Transportation Research Information Service (TRIS): Description of Outputs from BTE Processing

Information Paper

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BUREAU OF TRANSPORT ECONOMICS

INFORMATION PAPER 2

TRANSPORTATION RESEARCH INFORMATION SERVICE (TRIS): DESCRIPTION OF OUTPUTS FROM BTE PROCESSING

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FOREWORD

As part of its role in ensuring appropriate and efficient dissemination of significant research information throughout the Australian transport community, the Bureau of Transport Economics (BTE) is continually investigating sources of information of potential use to transport planners and related workers. The lack of a genuinely multi-modal transport literature index with regular and timely updates in Australia has been noted for some time. In order to satisfy the need for an up-to-date version of such an index, the BTE has examined the transportation research information data base administered by the Transportation Research Board (TRB) in the United States. This data base, known formally as the Transportation Research Information Service (TRIS) data base, covers research literature related to all modes of transport, on an international basis. However, the component of the TRIS data base relating to maritime transport is not currently available to Australia.

This Paper describes broad elements of the TRIS data base and of processing performed on it by the BTE. Sufficient detail is presented to permit users of the data base to make convenient and effective use of it for information retrieval purposes.

One particular advantage of the system described in this Paper lies in its currency. Updates to the data base are received at regular two-monthly intervals from the U.S., and are processed by the BTE as described in this Paper. The BTE wishes to acknowledge the co-operation received from the TRB in supplying the regular TRIS updates, and in the general assistance that was provided during the development of the BTE's processing system.

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Assistant Director
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Bureau of Transport Economics
Canberra
February 1980

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SUMMARY

Part of the role of the Bureau of Transport Economics (BTE) is to investigate appropriate and efficient means of disseminating research information throughout the Australian transport community. One aspect of this activity relates to the dissemination of bibliographic information concerning both published transport research literature and on-going research projects. To be effective such bibliographic information should cover research undertaken in all the various modes of transport, should be thoroughly international and should be maintained in the most up-to-date form. The lack of a source of bibliographic information meeting these requirements has been noted in Australia for some time.

It is probably correct to suggest that a universal bibliographic data base satisfying fully all of the above requirements does not exist at present and that, at least in the foreseeable future, it represents an ideal which can only be approached rather than achieved. The BTE's examination of the situation indicated that the U.S.-based Transportation Research Information Service (TRIS) data base went a long way in meeting the requirement for such bibliographic information. Arrangements between the BTE and the Transportation Research Board (TRB), which administers the TRIS data base, allowed the BTE to acquire a data base which is effectively updated every two months and which covers all modes of transport with the exception of maritime transport(1).

This Paper provides a broad description of the TRIS data base and the BTE's processing system for it. The main intention of the Paper is to describe the often complex contents of the data base as a guide to those who receive the BTE's processed outputs from it. From each TRIS update, the BTE produces three basic outputs on Computer Output Microfiche (COM). These outputs comprise the following:

. the data base in basically its original (TRIS) format

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(1) Although maritime transport comes within the ambit of TRIS in the U.S., current U.S. policy does not permit TRIS records covering maritime transport research to be made available in Australia.

- the data base in a reformatted and substantially annotated version designed for convenient manual and computerised information retrieval

- an author/subject term index to facilitate rapid manual information retrieval.

The Paper provides sufficient detail to allow users of these outputs to make convenient and effective use of the TRIS data base. However, the major thrust of the Paper is to provide a user guide, rather than an in-depth system description.

The COM produced by the BTE are available to libraries servicing the needs of transport researchers in Australia. Application for these COM can be made to:

The Librarian,
Bureau of Transport Economics,
P.O. Box 367,
CANBERRA CITY. A.C.T. 2601

CHAPTER 1 - INTRODUCTION

Part of the role of the Bureau of Transport Economics (BTE) involves dissemination of significant current research information throughout the Australian transport research community. Because of the increasing volume of published research in the many disciplines involved with transport, it is impossible for an individual researcher to remain familiar with the complete range of transport literature. It is, however, most important that the researcher has access to all the literature relevant to his particular areas of work. This, in turn, imposes a responsibility on information scientists to assist the researcher in becoming aware of literature (both current and historical) which may be relevant.

One means of achieving this aim is through development of bibliographic data bases. Generally, these data bases are subject-specific and (through regular updates) list the bibliographic details of appropriate research reports, journal articles and so on soon after their publication. These data bases are often computerised to allow researchers to select particular references which relate to specific subject areas in which they are working. Many of the physical and social sciences are well covered by bibliographic data bases which are derived from both Australian and overseas sources.

In Australia, researchers in transport generally have been comparatively poorly served in this respect. Transport research encompasses many disciplines within both the physical and social sciences, with the result that comprehensive retrieval of transport-related literature may require reference to a number of separate bibliographic data bases. In terms of particular transport-related data bases, only research into road transport is covered adequately at present[1] in Australia. It is this situation which the BTE is trying to rectify.

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(1) This coverage is achieved in particular through the International Road Research Documentation (IRRD) data base (referencing overseas roads literature) and the Australian Road Index (ARI) data base (referencing Australian roads literature).

One of the most widely-respected bibliographic data bases which specifically covers transport is the Transportation Research Information Service (TRIS). TRIS is administered by the Transportation Research Board (TRB) of the National Research Council in the United States. In effect, TRIS actually consists of a number of separate data bases covering various transport modes. These individual data bases are:

- Highway Research Information Service (HRIS)
- Railroad Research Information Service (RRIS)
- Air Transport Research Information Service (ATRIS)
- Maritime Research Information Service[1] (MRIS)
- Transport Noise Research Information Service (TNRIS)
- Department of Transportation Technical Reports (DOTTR)
- Urban Mass Transport Research Information Service (UMTRIS).

In addition, TRIS also covers current ongoing research in the various fields of transport. Although these records of ongoing research are often associated with one or more of the specific data bases mentioned above, they are identified separately as Transportation Research-in-Progress (TRIP) records later in this Paper. For convenience, this whole group of data bases (with the exception of MRIS) is referred to in this Paper as the TRIS data base.

As part of its role in information dissemination, the BTE has investigated provision of reference services based on the TRIS data base. This data base was chosen for a number of reasons. Among the more important of these were the following:

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(1) The BTE understands that (owing to domestic considerations in the United States) MRIS as such will not be available in machine-readable format in Australia in the foreseeable future.

- it is a respected international transport data base which has been in existence for a considerable period of time and has therefore achieved a reasonable degree of stability
- it incorporates a number of mode-specific data bases which together constitute a reasonably comprehensive multi-modal bibliography
- generally speaking, existing TRIS information is available in Australia only in hard-copy form, as Bulletins containing bibliographic entries covering varying periods of up to six months[1]. Receipt of more frequent updates in machine-readable form should be of considerable advantage to the researcher aiming to be aware of the most current information.

BTE investigations in this area relate generally to the cost-effective provision of information services based on the TRIS data base. These services involve provision of the data bases for both manual and computerised searching by appropriate transport organisations. As part of these investigations the BTE has an agreement with the TRB to purchase updates to TRIS on magnetic tape at regular two-monthly intervals. These updates represent new bibliographic records (or revised versions of existing records) inserted in the TRIS data bases (2) during each two-month period. This agreement commenced in September 1978, with the purchase of the updates covering July-August 1978. Each two-monthly update is processed by the BTE to produce three types of output on Computer Output Microfiche (COM) as well as an additional machine-readable file for use in computerised retrieval. The availability of computerised searching facilities using this file is currently being examined.

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(1) In addition, there are often considerable postal delays associated with the receipt of these Bulletins - affecting the currency of the information even more.

(2) With the exception of the MRIS data base which, as noted earlier, is not formally available to Australia in this form.

This Paper is concerned primarily with the intermediate forms of the TRIS data base which can be made available at this stage to appropriate transport organisations for manual reference. These intermediate forms of the data base appear as the three types of COM mentioned above.

Chapter 2 outlines in detail the format and description of various forms of Computer Output Microfiche (COM) which are produced in the course of processing the data base received from the United States. This processing is ultimately designed to produce the data base in a form which is suitable for automatic computerised searching to achieve subject-specific information retrieval. Chapter 3 concludes the Paper by indicating possible courses being investigated to provide computerised retrieval services based on the TRIS data base.

CHAPTER 2 - DESCRIPTION OF THE PROCESSED DATA BASE

This chapter provides details of the output which is produced as part of the general processing of the TRIS data base by the BTE. The information provided here should allow both librarians and users of libraries to achieve maximum use of the listings and indexes produced by the BTE.

GENERAL BACKGROUND

The general nature of the BTE activity involving the TRIS data base was outlined in Chapter 1. Before describing the TRIS data base composition and the outputs resulting from the BTE's processing, certain terminology used in this description has to be defined. A complete bibliographic description of a particular reference item is referred to as a 'record'. Each record, in general, contains various types of information relating to the item, including (for example) its title, author(s), abstract and so on. This information is contained in 'lines' of text, typically numbering some 60 to 130 lines per record. The collection of records constituting each bibliographic data base received at two-monthly intervals from the United States is referred to as an 'update'. These updates (to the TRIS data base) represent collections of records which fall into one of two categories. These categories cover:

- new records which have been added to the TRIS data base during the two-month period. These effectively represent bibliographic information which is used for current awareness information services

- revised versions of existing records which have been included in the TRIS data base at some earlier time and which have been corrected or amended in some way[1].

In the BTE's processing of each TRIS data base update, three forms of output are produced on COM. These outputs consist of the following sets of microfiche:

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(1) One particular category of record often requiring regular amendment relates to the description of research-in-progress (as opposed to published research). These records are subject to regular amendment as the research project progresses.

- the first form of output comprises the complete collection of TRIS records in a particular TRIS update, in basically their original form as received from the TRB. Certain coded information related only to internal TRIS management procedures is omitted from the fiche, since the information also appears in its complete form[1]. However, some additional BTE-generated titling and annotation is included on the fiche to assist referencing. This particular form of output is difficult to interpret, since interpretation requires a detailed knowledge of TRIS coding procedures. However, this output does contain all information available from TRIS, and is produced for specialised use by librarians

- the second form of output also basically comprises the complete collection of TRIS records in an update, but in a highly modified form. The modifications relate principally to substantial reformatting of the original records to facilitate more convenient reference. It is intended that this form of output should represent the primary reference list for users, and (in virtually all cases) will provide sufficient bibliographic information to allow access to a particular reference

- finally, the third form of output comprises a cross-reference list, relating an alphabetically ordered author/investigator/subject term index to corresponding reference titles and reference sequence numbers. This list permits easy reference to material written by particular authors or related to particular subjects.

Each of these outputs is produced on COM with a 48X reduction from full size[2]. This form of output is a highly convenient and comparatively inexpensive means

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(1) For example, TRIS codes relating to particular subject terms are often included. Since the subject term itself also appears, the code is redundant, and is omitted from subsequent processing.

(2) In other words, a microfiche reader incorporating a 48X magnification is required to produce a full-size image of each microfiche frame. This is standard for documents produced on COM.

of distributing large quantities of information of the type contained in bibliographic indexes. The detailed format of each of these sets of COM is discussed below[1].

ORIGINAL TRIS RECORDS

The TRIS data base in its original format (in which it is received from the U.S.) is not inherently convenient for manual reference. Specific problems arise with regard to records involving multiple personal authors or corporate authors and with information relating to them. In these cases, the order in which authors and the related information appear is convenient from the point of view of computerised data entry, but is not optimal for manual reference. There are also other instances in which the direct order of presentation in a TRIS record in its original form is not the most logical for ease of interpretation. Further, various internal codes are included in each record, and these appear to be relevant only to the TRB's own processing procedures.

In view of this, a substantially reorganised and reformatted version of all records in the data base is routinely prepared by the BTE, and is discussed in the next section. However, since little additional effort is required, the TRIS data base is also prepared in COM form basically in its original format, with some additional titling and interpretative annotation. This allows reference to be made to the internal codes and various other pieces of less generally valuable information which do not appear on the reformatted version of the data base. In general, reference to this original format should not be necessary as a matter of course. Reference to the reformatted version is more convenient and should suffice in most cases. However, it should be noted that all the information contained on the original records is available on the COM retaining the original format, should the need for this information arise.

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(1) Common to each of the fiche is an index found at the extreme bottom right-hand side. This index allows rapid location of a particular piece of information on the fiche. The index relates fiche frame numbers to certain indexable items corresponding to the information being sought. However, this fiche frame index is basically unrelated to the TRIS data base itself.

Figure 2.1 shows a typical TRIS data base record in its unprocessed form[1] as received from the TRB. Each line is 80 characters in length, including spaces. The content of each line is indicated by its first four characters, the first three of which are numerical and the fourth alphabetic. Particular types of information contained in a TRIS record are identified from their positions in particular lines of the record. Each type of information is not identified explicitly as such on the record, but the BTE's processing system has been designed to allow the various types of information to be identified. Characters in positions 5 to 14 relate specifically to TRB procedures for managing the data base. Characters in positions 15 to 20 are repeated on each line of the record and specify the TRIS accession number associated with the particular reference. On lines relating to particular types of information such as publication information (lines starting with 312), author information (lines starting with 331), subject terms (lines starting with 621 -) and so on, characters in positions 21 to 30 may contain codes related to the information on that line. These codes are used by the TRB to assist in the development of a particular data base record by allowing the details on particular lines containing these codes to be automatically generated by the computer which is preparing the data base.

In the BTE's presentation of the original TRIS records on COM, the characters in positions 5 to 14 of each line are omitted, since they have no relevance to the interpretation and use of the data base record by organisations other than those related to the TRB. Similarly, where coded information appears in character positions 21 to 30, this information is omitted from the COM version of the original record since this information is effectively redundant. Finally, the TRIS accession number for a record (which appears in character positions 15 to 20 of each line) is extracted and included once at the start of each frame of a record appearing on COM.

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(1) Note that this is not the format of the COM in the original format discussed above. The format of these COM is shown later in Fig. 2.2. Figure 2.1 is simply an illustration of a TRIS record before any form of processing has been carried out.

```
111A11AA    11182084EIAANB0000110000            03/12/7803/02/79
121AX1AB    1118208418        National Technical Information Service
122A 1AC    11182084                    u7826
211A 1AD    11182084KALKER'S SIMPLIFIED NONLINEAR CREEP THEORY (SUBROUTINE
211B 1AE    11182084FORCES).  SOFTWARE
312AX1AF    1118208415    EADYFederal Railroad Administration
313AY1AG    11182084Office of Research and Development
314AY1AH    11182084Washington          D.C.                20590
321A 1AI    11182084          DOT/DF-78/003                           7712
322A 1AJ    11182084n.p.
331AX1AK    1118208424        Goree, JG
331BX1AL    1118208424        Law, EH
341AX1AM    1118208419        National Technical Information Service
342AY1AN    11182084Port Royal Road
343AY1AO    11182084Springfield         Virginia            22161
345A 1AP    11182084PB-285468/5ST
521AX1AQ    1118208432        Z         C         L         IA        Z
551DX1AR    11182084R02
621AX1AS    1118208440        *SOFTWARE
621BX1AT    1118208440        *ANTIFRICTION BEARINGS
621GX1AU    1118208440        CREEP PROPERTIES
621HX1AV    1118208440        ROLLER BEARINGS
621IX1AW    1118208440        FORTRAN
621JX1AX    1118208440        COMPUTER PROGRAMS
621KX1AY    1118208440        MAGNETIC TAPES
621LX1AZ    1118208440        SUBROUTINES
622AX1BA    1118208440        FORTRAN 4 PROGRAMMING LANGUAGE
622BX1BB    1118208440        IBM-370/165 COMPUTERS
622CX1BC    1118208440        NTISDOTFRA
651AX1BD    1118208448        COMPUTER PROGRAMS
651BX1BE    1118208448        WHEEL RAIL DYNAMICS
651CX1BF    1118208448        WHEEL CREEP
651DX1BG    1118208448        MAGNETIC TAPES
651EX1BH    1118208448        FORTRAN
651FX1BI    1118208448        IBM 370
711A 1BJ    11182084The conversion of the computer program, 'Simplified Theory
711B 1BK    11182084of Rolling Contact', (used for calculation of a nonlinear
711C 1BL    11182084creep force-creepage relationship) from the original Algol
711D 1BM    11182084language to Fortran is considered. The Algol program was
711E 1BN    11182084written by Professor J. J. Kalker and was derived from the
711F 1BO    11182084paper, 'Simplified Theory of Rolling Contact,' Delft Progr.
711G 1BP    11182084Rep., Series C: Mechanical and Aeronautical Engineering and
711H 1BQ    11182084Shipbuilding, 1 (1973), pp 1-10.  A significant number of
711I 1BR    11182084changes was made in the program for more convenient use;
711J 1BS    11182084however, the fundamental equations remain unchanged. The
711K 1BT    11182084results were checked in detail to insure agreement with the
711L 1BU    11182084original solution. The program gives an appropriate solution
711M 1BV    11182084for the resultant tangential creep forces and spin moment
711N 1BW    11182084acting between two bodies of equal linearly elastic material
711O 1BX    11182084properties. The creep forces and spin moment are due to
711P 1BY    11182084lateral, longitudinal, and spin creepages. Assumptions
711Q 1BZ    11182084corresponding to the Hertz contact theory are implied and
711R 1CA    11182084two additional simplifying assumptions are made, resulting
711S 1CB    11182084in a significant reduction in computation time as contrasted
711T 1CC    11182084with previous solutions. Two separate computer codes were
711U 1CD    11182084developed, the first being the general solution with
711V 1CE    11182084extended input and output, and the second a shortened
711W 1CF    11182084version primarily intended for use as a subroutine.
751M 1CG    11182084Source tape is in EBCDIC character set. Tapes can be
751N 1CH    11182084prepared in most standard 7 or 9 track recording modes for
751O 1CI    11182084one-half inch tape. Identify recording mode desired by
751P 1CJ    11182084specifying character set, track, density, and parity. Call
751Q 1CK    11182084NTIS Computer Products if you have questions. Price includes
751R 1CL    11182084documentation, PB-279 503.
921A 1CM    11182084                    7901
```

FIGURE 2.1 - EXAMPLE OF AN UNPROCESSED TRIS RECORD

BTE/TRIS INFORMATION SERVICE: MARCH 1979. ORIGINAL TRIS RECORD.

BTEIS SEQUENCE NO: 0379-0200. TRIS ACCN NO: 182084.

CODE	CONTENTS	USE
111A	EIAANB0000110000 03/12/7803/02/79	TFM
121A	National Technical Information Service	ACC*
122A	u7826	TFM
211A	KALKER'S SIMPLIFIED NONLINEAR CREEP THEORY (SUBROUTINE	ACC
211B	FORCES). SOFTWARE	ACC
312A	Federal Railroad Administration	ACC*
313A	Office of Research and Development	ACC
314A	Washington D.C. 20590	ACC
321A	DOT/DF-78/003 7712	TFM
322A	n.p.	ACC
331A	Goree, JG	ACC*
331B	Law, EH	ACC*
341A	National Technical Information Service	ACC*
342A	5285 Port Royal Road	ACC
343A	Springfield Virginia 22161	ACC
345A	PB-285468/5ST	TFM
521A	Z C L IA Z	IND*
551D		IND*
621A	*SOFTWARE	ACC*
621B	*ANTIFRICTION BEARINGS	ACC*
621G	CREEP PROPERTIES	ACC*
621H	ROLLER BEARINGS	ACC*
621I	FORTRAN	ACC*
621J	COMPUTER PROGRAMS	ACC*
621K	MAGNETIC TAPES	ACC*
621L	SUBROUTINES	ACC*
622A	FORTRAN 4 PROGRAMMING LANGUAGE	ACC*
622B	IBM-370/165 COMPUTERS	ACC*
622C	NTISDOTFRA	ACC*
651A	COMPUTER PROGRAMS	ACC*
651B	WHEEL RAIL DYNAMICS	ACC*
651C	WHEEL CREEP	ACC*
651D	MAGNETIC TAPES	ACC*
651E	FORTRAN	ACC*
651F	IBM 370	ACC*
711A	The conversion of the computer program, 'Simplified Theory	ACC
711B	of Rolling Contact', (used for calculation of a nonlinear	ACC
711C	creep force-creepage relationship) from the original Algol	ACC
711D	language to Fortran is considered. The Algol program was	ACC
711E	written by Professor J. J. Kalker and was derived from the	ACC
711F	paper, 'Simplified Theory of Rolling Contact,' Delft Progr.	ACC

... OVER.

FIGURE 2.2 - EXAMPLE OF AN 'ORIGINAL TRIS RECORD' (FIRST FRAME)

PAGE: 0388.

BTE/TRIS INFORMATION SERVICE: MARCH 1979. ORIGINAL TRIS RECORD.

BTEIS SEQUENCE NO: 0379-0200 (CONTINUED). TRIS ACCN NO: 182084.

CODE	CONTENTS	USE
711G	Rep., Series C: Mechanical and Aeronautical Engineering and	ACC
711H	Shipbuilding, 1 (1973), pp 1-10. A significant number of	ACC
711I	changes was made in the program for more convenient use;	ACC
711J	however, the fundamental equations remain unchanged. The	ACC
711K	results were checked in detail to insure agreement with the	ACC
711L	original solution. The program gives an appropriate solution	ACC
711M	for the resultant tangential creep forces and spin moment	ACC
711N	acting between two bodies of equal linearly elastic material	ACC
711O	properties. The creep forces and spin moment are due to	ACC
711P	lateral, longitudinal, and spin creepages. Assumptions	ACC
711Q	corresponding to the Hertz contact theory are implied and	ACC
711R	two additional simplifying assumptions are made, resulting	ACC
711S	in a significant reduction in computation time as contrasted	ACC
711T	with previous solutions. Two separate computer codes were	ACC
711U	developed, the first being the general solution with	ACC
711V	extended input and output, and the second a shortened	ACC
711W	version primarily intended for use as a subroutine.	ACC
751M	Source tape is in EBCDIC character set. Tapes can be	ACC
751N	prepared in most standard 7 or 9 track recording modes for	ACC
751O	one-half inch tape. Identify recording mode desired by	ACC
751P	specifying character set, track, density, and parity. Call	ACC
751Q	NTIS Computer Products if you have questions. Price includes	ACC
751R	documentation, PB-279 503.	ACC
921A	7901	REJ

FIGURE 2.2 (CONTINUED) - EXAMPLE OF AN 'ORIGINAL TRIS RECORD' (SECOND FRAME)

Figure 2.2 illustrates the COM version of the record shown in Fig. 2.1. The omission of the coded information described above can be seen, together with inclusion of the TRIS accession number in the titling on each frame. The format and annotation of the original TRIS records presented on COM are discussed in detail in the following paragraphs.

Title

Each frame of a record commences with an appropriate title identifying the TRIS record. Where a record extends over more than one frame, the title is repeated on each frame with the frames representing continuations of the record being suitably identified (see Fig. 2.2).

The title identifies the month and year of the conclusion of the two-monthly period covering each BTE data base update. In the case illustrated on Fig. 2.2 the record shown was included in the update covering January and February 1979(1). 'ORIGINAL TRIS RECORD' in the title indicates that all relevant information included in the record as it is received from the TRB is reproduced, basically in the form in which it was received. The exceptions to this rule have been noted previously.

Each TRIS record is assigned a sequence number during processing by the BTE. This number, known as the BTE Information Service Sequence Number ('BTEIS SEQUENCE NO:' in the frame title) takes the following general form:

mmyy - nnnn

where mm represents the month of the record (03 for March in Fig. 2.2),
yy represents the year of the record (79 for 1979 in Fig. 2.2), and
nnnn is a four-digit number commencing at 0001 for the first record in each bi-monthly update received from the TRB.

(1) In fact, it is actually a record which was included in the data base in December 1978 and which was subsequently amended in February 1979. This type of information is discussed further in the next section.

It should be noted that nnnn is referred to as the suffix of the BTEIS sequence number in later discussion in this chapter.

The record shown in Fig. 2.2 is the 200th entry in the January/February 1979 accumulation received from the TRB. The BTEIS sequence number has no relation to any code or accession numbers assigned by the TRB.

In addition to the BTEIS sequence number, the six-digit accession number assigned by the TRB (the TRIS accession number) is extracted from the record and included as part of the titling for each TRIS record. It is worth noting that the TRIS accession number bears no relationship to the BTEIS accession number and may not necessarily even be in any specific numerical order on the COM. The TRIS accession number may, however, be useful in actual document acquisition.

Presentation of original TRIS records

As noted in Fig. 2.2, the original TRIS record is basically presented under two generalised headings on the COM. These headings are 'CODE' and 'CONTENTS'. In its original form, each line of a TRIS record is 80 characters in length and commences with a four-character code[1] (as discussed previously). This code is also shown on the BTE's COM version of the original records. The remaining contents of each line shown on the COM generally reflect the contents of each line of the record as received from the TRB. The exceptions have already been noted, and relate to specific coded information which is either redundant or irrelevant to the use of the data base in Australia.

Annotation

In addition to the information contained in the original TRIS records and reproduced under the headings of 'CODE' and 'CONTENTS', an indication is given of how this information is used and arranged in the converted TRIS

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(1) Appendix I provides a general description of the original TRIS records, relating the TRIS code groups to the information contained in lines commencing with these code groups.

records which have been reformatted by the BTE for ease of reference. The indication is given at the end of each line under the general heading of 'USE'. Four abbreviations are used, and the meanings of these are as follows:

. 'ACC' specifies that the information contained on that line is accepted and reproduced unchanged in the converted TRIS records

. 'TFM' specifies that the information contained on that line is included in the converted record but is substantially transformed to a more readily interpreted form

. 'IND' specifies that the information appearing on that line is not reproduced in the converted record. Instead, the converted TRIS record contains a note indicating that the information appears in the original record(1)

. 'REJ' specifies that the information contained on the line is rejected and is not included in the converted TRIS record at all.

As noted previously, certain information appearing in coded form on the TRIS records received from TRB is not reproduced even on the COM version of the original record as produced by the BTE. On lines where these omissions have occurred, an asterisk(*) is appended to the annotation outlined above. Reference to Fig. 2.1 and the corresponding COM record shown in Fig. 2.2 will illustrate this point.

CONVERTED TRIS RECORDS

It has been mentioned earlier (and it can be verified from Fig. 2.2) that TRIS records in their original format are not very convenient for manual reference. Part of the BTE processing of these records results in production of a reformatted version of these records, in which the original records are converted to a form which can be referenced more conveniently. This more convenient form is achieved as a result of the following process. Each

(1) In such cases, the converted TRIS records refer the user to the original records for the actual information.

piece of information on the original record is examined for its relevance and usefulness to information retrieval in the Australian context. Information which is appropriate only to TRIS data base management is then discarded and no reference is made to it in the converted record. Information which is considered to be of marginal relevance to information retrieval is also discarded, but a reference to it is included in the converted record. This reference generally indicates that the information does appear on the original record and can be obtained by consulting the COM containing these records. The remaining information on the original TRIS record is regarded as being of primary relevance and is therefore included in the converted record. This information is appropriately annotated and reformatted on the converted record to facilitate reference(1).

A more detailed description of the converted TRIS records is contained in the following paragraphs. Reference is made to Fig. 2.3 which illustrates a typical example of a converted TRIS record. The example shown corresponds to the original TRIS record illustrated in Fig. 2.2.

The date and sequence number contained in the frame title of the converted TRIS record correspond with similar information attached to the original record and discussed in the previous section. Before discussing the individual component groups of the converted TRIS record, the following is a brief explanation of the information contained on the right-hand edge of each fiche frame.

Essentially, this information is relevant only to computerised retrieval and is not generally required for manual reference. The information is grouped under four headings:

. 'ID-GROUP' - the identification group number which always takes the form TRISmmyy, where mm is the months relating to the particular update and yy is the year relating to the particular update

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(1) The converted records are also used to form the data base used in the computerised information retrieval process.

BTE/TRIS INFORMATION SERVICE: MARCH 1979. CONVERTED TRIS RECORD.

BTEIS SEQUENCE NO: 0379-0200.

DESCRIPTION	CONTENTS	ID-GROUP S/NO PCG LINE
General ID	BTE/TRIS Information Service: MARCH 1979.	TRIS0379 0200 100 0001
Sequence No(s)	Sequence No (BTEIS) 0379-0200	110 0002
	Sequence No (DOTTR) 0379-0040	115 0003
	Sequence No (RRIS) 0379-0077	116 0004
TRIS Details	TRIS Accn No: 182084 Stored: 03/12/78 Updated: 03/02/79	120 0005
Record Details	Type: 1 Checks: 1-00 2-00 3-00 4-00 5-00 6-00 7-00 8-00 9-01	130 0006
Source Details	National Technical Information Service	140 0007
	Source Code(s): u7826	140 0008
Title (English)	KALKER'S SIMPLIFIED NONLINEAR CREEP THEORY (SUBROUTINE	200 0009
	FORCES). SOFTWARE	200 0010
Pub. Details	Federal Railroad Administration	300 0011
	Office of Research and Development	300 0012
	Washington D.C. 20590	300 0013
Doc. Details	Rept: DOT/DF-78/003 Date: 12/77	310 0014
	n.p.	310 0015
	Document: English Abstract: English	310 0016
Author(s)	Goree, JG	320 0017
	Law, EH	321 0018
Availability	National Technical Information Service	330 0019
	5285 Port Royal Road	330 0020
	Springfield Virginia 22161	330 0021
	Doc Centre Code(s): PB-285468/5ST	330 0022
Subject Classes	TRIS Subject Classes Available.	500 0023
	RRIS Subject Classes Available.	500 0024
Source Terms	SOFTWARE	600 0025
	ANTIFRICTION BEARINGS	600 0026
	CREEP PROPERTIES	600 0027
	ROLLER BEARINGS	600 0028
	FORTRAN	600 0029
	COMPUTER PROGRAMS	600 0030
	MAGNETIC TAPES	600 0031
	SUBROUTINES	600 0032
	FORTRAN 4 PROGRAMMING LANGUAGE	600 0033
	IBM-370/165 COMPUTERS	600 0034
	NTISDOTFRA	600 0035

... OVER.

FIGURE 2.3 - EXAMPLE OF A 'CONVERTED TRIS RECORD' (FIRST FRAME)

BTE/TRIS INFORMATION SERVICE: MARCH 1979. CONVERTED TRIS RECORD.

BTEIS SEQUENCE NO: 0379-0200 (CONTINUED).

DESCRIPTION	CONTENTS	ID-GROUP S/NO PCG LINE
RRIS Terms	COMPUTER PROGRAMS	TRIS0379 0200 630 0036
	WHEEL RAIL DYNAMICS	630 0037
	WHEEL CREEP	630 0038
	MAGNETIC TAPES	630 0039
	FORTRAN	630 0040
	IBM 370	630 0041
Abstract	The conversion of the computer program, 'Simplified Theory	700 0042
	of Rolling Contact', (used for calculation of a nonlinear	700 0043
	creep force-creepage relationship) from the original Algol	700 0044
	language to Fortran is considered. The Algol program was	700 0045
	written by Professor J. J. Kalker and was derived from the	700 0046
	paper, 'Simplified Theory of Rolling Contact,' Delft Progr.	700 0047
	Rep., Series C: Mechanical and Aeronautical Engineering and	700 0048
	Shipbuilding, 1 (1973), pp 1-10. A significant number of	700 0049
	changes was made in the program for more convenient use;	700 0050
	however, the fundamental equations remain unchanged. The	700 0051
	results were checked in detail to insure agreement with the	700 0052
	original solution. The program gives an appropriate solution	700 0053
	for the resultant tangential creep forces and spin moment	700 0054
	acting between two bodies of equal linearly elastic material	700 0055
	properties. The creep forces and spin moment are due to	700 0056
	lateral, longitudinal, and spin creepages. Assumptions	700 0057
	corresponding to the Hertz contact theory are implied and	700 0058
	two additional simplifying assumptions are made, resulting	700 0059
	in a significant reduction in computation time as contrasted	700 0060
	with previous solutions. Two separate computer codes were	700 0061
	developed, the first being the general solution with	700 0062
	extended input and output, and the second a shortened	700 0063
	version primarily intended for use as a subroutine.	700 0064
Supp. Notes	Source tape is in EBCDIC character set. Tapes can be	740 0065
	prepared in most standard 7 or 9 track recording modes for	740 0066
	one-half inch tape. Identify recording mode desired by	740 0067
	specifying character set, track, density, and parity. Call	740 0068
	NTIS Computer Products if you have questions. Price includes	740 0069
	documentation, PB-279 503.	740 0070

FIGURE 2.3 (CONTINUED) - EXAMPLE OF A 'CONVERTED TRIS RECORD' (SECOND FRAME)

. 'S/NO' - the sequence number corresponding to the suffix of the BTEIS sequence number (as defined in the previous section)

. 'PCG' - the 'print control group' which forms part of the input to the computerised retrieval package and is used basically to group related information on a particular aspect and contained on a number of lines

. 'LINE' - the line number count in the converted format.

Since the identification group number and the BTEIS sequence number refer to each record as a whole, they appear only once on each frame. The print control group number and the line number are obviously variable from line to line. The nineteen characters which comprise all the codes under 'ID-GROUP', 'S/NO', 'PCG' and 'LINE' are also used in the computerised retrieval process, in particular to specify which parts of each record are to be searched.

General structure of converted records

In producing the converted TRIS records, related information in particular categories is gathered together and identified appropriately. Figure 2.3 illustrates the types of information which are presented and their corresponding descriptive identifications. The result is that each converted record is divided into a number of sections, each of which contains information of a specific type. The contents of each of these sections is suitably identified.

As noted in Chapter 1, TRIS records fall into two distinct classes(1):

. records relating to published information (HRIS, RRIS, etc.)

. records relating to on-going research (TRIP).

---

(1) Note however that a TRIP record may also be identified as an HRIS, RRIS, etc. record as well.

TRIP records contain information which does not appear on records relating to published information. Hence, converted TRIP records can contain sections which do not appear in other TRIS records.

Each of the two basic classes of TRIS records is discussed in turn below. For each class the relevant sections comprising the converted records are described individually, but it should be noted that all of these sections would not normally be encountered for a particular record. In various cases, the appearance of fixed messages in the converted records is discussed. In these cases, reference to the original TRIS records is suggested as a means of determining the actual information provided. Appendix I facilitates this reference to the original records by providing the correspondence relationships between the section identifiers on the converted records and the numeric TRIS line codes commencing each line on the original records.

Records of published documents

The various sections appropriate to this class of record are discussed in the following paragraphs[1]. Each of these paragraphs is identified by the section identifier used in the COM version of the converted records.

General ID

This section represents a general identification for the record. It contains the date and BTEIS sequence number information, as previously noted.

Sequence No(s)

It will be recalled from Chapter 1 that the TRIS data base actually comprises entries from a number of individual data bases - RRIS, HRIS and so on. In general, a TRIS record will be indicated as being a record associated with

(1) Many of these sections are also appropriate to TRIP records. Sections which are unique to TRIP records are discussed later.

one or more of these individual data bases. The individual data bases containing a particular TRIS record are indicated by generating individual sequence numbers for the record in each data base with which it is associated. In Fig. 2.3, the record shown is a DOTTR entry and is also part of the RRIS data base. Hence, in addition to the general BTEIS sequence number, DOTTR and RRIS sequence numbers are also attached to the record during BTE processing. The suffix of each of the individual sequence numbers commences at 0001 and is incremented by 1 for each additional record which relates to the particular data base. The example in Fig. 2.3 refers to the 200th record in the January/February 1979 update. However, it also represents the 40th DOTTR record and the 77th RRIS record in the update.

TRIS Details

This section records the TRIS accession number, the date on which the particular record was first stored in TRIS and the date (if any) on which the record was updated in some way(1). The record shown in Fig. 2.3 was initially stored in TRIS in December 1978. It was revised in some way in February 1979.

Record Details

As noted in the section describing the way in which the original TRIS records are processed and presented on COM, certain information on the original records is omitted from the converted records. This approach has been taken to simplify presentation of the COM output and to minimise inclusion of material irrelevant to retrieval in the Australian context. In this section of the converted record an indication is given of those lines in the original record which have been rejected(2). Details referring to published literature

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(1) This information is based on TRIS documentation. However, it has been observed that these two dates often coincide. Unfortunately, no further explanation is available to allow the BTE to interpret these dates more specifically.

(2) Line use code is 'REJ' in the original records in such cases.

and to current research (TRIP) records are identified separately as 'Type: 1' and 'Type: 2' respectively. 'Checks:' indicates the number of lines in each group of original numeric line codes which have been omitted from the converted record. For example '1-00 2-02 3-01 .....' would imply that no lines with line codes 100 to 199 have been rejected, two lines with codes 200 to 299 have been rejected and one line with a code between 300 and 399 has been omitted(1).

Source Details

In this section, appropriate reference is provided for data base records originating from sources other than TRB (for example IRRD, International Road Federation (IFR) and so on).

Title (English)

All records contain an English title regardless of the language of the parent document.

Title (Original)

If parent document is written in a foreign language, the foreign language version of the title of the document may be included in the TRIS record. If so, it appears in this section in the converted record.

Pub. Details

Details of the publication relating to names and addresses of its publisher(s) or corporate author(s) are included in this section.

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(1) Note that this is a hypothetical example. Only rarely will lines with numbers in these groups be rejected.

Doc. Details

Information related to the document, as provided by TRIS, is contained in this section. Generally, this information will include report numbers, publication dates[1], pagination details and so forth. Sometimes, a single document can appear as two separate publications (as for example in the case of collaboration between two organisations on a single project). All report numbers and other details pertinent to such multiple publications are provided in this section of the converted record.

In addition, the languages of both the original document and the abstract contained in the TRIS record are shown in each case.

Author(s)

The names of the personal authors of the document are indicated in this section. Titles and affiliations may also be indicated where appropriate.

Availability

The names and addresses of centres from which the source document(s) can be obtained are shown in this section. In some cases, the original TRIS record contains details regarding the price of the source documents from these centres. Where this occurs the price information is not included in the converted record. Instead, the statement 'Price Details Available' appears in the converted TRIS record[2]. Reference to the corresponding original TRIS record should be made if these details are required.

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(1) Publication dates take the form mm/yy where mm is the month and yy is the year of publication. If the year but not the month of publication is specified mm appears as 00 on the converted TRIS record.

(2) This simplification was necessary because of the differing formats which have been adopted in the original TRIS records for specifying price details. These varying formats precluded any consistent approach to indicating document prices in the converted record. In addition, these prices are often of only marginal relevance to libraries in Australia which are ordering documents from overseas.

Contract Data

If contractual information relating to research projects or published documents is available, a section with the above designation appears in the converted record. If details of the actual contract (such as funds spent, funding mechanism used, etc.) are given, the message 'Actual Contract Data Included' appears. The message 'Proj Contract Details Included' appears if contractual information related to projected future activity is included. Reference to the original TRIS fiche can be made to ascertain which contract details are provided.

Subject Classes

Fixed messages are included in this section indicating which subject classes are contained on the original TRIS record (for example Science and Technology (S&T), HRIS and so on). As an illustration, the record shown in Fig. 2.3(a) indicates that TRIS and RRIS subject classes appear in the original form of the record[1].

Source Terms

In general, a TRIS record contains a number of subject terms (words or phrases) which are descriptors associated with the document under consideration. Subject terms which are used by the original source of the document (e.g. NTIS, Engineering Index, and so on) appear in this section.

HRIS Terms

If the record is included in the HRIS data base, HRIS subject terms appropriate to the document will be listed in this section.

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(1) Specifically the subject classes appear on line 521A of Fig. 2.2(a).

RRIS Terms

If the record is included in the RRIS data base, RRIS subject terms appropriate to the document will be listed in this section.

TNRIS Terms

If the record is included in the TNRIS data base, TNRIS subject terms appropriate to the document will be listed in this section.

ATRIS Terms

If the record is included in the ATRIS data base, ATRIS subject terms appropriate to the document will be listed in this section.

UMTRIS Terms

If the record is included in the UMTRIS data base, UMTRIS subject terms appropriate to the document will be listed in this section.

MRIS Terms

If the record is included in the MRIS data base, MRIS subject terms appropriate to the document will be listed in this section.

IRRD Terms

If the record is included in the IRRD data base, IRRD subject terms appropriate to the document will be listed in this section.

Abstract

Any abstract supplied in the original TRIS record is included unchanged in the converted record.

Supp. Notes

This section includes any additional information or 'supplementary notes' concerning the source document which is contained in the original TRIS record.

File References

Certain TRIS records contain cross-reference information relating the particular record to other TRIS records or to records in other data bases. Where such information is provided, the message 'File References Available' appears on the converted TRIS record in this section. Details of these references can be obtained from the corresponding original TRIS record.

Bulletin Details

In general, each TRIS record provides an indication of the TRIS Bulletins containing the particular record. Where this indication is provided, the statement 'Bulletin Details Available' appears in the converted TRIS record in this section[1]. Details of the relevant Bulletin can be obtained from the original TRIS records. However reference to particular Bulletins should not usually be necessary since no information additional to that on the COM is available from TRIS Bulletins.

Details of current research

As noted in the previous section, records of on-going research (TRIP records) contain types of information which differ from those contained in records of published documents. These varying types of information are reflected in the corresponding converted TRIS records which comprise a number of sections appropriate specifically to TRIP records. Those sections which are unique to TRIP records are outlined in the following paragraphs. Other sections which are appropriate to published documents may also appear in a TRIP record. These were described above. Each of the following paragraphs is identified by the section identifier used in the COM version of the converted records.

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(1) In some of the early TRIS fiche processed by the BTE this indication does not appear in the converted records. This was a result of earlier processing software limitations which have now been removed.

Perf. Agency

The names and addresses of the main organisations undertaking the research together with subsidiary organisations taking some part in the research are indicated in this section. The information provided for these 'performing agencies' corresponds to similar information provided for publishers in the case of published documents.

Investigator(s)

Names, titles and affiliations of investigators taking part in a research project are indicated in this section. This corresponds to the information on authors provided in TRIS records relating to published documents.

Funding Agency

Names and addresses of organisations which contribute to the funding of the research project are indicated in this section.

Responsibility

Names, titles and affiliations of officers associated with the funding organisations and responsibile for managing the research project are indicated in this section

Activity/Status

An indication of the activity level of the project, and its commencement and completion dates are provided in this section. The status of the project is described by one of the following words:

- Obligated
- Committed
- Proposed
- Programmed
- Active

- Inactive
- Terminated
- Completed

Finance Data

If yearly financial allocations or actual expenditure on the research contract are provided in the original TRIS record, messages to this effect appear in this section of the converted record. These messages indicate whether information is provided for particular five-year periods. For example, if information on annual expenditure/allocation is provided for one or more years between 1976 and 1981 the message '1976-81 Finance Data Included' will appear in the converted record. Reference to the original TRIP record can be made to obtain the details of the financial allocations.

Objectives

As well as (or in place of) an abstract which forms part of TRIS records of published documents, TRIP records may contain more specific information relating to the research project. Part of this specific information may include a statement of the aims and objectives of the research being undertaken. If provided, this statement of objectives appears in this section of the converted record.

Approach/Method

If provided in the original TRIS record, an outline of the methodology applied in carrying out the research project will appear in this section of the converted record.

Progress/Results

Information specific to research projects which is provided in the original record may include a statement of the progress and results achieved to the date of reporting. This information appears in this section of the converted TRIS record.

Citations

If citations are included in the original TRIS record, a message appears in this section of the converted record. This message takes the form 'n Citation(s) Included.', where n is the number of citations included in the original record. Reference to the original TRIS record can be made for details of these citations.

AUTHOR/INVESTIGATOR/SUBJECT INDEX

In order to assist manual information retrieval, some forms of retrieval index is required for convenient reference. The actual TRIS records in the data base are not arranged in any particular order by, for example, author, subject, publication and so on. Hence, manual reference to all of the data base records would be required in order to ensure that a reference on a particular topic was not overlooked. This process would be extremely tedious and, as a result, unacceptable.

The third and final set of COM produced during BTE processing contains a cross-reference list showing references against names of authors of documents or research project investigators, and against subject terms. Figure 2.4 illustrates a section of this cross-reference list. As shown in Fig. 2.4 authors, investigators and subject terms are arranged together in alphabetical order. The type of each index entry is indicated on the COM as follows:

- 'AUTHOR' - for authors of published documents
- 'INVEST' - for investigators engaged on research programs
- 'SOURCE' - for subject terms used by the original source of the document
- 'HRIS' - for subject terms used by HRIS
- 'RRIS' - for subject terms used by RRIS
- 'TNRIS' - for subject terms used by TNRIS
- 'ATRIS' - for subject terms used by ATRIS
- 'UMTRIS' - for subject terms used by UMTRIS
- 'MRIS' - for subject terms used by MRIS
- 'IRRD' - for subject terms used by IRRD

References are specified by title and by BTEIS sequence numbers.

SUBJECT TERM,AUTHOR,INVESTIGATOR	TYPE	TITLE	BIEIS SEQ
LANG, DE	AUTHOR	LINE SOURCE EMISSIONS MODELING (ABRIDGMENT)	0379-0440
LAPLACE TRANSFORMS	HRIS	A STATE VECTOR APPROACH TO THE ONE-DIMENSIONAL CONSOLIDATION OF MULTI-LAYER SOILS	0379-0550
LARSON, HR	AUTHOR	EXPERIMENTAL VERIFICATION OF COMPUTER-PREDICTED TEMPERATURES AND ELASTIC THERMAL STRAINS IN RAILROAD WHEELS	0379-0777
LARSON, TD	AUTHOR	FISCAL PLANNING AND HIGHWAY PROGRAMMING; THE PENNSYLVANIA RESPONSE TO A CHANGING ENVIRONMENT	0379-0896
LASER BEAMS	SOURCE	DESIGN AND DEVELOPMENT OF A HIGHWAY SPEED ROAD PROFILOMETER	0379-0389
		LASER SECONDARY RADAR FOR AUTOMATIC COLLISION AVOIDANCE	0379-0856
LASER SECONDARY RADAR	SOURCE	LASER SECONDARY RADAR FOR AUTOMATIC COLLISION AVOIDANCE	0379-0856
LASERS	RRIS	LASER SECONDARY RADAR FOR AUTOMATIC COLLISION AVOIDANCE	0379-0856
		SURVEY WORK IN THE BUILDING OF THE STUTTGART S-BAHN REVERSING TUNNEL	0379-0713
	HRIS	A DATA RECORDING SYSTEM OF THE PATH OF A TEST VEHICLE BY LASER BEAM AND SOME APPLICATIONS TO STEERING HANDLING TEST	0379-0302
		DESIGN AND DEVELOPMENT OF A HIGHWAY SPEED ROAD PROFILOMETER	0379-0389
LASKOWSKI, M	AUTHOR	OUTLOOK IN THE FIGHT AGAINST RADIO-ELECTRIC INTERFERENCE AT THE PKP	0379-0520
LATERAL DYNAMICS	RRIS	REVIEW AND SUMMARY OF COMPUTER PROGRAMS FOR RAILWAY VEHICLE DYNAMICS	0379-0975
LATERAL FORCES	HRIS	CRITICAL REVIEW OF THE STATE-OF-THE-ART IN THE TIRE FORCE AND MOMENT MEASUREMENTS	0379-0299
		DEVELOPMENT OF A FLAT SURFACE TIRE ROLLING RESISTANCE FACILITY	0379-0305
LATERAL LOADING	RRIS	NETGEN REVISITED: A PROGRAM FOR GENERATING LARGE SCALE (UN)CAPACITATED ASSIGNMENT, TRANSPORTATION, AND MINIMUM COST FLOW NETWORK PROBLEMS	0379-0991
		RAILROAD ACCIDENT REPORT--LOUISVILLE AND NASHVILLE RAILROAD COMPANY FREIGHT TRAIN DERAILMENT AND PUNCTURE OF ANHYDROUS AMMONIA TANK CARS AT PENSACOLA, FLORIDA, NOVEMBER 9, 1977	0379-0999
LATERAL PRESSURE	HRIS	ASSESSMENT OF THE EFFECT ON TRAFFIC ACCIDENTS OF THE LOWERING OF THE LEGAL DRINKING AGE IN ILLINOIS	0379-0039

FIGURE 2.4 - EXAMPLE EXTRACT FROM THE CROSS-REFERENCE LIST

Where a particular index entry of a given type relates to a number of references, the references are grouped together under a common entry and type. Sometimes, a particular subject term may be common to a number of data bases. References from the various data bases using the common subject term are grouped under their respective data base types. For example, in Fig. 2.4 the subject term 'LASERS' is used by both RRIS and HRIS data bases. Two references from each of these data bases having 'LASERS' as a subject term are organised in the cross-reference list as shown.

Finally, the COM index at the right-hand bottom of each fiche gives a key to the first index entry on each frame, facilitating rapid index entry reference.

CHAPTER 3 - CONCLUDING REMARKS

In examining the available literature indexes specialising in transport research and management, the BTE determined that the selection of data bases offered by the TRB in the United States offered the most comprehensive coverage of the field. In particular (although rail and road transport formed the major components of the overall TRIS data base) development of an air transport data base was also in progress and literature of a multimodal nature related to urban mass transit and transport noise was also covered. Research-in-progress was covered in a comprehensive fashion, resulting in an up-to-date indication of current research being conducted in the United States. For these and other reasons, the BTE selected the TRIS data base for an evaluation aimed at assessing its potential usefulness to Australian workers in transport research. An assessment of this data base in terms of its application in computerised retrieval is currently being undertaken.

In designing an information retrieval service using a particular data base, it is often necessary to prepare that data base for processing by an information retrieval system. This preparation can involve rearrangement of the information contained in the original form of the data base to produce a retrieval output which can be readily interpreted. It can also involve omission of codes and other information which is generally irrelevant for purposes associated with local retrieval. The TRIS data base is subject to these forms of preparation. For each update to the data base it is convenient to produce various outputs on COM as an adjunct to this preliminary processing. This Paper has described the COM outputs produced during processing of the TRIS data base by the BTE.

Three forms of COM output have been described in detail. The first form of output contains the original data base format, with only minor format modifications and addition of some annotation. It is intended that reference to this output should only be necessary in exceptional cases.

The second and main form of COM output contains the TRIS records converted from their original format to a format which is more easily interpreted. This format permits convenient referencing, by containing detailed annotation with a minimum of coded or other information which is not generally relevant in the Australian context. This format is also intended to be the basic format on which computerised retrieval would be carried out.

The final COM output takes the form of a cross-reference between the titles and BTE sequence numbers of particular references and authors, investigators and subject terms. The BTE sequence numbers used permit easy reference to the appropriate fiche for bibliographic details of relevant publications.

Under existing plans, updates to the TRIS data base will be obtained in machine-readable form every two months from the TRB. As each set of updates is received, it will be processed by the BTE to produce a computer file which is suitable for searching as part of a service providing Selective Dissemination of Information (SDI)[1]. During processing of each two-monthly update by the BTE, a set of COM conforming to the formats described in this Paper will also be produced for distribution to appropriate organisations wishing to receive them.

A twelve-monthly accumulation of the author/investigator/subject term index is also produced, permitting convenient unified reference to any of the publications contained on the individual fiche covering the two-monthly updates.

Taken as a whole, these COM outputs can form the basis for assisting in preparation for computerised retrieval. With the aid of the cross-reference list they can also be used for manual referencing in their own right.

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(1) The provision of SDI services based on the TRIS data base is currently under investigation.

APPENDIX I

SUMMARY OF TRIS RECORDS

This appendix gives details of the general types of information contained in the original TRIS records and the manner in which this information is re-organised in the converted records. The material included here is not intended to present a highly detailed description of the TRIS information, since this is not generally required by users of the data base. A later publication will provide more detailed information on the structure of the data base and the computerised retrieval system associated with it.

Table I.1 summarises the general content of TRIS records in terms of the major informational groups which they contain. These groups are identified on the original records by groups of TRIS codes which commence each line of a record. The first code of each group is shown in Table I.1. The structure of the converted TRIS records is also illustrated in Table I.1. Various sections of the converted records (and their identification) are shown, together with their relationship to the original records.

Table I.1 can be used to assist in obtaining information where such information is not itself contained in the converted record but where its presence in the original record is noted in the converted record. For example, price details are not contained in converted records. Instead, if these details are given in the original record, a message 'Price Details Available' is given in the original record, a message 'Price Details Available' is given in the converted record in the section headed 'Availability'. Table I.1 shows that information in this section commences with TRIS code group 341 in the original record. Publication price details can be found below the first line containing this code group on the original record.

TABLE I.1 - RELATIONSHIP BETWEEN ORIGINAL AND CONVERTED TRIS RECORDS[a]

TRIS Code Group[b]	General Description of Content	New PCG[b]	Converted Record Section Headings
111	Identification and Accession Information	100 110 - 120 130	General ID ..... Sequence No(s) ..... TRIS Details ..... Record Details .....
121 -	Record source information	140 -	Source Details .....
211	English language title	200	Title (English) .....
212	Foreign language title	210	Title (Original) .....
311 -	Details of publisher/corporate author(s)	300 -	Pub. Details .....
321 -	Details of publication(s)	310 -	Doc. Details .....
331 -	Details of author(s)	320 -	Author(s) .....
341 -	Available source(s) of document	330 -	Availability .....
411 - [c]	Agencies carrying out research project	400 -	Perf. Agency .....
421 - [c]	Details of investigator(s) carrying out research project	410 -	Investigator(s) .....
431 - [c]	Details of funding agencies for research project	420 -	Funding Agency .....
441 - [c]	Details of research project managers	430 -	Responsibility .....
451 - [c]	Contractual and activity details for research projects	440	Activity/Status .....
452	Contract details relevant to published material	450[c]	Contract Data .....
461 - [c]	Details of funds allocated to research project	460[c]	Finance Data .....
511 -	Data base subject classes appropriate to reference	500[c]	Subject Classes.....

TABLE I.1 (CONT.) - RELATIONSHIP BETWEEN ORIGINAL AND CONVERTED TRIS RECORDS[a]

TRIS Code Group[b]	General Description of Content	New PCG[b]	Converted Record Section Headings
621	Subject terms used by reference source	600	Source Terms .....
631	Subject terms used by MRIS	610	MRIS Terms .....
641	Subject terms used by TNRIS	620	TNRIS Terms .....
651	Subject terms used by RRIS	630	RRIS Terms .....
661	Subject terms used by ATRIS	640	ATRIS Terms .....
671	Subject terms used by HRIS	650	HRIS Terms .....
681	Subject terms used by IRRD	660	IRRD Terms .....
691	Subject terms used by UMTRIS	670	UMTRIS Terms .....
771 -	Abstract of published document or research project	700	Abstract .....
721 - [c]	Objectives and scope of research project	710	Objectives .....
731 - [c]	Approach method used in research project	720	Approach/Method .....
741 - [c]	Progress or results of research project	730	Progress/Result .....
751 -	Supplementary notes on research project or published document	740	Supp. Notes .....
811 - [c]	Citations to other work related to research project	800[d]	Citations .....
911	TRIS file reference information	900[d]	File References .....
921	TRIS bulletin publication dates	910[d]	Bulletin Details .....

(a) 'Original record' refers to a TRIS record as received from the TRB. 'Converted record' refers to the TRIS record after processing by the BTE to improve the format for manual and computerised retrieval.

(b) The code shown represents the first code in each code group. Where a code is not followed by '-' only that single code is used. Where '-' follows the code a group of codes is implied, the actual number of codes used being dependent on the amount of information available for a particular aspect.

(c) These codes and corresponding information are normally only relevant to records relating to current research (TRIP records).

(d) The actual information is not included on the converted record. Instead, a reference is made to the corresponding original TRIS record, from which the required information can be determined.

ABBREVIATIONS

ACC	Information contained on a line of the original TRIS record is accepted for the converted record
ARI	Australian Road Index
ATRIS	Air Transportation Research Information Service
BTE	Bureau of Transport Economics
BTEIS	BTE Information Service
COM	Computer Output Microfiche
DOTTR	(U.S.) Department of Transport Technical Report
HRIS	Highway Research Information Service
ID-GROUP	Identification Group Number
IND	The presence of information on a line of the original TRIS record is indicated in the converted record
IRF	International Roads Federation
IRRD	International Road Research Documentation
MRIS	Maritime Research Information Services
PCG	Print Control Group
RRIS	Railroad Research Information Service
REJ	Information contained on a line of the original TRIS record is rejected (i.e. not included in the converted record)
SDI	Selective Dissemination of Information
S&T	Science and Technology
S/NO	Sequence Number
TFM	Information contained on a line of the original TRIS record is transformed in the converted record
TNRIS	Transportation Noise Research Information Service
TRB	Transportation Research Board (U.S.)

TRIP	Transportation Research-in-Progress
TRIS	Tranpsortation Research Information Service
UMTRIS	Urban Mass Transit Research Information Service