters that are not included in the Int_Continue_With_Argument_Message are unchanged.

5.1.4.4 Actions of IM-SSF in procedure CAMEL_IMCN_MT_INVITE for Unregistered Subscriber

When querying the HSS for the subscriber's IM CSI data, the IM-SSF does not have to wait for the HSS's response on the first query before the subsequent queries are done. i.e Sending of multiple Any Time Interrogation operations can be done in parallel. However, the IM-SSF shall wait for all the responses from the HSS before it shall continue with the handling of the terminating IP multimedia session.

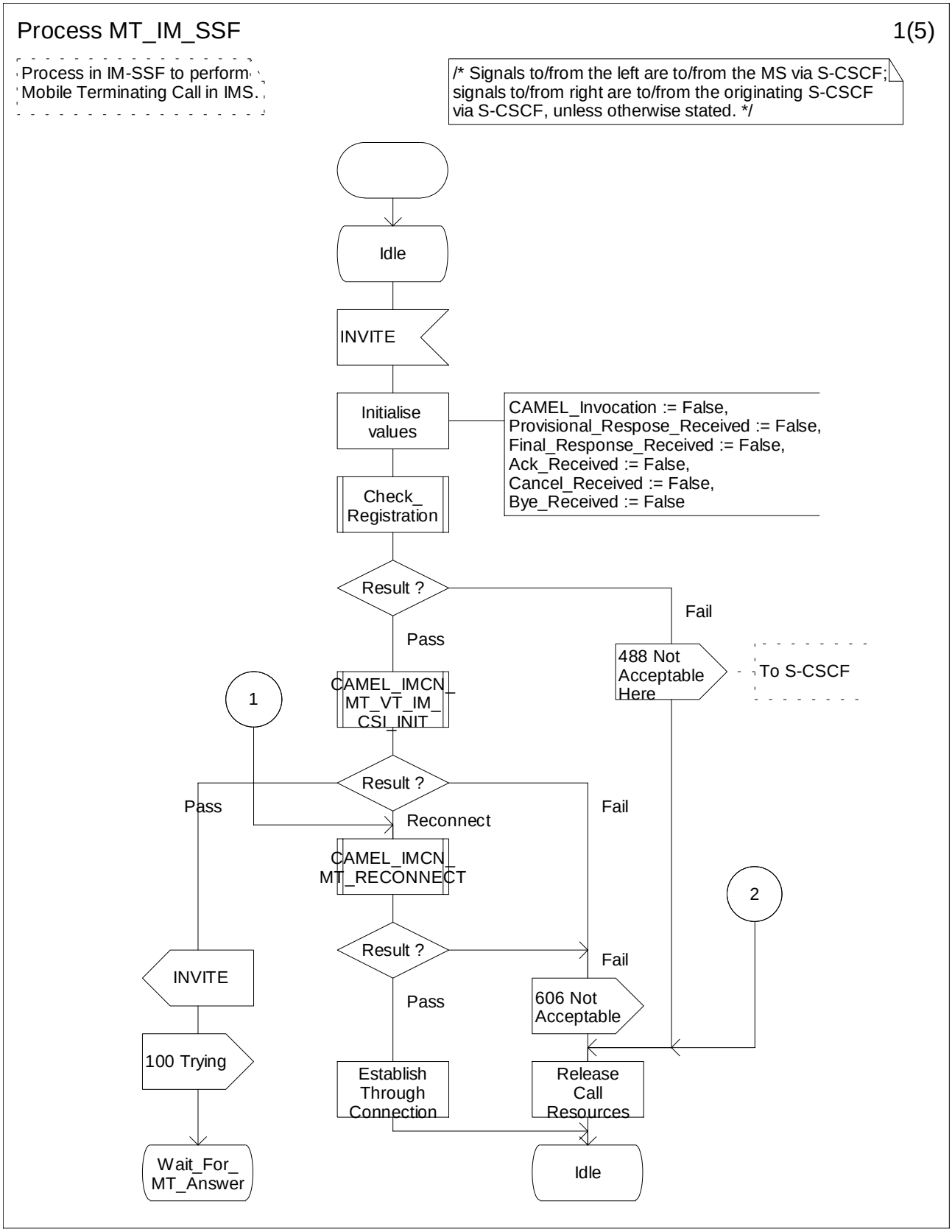


Figure A.a: Process MT_IM_SSF (sheet 1)

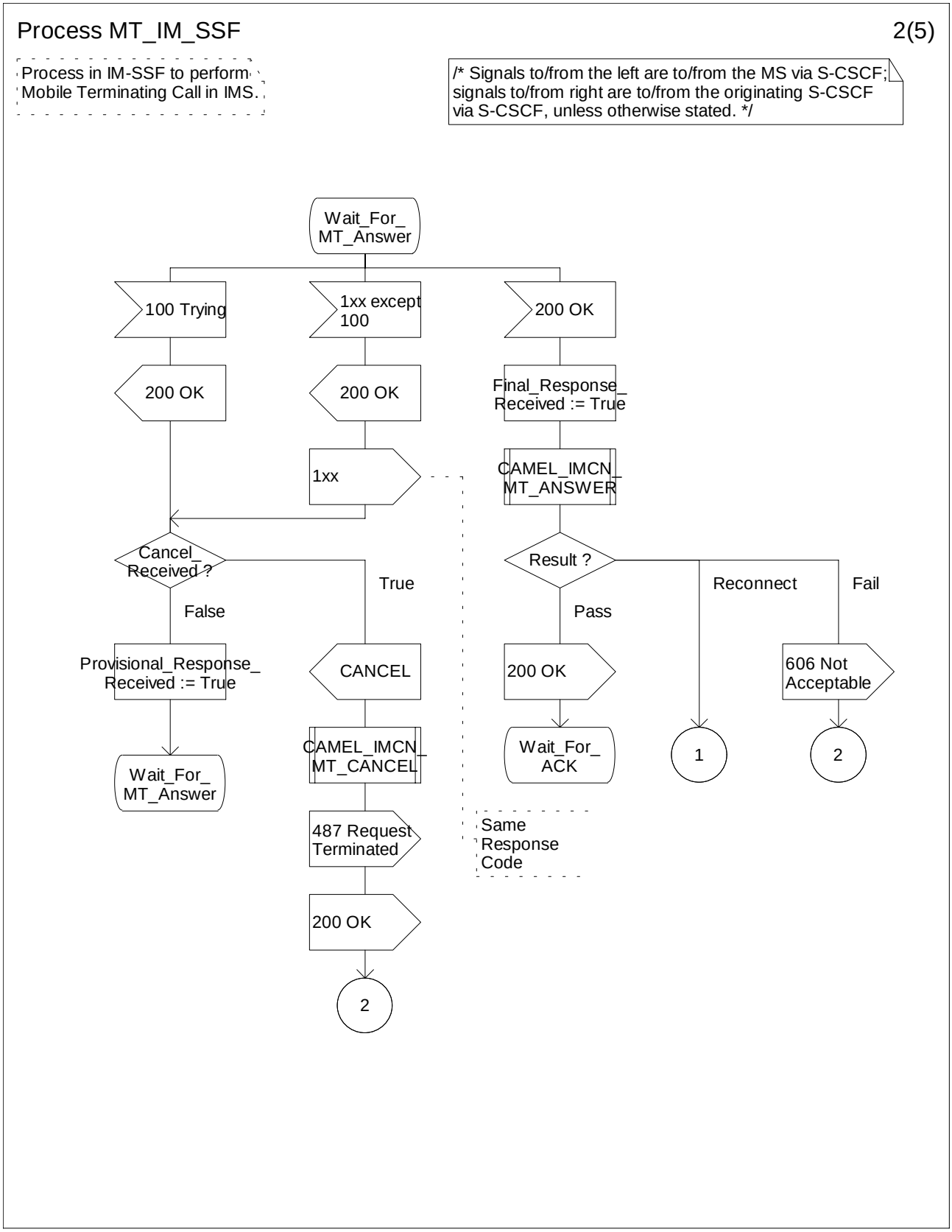


Figure A.b: Process MT_IM_SSF (sheet 2)

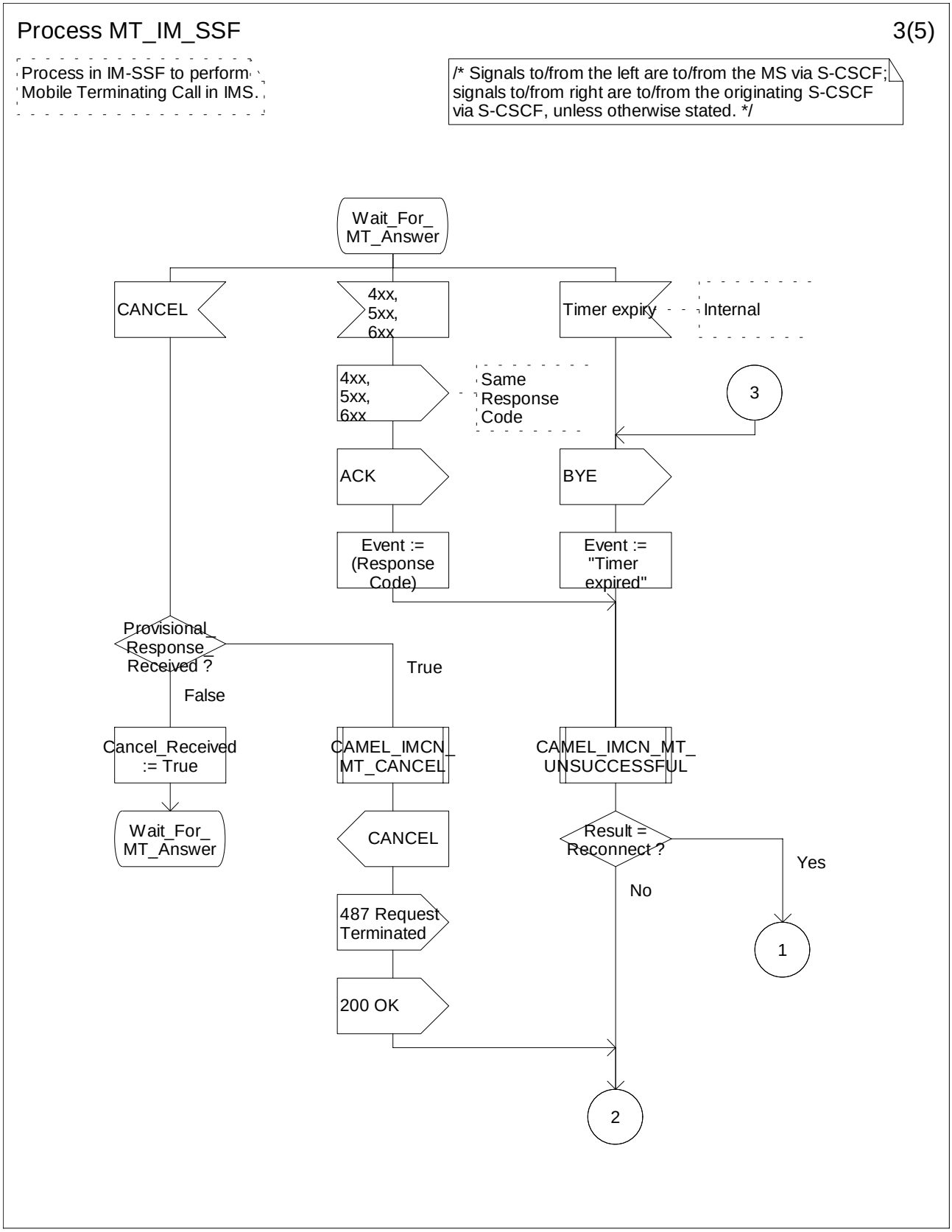


Figure A.c: Process MT_IM_SSF (sheet 3)

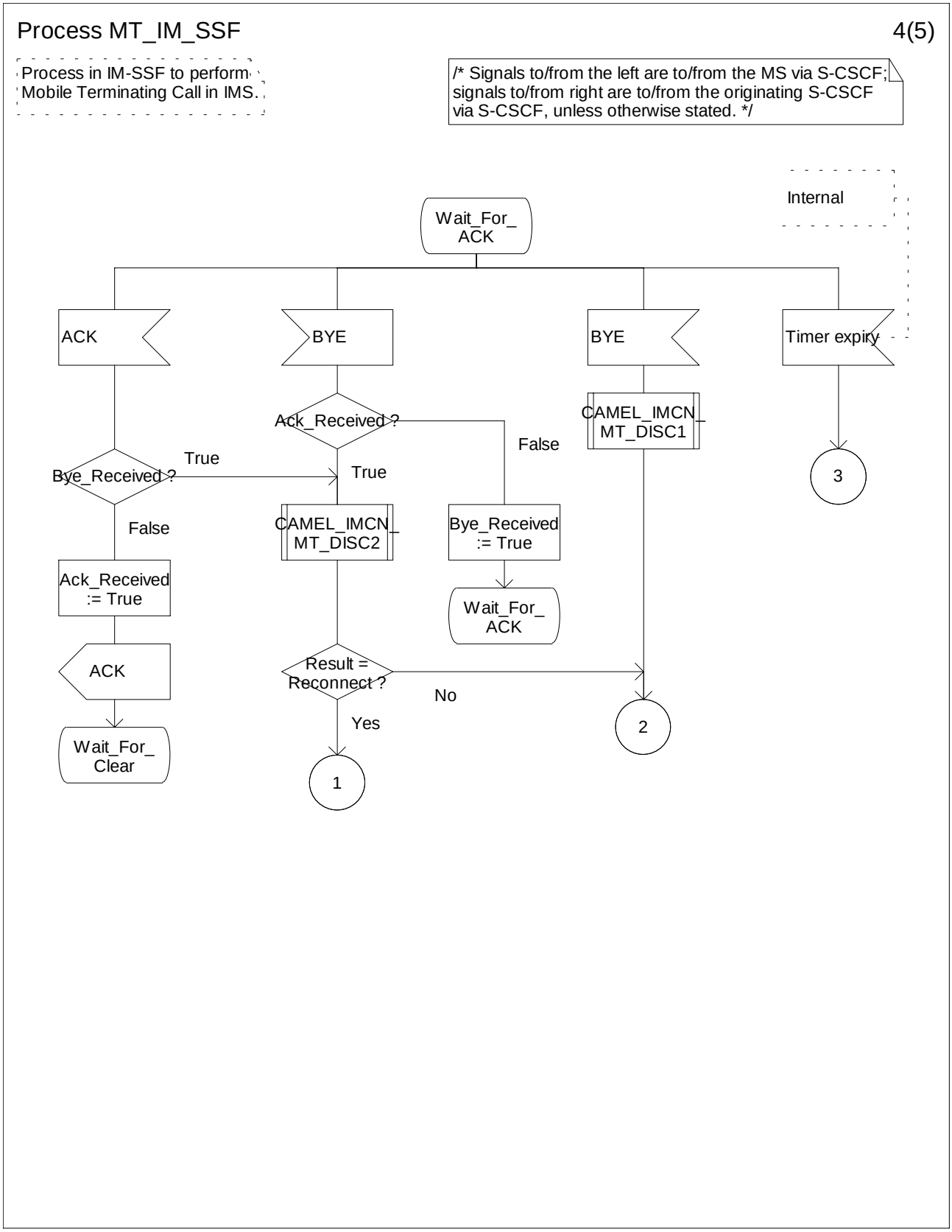


Figure A.d: Process MT_IM_SSF (sheet 4)

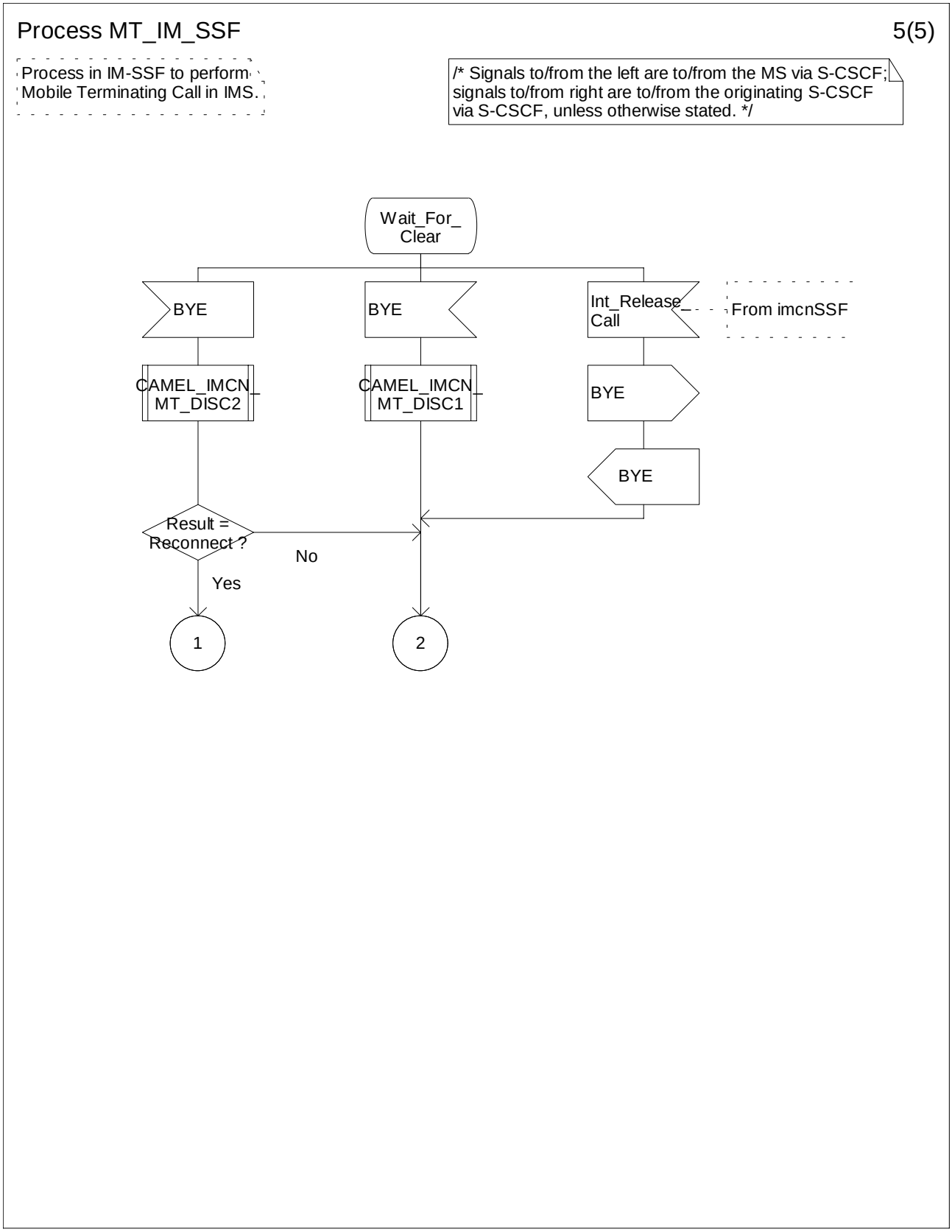


Figure A.e: Process MT_IM_SSF (sheet 5)

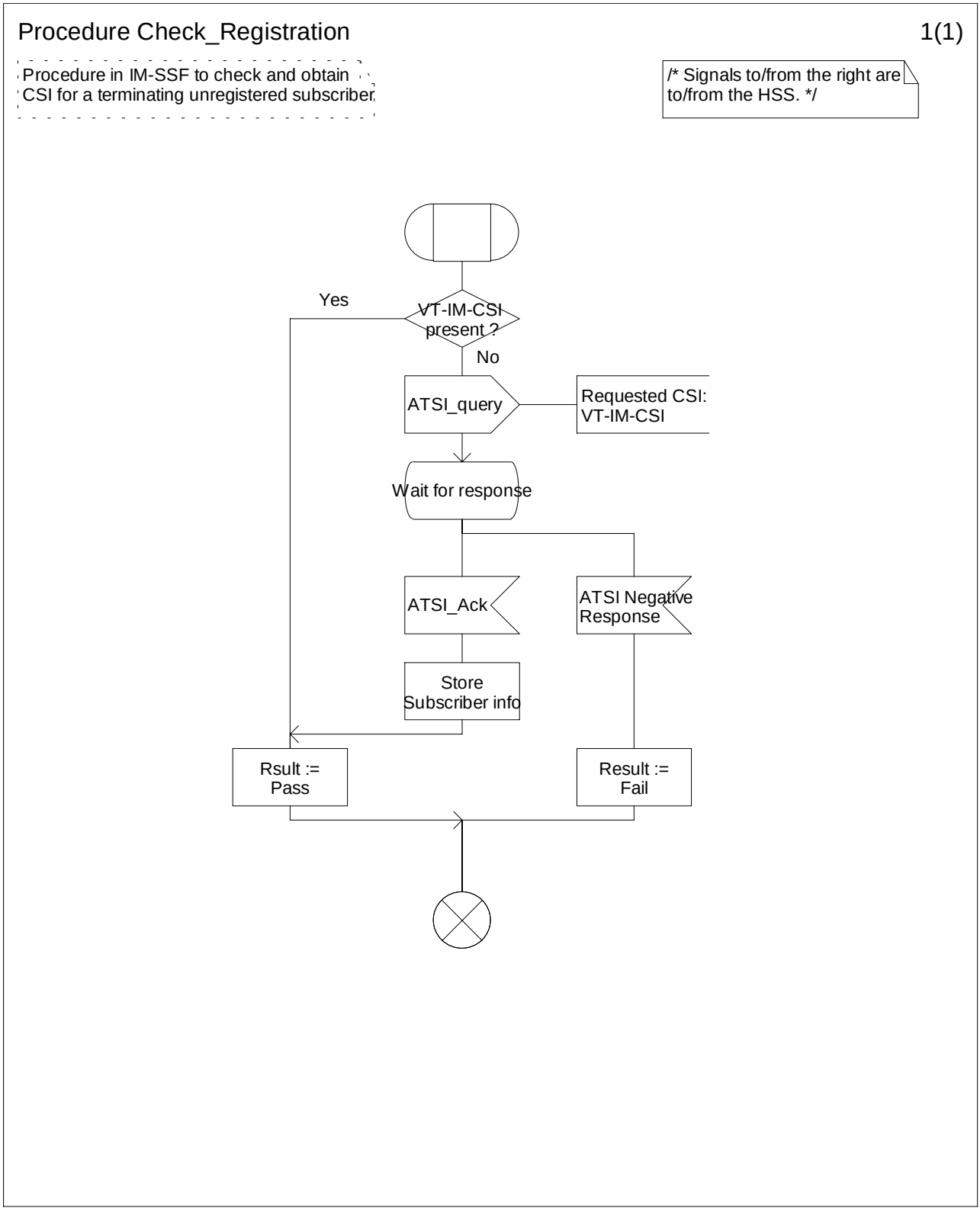
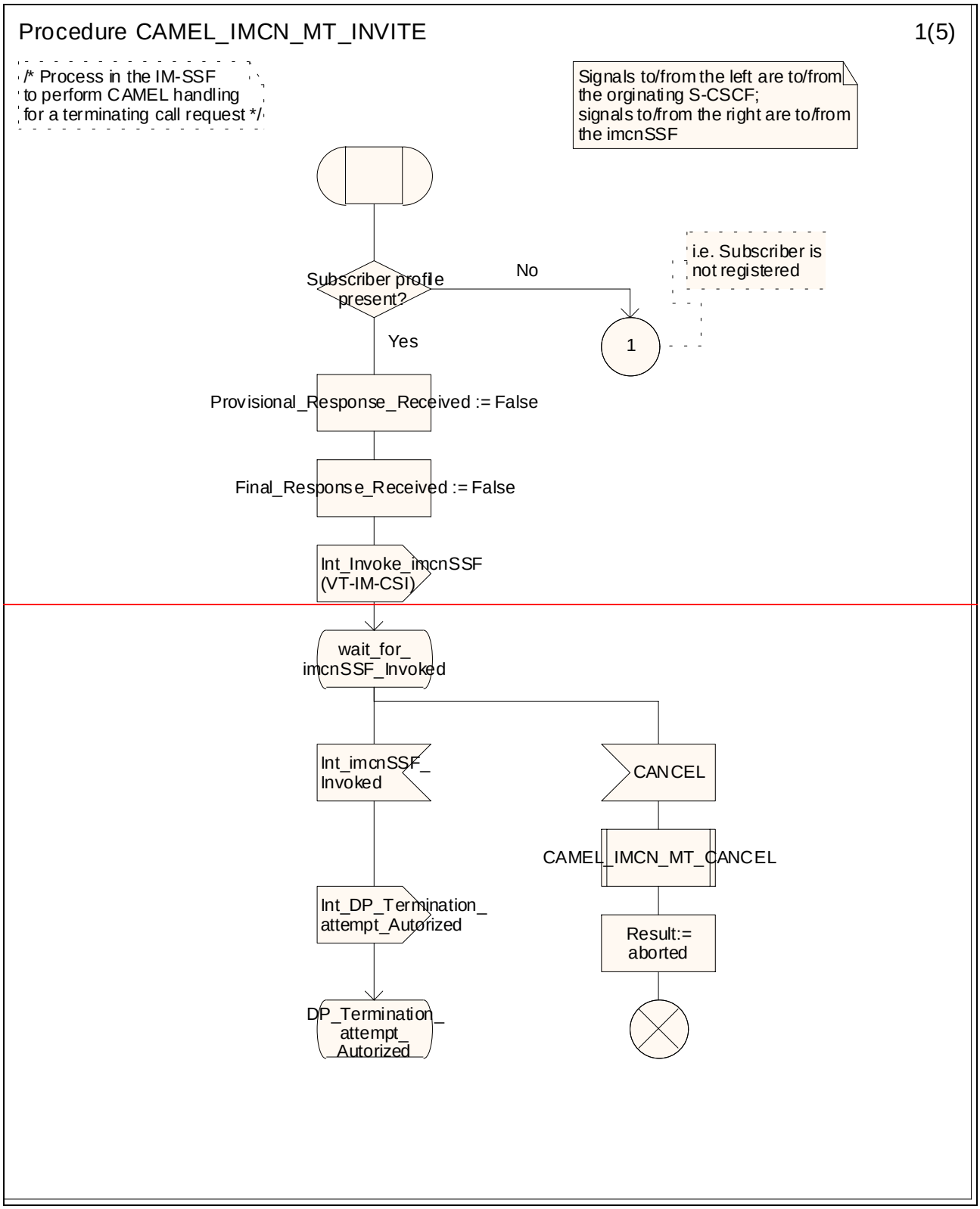


Figure B.a: Procedure Check_Registration (sheet 1)


Procedure CAMEL_IMCN_MT_INVITE
1(5)
/* Process in the IM-SSF
to perform CAMEL handling
for a terminating call request */
Signals to/from the left are to/from
the orginating S-CSCF;
signals to/from the right are to/from
the imcnSSF
Subscriber profile
present?
No
i.e. Subscriber is
not registered
1
Yes
Provisional_Response_Received := False
Final_Response_Received := False
Int_Invoke_imcnSSF
(VT-IM-CSI)
wait_for_
imcnSSF_Invoked
Int_imcnSSF_
Invoked
CANCEL
CAMEL_IMCN_MT_CANCEL
Int_DP_Termination_
attempt_Autorized
Result:=
aborted
DP_Termination_
attempt_
Autorized

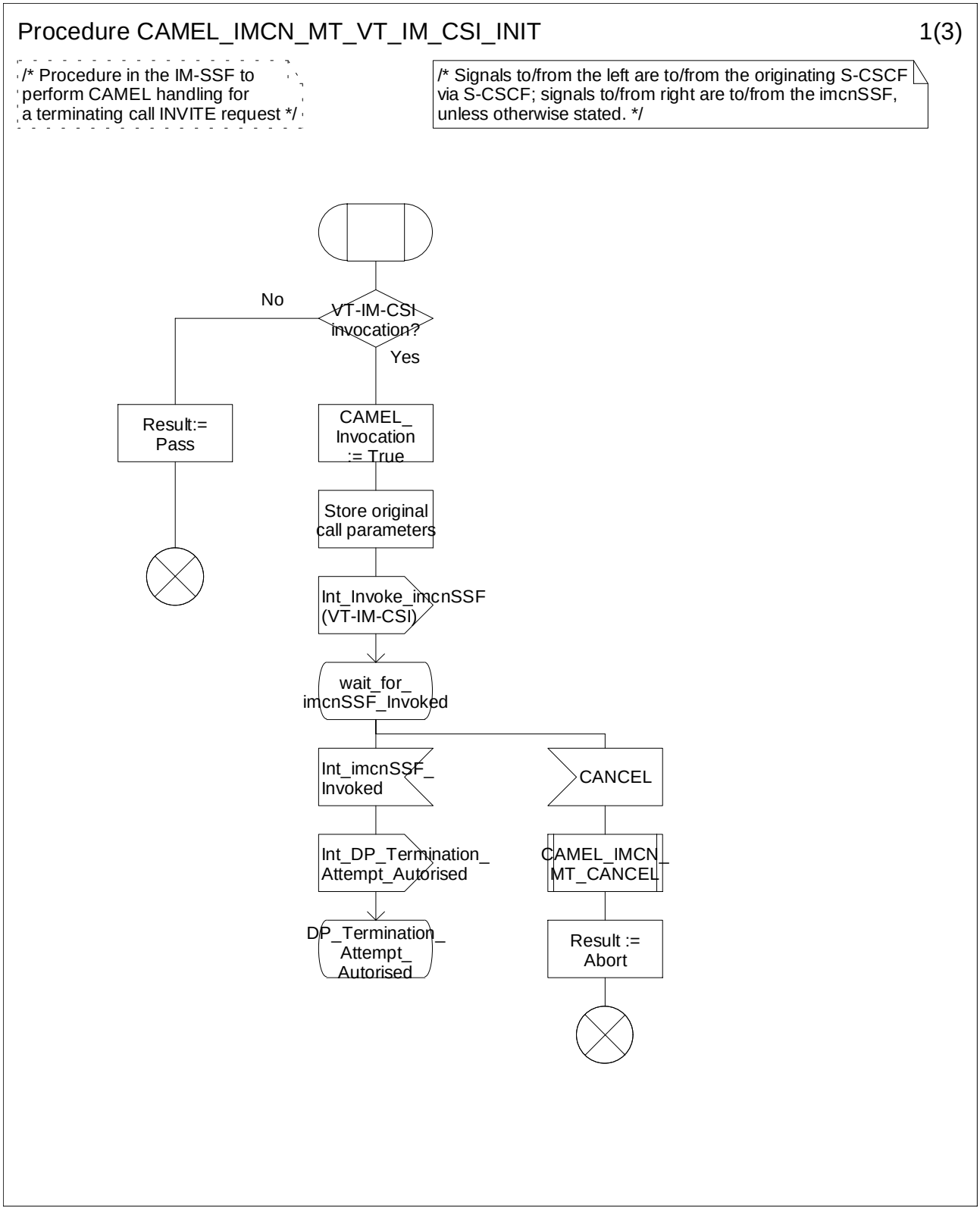
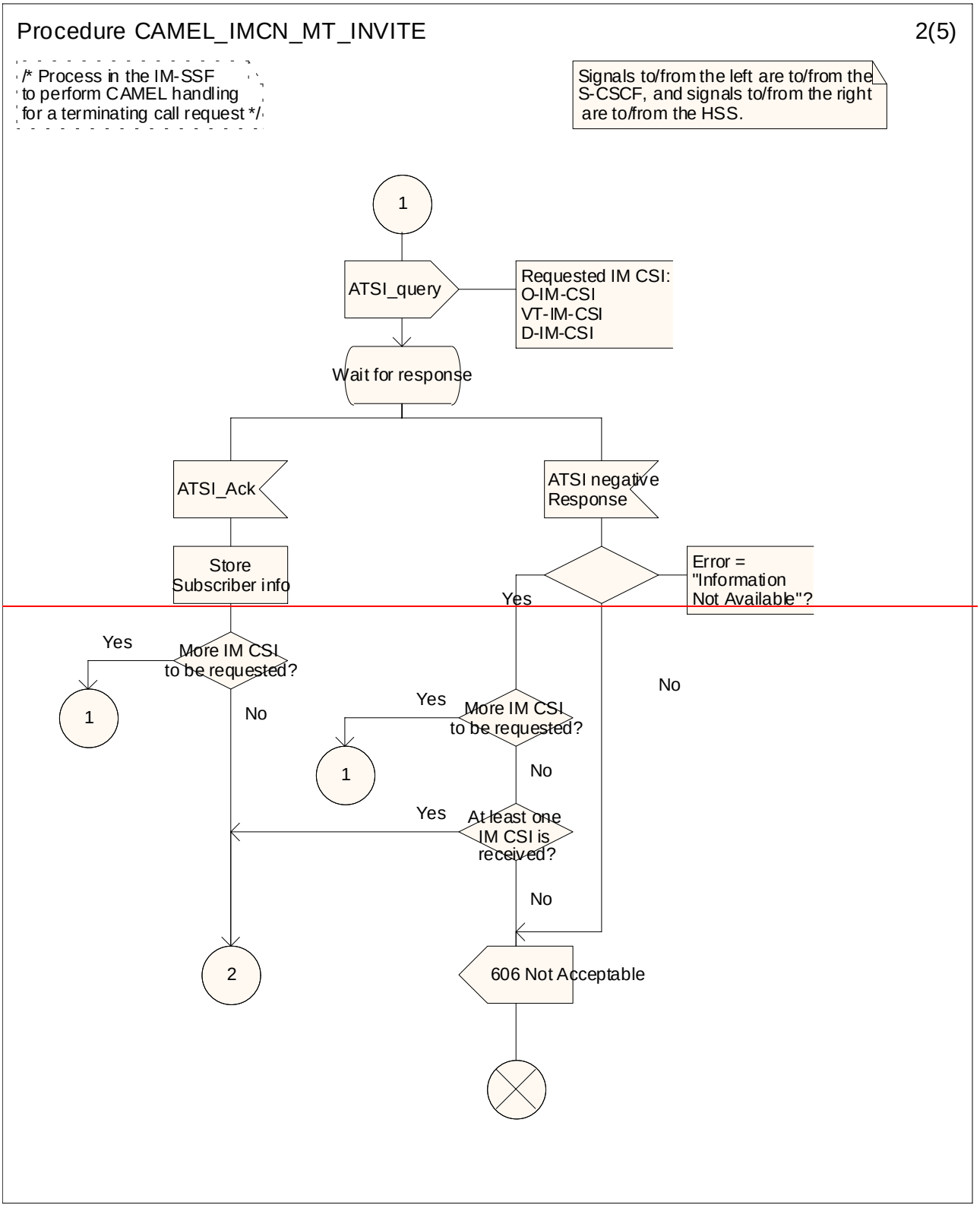


Figure 5.1.4.1a: Procedure CAMEL_IMCN_MT_VT_CSI_INIT~~INVITE~~ (sheet 1)



~~Figure 5.1.4.1b: Procedure CAMEL_IMCN_MT_INVITE (sheet 2)~~

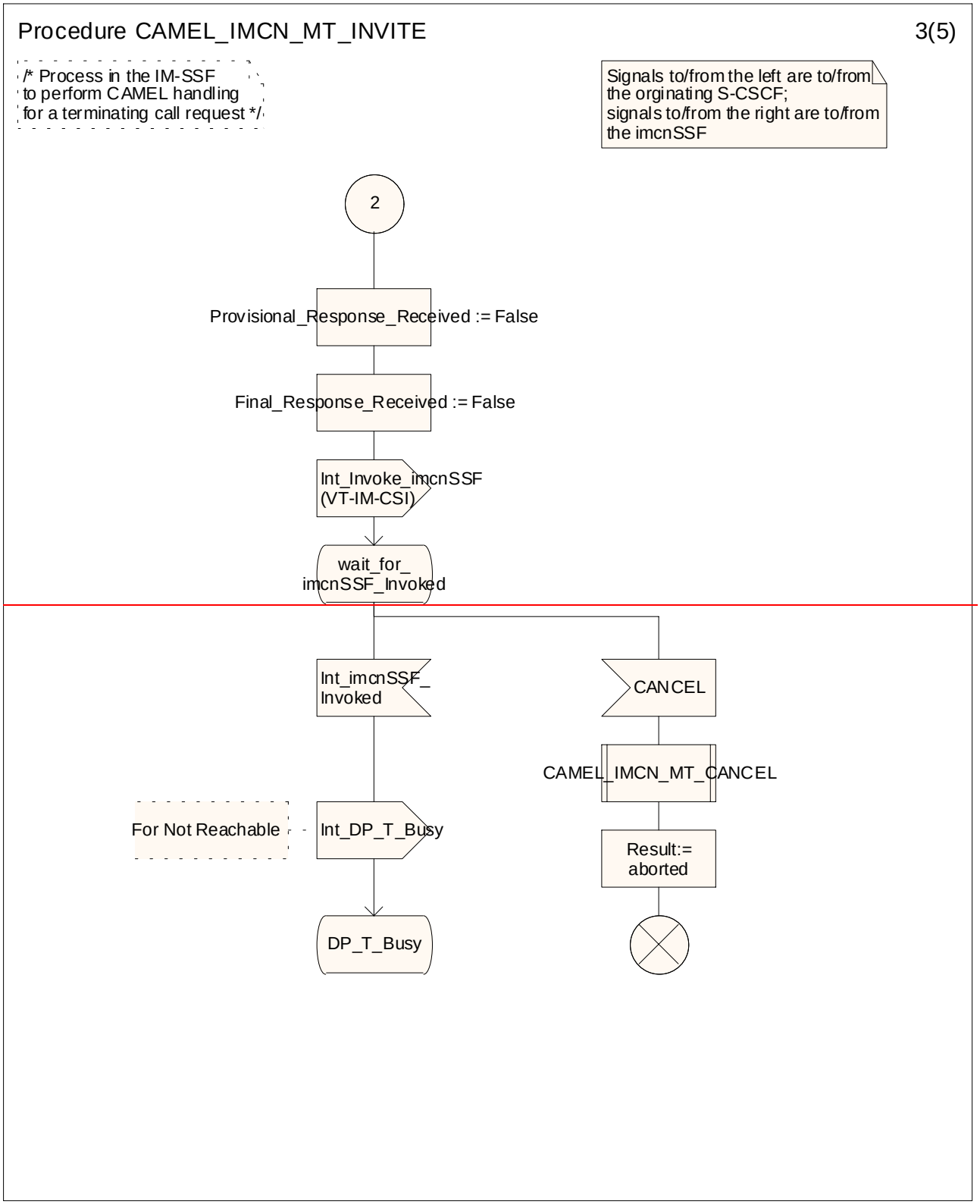
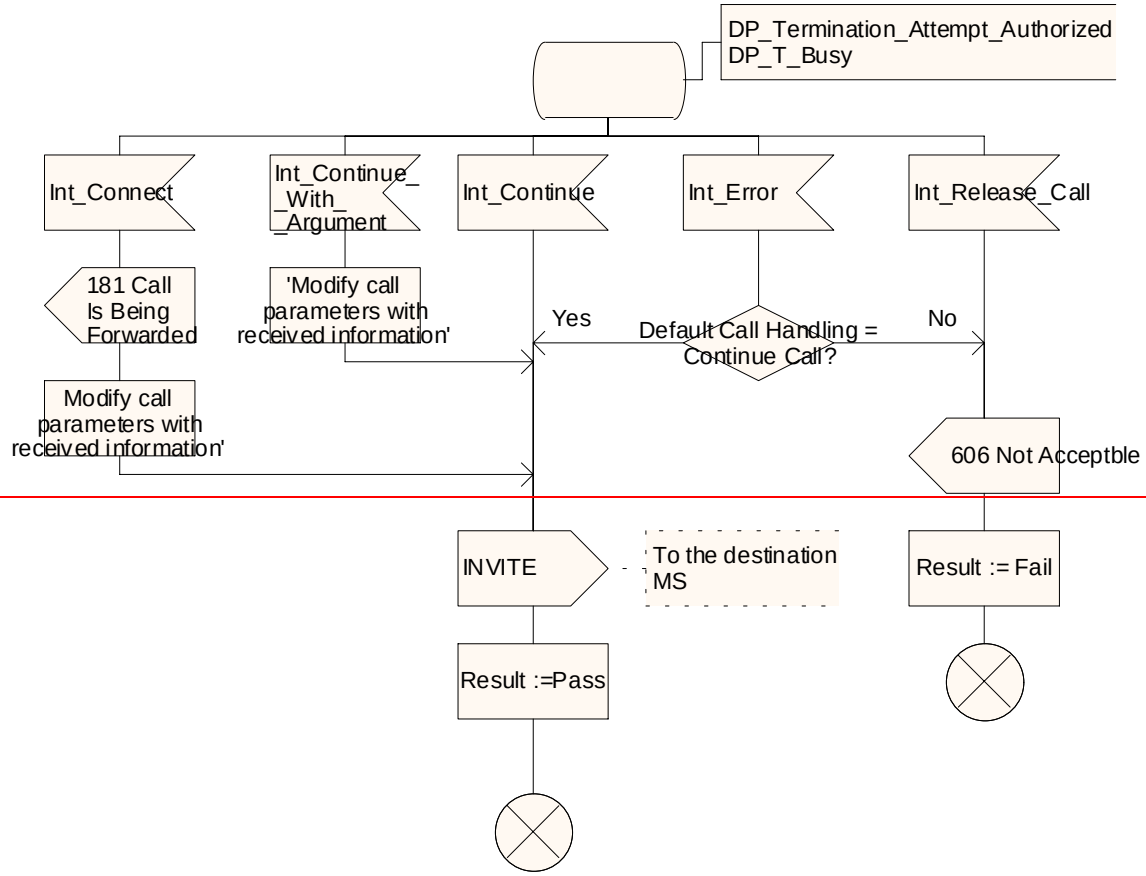


Figure 5.1.4.1c: Procedure CAMEL_IMCN_MT_INVITE (sheet 3)

Procedure CAMEL_IMCN_MT_INVITE 4(5)

/* Process in the IM-SSF to perform CAMEL handling for a terminating call request */

Signals to/from the left are to/from the orginating S-CSCF; signals to/from the right are to/from the imcnSSF, if not otherwise stated.



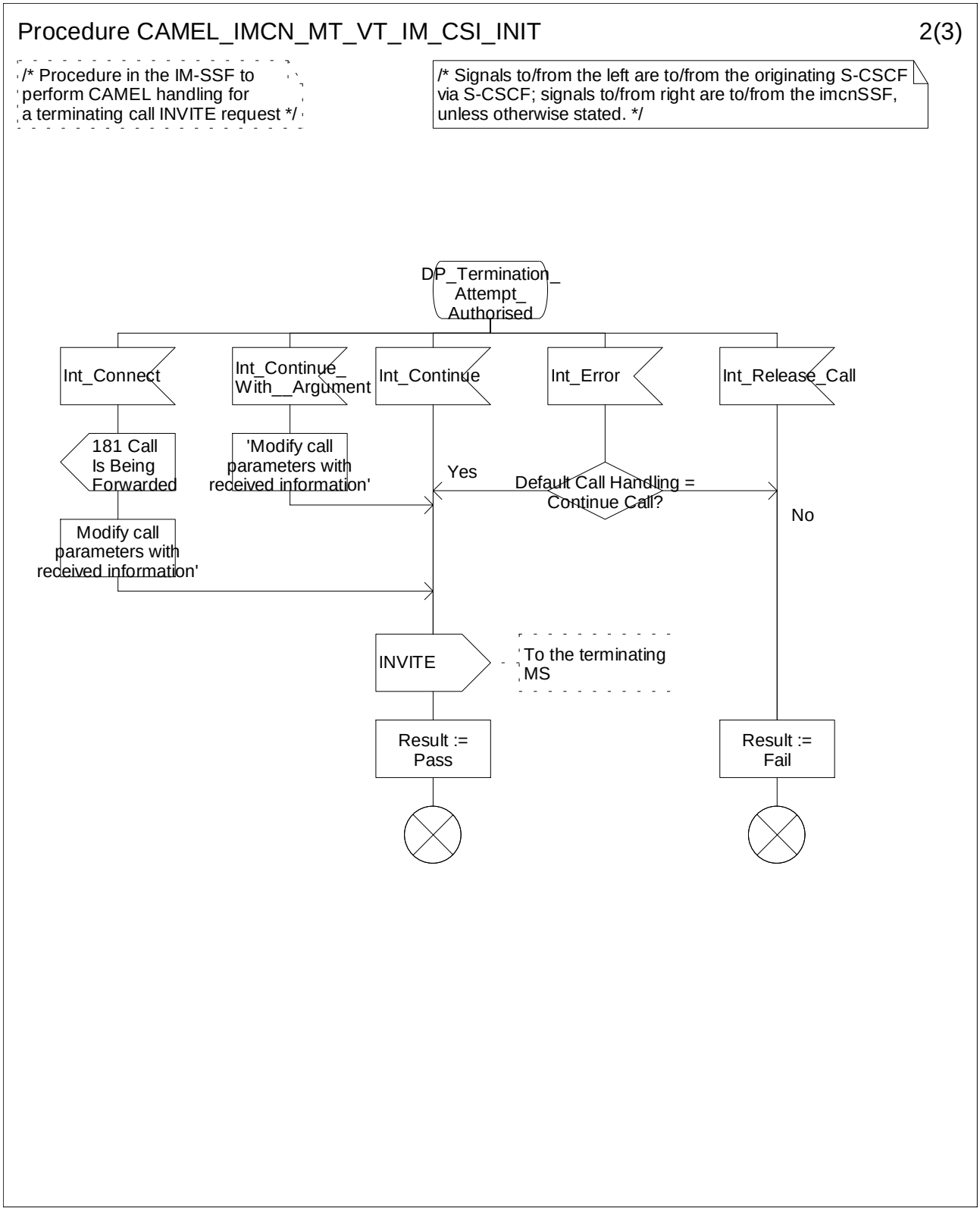
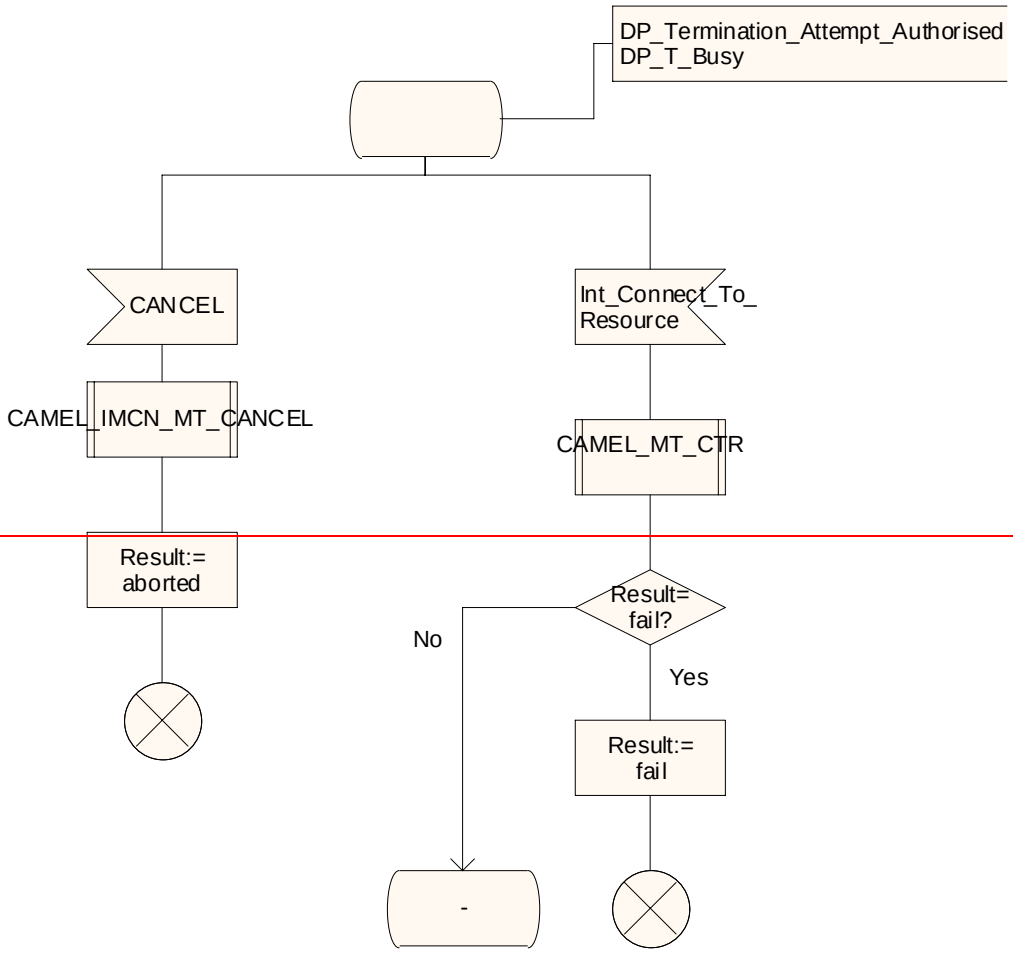


Figure 5.1.4.1~~d~~b: Procedure CAMEL_IMCN_MT_VT_CSI_INIT~~INVITE~~ (sheet ~~4~~2)

Procedure CAMEL_IMCN_MT_INVITE 5(5)

/* Process in the IM-SSF
to perform CAMEL handling
for a terminating call request */

Signals to/from the left are to/from the originating S-CSCF;
signals to/from the right are to/from the imcnSSF;
if not otherwise stated.



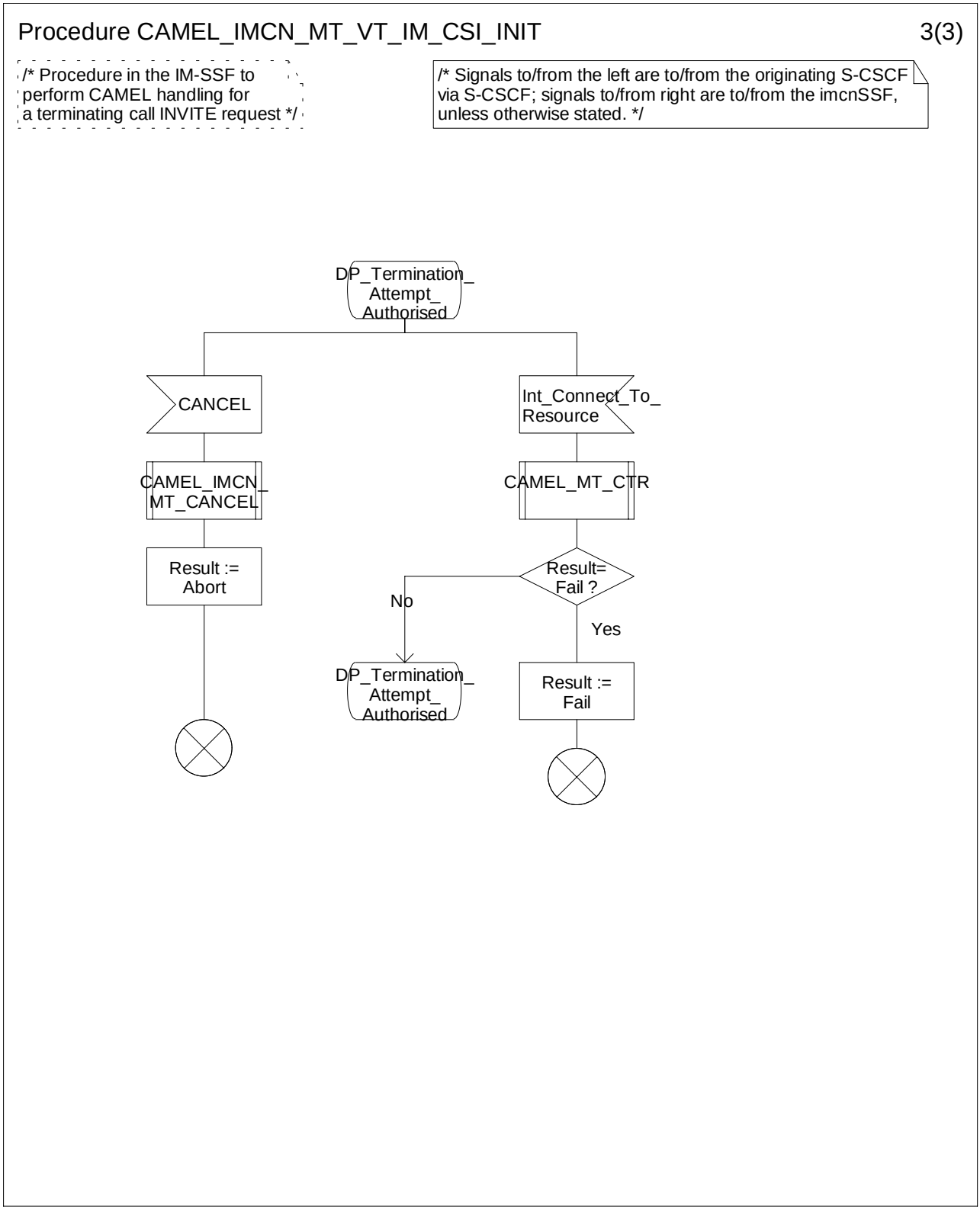


Figure 5.1.4.1~~e~~c: Procedure CAMEL_IMCN_MT_VT_CSI_INIT~~INVITE~~ (sheet ~~5~~3)

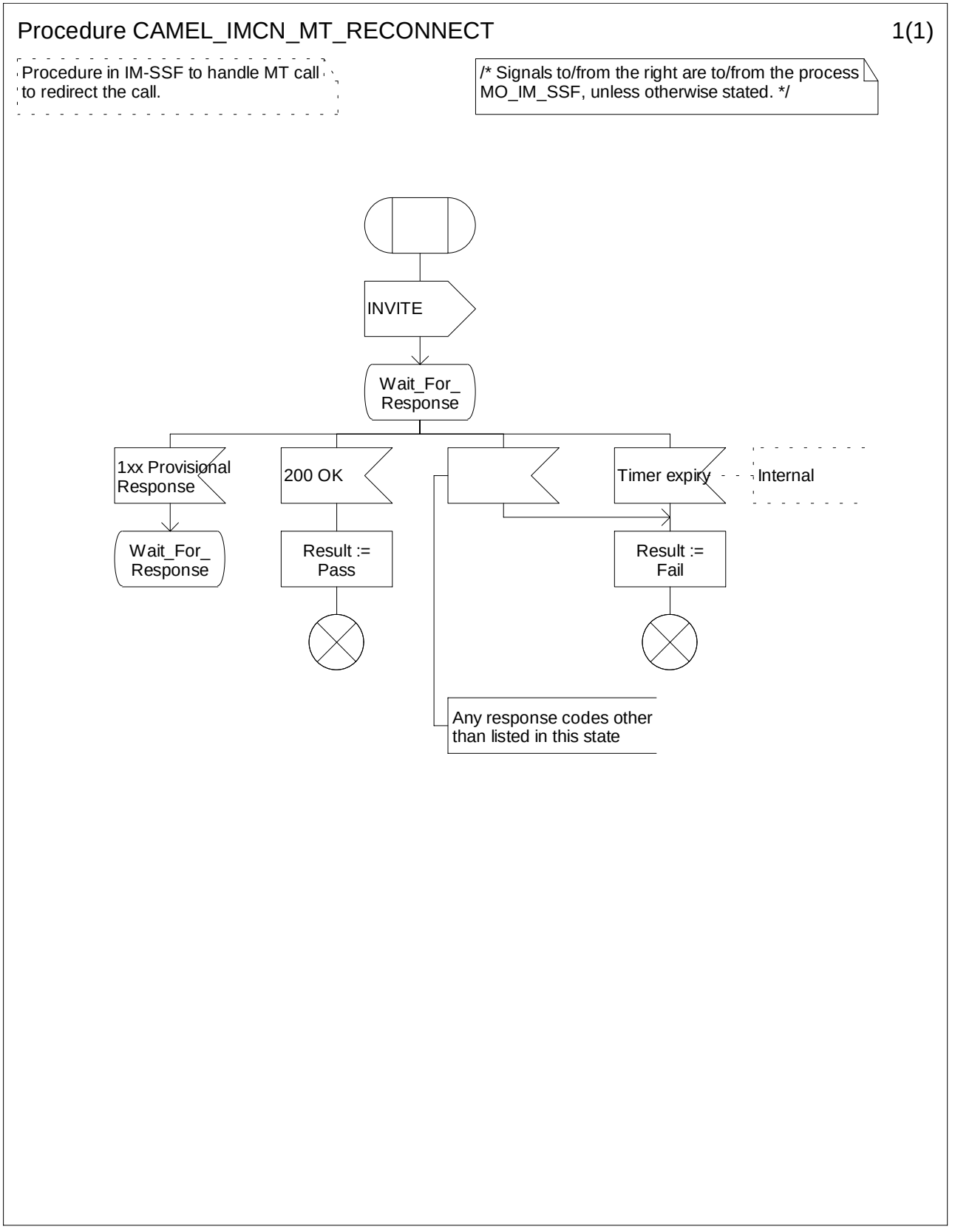
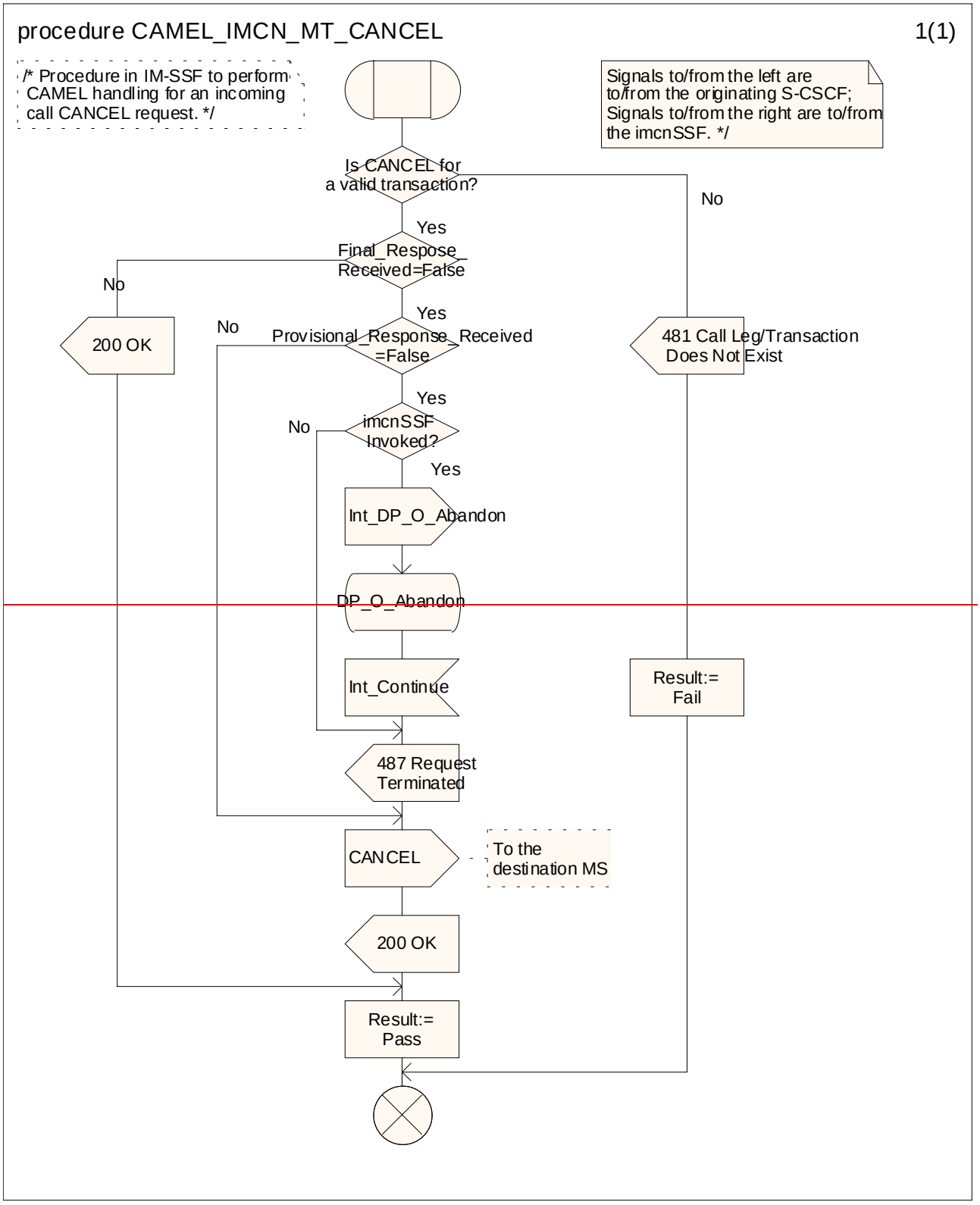


Figure C.a: Procedure CAMEL_IMCN_MT_RECONNECT (sheet 1)


procedure CAMEL_IMCN_MT_CANCEL
1(1)
/* Procedure in IM-SSF to perform CAMEL handling for an incoming call CANCEL request. */
Signals to/from the left are to/from the originating S-CSCF; Signals to/from the right are to/from the imcnSSF. */
Is CANCEL for a valid transaction?
No
Yes
Final_Respose Received=False
No
Yes
200 OK
No
Provisional_Response_Received =False
481 Call Leg/Transaction Does Not Exist
Yes
No
imcnSSF Invoked?
Yes
Int_DP_O_Abandon
DP_O_Abandon
Int_Continue
Result:= Fail
487 Request Terminated
CANCEL
To the destination MS
200 OK
Result:= Pass

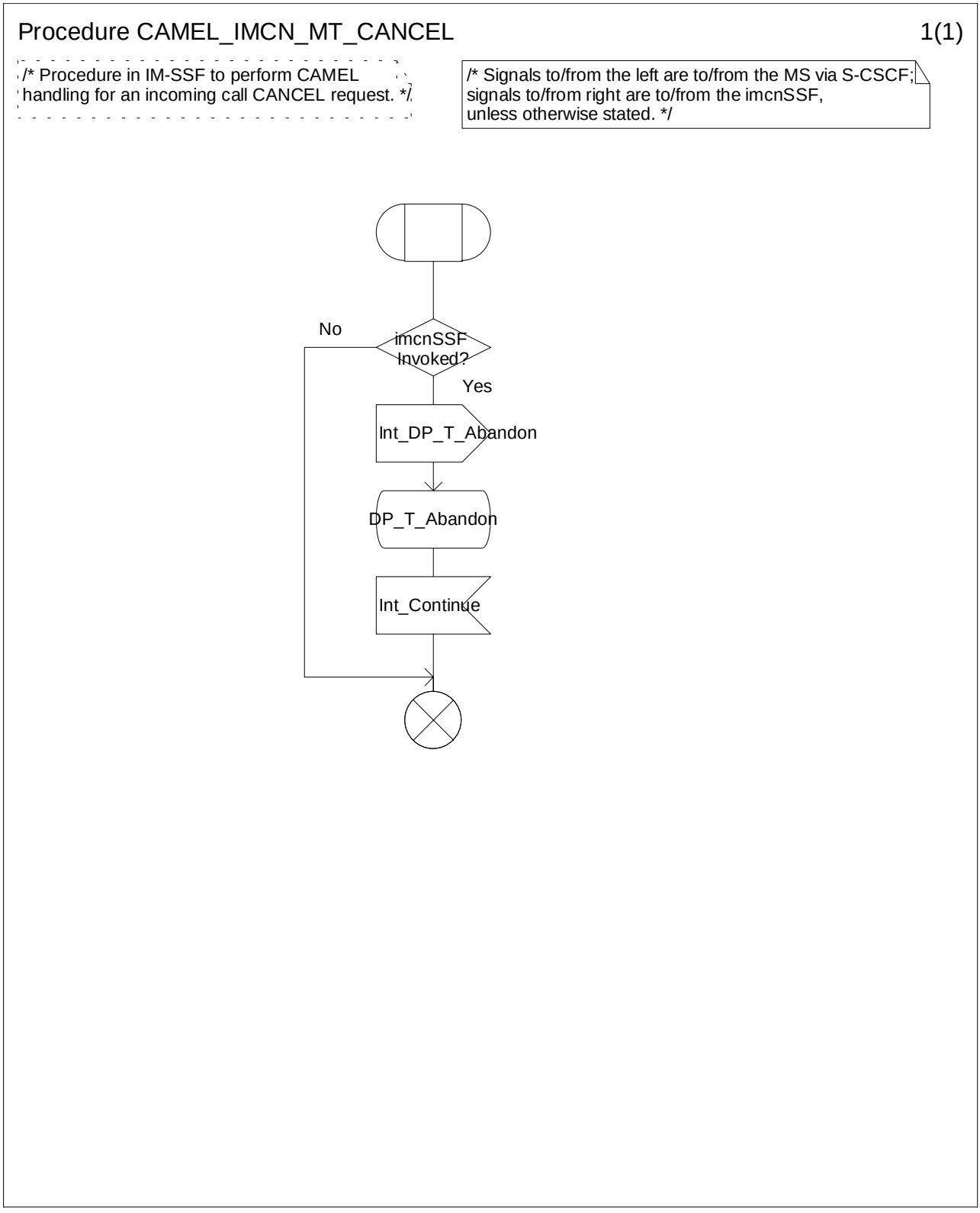


Figure 5.1.4.2a: Procedure CAMEL_IMCN_MT_CANCEL (sheet 1)

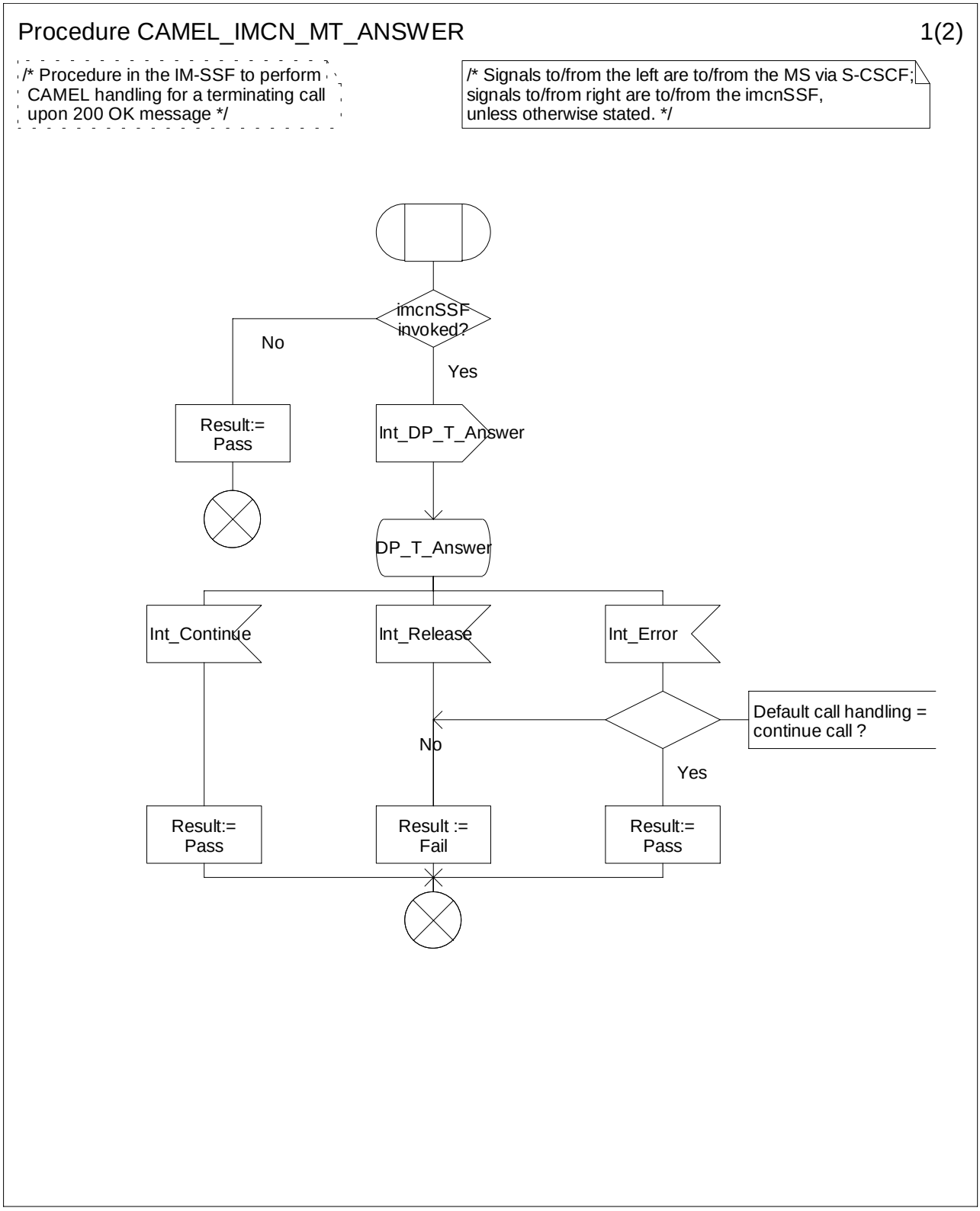


Figure D.a: Procedure CAMEL_IMCN_MT_ANSWER (sheet 1)

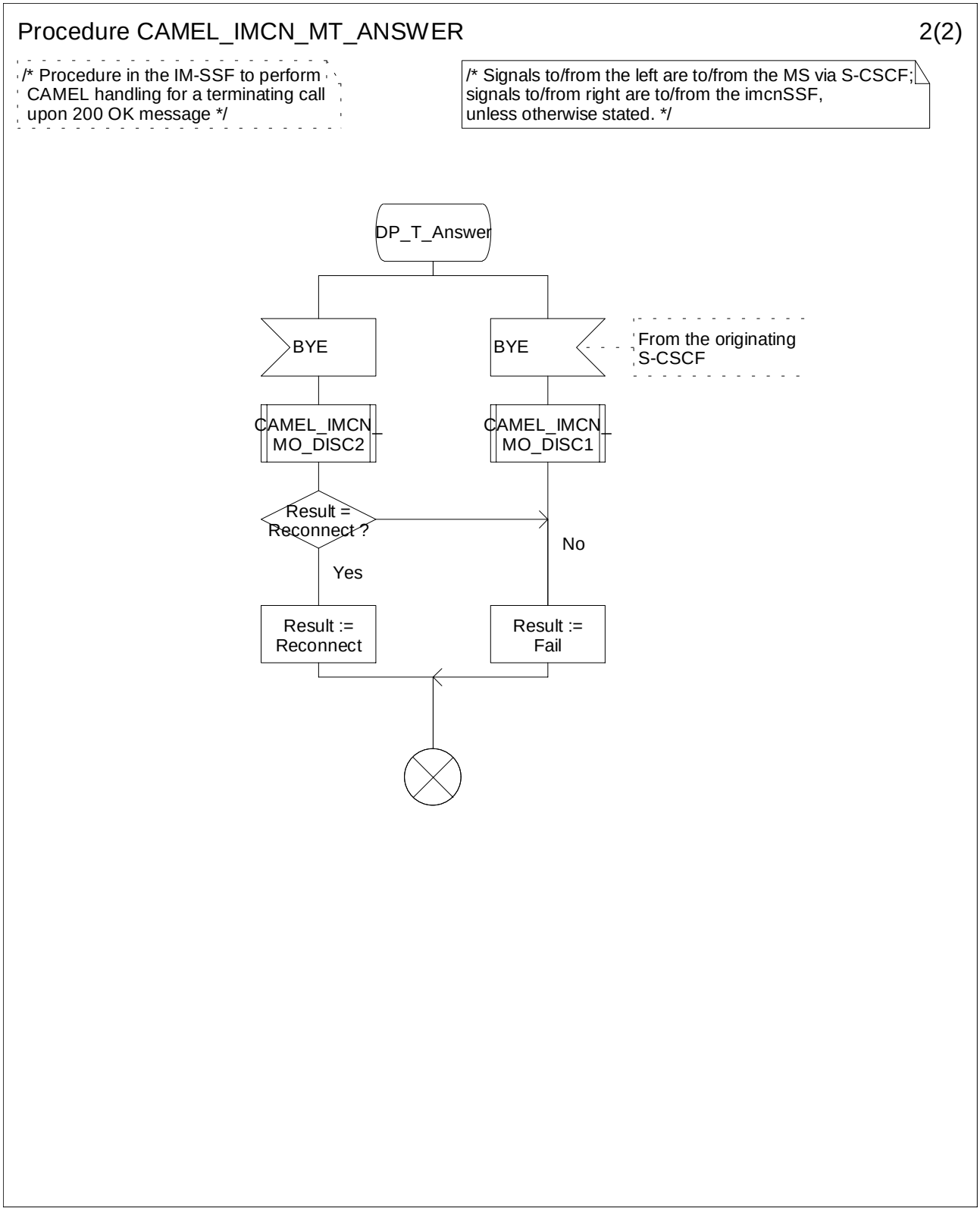


Figure D.b: Procedure CAMEL_IMCN_MT_ANSWER (sheet 2)

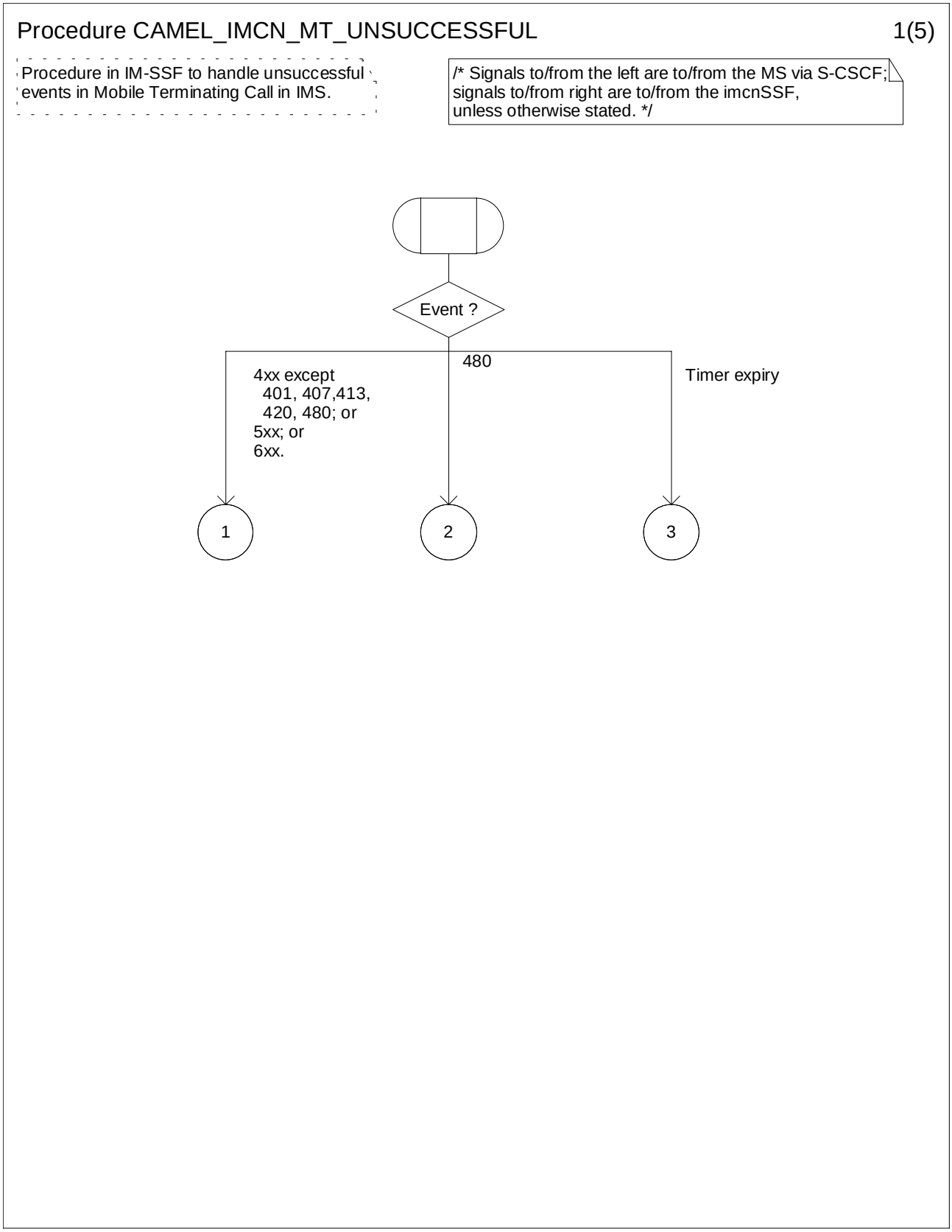


Figure E.a: Procedure CAMEL_IMCN_MT_UNSUCCESSFUL (sheet 1)

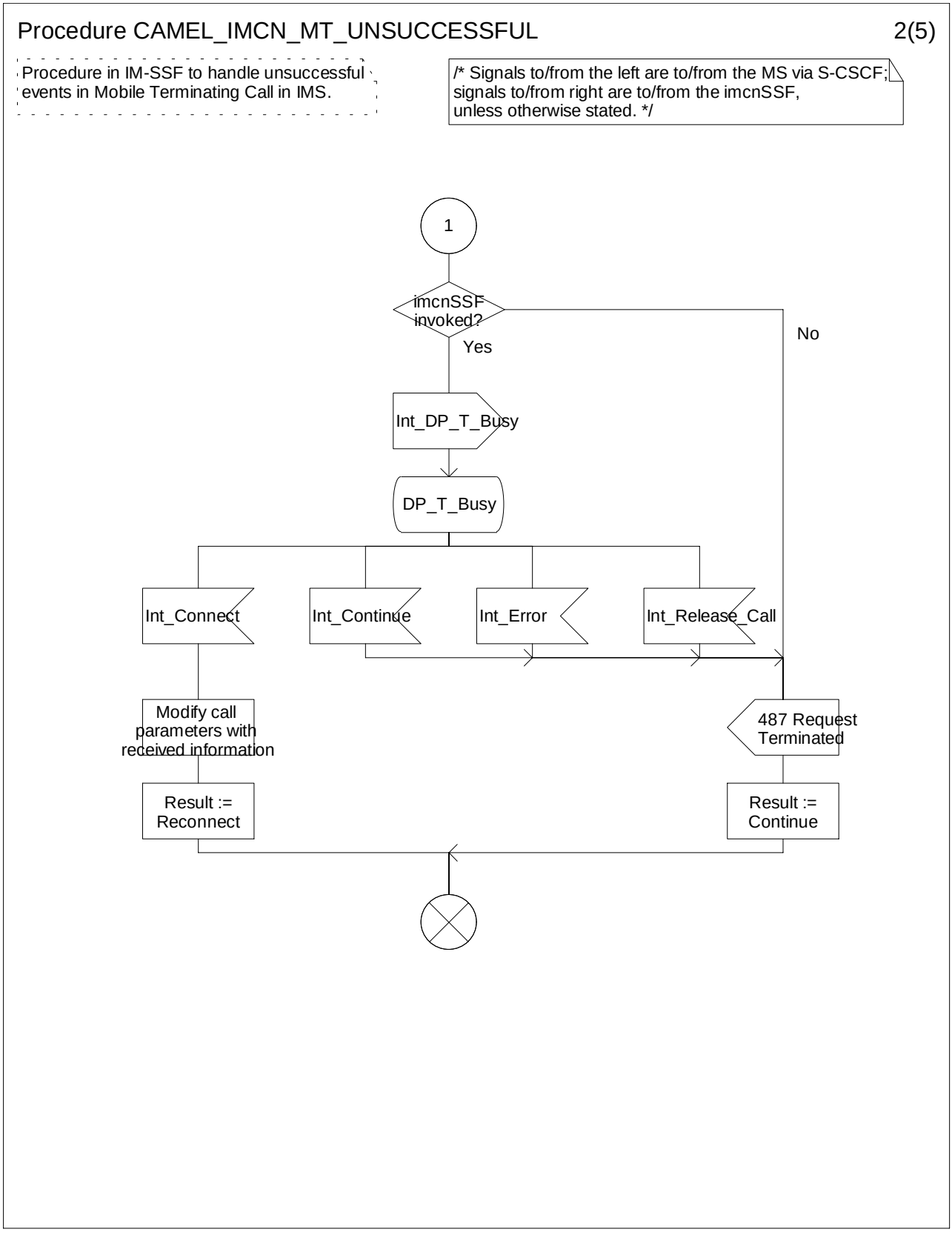


Figure E.b: Procedure CAMEL_IMCN_MT_UNSUCCESSFUL (sheet 2)

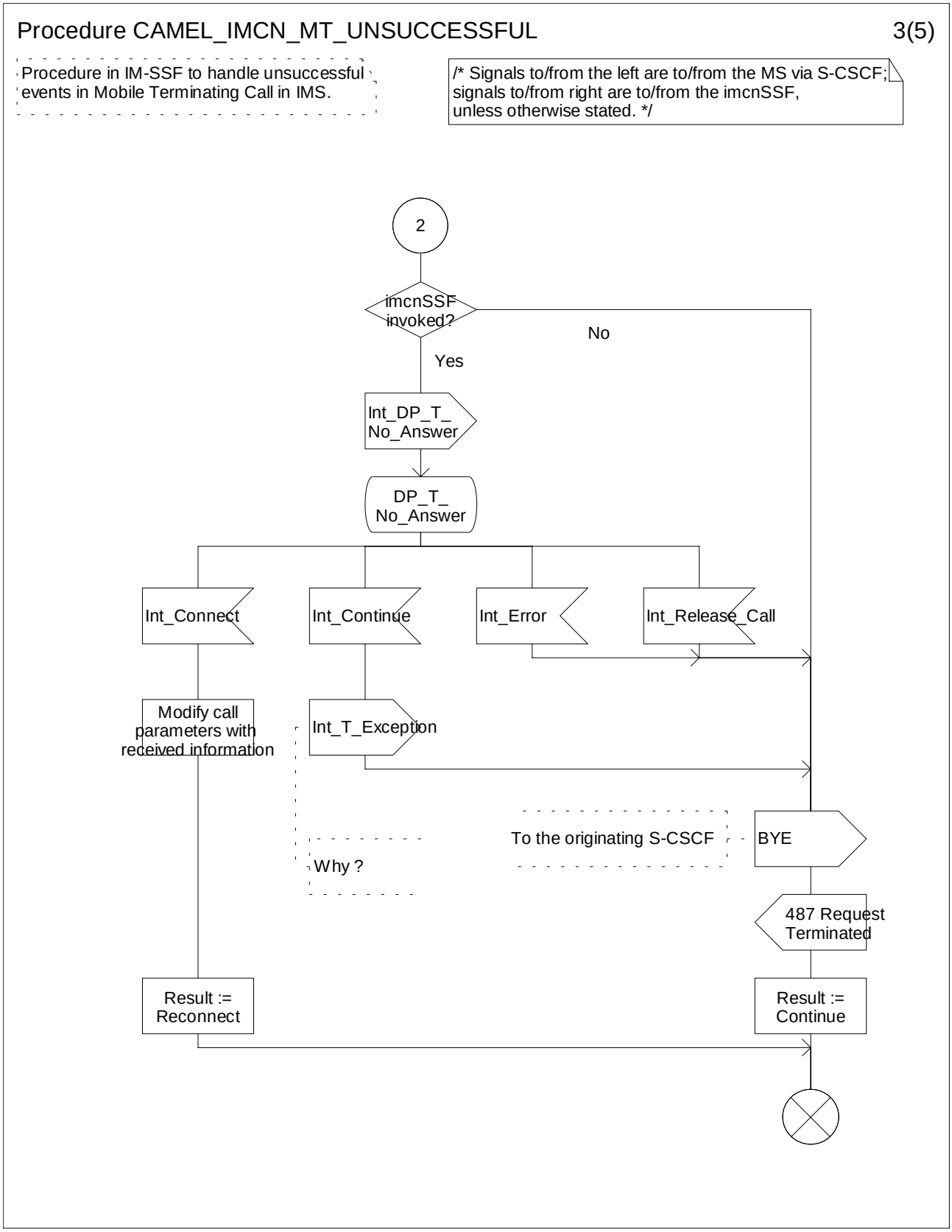


Figure E.c: Procedure CAMEL_IMCN_MT_UNSUCCESSFUL (sheet 3)

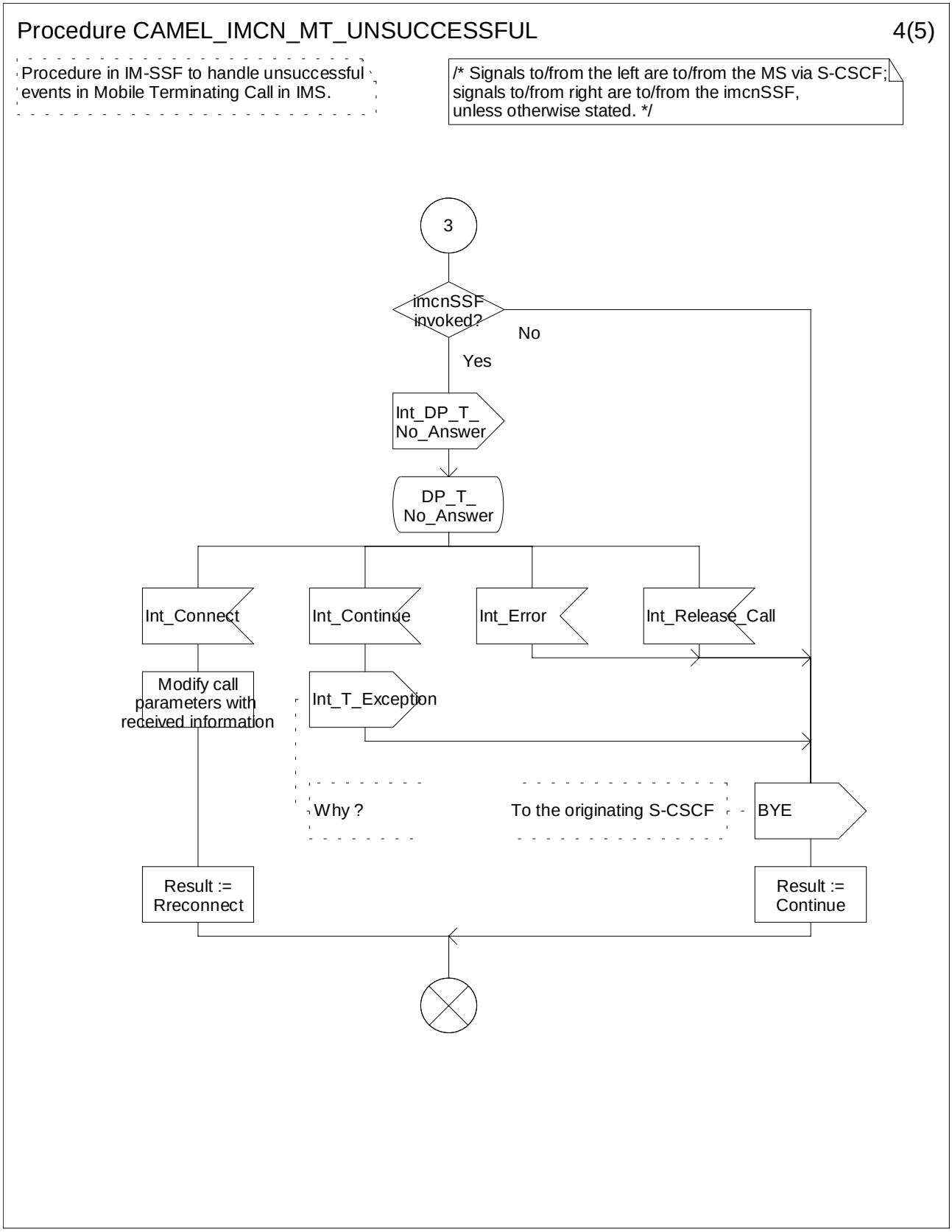


Figure E.d: Procedure CAMEL_IMCN_MT_UNSUCCESSFUL (sheet 4)

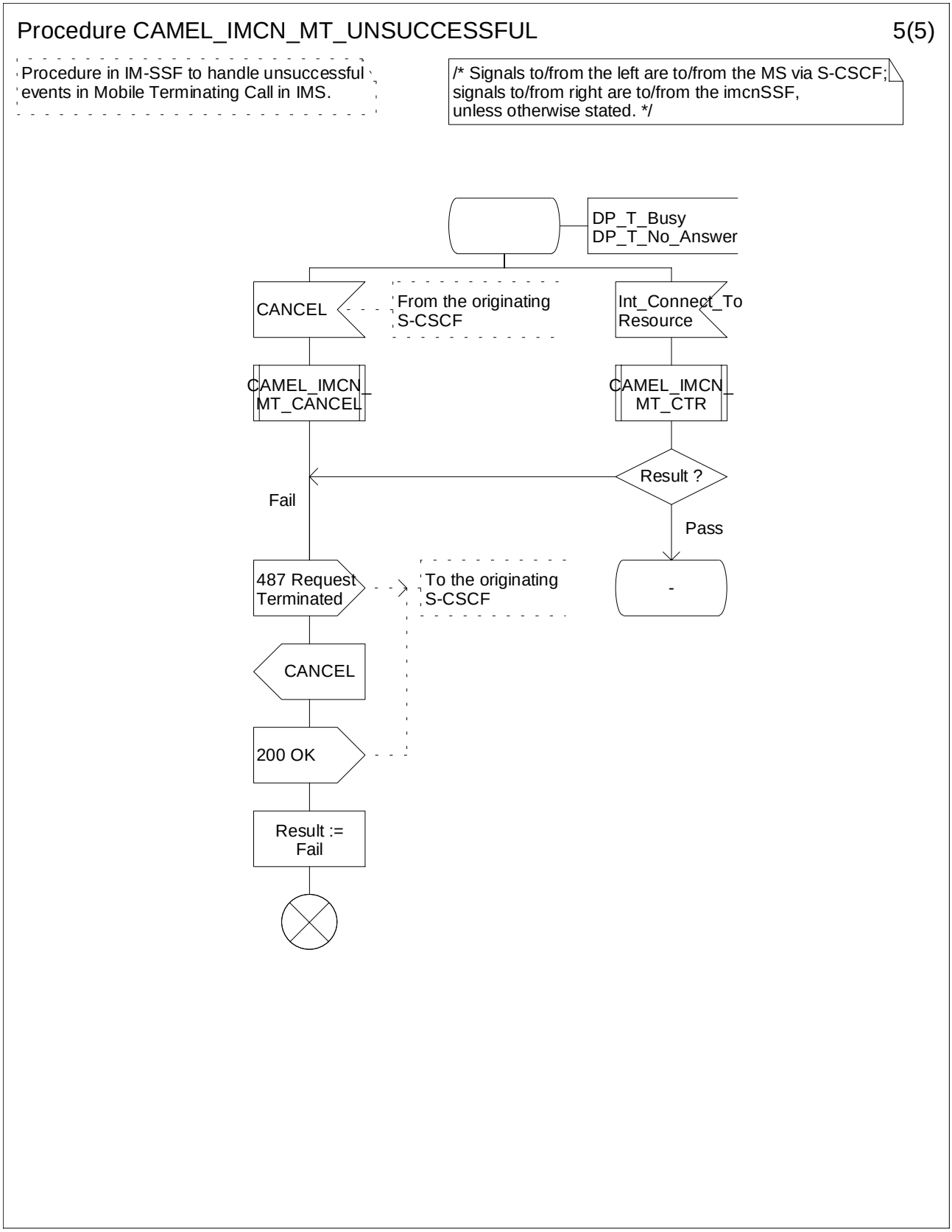
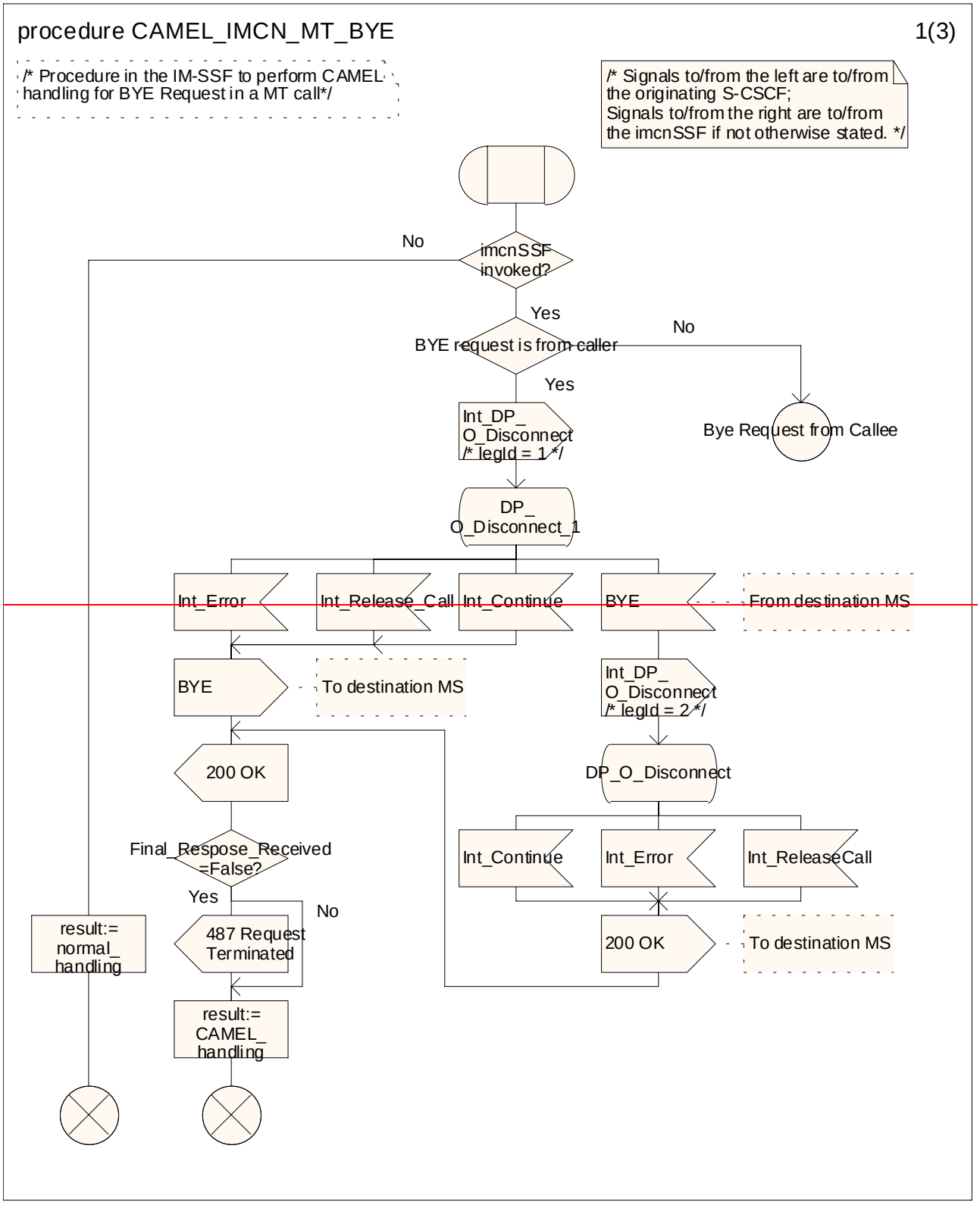


Figure E.e: Procedure CAMEL_IMCN_MT_UNSUCCESSFUL (sheet 5)


procedure CAMEL_IMCN_MT_BYE
1(3)
/* Procedure in the IM-SSF to perform CAMEL handling for BYE Request in a MT call*/
/* Signals to/from the left are to/from the originating S-CSCF;
Signals to/from the right are to/from the imcnSSF if not otherwise stated. */
imcnSSF invoked?
No
Yes
BYE request is from caller
No
Yes
Int_DP_ O_Disconnect /* legId = 1 */
Bye Request from Callee
DP_ O_Disconnect_1
Int_Error
Int_Release_Call
Int_Continue
BYE
From destination MS
BYE
To destination MS
Int_DP_ O_Disconnect /* legId = 2 */
200 OK
DP_O_Disconnect
Final_Respose_Received =False?
Yes
No
Int_Continue
Int_Error
Int_ReleaseCall
result:= normal_ handling
487 Request Terminated
200 OK
To destination MS
result:= CAMEL_ handling

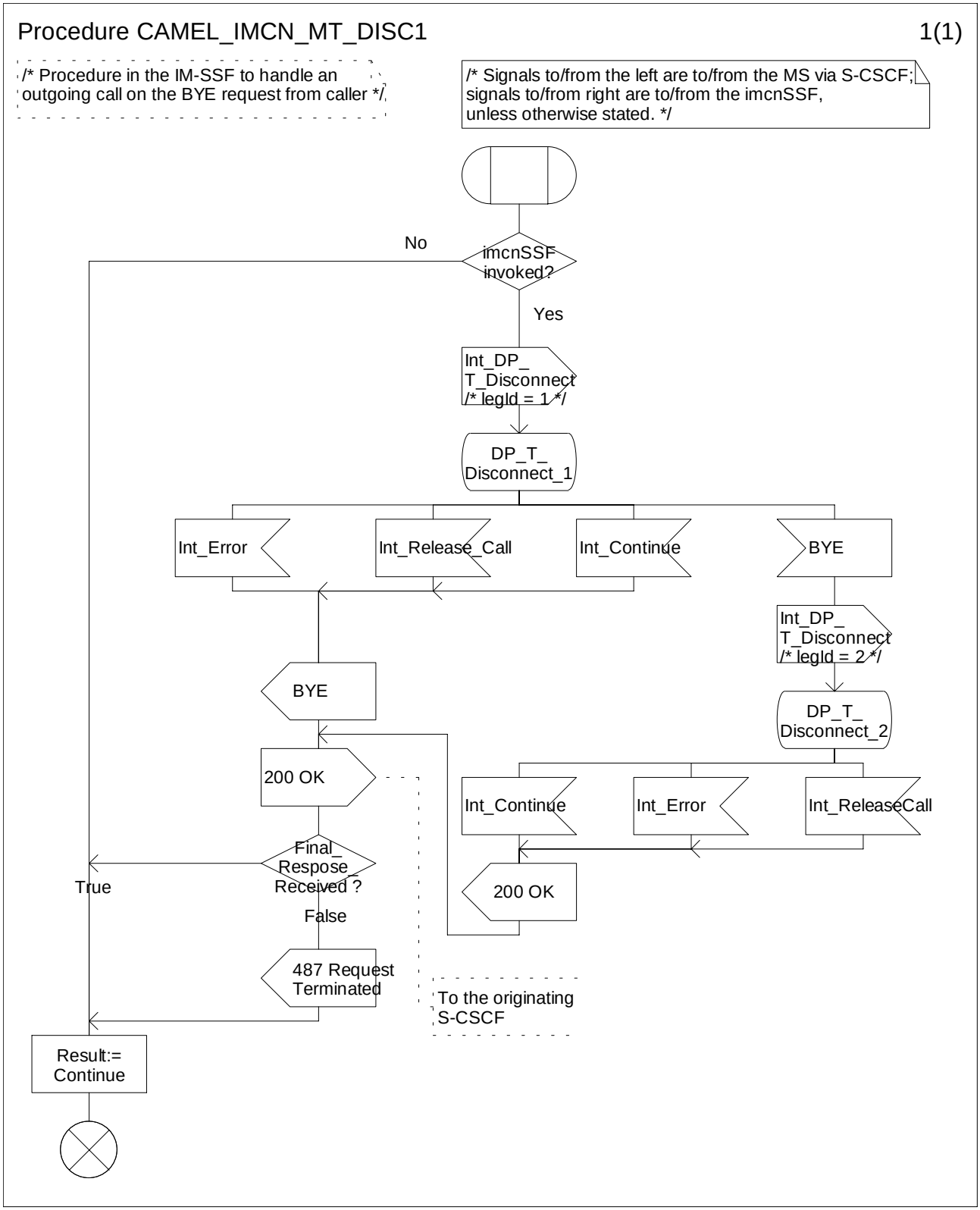
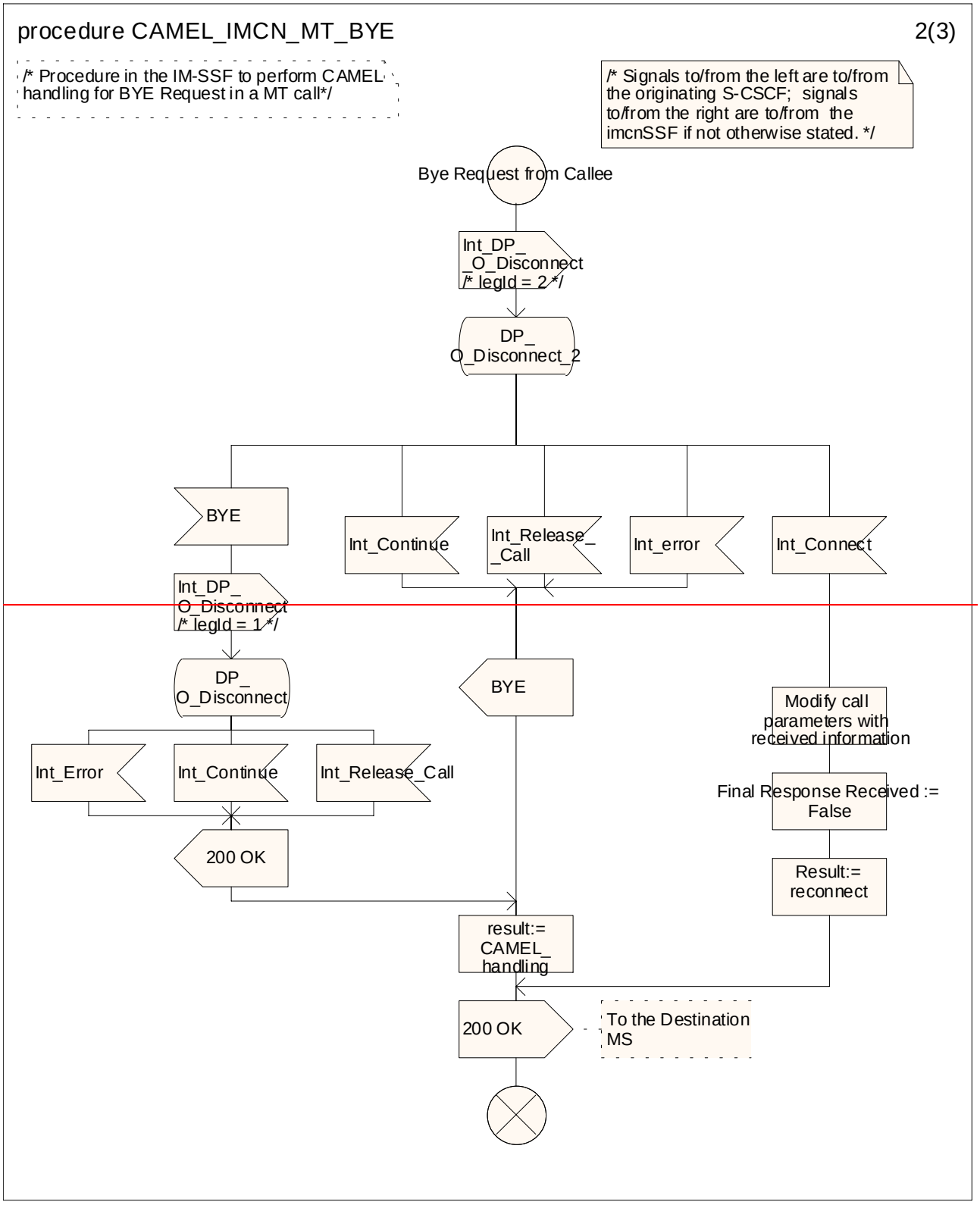


Figure ~~5.1.4.3~~F.a: Procedure CAMEL_IMCN_MT_~~BYE~~ DISC1 (sheet 1)


procedure CAMEL_IMCN_MT_BYE
2(3)
/* Procedure in the IM-SSF to perform CAMEL handling for BYE Request in a MT call*/
/* Signals to/from the left are to/from the originating S-CSCF; signals to/from the right are to/from the imcnSSF if not otherwise stated. */
Bye Request from Callee
Int_DP_ _O_Disconnect /* legId = 2 */
DP_ O_Disconnect_2
BYE
Int_Continue
Int_Release_ _Call
Int_error
Int_Connect
Int_DP_ O_Disconnect /* legId = 1 */
DP_ O_Disconnect
BYE
Modify call parameters with received information
Int_Error
Int_Continue
Int_Release_Call
Final Response Received := False
200 OK
Result:= reconnect
result:= CAMEL_ handling
200 OK
To the Destination MS

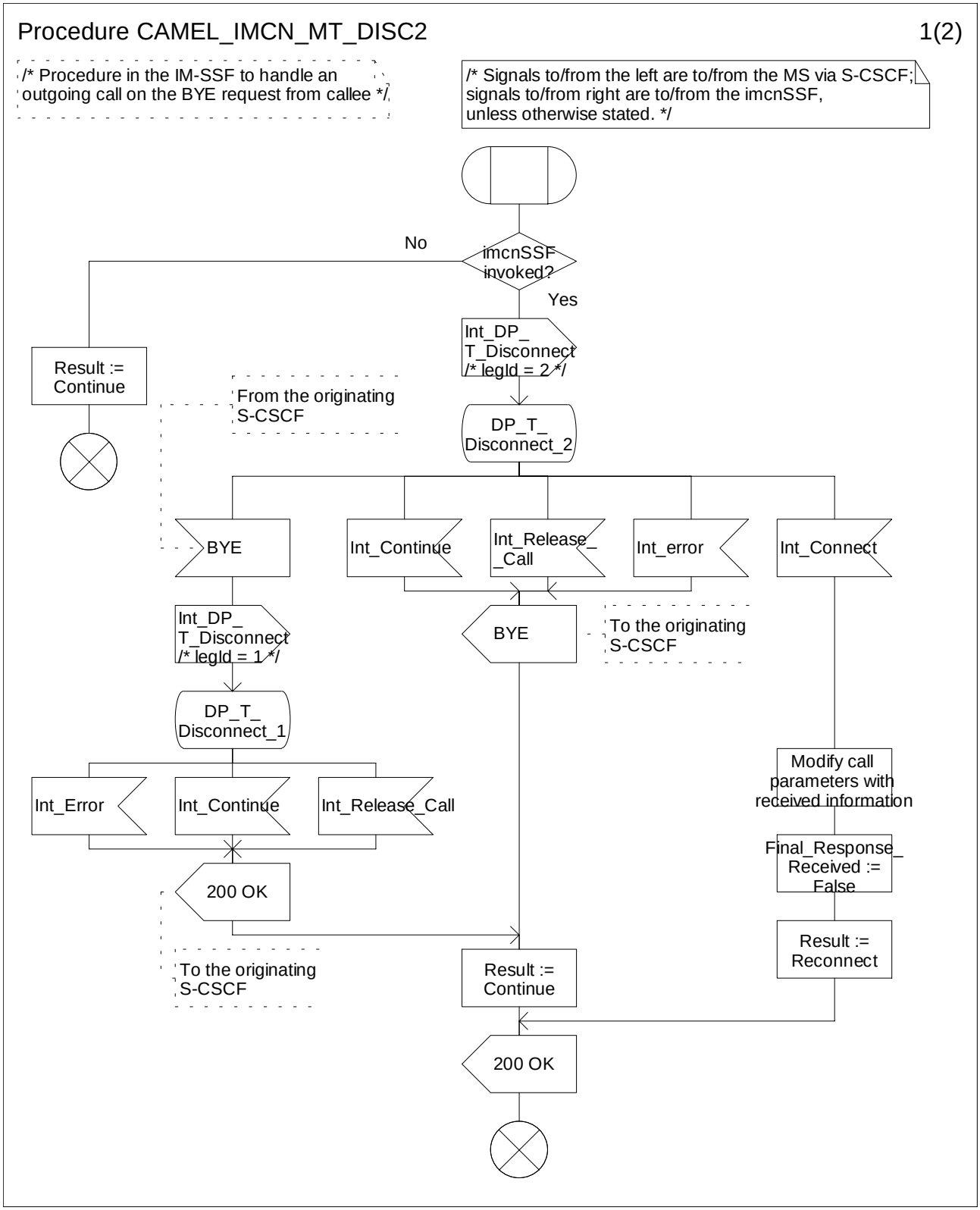
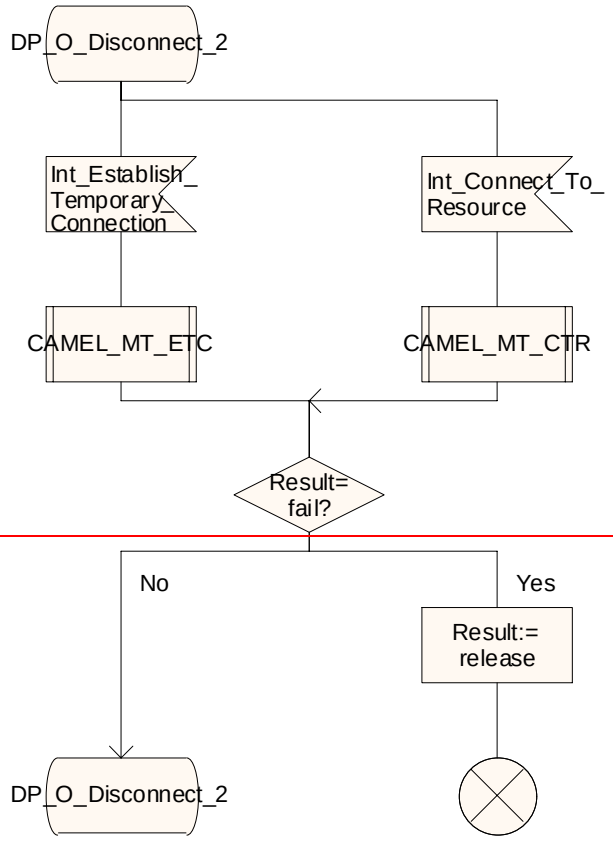


Figure ~~5.1.4.3~~G.~~b~~a: Procedure CAMEL_IMCN_MT_~~BYE~~ DISC2 (sheet ~~2~~1)

procedure CAMEL_IMCN_MT_BYE 3(3)

/* Procedure in the IM-SSF to perform CAMEL handling for BYE Request in a MT call*/

Signals to/from the right are to/from the imcnSSF if not otherwise stated.



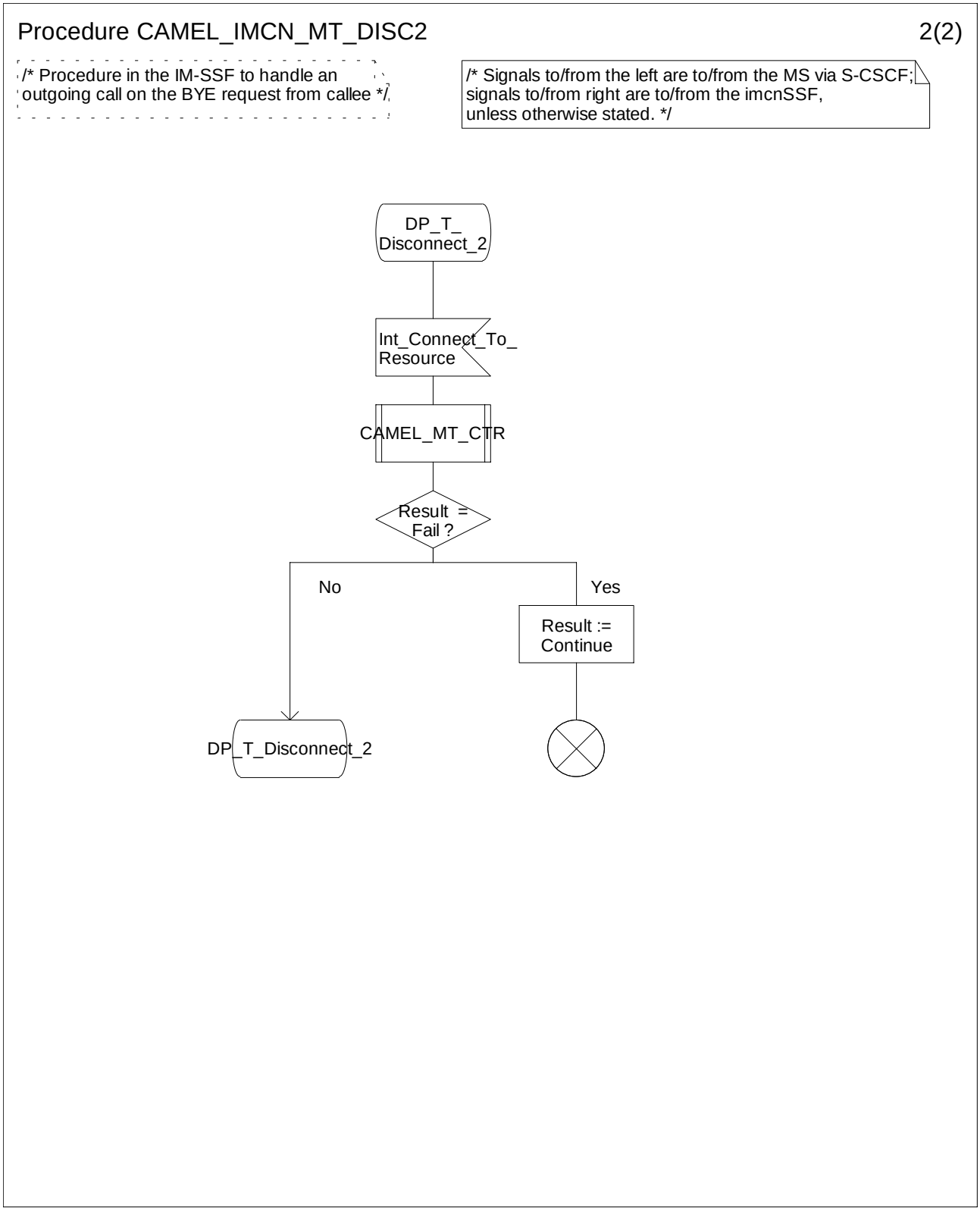
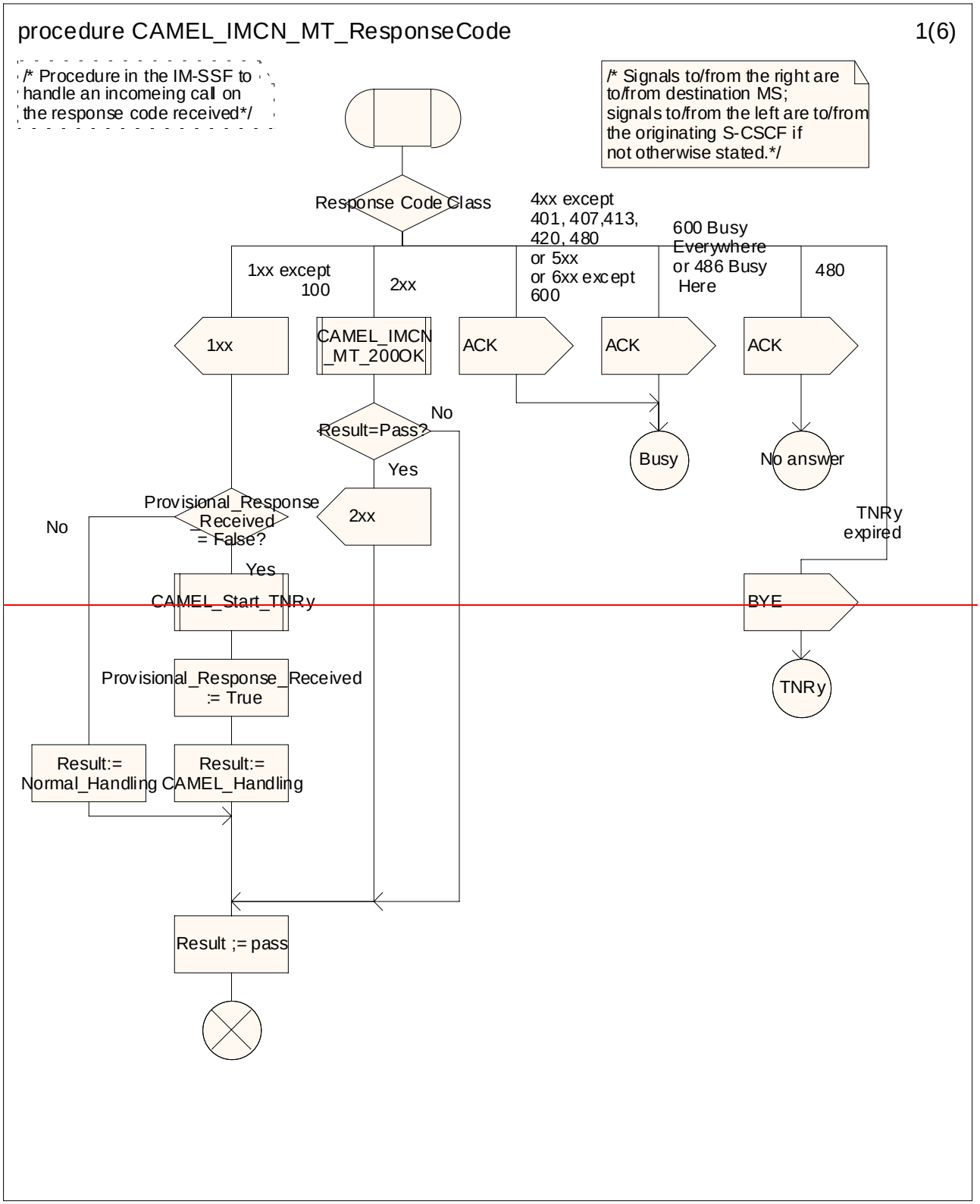


Figure ~~5.1.4.3~~G.~~c~~b: Procedure CAMEL_IMCN_MT_~~BYE~~ DISC2 (sheet ~~3~~2)



~~Figure 5.1.4.4a: Procedure CAMEL_IMCN_MT_ResponseCode (sheet 1)~~

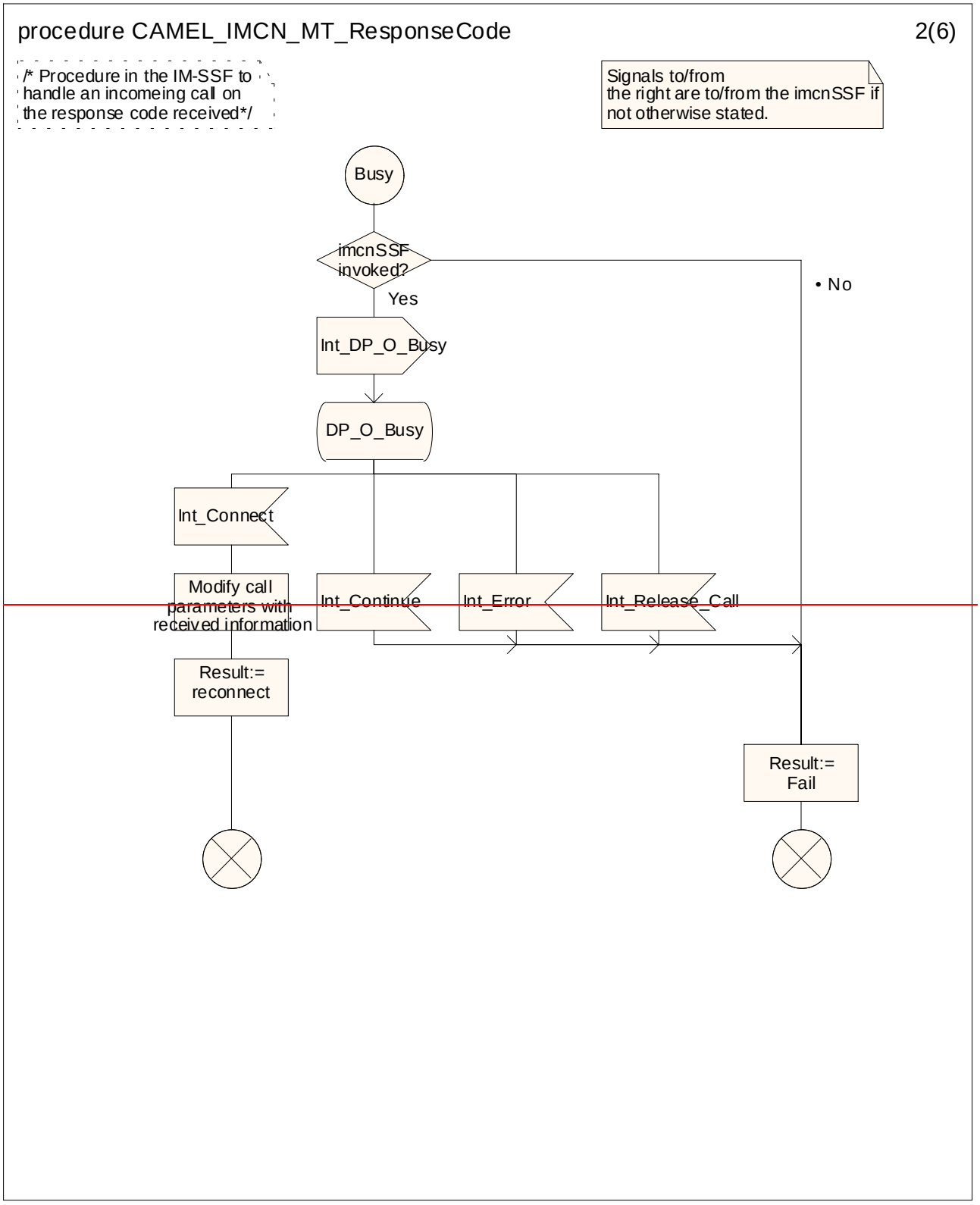
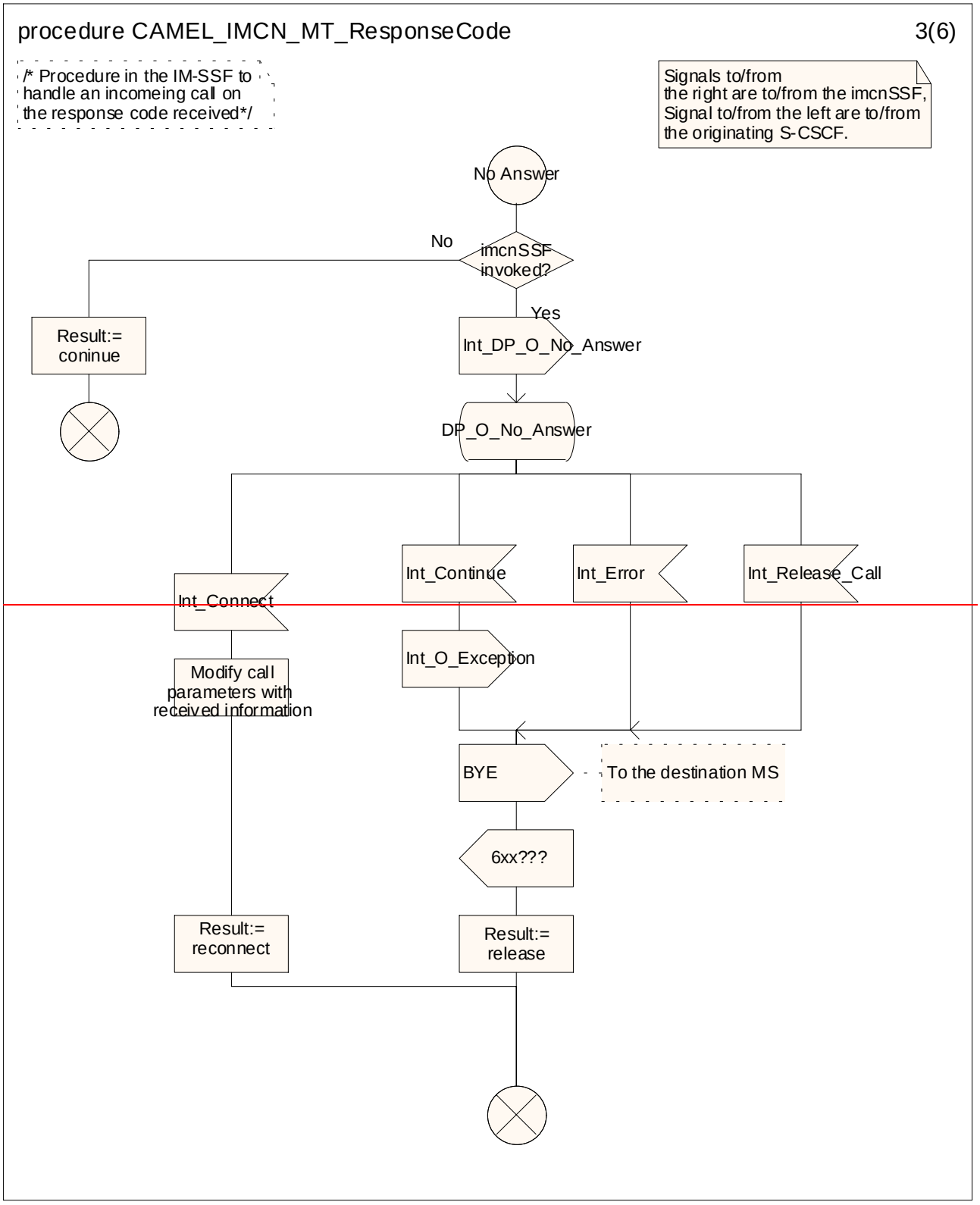


Figure 5.1.4.4b: Procedure CAMEL_IMCN_MT_ResponseCode (sheet 2)



~~Figure 5.1.4.4c: Procedure CAMEL_IMCN_MT_ResponseCode (sheet 3)~~

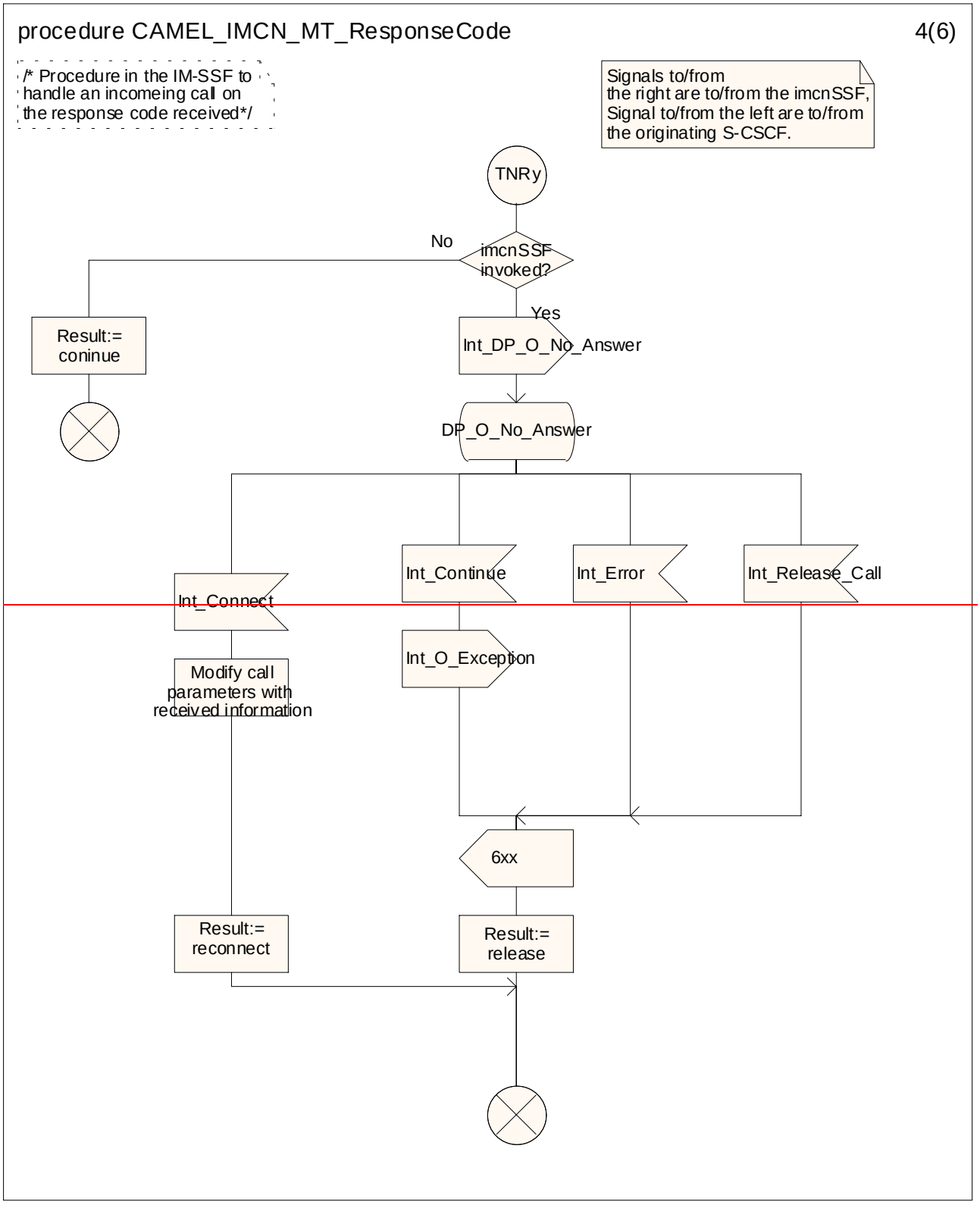


Figure 5.1.4.4d: Procedure CAMEL_IMCN_MT_ResponseCode (sheet 4)

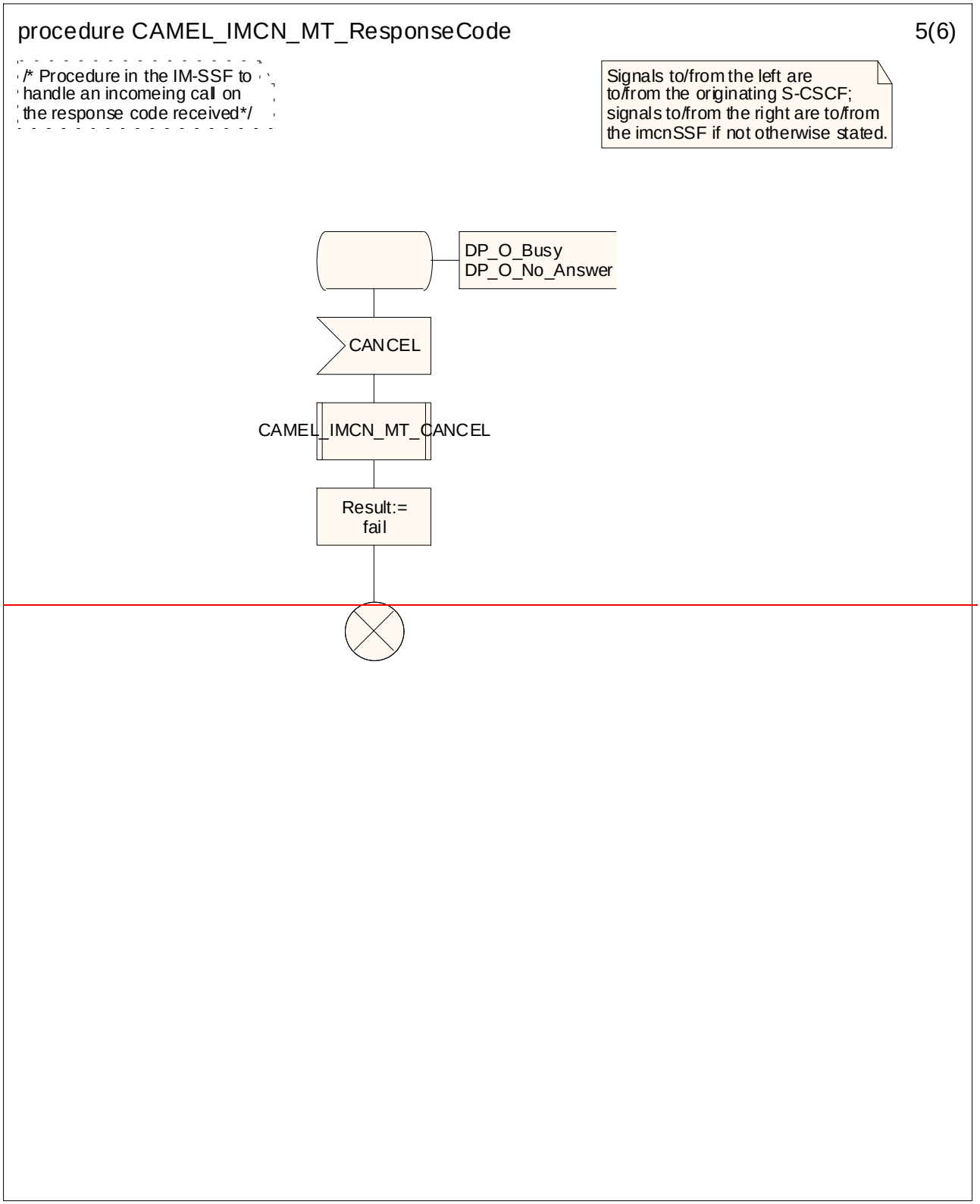
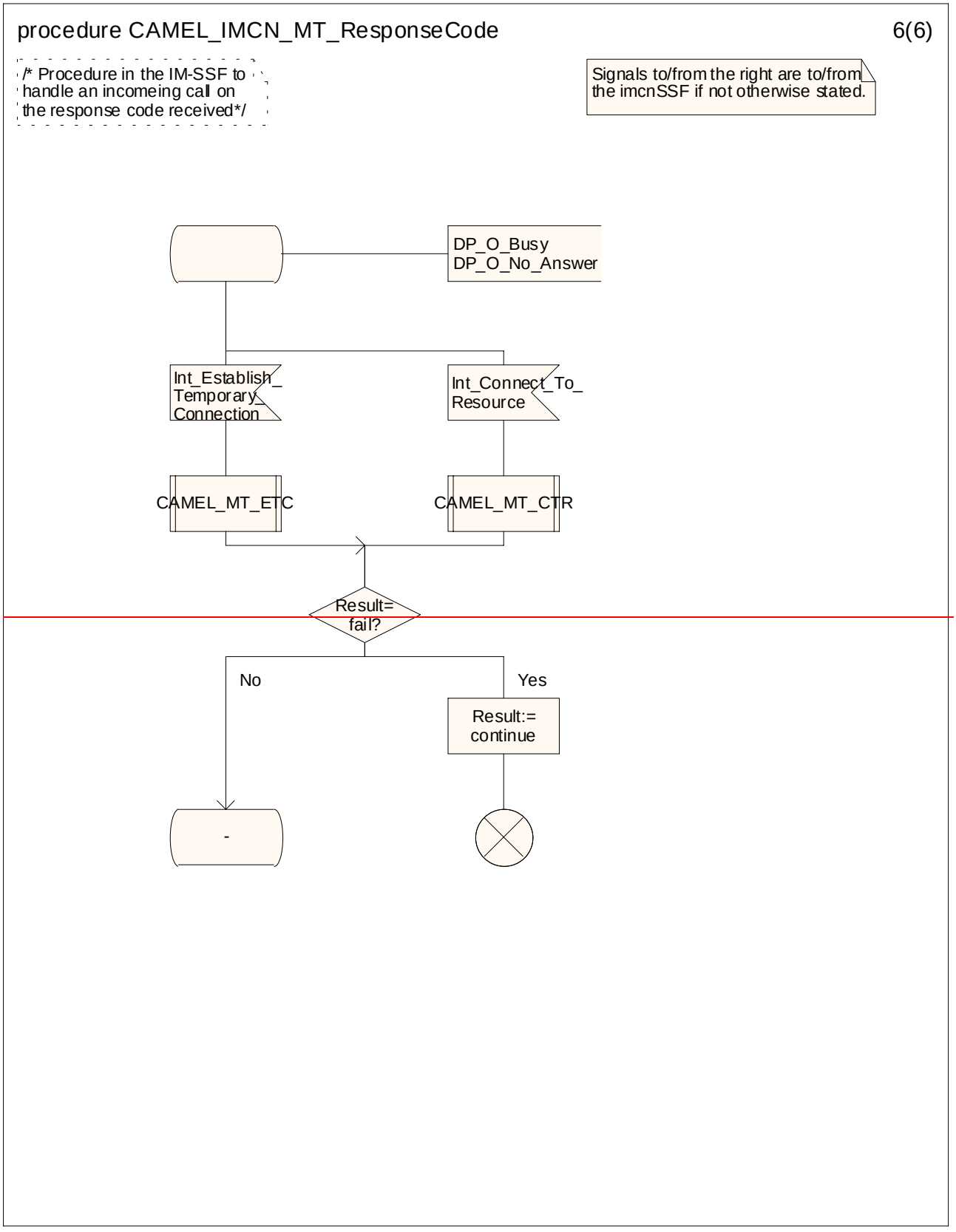
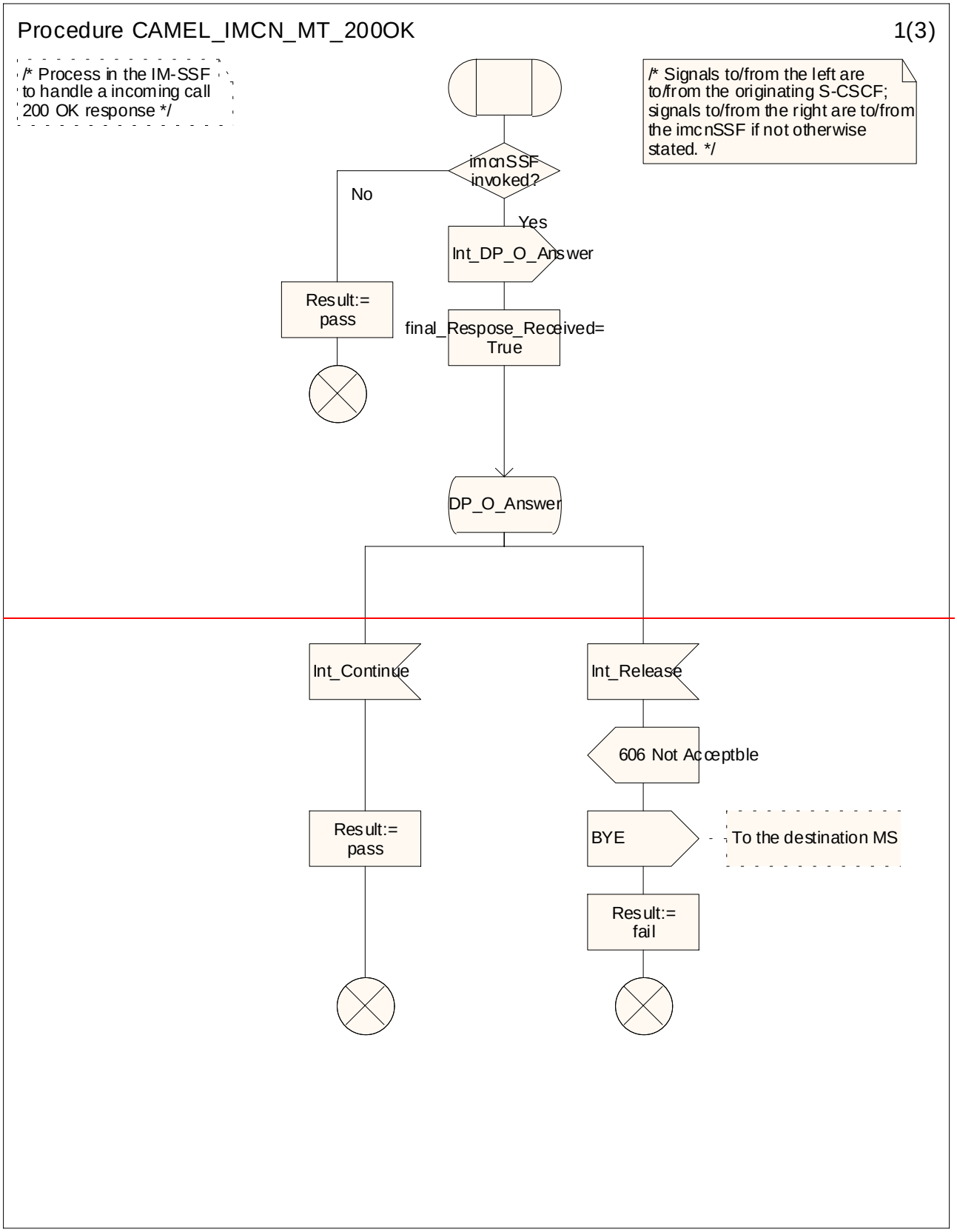


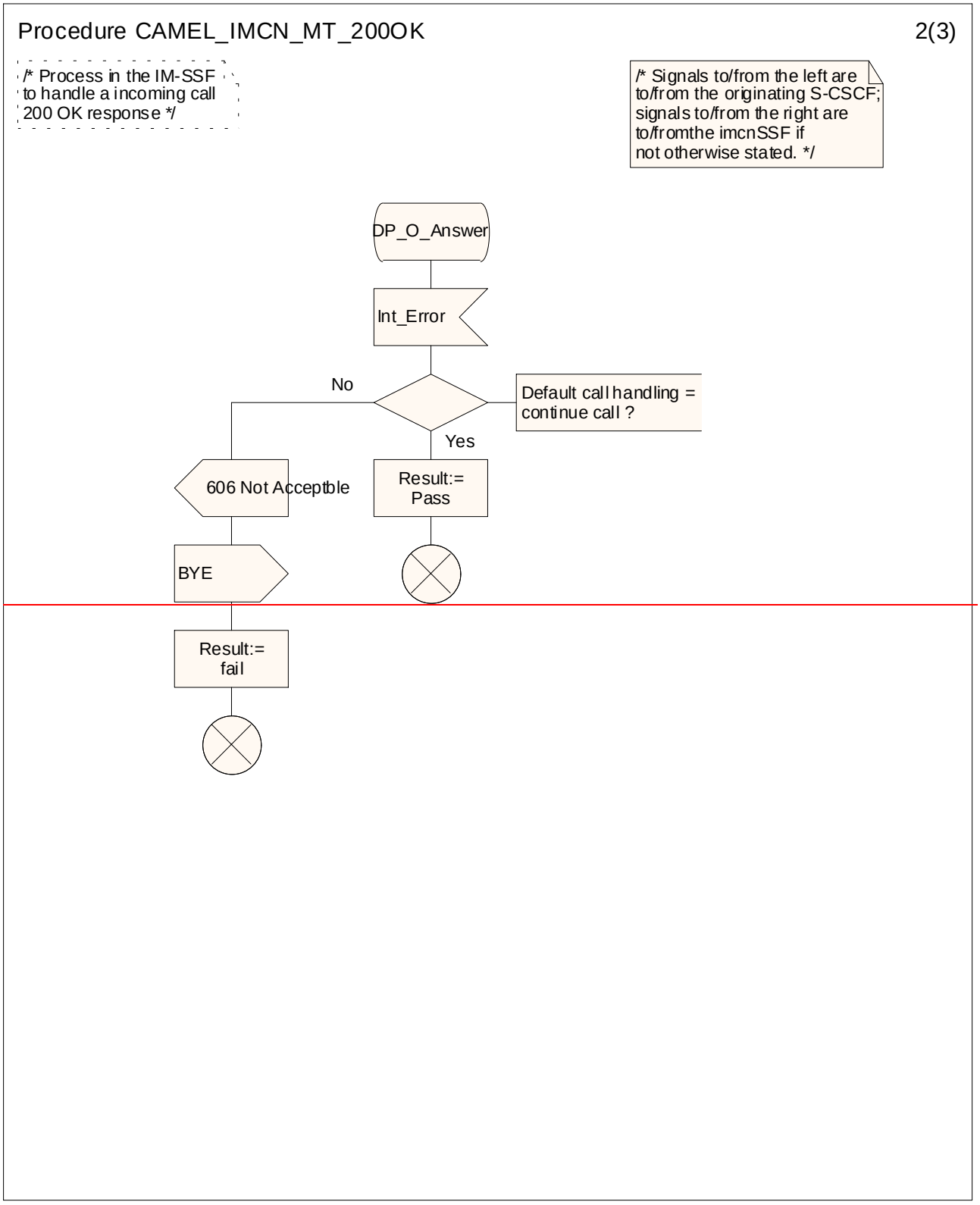
Figure 5.1.4.4e: Procedure CAMEL_IMCN_MT_ResponseCode (sheet 5)



~~Figure 5.1.4.4f: Procedure CAMEL_IMCN_MT_ResponseCode (sheet 6)~~



~~Figure 5.1.4.5a: Procedure CAMEL_IMCN_MT_200OK (sheet 1)~~



~~Figure 5.1.4.5b: Procedure CAMEL_IMCN_MT_200OK (sheet 2)~~

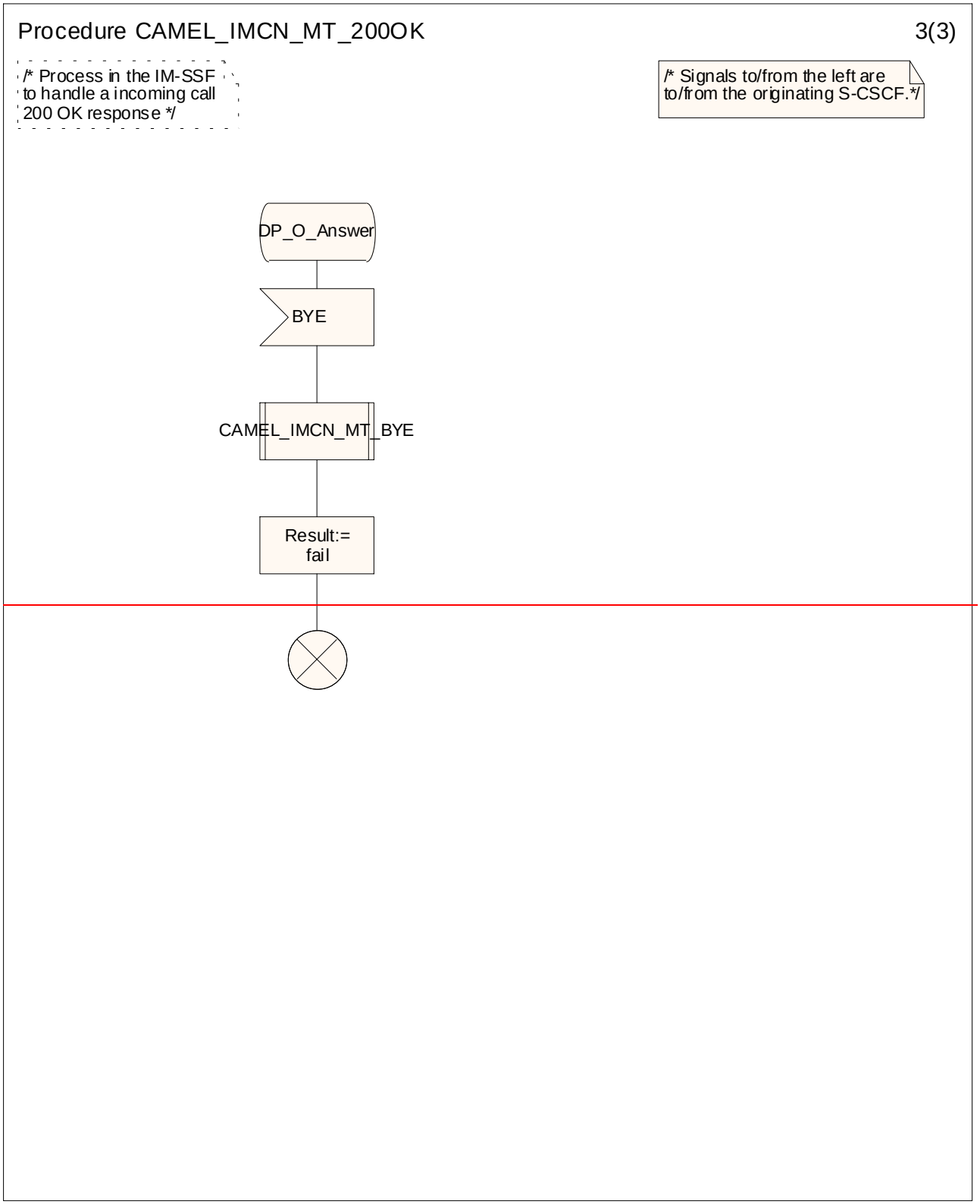


Figure 5.1.4.5c: Procedure CAMEL_IMCN_MT_200OK (sheet 3)

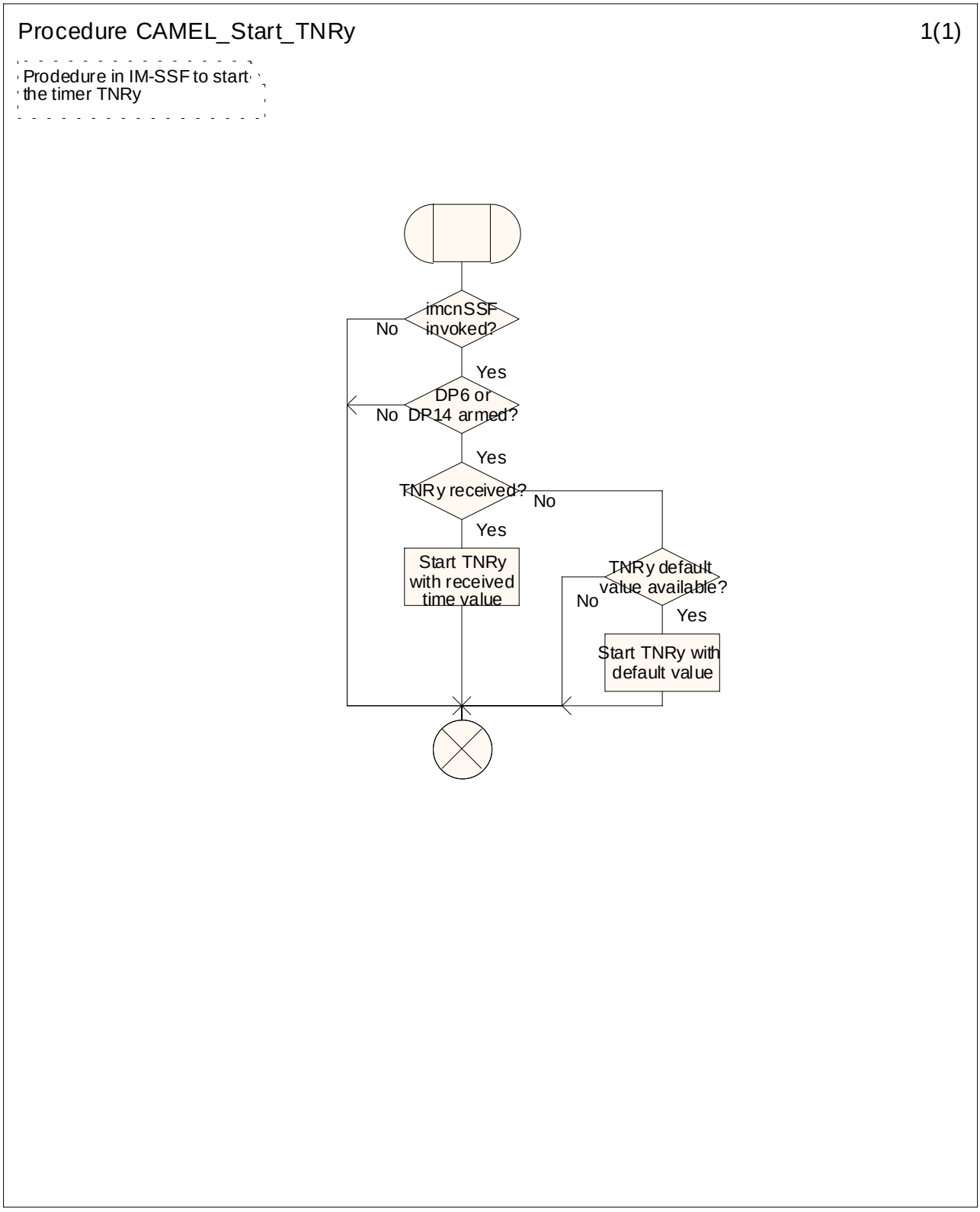


Figure 5.1.4.6a: Procedure CAMEL_Start_TNRy (sheet 1)

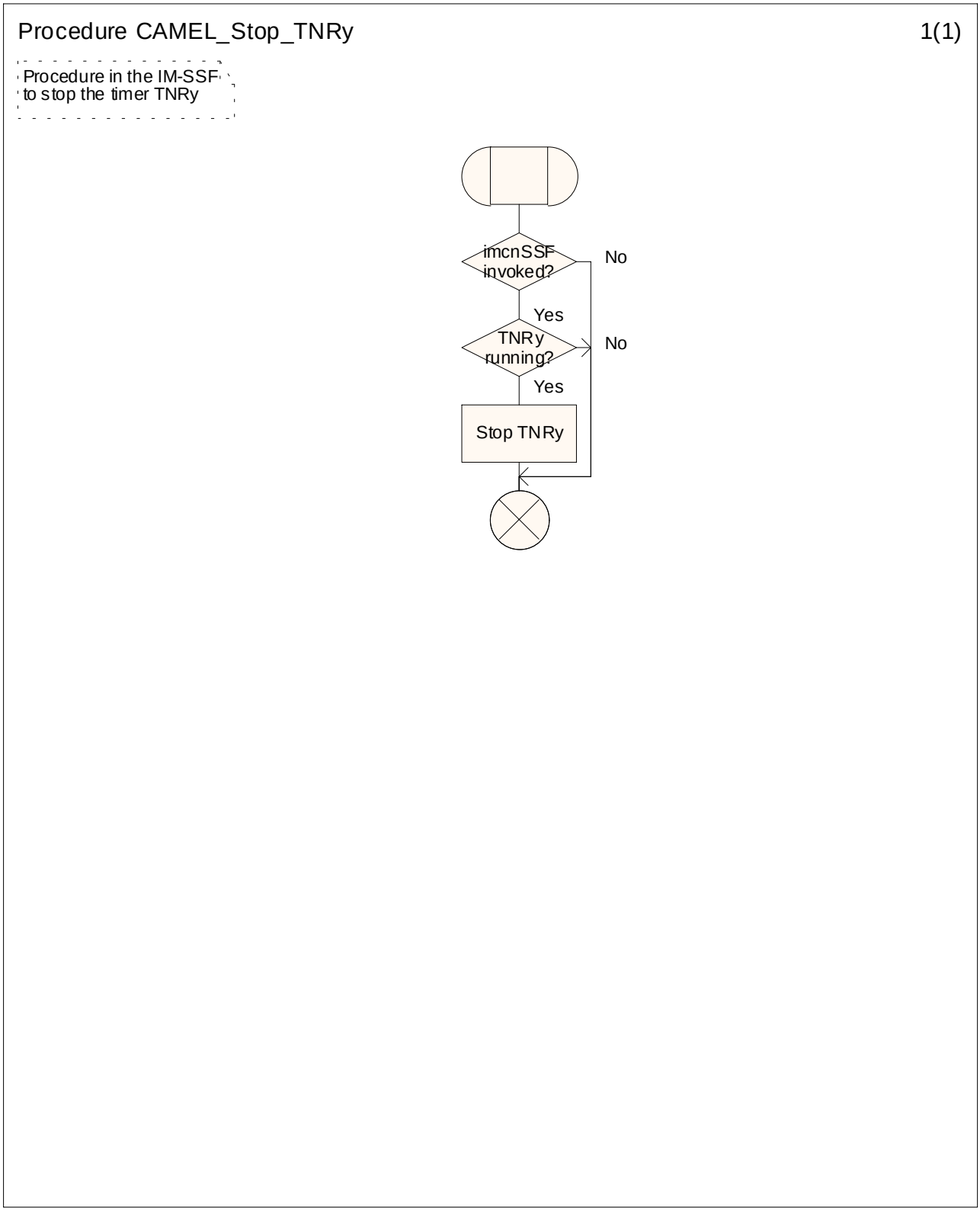


Figure 5.1.4.7a: Procedure CAMEL_Stop_TNRy (sheet 1)