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AMENDMENTS

AMD.NO.	DATE	TEXT AFFECTED

British Railways Board

SINGLE STATION-MULTIPLE ZONE PASSENGER INFORMATION SYSTEM

British Rail
Director of Signal & Telecommunication Engineering
Macmillan House
Paddington Station
LONDON W2 1FT

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1. INTRODUCTION

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

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2. SCOPE

- 2.1 This specification covers the provision of a Passenger Information System for a single station, having the ability to provide a different display for several zones or platforms. It shall be based on a PC type processor which shall utilise timetable information transferred from the TSDB by floppy disc. It shall have the ability to drive monochrome or colour TV monitors and the software shall be suitable for driving other types of display hardware such as LCDs in the future.
- 2.2 Details of the system configuration shall be in accordance with the Specification of Works.

3. DEFINITIONS AND ABBREVIATIONS

- 3.1 For the purposes of this specification the words and phrases defined in the General and Special Conditions of Contract shall have the same meanings.

- 3.2 Glossary of Abbreviations

BR	British Rail
BST	British Summer Time
CCIR	International Radio Consultative Committee
CCITT	International Telephone and Telegraph Consultative Committee
DVC	Digital to Video Converter
ETA	Estimated Time of Arrival
ETD	Estimated Time of Departure
Exptd	Expected
GMT	Greenwich Mean Time
ISO	International Standards Organisation
LCD	Liquid Crystal Display
MTBF	Mean Time Between Failures
RS232	Serial Interface Port
RS422	Serial Interface Port
SSRA	Solid State Recorded Announcement
PC	Personal Computer
PCB	Printed Circuit Board
STA	Scheduled Time of Arrival
STD	Scheduled Time of Departure
TSDB	Train Service Data Base
VDU	Visual Display Unit

4. REFERENCES

4.1 British Standards

BS308	Engineering Drawing Practise.
BS3939	Guide for Graphical Symbols for Electrical Power, Telecommunications and Electronics Diagrams.
BS4884	Specification for Technical Manuals
BS5783	Code of Practise for Handling of Electrostatic Sensitive Devices.

4.2 British Rail

BR967	Railway Signalling Apparatus: Environmental Conditions.
BR1619	Technical Specification for Solid State Recorded Announcement Machines.
BR1686	Performance Specification for Telecommunications Equipment under conditions of Electrical Interference.

5. HARDWARE

5.1 Processor

The processor shall be an IBM compatible machine with a 20M Winchester disk supported by a floppy disc system plus a keyboard.

5.2 Processor VDU

5.2.1 The processor shall have a colour VDU which will be used for set up, control and maintenance procedures.

5.2.2 Communications with the VDU shall utilise CC/ITT asynchronous conventions using ISO characters and full duplex operation with keyboard commands echoed to the screen.

5.2.3 The VDU screen layout shall have 25 lines of 80 characters. The top line shall be used for the station/system name, current time and date. Lines 2 to 23 shall be used for displaying information according to the selection made on the menu. Lines 24 and 25 shall be used to display the allocation of various function keys available at any one time, including provision for the execution of frequently used commands with a single key operation.

5.2.4 If required in the Specification of Works a memory support for the system clock shall be provided.

5.3 Communication Ports

The processor shall initially be equipped with the following communications ports:-

5.3.1 Two ports for a RS422 twisted pair ring to handle the DVCs which drive the passenger information displays.

5.3.2 One Centronics parallel interface to enable a printer to be used during editing or dumping the database and for engineering purposes.

- 5.3.3 One RS232 port to facilitate remote operation, down loading of the database or diagnostics. An internal modem shall be incorporated if detailed in the Specification of Works.
- 5.3.4 Direct digital input (minimum 8 lines) for dry contact interrogation such as platform plungers.
- 5.4 It is desirable that the system may support the the following possible communication port requirements with additional hardware and or/ revised software.
 - 5.4.1 Interface port for a SSRA public address system.
 - 5.4.2 RS232 port for use by dial up "Prestel" type external devices.
 - 5.4.3 External clock input.
 - 5.4.4 Automatic operation from train describer i.e. system using train descriptions detailed in section 6.
- 5.5 Digital to Video Convertors
 - 5.5.1 Colour or monochrome multipage DVCs, with a minimum of two ports and suitable for mounting in the TV monitor housings, shall be provided.
 - 5.5.2 The character font shall contain both upper and lower case characters, punctuation marks, numbers and special symbols and shall be as detailed in the Specification of Works. Examples of the tenderers font may be requested in the Specification of Works.
 - 5.5.3 The display shall be formed of 12 lines of 32 characters and be displayed on monochrome or colour TV monitors. If monochrome the output shall be 1 volt peak to peak Composite Video. If colour the output shall be distributed using RGB and Sync.
 - 5.5.4 The video output signal shall conform to CCIR standards and shall be configured for feeding into a video distribution system and include sufficient pre-emphasis to allow for cable losses. It shall be presented in an unbalanced form suitable for connection to a co-axial cable with the output isolated from the chassis ground so as to minimise hum loops.
 - 5.5.5 Each character shall be made up from a box 16 pixels wide by 24 pixels deep. Therefore minimum number of addressable pixels per 32 character line is 512. Where double width characters are used as part of a display format each character must be 32 individually changeable pixels wide. There must be no discontinuity where characters occupy 2 character boxes.
 - 5.5.6 In order to minimise display flicker non-interlaced video shall be used.
 - 5.5.7 Typical display configurations are detailed in Appendix "A". Actual display configuration requirements will be detailed in the Specification of Works.

- 5.5.8 Each DVC page shall have an alternate or scroll facility to enable additional information to be displayed.

5.6 TV Monitors/Housings

The TV monitor equipment shall be selected from the following types:-

- 5.6.1 Monitors - 25" colour or 24" monochrome chassis type with 625 lines, 50 fields/second scanning system. Input voltage 240 volts.
- 5.6.2 Bailey Concept Housing (or equivalent)
- 5.6.3 TV monitor and housing requirements shall be as detailed in the Specification of Works.

5.7 Typical system

A typical hardware requirement for a system would be:-

Processor/VDU	1
Platform Next Train displays	2
Arrival Summary display	1
Departure Summary display	1
Platform plungers	2

6. SOFTWARE - CONTROL SYSTEM

- 6.1 A standard train description is utilised by the *TSDB* (e.g. 1A35) although this is not displayed to the public. The *TSDB* format is detailed in Appendix "B" of this specification.
- 6.2 The first character is in the range 0 to 9, the second character a capital letter in the range A to Z and the third and fourth characters in the range 00 to 99.
- 6.3 On initial input of the *TSDB* data the system shall classify each train as follows:-

	Type
Arrivals	A
Through Train Departures	T
Departures	D
Empty Trains	E
Set Down Trains	S
Arrival Trains (Summary only)	N

Passing Trains (type P) will require to be entered by the system operator.

- 6.4 All type "A" trains shall be valid for display on the Arrival Summary display(s) only, with the following message on the appropriate Next Train display(s):-

The next train to arrive
at this platform
will terminate here.

- 6.5 All type "T" trains shall be valid for display on the Arrival Summary, Departure Summary and appropriate Next Train displays.
- 6.6 All type "D" trains shall be valid for display on the Departure Summary and appropriate Next Train displays.
- 6.7 All type "P" and "E" trains shall have the following message on the appropriate Next Train display(s):-

The next train is not
for public use.

Please stand clear
of the platform edge.

- 6.8 Type "S" trains shall be displayed on the Arrival Summary display(s) only, with the following message on the appropriate Next Train display(s):-

The next train to arrive
at this platform
stops to set down only.

- 6.9 Type "N" trains shall be valid for display on the Arrival Summary display(s) only.
- 6.10 System (real) time shall be in the form "13.55", be held to the nearest minute and be displayed in the top right hand corner of all *VDU* screens.
- 6.11 System (real) date shall be in the form "26.07.88" and the system shall automatically adjust the date including leap years.
- 6.12 The system shall have the ability for the start and finish of British Summer Time to be entered and the system clock to be automatically adjusted accordingly at 02.00.
- 6.13 Estimated times of arrival and departure shall be displayed in the same form as the schedule time. These shall be generated by the system based on information entered by the operator in the range +001 to +999 minutes for delayed trains and -01 to -99 minutes for early trains.
- 6.14 *ETA* shall be displayed on the Arrival Summary monitor(s) only.
- 6.15 *ETD* shall be displayed on the appropriate Next Train monitor(s), typically in the second line of the display as follows:-

1402 Liverpool Lime Street
-----Expected 1430

and also on Departure Summary displays at intermediate stations.

- 6.16 Origin, Destination and Intermediate calling point stations are stored as text entries, with a maximum of 24 characters per entry, upper and lower case characters being permitted. Each entry is allocated a three digit number in the range 000 to 999 giving a minimum of 1000 entries.