3GPP TSG CN Plenary Meeting #12 **Tdoc NP-010300**
Stockholm, Sweden, 13th - 15th June 2001

Source: TSG CN WG4

Title: CRs on Rel-5 Work Item TEI5

Agenda item: 9.13

Document for: APPROVAL

Introduction:

This document contains 2 CRs on Rel-5 Work Item "TEI5", that have been agreed by TSG CN WG4, and are forwarded to TSG CN Plenary meeting #12 for approval.

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
23.018	072		N4-010534	Rel-5	Handling of MultiCall in MPTY procedure	C	4.2.0
23.084	004	1	N4-010698	Rel-5	Handling of MultiCall in MPTY procedure	C	4.0.0

3GPP TSG-CN4 Meeting #08
Puerto Rico, USA, 14-18 May 2001

Tdoc N4-010534

CR-Form-v3

CHANGE REQUEST

⌘ **23.018** **CR** **072** ⌘ rev **-** ⌘ Current version: **4.2.0** ⌘

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

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

Title:	⌘	Handling of MultiCall in MPTY procedure
Source:	⌘	CN4
Work item code:	⌘	TEI5
Date:	⌘	27 April 2001
Category:	⌘	**C**
Release:	⌘	REL-5

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

Use one of the following releases:

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

Reason for change:	⌘	During the conversion of the MPTY "auxiliary states" into a formal procedure, MultiCall during MPTY was left as FFS. This document incorporates MultiCall into the new MPTY handling.
Summary of change:	⌘	A check of whether a non-speech call exists has been added when the MPTY exists with no on-going speech calls. Also some minor textual corrections have been made too. A minor editorial correction aligning the name of a procedure between the SDL diagram and it's respective caption.
Consequences if not approved:	⌘	The handling of MultiCall during a MPTY will not be properly specified.

Clauses affected:	⌘	7.4		
Other specs affected:	⌘	**X** Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	CR 23.084-004
Other comments:	⌘			

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

7.2 Retrieval of routeing information for MT call

7.2.1 Functional requirements of GMSC

7.2.1.7 Procedure Activate_CF_Process

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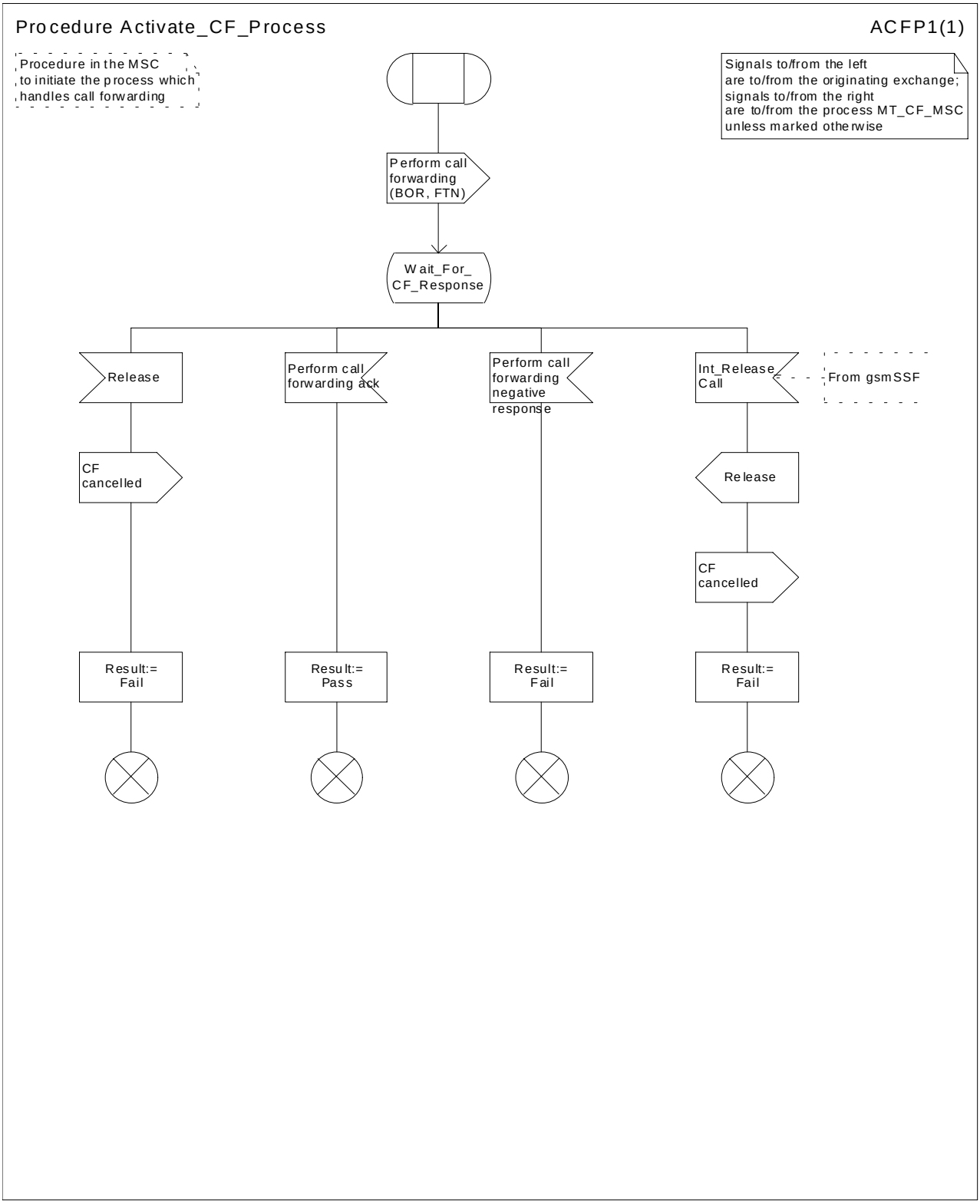


Figure 1: Procedure Activate_C~~all_F~~~~orwarding~~_Process

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

7.4 Subs_FSM

7.4.1 Functional requirements of serving MSC

7.4.1.1 Process Subs_FSM

One instance of the process Subs_FSM runs for each subscriber who is involved in at least one call. It monitors the state of any ongoing calls for that subscriber. The individual call control processes OCH_MSC and ICH_MSC submit supplementary service requests received from the MS to the process Subs_FSM, which then responds appropriately.

The process Subs_FSM interacts with the processes OCH_MSC and ICH_MSC as specified in subclauses 7.1.1 and 7.3.1.

Sheet 5, sheet 6, sheet 7, sheet 8, sheet 9, sheet 11, sheet 12, sheet 15: processing on this page will occur only if the VMSC supports HOLD.

Sheet 8: the procdure Handle_MPTY is specific to MPTY; it is specified in TS 23.084 [17].

Sheet 8: the procedure Handle_ECT_Active is specific to ECT; it is specified in TS 23.091 [22].

Sheet 10: processing on this page will occur only if the VMSC supports Multicall.

Sheet 12: the procedure Handle_ECT_Alerting is specific to ECT; it is specified in TS 23.091 [22].

Sheet 13, sheet 14: processing on this page will occur only if the VMSC supports both HOLD and Multicall.

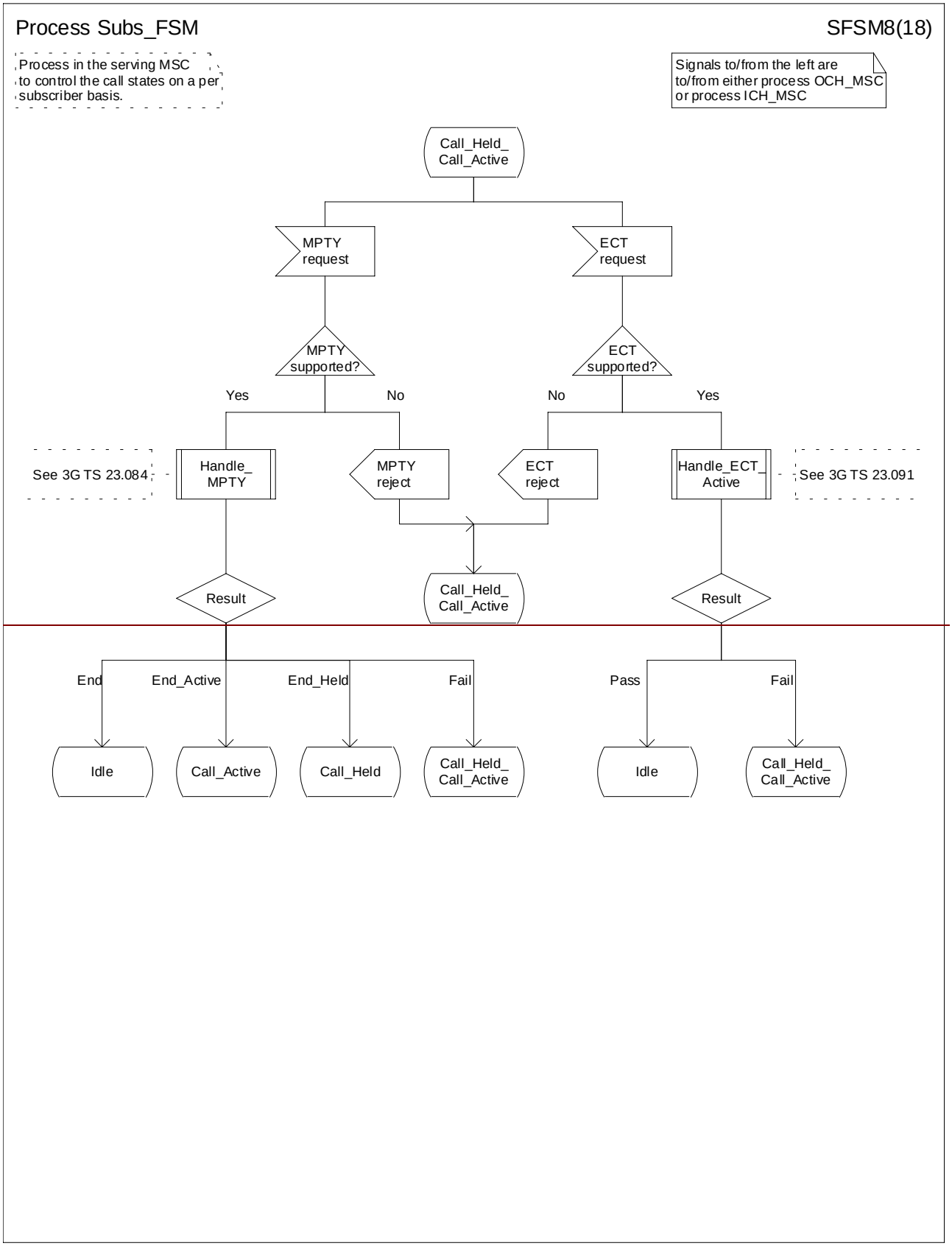
7.4.1.1.1 Macro Check_Ongoing_Calls

7.4.1.1.2 Macro Update_Non_Speech_Calls_Status

7.4.1.1.~~3~~1 Macro Increment_Call_Counter

7.4.1.1.~~4~~1 Macro Decrement_Call_Counter

. . .


Process Subs_FSM
SFSM8(18)
Process in the serving MSC to control the call states on a per subscriber basis.
Signals to/from the left are to/from either process OCH_MSC or process ICH_MSC
Call_Held_ Call_Active
MPTY request
ECT request
MPTY supported?
ECT supported?
Yes
No
No
Yes
See 3G TS 23.084
Handle_ MPTY
MPTY reject
ECT reject
Handle_ECT_ Active
See 3G TS 23.091
Result
Call_Held_ Call_Active
Result
End
End_Active
End_Held
Fail
Pass
Fail
Idle
Call_Active
Call_Held
Call_Held_ Call_Active
Idle
Call_Held_ Call_Active

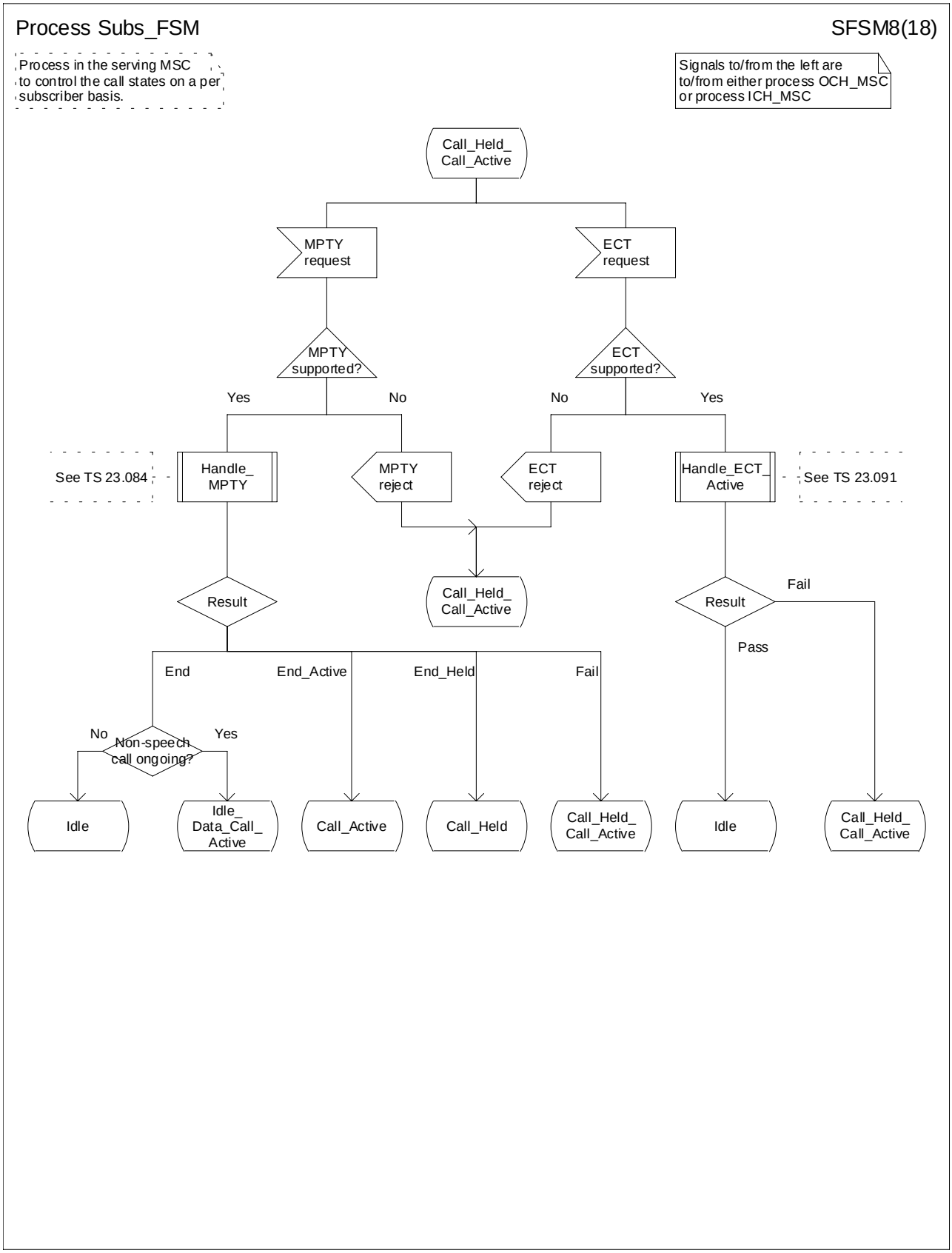


Figure 83h: Process Subs_FSM (sheet 8)

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3GPP TSG-CN4 Meeting #08
Puerto Rico, USA, 14-18 May 2001

Tdoc N4-010533
(revision of *Tdoc N4-010533*)

CR-Form-v3

CHANGE REQUEST

⌘ **23.084** **CR** **004** ⌘ rev **1** ⌘ Current version: **4.0.0** ⌘

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

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

Title:	⌘	Handling of MultiCall in MPTY procedure
Source:	⌘	CN4
Work item code:	⌘	TEI5
Date:	⌘	15 May 2001
Category:	⌘	**C**
Release:	⌘	REL-5

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

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

Reason for change:	⌘	During the conversion of the MPTY "auxiliary states" into a formal procedure, MultiCall during MPTY was left as FFS. This document incorporates MultiCall into MPTY handling.
Summary of change:	⌘	MultiCall handling has been added. Some minor logic corrections have been made and some states have been renamed for easier understanding and better clarification. Also some updating of references and some miscellaneous textual corrections have been made.
Consequences if not approved:	⌘	The handling of MultiCall during a MPTY will not be properly specified.

Clauses affected:	⌘	0.1, 1.1		
Other specs affected:	⌘	**X** Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	CR 23.018-072
Other comments:	⌘			

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

1 Multi Party service (MPTY)

1.1 Functions and information flows

The following Mobile Additional Function has been identified for the Multi Party service:

MAF026

Multi Party service related authorizations examination

The ability of a PLMN component to determine the authorizations relating to Multi Party service. See figure 2.1.

Location: VLR

The SDL diagrams for the Multi Party service are shown in figures 1.2 and 1.3.

The procedure Handle_MPTY shows the status of the service as perceived by the served mobile subscriber, as well as the status as perceived by any of the other parties. Beside this, the SDL diagrams show the actions to be taken by the network and the information provided by the network to the users.

~~In figure 1.2, sheet 3 (state "Held_MPTY") it is also possible to initiate a new call or process a call waiting request while in this state (see 3GPP TS 23.083) [3]. In either case, this is likely to result in the call handling state machine going into the state "Held_MPTY_and_active_call".~~

Figure 1.x: the procedure Update_Non_Speech_Calls_Status is defined in 3GPP TS 23.018 [4].

The information flow for the MPTY service is shown in figure 1.4.

In the information flow it is assumed that the served subscriber is a mobile subscriber and that the other parties are all fixed ISDN subscribers. For the purposes of the information flow diagrams it is assumed that there are only two remote parties. Where there are more than two remote parties, signals to any party connected to the MPTY bridge shall be sent to all other parties connected to the MPTY bridge, except where a single remote party is to be selected for a private communication.

As a consequence of this assumption, after the MPTY is split (to establish a private communication) it contains only one remote party. However, the end state for disconnection of or by that remaining remote party is shown as A-B ACTIVE / MPTY HELD. This is to indicate that the disconnection by a single remote party will not necessarily cause the MPTY call to be released. This will happen only when that remote party is the only remaining party in the MPTY call.

Party A is the subscriber controlling the MPTY call (served mobile subscriber). Party B is the first remote party called. Party C is the second remote party called.

Remote parties are disconnected by the generic disconnect/release procedure. Any scenario requiring disconnection of remote parties shown in the SDL diagrams but not explicitly shown in the flow diagrams shall follow the procedure shown in the flow diagrams for similar scenarios.

Functions to be performed by the fixed ISDN (for example hold authorizations examination) are not shown in the information flow; only the functions to be performed by the PLMN are shown.

It is assumed that the MPTY bridge is located in the MSC.

To avoid having two calls on hold at the same time the reception of the retrieve request is supervised by a retriever timer T as defined in 3GPP TS 23.083 [3].

Note that while the MPTY is on hold, the remote parties can continue to communicate with each other.

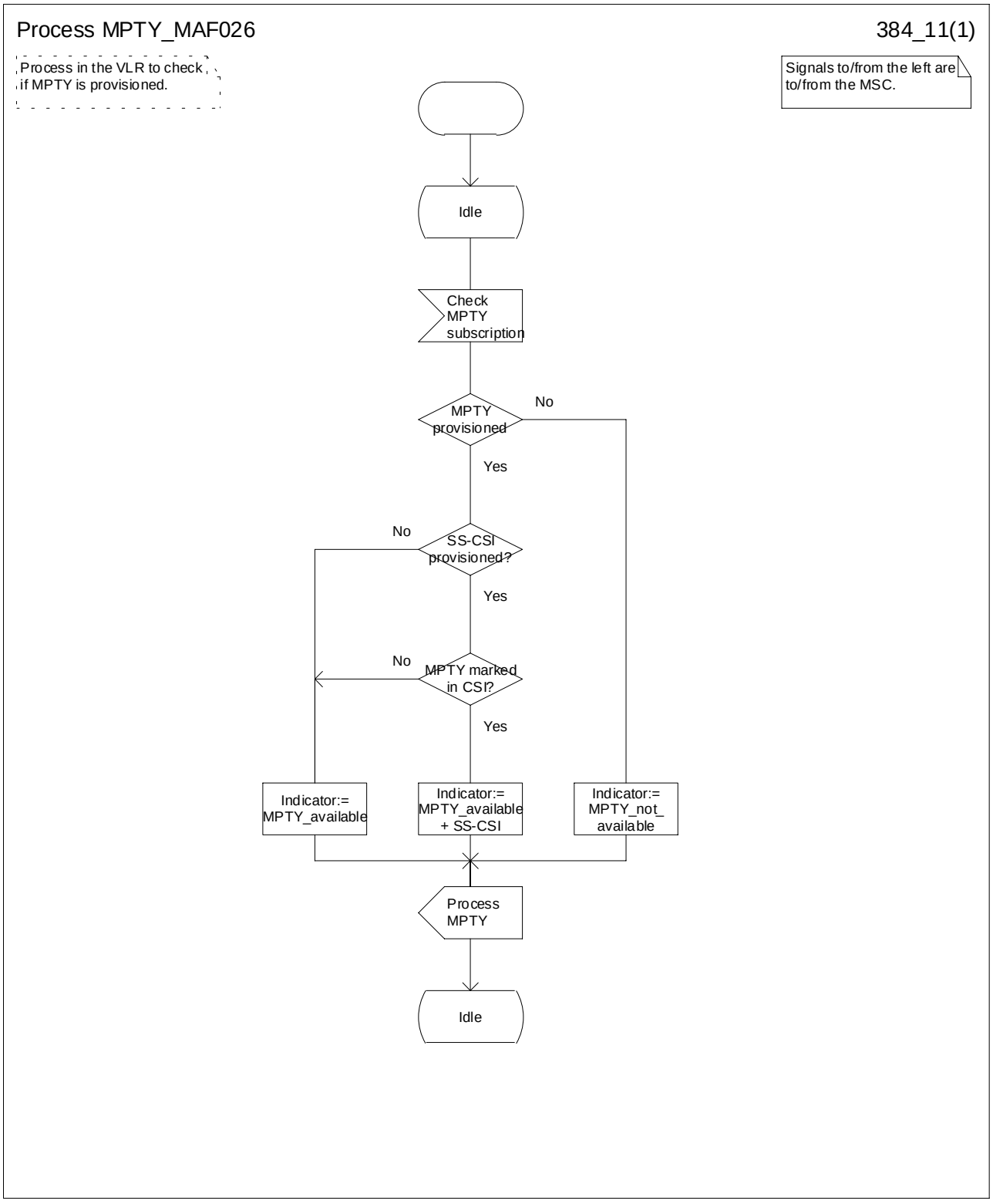
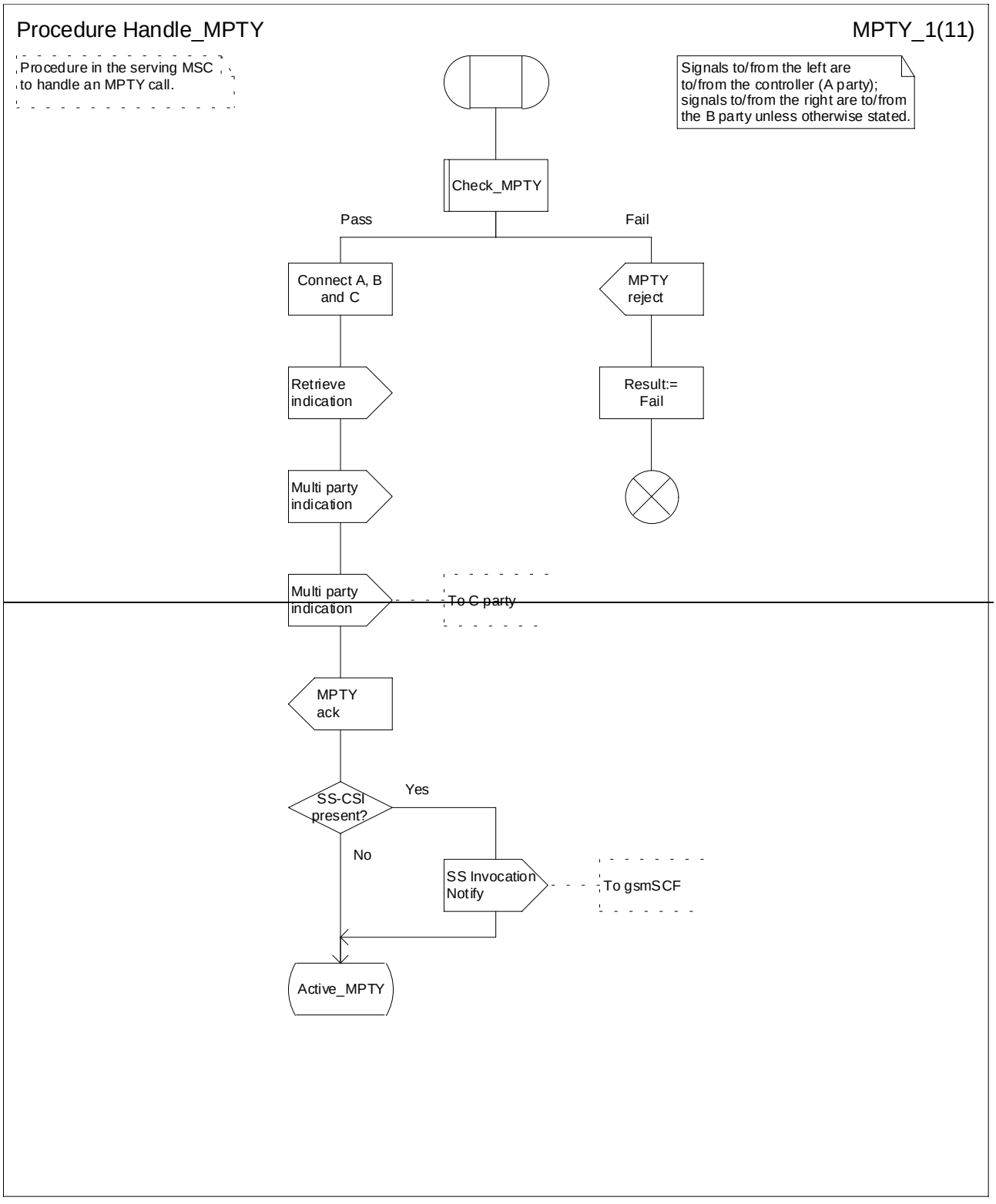


Figure 1.1: MAF026- Multi Party service related authorisations examination (VLR)


Procedure Handle_MPTY
MPTY_1(11)
Procedure in the serving MSC to handle an MPTY call.
Signals to/from the left are to/from the controller (A party); signals to/from the right are to/from the B party unless otherwise stated.
Check_MPTY
Pass
Fail
Connect A, B and C
MPTY reject
Retrieve indication
Result:= Fail
Multi party indication
Multi party indication
To C party
MPTY ack
SS-CSI present?
Yes
No
SS Invocation Notify
To gsmSCF
Active_MPTY

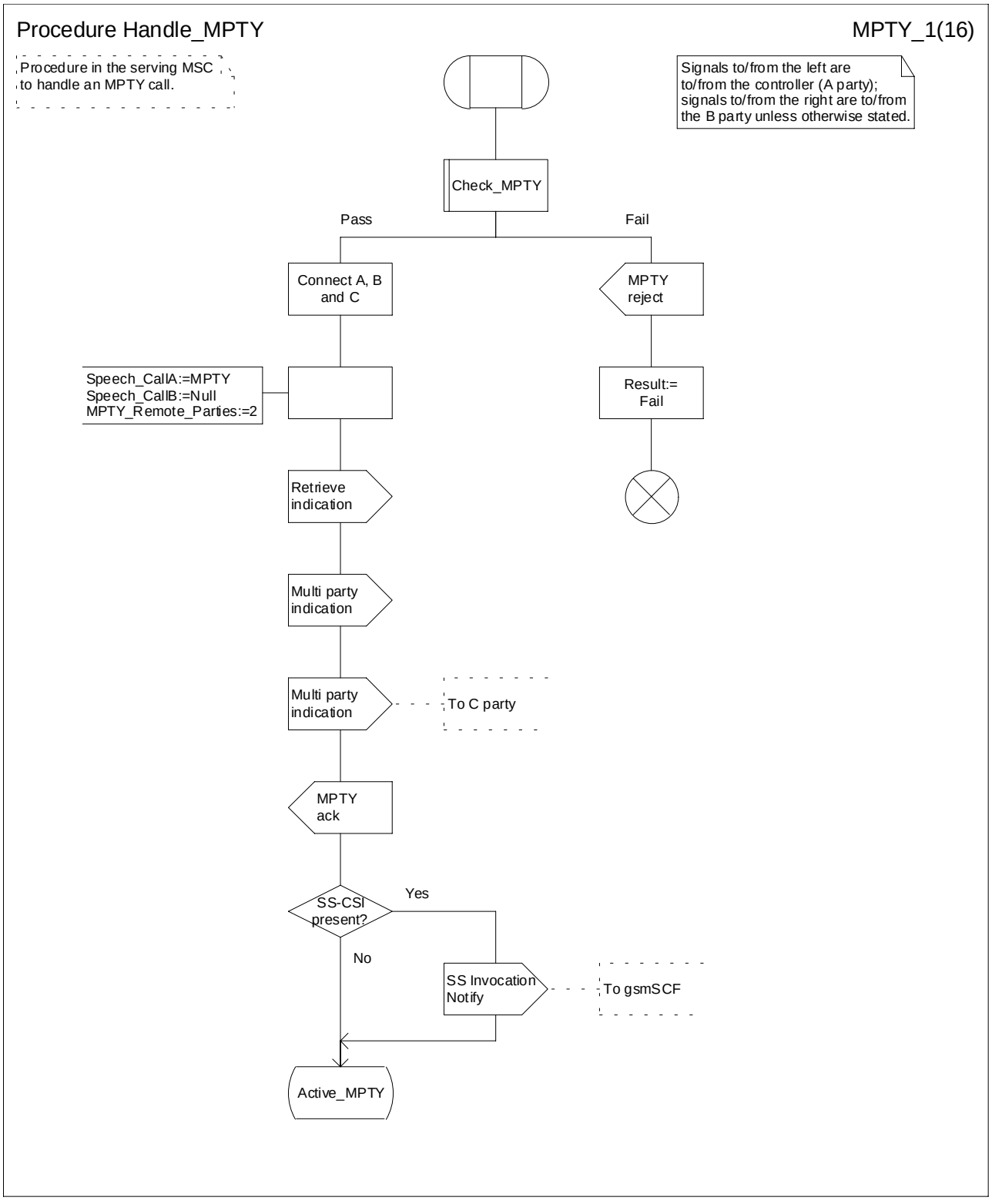
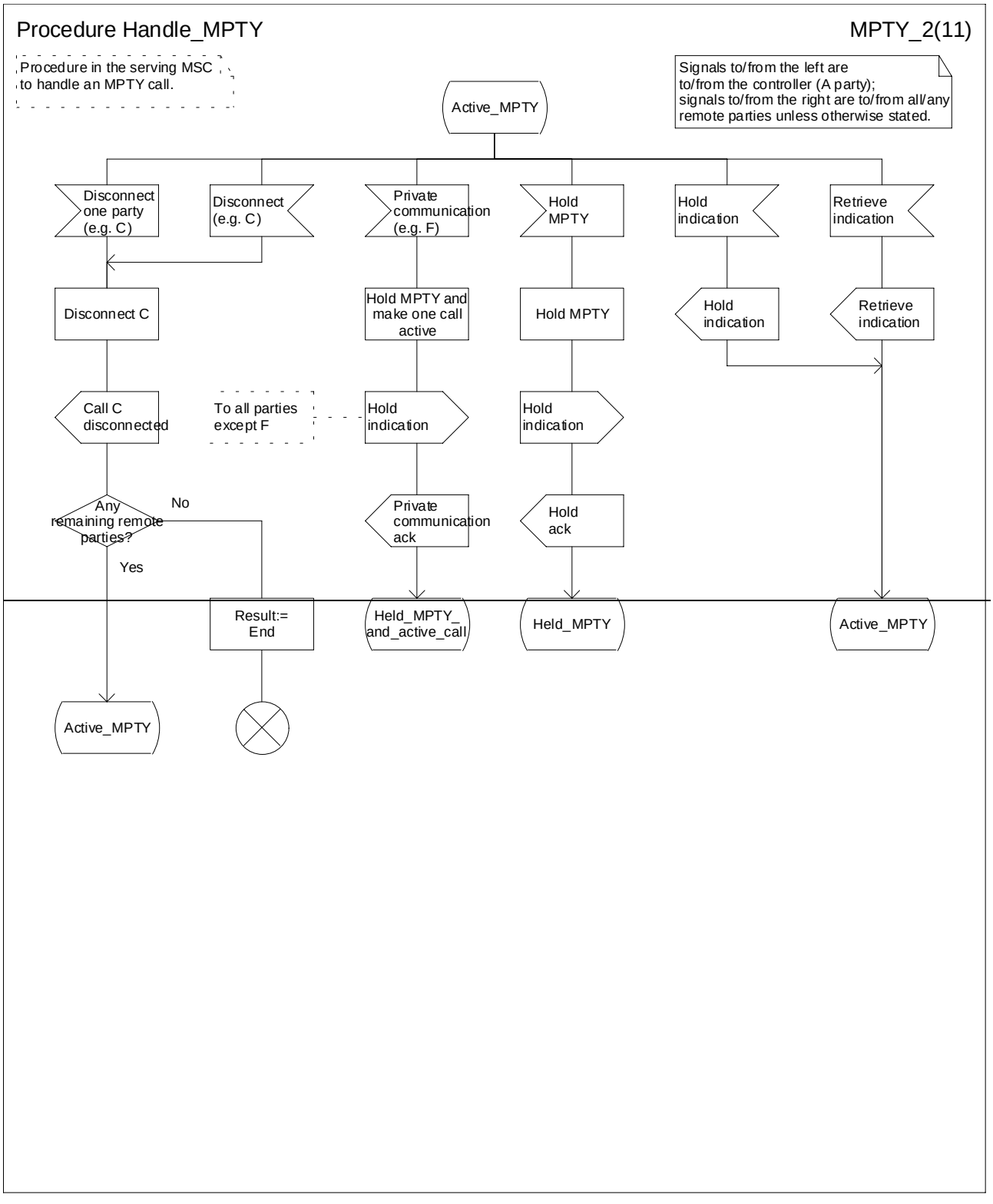


Figure 1.2 (sheet 1 of 1~~1~~6): Procedure Handle_MPTY


Procedure Handle_MPTY
MPTY_2(11)
Procedure in the serving MSC to handle an MPTY call.
Signals to/from the left are to/from the controller (A party); signals to/from the right are to/from all/any remote parties unless otherwise stated.
Active_MPTY
Disconnect one party (e.g. C)
Disconnect (e.g. C)
Private communication (e.g. F)
Hold MPTY
Hold indication
Retrieve indication
Disconnect C
Hold MPTY and make one call active
Hold MPTY
Hold indication
Retrieve indication
Call C disconnected
To all parties except F
Hold indication
Hold indication
Any remaining remote parties?
No
Yes
Private communication ack
Hold ack
Result:= End
Held_MPTY_ and_active_call
Held_MPTY
Active_MPTY
Active_MPTY

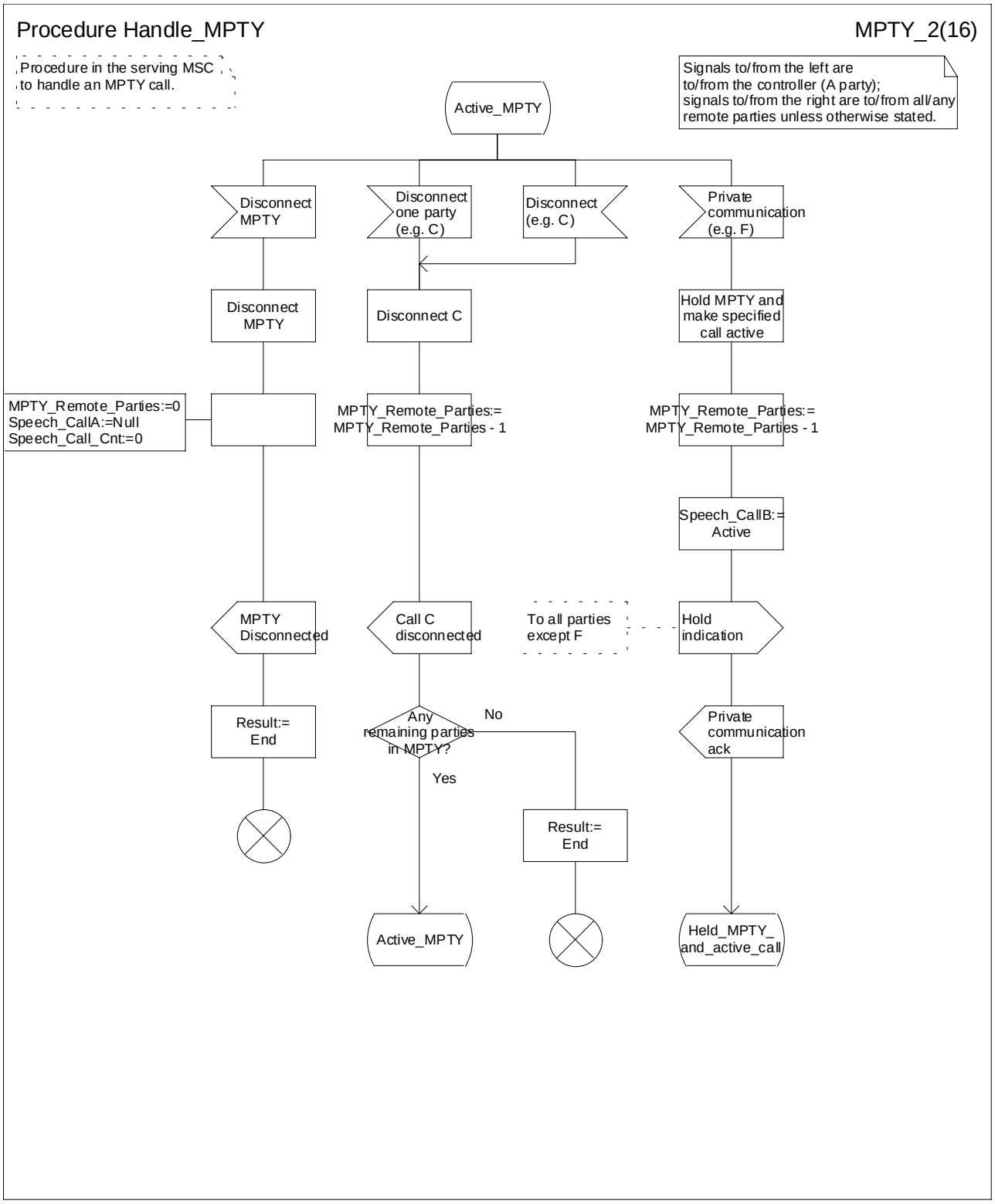


Figure 1.2 (sheet 2 of 1~~1~~6): Procedure Handle_MPTY

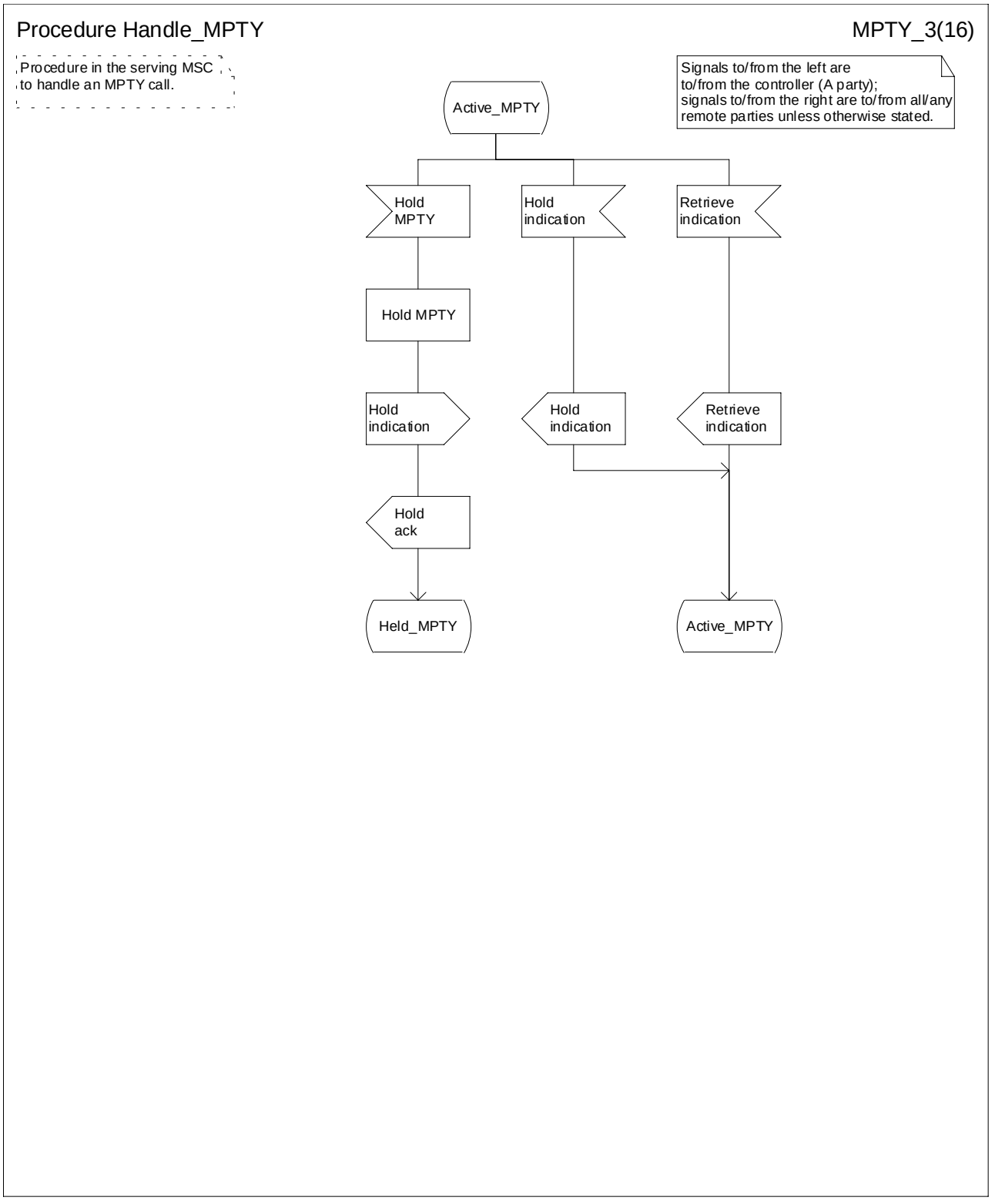
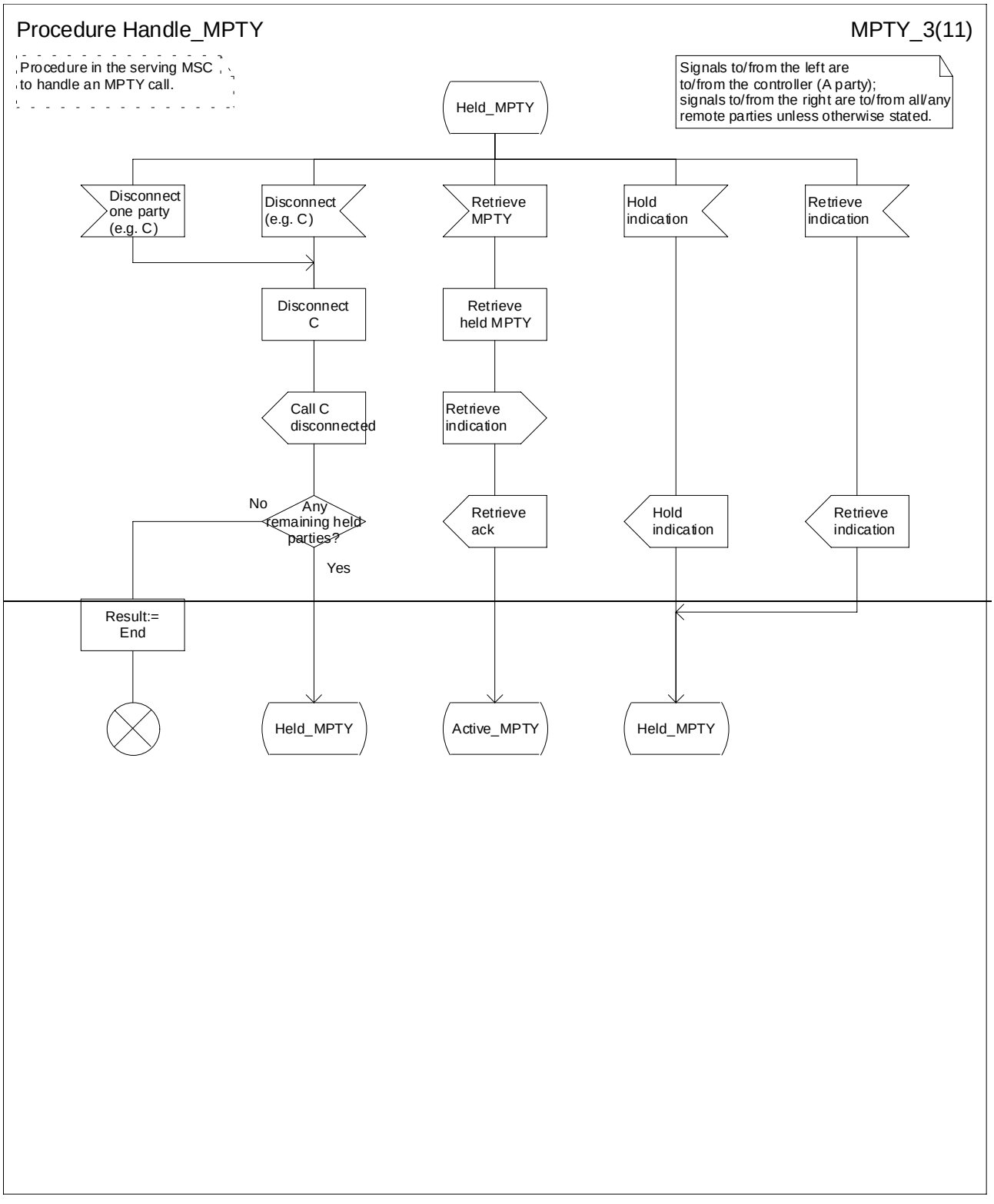


Figure 1.2 (sheet 3 of 16): Procedure Handle_MPTY


Procedure Handle_MPTY
MPTY_3(11)
Procedure in the serving MSC to handle an MPTY call.
Signals to/from the left are to/from the controller (A party); signals to/from the right are to/from all/any remote parties unless otherwise stated.
Held_MPTY
Disconnect one party (e.g. C)
Disconnect (e.g. C)
Retrieve MPTY
Hold indication
Retrieve indication
Disconnect C
Retrieve held MPTY
Call C disconnected
Retrieve indication
No
Any remaining held parties?
Retrieve ack
Hold indication
Retrieve indication
Yes
Result:= End
Held_MPTY
Active_MPTY
Held_MPTY

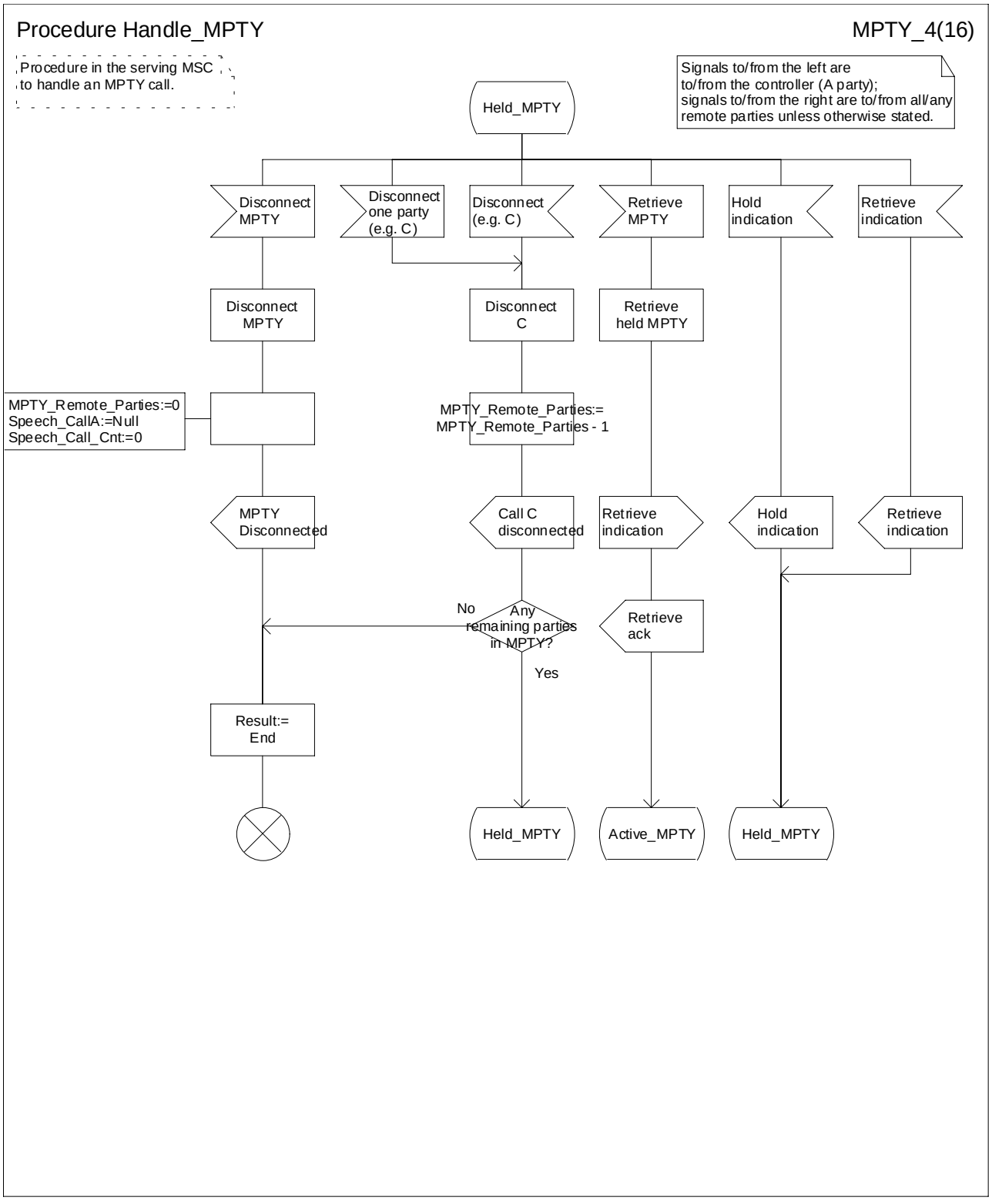


Figure 1.2 (sheet ~~43~~ of ~~116~~): Procedure Handle_MPTY

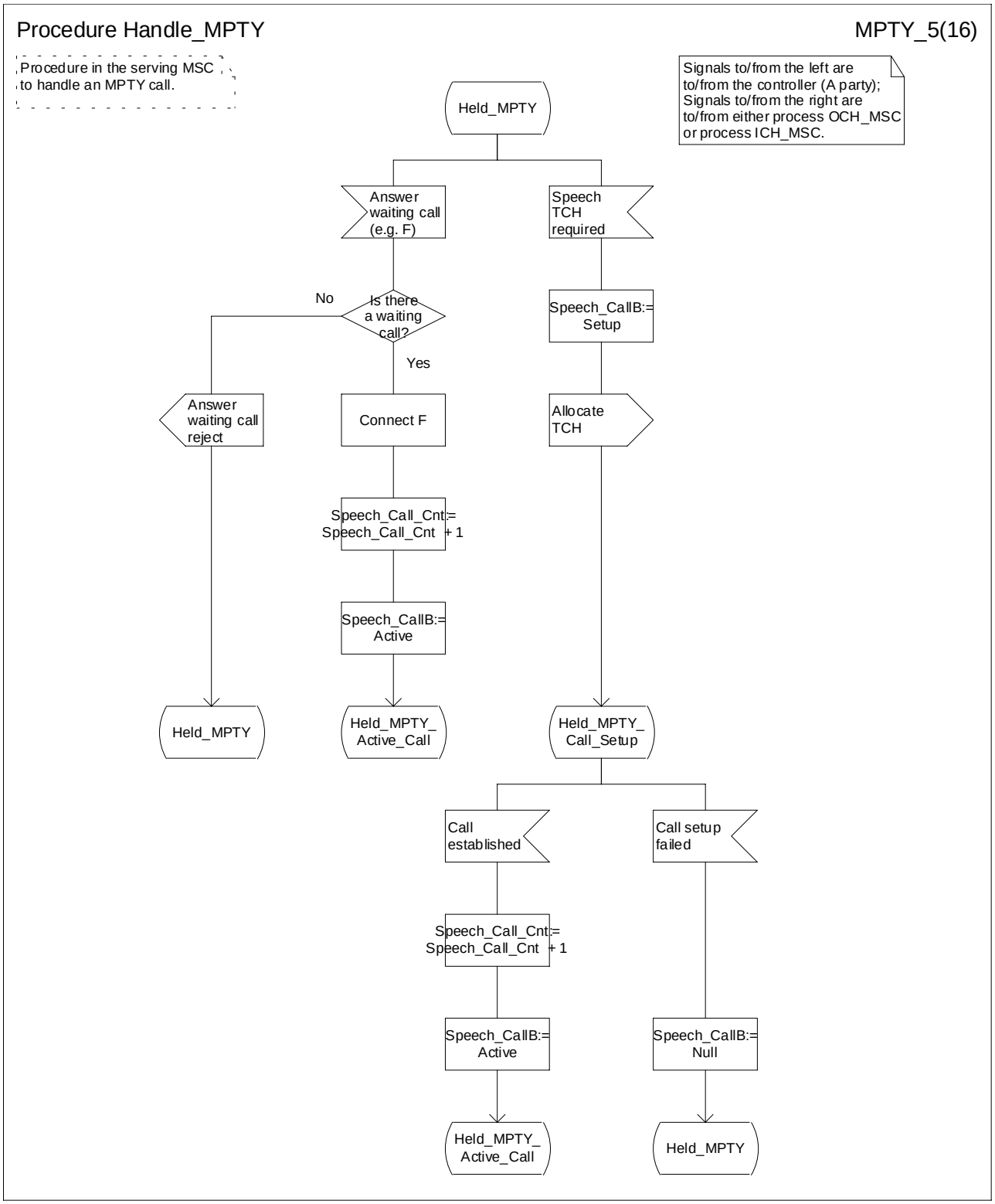
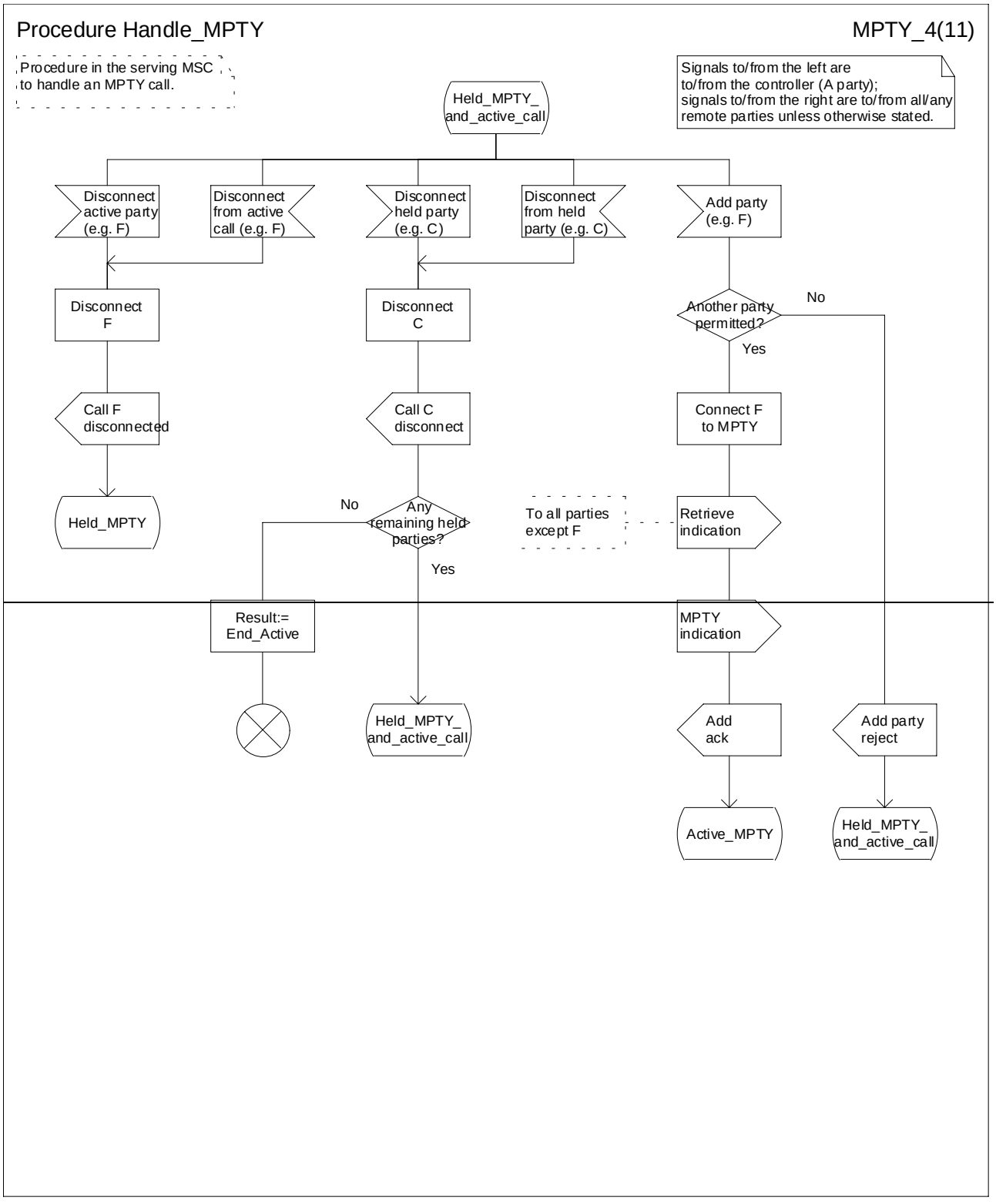


Figure 1.2 (sheet 5 of 16): Procedure Handle_MPTY


Procedure Handle_MPTY
MPTY_4(11)
Procedure in the serving MSC to handle an MPTY call.
Signals to/from the left are to/from the controller (A party); signals to/from the right are to/from all/any remote parties unless otherwise stated.
Held_MPTY_ and_active_call
Disconnect active party (e.g. F)
Disconnect from active call (e.g. F)
Disconnect held party (e.g. C)
Disconnect from held party (e.g. C)
Add party (e.g. F)
Disconnect F
Disconnect C
Another party permitted?
No
Yes
Call F disconnected
Call C disconnect
Connect F to MPTY
Held_MPTY
No
Any remaining held parties?
To all parties except F
Retrieve indication
Yes
Result:= End_Active
MPTY indication
Held_MPTY_ and_active_call
Add ack
Add party reject
Active_MPTY
Held_MPTY_ and_active_call

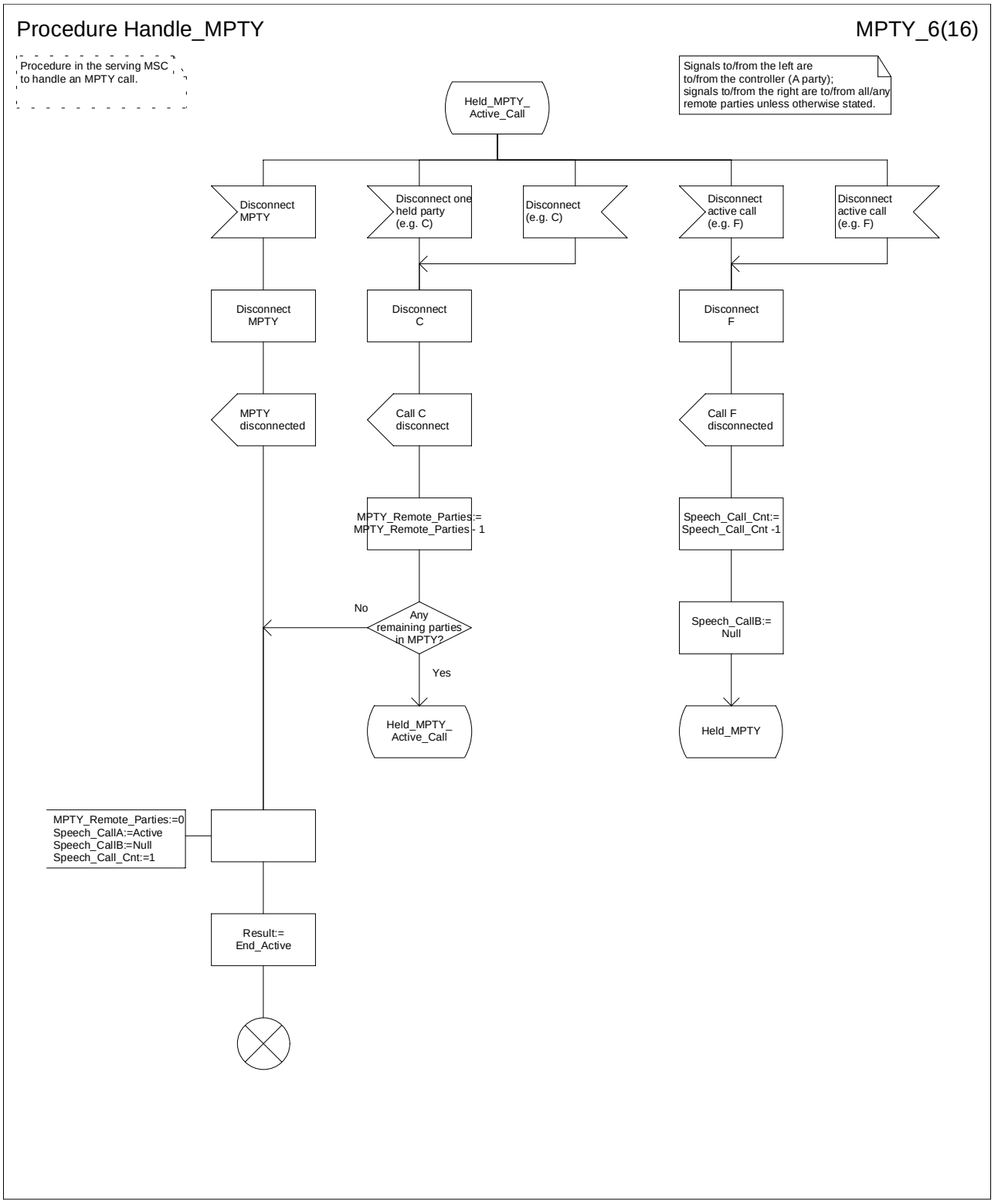
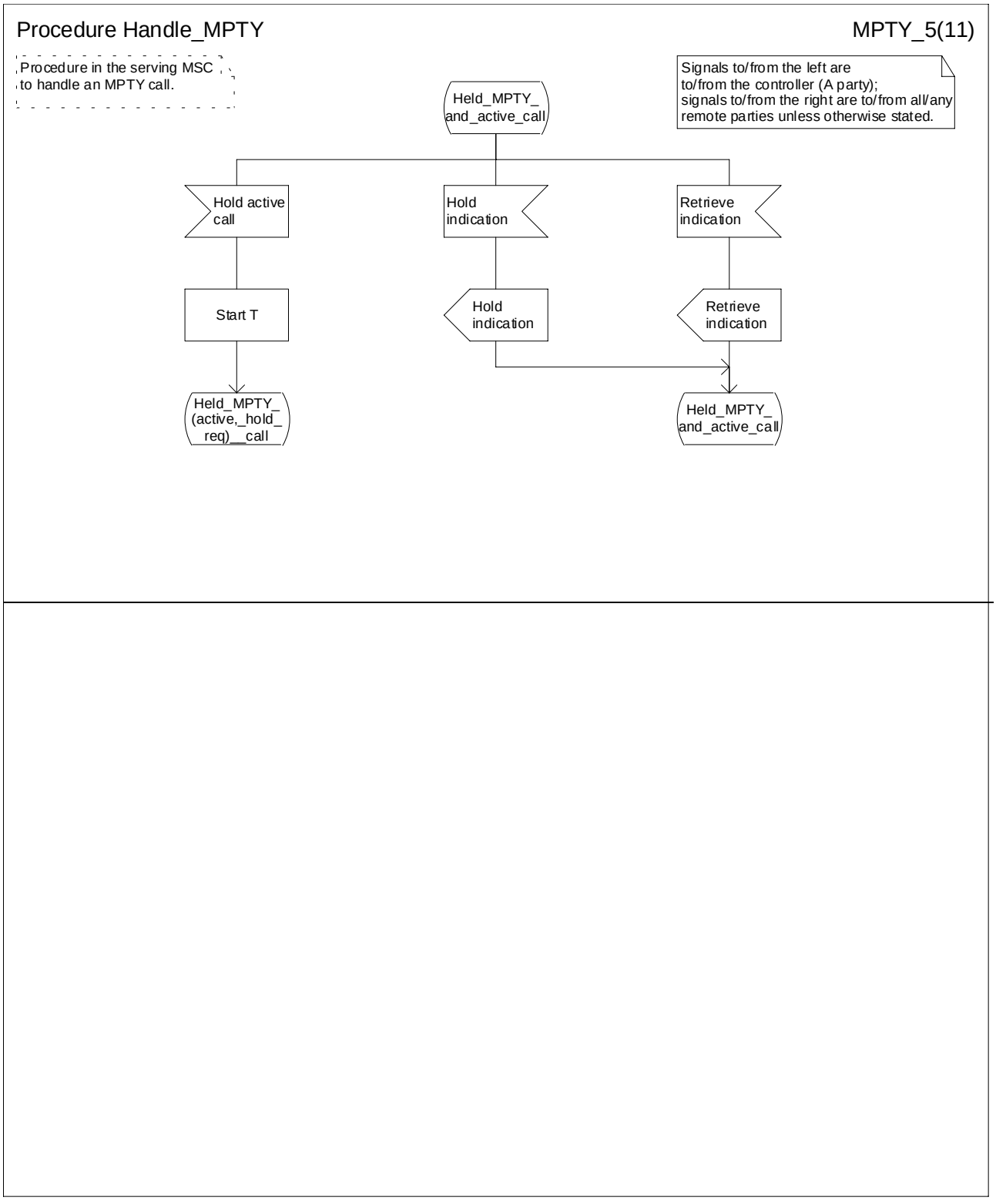


Figure 1.2 (sheet 64 of 116): Procedure Handle_MPTY


Procedure Handle_MPTY
MPTY_5(11)
Procedure in the serving MSC to handle an MPTY call.
Held_MPTY_ and_active_call
Signals to/from the left are to/from the controller (A party); signals to/from the right are to/from all/any remote parties unless otherwise stated.
Hold active call
Hold indication
Retrieve indication
Start T
Hold indication
Retrieve indication
Held_MPTY_ (active,_hold_ req)__call
Held_MPTY_ and_active_call

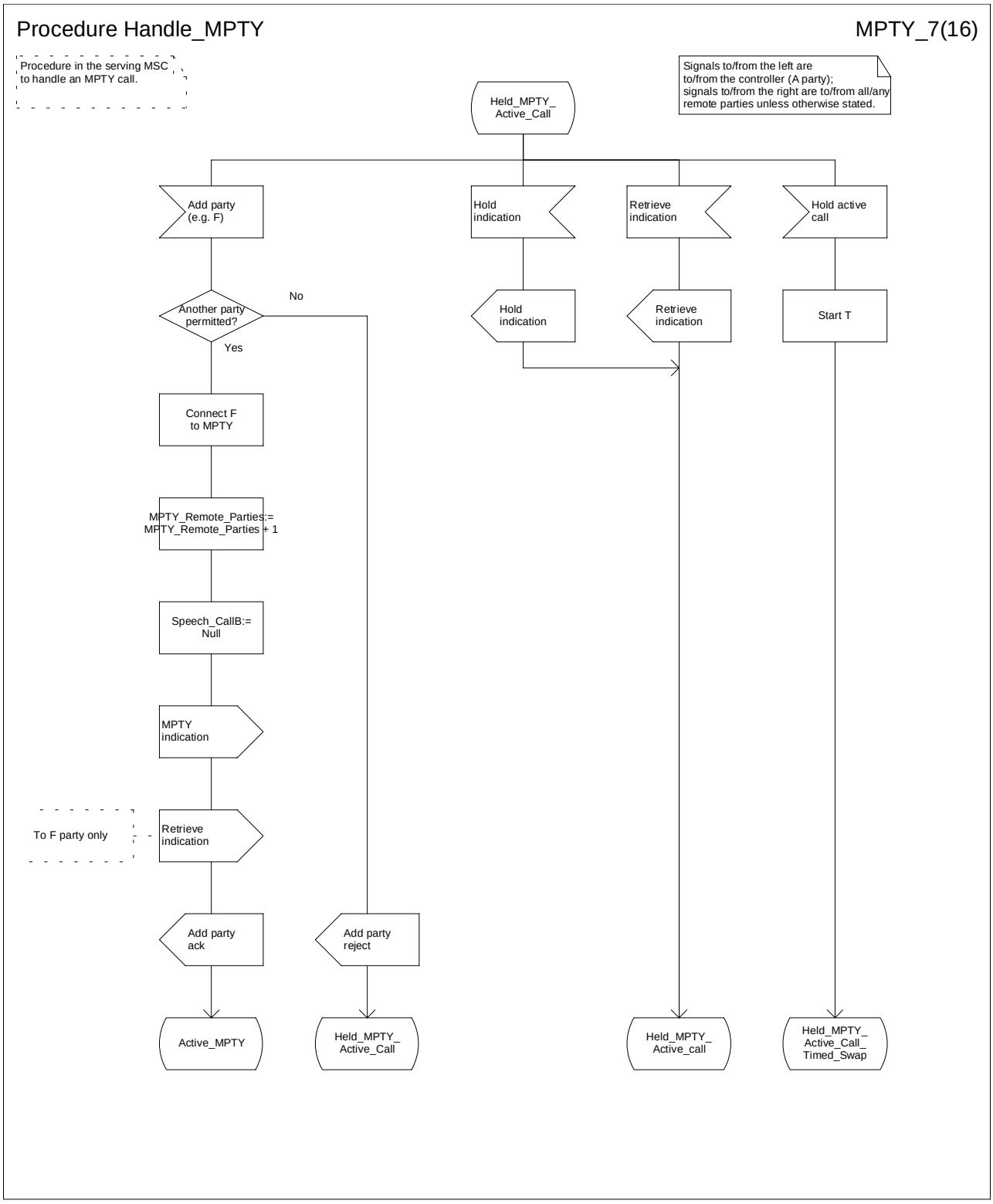
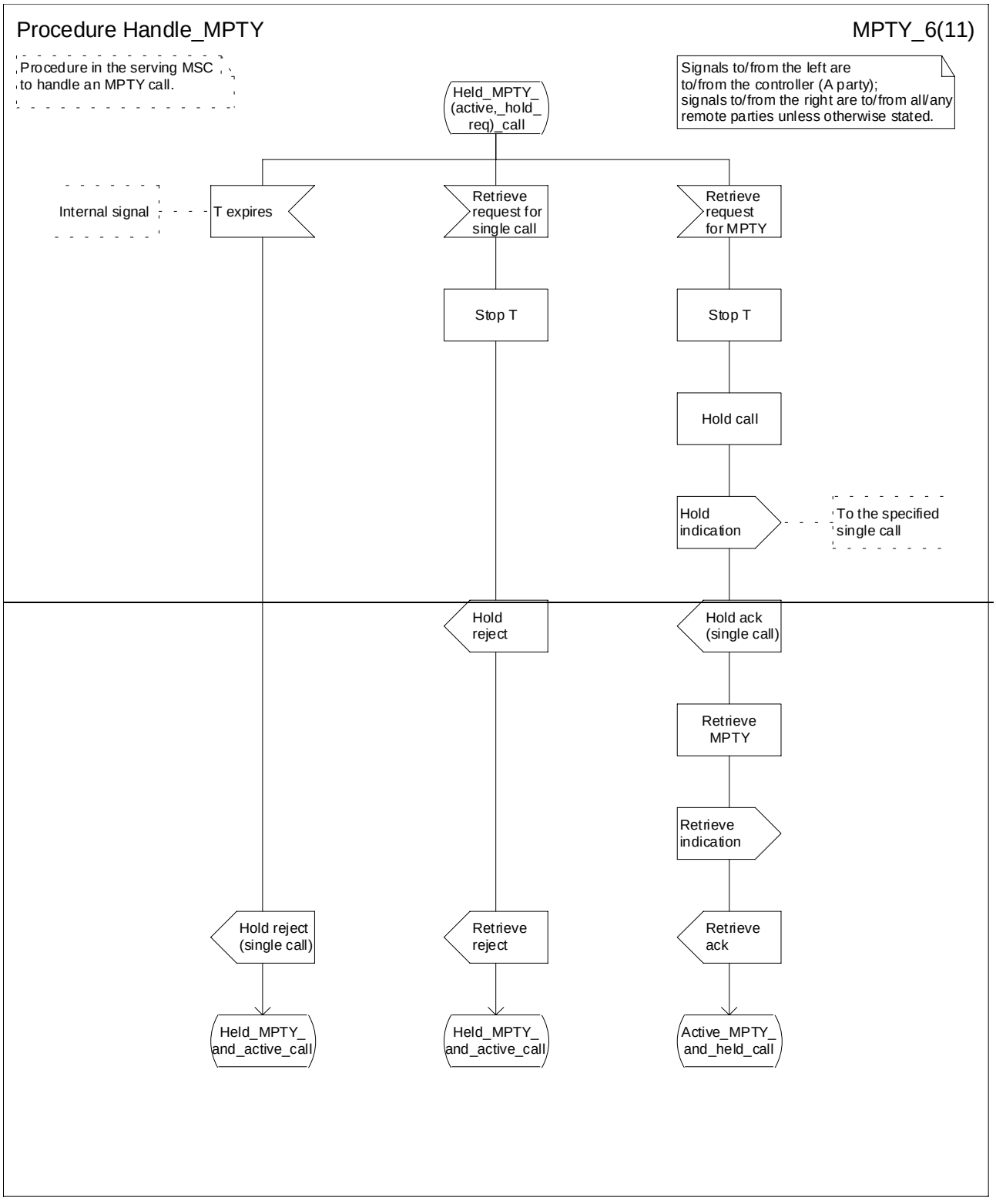


Figure 1.2 (sheet 7~~5~~ of 11~~6~~): Procedure Handle_MPTY


Procedure Handle_MPTY
MPTY_6(11)
Procedure in the serving MSC to handle an MPTY call.
Signals to/from the left are to/from the controller (A party); signals to/from the right are to/from all/any remote parties unless otherwise stated.
Held_MPTY_ (active,_hold_ req)_call
Internal signal
T expires
Retrieve request for single call
Retrieve request for MPTY
Stop T
Stop T
Hold call
Hold indication
To the specified single call
Hold reject
Hold ack (single call)
Retrieve MPTY
Retrieve indication
Hold reject (single call)
Retrieve reject
Retrieve ack
Held_MPTY_ and_active_call
Held_MPTY_ and_active_call
Active_MPTY_ and_held_call

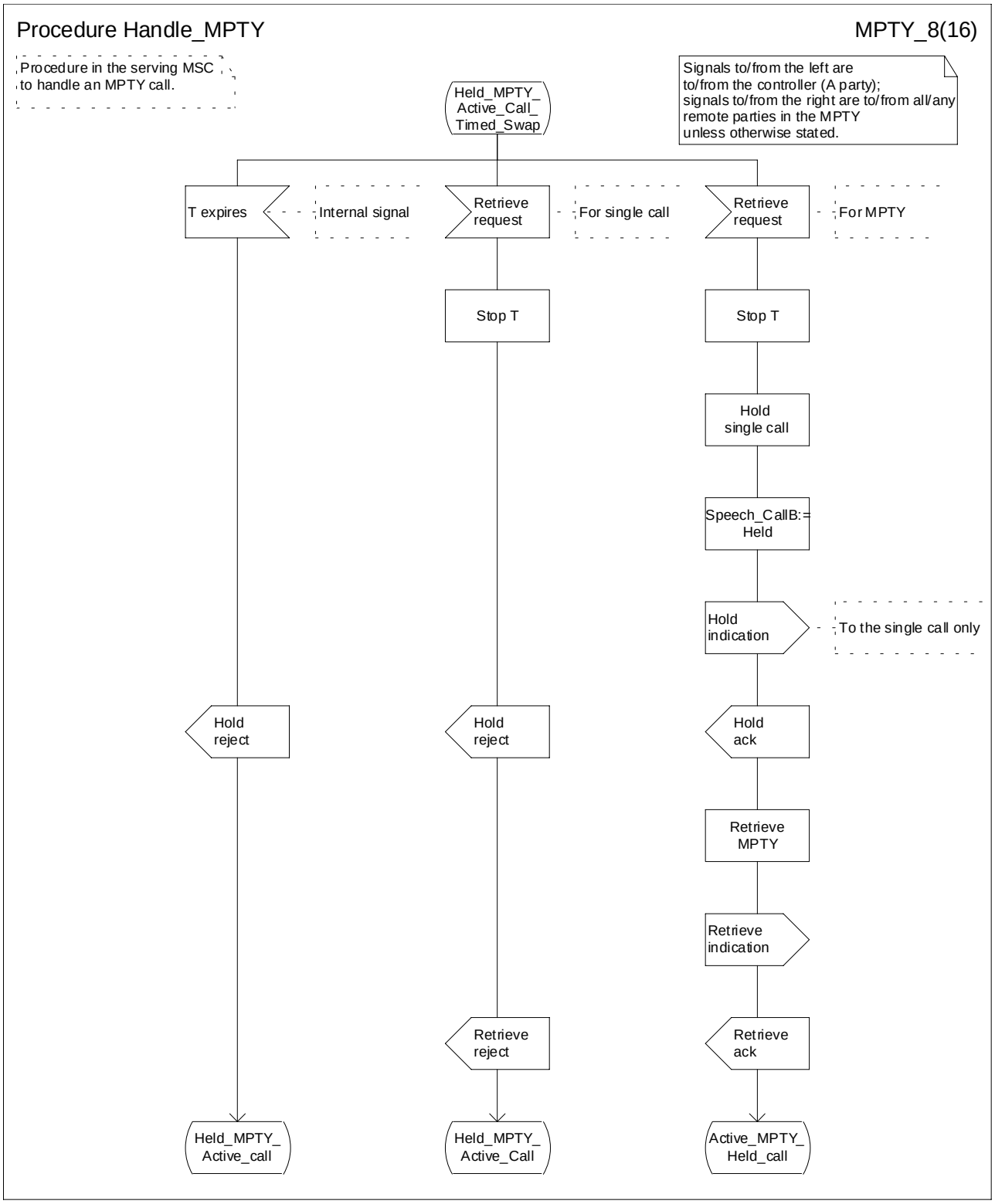
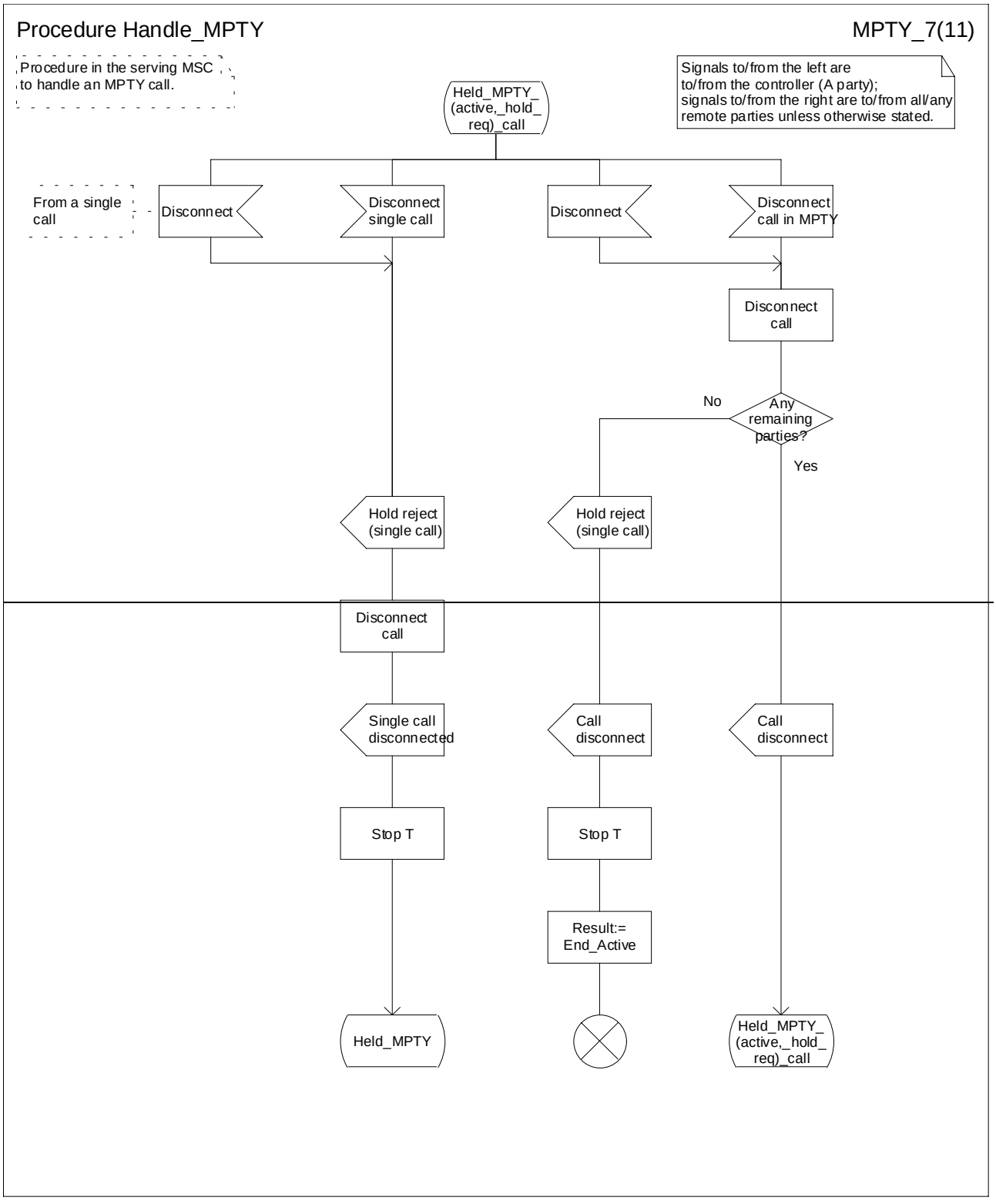


Figure 1.2 (sheet 8~~6~~ of 11~~6~~): Procedure Handle_MPTY


Procedure Handle_MPTY
MPTY_7(11)
Procedure in the serving MSC to handle an MPTY call.
Signals to/from the left are to/from the controller (A party); signals to/from the right are to/from all/any remote parties unless otherwise stated.
Held_MPTY_ (active,_hold_ req)_call
From a single call
Disconnect
Disconnect single call
Disconnect
Disconnect call in MPTY
Disconnect call
No
Any remaining parties?
Yes
Hold reject (single call)
Hold reject (single call)
Disconnect call
Single call disconnected
Call disconnect
Call disconnect
Stop T
Stop T
Result:= End_Active
Held_MPTY
Held_MPTY_ (active,_hold_ req)_call

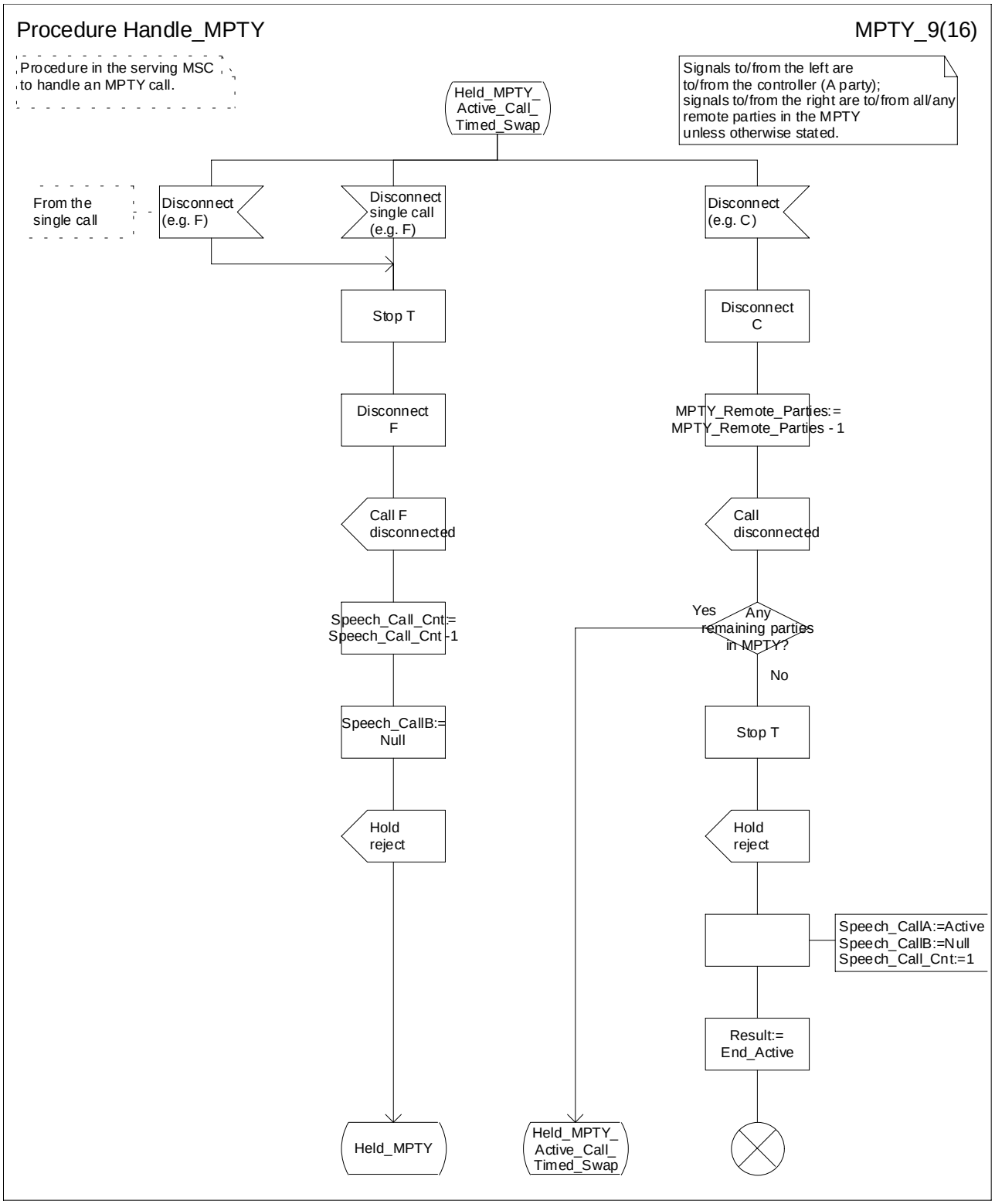
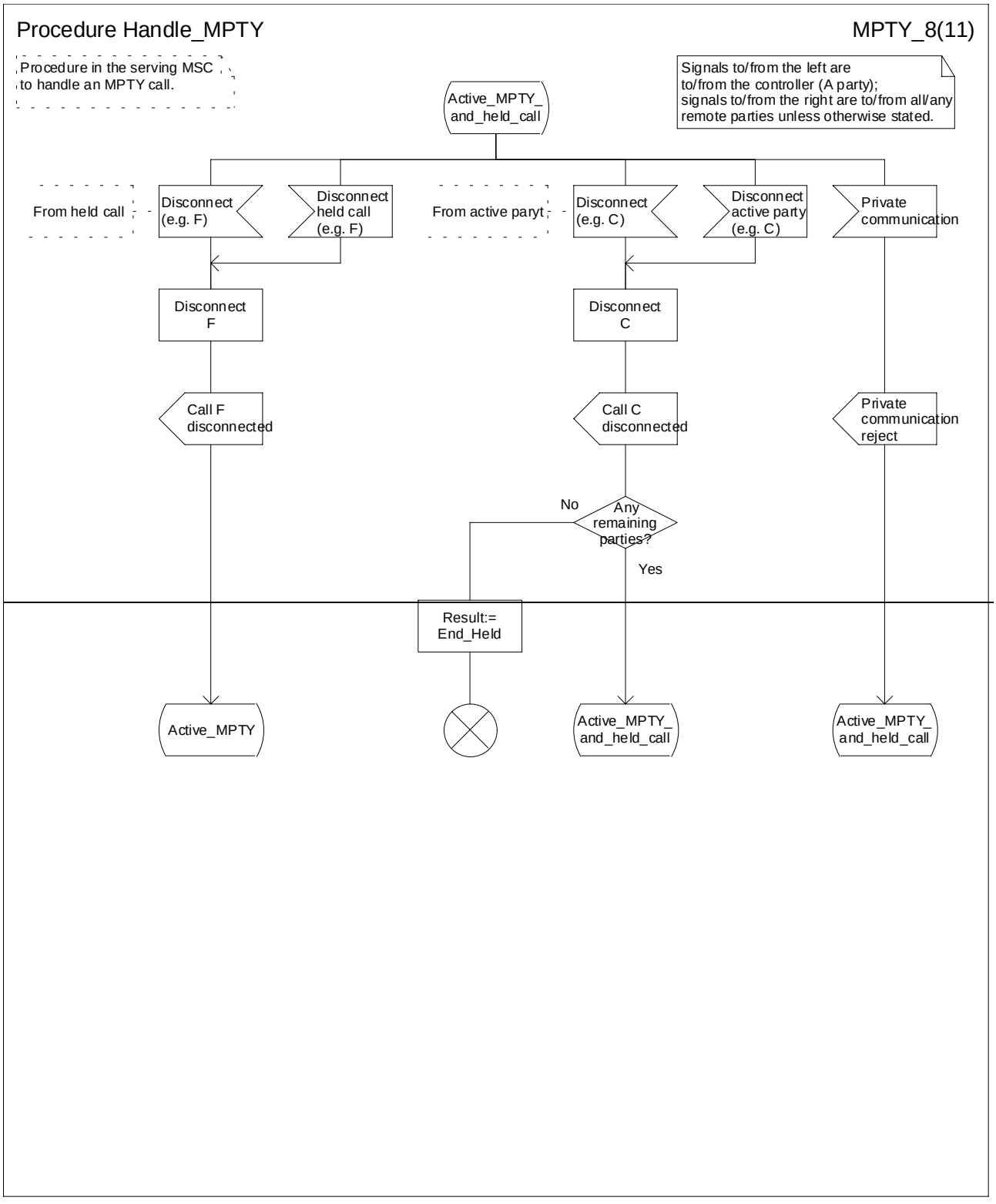


Figure 1.2 (sheet 9~~7~~ of 1~~1~~6): Procedure Handle_MPTY


Procedure Handle_MPTY
MPTY_8(11)
Procedure in the serving MSC to handle an MPTY call.
Signals to/from the left are to/from the controller (A party); signals to/from the right are to/from all/any remote parties unless otherwise stated.
Active_MPTY_ and_held_call
From held call
Disconnect (e.g. F)
Disconnect held call (e.g. F)
From active paryt
Disconnect (e.g. C)
Disconnect active party (e.g. C)
Private communication
Disconnect F
Disconnect C
Call F disconnected
Call C disconnected
Private communication reject
No
Any remaining parties?
Yes
Result:= End_Held
Active_MPTY
Active_MPTY_ and_held_call
Active_MPTY_ and_held_call

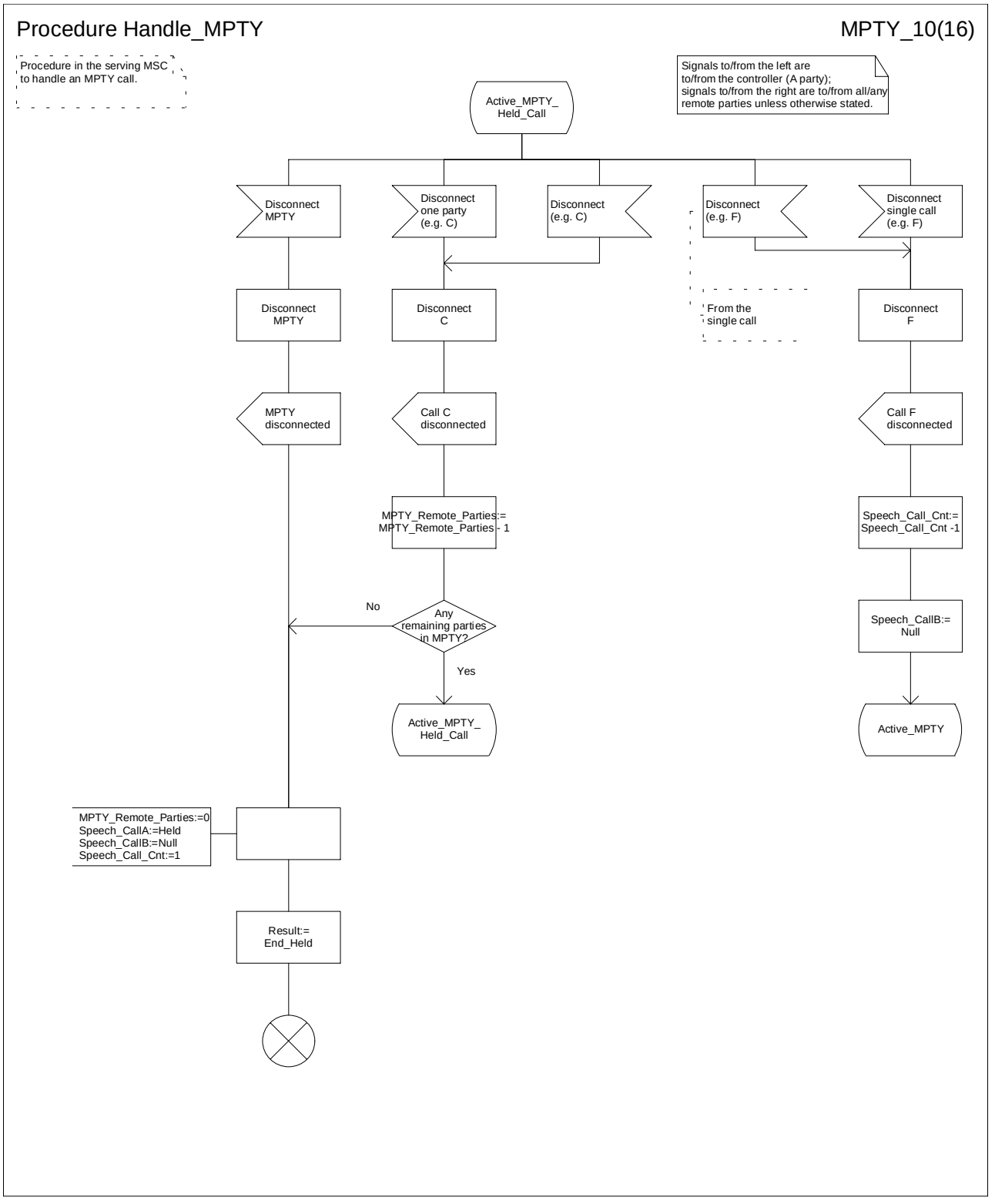
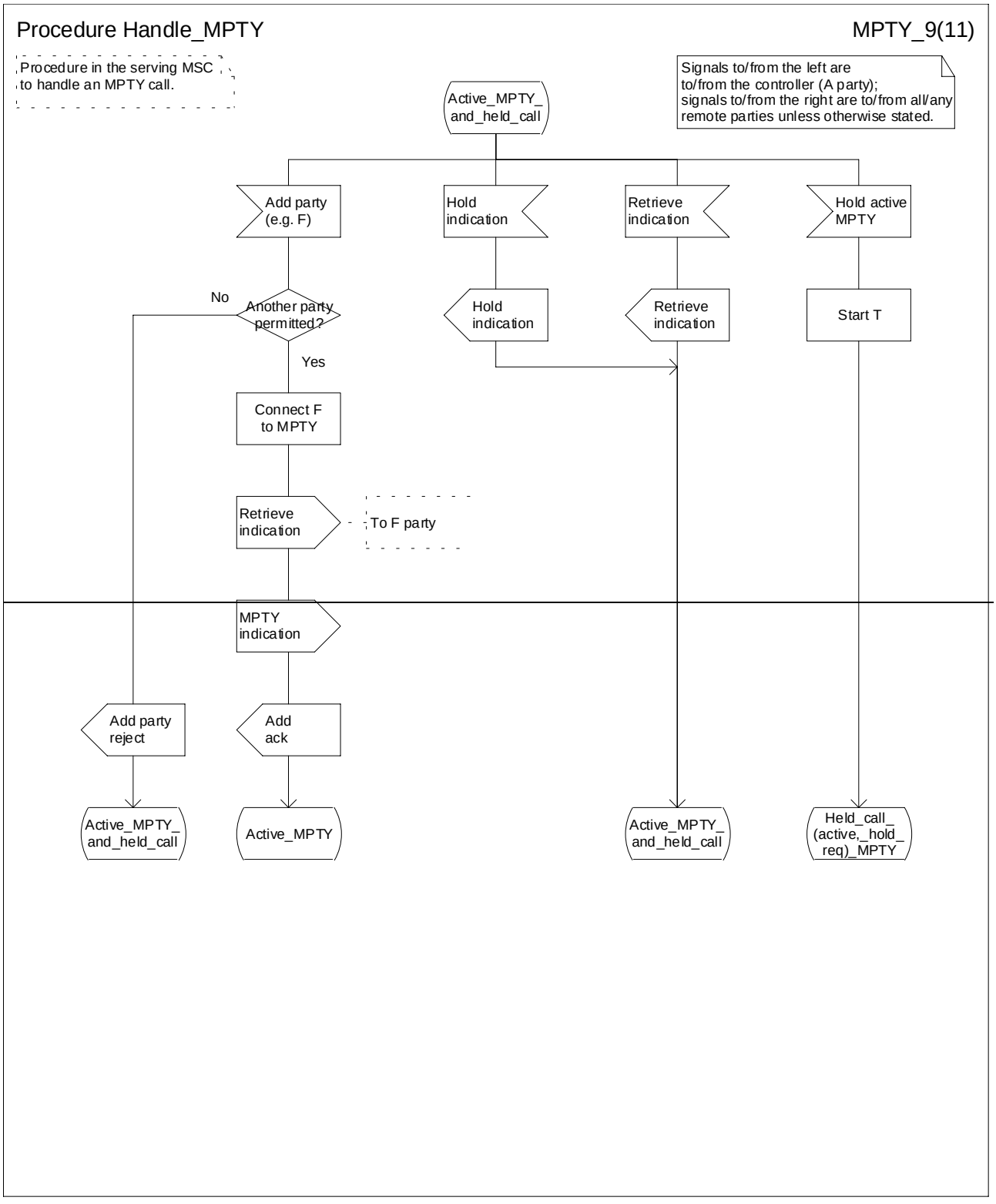


Figure 1.2 (sheet 10~~8~~ of 1~~1~~6): Procedure Handle_MPTY


Procedure Handle_MPTY
MPTY_9(11)
Procedure in the serving MSC to handle an MPTY call.
Signals to/from the left are to/from the controller (A party); signals to/from the right are to/from all/any remote parties unless otherwise stated.
Active_MPTY_and_held_call
Add party (e.g. F)
Hold indication
Retrieve indication
Hold active MPTY
No
Another party permitted?
Hold indication
Retrieve indication
Start T
Yes
Connect F to MPTY
Retrieve indication
To F party
MPTY indication
Add party reject
Add ack
Active_MPTY_and_held_call
Active_MPTY
Active_MPTY_and_held_call
Held_call_(active,_hold_req)_MPTY

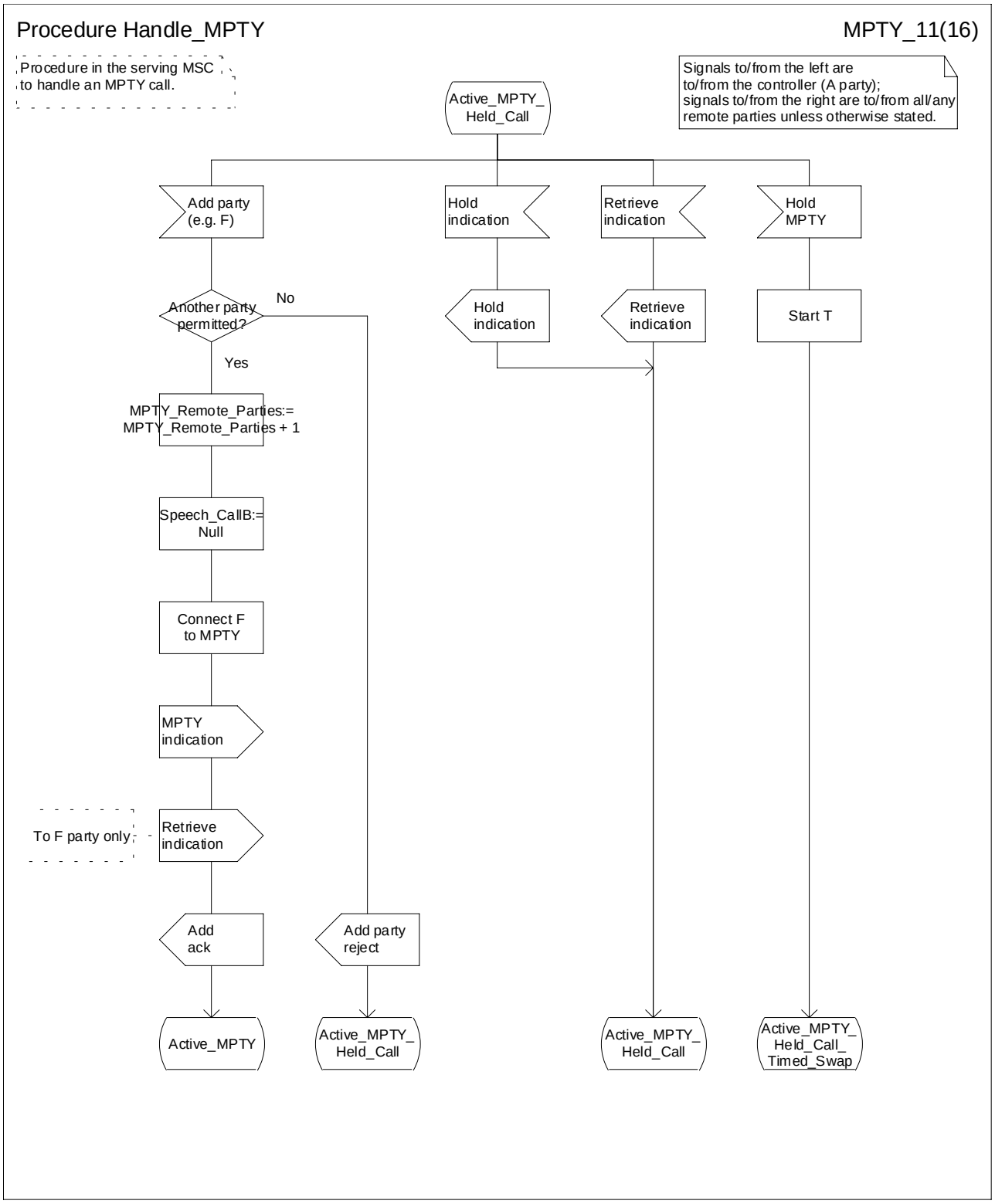
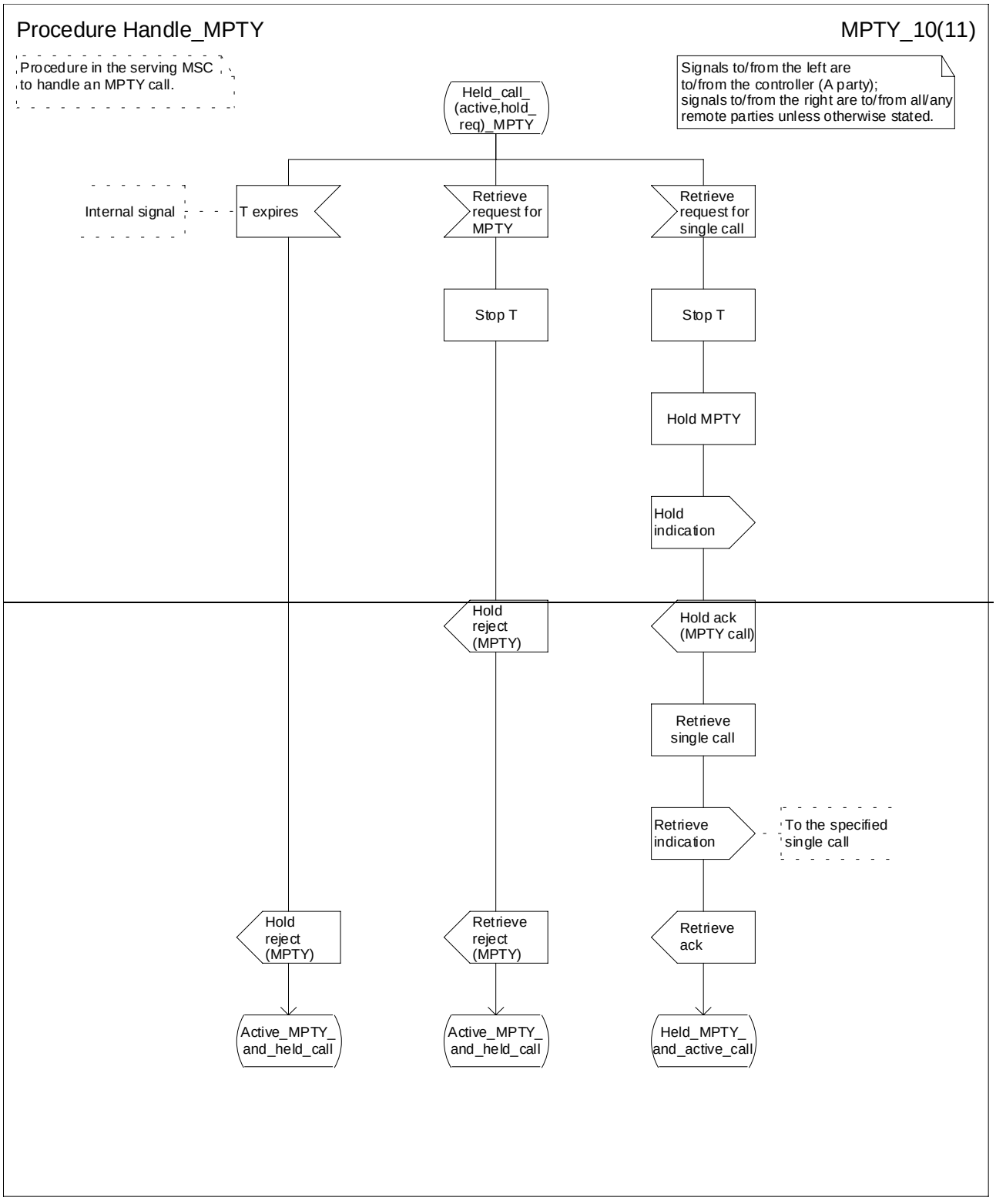


Figure 1.2 (sheet 11~~9~~ of 1~~1~~6): Procedure Handle_MPTY


Procedure Handle_MPTY
MPTY_10(11)
Procedure in the serving MSC to handle an MPTY call.
Signals to/from the left are to/from the controller (A party); signals to/from the right are to/from all/any remote parties unless otherwise stated.
Held_call_ (active,hold_ req)_MPTY
Internal signal
T expires
Retrieve request for MPTY
Retrieve request for single call
Stop T
Stop T
Hold MPTY
Hold indication
Hold reject (MPTY)
Hold ack (MPTY call)
Retrieve single call
Retrieve indication
To the specified single call
Hold reject (MPTY)
Retrieve reject (MPTY)
Retrieve ack
Active_MPTY_ and_held_call
Active_MPTY_ and_held_call
Held_MPTY_ and_active_call

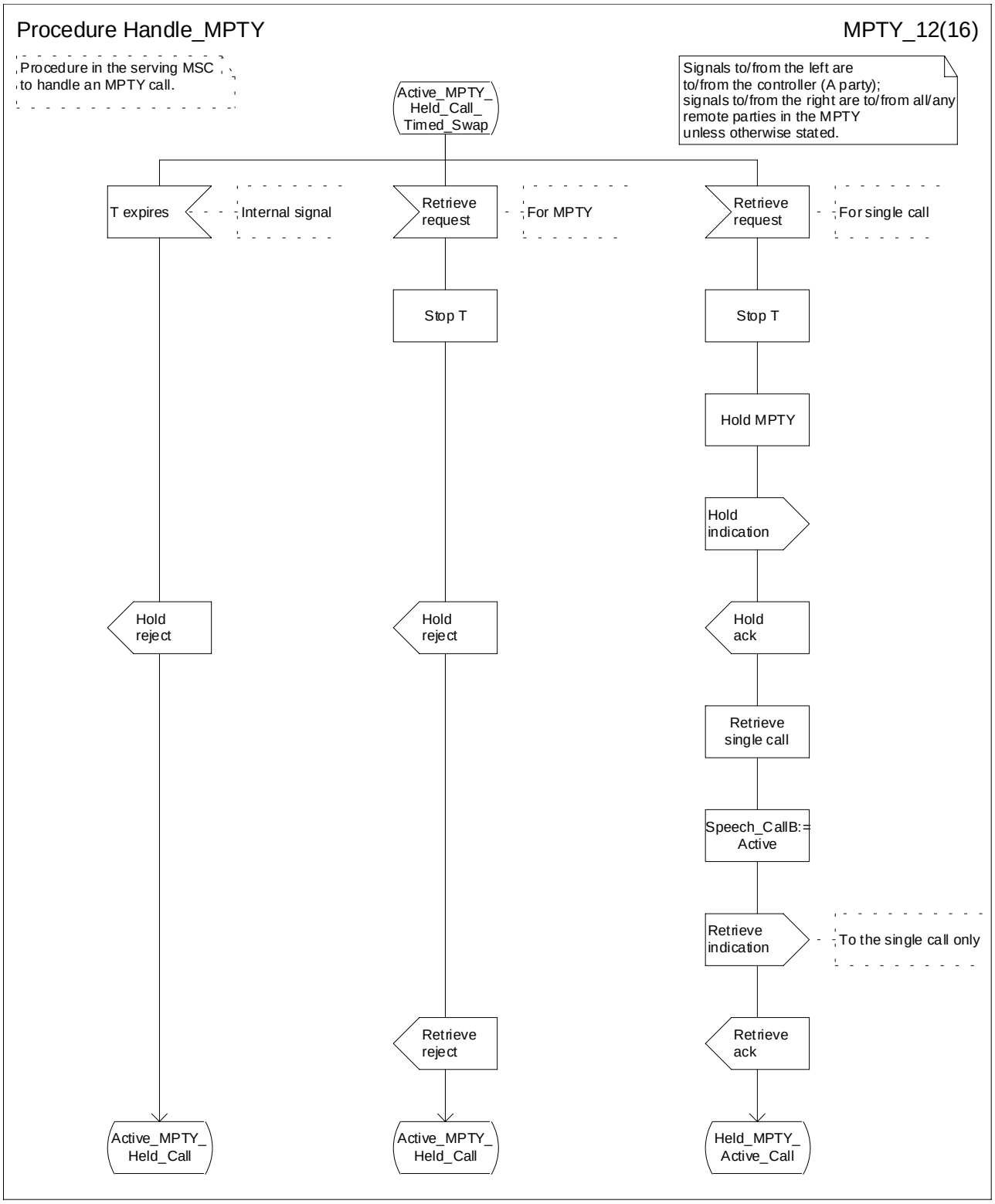
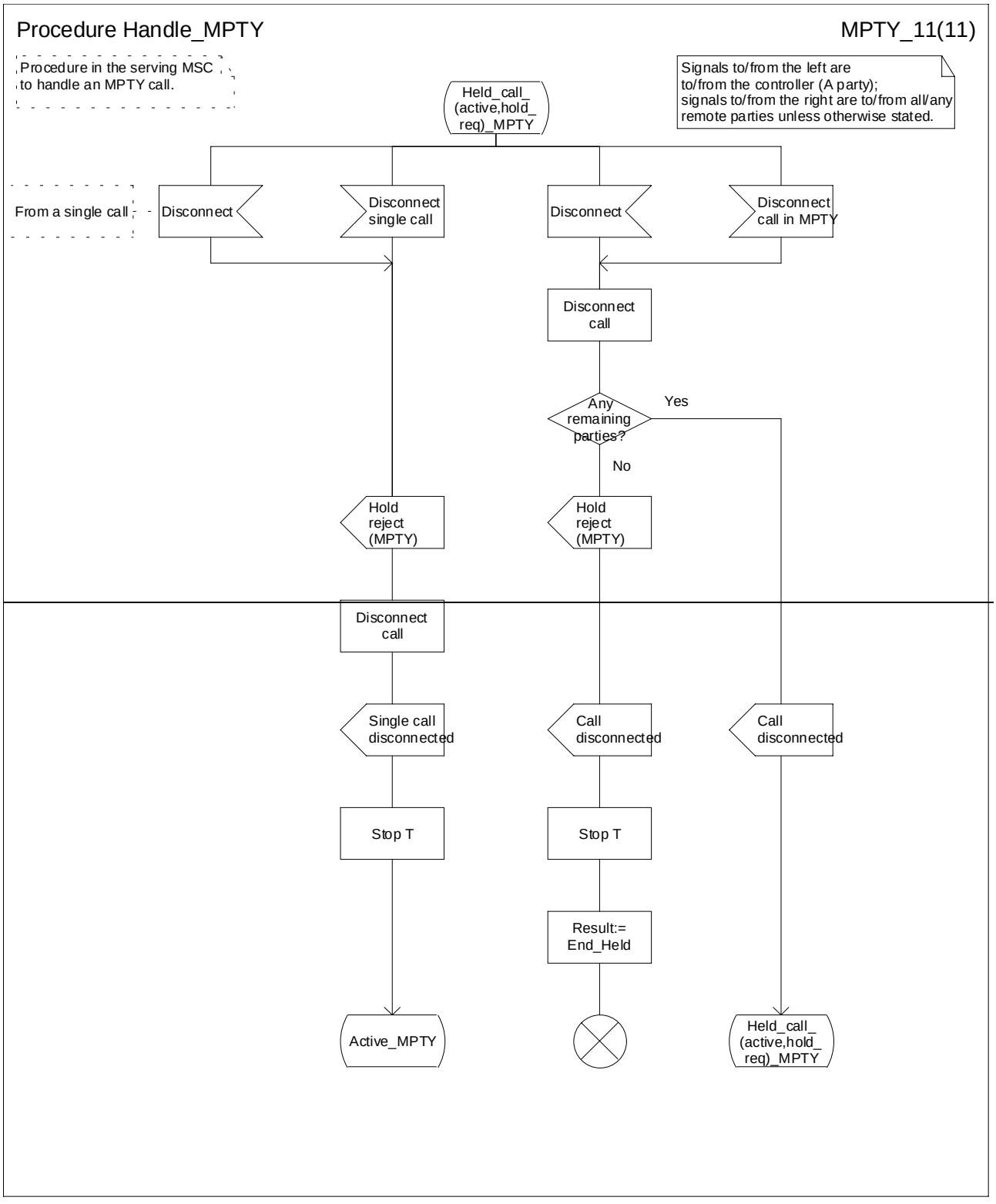


Figure 1.2 (sheet 12~~0~~ of 11~~6~~): Procedure Handle_MPTY


Procedure Handle_MPTY
MPTY_11(11)
Procedure in the serving MSC to handle an MPTY call.
Signals to/from the left are to/from the controller (A party); signals to/from the right are to/from all/any remote parties unless otherwise stated.
Held_call_ (active,hold_ req)_MPTY
From a single call
Disconnect
Disconnect single call
Disconnect
Disconnect call in MPTY
Disconnect call
Any remaining parties?
Yes
No
Hold reject (MPTY)
Hold reject (MPTY)
Disconnect call
Single call disconnected
Call disconnected
Call disconnected
Stop T
Stop T
Result:= End_Held
Active_MPTY
Held_call_ (active,hold_ req)_MPTY

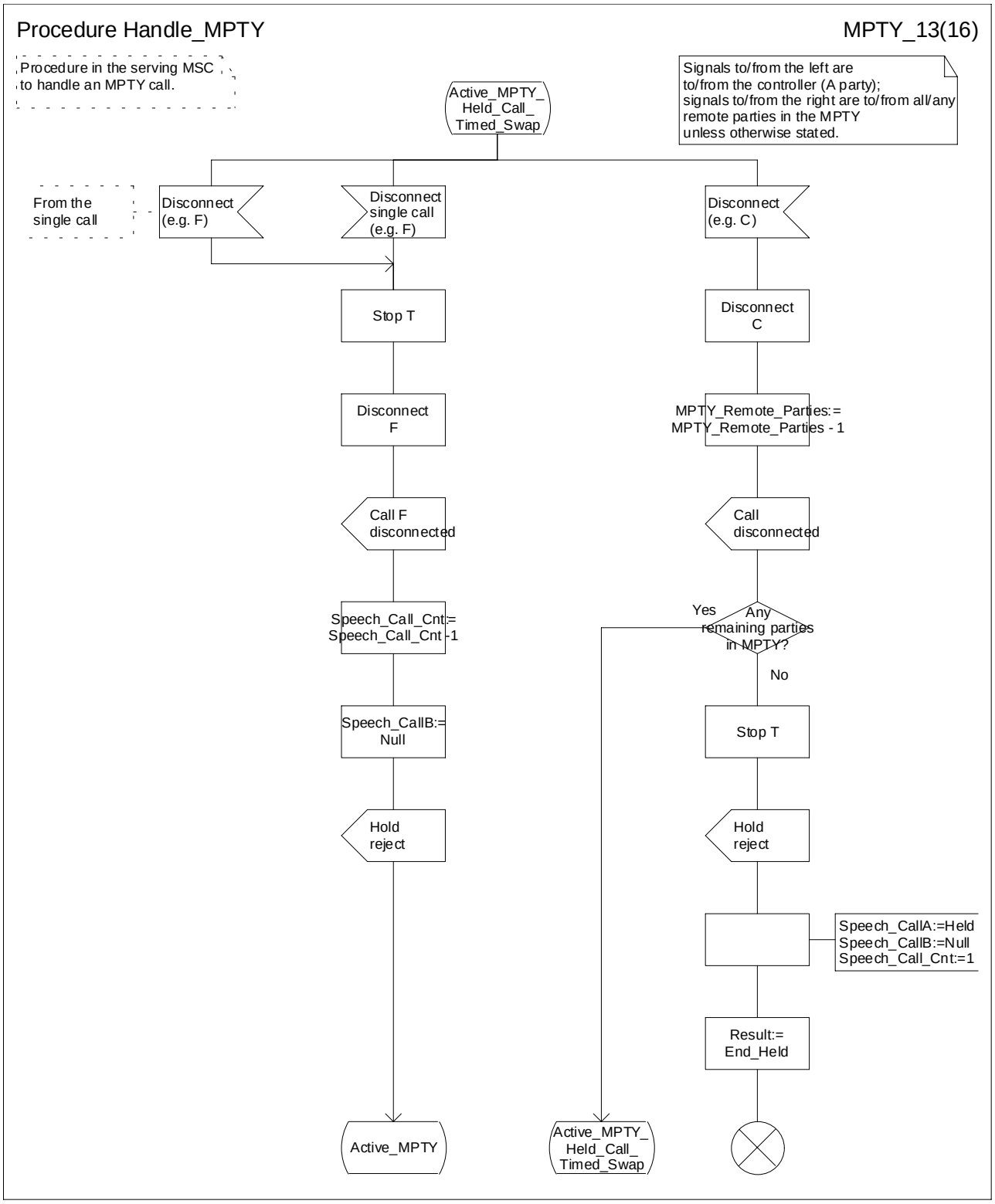


Figure 1.2 (sheet 1~~3~~1 of 1~~1~~6): Procedure Handle_MPTY

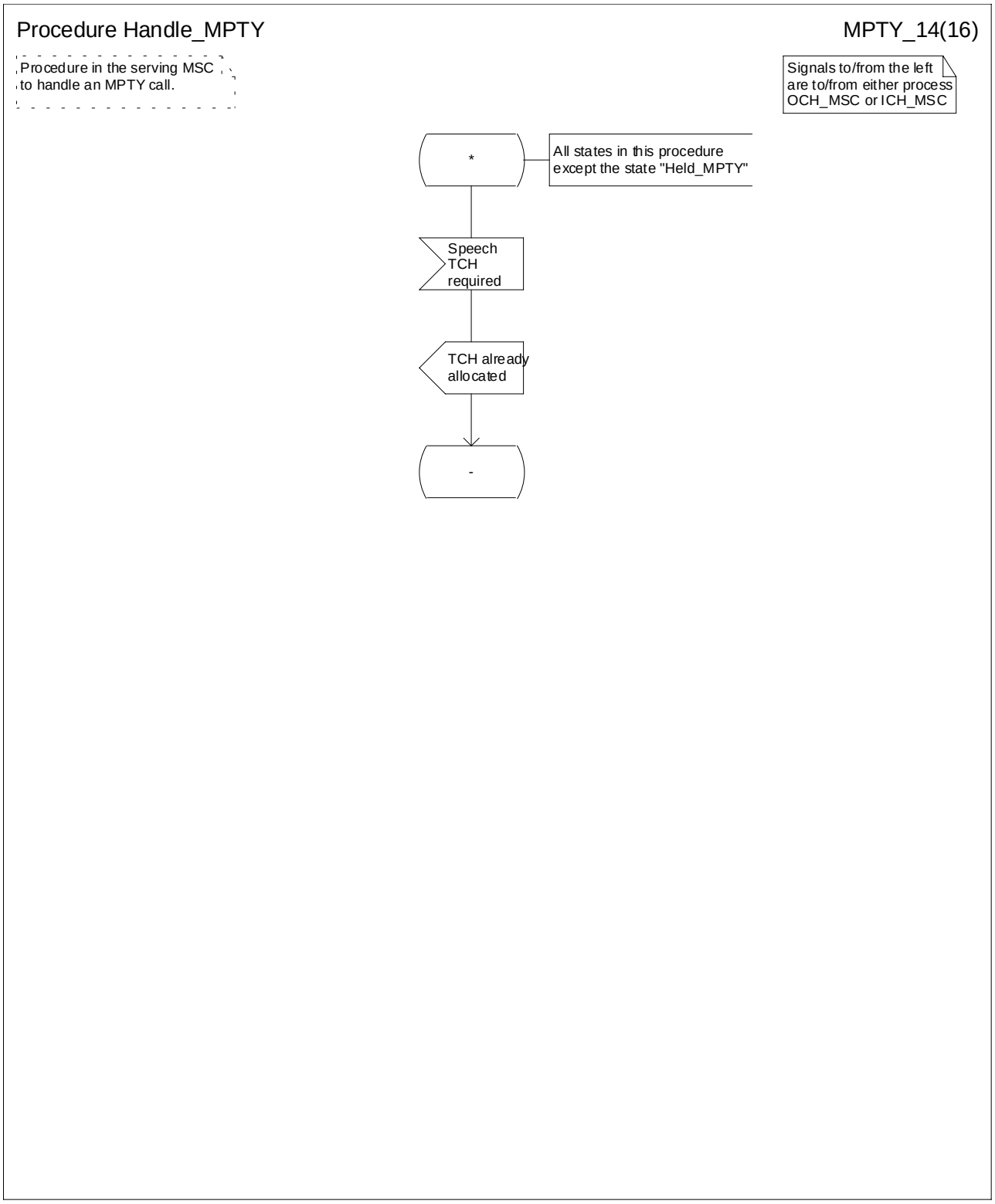


Figure 1.2 (sheet 14 of 16): Procedure Handle_MPTY

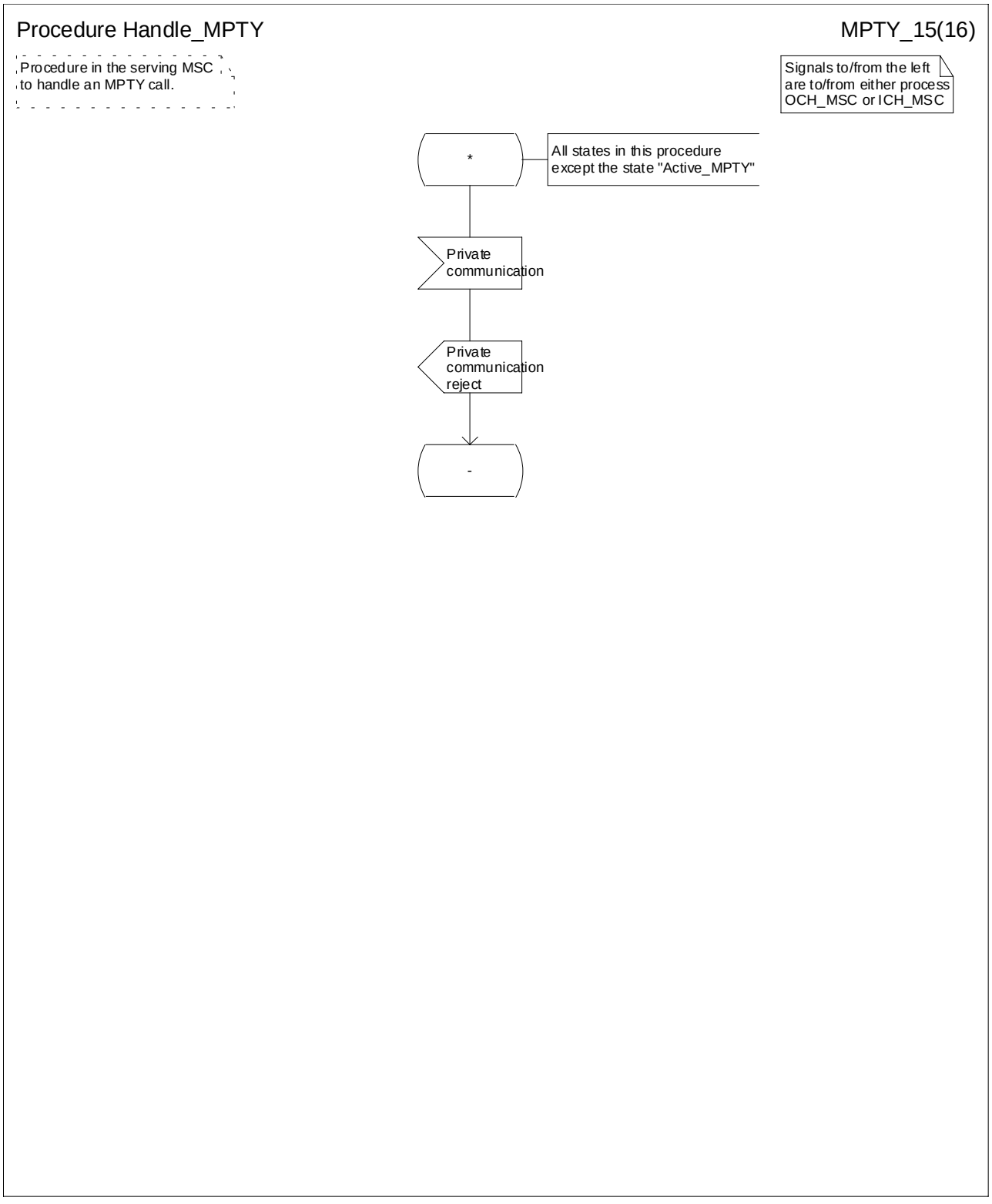


Figure 1.2 (sheet 15 of 16): Procedure Handle_MPTY

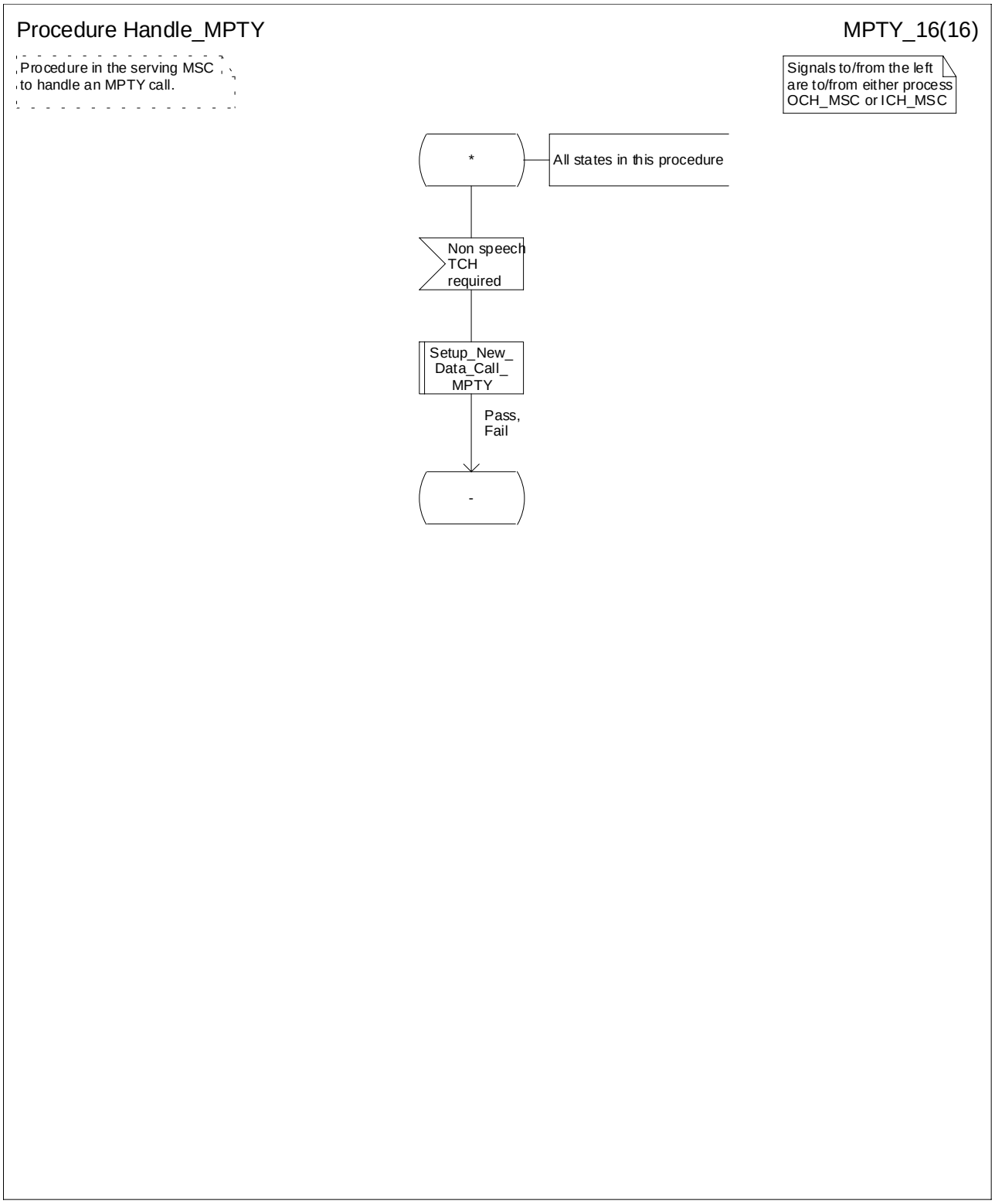
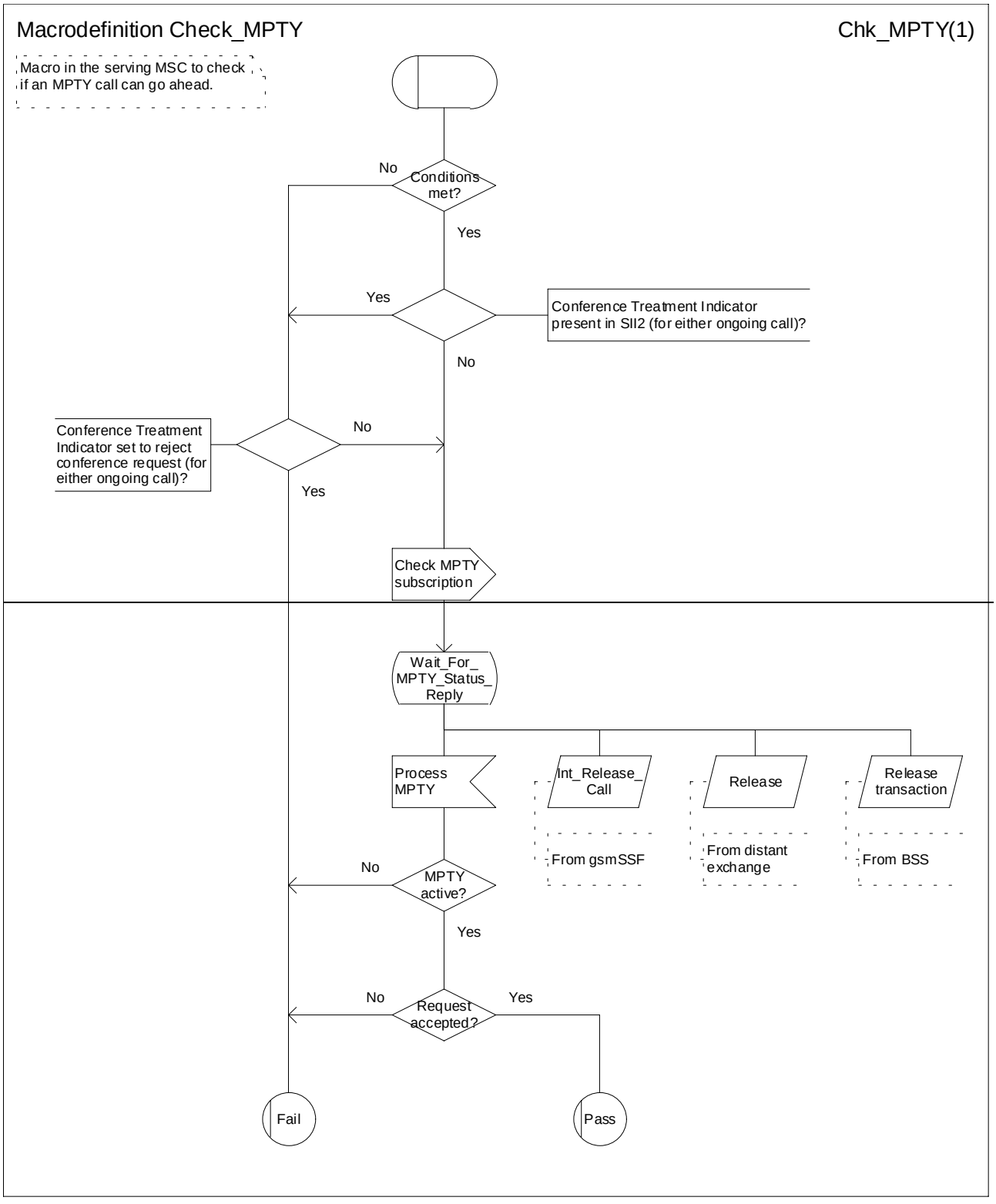


Figure 1.2 (sheet 16 of 16): Procedure Handle_MPTY


Macrodefinition Check_MPTY
Chk_MPTY(1)
Macro in the serving MSC to check if an MPTY call can go ahead.
Conditions met?
No
Yes
Conference Treatment Indicator present in SII2 (for either ongoing call)?
Yes
No
Conference Treatment Indicator set to reject conference request (for either ongoing call)?
No
Yes
Check MPTY subscription
Wait_For_ MPTY_Status_ Reply
Process MPTY
Int_Release_ Call
From gsmSSF
Release
From distant exchange
Release transaction
From BSS
MPTY active?
No
Yes
Request accepted?
No
Yes
Fail
Pass

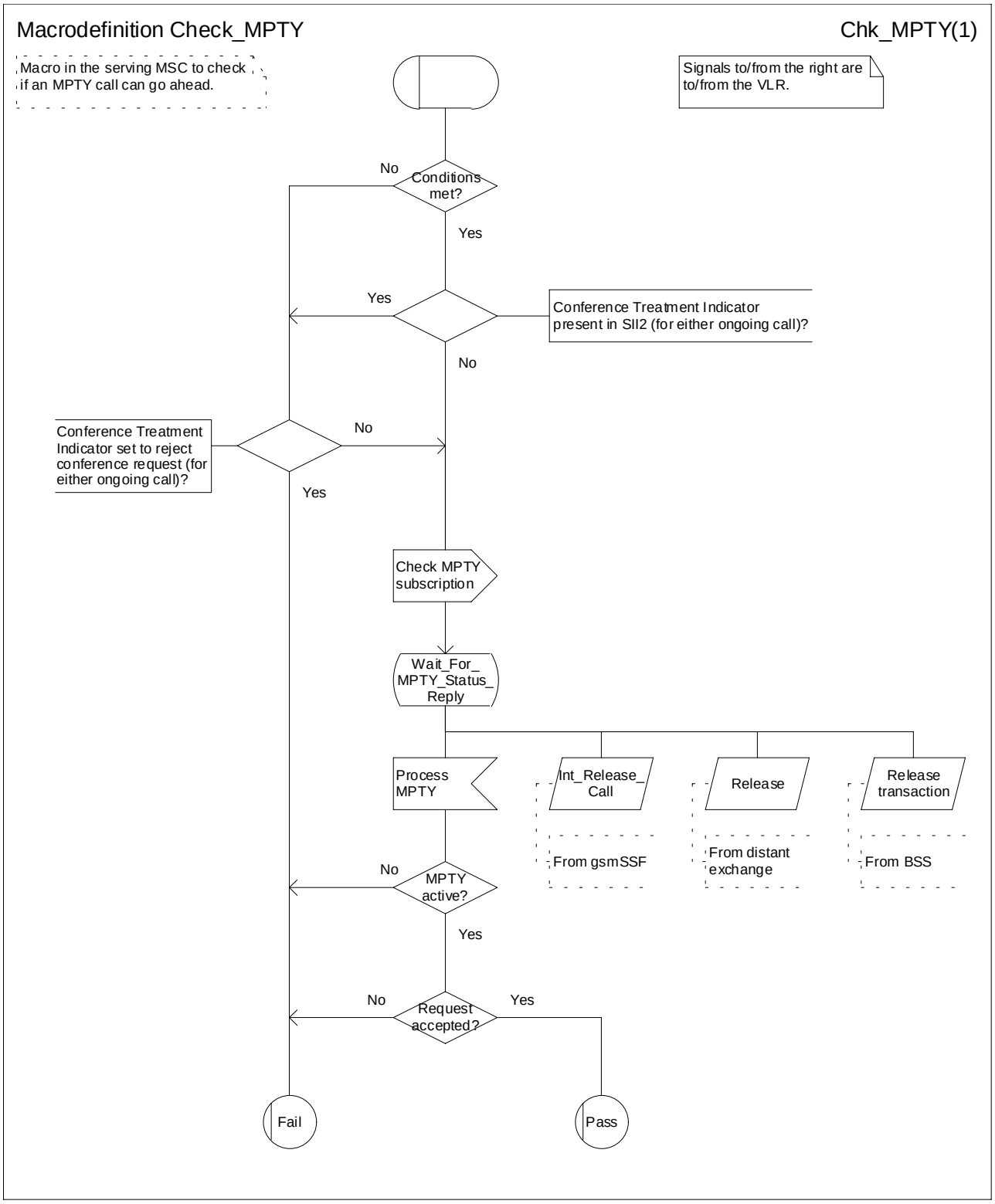


Figure 1.3: Macro Check_MPTY

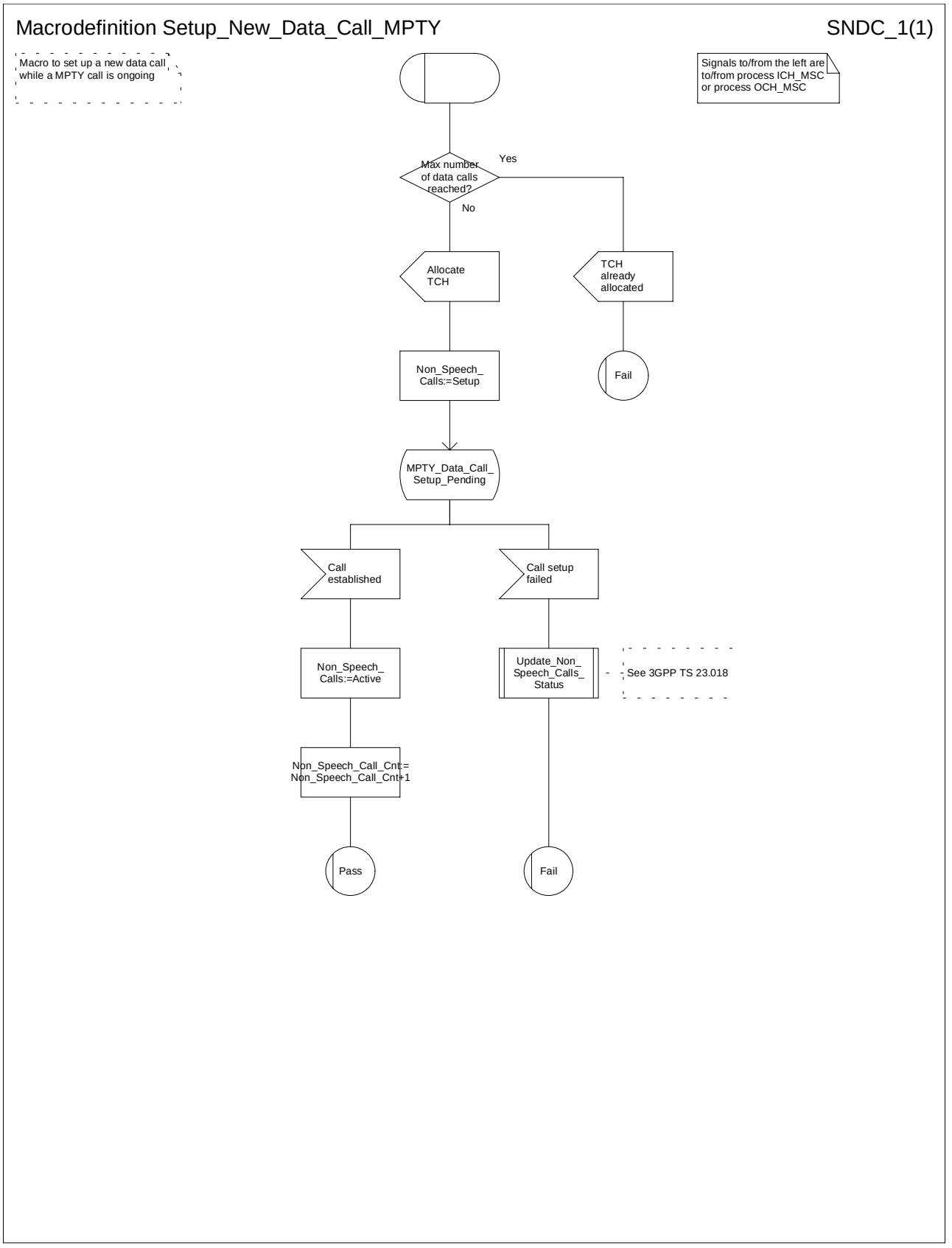


Figure 1.x: Setup_New_Data_Call_MPTY