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SERIES Q: SWITCHING AND SIGNALLING

Broadband ISDN – B-ISDN application protocols for the network signalling

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B-ISDN User Part – Modification procedures

ITU-T Recommendation Q.2725.2
Superseded by a more recent version

(Previously CCITT Recommendation)

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ITU-T RECOMMENDATION Q.2725.2

B-ISDN USER PART – MODIFICATION PROCEDURES

Summary

This Recommendation specifies the extensions to the Broadband ISDN User Part to support the modification of connection characteristics during the active phase of the call.

Source

ITU-T Recommendation Q.2725.2 was prepared by ITU-T Study Group 11 (1993-1996) and was approved under the WTSC Resolution No. 1 procedure on the 9th of July 1996.

FOREWORD

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The World Telecommunication Standardization Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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As of the date of approval of this Recommendation, the ITU had/had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

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Recommendation Q.2725.2

B-ISDN USER PART – MODIFICATION PROCEDURES

(Geneva, 1996)

2.1 Overview

2.1.1 Scope

– This Recommendation covers the configuration of point-to-point single connection.

– Modification procedure is allowed during the active phase.

– These procedures shall not be combined with narrow-band emulation service.

– The actions to be taken at six exchange types are described as:

  • Initiating exchange.

  • Intermediate national exchange.

  • Outgoing international exchange.

  • Intermediate international exchange.

  • Incoming international exchange.

  • Terminating exchange.

– Connection characteristics to be modified are peak cell rate (forward, backward or both) only, and these are modified increasingly or decreasingly by indicating the result value.

– Forward peak cell rate and backward peak cell rate can be requested to be modified increasingly or decreasingly independently.

– The request will only be accepted if all requested modifications are accepted.

– The request can be accepted with which requested peak cell rate in either forward or backward direction is the same as at present.

– Neither re-routing nor re-establishment procedures are supported.

– Sequential modification is applicable per connection. Parallel modification is not applicable per connection.

– Transferring of u-plane cells is not disturbed with the modification procedure. For CBR class A with end-to-end timing an interruption on the application level may be needed for synchronization purposes.

– A connection release procedure takes precedence over the modification procedure of the connection.

– Only the connection owner is allowed to initiate the modification procedures.

– Only one parameter to modify is requested in a Modify Request message.

– It will be necessary for the initiating user to reduce cell input upon sending a Modify request message to decrease the forward cell rate of a connection. Otherwise, when the modification procedure is completed at the remote local exchange, the initiating user may still be sending a high rate of cells, which result in discard and possible operations alarms at the remote local exchange.

– No error procedure is required in the NNI for the case that a modify confirmed message is not returned from the access.

2.1.2 References

The following ITU-T Recommendations, and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; all users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published.

– ITU-T Recommendation Q.2761 (1995), *Functional description of the B-ISDN User Part (B-ISUP) of Signalling System No. 7*.

– ITU-T Recommendation Q.2963.1 (1996), *Digital Subscriber Signalling System No. 2 – Connection modification: Peals cell rate modification by the connection owner.*

2.1.3 Abbreviations

See Recommendation Q.2764.

2.1.4 Terminology

This Recommendation defines the following terms.

2.1.4.1 connection owner: The party who initiated the connection setup.

2.1.4.2 forward: Indicates connection owner to non-connection owner direction.

2.1.4.3 backward: Indicates non-connection owner to connection owner direction.

2.1.4.4 incoming: Indicates connection owner side of an exchange.

2.1.4.5 outgoing: Indicates non-connection owner side of an exchange.

2.1.4.6 initiating exchange: Indicates the local exchange that receives the modification request from the user.

2.1.4.7 terminating exchange: Indicates the local exchange on the requested user side.

2.1.5 Specification Model

The description of the B-ISDN User Part procedure for the Modification service is structured according to the model described in Figure 2-1.

2.1.6 General Functions of Messages and Parameters

This clause describes the additional messages and parameters to Recommendation Q.2762.

2.1.6.1 Messages

2.1.6.1.1 Modify request (MOD)

A message sent in order to modify connection characteristics associated with a certain call.

2.1.6.1.2 Modify acknowledge (MOA)

A message sent in response to a Modify Request message indicating that the modify request has been accepted.

2.1.6.1.3 Modify reject (MOR)

A message sent in response to a Modify Request message indicating that the modify request has been rejected.

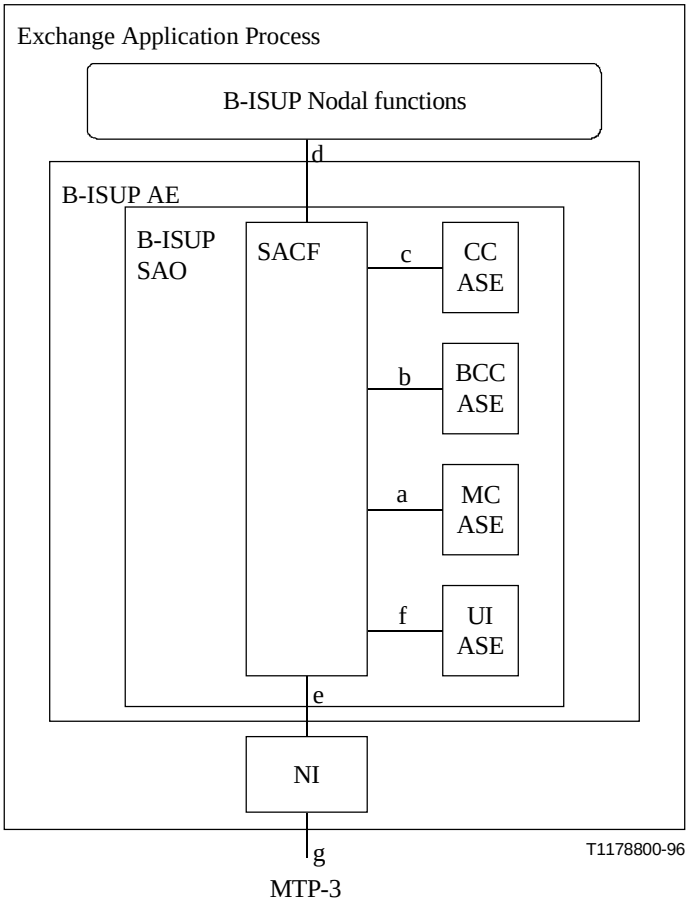
2.1.6.1.4 Modify confirm (MOC)

A message sent indicating that the modify procedure is completed.

2.1.6.2 Parameters

2.1.6.2.1 Report type

Information sent indicating whether the modify confirmation is required or not.



AE Application Entity
SACF Single Association Control Function
ASE Application Service Element
CC Call Control
BCC Bearer Connection Control
MC Maintenance Control
NI Network Interface
SAO Single Association Object
UI Unrecognized Information

NOTE – BCC and CC ASEs in this Figure are extended from those of Recommendation Q.2764.

Figure 2-1/Q.2725.2 – Specification model for B-ISUP modification service

2.2 B-ISDN User Part Messages and Parameters

2.2.1 Parameters

The parameter name codes are given in Table 2-1 together with references.

Table 2-1/Q.2725.2

Parameter name	Reference (Rec.)	Code
ATM cell rate	Q.2763	0000 1000
Cause indicators	Q.2763	0001 0010
Destination signalling identifier	Q.2763	0000 0011
Notification	Q.2763	0010 1100
Report type	2.2.1.1/Q.2725.2	0110 0100

2.2.1.1 Report type

The format of the report type field is shown in Figure 2-2.

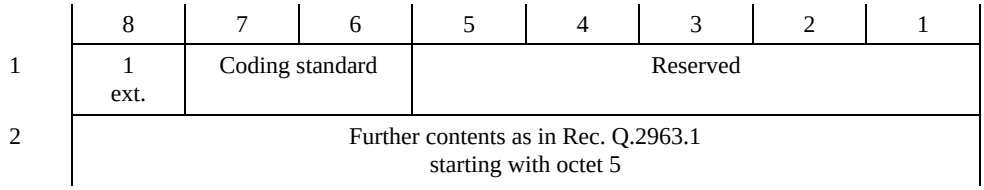


Figure 2-2/Q.2725.2 – Report type parameter field

The codes to be used in the subfields of the report type parameter field are defined in the Broadband report type information element in Recommendation Q.2963.1.

2.2.2 Messages

The message name codes are given in Table 2-2 together with references.

Table 2-2/Q.2725.2

Message type	Reference	Code
Modify request	Table 2-3/Q.2725.2	0011 1100
Modify acknowledgement	Table 2-4/Q.2725.2	0011 1010
Modify reject	Table 2-5/Q.2725.2	0011 1011
Modify confirm	Table 2-6/Q.2725.2	0011 1101

Table 2-3/Q.2725.2 – Message type: Modify request

Parameter	Reference (Rec.)	Length (octets)
Destination signalling identifier	Q.2763	8-9
ATM cell rate	Q.2763	9-21
Notification (Note)	Q.2763	5-6
NOTE – This parameter may be repeated.		

Table 2-4/Q.2725.2 – Message type: Modify acknowledge

Parameter	Reference (Rec.)	Length (octets)
Destination signalling identifier	Q.2763	8-9
Report type	2.2.1.1/Q.2725.2	6-7
Notification (Note)	Q.2763	5-6
NOTE – This parameter may be repeated.		

Table 2-5/Q.2725.2 – Message type: Modify reject

Parameter	Reference (Rec.)	Length (octets)
Destination signalling identifier	Q.2763	8-9
Notification (Note)	Q.2763	5-6
Cause indicators	Q.2763	6-7
NOTE – This parameter may be repeated.		

Table 2-6/Q.2725.2 – Message type: Modify confirm

Parameter	Reference (Rec.)	Length (octets)
Destination signalling identifier	Q.2763	8-9
Notification (Note)	Q.2763	5-6
NOTE – This parameter may be repeated.		

2.3 Call Control, Application Process Functions

2.3.1 Primitive Interface

The modification service functions in the Application Process use the services provided by the SACF primitive. The additional primitives to Table 2-1/Q.2764 are listed in Table 2-7.

The primitives on this interface correspond with B-ISUP messages, this is also indicated in Table 2-7.

Table 2-7/Q.2725.2 – Call Control Primitives between AP and SACF

Primitive name	Types	Corresponding B-ISUP message(s)
Modify	Request/Indication/Response/ Confirmation	Modify Request, Modify Acknowledge
Modify_Rejected	Request/Indication	Modify Reject
Modify_Confirm	Request/Indication	Modify Confirm

Tables 2-8 to 2-11 (see 2.3.7) list the mandatory and optional contents for these primitives.

2.3.2 Successful modification

2.3.2.1 Modify Request/Indication primitive

2.3.2.1.1 Action Required at the Initiating Exchange

On receipt of a request to modify connection characteristics from the connection owner, the initiating exchange will reserve the corresponding resources on the outgoing side of the exchange (if it is the assigning exchange) and will issue a Modify request primitive to the succeeding exchange. Policing policy in forward direction shall be changed when decrease of forward direction bandwidth is requested. The action of changing policing policy will be taken before issuing the Modify request primitive.

2.3.2.1.2 Action Required at an Intermediate National Exchange

On receipt of the Modify indication primitive, an intermediate exchange will reserve the corresponding resources on the incoming/outgoing side of the exchange (if it is the assigning exchange for the incoming/outgoing VPCI) and will issue a Modify request primitive to the succeeding exchange.

2.3.2.1.3 Action Required at an Outgoing International Exchange

See 2.3.2.1.2, with the following addition:

If policing is applied, policing policy in backward direction shall be changed when increase of backward bandwidth is requested. The action of changing policing will be taken before issuing the Modify request primitive.

2.3.2.1.4 Action Required at an Intermediate International Exchange

See 2.3.2.1.2, with the following addition:

If policing is applied, policing policy in forward direction shall be changed when decrease of forward bandwidth is requested, and policing policy in backward direction shall be changed when increase of backward bandwidth is requested. The action of changing policing will be taken before issuing the Modify request primitive.

2.3.2.1.5 Action Required at an Incoming International Exchange

See 2.3.2.1.2, with the following addition:

If policing is applied, policing policy in forward direction shall be changed when decrease of forward bandwidth is requested. The action of changing policing will be taken before issuing the Modify request primitive.

2.3.2.1.6 Action Required at the Terminating Exchange

On receipt of the Modify indication primitive, the terminating exchange will reserve the corresponding resources on the incoming side of the exchange (if it is the assigning exchange) and will proceed to request a modification to the non-connection owner.

2.3.2.2 Modify Response/Confirmation primitive

2.3.2.2.1 Action Required at the Terminating Exchange

On receipt of the modification acknowledgment from the non-connection owner, the terminating exchange will allocate the resources (if it is the assigning exchange) and will issue a Modify response primitive to the preceding exchange. The policing in backward direction shall be changed if modification of backward bandwidth is requested. The action of changing policing policy will be taken before Modify response primitive is issued.

2.3.2.2.2 Action Required at an Intermediate National Exchange

On receipt of the Modify confirmation primitive, an intermediate exchange will allocate the resources (if it is the assigning exchange for the incoming/outgoing VPCI) and will issue a Modify response primitive to the preceding exchange.

2.3.2.2.3 Action Required at an Outgoing International Exchange

See 2.3.2.2.2, with the following addition:

If policing is applied, policing policy in backward direction shall be changed when decrease of backward bandwidth is requested. The action of changing policing will be taken before issuing the Modify response primitive.

2.3.2.2.4 Action Required at an Intermediate International Exchange

See 2.3.2.2.2, with the following addition:

If policing is applied, policing policy in backward direction shall be changed when decrease of backward bandwidth is requested, and policing policy in forward direction shall be changed when increase of forward bandwidth is requested. The action of changing policing will be taken before issuing the Modify response primitive.

2.3.2.2.5 Action Required at an Incoming International Exchange

See 2.3.2.2.2, with the following addition:

If policing is applied, policing policy in forward direction shall be changed when increase of forward bandwidth is requested. The action of changing policing will be taken before issuing the Modify response primitive.

2.3.2.2.6 Action Required at the Initiating Exchange

On receipt of the Modify confirmation primitive, the initiating exchange will allocate the resources (if it is the assigning exchange) and will proceed to indicate a modification acknowledgment to the connection owner. The policing in forward direction shall be changed when increase of forward bandwidth is requested. The action of changing policing policy will be taken before modification acknowledge is notified to the connection owner.

2.3.2.3 Modify_Confirm Request/Indication primitive

2.3.2.3.1 Action Required at the Initiating Exchange

On receipt of the modification confirmation request from the connection owner, the initiating exchange will issue a Modify_Confirm request primitive to the succeeding exchange.

2.3.2.3.2 Action Required at an Intermediate National Exchange

On receipt of the Modify_Confirm indication primitive, an intermediate exchange will issue a Modify_Confirm request primitive to the succeeding exchange.

2.3.2.3.3 Action Required at an Outgoing International Exchange

See 2.3.2.3.2.

2.3.2.3.4 Action Required at an Intermediate International Exchange

See 2.3.2.3.2.

2.3.2.3.5 Action Required at an Incoming International Exchange

See 2.3.2.3.2.

2.3.2.3.6 Action Required at the Terminating Exchange

On receipt of the Modify_Confirm indication primitive, the terminating exchange will proceed to confirm the modification to the non-connection owner.

2.3.3 Unsuccessful modification

2.3.3.1 Lack of Resources

If a modification cannot be completed due to lack of resources, the exchange will immediately issue a Modify_Rejected request primitive towards the preceding exchange. This procedure applies to an assigning exchange only. The Modify_Rejected primitive shall contain the mandatory parameters listed in Table 2-10. Cause value "User cell rate not available" is included in the case of lack of bandwidth.

2.3.3.2 Actions at an Exchange Receiving a Modify_Rejected Primitive

On receipt of a Modify_Rejected indication primitive, an exchange shall cancel the reservation of resources (if it is the assigning exchange) and reinstate the policing policy that applied before the modify requesting, and:

1) An intermediate exchange will issue a Modify_Rejected request primitive to the preceding exchange.
2) The initiating exchange will send an indication to the connection owner.

2.3.3.3 Actions at an Exchange Receiving a Release Primitive after sending Modify Request Primitive

On receipt of a Release indication primitive after sending the Modify request, the exchange will continue with normal connection release procedures.

2.3.3.4 Actions at an Exchange Receiving a Confusion Primitive

On receipt of a Confusion indication primitive, if the cause indicators parameter implies that a Modify Request message was discarded, the exchange shall issue a Modify_Rejected request primitive to the preceding exchange.

2.3.4 Interworking with CS-1 nodes

When the CS-1 nodes receive a Modify indication primitive, the nodes will discard the primitive and return a Confusion primitive toward the preceding node following the instruction indicators. The coding of the message compatibility information for the Modify request primitive and the Modify response primitive is shown in Appendix I. The node received this Confusion primitive follows subclause 2.3.3.4.

2.3.5 Interworking with Narrow-band networks

Not applicable.

2.3.6 Error indication primitive

The Error indication primitive can be received as a result of various protocol errors detected by the ASEs. The following errors and their corresponding actions are identified in addition to the primitives described in 2.7/Q.2764:

a) Timer "Await Modify Acknowledge" expiry, detected by BCC ASE: if this error occurs, the connection will be released.

b) Unexpected MOD message received while awaiting the Address Complete request or the Answer request, detected by CC ASE: if this error occurs the VPCI/VCI and the bandwidth shall be removed from service, and the signalling association is terminated, i.e. the associated AEI is deleted (Reset initiated by the Maintenance Application Process).

If an Error indication primitive is received indicating any other error, it is discarded, with no action.

2.3.7 Primitive Contents

Tables 2-8 to 2-11 list the mandatory and optional contents for the additional SACF Call Control service primitives to Recommendation Q.2764.

For primitives generated by the Application Process, these tables indicate which parameters must be generated.

For primitives received by the Application Process, if the primitive does not contain the parameters marked "M" in the following tables the primitive is discarded, and the appropriate action (e.g. release the call) shall be taken.

Table 2-8/Q.2725.2 – Parameters for Modify Request/Indication Primitive

Modify Request/Indication	
Parameter	**Mandatory/Optional**
Message Compatibility Information	M
ATM Cell Rate	M
Notification	O
Exchange type (Note)	M
NOTE – The exchange type parameter takes the appropriate value from the list in 2.1.1. It is passed to the AE so that the protocol can be varied depending on the role that the exchange is performing for this call/connection. Unlike the other parameters it does not relate to a protocol information element. This parameter is only present in the request primitive.	

Table 2-9/Q.2725.2 – Parameters for Modify Response/Confirmation Primitive

Modify Response/Confirmation	
Parameter	**Mandatory/Optional**
Message Compatibility Information	M
Report type	O
Notification	O

Table 2-10/Q.2725.2 – Parameters for Modify_Rejected Request/Indication

Modify_Rejected Request/Indication	
Parameter	**Mandatory/Optional**
Message Compatibility Information	M
Cause Indicators	M
Notification	O

Table 2-11/Q.2725.2 – Parameters for Modify_Confirm Request/Indication

Modify_Confirm Request/Indication	
Parameter	**Mandatory/Optional**
Message Compatibility Information	M
Notification	O

2.4 Maintenance Control, Application Process Functions

Clause 3/Q.2764 applies with the additional description in this clause. The following action for the reset procedure is added to the specifications described in 3.2 a)/Q.2764.

The reset procedure should be initiated for signalling anomalies detected by the B-ISUP signalling system. The following additional anomaly is detected by the protocol procedures, reported to the exchange management functions, and thus initiate the reset procedure:

– Unexpected MOD message received while awaiting the Address Complete message or the Answer message, (detected by CC ASE). Action: Reset local SID

2.5 Single Association Control Function (SACF)

Clause 6/Q.2764 applies with the additional description in this clause.

2.5.1 Outgoing Messages

The primitives present on interface (d) are listed in Table 2-7.

The parameters in these primitives are listed in Tables 2-8 to 2-11.

The primitives present in the interface between SACF and BCC ASE, (b) are listed in Table 2-16.

The parameters in these primitives are listed in Tables 2-17 to 2-19.

The primitives received from AP, on interface (d), are mapped as shown in Table 2-12.

Table 2-12/Q.2725.2 – Mapping between AP and ASE primitives

Interface (d), from AP	Interface (c), to CC ASE	Interface (b), to BCC ASE	Interface (a) to MC ASE
Modify req	Call_Modify req	Link_Modify req	–
Modify rsp	–	Link_Modify rsp	–
Modify_Rejected req	–	Link_Modify_Rejected req	–
Modify_Confirm req	Call_Modify_Confirm req	–	–

Tables 2-8 to 2-11 (see 2.3.7) list the mandatory and optional contents for these primitives.

The SACF constructs the message type to be sent based upon the primitives issued to the BCC ASE, as shown in Table 2-13.

Table 2-13/Q.2725.2 – Mapping from BCC, CC and MC ASE primitives to B-ISUP messages

Interface (c), to CC ASE	Interface (b), to BCC ASE	Interface (a), to MC ASE	Message type
Call_Modify req	Link_Modify req	–	Modify Request
–	Link_Modify rsp	–	Modify Acknowledge
–	Link_Modify_Rejected req	–	Modify Reject
Call_Modify_Confirm req	–	–	Modify Confirm

2.5.2 Incoming Messages

Call and Bearer Control messages are distributed to CC and BCC ASE as shown in Table 2-14.

The information (parameters) included in the Transfer indication, and Transfer indication primitives are the valid set of parameters for those ASEs as indicated in Tables 2-17 to 2-19, 2-23 and 2-24.

Table 2-14/Q.2725.2 – Distribution of received B-ISUP messages to BCC ASE and CC ASE

Received message	Primitive to BCC ASE	Primitive to CC ASE	Primitive to MC ASE
Modify Request	Yes	Yes	No
Modify Acknowledge	Yes	No	No
Modify Reject	Yes	No	No
Modify Confirm	No	Yes	No

SACF issues a primitive to the AP, over interface (d), based on the primitives it receives from the ASEs as shown in Table 2-15.

Table 2-15/Q.2725.2 – Mapping between BCC, CC and MC ASE primitives and AP primitives

From BCC, interface (b)	From CC, interface (c)	From MC, interface (a)	Sent to the AP, interface (d) (Note)
Link_Modify ind	Call_Modify ind	–	Modify ind
Link_Modify cnf	–	–	Modify cnf
Link_Modify_Rejected ind	–	–	Modify_Rejected ind
–	Call_Modify_Confirm ind	–	Modify_Confirm ind
NOTE – The primitive sent to the AP can also contain unrecognized parameters handled by UI ASE. (Unrecognized_Parameter indication issued by UI ASE).			

2.6 Bearer Connection Control ASE (BCC ASE)

Clause 7/Q.2764 applies with the additional description in this clause.

BCC ASE procedures are dependent on the exchange types.

2.6.1 Primitive interface

BCC ASE provides a set of services to its users that are described in Table 2-16. This subclause describes the procedures internal to the BCC ASE that provide services to users.

Table 2-16/Q.2725.2 – Primitives between SACF and BCC ASE

Primitive name	Types
Link_Modify	Request/Indication/Response/Confirmation
Link_Modify_Rejected	Request/Indication

Tables 2-17 and 2-19 (see 2.6.4) list the contents for these primitives for the modification of connection characteristics during the active phase.

BCC ASE uses the SACF service primitives: Transfer request/indication.

2.6.2 Outgoing BCC ASE

This subclause describes the protocol procedures performed on the outgoing side of an exchange when the connection characteristics are modified between two adjacent exchanges.

2.6.2.1 Bearer Connection Modification

2.6.2.1.1 Normal Procedures

a) Outgoing BCC ASE procedures commence when a Link_Modify request primitive is received. The following actions then take place:

- The parameters received in the Link_Modify request primitive are sent to SACF in the Transfer request primitive for passing to the succeeding exchange in a Modify Request message.

- The following exchange types, as indicated in the value of the Exchange type parameter in the Modify request primitive, run timer "Await Modify Acknowledge":
  - Initiating exchange.
  - Outgoing international exchange.
  - Intermediate international exchange.
  - Incoming international exchange.
- Timer "Await Modify Acknowledge" is started when a Link_Modify request is received.

b) Subsequently:

- If a Modify Acknowledgment message is received in a Transfer indication primitive, timer "Await Modify Acknowledge" is stopped. The contents of the Modify Acknowledgment message are passed on in a Link_Modify confirmation primitive.
- Alternatively if a Modify Reject message is received in a Transfer indication primitive as the first backward message, the re-assignment attempt is considered to have failed. Timer "Await Modify Acknowledge" is stopped. The contents of the Modify Reject message are passed on in a Link_Modify_Rejected indication primitive.
- Other primitives are controlled as described in the SDL diagrams, see 2.6.5.

2.6.2.1.2 Exceptional Procedures

2.6.2.1.2.1 Handling of Unexpected Primitives

Abnormal primitive sequences are dealt with as described in the SDL diagrams, see 2.6.5. If a protocol error is detected that requires an action to be performed on the call/connection (e.g. release), a Link_Error indication primitive is issued, the appropriate actions are then initiated by the Application Process.

2.6.2.1.2.2 Handling of Timer Expiry

If timer "Await Modify Acknowledge" expires, the modification procedure is considered to have failed:

a) This event is reported using a Link_Error indication primitive. Cause value "Protocol error, unspecified" is included.

b) Management is informed.

2.6.3 Incoming BCC ASE

2.6.3.1 Bearer Connection Modification

2.6.3.1.1 Normal Procedures

a) Incoming BCC ASE procedures commence when a Modify Request message is received in a Transfer indication primitive. The following actions then take place:

- The contents of the Modify Request message are passed on in a Link_Modify indication primitive.

b) Subsequently:

- The parameters received in the Link_Modify response primitive are sent to SACF in the Transfer request primitive for passing to the preceding exchange in a Modify Acknowledge message.

- Alternatively the parameters received in the Link_Modify_Rejected request primitive are sent to SACF in the Transfer request primitive for passing to the preceding exchange in a Modify Reject message.
- Other primitives are controlled as described in the SDL diagrams, see 2.6.5.

2.6.3.1.2 Exceptional Procedures

2.6.3.1.2.1 Handling of Unexpected Primitives

Abnormal primitive sequences are dealt with as described in the SDL diagrams, see 2.6.5. If a protocol error is detected that requires an action to be performed on the call/connection, e.g. release, a Link_Error indication primitive is issued, the appropriate actions are then initiated by the Application Process.

2.6.3.1.2.2 Handling of Timer Expiry

Not applicable.

2.6.4 Primitive Contents

Tables 2-17, 2-18 and 2-19 list the contents for the BCC ASE service primitives.

Table 2-17/Q.2725.2 – Parameters for Link_Modify Request/Indication Primitive

Message Compatibility Information
ATM Cell Rate
Notification
Exchange Type (Note)
NOTE – The exchange type parameter takes the appropriate value from the list in 2.1.1. It is passed to the ASE so that the protocol can be varied depending on the role that the exchange is performing for this call/connection. Unlike the other parameters it does not relate to a protocol information element. This parameter is only present in the request primitive.

Table 2-18/Q.2725.2 – Parameters for Link_Modify Response/Confirmation Primitive

Message Compatibility Information
Notification
Report type

Table 2-19/Q.2725.2 – Parameters for Link_Modify_Rejected Request/Indication Primitive

Message Compatibility Information
Notification
Cause Indicators

2.6.5 SDL Diagrams

If any difference is found between the procedures described in these SDLs and the procedures described in the text, the text shall take precedence. See Figures 2-3 and 2-4.

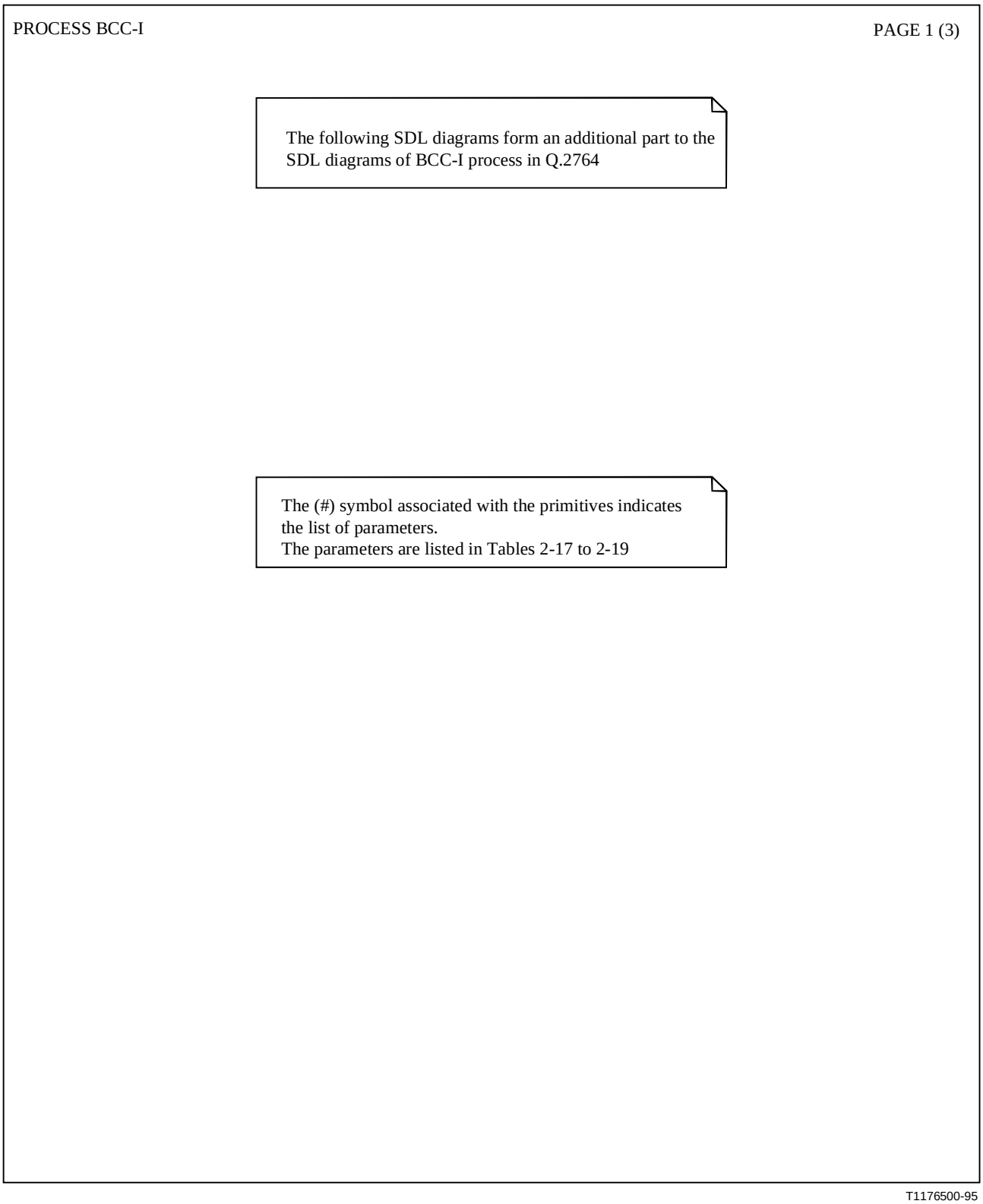


Figure 2-3/Q.2725.2 (sheet 1 of 3)

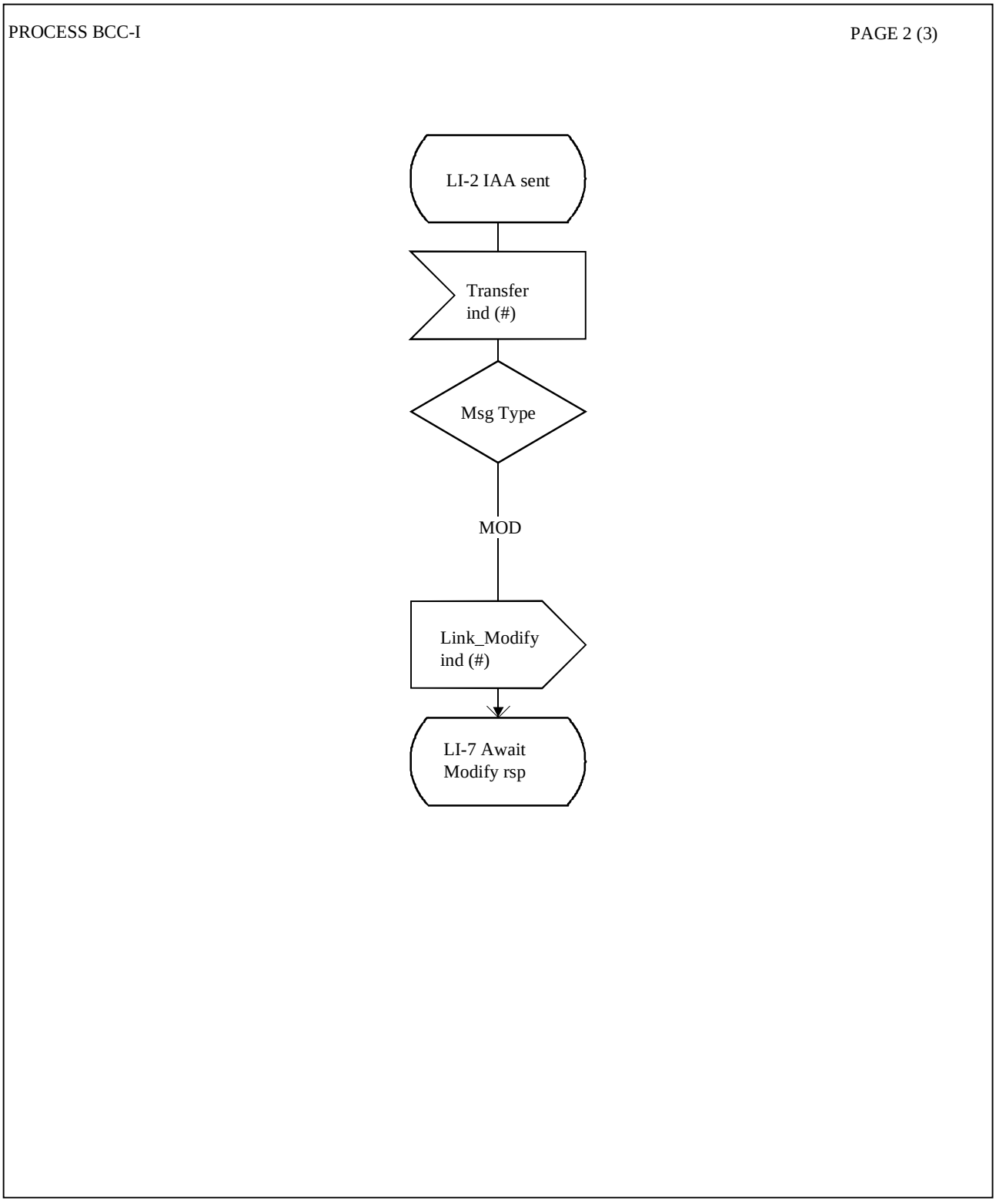


Figure 2-3/Q.2725.2 (sheet 2 of 3)

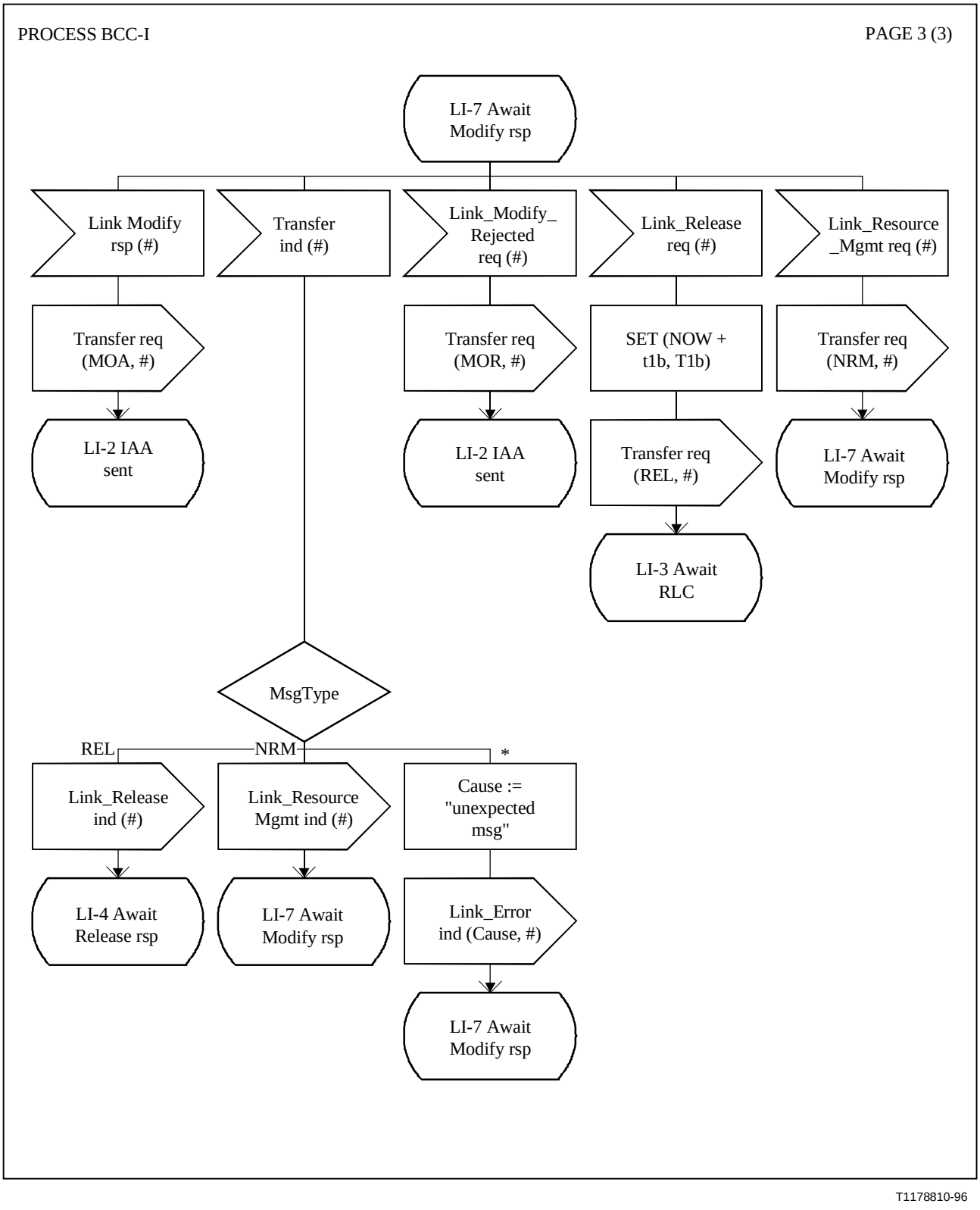


Figure 2-3/Q.2725.2 (sheet 3 of 3)

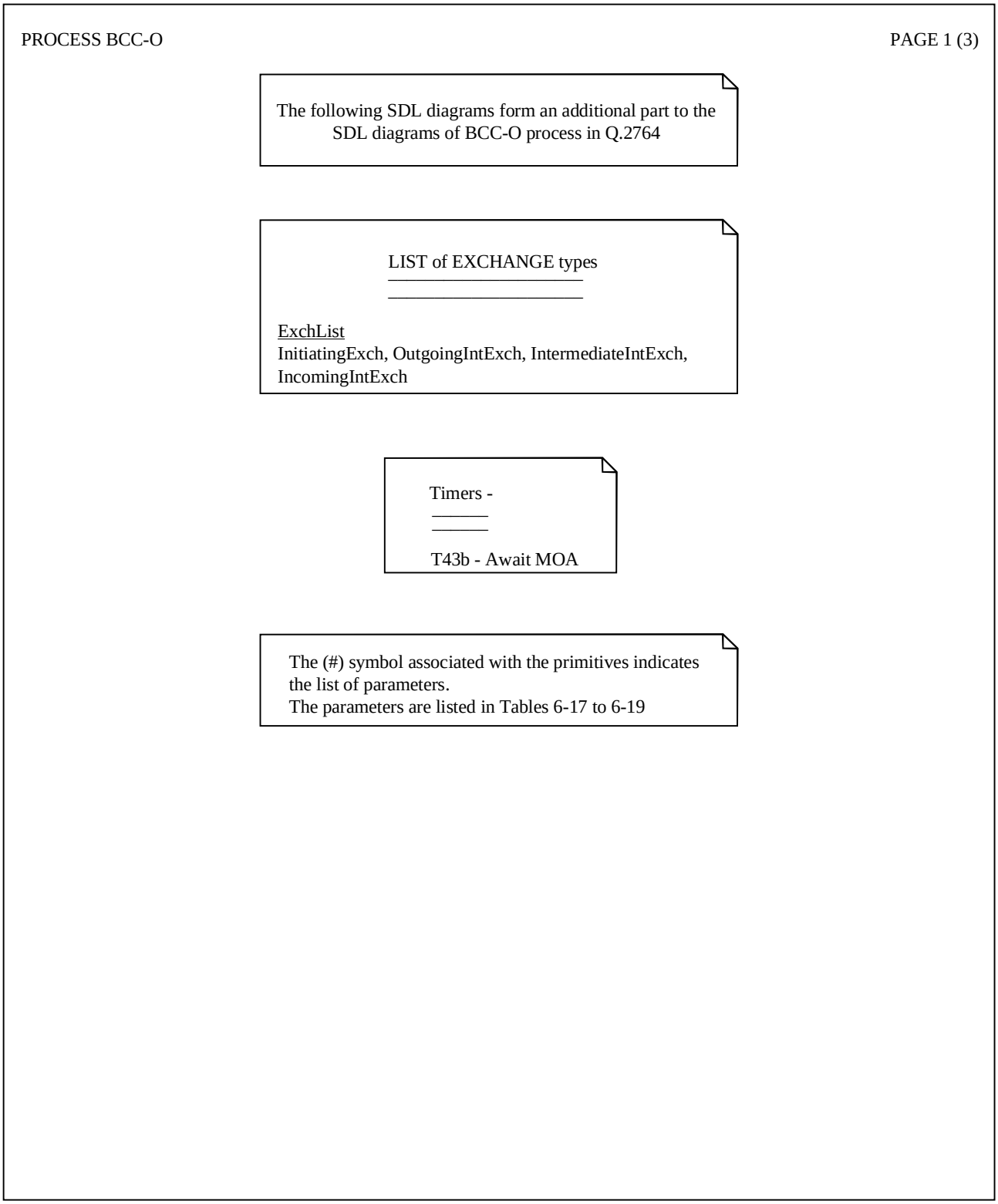


Figure 2-4/Q.2725.2 (sheet 1 of 3)

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PAGE 2 (3)

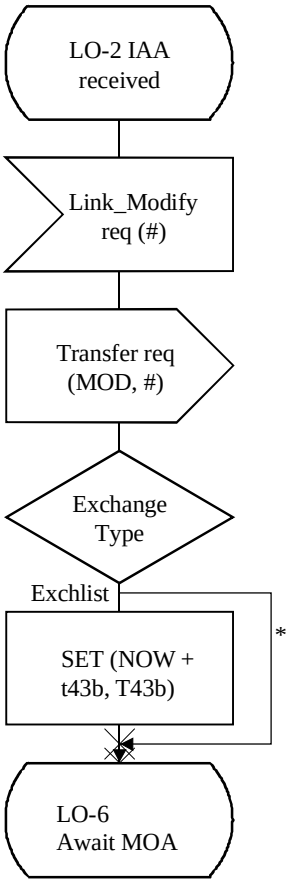

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Figure 2-4/Q.2725.2 (sheet 2 of 3)

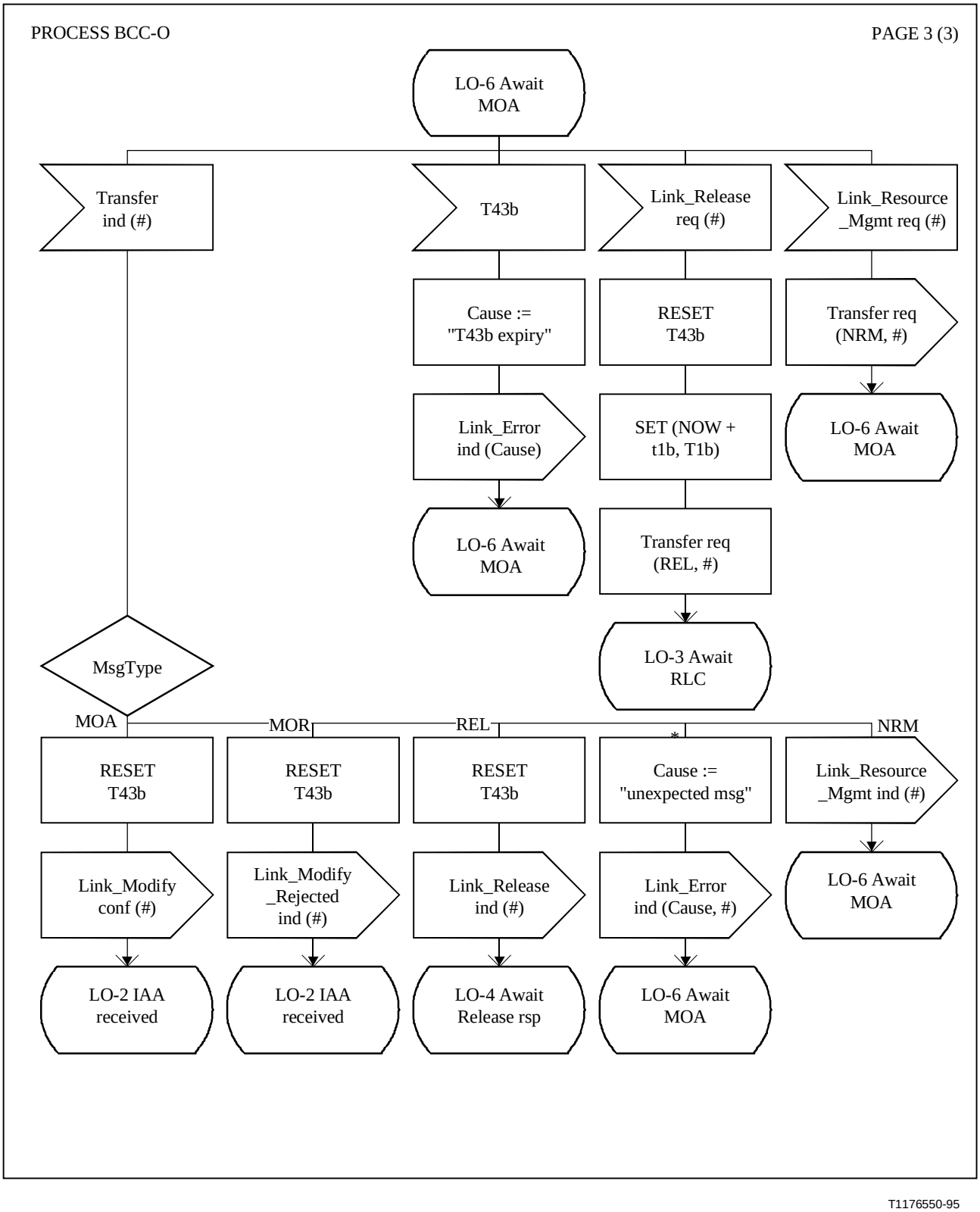


Figure 2-4/Q.2725.2 (sheet 3 of 3)

2.7 Call Control ASE (CC ASE)

Clause 8/Q.2764 applies with the additional description in this clause.

2.7.1 Primitive Interface

CC ASE provides a set of services to its user, these are listed in Table 2-20. This subclause describes the procedures internal to the CC ASE that provide the services to its user.

CC ASE procedures are described in two parts:

– Outgoing CC ASE; and

– Incoming CC ASE.

This is for specification convenience only.

Table 2-20/Q.2725.2 – Primitives between SACF and CC ASE

Primitive name	Types
Call_Modify	Request/Indication
Call_Modify_Confirm	Request/Indication

Tables 2-23 and 2-24 (see 2.7.4) list the parameters for the service primitives on this interface.

CC ASE uses the SACF service primitives: Transfer request/indication.

2.7.2 Outgoing CC ASE

The protocol functions contained in Outgoing CC ASE consist of the following:

a) Checking the correct sequence of received messages: The SDL diagrams in 2.7.5 fully define the Outgoing CC ASE finite state machine. If a protocol error is detected that requires an action to be performed on the call, e.g. release, a Call_Error indication primitive is issued, the appropriate actions are then initiated by the Application Process.

b) Converting messages received in the User_data field of Transfer indication primitives into CC ASE service primitives. The mapping performed is listed in Table 2-21 (this mapping assumes that the events are received in the correct sequence as shown in the SDL diagrams).

c) Transferring the information received in the CC ASE service primitives into the User_data field of Transfer primitives. The mapping performed is listed in Table 2-21 (this mapping assumes that the events are received in the correct sequence as shown in the SDL diagrams).

Table 2-21/Q.2725.2 – Outgoing CC ASE mapping between Message types and Service Primitives

Interface (c)	Map	Message type
Call_Modify req	⇒	Modify Request
Call_Modify_Confirm req	⇒	Modify Confirm

2.7.3 Incoming CC ASE

The protocol functions contained in Incoming CC ASE consist of the following:

a) Checking the correct sequence of received messages: The SDL diagrams in 2.7.5 fully define the Incoming CC ASE finite state machine. If a protocol error is detected that requires an action to be performed on the call, e.g. release, a Call_Error indication primitive is issued, the appropriate actions are then initiated by the Application Process.

b) Converting messages received in the User_data field of Transfer indication primitives into CC ASE service primitives. The mapping performed is listed in Table 2-22 (this mapping assumes that the events are received in the correct sequence as shown in the SDL diagrams).

c) Transferring the information received in the CC ASE service primitives into the User_data field of Transfer primitives. The mapping performed is listed in Table 2-22 (this mapping assumes that the events are received in the correct sequence as shown in the SDL diagrams).

Table 2-22/Q.2725.2 – Incoming CC ASE mapping between Message types and Service Primitives

Interface (c)	Map	Message type
Call_Modify ind	⇐	Modify Request
Call_Modify_Confirm ind	⇐	Modify Confirm

2.7.4 Primitive Contents

Tables 2-23 and 2-24 list the contents for the CC ASE service primitives.

Table 2-23/Q.2725.2 – Parameters for Call_Modify Request/Indication Primitive

Message Compatibility Information

Table 2-24/Q.2725.2 – Parameters for Call_Modify_Confirm Request/Indication Primitive

Message Compatibility Information
Notification

2.7.5 SDL Diagrams

If any difference is found between the procedures described in these SDLs and the procedures described in the text, the text shall take precedence. See Figures 2-5 and 2-6.

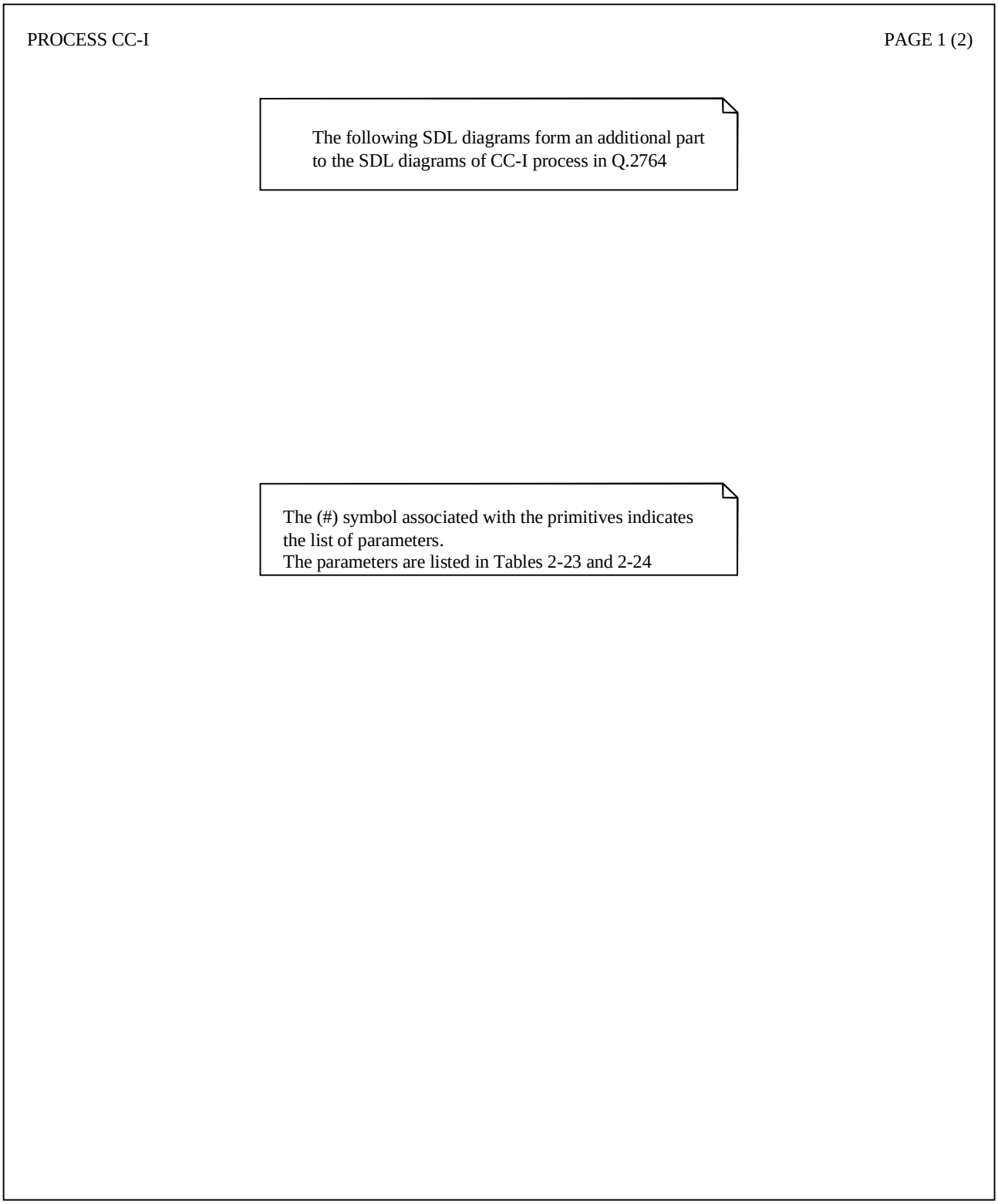


Figure 2-5/Q.2725.2 (sheet 1 of 2)

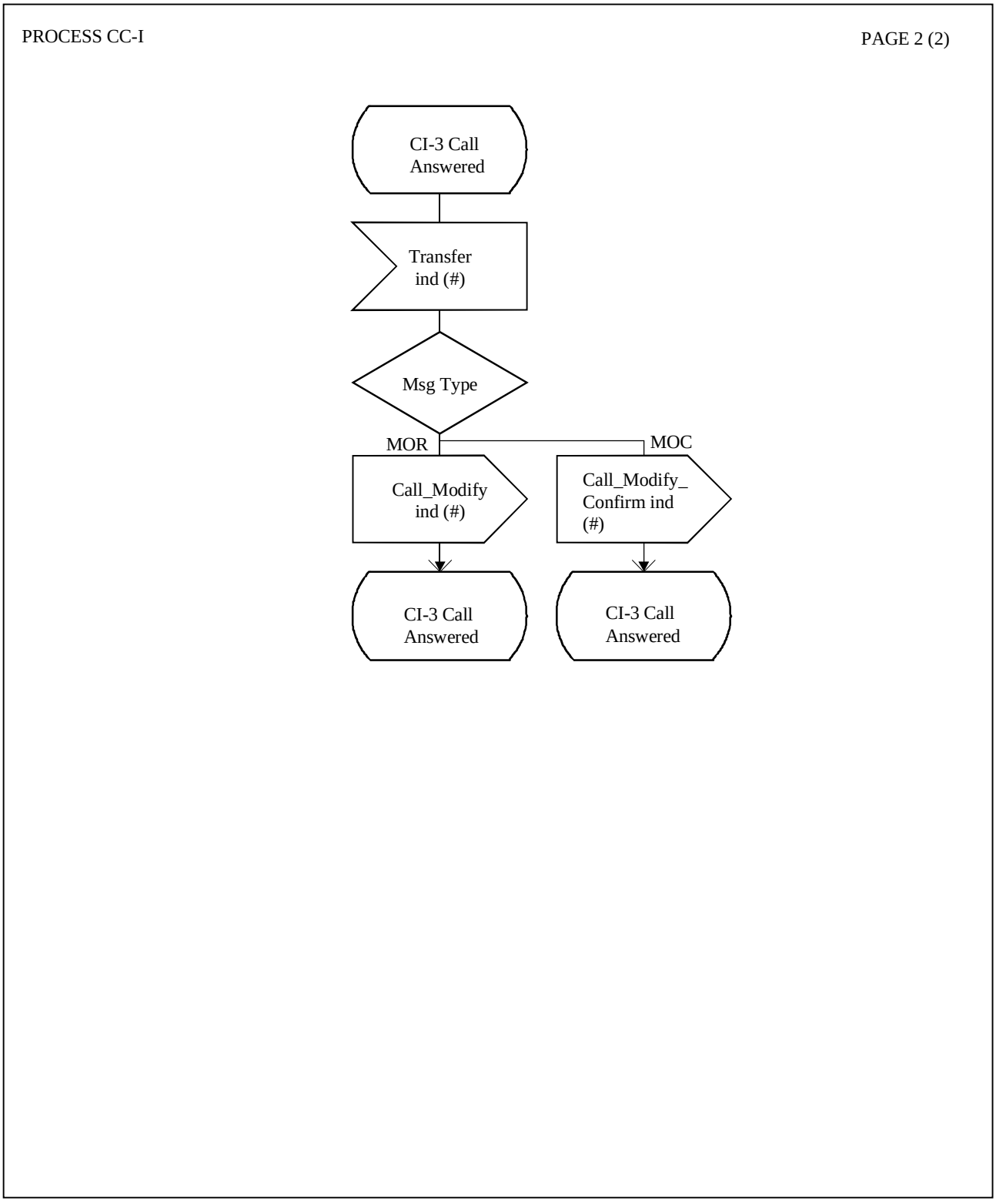


Figure 2-5/Q.2725.2 (sheet 2 of 2)

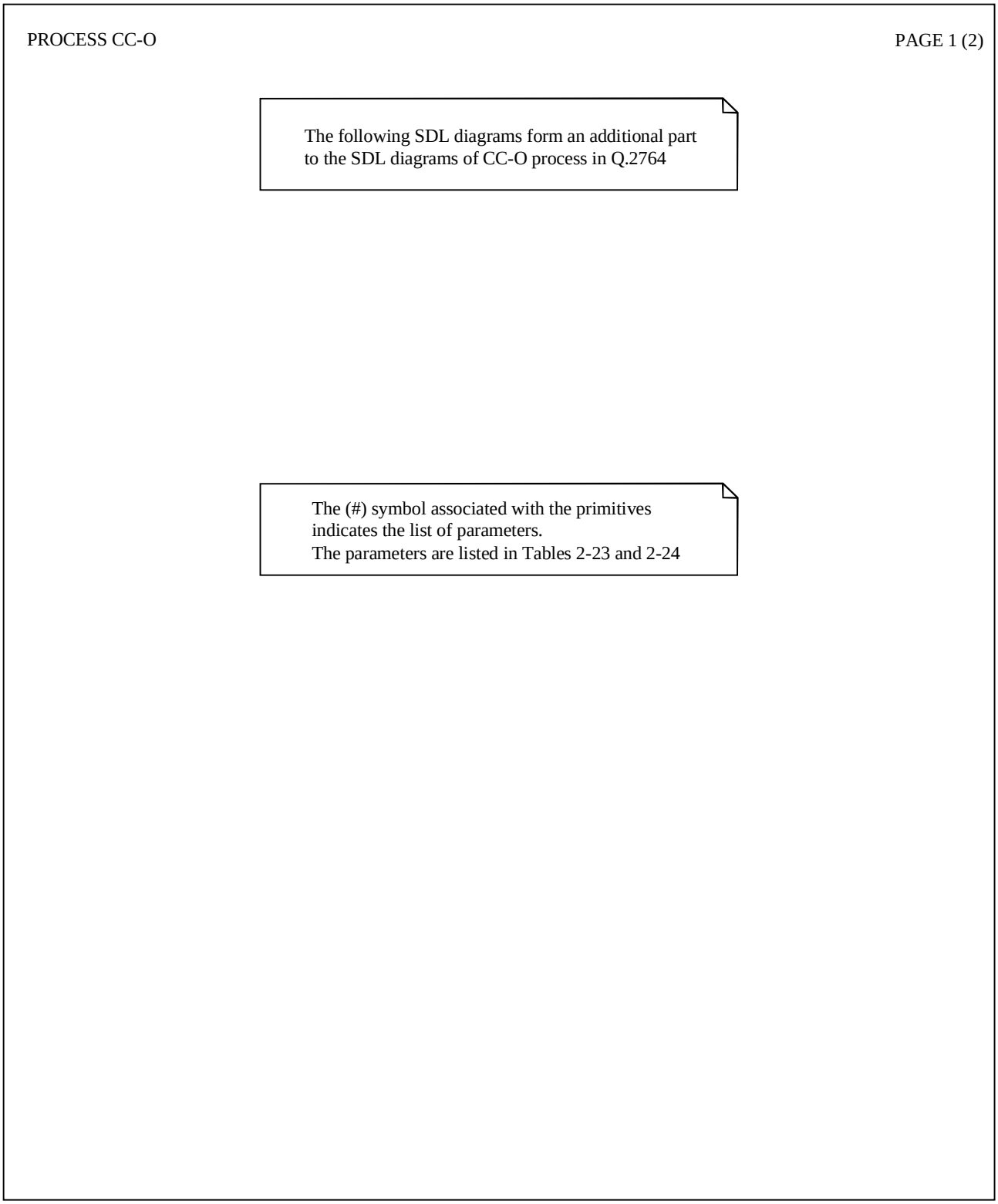


Figure 2-6/Q.2725.2 (sheet 1 of 2)

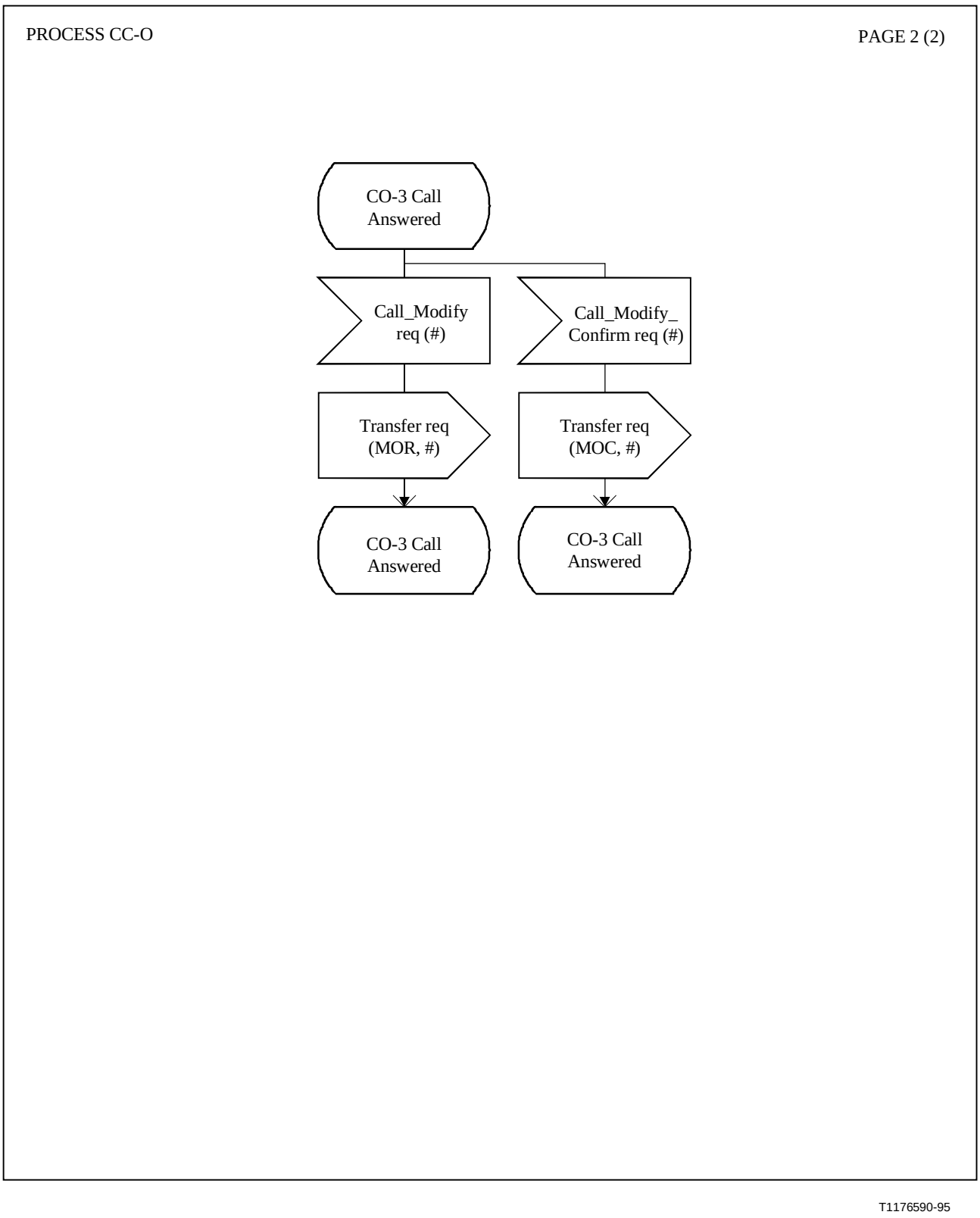


Figure 2-6/Q.2725.2 (sheet 2 of 2)

2.8 Maintenance Control ASE (MC ASE)

Clause 9/Q.2764 applies with no changes.

2.9 Unrecognized Information ASE (UI ASE)

Clause 10/Q.2764 applies with no changes.

2.10 Timers in B-ISUP

This clause specifies the Application Process and protocol timers used in addition to the ones relevant for the basic call as described in Recommendation Q.2764. For each timer the time-out value, cause for initiation of that timer, normal termination event(s) for the timer, and actions to be performed on expiry of the timer, are given. Furthermore, in the last column, reference to the relevant Application Process description or ASE description is given, where a full description of the procedure is to be found. See Table 2-25.

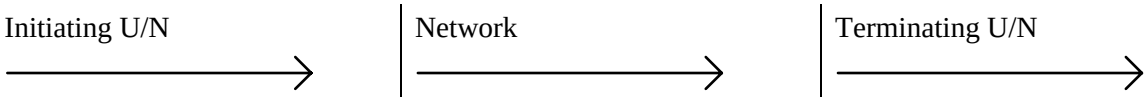
Table 2-25/Q.2725.2 – Timer in B-ISUP

Symbol (Name)	Time-Out Value	Cause For Initiation	Normal Termination	At Expiry	Reference
Await Modify Acknowledge (T43b)	20-30 seconds	When Modify message is sent	At receipt of Modify Acknowledge message or Modify Reject message	Initiate release connection procedure	2.3.6, 2.6.2.1.1, 2.6.2.1.2.2

2.11 Mapping tables for interworking with DSS 2

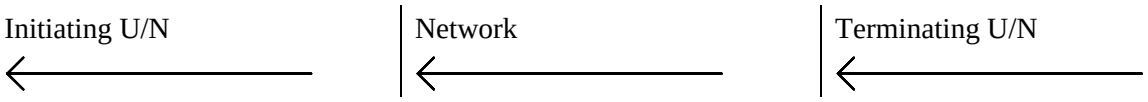
See Tables 2-26 to 2-29.

Table 2-26/Q.2725.2 – Mapping of Modification Request Procedure parameters



Modify Request	MOD	Modify Request
ATM traffic descriptor	ATM cell rate	ATM traffic descriptor
Notification indicator	Notification	Notification indicator

Table 2-27/Q.2725.2 – Mapping of Modification Acknowledge Procedure parameters



Modify Acknowledge	MOA	Modify Acknowledge
Report type (Note)	Report type (Note)	Report type (Note)
Notification indicator	Notification	Notification indicator
NOTE – This parameter is transferred only in the case that the terminating user requires confirmation procedure that is an option.		

Table 2-28/Q.2725.2 – Mapping of Modification Reject Procedure parameters

Initiating U/N ← | Network ← | Terminating U/N ←

Modify Reject	MOR	Modify Reject
Cause	Cause indicators	Cause
Notification indicator	Notification	Notification indicator

Table 2-29/Q.2725.2 – Mapping of Modification Confirm Procedure parameters

Initiating U/N → | Network → | Terminating U/N →

Connection Available	MOC	Connection Available
Notification indicator	Notification	Notification indicator

ANNEX A

B-ISUP example modification sequences

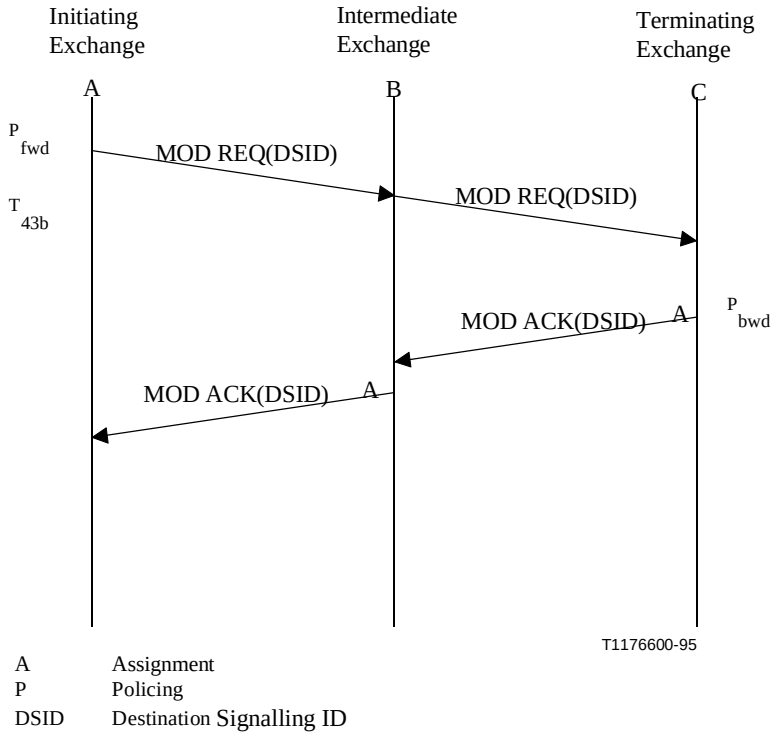


Figure A.1/Q.2725.2 – Example of successful modification for decreasing bandwidth

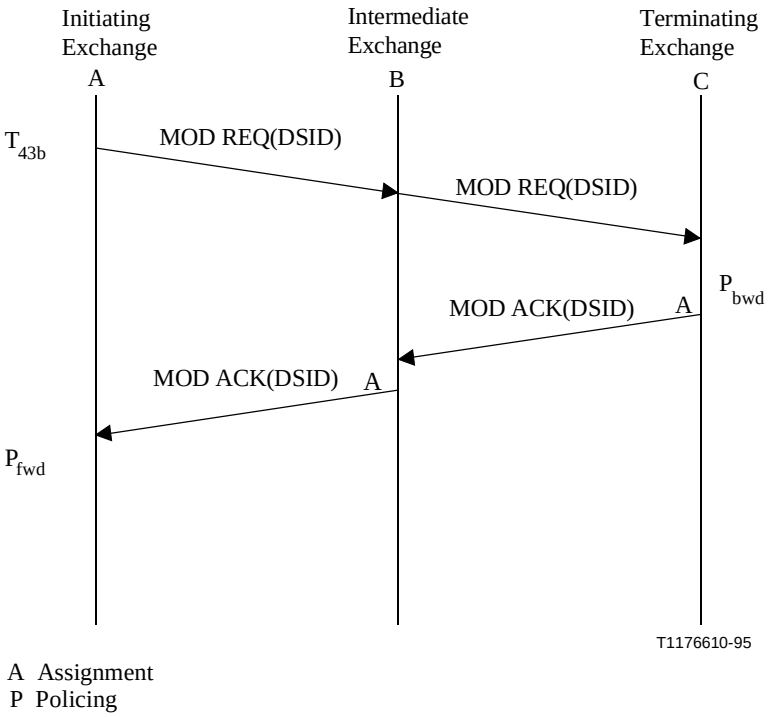


Figure A.2/Q.2725.2 – Example of a successful modification for increasing bandwidth

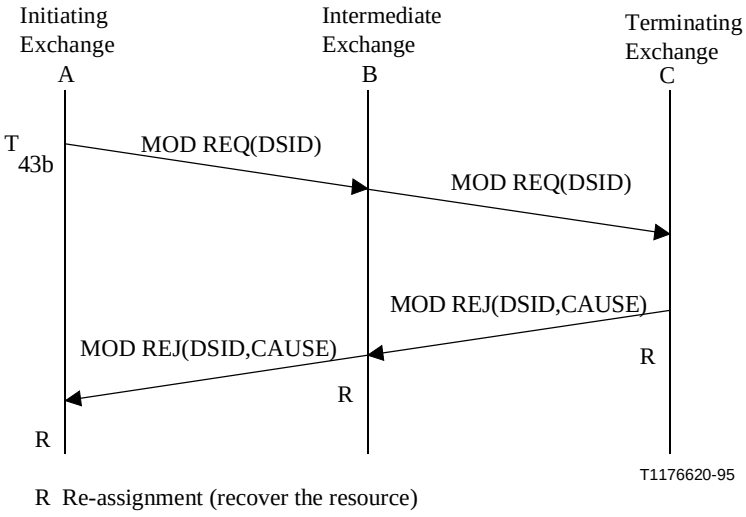


Figure A.3/Q.2725.2 – Example of unsuccessful Modification sequence

APPENDIX I

Coding of the message compatibility information

Table I.1/Q.2725.2 – Coding of the message compatibility information for Modify Request Message

Broadband/ narrow-band interworking indicator	Pass on not possible indicator	Discard message indicator	Send notification indicator	Release call indicator	Transit at intermediate exchange indicator
Discard message	Default (Note)	Discard message	Send notification	Do not release call	End node interpretation
NOTE – This indicator is not examined due to the setting of the other indicators.					

Table I.2/Q.2725.2 – Coding of the message compatibility information for Modify Acknowledge Message

Broadband/ narrow-band interworking indicator	Pass on not possible indicator	Discard message indicator	Send notification indicator	Release call indicator	Transit at intermediate exchange indicator
Discard message	Default (Note)	Discard message	Send notification	Do not release call	End node interpretation
NOTE – This indicator is not examined due to the setting of the other indicators.					

Table I.3/Q.2725.2 – Coding of the message compatibility information for Modify Reject Message

Broadband/ narrow-band interworking indicator	Pass on not possible indicator	Discard message indicator	Send notification indicator	Release call indicator	Transit at intermediate exchange indicator
Discard message	Default (Note)	Discard message	Send notification	Do not release call	End node interpretation
NOTE – This indicator is not examined due to the setting of the other indicators.					

Table I.4/Q.2725.2 – Coding of the message compatibility information for Modify Confirm Message

Broadband/ narrow-band interworking indicator	Pass on not possible indicator	Discard message indicator	Send notification indicator	Release call indicator	Transit at intermediate exchange indicator
Discard message	Discard message	Do not discard message	Do not send notification	Do not release call	Transit interpretation

APPENDIX II

Coding of the parameter compatibility information

Table II.1/Q.2725.2 – Coding of the parameter compatibility information for Report Type parameter

Pass on not possible indicator	Discard parameter indicator	Discard message indicator	Send notification indicator	Release call indicator	Transit at intermediate exchange indicator	Broadband/ narrow-band interworking indicator
Discard parameter	Do not discard parameter	Do not discard message	Do not send notification	Do not release call	Transit interpretation	Discard parameter

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