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Specification for Preparation of Eproms for Railway Signalling Applications

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BRITISH RAILWAYS BOARD

SPECIFICATION NO. 1990

SPECIFICATION FOR PREPARATION OF EPROMS
FOR RAILWAY SIGNALLING APPLICATIONS

FOREWORD

This specification supersedes all previous issues and is issued by:-

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INTRODUCTION

This specification lays down the procedures to be followed in programming, checking, and labelling EPROMs for use in vital railway signalling equipment. These procedures shall form part of the assembly, testing and inspection processes of all such equipment.

This specification covers both 'production' EPROMs (those to be inserted in the signalling equipment) and Verification Master EPROMs (those to be used in the checking of production EPROMs) for both data and program purposes.

Where EPROMs are required for use in non-vital railway signalling equipment then only sections 2, 4.4.1, 4.4.6, 5.1, 6 and Appendix A must be complied with.

2. EPROM BLOWING PRECAUTIONS

2.1 All previously used EPROMs must be fully erased before programming in accordance with the instructions of the manufacturers of the EPROMs and the eraser in use.

All EPROMs must pass a blank check, i.e. all addresses to be in the correct unprogrammed state (usually FFH), before programming. Any EPROMs failing the blank check or failing to program correctly must be discarded.

2.2 The EPROM programmer must be calibrated in accordance with its manufacturer's instructions.

All precautions recommended by the manufacturers of the EPROMs and the EPROM programmer must be scrupulously observed.

3. SOURCE INFORMATION

This will vary depending on whether Verification Masters or production EPROMs are to be programmed, and whether the Verification Masters are to contain data, which is scheme specific, or programs, which are normally not scheme specific.

The storage media used for masters to hold copies of EPROM code shall be as follows:-

- (a) Magnetic disc, tape or other media (but not EPROM), which can be read into an EPROM programmer, shall be used for Source Masters.

EPROMs shall be used for Validated Masters and Verification Masters.

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3.1 Verification Masters (Program)

- 3.1.1 Following the creation of the program the EPROM code will be held on a Source Master. An EPROM will be programmed from the Source Master and verified back to the Source Master. The program code held by this EPROM will then be validated by BR, finally resulting in validated code being held on both the Source Master and the EPROM. This EPROM shall be known as the Validated Master and shall be labelled as defined in Section 5.
- 3.1.2 The source information used for programming and checking Verification Masters containing the program EPROM code shall be the Source Master, or copy of, and the Validated Master respectively.
- 3.1.3 The Verification Masters (Program) shall then be created as defined in Section 4, using unused EPROMs of the same memory capacity as that of the production EPROMs to be programmed with the same code.

Verification Masters (Data)

- 3.2.1 Two copies shall be made of EPROM code (i.e. the compiled source data destined for the EPROMs) following the preparation and compilation of source data. These copies shall then be used to ensure that no corruption or accidental changes occur during any checking and testing procedures carried out before EPROM programming. The two copies containing this final version of data thus produced shall become the Source Masters.
- 3.2.2 The source information used for programming and checking Verification masters containing the data EPROM code shall be these two Source Masters.
- 3.2.3 The Verification Masters (Data) shall then be created as defined in Section 4, using unused EPROMs of the same memory capacity as that of the production EPROMs to be programmed with the same code.

Production EPROMs

- 3.3.1 The source information used for programming and checking production EPROMs shall be one Source Master and one Verification Master.
- 3.3.2 The production EPROMs shall then be created as defined in Section 4.
- 3.3.3 Where Source Master Readers are not available to the programming process, a Source Master Copy in EPROM form maybe substituted for the Source Master and Reader in Section 4.4.1. This copy shall be programmed and checked as for a Verification Master but labelled as a Source Master Copy as defined in Section 5.

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