3GPP TSG_CN#7 **NP-000065**

ETSI SMG3 Plenary Meeting #7,
Madrid, Spain
13th – 15th March 2000

Agenda item: **5.2.3**

Source: **TSG_N WG2**

Title: **CRs to 3G Work Item CAMEL Phase 3**

Introduction:

This document contains **"18"** CRs on **Work Item CAMEL Phase 3,** that have been agreed by **TSG_N WG2,** and are forwarded to **TSG_N Plenary** meeting #7 for approval.

TDoc	SPEC	CR	REV	CAT	Rel	Old vers	New vers	SUBJECT
N2A000128	23.008	012	2	C	R99	3.2.0		Introduction of 'Notification to CSE flag'to ODB
N2B000411	23.008	020	1	C	R99	3.3.0		Addition of gsmSCF address list to CSI
N2B000412	23.008	023	1	F	R99	3.3.0		Combined CR on 23.008
N2B000413	23.008	024		B	R99	3.3.0		Adding D-CSI to table with Negotiated CAMEL Capability Handling variables
N2B000326	23.018	026	2	B	R99	3.1.0		Alternative solution for ALR
N2B000294	23.018	028	1	C	R99	3.3.0		User interaction and monitoring
N2A000149	23.018	032	1	F	R99	3.3.0		Inclusion of D-CSI/N-CSI check in HLR/VLR
N2A000071	23.018	033		F	R99	3.3.0		Initialisation of Backward Call indicator
N2A000072	23.018	034		F	R99	3.3.0		Correction of the result of the procedure CAMEL_ICH_MSC_INIT
N2A000146	23.018	037		F	R99	3.3.0		Clarification of N-CSI in Core Network
N2B000327	23.018	038	1	F	R99	3.3.0		Definition of Continue CAMEL Handling
N2B000443	23.018	044		F	R99	3.3.0		Setting the Destination Address for MO calls
N2B000409	23.018	047		F	R99	3.3.0		O-CSI and D-CSI checks for ORLCF calls
N2B000166	23.018	048		F	R99	3.3.0		Correction of CF notification
N2B000169	23.079	009		A	R99	3.1.0		Correction of CF notification
N2B000319	29.002	059	1	B	R99	3.4.0		Alternative solution for ALR
N2B000456	29.002	079	4	C	R99	3.3.1		Correction of SS Invocation Notification for CCBS
N2A000023	29.002	080		F	R99	3.3.0		Corrections to ATSI, ATM, NCSD

3GPP TSG CN2/ETSI SPAN3
Kyoto, Japan, 17-21 January 2000

***Document* N2A000128**
revise of N2A000105

CHANGE REQUEST

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

23.008	CR	012r2	Current Version:	3.2.0

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

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

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

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

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

Source: N2 **Date:** 20 Jan. 2000

Subject: Introduction of 'Notification to CSE flag' to the operator determined barring data.

Work item: CAMEL Phase3

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

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

Release:

Phase 2	
Release 96	
Release 97	
Release 98	
Release 99	X
Release 00	

Reason for change:

In CAMEL phase3, it is required that the change of the operator determined barring data, which is stored in the HLR, is notified to the gsmSCF. And notification is controlled by HLR O&M interface. For the reason described above, the 'notification to CSE flag' was needed to the ODB

Note: In the 23.008, it is described that subscriber data related to supplementary services are contained in the 23.08x or 23.09x. So the notification flag of CF and CB is not described here.

Clauses affected: 2.8.4, 2.8.5(new)

Other specs affected:

Other 3G core specifications	X	→ List of CRs:	N2A00129, N2A00130
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

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

- the 'notification to CSE flag' is not sent to the VLR, considering the impact on the existing process.
- As to the gsmSCF which is notified the change of the ODB data, HLR has the pre-defined gsmSCF list for ODB.

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

2.6 Data related to supplementary services

Subscriber data related to supplementary services are contained in the GSM 03.8x and 03.9x series of Technical Specifications, that is GSM 03.81 and following describing the network functionality of supplementary services.

There is no data type which is mandatory for all supplementary services; note that the provision status is mandatory for all supplementary services except CUG, GSM 03.85. All other data are conditional depending on the provision. The data settable but by O&M are the permanent data while the temporary data are those that can be modified by subscriber control in the mobile station.

2.8 Data related to operator determined barring

2.8.1 Subscriber status

2.8.2 Operator determined barring general data

2.8.3 Operator determined barring PLMN-specific data

2.8.4 Notification to CSE flag

This information element indicates whether the change of ODB data shall trigger Notification on Change of Subscriber Data or not.

2.8.5 gsmSCF address list

This information element contains the list of gsmSCF addresses to which Notification on Change of Subscriber Data is to be sent.

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

Document *N2A000260*

CHANGE REQUEST

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23.008	CR	020r1	Current Version:	3.2.0

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

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

for approval [X] for information [ ]

strategic [ ] non-strategic [X] *(for SMG use only)*

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

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

Source: N2 **Date:** 15 Feb. 2000

Subject: Addition of gsmSCF address list to CSI

Work item: CAMEL phase 3

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

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

Reason for change:

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

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

Clauses affected: 2.14.2.4

Other specs affected:

Other 3G core specifications	[X]	→ List of CRs:	23.078
Other GSM core specifications	[ ]	→ List of CRs:	
MS test specifications	[ ]	→ List of CRs:	
BSS test specifications	[ ]	→ List of CRs:	
O&M specifications	[ ]	→ List of CRs:	

Other comments:

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2.14 Data related to CAMEL

2.14.1 Subscriber Data stored in HLR

2.14.2 Other Data stored in the HLR

2.14.2.4 gsmSCF address for CSI

This information element contains the list of gsmSCF address(E164 address) to which Notification on Change of Subscriber Data is to be sent.

Table 1 (concluded): Overview of data stored for non-GPRS Network Access Mode

PARAMETER	SUBCLAUSE	HLR	VLR	TYPE	
Trace Reference	2.11.1	C	C	P	
Trace Type	2.11.2	C	C	P	
Operations Systems Identity	2.11.3	C	C	P	
HLR Trace Type	2.11.4	C	-	P	
MAP Error On Trace	2.11.5	C	-	T	
Trace Activated in VLR	2.11.6	C	C	T	
Foreign Subscriber Registered in VLR	2.11.7	-	C	P	Note
VGCS Group Membership List	2.12.1	C	C	P	
VBS Group Membership List	2.12.2	C	C	P	
Broadcast Call Initiation Allowed List	2.12.2.1	C	C	P	
Originating CAMEL Subscription Information (O-CSI)	2.14.1.1/3.1	C	C	P	
Terminating CAMEL Subscription Information (T-CSI)	2.14.1.2	C	-	P	
VMSC Terminating CAMEL Subscription Information (VT-CSI)	2.14.1.2/3.2	C	C	P	
Location Information/Subscriber state Information	2.14.1.3	C	-	P	
USSD CAMEL subscription information(U-CSI)	2.14.1.4	C	-	P	
SS invocation notification (SS-CSI)	2.14.1.5/3.2	C	C	P	
Translation information flag(TIF-CSI)	2.14.1.6/3.6	C	C	P	
Dialled service CAMEL Subscription Information (D-CSI)	2.14.1.10/3.6	C	C	P	
USSD General CAMEL service information (UG-CSI)	2.14.2	C	-	P	
O-CSI Negotiated CAMEL Capability Handling	2.14.2.1	C		P	
SS-CSI Negotiated CAMEL Capability Handling	2.14.2.1	C		P	
VT-CSI Negotiated CAMEL Capability Handling	2.14.2.1	C		P	
SMS-CSI VLR Negotiated CAMEL Capability Handling	2.14.2.1	C		P	
M-CSI Negotiated CAMEL Capability Handling	2.14.2.1	C		P	
VLR Supported CAMEL Phases	2.14.2.3	C		P	
GsmSCF address for CSI	2.14.2.4	C		P	
IST Alert Timer	2.15.1	C	C	P	
Privacy Exception List	2.16.1.1	C	C	P	
GMLC Numbers	2.16.1.2	C	C	P	
MO-LR List	2.16.1.3	C	C	P	
Age Indicator	2.17.1	C	C	T	

Table 2 (concluded): Overview of data used for GPRS Network Access Mode

PARAMETER	Subclause	HLR	VLR	SGSN	GGSN	TYPE
Quality of Service Subscribed	2.13.12	C	-	C	-	P
Quality of Service Requested	2.13.13	-	-	C	-	T
Quality of Service Negotiated	2.13.14	-	-	C	M	T
SND	2.13.15	-	-	C	C	T
SNU	2.13.16	-	-	C	C	T
DRX Parameters	2.13.17	-	-	M	-	T
Compression	2.13.18	-	-	C	-	T
NGAF	2.13.19	-	-	C (Gs)	-	T
Classmark	2.13.20	-	-	M	-	T
TID	2.13.21	-	-	C	C	T
Radio Priority	2.13.22	-	-	C	-	T
Radio Priority SMS	2.13.23	-	-	C	-	T
Short Message Service CAMEL Subscription Information (SMS-CSI)	2.14.4.1/1.8	C	-	C	-	P
GPRS CAMEL Subscription Information (GPRS-CSI)	2.14.4.2/1.9	C	-	C	-	C
SMS-CSI SGSN Negotiated CAMEL Capability Handling	2.14.2.1	C	-	-	-	P
GPRS-CSI Negotiated CAMEL Capability Handling	2.14.2.1	C	-	-	-	P
SGSN Supported CAMEL Phases	2.14.2.3	C	-	-	-	P
GsmSCF address for CSI	2.14.2.4	C	-	-	-	P
Age Indicator	2.16.1	C	-	C	-	T

3GPP TSG CN Working Group 2 Subgroup B **Tdoc N2B000412**
***Kista*, Sweden**
2 - 3 March, 2000

Tdoc N2A000261

3GPP-CN2-SA meeting
Sophia Antipolis, France 21-25 February 2000

3G CHANGE REQUEST

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23.008 **CR** **023r1** Current Version: 3.2.0

3G specification number ↑ *↑ CR number as allocated by 3G support team*

For submision to TSG CN#07 *list TSG meeting no. here ↑*

for approval [X] *(only one box should*
for information [ ] *be marked with an X)*

Form: 3G CR cover sheet, version 1.0 *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/3GCRF-xx.rtf*

Proposed change affects: USIM [ ] ME [ ] UTRAN [ ] Core Network [ ]
(at least one should be marked with an X)

Source: N2 **Date:** 17/02/00

Subject: Combined CR on 23.008

3G Work item: CAMEL phase3

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

F	Correction	X
A	Corresponds to a correction in a 2G specification	
B	Addition of feature	
C	Functional modification of feature	
D	Editorial modification	

Reason for change:
This CR includes
1) Alignement of 23.008 with 29.002 for CSI active flag and notification flag, only one occurrence per CSI
2) Editorial corrections
3) Introduction of N2A00128, CR12 rev2
4) 3G references

Clauses affected:

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other 2G core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:


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2.6 Data related to supplementary services

Subscriber data related to supplementary services are contained in 3G TS 23.08x ~~the GSM 03.8x~~ and 3G TS 23.09x~~03.9x~~ series of Technical Specifications, that is 3G TS 23.081~~GSM 03.81~~ and following describing the network functionality of supplementary services.

There is no data type which is mandatory for all supplementary services; note that the provision status is mandatory for all supplementary services except CUG, 3G TS~~GSM~~ 23.085~~03.85~~. All other data are conditional depending on the provision. ~~The data settable but by O&M are the permanent data while the temporary data are those that can be modified by subscriber control in the mobile station.~~

2.8 Data related to operator determined barring

To add :

2.8.4 Notification to CSE flag for ODB

This information element indicates whether the change of ODB data shall trigger Notification on Change of Subscriber Data or not.

2.8.5 gsmSCF address list for ODB

This information element contains the list of gsmSCF address(E164 address) to which Notification on Change of Subscriber Data is to be sent.

2.14 Data related to CAMEL

2.14.1 Subscriber Data stored in HLR

2.14.1.1 Originating CAMEL Subscription Information (O-CSI)

This data defines the contents of the Originating CAMEL subscription information used to interwork with the gsmSCF for MO and MF call. It consists of:

- A TDP list: The TDP list is a list of TDP descriptions. Each TDP description contains the following elements:

  1. DP Value. The DP value identifies the DP in the MO State Model where service triggering may take place.
  For O-CSI, the allowed DP value are *DP Collected_info, DP Route_Select_Failure.*

  ~~• DP Collected_Info, DP Route_Select_Failure are possible.~~

  ~~•~~ 2. A gsmSCF address. It is the gsmSCF address (E164 number) where the CAMEL service is treated for the subscriber. A gsmSCF address is associated to each serviceKey.

  ~~•~~ 3. A serviceKey. The serviceKey identifies to the gsmSCF the service logic. A serviceKey is associated to each TDP.

  ~~•~~ 4. A default Call Handling. The default call handling indicates whether the call shall be released or continued as requested in case of error in the gsmSSF to gsmSCF dialogue. A default Call Handling is associated to each serviceKey.

  5. DP criteria. The DP criteria indicates on which criteria the gsmSSF shall access the gsmSCF . DP criteria is associated to each TDP.

  ~~•~~

- CAMEL capability handling. It gives the CAMEL phase associated to the O-CSI (CAMEL phase1, phase2, or phase3).
- The CSI state. The CSI state indicates whether the O-CSI is active or not.
- The notification flag, the notification flag indicates whether changes of the O-CSI shall trigger Notification on Change of Subscriber Data.~~.~~

TDP	Triggering Criteria (*)	ServiceKey	gsmSCF address	Default Call Handling	~~CSI state~~	~~Notification flag~~
DP Collected_ Info	No Criteria Number criteria Basic service code criteria Call type criteria	One ServiceKey	One E164 gsmSCF address	One Default call handling	~~active/ inactive~~	~~set/reset~~
DP Route_Select_ Failure	No criteria Cause value criteria	One ServiceKey	One E164 gsmSCF address	One Default call handling	~~active/ inactive~~	~~set/reset~~

(*) One or more TDP criteria shall be applicable. All applicable triggering criteria must be satisfied before the dialogue is established with the gsmSCF.

~~Editor's note: CAMEL capability handling. It was decided to have a unique CAMEL Capability handling per CSI to make the decision check in the HLR. easier This solution has the disadvantage of not being any more compatible with 09.02 MAP V3 used in CAMEL phase2.~~

2.14.1.2 Terminating CAMEL Subscription Information (T-CSI) and VMSC Terminating CAMEL Subscription Information (VT-CSI))

This data defines the contents of the terminating CAMEL subscription information used to interwork with the gsmSCF for MT call. It consists of:

- A TDP list. The TDP list is a list of TDP descriptions. Each TDP description contains the following elements:

  1. DP Value. The DP value identifies the DP in the MT State Model where service triggering may take place. For T-CSI, the allowed DP value are *DP Terminating_Attempt_Authorised*, *DP T_Busy*, *DP T_No_Answer.*

  ~~• DP Terminating_Attempt_Authorised, DP T_Busy, DP T_No_Answer~~

  • 2. A gsmSCF address. It is the gsmSCF address (E.164 number) where the CAMEL service is treated for the subscriber. A gsmSCF address is associated to each serviceKey.

  • 3. A serviceKey. The serviceKey identifies to the gsmSCF the service logic. A serviceKey is associated to each TDP.

  • 4. A default Call Handling. The default call handling indicates whether the call shall be released or continued as requested in case of error in the gsmSSF to gsmSCF dialogue. A default Call Handling is associated to each serviceKey.

  • 5. DP criteria. The DP criteria indicates on which criteria the gsmSSF shall access the gsmSCF. DP criteria is associated to each TDP.

- CAMEL capability handling. It gives the CAMEL phase associated to the T-CSI/VT-CSI (CAMEL phase1, or phase2, or phase3).
- The CSI state indicates whether the T-CSI/VT-CSI is active or not.

- Notification flag. The notification flag indicates whether the change of the T-CSI/VT-CSI shall trigger Notification on Change of Subscriber data.

TDP	Triggering Criteria (*)	ServiceKey	gsmSCF address	Default Call Handling	~~CSI state~~	~~Notification flag~~
DP Terminating_ Attempt_Authorised	No Criteria Basic service criteria	One serviceKey	One E164 gsmSCF address	One Default call handling	~~active/ inactive~~	~~set/reset~~
DP T_Busy	No criteria Cause value criteria	One serviceKey	One E164 gsmSCF address	One Default call handling	~~set/reset~~	~~set/reset~~
DP T_No_Answer	No criteria Cause value criteria	One service Key	One E164 gsmSCF address	One Default call handling	~~set/reset~~	~~set/reset~~

(*) One or more DP criteria shall be applicable. All applicable triggering criteria must be satisfied before the dialogue is established with the gsmSCF.

2.14.1.3 Location information/Subscriber state interrogation.

This data item indicates whether or not the HLR shall send the location information and state of the called subscriber , as available, when a GMSC requests routeing information for an MT call.

2.14.1.4 USSD CAMEL subscription information(U-CSI)

This data is used on USSD request receipt from the MS. It consists of a list of:

- a service code. The service code defines a specific application in the gsmSCF;
- a gsmSCFaddress. It is the gsmSCF address (E.164 number) where the USSD application is treated for this subscriber

2.14.1.5 Supplementary Service invocation notification(SS-CSI)

This data is used to notify the gsmSCF about Supplementary service invocation. It consists of :

- notification criterion, which may be a list of Supplementary Service(s). The possible Supplementary Services are: ECT, CD or MPTY, CCBS;
- a gsmSCF address. It is the gsmSCF address (E.164 number) where the notification of the Supplementary Service invocation is treated for this subscriber
- CSI state, indicates whether the SS-CSI is active or not
- Notification flag. ~~,~~ It~~t~~ indicates whether the change of the SS-CSI shall trigger Notification on Change of Subscriber data.

2.14.1.6 Translation Information flag (TIF-CSI)

- ~~A~~TIF-CSI flag is used to indicate that the HLR shall not attempt to perform any actions on the FTN (translation, prohibited FTN checks, call barring checks) at the registration procedure.
- Notification flag. ~~,~~ T~~t~~he notification flag indicates whether the change of ~~the~~ TIF-CSI flag shall trigger Notification on Change of Subscriber data.

2.14.1.7 Mobility Management event notification (M-CSI)

This data indicates which Mobility Management events shall be reported to the gsmSCF. It consists of:

- gsmSCF address : This is the address of the gsmSCF where the Mobility Management event notification shall be sent to. The gsmSCF address ~~must be~~is in E.164 format.
- Service Key: The service key is included in the notification to the gsmSCF and indicates to the gsmSCF which Service Logic shall be applied.
- Mobility Management Triggers : These triggers define which Mobility Managements events shall be reported to the gsmSCF. The mobility managements triggers may contain one or any combination of the following elements:
  - Location update in the same VLR service area
  - Location update to another VLR service area
  - IMSI attach
  - MS initiated IMSI detach (explicit detach)
  - Network initiated IMSI detach (implicit detach)
- The CSI state , indicates whether the M-CSI is active or not.
- Notification flag~~,~~ . ~~T~~the notification flag indicates whether the change of ~~the~~ M-CSI shall trigger Notification on Change of Subscriber data.

2.14.1.8 Short Message Service CAMEL Subscription Information (SMS-CSI)

This data defines the contents of the SMS CAMEL subscription information. The SMS CAMEL Subscription Information is used for the following interworking:

- Interworking between gsmSCF and gsmSSF, for CAMEL control of circuit switched MO SMS
- Interworking between gsmSCF and gprsSSF, for CAMEL control of packet switched MO SMS

SMS-CSI consists of the following data items:

- TDP List. The TDP list is a list of SMS TDP descriptions. Each TDP description contains the following elements:
  1. DP Value. The DP value identifies the DP in the MO SMS State Model where service triggering may take place.
     For SMS-CSI, the only allowed DP value is *SMS_Collected_Info*.
  2. gsmSCF Address. The gsmSCF address is the address (E164 number) of the gsmSCF where the MO SMS CAMEL Service associated with this TDP, is located for this subscriber.
  3. Service Key. The service key identifies to the gsmSCF the service logic that shall be applied.
  4. Default SMS handling. The default SMS handling indicates whether the MO SMS submission request shall be rejected or continued in the case of error in the dialogue between the gsmSSF and gsmSCF or between the gprsSSF and gsmSCF;
- CAMEL Capability Handling. CAMEL Capability Handling indicates the CAMEL Phase that is required for the MO SMS service. The CAMEL Capability Handling for SMS-CSI shall have the value CAMEL phase 3.
- CSI state: indicates whether the SMS-CSI is active or not.
- Notification flag indicates whether the change of the SMS-CSI shall trigger Notification on change of subscriber Data or not.

2.14.1.9 GPRS CAMEL Subscription Information (GPRS-CSI)

This data defines the contents of the GPRS CAMEL subscription information. The GPRS CAMEL Subscription Information is used for the following interworking:

-Interworking between gsmSCF and gprsSSF, for CAMEL control of packet switch call

GPRS-CSI consists of the following data items:

- TDP List. The TDP list is a list of GPRS TDP descriptions. Each TDP description contains the following elements:

  1. DP Value. The DP value identifies the DP in the GPRS State Model where service triggering may take place.

  2. gsmSCF Address. The gsmSCF address is the address (E164 number) of the gsmSCF where the GPRS CAMEL Service associated with this TDP, is located for this subscriber.

  3. Service Key. The service key identifies to the gsmSCF the service logic that shall be applied.

  4. Default GPRS handling. The default GPRS handling indicates whether the GPRS submission request shall be rejected or continued in the case of error in the dialogue between the gprsSSF and gsmSCF.

- CAMEL Capability Handling. CAMEL Capability Handling indicates the CAMEL Phase that is required for the GPRS service. The CAMEL Capability Handling for GPRS-CSI shall have the value CAMEL phase 3.

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

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

2.14.1.10 Dialled service CAMEL Subscription Information (D-CSI)

This data defines the contents of the dialled service CAMEL subscription information used to interwork with the gsmSCF for MO and MF call. It is applicable at TDP Analysed Info. It consists of:

- DP Criteria list. This consists of 1 to 10 entries. Each entry shall contain the following items: ~~containing:~~

  - 1. DP Criterion. It indicates when the gsmSSF shall request gsmSCF for instructions. It is a destination number.

  - 2. A gsmSCF address. It is the gsmSCF address (E164 number) where this Subscribed Dialled CAMEL service is treated for the subscriber. A gsmSCF address is associated to each DP Criterion.

  - 3. A serviceKey. The serviceKey identifies to the gsmSCF the service logic. A serviceKey is associated to each DP Criterion.

  - 4. A default Call Handling. It indicates whether the call shall be released or continued as requested in case of error in the gsmSSF to gsmSCF dialogue. A default Call Handling is associated to each DP Criterion.

- CAMEL capability handling. It indicates the CAMEL phase associated to the D-CSI (CAMEL phase3 shall be indicated).

- CSI state: indicates whether the D-CSI is active or not.

- Notification Flag. It indicates whether the change of the D-CSI shall trigger the Notification on Change of Subscriber Data.

2.14.2 Other Data stored in the HLR

2.14.2.1 Negotiated CAMEL Capability Handling

The HLR shall have a set of *negotiated CAMEL Capability Handling* variables. Each CSI that may be downloaded to the VLR or to the SGSN shall have a negotiated CAMEL Capability Handling (CCH) variable associated with it.

The negotiated CCH variable for a CSI indicates what CAMEL Phase is indicated in that CSI in the VLR or SGSN.

When the negotiated CCH variable has a value NULL, it indicates that that CSI has not been downloaded to the VLR or SGSN.

The following table shows the *negotiated CAMEL Capability Handling* variables.

Variable name	Associated CSI	CSI stored in	Allowable values for negotiated CCH
O-CSI Negotiated CAMEL Capability Handling	O-CSI	VLR	NULL, 1, 2, 3
SS-CSI Negotiated CAMEL Capability Handling	SS-CSI	VLR	NULL, 2, 3
VT-CSI Negotiated CAMEL Capability Handling	VT-CSI	VLR	NULL, 3
SMS-CSI VLR Negotiated CAMEL Capability Handling	SMS-CSI	VLR	NULL, 3
M-CSI Negotiated CAMEL Capability Handling	M-CSI	VLR	NULL, 3
SMS-CSI SGSN Negotiated CAMEL Capability Handling	SMS-CSI	SGSN	NULL, 3
GPRS-CSI Negotiated CAMEL Capability Handling	GPRS-CSI	SGSN	NULL, 3

There is no *negotiated CAMEL Capability Handling* variable associated with TIF-CSI.

The HLR does not store a *Negotiated CAMEL Capability Handling* for CSIs that are sent to the GMSC, since a subscriber is not permanently registered in a GMSC.

2.14.2.2 Supported CAMEL Phases

The HLR shall store the supported CAMEL Phases of the VLR where the subscriber is currently registered and the SGSN where the subscriber is currently attached.

The following variables are required:

- VLR Supported CAMEL Phases
- SGSN Supported CAMEL Phases

The HLR does not store the Supported CAMEL Phases of the GMSC, since a subscriber is not permanently registered at a GMSC.

2.14.2.3 UG-CSI

The USSD general CAMEL service(UG-CSI) is also stored in the HLR. This data is used on USSD request receipt from the MS. It consists of a list of:

- a service code. The service code defines a specific application in the gsmSCF;
- a gsmSCFaddress. It is the gsmSCF address (E.164 number) where the USSD application is treated for this subscriber.

2.14.3 Subscriber data stored in VLR

2.14.3.1 Originating CAMEL Subscription Information (O-CSI)

The Originating CAMEL Subscription Information (O-CSI) are stored in the VLR.

This data defines the contents of the originating CAMEL subscription information used to interwork with the gsmSCF for MO and CF calls. It consists of:

- A TDP list: The TDP list is a list of TDP descriptions. Each TDP description contains the following elements:

1. DP Value. The DP value identifies the DP in the MO State Model where service triggering may take place.
For O-CSI, the allowed DP value are *DP Collected_info, DP Route_Select_Failure.*

~~• DP Collected_Info, DP Route_Selection_Failure are possible~~

~~•~~ 2. A gsmSCF address. It is the gsmSCF address (E164 number) where the CAMEL service is treated for the subscriber. A gsmSCF address is associated to each serviceKey.

~~•~~ 3. A serviceKey. The serviceKey identifies to the gsmSCF the service logic.. A serviceKey is associated to each TDP.

~~•~~ 4. A default Call Handling. The default call handling indicates whether the call shall be released or continued as requested in case of error in the gsmSSF to gsmSCF dialogue. A default Call Handling is associated to each serviceKey.

5. DP criteria: The DP criteria indicates on which criteria the gsmSSF shall access the gsmSCF. . DP criteria is associated to each TDP.

- CAMEL capability handling. It gives the CAMEL phase associated to the O-CSI (CAMEL phase1, or phase2, or phase3).

2.14.3.2 VMSC Terminating CAMEL Subscription Information (VT-CSI)

This data defines the contents of the visited terminating CAMEL subscription information used by the VMSC to interwork with the gsmSCF for an MT call. It consists of:

- A TDP list. The TDP list is a list of TDP descriptions. Each TDP description contains the following elements:

  1. DP Value. The DP value identifies the DP in the MT State Model where service triggering may take place. For VT-CSI, the allowed DP value are *DP Terminating Attempt Authorised, DP T_Busy, DP T_No_Answer.*

  ~~• DP Terminating Attempt Authorised, DP T Busy, DP T No Answer~~

  ~~•~~ 2. A gsmSCF address. It is the gsmSCF address (E164 number) where the CAMEL service is treated for the subscriber. A gsmSCF address is associated to each serviceKey.

  ~~•~~ 3. A serviceKey. The serviceKey identifies to the gsmSCF the service logic. A serviceKey is associated to each TDP.

  ~~•~~ 4. A default Call Handling. The default call handling indicates whether the call shall be released or continued as requested in case of error in the gsmSSF to gsmSCF dialogue. A default Call Handling is associated to each serviceKey.

  ~~•~~ 5. DP criteria: The DP criteria indicates on which criteria the gsmSSF shall access the gsmSCF

- CAMEL capability handling. It gives the CAMEL phase associated to the VT-CSI. It is ~~(~~ CAMEL phase3~~)~~.

2.14.3.3 Supplementary Service invocation notification(SS-CSI)

This data is used to notify the gsmSCF about Supplementary Service invocation. It consists of :

- a notification criterion, which may be ECT, CD or MPTY

- a gsmSCF address. It is the gsmSCF address (E164 number) where the notification of the Supplementary service invocation is treated for this subscriber.

2.14.3.4 Mobility Management event notification (M-CSI)

This data indicates which Mobility Management events shall be reported to the gsmSCF. It consists of:

- gsmSCF address : This is the address of the gsmSCF where the Mobility Management event notification shall be sent to. The gsmSCF address must be in E.164 format.

- Service Key: The service key is included in the notification to the gsmSCF and indicates to the gsmSCF which Service Logic shall be applied.
- Mobility Management Triggers. These triggers define which Mobility Managements events shall be reported to the gsmSCF. The mobility managements triggers may contain one or any combination of the following elements:
  - Location update in the same VLR service area
  - Location update to another VLR service area
  - IMSI attach
  - MS initiated IMSI detach (explicit detach)
  - Network initiated IMSI detach (implicit detach)

2.14.3.5 Short Message Service CAMEL Subscription Information (SMS-CSI)

This data defines the contents of the SMS CAMEL subscription information~~. The SMS CAMEL Subscription Information is~~ used for the ~~following~~ interworking~~:~~ between gsmSCF and gsmSSF, for CAMEL control of circuit switched MO SMS

~~• Interworking between gsmSCF and gsmSSF, for CAMEL control of circuit switched MO SMS~~

SMS-CSI consists of the following data items:

- TDP List. The TDP list is a list of SMS TDP descriptions. Each TDP description contains the following elements:

  1. DP Value. The DP value identifies the DP in the MO SMS State Model where service triggering may take place.
     For SMS-CSI, the only allowed DP value is *SMS_Collected_Info*.

  2. gsmSCF Address. The gsmSCF addess is the address (E164 number) of the gsmSCF where the MO SMS CAMEL Service associated with this TDP, is located for this subscriber.

  3. Service Key. The service key identifies to the gsmSCF the service logic that shall be applied.

  4. Default SMS handling. The default SMS handling indicates whether the MO SMS submission request shall be rejected or continued in the case of error in the dialogue between the gsmSSF and gsmSCF or between the gprsSSF and gsmSCF;

- CAMEL Capability Handling. CAMEL Capability Handling indicates the CAMEL Phase that is required for the MO SMS service.
  The CAMEL Capability Handling for SMS-CSI shall have the value CAMEL phase 3.

2.14.3.6 Dialled service CAMEL Subscription Information (D-CSI)

This data defines the contents of the dialled service CAMEL subscription information used to interwork with the gsmSCF for MO and MF call. It is applicable at *TDP Analysed Info*. It consists of:

- DP Criteria list, this consists of 1 to 10 entries containing : DP Criterion: It indicates when the gsmSSF shall request gsmSCF for instructions.

  1. A gsmSCF address. It is the gsmSCF address (E164 number) where this Subscribed Dialled CAMEL service is treated for the subscriber. A gsmSCF address is associated to each DP Criterion.

  2. A serviceKey. The serviceKey identifies to the gsmSCF the service logic. A serviceKey is associated to each DP Criterion.

  3. A default Call Handling. It indicates whether the call shall be released or continued as requested in case of error in the gsmSSF to gsmSCF dialogue. A default Call Handling is associated to each DP Criterion.

- CAMEL capability handling. It indicates the CAMEL phase associated to the D-CSI (CAMEL phase3 shall be indicated).

2.14.3.7 Translation Information flag (TIF-CSI)

This flag is used to indicate that the VLR shall not attempt to perform any actions on the deflected to number (DTN)

2.14.4 Data stored in SGSN

2.14.4.1 Short Message Service CAMEL Subscription Information (SMS-CSI)

This data defines the contents of the SMS CAMEL subscription information. The SMS-CSI in SGSN is used for the Interworking between SGSN and gsmSCF, for CAMEL control of packet switched MO SMS.

SMS-CSI consists of the following data items:

- TDP List. The TDP list is a list of SMS TDP descriptions. Each TDP description contains the following elements:

  1. DP Value. The DP value identifies the DP in the MO SMS State Model where service triggering may take place.
  For SMS-CSI, the only allowed DP value is *SMS_Collected_Info*.

  2. gsmSCF Address. The gsmSCF addess is the address (E.164 number) of the gsmSCF where the MO SMS CAMEL Service associated with this TDP, is located for this subscriber.

  3. Service Key. The service key identifies to the gsmSCF the service logic that shall be applied.

  4. Default SMS handling. The default SMS handling indicates whether the MO SMS submission request shall be rejected or continued in the case of error in the dialogue between the gprsSSF and gsmSCF.

- CAMEL Capability Handling. CAMEL Capability Handling indicates the CAMEL Phase that is required for the MO SMS service.
  The CAMEL Capability Handling for SMS-CSI in SGSN shall have the value CAMEL phase 3.

2.14.4.2 GPRS CAMEL Subscription Information (GPRS-CSI)

This data defines the contents of the GPRS CAMEL subscription information. The GPRS CAMEL Subscription Information is used for the ~~following~~ interworking: between gsmSCF and gprsSSF, for CAMEL control of packet switch call

~~• Interworking between gsmSCF and gprsSSF, for CAMEL control of packet switch call~~

The GPRS-CSI consists of the following data items:

- TDP List. The TDP list is a list of GPRS TDP descriptions. Each TDP description contains the following elements:

  1. DP Value. The DP value identifies the DP in the GPRS State Model where service triggering may take place.

  2. gsmSCF Address. The gsmSCF address is the address (E164 number) of the gsmSCF where the GPRS CAMEL Service associated with this TDP, is located for this subscriber.

  3. Service Key. The service key identifies to the gsmSCF the service logic that shall be applied.

  4. Default GPRS handling. The default GPRS handling indicates whether the GPRS submission request shall be rejected or continued in the case of error in the dialogue between the gprsSSF and gsmSCF.

- CAMEL Capability Handling. CAMEL Capability Handling indicates the CAMEL Phase that is required for the GPRS service. The CAMEL Capability Handling for GPRS-CSI in SGSN shall have the value CAMEL phase 3.

Table 1: Overview of data stored for non-GPRS Network Access Mode

PARAMETER	SUBCLAUSE	HLR	VLR	TYPE	
IMSI	2.1.1.1	M	M	P	Note
Network Access Mode	2.1.1.2	M	-	P	Note
International MS ISDN number	2.1.2	M	M	P	
multinumbering MSISDNs	2.1.3	C	-	P	Note
Basic MSISDN indicator	2.1.3.1	C	-	P	
MSISDN-Alert indicator	2.1.3.2	C	-	P	
TMSI	2.1.4	-	C	T	
LMSI	2.1.8	C	C	T	Note
Mobile Station Category	2.2.1	M	M	P	
LMU Identifier	2.2.2	C	C	P	
RAND, SRES and Kc	2.3.1		C	T	
RAND, XRES, CK, IK and AUTN	2.3.2	M	C	T	
Ciphering Key Sequence Number	2.3.3	-	M	T	
MSRN	2.4.1	-	C	T	Note
Location Area Identity	2.4.2	-	M	T	
VLR number	2.4.5	M	-	T	Note
MSC number	2.4.6	M	C	T	
HLR number	2.4.7	-	C	T	
Subscription restriction	2.4.10	C	-	P	
RSZI lists	2.4.11.1	C	-	P	
Zone Code List	2.4.11.2	-	C	P	
MSC area restricted flag	2.4.12	M	-	T	
LA not allowed flag	2.4.13	-	M	T	
ODB-induced barring data	2.4.15.1	C	-	T	
Roaming restriction due to unsupported feature	2.4.15.2	M	M	T	
Cell ID	2.4.16	-	C	T	
LSA Identity	2.4.17.1	C	C	P	
LSA Priority	2.4.17.2	C	C	P	
LSA Only Access Indicator	2.4.17.3	C	C	P	
LSA Active Mode Indicator	2.4.17.4	C	C	P	
VPLMN Identifier	2.4.17.5	C	-	P	
Provision of bearer service	2.5.1	M	M	P	
Provision of teleservice	2.5.2	M	M	P	
BC allocation	2.5.3	C	C	P	
IMSI detached flag	2.7.1	-	C	T	
Confirmed by Radio Contact indicator	2.7.4.1	-	M	T	
Subscriber Data Confirmed by HLR indicator	2.7.4.2	-	M	T	
Location Information Confirmed in HLR indicator	2.7.4.3	-	M	T	
Check SS indicator	2.7.4.4	M	-	T	
MS purged for non-GPRS flag	2.7.5	M	-	T	
MNRR	2.7.7	C	-	T	
Subscriber status	2.8.1	C	C	P	
Barring of outgoing calls	2.8.2.1	C	C	P	
Barring of incoming calls	2.8.2.2	C	-	P	
Barring of roaming	2.8.2.3	C	-	P	
Barring of premium rate calls	2.8.2.4	C	C	P	
Barring of supplementary service management	2.8.2.5	C	C	P	
Barring of registration of call forwarding	2.8.2.6	C	-	P	
Barring of invocation of call transfer	2.8.2.7	C	C	P	
Operator determined barring PLMN-specific data	2.8.3	C	C	P	
Notification to CSE flag for ODB	2.8.4	C	-	T	
gsmSCF address list for ODB	2.8.5	C	-	P	
Handover Number	2.9.1	-	C	T	
Messages Waiting Data	2.10.1	C	-	T	
Mobile Station Not Reachable Flag	2.10.2	C	M	T	
Memory Capacity Exceeded Flag	2.10.3	C	-	T	

(continued)

Table 1 (concluded): Overview of data stored for non-GPRS Network Access Mode

PARAMETER	SUBCLAUSE	HLR	VLR	TYPE	
Trace Reference	2.11.1	C	C	P	
Trace Type	2.11.2	C	C	P	
Operations Systems Identity	2.11.3	C	C	P	
HLR Trace Type	2.11.4	C	-	P	
MAP Error On Trace	2.11.5	C	-	T	
Trace Activated in VLR	2.11.6	C	C	T	
Foreign Subscriber Registered in VLR	2.11.7	-	C	P	Note
VGCS Group Membership List	2.12.1	C	C	P	
VBS Group Membership List	2.12.2	C	C	P	
Broadcast Call Initiation Allowed List	2.12.2.1	C	C	P	
Originating CAMEL Subscription Information (O-CSI)	2.14.1.1/3.1	C	C	P	
Terminating CAMEL Subscription Information (T-CSI)	2.14.1.2	C	-	P	
VMSC Terminating CAMEL Subscription Information (VT-CSI)	2.14.1.2/3.2	C	C	P	
Location Information/Subscriber state Information	2.14.1.3	C	-	P	
USSD CAMEL subscription information(U-CSI)	2.14.1.4	C	-	P	
SS invocation notification (SS-CSI)	2.14.1.5/3.2	C	C	P	
Translation information flag(TIF-CSI)	2.14.1.6/3.6	C	C	P	
Dialled service CAMEL Subscription Information (D-CSI)	2.14.1.10/3.6	C	C	P	
USSD General CAMEL service information (UG-CSI)	2.14.2	C	-	P	
O-CSI Negotiated CAMEL Capability Handling	2.14.2.1	C		P	
SS-CSI Negotiated CAMEL Capability Handling	2.14.2.1	C		P	
VT-CSI Negotiated CAMEL Capability Handling	2.14.2.1	C		P	
SMS-CSI VLR Negotiated CAMEL Capability Handling	2.14.2.1	C		P	
M-CSI Negotiated CAMEL Capability Handling	2.14.2.1	C		P	
VLR Supported CAMEL Phases	2.14.2.3	C		P	
IST Alert Timer	2.15.1	C	C	P	
Privacy Exception List	2.16.1.1	C	C	P	
GMLC Numbers	2.16.1.2	C	C	P	
MO-LR List	2.16.1.3	C	C	P	
Age Indicator	2.17.1	C	C	T	

Table 2: Overview of data used for GPRS Network Access Mode

PARAMETER	Subclause	HLR	VLR	SGSN	GGSN	~~TYPE~~	TYPE
IMSI	2.1.1.1	M	M	M	M	P	Note
Network Access Mode	2.1.1.2	M	-	C (a)	-	P	Note
International MS ISDN number	2.1.2	M	M	M	-	T	
multinumbering MSISDNs	2.1.3	C	-	-	-	T	Note
Basic MSISDN indicator	2.1.3.1	C	-	-	-	T	.
MSISDN-Alert indicator	2.1.3.2	C	-	-	-	T	
P-TMSI	2.1.5	-	-	C	-	T	Note
TLLI	2.1.6	-	-	C	-	T	
Random TLLI	2.1.7	-	-	C	-	T	Note
IMEI	2.1.9	-	-	C	-	T	
RAND/SRES and Kc	2.3.1		-	C	-	T	
RAND, XRES, CK, IK, AUTN	2.3.2	M	-	C	-	T	
Ciphering Key Sequence Number	2.3.3	-	-	M	-	T	
Selected Ciphering Algorithm	2.3.5	-	-	M	-	T	
Current Kc	2.3.6	-	-	M	-	T	
P-TMSI Signature	2.3.7	-	-	C	-	T	
Routing Area Identity	2.4.3	-	-	M	-	T	
Cell Global Identification	2.4.4	-	-	C	-	T	
VLR Number	2.4.5	M	-	C (Gs)	-	T	
SGSN Number	2.4.8.1	M	C (Gs)	-	-	T	Note
GGSN Number	2.4.8.2	©	-	-	-	P	Note
RSZI Lists	2.4.11.1	C	-	-	-	P	
Zone Code List	2.4.11.2	-	-	C	-	P	
LA not allowed flag	2.4.13	-	-	M	-	T	
SGSN area restricted flag	2.4.14	M	-	-	-	T	
Roaming Restriction in the SGSN ..	2.4.15.2	M	-	M	-	T	
Cell ID	2.4.16	-	-	C	-	T	
LSA Identity	2.4.17.1	C	C	C	-	P	
LSA Priority	2.4.17.2	C	C	C	-	P	
LSA Only Access Indicator	2.4.17.3	C	C	C	-	P	
LSA Active Mode Indicator	2.4.17.4	C	C	C	-	P	
VPLMN Identifier	2.4.17.5	C	-	-	-	P	
Provision of teleservice	2.5.2	C	-	C	-	P	
Transfer of SM option	2.5.4	M	-	-	-	P	
MNRG	2.7.2	M	-	M	M	T	
MM State	2.7.3	-	-	M	-	T	
Subscriber Data Confirmed by HLR Indicator	2.7.4.2	-	-	M	-	T	
Location Info Confirmed by HLR Indicator	2.7.4.3	-	-	M	-	T	
MS purged for GPRS flag	2.7.6	M	-	-	-	T	
MNRR	2.7.7	C	-	-	-	T	
Subscriber Status	2.8.1	C	-	C	-	P	
Barring of outgoing calls	2.8.2.1	C	-	C	-	P	
Barring of roaming	2.8.2.3	C	-	C	-	P	
ODB PLMN-specific data	2.8.3	C	-	C	-	P	
Notification to CSE flag for ODB	2.8.4	C	-	-	-	T	
gsmSCF address list for ODB	2.8.5	C	-	-	-	P	
Trace Activated in SGSN	2.11.7	C	-	C	-	P	
PDP Type	2.13.1	C	-	C	M	P	
PDP Address	2.13.2	C	-	C	M	P	
NSAPI	2.13.3	-	-	C	C	T	
PDP State	2.13.4	-	-	C	-	T	
New SGSN Address	2.13.5	-	-	C	-	T	
Access Point Name	2.13.6	C	-	C	C	P/T	Note
GGSN Address in Use	2.13.7	-	-	C	-	T	
VPLMN Address Allowed	2.13.8	C	-	C	-	P	
Dynamic Address	2.13.9	-	-	-	C	T	
SGSN Address	2.13.10	-	-	-	M	T	
GGSN-list	2.13.11	M	-	-	-	T	

(continued)

Table 2 (concluded): Overview of data used for GPRS Network Access Mode

PARAMETER	Subclause	HLR	VLR	SGSN	GGSN ~~TYPE~~	TYPE
Quality of Service Subscribed	2.13.12	C	-	C	-	P
Quality of Service Requested	2.13.13	-	-	C	-	T
Quality of Service Negotiated	2.13.14	-	-	C	M	T
SND	2.13.15	-	-	C	C	T
SNU	2.13.16	-	-	C	C	T
DRX Parameters	2.13.17	-	-	M	-	T
Compression	2.13.18	-	-	C	-	T
NGAF	2.13.19	-	-	C (Gs)	-	T
Classmark	2.13.20	-	-	M	-	T
TID	2.13.21	-	-	C	C	T
Radio Priority	2.13.22	-	-	C	-	T
Radio Priority SMS	2.13.23	-	-	C	-	T
Short Message Service CAMEL Subscription Information (SMS-CSI)	2.14.4.1/1.8	C	-	C	-	P
GPRS CAMEL Subscription Information (GPRS-CSI)	2.14.4.2/1.9	C	-	C	-	C
SMS-CSI SGSN Negotiated CAMEL Capability Handling	2.14.2.1	C	-	-	-	P
GPRS-CSI Negotiated CAMEL Capability Handling	2.14.2.1	C	-	-	-	P
SGSN Supported CAMEL Phases	2.14.2.3	C	-	-	-	P
Age Indicator	2.16.1	C	-	C	-	T

NOTE: The HLR column indicates only GPRS related use, i.e. if the HLR uses a parameter in non-GPRS Network Access Mode but not in GPRS Network Access Mode, it is not mentioned in this table 2.
(Gs): The VLR column is applicable if Gs interface is installed. It only indicates GPRS related data to be stored and is only relevant to GPRS subscribers registered in VLR.

a): This parameter is relevant in the SGSN only when the Gs interface is installed.

NOTE: For special condition of storage see in the clauses 2.x.y referred-to.
See clause 3 for explanation of M,C,T and P in table 2.

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CHANGE REQUEST

23.008	CR	024	Current Version:	3.2.0

For submission to: CN#07 for approval [X] strategic [ ]
for information [ ] non-strategic [X]

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [ ] Core Network [X]

Source: N2 **Date:** 16-02-2000

Subject: Adding D-CSI to table with Negotiated CAMEL Capability Handling variables

Work item: CAMEL Phase 3

Category:

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

Release:

Phase 2	[ ]
Release 96	[ ]
Release 97	[ ]
Release 98	[ ]
Release 99	[X]
Release 00	[ ]

Reason for change:

The table in sect. 2.14.2.1 itemises the Negotiated CAMEL Capability Handling variables that are stored in the HLR. Each CSI has a Negotiated CAMEL Capability Handling variable associated with it.

D-CSI is currently missing from the table.

The present CR adds '*D-CSI Negotiated CAMEL Capability Handling*' to this table.

Clauses affected: 2.14.2.1

Other specs affected:

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

Other comments:

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

2.14.2 Other Data stored in the HLR

2.14.2.1 Negotiated CAMEL Capability Handling

The HLR shall have a set of *negotiated CAMEL Capability Handling* variables. Each CSI that may be downloaded to the VLR or to the SGSN shall have a negotiated CAMEL Capability Handling (CCH) variable associated with it.

The negotiated CCH variable for a CSI indicates what CAMEL Phase is indicated in that CSI in the VLR or SGSN.

When the negotiated CCH variable has a value NULL, it indicates that that CSI has not been downloaded to the VLR or SGSN.

The following table shows the *negotiated CAMEL Capability Handling* variables.

Variable name	Associated CSI	CSI stored in	Allowable values for negotiated CCH
O-CSI Negotiated CAMEL Capability Handling	O-CSI	VLR	NULL, 1, 2, 3
D-CSI Negotiated CAMEL Capability Handling	D-CSI	VLR	NULL, 3
SS-CSI Negotiated CAMEL Capability Handling	SS-CSI	VLR	NULL, 2, 3
VT-CSI Negotiated CAMEL Capability Handling	VT-CSI	VLR	NULL, 3
SMS-CSI VLR Negotiated CAMEL Capability Handling	SMS-CSI	VLR	NULL, 3
M-CSI Negotiated CAMEL Capability Handling	M-CSI	VLR	NULL, 3
SMS-CSI SGSN Negotiated CAMEL Capability Handling	SMS-CSI	SGSN	NULL, 3
GPRS-CSI Negotiated CAMEL Capability Handling	GPRS-CSI	SGSN	NULL, 3

There is no *negotiated CAMEL Capability Handling* variable associated with TIF-CSI.

The HLR does not store a *Negotiated CAMEL Capability Handling* for CSIs that are sent to the GMSC, since a subscriber is not permanently registered in a GMSC.

2.14.2.2 Supported CAMEL Phases

The HLR shall store the supported CAMEL Phases of the VLR where the subscriber is currently registered and the SGSN where the subscriber is currently attached.

The following variables are required:

- VLR Supported CAMEL Phases
- SGSN Supported CAMEL Phases

The HLR does not store the Supported CAMEL Phases of the GMSC, since a subscriber is not permanently registered at a GMSC.

2.14.2.3 UG-CSI

The USSD general CAMEL service(UG-CSI) is also stored in the HLR. This data is used on USSD request receipt from the MS. It consists of a list of:

- a service code. The service code defines a specific application in the gsmSCF;
- a gsmSCFaddress. It is the gsmSCF address (E.164 number) where the USSD application is treated for this subscriber.

3GPP TSG-CN WG2 Subgroup B **Document N2B000326**

Milano, ITALIA, 14-16 Feb 2000

3G CHANGE REQUEST

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

23.018 **CR** **026r2** Current Version: 3.1.0

3G specification number ↑ *↑ CR number as allocated by 3G support team*

For submision to TSG CN#07 *list TSG meeting no. here ↑*

for approval [X]
for information [ ]

(only one box should be marked with an X)

Form: 3G CR cover sheet, version 1.0 *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/3GCRF-xx.rtf*

Proposed change affects: *(at least one should be marked with an X)* USIM [ ] ME [ ] UTRAN [ ] Core Network [X]

Source: N2 **Date:** 14/02/2000

Subject: Alternative solution for ALR

3G Work item: CAMEL Phase 3

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

F	Correction	[ ]
A	Corresponds to a correction in a 2G specification	[ ]
B	Addition of feature	[X]
C	Functional modification of feature	[ ]
D	Editorial modification	[ ]

Reason for change: Introduction of new process and procedures to support paging on receipt of MAP_PSI message.

Clauses affected: 7, 8

Other specs Affected:

Other 3G core specifications	[ ]	→ List of CRs: 23.078-???
Other 2G core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

help.doc

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

FIRST MODIFIED SECTION

7.2.3 Functional requirements of VLR

7.2.3.4 Procedure Retrieve_Location_Info_VLR

The parameter CurrentLocationRetrieved is used to ~~determine~~indicate ~~if~~that the location information ~~were~~was obtained ~~after a~~by paging ~~of~~ the ~~mobile~~MS. ~~It is set to False at the beginning of the procedure.~~

The test "Retrieve location info from SGSN" takes the "Yes" exit if:

- the Gs interface is implemented; and
- there is an association established between the MSC/VLR and the SGSN.

The stored location information consists of:

- the cell ID of the cell in which the MS last established radio contact;
- the location number and geographical information derived from the cell ID if the VLR is capable of doing so (the mapping from cell ID to location number is network-specific and outside the scope of the GSM standard);
- the age of the location information.

The received location information consists of:

- the cell ID received in the paging response message;
- the location number and geographical information derived from the cell ID if the VLR is capable of doing so (the mapping from cell ID to location number is network-specific and outside the scope of the GSM standard);
- the age of the location information.

The output signal Send MS information towards the SGSN indicates that the required information is mobile location information.

The derivation of the location number and geographical information from the received cell ID is a VLR operator option (the mapping from cell ID to location number is network-specific and outside the scope of the GSM standard).

7.2.3.5 Procedure Retrieve_Current_Location_VLR

The test "Paging via SGSN possible" takes the "yes" exit if:

- the Gs interface is implemented; and
- the VLR configuration requires paging via the SGSN during VLR restoration.

The output signal Page MS towards the SGSN includes or omits the Location area identity parameter depending on the availability of this information. If it is omitted, the signal Page MS is sent to every SGSN to which the VLR is connected.

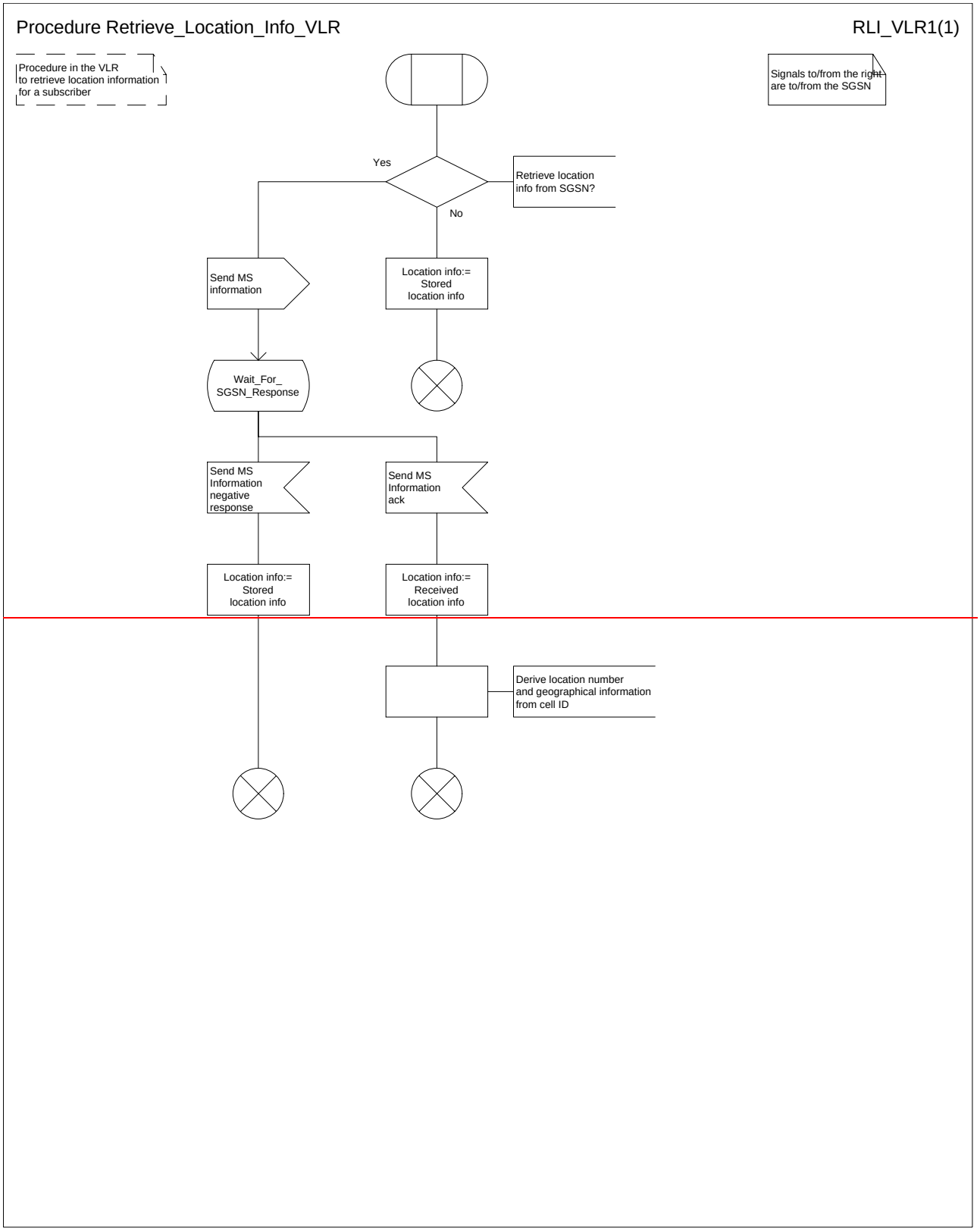

Figure 57a: Procedure Retrieve_Location_Info_VLR

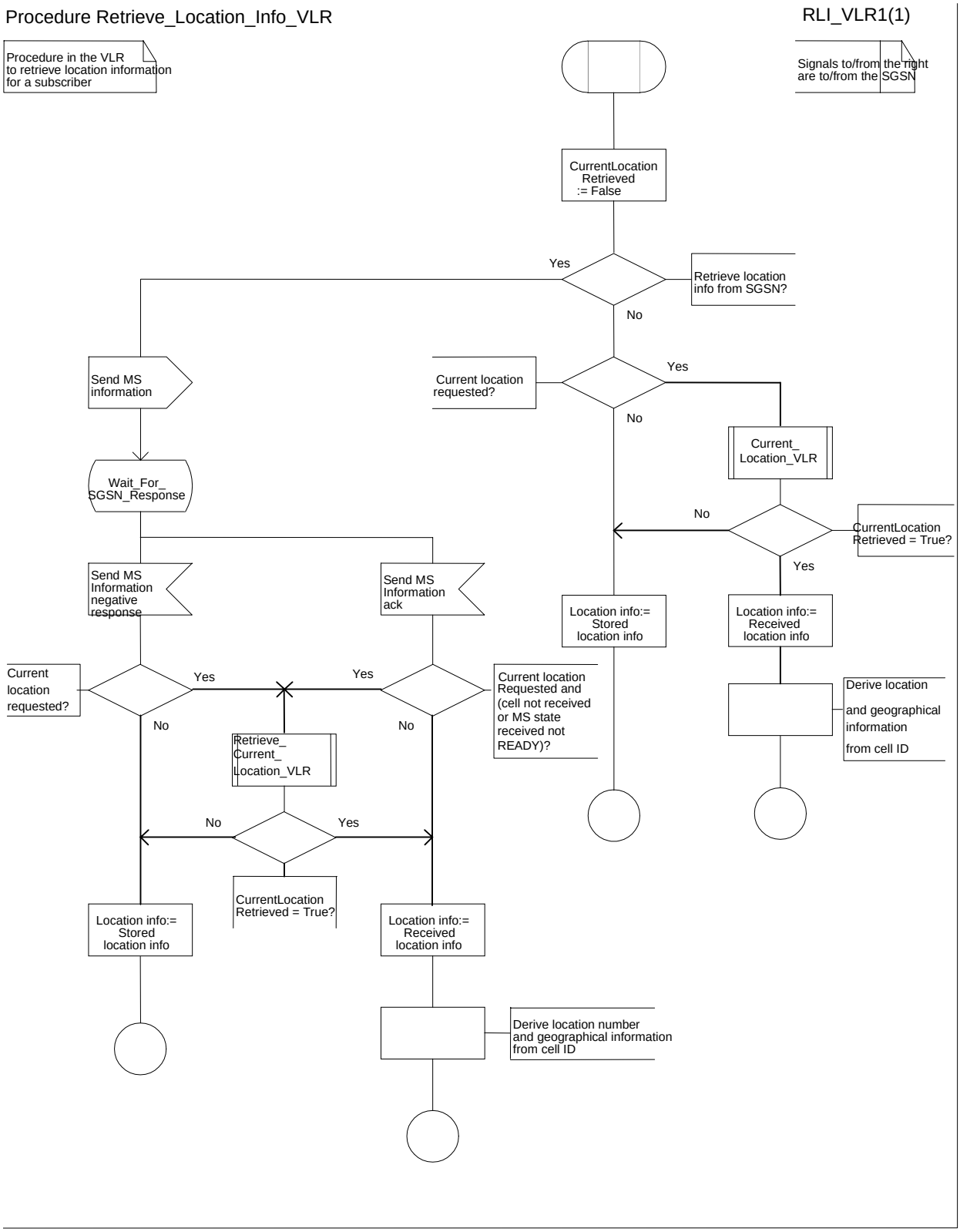

Figure 57a: Procedure Retrieve_Location_Info_VLR

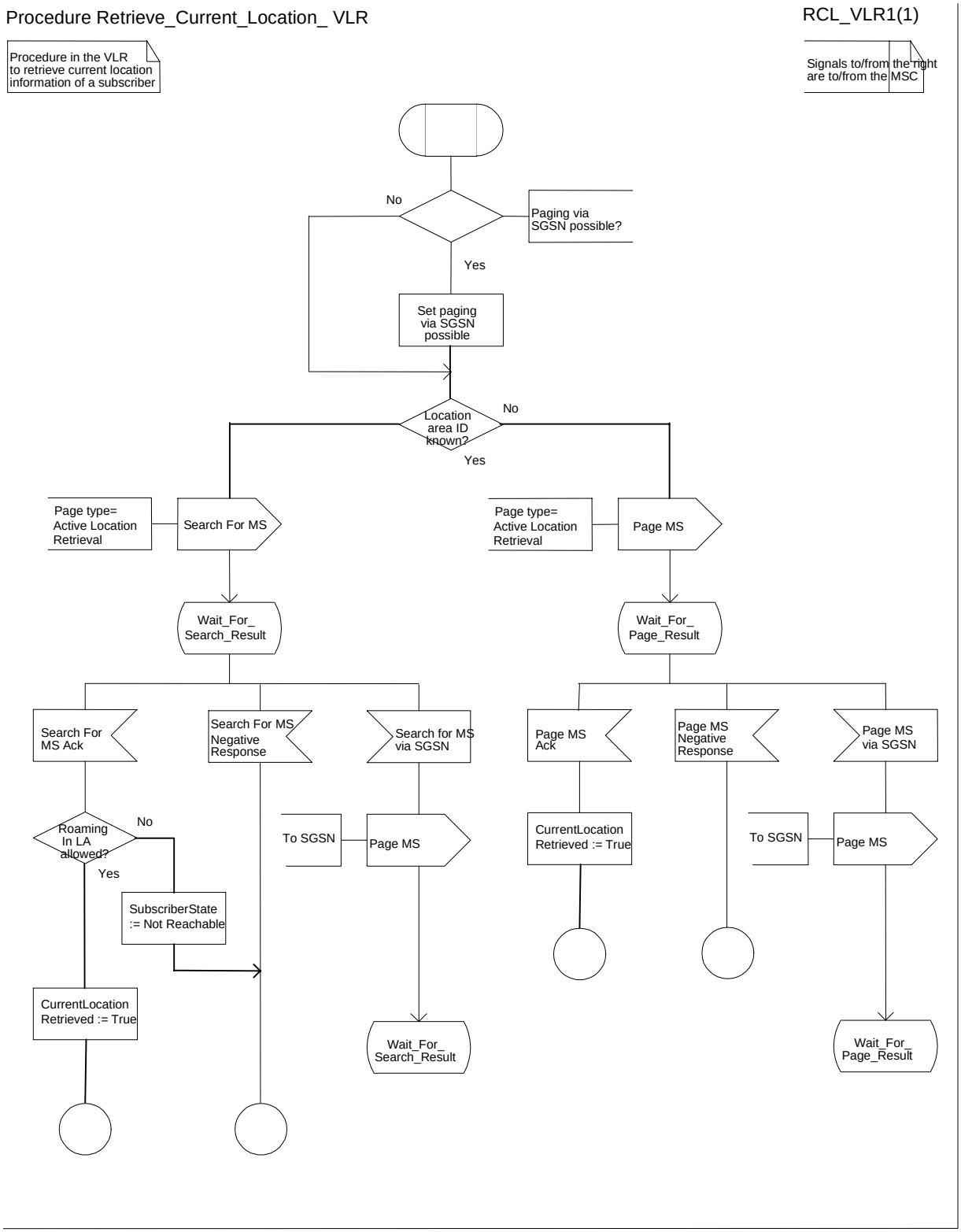

Figure ~~xx~~57bis: Procedure Retrieve_Current_Location_VLR

NEXT MODIFIED SECTION

7.2.4 Functional requirements of MSC

7.2.4.2 Process Retrieve_Current_Location_MSC

7.2.4.3 Procedure Current_Location_Page_MS_MSC

The test "MS connection exists" takes the "Yes" exit if there is a radio connection established between the MS and the network.

7.2.4.4 Procedure Current_Location_Search_MS_MSC

The test "MS connection exists" takes the "Yes" exit if there is a radio connection established between the MS and the network.

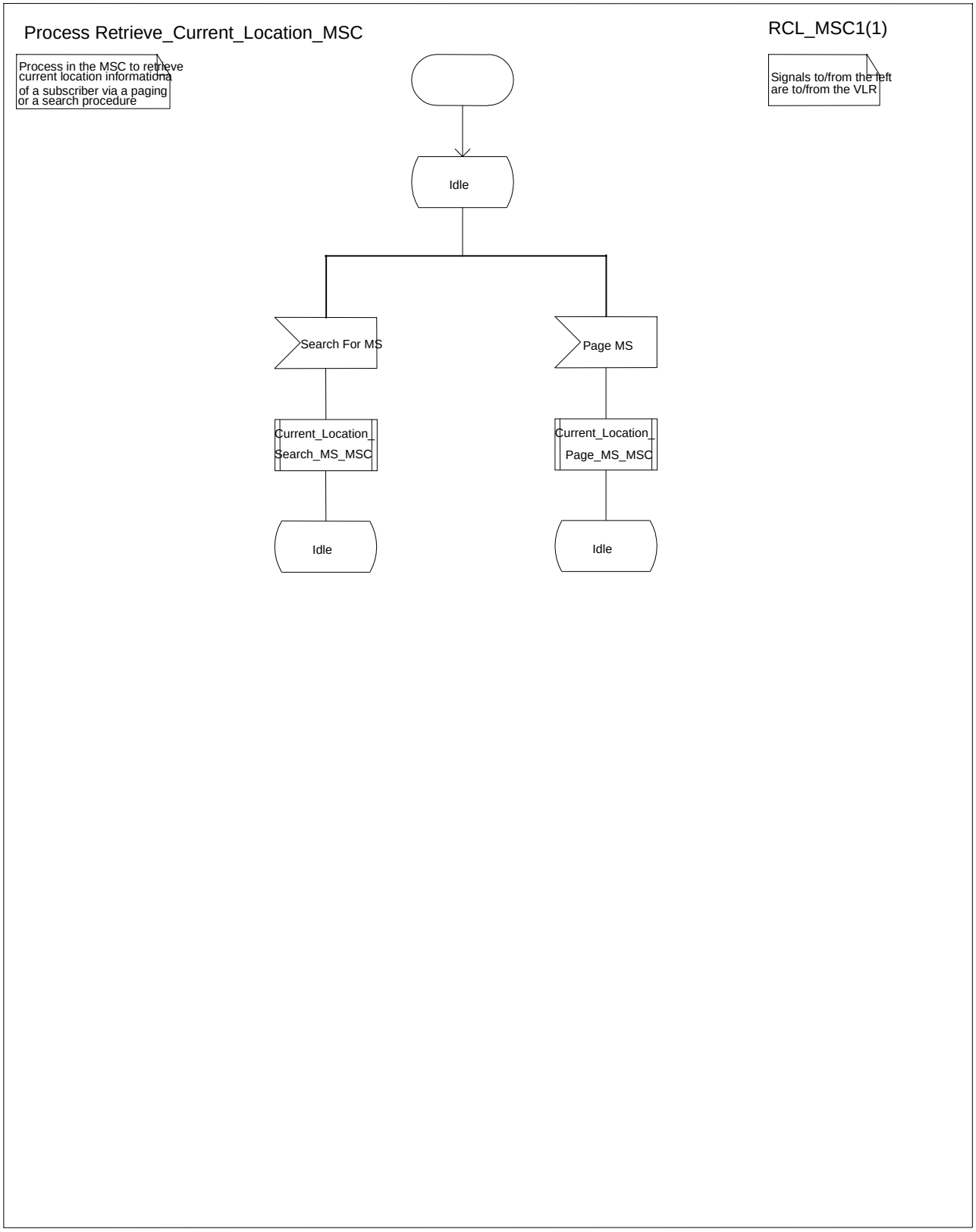

Figure ~~yy~~61bis : Process Retrieve_Current_Location_MSC

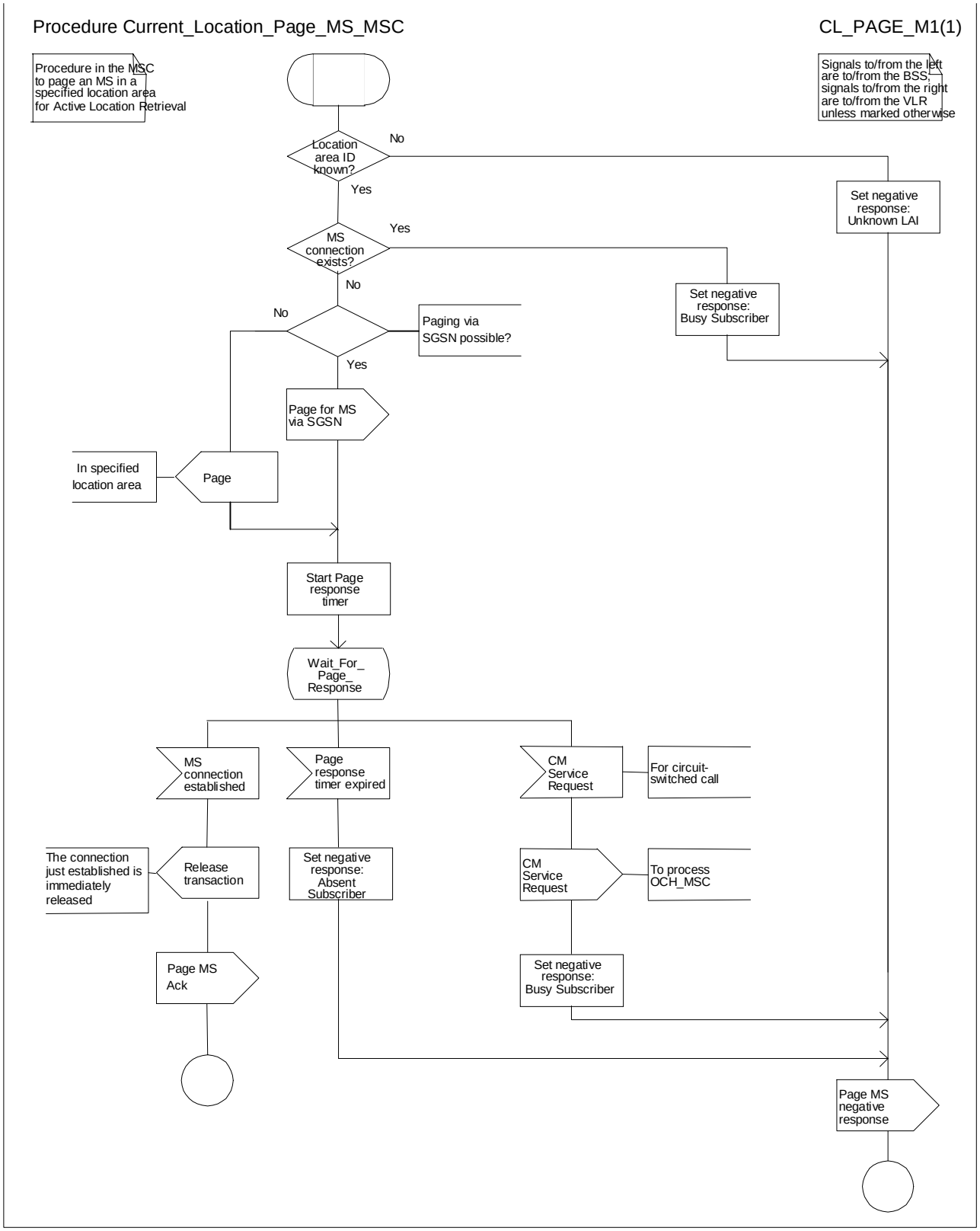

Figure ~~zz~~61ter : Procedure Current_Location_Page_MS_MSC

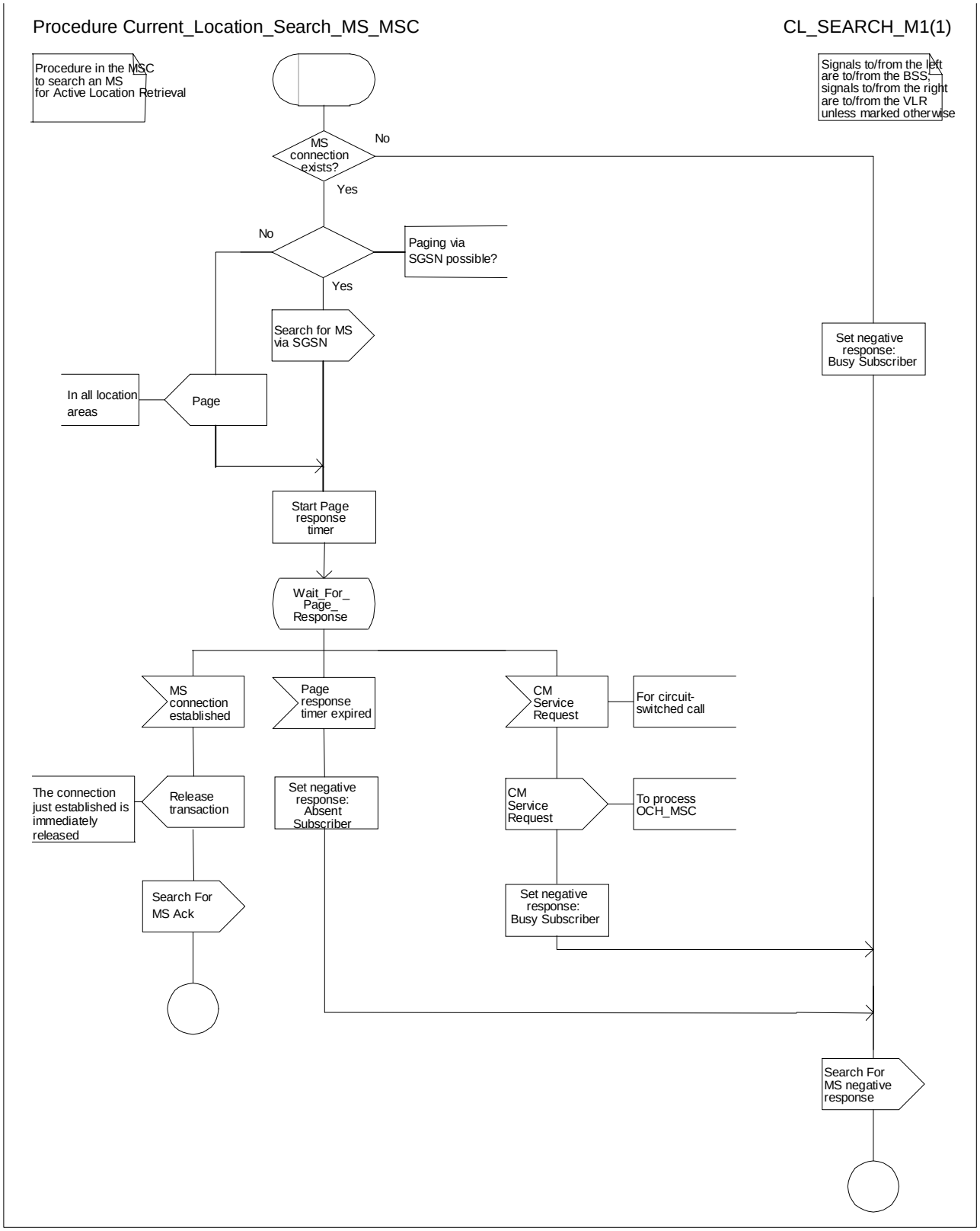

Figure ~~aa~~61quater : Procedure Current_Location_Search_MS_MSC

NEXT MODIFIED SECTION

8 Contents of messages

This clause specifies the content of each message shown in clauses **Error! Reference source not found.~~Error! Reference source not found.Erreur! Source du renvoi introuvable.~~** & **Error! Reference source not found.~~Error! Reference source not found.Erreur! Source du renvoi introuvable.~~**, except for the following messages, which are not specific to call handling:

On the D interface (VLR-HLR):

- Abort;
- Activate Trace Mode
- Insert Subscriber Data
- Send Authentication Info;
- Send Authentication Info ack;
- Send Authentication Info negative response;

In the tables which follow, information elements are shown as mandatory (M), conditional (C) or optional (O). A mandatory information element shall always be present. A conditional information element shall be present if certain conditions are fulfilled; if those conditions are not fulfilled it shall be absent. An optional element may be present or absent, at the discretion of the application at the sending entity.

8.1 Messages on the B interface (MSC-VLR)

8.1.15 Page MS

The following information elements are required:

Information element name	Required	Description
IMSI	M	IMSI of the MS to be paged.
Location area ID	M	Location area in which the MS is to be paged.
Page type	M	Indicates whether the paging is for a circuit-switched call, MT SMS delivery~~, or~~ SS activity or Active Location Retrieval
Paging via SGSN possible	C	Indicates that paging via the SGSN is possible. Shall be present if the VLR determines that the MS can be paged via the SGSN; otherwise shall be absent.
TMSI	O	TMSI to be broadcast to identify the MS.

8.1.15bis~~X~~ Page MS ~~response~~ack

The following information elements are required :

Information element name	Required	Description
~~Current I~~Location area ID	M	Location area in which the MS responded to the page.~~Identity of the location area in which contact with the MS has been established.~~
Serving cell ID	M	Identity of the cell in ~~use by~~ which ~~is used~~ the served subscriber is located.

8.1.16 Page MS negative response

The negative response information element can take the following values:

- Absent subscriber;
- Busy subscriber (More calls possible);
- Busy subscriber (NDUB);
- System failure;
- Unknown location area ID.

The Page MS negative response Busy subscriber (More calls possible) also indicates the basic service which applies for the established call.

NEXT MODIFIED SECTION

8.1.28 Search For MS

The following information elements are required:

Information element name	Required	Description
IMSI	M	IMSI of the MS to be paged in all location areas.
Page type	M	Indicates whether the paging is for a circuit-switched call, MT SMS delivery, ~~or~~ SS activity or Active Location Retrieval
Paging via SGSN possible	C	Indicates that paging via the SGSN is possible. Shall be present if the VLR determines that the MS can be paged via the SGSN; otherwise shall be absent.
TMSI	O	TMSI to be broadcast to identify the MS.

8.1.29 Search For MS ack

The following information element is required:

Information element name	Required	Description
Location area ID	M	Location area in which the MS responded to the page.
Serving cell ID	M	Identity of the cell in which ~~is located~~ the served subscriber is located.

8.1.30 Search For MS negative response

The negative response information element can take the following values:

- Absent subscriber;
- Busy subscriber (More calls possible);
- Busy subscriber (NDUB);
- System failure.

The Search For MS negative response Busy subscriber (More calls possible) also indicates the basic service which applies for the established call.

8.1.31 Search for MS via SGSN

The following information elements are required:

Information element name	Required	Description
IMSI	M	IMSI of the MS to be paged.
eMLPP priority	O	Circuit-switched paging priority.
TMSI	O	TMSI to be broadcast to identify the MS.
Channel type	O	Type of channel required for the call.

NEXT MODIFIED SECTION

8.3 Messages on the D interface (VLR-HLR)

8.3.4 Provide Subscriber Info

The following information elements are required:

Information element name	Required	Description
IMSI	M	IMSI of the subscriber for whom information is requested (see GSM 03.03).
LMSI	C	Local Mobile Subscriber Identity. Shall be present if the LMSI was sent to the HLR at location updating.
Requested information	M	Indicates whether the HLR requires location information, subscriber state or both location information and subscriber state. ~~The elements contained in this IE are specified in 3G TS 23.078.~~
Active location retrieval requested	C	Indicates that the HLR requires active location retrieval. Shall be absent if the requested information does not indicate that the HLR requires location information.

8.3.5 Provide Subscriber Info ack

The following information elements are required:

Information element name	Required	Description
Location information	C	Information to define the location of the MS: see definition in subclause 8.3.5.1. Shall be present if location information was requested and is available; otherwise shall be absent.
Subscriber state	C	Indicates whether the MS is busy (i.e. engaged on a circuit-switched call), network determined not reachable (IMSI detached or roaming in a prohibited location area) or assumed idle. Shall be present if subscriber state was requested; otherwise shall be absent.

8.3.5.1 Location information

The compound information element Location information consists of the following subordinate information elements:

Information element name	Required	Description
Location number	C	For a definition of this information element, see ETS 300 356-1. Shall be present if the VLR can derive it from the stored cell global identity or location area identity; otherwise shall be absent. The mapping from cell ID and location area to location number is network-specific and outside the scope of the GSM standard.
Cell ID	C	Cell global identity of the cell in which the MS is currently in radio contact or in which the MS was last in radio contact. Shall be present if the subscriber record is marked as confirmed by radio contact; otherwise shall be absent.
Geographical information	C	For a definition of this information element, see GSM 03.32 (Universal Geographical Area Description). Shall be present if the VLR can derive it from the stored cell global identity or location area identity; otherwise shall be absent.
VLR number	O	E.164 number which identifies the VLR (see GSM 03.03). If the HLR receives it from the VLR it shall ignore it.
Age of location information	C	Measured in minutes. Shall be present if available in the MSC/VLR; otherwise shall be absent.
Current Location Retrieved	C	Shall be present when location information ~~were~~was obtained after a successful paging procedure ~~in case of~~for active location retrieval.

3GPP TSG-CN2 WG2 SWGB #4
Milan, Italy, 14-16 February 2000

Document N2B000294

CHANGE REQUEST

23.018	CR	028r1	Current Version:	3.3.0

For submission to: CN#07 | for approval [X] | for information [ ] | strategic [ ] | non-strategic [X]

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [ ] Core Network [X]

Source: N2 **Date:** 11-02-2000

Subject: User interaction in Monitoring state

Work item: CAMEL Phase 3

Category:

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

Release:

Phase 2	[ ]
Release 96	[ ]
Release 97	[ ]
Release 98	[ ]
Release 99	[X]
Release 00	[ ]

Reason for change:

The Camel Phase 3 standards 22.078, 23.078 and 29.078 specify the behaviour when the gsmSCF performs User Interaction while the call is in Monitoring state.

It shall be possible for the SCP to order User Interaction in the following three cases:

1. During state 'Wait_for_Clear' in process 'OG_Call_Setup_MSC'
   (during mobile originated calls in the VMSC)
   See section 7.1, sheet 9 (new)

2. During state 'Wait_for_Clear' in process 'MT_GMSC'
   (during mobile terminated calls in the GMSC)
   See section 7.2, sheet 8 (new)

3. During state 'Wait_for_Clear' in process 'ICH_MSC
   (during mobile terminated calls in the VMSC)
   See section 7.3, sheet 14 (new)

The present CR introduces the necessary modifications to 23.018.

Clauses affected: 7.1, 7.2, 7.3

Other specs affected:

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

Other comments: A set of contributions on the same issue, to 3G TS 23.078 and 3G TS 29.078 will be submitted to the 3GPP-CN2A ad hoc meeting, 21 February 2000.

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

7.1 MO call

7.1.1 Functional requirements of serving MSC

…

…

7.1.1.3 Procedure OG_Call_Setup_MSC

Sheet 1: the variables Alerting sent, MS connected and Reconnect are global data, accessible to the procedures CCBS_Check_OG_Call, CCBS_OCH_Report_Failure, CCBS_OCH_Report_Success, CCBS_Check_If_CCBS_Possible, Send_Alerting_If_Required and Send_Access_Connect_If_Required.

Sheet 1: the VMSC converts the GSM bearer capability negotiated between the VMSC and the MS to a GSM basic service according to the rules defined in GSM 07.01 [**Error! Reference source not found.**].

Sheet 1: the variable UUS1 result sent is specific to UUS. This variable is accessible to all UUS specific procedures.

Sheet 1: the procedure UUS_OCH_Check_Setup is specific to UUS; it is specified in GSM 03.87 [**Error! Reference source not found.**].

Sheet 1, sheet 2, sheet 5: the procedure CCBS_OCH_Report_Failure is specific to CCBS; it is specified in GSM 03.93 [**Error! Reference source not found.**].

Sheet 1, sheet 5, sheet 6, sheet 8: at any stage after the Setup has been received, the MS may terminate the transaction with the network by sending a Release transaction request.

Sheet 2: the procedure Set_CLI_Presentation_Indicator_MSC is specific to CLIR. If the VMSC does not support CLIR, processing continues from the "Yes" exit of the test "Result=Call allowed?".

Sheet 2: the procedure CAMEL_OCH_MSC_INIT is specific to CAMEL; it is specified in GSM 03.78 for CAMEL Phase 1 [**Error! Reference source not found.**] and GSM 03.78 for CAMEL Phase 2 [**Error! Reference source not found.**]. If the VMSC does not support CAMEL, processing continues from the "Yes" exit of the test "Result=Pass?".

Sheet 2: the procedure CAMEL_MO_Dialled_Services is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [**Error! Reference source not found.**]. If the VMSC does not support CAMEL phase 3, processing continues from the "Yes" exit of the test "Result=Pass?".

Sheet 2: the procedure CCBS_Check_OG_Call is specific to CCBS; it is specified in GSM 03.93 [**Error! Reference source not found.**]. If the VMSC does not support CCBS, processing continues from the "Yes" exit of the test "Result=Pass?".

Sheet 2: the procedure MOBILE_NUMBER_PORTABILITY_IN_OQoD is specific to Mobile Number Portability; it is specified in GSM 03.66 [**Error! Reference source not found.**].

Sheet 2: the procedure UUS_OCH_Set_Info_In_IAM is specific to UUS; it is specified in GSM 03.87 [**Error! Reference source not found.**].

Sheet 2: the procedure CAMEL_Store_Destination_Address is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [**Error! Reference source not found.**].

Sheet 3: the procedure CCBS_OCH_Report_Success is specific to CCBS; it is specified in GSM 03.93 [**Error! Reference source not found.**].

Sheet 3, sheet 6: the procedures CAMEL_Start_TNRy and CAMEL_Stop_TNRy are specific to CAMEL phase 2; they are specified in GSM 03.78 for CAMEL Phase 2 [**Error! Reference source not found.**].

Sheet 3: the task "UTU2Cnt := 0" is executed only if the VMSC supports UUS

Sheet 4: the procedure CAMEL_OCH_MSC_ANSWER is specific to CAMEL; it is specified in GSM 03.78 for CAMEL Phase 1 [**Error! Reference source not found.**] and GSM 03.78 for CAMEL Phase 2 [**Error! Reference source not found.**]. If the VMSC does not support CAMEL, processing continues from the "Yes" exit of the test "Result=Pass?".

Sheet 4: the procedure Set_COLP_Info_MSC is specific to COLP.

Sheet 4: the procedure Handle_AoC_MO_MSC is specific to AoC.

Sheet 4: the task "Store CW treatment indicator for this call if received in SII2" is executed only if the VMSC supports CAMEL phase 3.

Sheet 5: the procedures CCBS_Check_If_CCBS_Possible and CCBS_Activation_MSC are specific to CCBS; they are specified in GSM 03.93 [**Error! Reference source not found.**]. The task "Store CCBS Result" is executed only if the VMSC supports CCBS. If the VMSC does not support CCBS, processing continues from the "CCBS Not Possible" exit of the test "CCBS Result".

Sheet 5, sheet 6: the procedures CAMEL_OCH_MSC_DISC3 and CAMEL_OCH_MSC_DISC4 are specific to CAMEL; they are specified in GSM 03.78 for CAMEL Phase 1 [**Error! Reference source not found.**] and GSM 03.78 for CAMEL Phase 2 [**Error! Reference source not found.**] respectively.

Sheet 5, sheet 6: the procedure CAMEL_OCH_MSC1 is specific to CAMEL phase 2; it is specified in GSM 03.78 for CAMEL Phase 2 [**Error! Reference source not found.**]. If the VMSC does not support CAMEL phase 2, processing continues from the "No" exit of the test "Result=Reconnect?"

Sheet 5, sheet 6, sheet 8: the processing in the branch beginning with the Int_Release_Call input will occur only if the MSC supports CAMEL.

Sheet 6, sheet 8: the procedure UUS_MSC_Check_UUS1_UUI is specific to UUS; it is specified in GSM 03.87 [**Error! Reference source not found.**].

Sheet 7: the input signal TNRy expired and all the subsequent processing are specific to CAMEL phase 2, and will occur only if the VMSC supports CAMEL phase 2. The procedure CAMEL_OCH_MSC2 is specified in GSM 03.78 for CAMEL Phase 2 [**Error! Reference source not found.**].

Sheet 7: the input signal User To User is specific to UUS; it is discarded if the VMSC does not support UUS.

Sheet 7: the procedures UUS_MSC_Check_UUS2_UUI_to_MS and UUS_MSC_Check_UUS2_UUI_to_NW are specific to UUS; they are specified in GSM 03.87 [**Error! Reference source not found.**].

Sheet 8: the procedure CAMEL_OCH_MSC_DISC1 is specific to CAMEL; it is specified in GSM 03.78 for CAMEL Phase 1 [**Error! Reference source not found.**] and GSM 03.78 for CAMEL Phase 2 [**Error! Reference source not found.**]. If the VMSC does not support CAMEL, processing continues from the "No" exit of the test "Result=CAMEL handling?".

Sheet 8: the procedure CAMEL_OCH_MSC_DISC2 is specific to CAMEL; it is specified in GSM 03.78 for CAMEL Phase 1 [**Error! Reference source not found.**] and GSM 03.78 for CAMEL Phase 2 [**Error! Reference source not found.**]. If the VMSC does not support CAMEL, processing continues from the "No" exit of the test "Result=CAMEL handling?".

Sheet 9: When the MSC is in state ‘Wait_for_Clear’, it may receive signals ‘Int_Connect_To_Resource’ and ‘Int_Establish_Temporary_Connection’ from process gsmSSF (defined in 3G TS 23.078 [28]).
The procedures CAMEL_CF_CTR and CAMEL_CF_ETC are defined in 3G TS 23.078 [28].
When these procedures are called in gsmSSF Monitoring state, the gsmSCF is only allowed to send operation PlayAnnouncement to the gsmSRF. The gsmSCF is not allowed to send operation Prompt&Collect.

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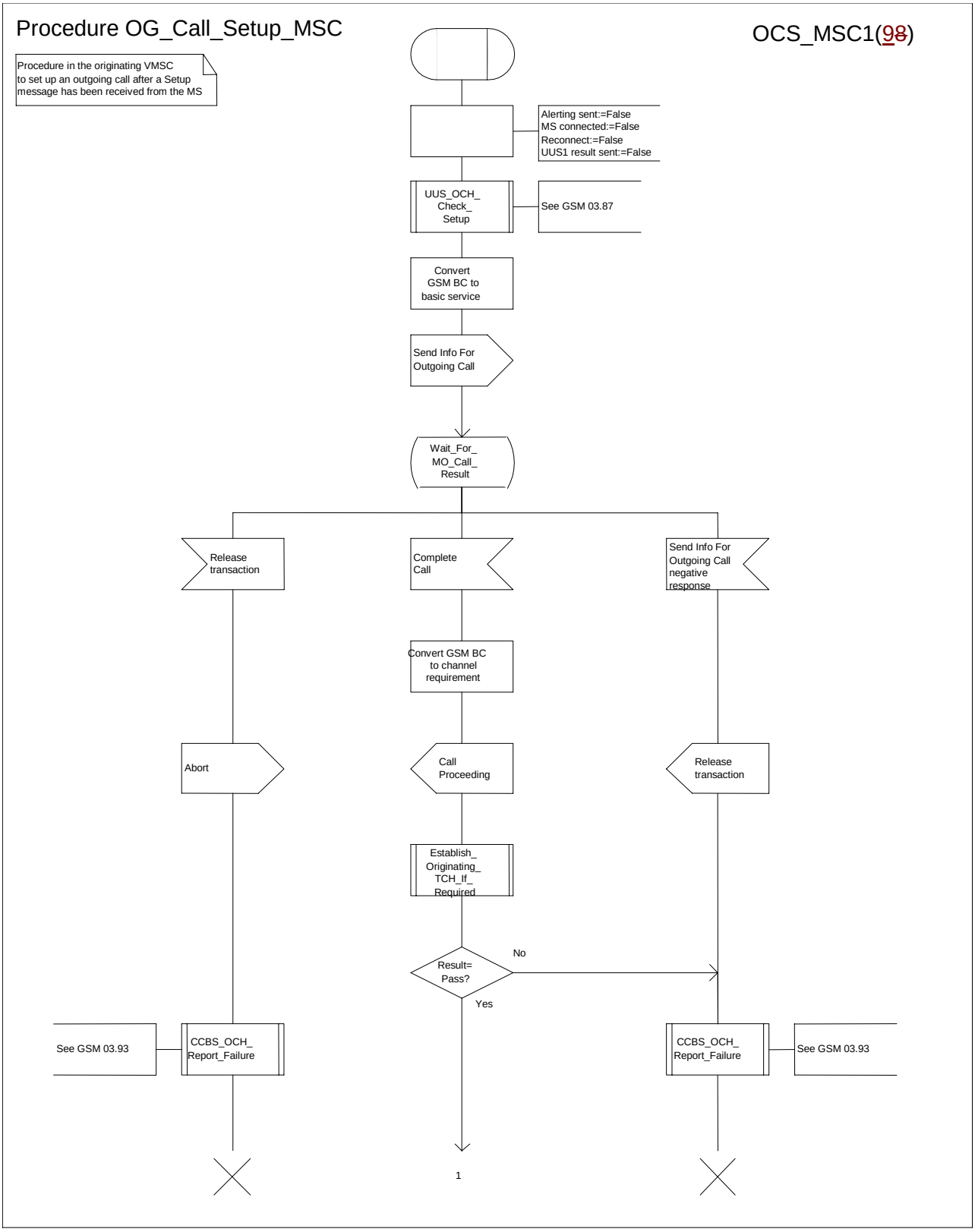

Figure 8a: Procedure Outgoing_Call_Setup_MSC (sheet 1)

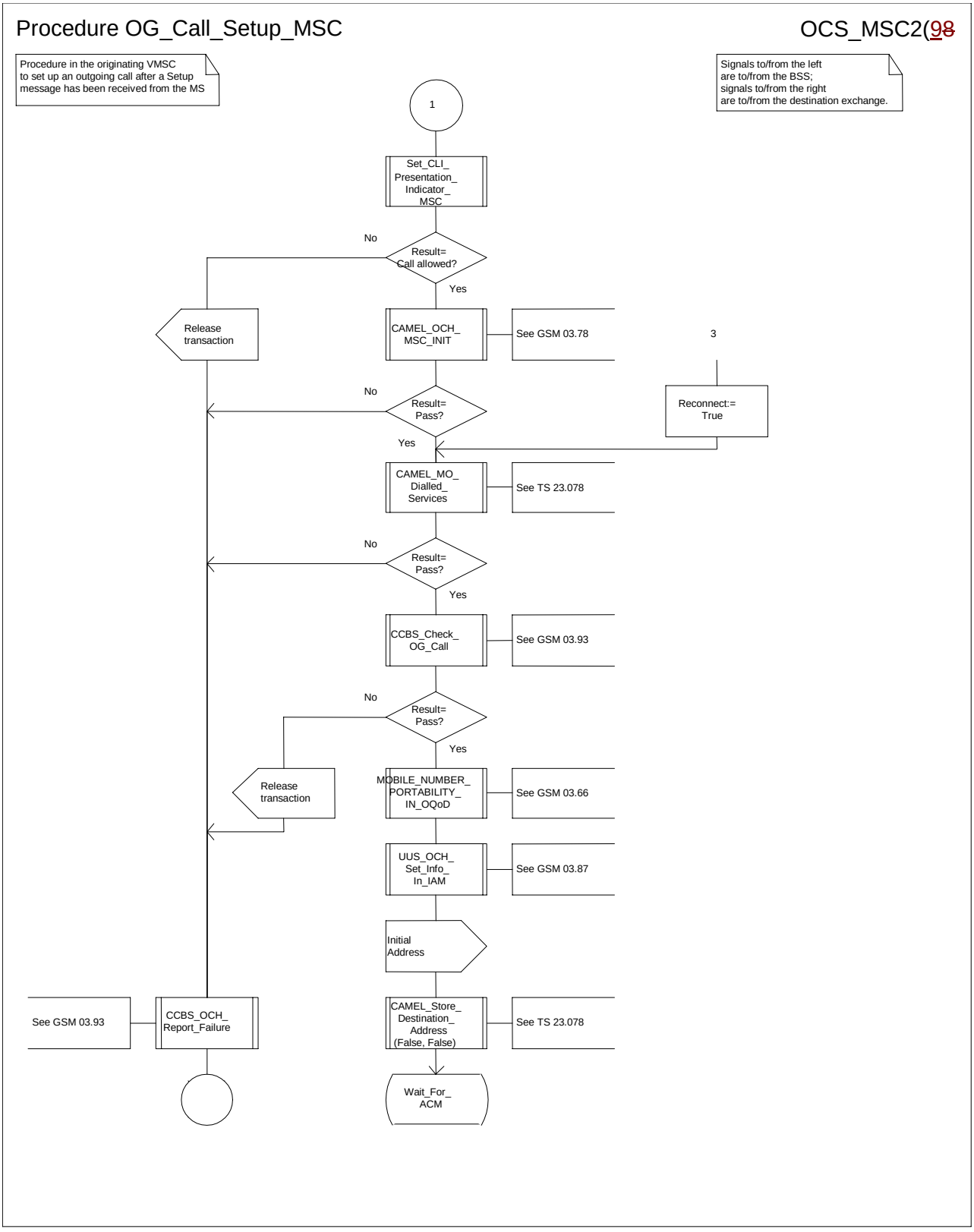

Figure 8b: Procedure Outgoing_Call_Setup _MSC (sheet 2)

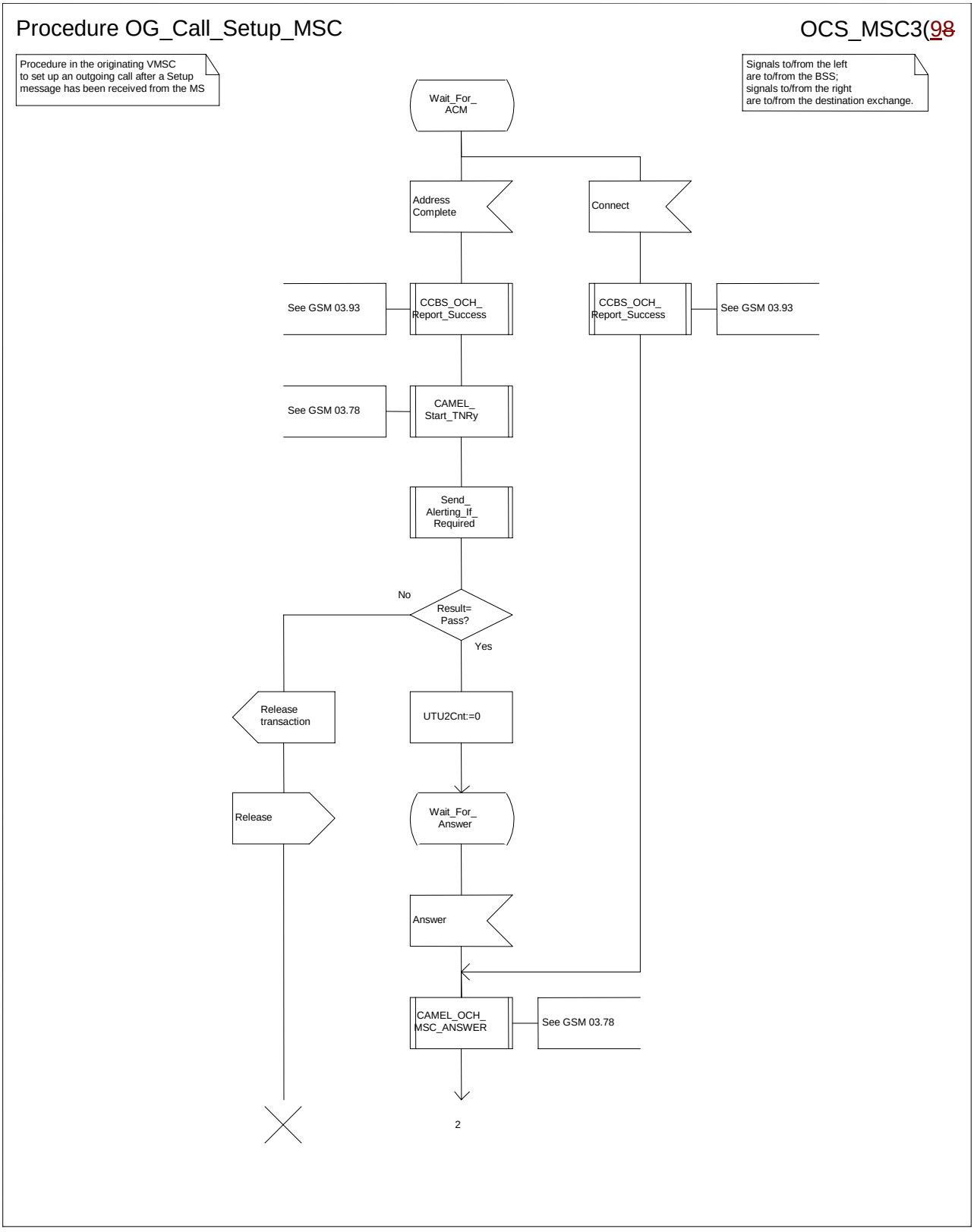

Figure 8c: Procedure Outgoing_Call_Setup _MSC (sheet 3)

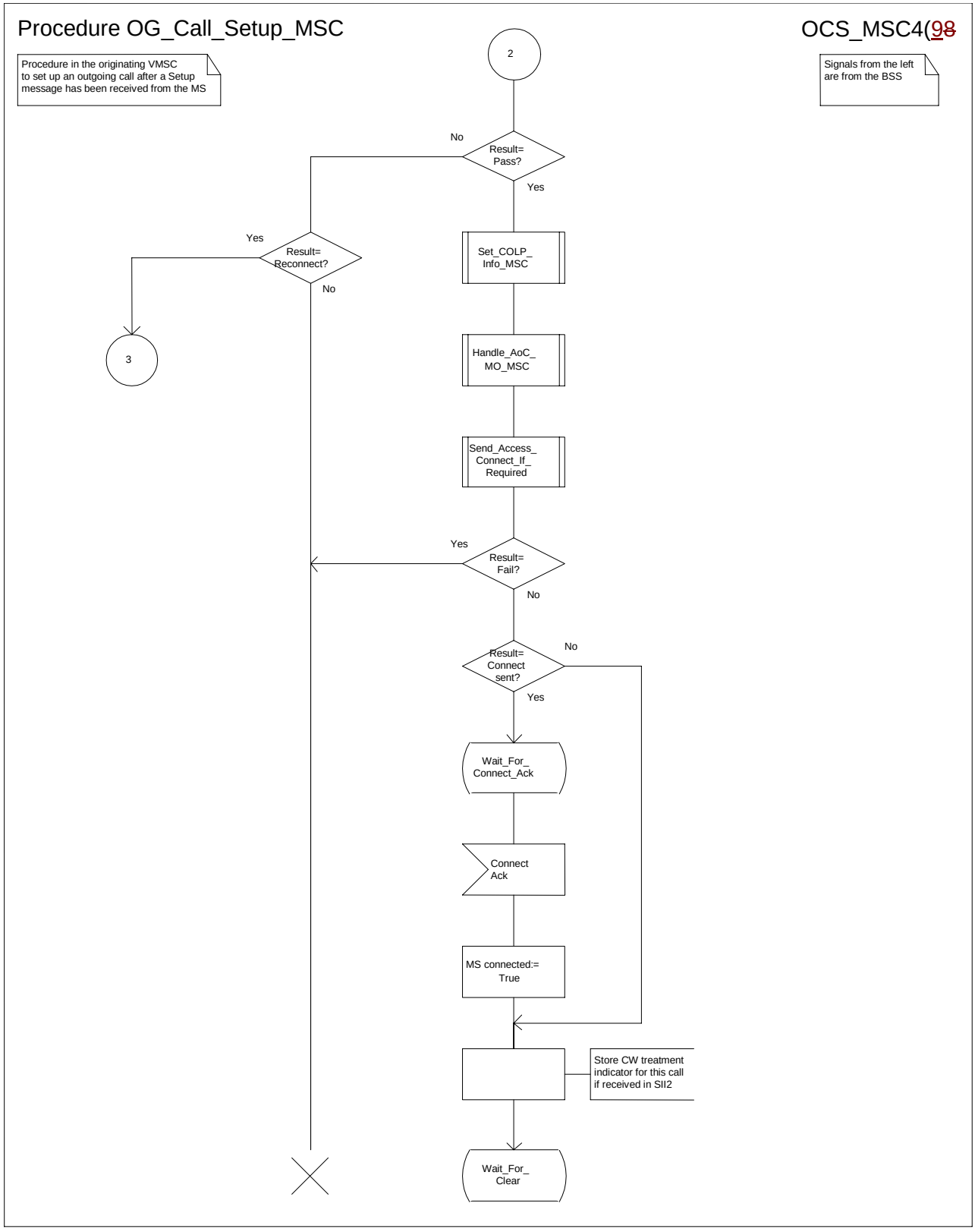

Figure 8d: Procedure Outgoing_Call_Setup _MSC (sheet 4)

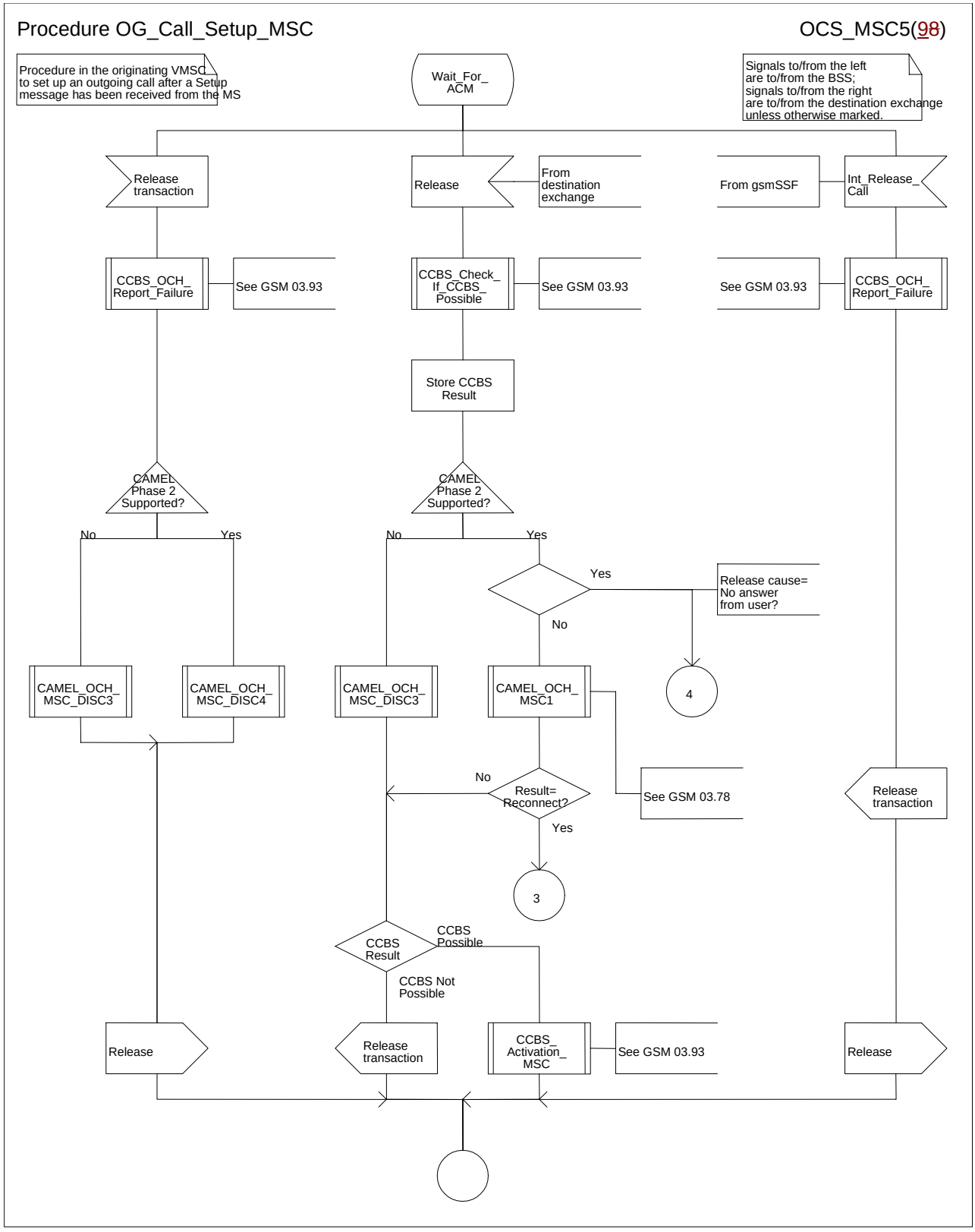

Figure 8e: Procedure Outgoing_Call_Setup _MSC (sheet 5)

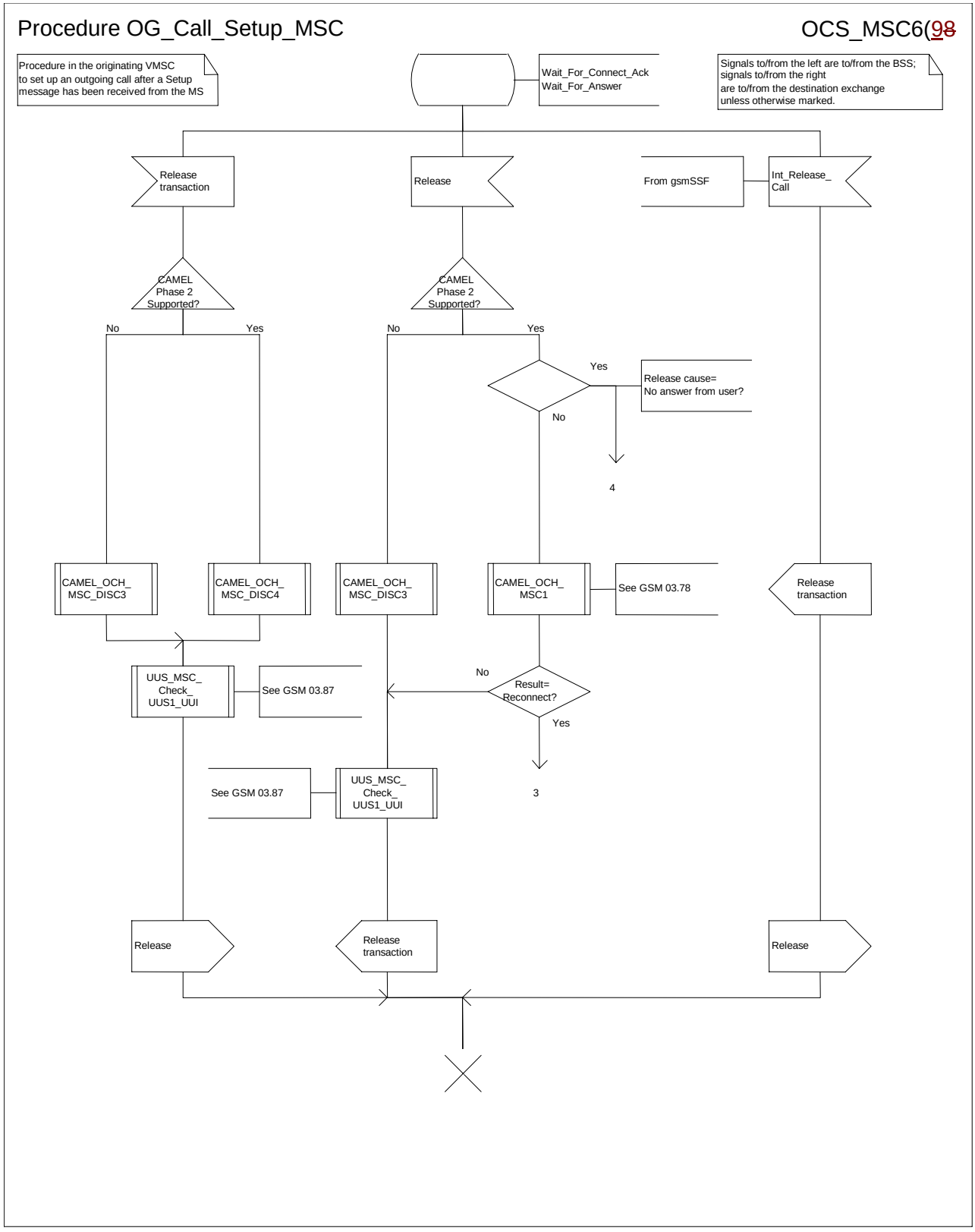

Figure 8f: Procedure Outgoing_Call_Setup _MSC (sheet 6)

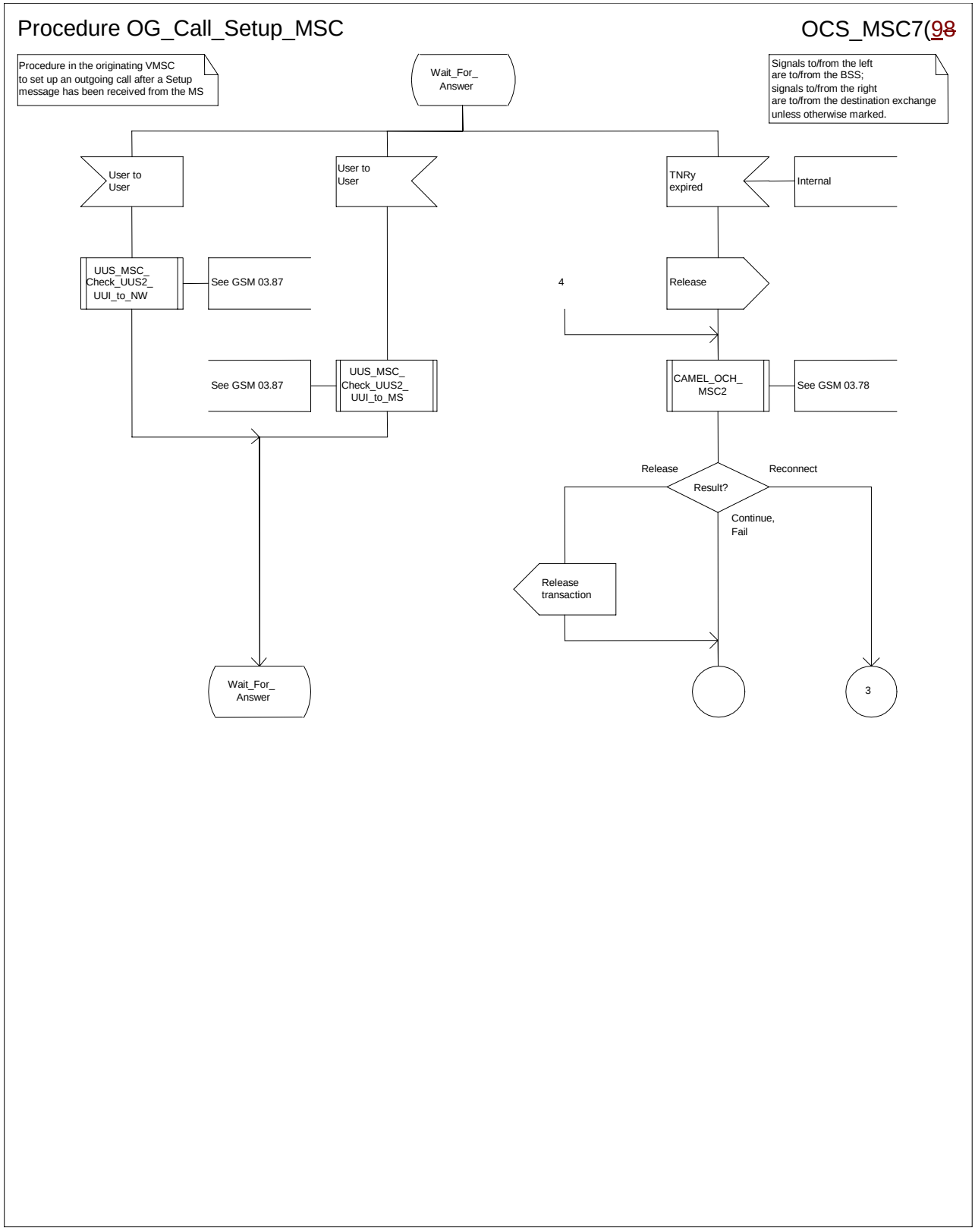

Figure 8g: Procedure Outgoing_Call_Setup _MSC (sheet 7)

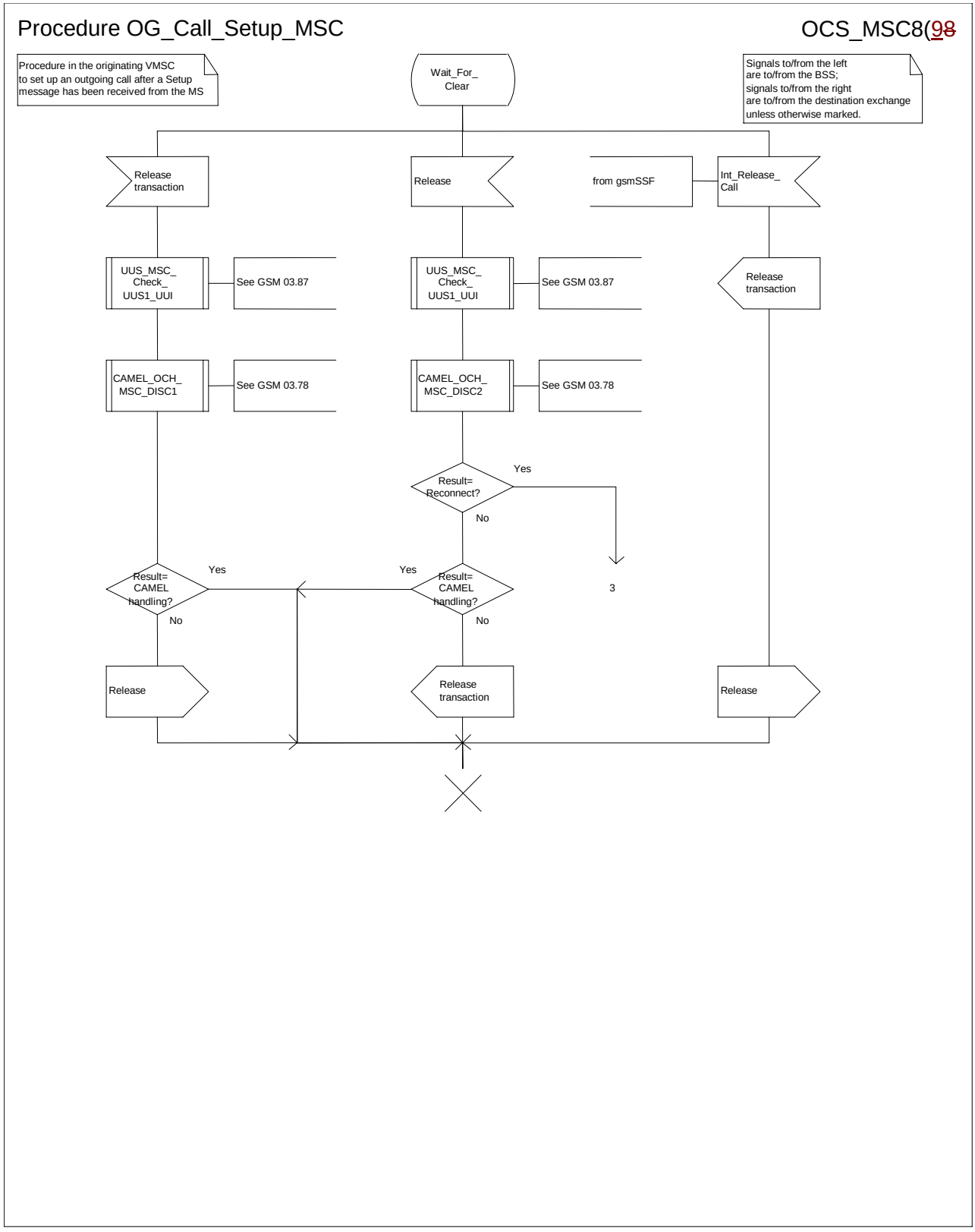

Figure 8h: Procedure Outgoing_Call_Setup _MSC (sheet 8)

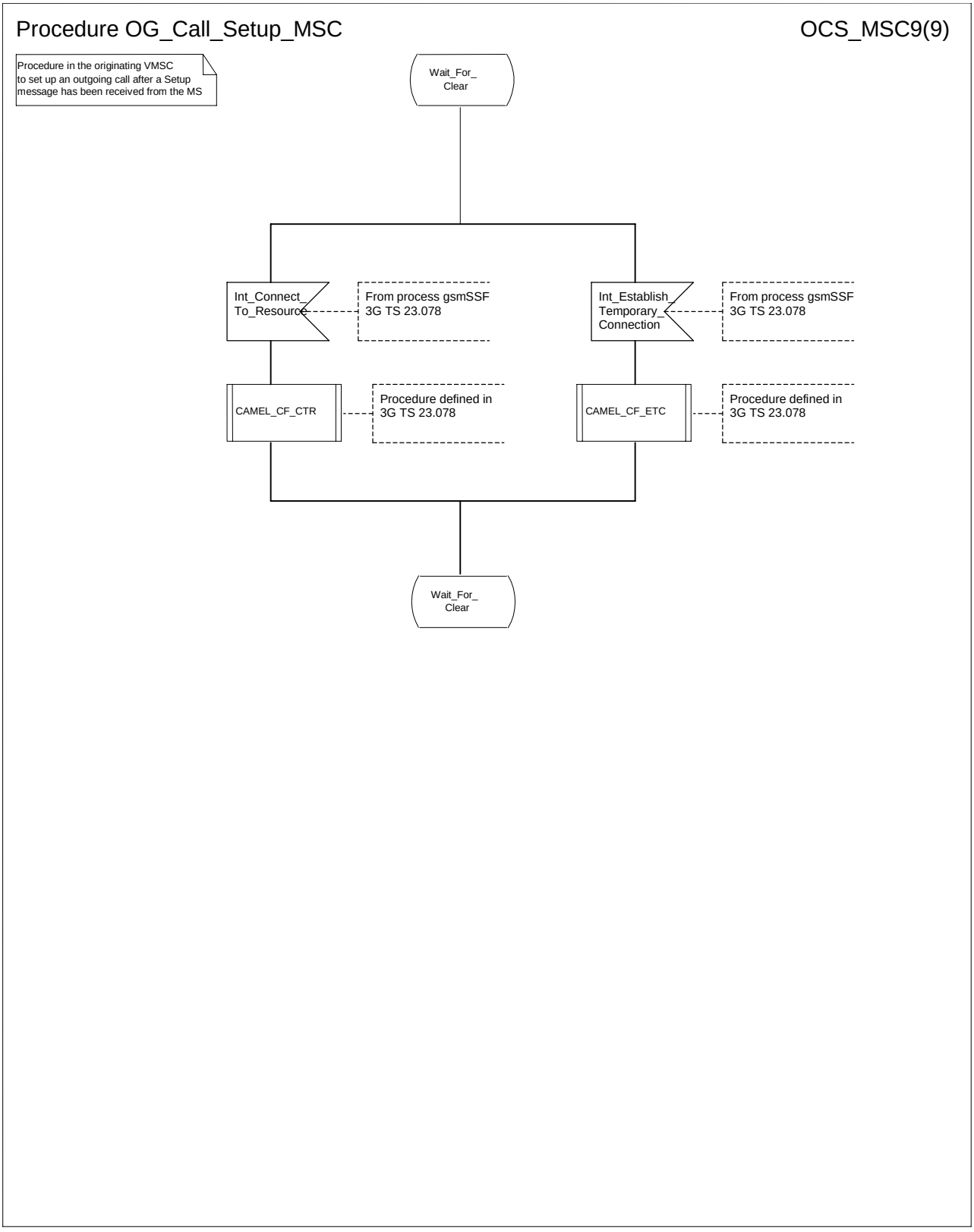

Figure 8i: Procedure Outgoing_Call_Setup _MSC (sheet 9)

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

7.2 Retrieval of routeing information for MT call

7.2.1 Functional requirements of GMSC

7.2.1.1 Process MT_GMSC

Sheet 1: the variables ACM sent, Answer sent, Network connect sent, Reconnect and Resume call are global data, accessible to the procedures CCBS_MT_GMSC_Check_CCBS Possible, CCBS_Set_Diagnostic_For_Release, Obtain_Routeing_Address, Send_ACM_If_Required, Send_Answer_If_Required and Send_Network_Connect_If_Required.

Sheet 1: the variable UUS CF interaction is specific to UUS; it is accessible to all UUS specific procedures in the GMSC.

Sheet 1: the procedure OR_Set_ORA_Parameters is specific to Support of Optimal Routeing; it is specified in GSM 03.79 [**Error! Reference source not found.**].

Sheet 1: the procedure CAMEL_Set_ORA_Parameters is specific to CAMEL; it is specified in GSM 03.78 for CAMEL Phase 1 [**Error! Reference source not found.**] and GSM 03.78 for CAMEL Phase 2 [**Error! Reference source not found.**].

Sheet 1: the parameters "Reference address", "OR" and "Own PLMN" are passed to the procedure Obtain_Routeing_Address only if the GMSC supports Optimal Routeing. The parameter "Destination address" is returned by the procedure Obtain_Routeing_Address only if the GMSC supports Optimal Routeing of mobile-to-mobile calls. The Send Routeing Info negative response information element received in the execution of the procedure Obtain_Routeing_Address is global data, available to the parent process.

Sheet 1: the suggested mapping from values of the Send Routeing Info negative response information element to values of the ISUP release cause (see ITU-T Recommendation Q.850 [**Error! Reference source not found.**]) is shown in table 1. The mapping used is a matter for the network operator, depending on the telephony signalling system used.

Table 1: Suggested mapping of Send Routeing Info (SRI) negative responses to ISUP release causes

SRI negative response	ISUP release cause number	ISUP release cause name
Absent subscriber	20	Subscriber absent
Bearer service not provisioned	57	Bearer capability not authorised
Call barred (ODB)	21	Call rejected
Call barred (SS barring)	21	Call rejected
CUG reject (Called party SS interaction violation)	21	Call rejected
CUG reject (Incoming calls barred within CUG)	55	Incoming calls barred within CUG
CUG reject (Subscriber not member of CUG)	87	User not member of CUG
CUG reject (Requested basic service violates CUG constraints)	87	User not member of CUG
Data missing	111	Protocol error, unspecified
Facility not supported	69	Requested facility not implemented
Forwarding violation	21	Call rejected
Number changed	22	Number changed
System failure	111	Protocol error, unspecified
Teleservice not provisioned	57	Bearer capability not authorised
Unexpected data value	111	Protocol error, unspecified
Unknown subscriber	1	Unallocated (unassigned) number

Sheet 1: it is an operator option whether to send an Address Complete message if the Number Portability Database returns a routeing number. If the GMSC sends an Address Complete message, it shall include the called party's status field of the Backward call indicator set to "no indication".

Sheet 1: the called party address sent in the IAM to the process MT_CF_MSC is the Forwarded-to number received in the Perform Call Forwarding ack.

Sheet 1: the procedure CAMEL_Store_Destination_Address is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [**Error! Reference source not found.**].

Sheet 1: it is an operator option whether to send an Address Complete message if the HLR returns forwarding information. If the GMSC sends an Address Complete message, it shall include the called party's status field of the Backward call indicator set to "no indication".

Sheet 2: the procedures CAMEL_Start_TNRy and CAMEL_Stop_TNRy are specific to CAMEL phase 2; they are specified in GSM 03.78 for CAMEL Phase 2 [**Error! Reference source not found.**].

Sheet 2, sheet 3: the procedure CAMEL_MT_GMSC_ANSWER is specific to CAMEL; it is specified in GSM 03.78 for CAMEL Phase 1 [**Error! Reference source not found.**] and GSM 03.78 for CAMEL Phase 2 [**Error! Reference source not found.**]. If the GMSC does not support CAMEL, processing continues from the "Pass" exit of the test "Result".

Sheet 2, sheet 3: the task "Set destination address parameter" is executed only if the GMSC supports Optimal Routeing of mobile-to-mobile calls.

Sheet 3: the procedure Handle_COLP_Forwarding_Interaction is specific to COLP.

Sheet 4: the input signal Resume Call Handling and all the subsequent processing on this sheet are specific to Support of Optimal Routeing, and will occur only if the GMSC supports Optimal Routeing. The procedure OR_Handle_RCH is specified in GSM 03.79 [**Error! Reference source not found.**].

Sheet 4, sheet 6: the procedure CCBS_MT_GMSC_Check_CCBS_Possible is specific to CCBS; it is specified in GSM 03.93 [**Error! Reference source not found.**].

Sheet 5: the input signal TNRy expired and all the subsequent processing are specific to CAMEL phase 2, and will occur only if the GMSC supports CAMEL phase 2. The procedure CAMEL_MT_GMSC_DISC5 is specified in GSM 03.78 for CAMEL phase 2 [**Error! Reference source not found.**].

Sheet 6: the procedures CAMEL_MT_GMSC_DISC3, CAMEL_MT_GMSC_DISC4 and CAMEL_MT_GMSC_DISC6 are specific to CAMEL; they are specified in GSM 03.78 for CAMEL Phase 1 [**Error! Reference source not found.**] (CAMEL_MT_GMSC_DISC3) and GSM 03.78 for CAMEL Phase 2 [**Error! Reference source not found.**] (CAMEL_MT_GMSC_DISC4 and CAMEL_MT_GMSC_DISC6)..

Sheet 6: the procedure CCBS_Set_Diagnostic_For_Release is specific to CCBS; it is specified in GSM 03.93 [**Error! Reference source not found.**].

Sheet 5: the procedures CAMEL_MT_GMSC_DISC1 and CAMEL_MT_GMSC_DISC2 are specific to CAMEL; they are specified in GSM 03.78 [**Error! Reference source not found.**]. If the GMSC does not support CAMEL, processing continues from the "No" exit of the test "Result=CAMEL handling?".

Sheet 6: the processing in the branch beginning with the Int_Release_Call input will occur only if the MSC supports CAMEL.

Sheet 7: the procedure CAMEL_MT_GMSC_DISC1 is specific to CAMEL; it is specified in GSM 03.78 for CAMEL Phase 1 [**Error! Reference source not found.**] and GSM 03.78 for CAMEL Phase 2 [**Error! Reference source not found.**]. If the GMSC does not support CAMEL, processing continues from the "No" exit of the test "Result=CAMEL handling?".

Sheet 7: the procedure CAMEL_MT_GMSC_DISC2 is specific to CAMEL; it is specified in GSM 03.78 for CAMEL Phase 1 [**Error! Reference source not found.**] and GSM 03.78 for CAMEL Phase 2 [**Error! Reference source not found.**]. If the GMSC does not support CAMEL, processing continues from the "Normal handling" exit of the test "Result?".

Sheet 7: in the upper subtree, the processing in the branch beginning with the Int_Release_Call input will occur only if the GMSC supports CAMEL.

Sheet 7: after the GMSC has sent an IAM to the destination VMSC or the forwarded-to exchange (via the process MT_CF_MSC), it acts as a relay for messages received from the originating exchange and the destination VMSC or the process MT_CF_MSC. Any message other than Address Complete, Connect, Answer or Release causes no change of state in the process MT_GMSC.

Sheet 8: When the GMSC is in state 'Wait_for_Clear', it may receive signals 'Int_Connect_To_Resource' and 'Int_Establish_Temporary_Connection' from process gsmSSF (defined in 3G TS 23.078 [28]).
The procedures CAMEL_CF_CTR and CAMEL_CF_ETC are defined in 3G TS 23.078 [28].

When these procedures are called in gsmSSF Monitoring state, the gsmSCF is only allowed to send operation PlayAnnouncement to the gsmSRF. The gsmSCF is not allowed to send operation Prompt&Collect.

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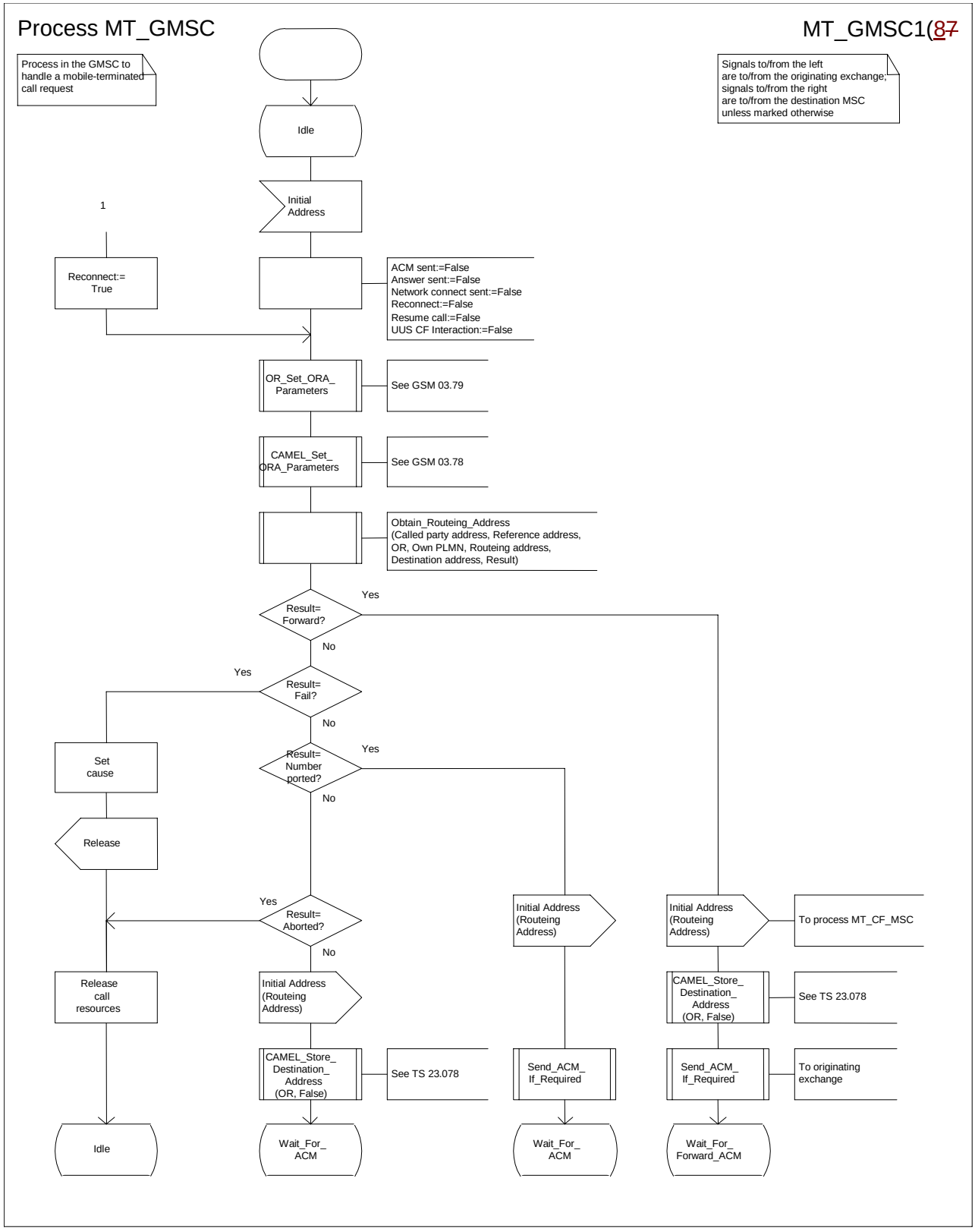

Figure 35a: Process MT_GMSC (sheet 1)

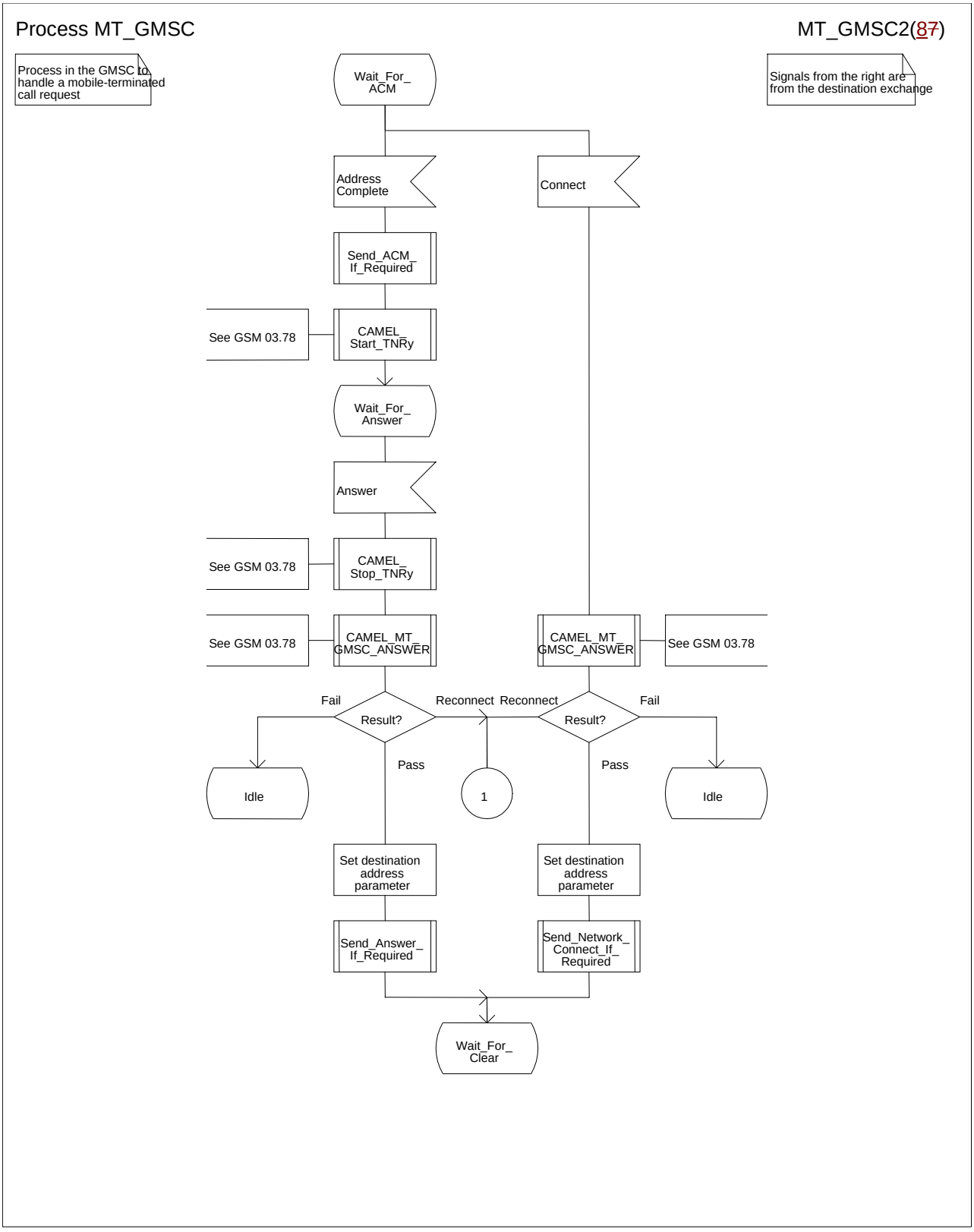

Figure 35b: Process MT_GMSC (sheet 2)

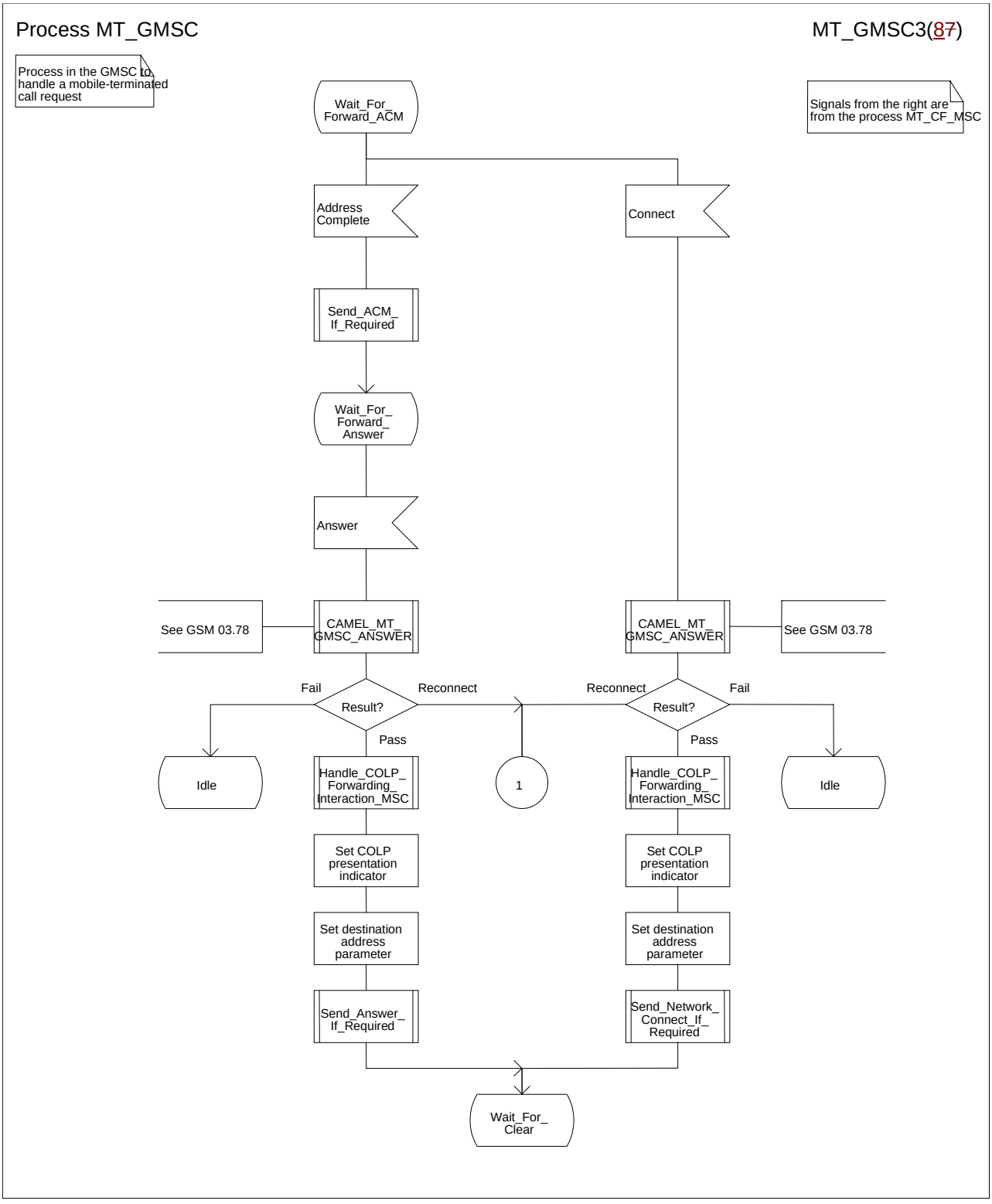

Figure 35c: Process MT_GMSC (sheet 3)

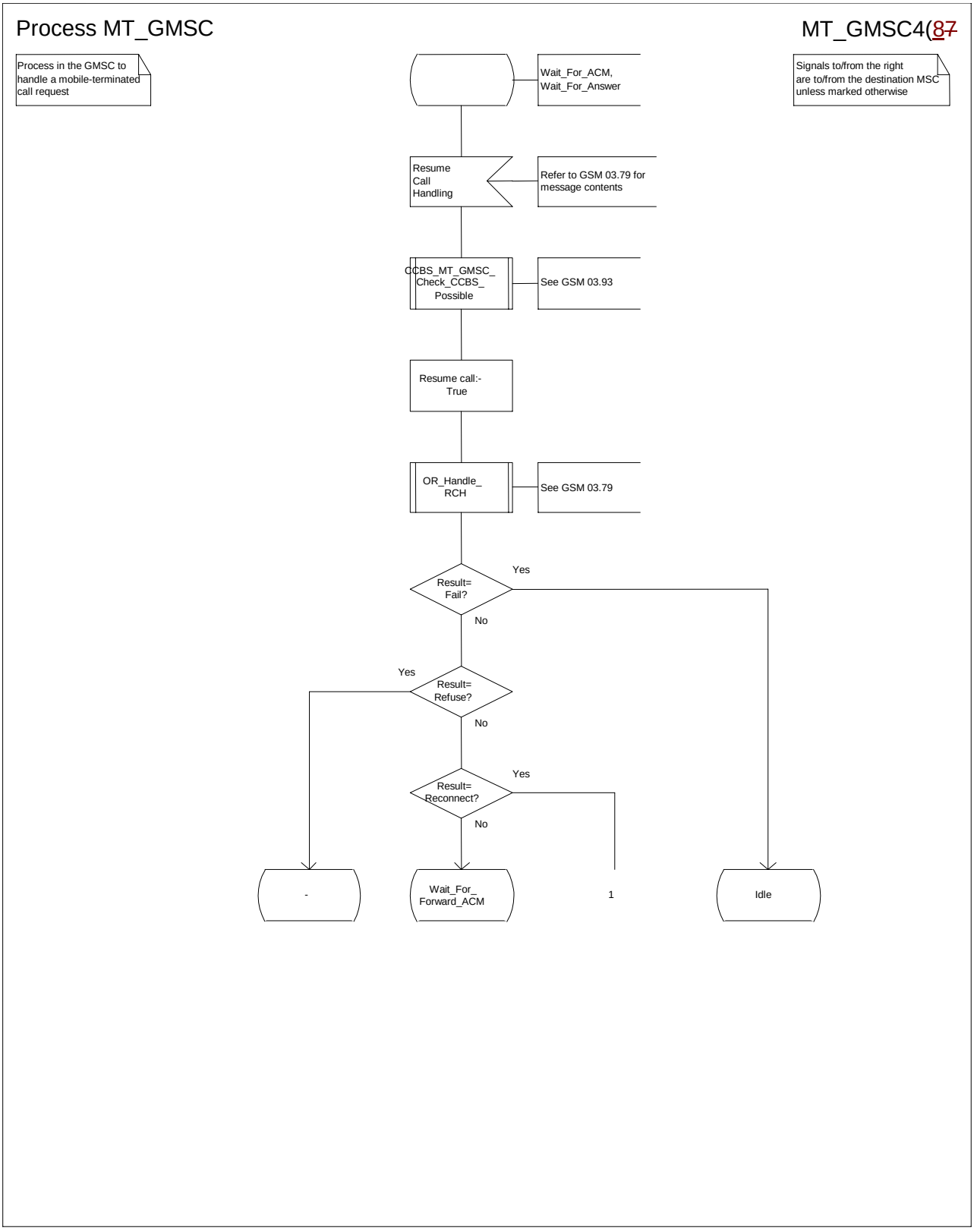

Figure 35d: Process MT_GMSC (sheet 4)

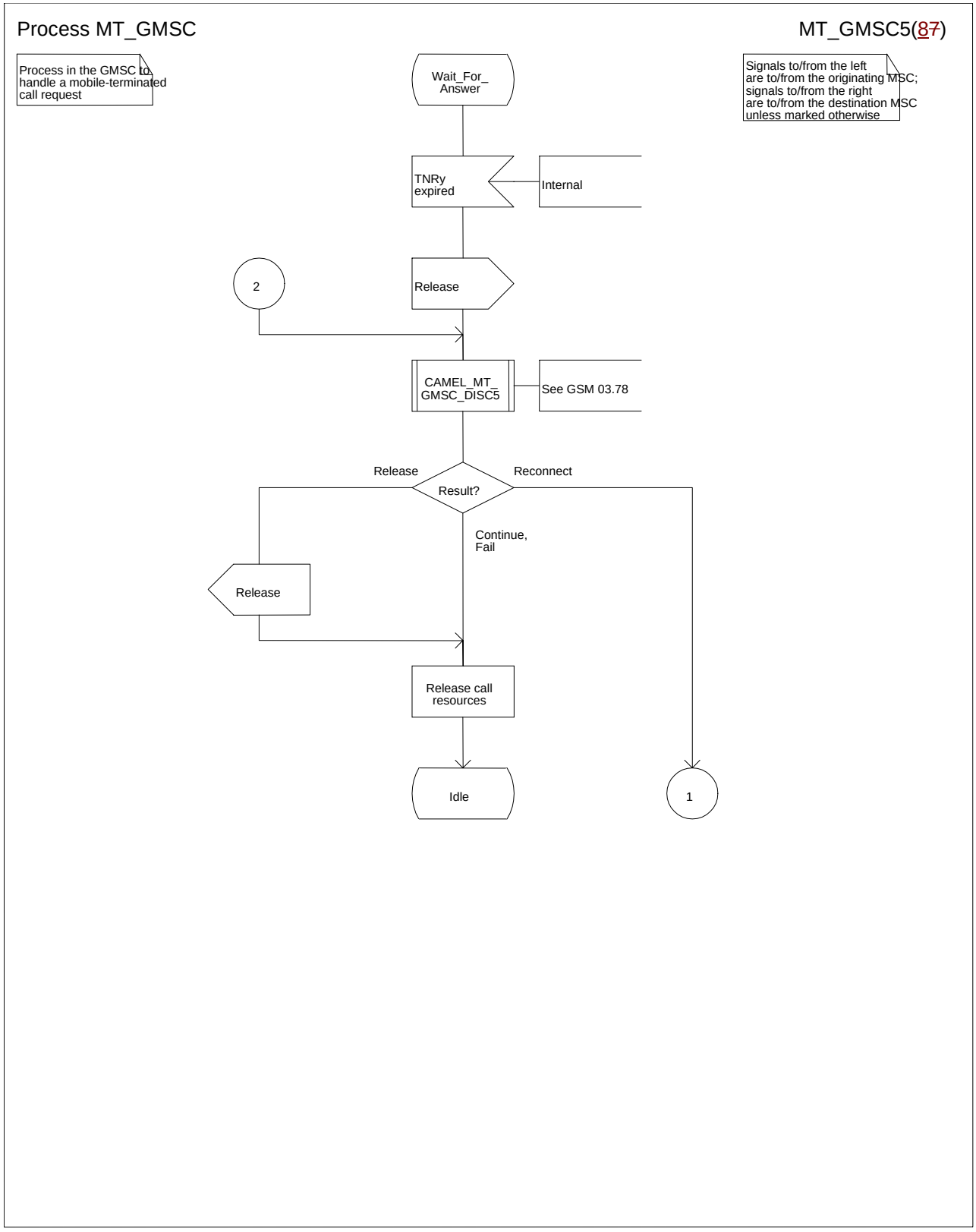

Figure 35e: Process MT_GMSC (sheet 5)

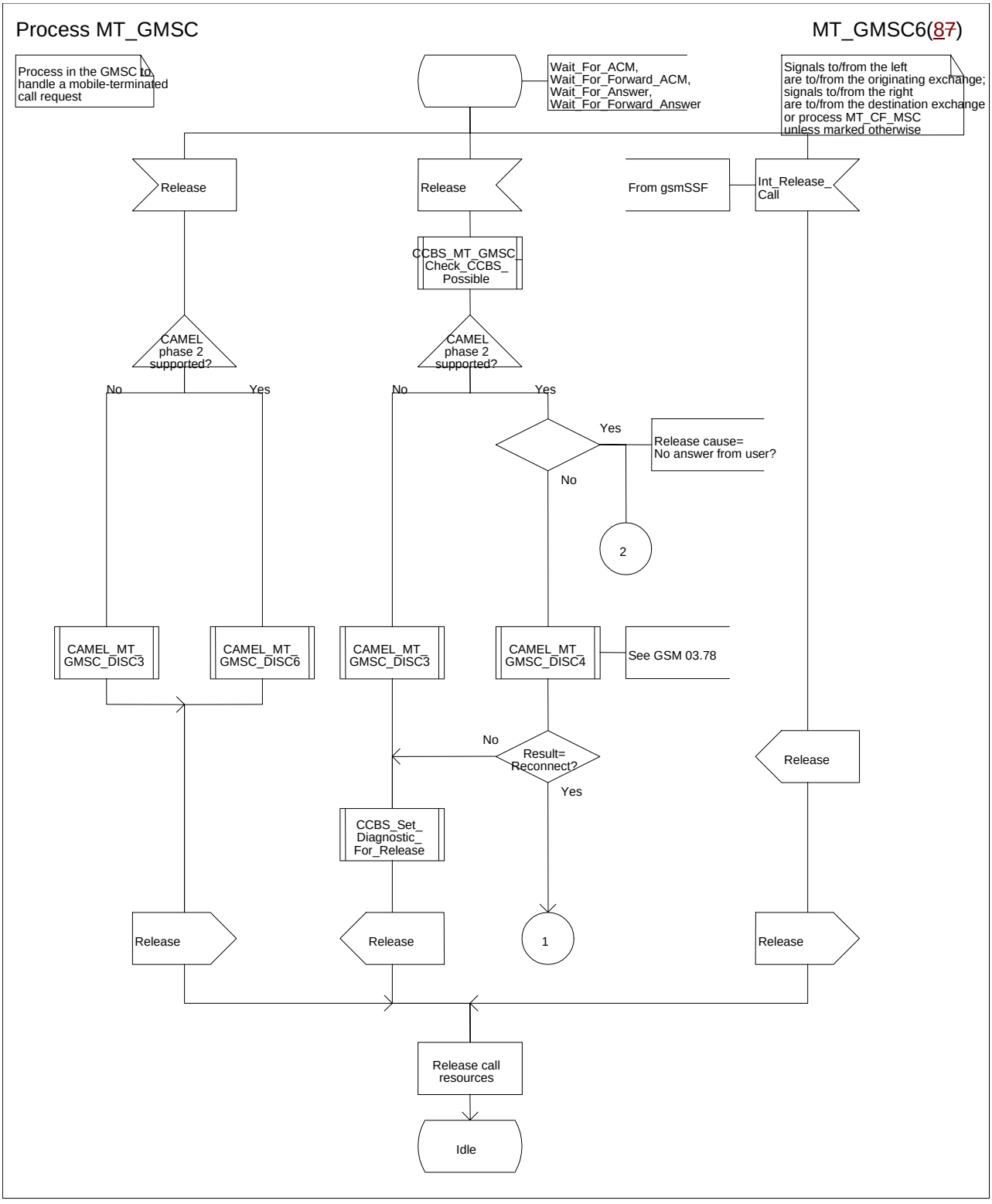

Figure 35f: Process MT_GMSC (sheet 6)

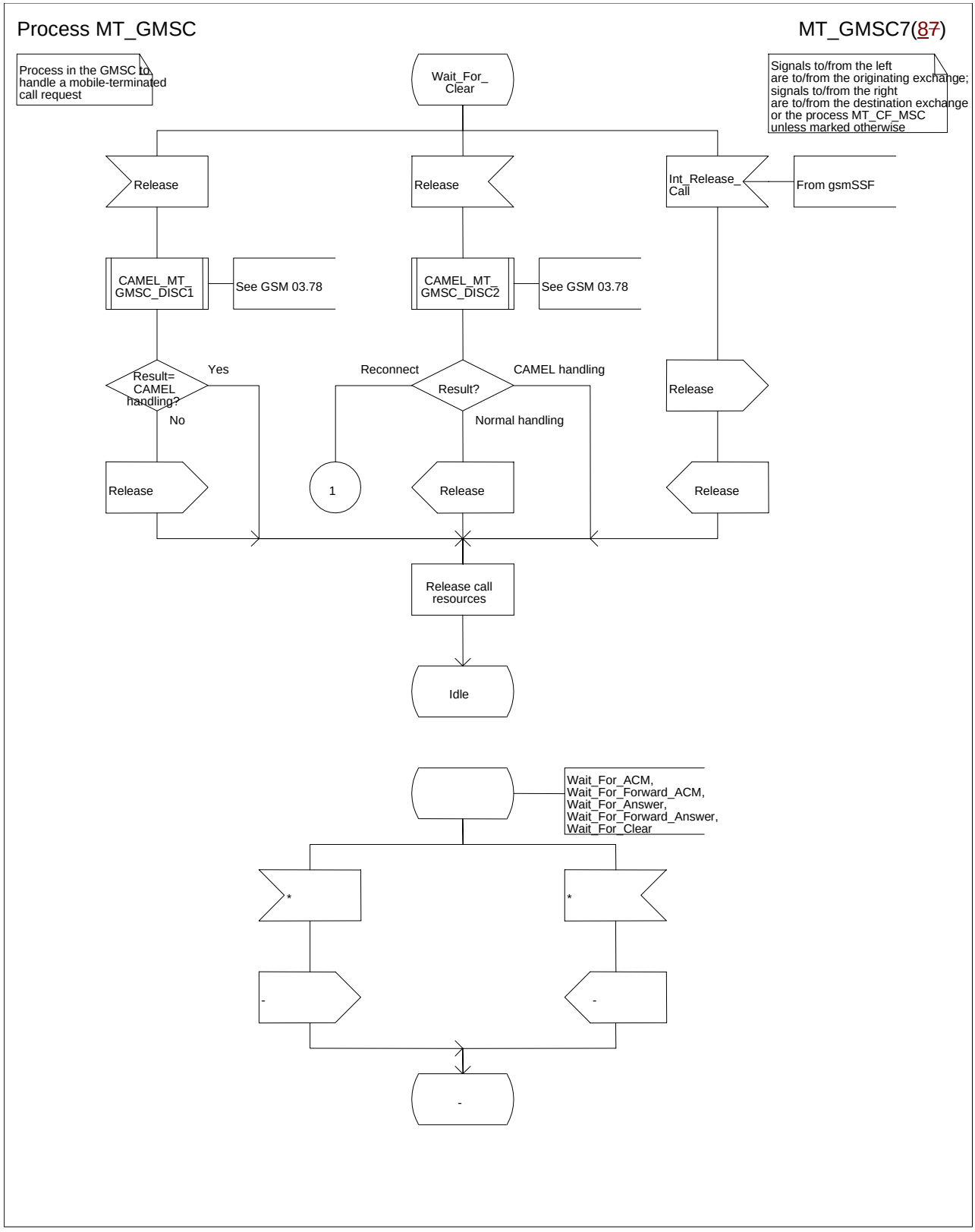

Figure 35g: Process MT_GMSC (sheet 7)

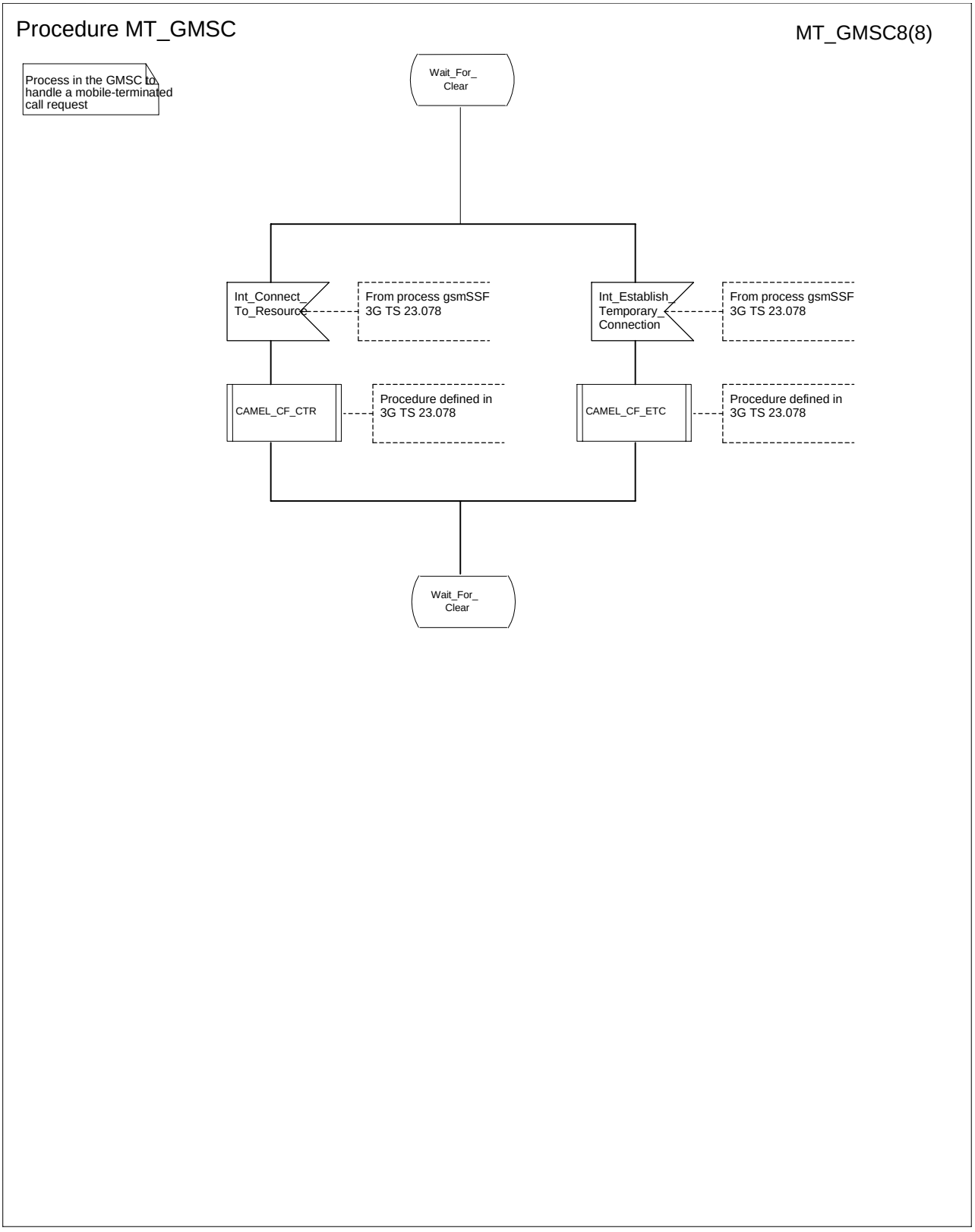

Figure 35h: Process MT_GMSC (sheet 8)

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

7.3 MT call

7.3.1 Functional requirements of serving MSC

7.3.1.1 Process ICH_MSC

Sheet 1: the rules for converting the ISDN BC/LLC/HLC to a GSM bearer service or teleservice are specified in GSM 09.07 [**Error! Reference source not found.**].

Sheet 1: the task "Store UUS information (if received)" is executed only if the VMSC supports UUS.

Sheet 1: the variables TCH allocated, ACM sent, Answer sent and Network connect sent are global data, accessible to the procedures Establish_Terminating_TCH_If_Required, Send_ACM_If_Required, Send_Answer_If_Required and Send_Network_Connect_If_Required.

Sheet 1: the variables UUS result sent, UUS1 implicit active, UUS1 explicit active, UUS2 active, UUS3 active and UUS CF interaction are specific to UUS. They are accessible to all UUS specific procedures.

Sheet 1: the handling starting with the input signal "Continue CAMEL handling" is specific to CAMEL phase 3. If the VMSC does not support CAMEL phase 3, this signal will not be received from the VLR.

Sheet 1: the procedure CAMEL_ICH_MSC_INIT is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [**Error! Reference source not found.**].

Sheet 2: the procedure Process_Access_Request_MSC is specified in subclause **Error! Reference source not found.**.

Sheet 2: the signal input Complete Call will be received in the state Wait_For_Page_Request only if the MSC/VLR supports pre-paging.

Sheet 2, sheet 3: the suggested mapping from values of the Send Info For Incoming Call negative response information element to values of the ISUP release cause (see ITU-T Recommendation Q.850 [**Error! Reference source not found.**]) is shown in table 2. The mapping used is a matter for the network operator, depending on the telephony signalling system used.

Table 2: Suggested mapping of Send Info For Incoming Call (SIFIC) negative responses to ISUP release causes

SIFIC negative response	ISUP release cause number	ISUP release cause name
Absent subscriber	20	Subscriber absent
Busy subscriber	17	User busy
CUG reject (Called party SS interaction violation)	21	Call rejected
Forwarding violation	21	Call rejected
Impossible call completion	111	Protocol error, unspecified
No subscriber reply	19	No answer from user (user alerted)
System failure	111	Protocol error, unspecified
Unallocated roaming number	111	Protocol error, unspecified

Sheet 2, sheet 3, sheet 5, sheet 7, sheet 8, sheet 10: the procedure CAMEL_MT_GMSC_DISC4 is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [**Error! Reference source not found.**]. If the VMSC does not support CAMEL phase 3, processing continues from the "No" exit of the test "Result=Reconnect?".

Sheet 2, sheet 4, sheet 7, sheet 8, sheet 10: the procedure CAMEL_MT_GMSC_DISC6 is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [**Error! Reference source not found.**].

Sheet 3: the procedure CAMEL_MT_GMSC_DISC5 is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [**Error! Reference source not found.**]. If the VMSC does not support CAMEL phase 3, processing continues from the "No" exit of the test "Result=Reconnect?".

Sheet 3: the task "Store CW treatment indicator for this call if received in SII2" is executed only if the VMSC supports CAMEL phase 3.

Sheet 3: If the VMSC does not support CAMEL phase 3, the procedure Complete_Call_In_MSC and the procedure Process_Call_Waiting_MSC will not return a "Reconnect" result.

Sheet 3: the processing in the branch starting with the input signal"Process Call Waiting" is specific to Call Wait. If the VMSC does not support CW this signal will not be received from the VLR.

Sheet 3, sheet 8, the procedure CD_Reject is specific to Call Deflection; it is specified in GSM 03.72 [**Error! Reference source not found.**].

Sheet 3, sheet 8: the procedure CCBS_Set_Diagnostic_For_Release is specific to CCBS; it is specified in GSM 03.93 [**Error! Reference source not found.**].

Sheet 3, sheet 4, sheet 10, sheet 11: the procedure CCBS_Check_Last_Call is specific to CCBS; it is specified in GSM 03.93 [**Error! Reference source not found.**].

Sheet 4: the procedure UUS_ICH_Check_Support is specific to UUS; it is specified in GSM 03.87 [**Error! Reference source not found.**].

Sheet 4: the procedure CAMEL_Check_ORLCF_VMSC is specific to CAMEL phase 2; it is specified in GSM 03.78 for CAMEL Phase 2 [**Error! Reference source not found.**]. If the VMSC does not support CAMEL, processing continues from the “ORLCF” exit of the test “Result?”

Sheet 4: the procedure Handle_ORLCF_VMSC is specific to Support of Optimal Routeing. It is specified in TS 100 045 [**Error! Reference source not found.**]. If the VMSC does not support Optimal Routeing, processing continues from the "Continue" exit of the test "ResultForwarding Failed?".

Sheet4; the procedures CD_Failure and CD_Success are specific to Call Deflection; they are specified in GSM 03. 72 [**Error! Reference source not found.**].

Sheet 5: the procedure CAMEL_MT_VMSC_Notify_CF is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [**Error! Reference source not found.**].

Sheet 5: If the VMSC does not support CAMEL phase 3, processing starts with the possible call of the procedure CCBS_Check_Last_Call.

Sheet 5: The task "set redirection information" includes the the mapping of the MSISDN parameter received in the Send Info For Incoming Call ack message to the redirecting number of the IAM message and the setting of the presentation indicator of the redirecting numer of the IAM message according to the value of the Redirecting presentation parameter received in the Send Info For Incoming Call ack message.

Sheet 5: it is an operator option whether to send an Address Complete message if the VLR returns forwarding information. If the VMSC sends an Address Complete message, it shall include the called party’s status field of the Backward call indicator set to "no indication".

Sheet 5, sheet 7: the procedure Send_ACM_If_Required is specified in subclause **Error! Reference source not found.**.

Sheet 5: the procedure Activate_CF_Process is specified in subclause **Error! Reference source not found.**.

Sheet 5: the procedure UUS_ICH_Set_Info_In_IAM is specific to UUS, it is specified in GSM 03.87 [**Error! Reference source not found.**].

Sheet 5: the called party address sent in the IAM to the process MT_CF_MSC is the Forwarded-to number received in the Perform Call Forwarding ack.

Sheet 5: the procedure CAMEL_Store_Destination_Address is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [**Error! Reference source not found.**].

Sheet 5; the procedure CD_Success is specific to Call Deflection; it is specified in GSM 03. 72 [**Error! Reference source not found.**].

Sheet 6: The processing on this sheet is specific to CAMEL phase 3. If the VMSC does not support CAMEL phase 3, the input signal Int_Release Call will not be received.

Sheet 7: the procedure CAMEL_MT_GMSC_ANSWER is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [**Error! Reference source not found.**]. If the VMSC does not support CAMEL phase 3, processing continues from the "No" exit of the test "Result=Reconnect?".

Sheet 7: the procedure Handle_COLP_Forwarding_Interaction is specified in subclause **Error! Reference source not found.**.

Sheet 7: the procedure Send_Answer_If_Required is specified in subclause **Error! Reference source not found.**.

Sheet 7: the procedure Send_Network_Connect_If_Required is specified in subclause **Error! Reference source not found.**.

Sheet 8: the procedure CCBS_MT_MSC_Check_Forwarding is specific to CCBS; it is specified in GSM 03.93 [19].

Sheet 11, sheet 12: the procedure CAMEL_MT_GMSC_DISC1 is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [28].

Sheet 11, sheet 12: the procedure CAMEL_MT_GMSC_ DISC2 is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [28]. If the VMSC does not support CAMEL phase 3, processing continues from the "No" exit of the test "Result=Reconnect?".

Sheet 11: the procedure UUS_MSC_Check_UUS1_UUI is specific to UUS; it is specified in GSM 03.87 [**Error! Reference source not found.**].

Sheet 12: after the VMSC has sent an IAM to the process MT_CF_MSC, it acts as a transparent relay for messages received from the GMSC and the process MT_CF_MSC. Any message other than Address Complete, Connect, Answer or Release causes no change of state in the process ICH_MSC.

Sheet 13: The processing on this sheet is specific to CAMEL phase 3. If the VMSC does not support CAMEL phase 3, the input signal Int_Release Call will not be received.

Sheet 14: When the MSC is in state ‘Wait_for_Clear’, it may receive signals ‘Int_Connect_To_Resource’ and ‘Int_Establish_Temporary_Connection’ from process gsmSSF (defined in 3G TS 23.078 [28]).
The procedures CAMEL_CF_CTR and CAMEL_CF_ETC are defined in 3G TS 23.078 [28].
When these procedures are called in gsmSSF Monitoring state, the gsmSCF is only allowed to send operation PlayAnnouncement to the gsmSRF. The gsmSCF is not allowed to send operation Prompt&Collect.

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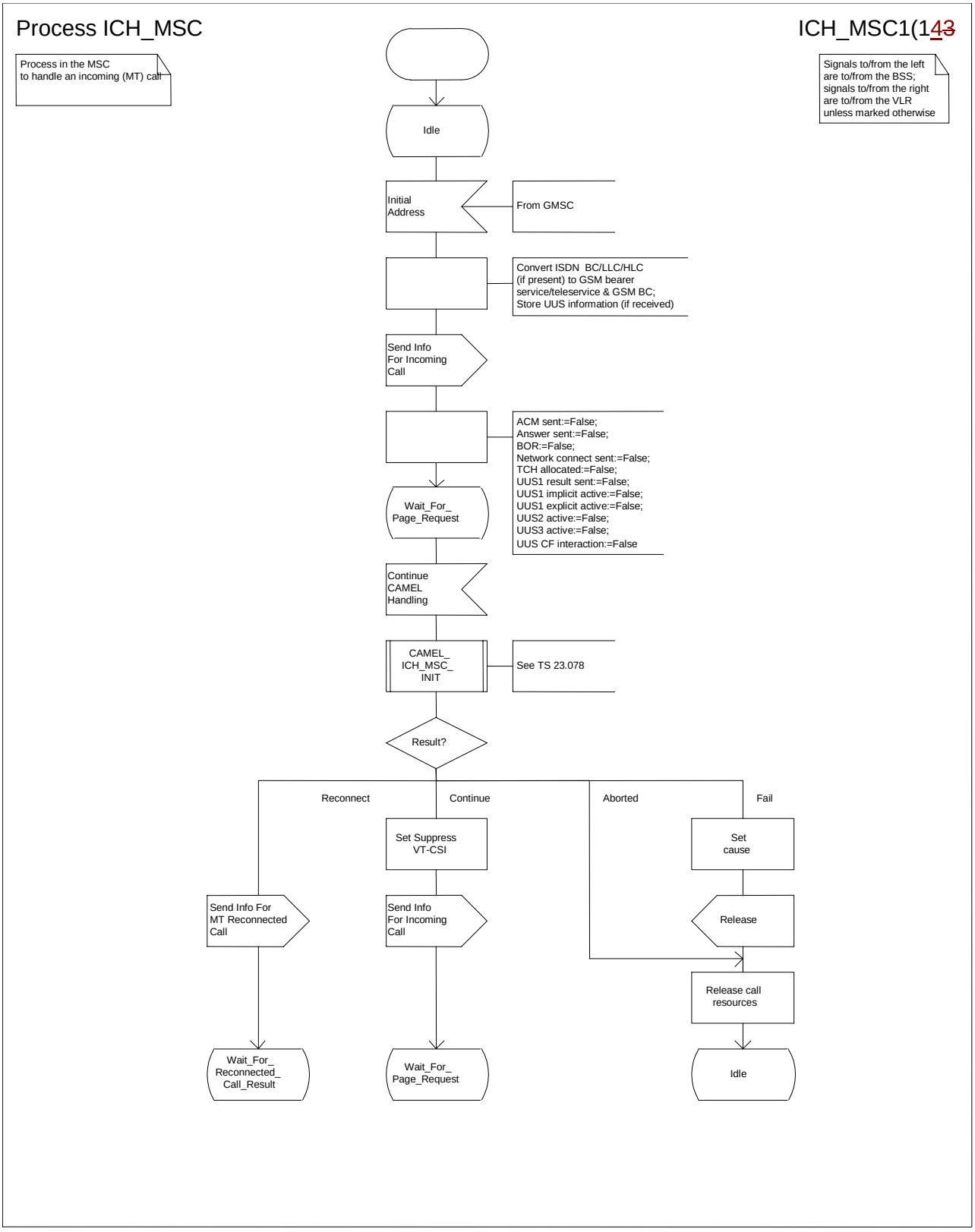

Figure 62a: Process ICH_MSC (sheet 1)

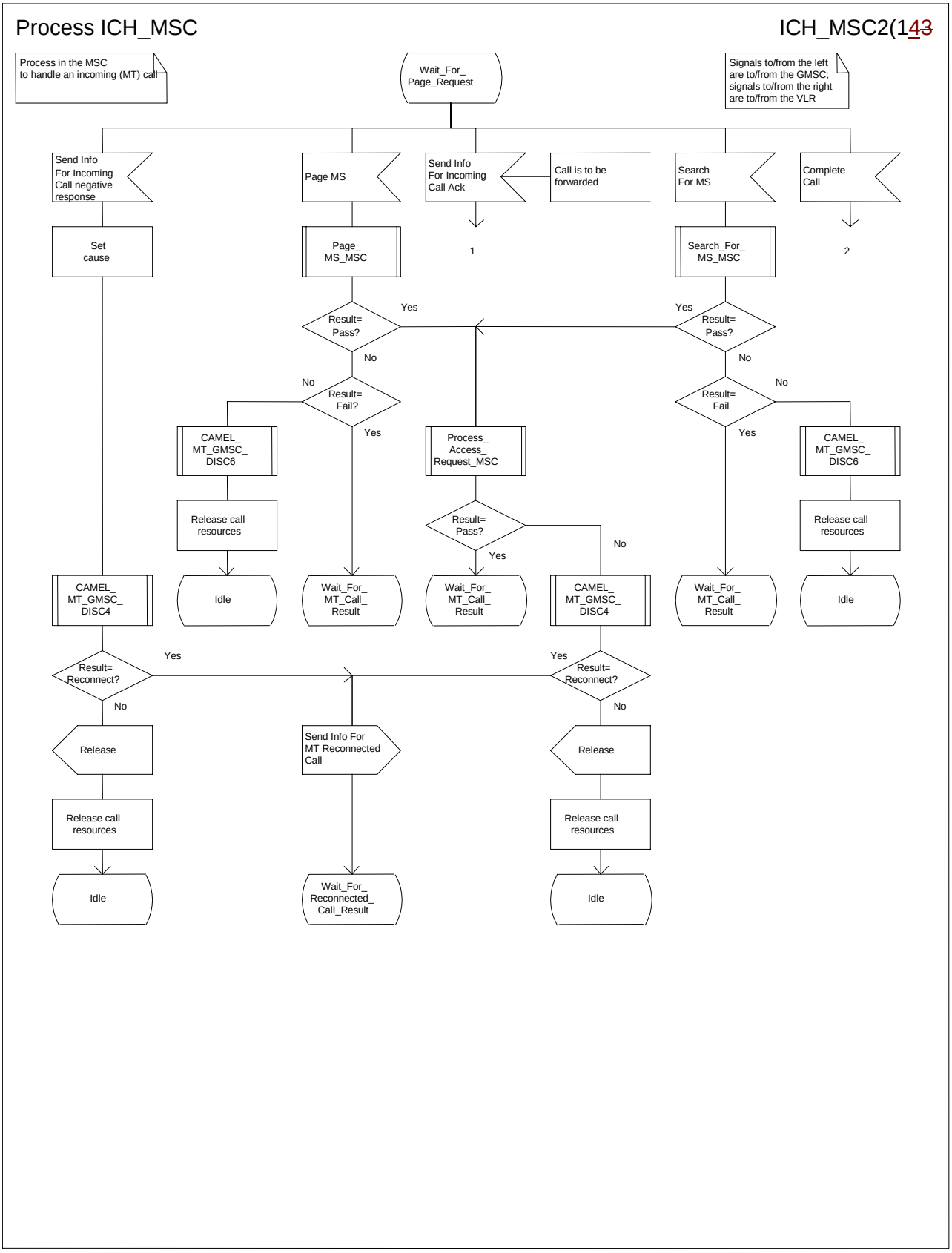

Figure 62b: Process ICH_MSC (sheet 2)

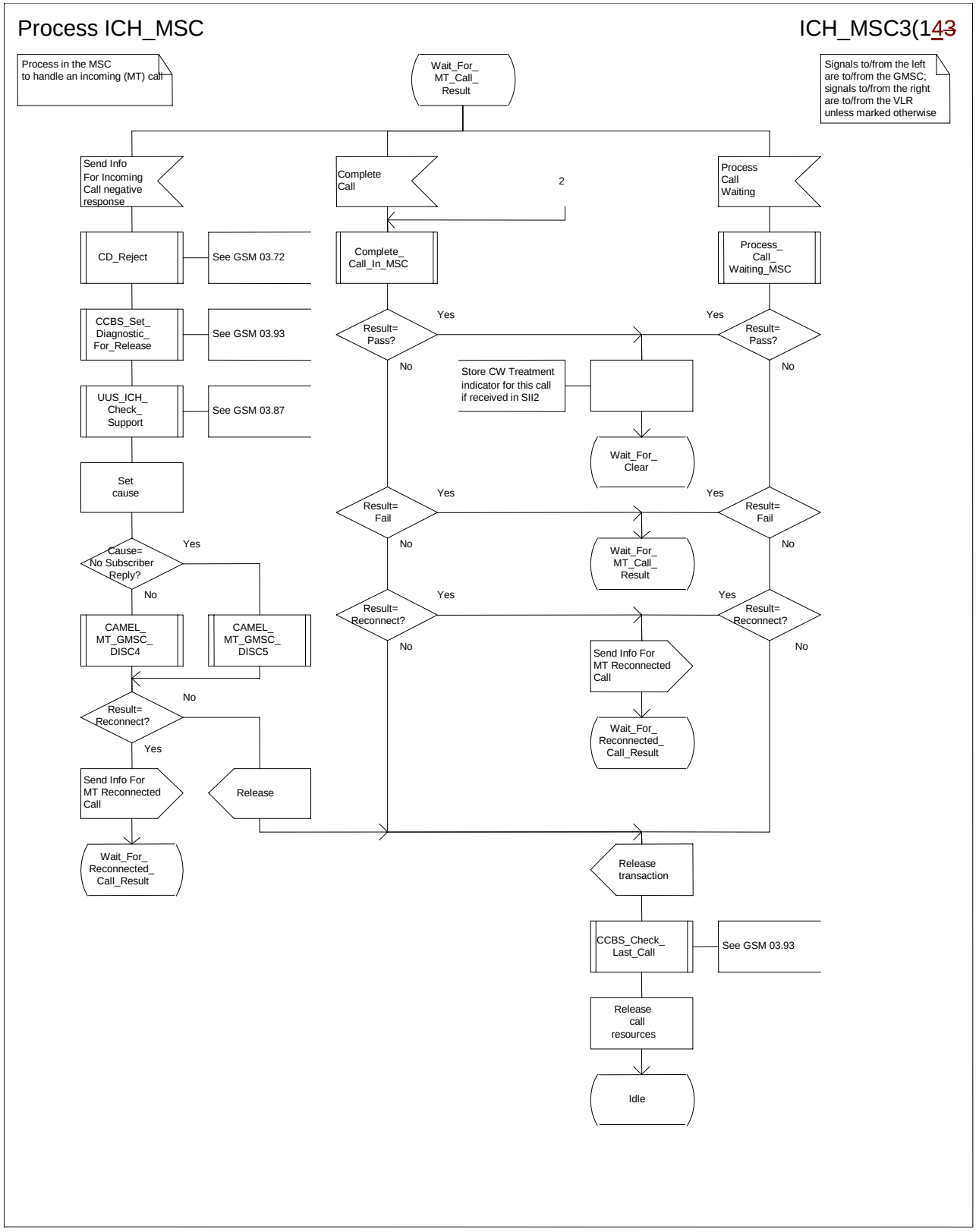

Figure 62c: Process ICH_MSC (sheet 3)

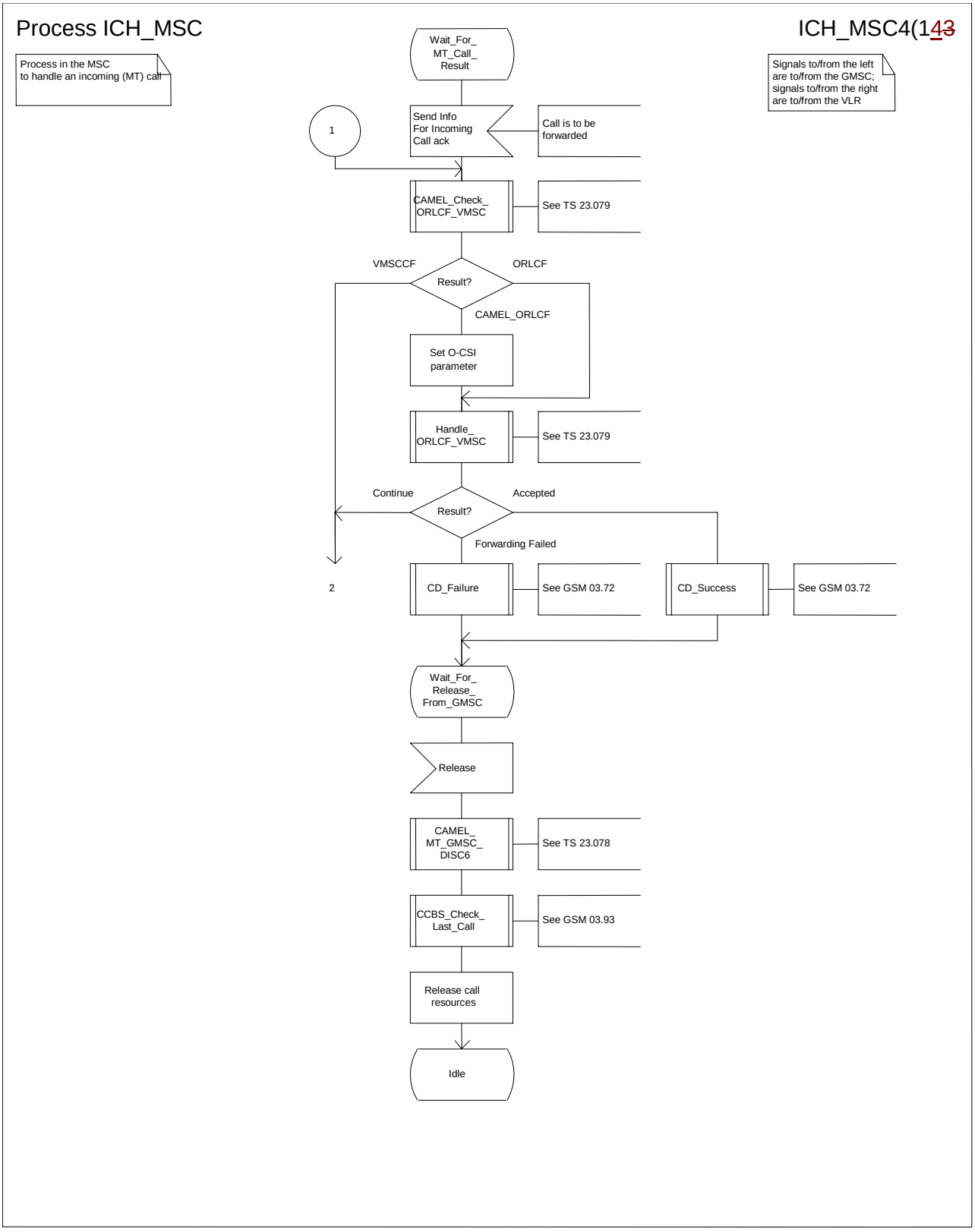

Figure 62d: Process ICH_MSC (sheet 4)

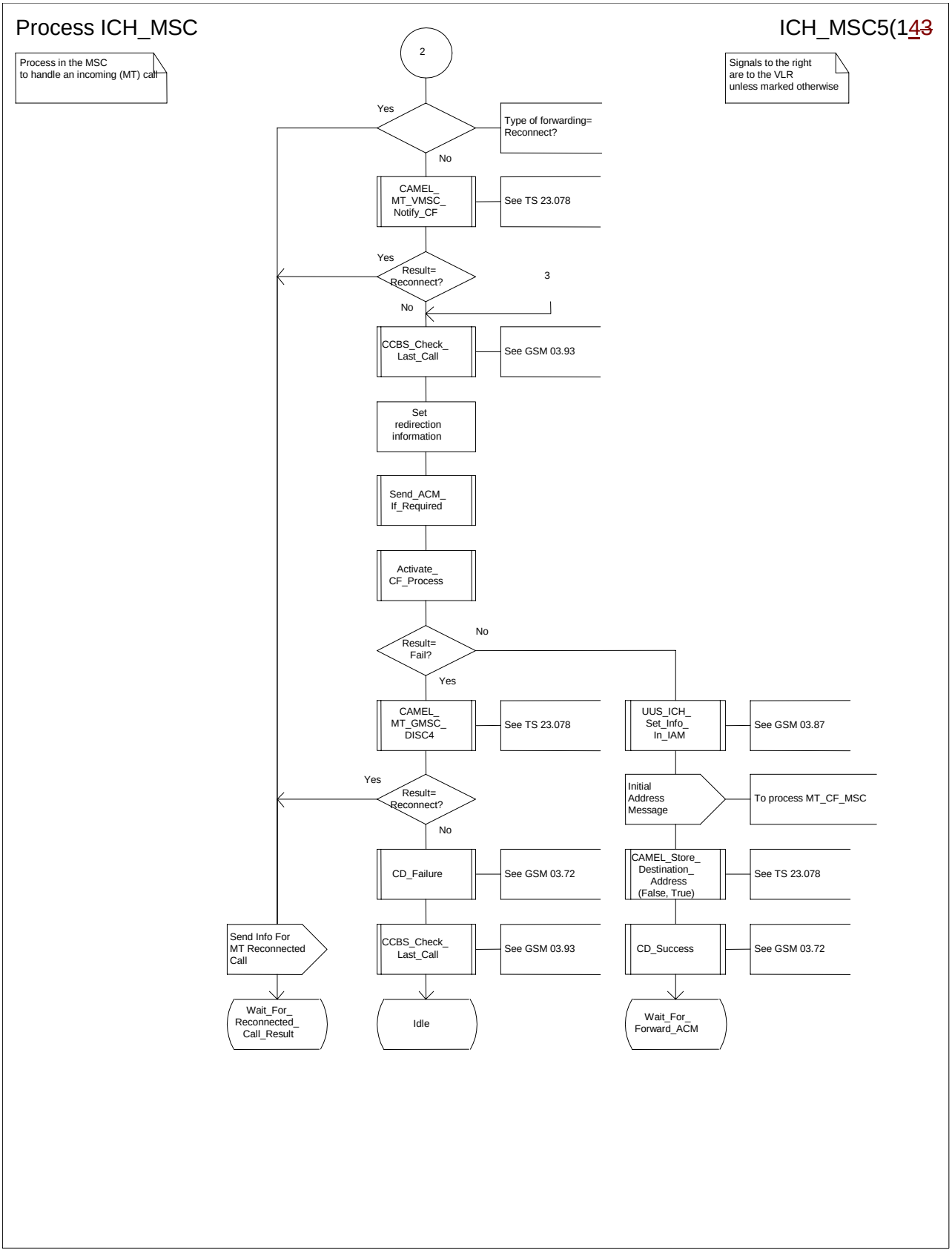

Figure 62e: Process ICH_MSC (sheet 5)

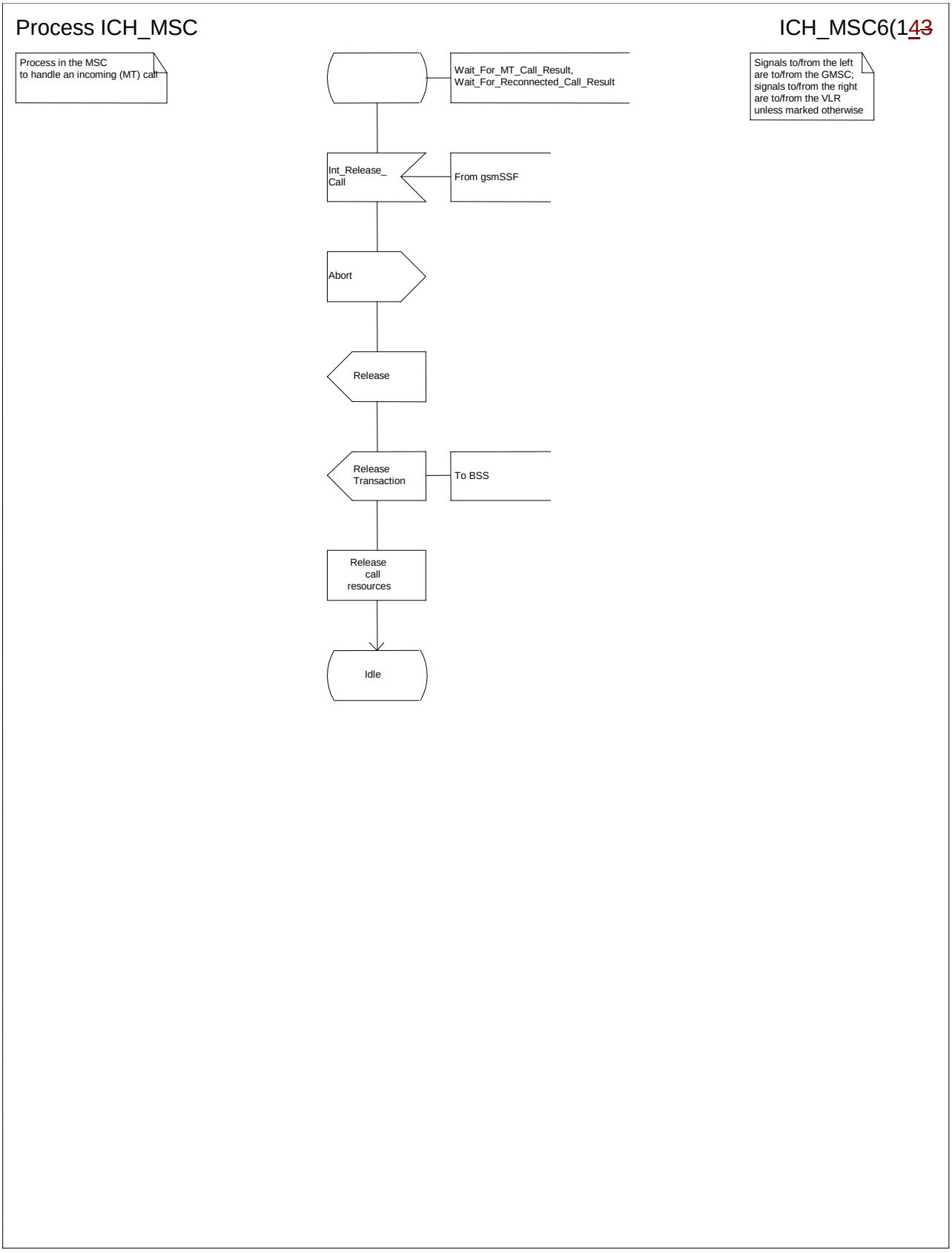

Figure 62f: Process ICH_MSC (sheet 6)

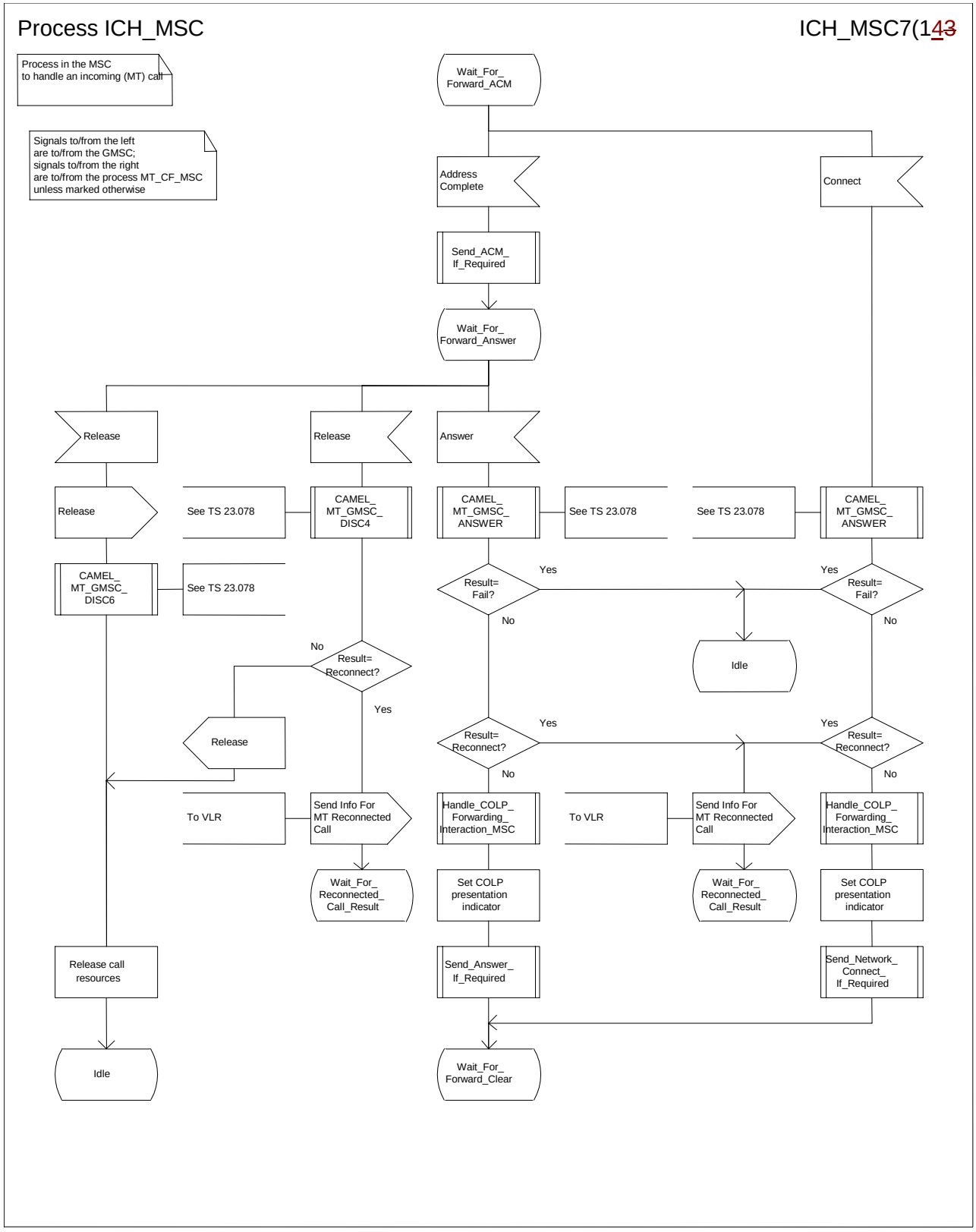

Figure 62g: Process ICH_MSC (sheet 7)

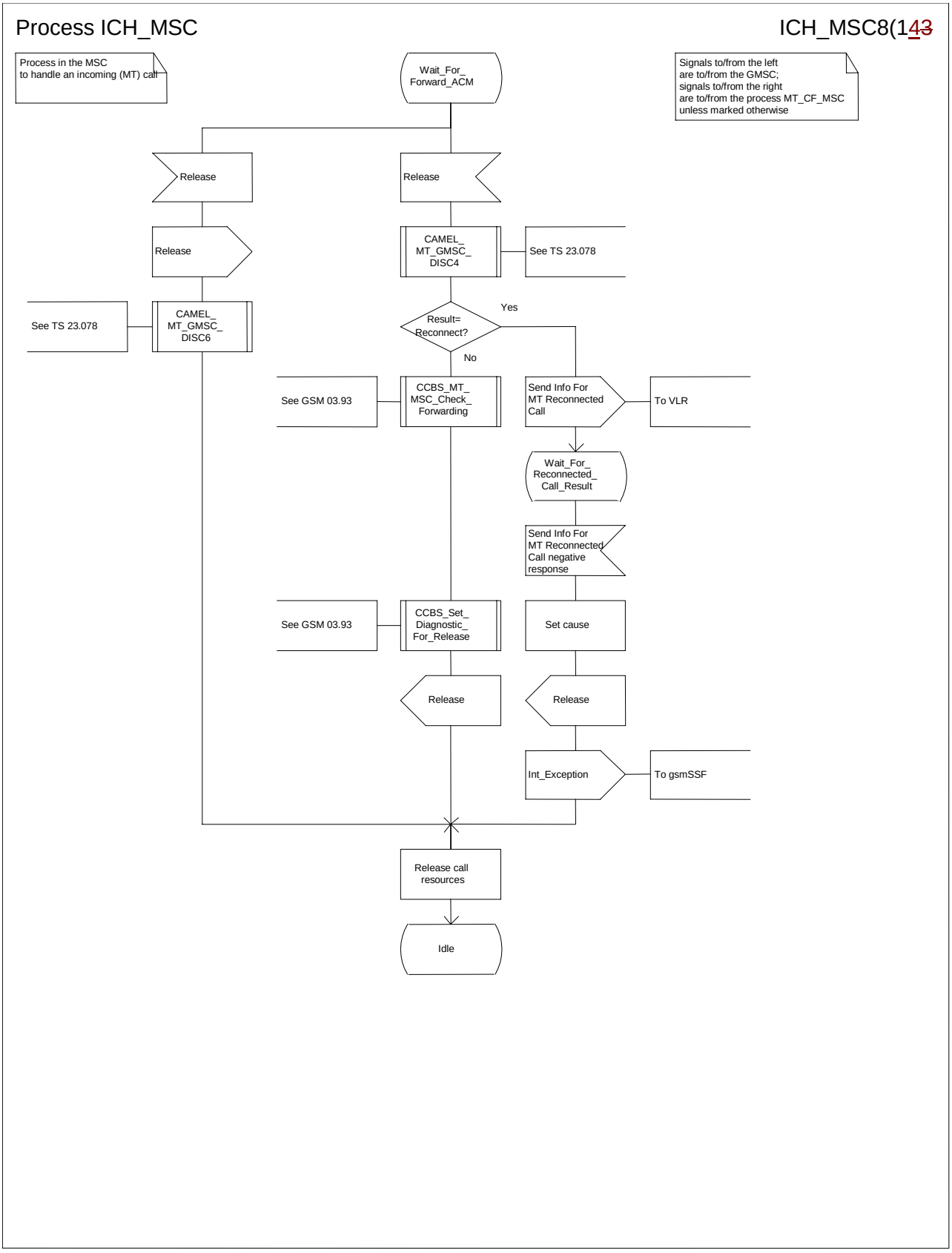

Figure 62h: Process ICH_MSC (sheet 8)

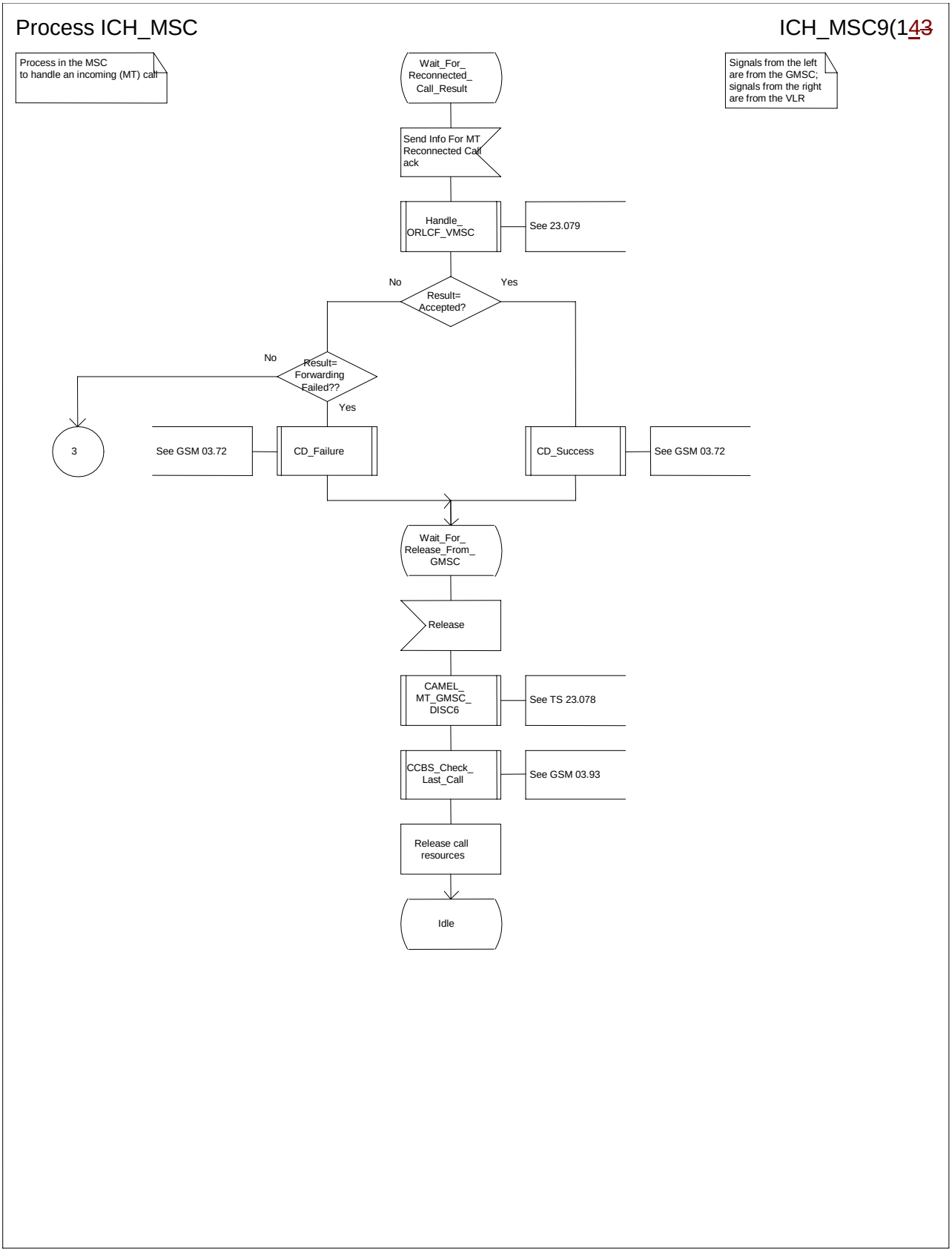

Figure 62i: Process ICH_MSC (sheet 9)

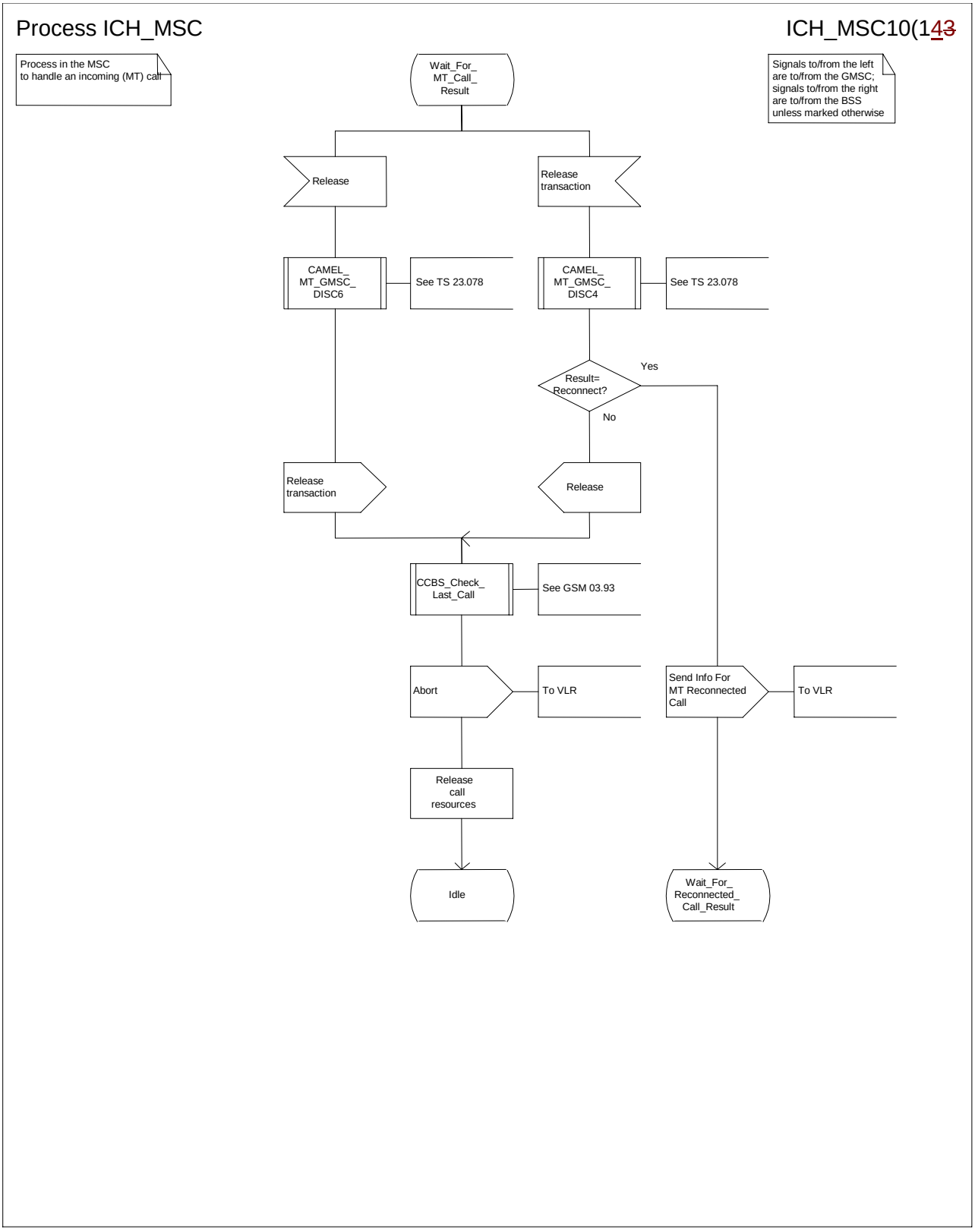

Figure 62j: Process ICH_MSC (sheet 10)

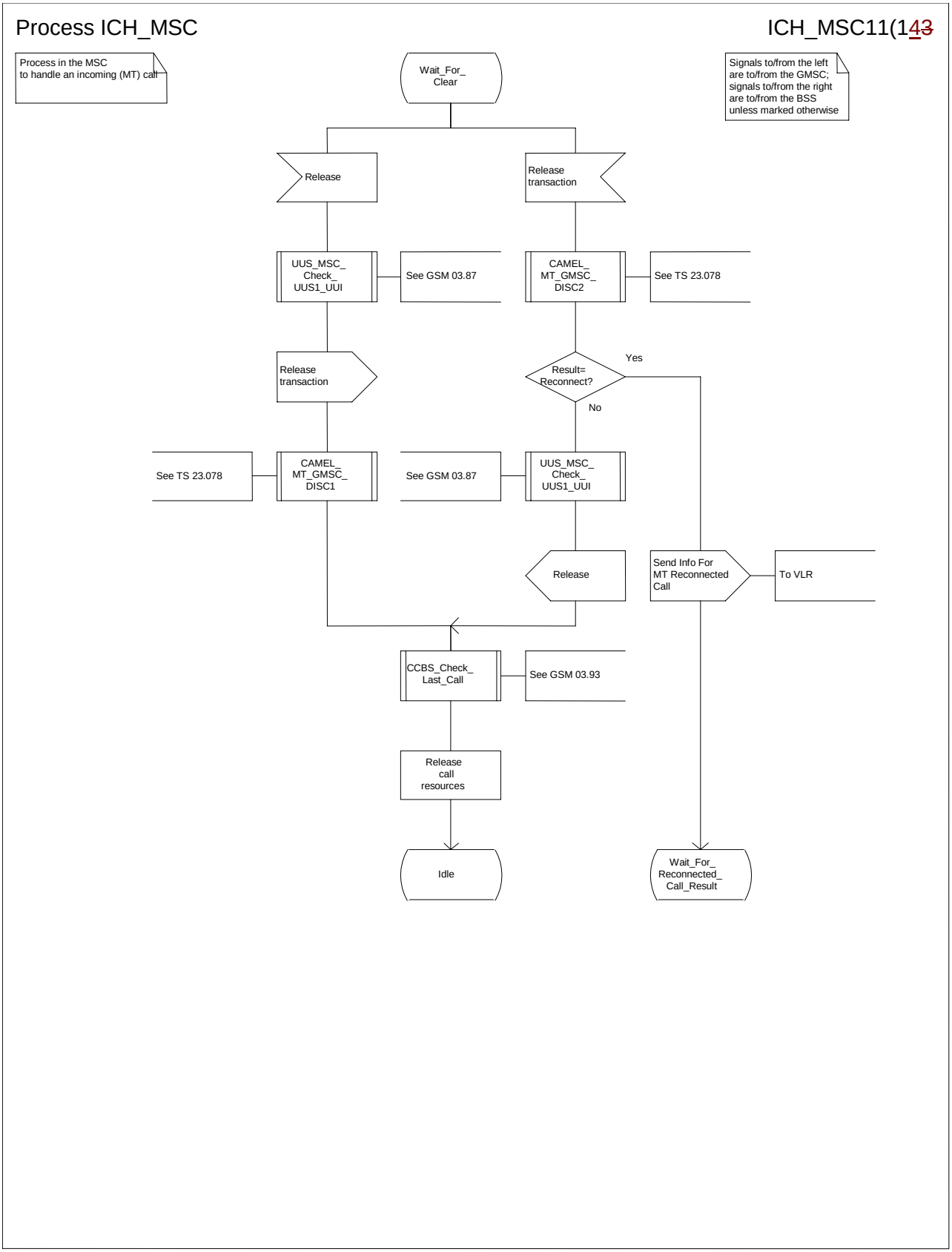

Figure 62k: Process ICH_MSC (sheet 11)

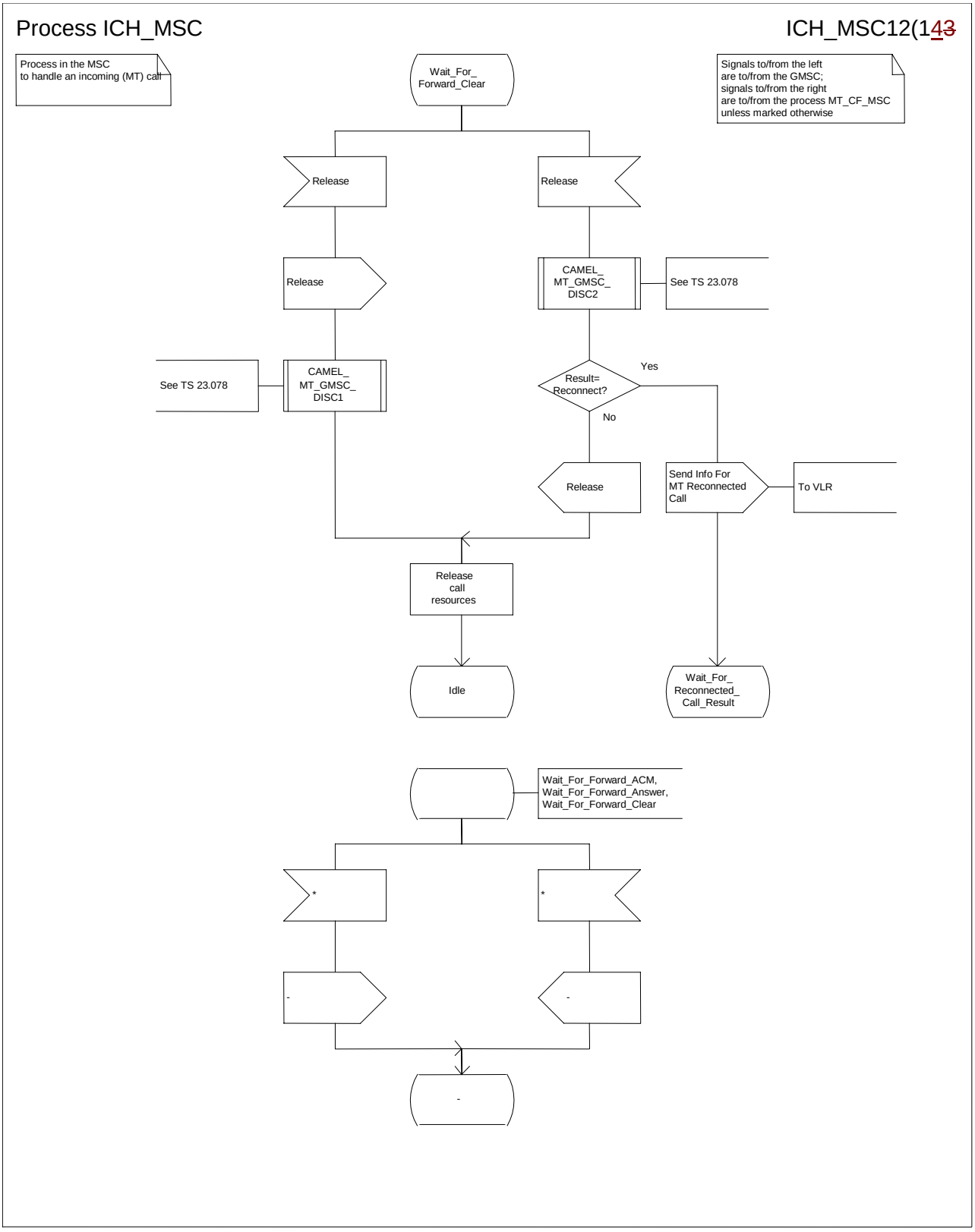

Figure 62l: Process ICH_MSC (sheet 12)

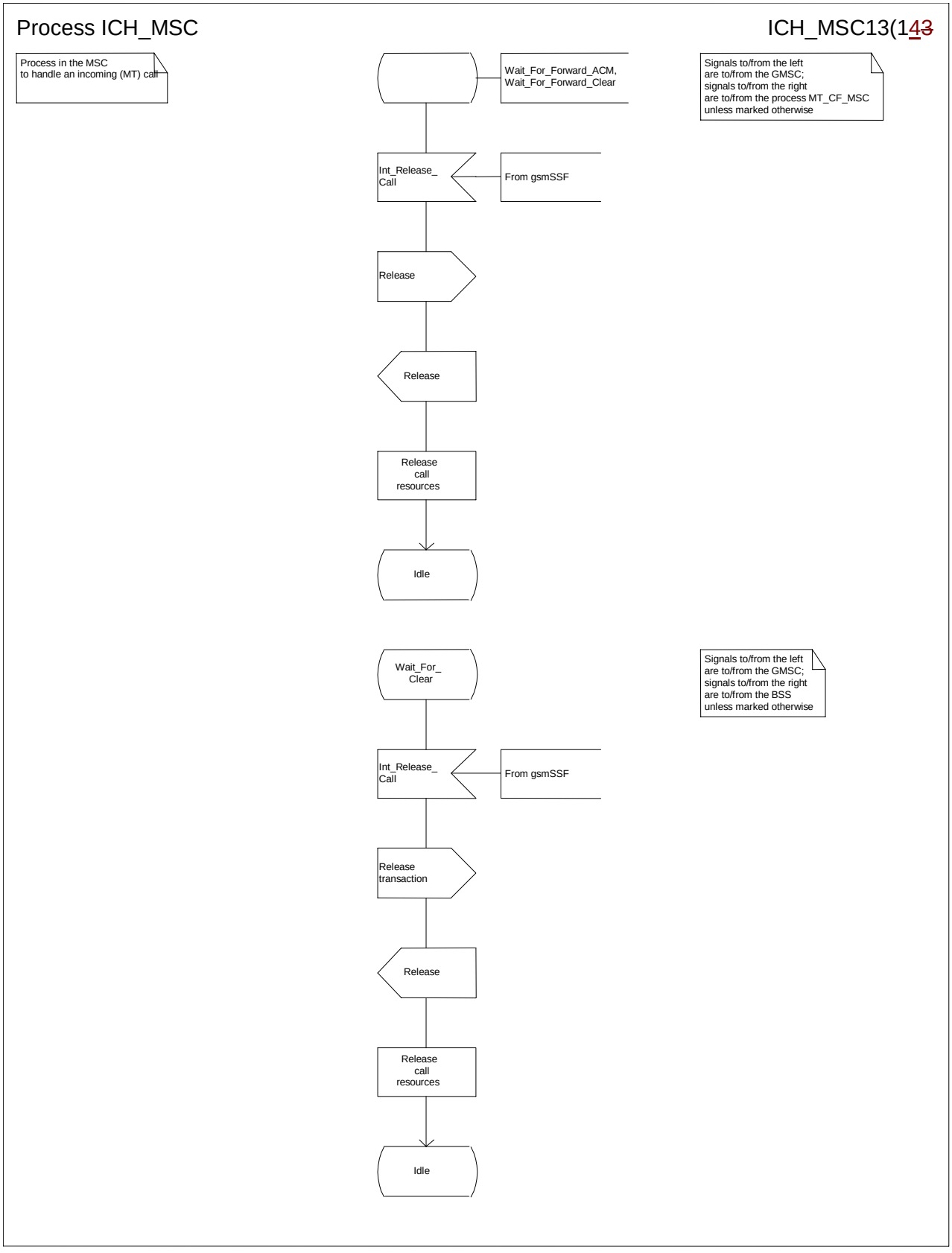

Figure 62m: Process ICH_MSC (sheet 13)

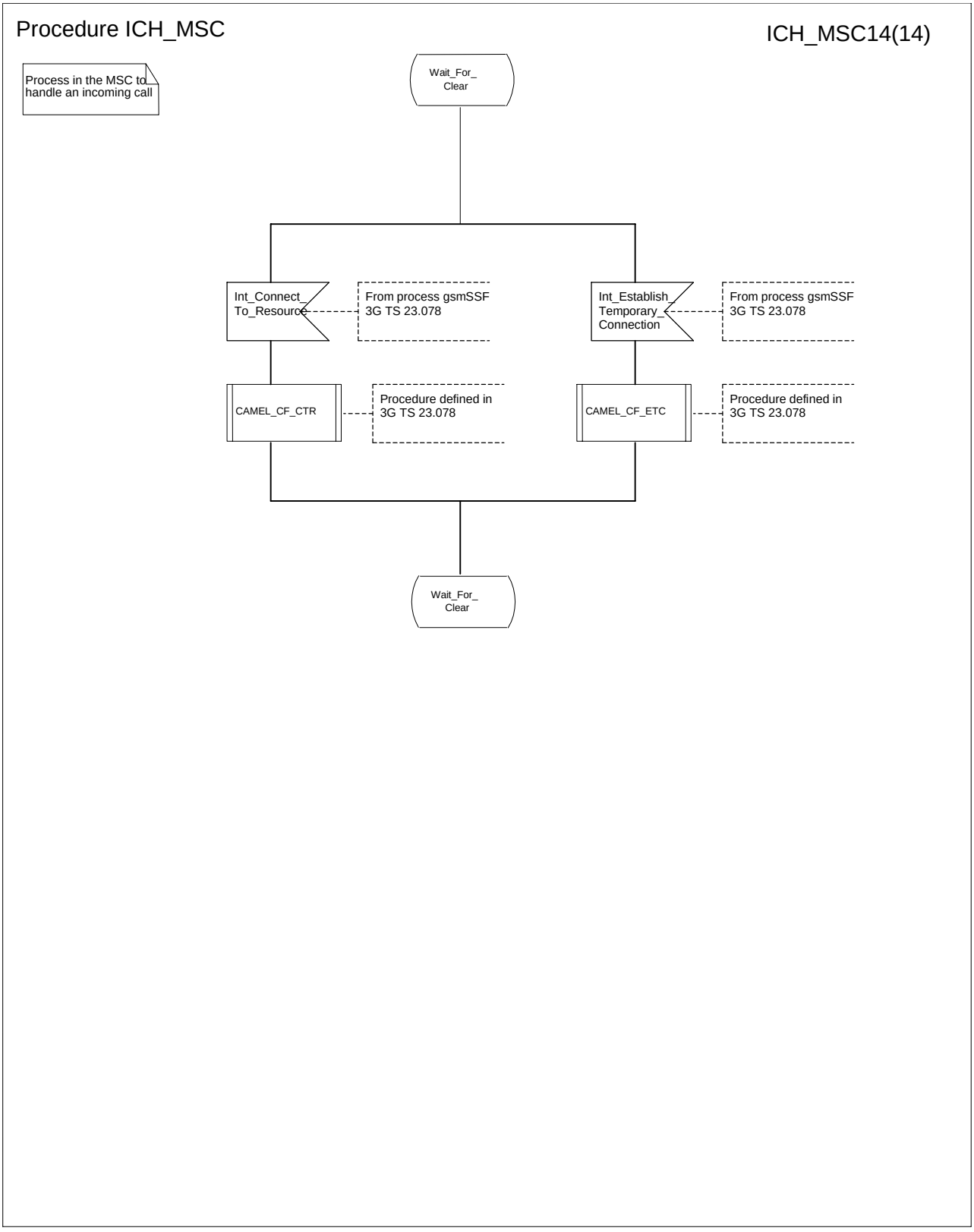

Figure 62n: Process ICH_MSC (sheet 14)

3GPP TSG CN WG2
Kyoto, Japan, 15-19 November 1999

Document N2A000149
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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

23.018	CR	032r1	Current Version:	3.3.0

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

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

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

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

Source: N2 **Date:** Jan. 10th, 2000

Subject: Inclusion of D-CSI check in HLR/VLR

Work item: CAMEL Phase 3

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

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

Reason for change:

SDLs related to Dialled Services are missing:

- D-CSI check in HLR SDL for routeing information retreival
- D-CSI check in VLR SDL for incoming call handling

Also references are upgraded to comply with CAMEL PH3.

Clauses affected: 7.2.2,

Other specs affected:

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

Other comments: Revision in the SDL is shown in red character or chart.


help.doc

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

<<First Modified Section>>

7.2.2 Functional requirements of HLR

7.2.2.1 Process SRI_HLR

Sheet 1: the procedures Check_Parameters, Subscription_Check_HLR, Handle_OR_HLR_CF and CAMEL_HLR_INIT can set the negative response parameter which is used by the process SRI_HLR to construct the Send Routeing Info negative response message. This negative response parameter is global data, accessible by the process SRI_HLR.

Sheet 1: the procedure Handle_OR_HLR_CF is specific to Support of Optimal Routeing; it is specified in GSM 03.79 [10]. If the HLR does not support Optimal Routeing, processing continues from the "No" exit of the test "Result=Forward?".

Sheet 1: the procedure CAMEL_HLR_INIT is specific to CAMEL; it is specified in GSM 03.78 for CAMEL Phase 1 [8], ~~and~~ GSM 03.78 for CAMEL Phase 2 [9], and TS 23.078 for CAMEL Phase 3[28]. If the HLR does not support CAMEL, processing continues from the "No" exit of the test"Result=Fail?".

Sheet 2: the procedure First_Forwarding_HLR can set the negative response parameter which is used by the process SRI_HLR to construct the Send Routeing Info negative response message. This negative response parameter is global data, accessible by the process SRI_HLR.

Sheet 2: the procedure CAMEL_CSI_Check_HLR is specific to CAMEL; it is specified in GSM 03.78 for CAMEL Phase 1 [8], ~~and~~ GSM 03.78 for CAMEL Phase 2 [9], and TS 23.078 for CAMEL Phase 3[28]. If the HLR does not support CAMEL, processing continues from the "No" exit of the test"Result=CSI active?".

Sheet 2: the procedure CCBS_Handling_HLR is specific to CCBS; it is specified in GSM 03.93 [19]. If the HLR does not support CCBS, processing continues from the "Yes" exit of the test "Result = OK?".

Sheet 3: the procedure OR_HLR_Interrogate_VLR is specific to Optimal Routeing. It is specified in GSM 03.79 [10]. If the HLR does not support Optimal Routeing, processing continues from the "No" exit of the test "Result=Forward".

Sheet 3: if the HLR does not support Network Indication of Alerting, the test "Alerting pattern required" and the task "Set Alerting Pattern" are omitted.

Sheet 3: the procedure CLI_HLR_Set_CLI is specific to Enhanced CLI Handling. It is specified in GSM 03.81 [11].

Sheet 4: the procedure PRN_Error_HLR can set the negative response parameter which is used by the process SRI_HLR to construct the Send Routeing Info negative response message. This negative response parameter is global data, accessible by the process SRI_HLR.

Sheet 4: the procedure Forward_CUG_Check is specific to CUG. If the HLR does not support CUG, processing continues from the "Yes" exit of the test "Result=Call allowed?".

Sheet 4: the test "Forwarding enquiry" is specific to Support of Optimal Routeing. If the HLR does not support Optimal Routeing, processing continues from the "No" exit of the test.

Sheet 4: the procedure CAMEL_CSI_Check_HLR is specific to CAMEL; it is specified in GSM 03.78 for CAMEL Phase 1 [8], ~~and~~ GSM 03.78 for CAMEL Phase 2 [9], and TS 23.078 for CAMEL Phase 3[28]. If the HLR does not support CAMEL, processing continues from the "No" exit of the test "Result=CSI active?".

Sheet 4: the procedures CAMEL_T_CSI_CHECK_HLR and CAMEL_O_CSI_CHECK_HLR are specific to CAMEL; they are specified in GSM 03.78 for CAMEL Phase 1 [8] and GSM 03.78 for CAMEL Phase 2 [9]. The procedure CAMEL_D_CSI_CHECK_HLR is specific to CAMEL and it is specified in TS 23.078[28].

7.2.2.2 Procedure Check_Parameters

If any parameters required by the rules in clause 8 are missing from the message, the procedure sets the negative response to "Data missing". If any parameter has a value which is not in the set of values expected for the parameter, the procedure sets the negative response to "Unexpected data value".

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.

7.2.2.4 Procedure First_Forwarding_HLR

The MS is not reachable if any of the following conditions is satisfied:

- The HLR has no location information for the subscriber;
- The subscriber record is marked as MS purged;
- The subscriber record is marked as MSC area restricted;
- The subscriber record is marked as Roaming Restricted due to Unsupported Feature;
- The subscriber is marked as deregistered because of subscription restrictions on roaming

7.2.2.5 Procedure PRN_Error_HLR

The procedure CCBS_Report_PRN_Failure is specific to CCBS; it is specified in GSM 03.93 [19]. The procedure does not return a value; the following tests are on the value of the Provide Roaming Number negative response.

The procedure Super_Charged_SRI_Error_HLR is specific to Super-Charger; it is specified in TS 23.116 [30]. If the HLR does not support Super-Charger, processing continues from the "No" exit of the test "Result=Purged?".

If the HLR does not support Optimal Routeing, processing starts with the test "Negative response=Facility not supported?".

7.2.2.6 Procedure Forward_CUG_Check

7.2.2.7 Procedure Derive_Requested_Basic_Service_HLR

The rules for deriving a GSM bearer capability from ISDN compatibility information or the MSISDN of the B subscriber are specified in GSM 09.07 [24]. If a GSM bearer capability cannot be derived from the ISDN compatibility information or the MSISDN of the B subscriber, the HLR applies a default basic service according to the requirements of the operator.

7.2.2.8 Procedure Check_IC_Barring

7.2.2.9 Procedure IC_CUG_Check

7.2.2.10 Procedure Handle_CFU

The test "Normal call" refers to the value of the indicator returned by the process MAF007.

7.2.2.11 Procedure Handle_CFNRc

The test "Mobile subscriber not reachable" refers to the value of the indicator returned by the process MAF010.

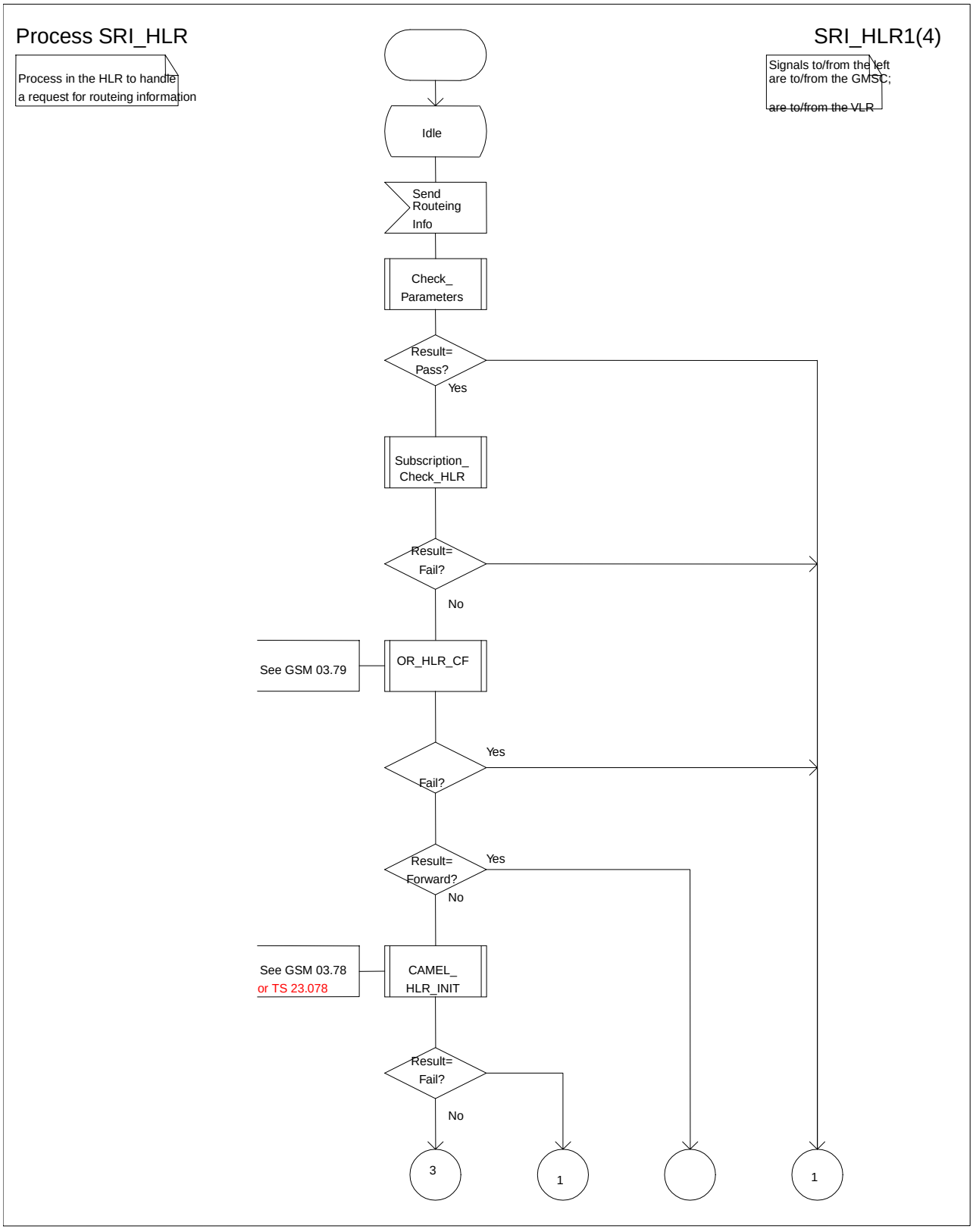

Figure 43a: SRI_HLR (sheet 1)

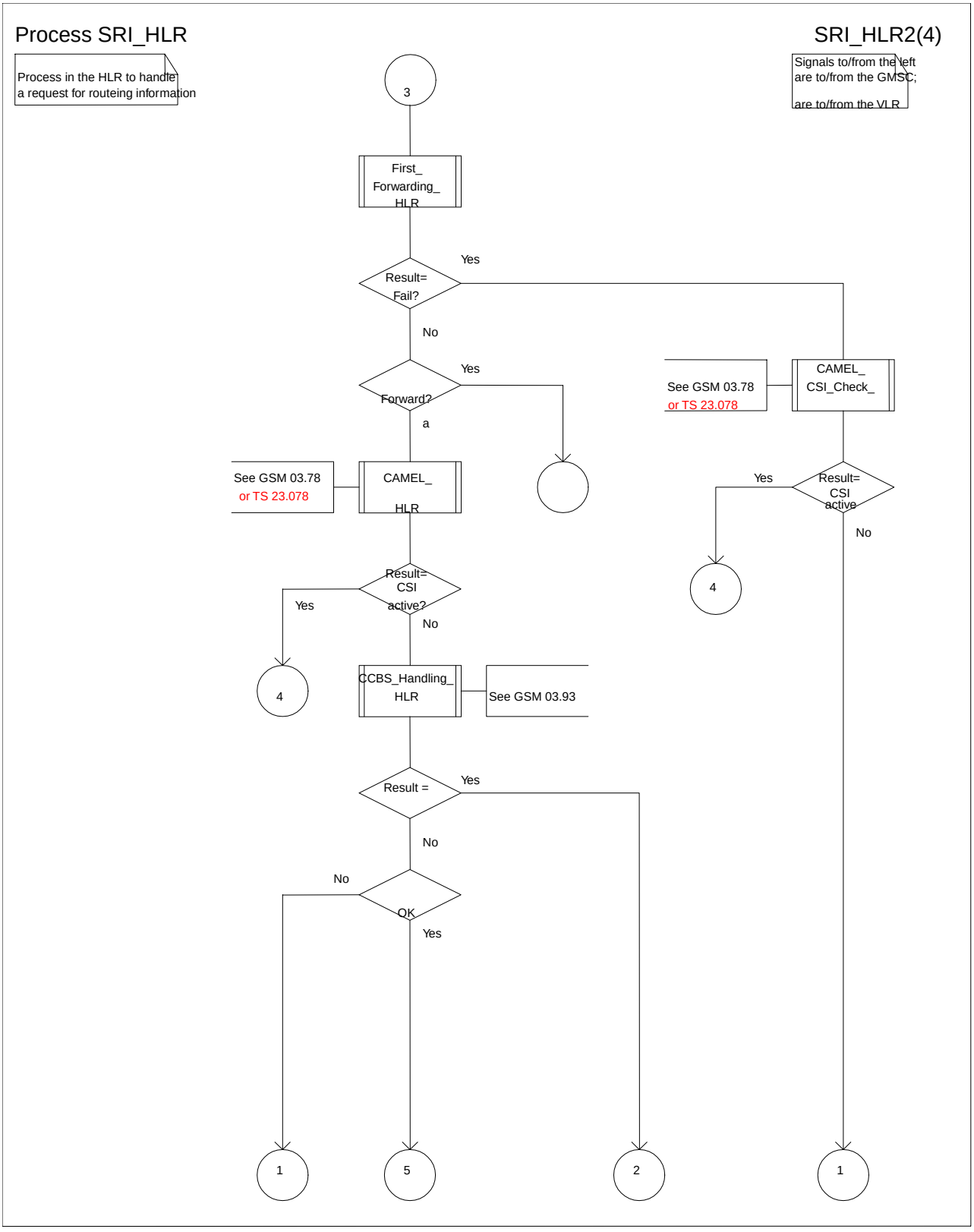

Figure 43b: Process SRI_HLR (sheet 2)

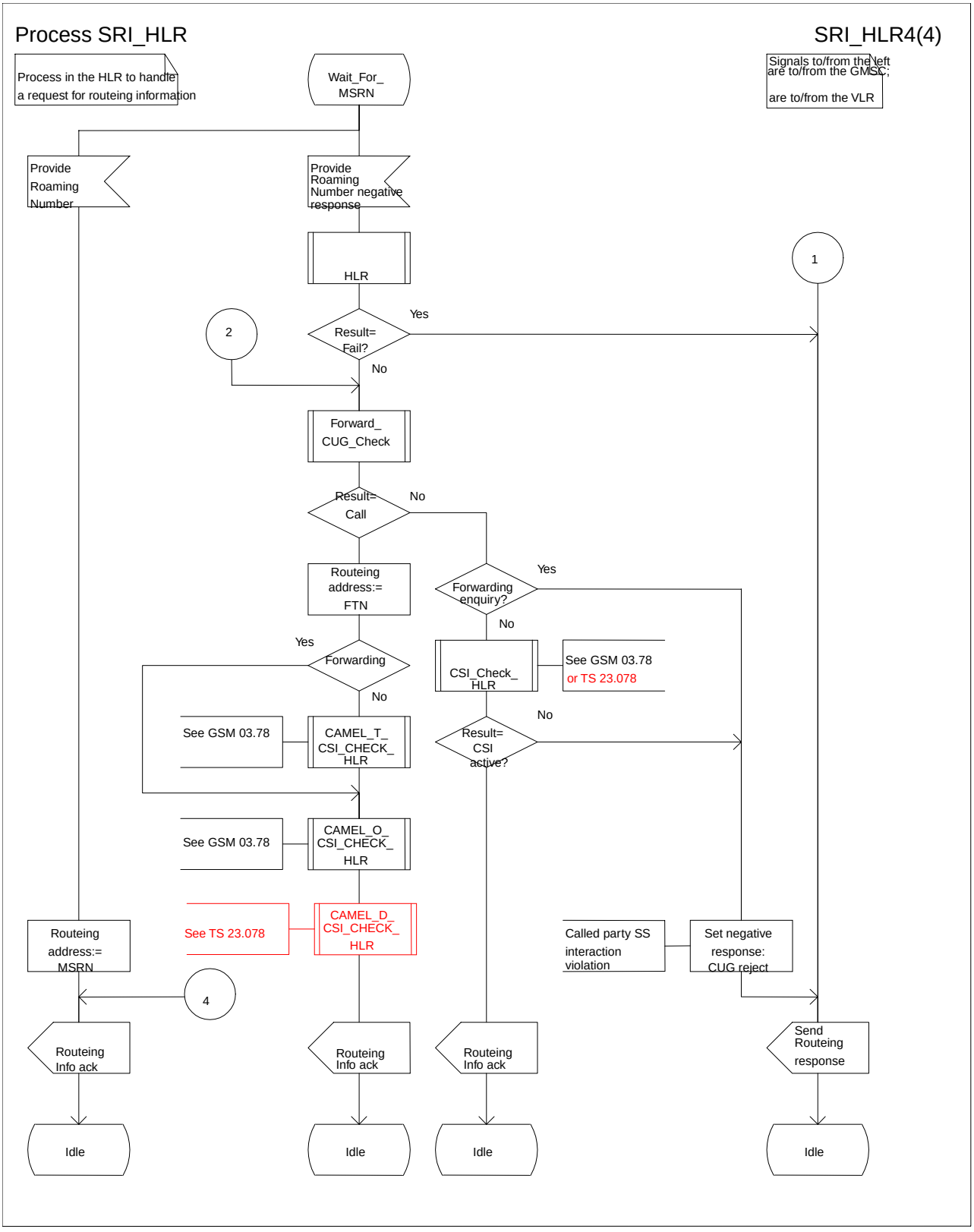

Figure 43d: Process SRI_HLR (sheet 4)

<<Next Modified Section>>

7.3.2 Functional requirements of VLR

7.3.2.1 Process ICH_VLR

Sheet 1: if the MSRN received in the Send Info For Incoming Call is not allocated or there is no IMSI record for the IMSI identified by the MSRN, this is treated as an unknown MSRN.

Sheet 1: the procedure CAMEL_ICH_VLR is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [28]. If the VLR does not support CAMEL phase 3, processing continues from the "No" exit of the test "Result=CAMEL Active?".

Sheet 1: the procedure CCBS_ICH_Set_CCBS_Call_Indicator is specific to CCBS; it is specified in GSM 03.93 [19].

Sheet 1, sheet 2, sheet 4: the procedure CCBS_ICH_VLR_Report_Failure is specific to CCBS; it is specified in GSM 03.93 [19].

Sheet 1, sheet 3: the procedure CCBS_ICH_Report_Not_Reachable is specific to CCBS; it is specified in GSM 03.93 [19].

Sheet 2: this process communicates with the matching instance of the process PRN_VLR, which is linked by the MSRN.

Sheet 2: the test "Paging via SGSN possible" takes the "yes" exit if:

- the Gs interface is implemented; and
- there is an association established for the MS between the MSC/VLR and the SGSN.

Sheet 3: the test "NDUB?" takes the "Yes" exit if the Page MS negative response or the Search for MS negative response had the value Busy Subscriber (NDUB).

Sheet 3: the procedure Get_CW_Subscription_Info_VLR is specific to Call Waiting. If the VLR does not support Call Waiting, processing continues from the "No" exit of the test "CW available?".

Sheet 3: the VLR uses the basic service returned in the Page MS negative response or the Search for MS negative response Busy Subscriber (More calls possible) to determine whether call waiting is available.

Sheet 3: the procedure Get_LI_Subscription_Info_MT_VLR is specific to CLIP and COLR. If the VLR supports neither CLIP nor COLR, the procedure call is omitted.

Sheet3: the procedure Get_AoC_Subscription_Info_VLR is specific to AoC; it is specified in subclause 7.1.2.15.

Sheet 3 sheet 5: the procedure CLI_ICH_VLR_Add_CLI is specific to Enhanced CLI Handling. It is specified in GSM 03.81 [11].

Sheet 3: the procedure CCBS_ICH_Handle_NDUB is specific to CCBS; it is specified in GSM 03.93 [19]. If the VLR does not support CCBS, processing continues from the "Forward" exit of the test "Result".

Sheet 3: the procedure Process_Access_Request_VLR is specified in subclause 7.1.2.2.

Sheet 3: the output signal Page MS towards the SGSN includes the Location area identity parameter.

Sheet 3: if the VLR does not support CUG, handling continues from the "No" exit of the test "CUG info present?".

Sheet 4, sheet 5: the procedure CD_Authorization is specific to Call Deflection, it is specified in GSM 03.72 [7]. If the VLR does not support Call Deflection, processing continues from the "Yes" exit of the test "Result=Aborted?".

Sheet 4, sheet 5: the procedure CCBS_ICH_Handle_UDUB is specific to CCBS; it is specified in GSM 03.93 [19].

Sheet 5: the test "NDUB?" is executed only if the VLR supports CCBS. If the VLR does not support CCBS, processing continues from connector 5.

Sheet 6: the procedure CCBS_ICH_Set_CCBS_Target is specific to CCBS; it is specified in GSM 03.93 [19].

Sheet 6: the procedure Handle_CFNRc is specified in subclause 7.2.2.11.

Sheet 7: the procedure Forward_CUG_Check is specific to CUG; it is specified in subclause 7.2.2.6. If the VLR does not support CUG, processing continues from the "Yes" exit of the test "Result=Call allowed?".

Sheet 7: the procedures CAMEL_O_CSI_Check_VLR,and CAMEL_D_CSI_Check_VLR are specific to CAMEL. They are specified in TS 23.078[28].

7.3.2.2 Procedure Derive_Requested_Basic_Service_VLR

If the VLR did not receive a basic service for the call in the Send Info For Incoming Call, and did not receive a GSM bearer capability in the Provide Roaming Number, it applies a default basic service according to the requirements of the operator.

7.3.2.3 Procedure Search_For_MS_VLR

The test "Paging via SGSN possible" takes the "yes" exit if:

- the Gs interface is implemented; and
- the VLR configuration requires paging via the SGSN during VLR restoration.

The output signal Page MS towards the SGSN omits the Location area identity parameter. It is sent to every SGSN to which the VLR is connected.

7.3.2.4 Procedure Get_CW_Subscription_Info_VLR

The VMSC may abort the transaction with the VLR while a response is awaited from the process MAF013. The message is saved for processing after return from the procedure.

7.3.2.5 Procedure Get_LI_Subscription_Info_MT_VLR

The VMSC may abort the transaction with the VLR while a response is awaited from the process CLIP_MAF001 or the process COLR_MAF040. The message is saved for processing after return from the procedure.

7.3.2.6 Procedure Handle_CFB

The test "Normal call busy" refers to the value of the indicator returned by the process MAF008.

7.3.2.7 Procedure Handle_CFNRy

The test "Normal call" refers to the value of the indicator returned by the process MAF009.

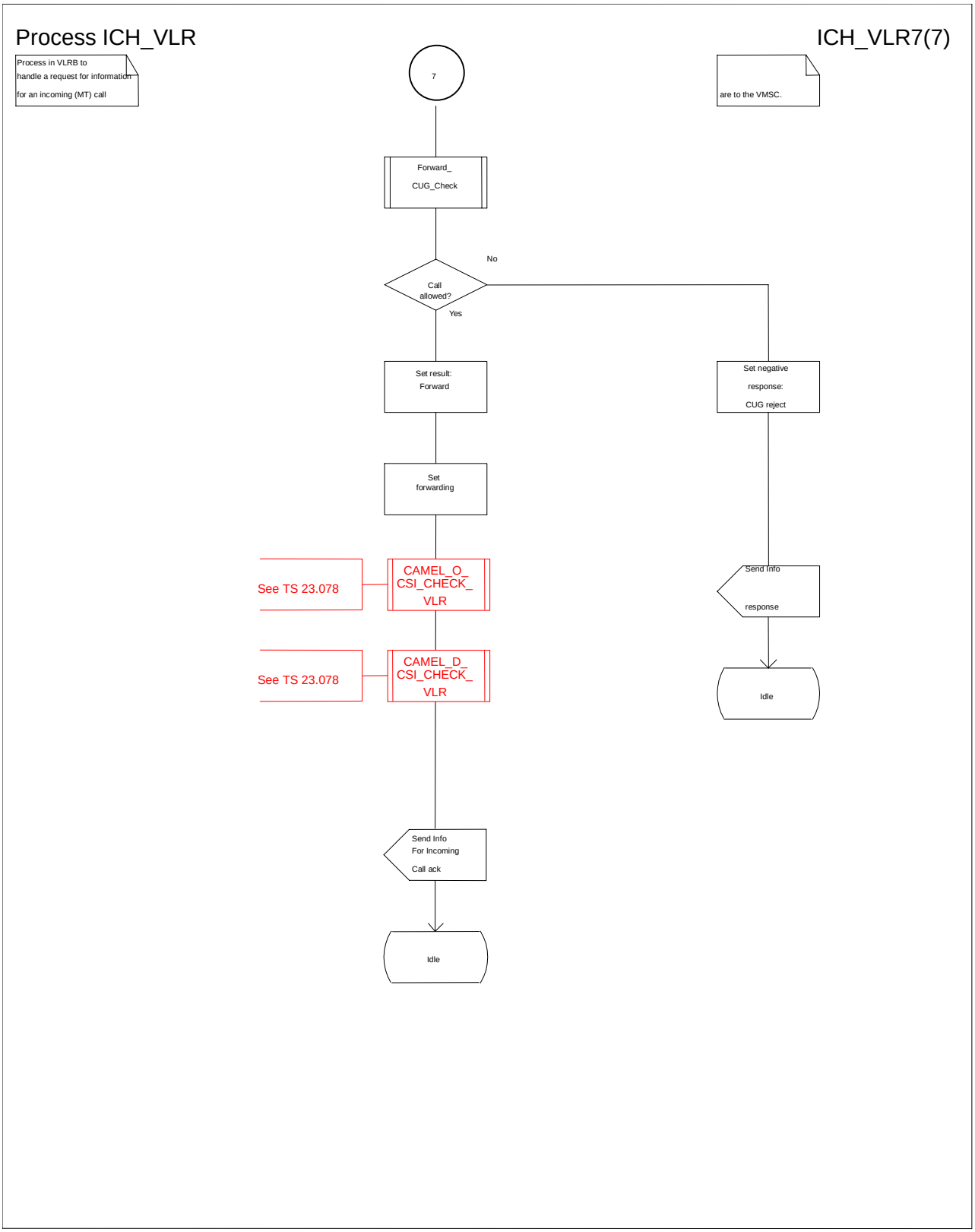

Figure 72g: Process ICH_VLR (sheet 7)

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

Document N2A000071
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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23.018	CR	033	Current Version:	3.3.0

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

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

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

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

Source: N2 **Date:** 13 Jan 2000

Subject: Initialisation of Backward Call indicator

Work item: CAMEL Phase 3

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

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

Reason for change: In the procedure Send_Alerting_If_Required, Backward call indicator is checked if it has been set to 'no indication'. However, this parameter is not initialised at any point of procedures. It is therefore proposed to initialise this parameter in OG_Call_Setup_MSC.

Clauses affected:

Other specs affected:

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

Other comments:

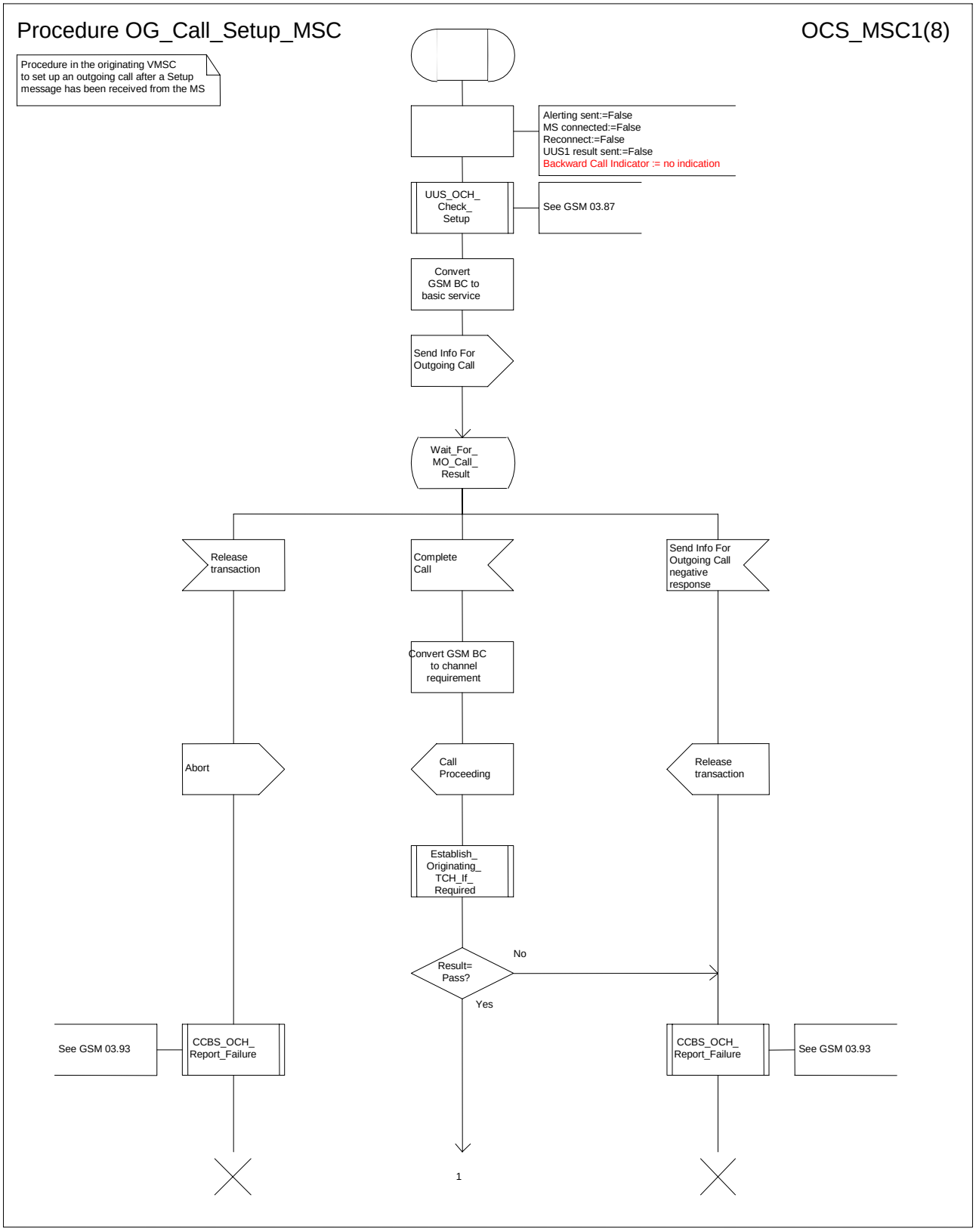

Figure 8a: Procedure Outgoing_Call_Setup_MSC (sheet 1)

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

Document N2A000072
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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23.018	**CR**	**034**	Current Version:	3.3.0

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

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

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

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

Source: N2 **Date:** 13 Jan 2000

Subject: Correction of the result of the procedure CAMEL_ICH_MSC_INIT

Work item: CAMEL Phase 3

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

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

Reason for change: In the procedure ICH_MSC, the result of the procedure CAMEL_ICH_MSC_INIT (23.078) is evalusated. However, one of the branch is mistakenly described. Correct result should be 'MSRN' instead of 'Continue'.

Clauses affected:

Other specs affected:

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

Other comments:

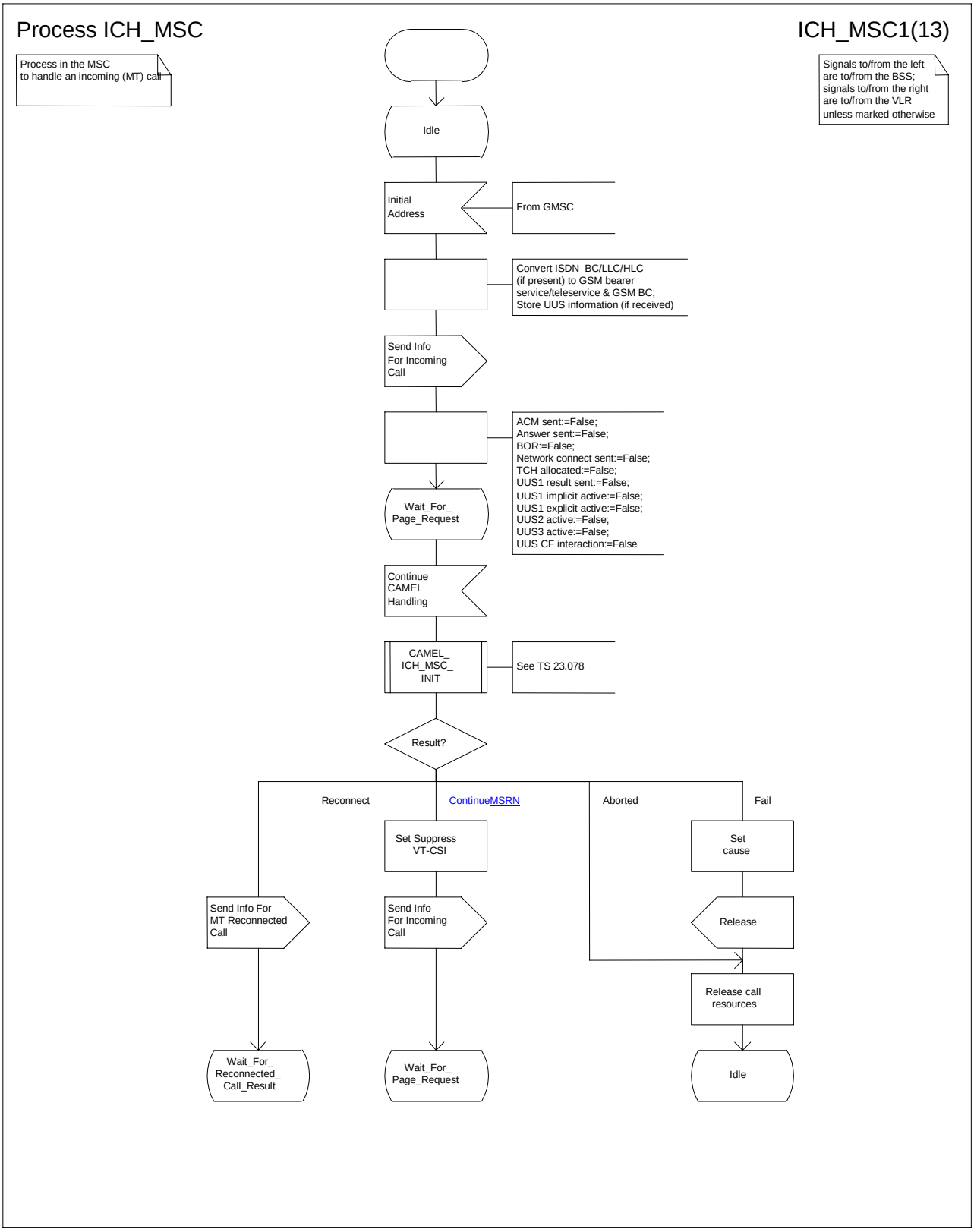

Figure 1a: Process ICH_MSC (sheet 1)

3GPP TSG CN2
Kyoto, Japan, 17-21 January 2000

Document N2A000146
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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23.018	CR	037	Current Version:	3.3.0

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

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

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

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

Source: N2 **Date:** 20.01.00

Subject: Clarification of N-CSI in Core NW.

Work item: CAMEL Phase 3

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

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

Reason for change:
This CR corresponds to CR 23.078-063 which clarifies the handling of the CAMEL Phase 3 N-CSI in the MSC. CAMEL Phase 3 specific procedures for handling of the N-CSI need to be introduced.

Furthermore this CR removes CAMEL specific checks from Procedure OG_Call_Subscription_Check_VLR.

Clauses affected: 7.1.1, 7.1.2

Other specs affected:

Other 3G core specifications	X	→ List of CRs:	23.078-063
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

7.1.1.3 Procedure OG_Call_Setup_MSC

Sheet 1: the variables Alerting sent, MS connected and Reconnect are global data, accessible to the procedures CCBS_Check_OG_Call, CCBS_OCH_Report_Failure, CCBS_OCH_Report_Success, CCBS_Check_If_CCBS_Possible, Send_Alerting_If_Required and Send_Access_Connect_If_Required.

Sheet 1: the VMSC converts the GSM bearer capability negotiated between the VMSC and the MS to a GSM basic service according to the rules defined in GSM 07.01 [21].

Sheet 1: the variable UUS1 result sent is specific to UUS. This variable is accessible to all UUS specific procedures.

Sheet 1: the procedure UUS_OCH_Check_Setup is specific to UUS; it is specified in GSM 03.87 [17].

Sheet 1: the procedure CAMEL_Check_N_CSI_MSC is specific to CAMEL Phase 3, it is specified in 3G TS 23.078.

Sheet 1, sheet 2, sheet 5: the procedure CCBS_OCH_Report_Failure is specific to CCBS; it is specified in GSM 03.93 [19].

Sheet 1, sheet 5, sheet 6, sheet 8: at any stage after the Setup has been received, the MS may terminate the transaction with the network by sending a Release transaction request.

Sheet 2: the procedure Set_CLI_Presentation_Indicator_MSC is specific to CLIR. If the VMSC does not support CLIR, processing continues from the "Yes" exit of the test "Result=Call allowed?".

Sheet 2: the procedure CAMEL_OCH_MSC_INIT is specific to CAMEL; it is specified in GSM 03.78 for CAMEL Phase 1 [8] and GSM 03.78 for CAMEL Phase 2 [9]. If the VMSC does not support CAMEL, processing continues from the "Yes" exit of the test "Result=Pass?".

Sheet 2: the procedure CAMEL_MO_Dialled_Services is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [28]. If the VMSC does not support CAMEL phase 3, processing continues from the "Yes" exit of the test "Result=Pass?".

Sheet 2: the procedure CCBS_Check_OG_Call is specific to CCBS; it is specified in GSM 03.93 [19]. If the VMSC does not support CCBS, processing continues from the "Yes" exit of the test "Result=Pass?".

Sheet 2: the procedure MOBILE_NUMBER_PORTABILITY_IN_OQoD is specific to Mobile Number Portability; it is specified in GSM 03.66 [6].

Sheet 2: the procedure UUS_OCH_Set_Info_In_IAM is specific to UUS; it is specified in GSM 03.87 [17].

Sheet 2: the procedure CAMEL_Store_Destination_Address is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [28].

Sheet 3: the procedure CCBS_OCH_Report_Success is specific to CCBS; it is specified in GSM 03.93 [19].

Sheet 3, sheet 6: the procedures CAMEL_Start_TNRy and CAMEL_Stop_TNRy are specific to CAMEL phase 2; they are specified in GSM 03.78 for CAMEL Phase 2 [9].

Sheet 3: the task "UTU2Cnt := 0" is executed only if the VMSC supports UUS

Sheet 4: the procedure CAMEL_OCH_MSC_ANSWER is specific to CAMEL; it is specified in GSM 03.78 for CAMEL Phase 1 [8] and GSM 03.78 for CAMEL Phase 2 [9]. If the VMSC does not support CAMEL, processing continues from the "Yes" exit of the test "Result=Pass?".

Sheet 4: the procedure Set_COLP_Info_MSC is specific to COLP.

Sheet 4: the procedure Handle_AoC_MO_MSC is specific to AoC.

Sheet 4: the task "Store CW treatment indicator for this call if received in SII2" is executed only if the VMSC supports CAMEL phase 3.

Sheet 5: the procedures CCBS_Check_If_CCBS_Possible and CCBS_Activation_MSC are specific to CCBS; they are specified in GSM 03.93 [19]. The task "Store CCBS Result" is executed only if the VMSC supports CCBS. If the VMSC does not support CCBS, processing continues from the "CCBS Not Possible" exit of the test "CCBS Result".

Sheet 5, sheet 6: the procedures CAMEL_OCH_MSC_DISC3 and CAMEL_OCH_MSC_DISC4 are specific to CAMEL; they are specified in GSM 03.78 for CAMEL Phase 1 [8] and GSM 03.78 for CAMEL Phase 2 [9] respectively.

Sheet 5, sheet 6: the procedure CAMEL_OCH_MSC1 is specific to CAMEL phase 2; it is specified in GSM 03.78 for CAMEL Phase 2 [9]. If the VMSC does not support CAMEL phase 2, processing continues from the "No" exit of the test "Result=Reconnect?"

Sheet 5, sheet 6, sheet 8: the processing in the branch beginning with the Int_Release_Call input will occur only if the MSC supports CAMEL.

Sheet 6, sheet 8: the procedure UUS_MSC_Check_UUS1_UUI is specific to UUS; it is specified in GSM 03.87 [17].

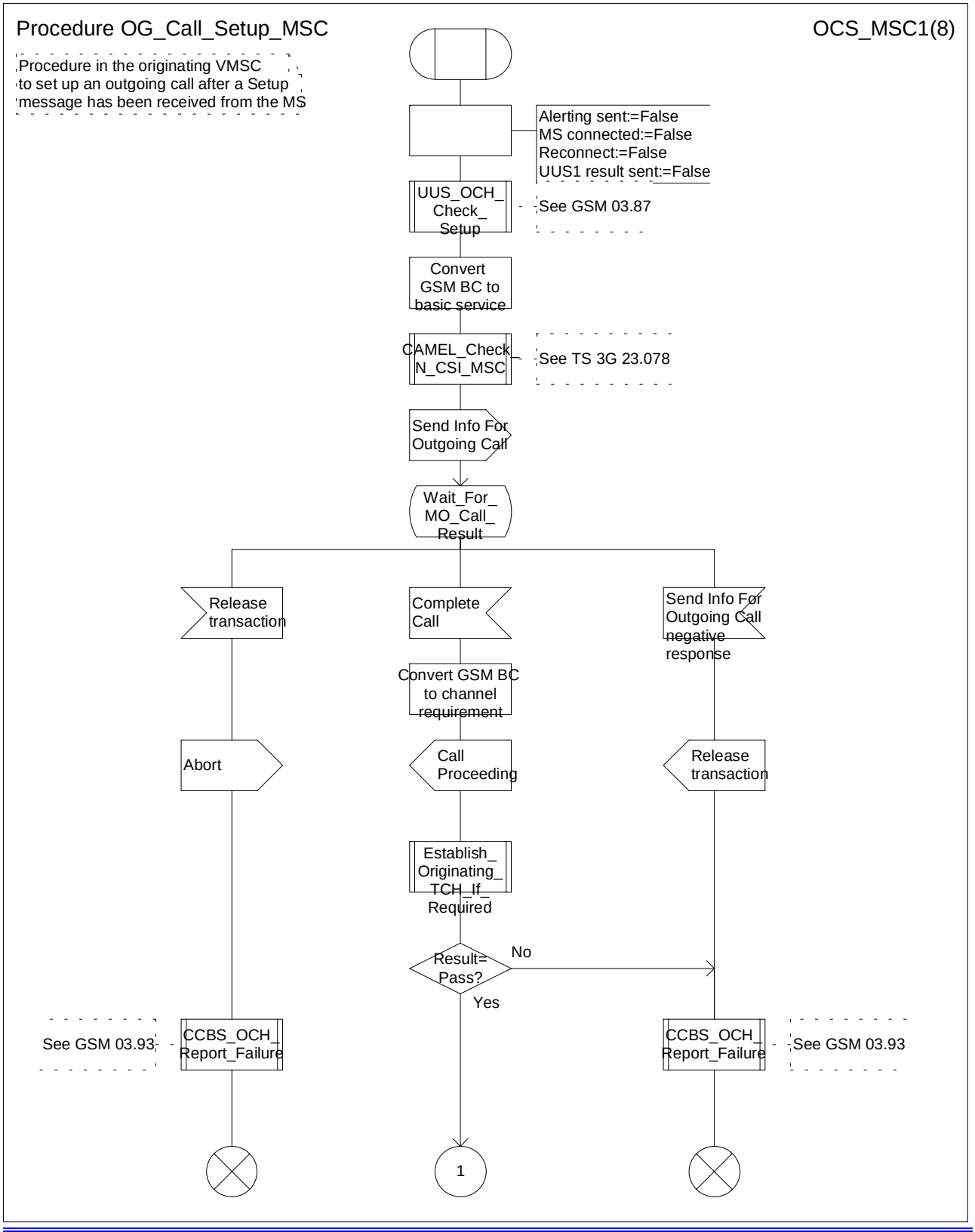
Sheet 7: the input signal TNRy expired and all the subsequent processing are specific to CAMEL phase 2, and will occur only if the VMSC supports CAMEL phase 2. The procedure CAMEL_OCH_MSC2 is specified in GSM 03.78 for CAMEL Phase 2 [9].

Sheet 7: the input signal User To User is specific to UUS; it is discarded if the VMSC does not support UUS.

Sheet 7: the procedures UUS_MSC_Check_UUS2_UUI_to_MS and UUS_MSC_Check_UUS2_UUI_to_NW are specific to UUS; they are specified in GSM 03.87 [17].

Sheet 8: the procedure CAMEL_OCH_MSC_DISC1 is specific to CAMEL; it is specified in GSM 03.78 for CAMEL Phase 1 [8] and GSM 03.78 for CAMEL Phase 2 [9]. If the VMSC does not support CAMEL, processing continues from the "No" exit of the test "Result=CAMEL handling?".

Sheet 8: the procedure CAMEL_OCH_MSC_DISC2 is specific to CAMEL; it is specified in GSM 03.78 for CAMEL Phase 1 [8] and GSM 03.78 for CAMEL Phase 2 [9]. If the VMSC does not support CAMEL, processing continues from the "No" exit of the test "Result=CAMEL handling?".


Procedure OG_Call_Setup_MSC
OCS_MSC1(8)
Procedure in the originating VMSC to set up an outgoing call after a Setup message has been received from the MS
Alerting sent:=False
MS connected:=False
Reconnect:=False
UUS1 result sent:=False
UUS_OCH_ Check_ Setup
See GSM 03.87
Convert GSM BC to basic service
CAMEL_Check_ N_CSI_MSC
See TS 3G 23.078
Send Info For Outgoing Call
Wait_For_ MO_Call_ Result
Release transaction
Complete Call
Send Info For Outgoing Call negative response
Convert GSM BC to channel requirement
Abort
Call Proceeding
Release transaction
Establish_ Originating_ TCH_If_ Required
Result= Pass?
No
Yes
See GSM 03.93
CCBS_OCH_ Report_Failure
CCBS_OCH_ Report_Failure
See GSM 03.93
1

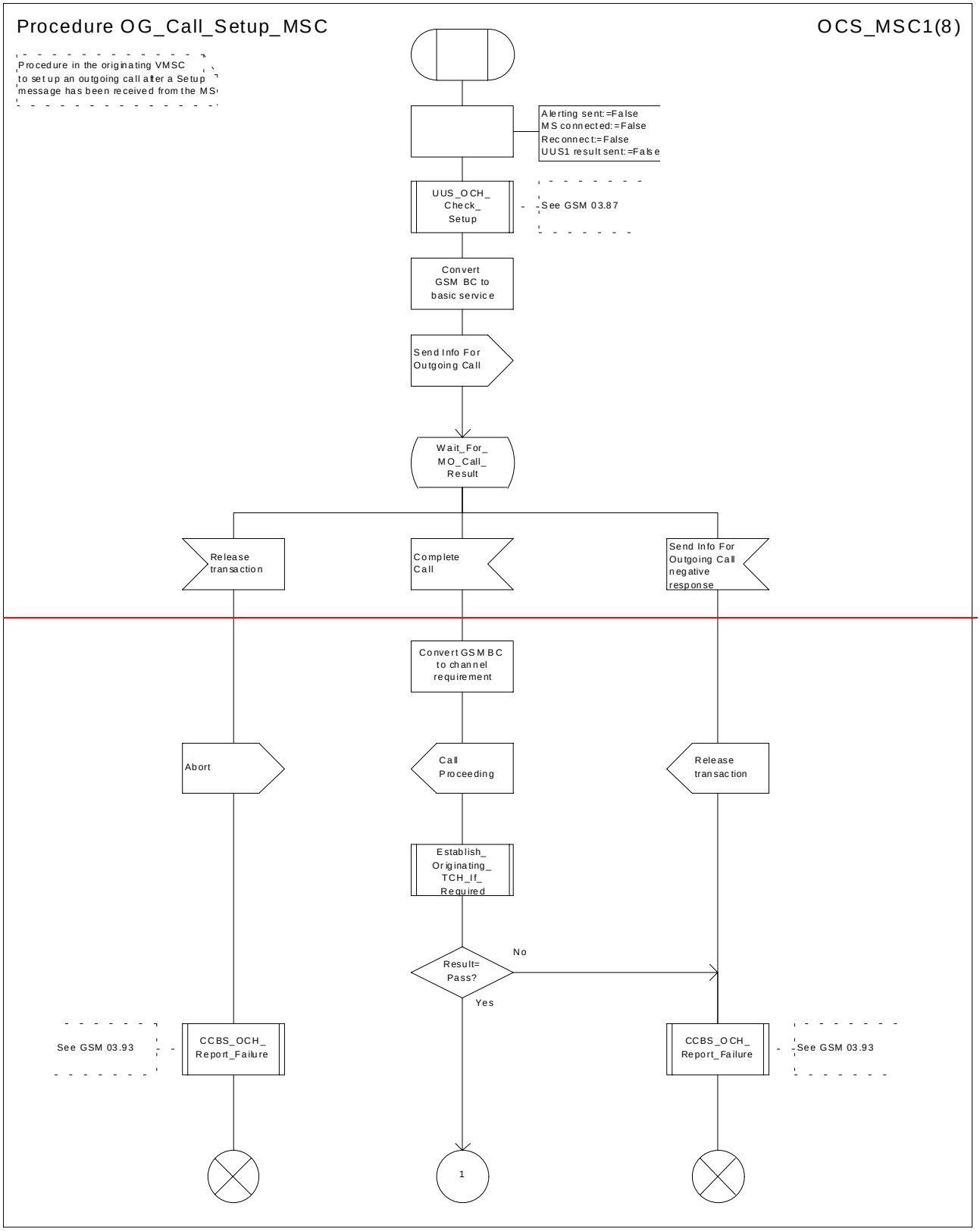
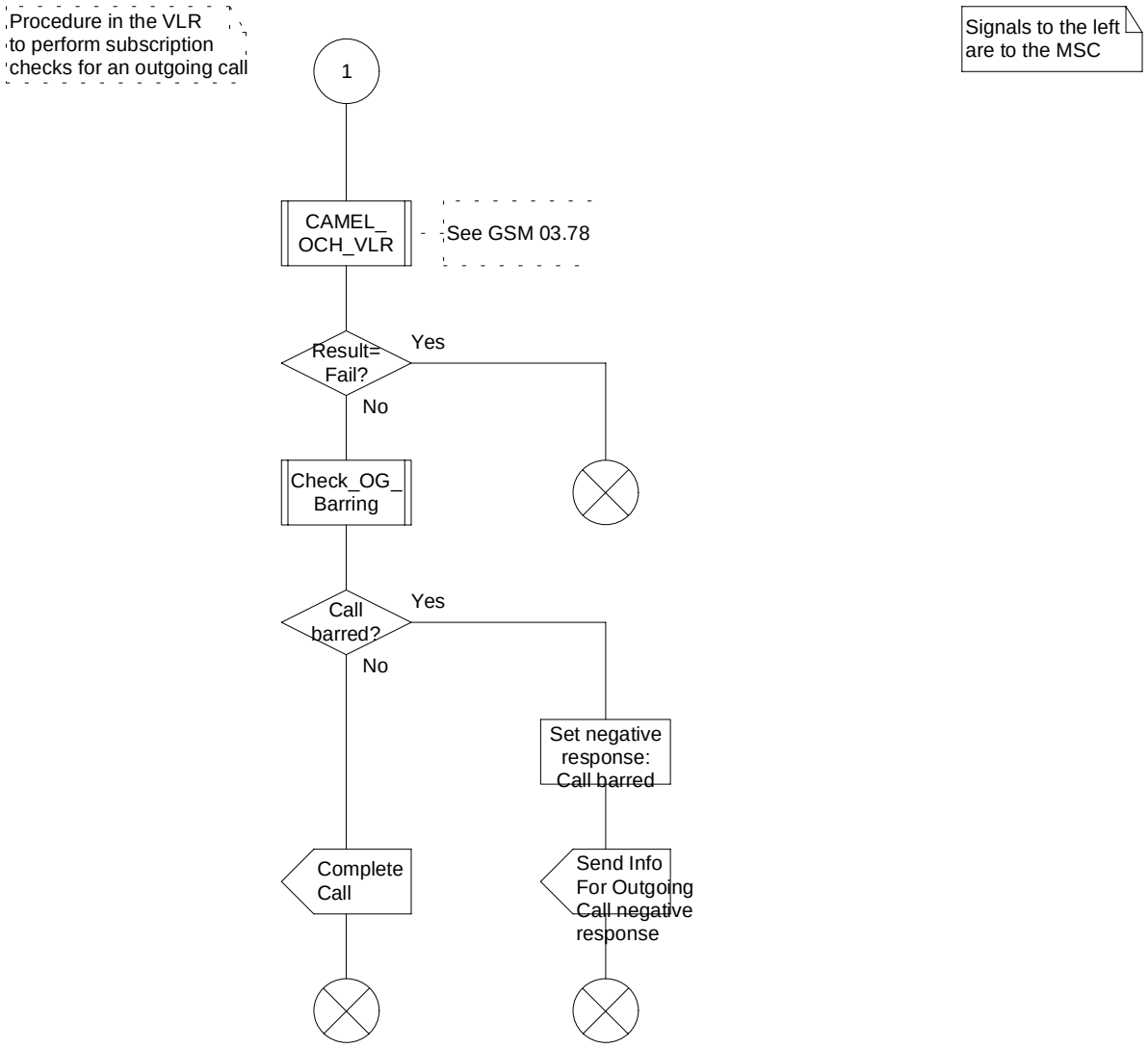


Figure 8a: Procedure Outgoing_Call_Setup_MSC (sheet 1)

Procedure OG_Call_Subscription_Check_VLR OCSCVLR2(2)



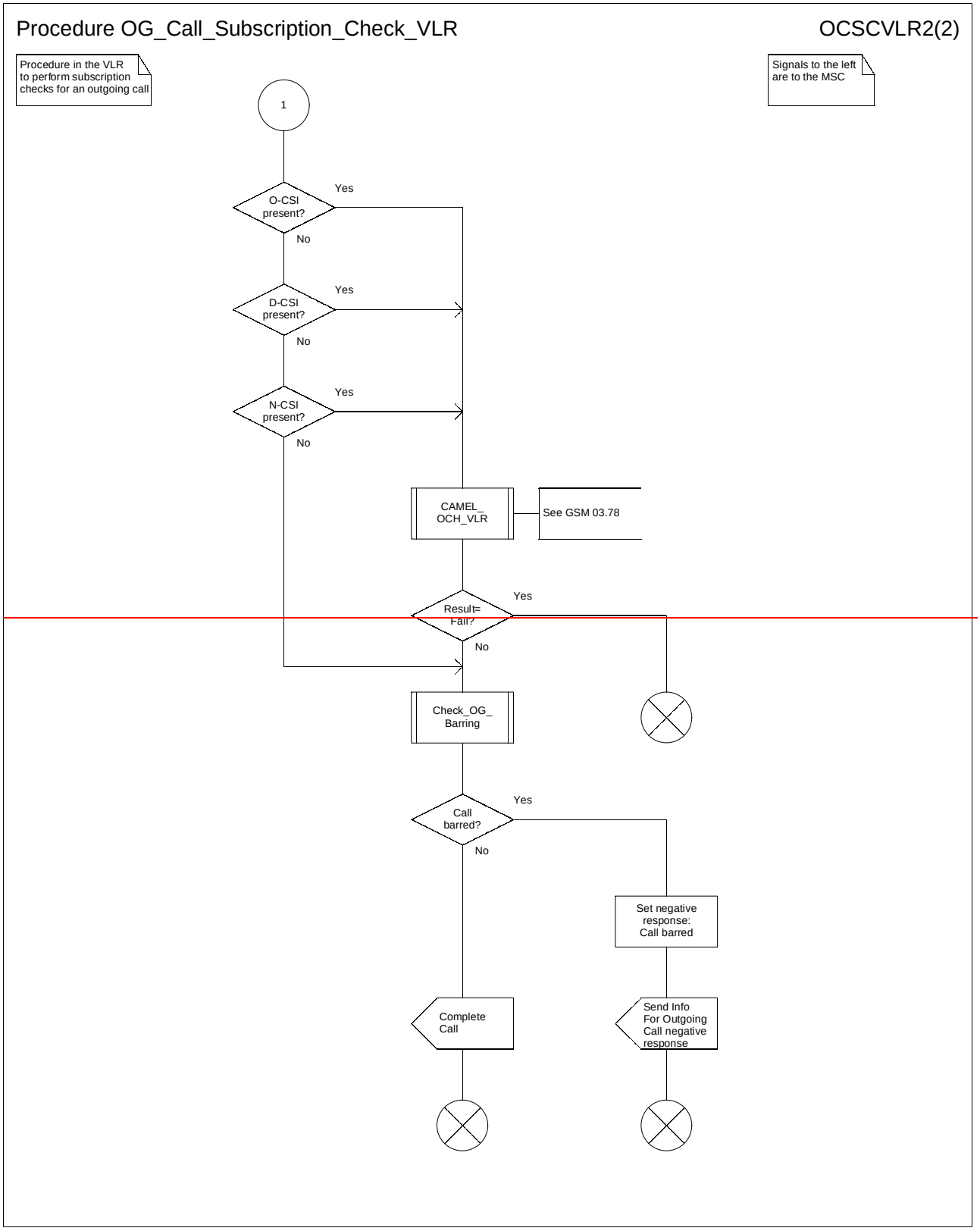


Figure 21b: Procedure OG_Call_Subscription_Check _VLR (sheet 2)

3GPP N2 Meeting #13
Milan, Italy, 14-16 Feb 2000

Document N2B000327
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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23.018	**CR**	**038r1**	Current Version:	3.3.0

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

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

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

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

Source: N2 **Date:** 14 Feb 2000

Subject: Definition of Continue CAMEL Handling

Work item: CAMEL Phase 3

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

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

Reason for change: In the SDL: process ICH_MSC, the MSC receives Continue CAMEL Handling from the VLR. This CR proposes the information flow in the clause 8 by referencing to 23.078.

Clauses affected: 8.1.x

Other specs affected:

Other 3G core specifications	X	→ List of CRs:	23.078
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

8.1.10 Complete Call negative response

The negative response information element can take the following values:

- Absent subscriber;
- Busy subscriber;
- No subscriber reply;
- Radio congestion.

8.1.xx Continue CAMEL Handling

This message is specified in TS 23.078 [32].

8.1.11 Forward New TMSI

The following information element is required:

Information element name	Required	Description
TMSI	M	TMSI to be sent to the MS.

3GPP TSG-N2 SWGB
Kista, Sweden, 2 - 3 March 2000

Tdoc 3GPP N2A000443

CHANGE REQUEST

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23.018	**CR**	**044**	Current Version:	3.3.0

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

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

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

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

Source: N2 **Date:** 22/02/2000

Subject: Setting the Destination Address for MO calls

Work item: CAMEL Phase 3

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

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

Release:

Phase 2	
Release 96	
Release 97	
Release 98	
Release 99	X
Release 00	

Reason for change: It is not clear that the destination address variable is consistently set to the value included in the Initial Address message in all combinations of CAMEL and MNP processing.

Clauses affected: Figure 8b

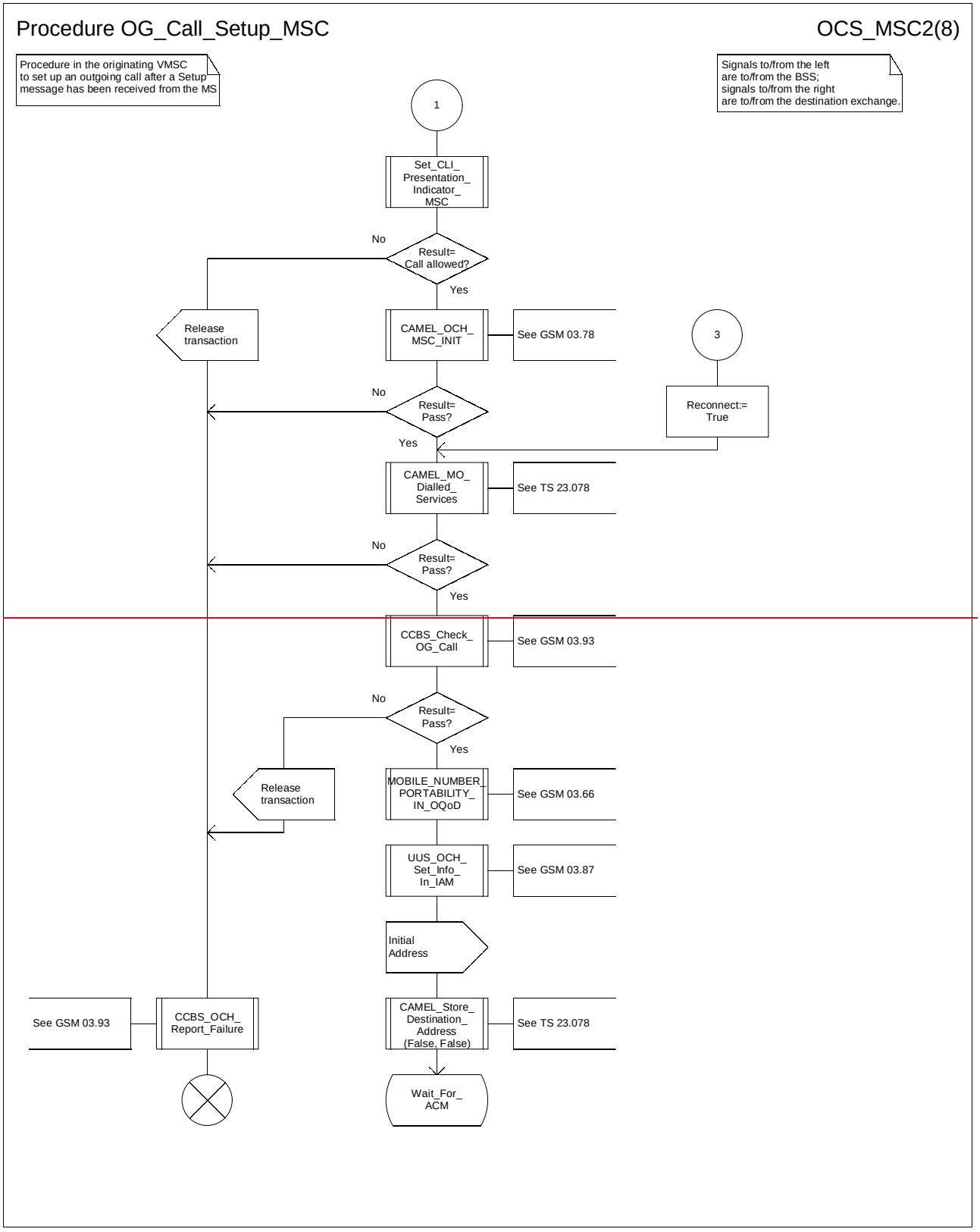
Other specs affected:

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

Other comments: Changes to clauses 1 – 7 are so widespread that the complete updated text of these clauses (with figures) is included.
The sequence numbers of references have been generated automatically; this process includes the deleted refrences in the sequence numbers. When the CR is incorporated into the specification, the reference numbers will be based on only the existing (not the deleted) references.


help.doc

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


Procedure OG_Call_Setup_MSC
OCS_MSC2(8)
Procedure in the originating VMSC to set up an outgoing call after a Setup message has been received from the MS
Signals to/from the left are to/from the BSS; signals to/from the right are to/from the destination exchange.
1
Set_CLI_ Presentation_ Indicator_ MSC
No
Result= Call allowed?
Yes
Release transaction
CAMEL_OCH_ MSC_INIT
See GSM 03.78
3
No
Result= Pass?
Reconnect:= True
Yes
CAMEL_MO_ Dialled_ Services
See TS 23.078
No
Result= Pass?
Yes
CCBS_Check_ OG_Call
See GSM 03.93
No
Result= Pass?
Yes
Release transaction
MOBILE_NUMBER_ PORTABILITY_ IN_OQoD
See GSM 03.66
UUS_OCH_ Set_Info_ In_IAM
See GSM 03.87
Initial Address
See GSM 03.93
CCBS_OCH_ Report_Failure
CAMEL_Store_ Destination_ Address (False, False)
See TS 23.078
Wait_For_ ACM

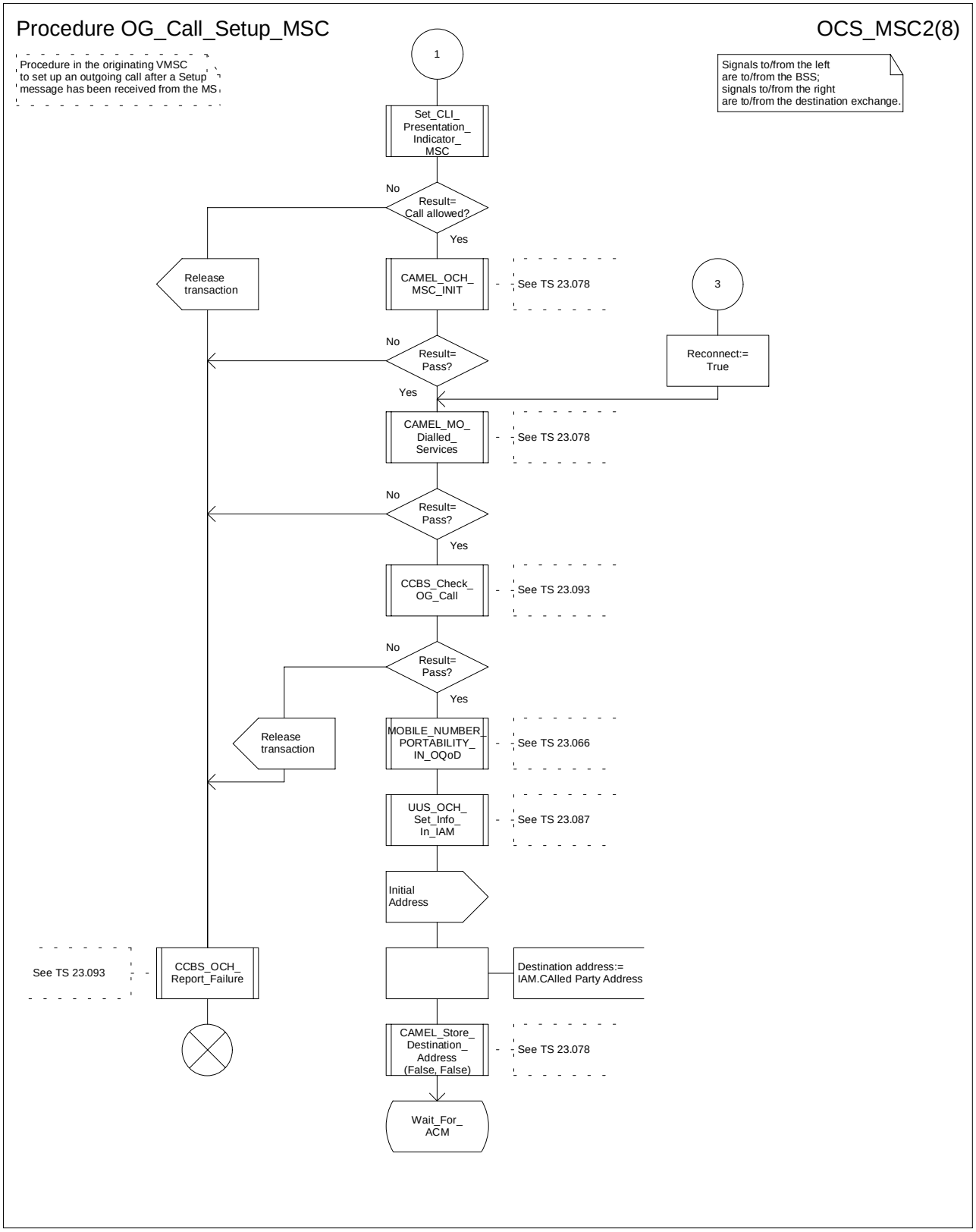


Figure 8b: Procedure Outgoing_Call_Setup _MSC (sheet 2)

3GPP TSG CN Working Group 2 Subgroup B **Tdoc N2B000409**
***Kista*, Sweden**
2 - 3 March, 2000

3GPP-CN2 SWGA ad hoc Meeting #
Sophia Antiplois, 21-25 February 2000

Document *N2A00-0219*

CHANGE REQUEST

23.018	CR	047	Current Version:	3.3.0

For submission to: CN#07

for approval	X	strategic	
for information		non-strategic	X

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [ ] Core Network [X]

Source: N2 **Date:** 16-02-2000

Subject: O-CSI and D-CSI checks for ORLCF calls

Work item: CAMEL Phase 3

Category:

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

Reason for change:

The introduction of D-CSI and DP Route Select Failure necessitates additional checking in the VMSC before sending O-CSI or D-CSI to the GMSC in the Resume Call Handling MAP Message for ORLCF calls.

A dedicated procedure in 3G TS 23.078 checks the required data to be included in RCH and returns an indication to process ICH_MSC in 3G TS 23.018 if ORLCF may be invoked.

Process ICH_MSC has to be modified hereto.

Clauses affected: 7.3 + sheet 4 of process ICH_MSC

Other specs affected:

Other 3G core specifications	X	→ List of CRs:	23.078
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments: Process ICH_MSC in 3G TS 23.018 does not have to set O-CSI for inclusion in RCH, since that has been done by CAMEL_Check_ORLCF_VMSC already.

7.3 MT call

7.3.1 Functional requirements of serving MSC

7.3.1.1 Process ICH_MSC

Sheet 1: the rules for converting the ISDN BC/LLC/HLC to a GSM bearer service or teleservice are specified in GSM 09.07 [**Error! Reference source not found.**].

Sheet 1: the task "Store UUS information (if received)" is executed only if the VMSC supports UUS.

Sheet 1: the variables TCH allocated, ACM sent, Answer sent and Network connect sent are global data, accessible to the procedures Establish_Terminating_TCH_If_Required, Send_ACM_If_Required, Send_Answer_If_Required and Send_Network_Connect_If_Required.

Sheet 1: the variables UUS result sent, UUS1 implicit active, UUS1 explicit active, UUS2 active, UUS3 active and UUS CF interaction are specific to UUS. They are accessible to all UUS specific procedures.

Sheet 1: the handling starting with the input signal "Continue CAMEL handling" is specific to CAMEL phase 3. If the VMSC does not support CAMEL phase 3, this signal will not be received from the VLR.

Sheet 1: the procedure CAMEL_ICH_MSC_INIT is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [**Error! Reference source not found.**].

Sheet 2: the procedure Process_Access_Request_MSC is specified in subclause **Error! Reference source not found.**.

Sheet 2: the signal input Complete Call will be received in the state Wait_For_Page_Request only if the MSC/VLR supports pre-paging.

Sheet 2, sheet 3: the suggested mapping from values of the Send Info For Incoming Call negative response information element to values of the ISUP release cause (see ITU-T Recommendation Q.850 [**Error! Reference source not found.**]) is shown in table 1. The mapping used is a matter for the network operator, depending on the telephony signalling system used.

Table 1: Suggested mapping of Send Info For Incoming Call (SIFIC) negative responses to ISUP release causes

SIFIC negative response	ISUP release cause number	ISUP release cause name
Absent subscriber	20	Subscriber absent
Busy subscriber	17	User busy
CUG reject (Called party SS interaction violation)	21	Call rejected
Forwarding violation	21	Call rejected
Impossible call completion	111	Protocol error, unspecified
No subscriber reply	19	No answer from user (user alerted)
System failure	111	Protocol error, unspecified
Unallocated roaming number	111	Protocol error, unspecified

Sheet 2, sheet 3, sheet 5, sheet 7, sheet 8, sheet 10: the procedure CAMEL_MT_GMSC_DISC4 is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [**Error! Reference source not found.**]. If the VMSC does not support CAMEL phase 3, processing continues from the "No" exit of the test "Result=Reconnect?".

Sheet 2, sheet 4, sheet 7, sheet 8, sheet 10: the procedure CAMEL_MT_GMSC_DISC6 is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [**Error! Reference source not found.**].

Sheet 3: the procedure CAMEL_MT_GMSC_DISC5 is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [**Error! Reference source not found.**]. If the VMSC does not support CAMEL phase 3, processing continues from the "No" exit of the test "Result=Reconnect?".

Sheet 3: the task "Store CW treatment indicator for this call if received in SII2" is executed only if the VMSC supports CAMEL phase 3.

Sheet 3: If the VMSC does not support CAMEL phase 3, the procedure Complete_Call_In_MSC and the procedure Process_Call_Waiting_MSC will not return a "Reconnect" result.

Sheet 3: the processing in the branch starting with the input signal"Process Call Waiting" is specific to Call Wait. If the VMSC does not support CW this signal will not be received from the VLR.

Sheet 3, sheet 8, the procedure CD_Reject is specific to Call Deflection; it is specified in GSM 03.72 [**Error! Reference source not found.**].

Sheet 3, sheet 8: the procedure CCBS_Set_Diagnostic_For_Release is specific to CCBS; it is specified in GSM 03.93 [**Error! Reference source not found.**].

Sheet 3, sheet 4, sheet 10, sheet 11: the procedure CCBS_Check_Last_Call is specific to CCBS; it is specified in GSM 03.93 [**Error! Reference source not found.**].

Sheet 4: the procedure UUS_ICH_Check_Support is specific to UUS; it is specified in GSM 03.87 [**Error! Reference source not found.**].

~~Sheet 4: the procedure CAMEL_Check_ORLCF_VMSC is specific to CAMEL phase 2; it is specified in GSM 03.78 for CAMEL Phase 2 [9]. If the VMSC does not support CAMEL, processing continues from the "ORLCF" exit of the test "Result?"~~

Sheet 4: the procedure CAMEL_Check_ORLCF_VMSC is specific to CAMEL Phase 2 and 3; it is specified in GSM TS 03.78 for CAMEL Phase 2 [9] and 3G TS 23.078 for CAMEL Phase 3 [28].

- If the VLR does not support CAMEL or no CAMEL information is available for the subscriber, then ORLCF may take place ('ORLCF' exit from CAMEL_Check_ORLCF_VMSC).

- If CAMEL information is available for the subscriber and the GMSC supports the required CAMEL Phases, then ORLCF may take place. RCH shall include the relevant CAMEL information ('ORLCF' exit from CAMEL_Check_ORLCF_VMSC).

- If CAMEL information is available for the subscriber but the GMSC does not support the required CAMEL Phases, then ORLCF shall not take place ('VMSCCF' exit CAMEL_Check_ORLCF_VMSC).

Sheet 4: the procedure Handle_ORLCF_VMSC is specific to Support of Optimal Routeing. It is specified in TS 100 045 [**Error! Reference source not found.**]. If the VMSC does not support Optimal Routeing, processing continues from the "Continue" exit of the test "ResultForwarding Failed?".

Sheet4; the procedures CD_Failure and CD_Success are specific to Call Deflection; they are specified in GSM 03. 72 [**Error! Reference source not found.**].

Sheet 5: the procedure CAMEL_MT_VMSC_Notify_CF is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [**Error! Reference source not found.**].

Sheet 5: If the VMSC does not support CAMEL phase 3, processing starts with the possible call of the procedure CCBS_Check_Last_Call.

Sheet 5: The task "set redirection information" includes the the mapping of the MSISDN parameter received in the Send Info For Incoming Call ack message to the redirecting number of the IAM message and the setting of the presentation indicator of the redirecting numer of the IAM message according to the value of the Redirecting presentation parameter received in the Send Info For Incoming Call ack message.

Sheet 5: it is an operator option whether to send an Address Complete message if the VLR returns forwarding information. If the VMSC sends an Address Complete message, it shall include the called party's status field of the Backward call indicator set to "no indication".

Sheet 5, sheet 7: the procedure Send_ACM_If_Required is specified in subclause **Error! Reference source not found.**.

Sheet 5: the procedure Activate_CF_Process is specified in subclause **Error! Reference source not found.**.

Sheet 5: the procedure UUS_ICH_Set_Info_In_IAM is specific to UUS, it is specified in GSM 03.87 [**Error! Reference source not found.**].

Sheet 5: the called party address sent in the IAM to the process MT_CF_MSC is the Forwarded-to number received in the Perform Call Forwarding ack.

Sheet 5: the procedure CAMEL_Store_Destination_Address is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [**Error! Reference source not found.**].

Sheet 5; the procedure CD_Success is specific to Call Deflection; it is specified in GSM 03. 72 [**Error! Reference source not found.**].

Sheet 6: The processing on this sheet is specific to CAMEL phase 3. If the VMSC does not support CAMEL phase 3, the input signal Int_Release Call will not be received.

Sheet 7: the procedure CAMEL_MT_GMSC_ANSWER is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [**Error! Reference source not found.**]. If the VMSC does not support CAMEL phase 3, processing continues from the "No" exit of the test "Result=Reconnect?".

Sheet 7: the procedure Handle_COLP_Forwarding_Interaction is specified in subclause **Error! Reference source not found.**.

Sheet 7: the procedure Send_Answer_If_Required is specified in subclause **Error! Reference source not found.**.

Sheet 7: the procedure Send_Network_Connect_If_Required is specified in subclause **Error! Reference source not found.**.

Sheet 8: the procedure CCBS_MT_MSC_Check_Forwarding is specific to CCBS; it is specified in GSM 03.93 [19].

Sheet 11, sheet 12: the procedure CAMEL_MT_GMSC_DISC1 is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [28].

Sheet 11, sheet 12: the procedure CAMEL_MT_GMSC_ DISC2 is specific to CAMEL phase 3; it is specified in TS 23.078 for CAMEL Phase 3 [28]. If the VMSC does not support CAMEL phase 3, processing continues from the "No" exit of the test "Result=Reconnect?".

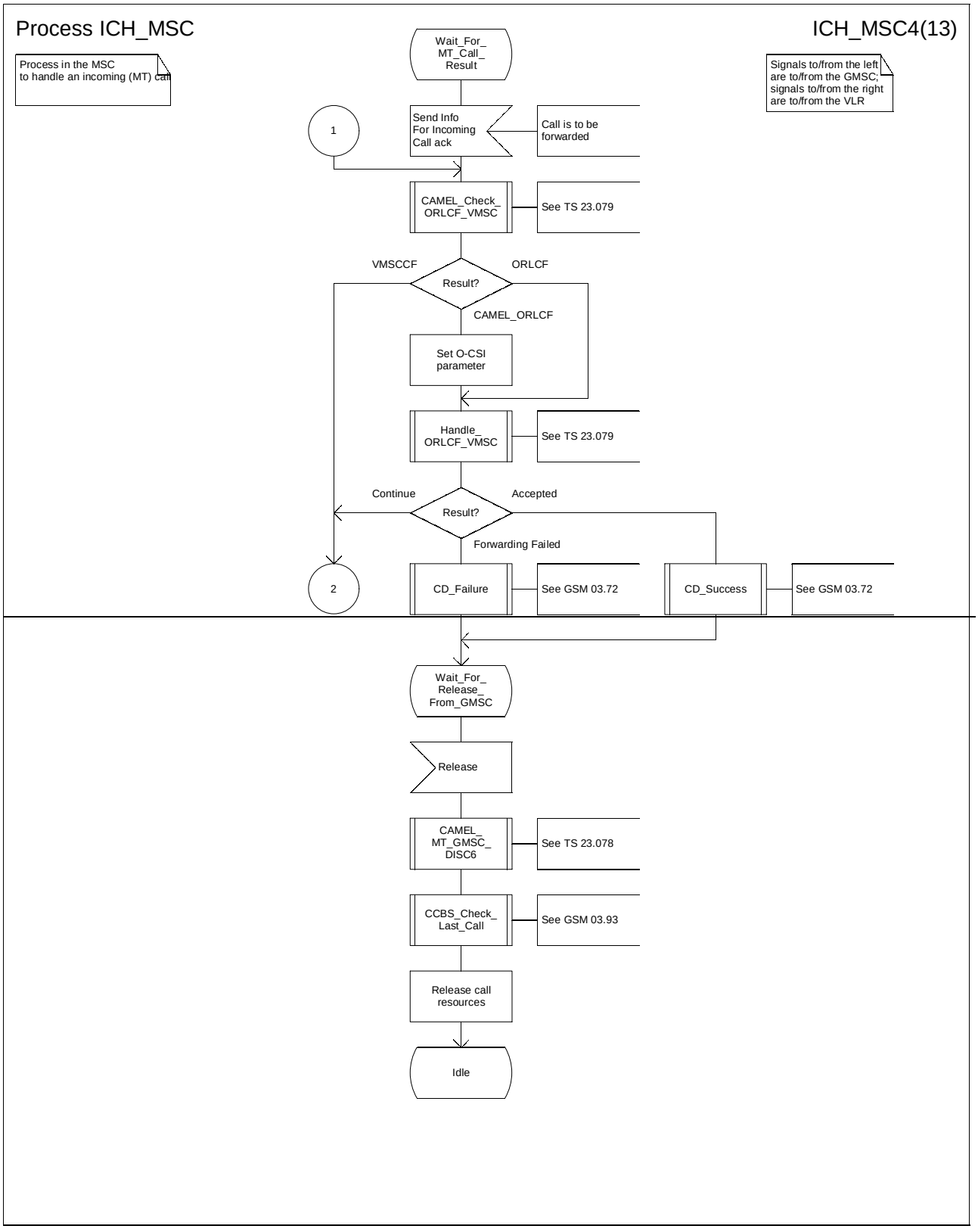
Sheet 11: the procedure UUS_MSC_Check_UUS1_UUI is specific to UUS; it is specified in GSM 03.87 [**Error! Reference source not found.**].

Sheet 12: after the VMSC has sent an IAM to the process MT_CF_MSC, it acts as a transparent relay for messages received from the GMSC and the process MT_CF_MSC. Any message other than Address Complete, Connect, Answer or Release causes no change of state in the process ICH_MSC.

Sheet 13: The processing on this sheet is specific to CAMEL phase 3. If the VMSC does not support CAMEL phase 3, the input signal Int_Release Call will not be received.

• • •

• • •



~~Figure 62d: Process ICH_MSC (sheet 4)~~

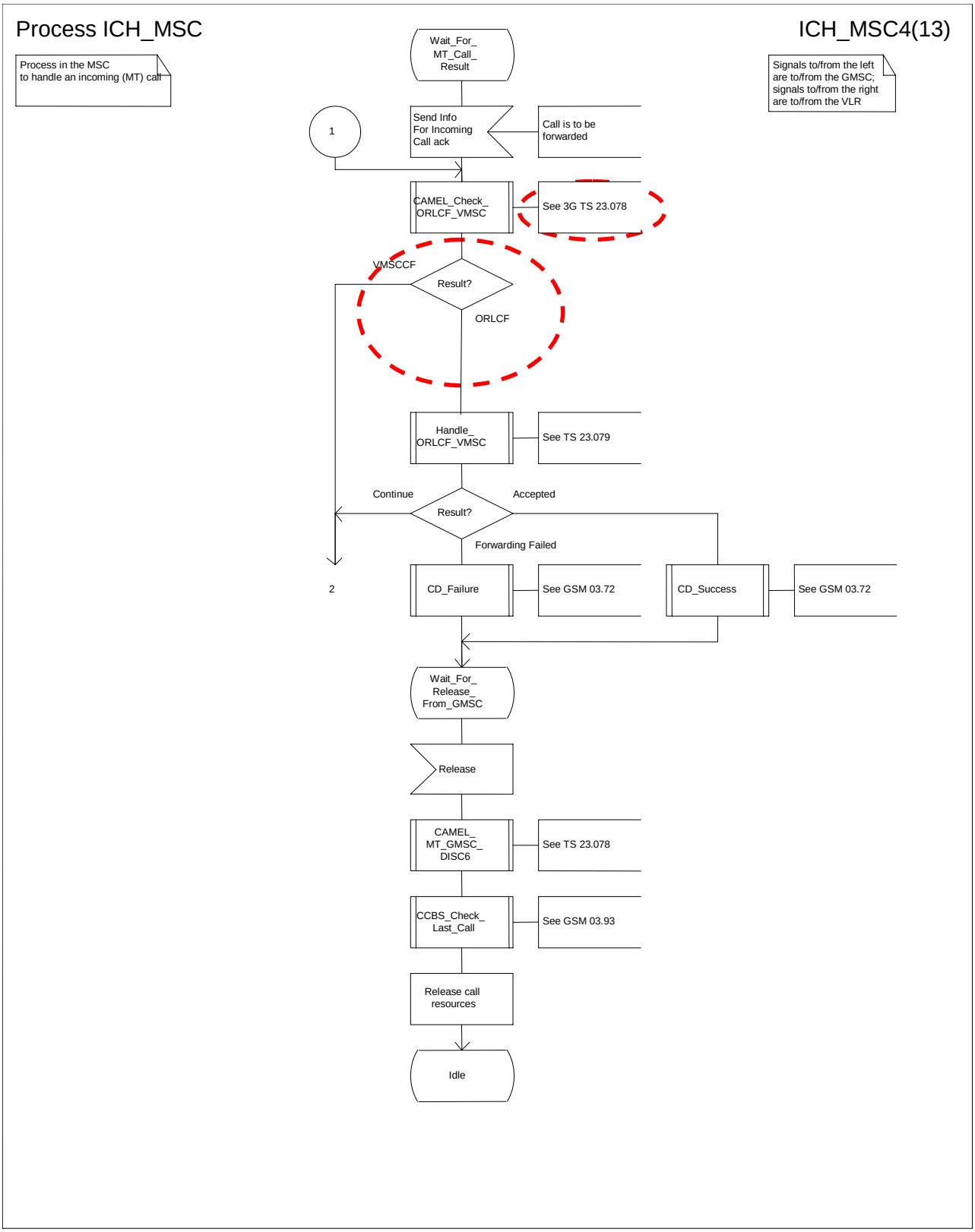


Figure 62d: Process ICH_MSC (sheet 4)

3GPP N2B Meeting
Milan, Italy, 14-16 Feb 2000

***Document* N2B000166**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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23.018	CR	048	Current Version:	3.3.0

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

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

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

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

Source: N2 **Date:** 7 Feb 2000

Subject: Correction of CF Notification

Work item: CAMEL Phase 2

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

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

Reason for change: See next page for detail.

Clauses affected:

Other specs affected:

Other 3G core specifications	X	→ List of CRs:	23.078-091, 23.079-009
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

Reason for change:

Problem - Endless loop in Obtain_Routing Address (GSM TS 03.18):

The first SRI and SRI ack are done in Obtain_Routing Address. Then CAMEL_MT_GMSC_INIT (GSM TS 03.78) is called.

1. If the terminating service logic sends CONTINUE in CAMEL_MT_GMSC_INIT, the second SRI is sent and SRI ack contains FTN and O-CSI if the subscriber is not reachable. This procedure provides the output as „FTN“.
2. Returning to procedure Obtain_Routing_Address, it calls the Procedure CAMEL_MT_GMSC_Notify_CF (GSM TS 03.78)
3. In CAMEL_MT_GMSC_Notify_CF, the terminating service logic is informed about CFNRc by EVENT REPORT BCSM.
4. The gsmSCF may answer with CONNECT.
5. The procedure CAMEL_MT_GMSC_Notify_CF delivers output "Reconnect".
6. Returening to Obtain_Routing Address, it calls the procedure CAMEL_MT_GMSC_INIT again.
7. The procedure CAMEL_MT_GMSC_INIT delivers again output 'FTN".
8. The procedure Obtain_Routing_Address calls again procedure CAMEL_MT_GMSC_Notify_CF.

The CFNRc data are still stored therefore it starts from the beginning

Proposed Correction:

The proposal is to call procedure CAMEL_MT_GMSC_Notify_CF (in GSM TS 03.78) only for GSM-CF, i.e. gsmSCF shall not be notified about new Called Party Number being received from it in CONNECT.

Therefore a new outputs ‘CAMEL_FTN’ and ‘GSM_FTN’ are defined in Procedure CAMEL_MT_GMSC_INIT (in GSM TS 03.78). This is to be checked in procedure Obtain_Routeing_Address (in GSM TS 03.18). If result = ‘CAMEL_FTN’ procedure CAMEL_MT_GMSC_Notify_CF (in GSM TS 03.78) shall not be called. CF process shall be started instead.

Correction on GSM TS 03.78
Further, a new check on Called Party Number is proposed in CAMEL_MT_GMSC_Notify_CF procedure. If the same number is delivered in CONNECT then CF process shall be started immediately, i.e. there shall be no Reconnect attempt.

Correction on GSM TS 03.79
Last issue is the interworking with OR – when terminating logic is informed about ORLCF and sends a new Called Party Number in CONNECT then the connection to VMSC shall be released and RESUME CALL HANDLING shall be sent.

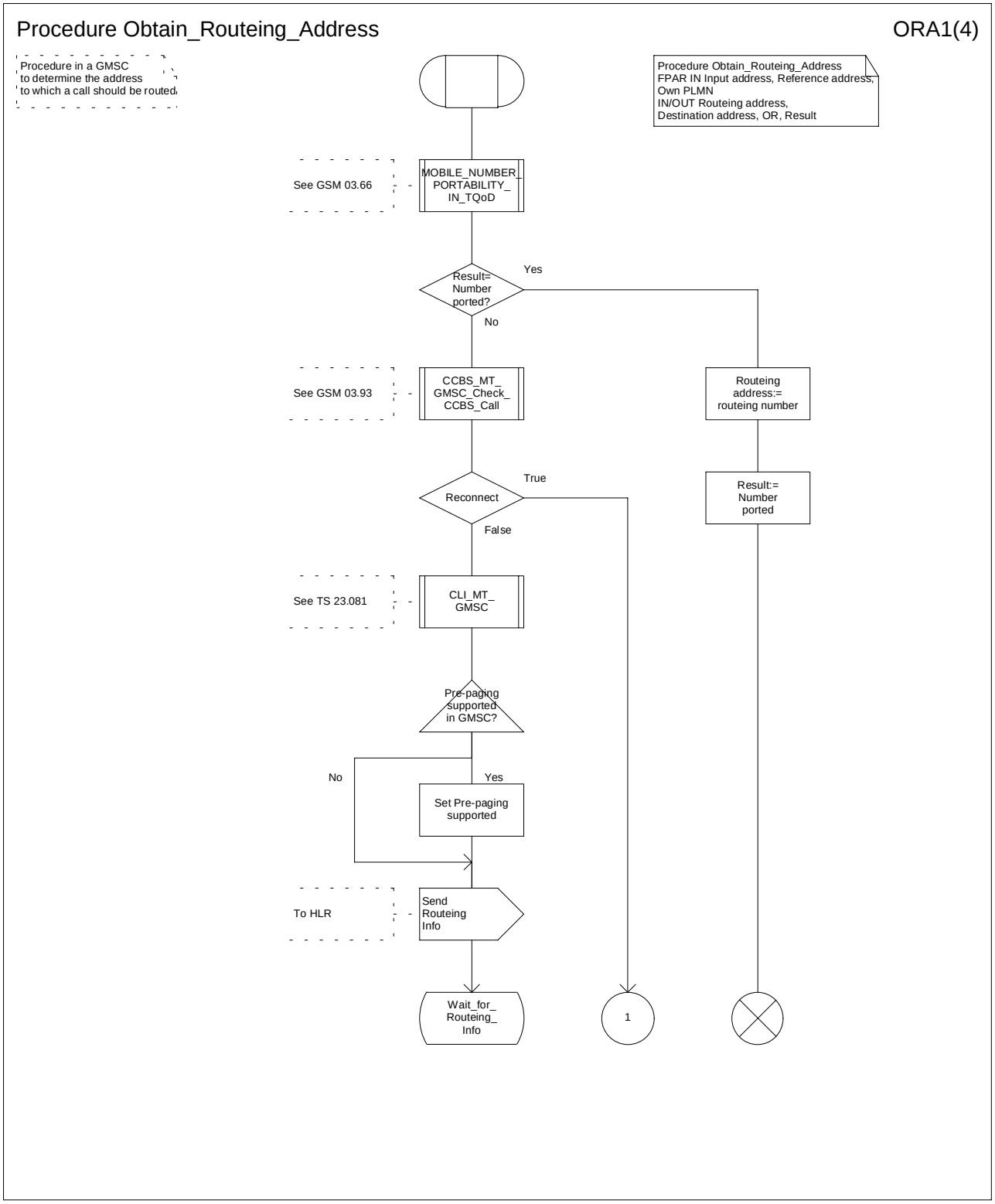


Figure 36a: Procedure Obtain_Routeing_Address (sheet 1)

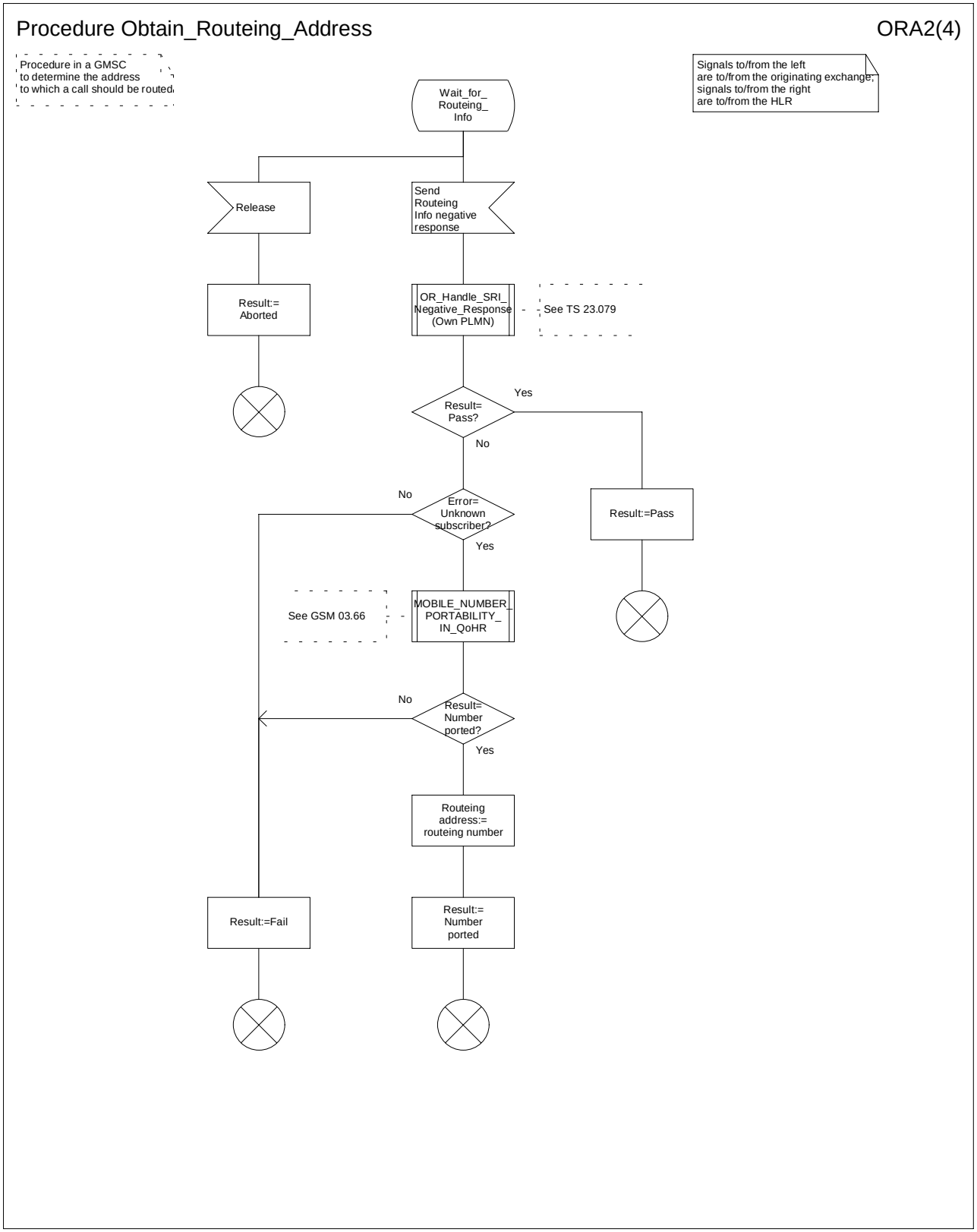
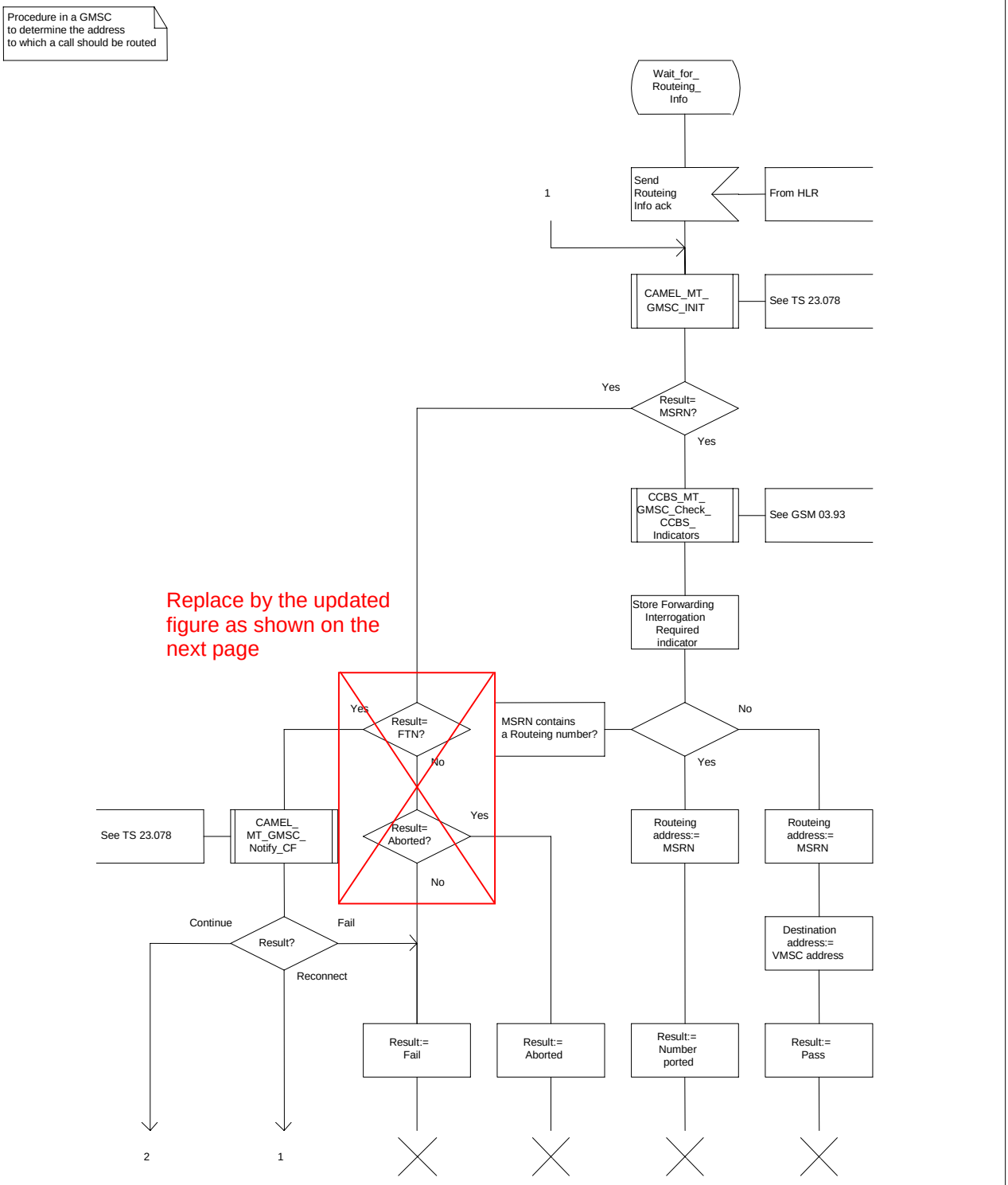


Figure 36b: Procedure Obtain_Routeing_Address (sheet 2)

Procedure Obtain_Routeing_Address

ORA3(4)



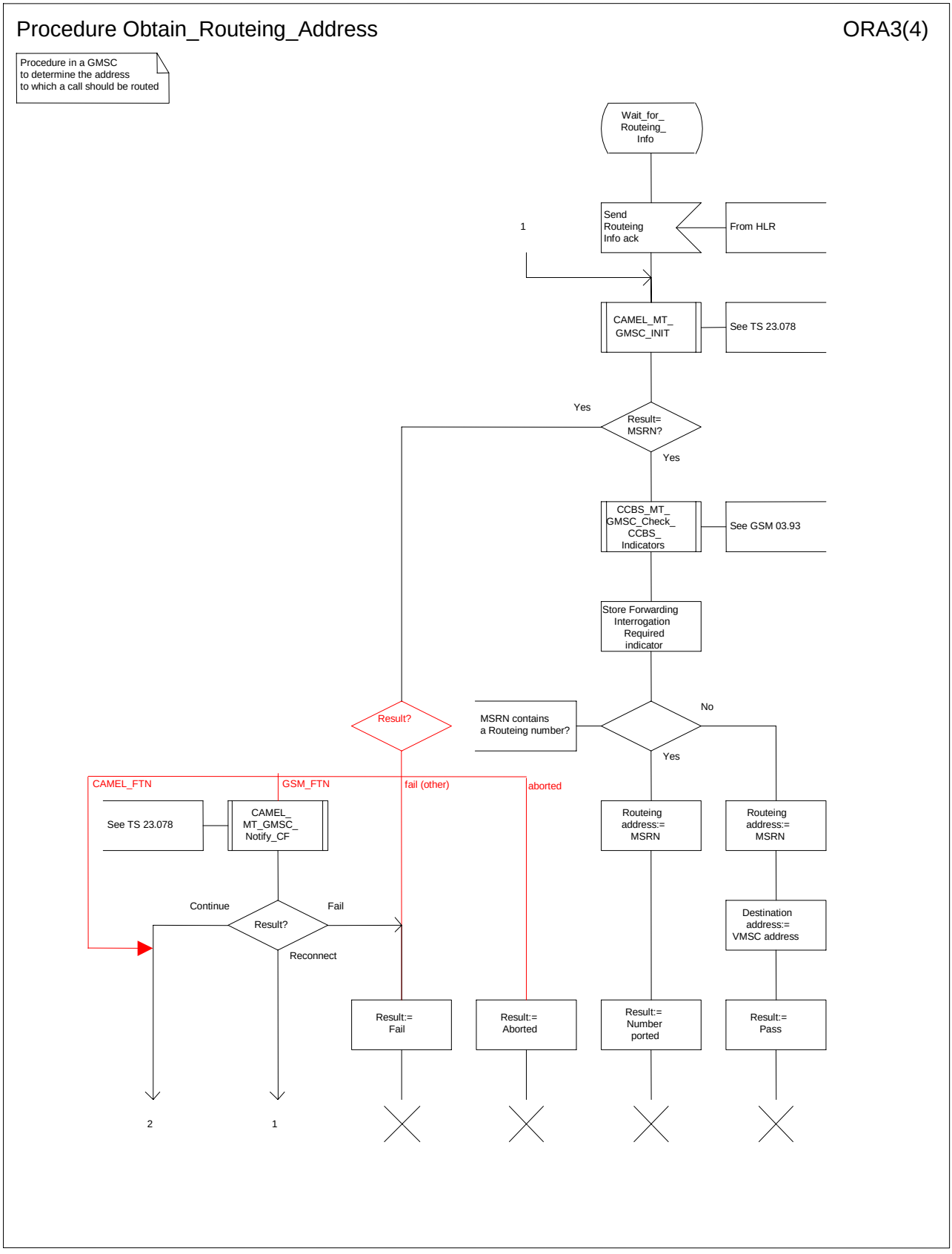


Figure 36c: Procedure Obtain_Routeing_Address (sheet 3)

3GPP N2B Meeting
Milan, Italy, 14-16 Feb 2000

Document N2B000169
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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23.079	CR	009	Current Version:	3.3.0

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

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

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

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

Source: N2 **Date:** 7 Feb 2000

Subject: Correction of CF Notification

Work item: CAMEL Phase 2

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

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

Reason for change: See next page for detail.

Clauses affected:

Other specs affected:

Other 3G core specifications	X	→ List of CRs:	23.018-037, 23.078-091
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

Reason for change:

Problem - Endless loop in Obtain_Routing Address (GSM TS 03.18):

The first SRI and SRI ack are done in Obtain_Routing Address. Then CAMEL_MT_GMSC_INIT (GSM TS 03.78) is called.

1. If the terminating service logic sends CONTINUE in CAMEL_MT_GMSC_INIT, the second SRI is sent and SRI ack contains FTN and O-CSI if the subscriber is not reachable. This procedure provides the output as „FTN“.
2. Returning to procedure Obtain_Routing_Address, it calls the Procedure CAMEL_MT_GMSC_Notify_CF (GSM TS 03.78)
3. In CAMEL_MT_GMSC_Notify_CF, the terminating service logic is informed about CFNRc by EVENT REPORT BCSM.
4. The gsmSCF may answer with CONNECT.
5. The procedure CAMEL_MT_GMSC_Notify_CF delivers output "Reconnect".
6. Returening to Obtain_Routing Address, it calls the procedure CAMEL_MT_GMSC_INIT again.
7. The procedure CAMEL_MT_GMSC_INIT delivers again output 'FTN".
8. The procedure Obtain_Routing_Address calls again procedure CAMEL_MT_GMSC_Notify_CF.

The CFNRc data are still stored therefore it starts from the beginning

Proposed Correction:

The proposal is to call procedure CAMEL_MT_GMSC_Notify_CF (in GSM TS 03.78) only for GSM-CF, i.e. gsmSCF shall not be notified about new Called Party Number being received from it in CONNECT.

Therefore a new outputs ‘CAMEL_FTN’ and ‘GSM_FTN’ are defined in Procedure CAMEL_MT_GMSC_INIT (in GSM TS 03.78). This is to be checked in procedure Obtain_Routeing_Address (in GSM TS 03.18). If result = ‘CAMEL_FTN’ procedure CAMEL_MT_GMSC_Notify_CF (in GSM TS 03.78) shall not be called. CF process shall be started instead.

Correction on GSM TS 03.78
Further, a new check on Called Party Number is proposed in CAMEL_MT_GMSC_Notify_CF procedure. If the same number is delivered in CONNECT then CF process shall be started immediately, i.e. there shall be no Reconnect attempt.

Correction on GSM TS 03.79
Last issue is the interworking with OR – when terminating logic is informed about ORLCF and sends a new Called Party Number in CONNECT then the connection to VMSC shall be released and RESUME CALL HANDLING shall be sent.

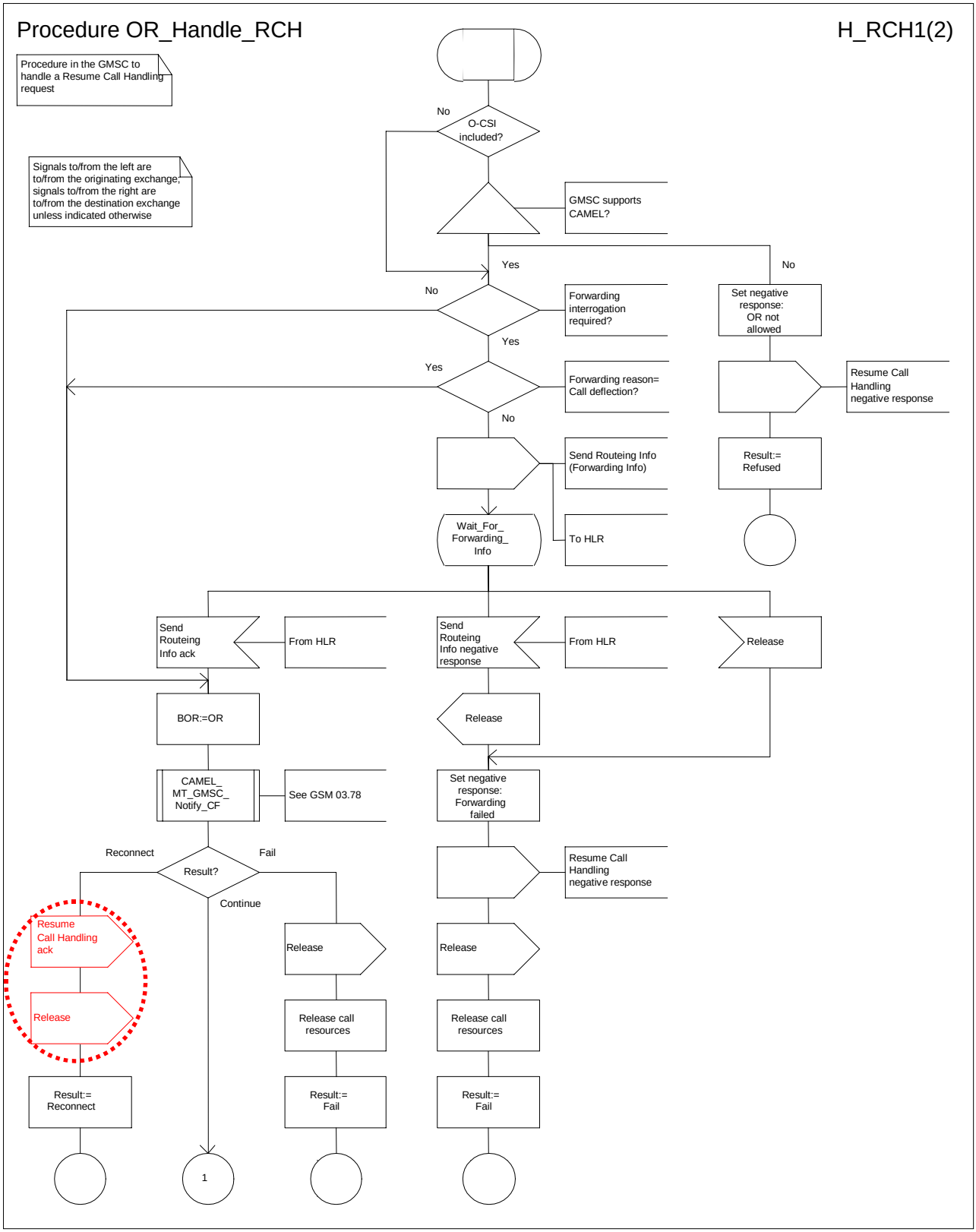

Figure 7a: Procedure OR_Handle_RCH (sheet 1)

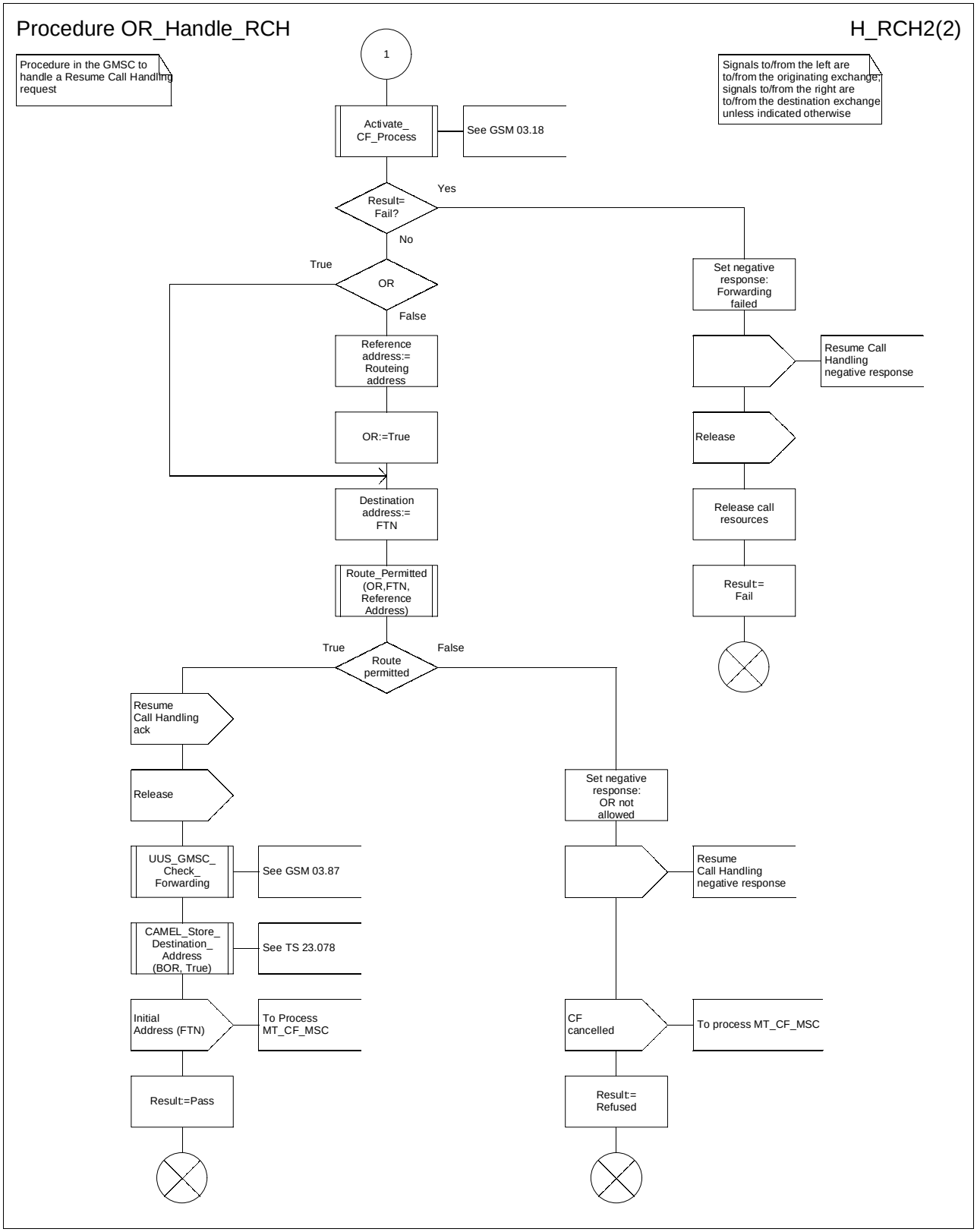

Figure 7b: Procedure OR_Handle_RCH (sheet 2)

3GPP/SMG Meeting N2
Phoenix, USA, 15-19 November 1999

Document N2B000319
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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29.002	**CR**	***059r1***	Current Version:	3.3.0

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

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

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

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

Source: N2 **Date:** 14/02/99

Subject: Alternative solution for ALR

Work item: CAMEL phase 3

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

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

Reason for change:
Two parameters are added :
- currentLocation in the requestedInfo parameter
- currentLocationRetrieved in the locationInformation parameter

Clauses affected: 17.7.1

Other specs affected:				
	Other 3G core specifications		→ List of CRs:	N2-99G88, N2-99G89 and N2-99G90
	Other GSM core specifications		→ List of CRs:	
	MS test specifications		→ List of CRs:	
	BSS test specifications		→ List of CRs:	
	O&M specifications		→ List of CRs:	

Other comments: none

help.doc

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

*** First modified section ***

17.7 MAP constants and data types

17.7.1 Mobile Service data types

```
MAP-MS-DataTypes {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-MS-DataTypes (11) version5 (5)}
```

(...)

}

(...)

```
-- provide subscriber info types

ProvideSubscriberInfoArg ::= SEQUENCE {
     imsi      [0] IMSI,
     lmsi      [1] LMSI                    OPTIONAL,
     requestedInfo                         [2] RequestedInfo,
     extensionContainer                    [3] ExtensionContainer          OPTIONAL,
     ...}

ProvideSubscriberInfoRes ::= SEQUENCE {
     subscriberInfo                        SubscriberInfo,
     extensionContainer                    ExtensionContainer              OPTIONAL,
     ...}

SubscriberInfo ::= SEQUENCE {
     locationInformation                   [0] LocationInformation         OPTIONAL,
     subscriberState                       [1] SubscriberState             OPTIONAL,
     extensionContainer                    [2] ExtensionContainer          OPTIONAL,
     ...}

RequestedInfo ::= SEQUENCE {
     locationInformation                   [0] NULL                        OPTIONAL,
     subscriberState                       [1] NULL                        OPTIONAL,
     extensionContainer                    [2] ExtensionContainer          OPTIONAL,
     ...,
     currentLocation                       [3] NULL                        OPTIONAL}
-- currentLocation shall not be present if locationInformation
-- is not present in the RequestedInfo parameter

LocationInformation ::= SEQUENCE {
     ageOfLocationInformation              AgeOfLocationInformation        OPTIONAL,
     geographicalInformation               [0] GeographicalInformation     OPTIONAL,
     vlr-number                            [1] ISDN-AddressString          OPTIONAL,
     locationNumber                        [2] LocationNumber              OPTIONAL,
     cellIdOrLAI                           [3] CellIdOrLAI                 OPTIONAL,
     extensionContainer                    [4] ExtensionContainer          OPTIONAL,
     ...,
     currentLocationRetrieved              [5] NULL                        OPTIONAL}
-- currentLocationRetrieved shall be present
-- if the location information were retrieved after a successfull paging.

GeographicalInformation ::= OCTET STRING (SIZE (8))
-- Refers to geographical Information defined in GSM 03.32.
-- Only the description of an ellipsoid point with uncertainty circle
--as specified in GSM 03.32 is allowed to be used
-- The internal structure according to GSM 03.32 is as follows:
--       Type of shape (ellipsoid point with uncertainty circle)          1 octet
--       Degrees of Latitude                                              3 octets
--       Degrees of Longitude                                             3 octets
--       Uncertainty code                                                 1 octet
```

```
LocationNumber ::= OCTET STRING (SIZE (2..10))
    -- the internal structure is defined in CCITT Rec Q.763
```

```
SubscriberState ::= CHOICE {
    assumedIdle                         [0] NULL,
    camelBusy [1] NULL,
    netDetNotReachable                  NotReachableReason,
    notProvidedFromVLR                  [2] NULL}
```

```
NotReachableReason ::= ENUMERATED {
    msPurged (0),
    imsiDetached (1),
    restrictedArea (2),
    notRegistered (3)}
```

-- any time interrogation info types

```
AnyTimeInterrogationArg ::= SEQUENCE {
    subscriberIdentity                  [0] SubscriberIdentity,
    requestedInfo                       [1] RequestedInfo,
    gsmSCF-Address                      [3] ISDN-AddressString,
    extensionContainer                  [2] ExtensionContainer          OPTIONAL,
    ...}
```

```
AnyTimeInterrogationRes ::= SEQUENCE {
    subscriberInfo                      SubscriberInfo,
    extensionContainer                  ExtensionContainer              OPTIONAL,
    ...}
```

3GPP TSG-N2B
Kista, Sweden, 02 - 03 Mar 2000

Tdoc 3GPP N2B000456
(Revision of N2B000410)

CHANGE REQUEST

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

29.002	CR	079r4	Current Version:	3.3.1

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

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

for approval [X] for information [ ]

strategic [ ] non-strategic [X] *(for SMG use only)*

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

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

Source: N2 **Date:** 03/03/2000

Subject: Correction of SS Invocation Notification for CCBS

Work item: CAMEL Phase 3

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

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

Release:

Phase 2	[ ]
Release 96	[ ]
Release 97	[ ]
Release 98	[ ]
Release 99	[X]
Release 00	[ ]

Reason for change: At the TSG-N SS ad hoc meeting, it was agreed that the SS Invocation Notification for CCBS should indicate the current status of the CCBS request. This was agreed by CN plenary (CR 23.093-002r3)

Clauses affected: 7.6, 7.6.4.x (new), 11.12.2, 17.7.4

Other specs affected:

Other 3G core specifications	[X]	→ List of CRs: 23.093-002 (approved at CN#6), 23.078-040 (Tdoc N2A000300)
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:


help.doc

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

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

7.6 Definition of parameters

Following is an alphabetic list of parameters used in the common MAP-services in subclause 7.3:

Application context name	7.3.1	Refuse reason	7.3.1
Destination address	7.3.1	Release method	7.3.2
Destination reference	7.3.1	Responding address	7.3.1
Diagnostic information	7.3.4	Result	7.3.1
Originating address	7.3.1	Source	7.3.5
Originating reference	7.3.1	Specific information	7.3.1/7.3.2/7.3.4
Problem diagnostic	7.3.6	User reason	7.3.4
Provider reason	7.3.5		

Following is an alphabetic list of parameters contained in this clause:

Extensible Bearer service	7.6.3.3
Extensible Call barring feature	7.6.3.21
Extensible Call barring information	7.6.3.20
Extensible Call barring information for CSE	7.6.3.79
Extensible Forwarding feature	7.6.3.16
Extensible Forwarding info	7.6.3.15
Extensible Forwarding information for CSE	7.6.3.80
Extensible Forwarding Options	7.6.3.18
Extensible No reply condition timer	7.6.3.19
Extensible QoS-Subscribed	7.6.3.74
Extensible SS-Data	7.6.3.29
Extensible SS-Info	7.6.3.14
Extensible SS-Status	7.6.3.17
Extensible Teleservice	7.6.3.4
External Signal Information	7.6.9.4
Forwarded-to number	7.6.2.22
Forwarded-to subaddress	7.6.2.23
Forwarding feature	7.6.4.16
Forwarding information	7.6.4.15
Forwarding Options	7.6.4.6
GGSN address	7.6.2.40
GGSN number	7.6.2.41
GMSC CAMEL Subscription Info	7.6.3.34
GPRS enhancements support indicator	7.6.3.73
GPRS Node Indicator	7.6.8.14
GPRS Subscription Data	7.6.3.46
GPRS Subscription Data Withdraw	7.6.3.45
GPRS Support Indicator	7.6.8.15
Group Id	7.6.2.33
GSM bearer capability	7.6.3.6
Guidance information	7.6.4.22
Handover number	7.6.2.21
High Layer Compatibility	7.6.3.43
HLR Id	7.6.2.15
HLR number	7.6.2.13
HO-Number Not Required	7.6.6.7
IMEI	7.6.2.3
IMSI	7.6.2.1
Inter CUG options	7.6.3.27
Intra CUG restrictions	7.6.3.28
SIWF Number	7.6.2.35
SoLSA Support Indicator	7.6.3.57
SM Delivery Outcome	7.6.8.6
SM-RP-DA	7.6.8.1
SM-RP-MTI	7.6.8.16
SM-RP-OA	7.6.8.2
SM-RP-PRI	7.6.8.5
SM-RP-SMEA	7.6.8.17
SM-RP-UI	7.6.8.4
Sres	7.6.7.3
SS-Code	7.6.4.1
SS-Data	7.6.4.3
SS-Event	7.6.4.42
SS-Event-Data	7.6.4.43
SS-Info	7.6.4.24
SS-Status	7.6.4.2
Stored location area Id	7.6.2.5
Subscriber State	7.6.3.30
Subscriber Status	7.6.3.7
Super-Charger Supported in HLR	7.6.3.70
Super-Charger Supported in Serving Network Entity	7.6.3.71
Supported CAMEL Phases in VLR	7.6.3.36
Supported CAMEL Phases in SGSN	7.6.3.36A
Suppress T-CSI	7.6.3.33
Suppression of Announcement	7.6.3.32
Target cell Id	7.6.2.8
Target location area Id	7.6.2.7
Target MSC number	7.6.2.12
Teleservice	7.6.4.39
TMSI	7.6.2.2
Trace reference	7.6.10.2
Trace type	7.6.10.3
User error	7.6.1.4
USSD Data Coding Scheme	7.6.4.36
USSD String	7.6.4.37
UU Data	7.6.5.12
UUS CF Interaction	7.6.5.13
VBS Data	7.6.3.40
VGCS Data	7.6.3.39
VLR CAMEL Subscription Info	7.6.3.35
VLR number	7.6.2.14
VPLMN address allowed	7.6.3.48
Zone Code	7.6.2.28

****** New Section ******

7.6.4 Supplementary services parameters

…

7.6.4.x CCBS Request State

This parameter indicates the current state of the CCBS request. It can take one of seven values:

- request;
- recall;
- active;

- completed;
- suspended;
- frozen;
- deleted.

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

11.12 MAP_SS_INVOCATION_NOTIFY

…

11.12.2 Service primitives

The service primitives are shown in table 11.12/1.

Table 11.12/1: SS_INVOCATION_NOTIFY parameters

Parameter name	Request	Indication	Response	Confirm
Invoke id	M	M(=)	M(=)	M(=)
MSISDN	M	M(=)		
IMSI	M	M(=)		
SS- event	M	M(=)		
SS- event data	C	C(=)		
B-subscriber Number	C	C(=)		
CCBS Request State	C	C(=)		
User error			C	C(=)
Provider error				O

…

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

17.7.4 Supplementary service data types

…

```
SS-InvocationNotificationArg ::= SEQUENCE {
    imsi                                [0] IMSI,
    msisdn                              [1] ISDN-AddressString,
    ss-Event                            [2] SS-Code,
    -- The following SS-Code values are allowed :
    -- ect                              SS-Code ::= '00110001'B
    -- multiPTY                         SS-Code ::= '01010001'B
    -- cd                               SS-Code ::= '00100100'B
    -- ccbs                             SS-Code ::= '01000100'B
    ss-EventSpecification               [3] SS-EventSpecification
    OPTIONAL,
    extensionContainer                  [4] ExtensionContainer
    OPTIONAL,
    ...,
    b-subscriberNumber                  [5]  ISDN-AddressString
    OPTIONAL,
    ccbs-RequestState                   [6]  CCBS-RequestState
    OPTIONAL
    }
```

…

```
CCBS-RequestState ::= ENUMERATED {
    request   (0),
    recall    (1),
    active    (2),
    completed (3),
    suspended (4),
    frozen    (5),
    deleted   (6)
    }
```

...

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

Document N2A000023

CHANGE REQUEST

29.002	**CR**	**080**	Current Version:	3.3.0

For submission to: CN#07

for approval	X	strategic	
for information		non-strategic	X

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [ ] Core Network [X]

Source: N2 **Date:** 10-01-2000

Subject: Corrections to ATSI, ATM, NCSD

Work item: CAMEL Phase 3

Category:

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

Reason for change: Technical corrections to ATSI, ATM, NCSD

Clauses affected: 17.7

Other specs affected:

Other 3G core specifications	X	→ List of CRs:	23.078
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

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

17.7 MAP constants and data types

17.7.1 Mobile Service data types

```
MAP-MS-DataTypes {   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-MS-DataTypes (11) version6 (6)}

DEFINITIONS

IMPLICIT TAGS

::=

BEGIN

EXPORTS

      -- location registration types
      UpdateLocationArg,
      UpdateLocationRes,
      CancelLocationArg,
      CancelLocationRes,
      PurgeMS-Arg,
      PurgeMS-Res,
      SendIdentificationRes,
      UpdateGprsLocationArg,
      UpdateGprsLocationRes,
      IST-SupportIndicator,


      -- handover types
      PrepareHO-Arg,
      PrepareHO-Res,
      PrepareSubsequentHO-Arg,

      -- authentication management types
      SendAuthenticationInfoArg,
      SendAuthenticationInfoRes,

      -- security management types
      EquipmentStatus,
      Kc,

      -- subscriber management types
      InsertSubscriberDataArg,
      InsertSubscriberDataRes,
      DeleteSubscriberDataArg,
      DeleteSubscriberDataRes,
      SubscriberData,
      ODB-Data,
      SubscriberStatus,
      ZoneCodeList,
      maxNumOfZoneCodes,
      O-CSI,
      D-CSI,
      O-BcsmCamelTDPCriteriaList,
      T-BCSM-CAMEL-TDP-CriteriaList,
      SS-CSI,
      ServiceKey,
      DefaultCallHandling,
      CamelCapabilityHandling,
      BasicServiceCriteria,
      SupportedCamelPhases,
      maxNumOfCamelTDPData,
      CUG-Index,
      CUG-Interlock,
      InterCUG-Restrictions,
      IntraCUG-Options,
   IST-AlertTimerValue,

      -- fault recovery types
      ResetArg,
      RestoreDataArg,
      RestoreDataRes,
```

```
      -- subscriber information enquiry types
      ProvideSubscriberInfoArg,
      ProvideSubscriberInfoRes,
      SubscriberInfo,
      LocationInformation,
      SubscriberState,

      -- any time information enquiry types
      AnyTimeInterrogationArg,
      AnyTimeInterrogationRes,

      -- any time information handling types
      AnyTimeSubscriptionInterrogationArg,
      AnyTimeSubscriptionInterrogationRes,
      AnyTimeModificationArg,
      AnyTimeModificationRes,

      -- subscriber data modification notification types
      NoteSubscriberDataModifiedArg,
      NoteSubscriberDataModifiedRes,

      -- gprs location information retrieval types
      SendRoutingInfoForGprsArg,
      SendRoutingInfoForGprsRes,

      -- failure reporting types
      FailureReportArg,
      FailureReportRes,

      -- gprs notification types
      NoteMsPresentForGprsArg,
      NoteMsPresentForGprsRes,

      -- Mobility Management types
      NoteMM-EventArg,
      NoteMM-EventRes

;

IMPORTS
      IST-SupportIndicator,
      IST-AlertTimerValue,
      T-CSI,
      T-BcsmTriggerDetectionPointFROM MAP-CH-DataTypes {
      ccitt identified-organization (4) etsi (0) mobileDomain (0)
      gsm-Network (1) modules (3) map-CH-DataTypes (13) version6 (6) }

      maxNumOfSS,
      SS-SubscriptionOption,
      SS-List,
      SS-ForBS-Code,
      Password
FROM MAP-SS-DataTypes {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-SS-DataTypes (14) version6 (6)}

      SS-Code
FROM MAP-SS-Code {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-SS-Code (15) version6 (6)}

      Ext-BearerServiceCode
FROM MAP-BS-Code {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-BS-Code (20) version6 (6)}

      Ext-TeleserviceCode
FROM MAP-TS-Code {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-TS-Code (19) version6 (6)}


      ISDN-AddressString,
      maxISDN-AddressLength,
      ISDN-SubaddressString,
      ExternalSignalInfo,
      IMSI,
      HLR-List,
      LMSI,
      Identity,
      GlobalCellId,
      CellIdOrLAI,
```

```
      Ext-BasicServiceCode,
      NAEA-PreferredCI,
      EMLPP-Info,
      SubscriberIdentity,
      AgeOfLocationInformation,
      LCSClientExternalID,
      LCSClientInternalID


FROM MAP-CommonDataTypes {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-CommonDataTypes (18) version6 (6)}

      ExtensionContainer
FROM MAP-ExtensionDataTypes {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-ExtensionDataTypes (21) version6 (6)}

      AbsentSubscriberDiagnosticSM
FROM MAP-ER-DataTypes {
   ccitt identified-organization (4) etsi (0) mobileDomain (0)
   gsm-Network (1) modules (3) map-ER-DataTypes (17) version6 (6)}

;


-- location registration types

UpdateLocationArg ::= SEQUENCE {
     imsi                              IMSI,

     msc-Number                        [1] ISDN-AddressString,
     vlr-Number                        ISDN-AddressString,
     lmsi                              [10] LMSI OPTIONAL,
     extensionContainer                ExtensionContainer                OPTIONAL,
     ... ,
     vlr-Capability                    [6] VLR-Capability                OPTIONAL }

VLR-Capability ::= SEQUENCE{
     supportedCamelPhases              [0] SupportedCamelPhases          OPTIONAL,
     extensionContainer                ExtensionContainer                OPTIONAL,
     ... ,
     solsaSupportIndicator             [2] NULL                          OPTIONAL,
     istSupportIndicator               [1] IST-SupportIndicator          OPTIONAL }

IST-SupportIndicator ::=  ENUMERATED {
     basicISTSupported                 (0),
     istCommandSupported               (1), ...}
-- exception handling:
-- reception of values > 1 shall be mapped to ' istCommandSupported '


UpdateLocationRes ::= SEQUENCE {
     hlr-Number                        ISDN-AddressString,

     extensionContainer                ExtensionContainer                OPTIONAL,
     ... }

CancelLocationArg ::= [3] SEQUENCE {
     identity                          Identity,
     cancellationType                  CancellationType                  OPTIONAL,
     extensionContainer                ExtensionContainer                OPTIONAL,
     ...}


CancellationType ::= ENUMERATED {
     updateProcedure                   (0),
     subscriptionWithdraw              (1),
     ...}
     -- The HLR shall not send values other than listed above

CancelLocationRes ::= SEQUENCE {
     extensionContainer                ExtensionContainer                OPTIONAL,
     ...}
```

```
PurgeMS-Arg ::= [3] SEQUENCE {
    imsi                                IMSI,
    vlr-Number                          [0] ISDN-AddressString          OPTIONAL,
    sgsn-Number                         [1]  ISDN-AddressString         OPTIONAL,
    extensionContainer                  ExtensionContainer              OPTIONAL,
    ...}
```

```
PurgeMS-Res ::= SEQUENCE {
    freezeTMSI                          [0]  NULL                       OPTIONAL,
    freezeP-TMSI                        [1]  NULL                       OPTIONAL,
    extensionContainer                  ExtensionContainer              OPTIONAL,
    ...}
```

```
SendIdentificationRes ::= SEQUENCE {
    imsi                                IMSI,
    authenticationSetList               AuthenticationSetList           OPTIONAL,
    ...}
```

```
AuthenticationSetList ::= SEQUENCE SIZE (1..5) OF
                                        AuthenticationSet
```

```
AuthenticationSet ::= SEQUENCE {
    rand                                RAND,
    sres                                SRES,
    kc                                  Kc,
    ...}
```

```
RAND ::= OCTET STRING (SIZE (16))
```

```
SRES ::= OCTET STRING (SIZE (4))
```

```
Kc ::= OCTET STRING (SIZE (8))
```

-- gprs location registration types

```
UpdateGprsLocationArg ::= SEQUENCE {
    imsi                                IMSI,
    sgsn-Number                         ISDN-AddressString,
    sgsn-Address                        GSN-Address,
    extensionContainer                  ExtensionContainer              OPTIONAL,
    ... ,
    sgsn-Capability                     [0] SGSN-Capability             OPTIONAL }
```

```
SGSN-Capability ::= SEQUENCE{
    solsaSupportIndicator               NULL                            OPTIONAL,
    extensionContainer                  [1] ExtensionContainer          OPTIONAL,
    ...,
    supportedCamelPhases                [2] SupportedCamelPhases        OPTIONAL }
```

```
GSN-Address ::= OCTET STRING (SIZE (5..17))
    -- Octets are coded according to TS GSM 03.03
```

```
UpdateGprsLocationRes ::= SEQUENCE {
    hlr-Number                          ISDN-AddressString,
    extensionContainer                  ExtensionContainer              OPTIONAL,
    ...}
```

-- handover types

```
PrepareHO-Arg ::= SEQUENCE {
    targetCellId                        GlobalCellId                    OPTIONAL,
    ho-NumberNotRequired                NULL                            OPTIONAL,
    bss-APDU                            ExternalSignalInfo              OPTIONAL,
    ...}
```

```
PrepareHO-Res ::= SEQUENCE {
    handoverNumber                      ISDN-AddressString              OPTIONAL,
    bss-APDU                            ExternalSignalInfo              OPTIONAL,
    ...}
```

```
PrepareSubsequentHO-Arg ::= SEQUENCE {
    targetCellId                        GlobalCellId,
    targetMSC-Number                    ISDN-AddressString,
    bss-APDU                            ExternalSignalInfo,
    ...}
```

-- authentication management types

```
SendAuthenticationInfoArg ::= IMSI
```

```
SendAuthenticationInfoRes ::= AuthenticationSetList
```

-- security management types

```
EquipmentStatus ::= ENUMERATED {
     whiteListed  (0),
     blackListed  (1),
     greyListed  (2)}
```

-- subscriber management types

```
InsertSubscriberDataArg ::= SEQUENCE {
     imsi                                [0] IMSI                          OPTIONAL,
     COMPONENTS OF                       SubscriberData,
     extensionContainer                  [14] ExtensionContainer           OPTIONAL,
     ... ,
     naea-PreferredCI                    [15] NAEA-PreferredCI             OPTIONAL,
     -- naea-PreferredCI is included at the discretion of the HLR operator.
     gprsSubscriptionData                [16] GPRSSubscriptionData         OPTIONAL,
     roamingRestrictedInSgsnDueToUnsupportedFeature [23]                   NULL
                                                                           OPTIONAL,
     networkAccessMode                   [24] NetworkAccessMode            OPTIONAL,
     lsaInformation                      [25] LSAInformation               OPTIONAL,
     lmu-Indicator                       [21] NULL                         OPTIONAL,
     lcsInformation                      [22] LCSInformation               OPTIONAL,
     istAlertTimer                       [26] IST-AlertTimerValue          OPTIONAL
      }
     -- If the Network Access Mode parameter is sent, it shall be present only in
     -- the first sequence if the seqmentation is used
```

```
IST-AlertTimerValue ::= INTEGER (15..255)
```

```
LCSInformation ::= SEQUENCE {
     hplmn-GMLC-List                     [0]  HPLMN-GMLC-List              OPTIONAL,
     lcs-PrivacyExceptionList            [1]  LCS-PrivacyExceptionList     OPTIONAL,
...}
```

```
HPLMN-GMLC-List ::= SEQUENCE SIZE (1..maxNumOfGMLC) OF
                                         ISDN-AddressString
```

```
maxNumOfGMLC  INTEGER ::= 5
```

```
NetworkAccessMode ::= ENUMERATED {
     bothMSCAndSGSN                      (0),
     onlyMSC                             (1),
     onlySGSN                            (2),
     ...}
     -- if unknown values are received in NetworkAccessMode
     -- they shall be discarded.
```

```
GPRSDataList ::= SEQUENCE SIZE (1..maxNumOfPDP-Contexts) OF
                                         PDP-Context
```

```
maxNumOfPDP-Contexts  INTEGER ::= 50
```

```
PDP-Context ::= SEQUENCE {
     pdp-ContextId                       ContextId,
     pdp-Type                            [16] PDP-Type,
     pdp-Address                         [17] PDP-Address                  OPTIONAL,
     qos-Subscribed                      [18] QoS-Subscribed,
     vplmnAddressAllowed                 [19] NULL OPTIONAL,
     apn                                 [20] APN  ,
     extensionContainer                  [21] ExtensionContainer           OPTIONAL,
     ...}
```

```
ContextId ::= INTEGER (1..maxNumOfPDP-Contexts)
```

```
GPRSSubscriptionData ::= SEQUENCE {
    completeDataListIncluded            NULL                                OPTIONAL,

        -- If segmentation is used, completeDataListIncluded may only be present in the
        -- first segment.
    gprsDataList                        [1]  GPRSDataList,
    extensionContainer                  [2] ExtensionContainer              OPTIONAL,
    ...,
    sgsn-CAMEL-SubscriptionInfo         [3] SGSN-CAMEL-SubscriptionInfo     OPTIONAL }
```

```
SGSN-CAMEL-SubscriptionInfo ::= SEQUENCE {
    gprs-CSI                            [0]  GPRS-CSI                       OPTIONAL,
    sms-CSI                             [1]  SMS-CSI                        OPTIONAL
    extensionContainer                  [2]  ExtensionContainer             OPTIONAL,
    ...}
```

```
GPRS-CSI ::= SEQUENCE {
    gprs-CamelTDPDataList               [0] GPRS-CamelTDPDataList,
    camelCapabilityHandling             [1] CamelCapabilityHandling,
    extensionContainer                  [2] ExtensionContainer              OPTIONAL,
    notificationToCSE                   [3]  NULL                           OPTIONAL,
    csiActive                           [4]  NULL                           OPTIONAL,
    ...}
--  notificationToCSE and csiActive shall not be present when GPRS-CSI is sent to SGSN.
--  They may only be included in ATSI/ATM Ack message.
```

```
GPRS-CamelTDPDataList ::= SEQUENCE SIZE (1..maxNumOfCamelTDPData) OF
    GPRS-CamelTDPData
--  GPRS-CamelTDPDataList shall not contain more than one instance of
--  GPRS-CamelTDPData containing the same value for gprs-TriggerDetectionPoint.
```

```
GPRS-CamelTDPData ::= SEQUENCE {
    gprs-TriggerDetectionPoint          [0] GPRS-TriggerDetectionPoint,
    serviceKey                          [1] ServiceKey,
    gsmSCF-Address                      [2] ISDN-AddressString,
    defaultSessionHandling              [3] DefaultGPRS-Handling,
    extensionContainer                  [4] ExtensionContainer              OPTIONAL,
    ...
    }
```

```
DefaultGPRS-Handling ::= ENUMERATED {
    continueTransaction (0) ,
    releaseTransaction (1) ,
    ...}
-- exception handling:
-- reception of values in range 2-31 shall be treated as "continueTransaction"
-- reception of values greater than 31 shall be treated as "releaseTransaction"
```

```
GPRS-TriggerDetectionPoint ::= ENUMERATED {
    attach                                  (1),
    attachChangeOfPosition                  (2),
    pdp-ContextEstablishment                (11),
    pdp-ContextEstablishmentAcknowledgement (12),
    pdp-ContextChangeOfPosition             (14),
    ... }
-- exception handling:
-- For GPRS-CamelTDPData sequences containing this parameter with any
-- other value than the ones listed the receiver shall ignore the whole
-- GPRS-CamelTDPDatasequence.
```

```
APN ::=  OCTET STRING (SIZE (2..63))
         -- Octets are coded according to TS GSM 03.03
```

```
PDP-Type ::= OCTET STRING (SIZE (2))
-- Octets are coded according to TS GSM 09.60
```

```
PDP-Address ::= OCTET STRING (SIZE (1..16))
-- Octets are coded according to TS GSM 09.60

-- The possible size values are:
-- 1-7 octets  X.25 address type
--  4  octets  IPv4 address type
-- 16  octets  Ipv6 address type
```

```
QoS-Subscribed ::= OCTET STRING (SIZE (3))
    -- Octets are coded according to TS GSM 04.08.
```

```
LSAOnlyAccessIndicator ::= ENUMERATED {
    accessOutsideLSAsAllowed  (0),
    accessOutsideLSAsRestricted (1)}
```

```
LSADataList ::= SEQUENCE SIZE (1..maxNumOfLSAs) OF
                                    LSAData
```

```
maxNumOfLSAs  INTEGER ::= 20
```

```
LSAData ::= SEQUENCE {
    lsaIdentity                     [0] LSAIdentity,
    lsaPriority                     [1] LSAPriority,
    lsaActiveModeIndicator          [2] NULL                        OPTIONAL,
    lsaActiveModeSupportIndicator   [3] NULL                        OPTIONAL,
    extensionContainer              [4] ExtensionContainer          OPTIONAL,
    ...}
```

```
LSAInformation ::= SEQUENCE {
    completeDataListIncluded            NULL                        OPTIONAL,

        -- If segmentation is used, completeDataListIncluded may only be present in the
        -- first segment.
    lsaOnlyAccessIndicator              [1]  LSAOnlyAccessIndicator     OPTIONAL,
    lsaDataList                         [2]  LSADataList                OPTIONAL,
    extensionContainer                  [3] ExtensionContainer          OPTIONAL,
    ...}
```

```
LSAIdentity ::= OCTET STRING (SIZE (3))
-- Octets are coded according to TS GSM 03.03
```

```
LSAPriority ::= OCTET STRING (SIZE (1))
-- Octets are coded according to TS GSM 08.08
```

```
SubscriberData ::= SEQUENCE {
    msisdn                              [1] ISDN-AddressString          OPTIONAL,
    category                            [2] Category                    OPTIONAL,
    subscriberStatus                    [3] SubscriberStatus            OPTIONAL,
    bearerServiceList                   [4] BearerServiceList           OPTIONAL,
    -- The exception handling for reception of unsupported / not allocated
    -- bearerServiceCodes is defined in section 6.8.1
    teleserviceList                     [6] TeleserviceList             OPTIONAL,
    -- The exception handling for reception of unsupported / not allocated
    -- teleserviceCodes is defined in section 6.8.1
    provisionedSS                       [7] Ext-SS-InfoList             OPTIONAL,
    odb-Data                            [8] ODB-Data                    OPTIONAL,
    roamingRestrictionDueToUnsupportedFeature  [9] NULL                 OPTIONAL,
    regionalSubscriptionData            [10] ZoneCodeList               OPTIONAL,
    vbsSubscriptionData                 [11] VBSDataList                OPTIONAL,
    vgcsSubscriptionData                [12] VGCSDataList               OPTIONAL,
    vlrCamelSubscriptionInfo            [13] VlrCamelSubscriptionInfo   OPTIONAL
    }
```

```
Category ::= OCTET STRING (SIZE (1))
    -- The internal structure is defined in CCITT Rec Q.763.
```

```
SubscriberStatus ::= ENUMERATED {
    serviceGranted  (0),
    operatorDeterminedBarring  (1)}
```

```
BearerServiceList ::= SEQUENCE SIZE (1..maxNumOfBearerServices) OF
                                    Ext-BearerServiceCode
```

```
maxNumOfBearerServices  INTEGER ::= 50
```

```
TeleserviceList ::= SEQUENCE SIZE (1..maxNumOfTeleservices) OF
                                    Ext-TeleserviceCode
```

```
maxNumOfTeleservices  INTEGER ::= 20
```

```
ODB-Data ::= SEQUENCE {
    odb-GeneralData                 ODB-GeneralData,
    odb-HPLMN-Data                  ODB-HPLMN-Data                  OPTIONAL,
    extensionContainer              ExtensionContainer              OPTIONAL,
    ...}
```

```
ODB-GeneralData ::= BIT STRING {
     allOG-CallsBarred  (0),
     internationalOGCallsBarred  (1),
     internationalOGCallsNotToHPLMN-CountryBarred  (2),
     interzonalOGCallsBarred (6),
     interzonalOGCallsNotToHPLMN-CountryBarred (7),
     interzonalOGCallsAndInternationalOGCallsNotToHPLMN-CountryBarred (8),
     premiumRateInformationOGCallsBarred  (3),
     premiumRateEntertainementOGCallsBarred  (4),
     ss-AccessBarred  (5),
     allECT-Barred (9),
     chargeableECT-Barred (10),
     internationalECT-Barred (11),
     interzonalECT-Barred (12),
     doublyChargeableECT-Barred (13),
     multipleECT-Barred (14)} (SIZE (15..32))
     -- exception handling: reception of unknown bit assignments in the
     -- ODB-GeneralData type shall be treated like unsupported ODB-GeneralData
```

```
ODB-HPLMN-Data ::= BIT STRING {
     plmn-SpecificBarringType1  (0),
     plmn-SpecificBarringType2  (1),
     plmn-SpecificBarringType3  (2),
     plmn-SpecificBarringType4  (3)} (SIZE (4..32))
     -- exception handling: reception of unknown bit assignments in the
     -- ODB-HPLMN-Data type shall be treated like unsupported ODB-HPLMN-Data
```

```
Ext-SS-InfoList ::= SEQUENCE SIZE (1..maxNumOfSS) OF
                                    Ext-SS-Info
```

```
Ext-SS-Info ::= CHOICE {
     forwardingInfo                 [0] Ext-ForwInfo,
     callBarringInfo                [1] Ext-CallBarInfo,
     cug-Info                       [2] CUG-Info,
     ss-Data                        [3] Ext-SS-Data,
     emlpp-Info                     [4] EMLPP-Info}
```

```
Ext-ForwInfo ::= SEQUENCE {
     ss-Code                        SS-Code,
     forwardingFeatureList          Ext-ForwFeatureList,
     extensionContainer             [0] ExtensionContainer          OPTIONAL,
     ...}
```

```
Ext-ForwFeatureList ::= SEQUENCE SIZE (1..maxNumOfExt-BasicServiceGroups) OF
                                    Ext-ForwFeature
```

```
Ext-ForwFeature ::= SEQUENCE {
     basicService                   Ext-BasicServiceCode            OPTIONAL,
     ss-Status [4] Ext-SS-Status,
     forwardedToNumber              [5] ISDN-AddressString          OPTIONAL,
     -- When this data type is sent from an HLR which supports CAMEL Phase 2
     -- to a VLR that supports CAMEL Phase 2 the VLR shall not check the
     -- format of the number
     forwardedToSubaddress          [8] ISDN-SubaddressString       OPTIONAL,
     forwardingOptions              [6] Ext-ForwOptions             OPTIONAL,
     noReplyConditionTime           [7] Ext-NoRepCondTime           OPTIONAL,
     extensionContainer             [9] ExtensionContainer          OPTIONAL,
     ...}
```

```
Ext-SS-Status ::= OCTET STRING (SIZE (1..5))

     -- OCTET 1:
     --
     -- bits 8765: 0000 (unused)
     -- bits 4321: Used to convey the "P bit","R bit","A bit" and "Q bit",
     --            representing supplementary service state information
     --            as defined in TS GSM 03.11

     -- bit 4: "Q bit"

     -- bit 3: "P bit"

     -- bit 2: "R bit"

     -- bit 1: "A bit"

     -- OCTETS 2-5: reserved for future use. They shall be discarded if
     -- received and not understood.
```

```
Ext-ForwOptions ::= OCTET STRING (SIZE (1..5))

    -- OCTET 1:

    --  bit 8: notification to forwarding party
    --   0  no notification
    --   1  notification

    --  bit 7: redirecting presentation
    --   0 no presentation
    --   1  presentation

    --  bit 6: notification to calling party
    --   0  no notification
    --   1  notification

    --  bit 5: 0 (unused)

    --  bits 43: forwarding reason
    --   00  ms not reachable
    --   01  ms busy
    --   10  no reply
    --   11  unconditional

    -- bits 21: 00 (unused)

    -- OCTETS 2-5: reserved for future use. They shall be discarded if
    -- received and not understood.
```

```
Ext-NoRepCondTime ::= INTEGER (1..100)
    -- Only values 5-30 are used.
    -- Values in the ranges 1-4 and 31-100 are reserved for future use
    -- If received:
    --       values 1-4 shall be mapped on to value 5
    --       values 31-100 shall be mapped on to value 30
```

```
Ext-CallBarInfo ::= SEQUENCE {
    ss-Code                         SS-Code,
    callBarringFeatureList          Ext-CallBarFeatureList,
    extensionContainer              ExtensionContainer              OPTIONAL,
    ...}
```

```
Ext-CallBarFeatureList ::= SEQUENCE SIZE (1..maxNumOfExt-BasicServiceGroups) OF
                                    Ext-CallBarringFeature
```

```
Ext-CallBarringFeature ::= SEQUENCE {
    basicService                    Ext-BasicServiceCode            OPTIONAL,
    ss-Status [4] Ext-SS-Status,
    extensionContainer              ExtensionContainer              OPTIONAL,
    ...}
```

```
CUG-Info ::= SEQUENCE {
    cug-SubscriptionList            CUG-SubscriptionList,
    cug-FeatureList                 CUG-FeatureList                 OPTIONAL,
    extensionContainer              [0] ExtensionContainer          OPTIONAL,
    ...}
```

```
CUG-SubscriptionList ::= SEQUENCE SIZE (0..maxNumOfCUG) OF
                                    CUG-Subscription
```

```
CUG-Subscription ::= SEQUENCE {
    cug-Index CUG-Index,
    cug-Interlock                   CUG-Interlock,
    intraCUG-Options                IntraCUG-Options,
    basicServiceGroupList           Ext-BasicServiceGroupList       OPTIONAL,
    extensionContainer              [0] ExtensionContainer          OPTIONAL,
    ...}
```

```
CUG-Index ::= INTEGER (0..32767)
    -- The internal structure is defined in ETS 300 138.
```

```
CUG-Interlock ::= OCTET STRING (SIZE (4))
```

```
IntraCUG-Options ::= ENUMERATED {
    noCUG-Restrictions  (0),
    cugIC-CallBarred  (1),
    cugOG-CallBarred  (2)}
```

```
maxNumOfCUG  INTEGER ::= 10
```

```
CUG-FeatureList ::= SEQUENCE SIZE (1..maxNumOfExt-BasicServiceGroups) OF
                                        CUG-Feature
```

```
Ext-BasicServiceGroupList ::= SEQUENCE SIZE (1..maxNumOfExt-BasicServiceGroups)
        OF
                                        Ext-BasicServiceCode
```

```
maxNumOfExt-BasicServiceGroups  INTEGER ::= 32
```

```
CUG-Feature ::= SEQUENCE {
    basicService                    Ext-BasicServiceCode            OPTIONAL,
    preferentialCUG-Indicator       CUG-Index OPTIONAL,
    interCUG-Restrictions           InterCUG-Restrictions,
    extensionContainer              ExtensionContainer              OPTIONAL,
    ...}
```

```
InterCUG-Restrictions ::= OCTET STRING (SIZE (1))

    -- bits 876543: 000000 (unused)
    -- Exception handling:
    -- bits 876543 shall be ignored if received and not understood

    -- bits 21
    --   00  CUG only facilities
    --   01  CUG with outgoing access
    --   10  CUG with incoming access
    --   11  CUG with both outgoing and incoming access
```

```
Ext-SS-Data ::= SEQUENCE {
    ss-Code                         SS-Code,
    ss-Status [4] Ext-SS-Status,
    ss-SubscriptionOption           SS-SubscriptionOption           OPTIONAL,
    basicServiceGroupList           Ext-BasicServiceGroupList       OPTIONAL,
    extensionContainer              [5] ExtensionContainer          OPTIONAL,
    ...}
```

```
LCS-PrivacyExceptionList ::= SEQUENCE SIZE (1..maxNumOfPrivacyClass) OF
                                        LCS-PrivacyClass
```

```
maxNumOfPrivacyClass  INTEGER ::= 4
```

```
LCS-PrivacyClass ::= SEQUENCE {
    ss-Code                         SS-Code,
    ss-Status                       Ext-SS-Status,
    externalClientList              [0] ExternalClientList          OPTIONAL,
    -- externalClientList is expected only for SS-code = callunrelated
    plmnClientList                  [1] PLMNClientList              OPTIONAL,
    -- plmnClientList is expected only for SS-code - plmn
    extensionContainer              [2] ExtensionContainer          OPTIONAL,
    ...}
```

```
ExternalClientList ::= SEQUENCE SIZE (1..maxNumOfExternalClient) OF
                                        ExternalClient
```

```
maxNumOfExternalClient  INTEGER ::= 5
```

```
PLMNClientList ::= SEQUENCE SIZE (1..maxNumOfPLMNClient) OF
                                        LCSClientInternalID
```

```
maxNumOfPLMNClient  INTEGER ::= 5
```

```
ExternalClient ::= SEQUENCE {
    clientIdentity                  LCSClientExternalID,
    gmlc-Restriction                [0] GMLC-Restriction            OPTIONAL,
    extensionContainer              [1] ExtensionContainer          OPTIONAL,
    ... }
```

```
GMLC-Restriction ::= ENUMERATED {
    hplmn                           (0),
    home-Country                    (1)}
```

```
ZoneCodeList ::= SEQUENCE SIZE (1..maxNumOfZoneCodes)
                                        OF ZoneCode
```

```
ZoneCode ::= OCTET STRING (SIZE (2))
    -- internal structure is defined in TS GSM 03.03
```

```
maxNumOfZoneCodes  INTEGER ::= 10
```

```
InsertSubscriberDataRes ::= SEQUENCE {
    teleserviceList                 [1] TeleserviceList             OPTIONAL,
    bearerServiceList               [2] BearerServiceList           OPTIONAL,
    ss-List                         [3] SS-List                     OPTIONAL,
    odb-GeneralData                 [4] ODB-GeneralData             OPTIONAL,
    regionalSubscriptionResponse    [5]
             RegionalSubscriptionResponse       OPTIONAL,
    supportedCamelPhases            [6] SupportedCamelPhases        OPTIONAL,
    extensionContainer              [7] ExtensionContainer          OPTIONAL,
    ...}
```

```
RegionalSubscriptionResponse ::= ENUMERATED {
    networkNode-AreaRestricted      (0),
    tooManyZoneCodes                (1),
    zoneCodesConflict               (2),
    regionalSubscNotSupported       (3)}
```

```
DeleteSubscriberDataArg ::= SEQUENCE {
    imsi                                [0] IMSI,
    basicServiceList                    [1] BasicServiceList            OPTIONAL,
    -- The exception handling for reception of unsupported/not allocated
    -- basicServiceCodes is defined in section 6.8.2
    ss-List                             [2] SS-List                     OPTIONAL,
    roamingRestrictionDueToUnsupportedFeature [4] NULL                  OPTIONAL,
    regionalSubscriptionIdentifier      [5] ZoneCode                    OPTIONAL,
    vbsGroupIndication                  [7] NULL                        OPTIONAL,
    vgcsGroupIndication                 [8] NULL   OPTIONAL,
    camelSubscriptionInfoWithdraw       [9] NULL   OPTIONAL,
    extensionContainer                  [6] ExtensionContainer OPTIONAL,
    ...,
    gprsSubscriptionDataWithdraw        [10] GPRSSubscriptionDataWithdraw OPTIONAL,
    roamingRestrictedInSgsnDueToUnsuppportedFeature [11] NULL           OPTIONAL,
    lsaInformationWithdraw              [12] LSAInformationWithdraw     OPTIONAL,
    istInformationWithdraw              [13] NULL                       OPTIONAL }
```

```
GPRSSubscriptionDataWithdraw ::= CHOICE {
    allGPRSData                     NULL,
    contextIdList                   ContextIdList}
```

```
ContextIdList ::= SEQUENCE SIZE (1..maxNumOfPDP-Contexts) OF
                                    ContextId
```

```
LSAInformationWithdraw ::= CHOICE {
    allLSAData                      NULL,
    lsaIdentityList                 LSAIdentityList }
```

```
LSAIdentityList ::= SEQUENCE SIZE (1..maxNumOfLSAs) OF
                                    LSAIdentity
```

```
BasicServiceList ::= SEQUENCE SIZE (1..maxNumOfBasicServices) OF
                                    Ext-BasicServiceCode
```

```
maxNumOfBasicServices  INTEGER ::= 70
```

```
DeleteSubscriberDataRes ::= SEQUENCE {
    regionalSubscriptionResponse    [0]
                                    RegionalSubscriptionResponse    OPTIONAL,
    extensionContainer              ExtensionContainer              OPTIONAL,
    ...}
```

```
VlrCamelSubscriptionInfo ::= SEQUENCE {
    o-CSI                           [0] O-CSI                       OPTIONAL,
    extensionContainer              [1] ExtensionContainer          OPTIONAL,
    ...,
    ss-CSI                          [2]  SS-CSI                     OPTIONAL,
    o-BcsmCamelTDP-CriteriaList     [4]  O-BcsmCamelTDPCriteriaList OPTIONAL,
    tif-CSI                         [3]  NULL                       OPTIONAL,
    m-CSI                           [5]  M-CSI                      OPTIONAL,
    sms-CSI                         [6]  SMS-CSI                    OPTIONAL,
    vt-CSI                          [7]  T-CSI                      OPTIONAL,
    t-BCSM-CAMEL-TDP-CriteriaList   [8]  T-BCSM-CAMEL-TDP-CriteriaList OPTIONAL,
    d-CSI                           [9]  D-CSI                      OPTIONAL
    }
```

```
D-CSI ::= SEQUENCE {
     dp-AnalysedInfoCriteriaList          DP-AnalysedInfoCriteriaList,
     camelCapabilityHandling              CamelCapabilityHandling,
     extensionContainer                   ExtensionContainer                OPTIONAL,
     ...}
```

```
DP-AnalysedInfoCriteriaList  ::= SEQUENCE SIZE (1..maxNumOfDP-AnalysedInfoCriteria) OF
                                     DP-AnalysedInfoCriterium
```

```
maxNumOfDP-AnalysedInfoCriteria INTEGER ::= 10
```

```
DP-AnalysedInfoCriterium ::= SEQUENCE {
     dialledNumber                        ISDN-AddressString,
     serviceKey                           ServiceKey,
     gsmSCF-Address                       ISDN-AddressString,
     defaultCallHandling                  DefaultCallHandling,
     extensionContainer                   ExtensionContainer                OPTIONAL,
     ...}
```

```
SS-CSI ::= SEQUENCE {
     ss-CamelData                         SS-CamelData,
     extensionContainer                   ExtensionContainer                OPTIONAL,
     ...,
     notificationToCSE                    [0]  NULL                         OPTIONAL,
     csiActive                            [1]  NULL                         OPTIONAL
}
--   notificationToCSE and csiActive shall not be present when SS-CSI is sent to VLR.
--   They may only be included in ATSI/ATM Ack message.
```

```
SS-CamelData  ::= SEQUENCE {
     ss-EventList                         SS-EventList,
     gsmSCF-Address                       ISDN-AddressString,
     extensionContainer                   [0] ExtensionContainer            OPTIONAL,
     ...
     }
```

```
SS-EventList  ::= SEQUENCE SIZE (1..maxNumOfCamelSSEvents) OF SS-Code
     -- Actions for the following SS-Code values are defined in CAMEL Phase 3:
     -- ect                               SS-Code ::= '00110001'B
     -- multiPTY                          SS-Code ::= '01010001'B
     -- cd                                SS-Code ::= '00100100'B
     -- ccbs                              SS-Code ::= '01000100'B
     -- all other SS codes shall be ignored
```

```
maxNumOfCamelSSEvents INTEGER ::= 10
```

```
O-CSI ::= SEQUENCE {
     o-BcsmCamelTDPDataList               O-BcsmCamelTDPDataList,
     extensionContainer                   ExtensionContainer                OPTIONAL,
     ...,
     camelCapabilityHandling              [0] CamelCapabilityHandling       OPTIONAL,
     notificationToCSE                    [1]  NULL                         OPTIONAL,
     csiActive                            [2]  NULL                         OPTIONAL
     }
--   notificationtoCSE and csiActive shall not be present when O-CSI is sent to VLR/GMSC.
--   They may only be included in ATSI/ATM Ack message.
```

```
O-BcsmCamelTDPDataList ::= SEQUENCE SIZE (1..maxNumOfCamelTDPData) OF
     O-BcsmCamelTDPData
--   O-BcsmCamelTDPDataList shall not contain more than one instance of
--   O-BcsmCamelTDPData containing the same value for o-BcsmTriggerDetectionPoint.
--   For CAMEL Phase 2, this means that only one instance of O-BcsmCamelTDPData is allowed
--   with o-BcsmTriggerDetectionPoint being equal to DP2.
```

```
maxNumOfCamelTDPData  INTEGER ::= 10
```

```
O-BcsmCamelTDPData ::= SEQUENCE {
     o-BcsmTriggerDetectionPoint          O-BcsmTriggerDetectionPoint,
     serviceKey                           ServiceKey,
     gsmSCF-Address                       [0] ISDN-AddressString,
     defaultCallHandling                  [1] DefaultCallHandling,
     extensionContainer                   [2] ExtensionContainer            OPTIONAL,
     ...
     }
```

```
ServiceKey ::= INTEGER (0..2147483647)
```

```
O-BcsmTriggerDetectionPoint ::= ENUMERATED {
    collectedInfo (2),
    ...,
    routeSelectFailure (4)  }
-- exception handling:
-- For O-BcsmCamelTDPData sequences containing this parameter with any
-- other value than the ones listed the receiver shall ignore the whole
-- O-BcsmCamelTDPDatasequence.
-- For O-BcsmCamelTDP-Criteria sequences containing this parameter with any
-- other value than the ones listed the receiver shall ignore the whole
-- O-BcsmCamelTDP-Criteria sequence.
```

```
O-BcsmCamelTDPCriteriaList ::= SEQUENCE SIZE (1..maxNumOfCamelTDPData) OF
    O-BcsmCamelTDP-Criteria
```

```
T-BCSM-CAMEL-TDP-CriteriaList ::= SEQUENCE SIZE (1..maxNumOfCamelTDPData) OF
    T-BCSM-CAMEL-TDP-Criteria
```

```
O-BcsmCamelTDP-Criteria ::= SEQUENCE {
    o-BcsmTriggerDetectionPoint          O-BcsmTriggerDetectionPoint,
    destinationNumberCriteria            [0] DestinationNumberCriteria     OPTIONAL,
    basicServiceCriteria                 [1] BasicServiceCriteria          OPTIONAL,
    callTypeCriteria                     [2] CallTypeCriteria              OPTIONAL,
    ...,
    o-CauseValueCriteria                 [3] O-CauseValueCriteria          OPTIONAL,
    extensionContainer                   [4] ExtensionContainer            OPTIONAL }
```

```
T-BCSM-CAMEL-TDP-Criteria ::= SEQUENCE {
    t-BCSM-TriggerDetectionPoint         T-BcsmTriggerDetectionPoint,
    basicServiceCriteria                 [0] BasicServiceCriteria          OPTIONAL,
    t-CauseValueCriteria                 [1] T-CauseValueCriteria          OPTIONAL,
    ... }
```

```
DestinationNumberCriteria  ::= SEQUENCE {
    matchType                            [0] MatchType,
    destinationNumberList                [1] DestinationNumberList         OPTIONAL,
    destinationNumberLengthList          [2] DestinationNumberLengthList   OPTIONAL,
    -- one or both of destinationNumberList and destinationNumberLengthList
    -- shall be present
    ... }
```

```
DestinationNumberList  ::= SEQUENCE SIZE   (1..maxNumOfCamelDestinationNumbers) OF
                                           ISDN-AddressString
-- The receiving entity shall not check the format of a number in
-- the dialled number list
```

```
DestinationNumberLengthList  ::= SEQUENCE SIZE (1..maxNumOfCamelDestinationNumberLengths)
OF
                                              INTEGER(1..maxNumOfISDN-AddressDigits)
```

```
BasicServiceCriteria   ::= SEQUENCE SIZE(1..maxNumOfCamelBasicServiceCriteria) OF
    Ext-BasicServiceCode
```

```
maxNumOfISDN-AddressDigits  INTEGER ::= 15
```

```
maxNumOfCamelDestinationNumbers  INTEGER ::= 10
```

```
maxNumOfCamelDestinationNumberLengths  INTEGER ::= 3
```

```
maxNumOfCamelBasicServiceCriteria  INTEGER ::= 5
```

```
CallTypeCriteria       ::= ENUMERATED {
    forwarded                            (0),
    notForwarded                         (1)}
```

```
MatchType       ::= ENUMERATED {
    inhibiting                           (0),
    enabling                             (1)}
```

```
O-CauseValueCriteria   ::= SEQUENCE SIZE(1..maxNumOfCAMEL-O-CauseValueCriteria) OF
    CauseValue
```

```
T-CauseValueCriteria   ::= SEQUENCE SIZE(1..maxNumOfCAMEL-T-CauseValueCriteria) OF
    CauseValue
```

```
maxNumOfCAMEL-O-CauseValueCriteria  INTEGER ::= 5
```

```
maxNumOfCAMEL-T-CauseValueCriteria  INTEGER ::= 5
```

```
CauseValue ::= OCTET STRING (SIZE(1))
-- Type extracted from Cause parameter in ITU-T Recommendation Q.763.
-- For the use of cause value refer to ITU-T Recommendation Q.850.
```

```
DefaultCallHandling ::= ENUMERATED {
     continueCall (0) ,
     releaseCall (1) ,
     ...}
-- exception handling:
-- reception of values in range 2-31 shall be treated as "continueCall"
-- reception of values greater than 31 shall be treated as "releaseCall"
```

```
CamelCapabilityHandling ::= INTEGER(1..16)
-- value 1 = CAMEL phase 1,
-- value 2 = CAMEL phase 2,
-- value 3 = CAMEL Phase 3:
-- reception of values greater than 3 shall be treated as CAMEL phase 3.
```

```
SupportedCamelPhases ::= BIT STRING {
     phase1 (0),
     phase2 (1),
     phase3 (2) } (SIZE (1..16))
-- A node shall mark in the BIT STRING all CAMEL Phases it supports.
-- Other values than listed above shall be discarded.
```

```
SMS-CSI ::= SEQUENCE {
     sms-CAMEL-TDP-DataList              [0] SMS-CAMEL-TDP-DataList,
     camelCapabilityHandling             [1] CamelCapabilityHandling       ,
     extensionContainer                  [2] ExtensionContainer            OPTIONAL,
     notificationToCSE                   [3] NULL                          OPTIONAL,
     csiActive                           [4] NULL                          OPTIONAL,    ...}
--   notificationToCSE and csiActive shall not be present when SMS-CSI is sent to VLR/SGSN.
--   They may only be included in ATSI/ATM Ack message.
```

```
SMS-CAMEL-TDP-DataList ::= SEQUENCE SIZE (1..maxNumOfCamelTDPData) OF
     SMS-CAMEL-TDP-Data
--   SMS-CAMEL-TDP-DataList shall not contain more than one instance of
--   SMS-CAMEL-TDP-Data containing the same value for sms-TriggerDetectionPoint.
```

```
SMS-CAMEL-TDP-Data ::= SEQUENCE {
     sms-TriggerDetectionPoint           [0] SMS-TriggerDetectionPoint,
     serviceKey                          [1] ServiceKey,
     gsmSCF-Address                      [2] ISDN-AddressString,
     defaultSMS-Handling                 [3] DefaultSMS-Handling,
     extensionContainer                  [4] ExtensionContainer            OPTIONAL,
     ...
     }
```

```
SMS-TriggerDetectionPoint ::= ENUMERATED {
     sms-CollectedInfo (1),
     ... }
--   exception handling:
--   For SMS-CAMEL-TDP-Data sequences containing this parameter with any
--   other value than the ones listed the receiver shall ignore the whole
--   SMS-CAMEL-TDP-Data sequence.
```

```
DefaultSMS-Handling ::= ENUMERATED {
     continueTransaction (0),
     releaseTransaction (1),
     ...}
--   exception handling:
--   reception of values in range 2-31 shall be treated as "continueTransaction"
--   reception of values greater than 31 shall be treated as "releaseTransaction"
```

```
M-CSI ::= SEQUENCE {

     mobilityTriggers                    MobilityTriggers,
     serviceKey                          ServiceKey,
     gsmSCF-Address                      [0]  ISDN-AddressString,
     extensionContainer                  [1]  ExtensionContainer           OPTIONAL,
     notificationToCSE                   [2] NULL                          OPTIONAL,
     csiActive                           [3] NULL                          OPTIONAL,
     ...}
--   notificationToCSE and csiActive shall not be present when M-CSI is sent to VLR.
--   They may only be included in ATSI/ATM Ack message.
```

```
MobilityTriggers  ::= SEQUENCE SIZE (1..maxNumOfMobilityTriggers) OF MM-Code
```

```
maxNumOfMobilityTriggers INTEGER ::= 10
```

```
MM-Code ::= OCTET STRING (SIZE (1))
--   This type is used to indicate a Mobility Management event.
--   Actions for the following M-Code values are defined in CAMEL Phase 3:
--
--   Location-update-in-same-VLR          MM-Code ::= '00000000'B
--   Location-update-to-other-VLR         MM-Code ::= '00000001'B
--   IMSI-Attach                          MM-Code ::= '00000010'B
--   MS-initiated-IMSI-Detach             MM-Code ::= '00000011'B
--   Network-initiated-IMSI-Detach        MM-Code ::= '00000100'B
--
--   If any other MM-code is received in M-CSI, then that MM-code shall be
--   ignored.
```

```
-- gprs location information retrieval types

SendRoutingInfoForGprsArg ::= SEQUENCE {
    imsi                                [0] IMSI,
    ggsn-Address                        [1] GSN-Address             OPTIONAL,
    extensionContainer                  [2] ExtensionContainer      OPTIONAL,
    ...}

SendRoutingInfoForGprsRes ::= SEQUENCE {
    sgsn-Address                        [0] GSN-Address,
    ggsn-Address                        [1]  GSN-Address            OPTIONAL,
    mobileNotReachableReason            [2]  AbsentSubscriberDiagnosticSM
    OPTIONAL,
    extensionContainer                  [3] ExtensionContainer      OPTIONAL,
    ...}

-- failure report types

FailureReportArg ::= SEQUENCE {
    imsi                                [0] IMSI,
    ggsn-Number                         [1] ISDN-AddressString      ,
    ggsn-Address                        [2] GSN-Address             OPTIONAL,
    extensionContainer                  [3] ExtensionContainer      OPTIONAL,
    ...}

FailureReportRes ::= SEQUENCE {
    ggsn-Address                        [0] GSN-Address             OPTIONAL,
    extensionContainer                  [1] ExtensionContainer      OPTIONAL,
    ...}

-- gprs notification types

NoteMsPresentForGprsArg ::= SEQUENCE {
    imsi                                [0] IMSI,
    sgsn-Address                        [1] GSN-Address,
    ggsn-Address                        [2] GSN-Address             OPTIONAL,
    extensionContainer                  [3] ExtensionContainer      OPTIONAL,
    ...}

NoteMsPresentForGprsRes ::= SEQUENCE {
    extensionContainer                  [0] ExtensionContainer      OPTIONAL,
    ...}

-- fault recovery types

ResetArg ::= SEQUENCE {
    hlr-Number                          ISDN-AddressString,
    hlr-List                            HLR-List                    OPTIONAL,
    ...}

RestoreDataArg ::= SEQUENCE {
    imsi                                IMSI,
    lmsi                                LMSI                        OPTIONAL,
    extensionContainer                  ExtensionContainer          OPTIONAL,
    ... ,
    vlr-Capability                      [6] VLR-Capability          OPTIONAL }

RestoreDataRes ::= SEQUENCE {
    hlr-Number                          ISDN-AddressString,
    msNotReachable                      NULL                        OPTIONAL,
    extensionContainer                  ExtensionContainer          OPTIONAL,
    ...}
```

```
-- VBS/VGCS types
VBSDataList ::= SEQUENCE SIZE (1..maxNumOfVBSGroupIds) OF
                                        VoiceBroadcastData

VGCSDataList ::= SEQUENCE SIZE (1..maxNumOfVGCSGroupIds) OF
                                        VoiceGroupCallData

maxNumOfVBSGroupIds  INTEGER ::= 50

maxNumOfVGCSGroupIds  INTEGER ::= 50

VoiceGroupCallData  ::= SEQUENCE {
    groupId                         GroupId,
    extensionContainer              ExtensionContainer              OPTIONAL,
    ...}

VoiceBroadcastData ::= SEQUENCE {
    groupid                         GroupId,
    broadcastInitEntitlement        NULL                            OPTIONAL,
    extensionContainer              ExtensionContainer              OPTIONAL,
    ...}

GroupId  ::= OCTET STRING (SIZE (3))
    -- Refers to the Group Identification as specified in GSM TS 03.03
    -- and 03.68/ 03.69

-- provide subscriber info types

ProvideSubscriberInfoArg ::= SEQUENCE {
    imsi     [0] IMSI,
    lmsi     [1] LMSI               OPTIONAL,
    requestedInfo                   [2] RequestedInfo,
    extensionContainer              [3] ExtensionContainer          OPTIONAL,
    ...}

ProvideSubscriberInfoRes ::= SEQUENCE {
    subscriberInfo                  SubscriberInfo,
    extensionContainer              ExtensionContainer              OPTIONAL,
    ...}

SubscriberInfo ::= SEQUENCE {
    locationInformation             [0] LocationInformation         OPTIONAL,
    subscriberState                 [1] SubscriberState             OPTIONAL,
    extensionContainer              [2] ExtensionContainer          OPTIONAL,
    ...}

RequestedInfo ::= SEQUENCE {
    locationInformation             [0] NULL                        OPTIONAL,
    subscriberState                 [1] NULL                        OPTIONAL,
    extensionContainer              [2] ExtensionContainer          OPTIONAL,
    ...}

LocationInformation ::= SEQUENCE {
    ageOfLocationInformation        AgeOfLocationInformation        OPTIONAL,
    geographicalInformation         [0] GeographicalInformation     OPTIONAL,
    vlr-number                      [1] ISDN-AddressString          OPTIONAL,
    locationNumber                  [2] LocationNumber              OPTIONAL,
    cellIdOrLAI                     [3] CellIdOrLAI                 OPTIONAL,
    extensionContainer              [4] ExtensionContainer          OPTIONAL,
    ...,
    selectedLSA-Id                  [5] LSAIdentity                 OPTIONAL,
    msc-Number                      [6] ISDN-AddressString          OPTIONAL,
    geodeticInformation             [7] GeodeticInformation         OPTIONAL }

GeographicalInformation ::= OCTET STRING (SIZE (8))
--   Refers to geographical Information defined in GSM 03.32.
--   Only the description of an ellipsoid point with uncertainty circle
--   as specified in GSM 03.32 is allowed to be used
--   The internal structure according to GSM 03.32 is as follows:
--        Type of shape (ellipsoid point with uncertainty circle)    1 octet
--        Degrees of Latitude                                        3 octets
--        Degrees of Longitude                                       3 octets
--        Uncertainty code                                           1 octet
```

```
GeodeticInformation ::= OCTET STRING (SIZE (10))
--   Refers to Calling Geodetic Location defined in Q.763 (1999).
--   Only the description of an ellipsoid point with uncertainty circle
--   as specified in Q.763 (1999) is allowed to be used
--   The internal structure according to Q.763 (1999) is as follows:
--        Screening and presentation indicators                    1 octet
--        Type of shape (ellipsoid point with uncertainty circle)  1 octet
--        Degrees of Latitude                                      3 octets
--        Degrees of Longitude                                     3 octets
--        Uncertainty code                                         1 octet
--        Confidence                                               1 octet
```

```
LocationNumber ::= OCTET STRING (SIZE (2..10))
    -- the internal structure is defined in CCITT Rec Q.763
```

```
SubscriberState ::= CHOICE {
    assumedIdle                 [0] NULL,
    camelBusy [1] NULL,
    netDetNotReachable          NotReachableReason,
    notProvidedFromVLR          [2] NULL}
```

```
NotReachableReason ::= ENUMERATED {
    msPurged (0),
    imsiDetached (1),
    restrictedArea (2),
    notRegistered (3)}
```

-- any time interrogation info types

```
AnyTimeInterrogationArg ::= SEQUENCE {
    subscriberIdentity          [0] SubscriberIdentity,
    requestedInfo               [1] RequestedInfo,
    gsmSCF-Address              [3] ISDN-AddressString,
    extensionContainer          [2] ExtensionContainer          OPTIONAL,
    ...}
```

```
AnyTimeInterrogationRes ::= SEQUENCE {
    subscriberInfo              SubscriberInfo,
    extensionContainer          ExtensionContainer              OPTIONAL,
    ...}
```

-- any time information handling types

```
AnyTimeSubscriptionInterrogationArg ::= SEQUENCE {
    subscriberIdentity          [0] SubscriberIdentity,
    requestedSubscriptionInfo   [1] RequestedSubscriptionInfo,
    gsmSCF-Address              [2] ISDN-AddressString,
    extensionContainer          [3] ExtensionContainer          OPTIONAL,
    ...}
```

```
AnyTimeSubscriptionInterrogationRes ::= SEQUENCE {
    callForwardingData          [1] CallForwardingData          OPTIONAL,
    callBarringData             [2] CallBarringData             OPTIONAL,
    odb-Info                    [3] ODB-Info                    OPTIONAL,
    camel-SubscriptionInfo      [4] CAMEL-SubscriptionInfo      OPTIONAL,
    supportedVLR-CAMEL-Phases   [5] SupportedCamelPhases        OPTIONAL,
    supportedSGSN-CAMEL-Phases  [6] SupportedCamelPhases        OPTIONAL,
    extensionContainer          [7] ExtensionContainer          OPTIONAL,
    ...}
```

```
RequestedSubscriptionInfo ::= SEQUENCE {
    requestedSS-Info            [1] SS-ForBS-Code               OPTIONAL,
    odb                         [2] NULL                        OPTIONAL,
    requestedCAMEL-SubscriptionInfo  [3] RequestedCAMEL-SubscriptionInfo  OPTIONAL,
    supportedVLR-CAMEL-Phases   [4] NULL                        OPTIONAL,
    supportedSGSN-CAMEL-Phases  [5] NULL                        OPTIONAL,
    extensionContainer          [6] ExtensionContainer          OPTIONAL,
    ...}
```

```
RequestedCAMEL-SubscriptionInfo ::= ENUMERATED {
    o-CSI                       (0),
    t-CSI                       (1),
    vt-CSI                      (2),
    tif-CSI                     (3),
    gprs-CSI                    (4),
    sms-CSI                     (5),
    ss-CSI                      (6),
    m-CSI                       (7),
    d-csi                       (8)}
```

```
CallForwardingData ::= SEQUENCE {
    forwardingFeatureList               Ext-ForwFeatureList,
    notificationToCSE                   NULL                                OPTIONAL,
    extensionContainer                  [0] ExtensionContainer              OPTIONAL,
    ...}
```

```
CallBarringData ::= SEQUENCE {
    callBarringFeatureList              Ext-CallBarFeatureList,
    password                            Password,
    wrongPasswordAttemptsCounter        WrongPassworAttemptsCounter,
    notificationToCSE                   NULL                                OPTIONAL,
    extensionContainer                  ExtensionContainer                  OPTIONAL,
    ...}
```

```
WrongPasswordAttemptsCounter ::= INTEGER (0..4)
```

```
ODB-Info ::= SEQUENCE {
    odb-Data                            ODB-Data,
    notificationToCSE                   NULL                                OPTIONAL,
    extensionContainer                  ExtensionContainer                  OPTIONAL,
    ...}
```

```
CAMEL-SubscriptionInfo ::= SEQUENCE {
    o-CSI                               [0]  O-CSI                          OPTIONAL,
    o-BcsmCamelTDP-CriteriaList         [1]  O-BcsmCamelTDPCriteriaList     OPTIONAL,
    d-CSI                               [2]  D-CSI                          OPTIONAL,
    t-CSI                               [32] T-CSI                          OPTIONAL,
    t-BCSM-CAMEL-TDP-CriteriaList       [43] T-BCSM-CAMEL-TDP-CriteriaList  OPTIONAL,
    vt-CSI                              [54] T-CSI                          OPTIONAL,
    vt-BCSM-CAMEL-TDP-CriteriaList      [65] T-BCSM-CAMEL-TDP-CriteriaList  OPTIONAL,
    tif-CSI                             [76] NULL                           OPTIONAL,
    tif-CSI-NotificationToCSE           [87] NULL                           OPTIONAL,
    gprs-CSI                            [98] GPRS-CSI                       OPTIONAL,
    sms-CSI                             [109]    SMS-CSI                    OPTIONAL,
    ss-CSI                              [1110]   SS-CSI                     OPTIONAL,
    m-CSI                               [1211]   M-CSI                      OPTIONAL,
    extensionContainer                  [1312]   ExtensionContainer         OPTIONAL,
    ...}
```

CR Editors note: d-CSI was forgotten in above list.

```
AnyTimeModificationArg ::= SEQUENCE {
    subscriberIdentity                  [0]  SubscriberIdentity,
    gsmSCF-Address                      [1]  ISDN-AddressString,
    modificationRequestFor-SS-Info      [2]  ModificationRequestFor-SS-Info OPTIONAL,
    modificationRequestFor-CF-Info      [2]  ModificationRequestFor-CF-Info OPTIONAL,
    modificationRequestFor-CB-Info      [3]  ModificationRequestFor-CB-Info OPTIONAL,
    modificationRequestFor-CSI          [43] ModificationRequestFor-CSI     OPTIONAL,
    extensionContainer                  [54] ExtensionContainer             OPTIONAL,
    ...}
```

CR Editors note: the above correction is needed to allow ATM to specify required changes to CF and/or CB data.

```
AnyTimeModificationRes ::= SEQUENCE {
    ss-InfoFor-CSE                      [0]  Ext-SS-InfoFor-CSE             OPTIONAL,
    camel-SubscriptionInfo              [1]  CAMEL-SubscriptionInfo         OPTIONAL,
    extensionContainer                  [2]  ExtensionContainer             OPTIONAL,
    ...}
```

```
ModificationRequestFor-CFSS-Info ::= SEQUENCE {
    ss-Code                             [0]  SS-Code,
    basicService                        [1]  Ext-BasicServiceCode           OPTIONAL,
    ss-Status                           [2]  Ext-SS-Status                  OPTIONAL,
    forwardedToNumber                   [3]  AddressString                  OPTIONAL,
    forwardedToSubaddress               [4]  ISDN-SubaddressString          OPTIONAL,
    noReplyConditionTime                [5]  Ext-NoReplyConditionTime       OPTIONAL,
    modifyNotificationToCSE             [6]  ModificationInstruction        OPTIONAL,
    extensionContainer                  [7]  ExtensionContainer             OPTIONAL,
    ...}
```

```
ModificationRequestFor-CB-Info ::= SEQUENCE {
    ss-Code                          [0]  SS-Code,
    basicService                     [1]  Ext-BasicServiceCode          OPTIONAL,
    ss-Status                        [2]  Ext-SS-Status                 OPTIONAL,
    password                         [3]  Password                      OPTIONAL,
    wrongPasswordAttemptCounter      [4]  WrongPasswordAttemptCounter   OPTIONAL,
    modifyNotificationToCSE          [5]  ModificationInstruction       OPTIONAL,
    extensionContainer               [6]  ExtensionContainer            OPTIONAL,
    ...}
```

```
ModificationRequestFor-CSI ::= SEQUENCE {
    RequestedCamel-SubscriptionInfo  [0]  RequestedCamel-SubscriptionInfo ~~OPTIONAL~~,
    modifyNotificationToCSE          [1]  ModificationInstruction       OPTIONAL,
    modifyCSI-State                  [2]  ModificationInstruction       OPTIONAL,
    extensionContainer               [3]  ExtensionContainer            OPTIONAL,
    ...}
```

```
ModificationInstruction ::= ENUMERATED {
    Deactivate                       (0),
    Activate                         (1)}
```

-- subscriber data modification notification types

```
NoteSubscriberDataModifiedArg ::= SEQUENCE {
    imsi                             IMSI,
    msisdn                           ISDN-AddressString,
    typeOfModification               TypeOfModification,
    extensionContainer               ExtensionContainer                 OPTIONAL,
    ...}
```

```
NoteSubscriberDataModifiedRes ::= SEQUENCE {
    extensionContainer               ExtensionContainer                 OPTIONAL,
    ...}
```

```
TypeOfModification ::= ENUMERATED {
    callForwardingSS-Data            (0),
    callBarringSS-Data               (1),
    operatorDeterminedBarringData    (2),
    camelSubscriptionInformation     (3),
    ...}
-- exception handling:
-- reception of other values shall be treated as unexpected data
```

-- mobility management event notificatioon info types

```
NoteMM-EventArg::= SEQUENCE {
    serviceKey                       ServiceKey,
    eventMet                         [0]  MM-Code,
    imsi                             [1]  IMSI,
    msisdn                           [2]  ISDN-AddressString,
    locationInformation              [3]  LocationInformation           OPTIONAL,
    lsaIdentity                      [4]  LSAIdentity                   OPTIONAL,
    supportedCAMELPhases             [5]  SupportedCamelPhases          OPTIONAL,
    extensionContainer               [6]  ExtensionContainer            OPTIONAL,
    ...}
```

```
NoteMM-EventRes ::= SEQUENCE {
    extensionContainer               ExtensionContainer                 OPTIONAL,
    ...}
```

```
Ext-SS-InfoFor-CSE ::= CHOICE {
    forwardingInfoFor-CSE            [0] Ext-ForwardingInfoFor-CSE,
    callBarringInfoFor-CSE           [1] Ext-CallBarringInfoFor-CSE
    }
```

```
Ext-ForwardingInfoFor-CSE ::= SEQUENCE {
    ss-Code                          [0]  SS-Code,
    forwardingFeatureList            [1]  Ext-ForwFeatureList,
    notificationToCSE                [2]  NULL,
    extensionContainer               [3]  ExtensionContainer            OPTIONAL,
    ...}
```

```
Ext-CallBarringInfoFor-CSE ::= SEQUENCE {
     ss-Code                              [0]  SS-Code,
     callBarringFeatureList               [1]  Ext-CallBarFeatureList,
     password                             [2]  Password,
     wrongPasswordAttemptCounter          [3]  WrongPasswordAttemptCounter,
     notificationToCSE                    [4]  NULL,
     extensionContainer                   [5]  ExtensionContainer,          OPTIONAL
     ...}

END
```