

**3GPP TSG CN Plenary Meeting #15
6th – 8th March 2002. Cheju, Korea.**

NP-020028

Source: TSG CN WG4
Title: CRs on R99 TEI
Agenda item: 7.22
Document for: APPROVAL

Introduction:

This document contains 8 CRs on R99 Work Item "TEI", that have been agreed by TSG CN WG4, and are forwarded to TSG CN Plenary meeting #15 for approval.

Spec	CR	Re	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
23.018	101	1	N4-020261	R99	MSISDN in Provide Roaming Number in case of MSP	F	3.10.0
23.018	092	2	N4-020262	Rel-4	MSISDN in Provide Roaming Number in case of MSP	A	4.5.0
23.018	093	1	N4-020232	Rel-5	MSISDN in Provide Roaming Number in case of MSP	A	5.2.0
23.016	022	2	N4-020252	R99	Clarification on overlapping data	F	3.7.0
23.016	023	2	N4-020253	Rel-4	Clarification on overlapping data	A	4.0.0
23.018	086	2	N4-020233	R99	Handling of CUG calls in non-supporting networks	F	3.10.0
23.018	087	2	N4-020234	Rel-4	Handling of CUG calls in non-supporting networks	A	4.5.0
23.018	088	2	N4-020235	Rel-5	Handling of CUG calls in non-supporting networks	A	5.2.0

CHANGE REQUEST

⌘ **23.016 CR 022** ⌘ rev **2** ⌘ Current version: **3.7.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Clarification on overlapping data		
Source:	⌘ CN4		
Work item code:	⌘ TEI	Date:	⌘ 2002-01-30
Category:	⌘ F (Consensus) Use <u>one</u> 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.		Release: ⌘ R99 Use <u>one</u> 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)

Reason for change:	⌘ In case of features not supported by the VLR/SGSN, the HLR may send data, which may overlap with data previously sent in the same dialogue. The current text of TS 23.016 states that overlapping should be avoided.
Summary of change:	⌘ Addition of text to indicate that in some cases overlapping cannot be avoided.
Consequences if not approved:	⌘ Possible interworking problems.

Clauses affected:	⌘ § 4.3.2		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	
Other comments:	⌘		

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

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- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

4.3.2 Order of information received by the VLR or the SGSN

Normally, the order of information sent and received shall be identical. However, if subscriber data are sent distributed over several messages within a dialogue in exceptional cases the order of these messages may change during transmission.

If the order of information received violates the rules given above, the VLR or the SGSN has the following options:

- the VLR or the SGSN rejects all messages which cannot be processed due to violation of these rules. In this case, checking of missing mandatory parameters is done for each message;
- the VLR or the SGSN processes and accepts all received messages although rules are violated. In this case, checking of missing mandatory parameters is done after the last message i.e. after termination of the dialogue.

Both options may be used in a single implementation. Missing parameters may be detected during the dialogue. For other parameters, the checking is done after termination of the dialogue between the HLR and the VLR or the SGSN.

The VLR or the SGSN is not required to handle received data in a specific order. As a consequence, any overlapping of data within a dialogue should be avoided to keep consistency of data between HLR and VLR or the SGSN. If the VLR or SGSN indicates that it does not support a feature or service, the HLR may send data for a feature or service to replace the unsupported one. If the data of that service or feature had already been sent, this shall not be regarded as overlapping data.

CHANGE REQUEST

⌘ **23.018 CR 101** ⌘ rev **1** ⌘ Current version: **3.10.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ MSISDN in Provide Roaming Number in case of MSP				
Source:	⌘ CN4				
Work item code:	⌘ TEI	Date:	⌘ 29-01-2002		
Category:	⌘ F (Agreed by Consensus) Use <u>one</u> 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 .	Release:	⌘ REL-99 Use <u>one</u> 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)		

Reason for change:	⌘ Suppose that a subscriber is provided with the Multiple Subscriber Profile (MSP) service described in 3GPP TS 23.097, and he has VT-CSI stored in the VLR. The subscriber receives an MT call				
	The VLR should contact the gsmSCF using the MSISDN dialled for this terminating call, but the VLR does not have this MSISDN and can only use the basic one corresponding to the default profile, since the MSISDN may be present in Provide Roaming Number only if it has to be stored in the CDR.				
	Thus in order to provide an accurate MSP service, the VLR needs to receive the MSISDN with Provide Roaming Number.				
Summary of change:	⌘ Add some more conditions for the presence of MSISDN in Provide Roaming Number				
Consequences if not approved:	⌘ When contacted by VLR for a terminating call, the gsmSCF will always return information for the default profile for a subscriber having the MSP service, making the subscription to this service far less valuable for the user.				

Clauses affected:	⌘ 8.3.1				
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘			
	<input type="checkbox"/> Test specifications				
	<input type="checkbox"/> O&M Specifications				
Other comments:	⌘				

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- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

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

8.3.1 Provide Roaming Number

The following information elements are required:

Information element name	Required	Description
IMSI	M	IMSI of the B subscriber (see 3GPP TS 23.003 [5]).
MSC number	M	E.164 number which identifies VMSCB (see 3GPP TS 23.003 [5]).
MSISDN	<u>OC</u>	E.164 number which identifies the B subscriber. <u>It shall be present if the following 3 conditions are all satisfied:</u> 1. <u>the MSISDN is different from the basic MSISDN</u> 2. <u>the subscriber has VT-CSI stored in HLR</u> 3. <u>the VLR has indicated support for CAMEL Phase 3 or later</u> <u>It may be present if the HLR requires it to be included in the call data record.</u>
LMSI	C	Local Mobile Subscriber Identity. Shall be present if the LMSI was sent to HLRB at location updating.
GSM bearer capability	C	Information to define the GSM bearer capability required for the call. For alternate speech/fax, alternate speech/data or speech followed by data calls this information element shall contain two GSM bearer capabilities, as specified in 3GPP TS 24.008. May be present if the HLR can determine the required GSM bearer capability from ISDN compatibility information received in the Send Routeing Info message, or from the MSISDN if a multi-numbering scheme is used; otherwise shall be absent. If the ISDN BC and ISDN LLC IEs are present, the GSM bearer capability IE shall be absent.
ISDN BC	C	ISDN bearer capability. May be present if the HLR received it in the Send Routeing Info message, otherwise shall be absent. If the GSM bearer capability IE is present, the ISDN BC IE shall be absent.
ISDN LLC	C	ISDN lower layer compatibility. May be present if the HLR received it in the Send Routeing Info message, otherwise shall be absent. If the GSM bearer capability IE is present, the ISDN LLC IE shall be absent.
ISDN HLC	C	ISDN higher layer compatibility. Shall be present if the HLR received it in the Send Routeing Info message, otherwise shall be absent.
Alerting Pattern	C	Shall be present if the HLR has determined an alerting category or an alerting level for the MT call configuration; otherwise shall be absent.
Pre-paging supported	C	Shall be present if the HLR has determined that pre-paging is supported in the GMSC and the HLR, otherwise shall be absent.

****** END OF MODIFICATIONS ******

CHANGE REQUEST

⌘ **23.018 CR 093** ⌘ rev **1** ⌘ Current version: **5.2.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ MSISDN in Provide Roaming Number in case of MSP		
Source:	⌘ CN4		
Work item code:	⌘ TEI4	Date:	⌘ 29-01-2002
Category:	⌘ A	Release:	⌘ REL-5
	Use <u>one</u> 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 <u>one</u> 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)

Reason for change:	⌘ Suppose that a subscriber is provided with the Multiple Subscriber Profile (MSP) service described in 3GPP TS 23.097, and he has VT-CSI stored in the VLR. The subscriber receives an MT call The VLR should contact the gsmSCF using the MSISDN dialled for this terminating call, but the VLR does not have this MSISDN and can only use the basic one corresponding to the default profile, since the MSISDN may be present in Provide Roaming Number only if it has to be stored in the CDR. Thus in order to provide an accurate MSP service, the VLR needs to receive the MSISDN with Provide Roaming Number.
Summary of change:	⌘ Add some more conditions for the presence of MSISDN in Provide Roaming Number
Consequences if not approved:	⌘ When contacted by VLR for a terminating call, the gsmSCF will always return information for the default profile for a subscriber having the MSP service, making the subscription to this service far less valuable for the user.

Clauses affected:	⌘ 8.3.1	
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘
Other comments:	⌘	

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- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

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

8.3.1 Provide Roaming Number

The following information elements are required:

Information element name	Required	Description
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MSC number	M	E.164 number which identifies VMSCB (see 3GPP TS 23.003 [5]).
MSISDN	<u>OC</u>	E.164 number which identifies the B subscriber. It shall be present if the following 3 conditions are all satisfied: <ol style="list-style-type: none"> 1. the MSISDN is different from the basic MSISDN 2. the subscriber has VT-CSI stored in HLR 3. the VLR has indicated support for CAMEL Phase 3 or later It may be present if the HLR requires it to be included in the call data record.
LMSI	C	Local Mobile Subscriber Identity. Shall be present if the LMSI was sent to HLRB at location updating.
GSM bearer capability	C	Information to define the GSM bearer capability required for the call. For alternate speech/fax, alternate speech/data or speech followed by data calls this information element shall contain two GSM bearer capabilities, as specified in 3GPP TS 24.008. May be present if the HLR can determine the required GSM bearer capability from ISDN compatibility information received in the Send Routeing Info message, or from the MSISDN if a multi-numbering scheme is used; otherwise shall be absent. If the ISDN BC and ISDN LLC IEs are present, the GSM bearer capability IE shall be absent.
ISDN BC	C	ISDN bearer capability. May be present if the HLR received it in the Send Routeing Info message, otherwise shall be absent. If the GSM bearer capability IE is present, the ISDN BC IE shall be absent.
ISDN LLC	C	ISDN lower layer compatibility. May be present if the HLR received it in the Send Routeing Info message, otherwise shall be absent. If the GSM bearer capability IE is present, the ISDN LLC IE shall be absent.
ISDN HLC	C	ISDN higher layer compatibility. Shall be present if the HLR received it in the Send Routeing Info message, otherwise shall be absent.
Alerting Pattern	C	Shall be present if the HLR has determined an alerting category or an alerting level for the MT call configuration; otherwise shall be absent.
Pre-paging supported	C	Shall be present if the HLR has determined that pre-paging is supported in the GMSC and the HLR, otherwise shall be absent.

**** **END OF MODIFICATIONS** ****

CHANGE REQUEST

⌘ **23.018 CR 092** ⌘ rev **2** ⌘ Current version: **4.5.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ MSISDN in Provide Roaming Number in case of MSP		
Source:	⌘ CN4		
Work item code:	⌘ TEI4	Date:	⌘ 14-01-2002
Category:	⌘ A	Release:	⌘ REL-4
	Use <u>one</u> 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 <u>one</u> 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)

Reason for change:	⌘ Suppose that a subscriber is provided with the Multiple Subscriber Profile (MSP) service described in 3GPP TS 23.097, and he has VT-CSI stored in the VLR. The subscriber receives an MT call The VLR should contact the gsmSCF using the MSISDN dialled for this terminating call, but the VLR does not have this MSISDN and can only use the basic one corresponding to the default profile, since the MSISDN may be present in Provide Roaming Number only if it has to be stored in the CDR. Thus in order to provide an accurate MSP service, the VLR needs to receive the MSISDN with Provide Roaming Number.
Summary of change:	⌘ Add some more conditions for the presence of MSISDN in Provide Roaming Number
Consequences if not approved:	⌘ When contacted by VLR for a terminating call, the gsmSCF will always return information for the default profile for a subscriber having the MSP service, making the subscription to this service far less valuable for the user.

Clauses affected:	⌘ 8.3.1		
Other specs affected:	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	
Other comments:	⌘		

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

8.3.3 Provide Roaming Number

The following information elements are required:

Information element name	Required	Description
IMSI	M	IMSI of the B subscriber (see 3GPP TS 23.003 [5]).
MSC number	M	E.164 number which identifies VMSCB (see 3GPP TS 23.003 [5]).
MSISDN	<u>OC</u>	E.164 number which identifies the B subscriber. <u>It shall be present if the following 3 conditions are all satisfied:</u> <ol style="list-style-type: none"> 1. the MSISDN is different from the basic MSISDN 2. the subscriber has VT-CSI stored in HLR 3. the VLR has indicated support for CAMEL Phase 3 or later <u>It may be present if the HLR requires it to be included in the call data record.</u>
LMSI	C	Local Mobile Subscriber Identity. Shall be present if the LMSI was sent to HLRB at location updating.
GSM bearer capability	C	Information to define the GSM bearer capability required for the call. For alternate speech/fax, alternate speech/data or speech followed by data calls this information element shall contain two GSM bearer capabilities, as specified in 3GPP TS 24.008. May be present if the HLR can determine the required GSM bearer capability from ISDN compatibility information received in the Send Routeing Info message, or from the MSISDN if a multi-numbering scheme is used; otherwise shall be absent. If the ISDN BC and ISDN LLC IEs are present, the GSM bearer capability IE shall be absent.
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ISDN HLC	C	ISDN higher layer compatibility. Shall be present if the HLR received it in the Send Routeing Info message, otherwise shall be absent.
Alerting Pattern	C	Shall be present if the HLR has determined an alerting category or an alerting level for the MT call configuration; otherwise shall be absent.
Pre-paging supported	C	Shall be present if the HLR has determined that pre-paging is supported in the GMSC and the HLR, otherwise shall be absent.

**** **END OF MODIFICATIONS** ****

CHANGE REQUEST

⌘ **23.016 CR 023** ⌘ rev **2** ⌘ Current version: **4.0.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Clarification on overlapping data		
Source:	⌘ CN4		
Work item code:	⌘ TEI4	Date:	⌘ 2002-01-30
Category:	⌘ A	Release:	⌘ Rel-4
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	F (correction)	2	(GSM Phase 2)
	A (corresponds to a correction in an earlier release)	R96	(Release 1996)
	B (addition of feature),	R97	(Release 1997)
	C (functional modification of feature)	R98	(Release 1998)
	D (editorial modification)	R99	(Release 1999)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.	REL-4	(Release 4)
		REL-5	(Release 5)

Reason for change:	⌘ In case of features not supported by the VLR/SGSN, the HLR may send data, which may overlap with data previously sent in the same dialogue. The current text of TS 23.016 states that overlapping should be avoided.
Summary of change:	⌘ Addition of text to indicate that in some cases overlapping cannot be avoided.
Consequences if not approved:	⌘ Possible interworking problems.

Clauses affected:	⌘ § 4.3.2		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications	⌘	
	<input type="checkbox"/> Test specifications		
	<input type="checkbox"/> O&M Specifications		
Other comments:	⌘		

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4.3.2 Order of information received by the VLR or the SGSN

Normally, the order of information sent and received shall be identical. However, if subscriber data are sent distributed over several messages within a dialogue in exceptional cases the order of these messages may change during transmission.

If the order of information received violates the rules given above, the VLR or the SGSN has the following options:

- the VLR or the SGSN rejects all messages which cannot be processed due to violation of these rules. In this case, checking of missing mandatory parameters is done for each message;
- the VLR or the SGSN processes and accepts all received messages although rules are violated. In this case, checking of missing mandatory parameters is done after the last message i.e. after termination of the dialogue.

Both options may be used in a single implementation. Missing parameters may be detected during the dialogue. For other parameters, the checking is done after termination of the dialogue between the HLR and the VLR or the SGSN.

The VLR or the SGSN is not required to handle received data in a specific order. As a consequence, any overlapping of data within a dialogue should be avoided to keep consistency of data between HLR and VLR or the SGSN. If the VLR or SGSN indicates that it does not support a feature or service, the HLR may send data for a feature or service to replace the unsupported one. If the data of that service or feature had already been sent, this shall not be regarded as overlapping data.

CR-Form-v4

CHANGE REQUEST

⌘ **23.018 CR 086** ⌘ rev **2** ⌘ Current version: **3.10.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Handling of CUG calls in non-supporting networks		
Source:	⌘ CN4		
Work item code:	⌘ TEI	Date:	⌘ 31/1/02
Category:	⌘ F Essential correction	Release:	⌘ R99
	Use <u>one</u> 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)		Use <u>one</u> 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)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		

Reason for change:	⌘ TS 23.085 subclause 1.1.4.1 requires that if a GSM switching entity receives a CUG Interlock code in a call establishment message but does not support the CUG service, it shall abort the call, reason for rejection: Incompatible Destination. However if an Interlock and Outgoing Access indicator are received the call shall continue to be established as a normal call with no CUG information. The current handling in TS 23.018 shows that if the HLR does not support CUG, the call will proceed as if no CUG information was present. (The HLR runs the service logic to route a terminating call). Vodafone believe that it is essential to maintain the integrity of CUG handling as specified in TS 23.085. Due to Basic Optimal Routeing implementation, the GMSC might not be in HPLMNB, therefore logic in the HLR is also required for correct CUG support handling.
Summary of change:	⌘ Added a new macro in the GMSC to check CUG support and if the call can go ahead (i.e. if CUG info is present and the Outgoing Access indicator is set, the call can go ahead, otherwise it can not).
Consequences if not approved:	⌘ Possible incorrect handling of CUG calls.

Clauses affected:	⌘ 7.2.1, 8.2.1		
Other specs affected:	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	
Other comments:	⌘		

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

7 Functional requirements of network entities

7.2 Retrieval of routing information for MT call

7.2.1 Functional requirements of GMSC

...

7.2.1.8 Process MT_CF_MSC

Sheet 1: the procedure CAMEL_CF_MSC_INIT is specific to CAMEL; it is specified in 3GPP TS 23.078 [12]. If the MSC does not support CAMEL, processing continues from the "Yes" exit of the test "Result=Pass?".

Sheet 1, sheet 4: the procedure CAMEL_CF_Dialled_Services is specific to CAMEL phase 3 or later; it is specified in 3GPP TS 23.078 [12]. If the MSC does not support CAMEL phase 3 or later, processing continues from the "Pass" exit of the test "Result?".

Sheet 1, sheet 3, sheet 4: the procedure CAMEL_OCH_MSC1 is specific to CAMEL phase 2 or later; it is specified in 3GPP TS 23.078 [12]. If the MSC does not support CAMEL phase 2 or later, processing continues from the "Yes" exit of the test "Result=Reconnect?".

Sheet 1: the procedure MOBILE_NUMBER_PORTABILITY_IN_OQoD is specific to Mobile Number Portability; it is specified in 3GPP TS 23.066 [10].

Sheet 1: the procedure CAMEL_Store_Destination_Address is specific to CAMEL phase 3 or later; it is specified in 3GPP TS 23.078 [12].

Sheet 1, sheet 3: the procedure CAMEL_OCH_MSC_DISC3 is specific to CAMEL phase 1; it is specified in 3GPP TS 23.078 [12].

Sheet 1, sheet 3: the procedure CAMEL_OCH_MSC_DISC4 is specific to CAMEL Phase 2 or later; it is specified in 3GPP TS 23.078 [12].

Sheet 2: the procedures CAMEL_Start_TNRy and CAMEL_Stop_TNRy are specific to CAMEL phase 2 or later; they are specified in 3GPP TS 23.078 [12].

Sheet 2: the procedure CAMEL_CF_MSC_ANSWER is specific to CAMEL; it is specified in 3GPP TS 23.078 [12]. If the MSC does not support CAMEL, processing continues from the "Yes" exit of the test "Result=Pass?".

Sheet 2: the procedure UUS_MSC_Clear_UUS is specific to UUS; it is specified in 3GPP TS 23.087 [20].

Sheet 3: the procedure CAMEL_Stop_TNRy is specific to CAMEL phase 2 or later; it is specified in 3GPP TS 23.078 [12].

Sheet 3: the processing in the branch beginning with the Int_O_Release input will occur only if the MSC supports CAMEL.

Sheet 4: the input signal TNRy expired and all the subsequent processing are specific to CAMEL phase 2 or later, and will occur only if the GMSC supports CAMEL phase 2 or later. The procedure CAMEL_OCH_MSC2 is specified in 3GPP TS 23.078 [12].

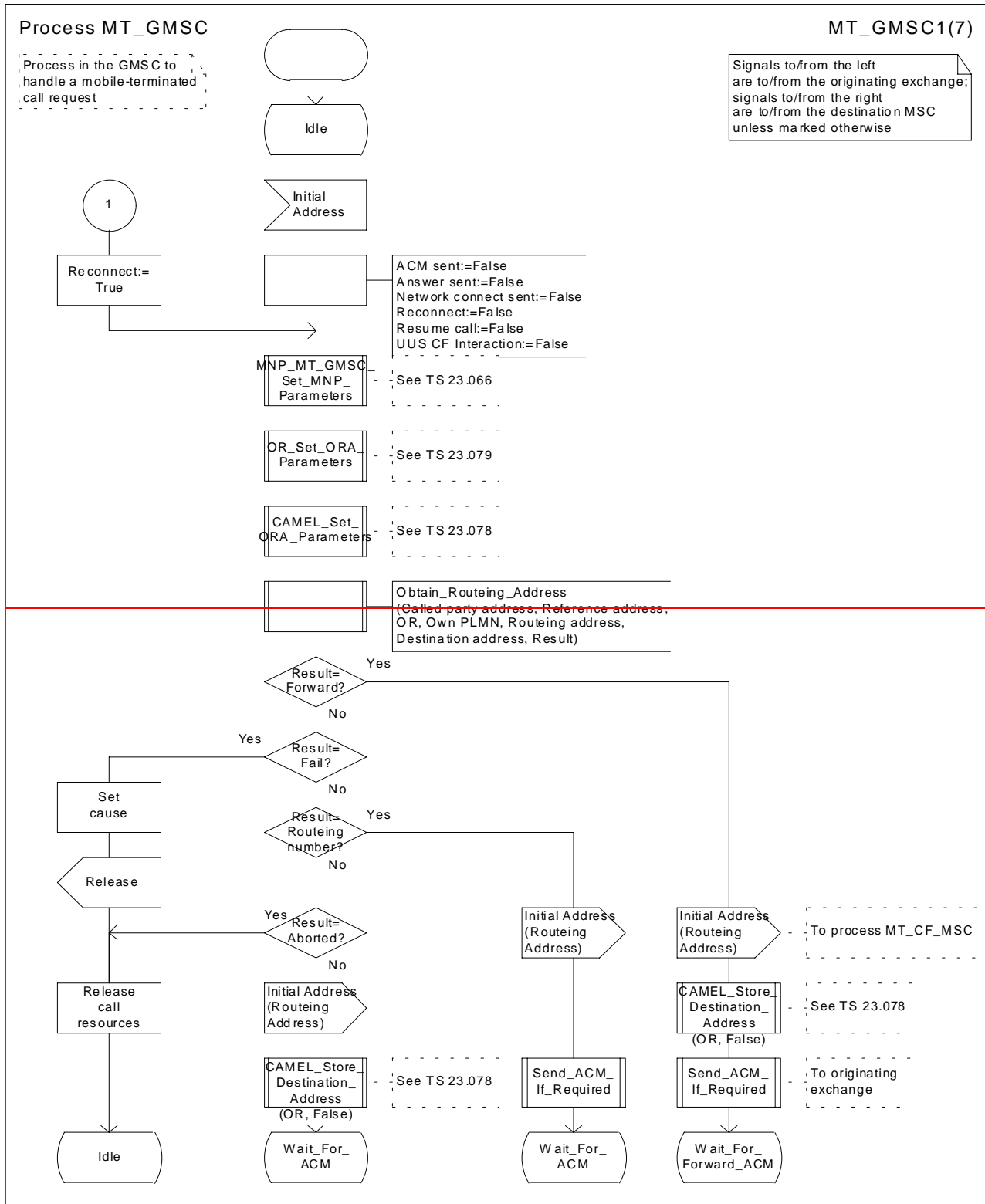
Sheet 5: the procedure CAMEL_OCH_MSC_DISC1 is specific to CAMEL; it is specified in 3GPP TS 23.078 [12]. If the MSC does not support CAMEL, processing continues from the "No" exit of the test "Result=CAMEL handling?".

Sheet 5: the procedure CAMEL_OCH_MSC_DISC2 is specific to CAMEL; it is specified in 3GPP TS 23.078 [12]. If the MSC does not support CAMEL, processing continues from the "No" exit of the test "Result=Reconnect?".

Sheet 5: the processing in the branch beginning with the Int_O_Release input will occur only if the MSC supports CAMEL.

Sheet 5: after the process MT_CF_MSC has sent an IAM to the forwarded-to exchange, it acts as a relay for messages received from the parent process and the forwarded-to exchange. Any message other than Address Complete, Connect, Answer or Release causes no change of state in the process MT_GMSC

[7.2.1.9 Macro CUG Support Check GMSC](#)



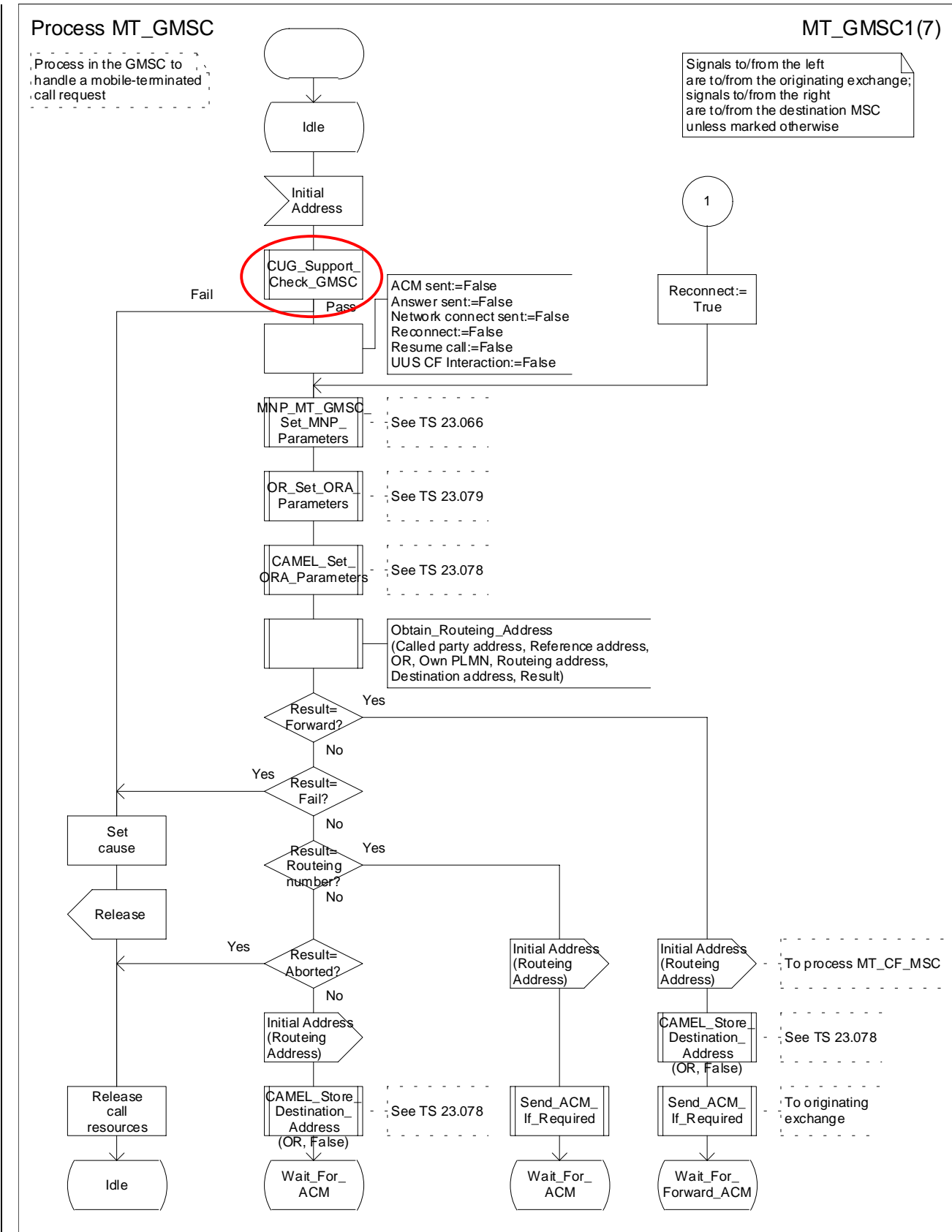


Figure 35a: Process MT_GMSC (sheet 1)

...

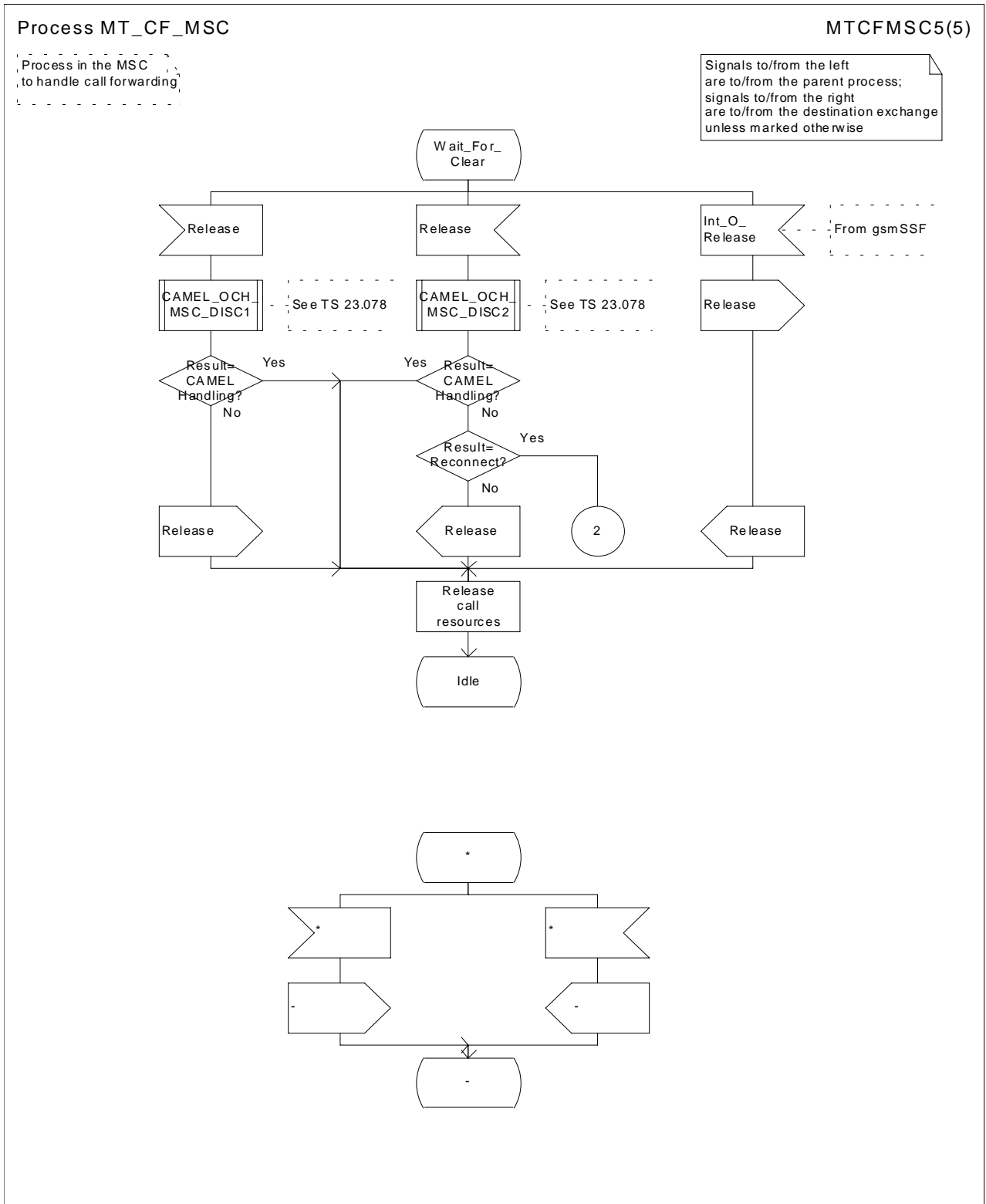


Figure 42e: Process MT_CF_MSC (sheet 5)

Macrodefinition CUG_Support_Check_GMSC

CUG_SC1(1)

Macro to check support of CUG in GMSC, if needed, and check if call can continue.

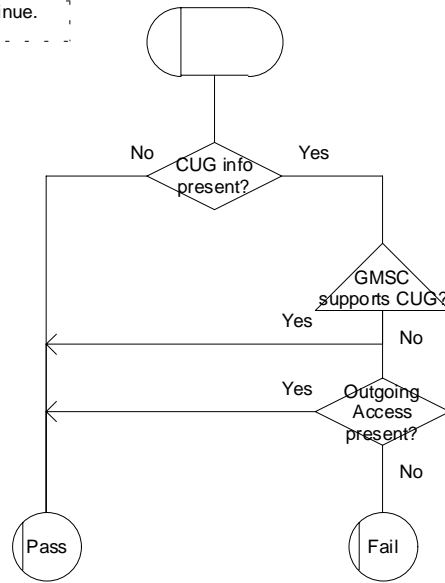


Figure X: Macro CUG Support Check GMSC

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

7.2.2 Functional requirements of HLR

...

7.2.2.3 Procedure Subscription_Check_HLR

It is an implementation option to carry out the check for operator determined barring of incoming calls before the check on provisioning of the requested basic service.

The negative response "Call barred" indicates whether the reason is operator determined barring or supplementary service barring, according to the result returned by the procedure Check_IC_Barring.

~~The procedure IC_CUG_Check is specific to CUG. If the HLR does not support GUG, processing continues from the "Yes" exit of the test "Result=Call allowed?".~~

The negative response "CUG reject" indicates whether the reason is:

- Incoming calls barred within CUG;
- Requested basic service violates CUG constraints;
- Subscriber not member of CUG;

according to the cause returned by the procedure IC_CUG_Check.

...

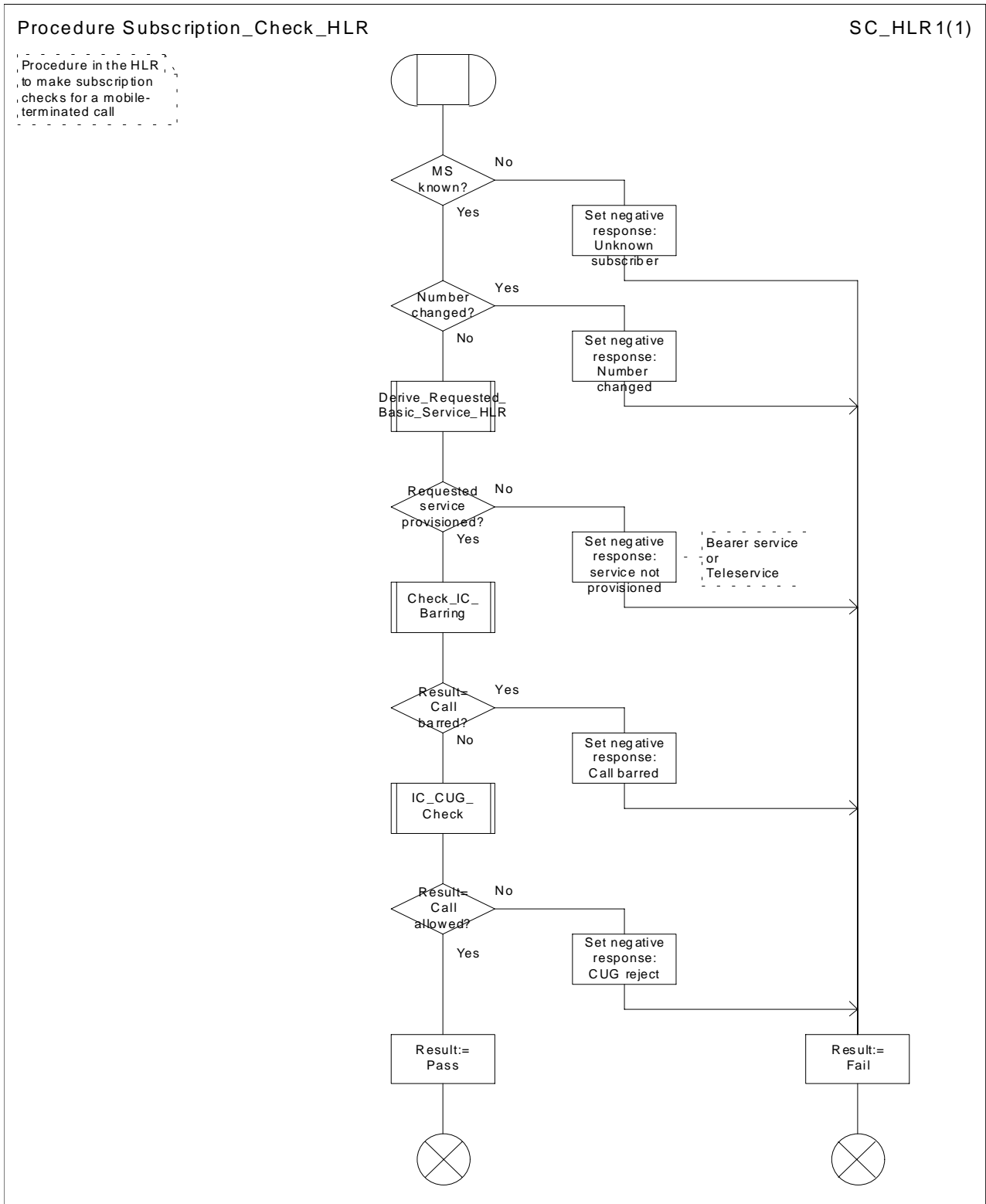


Figure 45: Procedure Subscription_Check_HLR

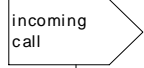
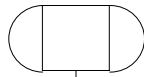
...

Procedure IC_CUG_Check

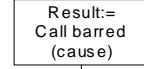
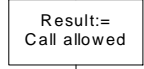
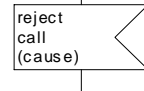
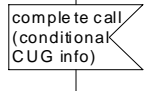
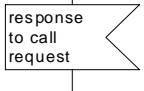
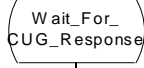
IC_CUG1(1)

Procedure to carry out CUG authorisation check for an incoming (MT) call

Signals to/from the right are to/from the process CUG_MAF015



To process CUG_MAF015



Procedure IC_CUG_Check

IC_CUG1(1)

Procedure to carry out CUG authorisation check for an incoming (MT) call

Signals to/from the right are to/from the process CUG_MAF015

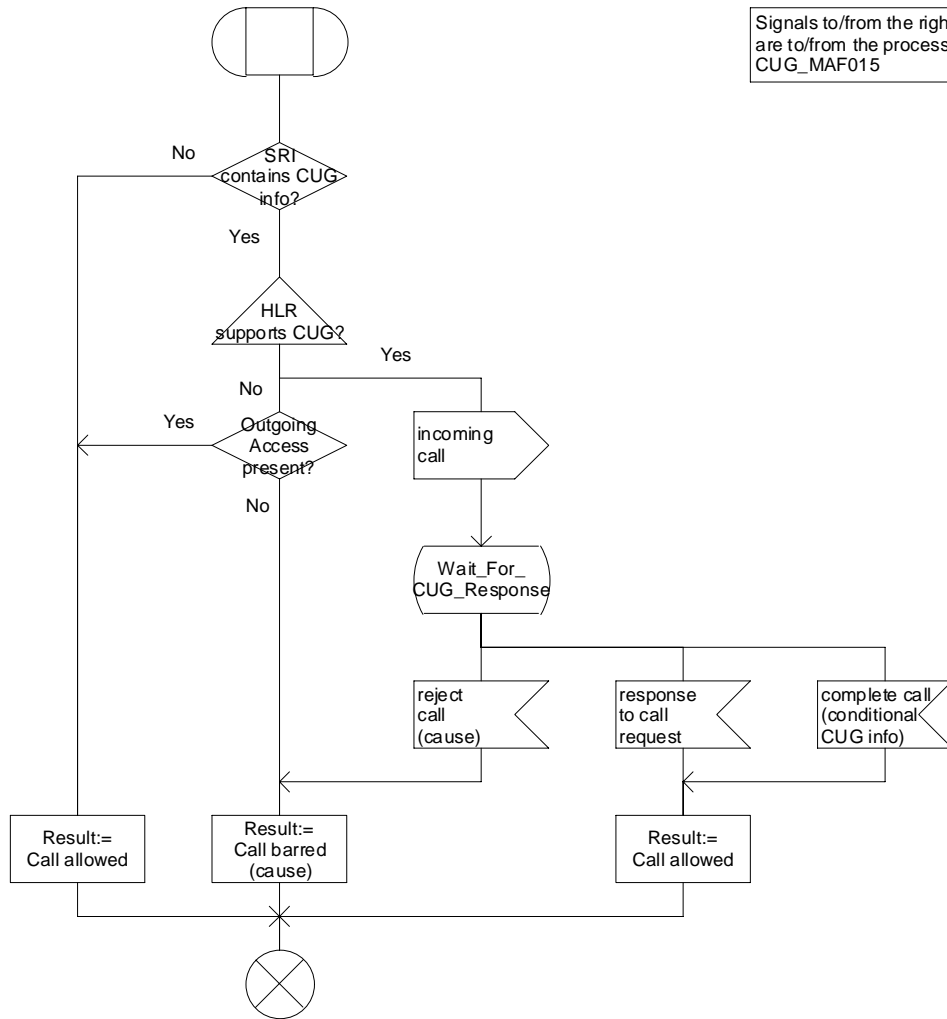


Figure 51: Procedure IC_CUG_Check

**** Last Modified Section ****
--

8 Contents of messages

8.2 Messages on the C interface (MSC-HLR)

8.2.1 Send Routeing Info

The following information elements are required:

Information element name	Required	Description
MSISDN	M	MSISDN of the B subscriber (see 3GPP TS 23.003 [5]).
Alerting Pattern	C	Shall be present if received in a Connect operation from the gsmSCF; otherwise shall be absent.
CUG interlock	C	For the definition of this IE, see 3GPP TS 23.085 [18]. Shall be present if the GMSC received it in the IAM and the HPLMN supports CUG , otherwise shall be absent.
CUG outgoing access	C	For the definition of this IE, see 3GPP TS 23.085 [18]. Shall be present if the GMSC received it in the IAM and the HPLMN supports CUG , otherwise shall be absent.
Number of forwarding	C	Number of times the incoming call has already been forwarded. Shall be present if it was received in the IAM; otherwise shall be absent.
ISDN BC	C	ISDN bearer capability. Shall be present if the GMSC received it in the IAM, otherwise shall be absent.
ISDN LLC	C	ISDN lower layer compatibility. Shall be present if the GMSC received it in the IAM, otherwise shall be absent.
ISDN HLC	C	ISDN higher layer compatibility. Shall be present if the GMSC received it in the IAM, otherwise shall be absent.
Pre-paging supported	C	Shall be present if the GMSC supports pre-paging, otherwise shall be absent.

CR-Form-v4

CHANGE REQUEST

⌘ **23.018 CR 087** ⌘ rev **2** ⌘ Current version: **4.5.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Handling of CUG calls in non-supporting networks		
Source:	⌘ CN4		
Work item code:	⌘ TEI	Date:	⌘ 31/1/02
Category:	⌘ A	Release:	⌘ REL-4
Use <u>one</u> 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)		Use <u>one</u> 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)	
Detailed explanations of the above categories can be found in 3GPP TR 21.900.			

Reason for change:	⌘ TS 23.085 subclause 1.1.4.1 requires that if a GSM switching entity receives a CUG Interlock code in a call establishment message but does not support the CUG service, it shall abort the call, reason for rejection: Incompatible Destination. However if an Interlock and Outgoing Access indicator are received the call shall continue to be established as a normal call with no CUG information. The current handling in TS 23.018 shows that if the HLR does not support CUG, the call will proceed as if no CUG information was present. (The HLR runs the service logic to route a terminating call). Vodafone believe that it is essential to maintain the integrity of CUG handling as specified in TS 23.085. Due to Basic Optimal Routeing implementation, the GMSC might not be in HPLMNB, therefore logic in the HLR is also required for correct CUG support handling.
Summary of change:	⌘ Added a new macro in the GMSC to check CUG support and if the call can go ahead (i.e. if CUG info is present and the Outgoing Access indicator is set, the call can go ahead, otherwise it can not).
Consequences if not approved:	⌘ Possible incorrect handling of CUG calls.

Clauses affected:	⌘ 7.2.1, 8.2.1		
Other specs affected:	<input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	
Other comments:	⌘		

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

7 Functional requirements of network entities

7.2 Retrieval of routing information for MT call

7.2.1 Functional requirements of GMSC

...

7.2.1.8 Process MT_CF_MSC

Sheet 1: the procedure CAMEL_CF_MSC_INIT is specific to CAMEL; it is specified in 3GPP TS 23.078 [12]. If the MSC does not support CAMEL, processing continues from the "Yes" exit of the test "Result=Pass?".

Sheet 1, sheet 4: the procedure CAMEL_CF_Dialled_Services is specific to CAMEL phase 3 or later; it is specified in 3GPP TS 23.078 [12]. If the MSC does not support CAMEL phase 3 or later, processing continues from the "Pass" exit of the test "Result?".

Sheet 1, sheet 3, sheet 4: the procedure CAMEL_OCH_MSC1 is specific to CAMEL phase 2 or later; it is specified in 3GPP TS 23.078 [12]. If the MSC does not support CAMEL phase 2 or later, processing continues from the "Yes" exit of the test "Result=Reconnect?".

Sheet 1: the procedure MOBILE_NUMBER_PORTABILITY_IN_OQoD is specific to Mobile Number Portability; it is specified in 3GPP TS 23.066 [10].

Sheet 1: the procedure CAMEL_Store_Destination_Address is specific to CAMEL phase 3 or later; it is specified in 3GPP TS 23.078 [12].

Sheet 1, sheet 3: the procedure CAMEL_OCH_MSC_DISC3 is specific to CAMEL phase 1; it is specified in 3GPP TS 23.078 [12].

Sheet 1, sheet 3: the procedure CAMEL_OCH_MSC_DISC4 is specific to CAMEL Phase 2 or later; it is specified in 3GPP TS 23.078 [12].

Sheet 2: the procedures CAMEL_Start_TNRy and CAMEL_Stop_TNRy are specific to CAMEL phase 2 or later; they are specified in 3GPP TS 23.078 [12].

Sheet 2: the procedure CAMEL_CF_MSC_ANSWER is specific to CAMEL; it is specified in 3GPP TS 23.078 [12]. If the MSC does not support CAMEL, processing continues from the "Yes" exit of the test "Result=Pass?".

Sheet 2: the procedure UUS_MSC_Clear_UUS is specific to UUS; it is specified in 3GPP TS 23.087 [20].

Sheet 3: the procedure CAMEL_Stop_TNRy is specific to CAMEL phase 2 or later; it is specified in 3GPP TS 23.078 [12].

Sheet 3: the processing in the branch beginning with the Int_O_Release input will occur only if the MSC supports CAMEL.

Sheet 4: the input signal TNRy expired and all the subsequent processing are specific to CAMEL phase 2 or later, and will occur only if the GMSC supports CAMEL phase 2 or later. The procedure CAMEL_OCH_MSC2 is specified in 3GPP TS 23.078 [12].

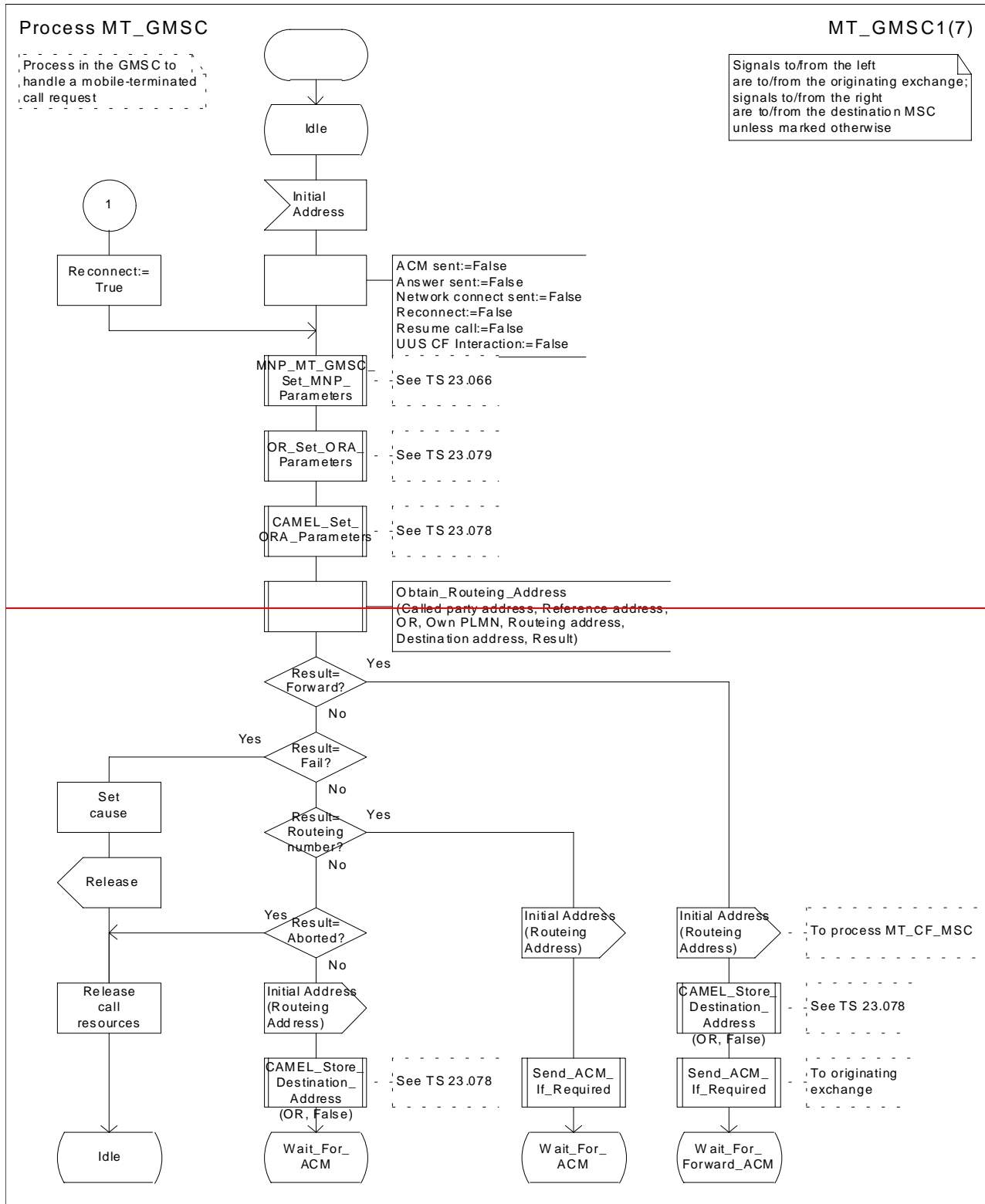
Sheet 5: the procedure CAMEL_OCH_MSC_DISC1 is specific to CAMEL; it is specified in 3GPP TS 23.078 [12]. If the MSC does not support CAMEL, processing continues from the "No" exit of the test "Result=CAMEL handling?".

Sheet 5: the procedure CAMEL_OCH_MSC_DISC2 is specific to CAMEL; it is specified in 3GPP TS 23.078 [12]. If the MSC does not support CAMEL, processing continues from the "No" exit of the test "Result=Reconnect?".

Sheet 5: the processing in the branch beginning with the Int_O_Release input will occur only if the MSC supports CAMEL.

Sheet 5: after the process MT_CF_MSC has sent an IAM to the forwarded-to exchange, it acts as a relay for messages received from the parent process and the forwarded-to exchange. Any message other than Address Complete, Connect, Answer or Release causes no change of state in the process MT_GMSC.

[7.2.1.9 Macro CUG Support Check GMSC](#)



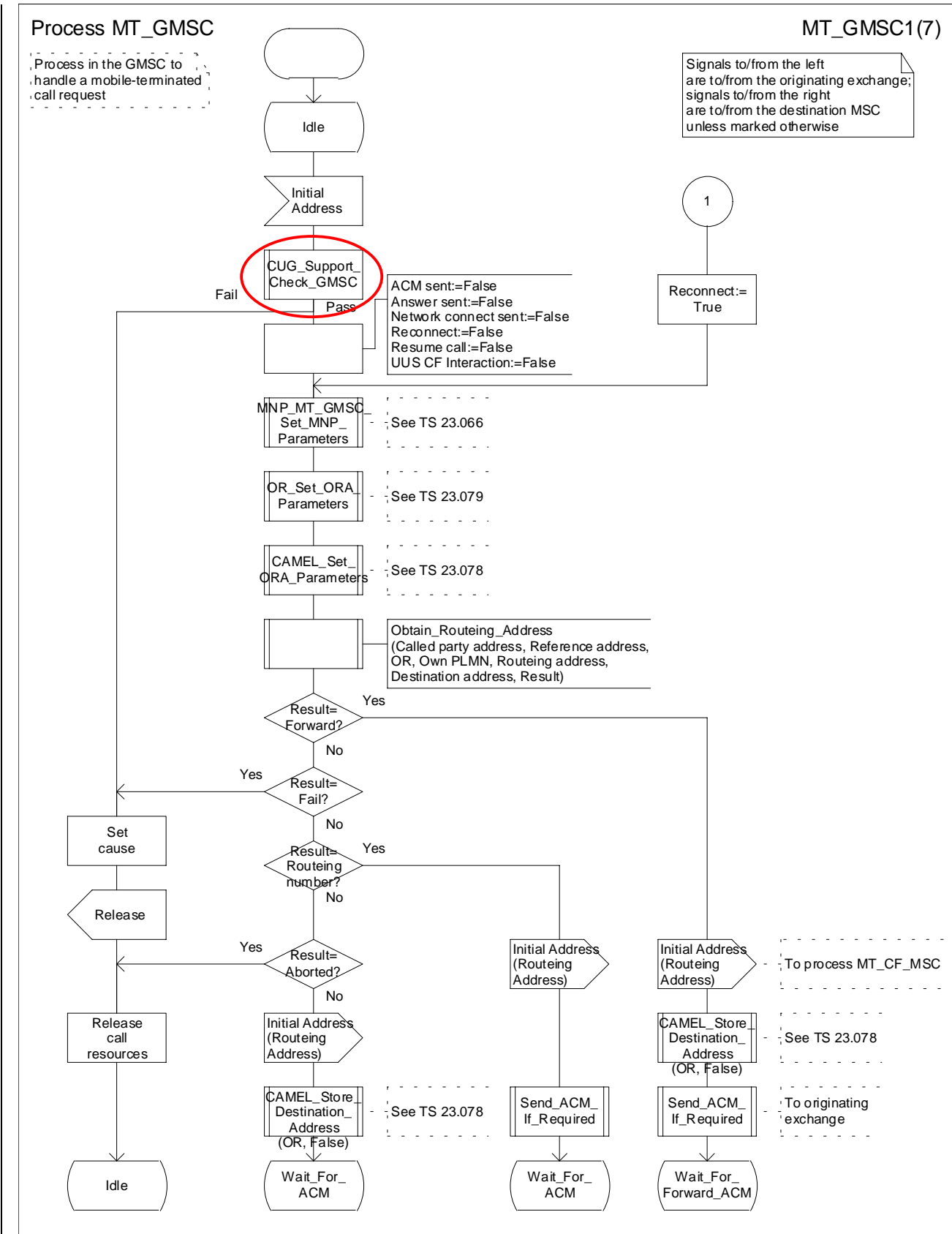


Figure 36a: Process MT_GMSC (sheet 1)

...

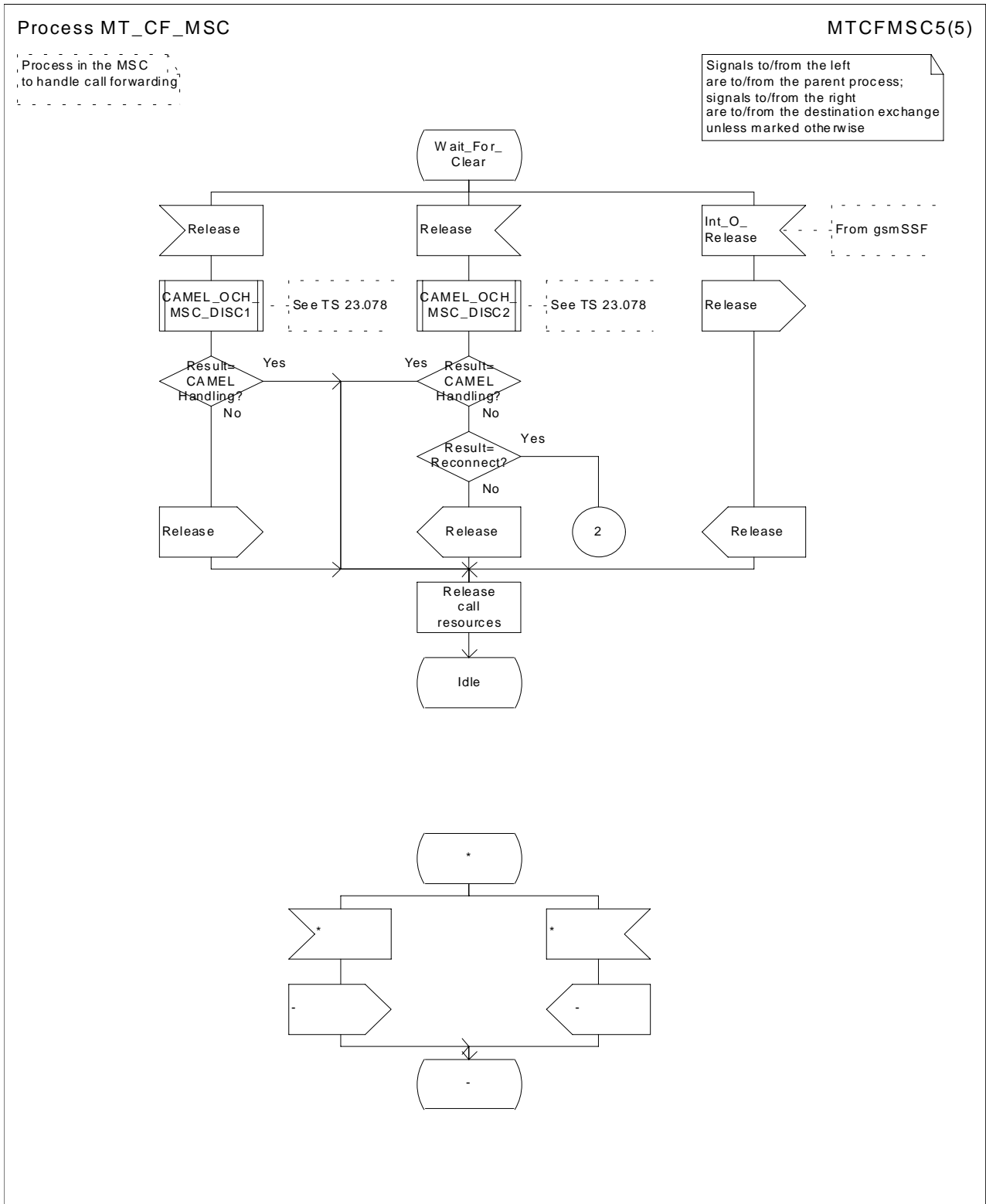


Figure 43e: Process MT_CF_MSC (sheet 5)

Macrodefinition CUG_Support_Check_GMSC

CUG_SC1(1)

Macro to check support of CUG in GMSC, if needed, and check if call can continue.

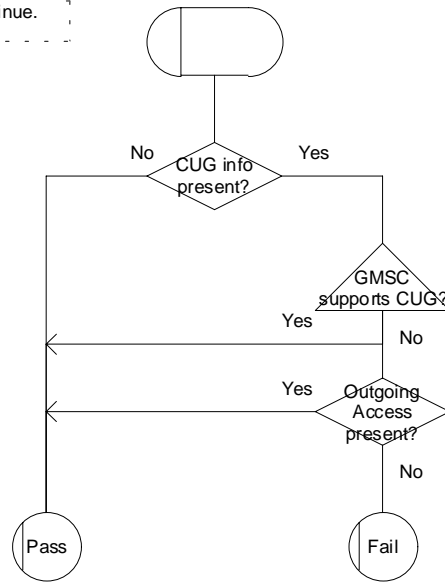


Figure X: Macro CUG Support Check GMSC

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

7.2.2 Functional requirements of HLR

...

7.2.2.3 Procedure Subscription_Check_HLR

It is an implementation option to carry out the check for operator determined barring of incoming calls before the check on provisioning of the requested basic service.

The negative response "Call barred" indicates whether the reason is operator determined barring or supplementary service barring, according to the result returned by the procedure Check_IC_Barring.

~~The procedure IC_CUG_Check is specific to CUG. If the HLR does not support GUG, processing continues from the "Yes" exit of the test "Result=Call allowed?".~~

The negative response "CUG reject" indicates whether the reason is:

- Incoming calls barred within CUG;
- Requested basic service violates CUG constraints;
- Subscriber not member of CUG;

according to the cause returned by the procedure IC_CUG_Check.

...

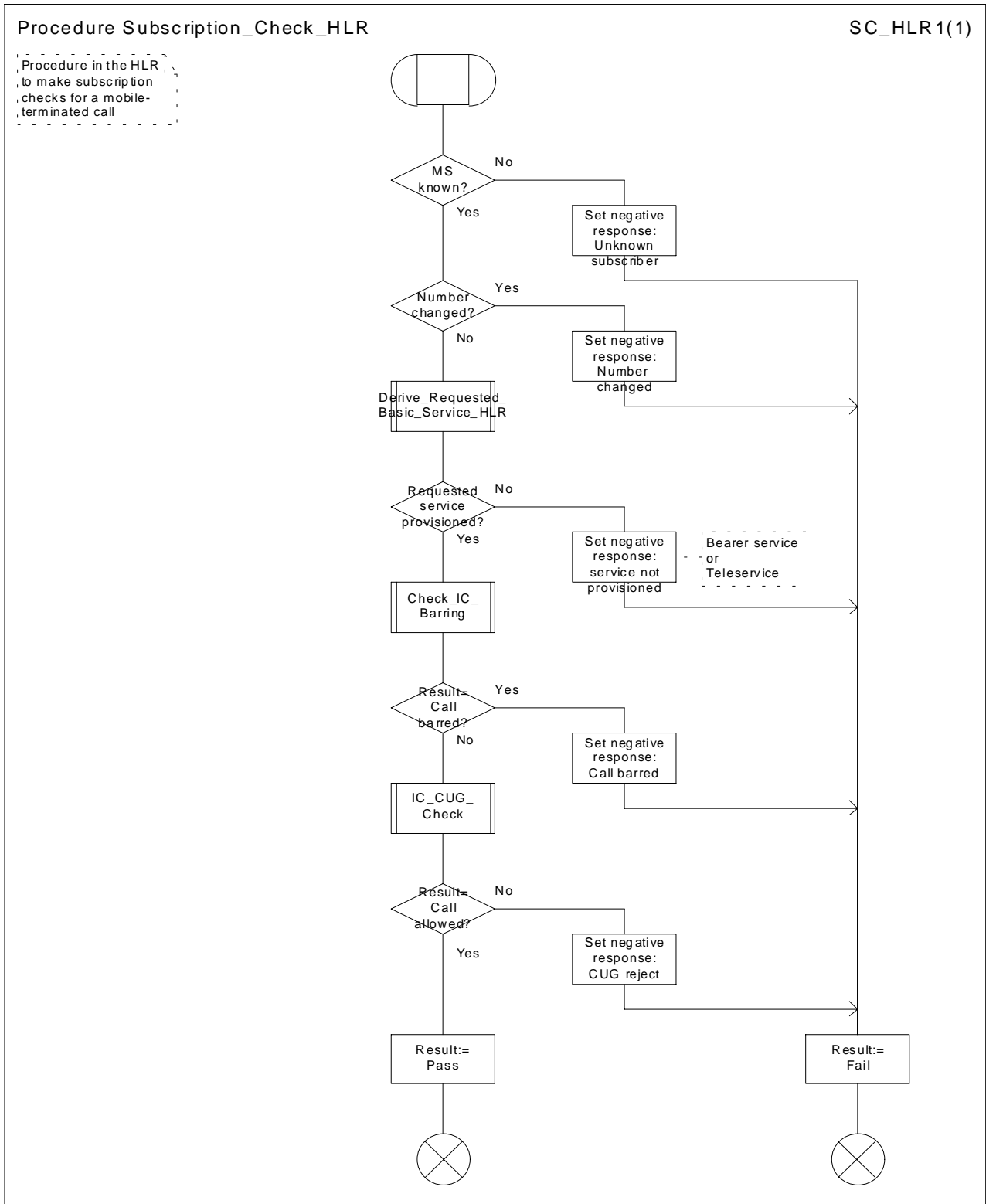


Figure 46: Procedure Subscription_Check_HLR

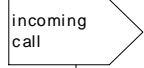
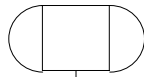
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Procedure IC_CUG_Check

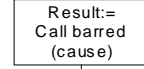
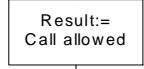
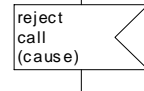
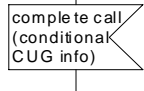
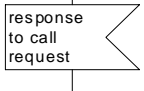
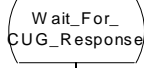
IC_CUG1(1)

Procedure to carry out CUG authorisation check for an incoming (MT) call

Signals to/from the right are to/from the process CUG_MAF015



To process CUG_MAF015



Procedure IC_CUG_Check

IC_CUG1(1)

Procedure to carry out CUG authorisation check for an incoming (MT) call

Signals to/from the right are to/from the process CUG_MAF015

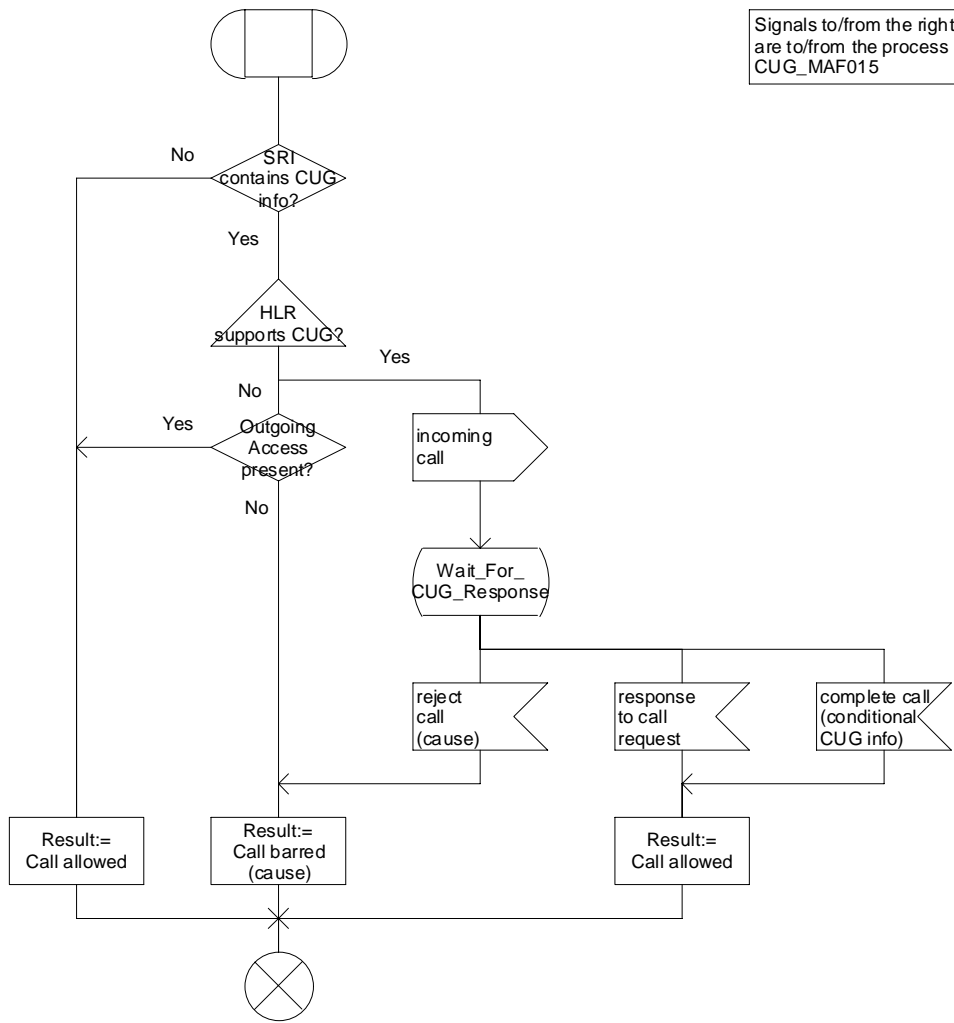


Figure 52: Procedure IC_CUG_Check

**** Last Modified Section ****
--

8 Contents of messages

8.2 Messages on the C interface (MSC-HLR)

8.2.1 Send Routeing Info

The following information elements are required:

Information element name	Required	Description
MSISDN	M	MSISDN of the B subscriber (see 3GPP TS 23.003 [5]).
Alerting Pattern	C	Shall be present if received in a Connect operation from the gsmSCF; otherwise shall be absent.
CUG interlock	C	For the definition of this IE, see 3GPP TS 23.085 [18]. Shall be present if the GMSC received it in the IAM and the GMSC supports CUG , otherwise shall be absent.
CUG outgoing access	C	For the definition of this IE, see 3GPP TS 23.085 [18]. Shall be present if the GMSC received it in the IAM and the GMSC supports CUG , otherwise shall be absent.
Number of forwarding	C	Number of times the incoming call has already been forwarded. Shall be present if it was received in the IAM; otherwise shall be absent.
ISDN BC	C	ISDN bearer capability. Shall be present if the GMSC received it in the IAM, otherwise shall be absent.
ISDN LLC	C	ISDN lower layer compatibility. Shall be present if the GMSC received it in the IAM, otherwise shall be absent.
ISDN HLC	C	ISDN higher layer compatibility. Shall be present if the GMSC received it in the IAM, otherwise shall be absent.
Pre-paging supported	C	Shall be present if the GMSC supports pre-paging, otherwise shall be absent.

CHANGE REQUEST

⌘ **23.018 CR 088** ⌘ rev **2** ⌘ Current version: **5.2.0** ⌘

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

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ Handling of CUG calls in non-supporting networks		
Source:	⌘ CN4		
Work item code:	⌘ TEI	Date:	⌘ 31/1/02
Category:	⌘ A	Release:	⌘ REL-5
Use <u>one</u> 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)		Use <u>one</u> 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)	
Detailed explanations of the above categories can be found in 3GPP TR 21.900.			

Reason for change:	⌘ TS 23.085 subclause 1.1.4.1 requires that if a GSM switching entity receives a CUG Interlock code in a call establishment message but does not support the CUG service, it shall abort the call, reason for rejection: Incompatible Destination. However if an Interlock and Outgoing Access indicator are received the call shall continue to be established as a normal call with no CUG information. The current handling in TS 23.018 shows that if the HLR does not support CUG, the call will proceed as if no CUG information was present. (The HLR runs the service logic to route a terminating call). Vodafone believe that it is essential to maintain the integrity of CUG handling as specified in TS 23.085. Due to Basic Optimal Routeing implementation, the GMSC might not be in HPLMNB, therefore logic in the HLR is also required for correct CUG support handling.
Summary of change:	⌘ Added a new macro in the GMSC and enhanced procedure IC_CUG_Check in the HLR to check CUG support and if the call can go ahead (i.e. if CUG info is present and the Outgoing Access indicator is set, the call can go ahead, otherwise it can not).
Consequences if not approved:	⌘ Possible incorrect handling of CUG calls.

Clauses affected:	⌘ 7.2.1, 7.2.2, 8.2.1		
Other specs affected:	⌘ <input type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘	
Other comments:	⌘		

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

7 Functional requirements of network entities

7.2 Retrieval of routing information for MT call

7.2.1 Functional requirements of GMSC

...

7.2.1.8 Process MT_CF_MSC

Sheet 1: the procedure CAMEL_CF_MSC_INIT is specific to CAMEL; it is specified in 3GPP TS 23.078 [12]. If the MSC does not support CAMEL, processing continues from the "Yes" exit of the test "Result=Pass?".

Sheet 1, sheet 4: the procedure CAMEL_CF_Dialled_Services is specific to CAMEL phase 3 or later; it is specified in 3GPP TS 23.078 [12]. If the MSC does not support CAMEL phase 3 or later, processing continues from the "Pass" exit of the test "Result?".

Sheet 1, sheet 3, sheet 4: the procedure CAMEL_OCH_MSC1 is specific to CAMEL phase 2 or later; it is specified in 3GPP TS 23.078 [12]. If the MSC does not support CAMEL phase 2 or later, processing continues from the "Yes" exit of the test "Result=Reconnect?".

Sheet 1: the procedure MOBILE_NUMBER_PORTABILITY_IN_OQoD is specific to Mobile Number Portability; it is specified in 3GPP TS 23.066 [10].

Sheet 1: the procedure CAMEL_Store_Destination_Address is specific to CAMEL phase 3 or later; it is specified in 3GPP TS 23.078 [12].

Sheet 1, sheet 3: the procedure CAMEL_OCH_MSC_DISC3 is specific to CAMEL phase 1; it is specified in 3GPP TS 23.078 [12].

Sheet 1, sheet 3: the procedure CAMEL_OCH_MSC_DISC4 is specific to CAMEL Phase 2 or later; it is specified in 3GPP TS 23.078 [12].

Sheet 2: the procedures CAMEL_Start_TNRy and CAMEL_Stop_TNRy are specific to CAMEL phase 2 or later; they are specified in 3GPP TS 23.078 [12].

Sheet 2: the procedure CAMEL_CF_MSC_ANSWER is specific to CAMEL; it is specified in 3GPP TS 23.078 [12]. If the MSC does not support CAMEL, processing continues from the "Yes" exit of the test "Result=Pass?".

Sheet 2: the procedure UUS_MSC_Clear_UUS is specific to UUS; it is specified in 3GPP TS 23.087 [20].

Sheet 3: the procedure CAMEL_Stop_TNRy is specific to CAMEL phase 2 or later; it is specified in 3GPP TS 23.078 [12].

Sheet 3: the processing in the branch beginning with the Int_O_Release input will occur only if the MSC supports CAMEL.

Sheet 4: the input signal TNRy expired and all the subsequent processing are specific to CAMEL phase 2 or later, and will occur only if the GMSC supports CAMEL phase 2 or later. The procedure CAMEL_OCH_MSC2 is specified in 3GPP TS 23.078 [12].

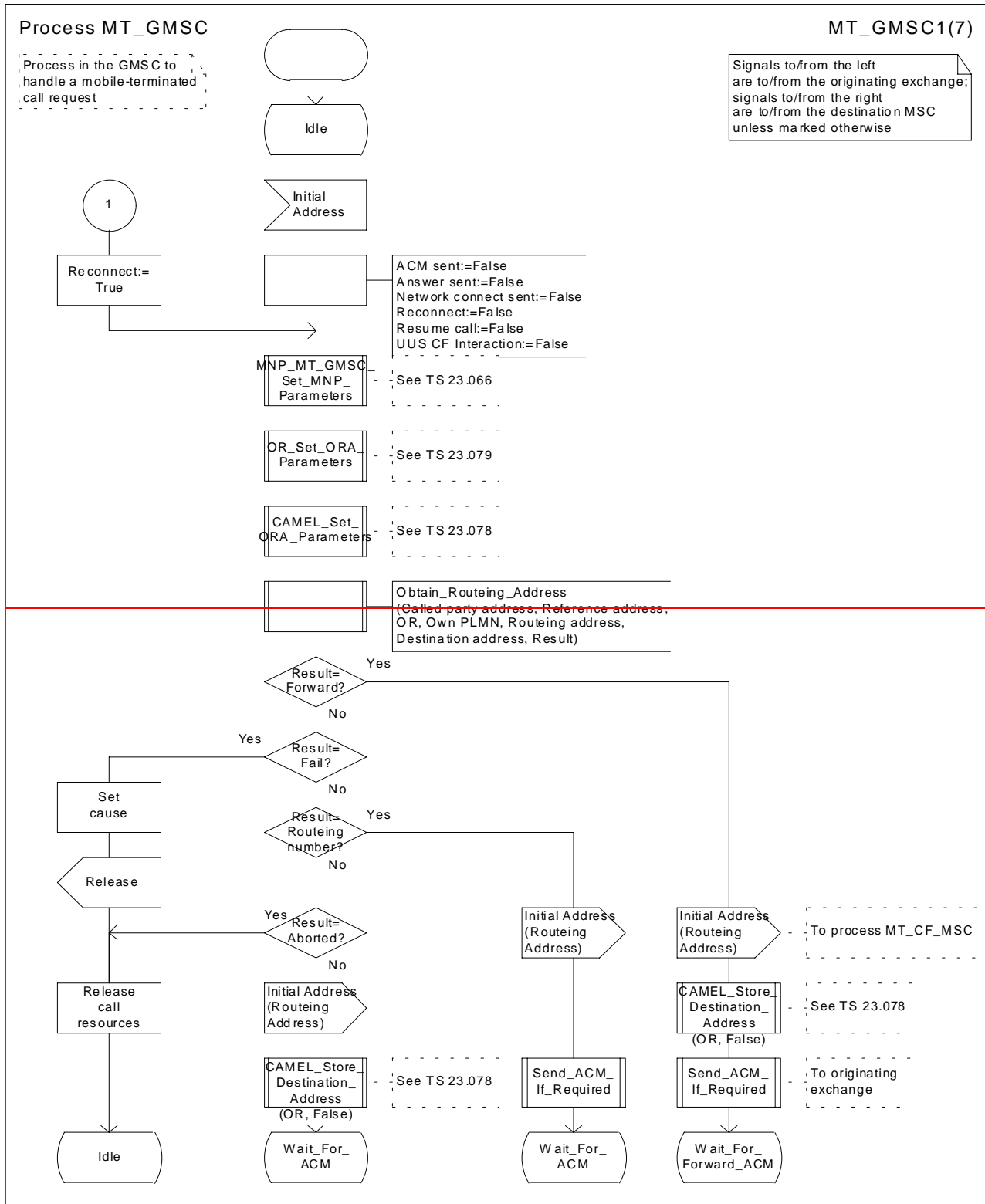
Sheet 5: the procedure CAMEL_OCH_MSC_DISC1 is specific to CAMEL; it is specified in 3GPP TS 23.078 [12]. If the MSC does not support CAMEL, processing continues from the "No" exit of the test "Result=CAMEL handling?".

Sheet 5: the procedure CAMEL_OCH_MSC_DISC2 is specific to CAMEL; it is specified in 3GPP TS 23.078 [12]. If the MSC does not support CAMEL, processing continues from the "No" exit of the test "Result=Reconnect?".

Sheet 5: the processing in the branch beginning with the Int_O_Release input will occur only if the MSC supports CAMEL.

Sheet 5: after the process MT_CF_MSC has sent an IAM to the forwarded-to exchange, it acts as a relay for messages received from the parent process and the forwarded-to exchange. Any message other than Address Complete, Connect, Answer or Release causes no change of state in the process MT_GMSC.

[7.2.1.9 Macro CUG Support Check GMSC](#)



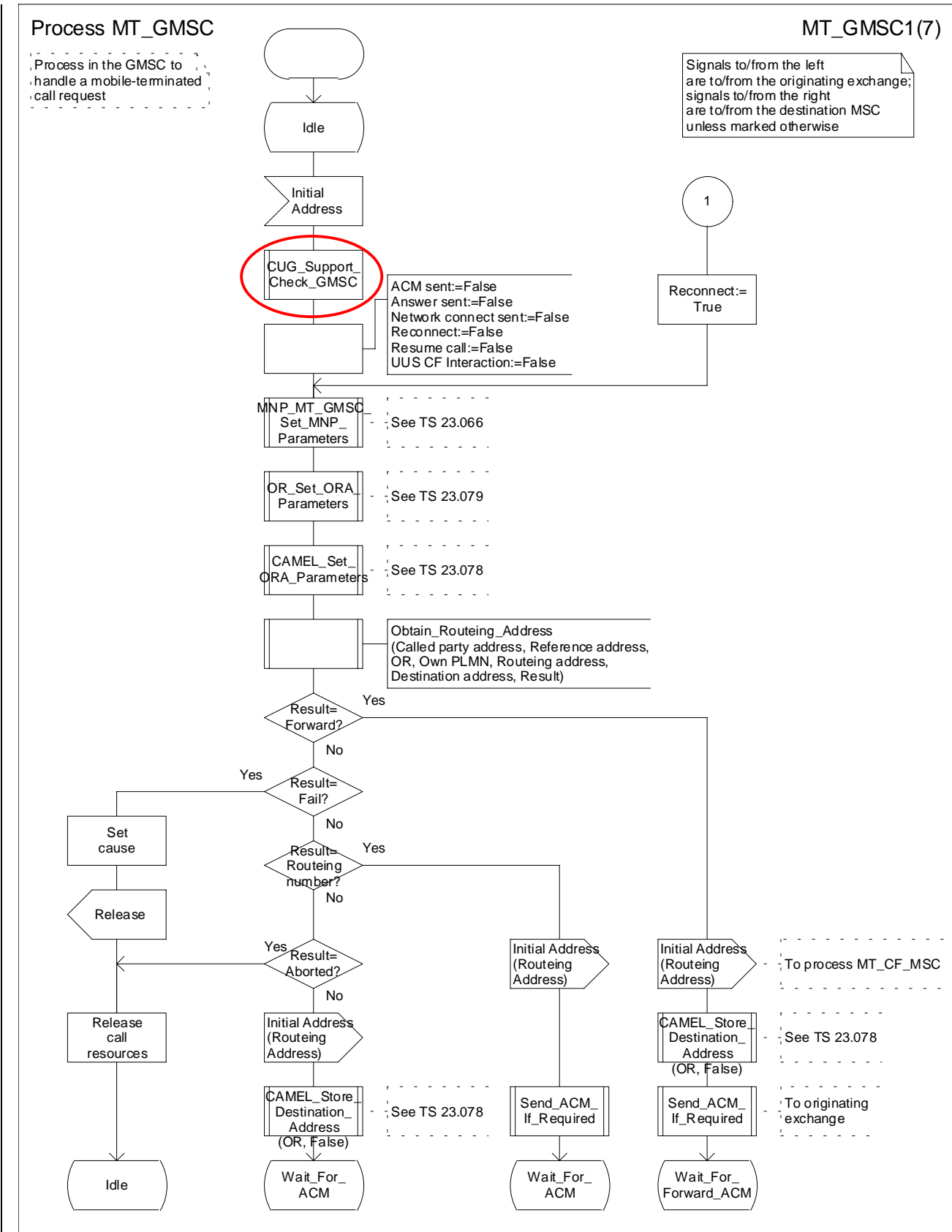


Figure 36a: Process MT_GMSC (sheet 1)

...

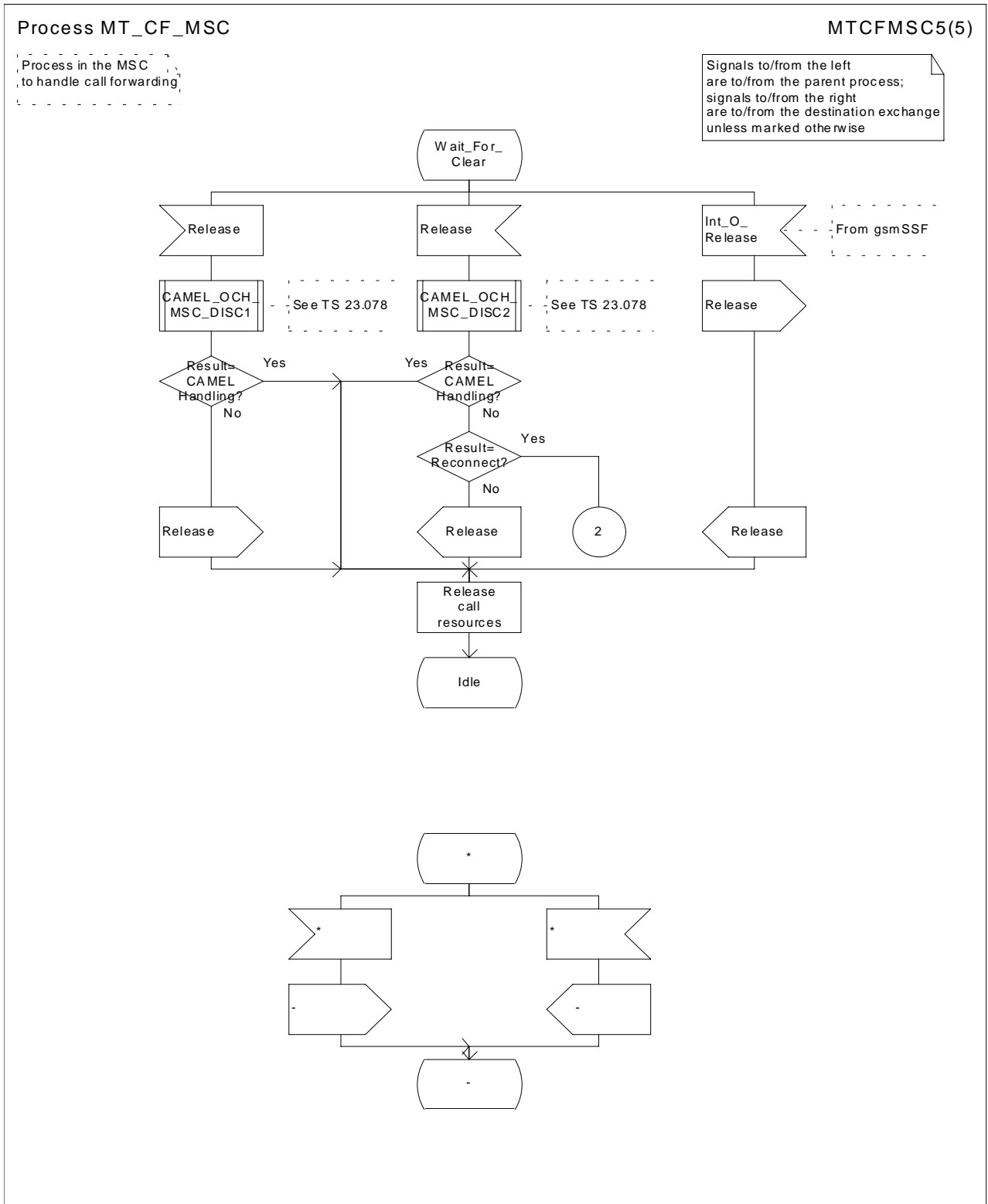


Figure 43e: Process MT_CF_MSC (sheet 5)

Macrodefinition CUG_Support_Check_GMSC

CUG_SC1(1)

Macro to check support of CUG in GMSC, if needed, and check if call can continue.

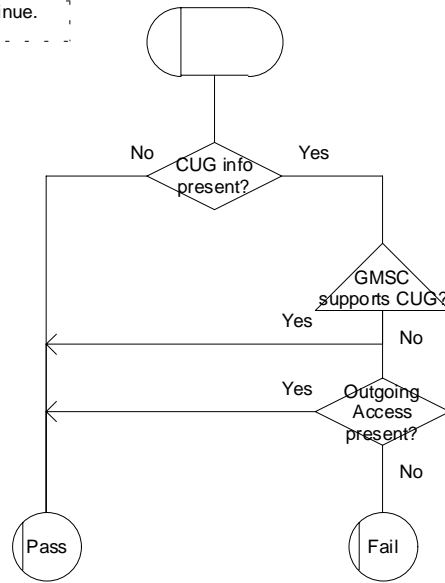


Figure X: Macro CUG Support Check GMSC

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

7.2.2 Functional requirements of HLR

...

7.2.2.3 Procedure Subscription_Check_HLR

It is an implementation option to carry out the check for operator determined barring of incoming calls before the check on provisioning of the requested basic service.

The negative response "Call barred" indicates whether the reason is operator determined barring or supplementary service barring, according to the result returned by the procedure Check_IC_Barring.

~~The procedure IC_CUG_Check is specific to CUG. If the HLR does not support GUG, processing continues from the "Yes" exit of the test "Result=Call allowed?".~~

The negative response "CUG reject" indicates whether the reason is:

- Incoming calls barred within CUG;
- Requested basic service violates CUG constraints;
- Subscriber not member of CUG;

according to the cause returned by the procedure IC_CUG_Check.

...

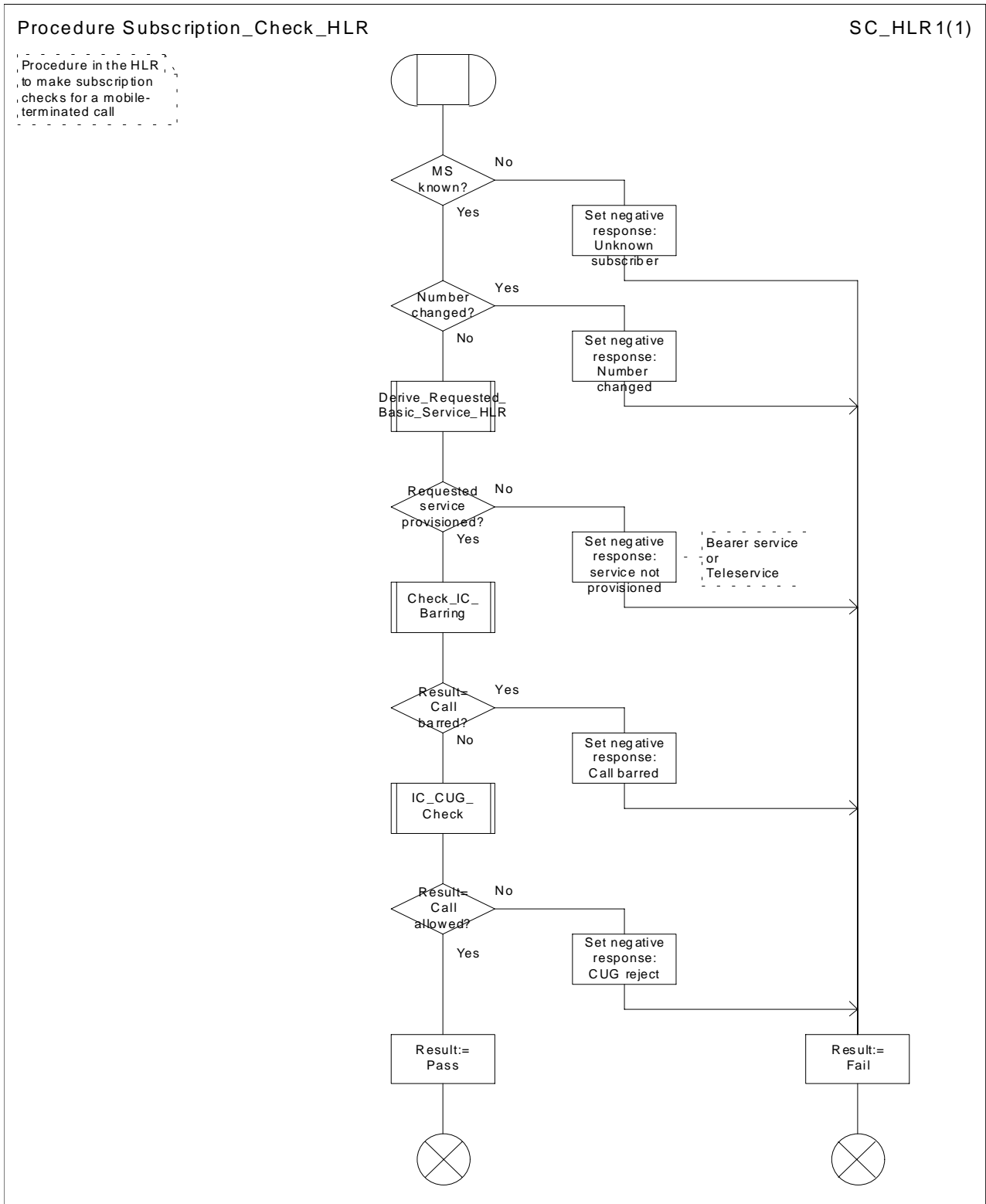


Figure 46: Procedure Subscription_Check_HLR

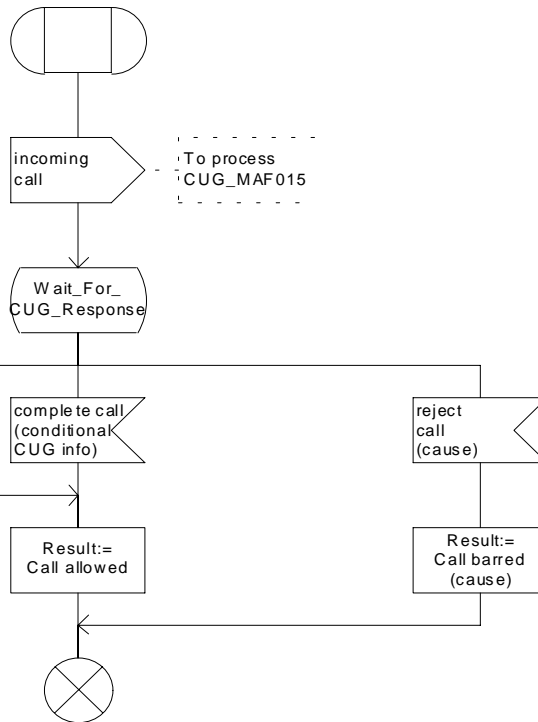
...

Procedure IC_CUG_Check

IC_CUG1(1)

Procedure to carry out CUG authorisation check for an incoming (MT) call

Signals to/from the right are to/from the process CUG_MAF015



Procedure IC_CUG_Check

IC_CUG1(1)

Procedure to carry out CUG authorisation check for an incoming (MT) call

Signals to/from the right are to/from the process CUG_MAF015

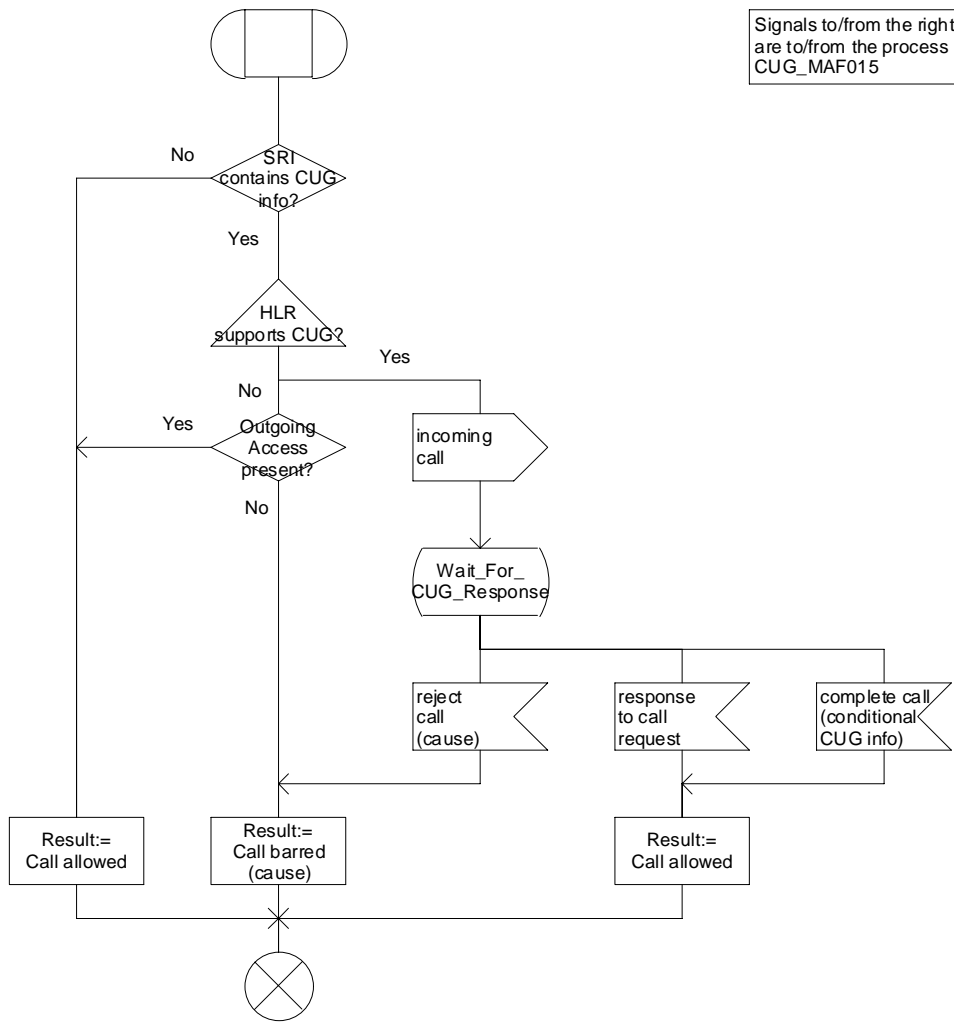


Figure 52: Procedure IC_CUG_Check

**** Last Modified Section ****
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8 Contents of messages

8.2 Messages on the C interface (MSC-HLR)

8.2.1 Send Routeing Info

The following information elements are required:

Information element name	Required	Description
MSISDN	M	MSISDN of the B subscriber (see 3GPP TS 23.003 [5]).
Alerting Pattern	C	Shall be present if received in a Connect operation from the gsmSCF; otherwise shall be absent.
CUG interlock	C	For the definition of this IE, see 3GPP TS 23.085 [18]. Shall be present if the GMSC received it in the IAM and the GMSC supports CUG , otherwise shall be absent.
CUG outgoing access	C	For the definition of this IE, see 3GPP TS 23.085 [18]. Shall be present if the GMSC received it in the IAM and the GMSC supports CUG , otherwise shall be absent.
Number of forwarding	C	Number of times the incoming call has already been forwarded. Shall be present if it was received in the IAM; otherwise shall be absent.
ISDN BC	C	ISDN bearer capability. Shall be present if the GMSC received it in the IAM, otherwise shall be absent.
ISDN LLC	C	ISDN lower layer compatibility. Shall be present if the GMSC received it in the IAM, otherwise shall be absent.
ISDN HLC	C	ISDN higher layer compatibility. Shall be present if the GMSC received it in the IAM, otherwise shall be absent.
Pre-paging supported	C	Shall be present if the GMSC supports pre-paging, otherwise shall be absent.