INSTALLATION AND IMPLEMENTATION OF THE UNIFORM RAIL COSTING SYSTEM

by

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UGPTI Staff Paper No. 92

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INTRODUCTION

This report documents the installation and implementation of the Uniform Rail Costing System (URCS) at the Upper Great Plains Transportation Institute (UGPTI). The URCS program is an extensive array of procedures designed to provide cost estimates of railroad activity. Developed in response to changes in the regulatory and accounting climate, URCS will transform railroad expense and activity data into unit costs applicable to specific railroad movement. This new costing system replaces the long-used Rail Form A with an improved ability to provide the basic costing information necessary for effective railroad cost analysis, and, by using enhanced accounting procedures and updated variable cost studies, URCS will soon become the industry standard.

URCS is a significant addition to the UGPTI Rail Costing Program and will be incorportated into several existing and proposed research projects and developments. Ongoing analysis of rail costing important to various state agencies and commodity shippers will be enhanced as URCS provides the most current and relevant costing data. Regulatory agencies, such as the Public Service Commission, will be particularly interested in receiving URCS costing data as URCS replaces Rail Form A. Research projects, including proposed waybill and rail network costing

models, will use URCS as a costing foundation which may be modified to meet the requirements of the project. As URCS becomes the standard in Rail Costing the UGPTI will participate in the most recent modifications in rail costing analysis.

URCS is partitioned into three separate but interrelated phases (figure 1). Phase I is the development of the annual URCS data base by the Interstate Commerce Commission (ICC). This data base is assembled from the yearly railroad reports to the ICC and is released to URCS users after cost and regression relationships have been established among the data elements.

Phase II is the first phase in which the URCS user actively participates. This computerized section of URCS calculates the unit costs necessary to cost any specific user defined rail activity. It produces a series of worktables (figure 2) containing the output unit costs as well as the input data base. Several data files used for special URCS processing are created and the Phase III input data file, ETBL.DAT, is produced.

The final part of URCS, Phase III, takes the unit costs established by Phase II and applies them to a particular rail movement. The output of this phase provides the analyst with a cost estimate of a user defined rail activity and concludes the URCS process. Phase III processing completes the installation and implementation of URCS.

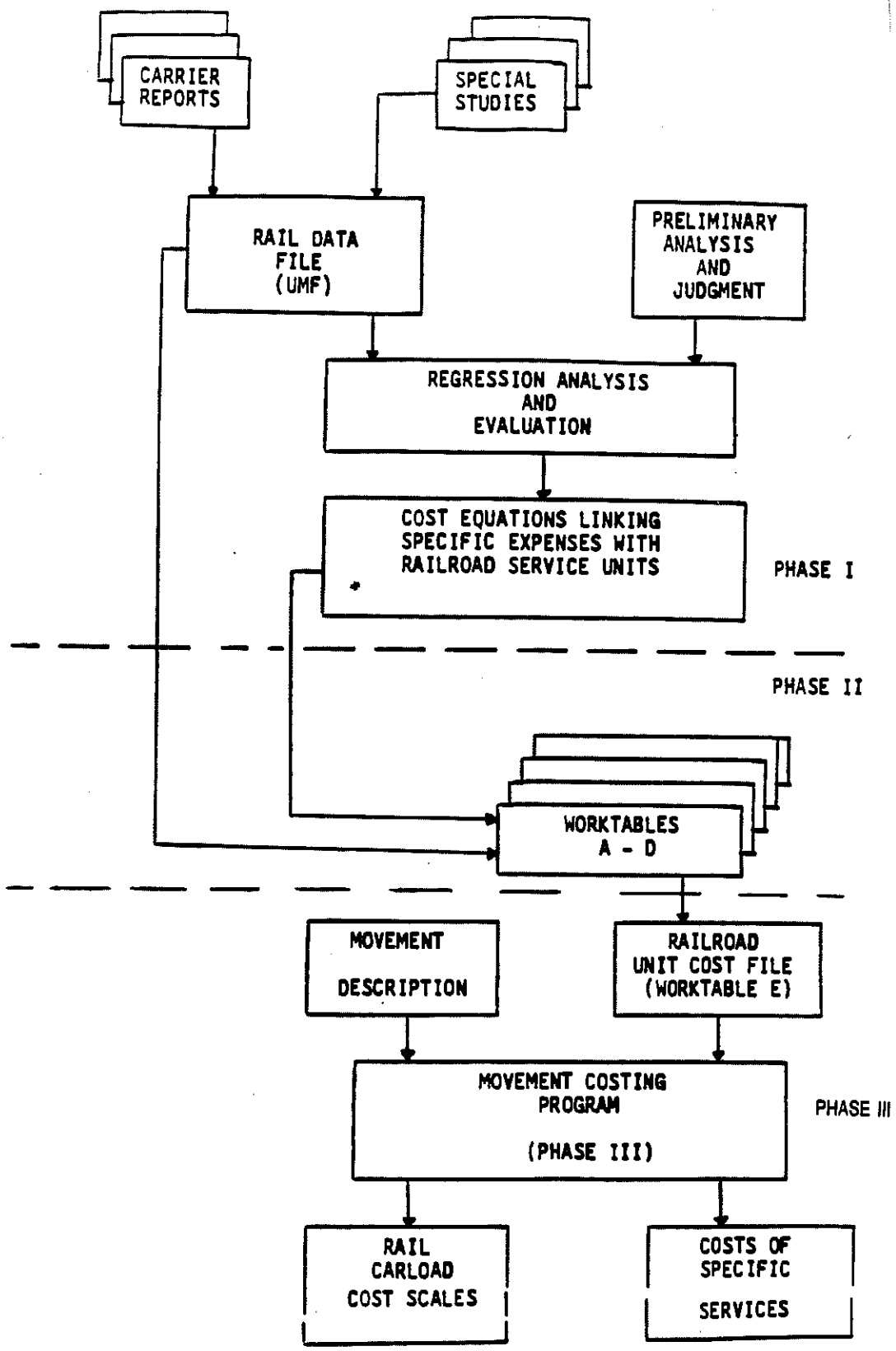

FIGURE 1. URCS Overview

Source: URCS Phase II Users Manual, Interstate Commerce Commission, 1982.

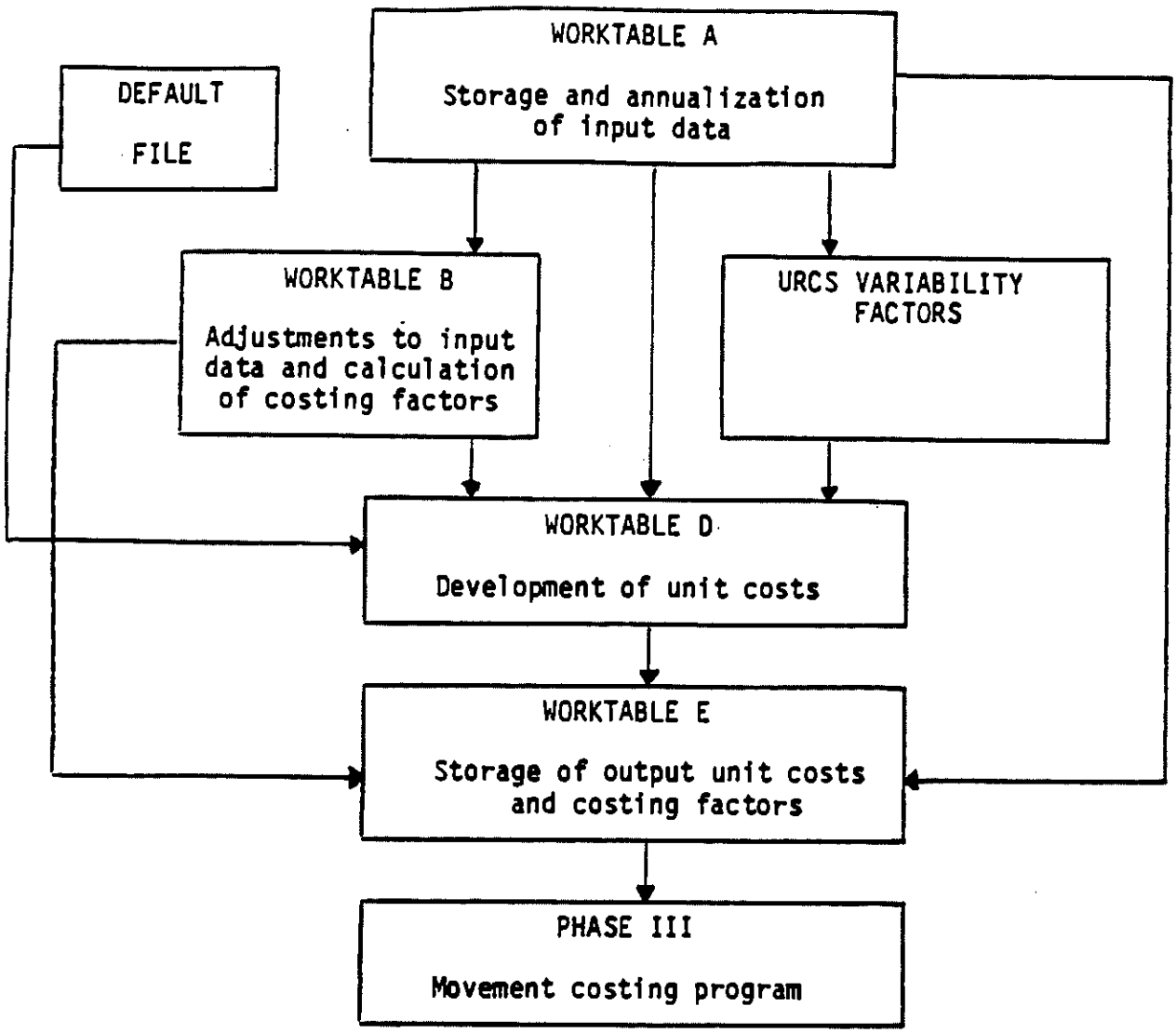

FIGURE 2. URCS Worktable Functions

Source: URCS Phase II Users Manual, Interstate Commerce Commission, 1982.

INSTALLATION

System Selection

The UGPTI had two timsharing systems (CMS and TSO/E) available to it on two different operating systems (VM and MVS/XA). The decision was made to compile URCS under VM/CMS as it involved fewer steps and less JCL; and, in contrast to TSO/E, had no charge for disk space. CMS also has diagnostic messages that are easier to understand, and is a system more familiar to more users and computer installations. Previous UGPTI compilation problems had been on VSPC on TSO/E and it was thought that CMS would provide a better environment to alleviate the difficulties encountered on TSO/E. MVS did see use in processing the JCL batch control files.

Physical Characteristics

The Interstate Commerce Commission released URCS and the URCS data base on three 1600 BPI, 9 track, EBCDIC unlabeled multi-file tapes. Phase II is found on UGPTI tape USR526 and Phase III resides on USRPH3. The 1981 URCS data base is UGPTI tape USR525 and was used for installing URCS. These tapes are stored in the tape library at the North Dakota State University Computer Center located in the EEE building on campus and are

backups to the master tapes located in the offices of the UGPTI (Appendix A). The UGPTI received the IBM version of URCS to run on North Dakota State University's (NDSU) IBM 3081-D32 machine in a VM/CMS environment.

The Phase II tape (USR526) contains 271 files with a record length of 80 and a blocking factor of 400 (blocksize equals 32000). Appendix B has a complete description of all Phase II files (Appendix A). The UGPTI received the IBM version of URCS to run filenames and positions on the tape. The first file on the tape, PROGRM.CAT, is a listing of all the tape files and includes comments indicating a file's function within URCS (Appendix C). Files numbered 4 through 31 are not active files on the IBM version but have been included in this release to help document the other active IBM version files. The remaining files are Fortran main or subroutine files used in Phase II.

The Phase III tape (USRPH3) has 108 files of which 97 are Fortran routines and 11 are data files (Appendix D). All the files have a blocksize of 1040 and all but the last two have a record length of 80. The last two data files have a record length of 130. The Fortran files are named in alphabetical order excepting the last two (96 and 97) which are files containing CMS commands for batch processing. The data files hold text information for producing the Phase III output report and

Worktable E unit costs for the six ICC railroad regions. The last data file is a test file for calibrating the Phase III testing process.

The 1981 URCS data base tape (USR525) consists of 11 files of varying record lengths and blocking factors (Appendix E). The first 9 files are raw data files for use in Phase II while the last two files are used to calibrate and test a Phase II run. This tape will be annually updated by the ICC and the most current UGPTI URCS data base tape is 1985.

The disk storage space for these large tape files required the use of approximately 37 cylinders of a 3380 disk device. With careful file management and the use of a CMS readerlist, this amount of space is sufficient to install and run URCS. However, during the processing of the raw data files into the form necessary for URCS, temporary disk space may be desirable and can be obtained using the CMS command G091 XX where XX is the amount of temporary space requested in cylinders (50 is suggested). If temporary space is used, it is recommended that the disk access commands reflect the temporary space as the primary filelist (A), and that special attention be paid to the filemodes of all files to avoid errant file processing. In addition to the disk space, an increased virtual storage space was required in order to read the larger files from the CMS

filelist. The NDSU Computer Center increased the allowable virtual storage to 7M (from 3M) and the CMS command DEFINE STORAGE 7M implemented this change. UGPTI will maintain URCS on active disk storage as URCS is used, supported, and expanded by both the ICC and the UGPTI.

Tape to Disk Conversion

Before compilation, the tape files were moved to disk by use of the JCL batch control file shown in figure 3. The record length and blocksize JCL parameters must match those as listed for each file in Appendices B and D. After JCL batch processing, the tape files are returned to the user's readerlist and must be moved to the appropriate user filelist. In the filelist each file must have its record length set to the right value (see file description or FILEDEFs) and be named appropriately. The files are then ready for compilation.

Compilation

Previous UGPTI compilation experience, as well as the sheer volume of the files to be compiled and the projected continuous use of URCS, dictated the compilation strategy. It was decided to compile each Fortran routine interactively to allow for the close monitoring of each routine's compilation in an effort to

TAPE TO DISK FILE MOVEMENT

```
//GETTAPFL JOB (8000042,LK07),'TRANS.INST.',CLASS=F,TIME=1
//* returns a file from a non-labeled tape
//* WATCH CLASS!!!
//* class = D if two jobs submitted one after the other from same tape
//* need to set file number,vol=ser number,recfm,lrecl, and
//* blocksize parameters
//  EXEC COPY,SYSA=L,SYSO=A
//SYSUT1 DD LABEL=(95,NL),VOL=SER=USRPH3,UNIT=TAPE,DISP=(OLD,KEEP),
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=1040)
//SYSUT2 DD SYSOUT=C
//
```

TAPE BACKUP

```
//COPYTAPE JOB (8000042,LK07),'TRANS.INT.',CLASS=D,TIME=5
//*  copy tape to backup(at least for non-labeled tape)
//*  check all parameters
//STEP1   EXEC MSG
             PLEASE MOUNT TAPE U07203 ROUT AND URCS86 RIN
//STEP2  EXEC SAS
//VOLIN  DD  UNIT=TAPE62,DISP=OLD,VOL=SER=U07203,LABEL=(,BLP)
//VOLOUT DD  UNIT=TAPE62,DISP=(,PASS),VOL=SER=URCS86,LABEL=(,BLP)
  PROC TAPECOPY NOLIST;
//
```

PRINT TAPE FILE

```
//PRINTJCL JOB (8000042,LK07),'TRANS.INST.',CLASS=F,TIME=1
//* access file on tape(non-labeled) and print it out
/*ROUTE PRINT NFLC1
//  EXEC TAPEMSG
               PLEASE MOUNT TAPE USR526 ROUT
//  EXEC COPY,SYSA=L,SYSO=A
//SYSUT1 DD LABEL=(179,NL),VOL=SER=USR526,UNIT=TAPE,DISP=(OLD,KEEP),
//          DCB=(RECFM=FB,LRECL=80,BLKSIZE=32000)
//SYSUT2 DD SYSOUT=C,DCB=BLKSIZE=80
/*ROUTE PRINT NDSUVM1.UD020010
//
```

TAPE CHECK (NON-LABELED)

```
//TAPNOCHK JOB (8000042,LK07),'TRANS.INST.',CLASS=F,TIME=1
//*   non-labeled tape check
//*   need to change tape volume number
//*ROUTE PRINT NFLC1
//* EXEC TAPEMSG
//*             PLEASE MOUNT TAPE URCS86  RING OUT
//  EXEC TAPECHEK,VI=URCS86
```

FIGURE 3. JCL Batch Control Files

alleviate previous UGPTI compilation problems. The large number of files suggested the use of the CMS text library resource to save disk space while the prospect of continual URCS use necessitated the allocation of 37 cylinders of disk space.

Each Fortran routine was compiled using the VS Fortran compiler available on VM/CMS with the CMS command and compiler option FVS / (LANGLVL(66). The compiler option (LANGLVL(66) reflected the FORTRAN 66 language standards used in writing the URCS Fortran program code. The VS Fortran environment is reached by the CMS command S-FVS and must be used before the compile command. The routines were grouped into sets of ten to speed the compilation process.

One of the routines (B7P8) was compiled with an additional compiler option, OPT(2). The complete command to compile this routine was then FVS / (LANGLVL(66) OPT(2). Without the OPT(2) compiler option, the table/msg storage internal to the Fortran compiler was insufficient to compile this routine. During compilation the compiler issued an informational message stating that subscript optimization of one block or loop was curtailed due to table overflow and that full text optimization would resume with the next block or loop. Subscript optimization cessation for any table overflow will not halt compilation and the routine will be compiled if no other problems exist. With

the OPT(2) option, the routine compiled successfully as this level of code optimization satisfied the space requirements of the compiler's internal table/msgs.

The compiled subroutines were inserted into a CMS text library by using the CMS command TXTLIB ADD <library name> <filename>. This command places a compressed copy of the subroutine's text file (the compiled source code) into the named text library and reduces the amount of needed disk space. The Phase II subroutines were added to the URCS text library while the Phase III subroutines were placed in the URCSIII text library. The compiled main routines were left separately on disk to improve the program performance level. After compilation all Fortran, listing, and subroutine text disk files were erased or inserted into a text library.

A complete listing of all compiler messages and the affected routines may be found in Appendix F. These messages were not significant to the successful completion of the compilation process. Figure 4 diagrams the compilation process from the initial tape to disk conversion to the final disk storage.

Code and Data Changes

Fortran Routine Code Changes

The following Fortran routines have had code changes, additions, or alterations. Any changes are described and are also shown on the hardcopies of the routines. A list of the hardcopies available at the UGPTI is in appendix G.

Data Exceptions

Two types of data exceptions were found in the initial URCS runs. Floating point underflow and overflow exceptions appeared in several subroutines and were traced to their origins. Analysis of data flow and computation, as well as comparison with ICC supplied worktables, demonstrated that these exceptions were insignificant and did not affect data integrity.

The overflow exception occurred in similar source code in these routines when the array element Outmat(Imatln,8) was assigned the value of a floating point division. When the denominator was zero and the numerator non-zero, Outmat(Imatln,8) was assigned the highest correct precision floating point number represented by the computer(.72E+76). Any result of later calculations involving this large number was too large for the

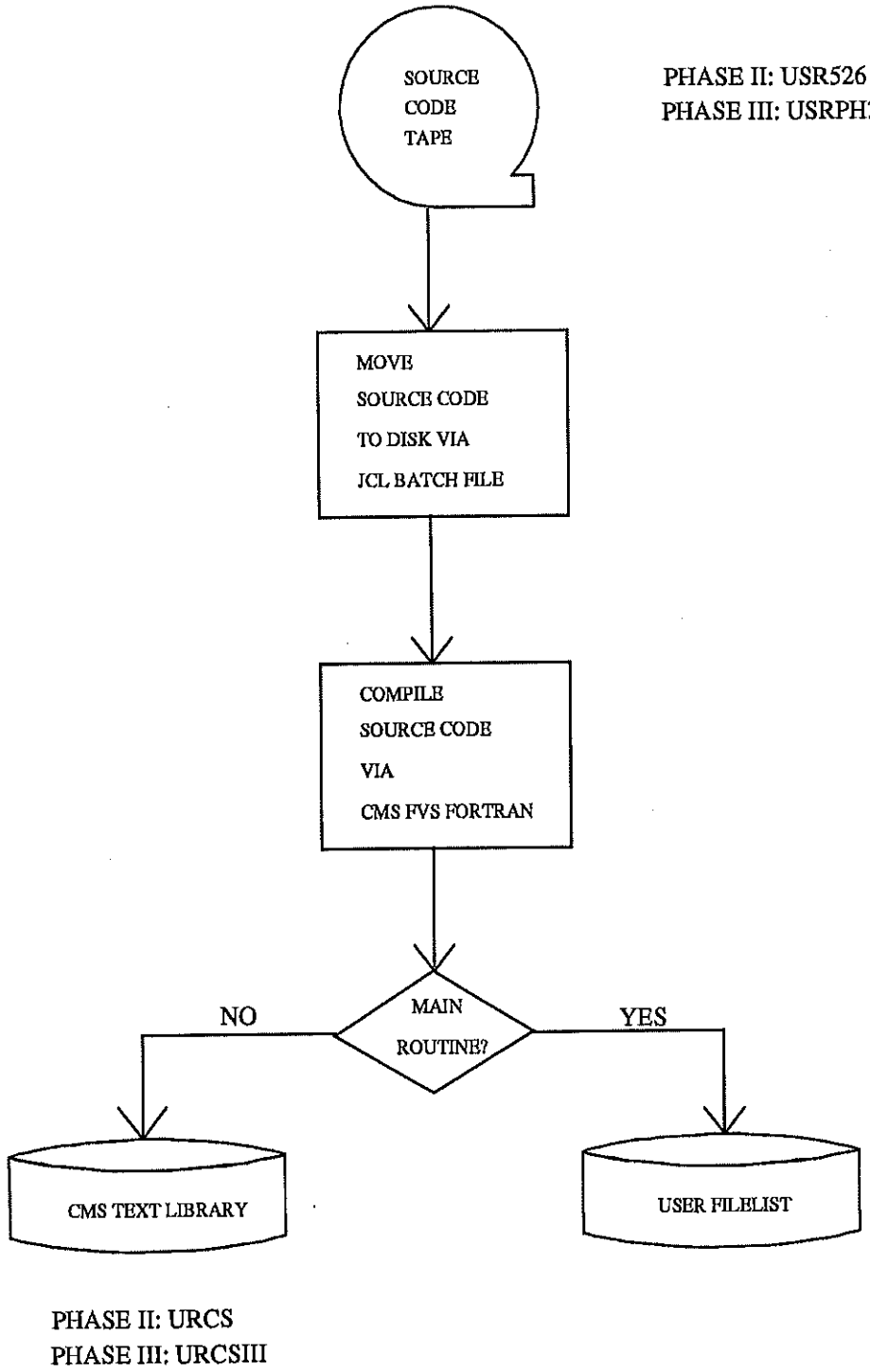

Figure 4. URCS Compilation

computer and a data exception occurred. In URC310 (the print routine for these subroutines), any absolute value greater than 1.0E+37 is reduced to zero which effectively delimits the allowable range of numbers. Any numbers of magnitude greater than 1.0E+37 should not be significant to the URCS process. The source code in URC310 controlling a number's magnitude has been inserted into the affected subroutines right after the division operation causing the large number. This code was written in lower case to distinguish it from the upper case ICC source code and has been marked on the hardcopies of these routines.

The following routines have the line of code inserted to handle these data exceptions (D7P1 contains an explanation of the change). The inserted code is:

```
IF(ABS(OUTMAT(IMATLN,8)).GT.1.0E+37)OUTMAT(IMATLN,8)=0.0
```

The affected routines are:

B6P3.FOR
D7P1.FOR
D7P7B.FOR
D7P8.FOR
D7P9.FOR
D7P10.FOR
D7P11.FOR
D8P7A.FOR
D8P7B.FOR

The underflow exception occurred in B6P2E during the calculation of columns 29, 31, 32, and 33. The multiplication of two numbers producing a result less than 5.4×10^{-79} caused the exception. In such a situation, the result register is set to

true zero. The magnitude of these numbers is beyond any significance to URCS and a result of zero is acceptable. A comparison of similar data with ICC worktables indicated data integrity was maintained and, consequently, no major change was made to the routine.

Date System Call Changes

The IBM system call for dating a process was changed from CALL DATE to CALL DATIMX. Any accompanying format statements for writing the date were updated.

The affected routines are:

PROCES.FOR
PTRWTF.FOR
WTFDTL.FOR

Other Changes

FILEDEF.FOR

The 7 in line 33 was changed to 47 in order to process all the individual railroads as well as the original 7 railroad regions. This change was necessary because the ICC released this routine to handle all individual railroads as regional entities. A Phase III run for an individual carrier would have defaulted to regional values instead of processing it with the carrier's unit costs.

PHSEII.FOR

Two calls to the IBM system utility ERRSET were added as suggested by the errata sheet 4-85 found in the URCS Phase II User manual. These were inserted after the call to URC304 and are used to suppress error messages for errors 203 and 209 (non-significant division by zero and integer overflow errors). The ICC recommended the two calls as follows:

```
CALL ERRSET(203,256,-1,1)
CALL ERRSET(209,256,-1,1)
```

PINBD.FOR

The array RRGNOS was orginally initialized by the ICC supplied code to process each railroad using the default regional Worktable E. In order to execute individual carrier cost analysis, RRGNOS was assigned the numbers 1 to 47 to reflect forty individual carriers and seven regions. Each element of RRGNOS (railroad numbers) corresponds with each element of the array RRRGS (railroad abbreviations).

PROCES.FOR

The text string 'or hit spacebar' was added to several user prompts to prevent a program crash after the end of a record is reached when only a return is entered during a variable read. Entering a spacebar will correctly end the program prompt.

PRTWTF.FOR

The array TVCOST was reinitialized before its use in the DO 220 loop. The array was not entering this loop in initialized condition and erroneous values were being returned to the report printout.

TTYIN.FOR

Several lines were uncommented and opened up to active processing. This allowed the reading of the first Worktable E in a Phase III job stream. A call to RDVETB was inserted to do the actual reading of the Worktable E and made the call to RTVFIL unnecessary. The RTVFIL call was removed.

There is code in this routine to ask the user for the correct Worktable E to use with the job parameters. The program and system environment is set up to default to the proper Worktable E provided it has been created by a Phase II run and is resident on disk under the naming conventions found on page 33 of the URCS Phase II User Manual documentation. To process any other Worktable E, the code prompting the user for the Worktable E name must be uncommented and activated.

A change was made to the format statement asking the user whether additional regions or carriers were to be processed. The

word 'ANOTHER' was inserted to better reflect the entry of user parameters.

The variable name XCRIC was erroneous at ISN 110 and was corrected to XCIRC.

WTFDTL.FOR

This routine was not accessing the correct data file (WTFDTL.URCSDATA) because the variable TMPUI was not assigned the proper value of 21. The correct assignment to 21 (from the incoming value of 20) was hardcoded into the beginning of the routine. TMPUI was reassigned the value 20 at the end of the routine prior to returning to the calling procedure.

URC400.FOR

The 8 found on lines 210 and 261 was replaced with a 12 in order that URCS account numbers 12 columns wide could be used by the program.

URC847.FOR

The variable IEND was modified in line 66 to allow for the processing of 12 column URCS account numbers. The corresponding read and write statements were also changed. This alteration made possible the complete use of several program features and, as

such, may be monitored for future revision to any account number search procedure. The affected procedures include those that process BVAR.RAA and OVRRDE.DAT.

URC891.FOR

The variable name DFOPN in the IF statement at ISN 34 is an error and was altered to the correct name DEFOPN.

URC893.FOR

A syntax error at ISN 11 was corrected by removing the extraneous semicolon.

Data File Changes

OVRRDE.DAT

The runtime data override file organization should reflect these revised formats.

Position 1 - 12	left justified, Account id number
Position 13	year index
Position 14 - 23	right justified, numeric value to insert
Position 24 - 80	optional user comments

WTFDTL.URCSDATA

Several lines of this data file spilled over from the previous line and had to be altered. The old hardcopy listing of the data file shows the corrections.

System Configuration

Global Links

The CMS global command was used to establish all the necessary connections between the various text, CMS, and Fortran subroutine libraries. These connections identify which libraries are to be searched when processing subsequent CMS commands controlling program execution. The libraries were accessed and linked by the use of the CMS global command GLOBAL TXTLIB and GLOBAL LOADLIB followed by the library names. These were inserted into the EXEC files used during user logon and URCS program execution to insure continual proper access. Appendix H contains the CMS commands used and the EXECs are in Appendix I.

CMS FILEDEFs

Tape file number three on the Phase II tape (USR526) and tape files numbers ninety-six and ninety-seven on the Phase III tape (USRPH3) contain the requisite CMS FILEDEFs for file input and output operations during program execution. These

definitions were inserted into the EXEC files to assure the FILEDEFs were activated for each URCS run. Minor changes were made to correspond to CMS EXEC file syntax. The EXEC file DEFILE EXEC B contains all the Phase II FILEDEFs; and EXEC file DEFPH3 EXEC B holds the Phase III FILEDEFs. DEFPH3 has two FILEDEFs for unit number 05 that can be activated depending upon what type of Phase III run is executed. The default setting is for a PHSE3 run but can easily be changed to execute a MODER Phase III program by following the comments inside DEFPH3. Appendix I illustrates the EXEC's with FILEDEFs. In addition, any Worktable E data file used in Phase III must be defined using the FILEDEF command with the unit name and number as found on page thirty-three of the URCS Phase II User manual.

URCSYS.DAT

URCSYS.DAT is the parameter file for setting up the various system information and Fortran unit assignments. Record formats two and three (lines eleven and twelve) contain the current data year (characters four and five) and must correspond to each annual data base update. Record format five (line fourteen) indicates the runtime data base record count and must be changed to the current year value. The 1985 value is 2724. If it is unknown, running PHSEII will give an error message indicating the

current year value. An explanation of the values in URCSYS.DAT can be found in the comments in URC801.

Data Files

The nine data files originally released by the ICC must be processed before they can be used by Phase II (see figure 5). The main routine, URCINT, transforms these raw data files into random access and random access binary files for increased Phase II efficiency. After the processed files have been completed, the original data files should be erased from the user's disk space. Figure 6 provides an illustration of a successful URCINT execution. A subsequent annual data update (1985) had only five data files as the files URCDEF, INDVAR, and REGR were to be used as originally released on the 1981 data base tape.

EXEC Files

Several EXEC files were set up to facilitate the use of the program. These EXECs contain all the required FILEDEFs for the files used, and all the CMS commands to link, access, and process the necessary subroutine libraries. One EXEC file was created to allow the user to submit either of the time-consuming runs, PHSEII or STDAT, to VMBATCH. This EXEC sends the program run to

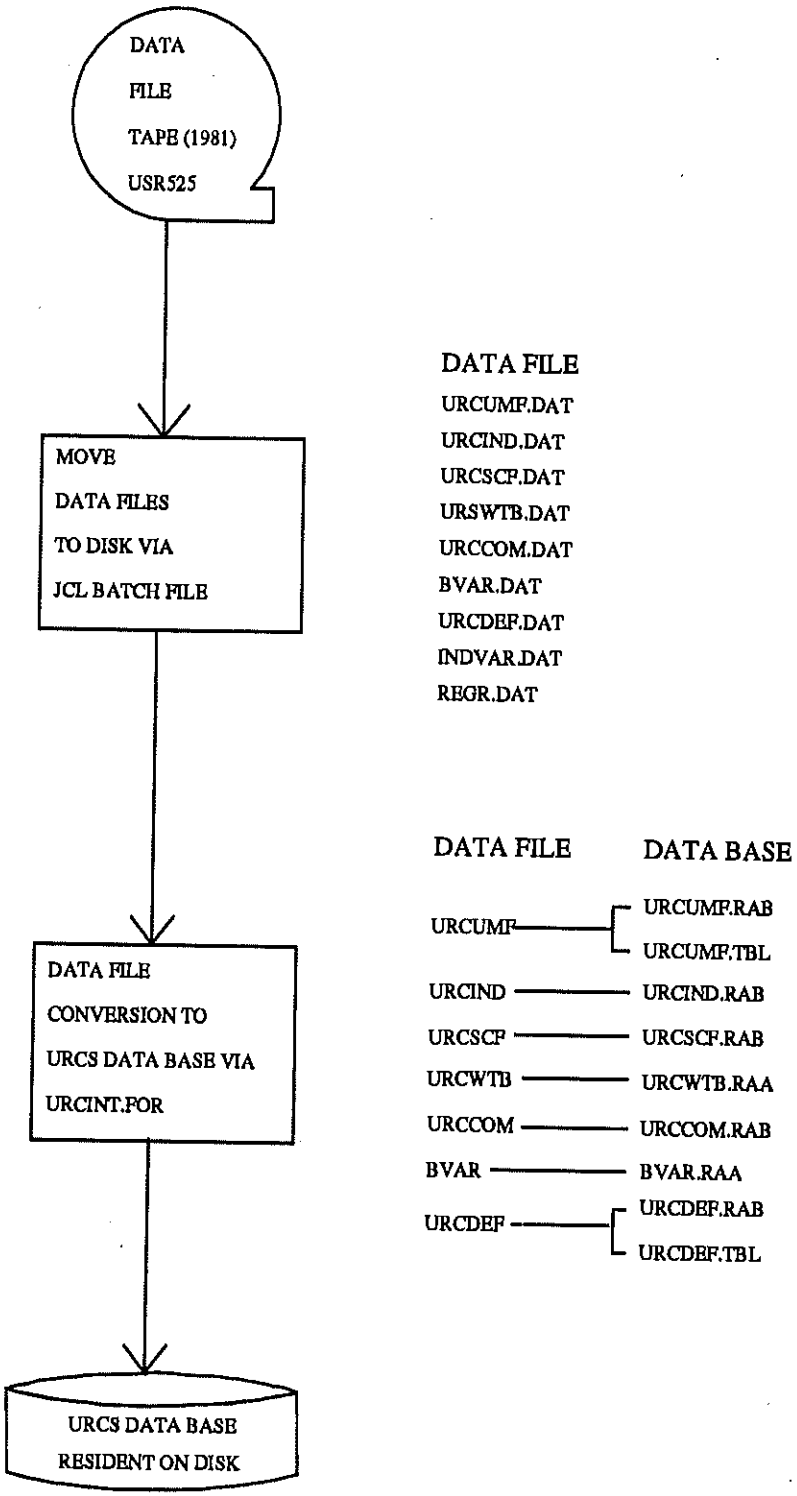

Figure 5. Data File Conversion and Initialization

```
RUN URCINT


 DO YOU WANT TO LOAD URCUMF.RAB? (Y OR N) - Y
 DO YOU WANT TO LOAD URCIND.RAB? (Y OR N) - Y
 DO YOU WANT TO LOAD URC3CF.RAB? (Y OR N) - Y
 DO YOU WANT TO LOAD URCWTB.RAA? (Y OR N) - Y
 DO YOU WANT TO LOAD URCCOM.RAB? (Y OR N) - Y
 DO YOU WANT TO LOAD BVAR.RAA (Y OR N)
 (PHASE II DEPENDENT VARIABLE DEFINITION FILE - Y
 DO YOU WANT TO LOAD URCDEF.RAB? (Y OR N) - Y
WROTE  56652 RECORDS FOR FILE: URCUMF.RAB

WROTE     46 RECORDS FOR FILE: URCUMF.TBL

WROTE   1927 RECORDS TO FILE: URCDEF.RAB

WROTE     41 RECORDS TO FILE: URCDEF.TBL


INDEXS HAVE BEEN ENTERED IN THE FILE
URCIND.RAB FOR EACH OF THE FOLLOWING OWNERS:

42 43 44 45 46 47 49

THE URCIND.DAT FILE CONTAINS 30 INDICES FOR
EACH OWNER.
WROTE    210 RECORDS TO FILE: URCIND.RAB

WROTE     49 RECORDS TO FILE: URC3CF.RAB

WROTE  19873 RECORDS FOR FILE: URCWTB.RAA

WROTE    219 RECORDS TO FILE: URCCOM.RAB

WROTE    566 RECORDS TO FILE: BVAR.RAA

CPU time 8:55.33   Elapsed time 16:46.31
```

FIGURE 6. Initialization of URCS Data Bases

Source: URCS Phase II Users Manual, Interstate Commerce Commission, 1982

VMBATCH via another EXEC file containing all the necessary runtime parameters. VMBATCH will run the job on its own machine freeing up the user's machine and permitting manipulation of files not used in either of these two runs. Appendix I contains a complete listing of the UGPTI EXEC files used in processing URCS.

Testing

The URCS Phase II User Manual illustrates a test run to calibrate the URCS installation. A test run was completed and compared successfully with the test calibration file (CLBR.PRT). The ICC also produced Soo Line worktables from the 1985 data base which compared successfully with a similar UGPTI run. Any minor difference in the rightmost digit of comparable ICC and UGPTI numbers is not significant and is explained by the different computer architectures of the developing and implementing systems (DEC vs IBM). Tests of the default file modification, statistical interfaces, and random access text conversion were successful.

Phase III was tested and calibrated with the example in the ICC's PHASE III Movement Costing Program Technical Manual. This was also a successful test. The testing process is ongoing as the UGPTI will closely monitor URCS on a continual basis.

IMPLEMENTATION

URCS was implemented by the Phase II processing of all the Class I railroads and ICC regions using 1985 data. A listing of these runs and their job parameters is found in Appendix J. These runs were made via VMBATCH and all completed successfully producing Worktable E Phase III input files and Worktable A-E print files. The Worktable E's were renamed using the ICC conventions found on page thirty-three of the URCS Phase II User Manual and are stored on disk (see Appendix K). The Worktable A-E printouts were printed using the print file's built-in fortran carriage controls and are on file at the UGPTI.

The Phase III costing process has been calibrated and will become an integral part of UGPTI costing analysis. It is anticipated that Phase III costing will be vital to proposed line-segment, waybill, and other projects at the UGPTI.

MAINTENANCE AND EVOLUTION

The maintenance of URCS will be a continuous process as potentially useful UGPTI modifications are noted and developed, and as the ICC updates the entire costing system. The Fortran program is very large and it is to be expected that small subtle "bugs" will appear during the many conditions under which the UGPTI expects to run URCS. Minor changes to the Phase III output

report are planned to correspond to an updated Worktable E print format. The Phase III print routine, PRTWTF.FOR, will be monitored for data exceptions similar to the ones found in some Phase II routines. Other anticipated changes include modifying array dimensions in various named common blocks and alterations to loop iterations to allow for increased batch file processing. A recompilation strategy for several routines to allow for variable array dimensioning will be investigated.

The present formulation of URCS may not be the final word in Rail Costing Methodology. The costing methodology may be challenged and/or altered by the rulemaking process or adversarial proceedings presently being conducted. The accounting system used by the ICC is subject to change as the depreciation accounting used in URCS is evaluated and compared to other, possibly betterment, accounting systems. Such evolution may require major changes to the underlying structure of the computer program or a new installment of URCS.

UGPTI is also considering the evolution of URCS as it is presently installed. Major project proposals incorporate URCS and may require additions or modifications to the computer program or data base.

All future revisions or adjustments to URCS will be documented by additions to this report or by subsequent new reports.

APPENDIX A

URCS Tapes

URCS TAPES

DESCRIPTION	NAME	LOCATION
Phase II Program	USR526	NDSU EEE Building
Phase III Program	USRPH3	NDSU EEE Building
1981 URCS Data	USR525	NDSU EEE Building
1982 URCS Data	URCS82	NDSU EEE Building
1985 URCS Data	URCS85	NDSU EEE Building
Backup Phase II	TRAN02	UGPTI Offices
Backup Phase III	TRAN03	UGPTI Offices
Backup 1985 Data	U07103	UGPTI Offices

APPENDIX B

Phase II Files

FILE NO	PROGRAM NAME	RECORD LENGTH	BLOCK FACTOR
1	PROGRM CAT	80	400
2	URCSYS DAT	80	400
3	FORCMS JCL	80	400
4	AFROMI FOR	80	400
5	MOVEIT FOR	80	400
6	RELASC FOR	80	400
7	ASCVAR CMD	80	400
8	PHSEII CCL	80	400
9	PHSEII COM	80	400
10	PROCES CMD	80	400
11	STATCV CMD	80	400
12	STDAT CMD	80	400
13	URC010 CMD	80	400
14	URC330 COM	80	400
15	URC350 COM	80	400
16	URC820 COM	80	400
17	URC840 CMD	80	400
18	URC840 COM	80	400
19	URC850 CMD	80	400
20	URC850 COM	80	400
21	URC853 CMD	80	400
22	URC860 COM	80	400
23	URC870 CMD	80	400
24	URC871 CMD	80	400
25	URC873 CMD	80	400
26	URC890 CMD	80	400
27	URC890 COM	80	400
28	URC981 CMD	80	400
29	URCINT CMD	80	400
30	URCSYS COM	80	400
31	VARASC CMD	80	400
32	A1P1 FOR	80	400
33	A1P2A FOR	80	400
34	A1P2B FOR	80	400
35	A1P2C FOR	80	400
36	A1P3A FOR	80	400
37	A1P3B FOR	80	400
38	A1P4A FOR	80	400
39	A1P5A FOR	80	400
40	A1P5B FOR	80	400
41	A1P6 FOR	80	400
42	A1P7 FOR	80	400
43	A1P8 FOR	80	400
44	A1P9 FOR	80	400
45	A2P1 FOR	80	400
46	A2P2 FOR	80	400
47	A2P3 FOR	80	400
48	A2P4 FOR	80	400
49	A3P1 FOR	80	400

FILE NO	PROGRAM NAME	RECORD LENGTH	BLOCK FACTOR
50	A3P10 FOR	80	400
51	A3P2 FOR	80	400
52	A3P3 FOR	80	400
53	A3P4 FOR	80	400
54	A3P5 FOR	80	400
55	A3P6 FOR	80	400
56	A3P7 FOR	80	400
57	A3P8 FOR	80	400
58	A3P9 FOR	80	400
59	A4P1 FOR	80	400
60	A4P1A FOR	80	400
61	A4P3 FOR	80	400
62	A4P4 FOR	80	400
63	ASCVAR FOR	80	400
64	ATBLES FOR	80	400
65	B1P1 FOR	80	400
66	B1P2 FOR	80	400
67	B1P3 FOR	80	400
68	B1P4 FOR	80	400
69	B2P1 FOR	80	400
70	B2P2 FOR	80	400
71	B2P3 FOR	80	400
72	B2P4 FOR	80	400
73	B2P5 FOR	80	400
74	B2P7 FOR	80	400
75	B2P8 FOR	80	400
76	B3P1 FOR	80	400
77	B3P1A FOR	80	400
78	B3P1B FOR	80	400
79	B3P1C FOR	80	400
80	B3P1D FOR	80	400
81	B3P2 FOR	80	400
82	B3P3 FOR	80	400
83	B3P4 FOR	80	400
84	B3P5 FOR	80	400
85	B3P6 FOR	80	400
86	B3P7 FOR	80	400
87	B3P8 FOR	80	400
88	B3P9 FOR	80	400
89	B4P1 FOR	80	400
90	B5P1 FOR	80	400
91	B5P2 FOR	80	400
92	B5P3 FOR	80	400
93	B5P4 FOR	80	400
94	B5P5 FOR	80	400
95	B5P6 FOR	80	400
96	B5P7 FOR	80	400
97	B6P1 FOR	80	400
98	B6P2A FOR	80	400
99	B6P2B FOR	80	400
100	B6P2C FOR	80	400
101	B6P2D FOR	80	400

FILE NO	PROGRAM NAME	RECORD LENGTH	BLOCK FACTOR
102	B6P2E FOR	80	400
103	B6P3 FOR	80	400
104	B7P1 FOR	80	400
105	B7P2 FOR	80	400
106	B7P3 FOR	80	400
107	B7P4 FOR	80	400
108	B7P5 FOR	80	400
109	B7P6 FOR	80	400
110	B7P7 FOR	80	400
111	B7P8 FOR	80	400
112	B8P1 FOR	80	400
113	B9P1 FOR	80	400
114	B9P2 FOR	80	400
115	B9P3 FOR	80	400
116	B9P4 FOR	80	400
117	B9P5 FOR	80	400
118	BTBLES FOR	80	400
119	CTBLES FOR	80	400
120	D1P1 FOR	80	400
121	D1P2 FOR	80	400
122	D2P1 FOR	80	400
123	D2P2 FOR	80	400
124	D3P1 FOR	80	400
125	D3P2 FOR	80	400
126	D4P1 FOR	80	400
127	D4P2 FOR	80	400
128	D5P1 FOR	80	400
129	D6P1 FOR	80	400
130	D6P10 FOR	80	400
131	D6P11 FOR	80	400
132	D6P12 FOR	80	400
133	D6P13 FOR	80	400
134	D6P14 FOR	80	400
135	D6P15 FOR	80	400
136	D6P16 FOR	80	400
137	D6P17 FOR	80	400
138	D6P18 FOR	80	400
139	D6P19 FOR	80	400
140	D6P1A FOR	80	400
141	D6P2 FOR	80	400
142	D6P3 FOR	80	400
143	D6P4 FOR	80	400
144	D6P5 FOR	80	400
145	D6P6 FOR	80	400
146	D6P7 FOR	80	400
147	D6P8 FOR	80	400
148	D6P9 FOR	80	400
149	D7P1 FOR	80	400
150	D7P10 FOR	80	400
151	D7P11 FOR	80	400
152	D7P12 FOR	80	400
153	D7P13 FOR	80	400

FILE NO	PROGRAM NAME	RECORD LENGTH	BLOCK FACTOR
154	D7P2 FOR	80	400
155	D7P3 FOR	80	400
156	D7P4 FOR	80	400
157	D7P5 FOR	80	400
158	D7P6 FOR	80	400
159	D7P7A FOR	80	400
160	D7P7B FOR	80	400
161	D7P7C FOR	80	400
162	D7P8 FOR	80	400
163	D7P9 FOR	80	400
164	D8P1 FOR	80	400
165	D8P2 FOR	80	400
166	D8P4 FOR	80	400
167	D8P6 FOR	80	400
168	D8P7A FOR	80	400
169	D8P7B FOR	80	400
170	D9P1 FOR	80	400
171	DTBLES FOR	80	400
172	E1P1 FOR	80	400
173	E1P2 FOR	80	400
174	E1P3 FOR	80	400
175	E2P1 FOR	80	400
176	E2P2 FOR	80	400
177	EDUMP FOR	80	400
178	ETBLES FOR	80	400
179	PHSEII FOR	80	400
180	PROCES FOR	80	400
181	STATCV FOR	80	400
182	STDAT FOR	80	400
183	URC000 FOR	80	400
184	URC001 FOR	80	400
185	URC002 FOR	80	400
186	URC003 FOR	80	400
187	URC004 FOR	80	400
188	URC005 FOR	80	400
189	URC006 FOR	80	400
190	URC010 FOR	80	400
191	URC300 FOR	80	400
192	URC301 FOR	80	400
193	URC302 FOR	80	400
194	URC303 FOR	80	400
195	URC304 FOR	80	400
196	URC308 FOR	80	400
197	URC310 FOR	80	400
198	URC310 MAC	80	400
199	URC311 FOR	80	400
200	URC312 FOR	80	400
201	URC313 FOR	80	400
202	URC314 FOR	80	400
203	URC315 FOR	80	400
204	URC318 FOR	80	400
205	URC319 FOR	80	400

FILE NO	PROGRAM NAME	RECORD LENGTH	BLOCK FACTOR
206	URC320 FOR	80	400
207	URC330 FOR	80	400
208	URC331 FOR	80	400
209	URC332 FOR	80	400
210	URC333 FOR	80	400
211	URC334 FOR	80	400
212	URC335 FOR	80	400
213	URC336 FOR	80	400
214	URC337 FOR	80	400
215	URC338 FOR	80	400
216	URC339 FOR	80	400
217	URC341 FOR	80	400
218	URC342 FOR	80	400
219	URC349 FOR	80	400
220	URC350 FOR	80	400
221	URC351 FOR	80	400
222	URC352 FOR	80	400
223	URC353 FOR	80	400
224	URC354 FOR	80	400
225	URC355 FOR	80	400
226	URC358 FOR	80	400
227	URC359 FOR	80	400
228	URC400 FOR	80	400
229	URC401 FOR	80	400
230	URC402 FOR	80	400
231	URC404 FOR	80	400
232	URC405 FOR	80	400
233	URC801 FOR	80	400
234	URC802 FOR	80	400
235	URC810 FOR	80	400
236	URC811 FOR	80	400
237	URC815 FOR	80	400
238	URC816 FOR	80	400
239	URC820 FOR	80	400
240	URC821 FOR	80	400
241	URC822 FOR	80	400
242	URC823 FOR	80	400
243	URC824 FOR	80	400
244	URC840 FOR	80	400
245	URC841 FOR	80	400
246	URC842 FOR	80	400
247	URC843 FOR	80	400
248	URC844 FOR	80	400
249	URC845 FOR	80	400
250	URC846 FOR	80	400
251	URC847 FOR	80	400
252	URC848 FOR	80	400
253	URC849 FOR	80	400
254	URC850 FOR	80	400
255	URC852 FOR	80	400
256	URC853 FOR	80	400
257	URC854 FOR	80	400

FILE NO	PROGRAM NAME	RECORD LENGTH	BLOCK FACTOR
258	URC855 FOR	80	400
259	URC856 FOR	80	400
260	URC870 FOR	80	400
261	URC871 FOR	80	400
262	URC873 FOR	80	400
263	URC890 FOR	80	400
264	URC891 FOR	80	400
265	URC892 FOR	80	400
266	URC893 FOR	80	400
267	URC894 FOR	80	400
268	URC990 FOR	80	400
269	URCERR FOR	80	400
270	URCINT FOR	80	400
271	VARASC FOR	80	400

APPENDIX C

Phase II File Function

PROGRM.CAT	TAPE/CONTR	8TAPE CONTROL	SEQ LISTED OF FILES ON TAPE'
URCSYS.DAT	DATA-DAT	10SYS PARAMS - DEC	SYS PARAMS - DEC
IBMCMS.JCL	JCL	7CMS/VM JCL	EXPLICIT UNIT ASSIGNMENTS
AFROMI.FOR		12IBM-SPECIAL	IBM-SPECIAL (LOGICAL*1)
MOVEIT.FOR	COPY/DISKS	12IBM-SPECIAL	IBM-SPECIAL (LOGICAL*1)
RELASC.FOR		12IBM-SPECIAL	IBM-SPECIAL (LOGICAL*1)
ASCVAR.CMD	COMPILE/GO	3URCSDEC-RELEASEABLE	STATISTICAL PACKAGE (PEC) INTERFAC
PHSEII.CCL	LINK/CCL	3URCSDEC-RELEASEABLE	PHASE II COMMON ROUTINES/AREAS
PHSEII.COM	COMMON	3URCSDEC-RELEASEABLE	PHASE II COMMON ROUTINES/AREAS
PROCES.CMD	COMPILE/GO	3URCSDEC-RELEASEABLE	PHASE II - INTERACTIVE JOB SET UP
STATCV.CMD	COMPILE/GO	3URCSDEC-RELEASEABLE	STATISTICAL PACKAGE (PEC) INTERFAC
STDAT.CMD	COMPILE/GO	3URCSDEC-RELEASEABLE	STATISTICAL PACKAGE (PEC) INTERFAC
URC010.CMD	COMPILE/GO	3URCSDEC-RELEASEABLE	URCUMF GLOBAL PRINT
URC330.COM	COMMON	3URCSDEC-RELEASEABLE	STATISTICAL INTERFACE - PHASE II
URC350.COM	COMMON	3URCSDEC-RELEASEABLE	STATISTICAL INTERFACE - PHASE II
URC820.COM	COMMON	3URCSDEC-RELEASEABLE	URCUMF.RAB SUBROUTINES AND COMMON
URC840.CMD	COMPILE/GO	3URCSDEC-RELEASEABLE	URCUMF.RAB FILE-MAINTENACE
URC840.COM	COMMON	3URCSDEC-RELEASEABLE	URCUMF.RAB FILE-MAINTENACE
URC850.CMD	COMPILE/GO	3URCSDEC-RELEASEABLE	URCIND.RAB SUBROUTINES/MAINTENANCE
URC850.COM	COMMON	3URCSDEC-RELEASEABLE	URCIND.RAB SUBROUTINES/MAINTENANCE
URC853.CMD	COMPILE/GO	3URCSDEC-RELEASEABLE	URCIND.RAB SUBROUTINES/MAINTENANCE
URC860.COM	COMMON	3URCSDEC-RELEASEABLE	URCWTB.RAA COMMON AREA
URC870.CMD	COMPILE/GO	3URCSDEC-RELEASEABLE	URCSCF.RAB READ/WRITE FOR LOAD
URC871.CMD	COMPILE/GO	3URCSDEC-RELEASEABLE	URCSCF.RAB PRINT WITH HEADING
URC873.CMD	COMPILE/GO	3URCSDEC-RELEASEABLE	INDVAR.RAB PRINT WITH HEADING
URC890.CMD	COMPILE/GO	3URCSDEC-RELEASEABLE	URCDEF.RAB FILE-MAINTENANCE
URC890.COM	COMMON	3URCSDEC-RELEASEABLE	URCDEF.RAB FILE-MAINTENANCE
URCINT.CMD	COMPILE/GO	3URCSDEC-RELEASEABLE	INIALIZATION PROCESS
URCSYS.COM	COMMON	3URCSDEC-RELEASEABLE	URCS SYSTEM COMMON AREA
VARASC.CMD	COMPILE/GO	3URCSDEC-RELEASEABLE	STATISTICAL PACKAGE (PEC) INTERFAC
A1P1.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A1P2A.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A1P2B.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A1P2C.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A1P3A.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A1P3B.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A1P4A.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A1P5A.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A1P5B.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A1P6.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A1P7.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A1P8.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A1P9.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A2P1.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A2P2.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A2P3.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A2P4.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A3P1.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A3P10.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A3P2.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A3P3.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A3P4.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A3P5.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A3P6.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II

A3P7.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A3P8.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A3P9.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A4P1.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A4P1A.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A4P3.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
A4P4.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
ASCVAR.FOR	MAIN	4URCS-IBM-VERSION	STATISTICAL PACKAGE (PEC) INTERFAC
ATBLES.FOR	SUB	4URCS-IBM-VERSION	A WORKTABLE SUBROUTINES - PHASE II
B1P1.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B1P2.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B1P3.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B1P4.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B2P1.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B2P2.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B2P3.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B2P4.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B2P5.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B2P7.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B2P8.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B3P1.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B3P1A.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B3P1B.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B3P1C.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B3P1D.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B3P2.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B3P3.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B3P4.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B3P5.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B3P6.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B3P7.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B3P8.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B3P9.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B4P1.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B5P1.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B5P2.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B5P3.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B5P4.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B5P5.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B5P6.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B5P7.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B6P1.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B6P2A.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B6P2B.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B6P2C.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B6P2D.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B6P2E.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B6P3.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B7P1.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B7P2.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B7P3.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B7P4.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B7P5.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II

B7P6.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B7P7.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B7P8.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B8P1.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B9P1.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B9P2.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B9P3.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B9P4.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
B9P5.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
BTBLES.FOR	SUB	4URCS-IBM-VERSION	B WORKTABLE SUBROUTINES - PHASE II
CTBLES.FOR	SUB	4URCS-IBM-VERSION	STATISTICAL INTERFACE - PHASE II
D1P1.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D1P2.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D2P1.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D2P2.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D3P1.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D3P2.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D4P1.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D4P2.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D5P1.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D6P1.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D6P10.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D6P11.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D6P12.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D6P13.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D6P14.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D6P15.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D6P16.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D6P17.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D6P18.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D6P19.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D6P1A.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D6P2.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D6P3.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D6P4.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D6P5.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D6P6.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D6P7.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D6P8.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D6P9.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D7P1.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D7P10.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D7P11.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D7P12.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D7P13.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D7P2.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D7P3.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D7P4.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D7P5.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D7P6.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D7P7A.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D7P7B.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D7P7C.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D7P8.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II

D7P9.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D8P1.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D8P2.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D8P4.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D8P6.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D8P7A.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D8P7B.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
D9P1.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
DTBLES.FOR	SUB	4URCS-IBM-VERSION	D WORKTABLE SUBROUTINES - PHASE II
E1P1.FOR	SUB	4URCS-IBM-VERSION	E WORKTABLE SUBROUTINES - PHASE II
E1P2.FOR	SUB	4URCS-IBM-VERSION	E WORKTABLE SUBROUTINES - PHASE II
E1P3.FOR	SUB	4URCS-IBM-VERSION	E WORKTABLE SUBROUTINES - PHASE II
E2P1.FOR	SUB	4URCS-IBM-VERSION	E WORKTABLE SUBROUTINES - PHASE II
E2P2.FOR	SUB	4URCS-IBM-VERSION	E WORKTABLE SUBROUTINES - PHASE II
EDUMP.FOR	SUB	4URCS-IBM-VERSION	E WORKTABLE SUBROUTINE - PHASE II
ETBLES.FOR	SUB	4URCS-IBM-VERSION	E WORKTABLE SUBROUTINES - PHASE II
PHSEII.FOR	SUB	4URCS-IBM-VERSION	PHASE II COMMON ROUTINES/AREAS
PROCES.FOR	MAIN	4URCS-IBM-VERSION	PHASE II - INTERACTIVE JOB SET UP
STATCV.FOR	MAIN	4URCS-IBM-VERSION	STATISTICAL PACKAGE (PEC) INTERFAC
STDAT.FOR	MAIN	4URCS-IBM-VERSION	STATISTICAL PACKAGE (PEC) INTERFAC
URC000.FOR	SUB	4URCS-IBM-VERSION	URCS INITIALIZATION
URC001.FOR	SUB	4URCS-IBM-VERSION	URCS INITIALIZATION
URC002.FOR	SUB	4URCS-IBM-VERSION	URCS INITIALIZATION
URC003.FOR	SUB	4URCS-IBM-VERSION	URCS INITIALIZATION
URC004.FOR	SUB	4URCS-IBM-VERSION	URCS INITIALIZATION
URC005.FOR	SUB	4URCS-IBM-VERSION	URCS INITIALIZATION
URC006.FOR	SUB	4URCS-IBM-VERSION	URCS INITIALIZATION
URC010.FOR	MAIN	4URCS-IBM VERSION	URCUMF GLOBAL PRINT
URC300.FOR	SUB	4URCS-IBM-VERSION	PHASE II COMMON ROUTINES/AREAS
URC301.FOR	SUB	4URCS-IBM-VERSION	PHASE II COMMON ROUTINES/AREAS
URC302.FOR	SUB	4URCS-IBM-VERSION	PHASE II COMMON ROUTINES/AREAS
URC303.FOR	SUB	4URCS-IBM-VERSION	PHASE II COMMON ROUTINES/AREAS
URC304.FOR	SUB	4URCS-IBM-VERSION	PHASE II COMMON ROUTINES/AREAS
URC308.FOR	SUB	4URCS-IBM-VERSION	PHASE II COMMON ROUTINES/AREAS
URC310.FOR	SUB	4URCS-IBM-VERSION	PHASE II COMMON ROUTINES/AREAS
URC310.MAC	SUB	4URCS-IBM-VERSION	URCUMF.RAB/TBL ACCESS ET AL
URC311.FOR	SUB	4URCS-IBM-VERSION	STATISTICAL INTERFACE - PHASE II
URC312.FOR	SUB	4URCS-IBM-VERSION	PHASE II COMMON ROUTINES/AREAS
URC313.FOR	SUB	4URCS-IBM-VERSION	PHASE II COMMON ROUTINES/AREAS
URC314.FOR	SUB	4URCS-IBM-VERSION	PHASE II COMMON ROUTINES/AREAS
URC315.FOR	SUB	4URCS-IBM-VERSION	PHASE II COMMON ROUTINES/AREAS
URC318.FOR	SUB	4URCS-IBM-VERSION	PHASE II COMMON ROUTINES/AREAS
URC319.FOR	SUB	4URCS-IBM-VERSION	PHASE II COMMON ROUTINES/AREAS
URC320.FOR	SUB	4URCS-IBM-VERSION	PHASE II COMMON ROUTINES/AREAS
URC330.FOR	SUB	4URCS-IBM-VERSION	STATISTICAL INTERFACE - PHASE II
URC331.FOR	SUB	4URCS-IBM-VERSION	STATISTICAL INTERFACE - PHASE II
URC332.FOR	SUB	4URCS-IBM-VERSION	STATISTICAL INTERFACE - PHASE II
URC333.FOR	SUB	4URCS-IBM-VERSION	STATISTICAL INTERFACE - PHASE II
URC334.FOR	SUB	4URCS-IBM-VERSION	STATISTICAL INTERFACE - PHASE II
URC335.FOR	SUB	4URCS-IBM-VERSION	STATISTICAL INTERFACE - PHASE II
URC336.FOR	SUB	4URCS-IBM-VERSION	STATISTICAL INTERFACE - PHASE II
URC337.FOR	SUB	4URCS-IBM-VERSION	STATISTICAL INTERFACE - PHASE II
URC338.FOR	SUB	4URCS-IBM-VERSION	STATISTICAL INTERFACE - PHASE II
URC339.FOR	SUB	4URCS-IBM-VERSION	STATISTICAL INTERFACE - PHASE II

URC341.FOR SUB	4URCS-IBM-VERSION	STATISTICAL INTERFACE - PHASE II
URC342.FOR SUB	4URCS-IBM-VERSION	STATISTICAL INTERFACE - PHASE II
URC349.FOR SUB	4URCS-IBM-VERSION	STATISTICAL INTERFACE - PHASE II
URC350.FOR SUB	4URCS-IBM-VERSION	STATISTICAL INTERFACE - PHASE II
URC351.FOR SUB	4URCS-IBM-VERSION	STATISTICAL INTERFACE - PHASE II
URC352.FOR SUB	4URCS-IBM-VERSION	STATISTICAL PACKAGE (PEC) INTERFAC
URC353.FOR SUB	4URCS-IBM-VERSION	STATISTICAL PACKAGE (PEC) INTERFAC
URC354.FOR SUB	4URCS-IBM-VERSION	STATISTICAL PACKAGE (PEC) INTERFAC
URC355.FOR SUB	4URCS-IBM-VERSION	STATISTICAL PACKAGE (PEC) INTERFAC
URC358.FOR SUB	4URCS-IBM-VERSION	STATISTICAL PACKAGE (PEC) INTERFAC
URC359.FOR SUB	4URCS-IBM-VERSION	STATISTICAL INTERFACE - PHASE II
URC400.FOR SUB	4URCS-IBM-VERSION	PHASE II - INTERACTIVE JOB SET UP
URC401.FOR SUB	4URCS-IBM-VERSION	PHASE II - INTERACTIVE JOB SET UP
URC402.FOR SUB	4URCS-IBM-VERSION	PHASE II - INTERACTIVE JOB SET UP
URC404.FOR SUB	4URCS-IBM-VERSION	PHASE II - INTERACTIVE JOB SET UP
URC405.FOR SUB	4URCS-IBM-VERSION	PHASE II - INTERACTIVE JOB SET UP
URC801.FOR SUB	4URCS-IBM-VERSION	ESTABLISHES SYSTEM AREAS AND COMMO
URC802.FOR SUB	4URCS-IBM VERSION	INTERACTIVE MODE TYPE
URC810.FOR SUB	4URCS-IBM-VERSION	URCUMF.RAB/TBL ACCESS ET AL
URC811.FOR SUB	4URCS-IBM-VERSION	URCUMF.RAB/TBL ACCESS ET AL
URC815.FOR SUB	4URCS-IBM-VERSION	URCUMF.RAB/TBL ACCESS ET AL
URC816.FOR SUB	4URCS-IBM-VERSION	URCUMF.RAB/TBL ACCESS ET AL
URC820.FOR SUB	4URCS-IBM-VERSION	URCUMF.RAB/TBL ACCESS ET AL
URC821.FOR SUB	4URCS-IBM-VERSION	URCUMF.RAB/TBL ACCESS ET AL
URC822.FOR SUB	4URCS-IBM-VERSION	URCUMF.RAB/TBL ACCESS ET AL
URC823.FOR SUB	4URCS-IBM-VERSION	URCUMF.RAB/TBL ACCESS ET AL
URC824.FOR SUB	4URCS-IBM-VERSION	URCUMF.RAB/TBL ACCESS ET AL
URC840.FOR MAIN	4URCS-IBM VERSION	URCUMF.RAB FILE-MAINTENACE
URC841.FOR SUB	4URCS-IBM VERSION	URCUMF.RAB FILE-MAINTENACE
URC842.FOR SUB	4URCS-IBM VERSION	URCUMF.RAB FILE-MAINTENACE
URC843.FOR SUB	4URCS-IBM VERSION	URCUMF.RAB FILE-MAINTENACE
URC844.FOR SUB	4URCS-IBM VERSION	URCUMF.RAB FILE-MAINTENACE
URC845.FOR SUB	4URCS-IBM VERSION	URCUMF.RAB FILE-MAINTENACE
URC846.FOR SUB	4URCS-IBM VERSION	URCUMF.RAB FILE-MAINTENACE
URC847.FOR SUB	4URCS-IBM VERSION	URCUMF.RAB FILE-MAINTENACE
URC848.FOR SUB	4URCS-IBM VERSION	URCUMF.RAB FILE-MAINTENACE
URC849.FOR SUB	4URCS-IBM VERSION	URCUMF.RAB FILE-MAINTENACE
URC850.FOR MAIN	4URCS-IBM VERSION	URCIND.RAB SUBROUTINES/MAINTENANCE
URC852.FOR SUB	4URCS-IBM VERSION	URCIND.RAB SUBROUTINES/MAINTENANCE
URC853.FOR MAIN	4URCS-IBM VERSION	URCIND.RAB SUBROUTINES/MAINTENANCE
URC854.FOR SUB	4URCS-IBM VERSION	URCIND.RAB SUBROUTINES/MAINTENANCE
URC855.FOR SUB	4URCS-IBM VERSION	URCIND.RAB SUBROUTINES/MAINTENANCE
URC856.FOR SUB	4URCS-IBM VERSION	URCIND.RAB SUBROUTINES/MAINTENANCE
URC870.FOR MAIN	4URCS-IBM VERSION	URCSCF.RAB READ/WRITE FOR LOAD
URC871.FOR MAIN	4URCS-IBM VERSION	URCSCF.RAB PRINT WITH HEADING
URC873.FOR MAIN	4URCS-IBM VERSION	INDVAR.RAB PRINT WITH HEADING
URC890.FOR MAIN	4URCS-IBM VERSION	URCDEF.RAB FILE MAINTENANCE
URC891.FOR SUB	4URCS-IBM VERSION	URCDEF.RAB FILE MAINTENANCE
URC892.FOR SUB	4URCS-IBM VERSION	URCDEF.RAB FILE MAINTENANCE
URC893.FOR SUB	4URCS-IBM VERSION	URCDEF.RAB FILE MAINTENANCE
URC894.FOR SUB	4URCS-IBM VERSION	URCDEF.RAB FILE MAINTENANCE
URC990.FOR SUB	4URCS-IBM-VERSION	PHASE II COMMON ROUTINES/AREAS
URCERR.FOR SUB	4URCS-IBM-VERSION	PHASE II COMMMON ROUTINES/AREAS
URCINT.FOR MAIN	4URCS-IBM-VERSION	URCS INITIALIZATION
VARASC.FOR MAIN	4URCS-IBM-VERSION	STATISTICAL PACKAGE (PEC) INTERFAC

APPENDIX D

Phase III Files

PHASE III FILES

These Phase III files are found on tape USRPH3. All the files have a blocksize of 1040 and all but the last two files have a record length of 80. The last two files, WTFDTL.DAT and APPX8.DAT, have record length of 130.

1. ACROD
2. ACROCM
3. AFROMI
4. ARGSET
5. ASCINT
6. ASCREL
7. BGET
8. BPACK
9. CCIAIR
10. CLCLER
11. CLOSS
12. CM
13. CMAUTO
14. CMTOFC
15. COALTM
16. COMPIT
17. CONT
18. COPYA
19. COPYE
20. COPYEA
21. DSETUP
22. DSPRES
23. FCOMMA
24. FDRIVE
25. FILDEF
26. FILIN
27. FILOUT
28. GTAUTO
29. GTM
30. GTTOFC
31. HDCLCS
32. HELP
33. IBGET
34. IFROMA
35. IIIISW
36. IITERM
37. INTASC
38. LAKTRN
39. LNCLCS
40. LULMVU
41. LUM
42. LUMAUT
43. LUMTFC
44. MILES
45. MLOGIC
46. MODER
47. MODWTE
48. MOVEIT
49. OMTERM
50. OPSTCO
51. OPSTCP
52. OPTIN
53. ORETRN
54. OTCLCS
55. OTFILE
56. PHSE3
57. PINBD
58. PLCR
59. PRTWTF
60. RCOPYA
61. RCOPYE
62. RCPS
63. RDCLCS
64. RDETB
65. RDVETB
66. RELASC
67. RELFLT
68. RFDRIV
69. ROCACC
70. ROCAII
71. ROCDAY
72. ROCMIL
73. ROIICD
74. ROIICM
75. RRDRIV
76. RTVINT
77. RTVREL
78. RTVVAL
79. RTVYN
80. SEEIFQ
81. SETDEF
82. SETWTE
83. STCC
84. TCULUL
85. TCUPDS
86. TRIM
87. TRNMIL
88. TTC3
89. TTYIN
90. TTYNOR
91. UNIT
92. UNPACK
93. WTFDTL
94. WTFSUM
95. ZERONS
96. PHSE3-FILEDEF
97. MODER-FILEDEF
98. ARRAY.DAT
99. ETEXT.DAT
100. FTPSUM.DAT
101. WTEII.DAT
102. WTEIII.DAT
103. WTEIV.DAT
104. WTEV.DAT
105. WTEVI.DAT
106. WTEVII.DAT
107. WTFDTL.DAT
108. APPX8.DAT

Phase II File Technical Description

File Name	Record Length	File Name	Record Length	File Name	Record Length
FIL002.CHG	LRECL 80	FIL053.CHG	LRECL 80		
FIL003.CHG	LRECL 80	FIL054.CHG	LRECL 80	ARRAY.DAT	LRECL 80
FIL005.CHG	LRECL 80	FIL055.CHG	LRECL 80	ETEXT.DAT	LERCL 80
FIL006.CHG	LRECL 80	FIL056.CHG	LRECL 80	FTPSUM.DAT	LRECL 80
FIL007.CHG	LRECL 80	FIL057.CHG	LRECL 80	WTEII.DAT	LRECL 80
FIL008.CHG	LRECL 80	FIL058.CHG	LRECL 80	WTEIII.DAT	LRECL 80
FIL009.CHG	LRECL 80	FIL059.CHG	LRECL 80	WTEIV.DAT	LRECL 80
FIL010.CHG	LRECL 80	FIL060.CHG	LRECL 80	WTEV.DAT	LRECL 80
FIL011.CHG	LRECL 80	FIL061.CHG	LRECL 80	WTEVI.DAT	LRECL 80
FIL012.CHG	LRECL 80	FIL062.CHG	LRECL 80	WTEVII.DAT	LRECL 80
FIL013.CHG	LRECL 80	FIL063.CHG	LRECL 80	WTFDTL.DAT	LRECL 130
FIL014.CHG	LRECL 80	FIL064.CHG	LRECL 80	APPX8.DAT	LRECL 130
FIL015.CHG	LRECL 80	FIL065.CHG	LRECL 80		
FIL016.CHG	LRECL 80	FIL066.CHG	LRECL 80		
FIL017.CHG	LRECL 80	FIL067.CHG	LRECL 80		
FIL018.CHG	LRECL 80	FIL068.CHG	LRECL 80		
FIL019.CHG	LRECL 80	FIL069.CHG	LRECL 80		
FIL020.CHG	LRECL 80	FIL070.CHG	LRECL 80		
FIL021.CHG	LRECL 80	FIL071.CHG	LRECL 80		
FIL022.CHG	LRECL 80	FIL072.CHG	LRECL 80		
FIL023.CHG	LRECL 80	FIL073.CHG	LRECL 80		
FIL024.CHG	LRECL 80	FIL074.CHG	LRECL 80	BLOCKSIZE 1040	
FIL025.CHG	LRECL 80	FIL075.CHG	LRECL 80		
FIL026.CHG	LRECL 80	FIL076.CHG	LRECL 80		
FIL028.CHG	LRECL 80	FIL077.CHG	LRECL 80		
FIL029.CHG	LRECL 80	FIL078.CHG	LRECL 80		
FIL030.CHG	LRECL 80	FIL080.CHG	LRECL 80		
FIL031.CHG	LRECL 80	FIL082.CHG	LRECL 80		
FIL032.CHG	LRECL 80	FIL083.CHG	LRECL 80		
FIL033.CHG	LRECL 80	FIL084.CHG	LRECL 80		
FIL034.CHG	LRECL 80	FIL085.CHG	LRECL 80		
FIL035.CHG	LRECL 80	FIL086.CHG	LRECL 80		
FIL036.CHG	LRECL 80	FIL088.CHG	LRECL 80		
FIL037.CHG	LRECL 80	FIL089.CHG	LRECL 80		
FIL038.CHG	LRECL 80	FIL090.CHG	LRECL 80		
FIL039.CHG	LRECL 80	FIL091.CHG	LRECL 80		
FIL040.CHG	LRECL 80	FIL092.CHG	LRECL 80		
FIL041.CHG	LRECL 80	FIL093.CHG	LRECL 80		
FIL042.CHG	LRECL 80	FIL094.CHG	LRECL 80		
FIL043.CHG	LRECL 80	FIL095.CHG	LRECL 80		
FIL044.CHG	LRECL 80	FIL096.CHG	LRECL 80		
FIL045.CHG	LRECL 80	FIL097.CHG	LRECL 80		
FIL046.CHG	LRECL 80	FIL098.CHG	LRECL 80		
FIL047.CHG	LRECL 80	FIL099.CHG	LRECL 80		
FIL048.CHG	LRECL 80	FIL100.CHG	LRECL 80		
FIL049.CHG	LRECL 80	FIL101.CHG	LRECL 80		
FIL050.CHG	LRECL 80	FIL102.CHG	LRECL 80		
FIL051.CHG	LRECL 80	FIL103.CHG	LRECL 80		
FIL052.CHG	LRECL 80				

APPENDIX E

Data File Descriptions

FILE NUMBER	DATA FILE NAME	RECORD LENGTH	BLOCKING FACTOR
1	URCUMF DAT	108	200 (21600)
2	URCIND DAT	50	100 (5000)
3	URCSCF DAT	82	50 (4100)
4	URCWTB DAT	146	200 (29200)
5	URCCOM DAT	50	100 (5000)
6	BVAR DAT	80	100 (8000)
7	URCDEF DAT	91	100 (9100)
8	INDVAR DAT	100	100 (10000)
9	REGR DAT	80	100 (8000)
10	CLBR RUN	80	100 (8000)
11	CLBR PRT	133	200

APPENDIX F

Compiler Warning Messages

COMPILER WARNING MESSAGES

All routines were compiled in the CMS S-FVS environment and, with the exception of routine B7P8, were compiled with the (LANGLVL(66) option. The OPT(2) option was added to the compilation of B7P8 as explained in the documentation.

The following routines were issued warnings from the compiler; however, the warnings were not significant to the execution of the URCS program.

AFROMI.FOR ASCREL.FOR ASCINT.FOR HDCLCS.FOR TTYIN.FOR TTYNOR.FOR	(W) The data initialization is longer than the array element. Spill over from one array element to the next will occur. Check initialization specifications.
URC840.FOR URC873.FOR URC890.FOR URCINT.FOR MODWTE.FOR	(W) The program does not end with one of the allowable last executable statements for langlvl 66. A stop has been provided for a main program. A return has been provided for a subprogram.
URC350.FOR URC842.FOR URC890.FOR	(W) Statement after an arithmetic IF, GOTO, STOP, assigned GOTO,RETURN,or Block-if-nest is unreachable.
B6P2E.FOR B7P8.FOR	(W) Control flow structure analysis has determined that unreachable code exists at ISN " ".
D1P2.FOR	(W) An array element reference has a constant subscript out of range of the dimension bounds.
MODWTE.FOR	(W) Specification of the "END" parameter on a "WRITE" statement is invalid. Parameter is ignored.

APPENDIX G

Upper Great Plains Transportation Institute
URCS Hardcopies

PHASE II HARDCOPY LIST

The following hardcopy Phase II program and data files are located in the UGPTI offices.

PROGRAM FILES

PROGRM.CAT
URCSYS.DAT
AFROMI.FOR
MOVEIT.FOR
RELASC.FOR
A1P1.FOR
A1P2A.FOR
A1P2B.FOR
A1P2C.FOR
A1P3A.FOR
ASCVAR.FOR
B6P2E.FOR
B6P2E.FOR
B6P3.FOR
B6P3.LISTING
B7P8.LISTING
D7P1.FOR
D7P1.LISTING
D7P7B.FOR
D7P7B.LISTING
D7P8.FOR
D7P8.LISTING
D7P9.LISTING
D7P10.FOR
D7P10.LISTING
D7P11.FOR
D7P11.LISTING
D8P7A.LISTING
D8P7B.FOR
D8P7B.LISTING
D9P1.FOR
D9P1.LISTING
PHSEII.FOR
PHSEII.LISTING
PROCES.LISTING
STATCV.FOR
STDAT.FOR
URC000.LISTING
URC002.LISTING
URC005.LISTING
URC006.LISTING
URC010.FOR
URC010.LISTING
URC300.FOR
URC301.FOR
URC302.FOR
URC303.FOR
URC304.FOR
URC308.FOR
URC310.FOR
URC350.LISTING
URC400.FOR
URC400.LISTING
URC401.LISTING
URC801.FOR
URC801.LISTING
URC810.FOR
URC811.FOR
URC815.FOR
URC816.FOR
URC820.FOR
URC821.FOR
URC822.FOR
URC822.LISTING
URC823.FOR
URC824.FOR
URC840.FOR
URC841.LISTING
URC847.FOR
URC850.FOR
URC853.FOR
URC870.FOR
URC871.FOR
URC871.LISTING
URC871.LISTING
URC873.FOR
URC873.LISTING
URC890.FOR
URC891.LISTING
URCINT.FOR
VARASC.FOR

OTHER FILES

BVAR.DAT
BVAR.RAA
CONV.DAT
REG.DOC
TAPECHECK.TRAN01
TAPECHECK.TRAN02

PHASE III HARDCOPY LIST

The following hardcopy Phase III program and data files are located in the UGPTI offices.

PROGRAM FILES

AFROMI.FOR
DSETUP.LISTING
FILDEF.FOR
FILDEF.LISTING
MODER.FOR
PHS3.LISTING
PINBD.FOR
PRTWTF.FOR
PRTWTF.LISTING
RDETB.LISTING
RDVETB.LISTING
RTVVAL.LISTING
TTYIN.FOR
TTYIN.LISTING
TTYNOR.LISTING
UNIT.LISTING
WTFDTL.FOR
WTFDTL.LISTING
WTFSUM.LISTING
ZERONS.FOR

OTHER FILES

APPX8.DAT
ARRAY.URCSDATA
OUTPUT.REPORT(TEST)
OUTPUT.REPORT(4 RR's)
OUTPUT.REPORT(TEST)
WTFDTL.URCSDATA

APPENDIX H

CMS Commands

CMS COMMANDS

The following CMS commands were used in the installation and implementation of URCS. These commands are used in the user's filelist or in EXEC files.

COMMAND	FUNCTION
ACCESS	Identifies user application disk
DEFINE STORAGE	Acquire increased virtual storage
FILEDEF	Define CMS format file
FVS / (LANGLVL(66)	Compile Fortran routines
FVS / (LANGLVL(66) OPT(2)	Compile B7P8
GLOBAL TXTLIB	Access textlibraries
GLOBAL LOADLIB	Access loadlibraries
G091	Acquire temporary storage
LINK	Permits minidisk access
RELEASE	Makes disk inaccessible
S-FVS	Reach Fortran environment
TXTLIB ADD	Add to textlibrary
TXTLIB DEL	Delete from textlibrary
TXTLIB MAP	List textlibrary entries
VMBATCH SUBMIT	Submit job to VMBATCH processor

APPENDIX I

Upper Great Plains Transportation Institute
URCS Exec Files

```
/*  EXEC to send  URCS  code to VMBATCH for processing -- 30.ix.88 */
/*  prompts for program selection */
say"                  WELCOME TO URCS VIA VMBATCH!"
say"                                                                "
SAY"     VMBATCH will run PHSEII and STDAT for you.  This allows you to"
SAY"go back to your CMS filelist and work on files that are NOT used by"
SAY"PHSEII or STDAT.  You may also logoff and VMBATCH will continue to "
SAY"run the program you selected.                                    "
SAY"     VMBATCH takes a couple of minutes to initialize after you have"
SAY"made your program selection.  During this time CMS will not respond"
SAY"but after initialization VMBATCH will send you a message indicating"
SAY"your job has been submitted and you may then return to your CMS    "
SAY"filelist or logoff.  VMBATCH will keep you posted on the status of "
SAY"your job and send any output files to your readerlist.  A con file "
SAY"explaining what VMBATCH did will also be sent to your readerlist.  "
SAY"     Both PHSEII and STDAT will take 15 minutes or more depending  "
SAY"on the Vmbatch queue size.                                       "
SAY"   "
SAY"Enter a  P  to run PHSEII"
SAY"   "
SAY"Enter a  S  to run STADT"
SAY"   "
PULL CHOICE
IF CHOICE = "P"
  THEN DO
    SAY"PHSEII is being sent to VMVATCH"
   SAY"Please wait until VMBATCH indicates your job has been submitted."
   'vmbatch submit vmphseii exec a ',
   'Urcs txtlib a',
   'phseii text a',
   '(class b time 60:00 stor 10m workd 50-3380'
  END
ELSE DO
  IF CHOICE = "S"
   THEN DO
      SAY"STDAT is being submitted to Vmbatch"
   SAY"Please wait until VMBATCH indicates your job has been submitted."
      'vmbatch submit vmstdat exec a ',
      'Urcs txtlib a',
      '(class b time 60:00 stor 10m workd 50-3380'
    END
  ELSE  SAY"YOU ENTERED AN INCORRECT CHOICE.  PLEASE RUN AGAIN"
END
```

```
/*  EXEC to send  URCS  code to VMBATCH for processing -- 30.ix.88 */
/*  RUN PHSEII version                                             */
   link$acc
  's-fvs'
   release C
   detach 115
   link nu148506 193 195 rr
   access 195 C
   GLOBAL txtlib urcs vsf2link vsf2fort cmslib
   GLOBAL loadlib vsf2load
FILEDEF FT01F001 DISK DUMMY  RAA   "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT05F001 TERMINAL          "("                    RECFM FA ")"
FILEDEF FT06F001 TERMINAL          "("LRECL 133 BLOCK 133 RECFM FA ")"
FILEDEF FT07F001 DISK URCSYS DAT C "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT08F001 DISK URCUMF DAT C "("LRECL 108 BLOCK 108 RECFM F  ")"
FILEDEF FT09F001 DISK URCUMF TBL C "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT10F001 DISK URCIND DAT C "("LRECL  50 BLOCK  50 RECFM F  ")"
FILEDEF FT11F001 DISK URCSCF DAT C "("LRECL  82 BLOCK  82 RECFM F  ")"
FILEDEF FT12F001 DISK URCWTB DAT C "("LRECL 146 BLOCK 146 RECFM F  ")"
FILEDEF FT13F001 DISK URCCOM DAT C "("LRECL  50 BLOCK  50 RECFM F  ")"
FILEDEF FT14F001 DISK BVAR   DAT C "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT15F001 DISK URCDEF DAT C "("LRECL  91 BLOCK  91 RECFM F  ")"
FILEDEF FT16F001 DISK URCDEF TBL C "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT17F001 DISK INDVAR DAT C "("LRECL 100 BLOCK 100 RECFM F  ")"
FILEDEF FT18F001 DISK REGR   DAT C "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT19F001 DISK ETBL   DAT A "("LRECL  84 BLOCK  84 RECFM F  ")"
FILEDEF FT20F001 DISK OVRRDE DAT C "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT21F001 DISK URCS   RUN C "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT25F001 DISK URCUMF RAB C "("LRECL  72 BLOCK  72 RECFM F  ")"
FILEDEF FT25F001 DISK URCUMF RAB C "(" XTENT 60000                 ")"
FILEDEF FT26F001 DISK URCIND RAB C "("LRECL  28 BLOCK  28 RECFM F  ")"
FILEDEF FT26F001 DISK URCIND RAB C "(" XTENT 300                   ")"
FILEDEF FT27F001 DISK URCSCF RAB C "("LRECL  96 BLOCK  96 RECFM F  ")"
FILEDEF FT27F001 DISK URCSCF RAB C "(" XTENT 50                    ")"
FILEDEF FT28F001 DISK URCWTB RAA C "("LRECL 148 BLOCK 148 RECFM F  ")"
FILEDEF FT28F001 DISK URCWTB RAA C "(" XTENT 20000                 ")"
FILEDEF FT29F001 DISK URCCOM RAB C "("LRECL  20 BLOCK  20 RECFM F  ")"
FILEDEF FT29F001 DISK URCCOM RAB C "(" XTENT 300                   ")"
FILEDEF FT30F001 DISK BVAR   RAA C "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT30F001 DISK BVAR   RAA C "(" XTENT 600                   ")"
FILEDEF FT31F001 DISK URCDEF RAB C "("LRECL 108 BLOCK 108 RECFM F  ")"
FILEDEF FT31F001 DISK URCDEF RAB C "(" XTENT 2000                  ")"
FILEDEF FT32F001 DISK CUMATE RAB A "("LRECL  40 BLOCK  40 RECFM F  ")"
FILEDEF FT32F001 DISK CUMATE RAB A "(" XTENT 2800                  ")"
FILEDEF FT33F001 DISK RTDB   RAB A "("LRECL  48 BLOCK  48 RECFM F  ")"
FILEDEF FT33F001 DISK RTDB   RAB A "(" XTENT 2800                  ")"
FILEDEF FT34F001 DISK PHSEII RAB A "("LRECL   4 BLOCK   4 RECFM F  ")"
FILEDEF FT34F001 DISK PHSEII RAB A "(" XTENT 80000                 ")"
FILEDEF FT35F001 DISK TDEF   RAB A "("LRECL 108 BLOCK 108 RECFM F  ")"
FILEDEF FT35F001 DISK TDEF   RAB A "(" XTENT  2000                 ")"
FILEDEF FT36F001 DISK RAWSTA DAT A "("LRECL 600 BLOCK 600 RECFM F  ")"
FILEDEF FT37F001 DISK RAWSTA DOC A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT38F001 DISK REG    DOC A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT39F001 DISK CONV   DAT A "("LRECL  80 BLOCK  80 RECFM F  ")"
```

```
FILEDEF FT40F001 DISK STATS  DAT A "("LRECL 1200 BLOCK 1200 RECFM F")"
FILEDEF FT41F001 DISK STATS  DOC A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT51F001 DISK ERROR  DAT A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT52F001 DISK GLOB   PRT A "("LRECL 133 BLOCK 133 RECFM F  ")"
FILEDEF FT53F001 DISK URCUMF PRT A "("LRECL 133 BLOCK 133 RECFM F  ")"
FILEDEF FT54F001 DISK DEF    PRT A "("LRECL 133 BLOCK 133 RECFM F  ")"
FILEDEF FT55F001 DISK URCIND PRT A "("LRECL 133 BLOCK 133 RECFM F  ")"
FILEDEF FT56F001 DISK URCSCF PRT A "("LRECL 133 BLOCK 133 RECFM F  ")"
FILEDEF FT57F001 DISK INDVAR PRT A "("LRECL 133 BLOCK 133 RECFM F  ")"
FILEDEF FT60F001 DISK PHSEII PRT A "("LRECL 133 BLOCK 133 RECFM F  ")"
   'RUN PHSEII'
RETURN
```

```
/*  EXEC to send  URCS  code to VMBATCH for processing -- 30.ix.88 */
/*  RUN STDAT version                                              */
   link$acc
  's-fvs'
   release C
   detach 115
   link nu148506 193 195 rr
   access 195 C
   GLOBAL txtlib urcs vsf2link vsf2fort cmslib
   GLOBAL loadlib vsf2load
FILEDEF FT01F001 DISK DUMMY  RAA   "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT05F001 TERMINAL          "("                    RECFM FA ")"
FILEDEF FT06F001 TERMINAL          "("LRECL 133 BLOCK 133 RECFM FA ")"
FILEDEF FT07F001 DISK URCSYS DAT C "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT08F001 DISK URCUMF DAT C "("LRECL 108 BLOCK 108 RECFM F  ")"
FILEDEF FT09F001 DISK URCUMF TBL C "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT10F001 DISK URCIND DAT C "("LRECL  50 BLOCK  50 RECFM F  ")"
FILEDEF FT11F001 DISK URCSCF DAT C "("LRECL  82 BLOCK  82 RECFM F  ")"
FILEDEF FT12F001 DISK URCWTB DAT C "("LRECL 146 BLOCK 146 RECFM F  ")"
FILEDEF FT13F001 DISK URCCOM DAT C "("LRECL  50 BLOCK  50 RECFM F  ")"
FILEDEF FT14F001 DISK BVAR   DAT C "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT15F001 DISK URCDEF DAT C "("LRECL  91 BLOCK  91 RECFM F  ")"
FILEDEF FT16F001 DISK URCDEF TBL C "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT17F001 DISK INDVAR DAT C "("LRECL 100 BLOCK 100 RECFM F  ")"
FILEDEF FT18F001 DISK REGR   DAT C "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT19F001 DISK ETBL   DAT A "("LRECL  84 BLOCK  84 RECFM F  ")"
FILEDEF FT20F001 DISK OVRRDE DAT C "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT21F001 DISK URCS   RUN C "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT25F001 DISK URCUMF RAB C "("LRECL  72 BLOCK  72 RECFM F  ")"
FILEDEF FT25F001 DISK URCUMF RAB C "(" XTENT 60000                 ")"
FILEDEF FT26F001 DISK URCIND RAB C "("LRECL  28 BLOCK  28 RECFM F  ")"
FILEDEF FT26F001 DISK URCIND RAB C "(" XTENT 300                   ")"
FILEDEF FT27F001 DISK URCSCF RAB C "("LRECL  96 BLOCK  96 RECFM F  ")"
FILEDEF FT27F001 DISK URCSCF RAB C "(" XTENT 50                    ")"
FILEDEF FT28F001 DISK URCWTB RAA C "("LRECL 148 BLOCK 148 RECFM F  ")"
FILEDEF FT28F001 DISK URCWTB RAA C "(" XTENT 20000                 ")"
FILEDEF FT29F001 DISK URCCOM RAB C "("LRECL  20 BLOCK  20 RECFM F  ")"
FILEDEF FT29F001 DISK URCCOM RAB C "(" XTENT 300                   ")"
FILEDEF FT30F001 DISK BVAR   RAA C "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT30F001 DISK BVAR   RAA C "(" XTENT 600                   ")"
FILEDEF FT31F001 DISK URCDEF RAB C "("LRECL 108 BLOCK 108 RECFM F  ")"
FILEDEF FT31F001 DISK URCDEF RAB C "(" XTENT 2000                  ")"
FILEDEF FT32F001 DISK CUMATE RAB A "("LRECL  40 BLOCK  40 RECFM F  ")"
FILEDEF FT32F001 DISK CUMATE RAB A "(" XTENT 2800                  ")"
FILEDEF FT33F001 DISK RTDB   RAB A "("LRECL  48 BLOCK  48 RECFM F  ")"
FILEDEF FT33F001 DISK RTDB   RAB A "(" XTENT 2800                  ")"
FILEDEF FT34F001 DISK PHSEII RAB C "("LRECL   4 BLOCK   4 RECFM F  ")"
FILEDEF FT34F001 DISK PHSEII RAB C "(" XTENT 80000                 ")"
FILEDEF FT35F001 DISK TDEF   RAB A "("LRECL 108 BLOCK 108 RECFM F  ")"
FILEDEF FT35F001 DISK TDEF   RAB A "(" XTENT  2000                 ")"
FILEDEF FT36F001 DISK RAWSTA DAT A "("LRECL 600 BLOCK 600 RECFM F  ")"
FILEDEF FT37F001 DISK RAWSTA DOC A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT38F001 DISK REG    DOC A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT39F001 DISK CONV   DAT A "("LRECL  80 BLOCK  80 RECFM F  ")"
```

```
FILEDEF FT40F001 DISK STATS  DAT A "("LRECL 1200 BLOCK 1200 RECFM F")"
FILEDEF FT41F001 DISK STATS  DOC A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT51F001 DISK ERROR  DAT A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT52F001 DISK GLOB   PRT A "("LRECL 133 BLOCK 133 RECFM F  ")"
FILEDEF FT53F001 DISK URCUMF PRT A "("LRECL 133 BLOCK 133 RECFM F  ")"
FILEDEF FT54F001 DISK DEF    PRT A "("LRECL 133 BLOCK 133 RECFM F  ")"
FILEDEF FT55F001 DISK URCIND PRT A "("LRECL 133 BLOCK 133 RECFM F  ")"
FILEDEF FT56F001 DISK URCSCF PRT A "("LRECL 133 BLOCK 133 RECFM F  ")"
FILEDEF FT57F001 DISK INDVAR PRT A "("LRECL 133 BLOCK 133 RECFM F  ")"
FILEDEF FT60F001 DISK PHSEII PRT A "("LRECL 133 BLOCK 133 RECFM F  ")"
   'RUN STDAT'
RETURN
```

```
/*  EXEC to set FILEDEFS and run for PHSE3                              */
/*                                          : &CONTROL OFF              */
/*                                    ICC stuff: *                      */
/*                                          : EXEC LIBRARY FORTRAN*/
/*                                          : *                         */
/* 's-fvs'     // may need for proper FORTRAN environment               */
   GLOBAL txtlib urcsiii vsf2link vsf2fort cmslib
   GLOBAL loadlib vsf2load
FILEDEF FT05F001 TERMINAL              "(" LRECL 131 RECFM FA ")"
FILEDEF FT06F001 TERMINAL              "(" LRECL 133 BLOCK 133 RECFM FA ")"
FILEDEF FT20F001 DISK ARRAY  URCSDATA A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT21F001 DISK WTFDTL URCSDATA A "(" LRECL 150 BLOCK 150 ")"
FILEDEF FT21F001 DISK WTFDTL URCSDATA A "(" RECFM F ")"
FILEDEF FT22F001 DISK FTPSUM URCSDATA A "(" LRECL 80 BLOCK 80")"
FILEDEF FT22F001 DISK FTPSUM URCSDATA A "(" RECFM F ")"
FILEDEF FT31F001 DISK OUTPUT REPORT   A "(" LRECL 133 BLOCK 133 ")"
FILEDEF FT31F001 DISK OUTPUT REPORT   A "(" RECFM F ")"
FILEDEF FT32F001 DISK PARMS  FILE     A "(" LRECL 133 BLOCK 133 ")"
FILEDEF FT32F001 DISK PARMS  FILE     A "(" RECFM F ")"
FILEDEF FT33F001 DISK PARMS  FILE     A "(" LRECL 133 BLOCK 133 ")"
FILEDEF FT33F001 DISK PARMS  FILE     A "(" RECFM F ")"
FILEDEF FT34F001 DISK CARCOSTS INPUT  A "(" LRECL 133 BLOCK 133 ")"
FILEDEF FT34F001 DISK CARCOSTS INPUT  A "(" RECFM F ")"
FILEDEF FT35F001 DISK CARCOSTS OUTPUT A "(" LRECL 133 BLOCK 133 ")"
FILEDEF FT35F001 DISK CARCOSTS OUTPUT A "(" RECFM F ")"
FILEDEF FT36F001 DISK MODER    ETABLE A "(" LRECL 133 BLOCK 133 ")"
FILEDEF FT36F001 DISK MODER    ETABLE A "(" RECFM F ")"
FILEDEF FT51F001 DISK WTEI   URCSDATA A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT52F001 DISK WTEII  URCSDATA A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT53F001 DISK WTEIII URCSDATA A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT54F001 DISK WTEIV  URCSDATA A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT55F001 DISK WTEV   URCSDATA A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT56F001 DISK WTEVI  URCSDATA A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT57F001 DISK WTEVII URCSDATA A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT58F001 DISK WTEATS DAT      A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT62F001 DISK WTEBM  DAT      A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT63F001 DISK WTEBN  DAT      A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT66F001 DISK WTECNW DAT      A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT72F001 DISK WTECR  DAT      A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT74F001 DISK WTEDRG DAT      A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT77F001 DISK WTEEJE DAT      A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT78F001 DISK WTEFEC DAT      A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT79F001 DISK WTEGTW DAT      A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT80F001 DISK FDUMP  OUTPUT   A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT81F001 DISK WTEICG DAT      A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT82F001 DISK WTEKCS DAT      A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT86F001 DISK WTEMKT DAT      A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT91F001 DISK WTESCL DAT      A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT92F001 DISK WTESOO DAT      A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT93F001 DISK WTESP  DAT      A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT94F001 DISK WTESOU DAT      A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT95F001 DISK WTEUP  DAT      A "(" LRECL 80 BLOCK 80 RECFM F")"
/* * */
LOAD  PHSE3 PINBD "("start ")"
```

```
/*  EXEC to set FILEDEFS and run for MODER                              */
/*                                              :  &CONTROL OFF         */
/*                                       ICC stuff:  *                  */
/*                                              :  EXEC LIBRARY FORTRAN*/
/*                                              :  *                   */
/* 's-fvs'   // may need for FORTRAN proper environment //              */
   GLOBAL txtlib urcsiii vsf2link vsf2fort cmslib
   GLOBAL loadlib vsf2load
FILEDEF FT01F001 DISK ETEXT  URCSDATA A "(" LRECL 130 BLOCK 130 ")"
FILEDEF FT01F001 DISK ETEXT  URCSDATA A "(" RECFM F ")"
FILEDEF FT05F001 TERMINAL                "(" LRECL 131 RECFM FA  ")"
FILEDEF FT36F001 DISK MODER    ETABLE A "(" LRECL 133 BLOCK 133 ")"
FILEDEF FT36F001 DISK MODER    ETABLE A "(" RECFM F ")"
FILEDEF FT51F001 DISK WTEI   URCSDATA A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT52F001 DISK WTEII  URCSDATA A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT53F001 DISK WTEIII URCSDATA A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT54F001 DISK WTEIV  URCSDATA A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT55F001 DISK WTEV   URCSDATA A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT56F001 DISK WTEVI  URCSDATA A "(" LRECL 80 BLOCK 80 RECFM F")"
FILEDEF FT57F001 DISK WTEVII URCSDATA A "(" LRECL 80 BLOCK 80 RECFM F")"
/* * */
/* * */
LOAD  MODER PINBD "("start ")"
```

```
/*  EXEC to set URCS FILEDEF and GLOBAL links-- 15.viii.88 */
   's-fvs'
   GLOBAL txtlib urcs urcsiii vsf2link vsf2fort cmslib
   GLOBAL loadlib vsf2load
FILEDEF FT01F001 DISK DUMMY  RAA   "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT05F001 TERMINAL          "("                    RECFM FA ")"
FILEDEF FT06F001 TERMINAL          "("LRECL 133 BLOCK 133 RECFM FA ")"
FILEDEF FT07F001 DISK URCSYS DAT A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT08F001 DISK URCUMF DAT A "("LRECL 108 BLOCK 108 RECFM F  ")"
FILEDEF FT09F001 DISK URCUMF TBL A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT10F001 DISK URCIND DAT A "("LRECL  50 BLOCK  50 RECFM F  ")"
FILEDEF FT11F001 DISK URCSCF DAT A "("LRECL  82 BLOCK  82 RECFM F  ")"
FILEDEF FT12F001 DISK URCWTB DAT A "("LRECL 146 BLOCK 146 RECFM F  ")"
FILEDEF FT13F001 DISK URCCOM DAT A "("LRECL  50 BLOCK  50 RECFM F  ")"
FILEDEF FT14F001 DISK BVAR   DAT A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT15F001 DISK URCDEF DAT A "("LRECL  91 BLOCK  91 RECFM F  ")"
FILEDEF FT16F001 DISK URCDEF TBL A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT17F001 DISK INDVAR DAT A "("LRECL 100 BLOCK 100 RECFM F  ")"
FILEDEF FT18F001 DISK REGR   DAT A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT19F001 DISK ETBL   DAT A "("LRECL  84 BLOCK  84 RECFM F  ")"
FILEDEF FT20F001 DISK OVRRDE DAT A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT21F001 DISK URCS   RUN A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT25F001 DISK URCUMF RAB A "("LRECL  72 BLOCK  72 RECFM F  ")"
FILEDEF FT25F001 DISK URCUMF RAB A "(" XTENT 60000                 ")"
FILEDEF FT26F001 DISK URCIND RAB A "("LRECL  28 BLOCK  28 RECFM F  ")"
FILEDEF FT26F001 DISK URCIND RAB A "(" XTENT 300                   ")"
FILEDEF FT27F001 DISK URCSCF RAB A "("LRECL  96 BLOCK  96 RECFM F  ")"
FILEDEF FT27F001 DISK URCSCF RAB A "(" XTENT 50                    ")"
FILEDEF FT28F001 DISK URCWTB RAA A "("LRECL 148 BLOCK 148 RECFM F  ")"
FILEDEF FT28F001 DISK URCWTB RAA A "(" XTENT 20000                 ")"
FILEDEF FT29F001 DISK URCCOM RAB A "("LRECL  20 BLOCK  20 RECFM F  ")"
FILEDEF FT29F001 DISK URCCOM RAB A "(" XTENT 300                   ")"
FILEDEF FT30F001 DISK BVAR   RAA A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT30F001 DISK BVAR   RAA A "(" XTENT 600                   ")"
FILEDEF FT31F001 DISK URCDEF RAB A "("LRECL 108 BLOCK 108 RECFM F  ")"
FILEDEF FT31F001 DISK URCDEF RAB A "(" XTENT 2000                  ")"
FILEDEF FT32F001 DISK CUMATE RAB A "("LRECL  40 BLOCK  40 RECFM F  ")"
FILEDEF FT32F001 DISK CUMATE RAB A "(" XTENT 2800                  ")"
FILEDEF FT33F001 DISK RTDB   RAB A "("LRECL  48 BLOCK  48 RECFM F  ")"
FILEDEF FT33F001 DISK RTDB   RAB A "(" XTENT 2800                  ")"
FILEDEF FT34F001 DISK PHSEII RAB A "("LRECL   4 BLOCK   4 RECFM F  ")"
FILEDEF FT34F001 DISK PHSEII RAB A "(" XTENT 80000                 ")"
FILEDEF FT35F001 DISK TDEF   RAB A "("LRECL 108 BLOCK 108 RECFM F  ")"
FILEDEF FT35F001 DISK TDEF   RAB A "(" XTENT  2000                 ")"
FILEDEF FT36F001 DISK RAWSTA DAT A "("LRECL 600 BLOCK 600 RECFM F  ")"
FILEDEF FT37F001 DISK RAWSTA DOC A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT38F001 DISK REG    DOC A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT39F001 DISK CONV   DAT A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT40F001 DISK STATS  DAT A "("LRECL 1200 BLOCK 1200 RECFM F")"
FILEDEF FT41F001 DISK STATS  DOC A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT51F001 DISK ERROR  DAT A "("LRECL  80 BLOCK  80 RECFM F  ")"
FILEDEF FT52F001 DISK GLOB   PRT A "("LRECL 133 BLOCK 133 RECFM F  ")"
FILEDEF FT53F001 DISK URCUMF PRT A "("LRECL 133 BLOCK 133 RECFM F  ")"
FILEDEF FT54F001 DISK DEF    PRT A "("LRECL 133 BLOCK 133 RECFM F  ")"
```

```
FILEDEF FT55F001 DISK URCIND PRT A "("LRECL 133 BLOCK 133 RECFM F   ")"
FILEDEF FT56F001 DISK URCSCF PRT A "("LRECL 133 BLOCK 133 RECFM F   ")"
FILEDEF FT57F001 DISK INDVAR PRT A "("LRECL 133 BLOCK 133 RECFM F   ")"
FILEDEF FT60F001 DISK PHSEII PRT A "("LRECL 133 BLOCK 133 RECFM F   ")"
```

APPENDIX J

Upper Great Plains Transportation Institute
Phase II Implementation

INITIAL URCS PHASEII RUNS

The following railroads and regions were included in the initial URCS Phase II runs and have Worktables A-E on file at UGPTI. These include all the Class I railroads for 1986 and used 1985 data. Several railroads used carrier, regional, or system job parameters and are listed with the railroad. The Phase III Worktable E input data file for each carrier is on disk and is named according to the conventions on page 33 of the URCS documentation. A listing of the Worktable E data files is in Appendix K.

FIVE PROCESS YEARS (1981-1985)

Region 2 (R02)
Region 3 (R03)
Region 4 (R04)
Region 5 (R05)
Region 6 (R06)
Region 7 (R07)
    Regional job parameters: regional mnemonic
                             regional entity
Atchison, Topeka & Santa Fe R.R. Co. (ATSF)
Burlington Northern Inc. (BN)
Chicago & North Western Trans. Co. (CNW)
Consolidated Rail Corp. (CR)
    Note: The default region for Conrail has been
          changed to R03. Line 15 of the URCS.RUN
          should be edited (replace 41 with 43).
CSX Transportation (CSX)
    1985 Carrier system of B&O,C&O,and Seaboard
    Job parameters: B&O (initial railroad selection)
                    carrier system
                    R04 (region 4)
                    carrier entity
                    Seaboard capital costs
Denver & Rio Grande Western R.R. Co. (DRGW)
Elgin, Joliet & Eastern Ry. Co. (EJE)
Florida East Coast Ry. Co. (FEC)

Grand Trunk Corporation (GTW)
1985 Grand Trunk Western
Guilford Industries
1985 Carrier system of B&M AND D&H
Job parameters: B&M (initial railroad selection)
carrier system
B&M capital costs
Illinois Central Gulf R.R. Co. (ICG)
Kansas City Southern Ry. Co. (KCS)
Missouri-Kansas-Texas R.R. Co. (MKT)
Norfolk Southern Corporation (NS)
1985 Carrier system of N&W and SOU.
Job parameters: SOU (initial railroad selection)
carrier system
R04 (region 4)
Southern entity
Southern capital costs
Soo Line R.R. Co. (SOO)
Southern Pacific Transportation Co. (SP)
1985 Carrier system of SSW and SP
Job parameters: SP (initial railroad selection)
carrier system
R06 (region 6)
carrier entity
Southern Pacific capital costs
Union Pacific R.R. Co. (UP)
Union Pacific R.R. CO. (UP)
1985 Carrier system of MP and WP
Job parameters: UP (initial railroad selection)
carrier system
R06 (region 6)
carrier entity
Union Pacific capital costs

ONE PROCESS YEAR (1985)

Burlington Northern (BN)
Soo Line R.R. Co. (SOO)
Union Pacific R.R. Co. (UP)
Union Pacific R.R. Co. (UP)
1985 Carrier system of MP and WP
Job parameters: UP (initial railroad selection)
carrier system
R06 (region 6)
carrier entity
Union Pacific capital costs

APPENDIX K

Upper Great Plains Transportation Institute
Phase III Input Files

PHASE III INPUT DATA FILES

These input files to the URCS Phase III process are on file at UGPTI. The Initial URCS Phase II Run appendix will contain a description of the parameters used in creating data files for carrier systems or other special cases.

CMS FILE	RAILROAD OR REGION
WTER02.DAT	Region 2
WTER03.DAT	Region 3
WTER04.DAT	Region 4
WTER05.DAT	Region 5
WTER06.DAT	Region 6
WTER07.DAT	Region 7
WTEATS.DAT	Atchison, Topeka, & Santa Fe
WTEBN1.DAT	Burlington Northern Inc. (one year)
WTEBN.DAT	Burlington Northern Inc. (five years)
WTECNW.DAT	Chicago & North Western Trans. Co.
WTECR.DAT	Consolidated Rail Corporation
WTESCL.DAT	CSX Corporation
WTEDRG.DAT	Denver & Rio Grande Western R.R.Co.
WTEEJE.DAT	Elgin, Joliet & Eastern Ry. Co.
WTEFEC.DAT	Florida East Coast Ry. Co.
WTEGTW.DAT	Grand Trunk Corporation/Western
WTEBM.DAT	Guilford Industries (B&M and D&H)
WTEICG.DAT	Illinois Central Gulf R.R. Co.
WTEKCS.DAT	Kansas City Southern Ry. Co.
WTEMKT.DAT	Missouri-Kansas-Texas R.R. Co.
WTENS.DAT	Norfolk Southern (N&W and SOU)
WTESO01.DAT	Soo Line R.R. Co. (one year)
WTESOO.DAT	Soo Line R.R. Co. (five years)
WTESP.DAT	Southern Pacific (SSW and SP)
WTEUP1.DAT	Union Pacific (one year)
WTEUP.DAT	Union Pacific (five years)
WTEUPC1.DAT	Union Pacific (carrier system, one year)
WTEUPC.DAT	Union Pacific (carrier system, five years)