

Ref	NR/PS/SIG/00012
Issue	I
Date	August 2001

Specification for the Preparation & Implementation of Train Describer System Parameter Tables (formerly RT/E/PS/00012)

This temporary front sheet facilitates change to the new Network Rail Standards referencing nomenclature.

The Ref above will be formally allocated to this standard when it is next changed in the meantime the contents, date and issue number of this Network Rail Standard are **UNCHANGED and with immediate effect it should be referred to as “(new ref) formerly (old ref)”.**

This document is the property of Network Rail. It shall not be reproduced in whole or part nor disclosed to a third party without the written permission of the Standard Owner.

© Copyright 2004 Network Rail

Uncontrolled copy once printed from its electronic source.

Published & Issued by: Network Rail; 40 Melton Street, London NW1 2EE

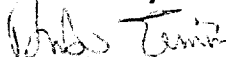


RAILTRACK COMPANY PRODUCT SPECIFICATION

SPECIFICATION FOR THE PREPARATION AND IMPLEMENTATION OF TRAIN DESCRIBER SYSTEM PARAMETER TABLES

Endorsement and Authorisation

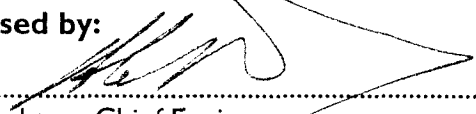
Endorsed by:


.....
A Simmons, Professional Head of Signal Engineering

Approved by:


.....
G Morris, Head of Business Process Documentation

Authorised by:


.....
A McNaughton, Chief Engineer

This publication, including the data and information relating thereto, is not to be used, disseminated, stored in a retrieval system, reproduced, copied or adapted either in whole or in part without the express written permission RAILTRACK plc.

Published & Issued by
Railtrack plc
Railtrack House
Euston Square
LONDON
NW1 2EE

© 2001 RAILTRACK PLC

**SPECIFICATION FOR THE PREPARATION &
IMPLEMENTATION OF TRAIN DESCRIBER
SYSTEM PARAMETER TABLES**

Summary

This Company Product Specification defines the necessary features and information required by a Train Describer database to ensure a standard format throughout Railtrack s infrastructure.

Issue/Revision Record

This specification will be updated when necessary by the distribution of a complete document. Subsequent amendments will be marked by vertical black line in the adjacent right hand margin.

Issue	Date	Comments
I	August 2001	Original Issue

Implementation

This specification highlights operational issues, concerning the design and use of signalling equipment. Where appropriate, it gives current best practice for mitigating risk and is for implementation from 01 September 2001. Alternative practices may be accepted where they can be demonstrated to be as good or better than the contents of this document.

Superseded document reference number	Issue	Date
ST1346	C.I	May 1996

Disclaimer

Railtrack plc has used its best endeavours to ensure that the content, layout and text of this document is accurate, complete and suitable for its stated purpose. It makes no warranties, express or implied, that compliance with the contents of this document shall be sufficient to ensure safe systems of work or operation. Railtrack plc will not be liable to pay compensation in respect of the content or subsequent use of this document for any purpose other than its stated purpose or for any purpose other than that for which it was prepared except where it can be shown to have acted in bad faith or there has been wilful default.

Supply

Paper copies of this document will be available by printing from electronic copy or, where this is not possible, may be issued on request to the Document Controller.

Safety

All persons are reminded that all appropriate safety precautions must be observed when undertaking the work covered by this document.

SPECIFICATION FOR THE PREPARATION & IMPLEMENTATION OF TRAIN DESCRIBER SYSTEM PARAMETER TABLES

CONTENTS

Section	Description	Page
1.	PURPOSE-----	5
2.	SCOPE -----	5
3.	REFERENCES-----	5
4.	ABBREVIATIONS -----	5
5	FORMAT OF DOCUMENT -----	6
6	TD FEATURES-----	6
6.1	DEFINITIONS: -----	6
6.2	BERTH TYPES-----	7
6.2.1.	Feature Name : Alarm Berth (A)-----	7
6.2.1.1	T.F.A. -----	7
6.2.1.2.	Signalling Alarm-----	9
6.2.3.	Feature Name : Clock Berth (C)-----	10
6.2.4.	Feature Name : Dualled Berths With Shared Display (D) -----	10
6.2.5.	Feature Name : Emergency Alarm Berth (E)-----	12
6.2.6.	Feature Name : Date Berth (F)-----	13
6.2.7.	Feature Name : Year Berth (G) -----	14
6.2.14.	Feature Name : Normal Berth (N) -----	16
6.2.18.	Feature Name : Route Berth (R)-----	17
6.2.25.	Feature Name : Pseudo Transmit " From " Berth (Y) -----	19
6.2.26.	Feature Name : Pseudo Transmit " To " Berth (Z) -----	20
6.3.	BERTH CHARACTERISTICS -----	22
6.3.1.	Feature Name : ATR Flag (A)-----	22
6.3.2.	Feature Name : Blind To Interrogation (B)-----	22
6.3.3.	Feature Name : Class Output (C) -----	22
6.3.4.	Feature Name : Description Received Warning (D)-----	23
6.3.5.	Feature Name : External Re-Transmit Inhibited (E)-----	24
6.3.6.	Feature Name : Fringe Box Alarms (F)-----	24
6.3.8.	Feature Name : Automatic Route Setting Flag (H)-----	26
6.3.9.	Feature Name : Internal Re-Transmission Inhibit (I)-----	26
6.3.10.	Feature Name : Interpose Inhibit (J)-----	26
6.3.11.	Feature Name : Cancel Inhibit (K)-----	27
6.3.14	Feature Name : Not Described Alarm (NDA) Inhibit (N) -----	27
6.3.15.	Feature Name : Berth Occupied Output (O)-----	27
6.3.16.	Feature Name : Customer Information System Flag (P)-----	28
6.3.17.	Feature Name : Timed Berth Clearance (Q)-----	28
6.3.18.	Feature Name : Adjacent Box Receive (R) -----	29
6.3.19	Feature Name : Cab Secure Radio System Flag (S)-----	30
Section	Description	Page

SPECIFICATION FOR THE PREPARATION & IMPLEMENTATION OF TRAIN DESCRIBER SYSTEM PARAMETER TABLES

6.3.20.	Feature Name : Adjacent Box Transmit (T)-----	30
6.3.21.	Feature Name : Update Alarm (U)-----	32
6.3.22.	Feature Name : Blind (V)-----	33
6.3.23.	Feature Name : Warning Alarm (W)-----	33
6.3.26	Feature Name : Staff Information VDU System Flag (Z)-----	34
6.4.	STEP TYPES-----	35
6.4.3.	Feature Name : Copy Step (C)-----	35
6.4.6.	Feature Name : Flash Route Berth Contents Step (F)-----	36
6.4.8.	Feature Name : Hold Step (H)-----	37
6.4.12.	Feature Name : Link Step (L)-----	38
6.4.14.	Feature Name : Normal Step (N)-----	39
7.	TD SYSTEM PARAMETERS FORMAT-----	41
7.1	DEFINITIONS:-----	41
7.2.	CONFIGURATION TABLES-----	41
7.2.1.	Associated Channels Table-----	42
7.2.2.	Function Keys Table :-----	51
7.2.3.	Berth Labels Table :-----	52
7.2.4.	Timings Table :-----	53
7.3.	STEPPING TABLE-----	55
7.4.	SIGNALLING INTERFACE TABLES-----	63
7.4.1	Digital Interface Tables-----	63
7.4.2.	Serial Interface Tables-----	66
7.4.3	Pseudo Equates Table-----	68
APPENDIX	-----	72
SECTION 1	QUICK REFERENCE GUIDE TO BERTH TYPES-----	72
SECTION 2	QUICK REFERENCE GUIDE TO BERTH CHARACTERISTICS-----	74
SECTION 3	QUICK REFERENCE GUIDE TO STEP TYPES-----	76
SECTION 4	TYPICAL EXAMPLES-----	78
SECTION 5	FIGURES-----	104

**SPECIFICATION FOR THE PREPARATION &
IMPLEMENTATION OF TRAIN DESCRIBER SYSTEM
PARAMETER TABLES**

1. PURPOSE

This document has been produced for the following FOUR reasons:

- 1.1 To define all the necessary features and information required by a Train Describer database to enable it to perform the desired function.
- 1.2 To standardise the format and presentation of the database tables required above.
- 1.3 To ensure that all database tables produced are easily re-configurable thus negating the need for specialised "program" changes when alterations are required.
- 1.4 To enable the necessary database tables to be produced as "raw ASCII" text files on floppy disk or equivalent. They can therefore be downloaded into data generation systems thus saving rework time.

2. SCOPE

This specification applies to all train describers supplied to Railtrack whether stand-alone or integral with another system.

3. REFERENCES

Railtrack Company Product Specification RT/E/PS/00009
Message Handling & Data Transmission Requirements between Processor Based Systems.

Railtrack Company Specification BR 1922
Message Handling & Data Transmission Requirement between a Solid State Interlocking and a Train Describer System

4. ABBREVIATIONS

ACI	Automatic Code Insertion
ARS	Automatic Routesetting Subsystem
ATR	Automatic Train Reporting
CSR	Cab Secure Radio
DRW	Description Received Warning
FBU	Fringe Box Unit
MPU	Main Panel Unit
NDA	Non Described Alarm
OCU	Operators Control Unit
PSU	Power Supply Unit
PS9 Link	A communications Link that complies with RT/E/PS/00009
TFA	Transmission Fault Alarm
TD	Train Describer

**SPECIFICATION FOR THE PREPARATION &
IMPLEMENTATION OF TRAIN DESCRIBER
SYSTEM PARAMETER TABLES**

5 FORMAT OF DOCUMENT

The remainder of the document is divided into the following sections:

SECTION 6 : TD FEATURES. Where the relevant features required are defined and explained in terms of Berth Types, Berth Characteristics and Step Types.

SECTION 7 : TD SYSTEMS PARAMETERS FORMAT. Where the relevant parameter tables required are defined and explained.

The Appendix contains the following sections:

SECTION 1 : Quick reference guide to Berth Types

SECTION 2 : Quick reference guide to Berth Characteristics

SECTION 3 : Quick reference guide to Step Types

SECTION 4 : TYPICAL EXAMPLES. Where a typical example is shown of the features and tables defined, together with a relevant signalling plan.

SECTION 5 : FIGURES. Contains all figures used as references by Sections 6 and 7.

6 TD FEATURES

6.1 DEFINITIONS:

This section comprises three sub-sections, namely Berth Types, Berth Characteristics and Step Types. Each of these sub-sections has the following definitions:

6.1.1 " FEATURE NAME."

The name to be used for the Berth Type, Berth Characteristic or Step Type as appropriate.

6.1.2 " BLOCK SCHEMATIC SYMBOL."

The symbol generally used on the Block Schematic for the feature defined.

6.1.3. " STEPPING TABLE SYMBOL."

The symbol used within the TD stepping table defined in section 7.

6.1.4. " DEFINITION."

The English language definition of the feature. Where relevant a typical example of the use of the feature is included in the Appendix Section 5.

SPECIFICATION FOR THE PREPARATION & IMPLEMENTATION OF TRAIN DESCRIBER SYSTEM PARAMETER TABLES

- 6.1.5 As an aid to clarity and to assist the introduction of possible future amendments, the features described will appear in alphabetical order with respect to their relevant Stepping Table symbols. Any unused symbols will be allocated a section paragraph number and titled "unused."

6.2 BERTH TYPES

6.2.1. Feature Name : Alarm Berth (A)

BLOCK SCHEMATIC SYMBOL :

BERTH ID

NOTE : Berth ID is a unique four character or alpha-numeric label.

STEPPING TABLE SYMBOL : The " BERTH ID" will be assigned to the " BERTH " field in the stepping table.

Letter " A " will be assigned to the " BERTH TYPE " sub field in the stepping table.

DEFINITION : A displayed berth that can be one of the following two types :

6.2.1.1 T.F.A.

This type is implied if there are no signalling input conditions specified in the relevant stepping table entries. The four character " BERTH ID" will correspond to the related four character " LINK REF CODE " identity as specified in the " ASSOCIATED CHANNELS " table (Section 7.2.1.10). Failure / restoration of the associated link will cause the following alarm sequences.

(a) Link Failure : The alarm berth will display the legend " FAIL " flashing on the designated OCUs system map. An audible alarm will sound on the appropriate OCU/ MPU as defined in the stepping table field " OCU " (Section 7.3.4). If an MPU has been defined the legends " FAIL " and the appropriate " LINK REF CODE " will be flashed alternating in the MPU alarm window with the TFA alarm lamp also being flashed.

(b) Alarm Acknowledge : Will take one of the following TWO forms:

(i) Operator Action : Where the operator on the appropriate OCU/MPU defined in (a) above presses the alarm acknowledge key.

Upon Operator Alarm acknowledge the display legend " FAIL " will change to steady on the designated OCUs system map and the audible alarm will cease on the appropriate OCU/ MPU. If an MPU has been defined the alarm window will clear and the TFA lamp will display steady, providing no other alarms are present.

**SPECIFICATION FOR THE PREPARATION &
IMPLEMENTATION OF TRAIN DESCRIBER
SYSTEM PARAMETER TABLES**

(ii) Self Acknowledge : Where the system after a period of time self acknowledges if operator action has not occurred. This period of time is defined in the " TIMINGS " table , field " T " (Section 7.2.4.4).

Upon Self Alarm acknowledge the display legend " FAIL " will change to steady on the designated OCUs system map and the audible alarm will cease on the appropriate OCU/ MPU If an MPU has been defined the alarm window will clear and the TFA lamp will display steady, providing no other alarms are present.

(c) Link Restoration : The alarm berth will display the legend " OK sp sp " flashing on the designated OCUs system map. An audible alarm will sound on the appropriate OCU/ MPU as defined in the stepping table field " OCU " (Section 7.3.4). If an MPU has been defined the legends " -OK- " and the appropriate " LINK REF CODE " will be flashed alternating in the MPU alarm window with the TFA alarm lamp also being flashed.

(d) Alarm Acknowledge : Will take one of the following TWO forms:

(i) Operator Action : Where the operator on the appropriate OCU/MPU defined in (a) above presses the alarm acknowledge key.

Upon Operator Alarm acknowledge the display legend " OK sp sp " will change to steady on the designated OCUs system map and the audible alarm will cease on the appropriate OCU/ MPU If an MPU has been defined the alarm window will clear and the TFA lamp will be extinguished, providing no other alarms are present.

(ii) Self Acknowledge : Where the system after a period of time self acknowledges if operator action has not occurred. This period of time is defined in the " TIMINGS " table , field " T " (Section 7.2.4.4).

Upon Self Alarm acknowledge the display legend " OK sp sp " will change to steady on the designated OCUs system map and the audible alarm will cease on the appropriate OCU/ MPU If an MPU has been defined the alarm window will clear and the TFA lamp will be extinguished, providing no other alarms are present.

NOTE : If a transmission LINK consists of TWO CHANNELS then the necessary TFA Alarm Berths may be allocated, one for each channel by corresponding the relevant " BERTH IDs " to the related four character " CHAN REF CODE " specified in the "ASSOCIATED CHANNELS " table (Section 7.2.1.9). Failure / restoration of one or both of the channels will raise the alarm sequence as described above on the relative berths. However the LINK Alarm Berth sequence will only be actioned when either BOTH channels become failed or one of them is restored (see Section 7.2.1.10).

SPECIFICATION FOR THE PREPARATION & IMPLEMENTATION OF TRAIN DESCRIBER SYSTEM PARAMETER TABLES

6.2.1.2. Signalling Alarm

This type is implied if the use of signalling input conditions are required to raise an alarm (e.g. Relay Room intruder alarms, temp high and low alarms, PSU alarms etc). Berth ID and related OCU will be specified in the same manner as for TFA berths.

The four character legends to be displayed on the designated OCUs systems map will be specified in the STEPPING table, " TO / TXRXAD " field (Section 7.3.6).

The necessary signalling input conditions required to raise the alarm will be specified in the STEPPING table "[TRIGGERS], CONDITIONS " field (Section 7.3.8).

When the necessary conditions are fulfilled the alarm sequence as described for TFA berths will occur but with the four character legends specified in the "TO / TXRXAD " field being utilised instead of " FAIL " or " OK sp sp ".

NOTES : Alarm Berths shall be automatically barred to interpose and cancel facilities.

Upon TD system start up and to prevent multiple alarm sequences, the following status shall apply to alarm berths:

TFA Berths : All TD system channels will be assumed to be O.K. until proved otherwise. All TFA berths will show the " Steady " legend " OK sp sp " until any channel is found to be faulty, when the alarm sequence will commence.

Signalling Alarm Berths : Will show the " Steady " legend equivalent to the relevant signalling input conditions detected. Only subsequent changes to signalling inputs will cause the alarm sequence to be initiated.

Items 0034 to 0039 AND 0050 to 0062 of the " STEPPING " table in the Appendix Section 4 (sheet Nos IE1 and IE2) show typical examples of Signalling alarm and TFA berth entries.

**SPECIFICATION FOR THE PREPARATION &
IMPLEMENTATION OF TRAIN DESCRIBER
SYSTEM PARAMETER TABLES**

6.2.2. Feature Name : Unused (B)

6.2.3. Feature Name : Clock Berth (C)

BLOCK SCHEMATIC SYMBOL : NONE

STEPPING TABLE SYMBOL : The four characters " CLCK " or " TIME " will be assigned to the " BERTH " field in the stepping table.

Letter " C " will be assigned to the " BERTH TYPE " sub-field in the stepping table.

DEFINITION : A displayed berth holding the current system time displayed as a four - digit number in the 24 hour clock format, e.g. 0001, 2330, 0835. The berth shall default to 0000 at TD system start up unless automatically updated by an external clock and automatically increment every minute thereafter.

The only valid operator action shall be to interpose the current time in the valid format as above. Invalid times with hours and minutes outside the 24 hour clock format (e.g. 3408, 1067) shall be rejected, as shall strings containing Alpha characters (e.g. 1B26, TIME). In these cases an error message shall be displayed in the appropriate OCU scratchpad area. The Clock Berth will be shown on any designated system maps but to prevent accessibility to interpose facilities by unwanted operator action the following will apply.

The stepping table " OCU " field against the relevant Clock Berth entry will contain a list of the relevant LINK REF CODES as defined in the "ASSOCIATED CHANNELS" LINK REF CODE field (Section 7.2.1.10), that interpose facilities will be permitted from. All other reference codes will be barred from access to the Clock Berth.

On some TD systems it is necessary for the Clock Berth to be updated from external systems (i.e. ATR or Radio Clock). If this is the case the following will apply.

The stepping table " SYST " field (Section 7.3.5) against the relevant Clock Berth entry will contain the LINK REF CODE for the relevant external system. When " TIME " messages are received from the external system the Clock Berth is updated to that time.

NOTE : Cancel is not a valid command for the Clock Berth. Attempts to cancel shall be accompanied by an error message on any relevant OCU/MPU

Item 0063 and 0064 of the " STEPPING " table in the Appendix Section 4 (Sheet No 1E2) show a typical example of a Clock Berth entry.

6.2.4. Feature Name : Dualled Berths With Shared Display (D)

BLOCK SCHEMATIC SYMBOL :

**SPECIFICATION FOR THE PREPARATION &
IMPLEMENTATION OF TRAIN DESCRIBER SYSTEM
PARAMETER TABLES**

"BERTH ID1"

"BERTH ID2"

NOTE: Berth IDs 1 and 2 are two different and unique four character or alpha numeric labels, generally corresponding to the two relevant lineside signal numbers, preceded by leading zeros. The allowable character set for the berth IDs is " 0 - 9 ", " A - Z ", " * ".

STEPPING TABLE SYMBOL : Berth IDs 1 and 2 will be respectively assigned to the "BERTH " field in the stepping table.

Letter D[XXXX], will be assigned to the " BERTH TYPE " sub-field in the stepping table for each of the four character Berth IDs used on the block schematic, where [XXXX] identifies the alternative Berth ID of the dualled pair.

DEFINITION : A pair of related berths that share the same display position and of which only one is allowed to be occupied at any one time. The berths are usually used on bi - directional lines with opposing signals and which the signalling only permits one train to be present (i.e. non permissive working).

Essentially berth IDs 1 and 2 are treated as separate berths in the stepping table, with their own discrete entries in the relevant fields. However because the berths appear to the operator as " ONE " berth the following conditions will apply:

(a) Because of the requirement to only hold one description at any one time, if one of the dual berths is already occupied and any attempt is made to load the other berth (either by operator, external system or step action), then the description already held in the dual berth shall be cancelled raising where appropriate a CB message, immediately prior to loading the other dual berth with the new description. This feature shall be inherent to dual berths and WILL NOT be specified in the stepping table.

(b) It will be possible to cancel any one of the dual berths by use of EITHER of the dual berths identities. i.e. a description held in Berth ID 2 can be cancelled by using Berth ID 1 four character identity and vice - versa.

(c) It will be possible to interpose into EITHER of the two dual berths by use of EITHER of the two berth identities.

(d) Interrogation facilities of the dual berths whether internally or externally requested will be as follows:

(i) Interrogation of description :- If one of the dual berths contains the interrogated description, then the relevant berth ID will be reported.

**SPECIFICATION FOR THE PREPARATION &
IMPLEMENTATION OF TRAIN DESCRIBER
SYSTEM PARAMETER TABLES**

(ii) Interrogation of Berth :- Interrogation of EITHER of the dual berth IDs will report the state of the dualled pair. i.e. If Berth ID1 is interrogated but a description is held in Berth ID2, the description will still be reported as if it was held in Berth ID1. If both berth IDs are empty then " NONE " is reported.

NOTES: Because the dual berths are independent of each other as regards to stepping it will generally be necessary to create steps between them to facilitate a train arriving at one signal and subsequently departing from the opposing one. This function will be achieved by utilising stepping table controls as for normal stepping.

If a manual step facility is available within the system and the " FROM " berth selected is one of a dual pair and is unoccupied, the step will not occur and an error message will be reported on the relevant OCU/ MPU. This will occur regardless of the state of occupancy of the other dual berth.

*116

Items 0001 to 0031 of the " STEPPING " table in the Appendix Section 4 (Sheet No 2E1) together with the relevant block schematic (Appendix Section 4 Sheet No 3), show a typical example of Dual Berth implementation.

6.2.5. Feature Name : Emergency Alarm Berth (E)

BLOCK SCHEMATIC SYMBOLS :

AT TRANSMITTING
RECEIVING TD

TD

XXEA

AT

NOTE : Berth IDs are unique four character or alpha - numeric labels. At transmitting TD it will be of the form *116. At receiving TD it will be of the form " XXEA " where "XX" denotes the two letter identifier of the transmitting TD

STEPPING TABLE SYMBOL : *116 and " XXEA " will be assigned respectively to the transmit and receive TD " BERTH " fields in the stepping table. Letter " E " will be assigned to the relevant " BERTH TYPE " sub fields in the stepping table.

DEFINITION : The emergency alarm berths are a feature to allow the use of the standard signalling emergency alarm arrangement to replace the emergency block bell code 1-1-6 (summon assistance). When the *116 key is pressed on the relevant OCU/MPU keyboard the following will occur:

**SPECIFICATION FOR THE PREPARATION &
IMPLEMENTATION OF TRAIN DESCRIBER SYSTEM
PARAMETER TABLES**

(a) The transmitting TD will load its transmit " E " berth(s) with the description *I I 6.

(b) A CC message will be transmitted to the adjacent TDs as specified by their four character " LINK REF CODE " in the " SYST " field of the stepping table together with the necessary "T" (transmit) characteristic in the " BERTH CHARACTERISTIC " sub field and the appropriate transmitted address (usually " XXEA " as stated above) in the TO / TXRXAD field.

(c) The receiving TD(s) will display the description XXEA on any designated system maps and sound an "UPDATE" alarm (see Section 6.3.21) on the OCU/MPU specified in the "OCU" field of the stepping table.

When the incident has passed the operator at the transmitting TD will cancel the *I I 6 description by entering *I I 6 into the " Set up address " area on the relevant OCU/MPU and pressing the cancel key. This will result in the following:

(d) A CB message will be transmitted to adjacent TDs as specified in (b) above.

(e) The receiving TDs will cancel their XXEA descriptions and sound the appropriate "UPDATE" alarm as specified in (c) above.

NOTES: Operator interpose and cancel facilities of RECEIVE Emergency Alarm Berths will automatically be barred.

The " UPDATE" alarm sequence on receive emergency alarm berths will be an inherent feature i.e. there will be no stepping table " U " berth characteristic against the relevant berth entry.

Items 0040 to 0043 of the " STEPPING " table in the Appendix Section 4 (Sheet Nos 1E1 and 1E2) with the relevant block schematic (Appendix Section 4 Sheet No 3), show a typical example of Emergency Alarm Berth implementation.

6.2.6. Feature Name : Date Berth (F)

BLOCK SCHEMATIC SYMBOL : NONE

STEPPING TABLE SYMBOL : The four characters " DATE " will be assigned to the "BERTH" field in the stepping table.

Letter " F " will be assigned to the " BERTH TYPE " sub-field in the stepping table.

DEFINITION : A displayed berth holding the current system date displayed as a four - digit number in the format ddmm eg: 2210 being 22nd October. The berth shall default to 0101 at TD system start up unless automatically updated by an external clock and automatically increment to the correct calendar date when the clock berth performs its one minute increment to the time 0000.

**SPECIFICATION FOR THE PREPARATION &
IMPLEMENTATION OF TRAIN DESCRIBER
SYSTEM PARAMETER TABLES**

The only valid operator action shall be to interpose the current date in the valid format as above. Invalid dates with days and months outside the ddmm format (e.g. 3208, 1013) shall be rejected, as shall strings containing Alpha characters (e.g. 1B26, DATE). In these cases an error message shall be displayed in the appropriate OCU scratchpad area.

The Date Berth may be shown on any designated system maps but to prevent accessibility to interpose facilities by unwanted operator action the following will apply.

The stepping table "OCU" field against the relevant Date Berth entry will contain a list of the relevant LINK REF CODES as defined in the "ASSOCIATED CHANNELS" LINK REF CODE field (Section 7.2.1.10), that interpose facilities will be permitted from. All other reference codes will be barred from access to the Date Berth.

NOTE : Cancel is not a valid command for the Date Berth. Attempts to cancel shall be accompanied by an error message on any relevant OCU/MPU. Items 0065 and 0066 of the "STEPPING" table in the Appendix Section 4 (Sheet No 1E2) show a typical example of a Date Berth entry.

6.2.7. Feature Name : Year Berth (G)

BLOCK SCHEMATIC SYMBOL : NONE

STEPPING TABLE SYMBOL : The four characters " YEAR " will be assigned to the "BERTH" field in the stepping table.

Letter " G " will be assigned to the " BERTH TYPE " sub-field in the stepping table.

DEFINITION : A displayed berth holding the current system year displayed as a four - digit number in the format 1996. The berth shall default to 0000 at TD system start up unless automatically updated by an external clock and automatically increment to the correct calendar year when the date berth performs its monthly increment to the date 0101.

The only valid operator action shall be to interpose the current year in the valid format as above. Invalid years with strings containing Alpha characters (e.g. 1B26, YEAR) shall be rejected. In these cases an error message shall be displayed in the appropriate OCU scratchpad area.

The Year Berth may be shown on any designated system maps but to prevent accessibility to interpose facilities by unwanted operator action the following will apply.

The stepping table "OCU" field against the relevant Year Berth entry will contain a list of the relevant LINK REF CODES as defined in the "ASSOCIATED CHANNELS" LINK REF CODE field (Section 7.2.1.10), that interpose facilities will be permitted from. All other reference codes will be barred from access to the Year Berth.

**SPECIFICATION FOR THE PREPARATION &
IMPLEMENTATION OF TRAIN DESCRIBER SYSTEM
PARAMETER TABLES**

NOTE : Cancel is not a valid command for the Year Berth. Attempts to cancel shall be accompanied by an error message on any relevant OCU/MPU. Items 0067 0068 of the "STEPPING" table in the Appendix Section 4 (Sheet No IE2) show a typical example of a Year Berth entry.

6.2.8. - 6.2.13. Feature Name : Unused (H,I,J,K,L,M)

**SPECIFICATION FOR THE PREPARATION &
IMPLEMENTATION OF TRAIN DESCRIBER
SYSTEM PARAMETER TABLES**

6.2.14. Feature Name : Normal Berth (N)

BLOCK SCHEMATIC SYMBOL :



NOTE: Berth ID is a four character or alpha-numeric label that identifies the berth with a particular section of railway e.g. 0101. It generally corresponds with the relevant lineside signal number preceded by leading zeros. Any of the following characters may be used in a Berth ID: " 0-9," " A-Z," " *."

STEPPING TABLE SYMBOL : The Berth ID will be assigned to the "BERTH " field in the stepping table.

Letter " N " will be assigned to the " BERTH TYPE " sub field in the stepping table.

DEFINITION : A berth that is identified by a unique four character "Berth ID" applicable to the section of railway to which the berth applies. It is only capable of holding one train description at any one time. The stepping associated with a " Normal Berth " will generally be unidirectional and determined by the direction of train movement applicable to the associated lineside signal. However in certain circumstances e.g. terminal platforms, bi-directional through platforms etc, stepping will be bi-directional.

The contents of a " Normal Berth " can be altered via train stepping or operator action, e.g. interpose, and may be accessed either via operator action (interrogate) or via external systems e.g. Automatic Train Reporting (ATR), Cab Secure Radio (CSR), etc.

Output messages from a " Normal Berth " to associated channels will utilise the four character " Berth ID" The exception being to adjacent TDs when the " Berth ID " can be amended to any four characters by utilisation of the " T " characteristic in conjunction with the four characters specified in the " TO /TXRXAD " field together with the relevant TDs four figure LINK REF CODE specified in the SYST field (see Section 6.3.20 and Section 7.3.5).

Similarly input messages to a " Normal Berth " from associated channels will be recognised by the four character " Berth ID ". The exception again being from adjacent TDs when the " Berth ID " can be amended to respond to any four characters specified in the "TO/TXRXAD" field in conjunction with the " R " characteristic and the relevant TDs four figure LINK REF CODE specified in the SYST field (see Section 6.3.18 and Section 7.3.5).

6.2.15 - 6.2.17. Feature Name : Unused (O,P,Q)

SPECIFICATION FOR THE PREPARATION & IMPLEMENTATION OF TRAIN DESCRIBER SYSTEM PARAMETER TABLES

6.2.18. Feature Name : Route Berth (R)

BLOCK SCHEMATIC SYMBOL :

BERTH ID

NOTE : Berth ID is a four character or alpha-numeric label. The allowable character set for the berth ID is " 0-9 ", " A-Z ", " * ". "

STEPPING TABLE SYMBOL : The " BERTH ID " will be assigned to the " BERTH " field in the stepping table.

Letter " R " will be assigned to the " BERTH TYPE " sub field in the stepping table.

DEFINITION : A berth whose contents is determined by sets of signalling conditions and is consequently used to display " ROUTE SET " information on any designated system maps and/or to transmit the information to adjacent systems. Route Berth operation is as follows:

(a) Loading of Route Berths at transmitting TD:

Associated with each Route Berth at the transmitting TD there are the following stepping table entries:

(i) In the TO/TXRXAD field of the stepping table (Section 7.3.6) the four character descriptors associated with each relevant route applicable to the Route Berth concerned (i.e. FAST, SLOW, sp sp DN, sp BCH etc)

NOTE: It is possible to show ANY four ASCII characters including spaces in this field.

(ii) In the [TRIGGER],CONDITIONS field of the stepping table (Section 7.3.8) the set(s) of signalling conditions applicable to each of the descriptors in (i) above.

Whenever the signalling input conditions become satisfied for a particular route in (ii) above the associated ASCII characters will be loaded into the Route Berth.

(b) Display of Route Berths at transmitting TD:

Route Berth descriptors can be displayed on any designated system maps either in " steady " or " flashing " mode. If the relevant descriptors are to be displayed in " steady " mode then the stepping table entry will be as in (a) above.

If the relevant descriptors are to be displayed in " flashing " mode the stepping table entry will be as in (a) above plus an additional entry of the letter " F " in the STEP TYPE (S) field of the stepping table (Section 7.3.7). Section 6.4.6 gives a full definition of the " F " step type.

(c) Transmission of Route Berth information:

Route Berth information can be transmitted to adjacent systems by utilisation of the following stepping table entries:

- (i) In the BERTH CHARACTERISTICS sub field of the stepping table (Section 7.3.3) the letter " T ".
- (ii) In the SYST field of the stepping table (Section 7.3.5) the four character reference code of the system to which the route berth information is to be sent.

NOTE: Separate stepping table entries of items (i) and (ii) above will be entered for each system to which the Route Berth information has to be transmitted.

Whenever a Route Berth becomes loaded with any one of its relevant descriptors and the stepping table entries in (c) above apply a CC message of the format "ROUTE BERTH ID", "DESCRIPTOR" will be transmitted to any relevant adjacent systems.

Whenever a Route Berth clears of any one of its relevant descriptors and the stepping table entries in (c) above apply a CB message of the format "ROUTE BERTH ID", "ASCII SPACES" will be transmitted to any relevant adjacent systems.

(d) Reception of Route Berth information:

Route Berths at receiving TDs will generally have the same " BERTH IDs " as their corresponding transmit Route Berths, and will respond to the relevant CC and CB messages as follows:

- (i) Upon receipt of a CC message "ROUTE BERTH ID", "DESCRIPTOR" the appropriate four character "DESCRIPTOR" will be loaded into the relevant Route Berth and displayed on any designated system maps if applicable.
- (ii) Upon receipt of a CB message " ROUTE BERTH ID ", " ASCII SPACES " the appropriate Route Berth will be cleared.

(e) Display of Route Berths at Receiving TD:

Route Berths at receiving TDs can be displayed in " steady " or " flashing " mode on any designated system maps as in the case of transmitting Route Berths, with any associated stepping table entries as in (a) (i and ii) above, being specified as required.

(f) Retransmission of Route Berth information:

SPECIFICATION FOR THE PREPARATION & IMPLEMENTATION OF TRAIN DESCRIBER SYSTEM PARAMETER TABLES

It will be possible for receive Route Berths to have transmit "T" characteristics. This enables approaching route information to be seen far enough in advance when a series of signalboxes are in close proximity of each other. FIGURE 1 (Appendix Section 5 Sheet 1) shows a typical example of this form of Route Berth utilisation, together with the relevant stepping table extracts for each of the three signalboxes A, B and C.

NOTES : Route Berths will be automatically barred to interpose and cancel facilities.

" Transmit " and " Receive " Route Berths will be subject to an " Initialisation " sequence upon system initialisation or following specific link recovery. This is achieved by utilisation of the " T " and " R " Berth characteristics as explained in Sections 6.3.18 and 6.3.20 respectively.

Because Route Berths convey the state of signalling inputs it is possible to use their berth status (occupied or clear) in the [TRIGGER], CONDITIONS field of the stepping table (Section 7.3.8) to perform stepping functions. Note however that " signalling " information is usually passed between systems by utilisation of PS9 " S " class messages (Reference SIP and SOP tables in Section 7.4.2.1 and 7.4.2.2).

6.2.19 - 6.2.24. Feature Name : Unused (S,T,U,V,W,X)

6.2.25. Feature Name : Pseudo Transmit " From " Berth (Y)

BLOCK SCHEMATIC SYMBOL : NONE

NOTE : The BERTH ID is usually the characters " STIN " (abbreviation for " Step In ") however the allowable character set is " 0-9 ", " A-Z ", " * ".

STEPPING TABLE SYMBOL : The Berth ID will be assigned to the " BERTH " field in the stepping table.

Letter " Y " will be assigned to the " BERTH TYPE " sub field in the stepping table.

DEFINITION : A berth which has its identity used as a pseudo " FROM " berth address generated in PS9 class CA (Step) messages to connected PS9 links under the following circumstances:

(a) Adjacent Box Links:

(i) When ONLY the " TO " berth of a " FROM " - " TO " berth NORMAL STEP function has a " T " transmit characteristic assigned to it.

(ii) When the " TO " berth of a " FROM " - " TO " berth COPY STEP function has a " T " transmit characteristic assigned to it.

~~~~~

**SPECIFICATION FOR THE PREPARATION &  
IMPLEMENTATION OF TRAIN DESCRIBER  
SYSTEM PARAMETER TABLES**

(iii) When the " TO " berth of a " FROM " - " TO " berth HOLD STEP function has a " T " transmit characteristic assigned to it.

(b) Other than Adjacent Box Links:

(i) When a berth that is flagged for transmission to the appropriate link has been loaded from an ADJACENT BOX link with a CA type message.

The connected PS9 links to which the above rules will apply will be listed in the SYST field of the stepping table utilising their four figure LINK REF CODES (see Section 7.3.5 and 7.2.1.10) against the relevant PSEUDO TRANSMIT " FROM " BERTH entry.

If a connected PS9 link is not in the above list then a PS9 class CC ( Interpose ) message will be transmitted utilising the " TO " berth address or transmitted address as applicable.

If the stepping table does not contain a PSEUDO TRANSMIT " FROM " BERTH entry then ALL connected PS9 links will transmit CC messages as above.

NOTES: Since a Pseudo Transmit " From " Berth will only be used as a dummy " from " berth address it is never required to hold any train descriptions and will therefore be automatically barred to interpose and cancel facilities.

The inclusion of a Pseudo Transmit " From " Berth is to ensure that the correct PS9 step messages ( CA ) are transferred between systems without causing incorrect stepping in the receiving system, which could possibly occur if both systems have duplicated berth addresses. However some older systems will not respond to CA STIN messages and hence the requirement for the above stated flexibility.

Items 0044 to 0046 of the " STEPPING " table in the Appendix Section 4 (Sheet No IE2) shows a typical example of a Pseudo Transmit " FROM " Berth implementation.

#### **6.2.26. Feature Name : Pseudo Transmit " To " Berth ( Z )**

BLOCK SCHEMATIC SYMBOL : NONE

NOTE : The BERTH ID is usually the characters " COUT " (abbreviation for "Clear Out ") however the allowable character set is " 0-9 ", " A-Z ", " \* ".

STEPPING TABLE SYMBOL : The BERTH ID will be assigned to the " BERTH " field in the stepping table.

Letter " Z " will be assigned to the " BERTH TYPE " sub field in the stepping table.

DEFINITION : A berth which has its identity used as a pseudo " TO " berth address generated in PS9 class CA ( Step ) messages to connected PS9 links under the following circumstances.

**SPECIFICATION FOR THE PREPARATION &  
IMPLEMENTATION OF TRAIN DESCRIBER SYSTEM  
PARAMETER TABLES**

---

(a) Adjacent Box Links:

(i) When the " FROM " berth of a " FROM " - " TO " berth NORMAL STEP function has a "T" transmit characteristic AND the " TO " berth has an identity of " COUT ".

(b) Other than Adjacent Box Links:

(i) When a " FROM " berth that is flagged for transmission to the appropriate link has been subject to a NORMAL STEP function AND the " TO " berth has an identity of " COUT ".

The connected PS9 links to which the above rules will apply will be listed in the SYST field of the stepping table utilising their four figure LINK REF CODE (see Section 7.3.5 and 7.2.1.10).

If a connected PS9 link is not in the above list then a PS9 class CB (Cancel) message will be transmitted utilising the " FROM " berth address or transmitted address as applicable.

If the stepping table does not contain a PSEUDO TRANSMIT " TO " BERTH entry then ALL PS9 links will transmit CB messages as above.

NOTES: The Pseudo Transmit To Berth " COUT " will automatically be barred to interpose and cancel facilities.

The inclusion of the Pseudo Transmit " To " Berth is to ensure that the correct PS9 step message (CA FROM berth to COUT) is transmitted as the result of a FROM berth being stepped to clear out in the stepping table. However some older systems will not respond to CA to COUT messages and hence the requirement for the above stated flexibility.

Items 0047 to 0049 in the " STEPPING " table in the Appendix Section 4 (Sheet No IE2) shows a typical example of a Pseudo Transmit " TO " berth implementation.

### 6.3. BERTH CHARACTERISTICS

#### 6.3.1. Feature Name : ATR Flag ( A )

BLOCK SCHEMATIC SYMBOL : NONE

STEPPING TABLE SYMBOL : Letter " A " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the Berth concerned.

DEFINITION : A flag set to denote that either ALL or NONE of the PS9 class CA, CB and CC generated messages associated with the berth will be transmitted across the ATR link (usually known as TRA9) as defined below.

(a) ALL of the CA, CB and CC generated messages will be transmitted if within the ASSOCIATED CHANNELS table against the ATR entry in the COMMS TYPE field, the associated TX ONLY field has the letter " A " designated to it (see Section 7.2.1.2(iii) and 7.2.1.7).

(b) NONE of the CA, CB and CC generated messages will be transmitted if within the ASSOCIATED CHANNELS table against the ATR entry in the COMMS TYPE field, the associated TX XEPT field has a letter " A " designated to it (see Section 7.2.1.2(iii) and 7.2.1.8).

#### 6.3.2. Feature Name : Blind To Interrogation ( B )

BLOCK SCHEMATIC SYMBOL : NONE

STEPPING TABLE SYMBOL : Letter " B " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the Berth concerned.

DEFINITION : The Berth will not be accessible to interrogation from any EXTERNAL system. i.e. ATR, CSR etc.

#### 6.3.3. Feature Name : Class Output ( C )

BLOCK SCHEMATIC SYMBOL: NONE

STEPPING TABLE SYMBOL : Letter " C " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the Berth concerned.

DEFINITION : An output or series of outputs associated with Berth occupancy and dependant upon the class of description being held (where class is represented by the first digit of the description 0-9).

## SPECIFICATION FOR THE PREPARATION & IMPLEMENTATION OF TRAIN DESCRIBER SYSTEM PARAMETER TABLES

---

The output(s) generated are of digital form and are cross-referenced via the BERTH LABEL table (Section 7.2.3.2) to the relevant Digital Output Table (DOP) or Serial Output Table (SOP) table as applicable (Section 7.4.1.2 / 7.4.2.2).

NOTE: A particular BERTH may be assigned to more than one BERTH LABEL, hence providing independent outputs across a range of independent classes.

Item 0029 of the " STEPPING " table in the Appendix Section 4 (Sheet No IEI), together with the appropriate BERTH LABEL and DOP table entries (Appendix Section 4 Sheet Nos IC IJ respectively), show a typical implementation of the Class Output feature.

### 6.3.4. Feature Name : Description Received Warning ( D )

BLOCK SCHEMATIC SYMBOL : NONE

STEPPING TABLE SYMBOL : Letter " D " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the Berth concerned.

DEFINITION : A Description Received Warning ( DRW ) is used to inform the operator of the presence of an approaching TRAIN of which there has been NO previous warning. It takes the form of an audible alarm sounding on the designated OCU/MPU accompanied by " flashing " of the appropriate description on the designated OCUs systems map if applicable.

A DRW is therefore raised if:

- (a) The appropriate Berth has a " D " characteristic.
- (b) The appropriate Berth becomes occupied AND the states of any additional berths and signalling inputs that may be specified in the [TRIGGERS],CONDITIONS field of the STEPPING table (Section 7.3.8) against the relevant berth entry are true OR the state of the additional berths and signalling inputs are true / become true AND the appropriate Berth is occupied.
- (c) A DRW alarm sequence has NOT previously been raised for the TRAIN concerned.

The relevant OCU/MPU on which the DRW is to be raised is specified in the OCU field of the STEPPING table against the relevant Berth entry (Section 7.3.4).

The duration of the DRW is specified in field " D " of the " TIMINGS " table (Section 7.2.4.1).

NOTES: The DRW sequence for a particular TRAIN will occur when it is loaded into the first Berth containing a " D " characteristic even though it may have been present in other system berths where a DRW was not required.

The DRW sequence WILL NOT be activated by operator action on the OCU/MPU where the sequence is raised.

**SPECIFICATION FOR THE PREPARATION &  
IMPLEMENTATION OF TRAIN DESCRIBER  
SYSTEM PARAMETER TABLES**

---

The " D " characteristic IS NOT used to raise DRWs on Fringe Box Units, this is achieved by utilisation of the " F " characteristic (Section 6.3.6).

Items 0005 to 0008 of the " STEPPING " table in the Appendix Section 4 (Sheet No IE1) show typical examples of the utilisation of the " D " characteristic with and without specified conditions respectively.

**6.3.5. Feature Name : External Re-Transmit Inhibited ( E )**

BLOCK SCHEMATIC SYMBOL : Letter " E " adjacent to the appropriate berth symbol.

STEPPING TABLE SYMBOL : Letter " E " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the Berth concerned.

DEFINITION : The originating Berth will not re-transmit a description previously sent on an external link if the said link transmits the same description back to the originating Berth.

With reference to FIGURE 2 (Appendix Section 5 Sheet 2), Signalbox B is an adjacent box to Signalbox A but has no means of effecting any TD stepping. To enable Signalbox B to offer and subsequently clear descriptions to Signalbox A the controls shown in FIGURE 2 are used. It can be seen that if an " E " characteristic had not been used on Berth A001 in Signalbox B then a description being offered to Signalbox A would continually be re-transmitted effectively creating a " Transmission Loop " between the two TD systems.

**6.3.6. Feature Name : Fringe Box Alarms ( F )**

BLOCK SCHEMATIC SYMBOL : " F(XXXX) " adjacent to the appropriate berth symbol.

NOTE: " XXXX " denotes the four letter " LINK REF CODE " of the Fringe Box where alarms are to be raised.

STEPPING TABLE SYMBOL : Letter " F " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the Berth concerned.

DEFINITION : Fringe Boxes ( FBUs ) differ from adjacent boxes by the fact that their alarm sequences are raised from the main TD system. Fringe Boxes can call up any system maps and can hence see the position of any train movements. However it is still a requirement to raise Description Receive Warning ( DRW ) / UPDATES for approaching trains as per adjacent boxes. This is achieved by transmitting bell code and berth highlighting information to the appropriate Fringe Box for the particular berth(s) concerned as follows:

(a) Raising of a DRW alarm at a Fringe Box:

A DRW alarm sequence consisting of an audible alarm and the " flashing " of the appropriate berth description at the Fringe Box is performed if:

(i) The appropriate Berth has an " F " characteristic.

## SPECIFICATION FOR THE PREPARATION & IMPLEMENTATION OF TRAIN DESCRIBER SYSTEM PARAMETER TABLES

---

(ii) The four figure LINK REF CODE in the SYST field of the STEPPING table against the relevant Berth entry is that of the appropriate Fringe Box (see Sections 7.2.1.10 and 7.3.5).

(iii) The appropriate Berth becomes occupied AND the states of any additional Berths and signalling inputs that may be specified in the [TRIGGERS],CONDITIONS field of the STEPPING table (Section 7.3.8) are true OR the states of the additional Berths and signalling inputs are true / become true AND the affected Berth is occupied.

(iv) A DRW alarm sequence has NOT previously been raised for the TRAIN concerned.

(b) Raising of an UPDATE alarm at a Fringe Box:

An UPDATE alarm sequence consisting of an audible alarm and the " flashing " of the appropriate Berth description at the Fringe Box is performed when a DRW alarm sequence has previously been raised for the train concerned and if:

(i) Clauses (a, i and ii) above apply.

(ii) The appropriate Berth is occupied and any ONE of the states of the additional berths or signalling inputs specified becomes untrue.

(iii) The appropriate Berth becomes unoccupied as the result of a cancel (CB message) or a step to clear out ( CA FROM BERTH to COUT ) message.

(iv) The description is changed to a different one in the appropriate Berth.

The duration of Fringe Box DRW and UPDATE alarm sequences are specified in fields " D " and " U " respectively of the " TIMINGS " table (Section 7.2.4.1 and 7.2.4.5).

NOTES: As stated in the definition above it is possible for FBUs to display any available system maps. If an alarm sequence for a particular FBU is raised on a berth and the berth is NOT being displayed at the Fringe Box, the audible alarm is still to be sounded at the Fringe Box even though berth highlighting obviously cannot be shown.

It will be possible for a particular berth to raise alarms at more than one Fringe Box. If this is the case additional STEPPING TABLE entries as above will be specified against a separate "F" characteristic for the Fringe Box concerned.

FIGURE 3 (the Appendix Section 5 Sheet 3) shows the relevant signalling plan, block schematic and stepping table entries for typical Fringe Box implementation. The inclusion of Berth UPSB is to prevent a false update alarm sequence being raised at the Fringe Box for normal through train movements.

### 6.3.7. Feature Name : Unused ( G )

**6.3.8. Feature Name : Automatic Route Setting Flag ( H )**

BLOCK SCHEMATIC SYMBOL : NONE

STEPPING TABLE SYMBOL : Letter " H " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the berth concerned.

DEFINITION : A flag set to denote that either ALL or NONE of the PS9 class CA, CB and CC generated messages associated with the berth will be transmitted across the ARS link as defined below.

(a) ALL of the CA, CB and CC generated messages will be transmitted if within the ASSOCIATED CHANNELS table against the ARS entry in the COMMS TYPE field, the associated TX ONLY field has the letter " H " designated to it (see Section 7.2.1.2 (ii) and 7.2.1.7).

(b) NONE of the CA, CB and CC generated messages will be transmitted if within the ASSOCIATED CHANNELS table against the ARS entry in the COMMS TYPE field, the associated TX XEPT field has a letter " H " designated to it (see Section 7.2.1.2 (ii) and 7.2.1.8).

**6.3.9. Feature Name : Internal Re-Transmission Inhibit ( I )**

BLOCK SCHEMATIC SYMBOL : NONE

STEPPING TABLE SYMBOL : Letter " I " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the berth concerned.

DEFINITION : The " I " characteristic is used to prevent messages pertaining to a berth that exists in more than one sub-system being re-transmitted. For example where a berth exists in both TD and OCU sub-systems the OCU berth list may have " I " characteristics attached. The instigation of the " I " characteristic is usually contractor driven, as when the initial database is being compiled the final system configuration is usually unknown.

**6.3.10. Feature Name : Interpose Inhibit ( J )**

BLOCK SCHEMATIC SYMBOL : NONE

STEPPING TABLE SYMBOL : Letter " J " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the berth concerned.

DEFINITION : It will not be possible for any OCU/MPU to interpose into a berth that has a " J " characteristic assigned to it. Any attempt at interpose will generate an appropriate error message on the OCU/MPU concerned.

## SPECIFICATION FOR THE PREPARATION & IMPLEMENTATION OF TRAIN DESCRIBER SYSTEM PARAMETER TABLES

---

### 6.3.11. Feature Name : Cancel Inhibit ( K )

BLOCK SCHEMATIC SYMBOL : NONE

STEPPING TABLE SYMBOL : Letter " K " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the berth concerned.

DEFINITION : It will not be possible for any OCU/MPU to cancel the contents of a berth that has a " K " characteristic assigned to it. Any attempt at cancel will generate an appropriate error message on the OCU/MPU concerned.

### 6.3.12.- 6.3.13. Feature Name : Unused ( L,M)

### 6.3.14 Feature Name : Not Described Alarm ( NDA) Inhibit ( N )

BLOCK SCHEMATIC SYMBOL : NONE

STEPPING TABLE SYMBOL : Letter " N " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the Berth concerned.

DEFINITION : The " N " characteristic is used to prevent the raising of the NOT DESCRIBED ALARM ( NDA ), as defined by the table in Section 6.4.14 ( NORMAL STEP ).

Note however that the NOT DESCRIBED SPECIAL DESCRIPTION ( \*\*\* ) should still be inserted in the relevant " TO " berth.

### 6.3.15. Feature Name : Berth Occupied Output ( O )

BLOCK SCHEMATIC SYMBOL : Letter " O " adjacent to the appropriate berth symbol.

STEPPING TABLE SYMBOL : Letter " O " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the Berth concerned.

DEFINITION : An output associated with a Berth or a series of Berth occupancies.

The output generated is of digital form and is cross - referenced via the BERTH LABEL table (Section 7.2.3.2) to the DOP or SOP table as applicable (Section 7.4.1.2 / 7.4.2.2).

NOTE: The BERTH LABEL may be assigned to more than one BERTH, hence providing the " OR " function when occupancy is required to be provided for a series of connected berths.

Items 0049 to 0073 of the " STEPPING " table in the Appendix Section 4 (Sheet No 2E2) together with the appropriate BERTH LABEL and DOP table entries in the Appendix Section 4 (Sheet Nos 2C and 2H respectively ) show a typical implementation of the Berth Occupied Output feature.

**6.3.16. Feature Name : Customer Information System Flag ( P )**

BLOCK SCHEMATIC SYMBOL : NONE

STEPPING TABLE SYMBOL : Letter " P " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the berth concerned.

DEFINITION : A flag set to denote that either ALL or NONE of the PS9 class CA, CB and CC generated messages associated with the berth will be transmitted across the CIS link as defined below.

(a) ALL of the CA, CB and CC generated messages will be transmitted if within the ASSOCIATED CHANNELS table against the CIS entry in the COMMS TYPE field, the associated TX ONLY field has the letter " P " designated to it (see Section 7.2.1.2 (iv) and 7.2.1.8).

(b) NONE of the CA, CB and CC generated messages will be transmitted if within the ASSOCIATED CHANNELS table against the CIS entry in the COMMS TYPE field, the associated TX XEPT field has a letter " P " designated to it (see Section 7.2.1.2 (iv) and 7.2.1.7).

**6.3.17. Feature Name : Timed Berth Clearance ( Q )**

BLOCK SCHEMATIC SYMBOL : NONE

STEPPING TABLE SYMBOL : Letter " Q " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the berth concerned.

DEFINITION : The " Q " characteristic is used to clear a berth after a predetermined time, it is usually used in conjunction with " LAST SENT " berths, but may be used in other applications.

The elapsed time to clearance is specified in the TIMINGS table, field " Q "(see Section 7.2.4.3).

NOTE: If the berth contents are overwritten the timing sequence will re-commence from zero.

**SPECIFICATION FOR THE PREPARATION &  
IMPLEMENTATION OF TRAIN DESCRIBER SYSTEM  
PARAMETER TABLES**

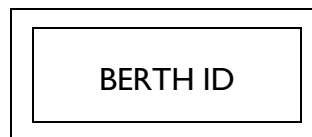
---

**6.3.18. Feature Name : Adjacent Box Receive ( R )**

BLOCK SCHEMATIC SYMBOL : " R(XXXX) " adjacent to the appropriate berth symbol.

NOTE: " XXXX " denotes the four letter " LINK REF CODE " of the Adjacent Box from where receptions occur.

If berth occupancy is subject to " conditional " transmissions from an adjacent box the following block schematic symbol may be shown:



STEPPING TABLE SYMBOL : Letter " R " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the berth concerned.

DEFINITION : The " R " characteristic performs the following TWO functions as follows:

(a) Berth clearance after link restoration:

Against each " R " characteristic in the SYST field of the stepping table (Section 7.3.5) will be specified the four character LINK REF CODE of the particular " ADJACENT BOX " link on which receptions occur. Whenever the specified link is subject to a failure and upon subsequent recovery the following will occur:

(i) All berths as specified above, associated with the link will be cleared.

(ii) A CI message will be transmitted across the affected link.

NOTE : Upon system initialisation Clause (ii) above will also apply to all Adjacent box links on the TD system.

(b) Received address recognition: If for a particular berth against the STEPPING TABLE entries entered in (a) above the corresponding TXRXAD field (Section 7.3.6) has a four character " BERTH ID " specified, any PS9 incoming messages from the relevant adjacent box containing the " BERTH ID " will be acted on by the particular berth. If the TXRXAD field has no entry, then the particular berth will act upon incoming messages containing its own identity as specified in the " BERTH " field of the stepping table (Section 7.3.2).

NOTES: The utilisation of the " R " characteristic does not exclude a berth being loaded by other external systems. If this is the case the berth will act upon incoming messages containing its own identity as described above.

Items 0027 to 0043 of the STEPPING table in the Appendix Section 4 (Sheet Nos IE1 and IE2) show typical examples of the " R " characteristic implementation.

**6.3.19 Feature Name : Cab Secure Radio System Flag ( S )**

BLOCK SCHEMATIC SYMBOL : NONE

STEPPING TABLE SYMBOL : Letter " S " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the berth concerned.

DEFINITION : A flag set to denote that either ALL or NONE of the PS9 class CA, CB and CC generated messages associated with the berth will be transmitted across the TTR link as defined below.

(a) ALL of the CA, CB and CC generated messages will be transmitted if within the ASSOCIATED CHANNELS table against the TTR entry in the COMMS TYPE field, the associated TX ONLY field has the letter " S " designated to it (see Section 7.2.1.2 (xii) and 7.2.1.7).

(b) NONE of the CA, CB and CC generated messages will be transmitted if within the ASSOCIATED CHANNELS table against the TTR entry in the COMMS TYPE field, the associated TX XEPT field has a letter " S " designated to it (see Section 7.2.1.2 (xii) and 7.2.1.8).

**6.3.20. Feature Name : Adjacent Box Transmit ( T )**

BLOCK SCHEMATIC SYMBOL : " T (XXXX) " adjacent to the appropriate berth symbol.

NOTE: " XXXX " denotes the four letter " LINK REF CODE " of the Adjacent Box to where transmissions occur.

STEPPING TABLE SYMBOL : Letter " T " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the berth concerned.

DEFINITION : Transmit the associated PS9 CA, CB, and CC, messages pertaining to the berth to the adjacent box link as specified by the four character " LINK REF CODE " in the "SYST" field of the stepping table ( Section 7.3.5). The transmission may be subject to the following:

(a) Change in Transmitted Address: If for a particular berth against the STEPPING TABLE entries entered above the corresponding TXRXAD field (Section 7.3.6) has a four character " BERTH ID " specified, any PS9 outgoing messages from the relevant berth will contain that " BERTH ID " and not its own identity. If the TXRXAD field has no entry, then any outgoing messages for the particular berth will contain its own identity as specified in the "BERTH" field of the stepping table (Section 7.3.2).

## SPECIFICATION FOR THE PREPARATION & IMPLEMENTATION OF TRAIN DESCRIBER SYSTEM PARAMETER TABLES

---

FIGURE 4 (Appendix Section 5 Sheet 4) shows a relevant signalling plan together with the associated block schematic and stepping table entries illustrating the above feature. The "LIST OF EVENTS TABLE" is included to clarify the correct use of PS9 messages.

(b) Conditional Transmissions: Transmissions from a particular berth may be subject to additional berth states and signalling input conditions, if this is the case they will be specified in the [TRIGGER],CONDITIONS field of the stepping table (Section 7.3.8). Transmission of the appropriate messages will take place as follows:

(i) Transmission of CA or CC message: The appropriate CA or CC message will be transmitted if either the Berth becomes occupied AND the states of any additional Berths and signalling inputs that may be specified are true OR the states of the additional Berths and signalling inputs states are true / become true AND the affected Berth is occupied.

(ii) Transmission of CB message: A CB message will be transmitted if either the Berth contents are cancelled OR any one of the additional Berths and signalling inputs specified become untrue.

FIGURE 5 (Appendix Section 5 Sheet 5) shows a relevant signalling plan together with the associated block schematic and stepping table entries illustrating the above feature. The "LIST OF EVENTS TABLE" is included to clarify the correct use of PS9 messages.

(c) Onward transmission from a "RECEIVE" berth:

It will be possible for transmissions to take place from berths that also have an "R" (Receive from adjacent box) characteristic. If this is the case the following will apply.

(i) The transmitted message type will be the same as the received type (CA, CB or CC, but note "PSEUDO BERTH" rules as specified in 6.2.25 and 6.2.26).

(ii) The "BERTH IDs" in the transmitted message may be amended using the TXAD feature as described in (a) above.

(iii) The transmitted message may be subject to conditions as described in (b) above.

FIGURE 6 (Appendix Section 5 Sheet 6) shows a relevant signalling plan together with the associated block schematic and stepping table entries illustrating the above feature. The "LIST OF EVENTS TABLE" is included to clarify the correct use of PS9 messages.

NOTES : It can be seen by reference to the stepping table in FIGURES 4, 5 and 6 that it is NOT a requirement to specify self berth occupancy as a condition for transmission from a particular berth. This is to ensure that any change in berth contents (i.e. over-interpose) is acted upon with the relevant PS9 message being generated.

To ensure that Transmit Berth information reflects the true state of the railway the following will apply upon system initialisation or immediately after transmission link recovery.

\*\*\*\*\*

**SPECIFICATION FOR THE PREPARATION &  
IMPLEMENTATION OF TRAIN DESCRIBER  
SYSTEM PARAMETER TABLES**

---

- (i) Upon system initialisation a CI message will be sent on all Adjacent box links connected to the TD, as identified by the appropriate four character LINK REF CODES (Section 7.2.1.10).
- (ii) Upon transmission link recovery a CI message will be sent on the appropriate Adjacent box link as identified by the four character LINK REF CODE (Section 7.2.1.10).
- (iii) Upon receipt of a CI message from a particular " ADJACENT BOX " link the current state of all Transmit Berths applicable to that link will be transmitted by:
  - (a) The sending of CC messages with the relevant descriptions for all occupied berths, providing all conditions stated in the [TRIGGERS],CONDITIONS field are true.
  - (b) The sending of CB messages with the description " ASCII SPACES " for all unoccupied berths.
  - (c) The sending of CB messages with the description " ASCII SPACES " for any occupied berth whose conditions stated in the [ TRIGGERS ], CONDITIONS field are untrue.

**6.3.21. Feature Name : Update Alarm ( U )**

BLOCK SCHEMATIC SYMBOL : NONE

STEPPING TABLE SYMBOL : Letter " U " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the Berth concerned.

DEFINITION : An Update Alarm is used to inform the operator that the contents of a berth have been amended / cancelled. It takes the form of an audible alarm sounding on the designated OCU/MPU accompanied by " flashing " of the appropriate description on the designated OCU systems map if applicable. If an MPU has been designated the berth address to which the update alarm applies will be displayed in the alarm window and the UPDATE lamp will flash.

An UPDATE ALARM is therefore raised if:

- (a) The appropriate Berth has a " U " characteristic.
- (b) The appropriate Berth becomes unoccupied as the result of a cancel (CB message) or a step to clear out (CA FROM BERTH to COUT) message.
- (c) The appropriate Berth is occupied and any ONE of the states of the additional berths or signalling inputs that may be specified in the [TRIGGERS],CONDITIONS field of the STEPPING table (Section 7.3.8) against the relevant berth entry becomes untrue.
- (d) The description is changed to a different one in the appropriate Berth.

## SPECIFICATION FOR THE PREPARATION & IMPLEMENTATION OF TRAIN DESCRIBER SYSTEM PARAMETER TABLES

---

The relevant OCU/MPU on which the UPDATE alarm is to be raised is specified in the OCU field of the STEPPING table against the relevant Berth entry (Section 7.3.4).

The duration of the UPDATE ALARM is specified in field " U " of the " TIMINGS " table (Section 7.2.4.5).

NOTES: The UPDATE ALARM sequence WILL NOT be activated by operator action on the OCU/MPU where the sequence is raised.

The " U " characteristic IS NOT used to raise UPDATES on Fringe Box Units, this is achieved by utilisation of the " F " characteristic (Section 6.3.6).

Items 0005 and 0008 of the " STEPPING " table in the Appendix Section 4 (Sheet No 1E1) show typical examples of the utilisation of the " U " characteristic with and without specified conditions respectively.

### 6.3.22. Feature Name : Blind ( V )

BLOCK SCHEMATIC SYMBOL : Letter " V " adjacent to the appropriate berth symbol.

STEPPING TABLE SYMBOL : Letter " V " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the Berth concerned.

DEFINITION : The berth will not be displayed on any system maps or have any main panel display. In cases where the berth is displayed on system maps but does not have a main panel display (i.e. semi - blind ) then the block schematic symbol will be shown as V\*, with stepping table entries remaining as those for a display berth.

Item 0052 of the " STEPPING " table in the Appendix Section 4 (Sheet No 2E2) together with the block schematic in the Appendix Section 4 (Sheet No 3) show a typical example of the utilisation of the " V " characteristic and V\* symbol respectively.

### 6.3.23. Feature Name : Warning Alarm ( W )

BLOCK SCHEMATIC SYMBOL : NONE

STEPPING TABLE SYMBOL : Letter " W " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the berth concerned.

DEFINITION : The WARNING ALARM is non DRW dependant and is used to inform the operator that a train is in a particular berth. It takes the form of an audible alarm sounding on the designated OCU/MPU accompanied by " flashing " of the appropriate description on the designated OCUs systems map if applicable.

A WARNING ALARM is therefore raised if:

(a) The appropriate Berth has a " W " characteristic.

(b) The appropriate Berth becomes occupied AND the states of any additional berths and signalling inputs that may be specified in the [TRIGGERS],CONDITIONS field of the STEPPING table (Section 7.3.8) against the relevant berth entry are true OR the state of the additional berths and signalling inputs are true / become true AND the appropriate Berth is occupied.

The relevant OCU/MPU on which the WARNING ALARM is to be raised is specified in the OCU field of the STEPPING table against the relevant Berth entry (Section 7.3.4).

The duration of the WARNING ALARM is specified in field " W " of the " TIMINGS " table (Section 7.2.4.6).

NOTES: The WARNING sequence WILL NOT be activated by operator action on the OCU/MPU where the sequence is raised.

Items 0016 and 0025 of the " STEPPING " table in the Appendix Section 4 (Sheet No 2EI) show typical examples of the utilisation of the " W " characteristic with and without specified conditions respectively.

#### **6.3.24.- 6.3.25. Feature Name : Unused ( X,Y)**

#### **6.3.26 Feature Name : Staff Information VDU System Flag (Z)**

BLOCK SCHEMATIC SYMBOL : NONE

STEPPING TABLE SYMBOL : Letter " Z " will be assigned to the " BERTH CHARACTERISTICS " sub field in the stepping table for the berth concerned.

DEFINITION : A flag set to denote that either ALL or NONE of the PS9 class CA, CB and CC generated messages associated with the berth will be transmitted across the SIVS link as defined below.

(a) ALL of the CA, CB and CC generated messages will be transmitted if within the ASSOCIATED CHANNELS table against the SIV entry in the COMMS TYPE field, the associated TX ONLY field has the letter " Z " designated to it (see Section 7.2.1.2 (x) and 7.2.1.7).

(b) NONE of the CA, CB and CC generated messages will be transmitted if within the ASSOCIATED CHANNELS table against the SIV entry in the COMMS TYPE field, the associated TX XEPT field has a letter " Z " designated to it (see Section 7.2.1.2 (x) and 7.2.1.8).

## SPECIFICATION FOR THE PREPARATION & IMPLEMENTATION OF TRAIN DESCRIBER SYSTEM PARAMETER TABLES

---

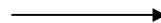
### 6.4. STEP TYPES

#### 6.4.1- 6.4.2. Feature Name : Unused ( A,B)

#### 6.4.3. Feature Name : Copy Step ( C )

C

BLOCK SCHEMATIC SYMBOL :



STEPPING TABLE SYMBOL : Letter " C " will be assigned to the " STEP TYPE " field, the relevant " FROM BERTH ID " will be assigned to the " BERTH " field and the " TO BERTH ID " will be assigned to the " TO/TXRXAD " field in the stepping table. Any relevant conditions will be assigned to the " [TRIGGER], CONDITIONS " field.

DEFINITION : The contents of the " FROM " berth are copied to the " TO " berth, with the " FROM " berth NOT being cleared, under the following circumstances:-

(a) The " FROM " berth is occupied and the state of ALL copy conditions specified in the [TRIGGER],CONDITIONS field of the stepping table for the copy step (Section 7.3.8) are true / subsequently become true.

Or

(b) The state of ALL copy conditions specified in the [TRIGGER],CONDITIONS field of the stepping table are true and the " FROM " berth contents change (as the result of an incoming step, interpose or over - interpose action).

(c) If (a) or (b) above become true and the " TO " berth is occupied, the contents of the "FROM" berth will be copied to the " TO " berth OVERWRITING any contents in the "TO" berth. Note however if the " FROM " berth has been loaded as the result of a NORMAL step action (see 6.4.14) from a berth that also had a copy step to the " TO " berth, a further copy step will not take place.

The " TO " berth will be cleared when the copy step has taken place under the following circumstances:-

(d) The state of any ONE of the copy conditions specified in the [TRIGGER],CONDITIONS field of the stepping table, against the " FROM " berth copy step entry becomes untrue and:

(i) A NORMAL step action has NOT taken place from the " FROM " berth.

Or

(ii) An OVERWRITING sequence as described in (c) above has NOT taken place with respect to the " FROM " berth or any subsequent " FROM " berth.

Or

(e) The " FROM " berth is cleared as the result of a cancel action.

Or

(f) The " FROM " berth performs a NORMAL step action (See 6.4.14) to a berth that:-

(i) does not have a subsequent copy step to the same " TO " berth

Or

(ii) does have a subsequent copy step but NOT ALL of the copy conditions states specified in the [TRIGGER], CONDITIONS field for that copy step are true.

The " TO " berth of a copy step can have a " T " (transmit) characteristic assigned to it (see Section 6.3.20). It is usually used in this configuration when approaching train information has to be condensed to a single " APPROACH " berth at the receiving train describer.

FIGURE 7 (the Appendix 5 Sheet 7) shows a relevant signalling plan together with the associated block schematic and stepping table entries illustrating the above feature. The "LIST OF EVENTS TABLE " is included to clarify the correct use of PS9 messages.

NOTES : It can be seen by reference to the stepping table in FIGURE 7 above that it is NOT a requirement to specify " FROM " berth occupancy as a condition for the copy step between two berths. This is to ensure that any change in berth contents (i.e. over-interpose) is acted upon by the copy step.

The copy function is never dependant upon a defined [TRIGGER] action in the stepping table as any ONE of the specified conditions may act as the triggering mechanism to copy / clear the " TO " berth.

#### **6.4.4.- 6.4.5. Feature Name : Unused ( D,E )**

#### **6.4.6. Feature Name : Flash Route Berth Contents Step ( F )**

BLOCK SCHEMATIC SYMBOL : NONE

STEPPING TABLE SYMBOL : Letter " F " will be assigned to the " STEP TYPE " field, the relevant " ROUTE BERTH ID " will be assigned to the " BERTH " field and any relevant conditions will be assigned to the " [TRIGGER],CONDITIONS " field in the stepping table.

## SPECIFICATION FOR THE PREPARATION & IMPLEMENTATION OF TRAIN DESCRIBER SYSTEM PARAMETER TABLES

---

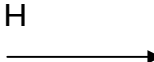
DEFINITION : The contents of the " ROUTE " berth are " flashed " on any designated system maps when the states of ALL the relevant conditions in the [TRIGGER],CONDITIONS, field of the stepping table (Section 7.3.8) against the " F " step entry are true.

If the [TRIGGER],CONDITIONS, field has no entries, then the berth contents will be flashed upon " ROUTE " berth occupancy only.

Item 0089 of the " STEPPING " table in the Appendix Section 4 (Sheet No 2E3) shows a typical example of Route Berth implementation utilising the " F " step characteristic.

**6.4.7. Feature Name : Unused ( G )**

**6.4.8. Feature Name : Hold Step ( H )**

BLOCK SCHEMATIC SYMBOL : 

STEPPING TABLE SYMBOL : Letter " H " will be assigned to the " STEP TYPE " field, the relevant " FROM BERTH ID " will be assigned to the " BERTH " field and the " TO BERTH ID " will be assigned to the " TO/TXRXAD " field in the stepping table. Any relevant trigger / conditions will be assigned to the "[TRIGGER],CONDITIONS " field.

DEFINITION : The contents of the " FROM " berth are copied to the " TO " berth, with the " FROM " berth NOT being cleared, under the following circumstances:-

(a) The " FROM " berth is occupied and the states of ALL copy conditions specified in the [TRIGGER],CONDITIONS field of the stepping table for the hold step (Section 7.3.8) are true / subsequently become true.

Or

(b) ALL copy conditions specified in the [TRIGGER],CONDITIONS field of the stepping table are true and the " FROM " berth contents change (as the result of an incoming step, interpose or over - interpose action).

The " TO " berth is subsequently cleared under control of its discreet stepping table entries and NOT by any of the " FROM " berth copy conditions becoming untrue (i.e. the description is " HELD " in the " TO " berth).

If (a) or (b) above become true and the " TO " berth is occupied, the contents of the "FROM" berth will be copied to the " TO " berth OVERWRITING any contents in the "TO" berth. Note however if the " FROM " berth has been loaded as the result of a NORMAL step action (See 6.4.14) from a berth that also had a hold step to the " TO " berth, a further hold step will not take place.

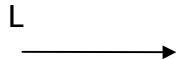
The " TO " berth of a hold step can have a " T " (transmit) characteristic assigned to it (see Section 6.3.20). It is usually used in this configuration when approaching train information has to be condensed to a single " APPROACH " berth at the receiving train describer.

FIGURE 8 (Appendix Section 5 Sheet 8) shows a relevant signalling plan together with the associated block schematic and stepping table entries illustrating the above feature. The " LIST OF EVENTS TABLE " is included to clarify the correct use of PS9 messages.

NOTES : It can be seen by reference to the stepping table in FIGURE 8 above that it NOT a requirement to specify " FROM " berth occupancy as a condition or trigger for the hold step between two berths. This is to ensure that any change in berth contents (i.e. over-  
interpose) is acted upon by the hold step.

#### **6.4.9.- 6.4.11. Feature Name : Unused ( I,J,K. )**

#### **6.4.12. Feature Name : Link Step ( L )**

BLOCK SCHEMATIC SYMBOL : 

STEPPING TABLE SYMBOL : Letter " L " will be assigned to the " STEP TYPE " field, the relevant " FROM BERTH ID " will be assigned to the " BERTH " field and the " TO BERTH ID " will be assigned to the " TO/TXRXAD " field in the stepping table.

DEFINITION : The contents of the " FROM " berth are stepped to the " TO " berth whenever the " TO " berth is cleared, with a subsequent CA ( Step ) message being raised.

The LINK step is usually used when BOTH the " FROM " and " TO " berths are loaded / cleared with the same description as the result of copy actions from other berths but are required to be " LINKED " together to generate the correct PS9 CA ( STEP ) message.

FIGURE 9 (Appendix Section 5 Sheet 9) shows a relevant signalling plan together with the associated block schematic and stepping table entries illustrating the above feature. The " LIST OF EVENTS TABLE " is included to clarify the correct use of PS9 messages.

It can be seen by studying FIGURE 9 in conjunction with the list of events table that if the LINK step between B180 and A180 had not been employed the messages generated whenever the second train present became the first would be CC A180, CB B180. This message sequence presented to the receiving train describer would cause an unnecessary UPDATE alarm on berth B180.

#### **6.4.13. Feature Name : Unused ( M )**