3GPP TSG CN Plenary Meeting #21 **NP-030385**
17th – 19th September 2003 Frankfurt, GERMANY.

Source: TSG CN WG4

Title: Corrections on Camel 4

Agenda item: 8.3

Document for: APPROVAL

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
23.079	025	4	N4-030978	Rel-5	Correction to interaction between ORLCF and forwarding notification	F	5.2.0

3GPP TSG CN WG4 Meeting #20 **N4-030978**
Sophia Antipolis, France, 25th – 29th August 2003 (revision of N4-030829)

CHANGE REQUEST

⌘ **23.079** **CR** **025** ⌘ **rev** **4** ⌘ Current version: **5.2.0** ⌘

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

Title:	⌘	Correction to interaction between ORLCF and forwarding notification
Source:	⌘	CN4
Work item code:	⌘	CAMEL4 ***Date:*** ⌘ 25 August 2003
Category:	⌘	F ***Release:*** ⌘ Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*

Use one of the following releases:

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

Reason for change:	⌘	According to TS 23.079, the T-CSI CAMEL Service should be notified about the call forwarding in the GMSC, before the GMSC has verified that the call forwarding can be performed at the GMSC server due to optimal routeing. If the GMSC denies the optimal routeing request from the VMSC, the optimal routeing will be performed by the VMSC. However, the T-CSI CAMEL Service was already informed about the pending forwarding in the GMSC. Hence, this means that the T-CSI CAMEL Service does not know where the call forwarding takes place.
Summary of change:	⌘	The T-CSI CAMEL Service should be informed after the GMSC has verified that the optimal routeing can apply in the GMSC.
Consequences if not approved:	⌘	Incorrect charging for pre-paid subscribers; this may hamper the deployment of optimal routeing.

Clauses affected:	⌘	8.2, 9.4.2 (Procedure OR_Handle_RCH)

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

Other comments:	⌘	

*** *First Modified Section* ***

8 Interactions between optimal routeing and other network features

8.1 Operator determined barring

The principles for the interactions between operator determined barring and optimal routeing are the same as those for interactions between supplementary service barring and optimal routeing.

8.2 CAMEL

The principles for interactions between CAMEL services and optimal routeing are specified in this subclause. The interworking between CAMEL processing and optimal routeing in the GMSC and the terminating VMSC is specified in subclause 9.4 and 3GPP TS 23.018 [6].

If a mobile-originating CAMEL service modifies the number entered by the A subscriber, VMSCA treats the number returned by the gsmSCF in the same way as a number received in the SETUP message, i.e.:

- If the gsmSCF indicated that the call is eligible for optimal routeing, VMSCA sends a signal containing the modified number to the associated GMSC, which sends a request for routeing information to the appropriate HLR;
- If the gsmSCF did not indicate that the call is eligible for optimal routeing, VMSCA sends an IAM containing the modified number to a GMSC in HPLMNB, which sends a request for routeing information to the appropriate HLR.

If a mobile-terminating CAMEL service modifies the number received by the GMSC, the GMSC treats the number returned by the CAMEL server in the same way as a forwarded-to number, i.e. it checks it against the optimal routeing criteria in subclause 9.1 but does not analyse it to find if it can derive an HLR address. If the number returned by the CAMEL server does not satisfy the optimal routeing criteria in subclause 9.1 and the GMSC is not in the same PLMN as HLRB, the GMSC will route the call to a GMSC in the same PLMN as HLRB. This will lead to a repetition of the mobile terminating CAMEL interaction.

If the call is to be ~~early~~ forwarded early at the GMSC (whether by a UMTS-standardised call forwarding service or by a CAMEL-based call forwarding service) and a mobile originating CAMEL service applies to the forwarding subscriber, the GMSC checks the number which results from the CAMEL service against the optimal routeing criteria in subclause 9.1. If the number returned by the CAMEL server does not satisfy the optimal routeing criteria in subclause 9.1, the GMSC will not route the call to the forwarded-to destination. ~~For early call forwarding, t~~The GMSC will route the call to a GMSC in the same PLMN as HLRB. This will lead to a repetition of the mobile originating CAMEL interaction.

~~For optimal routeing of late call forwarding, the GMSC will return a Resume Call Handling negative response towards VMSCB, which will forward the call. This will lead to a repetition of the mobile originating CAMEL interaction.~~

If the call is optimally routed back to the GMSC (optimal routeing of late call forwarding) and a mobile originating CAMEL service applies to the forwarding subscriber, then the GMSC does not check the number which results from the CAMEL service against the optimal routeing criteria in subclause 9.1.

NOTE Service Logic designers should be aware that Optimal Routeing of Late Call Forwarding (ORLCF) may be combined with Optimal Routeing of basic mobile to mobile calls (Basic Optimal Routeing - BOR) in a single call. The ORLCF handling in the GMSC may be subject to Mobile Terminating (MT) CAMEL handling and Mobile Forwarding (MF) CAMEL handling, as depicted in Procedure OR_Handle_RCH. Both the MT CAMEL Service and the MF CAMEL Service may provide a new destination for the forwarded leg.

When BOR and ORLCF are combined within one call, and the MT CAMEL Service or the MF CAMEL Service provides a new destination for the forwarded leg, then these CAMEL Services should take particular care, if they need to ascertain whether this new destination complies with the optimal routeing criteria as specified in subclause 9.1.

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

9.4.2 Procedure OR_Handle_RCH

~~Sheet 2: the procedure Activate_CF_Process is specified in 3GPP TS 23.018 [6].~~

~~Sheet 1: if the GMSC interrogates the HLR for a Forwarded-to number, the Routeing address is the Forwarded-to number received in the Send Routeing Info ack; otherwise the Routeing address is the Forwarded-to number received in the Resume Call Handling.~~

~~Sheet 3~~1: the procedure CAMEL_MT_GMSC_Notify_CF is specific to CAMEL phase 2 or higher; it is specified in 3GPP TS 23.078 [7]. If the GMSC does not support CAMEL phase 2 or higher, processing continues from the "Continue" exit of the test "Result".

~~Sheet 2: the task "Destination address:=FTN" is executed only if the GMSC supports optimal routeing of basic mobile-to-mobile calls.~~

~~Sheet 2: the process MT_CF_MSC is specified in 3GPP TS 23.018 [6].~~

~~Sheet 3~~2: the procedure UUS_GMSC_Check_Forwarding is specific to UUS; it is specified in 3GPP TS 23.087 [9].

~~Sheet 3~~2: the procedure CAMEL_Store_Destination_Address is specific to CAMEL phase 3 or higher; it is specified in 3GPP TS 23.078 [7].

~~Sheet 3~~2: 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: if the GMSC interrogates the HLR for a Forwarded-to number, the Routeing address is the Forwarded-to number received in the Send Routeing Info ack; otherwise the Routeing address is the Forwarded-to number received in the Resume Call Handling.

Sheet 1: the task "Destination address := FTN" is executed only if the GMSC supports optimal routeing of basic mobile-to-mobile calls.

Sheet 1: the procedure Route_permitted is called to verify the number received in Resume Call Handling or the number received from HLR. If the result is “False”, then the GMSC disallows the Optimal Routeing. The call forwarding will now be done by the VMSC.

Note When the procedure Route_permitted returns result “False”, then the gsmSCF is not informed about the forwarding and can therefore not provide an alternative destination address. Reason is that once the gsmSCF is informed about forwarding, the call forwarding can not be returned to the VMSC.

Sheet 2: the procedure CAMEL_MT_GMSC_Notify_CF is specific to CAMEL phase 2 or higher; it is specified in 3GPP TS 23.078 [7]. If the GMSC does not support CAMEL phase 2 or higher, processing continues from the "Continue" exit of the test "Result".

If the result of the procedure CAMEL_MT_GMSC_Notify_CF is “Fail” or “Release”, then the call will be released.

If the result of the procedure CAMEL_MT_GMSC_Notify_CF is “Reconnect”, then the GMSC allows the Optimal Routeing. The GMSC will then start a call forwarding process.

Sheet 2: when the procedure Route_permitted on sheet 1 returns result “False”, then the GMSC returns “OR not allowed” to the VMSC. The call forwarding will now be done by the VMSC.

Sheet 3: the procedure Activate_CF_Process is specified in 3GPP TS 23.018 [6]. When procedure Activate_CF_Process returns result “Release” or “Fail”, the call is released.

If the result is “Pass”, then the GMSC allows the Optimal Routeing.

Sheet 3: the procedure UUS_GMSC_Check_Forwarding is specific to UUS; it is specified in 3GPP TS 23.087 [9].

Sheet 3: the procedure CAMEL_Store_Destination_Address is specific to CAMEL phase 3 or higher; it is specified in 3GPP TS 23.078 [7].

Sheet 3: 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 3: the process MT_CF_MSC is specified in 3GPP TS 23.018 [6].

*** Second Modified Section ***

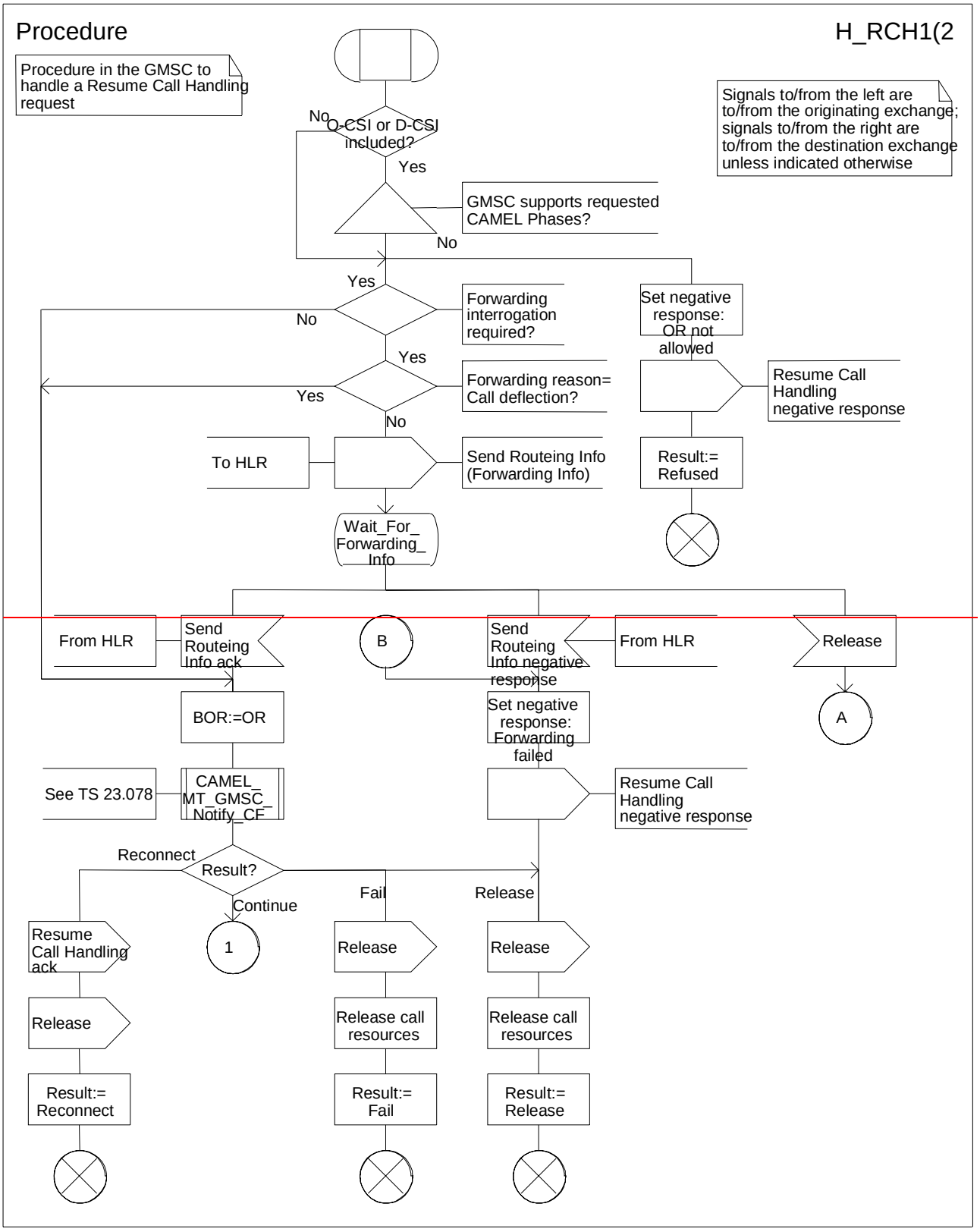
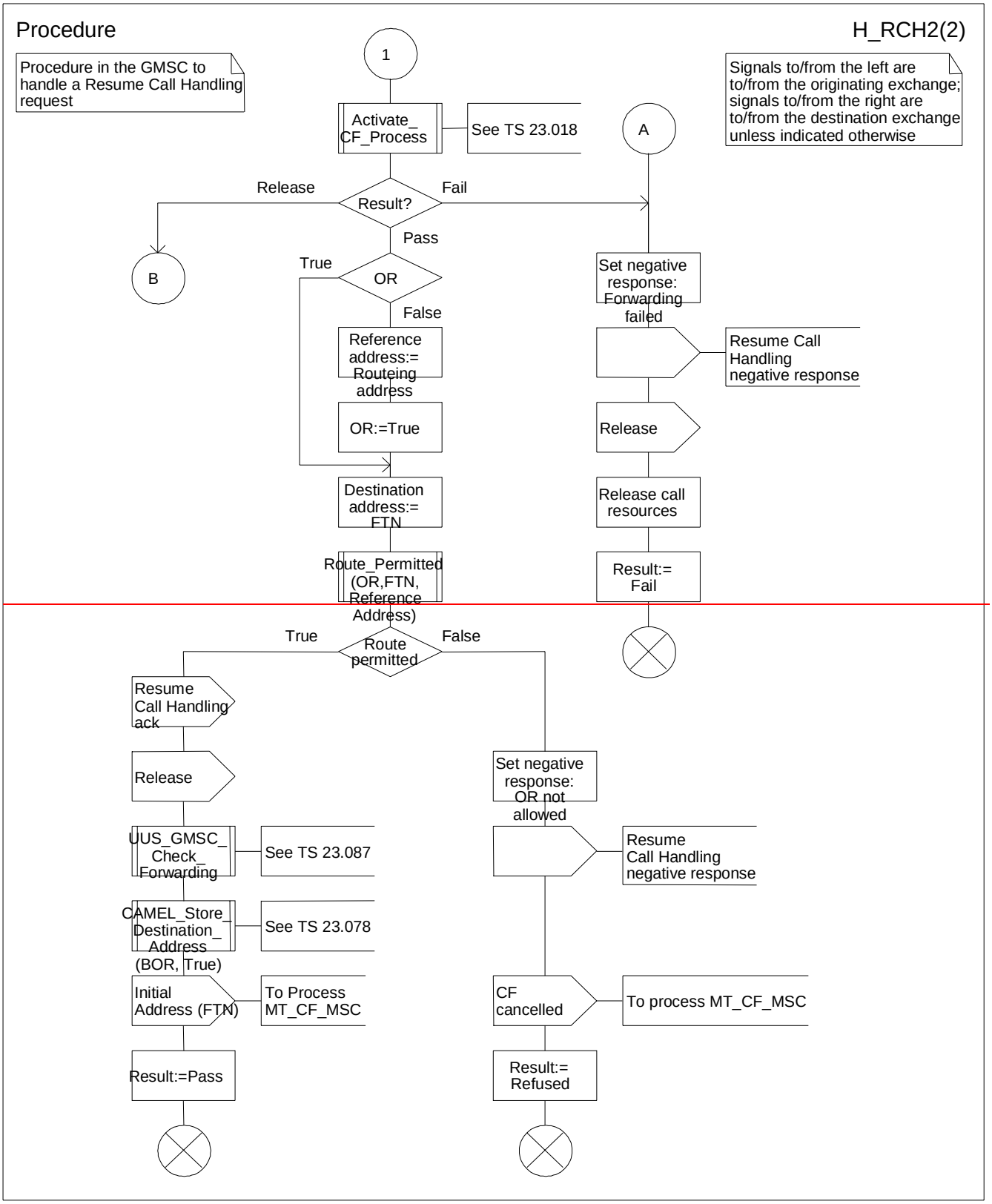


Figure 7a: Procedure OR_Handle_RCH (sheet 1)



~~Figure 7b: Procedure OR_Handle_RCH (sheet 2)~~

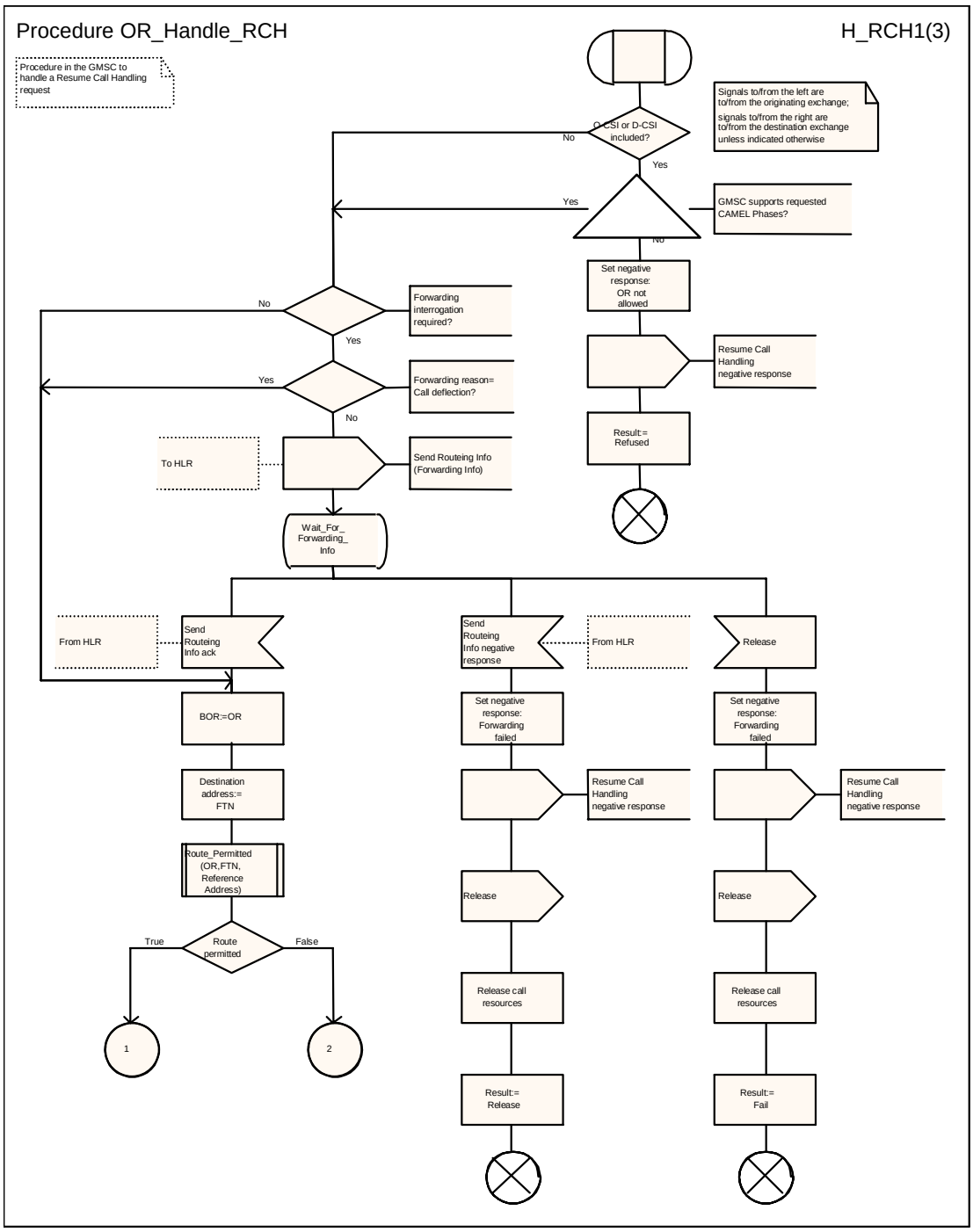


Figure 7a: Procedure OR_Handle_RCH (sheet 1)

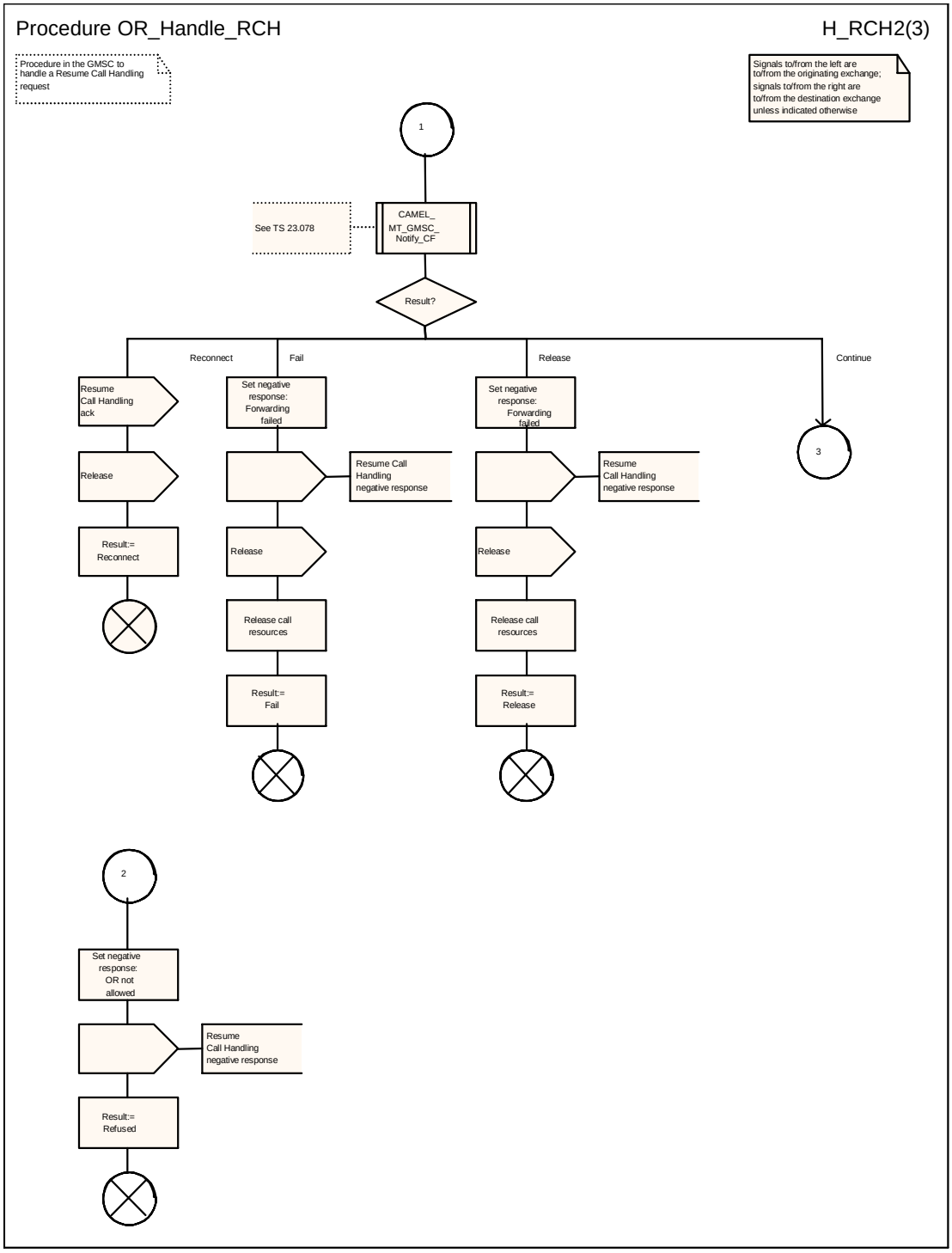


Figure 7b: Procedure OR_Handle_RCH (sheet 2)

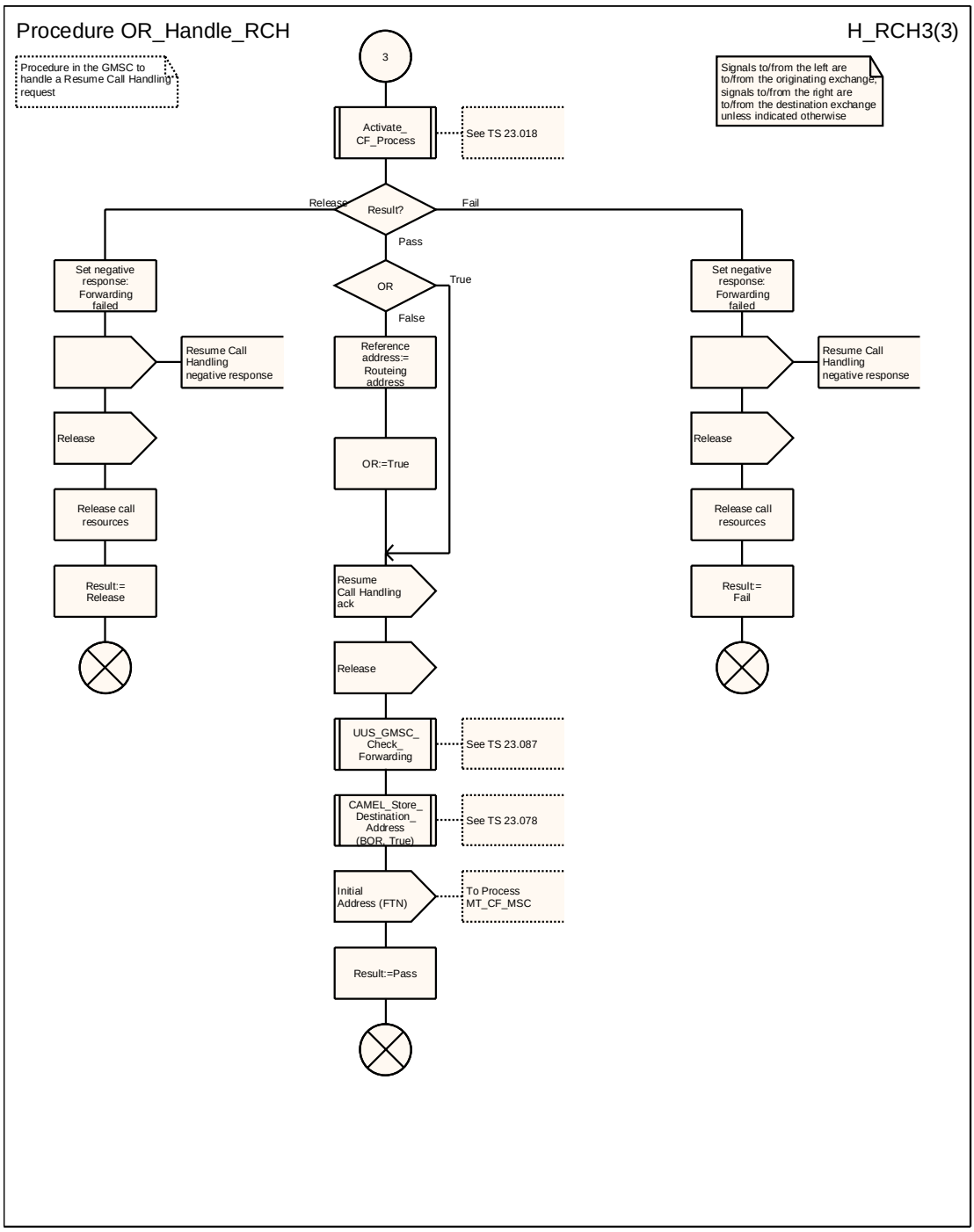


Figure 7c: Procedure OR_Handle_RCH (sheet 3)

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