



INTERNATIONAL TELECOMMUNICATION UNION

**ITU-T**

TELECOMMUNICATION  
STANDARDIZATION SECTOR  
OF ITU

**M.760**

**MAINTENANCE: COMMON CHANNEL SIGNALLING  
SYSTEMS**

---

**TRANSFER LINK FOR COMMON CHANNEL  
SIGNALLING SYSTEM No. 6**

**ITU-T Recommendation M.760**

(Extract from the *Blue Book*)

---

## NOTES

1 ITU-T Recommendation M.760 was published in Fascicle IV.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.

TRANSFER LINK FOR COMMON CHANNEL SIGNALLING SYSTEM No. 6

1 General description of the transfer link

1.1 The transfer link for the common channel Signalling System No. 6 and its relationship with the signalling link and signalling data link are depicted in Figure 1/M.760.

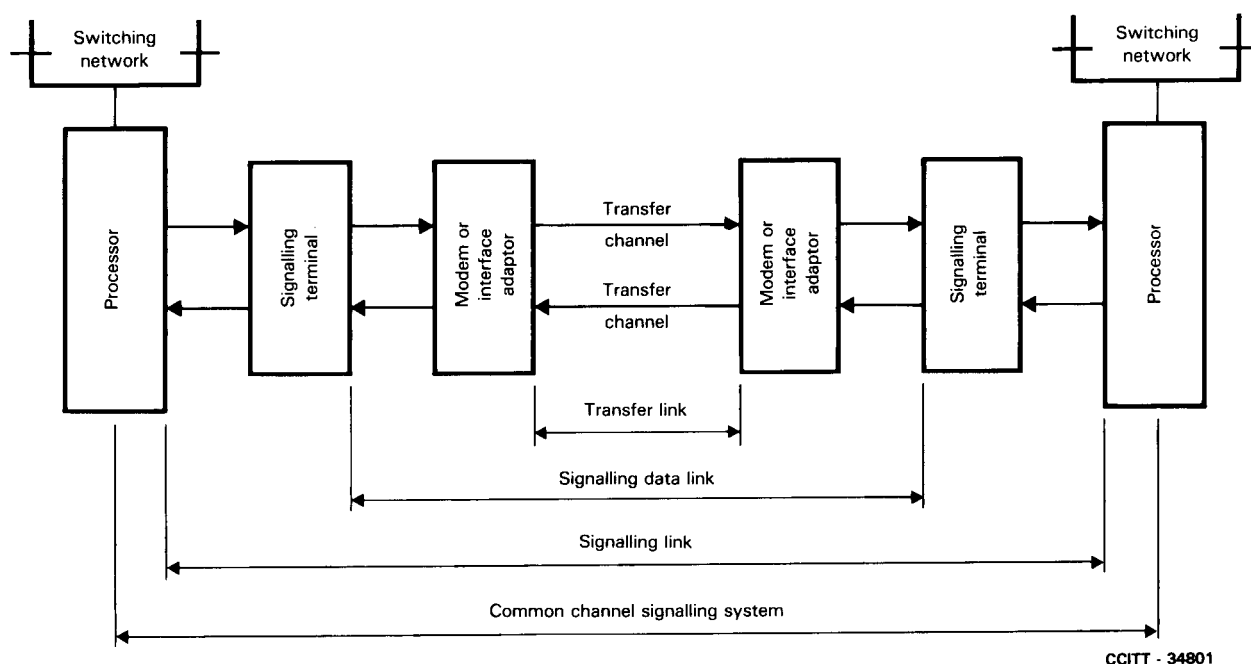


FIGURE 1/M.760

Basic diagram of the common channel Signalling System No. 6

1.2 The signalling link may be operated over either an analogue or a digital transfer link. Analogue transfer links are used to interconnect data modems located within, or adjacent to, international switching centres, thus forming signalling data links. Analogue transfer links are 4-wire transmission channel pairs having no audio terminating units, signalling equipment or echo suppressors. These channels can be derived from purely analogue, a combination analogue and digital, or purely digital transmission systems. Guidance on the setting-up and lining-up of analogue transfer links is given in Recommendation M.761.

Digital transfer links are used to interconnect interface adaptors to form signalling data links.

For guidance on the testing and maintenance of Signalling System No. 6, reference should be made to Recommendation Q.295 [1].

2 Continuity of service

2.1 Since the signalling link carries the signals for many speech circuits, a failure of the link will affect all speech circuits served. Therefore, arrangements should be made to ensure continuity of service of the signalling link.

2.2 Continuity of service will normally involve the provision of reserve facilities, which may be one or more of the following:

- quasi-associated reserve signalling links,
- full-time reserve transfer links,
- nominated direct circuits.

In the last two cases the transfer links must be equipped with signalling terminals and modems or interface adaptors to form signalling links. Reference should also be made to Recommendation Q.292 [2], which provides a detailed description of the above reserve arrangements.

2.3 Whenever possible, the reserve facility to be used should follow a different route of the regular signalling link.

2.4 In order to reduce the number of interruptions on the signalling link to a minimum, it is recommended that all equipment associated with such links (for example, channel translating equipment, modems, distribution frames, etc.) be positively marked to make them readily identifiable to maintenance staff. Such markings assist maintenance efficiency and help staff to avoid causing inadvertent interruptions to the link when carrying out maintenance work in operation centres and switching centres.

2.5 The proper functioning of Signalling System No. 6 is essential to the operation of the international network and various means are suggested in order to ensure this operation. If a fault occurs in the normal transfer link, service will continue (see § 2.2). However, a second (or simultaneous) failure would cause a significant impairment in traffic between centres so affected. Therefore, immediate maintenance attention should be given to transfer link faults and they should be returned to their normal configurations as rapidly as possible following a failure.

### **3 Transfer link designation**

The form of designation to be used for the transfer link and its nominated reserve is given in Recommendation M.140.

### **4 Maintenance organization**

4.1 The maintenance organization for common channel Signalling System No. 6 is in two parts:

- a) the maintenance of the overall signalling system with respect to delivering necessary signalling information between international centres, and to the functioning of data modems, signalling terminals and related equipment. The overall maintenance requirements is a subject for further study;
- b) the maintenance of the transfer link between two centres, from the output of one data modem to the input of another data modem. This link does not include data modems.

4.2 By agreement between Administrations, one terminal international centre, or an equivalent point specified by the Administration concerned, will be designated as the overall maintenance control station. This station will maintain an overview of the performance of Signalling System No. 6 and in general be responsible to ensure that actions are coordinated when responsibility for a particular fault is not clearly identified. Additionally, one terminal international centre should function as the control station for transfer link maintenance activities.

*Note* – For a signalling system this role may be combined with that of overall maintenance control.

4.3 Organizational points or stations need to be assigned to provide for the following functions:

- a) Overall signalling system maintenance
  - i) control station
  - ii) sub-control station
  - iii) fault report point
  - iv) testing point
- b) Transfer link maintenance
  - i) control station

- ii) sub-control station
- iii) fault report point
- iv) transmission maintenance point (international line) (TMP-IL)

These may be assigned by an Administration as best suited to its individual needs.

It is essential that the appropriate contact point information be exchanged in order to minimize maintenance difficulties. Figure B-1/M.93 offers a plan for the exchange of contact point information for the international telephone service and allows for the exchange of contact point information Signalling System No. 6 maintenance.

4.4 This Recommendation relates to the maintenance of the transfer link. However, maintenance activities on the transfer link should be controlled in order to preclude interruption of signalling functions, either during normal service or while tests initiated by the overall maintenance control station are being carried out. Furthermore, the TMP-IL for the transfer link is not likely to be aware of any faults in the signalling system unless advised by the overall signalling maintenance control station or transfer link control station. Therefore, testing of the transfer link will not be undertaken until advice (or concurrence) is received from the overall maintenance control station or the transfer link control station.

4.5 Once a fault is indicated in Signalling System No. 6, a possible series of events is illustrated in Figure 2/M.760. In the presentation of the flowchart it has been necessary to assume a possible organizational arrangement and assignment of responsibilities [see § 4.1, a) above].

This chart does not go into all possibilities. It is intended to depict a process toward fault correction, looking first at the most likely causes of faults in the transfer link with speedy correction in mind, and then toward more detailed and time-consuming tests to discover more elusive faults. It should be noted that some long-term testing may be required in this latter process.

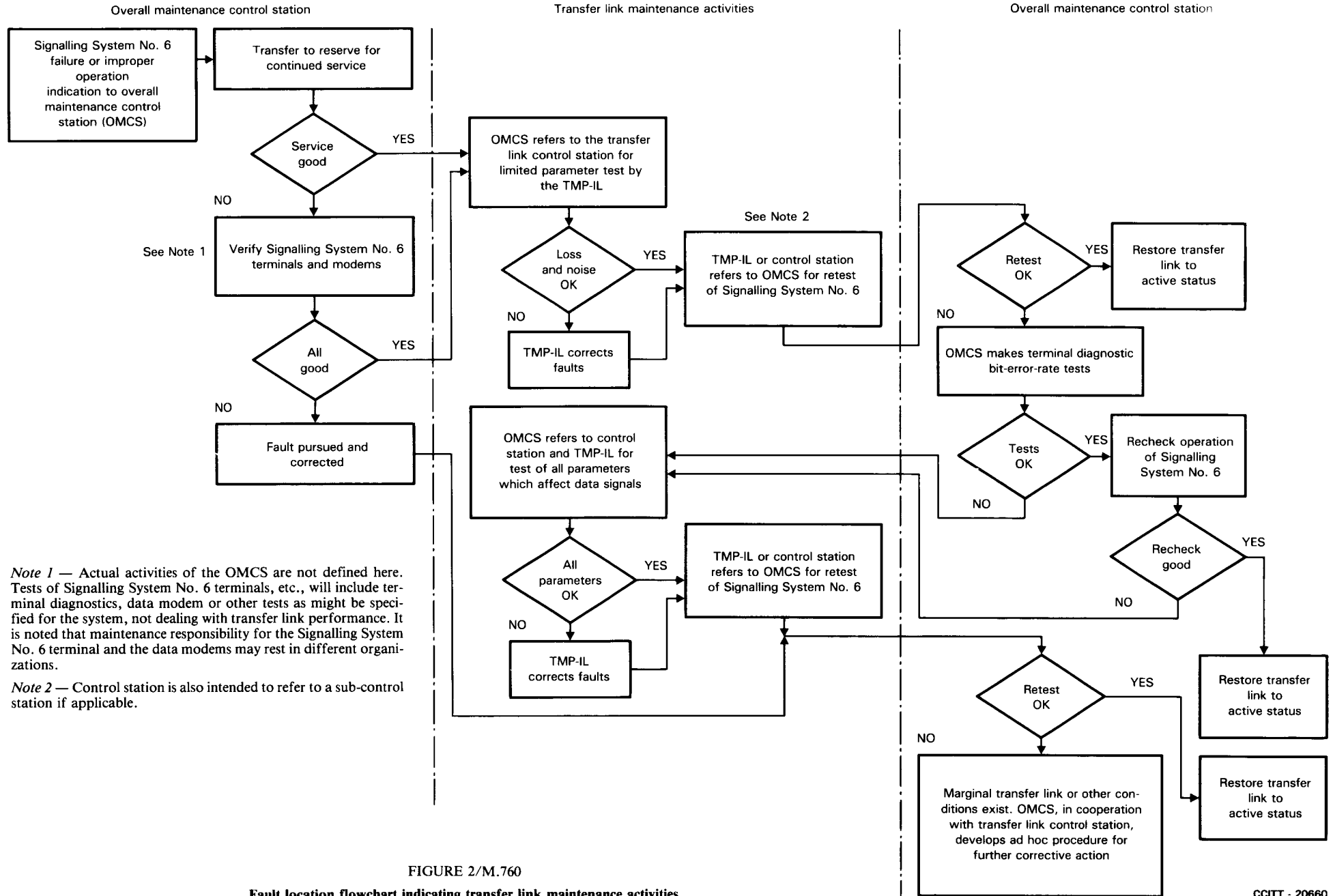


FIGURE 2/M.760

Fault location flowchart indicating transfer link maintenance activities

## **References**

- [1] CCITT Recommendation *Testing and maintenance – Overall tests of Signalling System No. 6*, Vol. VI, Rec. Q.295.
- [2] CCITT Recommendation *Reserve facilities provided*, Vol. VI, Rec. Q.292.