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ETSI

European Telecommunications Standards Institute

ETSI Secretariat

Postal address: F-06921 Sophia Antipolis CEDEX - FRANCE
Office address: 650 Route des Lucioles - Sophia Antipolis - Valbonne - FRANCE
X.400: c=fr, a=atlas, p=etsi, s=secretariat - **Internet:** secretariat@etsi.fr

Tel.: +33 92 94 42 00 - Fax: +33 93 65 47 16

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Foreword

This European Telecommunication Standard (ETS) has been produced by the Signalling Protocols & Switching (SPS) Technical Committee of the European Telecommunications Standards Institute (ETSI).

In accordance with CCITT Recommendation I.130 [1], the following three level structure is used to describe the supplementary telecommunications services as provided by European public telecommunications operators under the pan-European Integrated Services Digital Network (ISDN):

- Stage 1: is an overall service description, from the user's standpoint;

- Stage 2: identifies the functional capabilities and information flows needed to support the service described in stage 1; and

- Stage 3: defines the signalling system protocols and switching functions needed to implement the service described in stage 1.

This ETS details the stage two aspects (functional capabilities and information flows) needed to support the Calling Line Identification Presentation and Restriction (CLIP and CLIR) supplementary services. The stage 1 aspects are detailed in ETS 300 089 (1992) and ETS 300 090 (1992), and the stage three aspects in ETS 300 092 (1992) and ETS 300 093 (1992), respectively.

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1 Scope

This standard defines the stage two of the pan-European Integrated Services Digital Network (ISDN) as provided by the European public telecommunications operators for the Calling Line Identification Presentation (CLIP) and Calling Line Identification Restriction (CLIR) supplementary services. Stage two identifies the functional capabilities and the information flows needed to support the service description. The stage two description also identifies user operations not directly associated with a call (see CCITT Recommendation I.130 [1]).

This standard is defined according to the methodology specified in CCITT Recommendation Q.65 [2].

This standard does not formally describe the relationship between these supplementary services and the basic call but where possible this information is included for guidance.

In addition this standard does not specify the requirements where the service is provided to the user via a private ISDN. This standard does not specify the requirements for the allocation of defined functional entities within a private ISDN; it does however define which functional entities may be allocated to a private ISDN.

This standard does not specify the additional requirements where the service is provided to the user via a telecommunications network that is not an ISDN.

The CLIP supplementary service provides the called party with the possibility to receive identification of the calling party.

The CLIR supplementary service enables the calling party to prevent presentation of its ISDN number to the called party.

The CLIP and CLIR supplementary services are applicable to all telecommunication services.

This standard is applicable to the stage three standards for the ISDN CLIP and CLIR supplementary services, as defined in CCITT Recommendation I.130 [1]. Where the text indicates the status of a requirement, i.e. as a strict command or prohibition, as authorisation leaving freedom, as a capability or possibility, this shall be reflected in the text of the relevant stage three standards.

Furthermore, conformance to this standard is met by conforming to the stage three standards with the field of application appropriate to the equipment being implemented. Therefore, no method of testing is provided for this standard.

2 Normative references

This ETS incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to, or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

[1] CCITT Recommendation I.130 (1988): "Method for the characterisation of telecommunication services supported by an ISDN and network capabilities of an ISDN".

[2] CCITT Recommendation Q.65 (1988): "Stage 2 of the method for the characterisation of services supported by an ISDN".

[3] ETS 300 089 (1992): "Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service; Service description".

[4] ETS 300 090 (1992): "Integrated Services Digital Network (ISDN); Calling Line Identification Restriction (CLIR) supplementary service; Service description".

[5] CCITT Recommendation Q.71 (1988): "ISDN 64 kbit/s circuit mode bearer services".

[6] CCITT Recommendation I.112 (1988): "Vocabulary of terms for ISDNs".

[7] CCITT Recommendation I.210 (1988): "principles of telecommunication services supported by an ISDN and the means to describe them".

[8] CCITT Recommendation E.164 (1988): "Numbering plan for the ISDN era".

[9] CCITT Recommendation I.330 (1988): "ISDN numbering and addressing principles".

[10] CCITT Recommendation Z.100 (1988): "Functional Specification Description Language (SDL)".

[11] ETS 300 062 (1991): "Integrated Services Digital Network (ISDN); Direct Dialling In (DDI) supplementary service; Service description".

[12] ETS 300 050 (1991): "Integrated Services Digital Network (ISDN); Multiple Subscriber Number (MSN) supplementary service; Service description".

3 Definitions

For the purposes of this standard, the following definitions apply:

Integrated Services Digital Network (ISDN): see CCITT Recommendation I.112 [6] § 2.3 definition 308.

Service; telecommunications service: see CCITT Recommendation I.112 [6] § 2.2 definition 201.

Supplementary service: see CCITT Recommendation I.210 [7] § 2.4.

ISDN number: a number conforming to the numbering plan and structure specified in CCITT Recommendation E.164 [8].

Subaddress: see CCITT Recommendation I.330 [9] § 5.4.

Calling line identity: the address (the ISDN number, and if supplied the subaddress) of the calling line, and the screening indicator. If these are not available the reason is indicated, via the presentation indicator.

Presentation Indicator (PI): the PI provides instructions on whether or not the provided calling line identity is allowed to be presented, or indicates that the number is not available.

Screening Indicator (SI): the SI provides information on the source and the quality of the provided information.

International number: an ISDN number structured as specified in § 3.2 (in the paragraphs relating to international number) of CCITT Recommendation E.164 [8].

National number; National significant number: an ISDN number structured as specified in § 3.2 (in the paragraphs relating to national significant number) of CCITT Recommendation E.164 [8].

Subscriber number: an ISDN number structured as specified in § 3.2 (in the paragraphs relating to subscriber number) of CCITT Recommendation E. 164 [8].

Partial Number: a part of an ISDN number which is significant for distinguishing between addressable entities beyond the network boundary. The partial number digits and the partial number length shall be governed by the requirements of the Direct Dialling In and Multiple Subscriber Number supplementary services (see ETS 300 062 [11] and 300 050 [12]).

4 Symbols and abbreviations

CC	Call Control
CCA	Call Control Agent
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
FEA	Functional Entity Action
INT TR	International Transit Exchange
ISDN	Integrated Services Digital Network
LE	Local Exchange
PI	Presentation Indicator
PTNX	Private Telecommunications Network Exchange
SDL	Specification and Description Language
SI	Screening Indicator
TE	Terminal Equipment

5 Description

The relationship between the CLIP and the CLIR supplementary services is described in ETS 300 089 [3], subclause 6.3.3, and ETS 300 090 [4], subclause 6.1.

The provisions for overriding the CLIP supplementary service are described in ETS 300 089 [3], subclause 8.5.4, and ETS 300 090 [4], subclause 5 and subclause 6.2.3.

6 Derivation of a functional model

6.1 Functional model description

The model for the CLIP and CLIR supplementary services is shown in figure 1.

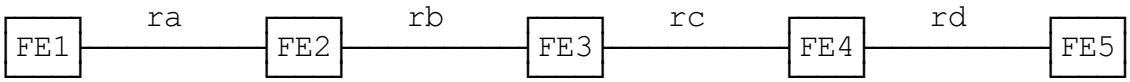

Figure 1: Functional model

6.2 Description of the functional entities

The functional entities required by the CLIP and CLIR supplementary services above those of the basic call are as follows:

FE1: caller provided information and CLIR requesting entity

FE2: service information checking entity

FE3: handling of calling line identity at international gateway

FE4: service providing entity

FE5: service requesting entity

6.3 Relationship with a basic service

The relationship with a basic service is shown in figure 2.

NOTE: The basic call model is defined in CCITT Recommendation Q.71 [5], § 2.1, with the exception that r1 represents an outgoing call relationship from a CCA and r3 represents an incoming call relationship to a CCA.

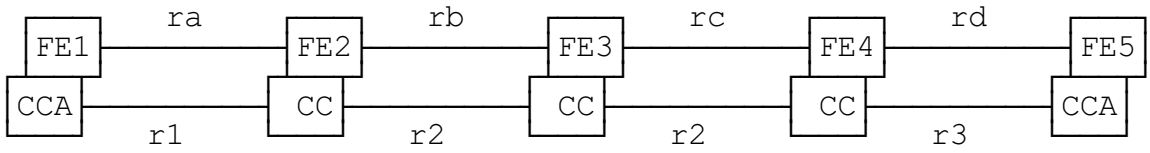

Figure 2: Example of a mapping of the functional model on a model for the basic call

7 Information flows

7.1 Information flow diagrams

Figure 3 shows the information flow diagrams for the CLIP and the CLIR supplementary services.

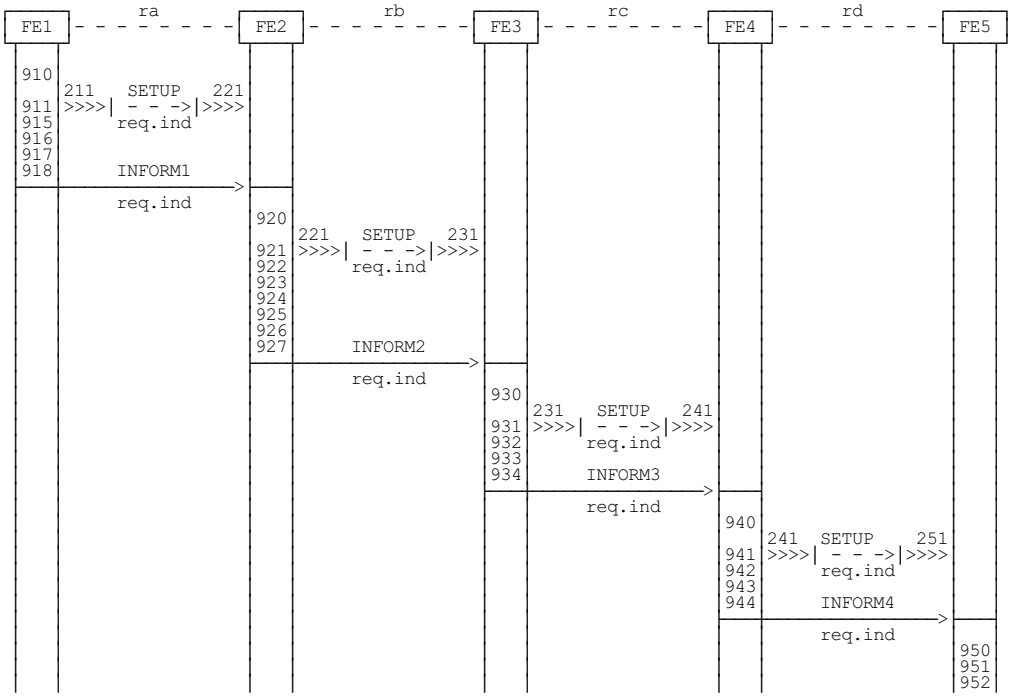

Figure 3

7.2 Definition of individual information flows

Within the definitions below, the PI can take one of the following three rules:

a) presentation allowed; or

b) presentation restricted; or

c) number not available.

Within the definitions below the SI can take one of the following three rules:

a) user provided, verified and passed; or

b) network provided; or

c) user provided, not screened.

7.2.1 Relationship ra

7.2.1.1 Contents of INFORM1

The contents of the INFORM1 are shown in table 1.

The contents for SETUP are as specified for basic call (see CCITT Recommendation Q.71 [5]).

Table 1

Parameter	Allowed value	req.ind
Number information		O (NOTE 1)
- Numbering plan identification	ISDN number	M
- Type of number	Partial number Subscriber number National number International number (NOTE 2)	M
- Number digits		M
- Subaddress		O (NOTE 3)
Presentation indicator	Presentation allowed Presentation restricted	O (NOTE 4)

NOTE 1: Included if FE1 provides information
NOTE 2: When a special arrangement exists only national or international number is allowed
NOTE 3: May be omitted even if number information is provided
NOTE 4: This information flow is included only in the case that the CLIR supplementary service temporary mode is invoked in the terminal

7.2.2 Relationship rb

7.2.2.1 Contents of INFORM2

The contents of the INFORM2 are shown in table 2. The contents for SETUP are as specified for basic call (see CCITT Recommendation Q.71 [5]).

Table 2

Parameter	Allowed value	req.ind
Number information		M
- Numbering plan identification	ISDN number	M
- Type of number	National number International number	M
- Number digits		M
- Subaddress		O (NOTE 1)
Presentation indicator (PI)	Presentation allowed Presentation restricted	M
Screening indicator (SI)	Network provided number User provided number, verified and passed User provided number, not screened	M
NOTE 1: This information flow is included only in the case that FE1 provides the information		

7.2.3 Relationship rc

7.2.3.1 Contents of INFORM3

The contents of the INFORM3 are those in table 3. The contents for SETUP are as specified for basic call (see CCITT Recommendation Q.71 [5]).

Table 3

Parameter	Allowed value	req.ind
Number information		M
- Numbering plan identification	ISDN number	M
- Type of number	National number International number	M
- Number digits		M
- Subaddress		O (NOTE 1)
Presentation indicator (PI)	Presentation allowed Presentation restricted Number not available	M (NOTE 2)
Screening indicator (SI)	Network provided number User provided number, verified and passed User provided number, not screened	M

NOTE 1: This information flow is included only in the case that FE1 provides the information.
NOTE 2: No number information is provided in the case that the CLIR supplementary service applies and no bilateral agreement exists between the networks for the handling of restricted information

7.2.4 Relationship rd

7.2.4.1 Contents of INFORM4

The contents of the INFORM4 are those in table 4. The contents for SETUP are as specified for basic call (see CCITT Recommendation Q.71 [5]).

Table 4

Parameter	Allowed value	req.ind
Number information		M
- Numbering plan identification	ISDN number	M
- Type of number	National number International number	M
- Number digits		M
- Subaddress		O (NOTE 1)
Presentation indicator (PI)	Presentation allowed Presentation restricted Number not available	M (NOTE 2)
Screening indicator (SI)	Network provided number User provided number, verified and passed User provided number, not screened	M

NOTE 1: This information flow is included only in the case that FE1 provides the information.
NOTE 2: No number information is provided in the case that the CLIR supplementary service applies.

8 SDL diagrams for functional entities

The Specification and Description Language (SDL) diagrams are provided according to CCITT Recommendation Z.100 [10].

8.1 FE1

The SDL for FE1 is shown in figures 4 and 5.

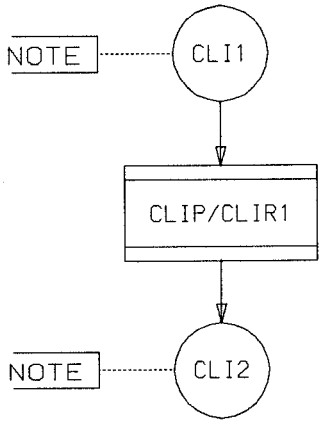

Figure 4

Note to figure 4.

NOTE: CLI1 and CLI2 break the basic call transition:

- during FEA211 (see figure 2-8 (sheet 1 of 11) of CCITT Recommendation Q.71 [5]) immediately following the "Y" branch of the task "Process Service Request Connect". CLI2 reconnects at the same point; or

- after sending SETUP req.ind (see figure 2-9 (sheet 2 of 19) of CCITT Recommendation Q.71 [5]). CLI2 reconnects at the same point; or

- during FEA231 (see figure 2-19 (sheet 1 of 19) of CCITT Recommendation Q.71 [5]) immediately following the decision "Successful". CLI2 reconnects at the same point.

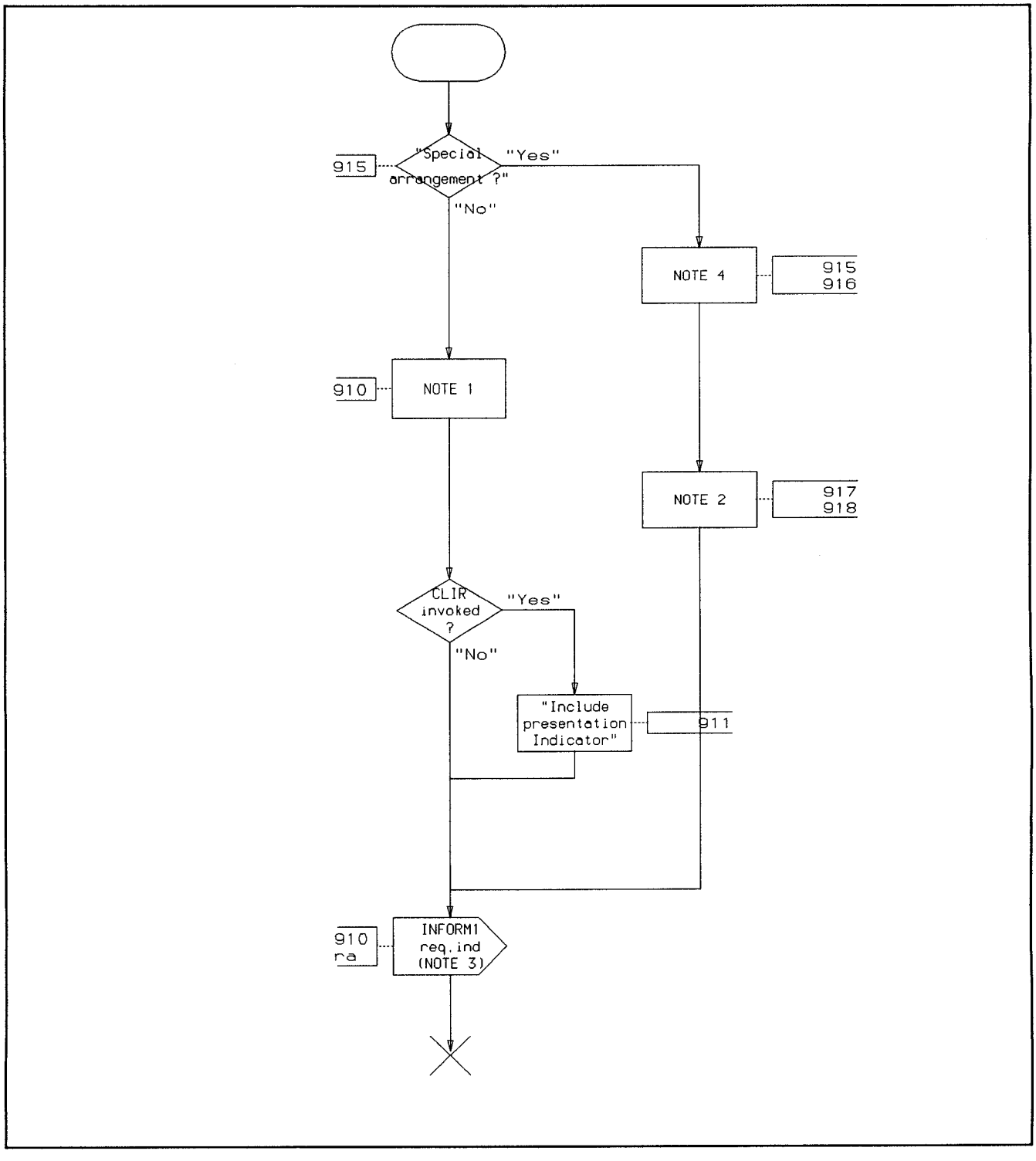
915
"Special arrangement ?"
"Yes"
"No"
NOTE 4
915
916
910
NOTE 1
NOTE 2
917
918
CLIR invoked ?
"Yes"
"No"
"Include presentation Indicator"
911
910
INFORM1 req.ind (NOTE 3)

Figure 5

Notes to figure 5.

NOTE 1: "Provide a partial, or subscriber, or national, or international number according to originating user's request."

NOTE 2: "Set type of numbers national or international number" and "Set numbering plan identification ISDN number".

NOTE 3: INFORM1 req.ind is sent at the same time as the basic call SETUP req.ind. In at least one scenario, INFORM1 req.ind carries identical calling number information to that transferred as a result of the multiple subscriber number supplementary service.

NOTE 4: Provide a complete national or international ISDN number.

8.2 FE2

The SDL for FE2 is shown in figure 6, 7 and 8.

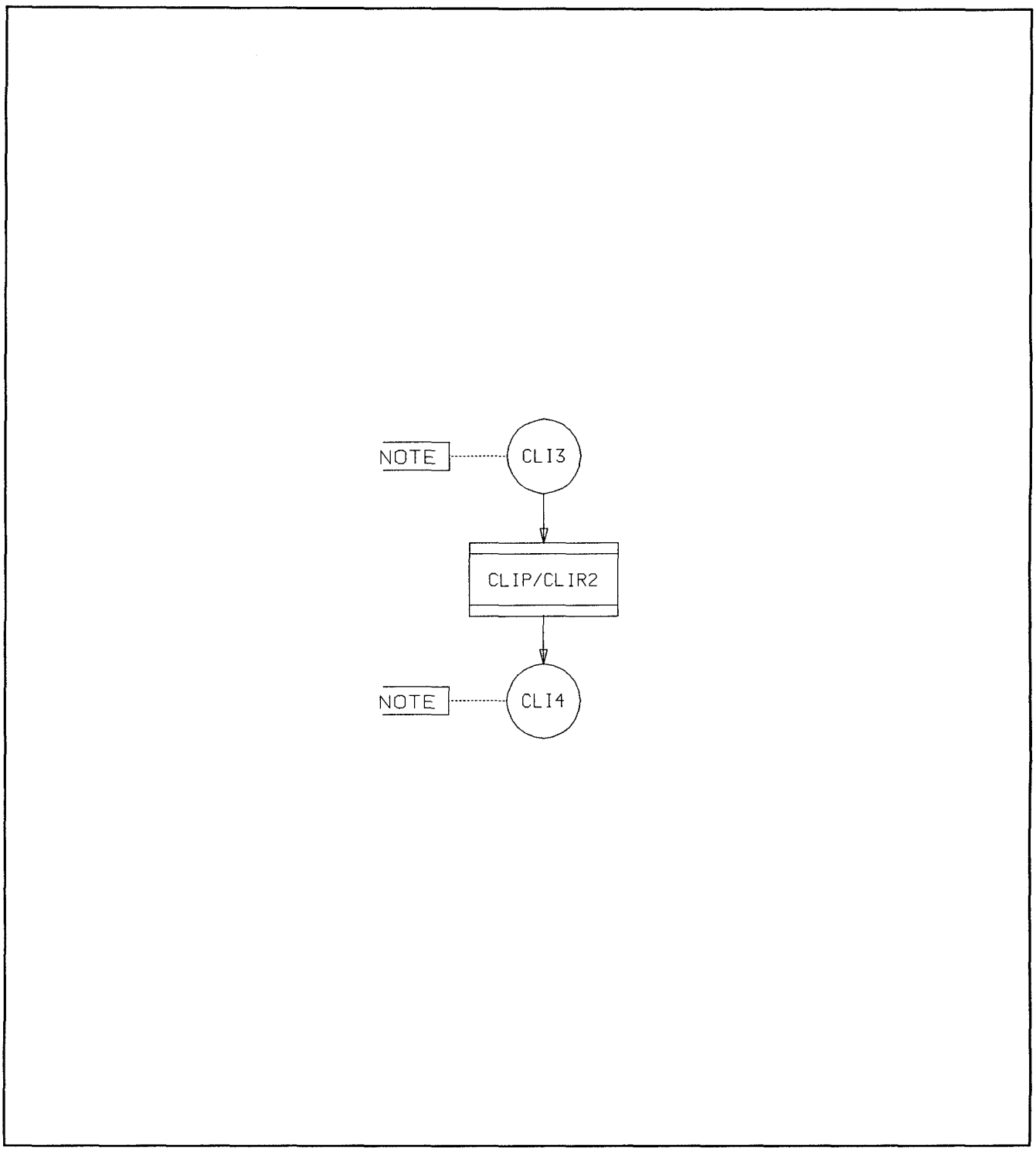

Figure 6

Note to figure 6.

NOTE: CLI3 and CLI4 break the basic call transition:

- after sending SETUP req.ind (see figure 2-9 (sheet 2 of 19) of CCITT Recommendation Q.71 [5]. CLI4 reconnects at the same point; or

- during FEA231 (see figure 2-9 (sheet 1 of 19) of CCITT Recommendation Q.71 [5] immediately following the decision "Successful", CLI4 reconnects at the same point.

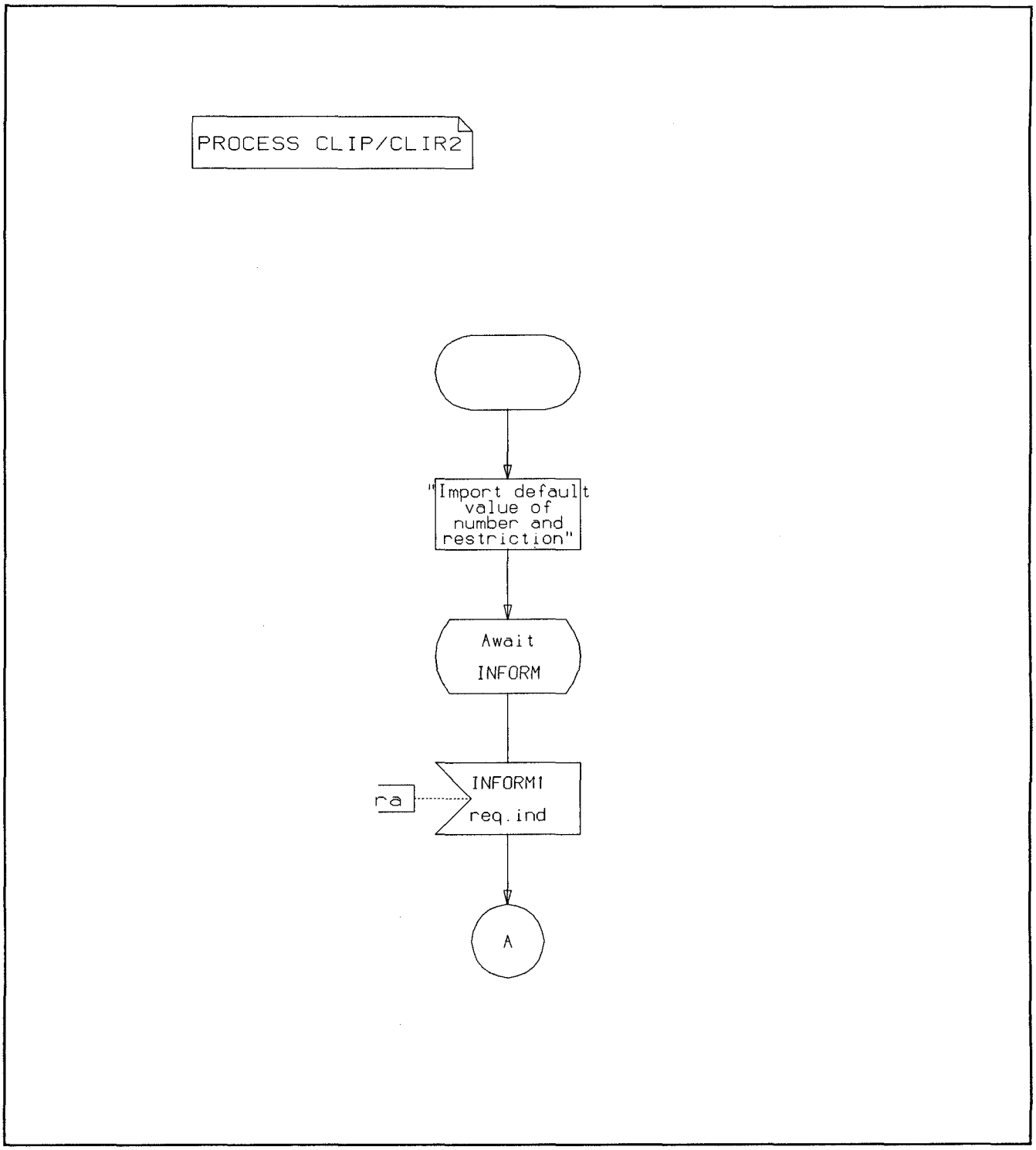

Figure 7 (Sheet 1 of 2)

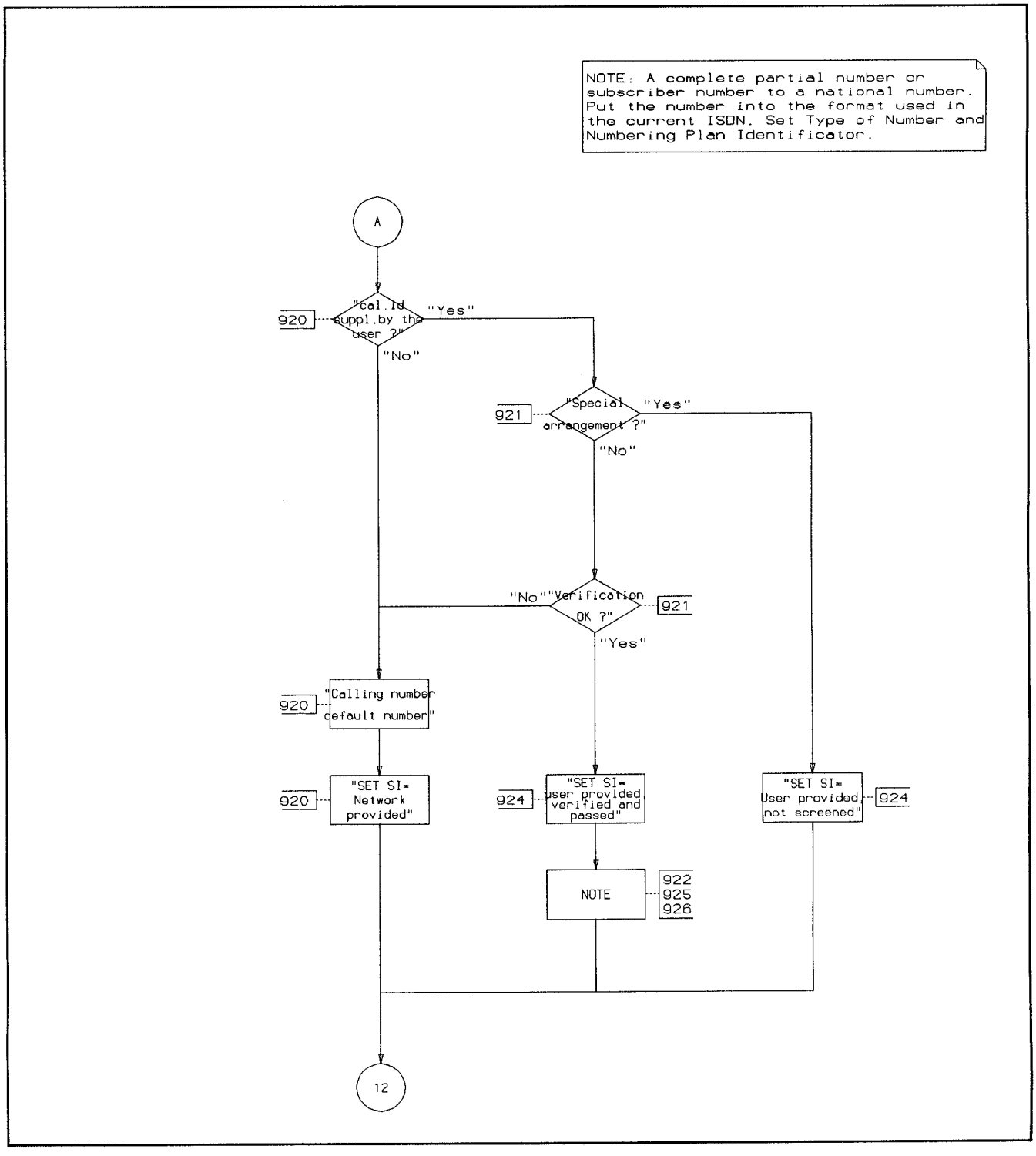

Figure 7 (Sheet 2 of 2)

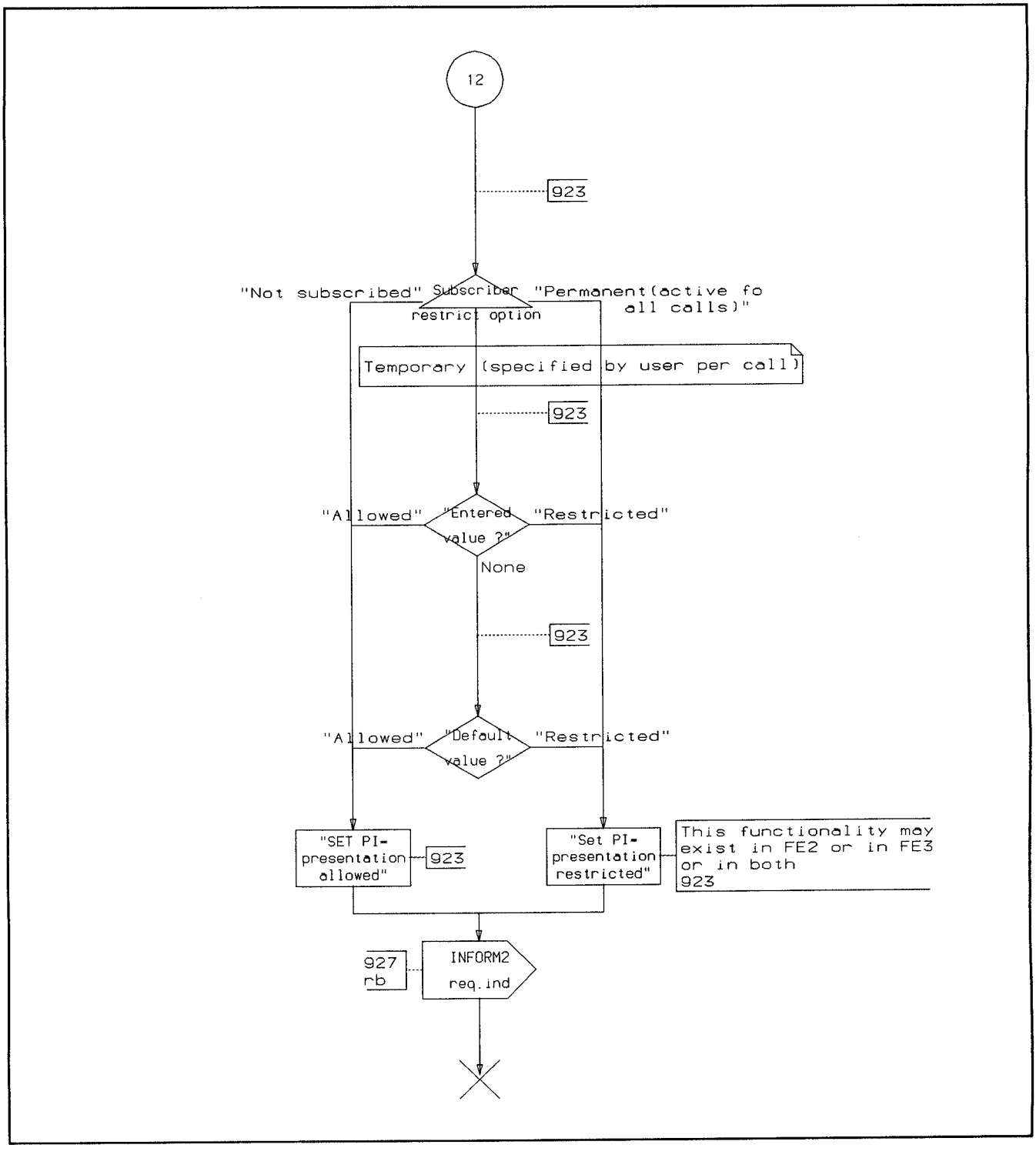
12
923
"Not subscribed"
Subscriber restrict option
"Permanent(active fo all calls)"
Temporary (specified by user per call)
923
"Allowed"
"Entered value ?"
"Restricted"
None
923
"Allowed"
"Default value ?"
"Restricted"
"SET PI-presentation allowed"
923
"Set PI-presentation restricted"
This functionality may exist in FE2 or in FE3 or in both
923
927 rb
INFORM2 req.ind

Figure 8

Note to figure 8.

NOTE: When the CLIR supplementary service is invoked, some network providers may not send the calling line identity to other network providers. The functionality to do this may exist either in FE2 or in FE3 or in both.

8.3 FE3

The SDL for FE3 is shown in figure 9 and 10.

In the case of a national call, FE3 has null functionality.

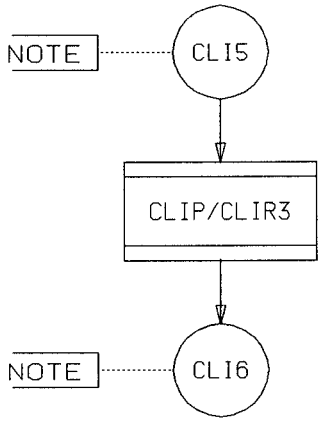

Figure 9

Note to figure 9.

NOTE: CLI5 and CLI6 break the basic call transition during FEA231 (see figure 2-9 sheet 1 of 19) of CCITT Recommendation Q.71 [5] immediately following the decision "Successful" CLI6 reconnects at the same point.

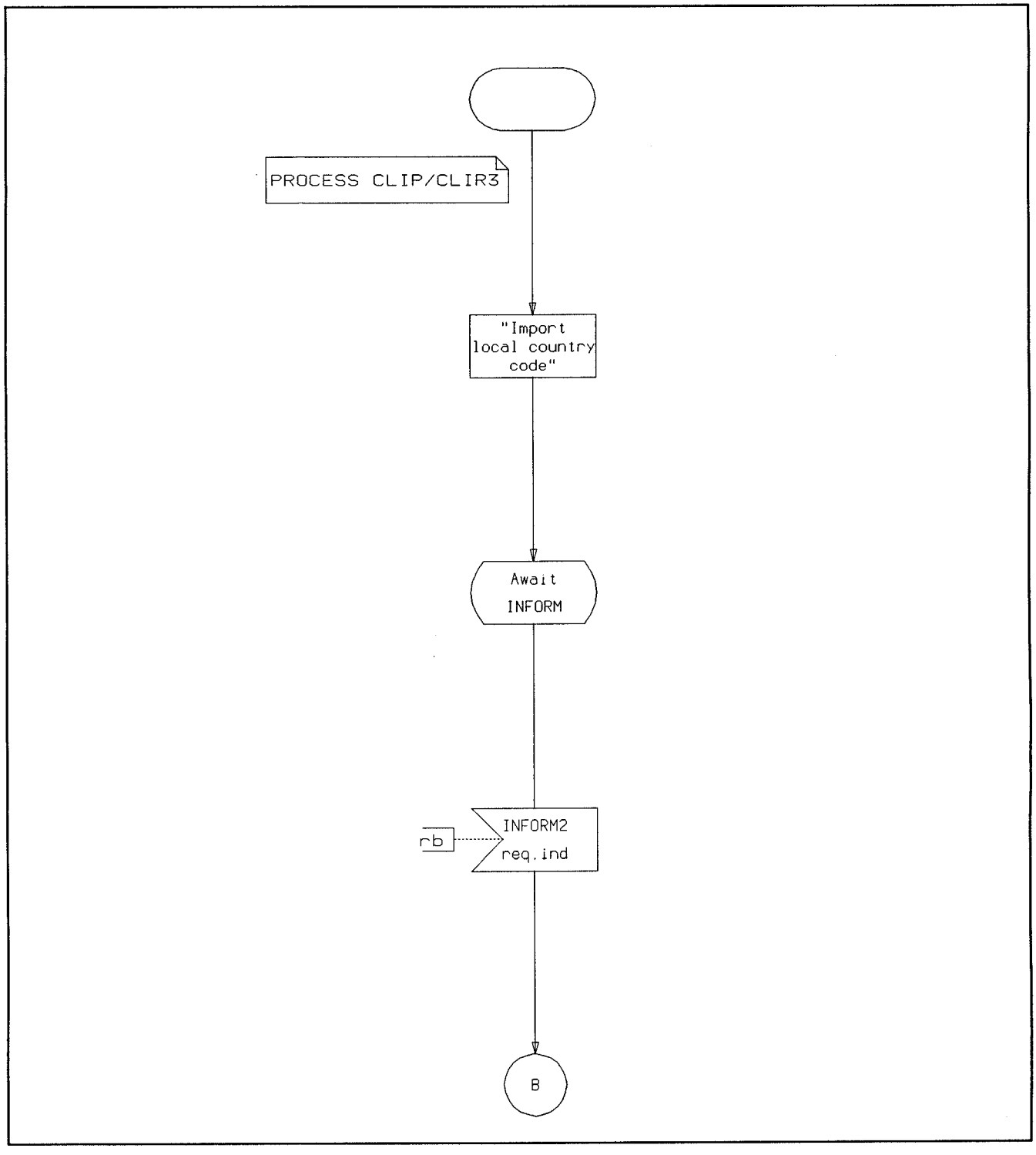

Figure 10 (Sheet 1 of 2)

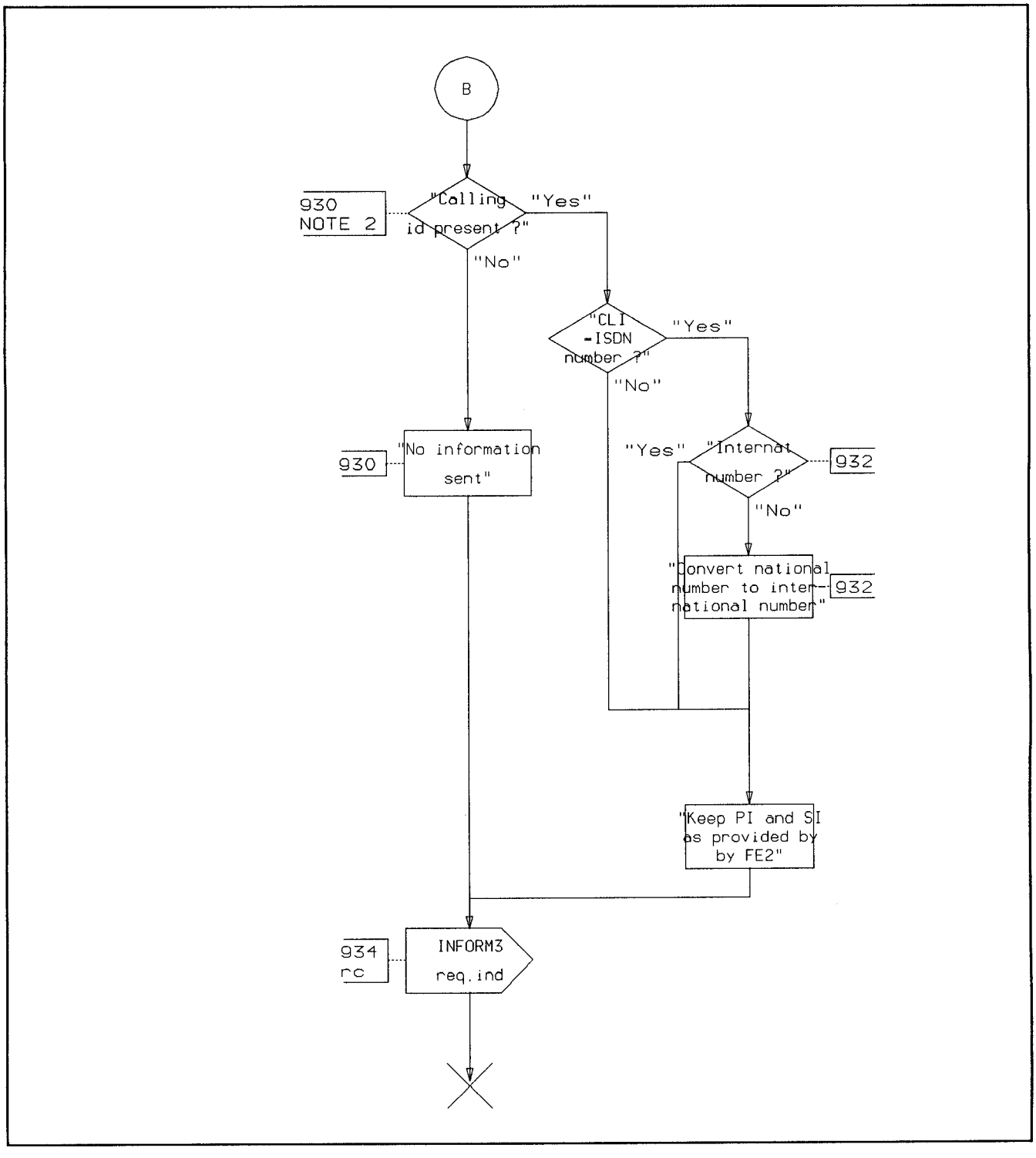

Figure 10 (Sheet 2 of 2)

Notes to figure 10.

NOTE 1: When the CLIR supplementary service is invoked, some network providers may not send the calling line identity to other network providers. The functionality to do this may exist either in FE2 or in FE3 or in both.

NOTE 2: "Calling id.present" = "No" when:
- an incomplete number is received; or
- no information is received.

8.4 FE4

The SDL for FE4 is shown in figure 11 and 12.

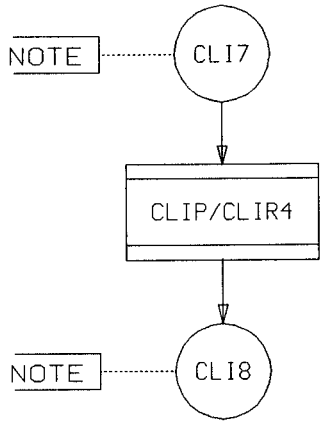

Figure 11

Note to figure 11.

NOTE: CLI7 and CLI8 break the basic call transition:

- during FEA231 (see figure 2-9 (sheet 1 of 19) of CCITT Recommendation Q.71 [5] immediately following the decision "Successful". CLI8 reconnects at the same point; or

- during FEA241 (see figure 2-9 (sheet 1 of 19) of CCITT Recommendation Q.71 [5] immediately following the "Yes" branch of the decision "Supplementary services provided". CLI8 reconnects on the "No" branch of the same decision.

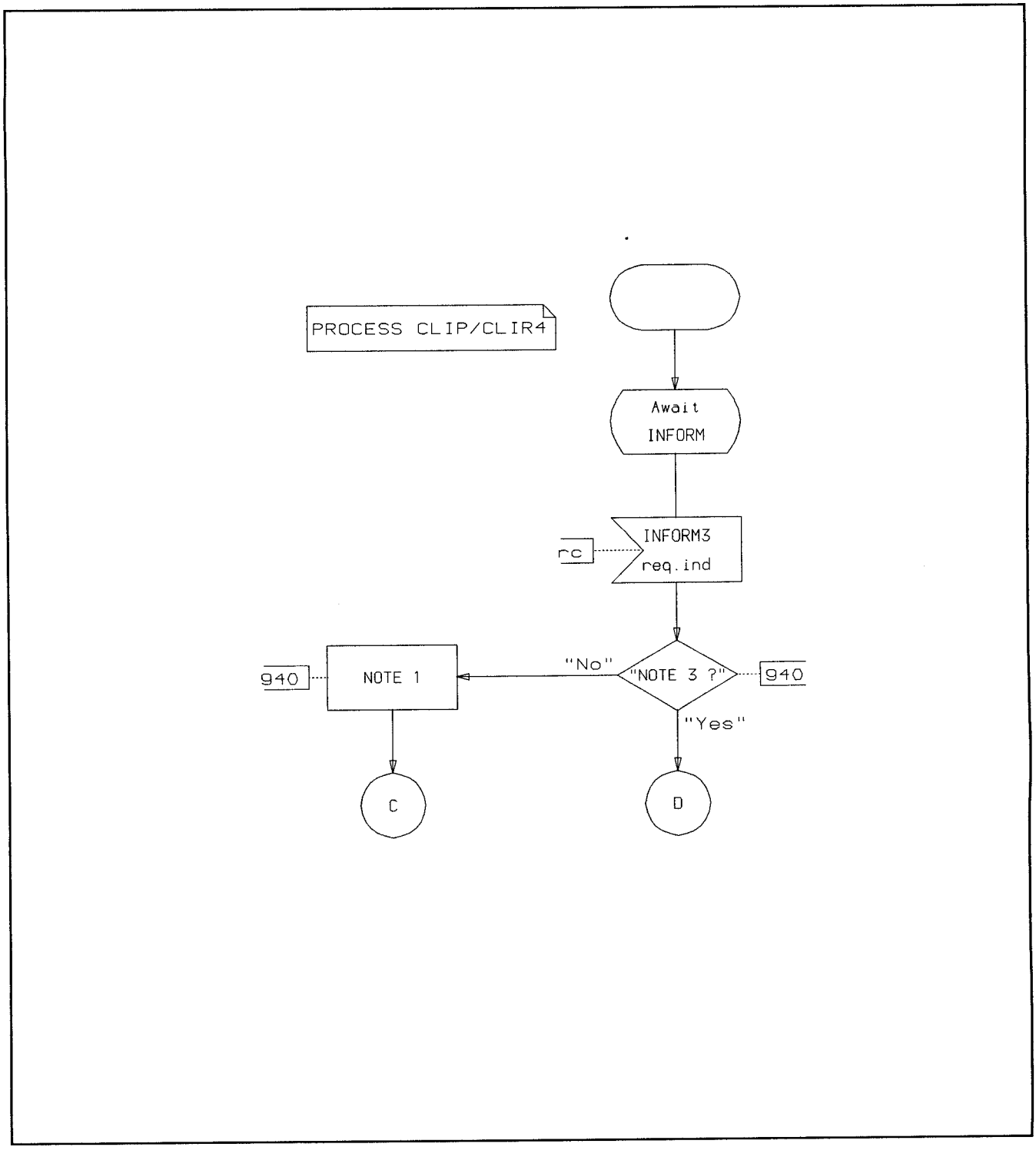

Figure 12 (Sheet 1 of 2)

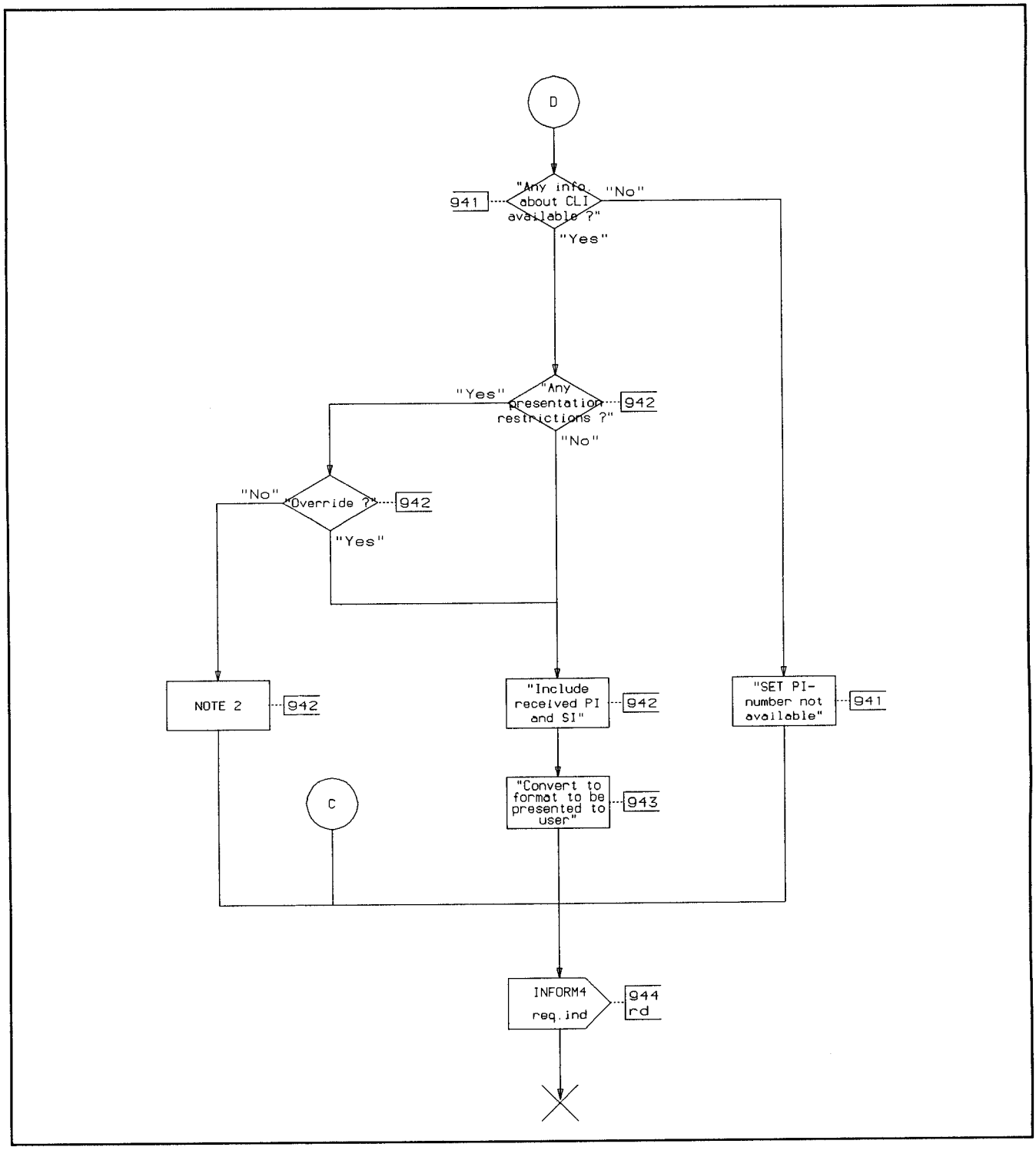

Figure 12 (Sheet 2 of 2)

Notes to figure 12.

NOTE 1: No information about the Calling Line Identity is sent to the Called party.

NOTE 2: SET PI - presentation Restricted. Numbering information will not be presented to the Called party.

NOTE 3: CLIP subscribed to or CLIP generally available

8.5 FE5

The SDL for FE5 is shown in figure 13 and 14.

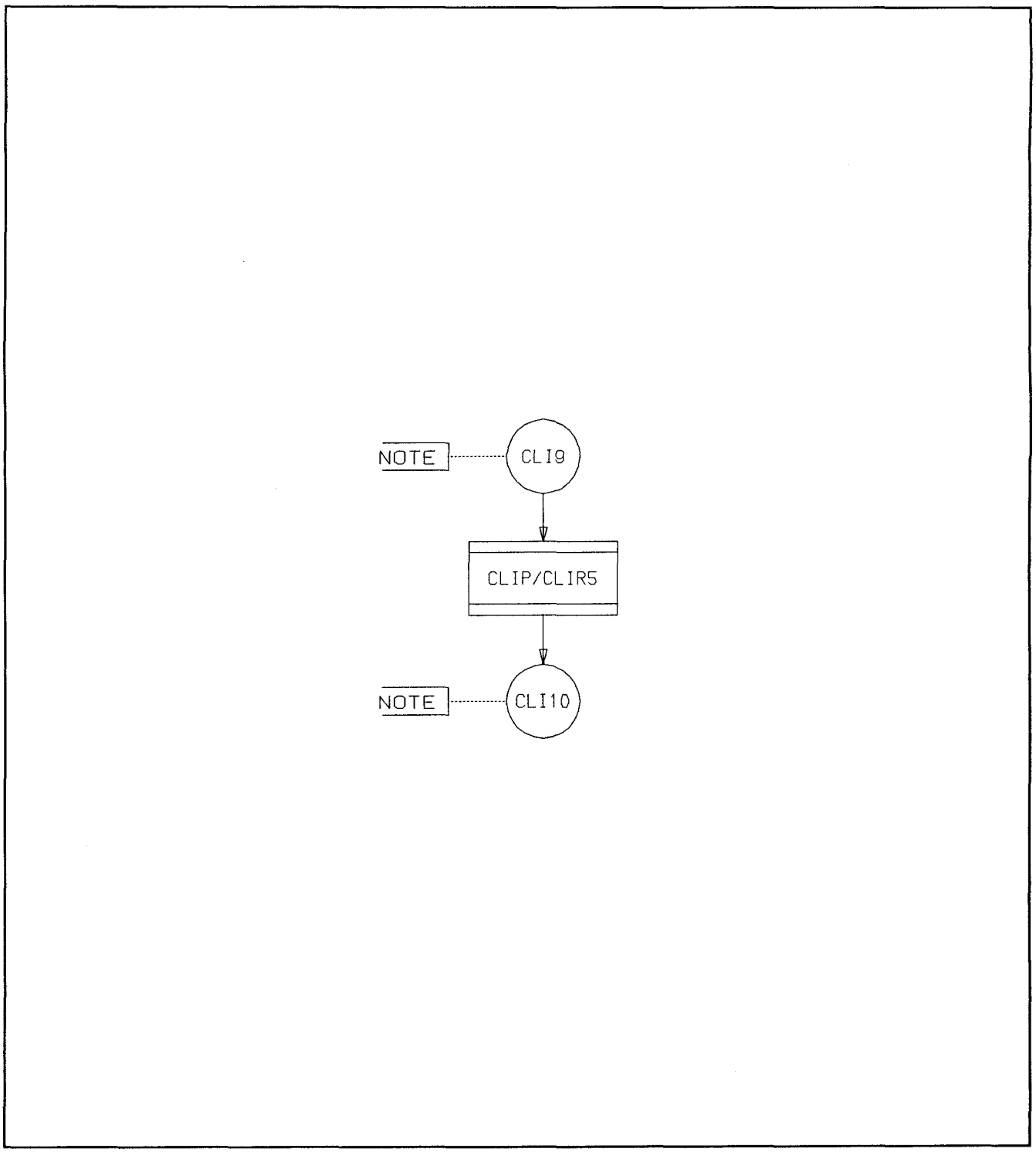

Figure 13

Note to figure 13.

NOTE: CLI9 and CLI10 break the basic call transition:

- during FEA231 (see figure 2-9 (sheet 1 of 19) of CCITT Recommendation Q.71 [5] immediately following the decision "Successful". CLI8 reconnects at the same point; or

- during FEA241 (see figure 2-9 (sheet 1 of 19) of CCITT Recommendation Q.71 [5] immediately following the "Yes" branch of the decision "Supplementary services provided". CLI8 reconnects on the "No" branch of the same decision.

- during FEA251 (see figure 2-8 (sheet 1 of 11) of CCITT Recommendation Q.71 [5] following the task "Process attempt". CLI10 reconnects at the same point.

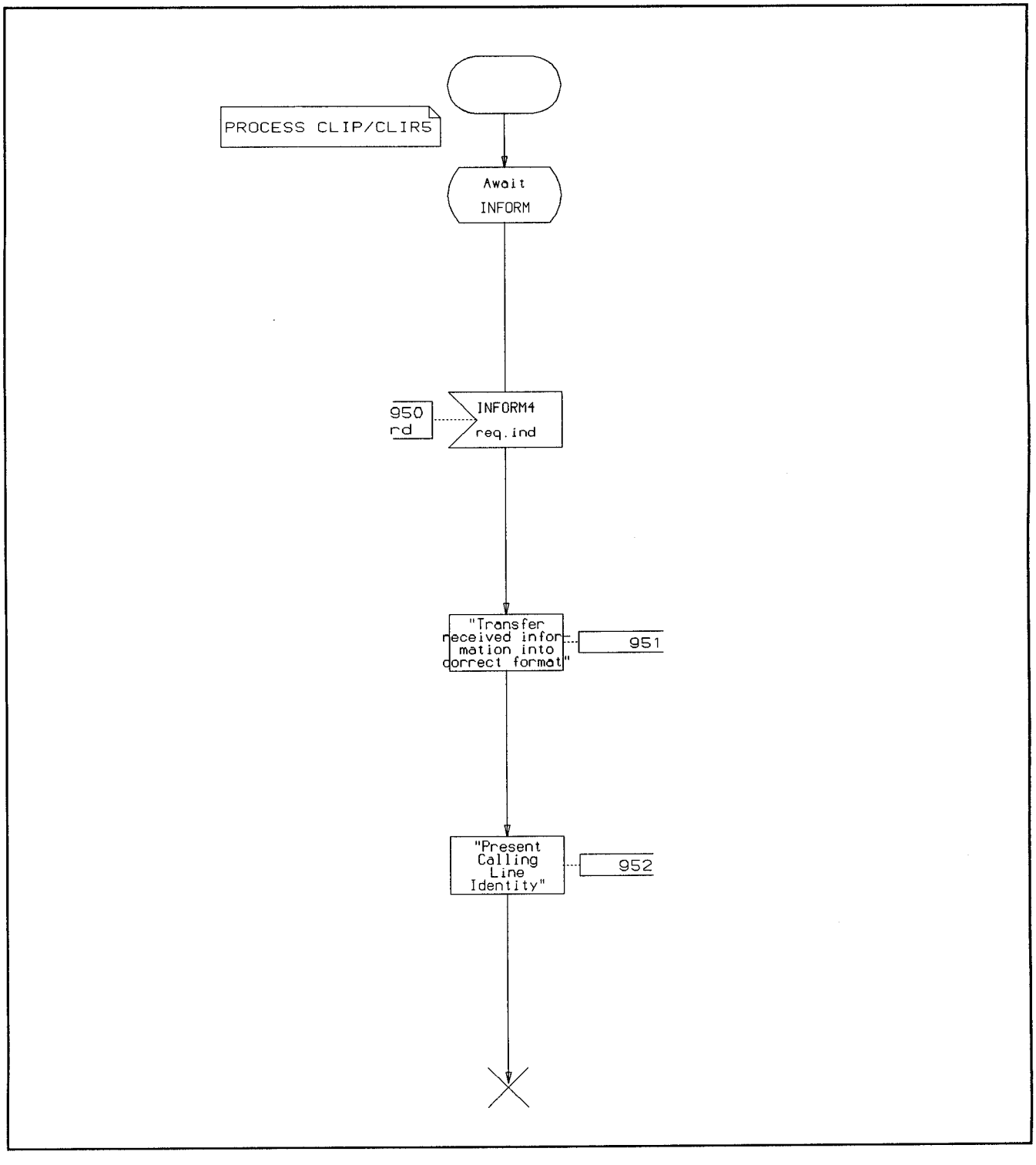
PROCESS CLIP/CLIR5
Await
INFORM
950
rd
INFORM4
req.ind
"Transfer
received infor
mation into
correct format"
951
"Present
Calling
Line
Identity"
952

Figure 14

9 Functional Entity Actions (FEAs)

9.1 FEAs for FE1

910: The functional entity shall receive and shall forward originating users service requests to FE2.

911: The functional entity shall request the CLIR supplementary service temporary mode (override of network stored value of presentation indicator).

915: In the case of a special arrangement, the functional entity shall screen the number to be provided.

916: In the case of a special arrangement, the functional entity shall complete the number to national or international format (for ISDN-numbers).

917: The functional entity shall set the type of number.

918: The functional entity shall set the numbering plan identification.

9.2 FEAs for FE2

920: The functional entity shall check if calling line identity is provided by FE1 and if not, shall include the default calling party ISDN number with screening indicator set to "network provided".

921: The functional entity shall verify calling party ISDN number (unless a special arrangement for not screening the number exists).

922: The functional entity shall complete a partial number or a subscriber number to a national number. The functional entity shall put the number into the format used in the current ISDN.

923: The functional entity shall set the Presentation Indicator.

924: The functional entity shall set the Screening Indicator.

925: The functional entity shall set the type of number (when a special arrangement exists, FE1 shall also set the type of number).

926: The functional entity shall set the numbering plan identification (when a special arrangement exists, FE1 shall also set the numbering plan identification).

927: The functional entity shall forward the information to FE3.

9.3 FEAs for FE3

In the case of a national call, FE3 has null functionality.

930: The functional entity shall check if a partial number, or no information, is received. In this case no information is sent to FE4.

931: The functional entity shall check if the calling party ISDN number may be passed between the networks.

932: The functional entity shall convert to an international significant number if not already in this form.

933: If a number cannot be passed to FE4, the functional entity shall erase the calling party ISDN number and shall set the presentation indicator to "Presentation Restricted".

934: The functional entity shall forward the information to FE4.

9.4 FEAs for FE4

940: The functional entity shall check if the CLIP supplementary service is subscribed .

941: The functional entity shall check if calling line identity is provided. If the number is not available, then the functional entity shall set the presentation indicator to "number not available".

942: The functional entity shall check if presentation restrictions exist. If presentation restrictions exist, the number and subaddress information shall be erased, no number information shall be sent to the calling party and the received presentation indicator (PI) showing "presentation restricted" shall be sent to FE5 unless FE5 has the override category. If FE5 has such a category, then all the received information shall be sent to FE5.

943: The functional entity shall transfer the received information into a format that makes it usable by FEA951 (e.g. adding prefixes).

944: The functional entity shall forward the information to FE5.

9.5 FEAs for FE5

950: The functional entity shall receive the service information from FE4.

951: The functional entity shall transfer the received information into a format that makes it usable for returning a call.

952: The functional entity shall present the received information to the served user.

10 Allocation of functional entities to physical locations

The possible physical locations of functional entities FE1, FE2, FE3, FE4 and FE5 are shown in table 5.

Table 5

SCENARIOS	FE1	FE2	FE3	FE4	FE5
Scenario 1	TE	LE	-	LE	TE
Scenario 2	TE	LE	INT TR	LE	TE
Scenario 3	PTNX	LE	-	LE	PTNX
Scenario 4	PTNX	LE	INT TR	LE	PTNX
Scenario 5	PTNX	LE	-	LE	TE
Scenario 6	PTNX	LE	INT TR	LE	TE
Scenario 7	TE	LE	-	LE	PTNX
Scenario 8	TE	LE	INT TR	LE	PTNX

Annex A (normative): Two calling line identities delivery option

A.1 Scope

This annex specifies the additional procedures of the CLIP supplementary service that may be supported as a national network option.

These national procedures shall have no impact and shall place no requirements whatsoever on the provision and operation of the CLIP supplementary service defined in this standard by public ISDNs that do not support these additional procedures, nor on the interchangeability of terminals.

A.2 Additional procedures of FE4

If the procedures for delivery of the calling line identity as described in subclause 8.4 (SDL diagram for FE4) apply and the screening indicator is set to "user provided not screened", then the FE4 shall send the second calling line identity immediately following the first calling line identity. The second calling line identity shall be the default calling line identity of the access of the calling party. The second calling line identity shall be provided according to procedures described in this standard.

In all other cases, only the first calling line identity shall be sent.

Annex B (informative): Terminal interchangeability between public and private ISDNs

Terminals conforming to this standard are also compatible with private ISDNs offering interfaces conforming to the Calling Line Identifier Presentation (CLIP) supplementary service aspects of ETS 300 173, provided the terminal is able to accept the Calling party number information element with the numbering plan identifier coded as "private numbering plan".

Terminals conforming to the Calling Line Identifier Presentation (CLIP) aspects of ETS 300 173 are also compatible with public ISDNs offering interfaces conforming to this standard.

Bibliography

ETS 300 173: "Private Telecommunication Networks (PTN); Specification, functional model and information flows; Identification supplementary services".

History

Document history	
March 1992	First Edition
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