INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

U.80

(03/93)

TELEGRAPH SWITCHING

TELEX STORE AND FORWARD

INTERNATIONAL TELEX STORE AND FORWARD ACCESS FROM A TELEX SUBSCRIBER

ITU-T Recommendation U.80

(Previously "CCITT Recommendation")

FOREWORD

The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the International Telecommunication Union. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

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

ITU-T Recommendation U.80 was revised by the ITU-T Study Group IX (1988-1993) and was approved by the WTSC (Helsinki, March 1-12, 1993).

NOTES

1 As a consequence of a reform process within the International Telecommunication Union (ITU), the CCITT ceased to exist as of 28 February 1993. In its place, the ITU Telecommunication Standardization Sector (ITU-T) was created as of 1 March 1993. Similarly, in this reform process, the CCIR and the IFRB have been replaced by the Radiocommunication Sector.

In order not to delay publication of this Recommendation, no change has been made in the text to references containing the acronyms "CCITT, CCIR or IFRB" or their associated entities such as Plenary Assembly, Secretariat, etc. Future editions of this Recommendation will contain the proper terminology related to the new ITU structure.

2 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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INTERNATIONAL TELEX STORE AND FORWARD ACCESS FROM A TELEX[1] SUBSCRIBER

(Malaga-Torremolinos, 1984; amended at Melbourne, 1988 and at Helsinki, 1993)

The CCITT,

considering

(a) that telex store-and-forward units exist, and are being introduced increasingly into national networks;

(b) that access procedures and protocols differ significantly between different units;

(c) that to facilitate international access to store-and-forward units, a standard access procedure would be desirable,

unanimously declares the view

that the telex access procedure described in this Recommendation should be adopted for all future store-and-forward units providing incoming international telex access.

1 Scope

1.1 This Recommendation describes a procedure for a telex subscriber to gain access to a store-and-forward unit in a foreign country by using an international telex switched connection. The procedure uses two stage selection.

1.2 This Recommendation is one of a series which defines telex store-and-forward services. The other Recommendations are:

- Recommendation F.72 *The international telex service – General principles and operational aspects of a store-and-forward facility*.
- Recommendation U.81 *International telex store-and-forward – Delivery to a telex subscriber.*

2 Outline of service features

2.1 The full range of service features is described in more detail in Recommendation F.72.

2.2 Service principles

2.2.1 The procedure defined in this Recommendation is a two stage selection procedure whereby a calling telex subscriber gains access to a foreign store-and-forward unit (SFU) in the first stage of selection and inputs the called address(es) and message in the second stage of selection, after the return of a call connected signal.

The option of a store and retrieval facility is for further study.

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[1] Throughout this Recommendation, the term "telex" should be interpreted as referring exclusively to "the international telex service", as described in Recommendations F.59 and F.60.

2.2.2 International access to the SFU should be offered on the basis of bilateral agreement between Administrations, and barring facilities should be provided to prevent unauthorized use. The method of barring shall be the responsibility of the Administration of the SFU service and is beyond the scope of this Recommendation. It may also be necessary for Administrations to make provision to selectively bar access to international telex SFU facilities in other countries.

2.2.3 Message input from both manual and automatic emitting devices should be accommodated. It is also possible that messages may be received from another SFU, and this type of input should also be accommodated by bilateral agreement.

2.2.4 For calling subscribers with answerbacks that cannot be processed to obtain the calling address, the SFU shall be able to handle direct input of the address from the subscriber, with or without prompt.

2.2.5 A status enquiry facility should be provided internationally to provide information on message delivery in response to a request from the originator. This message status enquiry point will be accessed by a separate access code to that used for message input.

When the SFU provides automatic advice of delivery and non-delivery, or a request for positive delivery can be indicated, then the provision of status enquiry facilities is optional.

2.2.6 Address validation of the called telex subscriber(s) may be provided, however, delivery of the message to a given address cannot be fully guaranteed.

3 Outline of facilities

3.1 The full range of facilities is described in more detail in Recommendation F.72.

3.2 Message input access

3.2.1 Provision should be made for both single and multi-addressed calls.

3.2.2 Messages received by the SFU for delivery to destinations not served by that SFU should be given a Non-Delivery Notification with service code NA for the reason of non-delivery.

3.2.3 The maximum acceptable number of addresses in a multi-address call shall be agreed between Administrations, but should be at least 20. If the maximum number of addresses is exceeded, the SFU shall return the service code TMA and clear the connection.

3.2.4 An attention information field facility should be provided by the SFU which enables each addressee of a multi-address message to have a relevant attention prefix preceding the message.

3.2.5 Three classes of delivery service should be provided by the SFU:

a) *Normal delivery* – The SFU delivers the message as soon as operationally feasible after receipt.

b) *Delayed delivery* – The delay can be either:

   i) set by the Administration offering the SFU service, if the calling customer selects this option;

   ii) set by the calling subscriber, such that delivery of the message is not attempted until after the expiration of the indicated delay.

c) *Time limited delivery set by the calling subscriber* – such that delivery of the message is attempted within a specified time limit.

The desired class of delivery should be selectable on a destination address basis.

3.2.6 Positive delivery notification (PDN) when provided may be requested by the calling subscriber on a per message or on a per address basis.

3.2.7 Message reference number(s) should be returned to the calling subscriber.

3.2.8 Address correction procedures are considered desirable and may be provided.

3.2.9 Provision should be made to accept follow-on message(s) with their associated address(es) which may be sent as separate block(s) immediately after the first message. Provision should also be made to acknowledge acceptance of messages, if requested by the calling terminal, at any point during a transaction.

3.2.10 The SFU shall not accept the input of a message or follow-on messages (in the message input mode) unless adequate storage is available. The minimum storage available per message text input should be agreed bilaterally between Administrations. However, it is recommended that the minimum storage available on a per message basis should be 24 000 characters. For an interim period 12 000 characters is acceptable. Longer messages may be accepted if storage continues to be available.

3.2.11 An Input Transaction Accepted for Delivery (ITD) service signal should be returned to the calling subscriber to indicate that the SFU has accepted the message.

3.2.12 The following facilities are not accommodated in the procedures, do not form part of this Recommendation and are for further study:

a) use of pre-recorded address lists;

b) message editing facilities;

c) address collation facilities;

d) requests for positive delivery advices;

e) transparent mode in message input phase;

f) called address format checks.

3.3 Status enquiry access

3.3.1 Status information on messages should only be available for return to the originator of the message.

3.3.2 Status information may be requested on

a) all addresses associated with a message reference number;

b) addresses which have not yet received the message;

c) a specific address.

4 Access procedures

4.1 General

4.1.1 Two basic access procedures should be provided:

a) *Interactive operation*

Input from manual calling terminals, where the SFU may return prompt signals.

b) *Non-interactive operation*

– Either, input from automatic emitting devices or from subscribers' terminals, where prompt signals from the SFU are not required; or

– input from another SFU.

NOTE – Detection of this type of access will rely on the identification of the calling SFU answerback, the format of this answerback is for further study.

4.1.2 Figure 1 shows the recommended access procedures.

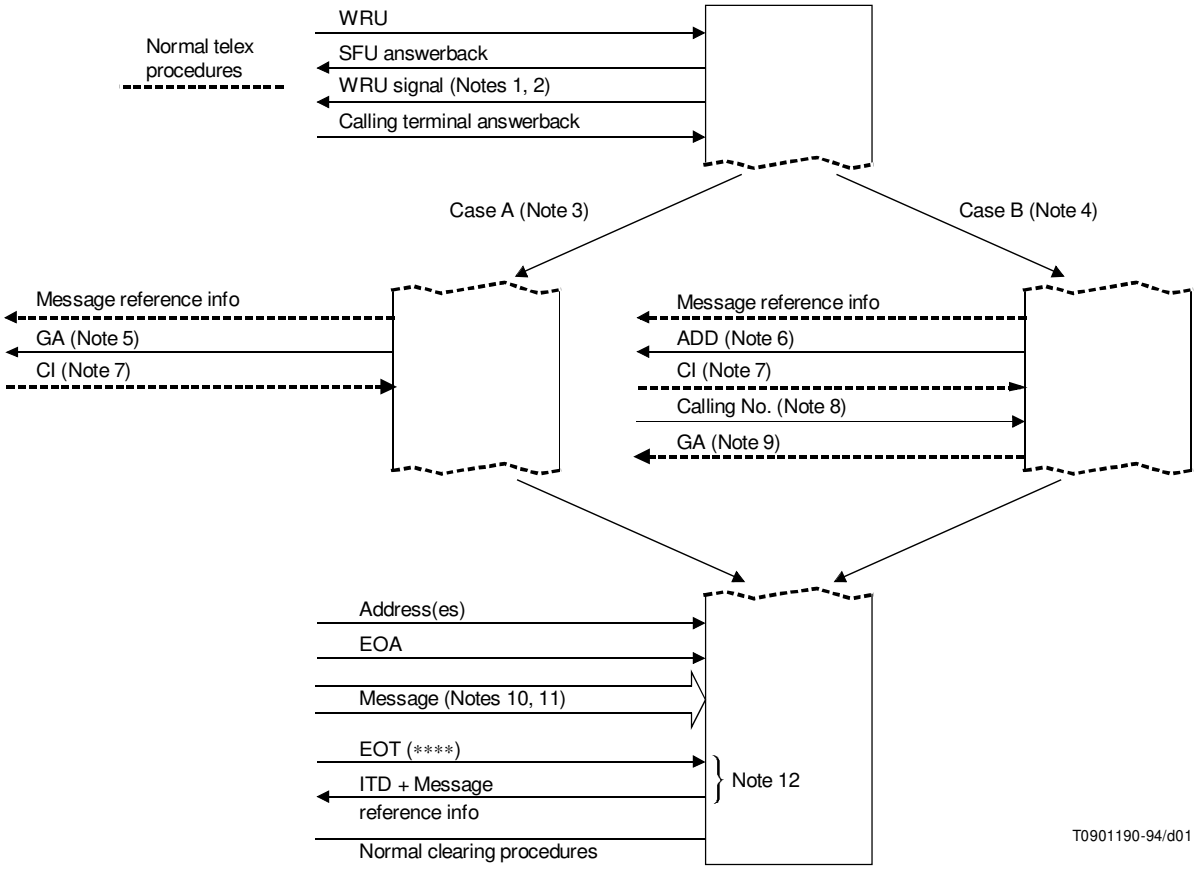

FIGURE 1/U.80

SFU access protocol

NOTES to Figure 1

1 The WRU signal is transmitted 800 ms after transmission of the SFU answerback if the forward path remains idle.

2 One additional WRU signal shall be transmitted by the SFU if:

a) there was no response to the first WRU signal.

b) signals were received after the first WRU which could not be identified as an answerback.

This second WRU signal should be transmitted when a 300 ms idle condition has been detected from the calling terminal at least 2 seconds after the transmission of the first WRU signal.

3 Case A: Procedure when calling address can be determined from the calling terminal answerback.

4 Case B: Procedure when calling address cannot be determined from the calling terminal answerback.

5 The prompt GA and the preceding optional message reference information shall be transmitted three seconds after receipt of the calling terminal answerback. If the caller initiates input within the three seconds timeout, the message reference information and prompt will be withheld.

6 The prompt "ADD" and the precedent optional message reference information shall be transmitted three seconds after receipt of the calling terminal answerback. If the caller initiates input within the three seconds timeout, the reference information and prompt will be withheld.

7 The service request CI is transmitted when the terminal is operating in a non-interactive mode (e.g. an automatic terminal or a manual terminal using a tape transmitter).

8 If the calling address is expected and is not received within 15 seconds of the original "ADD" prompt, a further prompt shall be transmitted. The procedure is shown in Figure 2.

The calling address should be input in the format F.69 destination code followed by the national telex number followed by at least 2 carriage returns, line feed sequences when received in the non-interactive mode.

9 The prompt GA is inhibited if the service request CI has been received or if the caller has initiated input.

10 Several messages can be contained within the same transaction and are separated by EOM sequences, as in Figure 3.

11 The EOM signal may optionally be followed directly by an ACK request signal. The sequence will then be as shown in Figure 4.

Immediately following transmission of an IMA, the SFU shall return reference information for previous unacknowledged messages, the signal ← ≡ ↓ GA ← ≡ and then be prepared to accept further follow-on messages.

12 Following receipt of the EOT signal the SFU shall operate as shown in Figure 5.

a) If the EOT signal originated from a non-interactive telex terminal, the SFU should wait for up to 2 seconds for a WRU signal. If a WRU signal is received, the SFU should return its answerback followed immediately by the ITD sequence. If a WRU signal is not received in the 2 second period, the SFU should return the ITD sequence.

b) If the EOT signal originated from an interactive telex terminal, the SFU should return the ITD sequence as soon as possible.

c) The ITD signal and associated reference information must be returned within 5 seconds of the EOT signal.

13 If a WRU signal is received at any time during the procedure, the SFU shall return its own answerback.

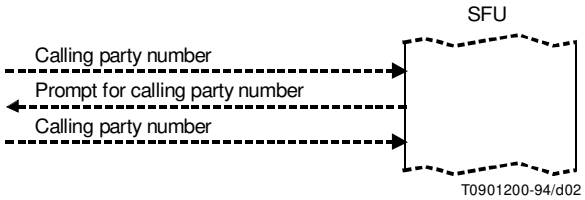

FIGURE 2/U.80

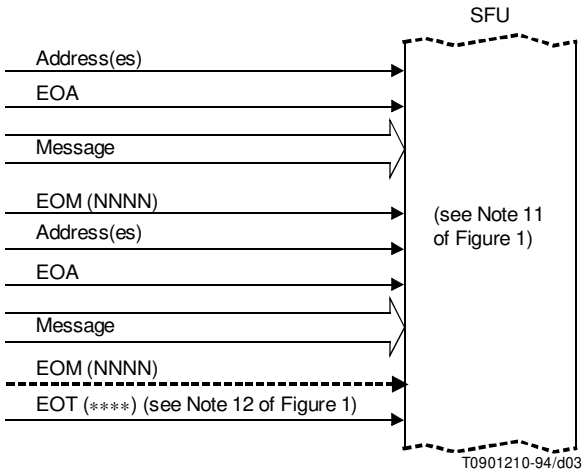

FIGURE 3/U.80

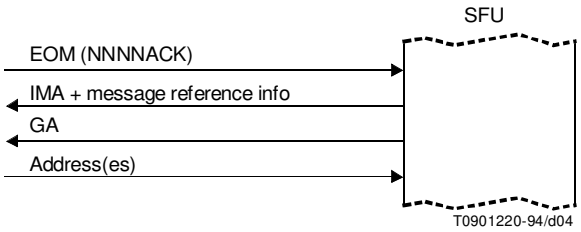

FIGURE 4/U.80

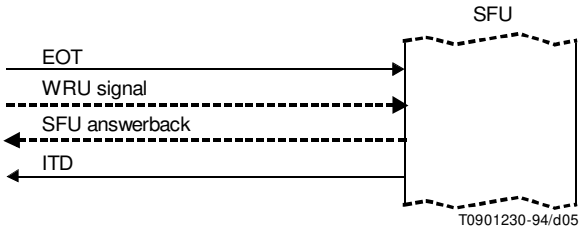

FIGURE 5/U.80

4.2 Telex access

4.2.1 The calling telex subscriber should establish a call to the SFU by means of normal telex procedures.

4.2.2 The answerback of the SFU shall be in accordance with Recommendation F.60. The calling answerback shall be captured in accordance with the rules laid down in Recommendation S.23. If an 800 ms idle condition has not been detected within 15 s of the transmission of the SFU answerback, the call should be cleared.

NOTE – SFU answerback is not returned if the SFU cannot accept the guaranteed message length (see 3.2.9). In this case OCC is returned and the call is cleared.

4.2.3 An additional WRU signal should be transmitted if:

a) there is no response to the first WRU signal;

b) signals were received after the first WRU signal that could not be identified as an answerback.

The second WRU signal should be sent when a 300 milliseconds idle condition has been received from the calling terminal at least 10 seconds after the transmission of the first WRU signal.

NOTE – The 300 millisecond and 10 second periods suggested here are provisional and may need to be changed in the light of experience.

If a continuous input of signals is detected for 15 seconds after the return of the SFU answerback, the SFU shall clear the call.

4.3 Message reference information

4.3.1 The message reference information may be returned after a 3 second timeout from receipt of the calling terminals answerback. If the SFU detects input before timeout, then the message reference information will be withheld.

The message reference information may comprise date and time and/or message reference number.

4.3.2 Date and time

4.3.2.1 The date and time of message input may be returned to the calling telex subscriber before message input.

4.3.2.2 The transmitted date and time should be:

←≡↑YY-MM-DD/HH-NN

where

YY represents two numeric characters indicating the year;

MM represents two numeric characters indicating the month;

DD represents two numeric characters indicating the day;

HH represents two numeric characters indicating the hour on a 0-24 basis;

NN represents two numeric characters indicating the minute.

NOTE – Local time of the SFU should be used.

4.3.3 Message reference number

A message reference number may also be returned to the calling telex subscriber before message input.

The reference number would comprise up to six numeric characters and should follow after the date and time information.

The reference number should cycle through consecutively for follow-on messages within the same transaction. Accommodation should be made to cycle the last two or three digits for follow-on messages.

4.4 Service request

4.4.1 Interactive service request

The calling telex subscriber shall be recognized as interactive by the omission of the non-interactive service request (see 4.4.2).

4.4.2 Non-interactive service request

The calling telex subscriber should indicate that the transmission is from an automatic terminal by commencing the procedure with the non-interactive service request (characters CI).

4.5 Calling telex address

4.5.1 The SFU shall use an algorithm (see Recommendation U.74) to attempt to determine the calling telex address from the captured calling answerback. If this cannot be achieved the SFU shall return a prompt signal (←≡↓ADD←≡) to solicit the calling subscriber number.

This prompt shall be returned after the optional message reference number, but not before a period of three seconds from receipt of the calling terminals answerback. If the SFU detects input within this time then the prompt will be withheld.

4.5.2 The calling address may be preceded by a CI character sequence which signifies the non-interactive service request (see 4.4.2). The CI characters sequence may or may not be associated with carriage return, line feed or letter shift characters. In case the Telex terminal did not provide its telex address, the SFU shall clear the call.

4.5.3 If the calling address is not received within 15 seconds of the original prompt signal (ADD), another prompt shall be returned once more to try to solicit the calling address. If another 15 seconds elapse the connection shall be cleared.

4.5.4 Address input can be cancelled (in the case of mistakes) using the same procedure as 4.7.10.

4.5.5 The calling address should be input in the format: F.69 code followed by the national telex number and must be followed by at least two carriage return, line-feed sequences when received in the non-interactive operation.

4.6 Commence input signal

If the calling address is capable of being extracted from the answerback (see 4.5.1) then the SFU shall return a commence input signal comprising the characters ←≡↓GA←≡; after the optional message number, but not before a period of three seconds from the receipt of the calling terminals answerback. If the SFU detects input within this time then the prompt will be withheld.

If the address is not capable of being extracted from the answerback, the SFU shall not return the GA sequence, but shall return the ADD prompt (see 4.5.1).

In this latter case the GA prompt shall normally be returned 3 seconds after the receipt of the calling address. However, the GA prompt should be inhibited if the service request CI precedes the calling address or the caller has initiated input.

If the SFU has not been able to obtain the calling address, by the stage at which address input is expected, then the SFU will require that the first address line is preceded with the keyword "ADD" indicating that the calling address follows.

If "ADD" is not found, then the SFU will attempt to interrupt the calling telex subscriber in accordance with Recommendation U.46.

If the calling subscriber is interrupted, the service signal "ITR" followed by the clearing signal, shall be sent indicating that the SFU has been unable to obtain the calling subscriber address and the transaction has been terminated.

When the calling subscriber cannot be interrupted, the SFU shall forcefully clear the connection.

4.7 Address input

4.7.1 The format of each address line should be as follows:

a) service identifier;

b) address;

c) expected answerback or part of answerback;

d) attention information;

e) delayed delivery;

f) positive delivery notification request.

NOTE 1 – Field a) is mandatory for non-telex addresses only, but optional for telex addresses.

NOTE 2 – Only field b) is mandatory to the subscriber. Each address line should not be longer than 69 printable or space characters. Each address line is normally delimited by carriage return and line feed.

The SFU should send the service signal NP and clear the call after a 15 second delay if no character is received.

NOTE 3 – Additional shift or carriage control characters have to be ignored.

NOTE 4 – Address lines containing more than 69 characters are for further study.

4.7.2 Each field within an address line should be delimited by different combinations for each field. These combinations will be:

Combination No. 26: + End of each address.
Combination No. 24: / Start of expected answerback or part of answerback.
Combination No. 11: (Attention line information to be combined within these delimiters.
Combination No. 12:)
Combination No. 14: , Start of other options.

NOTES

1 With the exception of combination No. 26 (+) the other combinations need not be used if the subscriber does not want to use those fields.

2 The optional fields may be input in any order.

3 Handling of abnormal conditions is for further study.

4.7.3 The SFU shall return a service signal (TMA) and clear the connection if the agreed maximum number of addresses is exceeded (see 3.2.3).

4.7.4 The address line(s) shall be delimited from the message by means of an EOA signal which shall be:

←≡↓BT

When a positive delivery notification is requested on a per message basis, the EOA signal will be extended to include the indicator "ACK" separated by Combination No. 14 (,) as follows:

←≡↓BT, ACK

It is acceptable for the EOA signal to appear on the same line as the last address.

4.7.5 Service identifier and address

This field is the only mandatory field of the address line. It consists of either

– the called international telex address (in the format of the Recommendation F.69 destination code and national telex number); or

– the service identifier followed by a non-telex address in the format as defined in the relevant Recommendation, e.g. X.121.

4.7.5.1 Input of non-telex terminal addresses, reachable via one-stage interworking units

These addresses can be considered as telex addresses and no specific provisions are necessary to cater for this type of non-telex terminal.

4.7.5.2 Input of non-telex terminal addresses, reachable via two-stage interworking units

Figure 6 shows the configuration applicable for interworking between an SFU and the different types of interworking unit.

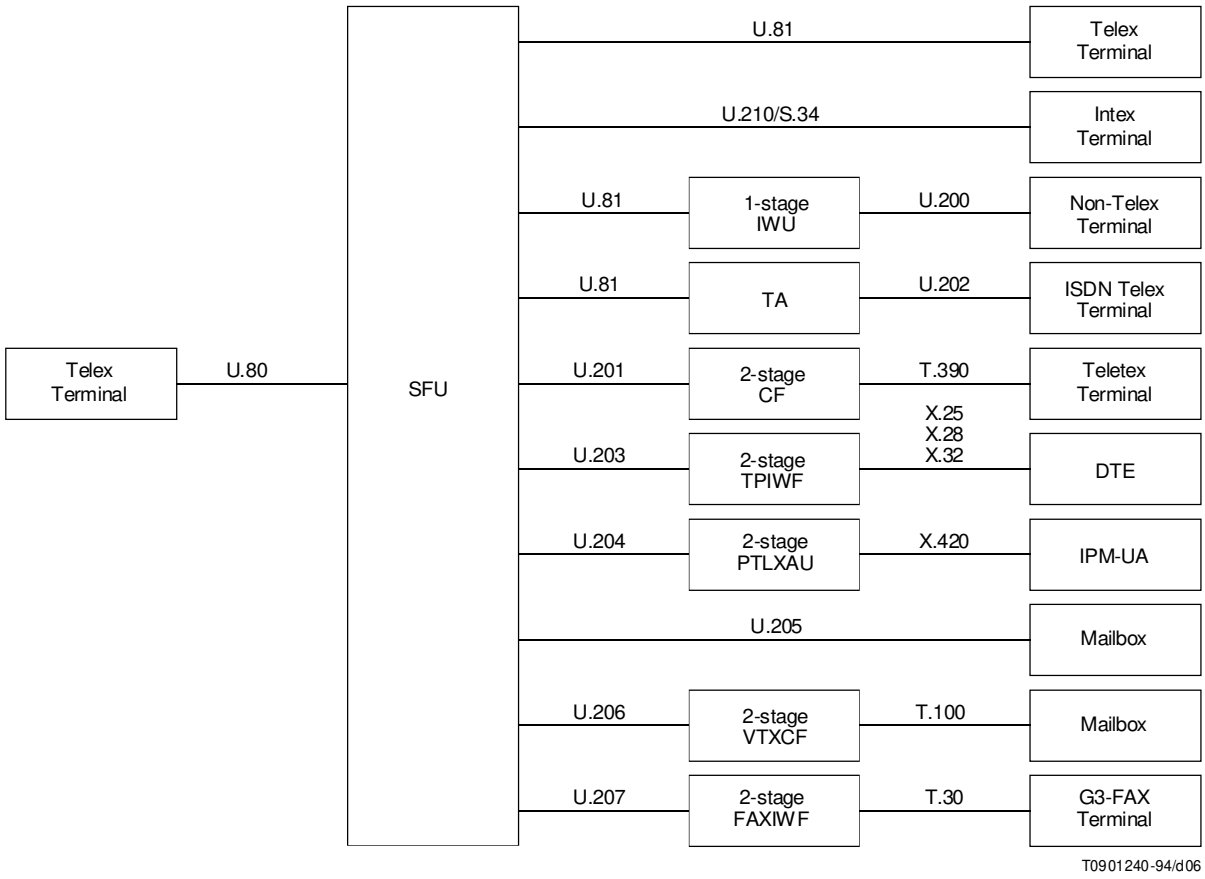

FIGURE 6/U.80

General model for the use of a Telex store-and-forward unit for interworking

The telex subscriber has to input the destination address in the complete appropriate format (e.g. Recommenda-tions F.69, X.121, E.164). However, an identifier of the service (where appropriate) or the network of the destination terminal is to be added in front of the address.

Valid service identifiers are:

- TTX for Teletex;
- PDA for a terminal connected to a Packet Data Network or accessing the Packet Data Network via a PSTN;
- IPM for an IPM user;
- VTX for a Videotex user;
- FAX for a FAX terminal;
- FXT for Intex.

In case of a Teletex address if validation is provided, the action to be taken by the SFU, when the address is not received with a valid format, is detailed in 4.12.5.

Each address has to be terminated by a combination No. 26 in figure-shift mode (+) whether the optional fields are used or not.

4.7.6 Expected answerback or part of answerback

The character sequence in this field should be used as an additional check on the called subscriber answerback before the message is delivered. The inclusion of this field is optional.

4.7.7 Attention information

This field may convey the name and address of the recipient in a confidential manner. The inclusion of this field is optional.

4.7.8 Delivery indicator

This field indicates the type of delivery required. Omission of this field indicates that normal delivery is required. The format of the field should be:

a) D if the calling subscriber leaves the period of delay to the discretion of the Administration providing the SFU service;

b) DXY where XY are numeric characters which specify the minimum desired delay in hours from 01-23;

c) LXY where XY are numeric characters which specify the maximum limit for delivering the message to the addressee.

4.7.9 When a positive delivery notification is required on a per address basis, the indicator "ACK" separated by Combination No. 14 (,), shall be included as part of the address.

4.7.10 Examples of the format of address lines:

a) 41994531+/994531 FUG D, D;

b) 41662724+(ATTENTION MR S SMITH), D12;

c) 41246178+/246178 ADAC D(ATTENTION MR SMITH);

d) 4625000+;

e) fax33130731660+,d06;

f) ttx33130732222+,ack.

4.7.11 Address line editing facilities, if provided, should operate as follows:

Any address line entered may be cancelled by the receipt of two consecutive == characters (combination No. 22 in figure shift mode).

4.8 Called address validation

Each address line may be validated as follows:

a) that the selection number consists of only numeric characters (non-numeric characters such as space, hyphen or a valid prefix shall be tolerated) and the selection number's length falls within the range of the number of digits accepted by the SFU;

b) that the first two or three significant digits constitute a valid F.69 telex country code accepted by the SFU;

c) that the remainder of the address line conforms to the format specified in 4.7.

4.9 Message input

4.9.1 Characters received in the message text (with the exception of WRU signal) should be transmitted transparently by the SFU.

4.9.2 Clause 6 details the action the SFU should undertake if abnormal conditions are encountered during message input.

4.10 End of message (EOM) signal

Normally, if the calling subscriber wants to input more than one message, an end of message signal is used. This may be one of two types as follows:

a) four combinations No. 14 (NNNN), in letter shift mode which is used to separate messages;

b) four combinations No. 14, then combinations 1, 3 and 11 (NNNNACK) in letter shift mode which is used to separate messages and to request the SFU for an input message acknowledgement (IMA) plus reference information of those messages not previously acknowledged (see 4.11.4 for format).

Once this type of EOM is received the SFU shall accept responsibility for delivery of the message, even if the subscriber clears.

4.11 End of transaction (EOT)

4.11.1 The calling telex subscriber should indicate end of transaction by transmitting four combinations No. 26 in Figure shift mode to the SFU (++++).

4.11.2 This signal is normally used at the end of the last (or single) message input during the transaction.

4.12 Input transaction accepted for delivery signal (ITD)

4.12.1 After receipt of the EOT signal from a non-interactive calling telex subscriber the SFU should wait up to 2 seconds to detect any further signals on the forward path. If a WRU signal is received in this period the SFU should respond with the SFU answerback followed by the ITD signal. If no further signals are received during this period the SFU should return the ITD signal, plus reference information (as in 4.3) followed by clear.

4.12.2 After receipt of the EOT signal from an interactive telex terminal the SFU should return the ITD signal as soon as possible.

4.12.3 ITD reference information must be returned within 5 seconds of the EOT signal in 4.11.1 and 4.11.2 above to avoid excessive holding times.

4.12.4 The ITD signal should be followed by the date and time, message reference number(s) and an indication of the total number of messages. When more than one message has been received, the reference information returned shall be that of the first and last message, e.g.

ITD YY-MM-DD/HH-NN
(XXXABC-XXXDEF) P

where

XXXABC is the first serial number;

XXXDEF is the last serial number;

P is the number of messages acknowledged.

4.12.5 Where address format validation is to be provided, there will be one ITD signal per message. It shall be followed by a list of all rejected addresses, for the corresponding message. Each rejected address may be followed by the appropriate service signal indicating reason for failed validation, e.g.

REJ XXXXX YY

where

REJ is the service signal indicating rejection of the given address;

XXXXX is the rejected address; and

YY the appropriate service signal, e.g. NP, FMT, etc.

In the case where all addresses have failed validation, then the SFU should attempt to interrupt the calling telex subscriber in accordance with Recommendation U.46.

If the calling subscriber can be interrupted, the service signal “ITR”, followed by the clearing signal shall be sent indicating that all address validations have failed and the transaction has been terminated.

When the calling subscriber cannot be interrupted, the SFU shall forcefully clear the connection.

5 Status enquiry

5.1 Status enquiry request

5.1.1 A calling telex subscriber, having selected the status enquiry point (see 2.2.5 and 3.3) must give the SFU the following information:

a) the message reference information (see 4.3);

b) an indication of whether the enquiry concerns all addresses associated with a message, or whether the enquiry concerns only address(es) which have not yet received the message, or a specified address.

Status report information should be provided for all addresses unless the message reference number is followed by combination No. 22 (=), which signifies that the enquiry concerns only addresses which have not yet received the message. Also, if this character is followed by an address, this shall signify a status request on a specific address. Several reference number lines may be entered each separated by carriage return, line feed.

Termination of a status enquiry request will be indicated by the end of status request signal (EOSR), combination No. 26 (+).

5.1.2 If characters are not received on the forward path within 3 seconds of the status enquiry mode being selected, the SFU shall return a prompt signal which shall comprise combination No. 2 (?).

5.1.3 If a message reference number is not received either in full, or in part, within 20 seconds of the prompt being returned, the SFU should clear the connection.

5.1.4 If an EOSR signal is not received within 20 seconds of the message reference number(s) input, the SFU shall continue as if an EOSR signal had been received.

5.2 The status report

5.2.1 The status report format will be consistent with the notification advice format dealt with in Recommendation U.81.

Two types of status report are returned:

a) delivered;

b) not delivered.

See 4.3.6/U.81 for report formats.

6 Abnormal conditions during message input

6.1 Telex subscriber clearing during text input without EOT

The SFU shall not forward the message to the called telex subscriber(s)

The incomplete message should either be cancelled or optionally sent to an operator assistance position. Messages previously acknowledged in the same transaction shall be transmitted normally.

6.2 Telex subscriber stopping transmission for a certain time without transmitting the EOT signal, or transmitting a partial or invalid EOT signal

See Figure 7.

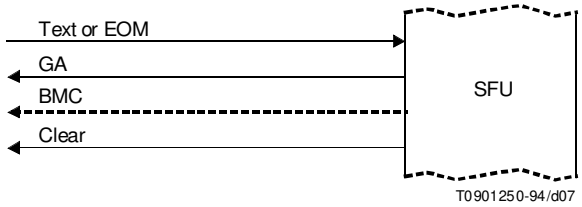

FIGURE 7/U.80

If at any time between the SFU returning the GA prompt (Case A), or the calling address prompt (Case B) and the detection of the EOT signal the SFU detects a 30 second period of idle, the following shall apply: the SFU shall send a GA prompt to the telex subscriber in order to request more information input (text, EOM or EOT). If after a further 30 seconds no more characters are received, the SFU shall

a) either send BMC service code and clear the call (if the SFU cancels incomplete messages); or

b) send BK and clear the call (if the SFU sends the message to an operator assistance position).

If previous message(s) in the same transaction were delimited by NNNNACK, these shall be transmitted normally.

6.3 Telex subscriber sending WRU to the SFU during text input

The SFU should return its answerback after receiving a WRU signal. In addition, if:

a) WRU signal is followed by text, message input is continued after the SFU answerback. Also, the WRU signal is deleted from the message text.

b) WRU signal is followed by a clear from telex, the SFU proceeds in 6.1 above.

c) WRU signal is followed by a lack of transmission (pause), the SFU proceeds as in 6.2 above.

6.4 Telex subscriber sending text after the EOT signal

See Figure 8.

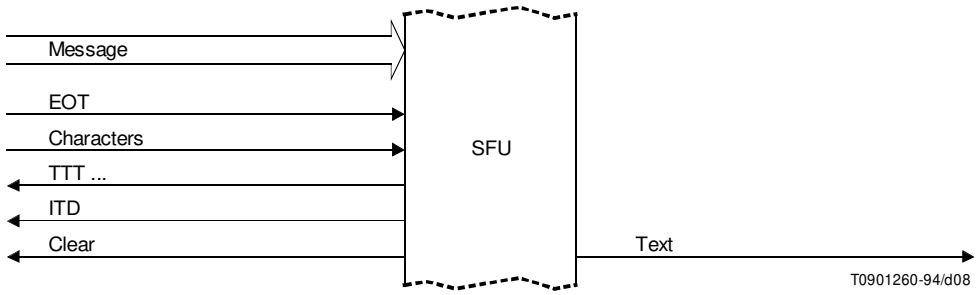

FIGURE 8/U.80

6.4.1 Any characters received between EOT and ITD (with the exception of WRU signal) will be ignored.

6.4.2 The SFU should immediately attempt to prevent further characters being sent by transmitting a sequence of TTT . . . characters for a maximum of 20 seconds.

6.4.3 If the calling terminal stops transmission for 150 milliseconds within a 20 second period, the SFU shall return an ITD service signal followed by a clear.

6.4.4 If the terminal continues to transmit characters after the 20 second period, the SFU should forcefully clear the connection back to the calling terminal.

6.4.5 The SFU should attempt to deliver the message text received before EOT as for a normal message input.

6.5 Telex subscriber clearing after EOT, but before ITD

The message shall be forwarded normally by the SFU under these circumstances.

6.6 Telex subscriber sending national variants of ITA No. 2 Alphabet (↑F, ↑G, ↑H)

Since A.3.8/F.60 recommends that these combinations not be used for international communications, the SFU should not monitor for their use and these combinations will be passed on to the called subscribers if received.

6.7 Telex subscriber sending J. Bell combination (↑J)

The SFU should also transmit this combination if received, to the called party.

6.8 SFU storage capacity overflow during telex message input

6.8.1 If the number of characters received by the SFU during a message input exceeds the available storage to that input (which may be greater than the agreed minimum storage, see 3.2.9), the SFU should discard the excess characters, no attempt should be made by the SFU to overwrite previously stored characters.

6.8.2 When this occurs the SFU should immediately attempt to prevent the calling telex subscriber from sending further characters by transmitting a sequence of TTT . . . characters for a maximum of 20 seconds.

6.8.3 If the calling terminal stops transmission for 150 milliseconds within a 20 second period, the SFU should return the message length exceeded indication (LDE) and then wait for the EOT or NNNNACK in accordance with 6.2.

6.8.4 If the terminal continues to transmit characters after the 20 second period, the SFU should forcefully clear the connection back to the calling terminal.

6.8.5 If an EOT/NNNNACK is received within the 20 second period, the SFU should attempt to deliver the message text, accepted and stored, preceded by a special text prefix to indicate to the called telex subscriber that the message may be incomplete. If an EOT/NNNNACK is not received the SFU shall proceed as in 6.1.

6.8.6 If the SFU has insufficient storage to receive messages (see 3.2.9) it should still continue to process status enquiry requests.

6.9 Maximum input duration exceeded

If the time taken for a single transaction exceeds 2 hours, the SFU shall act in accordance with 6.8.

6.10 Repeated characters during message input

The SFU shall be capable of detecting continuous reception of one character combination and shall recognize this as a "tape stuck" condition. The SFU shall detect this condition only after receipt of 80 identical combinations received consecutively. The SFU shall attempt to signal the calling terminal by transmitting a sequence of TTT . . . characters for a maximum of 20 seconds. If the character combinations become different the SFU shall continue with the message input and deliver all characters received. If the "tape stuck" condition remains at the end of 20 seconds, the SFU shall clear the connection and follow the procedure outlined in 6.1 above.