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CCITT

THE INTERNATIONAL
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CONSULTATIVE COMMITTEE

Q.86.2

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SERIES Q: SWITCHING AND SIGNALLING

Functions and information flows for services in the ISDN –
Supplementary services

**CHARGING SUPPLEMENTARY SERVICES –
ADVICE OF CHARGE SUPPLEMENTARY
SERVICE (AOC)**

Reedition of CCITT Recommendation Q.86.2 published in
the Blue Book, Fascicle VI.1 (1988)

NOTES

1 CCITT Recommendation Q.86.2 was published in Fascicle VI.1 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

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

Recommendation Q.86.2

CHARGING SUPPLEMENTARY SERVICES

2 Advice of charge supplementary service (AOC)

advice of charge is a service allowing the user paying for a call to be informed of usage-based charging information. This service is not meant to replace the charge meeting inside the network which is considered to be the correct one in all cases.

This service may include one or more of the following cases:

- a) charging information at the end of a call;
- b) charging information during a call;
- c) charging information at call setup time.

2.1 *General*

2.1.1 *Charging information at the end of the call*

The possibility for a user to receive charging information for a call when the call is released.

2.1.2 *Charging information during a call*

The possibility for a user to receive charging information for a call during the active phase of the call.

2.1.3 *Charging information at call setup time*

The possibility for a user to receive information about the charging rates at call setup time and possible change of charging rates during the call.

2.2 *Description*

2.2.1 *Charging information at the end of a call*

2.2.1.1 *General description*

This case of the supplementary service provides the user with charging information for a call when the call is released. The charging information may consist of a number of information units such as:

- case of advice of charge
 - charging at the end of a call
- type of charging
 - free of charge
 - charged amount information
 - used number of charging units
 - used duration
 - used volume
 - used number of times (Note)
- charging rate information
 - price per time unit and time units
 - price per volume unit and volume units
 - price per number of times unit and number of times unit
 - duration per charging unit and charging units
 - volume per charging unit and charging units
 - number of time units per charging unit and charging units

Note – Number of times should be used, e.g. to charge a certain number of supplementary service invocations.

- usage charge element
 - registration
 - call attempt
 - invocation
 - duration
 - volume
 - network processing
- billing identification
 - normal charging
 - reverse charging
 - credit card charging

The selection of these values is a national matter.

2.2.1.2 *Specific terminology*

Not applicable.

2.2.1.3 *Qualifications on the applicability to telecommunication services*

This supplementary service is applicable to all telecommunication services.

2.2.2 *Charging information during a call*

2.2.2.1 *General description*

This case of the supplementary service provides the user with information that may be either incremental or cumulative and will be sent automatically or on request.

The charging information may consist of a number of information units such as:

- case of advice of charge (AOC)
 - incremental charging during a call, or
 - cumulative charging during a call
- type of charging
 - free of charge
 - charged amount information
 - used number of charging units
 - used duration
 - used volume
 - used number of times (Note)
- charging rate information
 - price per time unit and time units
 - price per volume unit and volume units
 - price per number of times unit and number of times unit
 - duration per charging unit and charging units
 - volume per charging unit and charging units
 - number of time units per charging unit and charging units

Note – Number of times should be used, e.g. to charge a certain number of supplementary service invocations.

- usage charge element
 - registration
 - call attempt
 - invocation
 - duration

- volume
- network processing
- billing identification
 - normal charging
 - reverse charging
 - credit card charging

2.2.2.2 *Specific terminology*

Not applicable.

2.2.2.3 *Applicability to telecommunication services*

This supplementary service is applicable to all telecommunication services.

2.2.3 *Charging information at call setup time*

2.2.3.1 *General description*

This case of the supplementary service provides the user with the possibility to receive information about the charging rates at call establishment. In addition, the user will be informed if a change in charging rates takes place during the call. The charging information may consist of a number of information units such as:

- case of advice of charge
 - charging rate information
- type of charging
 - free of charge
 - charging rate information
 - price per time unit and time units
 - price per volume unit and volume units
 - price per number of times unit and number of times unit
 - duration per charging unit and charging units
 - volume per charging unit and charging units
 - number of time units per charging unit and charging units
- usage charge element
 - registration
 - call attempt
 - invocation
 - duration
 - volume
 - network processing
- billing identification
 - normal charging
 - reverse charging
 - credit card charging

2.2.3.2 *Specific terminology*

Not applicable.

2.2.3.3 *Applicability to telecommunication services*

This supplementary service is applicable to all telecommunication services.

2.3 Derivation of a functional model

The model used for illustrating the advice of charge (AOC) supplementary service is given in Figure 2-1/Q.86 below.

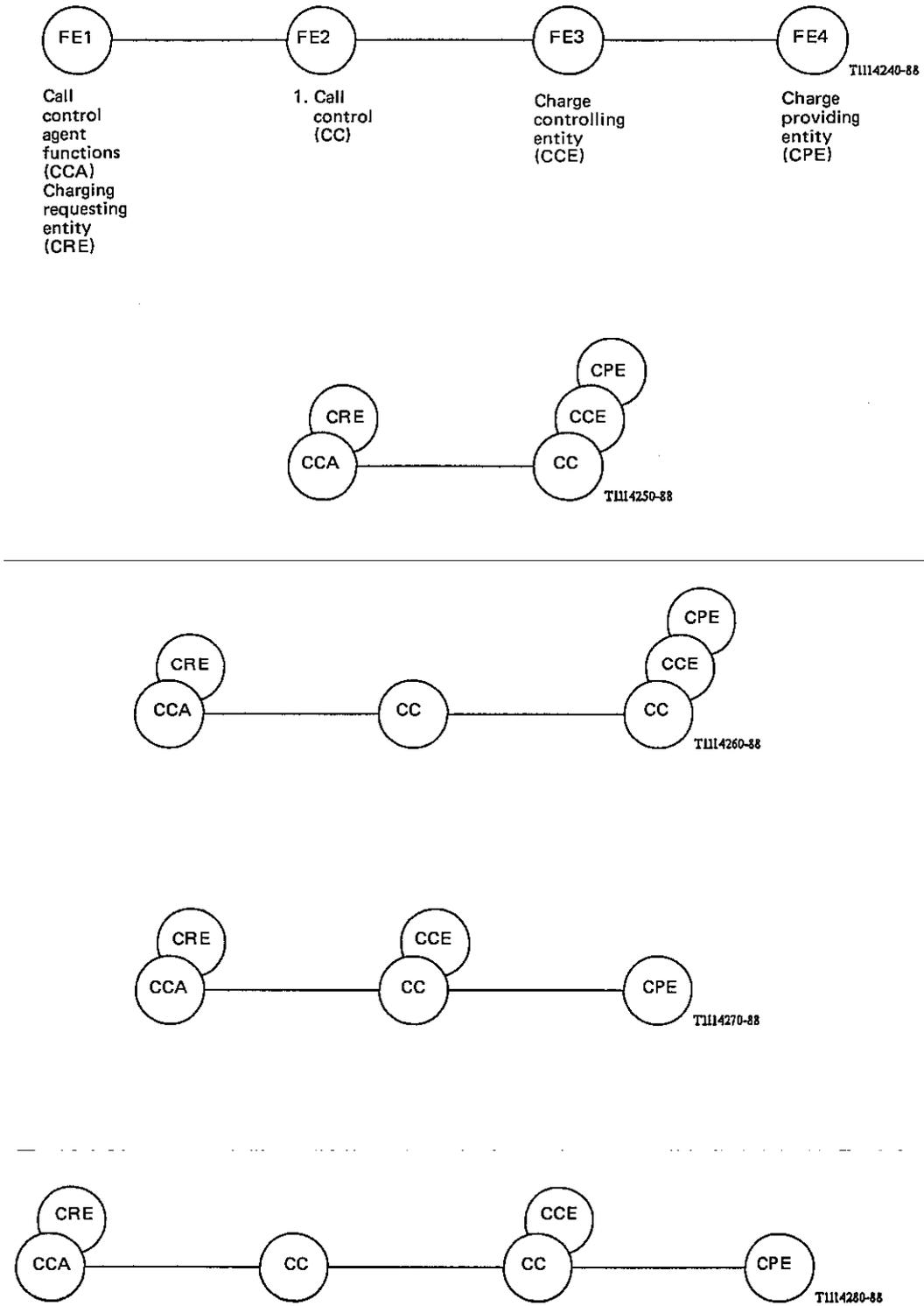


FIGURE 2-1/Q.86
Model for the advice of charge supplementary service

2.4 Information flow diagrams

This Recommendation does not describe which information is to be provided in each case because it is considered to be a network dependent matter whether the information is provided, e.g. as charging units or as currency units.

It is assumed that the coding of the charge advice information (CAI) is done in such a way that whenever this information is received by a user, the content shall be self explaining.

2.4.1 Information flows for charging at the end of a call

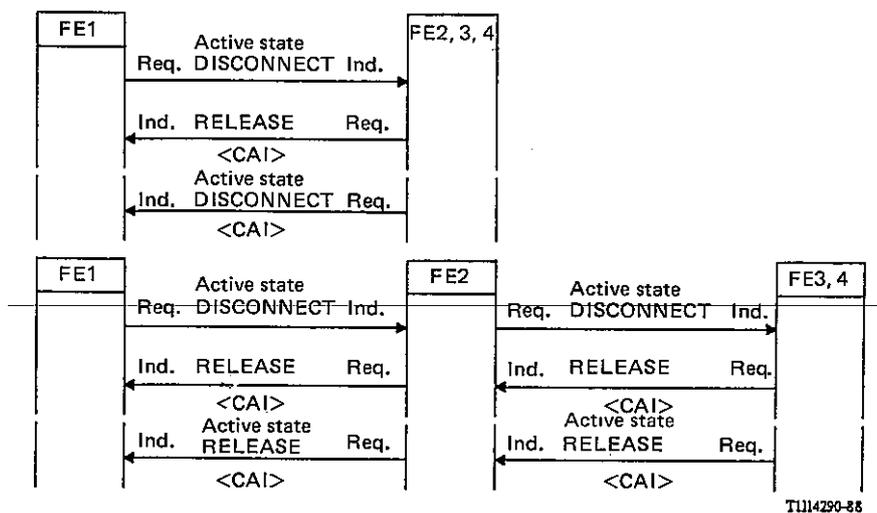
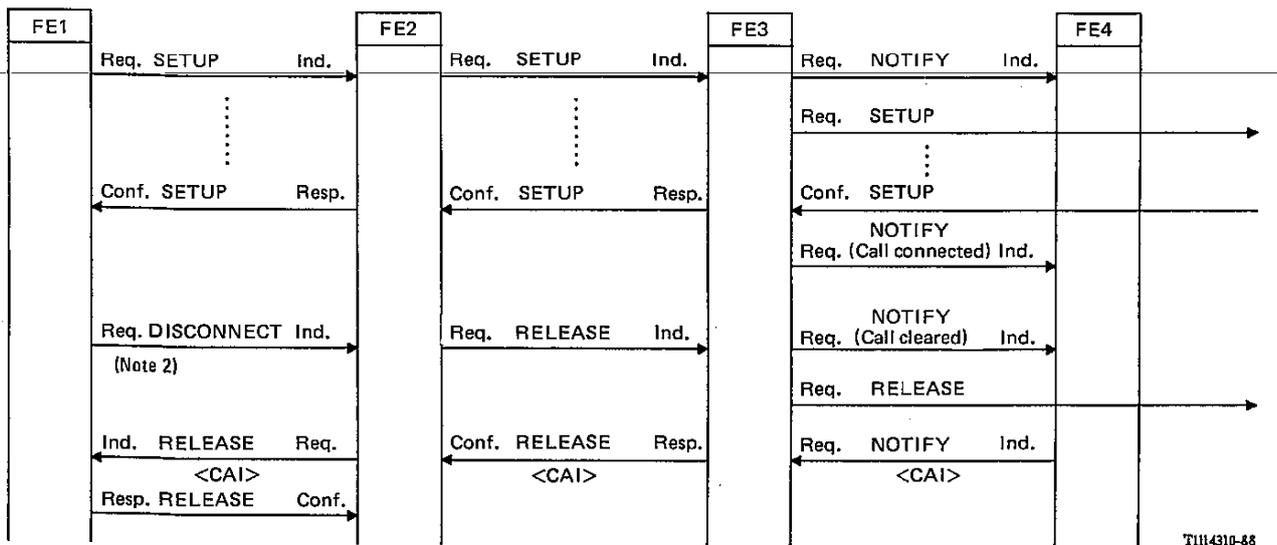
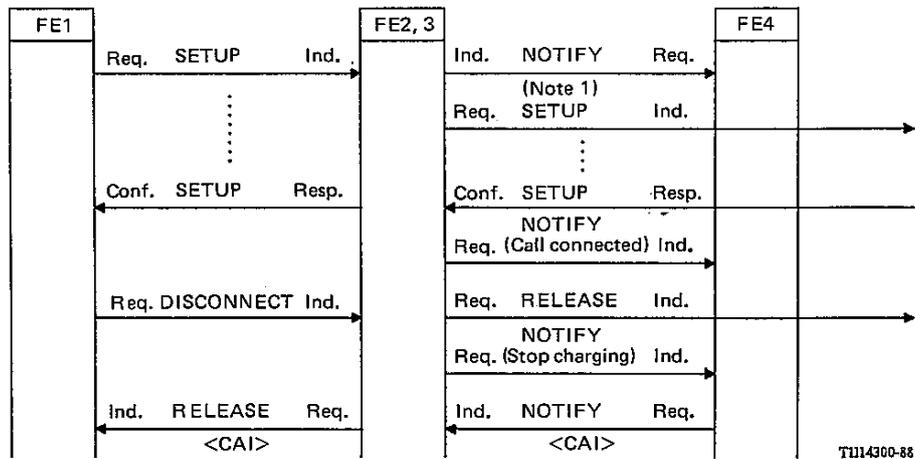


FIGURE 2-2/Q.86 (Sheet 1 of 2)
Advice of charge, functions and information flows
Transfer of charging information

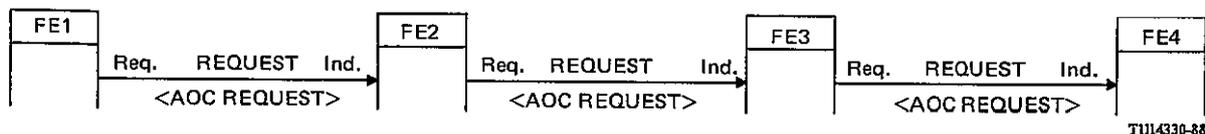
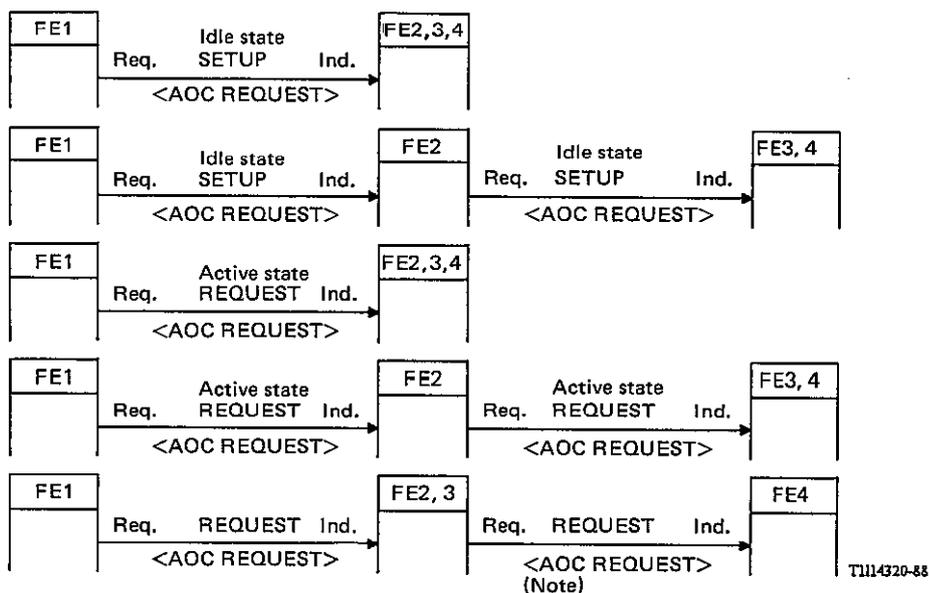


CAI Charge Advice Information

Note 1 – In this case all the necessary information to calculate the charging must be included in the request to the charging centre.

Note 2 – In the case that a call is cleared in the backward direction, the CAI is included in the DISCONNECT req. ind information flow.

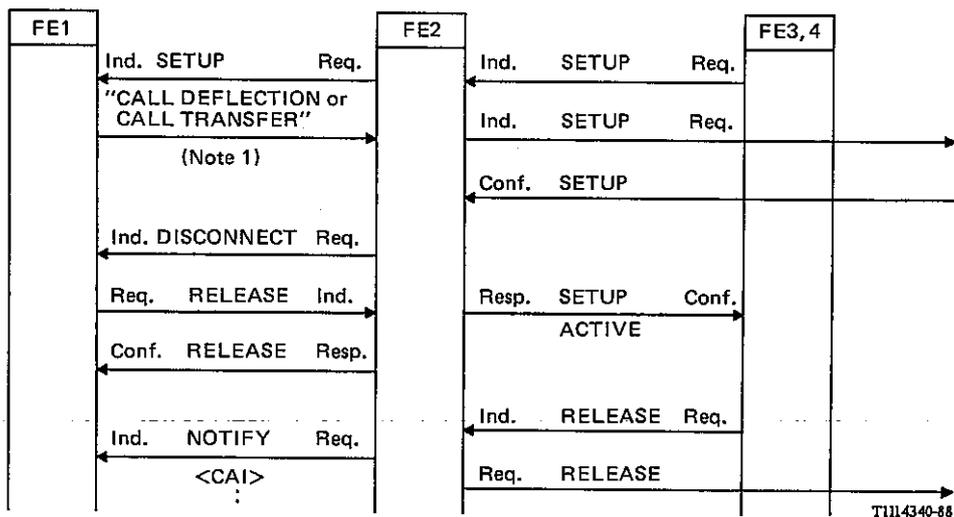
FIGURE 2-2/Q.86 (Sheet 2 of 2)
 Advice of charge, functions and information flows
 Transfer of charging information



AOC Advice of Charge

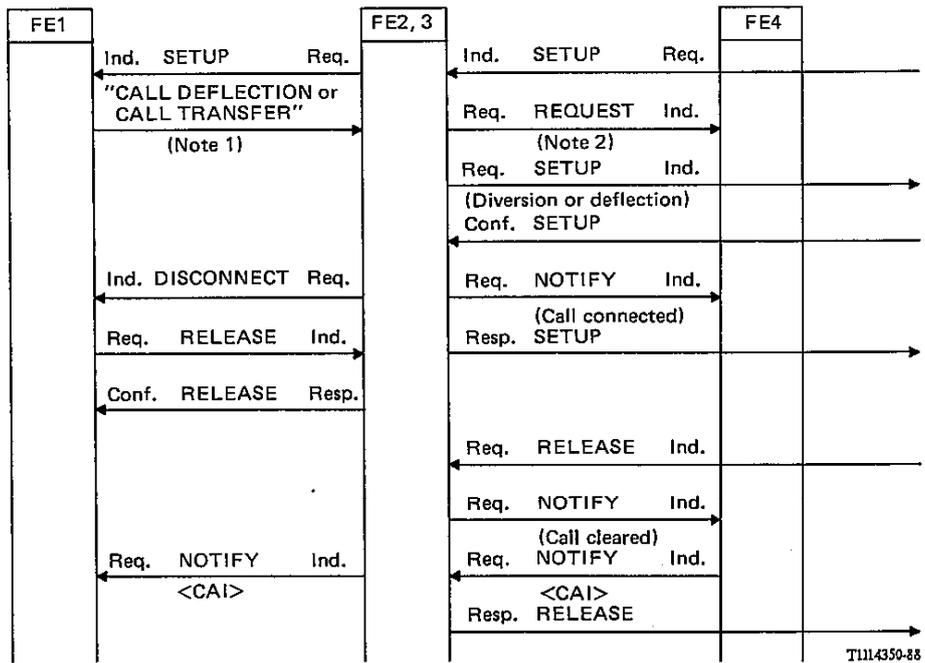
Note – In this case all the necessary information to calculate the charging must be included in the request to the charging centre.

FIGURE 2-3/Q.86
Advice of charge, functions and information flows
Request for charging information at the end of the call

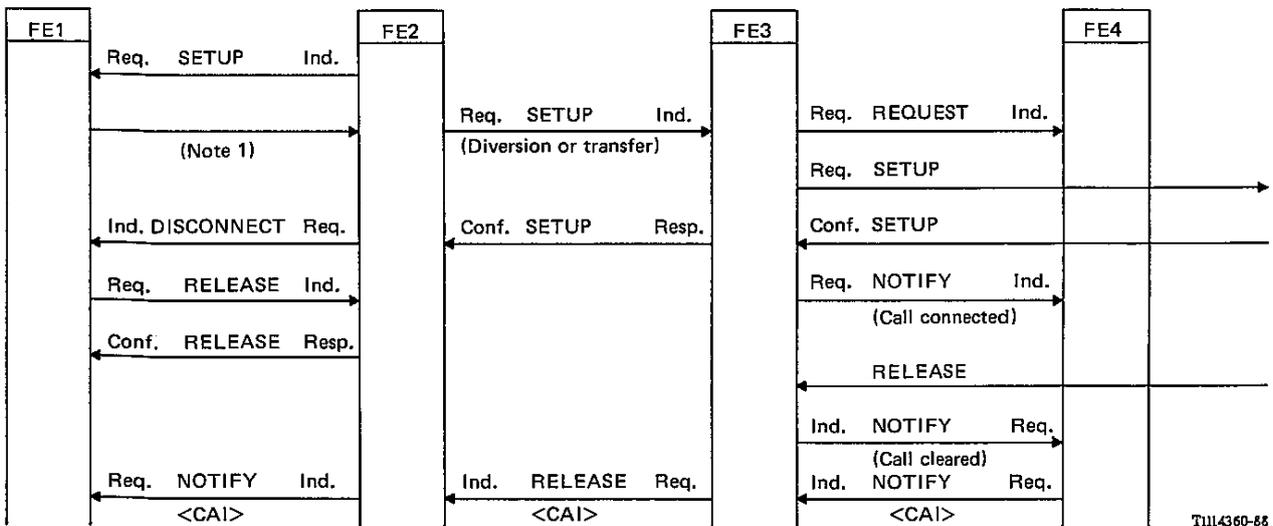


Note 1 – These signalling flows are only applicable in the cases where FE1 is charged for the deflected/transferred part of the call, and FE1 has subscribed to AOC. The detailed flows for these situations are found in the Recommendations for each of the services.

FIGURE 2-4/Q.86 (Sheet 1 of 2)
Advice of charge, functions and information flows
Information flows at call deflection and call transfer



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CAI Charge Advice Information

Note 1 - For this note, see Sheet 1 of 2.

Note 2 - In this case all the necessary information to calculate the charging must be included in the request to the charging centre.

FIGURE 2-4/Q.86 (Sheet 2 of 2)
Advice of charge, functions and information flows
Information flows at call deflection and call transfer

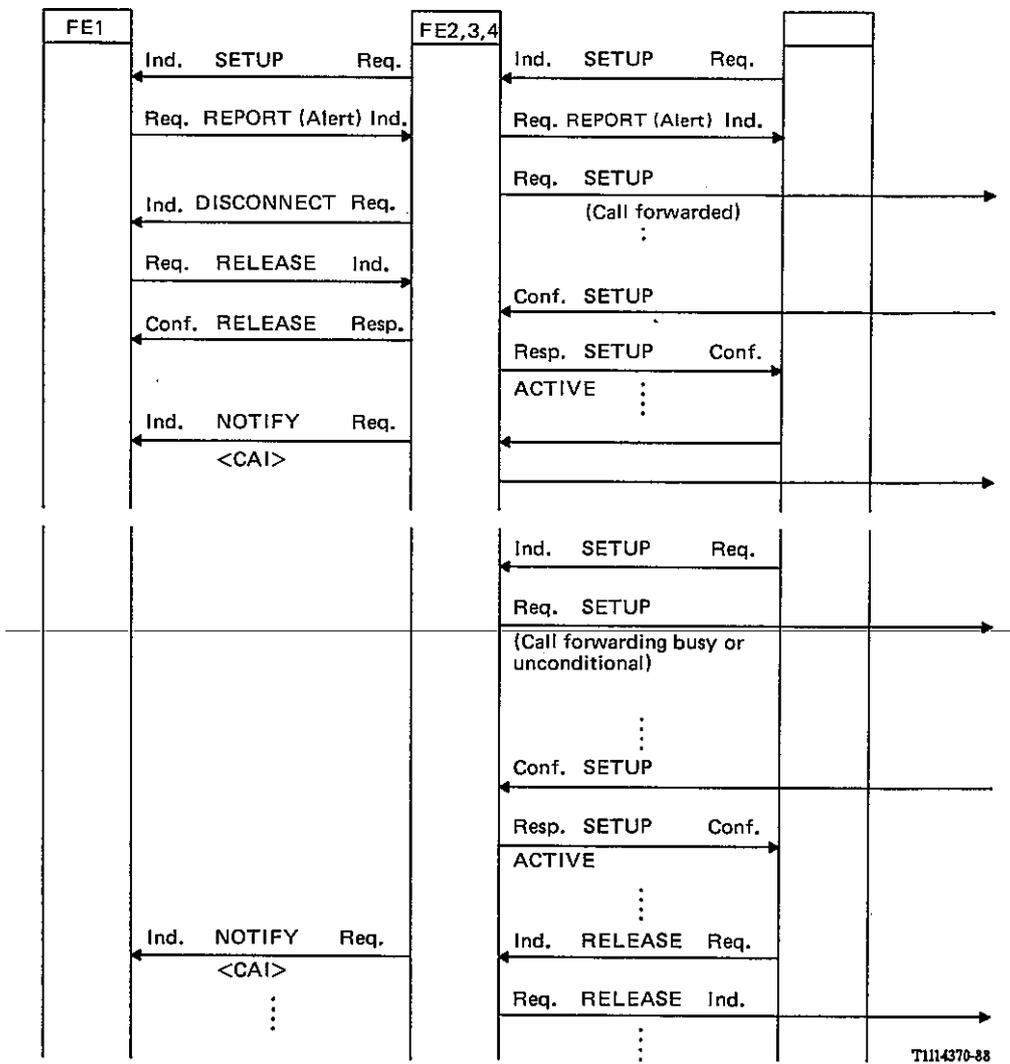


FIGURE 2-5/Q.86
Advice of charge, functions and information flows
Information flows at call forwarding

2.4.2 Information flows for charging information during a call

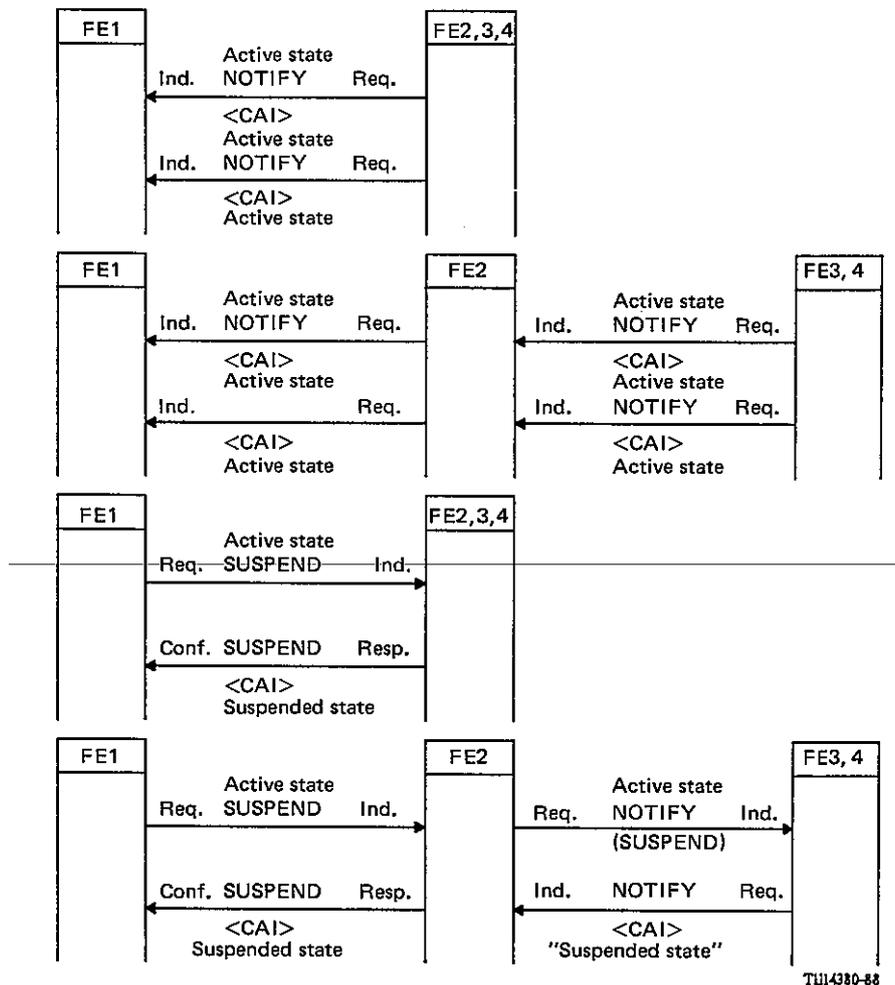


FIGURE 2-6/Q.86 (Sheet 1 of 3)
Advice of charge, functions and information flows
Transfer of charging information during the call

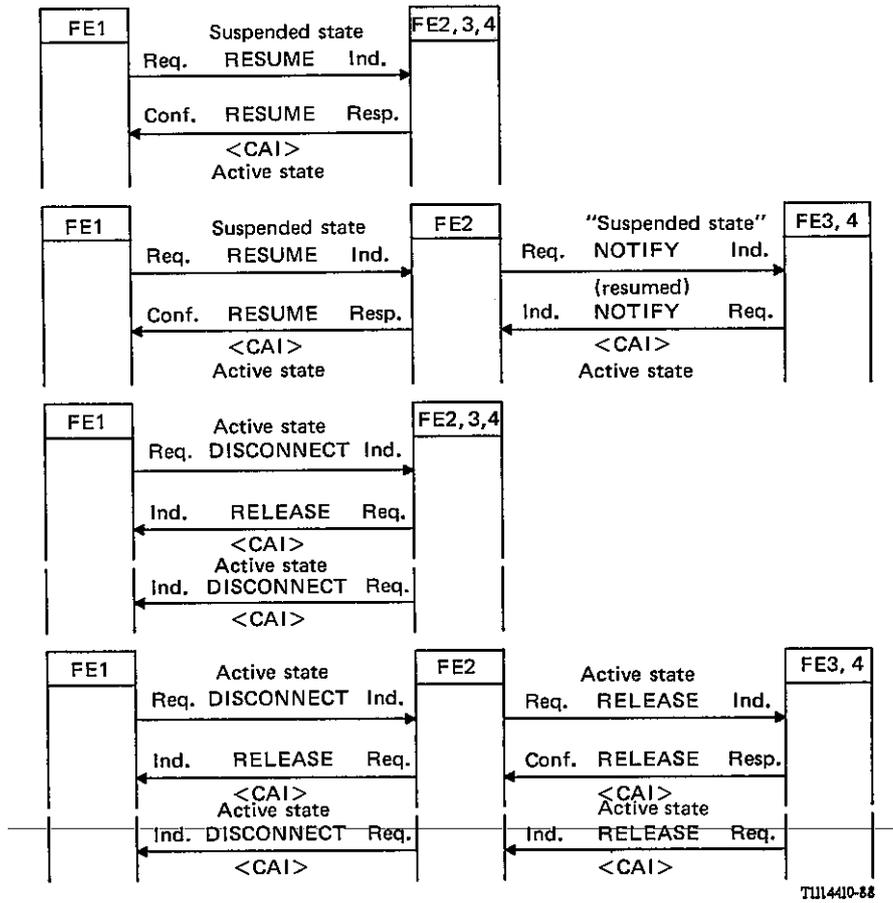


FIGURE 2-6/Q.86 (Sheet 3 of 3)
Advice of charge, functions and information flows
Transfer of charging information during the call

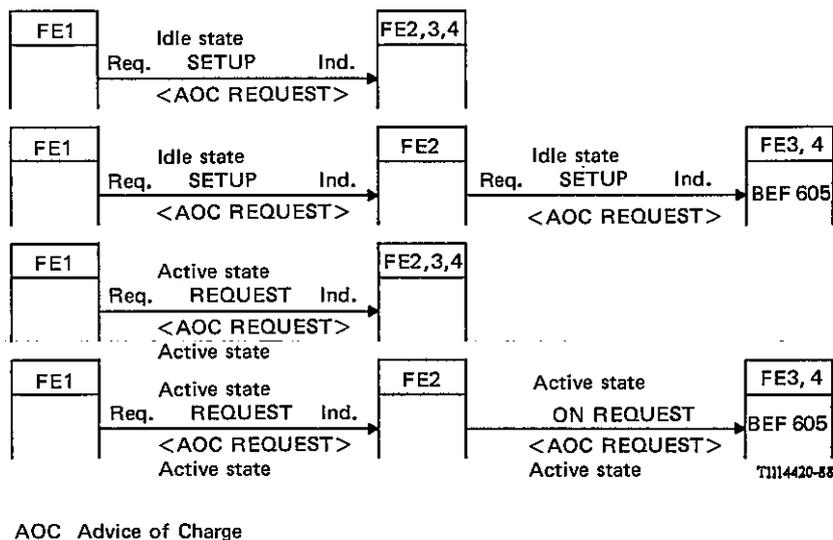
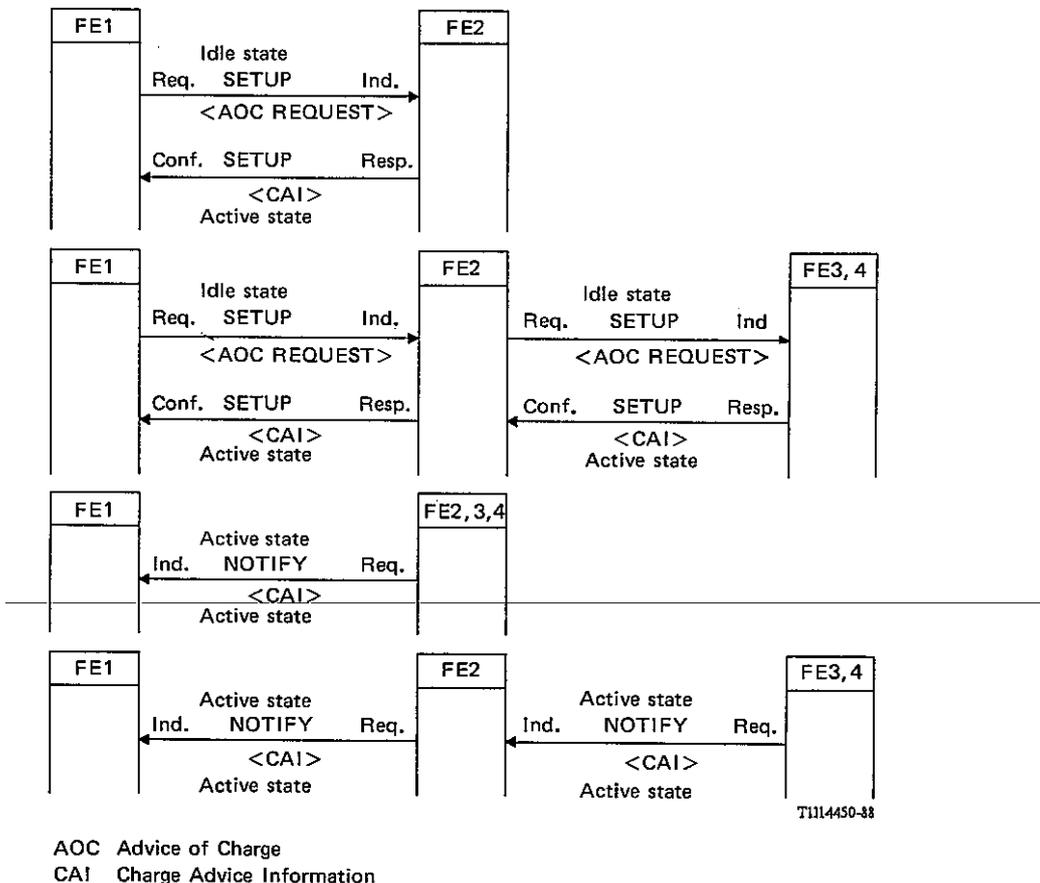


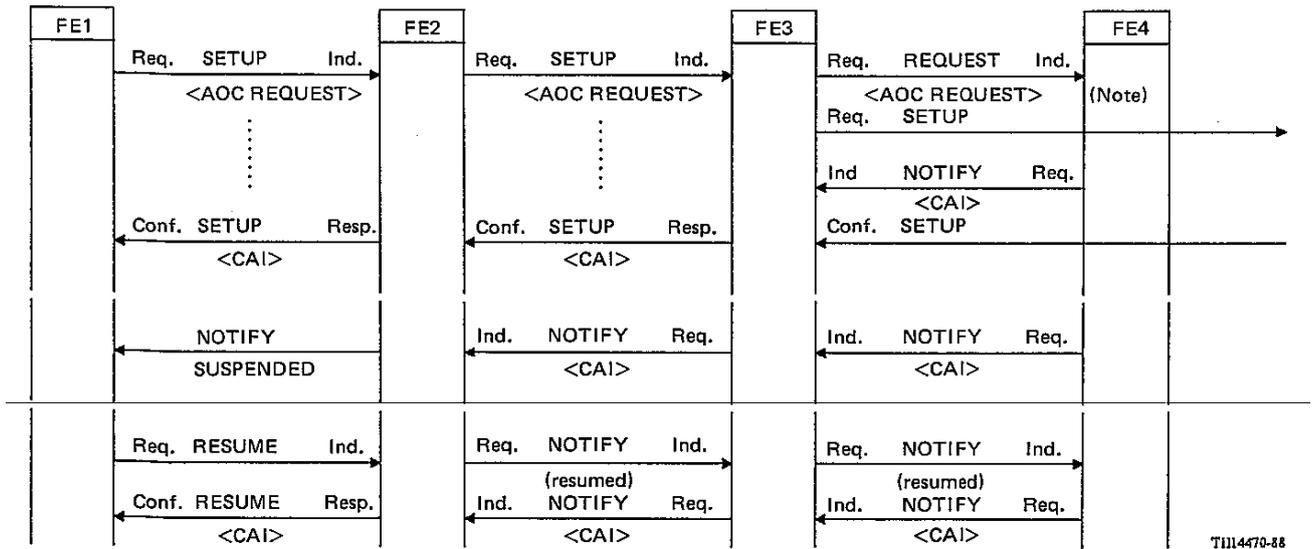
FIGURE 2-7/Q.86
Advice of charge, functions and information flows
Request for charging information during the call

2.4.3 Information flows for information about charging rates



Note – The <AOC REQUEST> is not needed in the cases where this service is subscribed for all calls.

FIGURE 2-8/Q.86 (Sheet 1 of 3)
Advice of charge, functions and information flows
Request and receipt of information on charging rates



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AOC Advice of Charge
 CAI Charge Advice Information

Note – In this case all the necessary information to calculate the charging must be included in the request to the charging centre.

FIGURE 2-8/Q.86 (Sheet 3 of 3)
Advice of charge, functions and information flows
Request and receipt of information on charging rates

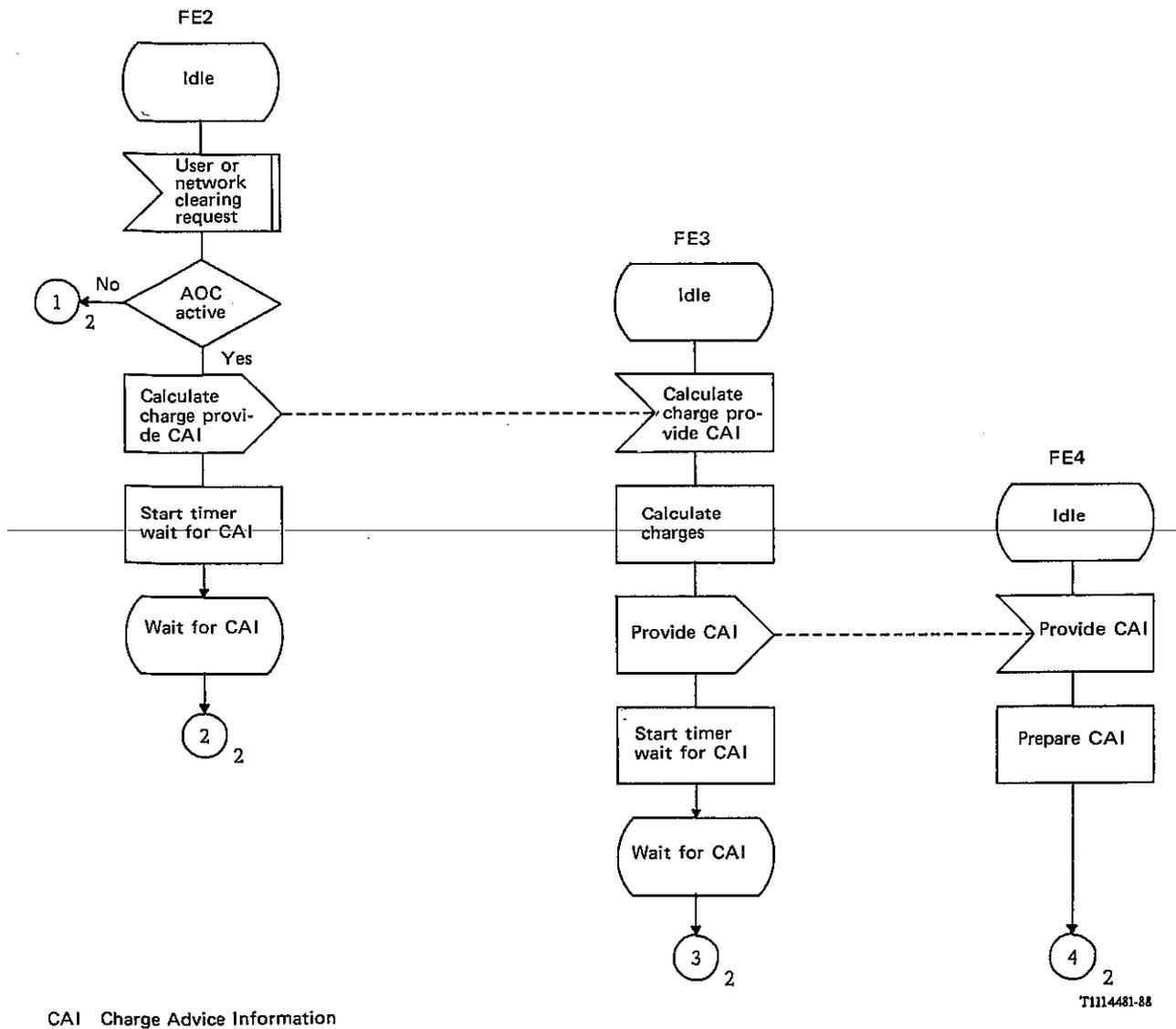


FIGURE 2-9/Q.86 (Sheet 1 of 2)
Call clearing

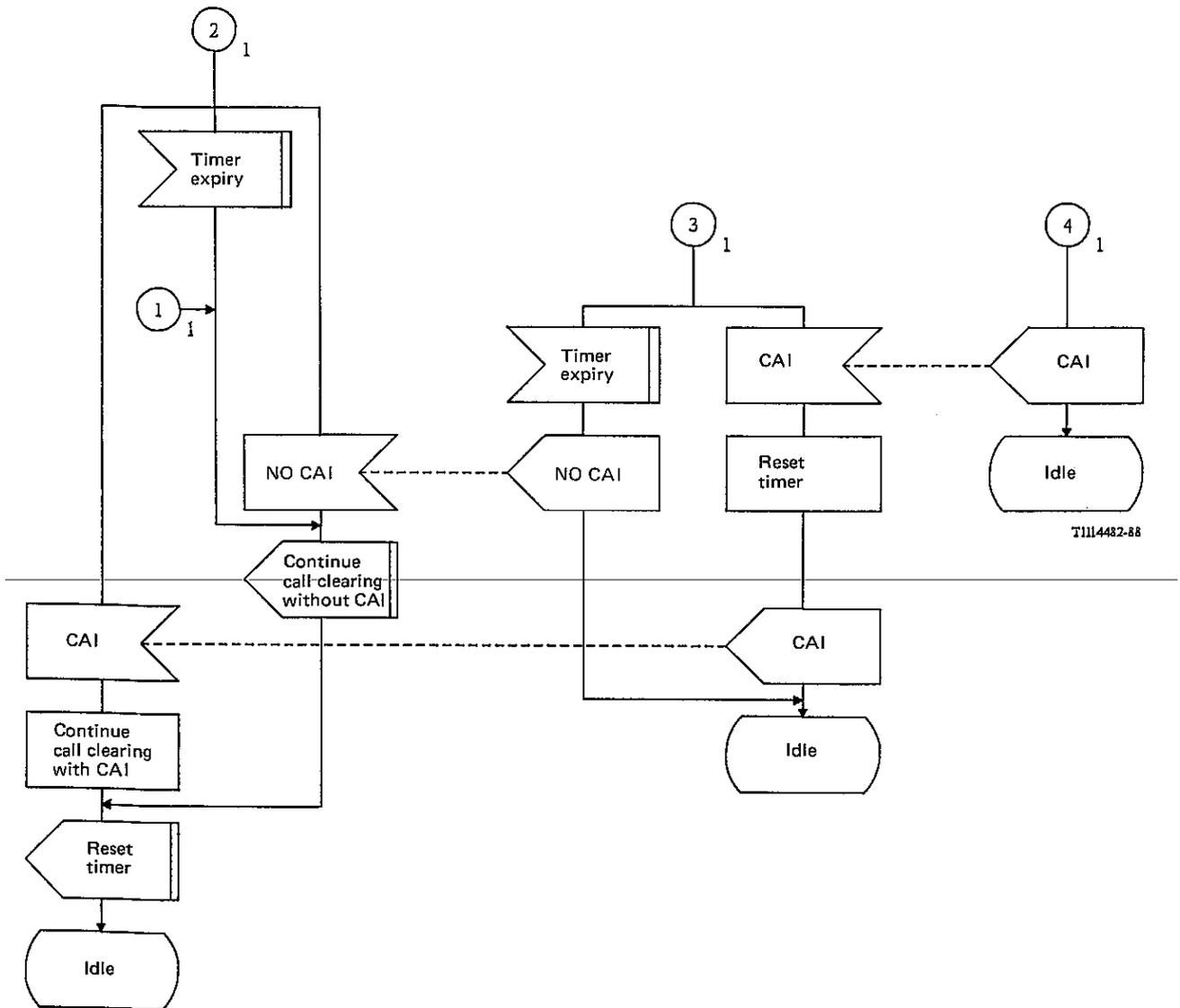


FIGURE 2-9/Q.86 (Sheet 2 of 2)
Call clearing

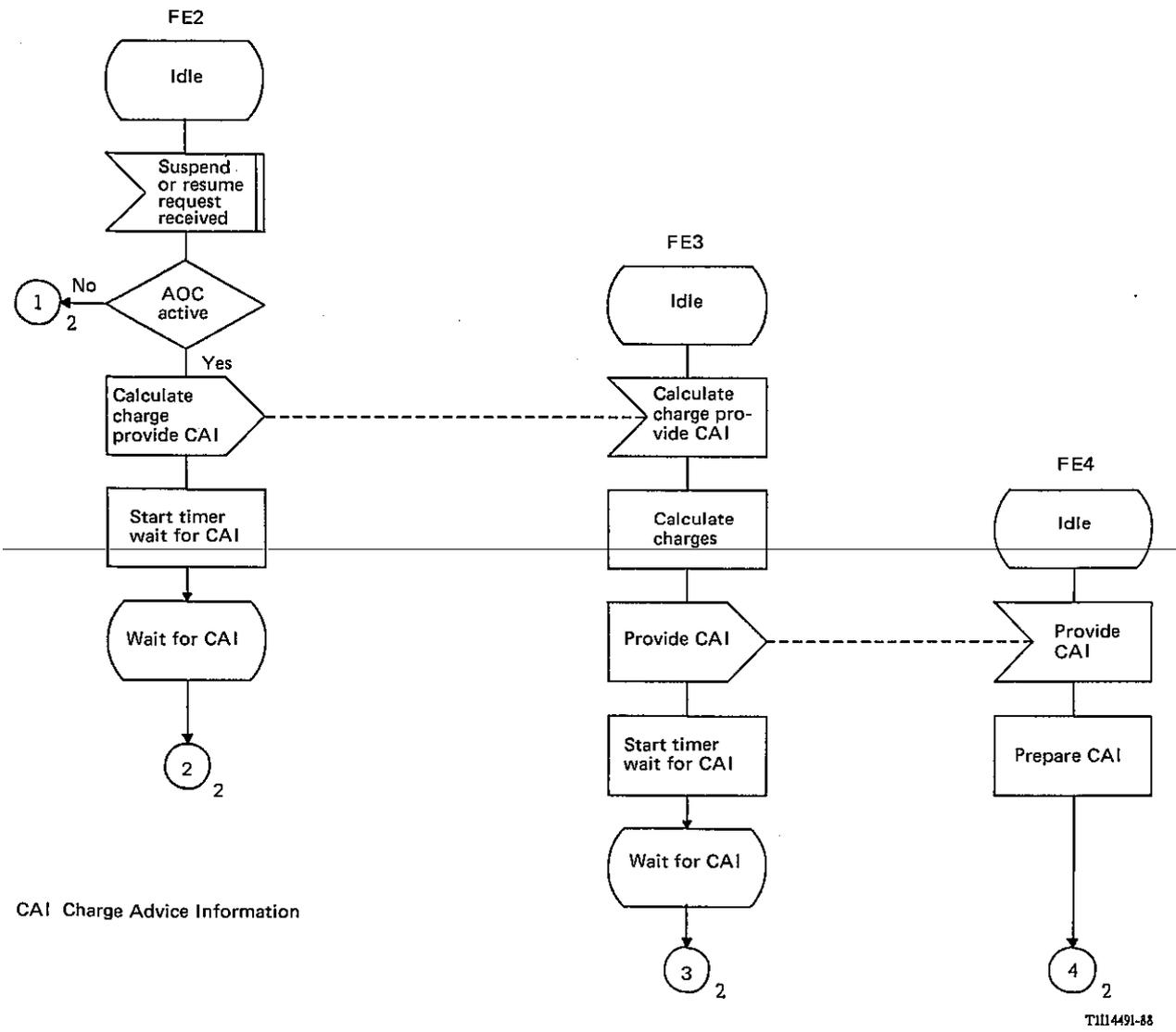
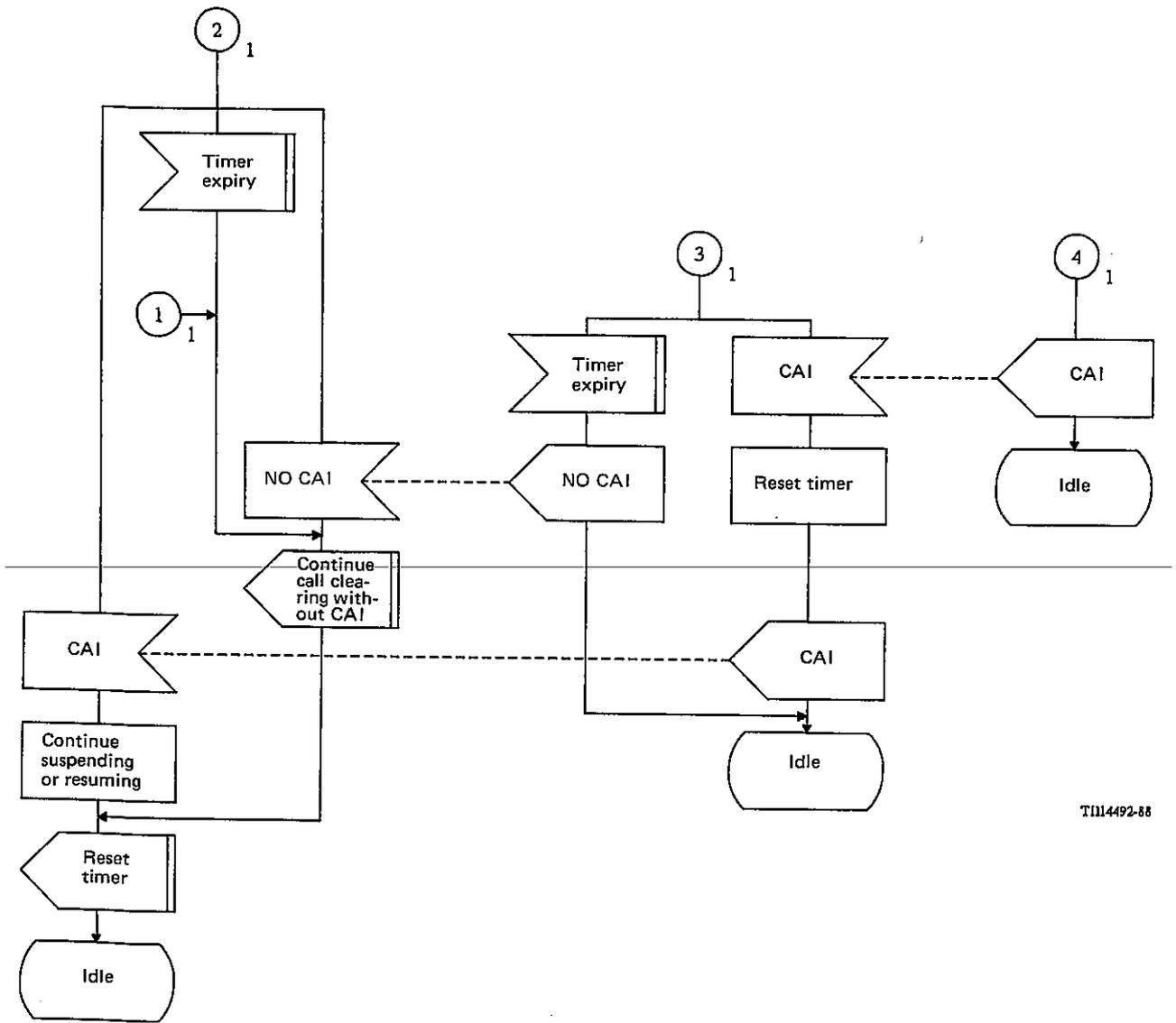


FIGURE 2-10/Q.86 (Sheet 1 of 2)
Call suspend/resume



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FIGURE 2-10/Q.86 (Sheet 2 of 2)
 Call suspend/resume

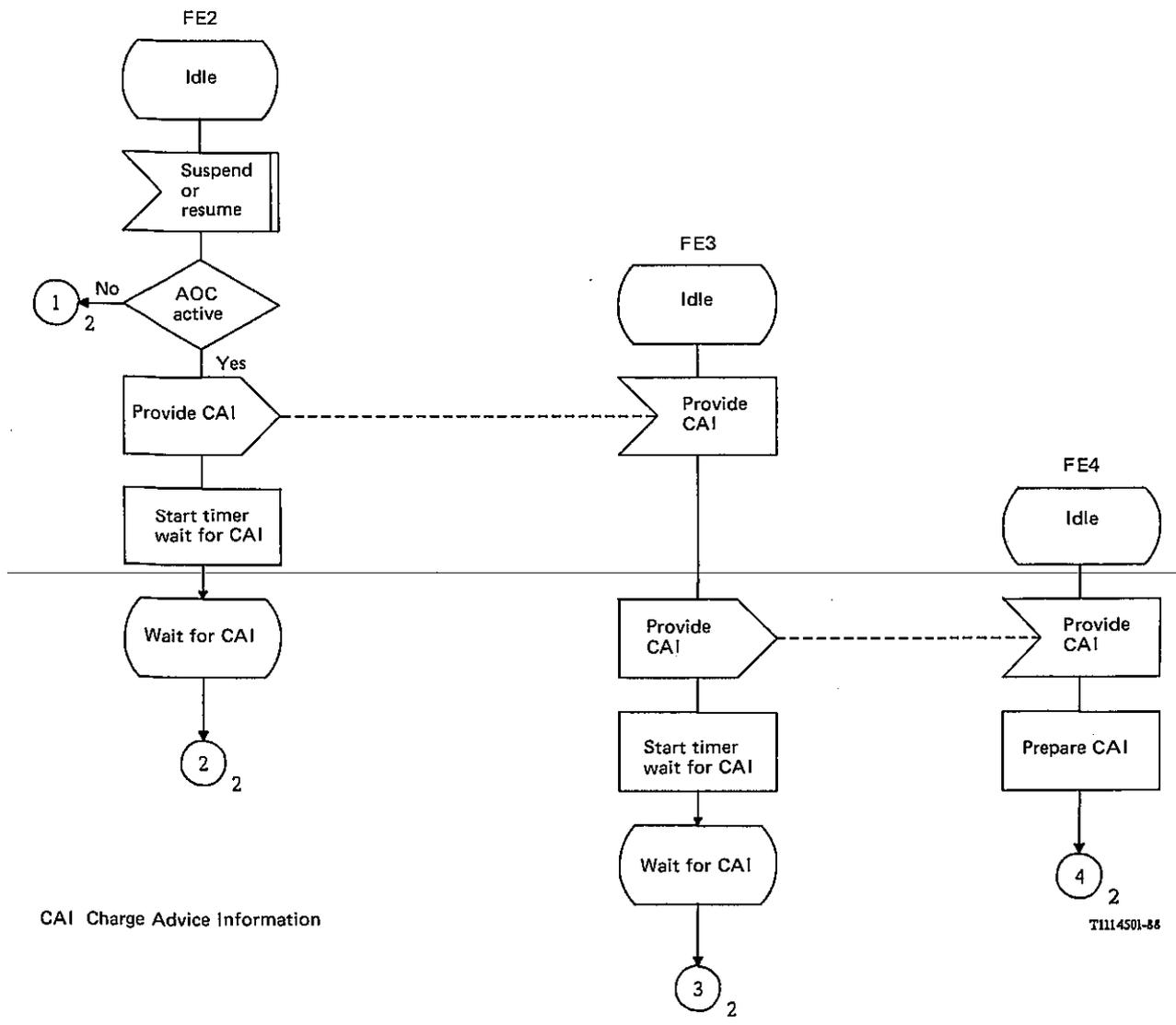
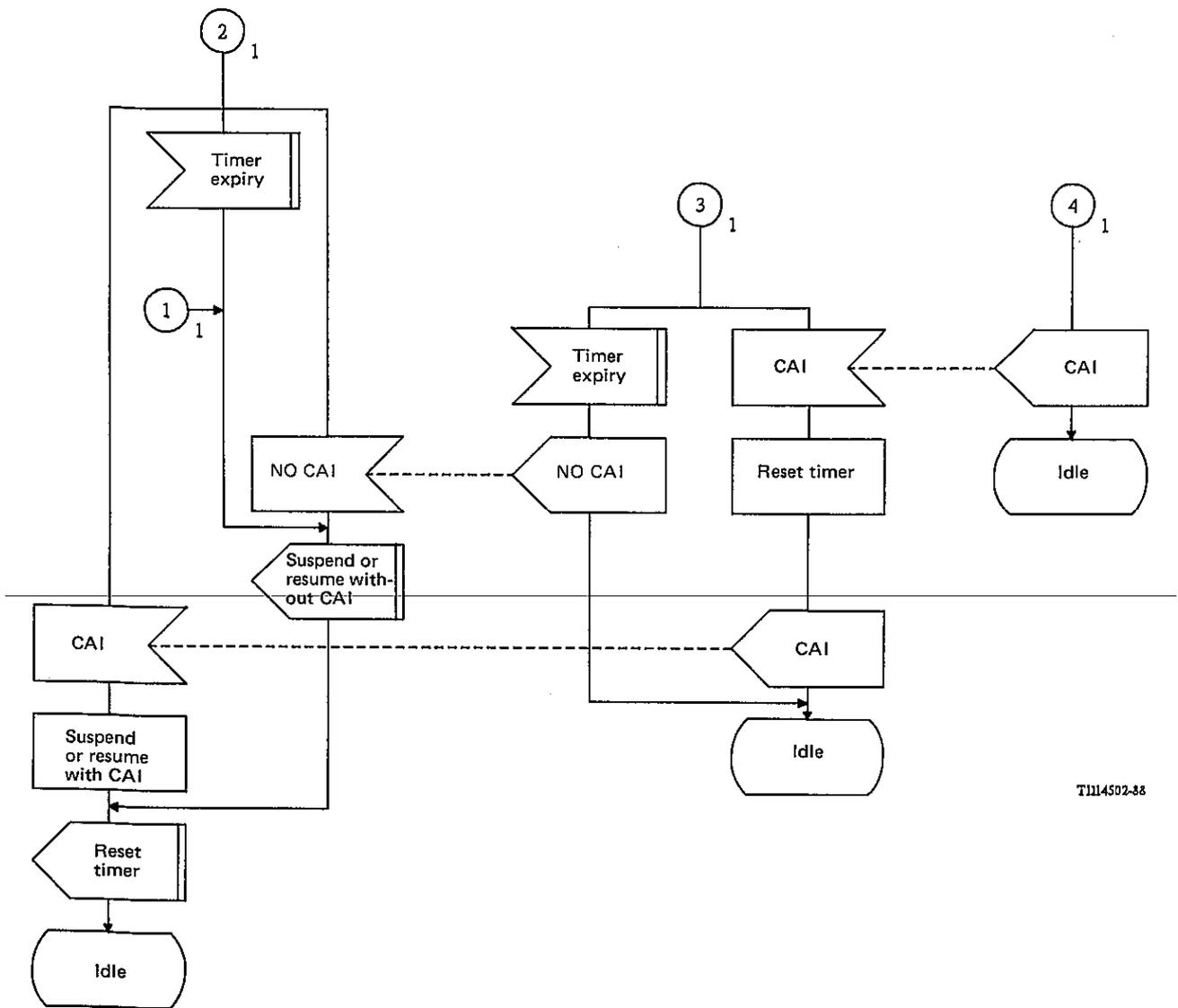


FIGURE 2-11/Q.86 (Sheet 1 of 2)
Call establishment



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FIGURE 2-11/Q.86 (Sheet 2 of 2)
Call establishment

2.6 *Functional entity actions*

2.6.1 *Functional entity actions for FE2*

- request charging information from FE3/FE2
- send the charging information to FE1

2.6.2 *Functional entity actions for FE3*

- control the charging functions
- request charging information from FE4
- send the charging information to FE2

2.6.3 *Functions entity actions for FE4*

- provide the charging information

2.7 *Allocation of Functional entities to physical location*

TABLE 2-1/Q.86

Functional entity Scenario	FE1 = CRE	FE2 = 1.CC	FE3 = CCE	FE4 = CPE
Charging information provided from the local exchange	TE	LE		
	NT2			
Charging information provided from a transit exchange	TE	LE	TR	
	NT2			
Charging information provided from a charging centre via the local exchange	TE	LE		Charging centre
	NT2			
Charging information provided from a charging centre via the transit exchange	TE	LE	TR	Charging centre
	NT2			

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