EBU Statement D52 - 2001
Provisions to be made by manufacturers of broadcast production equipment to facilitate hardware fault diagnosis and repair

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1. Introduction

Modern technological equipment used by broadcasting organisations for the production, processing and dispatch of programmes consists often of very complex systems that must meet extremely high demands in terms of their reliability, stability and fault-free operation. Any failure of such equipment, which is often unique, can seriously jeopardise the continuity of production with all the related consequences to the output of broadcasters. In such case, the prime interest of the user is to repair the equipment as quickly as possible, which can be achieved on one of the following service levels, or combination of such levels.

1. On-line service level

Equipment is repaired by replacing a faulty module. This is the quickest method of repair with the shortest out-of-operation time. The equipment often need not be taken out of the production chain. The repair is usually done by the broadcaster's technical staff but a necessary condition is an adequate supply of spare modules on site. The faulty module is repaired on the second or third service level.

2. Off-line service level

This level includes larger measuring and diagnostic operations on faulty modules or on equipment taken out of the production chain. It requires experts with special skills, is more time-consuming while being less demanding in terms of spare modules supply. This service level requires a high degree of information support from the manufacturer.

3. Service level with manufacturer's support

In the case where the diagnosis and repair of equipment are beyond user's capabilities, the user approaches a service representative or the manufacturer directly. In this case securing the shortest possible time of repair depends on the outside organisations.

To be able to decide about the level of his service activity, the user of the technological equipment needs a certain degree of guaranteed support from the manufacturer. The support must enable preventive checks and adjustments of the equipment on the one hand, and, on the other hand, must offer the possibility of choosing the optimum method of repair. Last but not least, the broadcaster needs assurances as to the period of time over which the manufacturer will provide support for the particular product.

In order to make sure that the above needs can be met, the EBU Members ask manufacturers of technological equipment to observe the following requirements.

2. General requirements for manufacturers of technical equipment used in the production and distribution of programmes

2.1. Manufacturers should enable the user to apply the first service level by support of modular electronic modules, easy to manipulate and check. It is desirable that the division of modules into functional blocks be preserved to the maximum possible extent, as it significantly facilitates the diagnosis of faults.

2.2. Built-in self-diagnosis is a fundamental and irreplaceable help in conducting service procedures and in pinpointing defects is all kinds. Manufacturers should exploit this method of defect-finding to the

maximum in their equipment, whether in the form of indicators or internal or external diagnostics software.

2.3. Manufacturers should guarantee a supply of spare parts and provision of servicing by for at least five years after finishing the production of given equipment. After this time, manufacturers should indicate for how long they expect to continue to supply spare parts or recommend cost effective substitutes.

2.4. Service or installation manuals supplied together with the equipment should contain, besides instructions for operation, essential technical data. This would help to optimise utilisation of the equipment and provide the user with information necessary for the third-level maintenance. Manuals should contain the following data:

- The technological parameters of the equipment,
- A description of connecting points
- An overall block diagram and simplified theory of operation,
- Information about the degree of interference clearing,
- A list of specialist service and consult institutions, including instructions on how to apply for service support.

2.5. Manufacturers should supply a more comprehensive set of technical documents to users who envisage to apply the first and second service levels. Manufacturer who offer such an option should supply a service manual which should include:

- Schematic drawings of electronic parts
- Basic mechanical settings
- Descriptions of availability of individual functional units
- Descriptions of functioning of the equipment and a theory of operation, at least on the level of functional units in addition to detailed circuit descriptions
- Source materials for ordering spare parts and measuring equipment
- Descriptions of measuring and adjustment procedures
- Descriptions of software and other diagnostics, if offered by the manufacturer

In addition manufactures should offer:

- “Hot-lines” for service advice
- Access to factory diagnosis using dedicated service computers at their premises

3. Conclusion

By meeting these minimum requirements the manufacturer will create favourable conditions for broadcasters to be able to optimally utilise modern technical equipment, thanks to quality and ease of maintenance.