
**CONTROL DATA®
3100/3150/3170/
3200/3300/3500
COMPUTER SYSTEMS**

**REAL-TIME SCOPE
INSTALLATION HANDBOOK**

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PART I

RELEASE SUMMARY

RTS V2.0 RELEASE SUMMARY

1

1.1 PRODUCTS

Version 2.0 of the Real-Time SCOPE (RTS) Operating System is accompanied by the following product set members.

- 3100/3200 ADAPT Version 1.1
- 3100/3200/3300 BSIPP Version 2.2
- 3100/3200 (BCD) COBOL Version 3.0
- 3300 (BDP) COBOL Version 2.0
- 3300 COMPASS Version 2.0
- 3100/3200 COSY Version 2.0
- 3200 FORTRAN Version 3.0
- MSOS/RTS Error Recovery Routines Version 1.1
- 3100/3200 PERT Cost Version 2.1
- 3100/3200 PERT Time Version 2.1
- Report Generator Version 1.1
- SAINT Version 2.3
- SCOPE UTILITY Version 1.4
- 3100/3200/3300 SIPP Version 2.2
- TAPE SORT/MERGE Version 3.0

1.2 MATERIALS

Package A

Two tapes (COSY tape 1 and COSY tape 2) contain the RTS routines in COSY format.

Binary release tape for use in installing RTS contains the following files.

- File 1 Interim library PRELIB source
- File 2 Standard PRELIB source
- File 3 Batch PRELIB source
- File 4 BDP COBOL PRELIB source
- File 5 512 initiator binary

Package B

One tape for 16K variant of PERT Time.

Package C

One tape for 32K variant of PERT Time.

Package D

One tape for PERT Cost.

Package E

One tape for 16K variant of ADAPT.

Package F

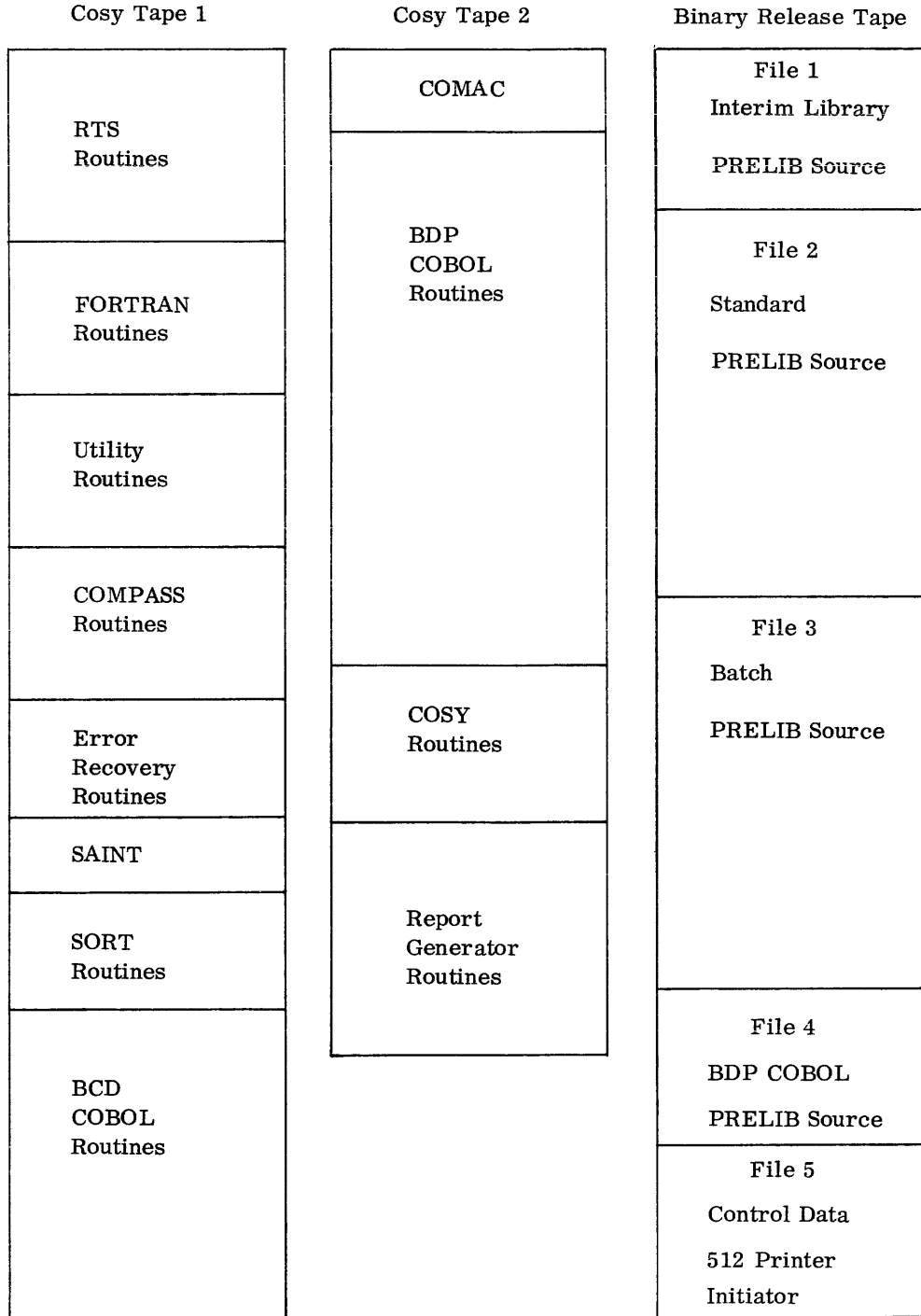
One tape for 32K variant of ADAPT.

Package G

Changes for MMTC in the following form:

COSY changes for CIO
COSY changes for xCICRECL (x= S or B)
COSY changes for RDUMP
COSY changes for PRELOAD
COSY changes for LOADER
COSY changes for POSTLOAD
COSY changes for ERROR RECOVERY
COSY formatted deck of DRIVMMTC
COSY formatted deck of MMTCCINIT
Binary deck of MMTCCINIT

FILE STRUCTURE



1.3 NEW FEATURES

1.3.1 RTS

Standard error recovery improves recovery from I/O errors and types standardized error diagnostics on CTO.

RTS no longer aborts arbitrarily; it passes control to the error recovery routines.

All system messages are in the standard format established by RTS/MSOS.

Installations at the required FCO levels can incorporate channel transmission parity error recovery.

<u>Controller†</u>	<u>FCO Level</u>
3127	CA 18730
322x	CA 19640
3245	CA 18690
3248	CA 18691
3256	CA 19192
342x	CA 17773
3446	CA 18927
3447A	CA 18731
3447B	CA 18926
362xA	CA 19639
362xB	CA 19525
3637A	CA 17759
3644	CA 18689
3649	CA 18688
3659	CA 18945

A memory allocation map is printed whether loading is successful or unsuccessful.

A BATCH program may now terminate abnormally without a dump.

Standard driver for the Modular Magnetic Tape Controller [3518(1x8)/3528(2x8)] and the 657/659 Tape Transports.

† The controllers listed are registered equipment of Control Data Corporation.

When the program requests release of a nonexistent file, an informative (I) message is typed and the job continues rather than aborting, as occurred in previous versions.

RTS attempts to release a not-ready tape unit. If the unit is not released on the first attempt, control passes to the next job in the stack instead of looping in the unit release procedures.

Installation options include:

- Stacking of clock interrupt requests.

- A basic system accounting routine (requires clock interrupt option).

- Detection of lost interrupts with the timeout routine (requires clock interrupt option).

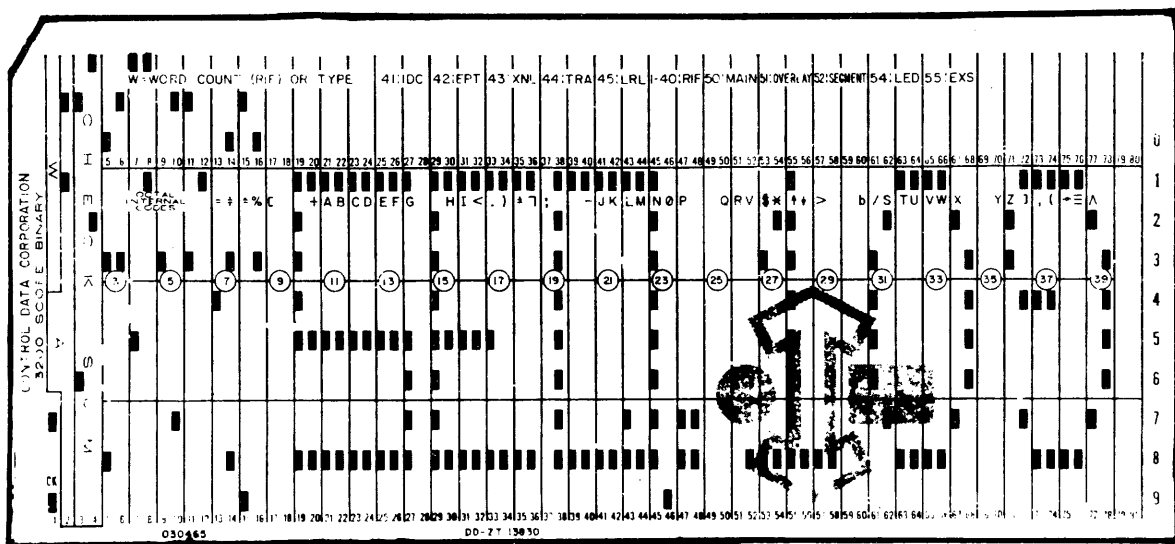
- A BATCH-only system.

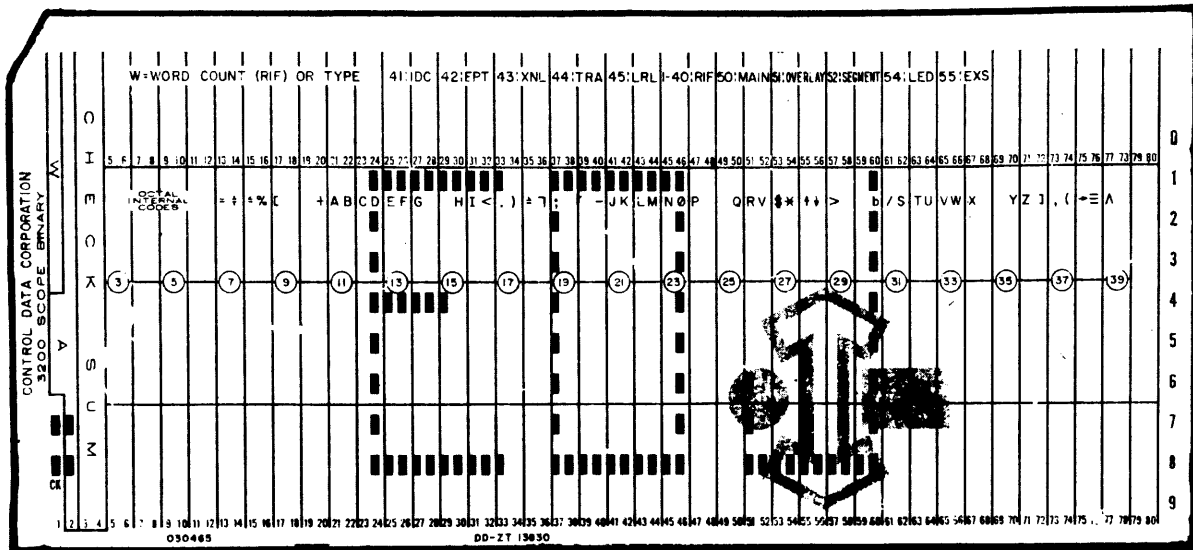
The CONTROL DATA® 512 Train Printer can be incorporated. Optionally, the programmer or operator can load the 512 Train Printer image memory with a specified buffer at inter-job time. If this option is selected, the buffers are established according to user trains at the time of installation.

The printer driver contains carriage control character R to select auto page eject and character Q to suppress auto page eject.

The identification card for DUMP is changed to RDUMP to maintain system consistency. The control card UNIT,55,DUMP in the PRELIB source tape is changed to UNIT,55,RDUMP.

JOB and EOF cards now contain distinctive multiple punches.





The user can now define 1-37₈ different hardware types, as compared to 13₈ in previous releases.

Priority programs can use the overlay processor; overlay processor (OVPRO) uses only magnetic tape.

The CONTROL DATA® 915 Optical Character Page Reader driver can be incorporated.

The CONTROL DATA® 3691 Paper Tape Reader Punch can be incorporated.

RTS recognizes the REPEAT button on the console typewriter for all statements from the operator.

Entry points and external names are blocked 10 to 12 names per line on the output records of PRELIB.

Values for MEMORY and MEMORYE are printed on MAP.

The operator can release the standard PUNCH so that jobs can be run even if the punch is down.

The system checks parity on all absolute records on the library tape including BOOT.

The ENDScope card includes three parameter choices.

$\frac{7}{9}$ ENDSCOPE, $\frac{N}{R}$

N Rewind INP, but not OUT and PUN

R Rewind INP, OUT, and PUN, but not unload

(neither) Rewind and unload INP, OUT, and PUN

The CTO card includes three parameter choices.

$\begin{matrix} 7 \\ 9 \end{matrix}$ CTO, $\begin{matrix} T \\ L \end{matrix}$ message

T Card logged only on CTO

L Card logged only on standard OUT

(neither) Card logged on both CTO and standard OUT

RTS has improved ready message handling and allows the operator to ready the unit through manual interrupt.

At autoload time, the operator can gain typewriter control by typing CFO and pressing FINISH in response to the TIME request.

The system provides improved overhead when generating overlay programs.

1.3.2 ERROR RECOVERY

The error recovery routines facilitate hardware recovery from I/O errors. These routines are incorporated into variable resident. Their use by the loader, postload, and RDUMP is optional, permitting the installation to omit them if saving core is more desirable than the error recovery routines. The operator communicates with the error recovery routines through manual interrupt procedures.

1.3.3 COMPASS

OVERLAY1 allows random placement of the following cards without interfering with the processing of LIBM and MACRO cards.

comment cards

REM

TITLE

SPACE

EJECT

COMPASS cards use the F parameter to force execution of the load-and-go output regardless of assembly errors. The F parameter has the same form as the X parameter and requires RTS control cards $\begin{matrix} 7 \\ 9 \end{matrix}$ LOAD, 56 and $\begin{matrix} 7 \\ 9 \end{matrix}$ RUN.

Standard error recovery improves recovery from I/O errors and types standardized error diagnostics on CTO.

COMPASS attempts to continue assembly even when irrecoverable I/O errors occur. Execution is omitted even if the F parameter is specified.

1.3.4 FORTRAN

Standard error recovery improves recovery from I/O errors and types standardized error diagnostics on CTO.

The user can generate Hollerith constant strings in the following manner.

```
DATA(MESSAGE=21H THIS IS A BCD STRING)
```

The user can incorporate a single branch logical IF statement into the compiler.

The user can dimension in all TYPE statements except TYPE other.

A label can be used after a \$ on a multistatement card.

The user can modify UNITSTF to test for EOT.

The DATA statement allows insertion of specific values into the COMMON/DATA area at compile time. This has been expanded to include the program variables area.

Parameters on the ⁷FORTRAN card can now be equated to specific logical units (e.g., ⁷FORTRAN, L=04, I=03, A=05, X=06, P=07). If the equate option is not used, parameter assignment is the same as in previous versions.

The ⁷FORTRAN card can include an M parameter to select a memory map showing the relative memory location of each variable and statement within a subprogram.

In a FORTRAN data statement, a simple floating-point variable previously defined by a dimension statement may be preset to 1-8 Hollerith characters.

1.3.5 BCD AND BDP COBOL

Standard error recovery improves recovery from I/O errors and types standardized error diagnostics on CTO. The compiler attempts to complete compilation even when irrecoverable errors occur on output units, as long as an output option exists. The operator can optionally dump bad input blocks on a previously equipped unit during object time execution.

COBOL loading diagnostics are written on both OUT and CTO.

1.3.6 COSY

The D parameter on a COSY card can be used to change the names of COSY decks.

All COSY output from this version of COSY is in 3300/3500 COSY format. The output cannot be used with previously released COSY, but output from previously released COSY can be used with the COSY in this release.

The S parameter on a $\frac{7}{9}$ COSY card suppresses the job when a revision card sequence error is found.

Standard error recovery improves recovery from I/O errors and types standardized error diagnostics on CTO.

1.3.7 TAPE SORT

Standard error recovery improves recovery from hardware errors and types standardized error diagnostics on CTO.

The numeric BCD sign is carried as the upper two bits of the least significant character in the field for collating sequence number 5.

Setting SORTK enables the library and the input unit to share a unit in SORT. This facilitates the use of only three tape drives to run a polyphase sort.

1.3.8 BSIPP

The block count for a labeled tape is edited into the trailer label.

The accounting for record input and output is increased from four to eight digits.

The system now types two messages. The first determines the maximum number of operations possible with the core storage available.

NO. OF OPS POSSIBLE = xx

The second determines the maximum number of operations allowed with the equipment available.

NO. OF OPS ALLOWED = xx

1.3.9 SIPP

The block count for a labeled tape is edited into the trailer label.

The accounting for record input and output is increased from four to eight digits.

The system now types two messages. The first determines the maximum number of operations possible with the core storage available.

NO. OF OPS POSSIBLE = xx

The second determines the maximum number of operations allowed with the equipment available.

NO. OF OPS ALLOWED = xx

1.4 MODIFICATIONS AND CORRECTIONS

1.4.1 RTS V2.0 OPERATING SYSTEM

PSR's incorporated:

509	1315
566	1324
570	1326
572, 857	1393
577, 1096	1415
606	1462
615, 1118	1485
645	1539
704	1540
743	1573
744	1604
747	1614
766	1658
831	1710
832	1748
835	1780
847	1841
1053	1854
1054	1856
1086	1881
1136	1988
1189	2253
1244	2283
	2348

1.4.2 FORTRAN

PSR's incorporated:

599	1580	2092
605	1600	2115
608	1607	2141
659	1608	2164
813	1626	2170
817	1646	2186
821	1685	2189
928	1686	2190
962	1692	2191
1024	1693	2203
1069	1716	2209
1070	1728	2245
1169	1768	2264
1234	1773	2289
1248	1774	2290
1253	1785	
1321	1788	
1352	1817	
1360	1830	
1433	1842	
1503	1858	
1530	1874	
1567	1887	
1578	1997	
	2030	
	2034	

1.4.3 COMPASS

PSR's incorporated:

597, 1818 (both superseded by PSR 2255)
703
753
932
948
1355
1537
1812
1813
1893
2049
2068
2136
2196
2243
2252
2255
2287
2288
2295
2491

1.4.4 COSY

PSR's incorporated:

662
830
1356
1467
1504
1575
1576
1599
1623
1727
1787
1851
1940
1972
1985
2008
2037
2091
2254
2349
2410
2422
2465

1.4.5 SAINT

PSR's incorporated:

2032
2033

1.4.6 COBOL-33 V2.0 (BDP)

PSR's incorporated:

208	725
209	729
212	814
216	848
476	849
485	854
541	1057
575	1075
612	1080
626	1122
643	1162
644	1294
673	1323
674	1482
675	1484
699	1602
707	1660
708	1746
	1690
	2262
	2299
	2285
	2273

1.4.7 COBOL V3.0 (BCD)

PSR's incorporated:

184	725
185	825
190	848
191	849
208	1057
209	1075
212	1078
216	1079
414	1159
476	1162
485	1294
541	1323
545	1482
575	1484
612	1602
626	1660
644	1690
675	1746
699	2262
707	2299
708	2285
	2273

1.4.8 TAPE SORT V3.0

PSR's incorporated:

53	868	1359	1543	1635	1799	1861	1946
56	950	1422	1544	1637	1800	1862	1965
63	954	1449	1554	1638	1801	1863	1969
469	1093	1488	1590	1661	1802	1873	2005
470	1114	1525	1595	1662	1807	1890	2013
473	1121	1526	1606	1670	1822	1891	2026
474	1148	1533	1624	1749	1832	1898	2042
748	1243	1534	1625	1796	1853	1932	2105
793	1270	1540	1631	1797	1859	1941	
808	1272	1541	1634	1798	1860	1952	

1.4.9 BSIPP V2.2

PSR's incorporated:

1308 (1317)
1374
1375
1377
2743

1.4.10 SIPP V2.2

PSR's incorporated:

1019 (1341)
1048 (1154)
1049
2743

1.5 DEFICIENCIES

The following describes the deficiencies and limitations in the system and products of this release and, when possible, the corrective code or the corrective action to employ when the difficulties occur.

1.5.1 RTS TAPE SORT

Two searches of the library are required to load the internal Sort phase of Tape Sort.

1.5.2 FORTRAN

A label after \$ on a multi-statement card causes a diagnostic:

D FTNC 0514 DETECTED AT STATEMENT NO. n CANNOT IDENTIFY STATEMENT TYPE.
STATEMENT NAME MISSPELLED OR MISUSED OR AN EQUAL SIGN IS MISPLACED.

1.5.3 REPORT GENERATOR

Report generator does not run under BDP COBOL because the design of report generator assumes BCD hardware or simulation.

1.5.4 BCD AND BDP COBOL

Omitting the END PROGRAM and FINIS cards in a COBOL source deck or placing a binary card between the COBOL control card and the end of the source deck causes the compiler to loop.

Extraneous diagnostics may result when several errors are diagnosed in compiling a source statement. If non-numeric literals are involved, extraneous characters may be generated and later diagnosed as invalid.

The object time package GPIO does not call error recovery for the display routine. A program using display will loop if the unit is not ready.

1.5.5 ADAPT VERSION 1.1

Detection of errors in the creation of the overlay tape may result in bypassing CLTAPE printout for the 16K variant.

1.6 LIMITATIONS

1.6.1 RTS VERSION 2.0 OPERATING SYSTEM

It is no longer possible to define several different origins within a record to be absolutized for PRELIB; a record card must be followed by only one origin card.

RTS does not recover from channel parity errors on the 3256/3659 printer controllers. This is because no external equipment reply is generated by either controller when a channel parity error occurs.

If a card reader feed-fail occurs with the 3248 controller, recovery is successful if CIO uses the TIMEOUT feature. The 3248 generates an external interrupt if feed-fail occurs; however, it does not physically interrupt the CPU. In this case, TIMEOUT provides the external interrupt which forces a check of the card reader and then forces the card reader to clear. The user that doesn't use TIMEOUT cannot recover because no external stimulus is provided.

When logical units 55 and 56 are being equipped, RTS does not check for the presence of a write ring.

The length of POSTLOAD can never be greater than the length of the loader; therefore, if POSTLOAD has error recovery, both the loader and OVPRO must have error recovery.

Character I/O will not be allowed on 659 Tape Transports. The following MMTC status bits will be edited to the existing parity bit in the UST type status:

- parity errors
- phase encoded errors
- cyclic redundancy errors
- memory flag bit errors

The standard driver for the MMTC must be installed as an add-on in card form as the current and interim systems do not have the ability to handle MMTC/65x.

1.6.2 COMPASS VERSION 2.0

COMPASS does not allow load-and-go execution if irrecoverable I/O errors occur, even if the F parameter is selected on the ₉ COMPASS card.

1.6.3 REPORT GENERATOR

The report generator package does not execute on a 3300 or 3500 Computer System equipped with BDP hardware.

1.6.4 TAPE SORT

The density of the shared tape drive must be manually set when using SORTK.

When an error occurs, the error recovery routines have control until recovery is effected or the operator replies either A or D. If the operator types in an A response, control returns to SORT and the option selected on the control card is executed.

1.6.5 SIPP

SIPP functions which use tape parity (even or odd) to determine the mode in which data is recorded (BCD or Binary) will not perform correctly with nine track tape transports (MMTC/659).

1.6.6 BSIPP

BSIPP functions which use tape parity (even or odd) to determine the mode in which data is recorded (BCD or binary) will not perform correctly with nine track tape transports (MMTC/659).

1.6.7 SCOPE UTILITY

SCOPE Utility functions which use tape parity (even or odd) to determine the mode in which data is recorded (BCD or binary) will not perform correctly with nine track tape transports (MMTC/659).

1.7 PUBLICATIONS

The following publications are relevant to the use of RTS product set.

<u>Control Data Publications</u>	<u>Pub. No.</u>
3100/3200/3300/3500 RTS Reference Manual	60172500A
3100/3200/3300/3500 RTS Operator's Guide	60170200
3100/3200/3300/3500 COMPASS Reference Manual	60236800
3100/3200/3300/3500 FORTRAN Reference Manual	60057600C
3100/3200/3300/3500 COSY Reference Manual	60207300A
3100/3200/3300 SIPP Background Operator Reference Manual	60190200
3100/3200 SIPP Reference Manual	60130400A
3100/3200/3300 COBOL Reference Manual	60132000

3100/3200/3300 COBOL V2.0 Extension and Revisions ADB	60137600
3100/3200/3300 SCOPE UTILITY Reference Manual	60130200
3100/3200/3300/3500 ADAPT Reference Manual	60173400
3100/3200/3300 PERT/TIME Reference Manual	60131100
3100/3200/3300 PERT/COST Reference Manual	60132500A
3100/3200/3300/3500 SAINT Reference Manual	60213700
3100/3200/3300/3500 Tape SORT/MERGE/MSOS Reference Manual	60059700A
3100/3200/3300/3500 RTS/MSOS Diagnostic Handbook	60236700

PART II

INSTALLATION PROCEDURES

Capsulized installation procedures summarize the steps necessary to prepare the RTS interim and final libraries. Before attempting installation, it is essential that the user be completely familiar with the detailed installation procedures.

1.1 CAPSULIZED INSTALLATION PROCEDURES

The PRELIB deck obtained from file 1 of the binary release tape may be used as standard INP or it may be punched on an RTS or Tape SCOPE library. Execute this deck using the existing RTS or Tape SCOPE as the input library to obtain a new library containing the special PRELIB. The new library is written on logical unit 1 and contains the operating library for final library preparation.

The installation procedures for RTS and its product set are organized into four sections. Throughout these procedures certain parameters are site dependent and must be supplied by the user. Therefore, the user must read the procedures completely and prepare all materials before attempting installation.

Division of installation procedures:

- Hardware Initialization
- Deck Preparation
- Final Library Generation
- Post Generation Information

2.1 HARDWARE INITIALIZATION

2.1.1 AUTOLOAD ROUTINE

An autoloader routine in the autoloader region of core must be manually established for each installation. This routine is a basic, permanent machine entry used to initiate tape operations (part III, section 1).

2.1.2 512 INITIALIZATION

The image memory of the 512/3555 must be loaded before print operations can be executed. When loading the 512/3555 image memory, use the following instructions:

1. The one card loader

Punch the one card loader (section 4.5) and define the appropriate channel and equipment of the card reader.

C	EQU	n	
		n	Channel (0-7) of the card reader
EUUU	EQU	mmmm	
		mmmm	12-bit connect code for the card reader

For example: Assume a card reader configuration of channel 0, equipment 2, unit 0. C, EUUU would be as follows:

C	EQU	0	
EUUU	EQU	2000 ₈	

2. The image initiator program contains the individual train images and several sub-routines that extract the configuration of the 512 and write the memory image.

Place the one card loader in the card reader, followed by the library deck of the image initiator. Autoload from the card reader. The following is typed:

512 IMAGE INITIATOR

T(1) = 595-1 (501 COMPATIBLE) or

T(2) = 595-2 (AN COMPATIBLE) or

T(3) = 595-3 (HN COMPATIBLE)

512 = CcEeUuu

Type the appropriate channel, equipment, and unit of the 512. Upon completion, the user must define the train in response to the following typeout:

TRAIN = T(

Answer by typing digit 1, 2, or 3 as defined above.

Upon completion of initialization the following message is received, and the 512 is ready for use.

IMAGE INITIATED

2.2 PRELIB DECK MODIFICATION

The PRELIB source, whether punched or supplied, requires modification before the final RTS library generation can proceed. The modification procedures are divided into five subsections.

System installation-dependent routines

Error recovery assembly options

Product set assembly and options

Replacement card

Unit card

BCD, BDP, and FDP options

Driver selection

2.2.1 INSTALLATION-DEPENDENT ROUTINES

The following routines must be modified according to each particular hardware configuration. Several procedures apply to all systems; others apply only to standard (STD) or BATCH RTS.

<u>STD</u>	<u>BATCH</u>
CIO	BCIO
SCICREC1	BCICREC1
RDUMP	RDUMP
PRELOAD	PRELOAD
LOADER	LOADER
OVPRO	OVPRO
POSTLOAD	POSTLOAD

CIO MODIFICATIONS (STD)

If the lost interrupt timeout feature is desired, select the following option:

	DELETE/	3
TIMEOUT	EQU	1

The current value of TIMEOUT is 0. If the timeout option is selected, the clock option (SCICREC1) must also be selected.

CIO	DECK/	p ₁ , p ₂ , ...
-----	-------	---------------------------------------

BCIO MODIFICATIONS (BATCH)

If the lost interrupt timeout feature is desired, select the following option:

	DELETE/	3
TIMEOUT	EQU	1

The current value of TIMEOUT is 0. If the timeout option is selected, the clock option (BCICREC1) must also be selected.

BCIO	DECK/	p ₁ , p ₂ , ...
------	-------	---------------------------------------

SCICREC1 (STD)

SCICREC1 is a resident program containing tables and various resident subroutines (manual interrupt processor, central interrupt control, etc.) for a standard RTS library. SCICREC1 contains the description of the hardware environment and must be updated to reflect the particular hardware configuration (part III, section 2). All options in this release are set to 0 unless otherwise specified.

Accounting Option: If the basic job accounting feature is desired, select the following option:

	DELETE/	4
ACCT	EQU	1

The current value of ACCT is 0.

If the accounting option is selected, the clock interrupt processor option must also be selected.

BDP Option: (3300 users with a CONTROL DATA® 3312 Business Data Processing Module)

If a library with the capability of handling BDP instructions is desired in an installation, make the following modification:

	DELETE/	5
BDP	EQU	1 (If BDP hardware is present)

This change must be made if the BDP hardware option is included in the PRELIB source deck. The current value of BDP is 0.

Clock Interrupt Processor Option: If it is desirable to have the clock interrupt processor available for programmer use in an installation, make the following modification:

	DELETE/	6
CLOCK	EQU	1

The release value of CLOCK is 0.

If the timeout feature has been selected (CIO), the clock option must also be selected.

CST and EST Modifications: The CST and EST are established by control parameters.

	DELETE/	7
NCHANS	EQU	n

In all cases, n depends on available channels indicated in the following table. The current value of n is 6.

Highest Available Channel Number	Value of n
1	2
2 or 3	4
4 or 5	6
6 or 7	8

Memory Limits: The machine capacity must be properly recorded within SCICREC1. These memory limits are used by the system loader when loading a program for execution.

On the released COSY tape, the cells are set for 32K CONTROL DATA® 3200/3300 Computer Systems. They must be changed for the CONTROL DATA® 3100 Computer System. The COSY correction is:

```

                DELETE/      8
MAXCORE EQU      value
    
```

The symbol value is:

Machine Type	16K Value	32K Value
3100/3150	37637 ₈	77637 ₈
3200/3300	37737 ₈	77737 ₈

The current setting of value is 77737₈

AET Entries: At installation time, the AET must be defined to describe the equipment available to the system. This section describes only the changes to be made in standard RTS. A general description of AET is in part III, section 2.

```

                DELETE/      2033,2061
THE AET DESCRIPTION
FOLLOWS
    
```

RHT Modification: The RHT defines the equipment used during a batch run and equipment assigned as system units (PUN, INP, OUT, etc.). The complete description is in part III, section 3.1. The following entry must be made for modifications.

```

                DELETE/      2126,2132
RHT              modifications
    
```


The deck card for these changes is:

SCICREC1 DECK/ P₁, P₂...

BCICREC1 (BATCH)

BCICREC1 is a resident program containing tables and various resident subroutines (manual interrupt processor, central interrupt control, etc.) for a BATCH RTS library. BCICREC1 contains the description of the hardware environment and must be updated to reflect the particular hardware configuration. All options in this release are set to 0, unless otherwise specified.

Accounting Option: If the basic job accounting feature is desired, select the following option:

	DELETE/	4
ACCT	EQU	1

The current value of ACCT is 0.

If the accounting option is selected, the clock interrupt processor (CIP) option must also be selected.

BDP Option: (3300 users with a CONTROL DATA® 3312 Business Data Processing Module)

If a library with the capability of handling BDP instructions is desired in an installation, make the following modification:

	DELETE/	5
BDP	EQU	1 (If BDP hardware is present)

This change must be made if the BDP hardware option is included in the PRELIB source deck. The current value of BDP is 0.

Clock Interrupt Processor (CIP) Option: If it is desirable to have the clock interrupt processor available for programmer use in an installation, make the following modification.

	DELETE/	6
CLOCK	EQU	1

The release value of CLOCK is 0.

If the timeout feature has been selected (BCIO), the clock option must also be selected.

CST and EST Modifications: The CST and EST are established by control parameters.

DELETE/ 7
 NCHANS EQU n

In all cases, n is dependent on available channels indicated in the following table. The current value of n is 4.

Highest Available Channel Number	Value of n
1	2
2 or 3	4
4 or 5	6
6 or 7	8

Memory Limits: The machine capacity must be properly recorded within BCICREC1. These memory limits are used by the system loader when loading a program for execution.

On the released COSY tape, the cells are set for 32K 3200/3300 Computer Systems. They must be changed for all 16K and 3100 Computer Systems. The COSY correction is:

DELETE/ 8
 MAXCORE EQU value

The symbol value is:

Machine Type	16K Value	32K Value
3100/3150	37637 ₈	77637 ₈
3200/3300	37737 ₈	77737 ₈

The current setting of value is 77737₈.

IOT Modification: The IOT (I/O Table) must be modified to establish the appropriate channels available to the input/output subsystem.

	DELETE/	703,710	
IOT	00	x	ch 0
	00	x	ch 1
	00	x	ch 2
	00	x	ch 3
	00	x	ch 4
	00	x	ch 5
	00	x	ch 6
	00	x	ch 7

x IOIP, if channel is available as a system channel defined in the AET.
 ABINRT, if channel is not available.

AET Entries: At installation time, the AET must be defined to describe the equipment available to the system. This section describes only the change made in BATCH RTS. A general description of AET is in part III, section 2.

	DELETE/	1306,1326
THE AET DESCRIPTION		
FOLLOWS		

RHT Modification: The RHT defines the equipment used during a batch run and equipment assigned as system units (PUN, INP, OUT, etc.). The complete description is in part III, section 3.1. The following entry must be made for modification.

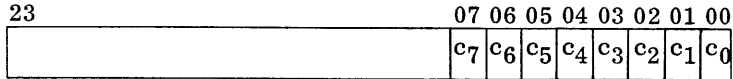
	DELETE/	1391,1397
RHT		modification

System Interrupt Mask: A mask contained in BCICREC1 reflects the channels available for system use. The COSY correction for the mask is:

	DELETE/	1438
SYST.IOM	OCT	h

Proper channel description for the system interrupt mask is represented by h; the current value of h is 178.

The general format of the mask word is:



c_i Bit corresponding to channel i.

If the channel is available to the system, its corresponding bit is set to 1. If the channel is not available, the corresponding bit is set to 0.

The deck card for these changes is:

BCICREC1 DECK/ P₁,P₂,...

RDUMP (STD/BATCH)

Standard Error Recovery: If use of the standard error recovery on the RDUMP input/output functions is desired, select the following option:

DELETE/ 21
SER.OPT EQU 1

The release value of SER.OPT is 0. The RDUMP deck on the PRELIB sources has SER.OPT set to 0. If SER.OPT is set to 1, the error recovery equates TAPE, CARDRDR, CARDPNCH, PRINTER, ATTMPT1, ATTMPT2, BKSPMLM2, NOATMPTS, MAXERASE, and CKSMCNST are valid (section 2.2.2).

The deck card for these changes is:

RDUMP DECK/ P₁,P₂,...

PRELOAD (STD/BATCH)

BATCH Only Option: If the BATCH only variant is desired, select the following option:

DELETE/ 8
BF EQU 1

The current value of BF is 0. The PRELOAD deck on the BATCH PRELIB source has BF set to 1.

512 Train Option: If the configuration contains a 512 Train Printer and the user desires the ability to change the trains, select the following option:

	DELETE/	130
TRAIN	EQU	1

The current value of TRAIN is 0.

Users with a 595-1 63 character 501 compatible train must set the following:

	DELETE/	181
TRN5951	EQU	1

Users without a 595-1 should leave TRN5951 set to 0. Users with a 595-2 48 character AN train must set the following:

	DELETE/	182
TRN5952	EQU	1

Users without a 595-2 should leave TRN5952 set to 0.

Users with a 595-3 48 character HN train must set the following:

	DELETE/	183
TRN5953	EQU	1

Users without a 595-3 should leave TRN5953 set to 0. Users with additional trains (up to 9), must add the following:

Example (Adds 2 special trains):

	INSERT/	634	
	ENA	BUF 595x	
	ENA	BUF 595y	
BUF 595x	OCT		144 word buffer
BUF 595y	OCT		144 word buffer
	DELETE/	2822	
ASG	n		(n = Train number + 1)

Current value is 4.

Accounting Option: If the basic job accounting feature is desired, select the following option:

	DELETE/	131
ACCT	EQU	1

The current value of ACCT is 0. The value of ACCT must match value of ACCT in xCICREC1.

The deck card for these changes is:

PRELOAD	DECK/	P ₁ , P ₂ , ...
---------	-------	---------------------------------------

LOADER (STD/BATCH)

Error Recovery Option: If the standard error recovery package on the loader input/output functions is desired, select the following option:

	DELETE/	10
LERP	EQU	1

The current value of LERP is 0. The loader deck on the PRELIB sources has LERP set to 0. For valid error recovery equates, see section 2.2.2.

The deck card is:

LOADER	DECK/	P ₁ , P ₂ , ...
--------	-------	---------------------------------------

OVPRO (STD/BATCH)

Error Recovery Option: If the standard error recovery package on the OVPRO input/output functions is desired, select the following option:

	DELETE/	12
LERP	EQU	1

The current value of LERP is 0. The OVPRO deck on the PRELIB sources has LERP set to 0. The LERP option in OVPRO must be set to the same value in LOADER.

The deck card is:

OVPRO	DECK/	P ₁ , P ₂ , ...
-------	-------	---------------------------------------

POSTLOAD (STD/BATCH)

Error Recovery Option: If the standard error recovery package on postload input/output functions is desired, select the following option:

	DELETE/	23	
LERP	EQU	1	

The current value of LERP is 0. The postload deck on the PRELIB sources has LERP set to 0. For valid error recovery equates, see section 2.2.2.

The deck card is:

POSTLOAD	DECK/	P ₁ ,P ₂ ,...
----------	-------	-------------------------------------

TAPE SORT

Installations with Tape SORT may desire the optimum move assembly option to allow optimum efficiency on moves, dependent upon the library and the available hardware. The most rapid move is the BDP move; the slowest is a hardware move.

	DELETE/	9	
BDP	EQU	0	BDP hardware absent
BDP	EQU	1	BDP hardware present

The release value of BDP is 0.

The deck card is:

SORT	DECK/	P ₁ ,P ₂ ,...
------	-------	-------------------------------------

The BDP PRELIB replaces the hardware move with the BDP move.

2.2.2 ERROR RECOVERY ASSEMBLY OPTIONS

The modularity of error recovery routines permits easy modification to reflect hardware changes and customer needs and to implement efficient recovery from detected errors. The routines are assembled into PRELOAD and can optionally be assembled into POSTLOAD, LOADER, and RDUMP. If assembled into LOADER, error recovery must be assembled into POSTLOAD and RDUMP. Any changes made to the error recovery routines should also be made in PRELOAD and in POSTLOAD, LOADER, and RDUMP when applicable.

The library contains two groups of error recovery routines - one in the relocatable file (file 2) and the second in the absolute file (file 1). The two sets of routines are identical except that file 1 contains two additional routines. In file 1, FTN0 precedes the error recovery routines

and PROGRAMME follows error recovery. FTN0 and PROGRAMME establish linkage between the error recovery routines and the FORTRAN compiler and COMPASS assembler, respectively.

When the length of any error recovery routine is changed from the released value, the changed length must be assembled into the FORTRAN compiler and the COMPASS assembler (section 2.2.3). FORTRAN and COMPASS both contain BSS blocks representing the length of each error recovery routine. These lengths must correspond to the actual length of the routine in file 1. FORTRAN and COMPASS must be reassembled if error recovery is modified from the released version.

The recommended order of the error recovery routines on the library is:

RAAR
SCAR
MTWPR
MTRPR
MTLDACPR
MTDER
PRCPR
CRDER
CPDER
MTWPRR
MTRPRR
MTLDCPRR
CMNRTNS
WHATISIT
NRD
NRC
NWR
T.NOTRDY
TYPEOUT.
WHATKIND

ERROR RECOVERY ASSEMBLY OPTIONS

ROUTINE	ASSEMBLY OPTION										
	TAPES	CARDRDR	CARDPNCH	PRINTER	NOATMPTS	MAXERASE	CKSMCNST	ATTMPT1	ATTMPT2	BKSPLIM2	READB
RAAR	X										
SCAR	X	X	X	X							
WHATISIT	X										
NRC	X										
MTLDCPRR					X						
MTWPRR						X	X				
MTRPRR								X	X	X	
NRD											X

SCAR Modifications

CARDRDR: This assembly option controls references to card reader recovery within SCAR routine. If CARDRDR is equated to zero, all calls to card reader recovery are eliminated and CRDER is not called. If CARDRDR is equated to nonzero, card reader recovery is present. CARDRDR is nonzero in this release.

```

                DELETE/    90
CARDRDR      EQU          7
    
```

CARDPNCH: In the SCAR routine, CARDPNCH controls references to card punch recovery. If CARDPNCH is equated to zero, all calls to CPDER routine are eliminated. If CARDPNCH is equated to nonzero, card punch recovery is present. CARDPNCH is equated to nonzero in this release.

```

                DELETE/    91
CARDPNCH     EQU          7
    
```

PRINTER: In the SCAR routine, PRINTER controls references to printer recovery. If PRINTER is equated to zero, all calls to PRCPR are eliminated. If equated to nonzero, PRINTER recovery is present. PRINTER is equated to nonzero in this release.

```

                DELETE/    92
PRINTER      EQU          7
    
```

The deck card is:

```

SCAR         DECK/      P1,P2,...
    
```

MTLDCPRR Modification:

NOATMPTS: In MTLDCPRR routine, NOATMPTS determines attempts at recovery before asking for an operator decision. It is currently set at 4.

	DELETE/	42
NOATMPTS	EQU	4

The deck card is:

MTLDCPRR	DECK/	P1,P2,...
----------	-------	-----------

MTWPRR Modifications:

MAXERASE: In MTWPRR routine, MAXERASE determines the maximum number of erasures executed before asking for an operator decision. It is currently set at 11 (which is 10 erasures).

	DELETE/	58
MAXERASE	EQU	11

CKSMCNST: In MTWPRR routine, CKSMCNST determines the number of backspaces executed to find correct position when checksum repositioning is valid. It is currently set at 4.

	DELETE/	59
CKSMCNST	EQU	4

The deck card is:

MTWPRR	DECK/	P1,P2,...
--------	-------	-----------

MTRPRR Modifications:

ATTMPT1: In MTRPRR routine, ATTMPT1 determines the number of tries using one backspace in a read parity recovery. It is currently set at 4.

	DELETE/	49
ATTMPT1	EQU	4

ATTMPT2: In MTRPRR routine, ATTMPT2 determines the total number of attempts at read parity recovery before asking for an operator decision. It is currently set at 8.

	DELETE/	50
ATTMPT2	EQU	8

BKSPLIM2: In MTRPRR routine, BKSPLIM2 determines the total number of backspaces for retry attempts when retry is recommended by the operator. It is currently set at 3.

	DELETE/	51
BKSPLIM2	EQU	3

The deck card is:

MTRPRR	DECK/	P ₁ , P ₂ , ...
--------	-------	---------------------------------------

NRD Modification:

READB: In NRD routine, this option, if equated to zero, eliminates READB checks for noise records. It is currently set to nonzero.

	DELETE/	44
READB	EQU	778

The deck card is:

NRD	DECK/	P ₁ , P ₂ , ...
-----	-------	---------------------------------------

TAPES Modification:

TAPES: This assembly option controls references to magnetic tapes and is located in SCAR, RAAR, WHATISIT, and NRC routines. If TAPES is equated to 0 in SCAR routine, all references to magnetic tape routines are eliminated, including calls to MTDER, MTLDCPRR, MTWPRR, MTRPRR, and WHATISIT.

If TAPES is equated to nonzero, the value must reflect the maximum number of tapes used in any program for the SCAR and WHATISIT routines. TAPES is equated to 8 in this release.

	DELETE/	82
TAPES	EQU	7
RAAR	DECK/	P ₁ , P ₂ , ...
	DELETE/	89
TAPES	EQU	8
SCAR	DECK/	P ₁ , P ₂ , ...

	DELETE/	16
TAPES	EQU	8
WHATISIT	DECK/	P1,P2,...
	DELETE/	71
TAPES	EQU	7
NRC	DECK/	P1,P2,...

ROUTINE Macros

Local macros are provided in the RAAR and SCAR routines to facilitate generation of specially assembled decks callable by the use of EXS cards. These macros rename the routines but cannot change the necessary equates.

SCAR Routine Assemble Macro: The SCAR assemble macro provides optional variability with SCAR subroutines.

Name: ASSEMBLE (n)

- (n) 0 Assemble routine with entry points for SCAR, SCARNM, SCARUST1. The IDENT card must be changed to SCAR.
- 1 Assemble routine with entry points for SCARSP, SCARNMSP, SPSCUST1. The IDENT card must be changed to SCARSP.
- 2 Assemble routine with entry points for SCARMT, SCARNMMT, MTSCUST1. The IDENT card must be changed to SCARMT.

The IDENT card must be changed to reflect a new name.

	DELETE/	1
	IDENT	name
	DELETE/	94
	ASSEMBLE	(n)
SCAR	DECK/	P1,P2,...

RAAR Routine Assemble Macro: The RAAR assemble macro provides optional variability with RAAR subroutines.

ASSEMBLE (n)

- (n) 0 Subroutine RAAR assembled with recovery for magnetic tape and all visual equipment; must be equated to nonzero.
- 1 Subroutine RAAR assembled with no magnetic tape recovery; TAPES must be equated to 0.

- 2 Subroutine RAARSP assembled with no magnetic tape recovery for job modularity using EXS card; TAPES must be equated to 0; the IDENT card must be changed to RAARSP.
- 3 Subroutine RAARMT assembled, using EXS card, with no visual equipment recovery for job modularity; subroutine NRC must be reassembled for this option; TAPES must be equated to nonzero; the IDENT card must be changed to RAARMT. The label NRC must be equated to NRC.MT, and ASSEMBLE (n) = 3 must be followed by:

		INSERT/	116
	NRC	EQU	NRC.MT
	DELETE/	1	
	IDENT	name	
	DELETE/	81	
	ASSEMBLE	(n)	
RAAR	DECK/	P ₁ , P ₂ , ...	

NRC Routine Assembly Macro: The NRC assemble macro provides optional variability with NRC subroutines.

ASSEMBLE (n)

- (n) 0 Subroutine NRC assembled with recovery for magnetic tape and for all visual equipment; TAPES must be equated to nonzero.
- 1 Subroutine NRC assembled with recovery for magnetic tape only.
- 2 Subroutine NRCMT assembled with recovery for magnetic tape only; the IDENT card must be changed to NRC.MT; TAPES must be equated to 0.

	DELETE/	1
	IDENT	name
	DELETE/	70
	ASSEMBLE	(n)
NRC	DECK/	P ₁ , P ₂ , ...

Error Recovery Equates

Error recovery equates vary for the variable resident routines and can be tailored to each installation.

PRELOAD: Error recovery is always present for magnetic tape, card punch, card reader, and printer, and the following error recovery equates are valid.

	DELETE/	5472
NOATMPTS	EQU	4
	DELETE/	5717,5718
MAXERASE	EQU	11
CKSMCNST	EQU	4
	DELETE/	5863,5865
ATTMPT1	EQU	4
ATTMPT2	EQU	8
BKSPLIM2	EQU	3
	DELETE/	6048
TAPES	EQU	8
	DELETE/	6825
READB	EQU	77
PRELOAD	DECK/	P ₁ ,P ₂ ,...

POSTLOAD: If the equate LERP is set to 1, error recovery is present for magnetic tape, card reader, card punch, and printer, and the following error recovery equates are valid:

	DELETE/	3303
NOATMPTS	EQU	4
	DELETE/	3508,3509
MAXERASE	EQU	11
CKSMCNST	EQU	4
	DELETE/	3655,3657
ATTMPT1	EQU	4
ATTMPT2	EQU	8
BKSPLIM2	EQU	3
	DELETE/	4400
READB	EQU	77

	DELETE/	4675
TAPES	EQU	8
POSTLOAD	DECK/	P ₁ , P ₂ , ...

LOADER: If the equate LERP is set to 1, error recovery is present for magnetic tape, card reader, card punch, and printer, and the following error recovery equates are valid:

	DELETE/	3447
NOATMPTS	EQU	4
	DELETE/	3649, 3650
MAXERASE	EQU	11
CKSMCNST	EQU	4
	DELETE/	3796, 3798
ATTMPT1	EQU	4
ATTMPT2	EQU	8
BKSPLIM2	EQU	3
	DELETE/	3986
TAPES	EQU	8
LOADER	DECK/	P ₁ , P ₂ , ...

RDUMP: If the equate SER.OPT is set to 1, error recovery is present for magnetic tape and printer and the following error recovery equates are valid:

	DELETE/	628
TAPES	EQU	8
	DELETE/	927, 929
CARDRDR	EQU	0
CARDPNCH	EQU	0
PRINTER	EQU	7
	DELETE/	1562
NOATMPTS	EQU	4
	DELETE/	1605, 1606
MAXERASE	EQU	11
CKSMCNST	EQU	4

	DELETE/	1846, 1848
ATTMPT1	EQU	4
ATTMPT2	EQU	8
BKSPLIM2	EQU	3
RDUMP	DECK/	P ₁ , P ₂ , ...

2.2.3 PRODUCT SET ASSEMBLY AND OPTIONS

Modification to standard product set members should be made at this time.

FORTRAN

If error recovery routines are modified, FORTRAN must be reassembled. Assemble all overlays of FORTRAN, including object time routines. Assemble all error recovery decks, making sure sizes of routines and BSS blocks in FORTRAN overlays are equal. Assemble the following special decks from the system COSY tape:

```
FTN0
PROGNAME
```

Use the expanded PRELIB to make a library with the decks set up as follows:

```
7
9SEQUENCE, 001
7
9JOB, ...,
7
9EQUIP, 55 = MT
7
9EQUIP, 01 = MT
7
9PRELIB, , 1, S, A
7
9SYMROUT
7
9RECORD, START2
7
9ORIGIN, START2
```

```
FTN0
RAAR
SCAR
MTWPR
MTRPR
```



binary decks (must be in this order)

MTLDACPR
MTDER
PRCPR
CRDER
CPDER
MTWPRR
MTRPRR
MTLDCPRR
CMNRTNS
WHATISIT
NRD
NRC
NWR
T.NOTRDY
TYPEOUT.
WHATKIND
PROGNAME

..
binary decks (must be in this order)

$\frac{7}{9}$ RECORD, START2

$\frac{7}{9}$ ORIGIN, START2, (octal size of error recovery routines including FTN0 and PROGNAME)

FTN1 binary deck

$\frac{7}{9}$ RECORD, START2

$\frac{7}{9}$ ORIGIN, START2, (octal size of error recovery plus FTN1 routines common to FTN2)

FTN2 binary deck

$\frac{7}{9}$ RECORD, START2

$\frac{7}{9}$ ORIGIN, START2, (octal size of error recovery plus FTN1 routines common to FTN3)

FTN3 binary deck

$\frac{7}{9}$ RECORD, START2

$\frac{7}{9}$ ORIGIN, START2, (octal size of error recovery plus FTN1 routines common to FTN4)

FTN4 binary deck

⁷/₉RECORD, START2

⁷/₉ORIGIN, START2, (octal size of error recovery plus FTN1 routines common to FTN5)

FTN5 binary deck

⁷/₉RECORD, START2

⁷/₉ORIGIN, START2, (octal size of error recovery plus FTN1 routines common to FTN6)

FTN6 binary deck

⁷/₉RECORD, START2

⁷/₉ORIGIN, START2, (octal size of error recovery plus FTN1 routines common to FTNE)

FTNE binary deck

⁷/₉FILE

⁷/₉REPLACE, FORTRAN, FORTRAN

FORTRAN - binary deck; includes LED card of following form

12
0
1 5501, 5601
7
9

LED card must immediately follow EPT card with main entry point.

⁷/₉REPLACE, FLOVER, Q8QERROR

FLOVER
BCDINP
BCDOUT
FORMAT
BINARY
BUFFER
UNIT
IOCHK
EOFCHK
TAPEHAND
PAUSE
CONTROL

} binary decks

DOUBLE
DFPRIME
DFP
Q1QADRI
ITOF
ITOX
XTOI
POWRF
SINCOS
ATANF
EXPF
LOGF
SIGNF
SQRTF
ABSF
EXTREMA1
EXTREMA2
FLOATF
FIXF
MASKINGF
FAULTS
SENSLITE
SENSWTCH
Q8QERROR

}
binary decks

⁷
9 FILE

⁷⁷
88 end-of-file

COMPASS

If a user coded COMPASS subroutine executes with FORTRAN I/O time routines, Q8QBCDWT may need to be declared external and called from the subroutine. If the COMPASS subroutine does I/O on units used by FTN I/O, a call to Q8QBCDWT is required to check a specified unit for outstanding BCD WRITES before the I/O operation takes place. Q8QBCDWT is a routine in FTN I/O control that checks for outstanding BCD writes and processes status.

The calling sequence is:

```
ENQ      lu
RTJ      Q8QBCDWT
```

lu = Number of unit

If error recovery routines are modified, COMPASS must be reassembled. Assemble all subprograms of COMPASS. Assemble all error recovery decks (program sizes must be identical to the size of the BSS blocks at the beginning of each subprogram of COMPASS) and the following special decks from the system COSY tape.

```
FTN0
PROGNAME
```

Use the expanded PRELIB to make a library. Decks must be in the specified form:

```
7SEQUENCE,001
9
7JOB,,,
9
7EQUIP,55=MT
9
7EQUIP,01=MT
9
7PRELIB,,1,S,A
9
7SYMROUT
9
7RECORD,START2
9
7ORIGIN,START2
9
```

```
FTN0
RAAR
SCAR
MTWPR
MTRPR
MTLDACPR
MTDER
PRCPR
CRDER
CPDER
MTWPRR
MTRPRR
MTLDCPRR
```

} binary decks (must be in this order)

CMNRTNS
 WHATISIT
 NRD
 NRC
 NWR
 T, NOTRDY
 TYPEOUT
 WHATKIND
 PROGNAME



binary decks (must be in this order)

⁷/₉RECORD, START2
⁷/₉ORIGIN, START2, (octal size of error recovery routines including FTN0 and PROGNAME)
 COMPASS binary deck
⁷/₉RECORD, START2
⁷/₉ORIGIN, START2, (octal size of error recovery decks plus COMPASS subprogram)
 OVERLAY1 binary deck
⁷/₉RECORD, START2
⁷/₉ORIGIN, START2, (octal size of error recovery decks plus COMPASS subprogram)
 PASSONE binary deck
⁷/₉RECORD, START2
⁷/₉ORIGIN, START2, (octal size of error recovery decks plus COMPASS subprogram)
 PASSTWO binary deck
 SYMTBLE binary deck
⁷/₉RECORD, START2
⁷/₉ORIGIN, START2, (octal size of error recovery plus COMPASS subprogram)
 CRT binary deck
⁷/₉FILE
⁷/₉REPLACE, COMPASSB, COMPASSB
 COMPASSB binary deck including LED card of following form:

12
 0
 15501
 7
 9

This card must occur after the EPT card with the main entry point and before the TRA card. If both 55 and 56 are to be equipped, use a LED card with the form:

12
0
15501,5601
7
9

7
9REPLACE, COMPASS, CRT
7
9UNIT, 55, FTN0
7
9UNIT, 55, COMPASS
7
9UNIT, 55, OVERLAY1
7
9UNIT, 55, PASSONE
7
9UNIT, 55, PASSTWO
7
9UNIT, 55, CRT
7
9FILE
77
88end-of-file

COBOL

If it is necessary to reassemble COBOL, place the decks in the following order:

COBOLIE
COBOLD1
COBOLP1
COBOLD2
COBOLP2
COBOLDP3

COSY

Assemble the COSY subprograms and use the following PRELIB example to replace COSY on the library.

7
9SEQUENCE, 001
7
9JOB, . . .
7
9EQUIP, 55=MT
7
9EQUIP, 01=MT
7
9PRELIB, , 1, S
7
9FILE
7
9REPLACE, COSY, COSYRDWT

COSY binary deck
COSYRDWT binary deck

⁷FILE
⁹
⁷⁷
⁸⁸end-of-file

BSIPP

To expand number of operations of BSIPP:

1. Equate NOPS to the number of operations; NOPS is set to 3 in this release.

	DELETE/	98
NOPS	EQU	3

2. Expand the following tables so they contain the number of entries NOPS is equated to. The example shown is for NOPS = 3.

	DELETE/	2956, 2958
BLIST	00	BUF
	00	BUF+BSIZ2
	00	BUF+BSIZ2+BSIZ2

	DELETE/	2959, 2961
B2LIST	00	B2BUF, 3
	00	B2BUF+B2SIZ, 3
	00	B2BUF+B2SIZ+B2SIZ, 3

	DELETE/	2963, 2965
RSVLIST	00	RSVBUF, 3
	00	RSVBUF+RSVSIZ, 3
	00	RSVBUF+RSVSIZ+RSVSIZ, 3

	DELETE/	2966, 2968
FALIST	00	FABUF
	00	FABUF+FASIZ
	00	FABUF+FASIZ+FASIZ

3. Change the buffer storage area. The example below is the same as the release (NOPS equal to 3).

	DELETE/	2977, 2980	
BUF	BSS	BSIZ2+BSIZ2+BSIZ2	(BSIZ2)(NOPS)
B2BUF	BSS	B2SIZ+B2SIZ+B2SIZ	(B2SIZ)(NOPS)
RSVBUF	BSS	RSVSIZ+RSVSIZ+RSVSIZ	(RSVSIZ)(NOPS)
FABUF	BSS	FASIZ+FASIZ+FASIZ	(FASIZ)(NOPS)

SIPP

To expand the number of operations of SIPP, change the equate NOPS to the number desired. NOPS is set to 3 in this release.

	DELETE/	120
NOPS	EQU	3

2.2.4 REPLACEMENT CARD

The replacement card in the PRELIB Source Deck (section 4.1) is illegal and must be replaced with the modified xCICREC1 deck.

2.2.5 BCD, BDP, AND FDP OPTIONS

RTS/STD/BATCH for 3100/3200

BCD Hardware	FDP Hardware	Action
Absent	Absent	Remove SEPOINT, BCDBOXs and SEPOINT, FDPBOXs Set BDP EQU 0 in xCICREC1†
Absent	Present	Remove SEPOINT, BCDBOXs Set BDP EQU 0 in xCICREC1†
Present	Absent	Remove SEPOINT, FDPBOXs Set BDP EQU 0 in xCICREC1†
Present	Present	Set BDP EQU 0 in xCICREC1†

In all cases only BCD COBOL may be used.

† x = S Standard
B BATCH

RTS/STD/BATCH for 3300/3500

BCD Hardware	FDP Hardware	Action
Absent	Absent	Remove SEPOINT, BCDBOXs and SEPOINT, FDPBOXs Set BDP EQU 0 in xCICREC1†
Absent	Present	Remove SEPOINT, BCDBOXs Set BDP EQU 0 in xCICREC1†
Present	Absent	Remove SEPOINT, FDPBOXs Set BDP EQU 1 in xCICREC1†
Present	Present	Set BDP EQU 1 in xCICREC1†

Where BDP hardware exists and is defined in xCICREC1 (BDP EQU 1), BDP COBOL must be used. Otherwise BCD COBOL is required. If BDP is equated to 1, the library must always be run with the console BDP switch turned on.

UNDEFINED SEPOINTS

A SEPOINT card must be inserted directly after the loader record. When only system routines (e.g. COMPASS) are absolutized, they are illegal.

A SEPOINT card is used to prevent the loading of a subroutine or program; if the name specified on the control card is undefined, the symbol is equated to ABNORMAL, and the job terminates. This technique is particularly useful for installations with optional floating-point and BCD hardware. For example, the following cards in file 1 input would prevent loading of hardware simulation routines FDPBOXs and BCDBOXs.

```
SEPOINT, FDPBOXS
SEPOINT, BCDBOXs
```

Other undefined system entry points (CIP and PERADD) do not invalidate the PRELIB as long as no routines reference the undefined SEPOINT.

2.2.6 DRIVER SELECTION

In this release, the drivers for all equipments and controllers are included within the STD and BATCH PRELIB source decks.

† x = S Standard
B BATCH

DRIVLABT

Users with a 601, 603, or 606 driver must make the following modification.

	DELETE/	3
TAPE	EQU	606

The deck card is:

DRIVLABT	DECK/	P ₁ , P ₂ , ...
----------	-------	---------------------------------------

SYSTEM DRIVERS

Remove the unnecessary drivers. The drivers are identified by unique program lengths on their IDC cards and may be removed by cross-referencing the PRELIB Source Deck Listing, part II, section 4.1, and the following chart.

Hardware	Control Data Controllers†	Control Data Equipment† (in combination)	COSY Name	Entry Point Name	Deck Length
MT	362x 342x 322x	604 607	DRIVLABT	DRIVER01	344
MT	362x 342x 322x	601 603 606	DRIVLABT	DRIVER01	330
CR	3447 3649	405	DRIV3649	DRIVER02	245
CR	3248 3142	405	DRIV3248	DRIVER02	235
PR	3256 3659 3152 3254	501 505	DRIV3659	DRIVER03	356
PR	3555	512	DRV512	DRV512	406
CP	3644 3446	415	DRIV3644	DRIVER04	222
CP	3245	425	DRIV3245	DRIVER04	345
TY	Console Typewriter	-	DRIVTYWR	DRIVER05	115
PL	3293	Plotter	DRIV3293	DRIVER11	60
OR	3195	915	DRIVER12	DRIVER16	330
TR TP	3691	Paper Tape Station	DRIV3691	DRIVER06 DRIVER07	625

† Registered trademark of Control Data Corporation.

The final PRELIB source is generated through the utility routines on an installed system (Tape SCOPE 2.4 or RTS 1.2). To punch the source decks that are not installation dependent:

Mount release tape 1 and space tape forward one file. This positions release tape 1 at the standard PRELIB source. If a BATCH source is desired, space the tape forward one additional file.

Punch the appropriate PRELIB source.

At this point, the user must decide if BDP COBOL and BDP SORT for the 3300/3500 are desired. If BDP COBOL and BDP SORT are not desired, skip next step. If a standard PRELIB source was punched, space the tape forward one file.

Punch BDP COBOL and SORT PRELIB source.

The BDP COBOL and SORT PRELIB source (section 4.1.3) can be used as standard INP or can be punched.

2.3 FINAL LIBRARY GENERATION

To generate a final RTS library, an installation must have the following materials:

An operable interim library.

The autoloader program installed in core storage.

The proper PRELIB source deck (RTS/STD or RTS/BATCH) modified to fit the particular hardware configuration.

The library generation proceeds as follows:

1. Mount the interim library on physical unit 0.
2. Mount scratch tapes on physical units 1 and 2.
3. Mount tape to receive the final library on unit assigned to logical unit 1.
4. Place the PRELIB source deck in the card reader.
5. Execute the PRELIB source deck.
6. The interim PRELIB will produce the following CTO diagnostics:

I PLIB 031 PRELIB HISTORY BEGIN

I PLIB 042 PRELIB HISTORY END

If any other diagnostic appears on CTO or OUT, the error must be corrected and the job repeated.

2.4 MMTc ADD-ON TO RTS 2.0 SYSTEM

After the initial release of RTS 2.0, new capabilities have been added to the system. This section provides sufficient information to add these capabilities to an existing RTS 2.0 system.

2.4.1 DRIVMMTC

DRIVMMTC is the driver for the 3518/3528 Modular Magnetic Tape Controller (MMTC) and the 657/659 Magnetic Tape Transports.

Release Materials

The release materials will be on punched cards in the following form:

- COSY changes for CIO
- COSY changes for xCICREC1 (x=S or B)
- COSY changes for RDUMP
- COSY changes for PRELOAD
- COSY changes for LOADER
- COSY changes for POSTLOAD
- COSY changes for ERROR RECOVERY
- COSY formatted deck of DRIVMMTC
- COSY formatted deck of MMTcINIT
- Binary deck of MMTcINIT

T657 Assembly Option

Definition: The T657 option permits those installations with 657 Tape Transports to utilize them through software modifications.

Option:

	DELETE/	120
T657	EQU	n

n = number of 659 Tape Transports

Release Value: T657 = 1

T659 Assembly Option

Definition: The T659 option permits those installations with 659 Tape Transports to utilize them through software modifications.

Option:

	DELETE/	122
T659	EQU	m

m = number of 659 Tape Transports

Release value: T659 = 1

Installation Procedures

1. Select and set assembly options according to configuration.
2. Assembly DRIVMMTC.
3. Generate changes necessary for AET (part III, section 2).
4. Assemble CIO, xCICREC1, RDUMP, PRELOAD, LOADER, POSTLOAD, where x is B = Batch or S = Standard.
5. Apply COSY changes to ERROR RECOVERY at 5 locations.
6. Edit PRELIB SOURCE by inserting the binary decks and files from the above steps.
7. Execute the edited PRELIB SOURCE.
8. Initialize MMTC (see below).
9. Autoload and verify new system.

MMTC Initialization

The image memory of the MMTC (3518 or 3528) must be loaded before tape operations can be executed. The procedure requires the following steps:

1. Separate the MMTC initializer binary program from the MMTC release materials.
2. Obtain a one-card loader (part II, section 9).

The image memory initializer program contains the CDC 64 character subset of ASCII for the image memory and several subroutines necessary to extract the configuration of the MMTC and physically write the image memory.

3. Place the one-card loader followed by the binary deck of the image initializer in the card reader.
4. Autoload from the card reader.

The computer types:

A MMTC 001 C(c)E(e)U(uu)

5. Type the appropriate channel c, equipment e, and unit numbers uu for MMTC.

The program will attempt to initialize the image memory. If successful, the following message is typed:

I MMTC 005 IMAGE MEMORY LOADING COMPLETED

NOTE

If the user has a 3528 controller this procedure will be repeated so that both image memories (one per channel) can be initialized.

If unsuccessful, one or more of the following will be typed:

Message			Significance	Action
I	MMTC	003	IMAGE MEMORY PARITY ERROR xxxx xxxx=WRITE Parity error occurred during write of image memory xxxx=READ Parity error occurred during read	Retry If error continues, the controller should be examined for hardware malfunction.
I	MMTC	004	UNEXPECTED STATUS WORD II ssss ssss=status in octal. Abnormal condition (other than memory parity) occurred.	Retry If error continues, the controller should be examined for hardware malfunction.
A	MMTC	006	xxx REJECTED yyyyyyyy xxx=CON connect SEL select yyyyyyyy=rejected instruction in octal	1. Press FINISH to restart initializer, or 2. Press REPEAT to retry rejected function.
A	MMTC	007	IMAGE MEMORY zzzz REJECTED zzzz=INPW Input word instruction rejected zzzz=OUTW Output word instruction rejected	1. Press FINISH to restart initializer, or 2. Press REPEAT to retry rejected function
A	MMTC	008	CONTROLLER BUSY AFTER 10 SECONDS	1. Press FINISH to restart initializer, or 2. Press REPEAT to continue to wait
I	MMTC	009	IMAGE MEMORY LOADED INCORRECTLY After image memory was initialized, it was read, and the returned image differs from the image that was written.	Retry If error continues, examine controller for hardware malfunction.

A copy of the image memory initializer is provided in COSY format to allow the user to select a code set other than CDC 64 character subset of ASCII after installation is completed. If the program is utilized this way the following message will be typed if two BCD codes have the same 8-bit code equivalent:

Message				Significance	Action
I	MMTC	002	DUPLICATE CONVERSION	Two BCD codes have the same 8-bit code xx = character 1 yy = character 2	

The installation of some members of the RTS product set is generated through separate sets of procedures because:

The products involved are special applications programs or use special applications equipment that some users may or may not have or need.

The procedures depend on the existence of a fully operable RTS final library.

The procedures that follow involve installation and generation of:

- SAINT
- ADAPT
- PERT Time
- PERT Cost

3.1 SAINT

SAINT is released on COSY tape. Use the following sample procedures to add SAINT to an RTS library:

1. Mount RTS tape on physical unit 00 and scratch tape on physical unit 01.
2. Mount COSY tape on logical unit 01, scratch tape on logical unit 02.
3. Create and run a card deck of the following form:

JOB 1

Job 1 assembles according to options selected. A 16K simulator with multiply and divide example is given here. COMPASS assembles Hollerith tape 02. The example is a listing of a SAINT binary deck with options selected.

```

7
9SEQUENCE,001
7
9JOB-SAINT-COSY,
7
9EQUIP,01= MT,02= MT
7
9COSY
          DELETE/      39,41
DIVIDE    EQU          TRUE
MEMIZE    EQU          16000
MULTIPLY  EQU          TRUE
SAINT     DECK/        I= 01,H= 02
    
```

} Option examples

ENDCOSY/

7
9COMPASS,I=02,L,R,P
77
88end-of-file

JOB 2

JOB 2 inserts a binary image of the binary deck from JOB 1 on scratch logical 01 at the beginning of file 2 as given in the example.

7
9SEQUENCE,002
7
9JOB,SAINT-LIB,,
7
9EQUIP,01=MT (new system tape)
7
9PRELIB,,01
7
9FILE
7
9INSERT

SAINT binary deck

7
9FILE
77
88end-of-file

4. Load RTS.

3.1.1 ASSEMBLY OPTIONS

The following table provides the COSY sequence number, SAINT core requirements, and the name of the assembly parameters that must be equated to TRUE to select the various options in SAINT. For a complete description of assembly options see appendix A of the 3100/3200/3300/3500 SAINT Reference Manual, Pub. No. 60213700.

<u>Sequence Number</u>	<u>Name</u>	<u>Core Required (decimal)</u>
30	ADDRTABL	288
31	BRANBIT	20
32	COLBIN	306
33	COMPRESS	88
39	DIVIDE	123
40	MEMSIZE	4K - 2000†
		8K - 4000†
		12K - 6000†
		16K - 8000†
41	MULTIPLY	90
43	SIM1403	-7
44	SIM1407	236
46	STERLING	1386
47	TRACEDMP	293
48	TRANSLAT	101
49	WMIO	195
50	WMBL	151

For WMBL, WMIO must be equated to TRUE. If WMIO is TRUE and WMBL is nonzero, tape word mark I/O is performed in a non-time-dependent manner. This can be equated to the minimum number of characters desired in the input/output buffer. When using word mark I/O, if WMBL is equated to the maximum number of input or output characters, no density (tape) restrictions apply. However, if WMBL is equated to FALSE, the following restrictions apply:

3200/3300	601, 603, 604 tape transports, no density restrictions. 606, 607 tape transports, restricted to 200 BPI.
3100	Restricted to 200 BPI for all tape units.

† The simulation of SAINT memory requires half the nonsimulated core size.

3.1.2 CORE REQUIREMENTS

Use the following equation to find total core size of SAINT:

$$st = 2510 + \frac{\text{memsize}}{2} + so + \frac{\text{wmbL}}{4}$$

st	Total core requirement for SAINT
so	Total of option core requirements
wmbL	Size of word mark buffer length (variable)
memsize	Size of simulated memory

3.2 ADAPT

The ADAPT release consists of two packages, one for 16K and one for 32K.

Each package consists of:

- A binary (load-and-go) tape from which to make ADAPT overlay tape.
- A set of operating procedures.

Also available are:

- A BCD tape of the ADAPT source decks
- ADAPT Internal Maintenance Specifications

ADAPT operates from an overlay tape made from the binary tape furnished as a part of the ADAPT system release, or from decks punched from the tape.

A deck of test programs is provided to ensure successful production of the overlay tape. Sample output from these programs is included in the appendix of the ADAPT Internal Maintenance Specifications. A single run is required to create the overlay tape and test the sample part programs.

3.2.1 16K ADAPT PREPARATION

1. Mount ADAPT source tape on logical unit 01.
2. Mount scratch tapes on logical units 02 and 03.
3. Run the following job:

```
7
9SEQUENCE,001
7
9JOB,, ,
```

```

7
9EQUIP, 01 = MT, 03 = MT
7
9FORTRAN, I = 01, P = 02, L = 03
7
9COMPASS, I = 01, P = 02, L = 03
7
9FORTRAN, I = 01, P = 02, L = 03
7
9COMPASS, I = 01, P = 02, L = 03
7
9FORTRAN, I = 01, P = 02, L = 03
77
88end-of-file

```

4. Punch binary decks from logical unit 02 and list source from logical unit 03.
5. Duplicate the following binary decks:

<u>Deck</u>	<u>Sequence number</u>	<u>Copies</u>
STDPACK	0110	1
STDUNPK	0111	1
PTRIT	0125	1
GENPLN	0223	1
ZVECT	0224	1
ZVALUE	0225	1
DOT	0227	1
CROSS	0226	2
LENGTH	0228	1
NORM	0229	2

Place routines STDPACK, STDUNPK in the main portions of OVERLAY1 and OVERLAY2.

Place PTRIT in segments 2 and 3 of OVERLAY2.

Place the second copies of CROSS and NORM in OVERLAY4.

6. Set up the overlay deck structure:

```

7
9SEQUENCE, 001
7
9JOB, , ,
7
9EQUIP, 05 = MT, 06 = MT, 07 = MT
7
9EQUIP, 49 = 06

```


12
049
7
9

binary decks for MAIN OVERLAY

CDCADAPT

INITIAL

PRCNTL

LBSRCH

TAPERD

TAPEWT

12
0
349,1
7
9

binary decks for OVERLAY 1

PASS1A

ITYPE

DOMAC

PTIDENT

ERRMSG

BCDFETCH

JUGGLE

NUMSTOR

STDPACK

STDUNPK

12
0
249,1
7
9

binary decks for OVERLAY 1, SEGMENT 1

P1ASEG1

CARDBKUP

PTGEN

SERCHV

TABLCK

12
0
249,2
7
9

binary decks for OVERLAY 1, SEGMENT 2

PIASEG2
POSMACH
MACDEF
CAWL
TERMAC
RSERV
PTRIT

12
0
249,3
7
9

binary decks for OVERLAY 1, SEGMENT 3

PIASEG3
COMPUT
IFJUMP
PTRIT
GEOM1A
FINI

12
0
249,4
7
9

binary decks for OVERLAY 1, SEGMENT 4

PIASEG4
TABLSET
XABLE
YABLE

12
0
349,2
7
9

binary decks for OVERLAY 2

PASS1B

PTID

TABLSIB

ERRMSG

STDPACK

STDUNPK

CANGET

CANPUT

DEFPRE

12

0

249,1

7

9

binary decks for OVERLAY 2, SEGMENT 1

SEND

BCDINF

FINIB

MISC

PSIS

POKE

RITAPE

MOTION

PREPRO

TABCO

QUAD

RFCTF

SSQRF

PPARAM

12

0

249,2

7

9

binary decks for OVERLAY 2, SEGMENT 2

JDSEG2

GENPLN

ZVECT
ZVALUE
CROSS
DOT
LENGTH
NORM
LINE01
LINE02
LINE03
LINE04
LINE05
LINE06
LINE07
LINE08
LINE09
PLAN01
PLAN02
PLAN03
ELLP01
ELLHYP
GCON01
MATX01
MATX02
MATX03
MATX04
12
0
249, 3
7
9

binary decks for OVERLAY 2, SEGMENT 3

JDSEG3
GENPLN
ZVECT
ZVALUE
CROSS

DOT
LENGTH
WORM
PONT01
PONT02
PONT03
PONT04
PONT05
PONT07
CIRL01
CIRL02
CIRL03
CIRL05
CIRL08
CIRL09
CIRL10
CIRL11
CIRL12

12
0
349,3
7
9

binary decks for OVERLAY 3

CALLSEG2
SUPER
AMINDX
DDSTX
UNRMALX
AERRX
ASTOSX
CENTRX
RADARX
CPLANX
CCURVX
DELTAX

ARLMG
TLNORMX
CHECKX
QUADX
ATAPEX
UNORMX
STRUPX
AJUNDDX
AREPREX

12
0
249,1
7
9

binary decks for OVERLAY 3, SEGMENT 1

CALLSEG1
SECTN2X

12
0
249,2
7
9

binary deck for OVERLAY 3, SEGMENT 2

ARLMCL

12
0
249,3
7
9

binary decks for OVERLAY 3, SEGMENT 3

CALLSEG3
UNTABC
DDTABC

12
0
349,4
7
9

binary decks for OVERLAY 4

PICKPOCK
POCKET
ATAPEY

ASTOSY

AERRY

WORM

CROSS

12

0

349, 5

7

9

binary decks for OVERLAY 5

PASSB

CLPRNT

SEARCH

IFIXED

MULTM

TSMPT

TSMVC

MATMOV

TABFCT

12

0

349, 6

7

9

binary decks for OVERLAY 6

SECTN4

DISPAT

12

0

249, m

7

9

binary deck for post processor; each post processor is a segment

7

9RUN

77end-of-file

7. Mount a tape for the overlay tape on logical unit 49.
8. Mount scratch tapes on logical units 05 and 07.
9. Place above overlay structure in card reader and load. Upon completion of run, remove the write ring from the overlay tape.

3.2.2 16K ADAPT EXECUTION

1. Mount overlay tape on logical unit 49 and scratch tapes on logical units 05 and 07.
2. Place the following job deck in the card reader and load:

```

7SEQUENCE, 001
7JOB, ,
7EQUIP, 49 = MT, 05 = MT, 07 = MT
binary cards for MAIN OVERLAY (see preparation)
7RUN
part programs
*** (end of batch card)
77end-of-file
    
```

3. Printed output is on logical unit 61.
4. Duplicate the following binary decks:

<u>Deck Name</u>	<u>Sequence Number</u>	<u>Copies</u>
STDPACK	0110	1
STDUNPK	0111	1
PTRIT	0125	1
CROSS	0226	1
NORM	0229	1

Place STDPACK and STDUNPK decks in main portions of OVERLAY 1 and OVERLAY 2.

Place PTRIT deck in OVERLAY 1, SEGMENT 2 and SEGMENT 3.

Place CROSS and NORM decks in OVERLAY 4.

5. Set up the following deck structure:

```

7SEQUENCE, ...
7JOB, ...
7EQUIP, 05 = MT, 07 = MT
7EQUIP, 06 = MT, 49 = 06
12
0
749 (main)
9
    
```


binary decks for MAIN OVERLAY

CDCADAPT

INITIAL

PRCNTL

LBSRCH

TAPERD

TAPEWT

FLOVER

12

0
349,1 (overlay 1)

7

9

binary decks for OVERLAY 1

PASS1A

ITYPE

DOMAC

PTIDENT

ERRMSG

BCDFETCH

JUGGLE

TABLSET

NUMSTOR

STDPACK

STDUNPK

XABLE

YABLE

12

0
249,1

7

9

binary decks for OVERLAY 1, SEGMENT 1

PIASEG1

CARDBKUP

PTGEN

SERCHV

TABLCK

12
0
249, 2
7
9

binary decks for OVERLAY 1, SEGMENT 2

P1ASEG2
POSMACH
MACDEF
CAWL
TERMAC
RSERV
PTRIT

12
0
249, 3
7
9

binary decks for OVERLAY 1, SEGMENT 3

P1ASEG3
COMPUT
IFJUMP
PTRIT
GEOM1A
FINI

12
0
349, 2
7
9

binary decks for OVERLAY 2

PASS1B
PTID
TBLS1B
ERRMSG
STDPACK
STDUNPK
CANGET
CANPUT

12
0
249,1
7
9

binary decks for OVERLAY 2, SEGMENT 1

SEND
BCDINF
FINIB
MISC
PSIS
POKE
RITAPE
MOTION
PREPRO
TABCO
QUAD
RFCTF
SSQRF
PPARAM

12
0
249,2
7
9

binary decks for OVERLAY 2, SEGMENT 2

DEFPRE
JDSPAT
GENPLN
ZVECT
ZVALUE
CROSS
DOT
LENGTH
NORM
PONT01
PONT02
PONT03

PONT04
PONT05
PONT07
LINE01
LINE02
LINE03
LINE04
LINE05
LINE06
LINE07
LINE08
LINE09
PLAN01
PLAN02
PLAN03
CIRL01
CIRL02
CIRL03
CIRL05
CIRL08
CIRL09
CIRL10
CIRL11
CIRL12
ELLP01
ELLHYP
GCON01
MATX01
MATX02
MATX03
MATX04

12
0
349,3
7
9

binary decks for OVERLAY 3

CALLSEG2

SUPER

AMINDX

DDSTX

UNRMALX

AERRX

ASTOSX

CENTRX

RADARX

CPLANX

CCURUX

DELTAX

ARLMG

SNAP

TLNORMX

CHECKX

QUADX

ATAPEX

VNORMX

STRUPX

AJUNDDX

AREPREX

12
0
249, 1
7
9

binary decks for OVERLAY 3, SEGMENT 1

CALLSEG1

SECTN2X

12
0
249, 2
7
9

binary decks for OVERLAY 3, SEGMENT 2

ARLMCL

12

0

249, 3

7

9

binary decks for OVERLAY 3, SEGMENT 3

CALLSEG3

UNTABC

DDTABC

12

0

349, 4

7

9

binary decks for OVERLAY 4

PICKPOCK

POCKET

ATAPEY

ASTOSY

AERRY

NORM

CROSS

12

0

349, 5

7

9

binary decks for OVERLAY 5

PASS3

CLPRNT

SEARCH

IFIXED

MULTM

TSFMPPT

TSFMVC

MATMOV

TABFCT

12
0
349,6
7
9

binary decks for OVERLAY 6

SECTN4

DISPAT

12
0
249, m
7
9

binary decks for post processor (each post processor added comprises
a segment)

7
9RUN

test part programs

77
88end-of-file

6. Mount tape for overlay tape and scratch tapes as specified on the EQUIP cards. Load overlay deck structure into the card reader and execute the job.
7. Upon completion of the run, remove the write ring from the tape on logical unit 49. This is the overlay tape to be used for running part programs.

3.2.3 32K ADAPT PREPARATION

1. Mount ADAPT source tape on logical unit 1 and scratch tapes on logical units 2 and 3.
2. Place the following job in the card reader:

7
9SEQUENCE,001
7
9JOB, , , ,
7
9EQUIP,01=MT,02=MT,03=MT
7
9FORTRAN,I=01,P=02,L=03
7
9COMPASS,I=01,P=02,L=03
7
9FORTRAN,I=01,P=02,L=03
7
9COMPASS,I=01,P=02,L=03
7
9FORTRAN,I=01,P=02,L=03
77
88end-of-file

3. Punch the binary cards from logical unit 02 and list from logical unit 03.

3.2.4 32K ADAPT EXECUTION

1. Mount overlay tape on logical unit 49.
2. Mount scratch tapes on logical units 05 and 07.
3. Place the following deck in the card reader and load:

```
7SEQUENCE,...
9JOB,...
7EQUIP,05=MT,07=MT
7EQUIP,49=MT
      binary decks for MAIN OVERLAY (see preparation)
7RUN
      part programs†
77end-of-file
88
```

4. Printable output is produced on logical unit 60.

3.3 PERT TIME

The release materials for PERT Time consist of two tapes and two binary main decks. One tape and deck is for use under a 16K system, the other for a 32K system. The 16K and 32K variant tapes have the same structure. A 16K variant batch library with no options requires 12.3K of core. A 32K variant requires 24.3K of core. The first file is a binary LGO file. The second is made up of images of source cards and control cards which, when mounted as standard input, punch the main program, generate listing of source, and produce an LGO file that is the same as that given in file 1.

3.3.1 CREATE OVERLAY FROM FILE ONE OF RELEASE TAPE

The following control cards create an overlay tape from the binary LGO tape. Mount the release tape on logical unit 56. The overlay tape will be created on logical unit 55.

```
7SEQUENCE,001
9JOB,,,,ND,NP
```

† When using a tabcyl as a drive surface and a second overlapping tabcyl as a check surface, execution errors may occur because of the nature of information given in this particular situation. Using an intersecting line as a check surface to pass from one tabcyl to the other provides a means of bypassing this trouble spot.


```

7
9EQUIP,55=MT,05=55
7
9EQUIP,56=MT
7
9LOAD,56
7
9RUN
77
88end-of-file

```

After the job creates an overlay tape, it loads overlay 1 and the job terminates. When the overlay tape is used to run the PERT Time run, it must be used with the library it was created on.

3.3.2 CREATE OVERLAY AND FOLLOW WITH COMPUTER RUN

The following control cards create an overlay tape followed by a computer run.

```

7
9SEQUENCE,001
7
9JOB, , , ND, NP
7
9EQUIP,56=MT (Mount release tape on logical unit 56)
7
9EQUIP,55=MT (Logical unit 55 will be overlay tape)
7
9EQUIP,05=55
7
9EQUIP,1=MT,2=MT,3=MT (PERT work tapes)
7
9LOAD,56
7
9RUN
      (PERT control cards)
.
.
.
STOP
77
88end-of-file

```

The following control cards generate PERT Time reports with a previously created overlay tape.

```

7
9SEQUENCE,001
7
9JOB, , , ND, NP
7
9EQUIP,05=MT (Mount overlay tape, logical unit 5)
7
9EQUIP,1=MT,2=MT,3=MT (PERT work tapes)
.
.
      (binary PERT Time main deck)
.
.

```

```

7
9RUN
      (PERT control cards)
      .
      .
      .
STOP
77end-of-file
88

```

3.4 PERT COST

The release materials consist of a two file tape and a binary card deck of PERT Cost MAIN. The first file of the tape is a binary LGO file. The second file is made up of source cards and control cards which when mounted as standard input, punch the main, generate a listing of the source, and produce an LGO file that is the same as that given in file one.

3.4.1 CREATION OF OVERLAY TAPE

The following deck structure generates a PERT Cost overlay tape on logical unit 55.

```

7SEQUENCE,001
9JOB,,,,ND,NP
7EQUIP,55=MT,05=55
7EQUIP,56=MT (Mount release tape on logical unit 56)
9LOAD,56
7RUN
77end-of-file
88

```

After overlay tape has been created, PERT Cost is loaded and then terminates with the following message:

```
T CONTROL CARD MISSING
```

PERT Cost processing can begin.

The following job structure is set up to execute a PERT Cost run.

```

7SEQUENCE,001
9JOB,,,,ND,NP
7EQUIP,05=MT (Mount OVERLAY tape on logical unit 05)
9EQUIP,1=MT,2=MT,3=MT (PERT work tapes)

```

.
.
.
 (binary PERT Cost main deck)
.
.
.
7
9 RUN
.
.
 (PERT Cost control cards)
.
.
77
88 end-of-file

The PERT Cost run must be run under the same library that created the overlay tape.

4.1 PRELIB SOURCE DECK LISTINGS

4.1.1 PRELIB SOURCE FOR STANDARD

PAGE 1

```

C.C. SEQUENCE,002
C.C. JOB,9999
C.C. EQUIP,55=MT,05=55
C.C. EQUIP,1=MI
C.C. PRELIB,91
C.C. REPLACE
C.C. RECORD,0
C.C. ORIGIN,0
1DC ZERU      PROG.LENGTH=00000
1DC C10      PROG.LENGTH=01002
1DC DRIVER01 PROG.LENGTH=00344
1DC DRIVER01 PROG.LENGTH=00350
1DC DRIVER02 PROG.LENGTH=00245
1DC DRIVER02 PROG.LENGTH=00235
1DC DRIVER03 PROG.LENGTH=00356
1DC DRV512   PROG.LENGTH=00400
1DC DRIVER04 PROG.LENGTH=00222
1DC DRIVER04 PROG.LENGTH=00345
1DC DRIVER05 PROG.LENGTH=00115
1DC DRIVER11 PROG.LENGTH=00000
1DC DRIVER12 PROG.LENGTH=00350
1DC DR13091  PROG.LENGTH=00025
C.C. R E P L A C E M E N T - I N S E R T D E C K O F S C I C
C.C. RECORD,START2
C.C. ORIGIN,START2
1DC RDUMP    PROG.LENGTH=00504
C.C. RECORD,START2
C.C. ORIGIN,START2
EAS LBUF=START2
1DC PRELOAD  PROG.LENGTH=11113
EAS ENDPRUF=POSTLOAD
C.C. RECORD,START2
C.C. ORIGIN,START2
1DC CRREC   PROG.LENGTH=00000
EAS CIOPCALL=ABNORMAL
1DC LQADER  PROG.LENGTH=04716
C.C. SEPOINT,BCDBOX5
C.C. SEPOINT,FDPBOX5
C.C. SEPOINT,ABNORMAL
C.C. SEPOINT,ACCOUNTS
C.C. SEPOINT,AET
C.C. SEPOINT,BERRADD
C.C. SEPOINT,BKEXIT
C.C. SEPOINT,BKRUNFLG
C.C. SEPOINT,BNJ.
C.C. SEPOINT,BKMT
C.C. SEPOINT,C10
C.C. SEPOINT,CIC3.01
C.C. SEPOINT,CIP
C.C. SEPOINT,CIT
C.C. SEPOINT,CIT.RTM
C.C. SEPOINT,CSI

```

C.C. SEPOINT,DINT.
 C.C. SEPOINT,EINT.
 C.C. SEPOINT,EST
 C.C. SEPOINT,GUFLG
 C.C. SEPOINT,LOADER
 C.C. SEPOINT,LUGS
 C.C. SEPOINT,MEMORY
 C.C. SEPOINT,MIBKADD
 C.C. SEPOINT,MIBUF
 C.C. SEPOINT,MIFORADD
 C.C. SEPOINT,NDEXIT
 C.C. SEPOINT,PEKRRADD
 C.C. SEPOINT,RUCKF1
 C.C. SEPOINT,RHI
 C.C. SEPOINT,RIO
 C.C. SEPOINT,START2
 C.C. SEPOINT,US1
 C.C. RECORD,LSTLGTH
 C.C. ORIGIN,LSTLGTH
 IDC OVPRG PRG.LENGTH=02305
 C.C. RECORD,BINBUF
 C.C. ORIGIN,BINBUF
 IDC PROTECT PRG.LENGTH=00275
 IDC POSTLOAD PRG.LENGTH=03014
 C.C. RECORD,START2
 C.C. ORIGIN,START2
 IDC FINU PRG.LENGTH=00002
 IDC RAAK PRG.LENGTH=00040
 IDC SCAK PRG.LENGTH=00340
 IDC M1WPR PRG.LENGTH=00010
 IDC M1RPR PRG.LENGTH=00020
 IDC M1LDACPR PRG.LENGTH=00010
 IDC M1DER PRG.LENGTH=00020
 IDC PRCPR PRG.LENGTH=00016
 IDC CRDER PRG.LENGTH=00041
 IDC CPDER PRG.LENGTH=00113
 IDC M1WPRR PRG.LENGTH=00335
 IDC M1RPRR PRG.LENGTH=00214
 IDC M1LD CPRR PRG.LENGTH=00123
 IDC CMNRTNS PRG.LENGTH=00270
 IDC WHATISIT PRG.LENGTH=00333
 IDC NRQ PRG.LENGTH=00122
 IDC NRC PRG.LENGTH=00112
 IDC NRW PRG.LENGTH=00034
 IDC T.NUTRDY PRG.LENGTH=00032
 IDC TYPEOUT. PRG.LENGTH=00207
 IDC WHATKIND PRG.LENGTH=00037
 IDC PRGNAME PRG.LENGTH=00004
 C.C. RECORD,START2
 C.C. ORIGIN,START2,3207
 IDC COMPASS PRG.LENGTH=10107
 C.C. RECORD,START2
 C.C. ORIGIN,START2,10107
 IDC OVERLAY1 PRG.LENGTH=13145
 C.C. RECORD,START2

C.C. ORIGIN,START2,10107
 IDC PASSONE PROG.LENGTH=15201
 C.C. RECORD,START2
 C.C. ORIGIN,START2,10107
 IDC PASSTW0 PROG.LENGTH=15406
 IDC SYMBLE PROG.LENGTH=00001
 C.C. RECORD,START2
 C.C. ORIGIN,START2,10107
 IDC CRT PROG.LENGTH=12006
 C.C. RECORD,START2
 C.C. ORIGIN,START2,3207
 IDC FTN1 PROG.LENGTH=17073
 C.C. RECORD,START2
 C.C. ORIGIN,START2,11234
 IDC FTN2 PROG.LENGTH=16003
 C.C. RECORD,START2
 C.C. ORIGIN,START2,4355
 IDC FTN3 PROG.LENGTH=12006
 C.C. RECORD,START2
 C.C. ORIGIN,START2,4355
 IDC FTN4 PROG.LENGTH=15041
 C.C. RECORD,START2
 C.C. ORIGIN,START2,4437
 IDC FTN5 PROG.LENGTH=13403
 C.C. RECORD,START2
 C.C. ORIGIN,START2,4437
 IDC FTN6 PROG.LENGTH=11700
 C.C. RECORD,START2
 C.C. ORIGIN,START2,4347
 IDC FTN6 PROG.LENGTH=15222
 C.C. FILE
 C.C. REPLACE
 G.C. UNIT,55,RDUMP
 C.C. UNIT,55,PRELOAD
 C.C. UNIT,55,CKREC
 C.C. UNIT,55,OVPRO
 C.C. UNIT,55,PROTECT
 IDC COMPASSB PROG.LENGTH=00002
 LEU 5501
 C.C. UNIT,55,PROTECT
 C.C. UNIT,55,FTN0
 C.C. UNIT,55,CUMPASS
 C.C. UNIT,55,OVERLAY1
 C.C. UNIT,55,PASSONE
 C.C. UNIT,55,PASSTW0
 C.C. UNIT,55,CRT
 IDC FORTRAN PROG.LENGTH=00402
 LEU 5501,5501
 C.C. UNIT,55,PROTECT
 C.C. UNIT,55,FTN0
 C.C. UNIT,55,FTN1
 C.C. UNIT,55,FTN2
 C.C. UNIT,55,FTN3
 C.C. UNIT,55,FTN4
 C.C. UNIT,55,FTN5

```

C.C. UNIT,55,FTN6
C.C. UNIT,55,FTNE
IDC COBUL      PROG.LENGTH=01201
LED 5401,5501
IDC RAAH      PROG.LENGTH=00040
IDC SCAH      PROG.LENGTH=00340
IDC MTWPR     PROG.LENGTH=00010
IDC MTRPR     PROG.LENGTH=00020
IDC MTLUACPR  PROG.LENGTH=00010
IDC MDER     PROG.LENGTH=00020
IDC PRCPH    PROG.LENGTH=00016
IDC CRDER    PROG.LENGTH=00041
IDC CPDER    PROG.LENGTH=00113
IDC MTWPRH   PROG.LENGTH=00335
IDC MTRPRH   PROG.LENGTH=00214
IDC MTLUCPRH PROG.LENGTH=00123
IDC CMNRTNS  PROG.LENGTH=00270
IDC WHATISIT PROG.LENGTH=00333
IDC NRD      PROG.LENGTH=00122
IDC NRC      PROG.LENGTH=00112
IDC NWR      PROG.LENGTH=00054
IDC T.NUTRDY PROG.LENGTH=00052
IDC TYPEOUT. PROG.LENGTH=00207
IDC WHATKIND PROG.LENGTH=00037
C.C. UNIT,55,PROTECT
IDC COBULIE  PROG.LENGTH=05017
IDC COBULD1  PROG.LENGTH=05051
IDC COBULP1  PROG.LENGTH=05027
IDC COBULD2  PROG.LENGTH=03043
IDC COBULP2  PROG.LENGTH=05706
IDC COBULP3  PROG.LENGTH=05155
C.C. MACRO,COMAC
MACRO READS
MACRO WRITES
MACRO READB
MACRO REWIND
MACRO UNLOAD
MACRO BKSP
MACRO SEFF
MACRO SEFB
MACRO WEUF
MACRO ERASE
MACRO STATUS
MACRO FORMAT
MACRO TRANSMIT
MACRO EDIT.
MACRO COMPARE
MACRO MULTIPLY
MACRO DIVIDE
MACRO FILEDESC
MACRO LABELING
MACRO VARIABLE
MACRO STOPOPEN
MACRO READ
MACRO WRITE

```

```

MACRO RESERVE
MACRO OPEN
MACRO CLOSE
MACRO WHATKIND
MACRO LOWREJ
MACRO SCAR
MACRO SCARNM
MACRO LU#DATA
MACRO NRU
END
C.C. UNIT,55,PROTECT
C.C. UNIT,55,PRELOAD
C.C. UNIT,55,CAREC
C.C. UNIT,55,UVPRU
C.C. UNIT,55,PROTECT
10C EAECOVK PROG.LENGTH=00137
10C FLOVER PROG.LENGTH=00230
10C BCDINP PROG.LENGTH=01001
10C BCDOUT PROG.LENGTH=01531
10C FORMAT PROG.LENGTH=00324
10C BINARY PROG.LENGTH=01006
10C BUFFER PROG.LENGTH=00431
10C UNIT PROG.LENGTH=00114
10C IOCHK PROG.LENGTH=00050
10C EOFCHK PROG.LENGTH=00055
10C TAPEHAND PROG.LENGTH=00215
10C PAUSE PROG.LENGTH=00001
10C CONTROL PROG.LENGTH=00672
10C DOUBLE PROG.LENGTH=01342
10C DFPRIME PROG.LENGTH=01234
10C DFP PROG.LENGTH=01203
10C Q1QADR1 PROG.LENGTH=00101
10C IFOJ PROG.LENGTH=00107
10C ITOX PROG.LENGTH=00015
10C XFOI PROG.LENGTH=00227
10C POWRF PROG.LENGTH=00352
10C SINCOS PROG.LENGTH=00313
10C ATANF PROG.LENGTH=00141
10C EXPF PROG.LENGTH=00131
10C LOGF PROG.LENGTH=00202
10C SIGNF PROG.LENGTH=00015
10C SQRIF PROG.LENGTH=00110
10C ABSF PROG.LENGTH=00010
10C EXTREMA1 PROG.LENGTH=00102
10C EXTREMA2 PROG.LENGTH=00050
10C FLOATF PROG.LENGTH=00027
10C FIXF PROG.LENGTH=00050
10C MASKINGF PROG.LENGTH=00001
10C FAULTS PROG.LENGTH=00034
10C SENSLITE PROG.LENGTH=00100
10C SENSWICH PROG.LENGTH=00001
10C QBWERROR PROG.LENGTH=00173
10C RAAK PROG.LENGTH=00040
10C SCAR PROG.LENGTH=00340
10C MTWPR PROG.LENGTH=00010

```


IUC	MTKPK	PROG.LENGTH=00020
IUC	MTLDACPR	PROG.LENGTH=00010
IUC	MTDER	PROG.LENGTH=00020
IUC	PRCPR	PROG.LENGTH=00016
IUC	CRDER	PROG.LENGTH=00041
IUC	CPDER	PROG.LENGTH=00113
IUC	MTWPRR	PROG.LENGTH=00335
IUC	MTKPRK	PROG.LENGTH=00214
IUC	MTLDCPRR	PROG.LENGTH=00123
IUC	CMNKINS	PROG.LENGTH=00270
IUC	WHATISIT	PROG.LENGTH=00333
IUC	NKD	PROG.LENGTH=00122
IUC	NKC	PROG.LENGTH=00112
IUC	NWK	PROG.LENGTH=00034
IUC	T.NOTROY	PROG.LENGTH=00032
IUC	TYPEOUT	PROG.LENGTH=00207
IUC	WHATKIND	PROG.LENGTH=00037
IUC	FUPBOXS	PROG.LENGTH=01135
IUC	OPTBOXS	PROG.LENGTH=00035
IUC	BCUBOXS	PROG.LENGTH=00442
C.C.	UNIT,SS,PROTECT	
IUC	RESTART	PROG.LENGTH=03300
IUC	ERRSTOP	PROG.LENGTH=00027
IUC	OPENINPT	PROG.LENGTH=00006
IUC	OPENOTPT	PROG.LENGTH=00006
IUC	READ	PROG.LENGTH=00004
IUC	WRITE	PROG.LENGTH=00004
IUC	READI	PROG.LENGTH=00004
IUC	WRITEF	PROG.LENGTH=00004
IUC	EXAMINE	PROG.LENGTH=00111
IUC	SUBSCHP	PROG.LENGTH=00043
IUC	ACCEPT	PROG.LENGTH=00131
IUC	DISPLAY	PROG.LENGTH=00222
IUC	CONVERT	PROG.LENGTH=00133
IUC	GPIUMAST	PROG.LENGTH=01601
IUC	CLOSE	PROG.LENGTH=00166
IUC	STACKING	PROG.LENGTH=00702
IUC	RERUN	PROG.LENGTH=00271
IUC	MBRULABS	PROG.LENGTH=00132
IUC	LABLAREA	PROG.LENGTH=00024
IUC	MBWTBSTL	PROG.LENGTH=00075
IUC	MBRDBNSL	PROG.LENGTH=00023
IUC	WRTBNSL	PROG.LENGTH=00020
IUC	MBVARREC	PROG.LENGTH=00034
IUC	MBRMSRCH	PROG.LENGTH=00031
IUC	MBSAPROC	PROG.LENGTH=00032
IUC	MBMFPROC	PROG.LENGTH=00042
IUC	MBMFIN	PROG.LENGTH=00042
IUC	MBMFOUT	PROG.LENGTH=00016
IUC	JVCUM2	PROG.LENGTH=00012
IUC	JVNUALI	PROG.LENGTH=00110
IUC	MBOPTFIL	PROG.LENGTH=00025
IUC	TRANSMIT	PROG.LENGTH=00103
IUC	FIGCON	PROG.LENGTH=00033
IUC	COMPARE	PROG.LENGTH=00106

1DC	EDIT	PROG.LENGTH=00105
1DC	EDITC06L	PROG.LENGTH=00253
1DC	MULTIPLY	PROG.LENGTH=00092
1DC	DIVIDE	PROG.LENGTH=00007
1DC	BMULTPLY	PROG.LENGTH=00055
1DC	BDIVIDE	PROG.LENGTH=00053
1DC	DMULDIV	PROG.LENGTH=00570
1DC	STRIPPER	PROG.LENGTH=00235
1DC	BSTRIPPR	PROG.LENGTH=00311
1DC	DEEDIT	PROG.LENGTH=00120
1DC	NUMERIC	PROG.LENGTH=00030
1DC	ALPHABET	PROG.LENGTH=00031
1DC	MVFIGCON	PROG.LENGTH=00025
1DC	VARCI	PROG.LENGTH=00054
1DC	VARN	PROG.LENGTH=00051
1DC	VARAN	PROG.LENGTH=00104
1DC	ROUNDER	PROG.LENGTH=00006
1DC	CONVERT	PROG.LENGTH=00153
1DC	ZIPPER	PROG.LENGTH=00103
1DC	FDPBOXS	PROG.LENGTH=01155
1DC	OPTBOXS	PROG.LENGTH=00055
1DC	BCDBOXS	PROG.LENGTH=00442
1DC	SORT	PROG.LENGTH=00540
1DC	SDUMP	PROG.LENGTH=00135
1DC	BINANDEC	PROG.LENGTH=00070
1DC	SRTPRINT	PROG.LENGTH=00243
1DC	WAITBEEP	PROG.LENGTH=00055
1DC	RAAK	PROG.LENGTH=00040
1DC	SCAK	PROG.LENGTH=00340
1DC	MTWPK	PROG.LENGTH=00010
1DC	MTRPK	PROG.LENGTH=00020
1DC	MTLDACPR	PROG.LENGTH=00010
1DC	MTRK	PROG.LENGTH=00020
1DC	PRCPR	PROG.LENGTH=00016
1DC	CRDER	PROG.LENGTH=00041
1DC	CPDER	PROG.LENGTH=00113
1DC	MTSPRK	PROG.LENGTH=00335
1DC	MTRPRK	PROG.LENGTH=00214
1DC	MTLDCPRK	PROG.LENGTH=00123
1DC	CMNKTNS	PROG.LENGTH=00270
1DC	WHATISIT	PROG.LENGTH=00333
1DC	NRD	PROG.LENGTH=00122
1DC	NKC	PROG.LENGTH=00112
1DC	NKR	PROG.LENGTH=00054
1DC	T.NUTROY	PROG.LENGTH=00032
1DC	TYPEOUT	PROG.LENGTH=00207
1DC	WHATKIND	PROG.LENGTH=00037
C.C.	UNIT,55,PROTECT	
C.C.	UNIT,55,CKREC	
C.C.	UNIT,55,OVPRU	
1DC	RESTART1	PROG.LENGTH=00123
1DC	SKSTART	PROG.LENGTH=01137
1DC	SORTIUP2	PROG.LENGTH=04300
1DC	SDUMP	PROG.LENGTH=00135
1DC	BINANDEC	PROG.LENGTH=00070

```

1DC SKTPRINT  PROG.LENGTH=00243
1DC SKTEQUAL  PROG.LENGTH=00245
1DC WAITBEEP  PROG.LENGTH=00055
C.C.  UNIT,55,CKREC
C.C.  UNIT,55,OVPRO
1DC SORTEDIT  PROG.LENGTH=07775
C.C.  UNIT,55,CKREC
C.C.  UNIT,55,OVPRO
C.C.  UNIT,55,CKREC
C.C.  UNIT,55,OVPRO
1DC SORTPDY  PROG.LENGTH=00076
1DC SORTPOLY  PROG.LENGTH=00251
1DC SORTIOP1  PROG.LENGTH=02036
1DC SORTPHS1  PROG.LENGTH=02172
C.C.  UNIT,55,CKREC
C.C.  UNIT,55,OVPRO
C.C.  UNIT,55,CKREC
C.C.  UNIT,55,OVPRO
1DC SKTMBALF  PROG.LENGTH=00007
1DC SKTMBALB  PROG.LENGTH=00007
1DC SKTMPOLF  PROG.LENGTH=00007
1DC SKTMPOLB  PROG.LENGTH=00007
1DC SKTRBALB  PROG.LENGTH=00003
1DC SKTRBALF  PROG.LENGTH=00003
1DC SKTRPOLF  PROG.LENGTH=00003
1DC SKTRPOLB  PROG.LENGTH=00003
1DC SOKT1OP2  PROG.LENGTH=04300
1DC SKRESTAKI  PROG.LENGTH=01137
1DC SKTEQUAL  PROG.LENGTH=00245
1DC BALCFURW  PROG.LENGTH=02277
1DC BALCBACK  PROG.LENGTH=02470
1DC POLYFURW  PROG.LENGTH=02100
1DC POLYBACK  PROG.LENGTH=02300
C.C.  UNIT,55,PROTECT
1DC SIPP      PROG.LENGTH=06107
1DC BSIPP     PROG.LENGTH=11207
1DC SAINT     PROG.LENGTH=04003
1DC IOPACK    PROG.LENGTH=00403
1DC IOURAIN   PROG.LENGTH=00024
1DC SNAPSHOT  PROG.LENGTH=01450
1DC COSY      PROG.LENGTH=05131
1DC COSYKWI   PROG.LENGTH=01507
MAIN 55
1DC PRELID    PROG.LENGTH=00023
1DC RAAK      PROG.LENGTH=00040
1DC SCAR      PROG.LENGTH=00340
1DC MTWPR     PROG.LENGTH=00010
1DC MTRPR     PROG.LENGTH=00020
1DC MTLUACPR  PROG.LENGTH=00010
1DC MTRER     PROG.LENGTH=00020
1DC PRCPK     PROG.LENGTH=00016
1DC CKDER     PROG.LENGTH=00041
1DC CPDER     PROG.LENGTH=00113
1DC MTWPKR    PROG.LENGTH=00335
1DC MTRPKR    PROG.LENGTH=00214

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IDC MFLUCPRK  PROG.LENGTH=00123
IDC CMNRTNS  PROG.LENGTH=00270
IDC WHATISIT PROG.LENGTH=00333
IDC NRK      PROG.LENGTH=00122
IDC NRC      PROG.LENGTH=00112
IDC NWR      PROG.LENGTH=00034
IDC L.NUTRDY PROG.LENGTH=00032
IDC TYPEOUT. PROG.LENGTH=00207
IDC WHATKIND PROG.LENGTH=00037
IDC PRELIB   PROG.LENGTH=00000
OV  55,1,S   OVERLAY 1
IDC PLOVINI  PROG.LENGTH=00336
OV  55,2,S   OVERLAY 2
IDC OVI      PROG.LENGTH=02132
SEG  55,1,S   SEGMENT 1
IDC PHASE1   PROG.LENGTH=01401
SEG  55,2,S   SEGMENT 2
IDC PHASE2   PROG.LENGTH=00304
OV  55,3,S   OVERLAY 3
IDC DEBLOCK  PROG.LENGTH=00107
OV  55,4,S   OVERLAY 4
IDC PLOV2    PROG.LENGTH=04103
MAIN 55
IDC RGMALN   PROG.LENGTH=00136
OV  55,1,S
IDC RGOV1    PROG.LENGTH=03015
SEG  55,1,S
IDC RGFILF   PROG.LENGTH=05036
SEG  55,2,S
IDC RGREPORT PROG.LENGTH=05344
SEG  55,3,S
IDC RGPRO    PROG.LENGTH=05007
OV  55,2,S
IDC RGCUMP   PROG.LENGTH=03240
SEG  55,1,S
IDC RGPONE   PROG.LENGTH=04751
SEG  55,2,S
IDC RGP TWO  PROG.LENGTH=05504
SEG  55,3,S
IDC RGCKT    PROG.LENGTH=01673
IDC RGRIS    PROG.LENGTH=00002
C.C. UNIT,55,PROTECT
IDC RGACCEPT PROG.LENGTH=00171
IDC RGV      PROG.LENGTH=12037
C.C. UNIT,55,PROTECT
C.C. UNIT,55,PRELOAD
C.C. UNIT,55,CKREC
C.C. UNIT,55,OVPRO
C.C. UNIT,55,PROTECT
IDC FDPBOXS  PROG.LENGTH=01155
IDC OPTBOXS  PROG.LENGTH=00055
IDC BCDoboxS PROG.LENGTH=00442
IDC UTILITY  PROG.LENGTH=05206
IDC CI01     PROG.LENGTH=00001
C.C. UNIT,55,PROTECT

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IDC CUPYS PROG.LENGTH=00405
IDC COPYT PROG.LENGTH=00075
IDC VERIFY PROG.LENGTH=01123
IDC DUMP PROG.LENGTH=00407
IDC COPYWS PROG.LENGTH=01035
IDC COPYTSW PROG.LENGTH=00734
IDC ERROR PROG.LENGTH=00274
C.C. UNIT,SS,PROTECT
C.C. FILE
EOF

4.1.2 PRELIB SOURCE FOR BATCH

PAGE 1

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C.C. SEQUENCE,003
C.C. JOB,,,,,
C.C. EQUIP,55=MT,05=55
C.C. EQUIP,1=MT
C.C. PRELIB,,1
C.C. REPLACE
C.C. RECORD,0
C.C. ORIGIN,0
IDC ZERO          PROG.LENGTH=00000
IDC BCI0          PROG.LENGTH=01540
IDC DRIVER01     PROG.LENGTH=00344
IDC DRIVER01     PROG.LENGTH=00330
IDC DRIVER02     PROG.LENGTH=00245
IDC DRIVER02     PROG.LENGTH=00235
IDC DRIVER03     PROG.LENGTH=00356
IDC DRV512       PROG.LENGTH=00406
IDC DRIVER04     PROG.LENGTH=00222
IDC DRIVER04     PROG.LENGTH=00345
IDC DRIVER05     PROG.LENGTH=00115
IDC DRIVER11     PROG.LENGTH=00000
IDC DRIVER12     PROG.LENGTH=00330
IDC DRIV3691     PROG.LENGTH=00025
C.C.      R E P L A C E M E N T - I N S E R T   D E C K   O F   B C I
C.C. RECORD,START2
C.C. ORIGIN,START2
IDC ROUMP        PROG.LENGTH=00504
C.C. RECORD,START2
C.C. ORIGIN,START2
EXS LBUF=START2
IDC PRELOAD     PROG.LENGTH=11113
EXS ENDPRUT=POSTLOAD
C.C. RECORD,START2
C.C. ORIGIN,START2
IDC CKREC       PROG.LENGTH=00000
EXS CIOPCALL=ABNORMAL
IDC LOADER      PROG.LENGTH=04716
C.C. SEPOINT,BCUBOX5
C.C. SEPOINT,FUPBOX5
C.C. SEPOINT,ABNORMAL
C.C. SEPOINT,ACCOUNTS
C.C. SEPOINT,AET
C.C. SEPOINT,BERRADD
C.C. SEPOINT,BKEXIT
C.C. SEPOINT,BKRUNFLG
C.C. SEPOINT,BNJ.
C.C. SEPOINT,BRMT
C.C. SEPOINT,CI0
C.C. SEPOINT,CIC3.01
C.C. SEPOINT,CIP
C.C. SEPOINT,CIT
C.C. SEPOINT,CIT.RTM
C.C. SEPOINT,CSF

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C.C. SEPOINT, DINT.
 C.C. SEPOINT, EINT.
 C.C. SEPOINT, EST.
 C.C. SEPOINT, GOFLG
 C.C. SEPOINT, LOADER
 C.C. SEPOINT, LUC5
 C.C. SEPOINT, MEMORY
 C.C. SEPOINT, MIBKADD
 C.C. SEPOINT, MIBUF
 C.C. SEPOINT, MIFURADD
 C.C. SEPOINT, INDEXIT
 C.C. SEPOINT, PERKADD
 C.C. SEPOINT, RUCKF1
 C.C. SEPOINT, RHI
 C.C. SEPOINT, RIO
 C.C. SEPOINT, START2
 C.C. SEPOINT, UST
 C.C. RECORD, LSTLGTH
 C.C. ORIGIN, LSTLGTH
 IUC OVPRD PROG.LENGTH=02305
 C.C. RECORD, BINBUF
 C.C. ORIGIN, BINBUF
 IUC PROTECT PROG.LENGTH=00275
 IUC POSTLOAD PROG.LENGTH=03014
 C.C. RECORD, START2
 C.C. ORIGIN, START2
 IUC FINU PROG.LENGTH=00002
 IUC RAAK PROG.LENGTH=00040
 IUC SCAR PROG.LENGTH=00340
 IUC MFWPR PROG.LENGTH=00010
 IUC MTRPR PROG.LENGTH=00020
 IUC MTLUACPR PROG.LENGTH=00010
 IUC MTUER PROG.LENGTH=00020
 IUC PRCPK PROG.LENGTH=00010
 IUC CRDER PROG.LENGTH=00041
 IUC CPDER PROG.LENGTH=00113
 IUC MFWPRR PROG.LENGTH=00335
 IUC MTRPRR PROG.LENGTH=00214
 IUC MTLUCPRR PROG.LENGTH=00123
 IUC CMNKTNS PROG.LENGTH=00270
 IUC WHATISIT PROG.LENGTH=00333
 IUC NRD PROG.LENGTH=00122
 IUC NKC PROG.LENGTH=00112
 IUC NWR PROG.LENGTH=00054
 IUC T.NUTRUY PROG.LENGTH=00032
 IUC TYPEOUT. PROG.LENGTH=00207
 IUC WHAKIND PROG.LENGTH=00037
 IUC PROGNAME PROG.LENGTH=00004
 C.C. RECORD, START2
 C.C. ORIGIN, START2, 3207
 IUC COMPASS PROG.LENGTH=10107
 C.C. RECORD, START2
 C.C. ORIGIN, START2, 10107
 IUC OVERLAY1 PROG.LENGTH=13145
 C.C. RECORD, START2

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C.C.  ORIGIN,START2,10107
IDC  PASSUNE  PROG.LENGTH=16251
C.C.  RECORD,START2
C.C.  ORIGIN,START2,10107
IDC  PASSTWO  PROG.LENGTH=16406
IDC  SYMTBLE  PROG.LENGTH=00001
C.C.  RECORD,START2
C.C.  ORIGIN,START2,10107
IDC  CRT      PROG.LENGTH=12006
C.C.  RECORD,START2
C.C.  ORIGIN,START2,3207
IDC  FTN1     PROG.LENGTH=17073
C.C.  RECORD,START2
C.C.  ORIGIN,START2,11234
IDC  FTN2     PROG.LENGTH=16003
C.C.  RECORD,START2
C.C.  ORIGIN,START2,4355
IDC  FTN3     PROG.LENGTH=12056
C.C.  RECORD,START2
C.C.  ORIGIN,START2,4355
IDC  FTN4     PROG.LENGTH=16041
C.C.  RECORD,START2
C.C.  ORIGIN,START2,4437
IDC  FTN5     PROG.LENGTH=13403
C.C.  RECORD,START2
C.C.  ORIGIN,START2,4437
IDC  FTN6     PROG.LENGTH=11700
C.C.  RECORD,START2
C.C.  ORIGIN,START2,4347
IDC  FTN7     PROG.LENGTH=15222
C.C.  FILE
C.C.  REPLACE
C.C.  UNIT,55,RDUMP
C.C.  UNIT,55,PRELOAD
C.C.  UNIT,55,CNREC
C.C.  UNIT,55,OVPRU
C.C.  UNIT,55,PROJECT
IDC  COMPASSB  PROG.LENGTH=00052
LEU  5501
C.C.  UNIT,55,PROTECT
C.C.  UNIT,55,FTN0
C.C.  UNIT,55,CUMPASS
C.C.  UNIT,55,OVERLAY1
C.C.  UNIT,55,PASSUNE
C.C.  UNIT,55,PASSIWO
C.C.  UNIT,55,CRT
IDC  FORIRAN  PROG.LENGTH=00402
LEU  5501,5501
C.C.  UNIT,55,PROTECT
C.C.  UNIT,55,FTN0
C.C.  UNIT,55,FTN1
C.C.  UNIT,55,FTN2
C.C.  UNIT,55,FTN3
C.C.  UNIT,55,FTN4
C.C.  UNIT,55,FTN5

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C.C. UNIT,55,FTN6
C.C. UNIT,55,FTNE
IDC COBOL      PROG.LENGTH=01201
LED 5401,5501
IDC RAAK      PROG.LENGTH=00040
IDC SCAK      PROG.LENGTH=00340
IDC MTWPK     PROG.LENGTH=00010
IDC MTRPK     PROG.LENGTH=00020
IDC MTLDACPK  PROG.LENGTH=00010
IDC MTDK      PROG.LENGTH=00020
IDC PRCPK     PROG.LENGTH=00015
IDC CRDK      PROG.LENGTH=00041
IDC CPDK      PROG.LENGTH=00113
IDC MTWPK     PROG.LENGTH=00335
IDC MTRPK     PROG.LENGTH=00214
IDC MTLDCPK  PROG.LENGTH=00123
IDC CMNRKNS  PROG.LENGTH=00270
IDC WHATISIT  PROG.LENGTH=00333
IDC NKD       PROG.LENGTH=00122
IDC NRC       PROG.LENGTH=00112
IDC NWK       PROG.LENGTH=00034
IDC T.NOTKDY  PROG.LENGTH=00032
IDC TYPEOUT.  PROG.LENGTH=00207
IDC WHATKIND  PROG.LENGTH=00037
C.C. UNIT,55,PROTECT
IDC COBULIE   PROG.LENGTH=06017
IDC COBULDI   PROG.LENGTH=06031
IDC COBULPI   PROG.LENGTH=05027
IDC COBULD2   PROG.LENGTH=03643
IDC COBULP2   PROG.LENGTH=05706
IDC COBULDP3  PROG.LENGTH=05155
C.C. MACRO,COMAC
MACRO READS
MACRO WRITES
MACRO READB
MACRO REWIND
MACRO UNLOAD
MACRO BKSP
MACRO SEFF
MACRO SEFB
MACRO WEUF
MACRO ERASE
MACRO STATUS
MACRO FORMAT
MACRO TRANSMIT
MACRO EDIT.
MACRO COMPARE
MACRO MULTIPLY
MACRO DIVIDE
MACRO FILEDESC
MACRO LABELING
MACRO VARIABLE
MACRO STOPOPEN
MACRO READ
MACRO WRITE

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MACRO RESERVE
MACRO OPEN
MACRO CLOSE
MACRO WHATKIND
MACRO LOWREJ
MACRO SCAR
MACRO SCARNM
MACRO LOWDATA
MACRO NRD
END
C.C. UNIT,55,PROTECT
C.C. UNIT,55,PRELOAD
C.C. UNIT,55,CKREC
C.C. UNIT,55,OVPRU
C.C. UNIT,55,PROJECT
10C EXECVCR   PROG.LENGTH=00137
10C FLOVER   PROG.LENGTH=00230
10C BCDINP   PROG.LENGTH=01001
10C BCDOUT   PROG.LENGTH=01531
10C FORMAT   PROG.LENGTH=00354
10C BINARY   PROG.LENGTH=01006
10C BUFFER   PROG.LENGTH=00431
10C UNIT     PROG.LENGTH=00114
10C IOCHK    PROG.LENGTH=00050
10C EOFCHK   PROG.LENGTH=00055
10C TAPEHAND PROG.LENGTH=00215
10C PAUSE    PROG.LENGTH=00051
10C CONTROL  PROG.LENGTH=00072
10C DOUBLE   PROG.LENGTH=01342
10C DFPKIME  PROG.LENGTH=01254
10C DFP      PROG.LENGTH=01203
10C QIQADR1  PROG.LENGTH=00101
10C IFOJ     PROG.LENGTH=00107
10C ITOX     PROG.LENGTH=00015
10C XT01     PROG.LENGTH=00227
10C POWRF    PROG.LENGTH=00322
10C SINCOS   PROG.LENGTH=00313
10C ATANF    PROG.LENGTH=00141
10C EXPF     PROG.LENGTH=00131
10C LOGF     PROG.LENGTH=00202
10C SIGNF    PROG.LENGTH=00015
10C SQRTF    PROG.LENGTH=00110
10C ABSF     PROG.LENGTH=00010
10C EXTREMA1 PROG.LENGTH=00102
10C EXTREMA2 PROG.LENGTH=00000
10C FLOATF   PROG.LENGTH=00027
10C FIXF     PROG.LENGTH=00050
10C MASKINGF PROG.LENGTH=00041
10C FAULIS   PROG.LENGTH=00034
10C SENSLITE PROG.LENGTH=00100
10C SENSWICH PROG.LENGTH=00001
10C OSQERROR PROG.LENGTH=00173
10C RAAR     PROG.LENGTH=00040
10C SCAR     PROG.LENGTH=00340
10C MTRPR    PROG.LENGTH=00010

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10C	MIRPK	PROG.LENGTH=00020
10C	MTLDACPK	PROG.LENGTH=00010
10C	MTJER	PROG.LENGTH=00020
10C	PRCPK	PROG.LENGTH=00016
10C	CRDER	PROG.LENGTH=00041
10C	CPDER	PROG.LENGTH=00113
10C	MTWPKR	PROG.LENGTH=00335
10C	MTRPKR	PROG.LENGTH=00214
10C	MTLDCPKR	PROG.LENGTH=00123
10C	CMNRTNS	PROG.LENGTH=00270
10C	WHATISIT	PROG.LENGTH=00333
10C	NRU	PROG.LENGTH=00122
10C	NKC	PROG.LENGTH=00112
10C	NWR	PROG.LENGTH=00054
10C	T.NOTRUY	PROG.LENGTH=00032
10C	TYPEOUT.	PROG.LENGTH=00207
10C	WHATKIND	PROG.LENGTH=00037
10C	FDPBOXS	PROG.LENGTH=01155
10C	OPTBOXS	PROG.LENGTH=00055
10C	BCDBOXS	PROG.LENGTH=00442
C.C.	UNIT,55,PROTECT	
10C	RESTART	PROG.LENGTH=03300
10C	ERRSTOP	PROG.LENGTH=00027
10C	OPENINPT	PROG.LENGTH=00056
10C	OPENOUTPT	PROG.LENGTH=00006
10C	READ	PROG.LENGTH=00004
10C	WRITE	PROG.LENGTH=00004
10C	READI	PROG.LENGTH=00004
10C	WRITEF	PROG.LENGTH=00004
10C	EXAMINE	PROG.LENGTH=00111
10C	SUBSCRIP	PROG.LENGTH=00043
10C	ACCEPT	PROG.LENGTH=00131
10C	DISPLAY	PROG.LENGTH=00222
10C	CONVERI	PROG.LENGTH=00153
10C	GPIUMAST	PROG.LENGTH=01601
10C	CLOSE	PROG.LENGTH=00106
10C	STACKING	PROG.LENGTH=00702
10C	RERUN	PROG.LENGTH=00271
10C	MBRDLABS	PROG.LENGTH=00152
10C	LABLAREA	PROG.LENGTH=00024
10C	MBWTBSIL	PROG.LENGTH=00075
10C	MBRDBNSL	PROG.LENGTH=00023
10C	WRTBNSL	PROG.LENGTH=00020
10C	MBVARREC	PROG.LENGTH=00034
10C	MBRMSRCH	PROG.LENGTH=00031
10C	MBAPROC	PROG.LENGTH=00032
10C	MBMFPROC	PROG.LENGTH=00042
10C	MBMFIN	PROG.LENGTH=00042
10C	MBMFOU	PROG.LENGTH=00010
10C	JVCOM2	PROG.LENGTH=00012
10C	JVNOAL I	PROG.LENGTH=00110
10C	MBOPTFIL	PROG.LENGTH=00025
10C	TRANSMIT	PROG.LENGTH=00103
10C	FIGCON	PROG.LENGTH=00033
10C	COMPARE	PROG.LENGTH=00106

IDC	EDIT	PROG.LENGTH=00105
IDC	EDITCUBL	PROG.LENGTH=00233
IDC	MULTIPLY	PROG.LENGTH=00002
IDC	DIVIDE	PROG.LENGTH=00007
IDC	BMULTPLY	PROG.LENGTH=00005
IDC	BDIVIDE	PROG.LENGTH=00003
IDC	DPMULDIV	PROG.LENGTH=00570
IDC	STRIPPER	PROG.LENGTH=00205
IDC	BSTRIPPR	PROG.LENGTH=00311
IDC	DEEDIT	PROG.LENGTH=00120
IDC	NUMERIC	PROG.LENGTH=00000
IDC	ALPHABET	PROG.LENGTH=00001
IDC	MVFIGNON	PROG.LENGTH=00005
IDC	VARCI	PROG.LENGTH=00004
IDC	VARN	PROG.LENGTH=00001
IDC	VARAN	PROG.LENGTH=00104
IDC	ROUNDER	PROG.LENGTH=00006
IDC	CONVERT	PROG.LENGTH=00103
IDC	ZIPPER	PROG.LENGTH=00103
IDC	FDPBOXS	PROG.LENGTH=01105
IDC	OPTBOXS	PROG.LENGTH=00005
IDC	BCDBOXS	PROG.LENGTH=00402
IDC	SORT	PROG.LENGTH=00500
IDC	SDUMP	PROG.LENGTH=00105
IDC	BINANDEC	PROG.LENGTH=00070
IDC	SRTPRINT	PROG.LENGTH=00203
IDC	WAITBEEP	PROG.LENGTH=00005
IDC	RAAR	PROG.LENGTH=00000
IDC	SCAR	PROG.LENGTH=00300
IDC	MTWPR	PROG.LENGTH=00010
IDC	MTRPR	PROG.LENGTH=00020
IDC	MTLUACPR	PROG.LENGTH=00010
IDC	MTER	PROG.LENGTH=00020
IDC	PRCPR	PROG.LENGTH=00016
IDC	CRDER	PROG.LENGTH=00001
IDC	CPDER	PROG.LENGTH=00113
IDC	MTWPRR	PROG.LENGTH=00305
IDC	MTRPRR	PROG.LENGTH=00214
IDC	MTLUCPRR	PROG.LENGTH=00123
IDC	CMNRTNS	PROG.LENGTH=00270
IDC	WHATISIT	PROG.LENGTH=00303
IDC	NRD	PROG.LENGTH=00122
IDC	NRC	PROG.LENGTH=00112
IDC	NWK	PROG.LENGTH=00004
IDC	T.NOTROY	PROG.LENGTH=00002
IDC	TYPEOUT.	PROG.LENGTH=00207
IDC	WHATKIND	PROG.LENGTH=00007
C.C.	UNIT,05,PROTECT	
C.C.	UNIT,05,CKREC	
C.C.	UNIT,05,OVPRO	
IDC	RESTART1	PROG.LENGTH=00123
IDC	SRESTART	PROG.LENGTH=01107
IDC	SORTIOP2	PROG.LENGTH=04300
IDC	SDUMP	PROG.LENGTH=00105
IDC	BINANDEC	PROG.LENGTH=00070

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1DC SKTPRINT  PROG.LENGTH=00243
1DC SKTEQUAL  PROG.LENGTH=00245
1DC WAITBEEP  PROG.LENGTH=00055
C.C.  UNIT,55,CKREC
C.C.  UNIT,55,OVPRU
1DC SORTEDIT  PROG.LENGTH=07715
C.C.  UNIT,55,CKREC
C.C.  UNIT,55,OVPRU
C.C.  UNIT,55,CKREC
C.C.  UNIT,55,OVPRU
1DC SORTPDMY  PROG.LENGTH=00076
1DC SORTPOLY  PROG.LENGTH=00251
1DC SORTIOP1  PROG.LENGTH=02636
1DC SORTPHS1  PROG.LENGTH=02172
C.C.  UNIT,55,CKREC
C.C.  UNIT,55,OVPRU
C.C.  UNIT,55,CKREC
C.C.  UNIT,55,OVPRU
1DC SKTMBALF  PROG.LENGTH=00007
1DC SKTMBALB  PROG.LENGTH=00007
1DC SKTMPULF  PROG.LENGTH=00007
1DC SKTMPULB  PROG.LENGTH=00007
1DC SKTRBALB  PROG.LENGTH=00003
1DC SKTRBALF  PROG.LENGTH=00003
1DC SKTRPULF  PROG.LENGTH=00003
1DC SKTRPULB  PROG.LENGTH=00003
1DC SORTIOP2  PROG.LENGTH=04300
1DC SRESTART  PROG.LENGTH=01137
1DC SKTEQUAL  PROG.LENGTH=00245
1DC BALCFORW  PROG.LENGTH=02277
1DC BALCBACK  PROG.LENGTH=02470
1DC POLYFORW  PROG.LENGTH=02160
1DC POLYBACK  PROG.LENGTH=02300
C.C.  UNIT,55,PROTECT
1DC SIPP      PROG.LENGTH=06167
1DC SAINT     PROG.LENGTH=04663
1DC IOPACK    PROG.LENGTH=00463
1DC IODRAIN   PROG.LENGTH=00024
1DC SNAPSHOT  PROG.LENGTH=01450
1DC CUSY      PROG.LENGTH=05131
1DC CUSYRWT   PROG.LENGTH=01507
MAIN 55
1DC PRELIB    PROG.LENGTH=00623
1DC RAAK      PROG.LENGTH=00046
1DC SCAK      PROG.LENGTH=00340
1DC MTWPK     PROG.LENGTH=00010
1DC MTRPK     PROG.LENGTH=00020
1DC MTLDACPR  PROG.LENGTH=00010
1DC MDER      PROG.LENGTH=00020
1DC PRCPK     PROG.LENGTH=00016
1DC CRUER     PROG.LENGTH=00041
1DC CPDER     PROG.LENGTH=00113
1DC MTWPRK   PROG.LENGTH=00335
1DC MTRPRK   PROG.LENGTH=00214
1DC MTLDCPRK PROG.LENGTH=00123

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IDC CMNRTNS      PROG.LENGTH=00270
IDC WHATISIT    PROG.LENGTH=00333
IDC NRD         PROG.LENGTH=00122
IDC NRC         PROG.LENGTH=00112
IDC NWR         PROG.LENGTH=00054
IDC T.NGTRDY    PROG.LENGTH=00032
IDC TYPEOUT.    PROG.LENGTH=00207
IDC WHATKIND    PROG.LENGTH=00057
IDC PRELIB      PROG.LENGTH=00000
OV   55,1,S      OVERLAY 1
IDC PLOVINI     PROG.LENGTH=00536
OV   55,2,S      OVERLAY 2
IDC OV1         PROG.LENGTH=02152
SEG   55,1,S     SEGMENT 1
IDC PHASE1      PROG.LENGTH=01401
SEG   55,2,S     SEGMENT 2
IDC PHASE2      PROG.LENGTH=00504
OV   55,3,S     OVERLAY 3
IDC DEBLOCK    PROG.LENGTH=00107
OV   55,4,S     OVERLAY 4
IDC PLOV2      PROG.LENGTH=04103
MAIN 55
IDC RGMMAIN     PROG.LENGTH=00156
OV   55,1,S
IDC RGOV1       PROG.LENGTH=03015
SEG   55,1,S
IDC RGFIL      PROG.LENGTH=05056
SEG   55,2,S
IDC RGREPORT   PROG.LENGTH=05344
SEG   55,3,S
IDC RGPRO      PROG.LENGTH=05007
OV   55,2,S
IDC RGCUMP     PROG.LENGTH=03240
SEG   55,1,S
IDC RGPONE     PROG.LENGTH=04751
SEG   55,2,S
IDC RGPTWO     PROG.LENGTH=05504
SEG   55,3,S
IDC RGCKT      PROG.LENGTH=01673
IDC RGRIS      PROG.LENGTH=00002
C.C. UNIT,55,PROTECT
IDC RGACCEPT   PROG.LENGTH=00171
IDC RGO        PROG.LENGTH=12057
C.C. UNIT,55,PROTECT
C.C. UNIT,55,PRELOAD
C.C. UNIT,55,CKREC
C.C. UNIT,55,OVPRO
C.C. UNIT,55,PROTECT
IDC FDPBOXS    PROG.LENGTH=01155
IDC OPTBOXS    PROG.LENGTH=00055
IDC BCUBOXS    PROG.LENGTH=00442
IDC UTILITY    PROG.LENGTH=05206
IDC CI01       PROG.LENGTH=00001
C.C. UNIT,55,PROTECT
IDC COPS      PROG.LENGTH=00405

```

IDC COPYT PROG.LENGTH=00075
IDC VERIFY PROG.LENGTH=01123
IDC DUMP PROG.LENGTH=00457
IDC COPYWS PROG.LENGTH=01035
IDC COPYTSW PROG.LENGTH=00734
IDC ERROR PROG.LENGTH=00274
C.C. UNIT,SS,PROTECT
C.C. FILE
EOF

4.1.3 PRELIB SOURCE FOR BDP

PAGE 1

```

C.C. SEQUENCE,004
C.C. JOB,,,,
C.C. EQUIP,55=MT,5=55
C.C. EQUIP,10=MT
C.C. PRELIB,,10
C.C. FILE
C.C. REPLACE,COBOL,COBOL
IUC COBOL      PROG.LENGTH=01201
LEU 5401,5501
C.C. REPLACE,COBOLIE,COBOLDP3
IUC COBOLIE   PROG.LENGTH=06010
IUC COBOLD1   PROG.LENGTH=06053
IUC COBOLDP1  PROG.LENGTH=05005
IUC COBOLD2   PROG.LENGTH=03643
IUC COBOLDP2  PROG.LENGTH=06176
IUC COBOLDP3  PROG.LENGTH=05136
C.C. REPLACE,RESTART,OPTBOXS
IUC RESTART   PROG.LENGTH=03300
IUC ERRSTOP   PROG.LENGTH=00027
IUC OPENINPT  PROG.LENGTH=00006
IUC OPENOTPT  PROG.LENGTH=00006
IUC READ       PROG.LENGTH=00004
IUC WRITE      PROG.LENGTH=00004
IUC READI      PROG.LENGTH=00004
IUC WRITF      PROG.LENGTH=00004
IUC EXAMINE    PROG.LENGTH=00111
IUC SUBSCRIP   PROG.LENGTH=00105
IUC DPBINBCD   PROG.LENGTH=00105
IUC DPBCDBIN   PROG.LENGTH=00120
IUC ACCEPT     PROG.LENGTH=00126
IUC GPIUMAST   PROG.LENGTH=01707
IUC CLOSE      PROG.LENGTH=00170
IUC STACKING   PROG.LENGTH=00703
IUC RERUN      PROG.LENGTH=00271
IUC MBRULABS   PROG.LENGTH=00152
IUC LABLAREA   PROG.LENGTH=00024
IUC MBWTBSTL   PROG.LENGTH=00073
IUC MBRUBNSL   PROG.LENGTH=00023
IUC WRTBNSL    PROG.LENGTH=00121
IUC MBVARREC   PROG.LENGTH=00002
IUC MBRMSRCH   PROG.LENGTH=00024
IUC MBSAPROC   PROG.LENGTH=00032
IUC MBMFPROC   PROG.LENGTH=00042
IUC MBMFIN     PROG.LENGTH=00042
IUC MBMFOUT    PROG.LENGTH=00016
IUC JVCUM2     PROG.LENGTH=00012
IUC JVNOALT    PROG.LENGTH=00110
IUC MBOPTFIL   PROG.LENGTH=00025
IUC FIGCON     PROG.LENGTH=00044
IUC COMPARE    PROG.LENGTH=00100
IUC MULTIPLY   PROG.LENGTH=00146
IUC DIVIDE     PROG.LENGTH=00111

```


IUC STRIPPER PROG.LENGTH=00304
IUC DEEDIT PROG.LENGTH=00120
IUC NUMERIC PROG.LENGTH=00030
IUC ALPHABET PROG.LENGTH=00031
IUC DISPLAY PROG.LENGTH=00222
IUC MVFIGCON PROG.LENGTH=00023
IUC VARÇI PROG.LENGTH=00034
IUC VARN PROG.LENGTH=00031
IUC VARAN PROG.LENGTH=00121
IUC ZIPPER PROG.LENGTH=00104
C.C. REPLACE, SORT, SORT
IUC SORT PROG.LENGTH=00510
C.C. DELETE, OPTBOXS, OPTBOXS
C.C. FILE
EOF

4.2 BINARY RELEASE TAPE FILE 1

INTERIM LIBRARY PRELIB SOURCE

```
C.C. SEQUENCE,001
C.C. JOB,,,,,INTERIM LIBRARY GENERATION.
C.C. EQUIP,SS=MT,US=SS
C.C. EQUIP,S1=MT
C.C. PRELIB,,1,,
C.C. FILE
C.C. REPLACE,PRELIB,PLUV2
MAIN  SS                                PRELIB==MAIN
IOC  PRELIB      PROG.LENGTH=03722
OV   SS,1              PLOVINI
IOC  PLOVINI     PROG.LENGTH=00497
OV   SS,2
IOC  OV1         PROG.LENGTH=02132
SEG  SS,1
IOC  PHASE1     PROG.LENGTH=01440
SEG  SS,2
IOC  PHASE2     PROG.LENGTH=00004
OV   SS,3
IOC  DEBLOCK   PROG.LENGTH=00107
OV   SS,4
IOC  PLOV2     PROG.LENGTH=12325
C.C. FILE
EOF
```

4.3 RTS COSY TAPE CONTENTS

The composite COSY tapes of this release contain all necessary routines used in generating either an RTS/STD or an RTS/BATCH library. The following list gives the sequence of the routines found on the RTS COSY tapes.

The deck name of each routine in the following list is suffixed with a special code. The definitions of this code are:

- S Specified routine used for RTS/STD libraries
- B Specified routine used for RTS/BATCH libraries
- 0 Specified routine used for both RTS/STD and RTS/BATCH with assembly option.
- A Specified routine used for all libraries
- X BDP users
- Y BCD users
- Z Specified routine has a special assembly option

COSY TAPE NUMBER 1

<u>DECK NAME</u>	<u>CODE</u>	<u>DECK NAME</u>	<u>CODE</u>	<u>DECK NAME</u>	<u>CODE</u>	<u>DECK NAME</u>	<u>CODE</u>
ZERO	A	POSTLOAD	AZ	BINARY	A	EXTREMA1	A
CIO	SZ	PRELIB	A	BUFFER	A	EXTREMA2	A
BCIO	BZ	PLOVINT	A	UNIT	A	FLOATF	A
DRIVLABT	A	OV1	A	IOCHK	A	FXF	A
DRIV3649	A	PHASE 1	A	EOFCHK	A	MASKINGF	A
DRIV3248	A	PHASE2	A	TAPEHAND	A	FAULTS	A
DRIV3659	A	DEBLOCK[A	PAUSE	A	SENSLITE	A
DRV512	A	PLOV2	A	CONTROL	A	SENSWTCH	A
DRIV3644	A	EXECOVN	A	DOUBLE	A	Q8QERROR	A
DRIVTYWR	A	FTO	A	DFPRIME	A	SCOPUTIL	A
DRIV3245	A	PROGNAME	A	DFP	A	COPYS	A
DRIVER12	A	FT1	A	Q1QADRI	A	COPYT	A
OCRMACRO †	A	FT2	A	ITOJ	A	VERIFY	A
DRIV3293	A	FT3	A	ITOX	A	DUMP	A
DRIV3691	A	FT4	A	XTOI	A	COPYWS	A
SCICREC1	SZ	FT5	A	POWRF	A	COPYTSQ	A
BCICREC1	BZ	FT6	A	SINCOS	A	ERROR	A
RDUMP	AZ	FTE	A	ATANF	A	IOPACK	A
PRELOAD	OZ	FTN	A	EXPF	A	IODRAIN	A
CKREC1	A	FLOVER	A	LOGF	A	SNAPSHOT	A
LOADER	AZ	BCDINP	A	SIGNF	A	FDPBOXS	A
OVPRO	AZ	BCDOUT	A	SQRTF	A	OPTBOXS	A
PROTECT	A	FORMAT	A	ABSF	A	BCDBOXS	A

† Exists as a MACRO only

COSY TAPE NUMBER 1 (continued)

<u>DECK NAME</u>	<u>CODE</u>	<u>DECK NAME</u>	<u>CODE</u>	<u>DECK NAME</u>	<u>CODE</u>	<u>DECK NAME</u>	<u>CODE</u>
BSIPP	S	SAINT	AZ	COBOL	Y	MBRMSRCH	Y
SIPP	A	SORT	AZ	COBOLIE	Y	MBSAPROC	Y
RAAR	AZ	BINANDEC	A	COBOLD1	Y	MBMFPROC	Y
SCAR	AZ	SDUMP	A	COBOLP1	Y	MBMFIN	Y
MTWPR	A	SRTPRINT	A	COBOLD2	Y	MBMFOUT	Y
MTRPR	A	SORTPOLY	A	COBOLP2	Y	JVCOM2	Y
MTLDACPR	A	SRTMBALF	A	COBOLDP3	Y	JVNOALT	Y
MTDER	A	SRTMBALB	A	ERRSTOP	Y	MBOPTFIL	Y
PRCPR	A	SRTMPOLF	A	OPENINPT	Y	TRANSMIT	Y
CRDER	A	SRTMPOLB	A	OPENOTPT	Y	FIGCON	Y
CPDER	A	SORTPDMY	A	READ	Y	COMPARE	Y
MTWPRR	AZ	SORTEDIT	A	WRITE	Y	EDIT	Y
MTRPRR	AZ	SORTIOP1	A	READI	Y	EDITCOBL	Y
MTLDCPRR	AZ	SORTPHS1	A	WRITEF	Y	MULTIPLY	Y
CMNRTNS	A	SRTRBALF	A	EXAMINE	Y	DIVIDE	Y
WHATISIT	AZ	SRTRPOLF	A	SUBSCRIP	Y	BMULTPLY	Y
NRD	AZ	SRTRBALB	A	ACCEPT	Y	BDIVIDE	Y
NRC	AZ	SRTRPOLB	A	DISPLAY	Y	DPMULDIV	Y
NWR	A	SRESTART	A	CONVERT	Y	STRIPPER	Y
T.NOTRDY	A	RESTART1	A	GPIOMAST	Y	BSTRIPPR	Y
TYPEOUT.	A	RSTRTDUM	A	CLOSE	Y	DEEDIT	Y
WHATKIND	A	SORTIOP2	A	STACKING	Y	NUMERIC	Y
COMPASSB	A	SRTEQUAL	A	RERUN	Y	ALPHABET	Y
COMPASS	A	POLYFORW	A	MBRDLABS	Y	MVFIGCON	Y
OVERLAY1	A	BALCFORW	A	LABLAREA	Y	VARC1	Y
PASSONE	A	BALCBACK	A	MBWTBSTL	Y	VARN	Y
PASSTWO	A	POLYBACK	A	MBRDBNSL	Y	VARAN	Y
SYMTBLE	A	WAITBEEP	A	WRTBNSL	Y	ROUNDER	Y
CRT	A	RESTART	Y	MBVARREC	Y	ZIPPER	Y

COSY TAPE NUMBER 2

<u>DECK NAME</u>	<u>CODE</u>	<u>DECK NAME</u>	<u>CODE</u>	<u>DECK NAME</u>	<u>CODE</u>	<u>DECK NAME</u>	<u>CODE</u>
COMAC†	A	POPENOTP	X	PCLOSE	X	PMBMFPRO	X
PRESTART	X	PREAD	X	PSTACKIN	X	PMBMFIN	X
PCOBOL	X	PWRITE	X	PRERUN	X	PMBMFOUT	X
PCOBOLIE	X	PREADI	X	PMBRDLAB	X	PJVCOM2	X
PCOBOLD1	X	PWRITEF	X	PLABLARE	X	PJVNOALT	X
PCOBOLP1	X	PEXAMINE	X	PMBWTBST	X	PMBOPTFI	X
PCOBOLD2	X	PSUBSCRI	X	PMBRDBNS	X	PFIGCON	X
PCOBOLP2	X	PBPBINBC	X	PWRTBNSL	X	PCOMPARE	X
PCOBOLDP	X	PDPBDCBI	X	PMBVARRE	X	PMULTIPL	X
PERRSTOP	X	PACCEPT	X	PMBRMSRC	X	PDIVIDE	X
POPENINP	X	PGPIOMAS	X	PMBSAPRO	X	PSTRIPPE	X

† Exists as a MACRO only

COSY TAPE NUMBER 2 (continued)

<u>DECK NAME</u>	<u>CODE</u>	<u>DECK NAME</u>	<u>CODE</u>	<u>DECK NAME</u>	<u>CODE</u>	<u>DECK NAME</u>	<u>CODE</u>
PDEEDIT	X	PVARN	X	RGOV1	Y	RGPTWO	Y
PNUMERIC	X	PVARAN	X	RGFILE	Y	RGCRT	Y
PALPHABE	X	PZIPPER	Y	RGREPORT	Y	RGRTS	Y
PDISPLAY	X	COSYRDWT	A	RGPRO	Y	RGACCEPT	Y
PMVFIGCO	X	COSY2.0	A	RGCOMP	Y	RGU	Y
PVARC1	X	RGMAIN	Y	RGPONE	Y		

4.4 ASSEMBLY REFERENCE GUIDE

4.4.1 REFERENCE GUIDE FOR ASSEMBLING INSTALLATION DEPENDENT ROUTINES

CIO

COSY NO.	1	10	20	40
3	TIMEOUT	EQU	0	

BCIO

COSY NO.	1	10	20	40
3	TIMEOUT	EQU	0	

SCICREC1

COSY NO.	1	10	20	40
4	ACCT	EQU	0	
5	BDP	EQU	0	
6	CLOCK	EQU	0	
7	NCHANS	EQU	6	
8	MAXCORE	EQU	777378	
2033, 2061	AET	OCT		
2126, 2132	RHT	modifications		
2140, 2143	BRHT	modifications		
2210		00	IOIP	0
2211		00	IOIP	1
2212		00	IOIP	2
2213		00	IOIP	3
2214		00	ABINRT	4
2215		00	ABINRT	5
2216		00	ABINRT	6
2217		00	ABINRT	7
2253	SYST.IOM	OCT	178	

BCICREC1

COSY NO.	1	10	20	40
4	ACCT	EQU	0	
5	BDP	EQU	0	
6	CLOCK	EQU	0	
7	NCHANS	EQU	4	
8	MAXCORE	EQU	376378	
703	IOT	00	IOIP	0
704		00	IOIP	1
705		00	IOIP	2
706		00	IOIP	3
707		00	ABINRT	4
708		00	ABINRT	5
709		00	ABINRT	6
710		00	ABINRT	7
1306,1326	AET	OCT		
1391,1397	RHT	modifications		
1438	SYST.IOM	OCT	178	

RDUMP

COSY NO.	1	10	20	40
21	SER.OPT	EQU	0	

PRELOAD

COSY NO.	1	10	20	40
8	BF	EQU	0	
131	ACCT	EQU	0	
130	TRAIN	EQU	0	
181	TRN5951	EQU		
182	TRN5952	EQU		
183	TRN5953	EQU		

LOADER

COSY NO.	1	10	20	40
10	LERP	EQU	0	

POSTLOAD

COSY NO.	1	10	20	40
23	LERP	EQU	0	

OVPRO

COSY NO.	1	10	20	40
12	LERP	EQU	0	

4.4.2 COSY CORRECTION SAMPLES

The coding and control cards necessary to punch binary decks for insertion into the PRELIB source are demonstrated by the following example. It does not represent a complete update. This example assumes the following system.

1. Floating-point hardware
2. No BDP hardware
3. User desires a STD RTS library
4. User desires clock interrupt processor
5. User desires basic accounting
6. User desires lost interrupt option
7. A 32K 3300 with the following configuration:

Equipment Type	Quantity	Controller	Channel	Equipment	Unit
Console typewriter	1	none	none	none	none
607 magnetic tape drives	4	3423	2, 3	4	0-3
415 card punch	1	3446	1	4	0
501 printer	1	3659	0, 1	5	0
405 card reader	1		1	3	0

⁷9SEQUENCE, 002, MODIFY SCICREC1

⁷9JOB, 12345, ABC

⁷9EQUIP, 01=MT, 02=MT

LUN 01 = The RTS COSY tape

⁷9COSY

LUN 02 = The Hollerith output tape

ACCT DELETE/ 4

 EQU 1

Basic accounting desired

 DELETE/ 5

BDP EQU 0

BDP hardware not available

	DELETE/	6	
CLOCK	EQU	1	Clock interrupt processor desired
	DELETE/	7	
NCHANS	EQU	4	Define the CST
	DELETE/	8	
MAXCORE	EQU	77737 ₈	Set the amount of available memory
	DELETE/	2033, 2061	
AET	OCT	41004000	Unit 1 library
	EXT	DRIVER01	Ch-2/3, Eq-4, Un-0
	VFD	09/000, A15/DRIVER01	
	OCT	45000000	Unit 2 CTO/CFO
	EXT	DRIVER05	Console typewriter
	VFD	09/000, A15/DRIVER05	
	OCT	42003000	Unit 3 standard INP
	EXT	DRIVER02	Ch-1, Eq-3, Un-0
	VFD	09/100, A15/DRIVER02	
	OCT	43005000	Unit 4 standard OUT
	EXT	DRIVER03	Ch-0/1, Eq-5, Un-0
	VFD	09/300, A15/DRIVER03	
	OCT	44004000	Unit 5 standard PUN
	EXT	DRIVER04	Ch-1, Eq-4, Un-0
	VFD	09/100, A15/DRIVER04	
	OCT	01004001	Magnetic tape
	VFD	09/060, A15/DRIVER01	Ch-2/3, Eq-4, Un-1
	OCT	01004002	Magnetic tape
	VFD	09/060, A15/DRIVER01	Ch-2/3, Eq-4, Un-2
	OCT	01004003	Magnetic tape
	VFD	09/060, A15/DRIVER01	Ch-2/3, Eq-4, Un-3

	DELETE/	2126, 2132	
RHT	OCT	0, 0, 0, 0	Set up RHT to match AET
	OCT	0, 0, 0, 0	
	OCT	0, 0, 0, 0	
	OCT	0, 0, 0202, 03040502	
	DELETE/	2140, 2143	
BRHT	OCT	0, 0, 0, 0	Set up BRHT to match AET
	OCT	0, 0, 0, 0	
	OCT	0, 0, 0, 0	
	OCT	0, 0, 0202, 0	
			CIT modification
			IOIP channel available
			ABINRT channel not available
	DELETE/	2210, 2217	
	00	IOIP	Channel 0, available
	00	IOIP	Channel 1, available
	00	IOIP	Channel 2, available
	00	IOIP	Channel 3, available
	00	ABINRT	Channel 4, not available
	00	ABINRT	Channel 5, not available
	00	ABINRT	Channel 6, not available
	00	ABINRT	Channel 7, not available
	DELETE/	2253	
SYST. IOM	OCT	17	Set up system I/O mask to match available channels
SCICREC1	DECK/	I=01, H=02	
	ENDCOSY/		
	7	COMPASS, I=02, L, R, P	
	77	end-of-file	

This example assumes the following:

1. A BATCH RTS user
2. User does not desire clock interrupt processor
3. User does not desire basic accounting
4. User does not desire lost interrupt option
5. No BDP hardware
6. A 16K 3100 with the following configuration:

Equipment Type	Quantity	Controller	Channel	Equipment	Unit
Console typewriter	1	none	none	none	none
601 magnetic tapes	4	3127	0	0	0-3
405 card reader	1	3248	1	3	0
501 printer	1	3152	1	5	0
415 card punch	1	3446	1	4	0

⁷₉SEQUENCE, 002, MODIFY BCICREC1

⁷₉JOB, 12345, ABC

⁷₉EQUIP, 01=MT, 02=MT

⁷₉COSY

	DELETE/	4	
ACCT	EQU	0	Do not include basic accounting option
	DELETE/	5	
BDP	EQU	0	BDP hardware not available
	DELETE/	6	
CLOCK	EQU	0	Do not include the clock option
	DELETE/	7	
NCHANS	EQU	2	Define the CST and EST length
	DELETE/	8	
MAXCORE	EQU	37637 ₈	Set the amount of available memory

	DELETE/	703, 710	
IOT	00	IOIP	Channel 0, available
	00	IOIP	Channel 1, available
	00	ABINRT	Channel 2, not available
	00	ABINRT	Channel 3, not available
	00	ABINRT	Channel 4, not available
	00	ABINRT	Channel 5, not available
	00	ABINRT	Channel 6, not available
	00	ABINRT	Channel 7, not available

Define the AET

	DELETE/	1306, 1326	
AET	OCT	41000000	Unit 1 library
	EXT	DRIVER01	Ch-0, Eq-0, Un-0
	VFD	O9/200, A15/DRIVER01	
	OCT	45000000	Unit 2 CTO/CFO
	EXT	DRIVER05	Console typewriter
	VFD	O9/000, A15/DRIVER05	
	OCT	42003000	Unit 3 standard INP
	EXT	DRIVER02	Ch1, Eq3, Un0
	VFD	O9/100, A15/DRIVER02	
	OCT	43005000	Unit 4 standard OUT
	EXT	DRIVER03	Ch1, Eq5, Un0
	VFD	O9/100, A15/DRIVER03	
	OCT	44004000	Unit 5 standard PUN
	EXT	DRIVER04	
	VFD	O9/100, A15/DRIVER04	
	OCT	01000003	Magnetic tape
	VFD	O9/060, A15/DRIVER01	
	OCT	01000002	Magnetic tape
	VFD	O9/200, A15/DRIVER01	
	OCT	01000001	Magnetic tape
	VFD	O9/200, A15/DRIVER01	

	DELETE/	1391,1397	
RHT	OCT	0,0,0,0	Set up RHT to match AET
	OCT	0,0,0,0	
	OCT	0,0,0,0	
	OCT	0,0,0202,03040501	
	DELETE/	1438	
SYST.IOM	OCT	3	Set up system I/O mask to match available channels
BCICREC1	DECK/	I=01,H=02	
	ENDCOSY/		
	⁷ ₉ COMPASS, I=02, L, R, P		
	⁷⁷ ₈₈ end-of-file		

4.5 ONE CARD LOADER

In order to run the one-card loader program as listed in paragraph 4.5.1, the appropriate SEQUENCE, JOB, and COMPASS control cards must be inserted before the deck and the appropriate LOAD, RUN, and end-of-file cards must be placed after the deck.

To terminate punching the one-card loader cards when executing the program, set SELECT JUMP 1 on.

4.5.1 ONE-CARD LOADER LISTING

					LOAD512	EXT	CIO	
						ENTRY	LOAD512	
00000	01077777	01	0	77777	0	LOAD512	UJP	**
00001	00777777	00	1	X77777	3		RTJ	CIO
00002	02000076	02	0	00076	0		02	62
00003	01000001	01	0	P00001	0		LJP	*-2
00004	41000013	41	0	P00013	0		41	ABS
00005	00000050	00	0	00050	0			ABSE-ABS
00006	00700001	00	1	X00001	3		PTJ	CIO
00007	13000076	13	0	00076	0		13	62
00010	03000006	03	0	F00006	2		AZJ,GF	*-2
00011	00100000	00	0	P00000	1		SJ1	LOAD512
00012	01000001	01	0	P00001	0		UJP	LOAD512+1
00013	14050000	14	0	50000	0	ABS	NOP	50000B
00014	14100000	14	0	00000	1		ENI	0,1
00015	20100007	20	0	00007	1		LCA	7,1
00016	40120000	40	0	20000	1		STA	XCT,1
00017	10100040	10	0	00040	1		ISI	XCTNO,1
00020	01000002	01	0	00002	0		LJP	2
00021	01020000	01	0	20000	0		UJP	XQT
00022	77032000	77	0	32000	0		CON	EUUU,C
00023	01020000	01	0	20000	0		LJP	XQT
00024	74020120	74	0	20120	0		INPW	C,BFFR,BFFRE
00025	30020050	30	0	20050	0			
00026	01020000	01	0	20000	0		LJP	XQT
00027	77230002	77	0	30002	2		EXS	2,C
00030	01020005	01	0	20005	0		LJP	XCT5
00031	14600000	14	1	00000	2		ENA	0
00032	21020050	21	0	20050	0		LCA	RFFR
00033	13000006	13	0	00006	0		SHAG	6
00034	15477776	15	1	77776	0		INA,S	-1
00035	53500000	53	1	00000	1		TAI	1
00036	15477737	15	1	77737	0		INA,S	-PIF
00037	03220036	03	0	20036	2		AZJ,GE	XQT30
00040	13000003	13	0	00003	0		SHAG	3
00041	12400003	12	1	00003	0		SHQ	3
00042	13000014	13	0	00014	0		SHAQ	12
00043	44020034	44	0	20034	0		SWA	XQT29
00044	24020051	24	0	20051	0		LCA	RFFR1
00045	30020050	30	0	20050	0		ACA	RFFR
00046	14200045	14	0	00045	2		ENI	37,2
00047	30220052	30	0	20052	2		ACA	RFFR2,2
00050	02620025	02	1	20025	2		IJD	XCT21,2
00051	03020033	03	0	20033	0		AZJ,EG	XQT27
00052	77230010	77	0	30010	2		EXS	10B,C
00053	00700000	00	1	00000	3		PTJ	0
00054	77770000	77	1	70000	3		LCS	
00055	20120060	20	0	20060	1		LDA	PRGRM,1
00056	40100000	40	0	00000	1		STA	0,1
00057	02520033	02	1	20033	1		IJD	XQT27,1
00060	77230040	77	0	30040	2		EXS	40B,C
00061	01020031	01	0	20031	0		LJP	XCT25
00062	01020002	01	0	20002	0		UJP	XQT2
				00003		C	EQU	3

4.6 FCO LEVEL

RTS Version 2.0 is assumed to run on a configuration at the following field change order levels:

<u>3100 Equipment</u>		<u>Product Designation</u>
3114	Main frame	C03
3119	Memory	B01
3207	Channel	A04
3106	Channel	B06
3248	Card reader controller	A12
3256	Printer controller	B02
3228	Tape controller	A08
3446	Card punch controller	A08
3447	Card reader controller	B03

<u>3200 Equipment</u>		<u>Product Designation</u>
3204	Main frame	A01
3209	Memory	A08
3206	Channel	A07
3207	Channel	A01
3228	Tape controller	A08
3248	Card reader controller	A12
3245	Card punch controller	A05
3659	Printer controller	A11

<u>3300 Equipment</u>		<u>Product Designation</u>
3304	Main frame	A22
3302	Memory	A14
3310	Floating point	A09
3312	BDP Unit	A15
3306/06	Channel	A08
3307/06	Channel	A12
3649	Card reader controller	A23
3644	Card punch controller	A14
3659	Printer controller	A13
3421	Tape controller	A08

4.7 VERIFICATION DECK OUTPUT

The following paragraphs contain verification program outputs for the RTS product set members. BSIPP, SIPP, and error recovery routines do not have verification programs.

4.7.1 ADAPT

```

PARTNO TEST TLRGT,TLLFT AND TLOH                                000
$$ THIS PROGRAM SHOULD HANG UP ON CARD 140 WITH ERROR NO. 503
LOOPST
CLPRNT                                                            001
  L1=LINE/0,0,5,0      $$ X=AXIS                                003
  L2=LINE/9,0,9,5      $$ LINE AT X=9                          004
  L3=LINE/0,8,5,8      $$ LINE AT X=8                          005
  L4=LINE/0,0,0,5      $$ Y=AXIS                                006
STRAT=POINT/-1,-1,0                                           007
PP=PLANE/0,0,1,-.5
PSIS/PP
  CUTTER/.5                                                    008
  MACHIN/ BENDIX, 1                                           002
FROM/STRAT                                                       01A
  GO/L1                                                         010
  TLRGT,GORGT/L1                                              020
  GOLFT/L2,L3                                                  030
  GOLFT/L3                                                      040
  GOLFT/L4,L1                                                  050
  TLLFT,GOLFT/L1,PAST,L2                                       060
  GOLFT/L2                                                       070
  GOLFT/L3,PAST,L4                                             080
LOOPND
LOOPST                                                            090
  GOLFT/L4                                                       100
  TLRGT,GOLFT/L1                                              110
  TLLFT,GOLFT/L2                                              120
  TLRGT,GOLFT/L3                                              130
  TLOH,GOLFT/L4,PAST,L1                                       140
  GOLFT/L1                                                       150
  GOLFT/L2,PAST,L3                                             160
  GOLFT/L3,                                                      170
  GOLFT/L4,L1                                                  200
GOTO/STRAT
LOOPND
END
  FINI                                                            FINI

```


TEST TLRGT, TLLFT AND TLON
 CUTTER/ .5000 0
 MACHIN/BENDIX 1

X	Y	Z
-1.0000000	-1.0000000	0
X	Y	Z
-1.0000000	-0.2500000	-0.5000000
X	Y	Z
9.2500000	-0.2500000	-0.5000000
X	Y	Z
9.2500000	7.7500000	-0.5000000
X	Y	Z
-0.2500000	7.7500000	-0.5000000
X	Y	Z
-0.2500000	.2500000	-0.5000000
X	Y	Z
9.2500000	.2500000	-0.5000000
X	Y	Z
9.2500000	7.7500000	-0.5000000
X	Y	Z
-0.2500000	7.7500000	-0.5000000
X	Y	Z
-0.2500000	-0.2500000	-0.5000000
X	Y	Z
8.7500000	-0.2500000	-0.5000000
X	Y	Z
8.7500000	8.2500000	-0.5000000
X	Y	Z
0	8.2500000	-0.5000000
X	Y	Z
0	-0.2500000	-0.5000000

CARD NO.	000 TAPE NO.	2
CARD NO.	008 TAPE NO.	5
CARD NO.	002 TAPE NO.	7
CARD NO.	01A TAPE NO.	9
CARD NO.	010 TAPE NO.	11
CARD NO.	020 TAPE NO.	13
CARD NO.	030 TAPE NO.	15
CARD NO.	040 TAPE NO.	17
CARD NO.	050 TAPE NO.	19
CARD NO.	060 TAPE NO.	21
CARD NO.	070 TAPE NO.	23
CARD NO.	080 TAPE NO.	25
CARD NO.	090 TAPE NO.	27
CARD NO.	100 TAPE NO.	29
CARD NO.	110 TAPE NO.	31
CARD NO.	120 TAPE NO.	33
CARD NO.	130 TAPE NO.	35

***** SECTION II ERROR 503 ON CARD NUMBER 140, CALL CARD NUMBER00000000

FINI
 CHECK CLTAPE PRINTOUT FOR PROGRAM ERROR COMMENTS

CARD NO.	140 TAPE NO.	38
----------	--------------	----

```

PARTNO  ARLMG TEST  7/30/66  D. B. HORNING  001
LOOPST  $$ FOR BLOCKING  002
CLPRNT  005
CUTTER/1  010
C1=CIRCLE/0,0,10  020
L1=LINE/0,-8,1,-8  030
L2=LINE/0,0,1,0  040
FROM/=10,5,0,0  050
INDIRV/1,0,0  060
TLON,GOFWD/L2,ON,C1  070
GOFWD/L2,PAST,C1  080
GOFWD/L2,TO,C1  090
GOFWD/L2,ON,C1  100
FROM/=7,-7,50,0  120
INDIRV/1,0,0  130
TLLFT,GOFWD/L1,TO,C1  140
GOFWD/L1,ON,C1  150
GOFWD/L1,PAST,C1  150
LOOPND  $$FOR BLOCKING
FINI  160

```

ARLMG TEST	7/30/66	D. B. HORNING	CARD NO.	001 TAPE NO.	2
CUTTER/	1,0000	0		005 TAPE NO.	4
	X	Y	Z	040 TAPE NO.	6
	-10.5000000	0	0	060 TAPE NO.	9
	X	Y	Z	070 TAPE NO.	11
	-10.0004500	0	0	080 TAPE NO.	13
	X	Y	Z	090 TAPE NO.	15
	-9.4999500	0	0	100 TAPE NO.	17
	X	Y	Z	TAPE NO.	19
	9.4999500	0	0	130 TAPE NO.	22
	X	Y	Z	140 TAPE NO.	24
	9.9999500	0	0	150 TAPE NO.	26
	X	Y	Z	160 TAPE NO.	28
	10.5004500	0	0		
	X	Y	Z		
	-7.0000000	-7.5000000	0		
	X	Y	Z		
	5.8308726	-7.5000000	0		
	X	Y	Z		
	6.6143171	-7.5000000	0		
	X	Y	Z		
	7.3491123	-7.5000000	0		
FINI					

4.7.2 COBOL (BCD AND BDP)

COBOL HAS BEEN INSTALLED ON THIS LIBRARY

4.7.3 COMPASS

COMPASS HAS BEEN INSTALLED ON THIS LIBRARY.

4.7.4 COSY

CHKCOSY DECK/ C=06
ENDCOSY/

4.7.5 FORTRAN

FORTRAN HAS BEEN INSTALLED ON THIS LIBRARY.
I FTNO 0060 STOP

4.7.6 PERT COST

MASTER TAPE LISTING - TEST TEST (FOR 3200 PERT/COST)
PROGRAM DESIGNATION - C46

FILE ONE - SUMMARY NUMBER FILE

SUMMARY				HIERARCHY TABLE								
NO.	LEV	PARENT	RESP. ORG.	DESCRIPTION								
1000	1	0	0		1000	0	0	0	0	0	0	0
1100	2	1000	0		1000	1100	0	0	0	0	0	0
1200	2	1000	0		1000	1200	0	0	0	0	0	0
1300	2	1000	0		1000	1300	0	0	0	0	0	0
1110	3	1100	0		1000	1100	1110	0	0	0	0	0
1120	3	1100	0		1000	1100	1120	0	0	0	0	0
1210	3	1200	0		1000	1200	1210	0	0	0	0	0
1220	3	1200	0		1000	1200	1220	0	0	0	0	0
1310	3	1300	0		1000	1300	1310	0	0	0	0	0
1320	3	1300	0		1000	1300	1320	0	0	0	0	0
1330	3	1300	0		1000	1300	1330	0	0	0	0	0
1221	4	1220	0		1000	1200	1220	1221	0	0	0	0
1222	4	1220	0		1000	1200	1220	1222	0	0	0	0
1321	4	1320	0		1000	1300	1320	1321	0	0	0	0
1322	4	1320	0		1000	1300	1320	1322	0	0	0	0
1323	4	1320	0		1000	1300	1320	1323	0	0	0	0

FILE TWO - CHANGE NUMBER FILE

CHANGE NO.	L	PARENT WORKS.	DESCRIPTION	HIERARCHY TABLE											
1000000 4	1110	0		1000	1100	1110	0	0	0	0	0	0	0	0	0
91764	0	0	17 650216	3 650216 650226	1	15	15	650216	650226	640923					
2000000 4	1110	0		1000	1100	1110	0	0	0	0	0	0	0	0	0
111064	0	0	17 650112	3 650112 650122	2	10	10	650112	650122	641123					
3000000 4	1110	0		1000	1100	1110	0	0	0	0	0	0	0	0	0
91764	0	0	59 641203	3 641111 641223	1	10	5	641203	650122	640917					
1100000 4	1120	0		1000	1100	1120	0	0	0	0	0	0	0	0	0
30365	0	0	17 650726	3 650726 650805	20	27	27	650726	650805	650329					
1200000 4	1120	0		1000	1100	1120	0	0	0	0	0	0	0	0	0
61465	0	0	71 650804	3 650804 650924	25	30	30	650804	650924	650619					
2100000 4	1210	0		1000	1200	1210	0	0	0	0	0	0	0	0	0
30365	0	0	61 650610	3 650610 650805	20	27	27	650610	650805	650308					
2200000 4	1210	0		1000	1200	1210	0	0	0	0	0	0	0	0	0
50365	0	0	70 650618	3 650527 650715	23	28	26	650618	650820	650415					
2300000 4	1210	0		1000	1200	1210	0	0	0	0	0	0	0	0	0
52665	0	0	17 650913	3 650913 650924	26	30	30	650913	650924	650505					
3100000 5	1221	0		1000	1200	1220	1221	0	0	0	0	0	0	0	0
111064	0	0	192 641211	3 641211 650428	2	9	9	641211	650428	641128					
4100000 5	1222	0		1000	1200	1220	1222	0	0	0	0	0	0	0	0
11365	0	0	77 650326	3 650326 650520	14	24	24	650326	650520	650112					
4200000 5	1222	0		1000	1200	1220	1222	0	0	0	0	0	0	0	0
21565	0	0	77 650505	3 650505 650629	17	25	25	650505	650629	650229					
5100000 4	1310	0		1000	1300	1310	0	0	0	0	0	0	0	0	0
91764	0	0	37 650115	3 641026 641119	1	14	4	650115	650310	640917					
5200000 4	1310	0		1000	1300	1310	0	0	0	0	0	0	0	0	0
110264	0	0	37 641223	3 641223 650121	4	11	11	641223	650121	641018					
5300000 4	1310	0		1000	1300	1310	0	0	0	0	0	0	0	0	0
102664	0	0	37 641110	3 641110 641208	4	7	7	641110	641208	641008					
5400000 4	1310	0		1000	1300	1310	0	0	0	0	0	0	0	0	0
112664	0	0	77 641222	3 641222 650217	8	12	12	641222	650217	641117					
6100000 5	1321	0		1000	1300	1320	1321	0	0	0	0	0	0	0	0
21165	0	0	17 650308	3 650308 650318	15	19	19	650308	650318	650218					
7100000 5	1322	0		1000	1300	1320	1322	0	0	0	0	0	0	0	0
121064	0	0	70 650429	3 650429 650617	13	22	22	650429	650617	641211					
7200000 5	1322	0		1000	1300	1320	1322	0	0	0	0	0	0	0	0
121864	0	0	70 650429	3 650429 650617	18	23	23	650429	650617	641217					
8100000 5	1323	0		1000	1300	1320	1323	0	0	0	0	0	0	0	0
111164	0	0	37 650120	3 650120 650215	6	16	16	650120	650215	641111					
8200000 5	1323	0		1000	1300	1320	1323	0	0	0	0	0	0	0	0
11565	0	0	17 650308	3 650308 650318	16	20	20	650308	650318	650120					
9100000 4	1330	0		1000	1300	1330	0	0	0	0	0	0	0	0	0
31765	0	0	17 651005	3 651005 651015	20	31	31	651005	651015	650308					

FILE THREEF - COST FILE

PERF. ORG.	RES. CODE	CHARGE NO.	DATE	BUDGETS	ESTIMATES	ACTUALS		TOTAL	COMMITTED COSTS			
						HOURS	DIRECT					
1	00R2	1000000	0 0	U T	1000	0	0	0	0	0	0	0
					3400	0	0	0				
					3150	0	0	0				
					2150	0	0	0				
					550	0	0	0				
					2300	0	0	0				
					150	0	0	0				
					0	0	0	0				
					0	0	0	0				
					0	0	0	0				
					0	0	0	0				
1	00R4	1000000	0 0	U D	23400	0	0	0	0	0	0	0
					3550	0	0	0				
					2350	0	0	0				
					3600	0	0	0				
					7250	0	0	0				
					4200	0	0	0				
					600	0	0	0				
					0	0	0	0				
					0	0	0	0				
					0	0	0	0				
					0	0	0	0				
2	00R1	2000000	0 0	U H	4890	0	0	0	0	0	0	0
					4865	0	0	0				
					0	0	0	0				
					0	0	0	0				
					0	0	0	0				
					0	0	0	0				
3	00R4	3000000	0 0	U D	20350	0	0	0	0	0	0	0
					3600	0	0	0				
					3500	0	0	0				
					4750	0	0	0				
					2500	0	0	0				
					350	0	0	0				
3	00R7	3000000	0 0	U U	400	0	0	0	0	0	0	0
					350	0	0	0				
					550	0	0	0				
					600	0	0	0				
					350	0	0	0				
					200	0	0	0				
11	00R7	11000000	0 0	U D	250	0	0	0	0	0	0	0
					600	0	0	0				
					650	0	0	0				
					650	0	0	0				
					650	0	0	0				
					550	0	0	0				
					200	0	0	0				
					0	0	0	0				
					0	0	0	0				
					0	0	0	0				

						0	0	0			
				U		0	0	0			
12	0086	12000000	0 0	U T	1000	0	0	0	0	0	0
				U	11000	0	0	0			
				U	9450	0	0	0			
				U		0	0	0			
				U		0	0	0			
				U		0	0	0			
21	0086	21000000	0 0	U T	5000	0	0	0	0	0	0
				U	8300	0	0	0			
				U	25000	0	0	0			
				U	17500	0	0	0			
				U		0	0	0			
				U		0	0	0			
22	0092	22000000	0 0	U T	750	0	0	0	0	0	0
				U	900	0	0	0			
				U		0	0	0			
				U		0	0	0			
				U		0	0	0			
				U		0	0	0			
22	0093	22000000	0 0	U D	51200	0	0	0	0	0	0
				U	34700	0	0	0			
				U		0	0	0			
				U		0	0	0			
				U		0	0	0			
				U		0	0	0			
23	0081	23000000	0 0	U H	3620	0	0	0	0	0	0
				U	3600	0	0	0			
				U	2450	0	0	0			
				U		0	0	0			
				U		0	0	0			
				U		0	0	0			
23	0086	23000000	0 0	U T	4550	0	0	0	0	0	0
				U	900	0	0	0			
				U	1500	0	0	0			
				U		0	0	0			
				U		0	0	0			
				U		0	0	0			
31	0081	31000000	0 0	U H	5400	0	0	0	0	0	0
				U	250	0	0	0			
				U		0	0	0			
				U		0	0	0			
				U		0	0	0			
				U		0	0	0			
41	0086	41000000	0 0	U T	15000	0	0	0	0	0	0
				U	850	0	0	0			
				U		0	0	0			
				U		0	0	0			
				U		0	0	0			
				U		0	0	0			
41	0087	41000000	0 0	U D	700	0	0	0	0	0	0
				U	300	0	0	0			
				U		0	0	0			

				U	J	0	U	0			
				U	J	0	0	0			
				U	U	0	0	0			
42	00R4	42000000	0 0	U D	7300	0	0	0	0	0	0
				U	2450	0	0	0	0		
				U	4700	0	0	0	0		
				U	600	0	0	0	0		
				U	U	0	0	0	0		
				U	U	0	0	0	0		
51	00R2	51000000	0 0	U T	600	0	0	0	0	0	0
				U	1350	0	0	0	0		
				U	200	0	0	0	0		
				U	100	0	0	0	0		
				U	1700	0	0	0	0		
				U	400	0	0	0	0		
52	00R1	52000000	0 U	U H	14250	0	0	0	0	0	0
				U	16300	0	0	0	0		
				U	13700	0	0	0	0		
				U	U	0	0	0	0		
				U	U	0	0	0	0		
				U	U	0	0	0	0		
53	00R5	53000000	0 0	U D	23500	0	0	0	0	0	0
				U	U	0	0	0	0		
				U	U	0	0	0	0		
				U	U	0	0	0	0		
				U	U	0	0	0	0		
				U	U	0	0	0	0		
53	00R7	53000000	0 0	U D	1600	0	0	0	0	0	0
				U	U	0	0	0	0		
				U	U	0	0	0	0		
				U	U	0	0	0	0		
				U	U	0	0	0	0		
				U	U	0	0	0	0		
54	00R2	54000000	0 0	U T	4250	0	0	0	0	0	0
				U	2000	0	0	0	0		
				U	U	0	0	0	0		
				U	U	0	0	0	0		
				U	U	0	0	0	0		
				U	U	0	0	0	0		
61	00R3	61000000	0 0	U D	173450	0	0	0	0	0	0
				U	U	0	0	0	0		
				U	U	0	0	0	0		
				U	U	0	0	0	0		
				U	U	0	0	0	0		
				U	U	0	0	0	0		
71	00R1	71000000	0 0	U H	3600	0	0	0	0	0	0
				U	3750	0	0	0	0		
				U	400	0	0	0	0		
				U	6400	0	0	0	0		
				U	12350	0	0	0	0		
				U	5100	0	0	0	0		
71	00R2	71000000	0 0	U T	4500	0	0	0	0	0	0
				U	5000	0	0	0	0		

				U		500	0	0	0			
				U		11000	0	0	0			
				U		19500	0	0	0			
				U		8500	0	0	0			
71	0084	71000000	0 0	U H		1200	0	0	0	0	0	0
				U		1250	0	0	0			
				U		1250	0	0	0			
				U		1250	0	0	0			
				U		1250	0	0	0			
				U		950	0	0	0			
72	0081	72000000	0 0	U H		1250	0	0	0	0	0	0
				U		1300	0	0	0			
				U		1450	0	0	0			
				U		1350	0	0	0			
				U		1200	0	0	0			
				U		0	0	0	0			
72	0087	72000000	0 0	U U		2500	0	0	0	0	0	0
				U		3000	0	0	0			
				U		4050	0	0	0			
				U		3200	0	0	0			
				U		1400	0	0	0			
				U		0	0	0	0			
81	0087	81000000	0 0	U U		400	0	0	0	0	0	0
				U		1250	0	0	0			
				U		1350	0	0	0			
				U		950	0	0	0			
				U		0	0	0	0			
				U		0	0	0	0			
82	0084	82000000	0 0	U U		3550	0	0	0	0	0	0
				U		850	0	0	0			
				U		0	0	0	0			
				U		0	0	0	0			
				U		0	0	0	0			
				U		0	0	0	0			
91	0087	91000000	0 0	U U		700	0	0	0	0	0	0
				U		1050	0	0	0			
				U		1500	0	0	0			
				U		1400	0	0	0			
				U		0	0	0	0			
				U		0	0	0	0			

FILE FOUR - RATE FILE

PERF. ORG.	RES. CODE	RATES (GIVEN BY YR, UNIT RATE, AND OVERHEAD RATE)		
0	00R1	042	450	660
0	00R2	042	100	0
0	00P3	042	100	360
0	00P4	042	100	1190
0	00P5	042	100	50
0	00P6	042	100	0
0	00P7	042	100	100

MASTER TAPE END OF FILE

PERT/COST
MANAGEMENT SUMMARY REPORT

C36 TEST TEST (FOR 3200 PERT/COST) REPORTING ORGN. CONTRACT NO. TERM -
 333 CUT-OFF DATE 9/17/64
 RELEASE DATE 9/17/64

LEVEL / SUMMARY ITEM - 1 / 1000

ITEM	COST OF WORK / UNITS - DOLLARS				SCHEDULE						
	WORK PERFORMED TO DATE		TOTALS AT COMPLETION		S - SCHED COMPL DATE - TOTAL ITEM A - ACTUAL COMPL DATE - TOTAL ITEM E - EARLIEST COMPL DATE - CRIT ITEM L - LATEST COMPL DATE - CRIT ITEM						
VALUE	ACTUAL COST	(OVERRUN) UNDERRUN	PLANNED COST	LATEST REVISED ESTIMATE	PROJECTED (OVERRUN) UNDERRUN	CRIT SLACK (WKS)	COMPL DATE	YR	1964	1965	6789L
LEVEL 1	1000			702275	(702275)	1.7	10/15/65	.	.	.	S E L
LEVEL 2	1100			129905	(129905)	1.7	8/ 5/65	.	.	.	S E L
LEVEL 2	1200			197520	(197520)	1.7	9/13/65 9/13/65 9/24/65	.	.	.	S E L
LEVEL 2	1300			374850	(374850)	1.7	10/ 5/65 10/ 5/65 10/15/65	.	.	.	S E L

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PERT/COST
PROGRAM/PROJECT STATUS REPORT

C36 TEST TEST (FOR 320) PERT/COST

REPORTING ORGN.

CONTRACT NO.
333

TERM =
CUT-OFF DATE 9/17/64
RELEASE DATE 9/17/64

LEVEL / SUMMARY ITEM = 1 / 1000

CHARGE OR SUMMARY NUMBER	IDENTIFICATION			SQUN OR ACT (A) COMPL DATE	TIME STATUS		COST OF WORK / UNITS - DOLLARS					
	F V	FIRST EVENT NO.	LAST EVENT NO.		FARLTEST -LATEST COMPL DATE	MOST CRIT SLACK (WKS)	WORK PERFORMED TO DATE	TOTALS AT COMPLETION	LATEST REVISED ESTIMATE	PROJECTED (OVERRUN) UNDERRUN		
						VALUE	ACTUAL COST	(OVERRUN) UNDERRUN	PLANNED COST			
1000	1	1	31								702275	(702275)
1100	2	1	30								129905	(129905)
1110	3	1	15								104905	(104905)
1000000	4	1	15								57650	(57650)
2000000	4	2	10								9755	(9755)
3000000	4	1	10								37500	(37500)
1120	3	20	30								25000	(25000)
1100000	4	20	27								3550	(3550)
1200000	4	25	30								21450	(21450)
1200	2	2	30								197520	(197520)
1210	3	20	30								159970	(159970)
2100000	4	20	27								55800	(55800)

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PENT/COST
PROGRAM/PROJECT STATUS REPORT

C36 TEST TEST (FOR 3200 PENT/COST)

REPORTING ORGN.

CONTRACT NO.
333

TERM -
CUT-OFF DATE 9/17/64
RELEASE DATE 9/17/64

LEVEL / SUMMARY ITEM - 1 / 1000

CHARGE OR SUMMARY NUMBER	IDENTIFICATION			SCHED OR ACT (A) COMPL DATE	TIME STATUS		COST OF WORK / UNITS - DOLLARS			TOTALS AT COMPLETION		
	L F V	FIRST EVENT NO.	LAST EVENT NO.		EARLIEST -LATEST COMPL DATE	LATEST CRIT SLACK (WKS)	WORK PERFORMED TO DATE	ACTUAL COST	(OVERRUN) UNDERRUN	PLANNED COST	LATEST REVISED ESTIMATE	PROJECTED (OVERRUN) UNDERRUN
2200-000	4	23	26		6/18/65	7.0				87550	(87550)	
2300-000	4	26	30		9/13/65	1.7				16620	(16620)	
1220	3	2	25		5/ 5/65	7.7				37550	(37550)	
1221	4	2	9		6/29/65	25						
					12/11/64	19.2				5650	(5650)	
					4/28/65	9						
3100-000	5	2	9		12/11/64	19.2				5650	(5650)	
					4/28/65	9						
1222	4	14	25		5/ 5/65	7.7				31900	(31900)	
					6/29/65	25						
4100-000	5	14	24		3/26/65	7.7				16850	(16850)	
					5/20/65	24						
4200-000	5	17	25		5/ 5/65	7.7				15050	(15050)	
					6/29/65	25						
1300	2	1	31		10/ 5/65	1.7				374850	(374850)	
					10/15/65	31						
1310	3	1	14		1/15/65	3.7				79950	(79950)	
					3/10/65	11						
5100-000	4	1	14		1/15/65	3.7				4350	(4350)	
					3/10/65	4						
5200-000	4	4	11		12/23/64	3.7				44250	(44250)	
					1/21/65	11						

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PERT/COST
PROGRAM/PROJECT STATUS REPORT

C36 TEST TEST (FOR 2200 PERT/COST)

REPORTING ORGN.

CONTRACT NO.
333

TERM -
CUT-OFF DATE 9/17/64
RELEASE DATE 9/17/64

LEVEL / SUMMARY ITEM - 1 / 1000

CHARGE OR SUMMARY NUMBER	IDENTIFICATION			SCHD OR ACT (A) COMPL DATE	TIME STATUS		COST OF WORK / UNITS - DOLLARS			TOTALS AT COMPLETION		
	L F V	FIRST EVENT NO.	LAST EVENT NO.		EARLIEST -LATEST COMPL DATE	LATEST CRIT SLACK (WKS)	WORK PERFORMED TO DATE	ACTUAL COST	(OVERRUN) UNDERRUN	PLANNED COST	LATEST REVISED ESTIMATE	PROJECTED (OVERRUN) UNDERRUN
53000000	4	4	7		11/10/64	3.7					25100	(25100)
					12/ 8/64	7						
54000000	4	8	12		12/22/64	7.7					6250	(6250)
					2/17/65	12						
1320	3	6	22		4/29/65	1.7					290250	(290250)
					5/17/65	19						
1321	4	15	19		3/ 8/65	1.7					173450	(173450)
					3/18/65	19						
61000000	5	15	19		3/ 8/65	1.7					173450	(173450)
					3/18/65	19						
1322	4	13	22		4/29/65	7.0					108450	(108450)
					5/17/65	22						
71000000	5	13	22		4/29/65	7.0					87750	(87750)
					5/17/65	22						
72000000	5	18	23		4/29/65	7.0					20700	(20700)
					5/17/65	23						
1323	4	6	20		3/ 8/65	1.7					8350	(8350)
					3/18/65	20						
81000000	5	6	16		1/20/65	3.7					3950	(3950)
					2/15/65	16						
82000000	5	16	20		3/ 8/65	1.7					4400	(4400)
					3/18/65	20						
1330	3	20	31		10/ 5/65	1.7					4650	(4650)
					10/15/65	31						

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PERT/COST
PROGRAM/PROJECT STATUS REPORT

C36 TEST TEST (FAR 3200 PERT/COST)

REPORTING ORGN.

CONTRACT NO.
333

TERM -
CUT-OFF DATE 9/17/64
RELEASE DATE 9/17/64

LEVEL / SUMMARY ITEM - 1 / 1000

IDENTIFICATION				TIME STATUS			COST OF WORK / UNITS - DOLLARS						
CHARGE OR SUMMARY NUMBER	L E V	FIRST EVENT NO.	LAST EVENT NO.	SCHED OR ACT (A) COMPL DATE	EARLIEST -LATEST COMPL DATE	MOST CRIT SLACK (WKS)	WORK PERFORMED TO DATE			TOTALS AT COMPLETION			
							VALUE	ACTUAL COST	(OVERRUN) UNDERRUN	PLANNED COST	LATEST REVISED ESTIMATE	PROJECTED (OVERRUN) UNDERRUN	
91000000	4	20	31		10/ 5/65 10/15/65	1.7 31						4650	(4650)

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4.7.7 PERT TIME

TEST TEST (FOR 3200 PERT/TIME)		PERT/TIME ACTIVITY REPORT		REPORTING ORGN.	CONTRACT NO.	TERM- REPORT DATE-	9/17/64	RELEASE DATE-	9/17/64
MAJOR SORT	SUCC	MINOR SORT	PRED	ACTIV.	DATE	DATE	REMAINING	ACCOUNT NO.	CRG.
PRFD.	SUCC.	ACTIVITY DESCRIPTION	PROB.	TIME	EXPECTED	ALLOWED	COMP/SCHED	SLACK	TIME
	0	1		0.0		9/30/64	A 9/17/64	1.7	0.0
I	1	2		7.6	11/10/64	11/23/64		1.7	7.6
I	1	3		3.6	10/13/64	11/24/64		5.9	3.6
I	1	4		5.3	10/26/64	11/19/64		3.7	5.3
	2	5		4.3	12/11/64	12/23/64		1.7	11.9
	3	5		4.1	11/11/64	12/23/64		5.9	7.7
	3	6		4.1	11/11/64	12/30/64		6.6	7.7
	4	7		2.3	11/10/64	12/ 8/64		3.7	7.6
	4	8		3.8	11/20/64	1/18/65		7.7	9.1
	5	9		4.3	12/11/64	4/28/65		19.2	11.9
	5	10		4.0	1/12/65	1/22/65		1.7	15.9
	6	10		3.0	12/ 3/64	1/22/65		6.9	10.7
	6	11		3.0	12/ 3/64	1/21/65		6.6	10.7
	7	11		6.0	12/23/64	1/21/65		3.7	13.6
	8	12		4.3	12/22/64	2/17/65		7.7	13.4
	9	13		0.0	12/11/64	4/28/65		19.2	11.9
	12	14		3.1	1/15/65	3/10/65		7.7	16.5
	10	15		5.0	2/16/65	2/26/65		1.7	20.9
	11	16		3.5	1/20/65	2/15/65		3.7	17.1
	14	17		4.6	2/17/65	4/12/65		7.7	21.1
	13	18		1.1	12/18/64	5/ 5/65		19.2	13.0
	15	19		2.8	3/ 8/65	3/18/65		1.7	23.7
	16	20		4.6	2/22/65	3/18/65		3.7	21.7
	19	20		0.0	3/ 8/65	3/18/65		1.7	23.7
	17	21		2.5	3/ 5/65	4/29/65		7.7	23.6
	15	22		6.8	4/ 5/65	6/17/65		10.6	27.7
	18	22		6.1	2/ 3/65	6/17/65		19.2	19.1
	20	22		7.6	4/29/65	6/17/65		7.0	31.3
	22	23		0.0	4/29/65	6/17/65		7.0	31.3
	21	24		3.0	3/26/65	5/20/65		7.7	26.6
	20	25		14.5	6/18/65	6/29/65		1.7	38.2
	24	25		5.6	5/ 5/65	6/29/65		7.7	32.2
	23	26		4.1	5/27/65	7/15/65		7.0	35.4
	20	27		13.6	6/10/65	8/ 5/65		8.1	37.3
	23	27		5.1	6/ 3/65	8/ 5/65		9.0	36.4
	25	27		5.5	7/26/65	8/ 5/65		1.7	43.7
	26	27		3.0	6/17/65	8/ 5/65		7.0	38.4
	24	28		3.1	6/18/65	8/20/65		9.0	38.5
	27	28		2.1	8/ 9/65	8/20/65		1.7	45.8
	25	29		2.0	6/30/65	8/19/65		7.1	40.2
	20	30		8.6	5/ 6/65	9/24/65		20.0	32.3
	28	30		4.8	9/13/65	9/24/65		1.7	50.6
	29	30		5.0	8/ 4/65	9/24/65		7.1	45.2
	10	31		3.1	10/ 5/65	10/15/65		1.7	53.7

TEST TEST (FOR 3200 PERT/TIME)		PERT/TIME ACTIVITY REPORT		REPORTING ORGN.	CONTRACT NO.	TERM-REPORT DATE-	9/17/64	RELEASE DATE-	9/17/64
MAJOR SCRT	SLK	ACTIV.	DATE	DATE	REMAINING	ACCOUNT NO.	ORG.		
MINOR SCRT	TE	PROB.	TIME	EXPECTED	ALLOWED	COMP/SCHED	SLACK	TIME	
FVFN									
PRED.	SUCC.	ACTIVITY DESCRIPTION							
	0	1	0.0		9/30/64	9/17/64	1.7	0.0	0
I	1	2	7.6	11/10/64	11/23/64		1.7	7.6	1000000
	2	5	4.3	12/11/64	12/23/64		1.7	11.9	2000000
	5	10	4.0	1/12/65	1/22/65		1.7	15.9	2000000
	10	15	5.0	2/18/65	2/26/65		1.7	20.9	1000000
	15	19	2.8	3/ 8/65	3/18/65		1.7	23.7	61000000
	19	20	0.0	3/ 8/65	3/18/65		1.7	23.7	82000000
	20	25	14.5	6/16/65	6/29/65		1.7	38.2	11000000
	25	27	5.5	7/26/65	8/ 5/65		1.7	43.7	11000000
	27	28	2.1	8/ 9/65	8/20/65		1.7	45.8	23000000
	28	30	4.8	9/13/65	9/24/65		1.7	50.6	23000000
	30	31	3.1	10/ 5/65	10/15/65		1.7	53.7	91000000
I	1	4	5.3	10/26/64	11/19/64		3.7	5.3	51000000
	4	7	2.3	11/10/64	12/ 8/64		3.7	7.6	53000000
	7	11	6.0	12/23/64	1/21/65		3.7	13.6	52000000
	11	14	3.5	1/20/65	2/15/65		3.7	17.1	81000000
	14	20	4.6	2/22/65	3/18/65		3.7	21.7	82000000
I	1	3	3.6	10/13/64	11/24/64		5.9	3.6	3000000
	3	5	4.1	11/11/64	12/23/64		5.9	7.7	3000000
	3	6	4.1	11/11/64	12/30/64		6.6	7.7	1000000
	6	11	3.0	12/ 3/64	1/21/65		6.6	10.7	81000000
	6	10	3.0	12/ 3/64	1/22/65		6.9	10.7	3000000
	22	23	0.0	4/29/65	6/17/65		7.0	31.3	72000000
	20	22	7.5	4/29/65	6/17/65		7.0	31.3	71000000
	23	26	4.1	5/27/65	7/15/65		7.0	35.4	22000000
	26	27	3.0	6/17/65	8/ 5/65		7.0	38.4	23000000
	25	29	2.0	6/30/65	8/19/65		7.1	40.2	12000000
	29	30	5.0	8/ 4/65	9/24/65		7.1	45.2	12000000
	4	8	3.8	11/20/64	1/18/65		7.7	9.1	52000000
	8	12	4.3	12/22/64	2/17/65		7.7	13.4	54000000
	12	14	3.1	1/15/65	3/10/65		7.7	16.5	51000000
	14	17	4.6	2/17/65	4/12/65		7.7	21.1	41000000
	17	21	2.5	3/ 5/65	4/29/65		7.7	23.6	42000000
	21	24	3.0	3/26/65	5/20/65		7.7	26.6	41000000
	24	25	5.6	5/ 5/65	6/29/65		7.7	32.2	42000000
	20	27	13.0	6/10/65	8/ 5/65		8.1	37.3	21000000
	23	27	5.1	6/ 3/65	8/ 5/65		9.0	36.4	21000000
	26	28	3.1	6/18/65	8/20/65		9.0	38.5	22000000
	15	22	6.8	4/ 5/65	6/17/65		10.6	27.7	71000000
	9	13	0.0	12/11/64	4/28/65		19.2	11.9	31000000
	2	9	4.3	12/11/64	4/28/65		19.2	11.9	31000000
	13	18	1.1	12/18/64	5/ 5/65		19.2	13.0	71000000
	18	22	6.1	2/ 3/65	6/17/65		19.2	19.1	72000000
	20	30	8.6	5/ 6/65	9/24/65		20.0	32.3	91000000

PERT/TIME
ACTIVITY REPORT
REPORTING ORGN. CONTRACT NO.
333

TERM-
REPORT DATE- 9/17/64
RELEASE DATE- 9/17/64

TEST TEST (FOR 3200 PERT/TIME)

MAJOR SCRT	TE											
MINOR SCRT	SUCC											
EVENT		ACTIVITY DESCRIPTION	PROB.	ACTIV. TIME	DATE EXPECTED	DATE ALLOWED	DATE COMP/SCHED	SLACK	REMAINING TIME	ACCOUNT NO.	ORG.	
	0	1		0.0		9/30/64	A 9/17/64	1.7	0.0		0	
I	1	3		3.6	10/13/64	11/24/64		5.9	3.6	3000000		
T	1	4		5.3	10/26/64	11/19/64		3.7	5.3	51000000		
I	1	2		7.6	11/10/64	11/23/64		1.7	7.6	1000000		
	4	7		2.3	11/10/64	12/ 8/64		3.7	7.6	53000000		
	3	5		4.1	11/11/64	12/23/64		5.9	7.7	3000000		
	3	6		4.1	11/11/64	12/30/64		6.6	7.7	1000000		
	4	8		3.8	11/20/64	1/18/65		7.7	9.1	52000000		
	6	10		3.0	12/ 3/64	1/22/65		6.9	10.7	3000000		
	6	11		3.0	12/ 3/64	1/21/65		6.6	10.7	81000000		
	7	5		4.3	12/11/64	12/23/64		1.7	11.9	2000000		
	2	9		4.3	12/11/64	4/28/65		19.2	11.9	31000000		
	9	13		0.0	12/11/64	4/28/65		19.2	11.9	31000000		
13	18			1.1	12/18/64	5/ 5/65		19.2	13.0	71000000		
	8	12		4.3	12/22/64	2/17/65		7.7	13.4	54000000		
	7	11		6.0	12/23/64	1/21/65		3.7	13.6	52000000		
	5	10		4.0	1/12/65	1/22/65		1.7	15.9	2000000		
12	14			3.1	1/15/65	3/10/65		7.7	16.5	51000000		
11	16			3.5	1/20/65	2/15/65		3.7	17.1	81000000		
18	22			6.1	2/ 3/65	6/17/65		19.2	19.1	72000000		
10	15			5.0	2/16/65	2/26/65		1.7	20.9	1000000		
14	17			4.6	2/17/65	4/12/65		7.7	21.1	41000000		
16	20			4.6	2/22/65	3/18/65		3.7	21.7	82000000		
17	21			2.5	3/ 5/65	4/29/65		7.7	23.6	42000000		
15	19			2.4	3/ 8/65	3/18/65		1.7	23.7	61000000		
19	20			0.0	3/ 8/65	3/18/65		1.7	23.7	82000000		
21	24			3.0	3/26/65	5/20/65		7.7	26.6	41000000		
15	22			6.8	4/ 5/65	6/17/65		10.6	27.7	71000000		
20	22			7.6	4/29/65	6/17/65		7.0	31.3	71000000		
22	23			0.0	4/29/65	6/17/65		7.0	31.3	72000000		
28	25			5.4	5/ 5/65	5/29/65		7.7	32.2	42000000		
28	30			8.6	5/ 6/65	7/24/65		20.0	32.3	91000000		
23	26			4.1	5/27/65	7/15/65		7.0	35.4	22000000		
23	27			5.1	6/ 3/65	3/ 5/65		9.0	36.4	21000000		
20	27			13.0	6/10/65	3/ 5/65		8.1	37.3	21000000		
20	25			14.5	6/16/65	5/29/65		1.7	38.2	11000000		
26	27			3.0	6/17/65	8/ 5/65		7.0	38.4	23000000		
26	28			3.1	6/18/65	8/20/65		9.0	38.5	22000000		
25	28			2.0	6/30/65	8/19/65		7.1	40.2	12000000		
25	27			5.5	7/26/65	8/ 5/65		1.7	43.7	11000000		
29	30			5.0	8/ 4/65	9/24/65		7.1	45.2	12000000		
27	28			2.1	8/ 9/65	8/20/65		1.7	45.8	23000000		
24	30			4.4	9/13/65	9/24/65		1.7	50.6	23000000		
30	31			3.1	10/ 5/65	10/15/65		1.7	53.7	91000000		

PERT/TIME
ACTIVITY REPORT
REPORTING ORGN. CONTRACT NO.
333

TERM-
REPORT DATE- 9/17/64
RELEASE DATE- 9/17/64

TEST TEST (FOR 3200 PERT/TIME)

MAJOR SCHED ACCT	MINOR SCHED	EVENT	PERF.	SUCC.	ACTIVITY DESCRIPTION	PROB.	ACTIV. TIME	DATE EXPECTED	DATE ALLOWED	DATE COMP/SCHED	SLACK	REMAINING TIME	ACCOUNT NO.	CRG.
							0.0		9/30/64	A 9/17/64	1.7	0.0		0
I			0	1			7.6	11/10/64	11/23/64		1.7	7.6	1000000	
			1	2			4.1	11/11/64	12/30/64		6.6	7.7	1000000	
			3	6			5.0	2/16/65	2/26/65		1.7	20.9	1000000	
			10	15			4.3	12/11/64	12/23/64		1.7	11.9	2000000	
			2	5			4.0	1/12/65	1/22/65		1.7	15.9	2000000	
			5	10			4.1	11/11/64	12/23/64		5.9	7.7	3000000	
			3	5			3.0	12/ 3/64	1/22/65		5.9	10.7	3000000	
			6	10			3.0	10/13/64	11/24/64		5.9	3.6	3000000	
I			1	3			14.5	6/16/65	6/29/65		1.7	38.2	11000000	
			20	25			5.5	7/26/65	8/ 5/65		1.7	43.7	11000000	
			25	27			2.0	6/30/65	8/19/65		7.1	40.2	12000000	
			25	29			5.0	8/ 4/65	9/24/65		7.1	45.2	12000000	
			29	30			5.1	6/ 3/65	8/ 5/65		9.0	36.4	21000000	
			23	27			13.0	6/10/65	8/ 5/65		8.1	37.3	21000000	
			20	27			4.1	5/27/65	7/15/65		7.0	35.4	22000000	
			23	26			3.1	6/18/65	8/20/65		9.0	38.5	22000000	
			25	28			3.0	6/17/65	8/ 5/65		7.0	38.4	23000000	
			26	27			2.1	8/ 9/65	8/20/65		1.7	45.8	23000000	
			27	28			4.8	9/13/65	9/24/65		1.7	50.6	23000000	
			28	30			4.4	12/11/64	4/28/65		19.2	11.9	31000000	
			2	9			0.0	12/11/64	4/28/65		19.2	11.9	31000000	
			9	13			4.8	2/17/65	4/12/65		7.7	21.1	41000000	
			14	17			3.0	3/26/65	5/20/65		7.7	26.6	41000000	
			21	24			2.5	3/ 5/65	4/29/65		7.7	23.6	42000000	
			17	21			5.6	5/ 5/65	6/29/65		7.7	32.2	42000000	
			24	25			3.1	1/15/65	3/10/65		7.7	16.5	51000000	
			12	14			5.3	10/26/64	11/19/64		3.7	5.3	51000000	
I			1	4			3.6	11/20/64	1/18/65		7.7	9.1	52000000	
			4	8			6.0	12/23/64	1/21/65		3.7	13.6	52000000	
			7	11			2.3	11/10/64	12/ 8/64		3.7	7.6	53000000	
			4	7			4.3	12/22/64	2/17/65		7.7	13.4	54000000	
			8	12			2.8	3/ 8/65	3/18/65		1.7	23.7	61000000	
			15	19			6.8	4/ 5/65	6/17/65		10.6	27.7	71000000	
			15	22			7.0	4/29/65	6/17/65		7.0	31.3	71000000	
			20	22			1.1	12/18/64	5/ 5/65		19.2	13.0	71000000	
			13	18			0.0	4/29/65	6/17/65		7.0	31.3	72000000	
			22	23			6.1	2/ 3/65	6/17/65		19.2	19.1	72000000	
			18	22			3.5	1/20/65	2/15/65		3.7	17.1	81000000	
			11	16			3.0	12/ 3/64	1/21/65		6.6	10.7	81000000	
			6	11			4.8	2/22/65	3/18/65		3.7	21.7	82000000	
			16	20			0.0	3/ 8/65	3/18/65		1.7	23.7	82000000	
			19	20			8.0	5/ 6/65	9/24/65		20.0	32.3	91000000	
			20	30			3.1	10/ 5/65	10/15/65		1.7	53.7	91000000	
			30	31										

PERT/TIME
MILESTONE REPORT
REPORTING ORGN. CONTRACT NO. 333 TERM-
TEST TEST (FOR 3270 PERT/TIME) REPORT DATE- 9/17/64
LEVEL/SUMMARY ITEM 19/ 0 RELEASE DATE- 9/17/64

EVENT NO.	EVENT DESCRIPTION	MILESTONE CODE	EXPECTED DATE	LATEST ALLOWABLE DATE	SCHEDULED DATE	ACTUAL DATE	SLACK
1	EVENT 1	1		9/30/64		9/17/64	1.7
2	EVENT 2	2	11/10/64	11/23/64	11/13/64		1.7
3	EVENT 3	3	10/13/64	11/24/64	10/15/64		5.9
4	EVENT 4	4	10/26/64	11/19/64	10/25/64		3.7
5	EVENT 5	5	12/11/64	12/23/64	12/14/64		1.7
6	EVENT 6	6	11/11/64	12/30/64	11/14/64		6.6
7	EVENT 7	7	11/10/64	12/ 8/64	11/16/64		3.7
8	EVENT 8	8	11/20/64	1/18/65	11/23/64		7.7
10	EVENT 10	10	1/12/65	1/22/65	1/ 8/65		1.7
11	EVENT 11	11	12/23/64	1/21/65	12/24/64		3.7
12	EVENT 12	12	12/22/64	2/17/65	12/24/64		7.7
13	EVENT 13	13	12/11/64	4/24/65	12/24/64		19.2
14	EVENT 14	14	1/15/65	3/10/65	1/18/65		7.7
15	EVENT 15	15	2/16/65	2/26/65	2/12/65		1.7
16	EVENT 16	16	1/20/65	2/15/65	1/22/65		3.7
18	EVENT 18	18	12/18/64	5/ 5/65	1/11/65		19.2
19	EVENT 19	19	3/ 8/65	3/18/65	3/ 5/65		1.7
20	EVENT 20	20	3/ 8/65	3/18/65	3/ 5/65		1.7
21	EVENT 21	21	3/ 5/65	4/29/65	3/15/65		7.7
22	EVENT 22	22	4/29/65	6/17/65	5/ 3/65		7.0
23	EVENT 23	23	4/29/65	6/17/65	5/ 3/65		7.0
24	EVENT 24	24	3/26/65	5/20/65	4/ 6/65		7.7
25	EVENT 25	25	6/16/65	6/29/65	6/18/65		1.7
26	EVENT 26	26	5/27/65	7/15/65	6/ 4/65		7.0
27	EVENT 27	27	7/26/65	8/ 5/65	8/ 2/65		1.7
28	EVENT 28	28	8/ 9/65	8/20/65	8/18/65		1.7
29	EVENT 29	29	6/30/65	8/19/65	7/12/65		7.1
30	EVENT 30	30	9/13/65	9/24/65	9/22/65		1.7
31	EVENT 31	31	10/ 5/65	10/15/65	10/15/65		1.7

I FTND 6062 PAUSE 0003

4.7.8 REPORT GENERATOR

```

RG=32      (1.0)

  OUT1    ASSIGN PRINT   BUF 1    LOW      BCD      UNIT 01
*  THERE IS NO RECORD AREA AN ERROR MSG SHOULD APPEAR
  REPORT

                                ***** PD11 *****

  OUT1    RPTFMT
  DETAIL  DETAIL
L  THIS IS A NON STANDARD LABEL
  RPTOT
L  THIS IS THE END
  JERRY  PROCEED
        GEN    DETAIL
        END

```

4.7.9 SAINT

4.7.10 SCOPE UTILITY

UTILITY HAS BEEN INSTALLED ON THIS LIBRARY.

4.7.11 TAPE SORT

```

I FTNO 0060  STOP
SORT
  01122111R 040301                                1100090010
  11SI00800080F      BM01  01S01SORT-FILE  0112316801999
  10 000803040F      RM    C
  9ENDSORT
I TSRT 213 B  INTERNAL MERGE IP LOG UNITS
04,03.
I TSRT 214 B  INTERNAL MERGE OP LOG UNITS
01.
A TSRT 323 B  UNIT 01 FOR SORT IP.
I TSRT 239 B  IB 20      OB 2000      G 894 †
A TSRT 303 B  UNIT 1.    MOUNT SCRATCH.
I TSRT 222 B      38 IN
I TSRT 223 B      38 OUT
I TSRT 232 B      1 SEQ
I TSRT 236 B  FINAL MERGE
A TSRT 305 B  UNIT 1.    MOUNT O/P TAPE.
I TSRT 216 B  UNIT 1.    FINAL OUTPUT. REEL 01.
I TSRT 222 B      38 IN
I TSRT 223 B      38 OUT

```

† The OB and G figures are site dependent and will vary under a 32K or 16K system.

PART III

INSTALLATION-RELATED INFORMATION

HARDWARE INITIALIZATION

1

1.1 INSTALLATION AUTOLOAD ROUTINE

Each installation must manually establish an autoloader routine in the autoloader region of core. This routine is a basic and permanent machine entry. It is used to initiate machine operations, such as autoloading RTS or initiating a 512 image.

The tape/card reader autoloader procedure serves a dual purpose. It can autoloader from tape unit 0 or from the card reader if SELECT JUMP 6 is set. It halts at location xxx50 to allow hardware action to complete. (There is not enough space to check status.) When device motion stops, press GO to continue.

The format of the tape/card reader autoloader routine is:

<u>Location</u>	<u>Instruction</u>	<u>Comment</u>
xxx40	006xxx52	If SELECT JUMP 6 is set, load card
xxx41	770cc000	Connect channel c, equipment e, tape unit 0
xxx42	010xxx41	Reject
xxx43	771c0010	Rewind channel c
xxx44	010xxx43	Reject
xxx45	740xxx70	Read first tape record into location 00000
xxx46	c0000000	
xxx47	010xxx45	Reject
xxx50	77770000	Stop
xxx51	01000000	Go to program, location 00000
xxx52	770cc000	Connect card reader unit 0, channel c, equipment e
xxx53	010xxx52	Reject
xxx54	740xxx37	Read first record into location 00000
xxx55	c0000000	
xxx56	010xxx54	Reject
xxx57	010xxx50	Go to stop instruction

An alternate autoloader procedure may be used if error checking is desired (on magnetic tape only). The routine reads the library tape, loads the first record of RTS into core, and jumps to address 0. The routine checks for tape parity and lost data errors. If detected, the routine halts at xxx54 with the status of the unit in the A-register. To retry, the operator must press GO.

The format of the alternate autoload routine is:

<u>Location</u>	<u>Instruction</u>	<u>Comment</u>
xxx40	770ce00u	Connect
xxx41	010xxx40	
xxx42	771c0010	Rewind
xxx43	010xxx42	
xxx44	740xxx70	Input
xxx45	c0000000	
xxx46	010xxx44	
xxx47	772c0002	
xxx50	010xxx47	
xxx51	772c0000	Check status
xxx52	17602400	
xxx53	03000000	
xxx54	000xxx42	Halt and return to rewind

The installation must supply the following parameters:

- c Channel number appropriate to equipment
- e Equipment number appropriate to unit
- u Unit number

xxx is dependent on machine size and type as follows:

Memory	Type	xxx
16K	3100/3150	376
32K	3100/3150	776
16K	3200/3300	377
32K	3200/3300	777

- m 0 Batch program indicator.
- 1 Priority program indicator. Set m at 0 as this bit is manipulated only by RTS.
- cc Twelve bit connect code of the particular unit to which this entry relates. cc is euuu where:
 - e One octal digit equipment number.
 - uuu Up to three octal digits right justified represent the unit number.
- e 0 No action.
- 1 Unit to be assigned. Set e at 0 as this bit is manipulated only by RTS.
- c Eight-bit channel code specifying the channels available to an equipment. A bit set at 1 means the corresponding channel is available to a unit; a bit set at 0 means the channel is not available. The following table shows the correspondence between bit positions and channel numbers.

Bit Position	22	21	20	19	18	17	16	15
Corresponding Channel	0	1	2	3	4	5	6	7

daddr A 15-bit address which is the entry point name of the appropriate driver (see driver selection previously described). A zero value in this field indicates a nonresident driver and thus, a nonsystem unit. When RTS loads a nonresident driver, it supplies a driver address in this field. A system unit entry must have driver address in the daddr field.

Entry point names to be used in this field for the various equipments and their drivers are given in the table. Specific COSY corrections for adapting the AET to a particular installation are not given because of the diversity of configurations. Instead, the COSY correction causes the complete deletion of the AET and the user must insert his complete hardware description. A general format of the AET is:

AET	entry 1, word 1	}	Library
	EXT driver entry point name		
+1	entry 1, word 2	}	CTO/CFO
+2	entry 2, word 1		
	EXT driver entry point name	}	INP
+3	entry 2, word 2		
+4	entry 3, word 1	}	OUT
	EXT driver entry point name		
+5	entry 3, word 2	}	PUN
+6	entry 4, word 1		
	EXT driver entry point name	}	
+7	entry 4, word 2		
+8	entry 5, word 1	}	
	EXT driver entry point name		
+9	entry 5, word 2		

In this scheme, the preceding are system units and the following are available units for batch or priority use.

+10	entry 6, word 1	}	Available equipment
	EXT driver entry point name		
+11	entry 6, word 2	}	Available equipment
+12	entry 7, word 1		
	EXT driver entry point name	}	
+13	entry 7, word 2		

SYSTEM DRIVERS

Hardware	Controllers	Equipment (in combination)	COSY Name	Entry Point
MT	362x 342x 322x	604 607	DRIVLABT	DRIVER01
MT	362x 342x 322x	601 603 606	DRIVLABT	DRIVER01
MT	3518 3528	657 659	DRIVMMTC	DRIVER01
CR	3447 3649	405	DRIV3649	DRIVER02
CR	3248	405	DRIV3248	DRIVER02
PR	3256 3659 3152	501 505	DRIV3659	DRIVER03
PR	3555	512	DRV512	DRV512
CP	3644 3446	415	DRIV3644	DRIVER04
CP	3245	415	DRIV3245	DRIVER04
TY	Console typewriter		DRIVTYWR	DRIVER05
TR TP	3691	Paper tape station	DRIV3691	DRIVER06 DRIVER07
PL	3293	Plotter	DRIV3293	DRIVER11
OR	3195	915	DRIVER12	DRIVER16

3.1 RHT MODIFICATION

The RHT is a 63-character table defining the equipment used during a batch run and the equipment assigned as system units (PUN, INP, OUT, etc.). In RTS, input/output units are referenced by logical unit numbers rather than by physical units. The character entries in the RHT, from character RHT+1 to RHT+63, correspond to logical units 01 to 63, respectively. Each RHT entry defining an equipment contains a nonzero value that is the ordinal of the AET and UST entry of the physical unit to which it is assigned. Certain system units must have permanent RHT entries as follows:

LIB	LUN	63
PUN	LUN	62
OUT	LUN	61
INP	LUN	60
CTO	LUN	59
CFO	LUN	58

Each RHT position for logical units 58-63 must point to the appropriate AET and UST entries of an equipment with a resident driver. All nonsystem entries must initially be zero. The initial entries for system units PUN=05, CTO/CFO=02, OUT=04, INP=03, and LIB=01 need not be changed if the AET is in the described format.

3.2 BRHT MODIFICATION

The Priority Running Hardware Table (BRHT) is similar to the RHT except that only logical units 1-49, 58, and 59 are available for reference by a priority program. Logical units 50-57 and 60-63 are illegal units for a priority program and their BRHT entries must be zero; logical units 58 and 59 are assembled to 02. The BRHT, like the RHT, contains 63 one-character entries from BRHT+1 to BRHT+63 that correspond to priority logical units 1-63, respectively. Entries for logical units 50-57 and 60-63 must be included in the BRHT but must have a zero value for detection of illegal priority program references.

The RTS product set includes PRELIB to modify and update the existing system library.

PRELIB permits the user to:

- Absolutize frequently used system programs (COMPASS, FORTRAN, etc.) to eliminate the necessity of relocating and linking their routines each time they are called.
- Place the variable resident routines (PROTECT, LOADER, OVPRO) in several places in the relocatable file (file 2) to reduce system overhead during library searches for needed routines.
- Delete, insert, or replace those routines anywhere in the relocatable file. Rearrangement of file 2 can place the most frequently used routines near the beginning of the file to reduce library search time.

System routines are absolutized either because RTS requires it (e.g. absolutizing resident in order to autoload it) or because doing so reduces system overhead. Whenever resident and variable resident are modified, all other absolute routines must be re-absolutized.

Creation or modification of the library requires a minimum of three tape units; duplication of the library requires at least two tape units.

4.1 LOADING AND EXECUTION

PRELIB requires all of memory and may not share time with another program. The PRELIB user must be familiar with the PRELIB source deck supplied for installation (Part II, section 4.1).

PRELIB detail cards (PDC) are binary cards for the relocatable programs to be placed on the new library. Each deck must begin with an IDC card and end with a TRA card (see RTS Reference Manual).

4.2 PRELIB CONTROL CARDS

PRELIB control cards (PCC) direct PRELIB in the generation of a new library; they allow addition and deletion of records and entry points.

4.2.1 PRELIB

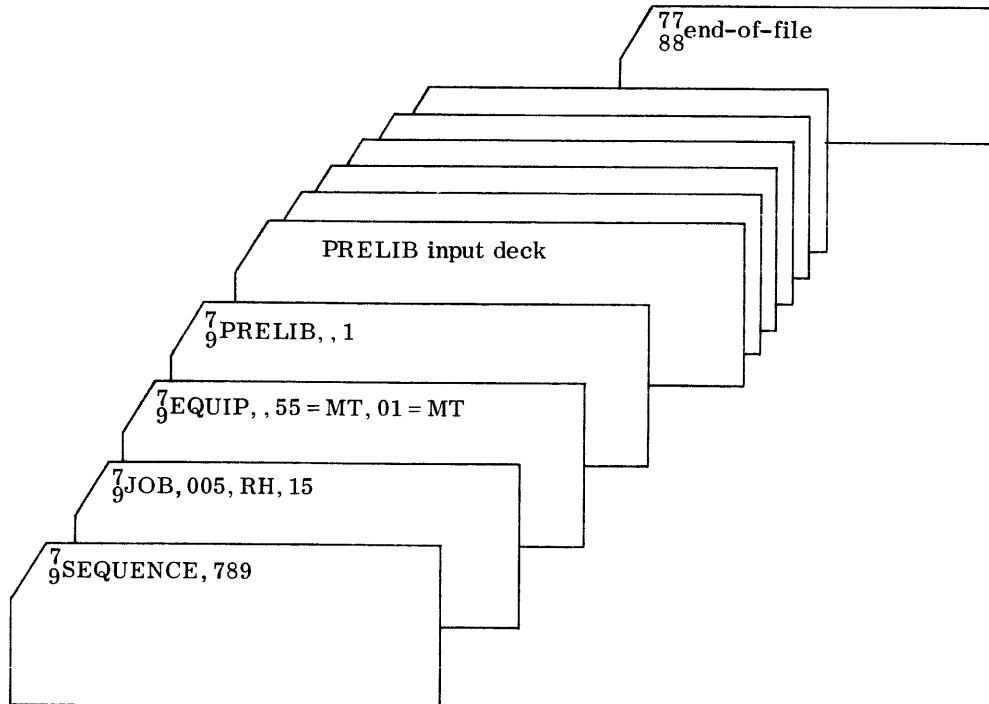
The user loads PRELIB into core with the PRELIB statement. When PRELOAD encounters a PRELIB card, it calls the loader, which in turn calls OVPRO to load PRELIB and its overlays and segments from file 2 of the library tape. SEQUENCE, JOB, and any required EQUIP cards precede the PRELIB card. File 55, the scratch tape, must be equipped with an EQUIP, 55=MT, card.

RTS gives control to PRELIB, which reads from INP. PRELIB executes automatically when called; a RUN card is not needed.

⁷₉PRELIB, u_i, u_o, S, A

- u_i Logical unit (1-54, 63) previously assigned by EQUIP to original input tape; if PRELIB, , u_o is used, standard INP logical unit 63 is assumed to be the input tape.
- u_o Logical unit (1-54; different from u_i) previously assigned by EQUIP to the new output tape.
- S If S is present, PRELIB generates a suppressed history of updated files on OUT. If S is omitted, PRELIB generates a detailed history of updated files on OUT (section 4.4).
- A Must be present if modifications include records to be absolutized and added to variable resident; A is omitted if modifications are for the relocatable file only.

A comma follows the last parameter only if comments are to follow.



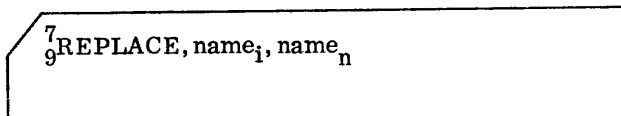
4.2.2 FILE

If a FILE card is the first card in the PRELIB input deck, it causes file 1 to be copied on the new library tape; it does no absolutizing for file 2. A FILE card also signals the completion of absolutizing for the library; it follows all input data to be absolutized by OV1. A second FILE card in a deck signals the end of file 2 input.



4.2.3 REPLACE

A REPLACE control card may also be used to identify records in file 2 to be replaced. A REPLACE card may be followed by a file 2 UNIT card if the replacement records are not on INP. If a REPLACE card is the first card in the PRELIB input deck, it instructs the PRELIB to replace resident. Normally variable resident and all file 2 absolute records are also re-absolutized since changes in resident may affect the addresses of system entry points referenced by these records (see example, section 4.3.3). When used for this purpose, the REPLACE card has no subfields.



name_i, name_n Subprogram on existing relocatable file or blank

The possible combinations specify the following actions:

<u>name_i</u>	<u>name_n</u>	<u>Action</u>
specified	specified	Replace subprograms name _i ; through name _n with PDC records following REPLACE on INP or with PDC records on unit specified by UNIT card following REPLACE.
blank	specified	Replace subprograms from beginning of relocatable file through name _n with indicated PDC's.
specified	blank	Replace subprograms from name _i to end of relocatable file with indicated PDC's.
blank	blank	Replace entire relocatable file with indicated PDC's.
name _i =name _n		Replace named subprogram with indicated PDC's.

4.2.4 DELETE

A DELETE control card prevents the transfer of the designated records from the old library tape to the new one.

The user must delete subprograms in the order of their appearance in the relocatable file.

There is no provision for deletion of resident subprograms since any modification of resident requires replacement of all of resident, variable resident, and file 2 absolute records.

```
7  
9DELETE, namei, namen
```

name_i, name_n Subprograms on existing relocatable file or blank. The possible combinations specify the following actions:

<u>name_i</u>	<u>name_n</u>	<u>Action</u>
specified	specified	Delete subprograms name _i through name _n on the relocatable file.
blank	specified	Delete subprograms from beginning of relocatable file through name _n .
specified	blank	Delete subprograms from name _i through end of relocatable file.
blank	blank	Delete entire relocatable file.
name _i =name _n		Delete named subprogram.

4.2.5 INSERT

An INSERT control card adds records that are not on the old library tape to the new library tape. They are inserted on the relocatable file immediately after named subprogram. If no subprogram is specified, the new records become the first records of file 2.

```
7  
9INSERT, name
```

name Subprogram on existing relocatable file or blank

4.2.6 TAPE

A TAPE control card copies a requested file 2 absolute record from the old library tape to the scratch tape.

⁷
₉TAPE, name, R

name Name of file 2 absolute record to be copied on scratch tape.

R Rewinds old library tape and writes an end-of-file on the intermediate tape; used only on the last TAPE card in the PRELIB input deck.

Each time PRELIB encounters a TAPE card or absolutizes a program, it fills one four-word entry in RECTABLE with the header for that record. The size of RECTABLE - a maximum of 28 entries - determines the maximum number of absolute records allowed on the scratch tape.

All absolutized routines to be added to file 2 must be on file 55 or on a unit designated by a UNIT card.

4.2.7 UNIT

A UNIT control card specifies the logical unit, other than INP, containing PRELIB detail card images. When a UNIT card is used to change resident or variable resident, it must follow an ORIGIN card or the PRELIB detail TRA card. When a UNIT card is used to control modifications of a relocatable file, it may follow a REPLACE, INSERT, or DELETE card.

⁷
₉UNIT, u₁, name

u₁ Logical unit containing PRELIB detail deck; if 55, record name must be given.

name Specifies absolute record on logical unit 55 to be copied on the new library tape; if not used, the unit is read until an end-of-file.

4.2.8 MACRO

A MACRO control card directs PRELIB to read Hollerith cards and write them on the new library tape in a form compatible with the system languages.

⁷
₉MACRO, p, u

p Symbolic name, such as COMAC, that identifies a group of macros to be written.

u Logical unit containing macro cards; if blank, INP is assumed.

PRELIB adds a pseudo IDC card (word count of 41g) and then processes the MACRO cards.

Each 80-column Hollerith card is read into core as a 20-word BCD record modified as follows:

Word 20 (columns 77-80) is deleted.

Words 1-19 are renumbered 2-20.

A new word 1 with a w field of 71₈ and with a $\begin{smallmatrix} 7 \\ 9 \end{smallmatrix}$ punch in column one is added.

Two such cards are then written as a 40-word BCD card image.

COMPASS requires that all system macros occur in COMAC.

An END card (COMPASS Reference Manual) must follow the last macro in the PRELIB input stream.

4.2.9 SYMROUT

A SYMROUT control card directs PRELIB to copy file one onto the new library tape and absolutizes system routines (COMPASS, FORTRAN, etc.) according to cards that come after it in the PRELIB input deck. If used, it must be the first card in the PRELIB input deck. RECORD, ORIGIN, and UNIT or PDC must follow for each file 2 program to be absolutized.

$\begin{smallmatrix} 7 \\ 9 \end{smallmatrix}$ SYMROUT

4.2.10 RECORD

A RECORD control card marks the beginning of a new record. It permanently specifies the lowest storage location used by any portion of the record when the record is absolutized.

$\begin{smallmatrix} 7 \\ 9 \end{smallmatrix}$ RECORD, m

m Symbol + octal address; symbol is any entry point previously defined; octal address is 1-5₈ digits. Either or both may be omitted; if both are omitted, address zero is assumed.

The m value indicates the beginning of the record area of the simulated target memory used during PRELIB processing. Simulated target memory corresponds to target (execution time) memory.

$\begin{smallmatrix} 7 \\ 9 \end{smallmatrix}$ RECORD, START+100

For example, START is location 743₈ and record area length is 4000₈; the record area corresponds to the section of simulated target memory between 1043₈ and 5043₈.

A RECORD card must be followed by an ORIGIN card.

4.2.11 ORIGIN

An ORIGIN control card designates a loading position within a simulated target memory.

```
┌───────────────────────────────────────────────────────────────────────────────────┐
│ 7  ORIGIN, n, i                                                                │
│ 9  ────────────────────────────────────────────────────────────────────────────────────┘
```

n Unsigned 1-5 digit octal number or previously defined entry point in file 1; previously defined entry point may be modified by signed (+ or -) 1-5 digit octal number; may be blank.

 If not blank, n must be greater than or equal to m on the preceding RECORD card.

i Unsigned 1-5 digit octal number; it indicates number of words to be deleted from beginning of routine when record is written from core to tape; may be blank.

4.2.12 SEPOINT

A SEPOINT control card must be used to define and enter any entry point into a permanent position in the loader symbol table (LST).

```
┌───────────────────────────────────────────────────────────────────────────────────┐
│ 7  SEPOINT, name                                                                │
│ 9  ────────────────────────────────────────────────────────────────────────────────────┘
```

name File 1 entry point name; if undefined in file 1, it is address of ABNORMAL; if present, it is entered in LST. Otherwise 77777₈ is entered in LST.

A SEPOINT card must be inserted directly after the LOADER record. When only system routines (e.g. COMPASS) are absolutized, SEPOINT cards are illegal.

A SEPOINT card may be used to prevent the loading of a subroutine or program; if the name specified on the control card is undefined, the symbol is equated to ABNORMAL, and the job will terminate. This technique is particularly useful for installations with optional floating-point and BCD hardware. For example, the following cards in file 1 input would prevent loading of hardware simulation routines FDPBOXS and BCDBOXs.

```
SEPOINT, FDPBOXS
SEPOINT, BCDBOXs
```

Other undefined system entry points (CIP, etc.) do not invalidate the PRELIB as long as no routines refer to the undefined SEPOINT name.

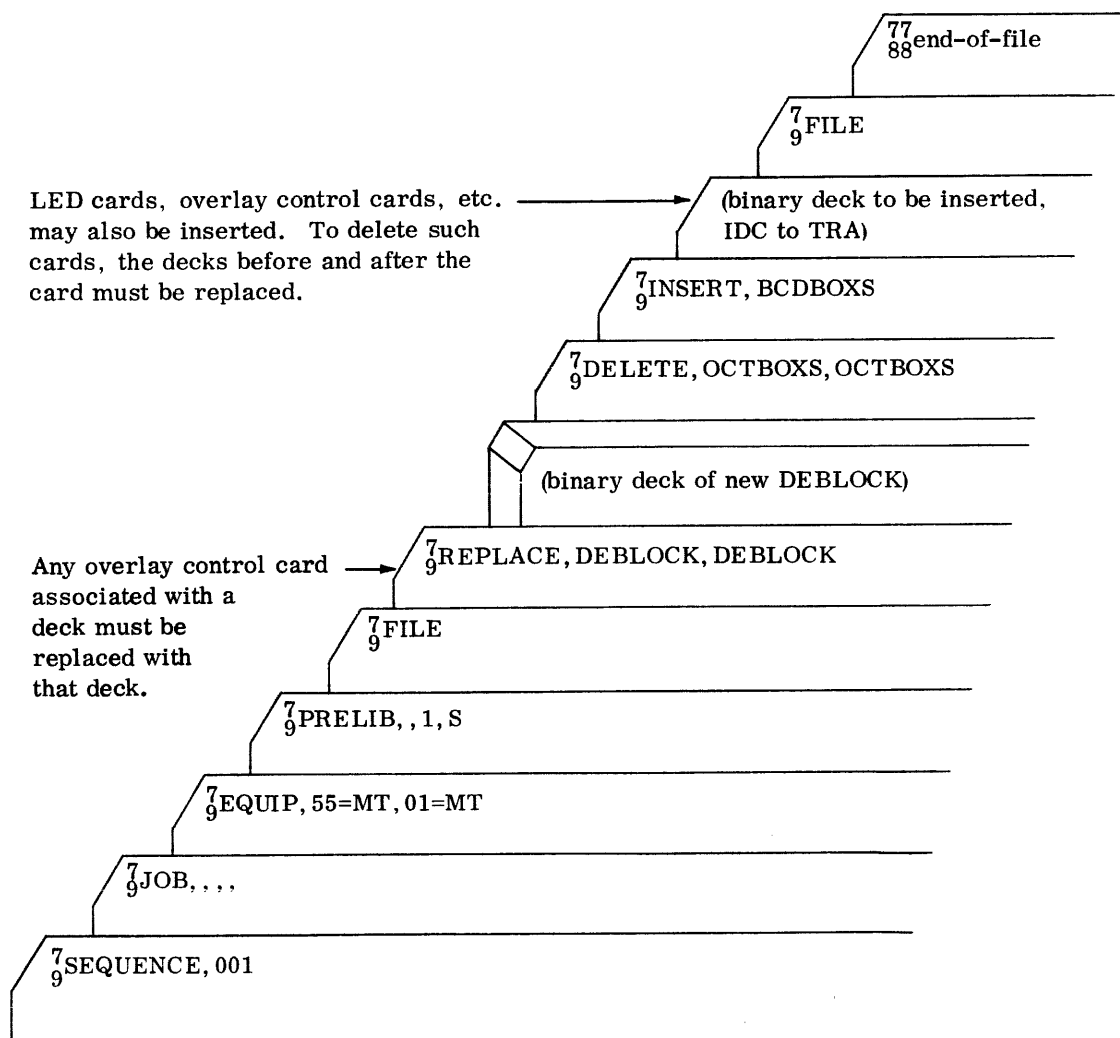
To link file 2 absolute records to system entry points, PRELIB generates its own loader symbol table. Therefore, if SEPOINT cards are inserted or deleted in resident, they should be inserted

or deleted in PLOVINT, the initializing routine of PRELIB. If this is not done, PRELIB may not load or a SYMROUT run may fail because of undefined references in COMPASS or FORTRAN.

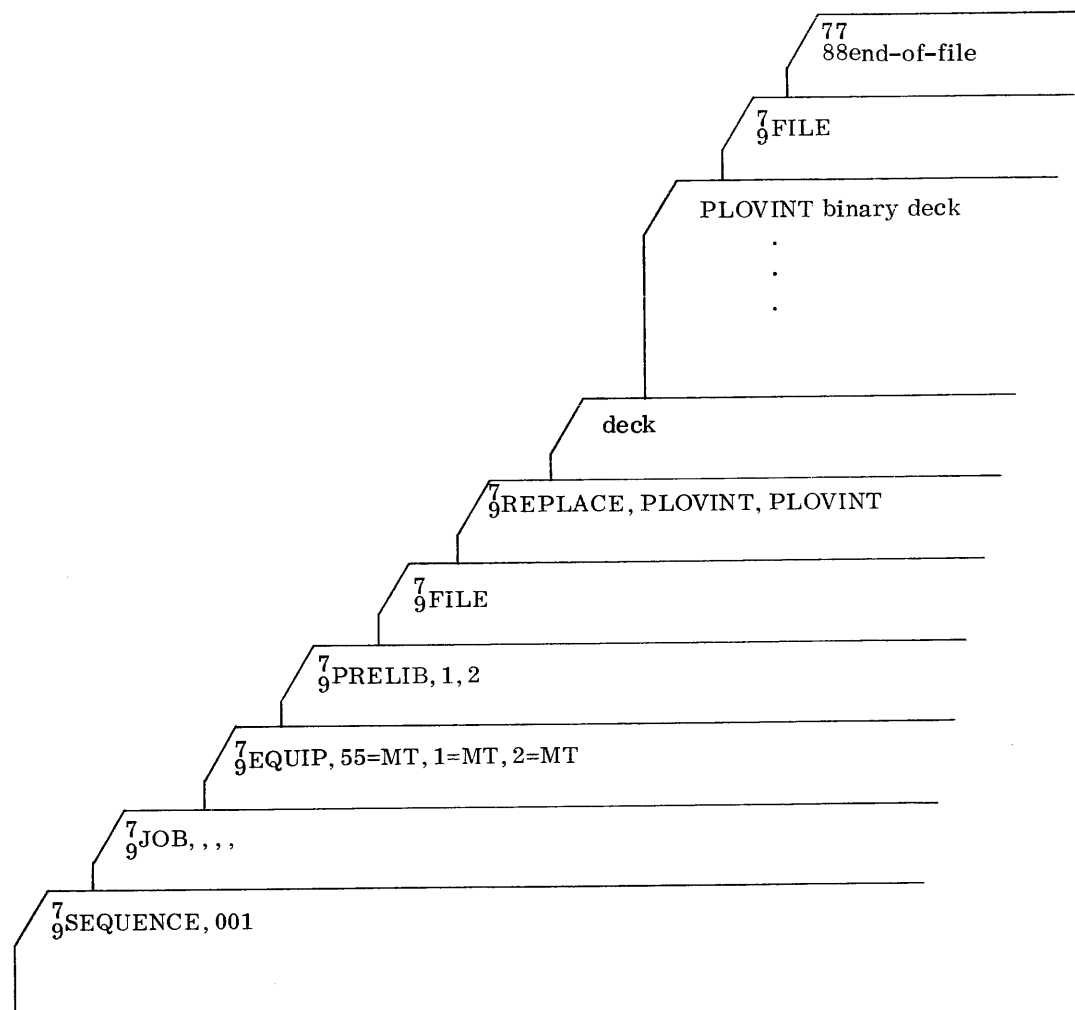
4.3 PRELIB EXAMPLES

4.3.1 MODIFY RELOCATABLE ROUTINES

Replace, delete, and insert relocatable routines in file 2:



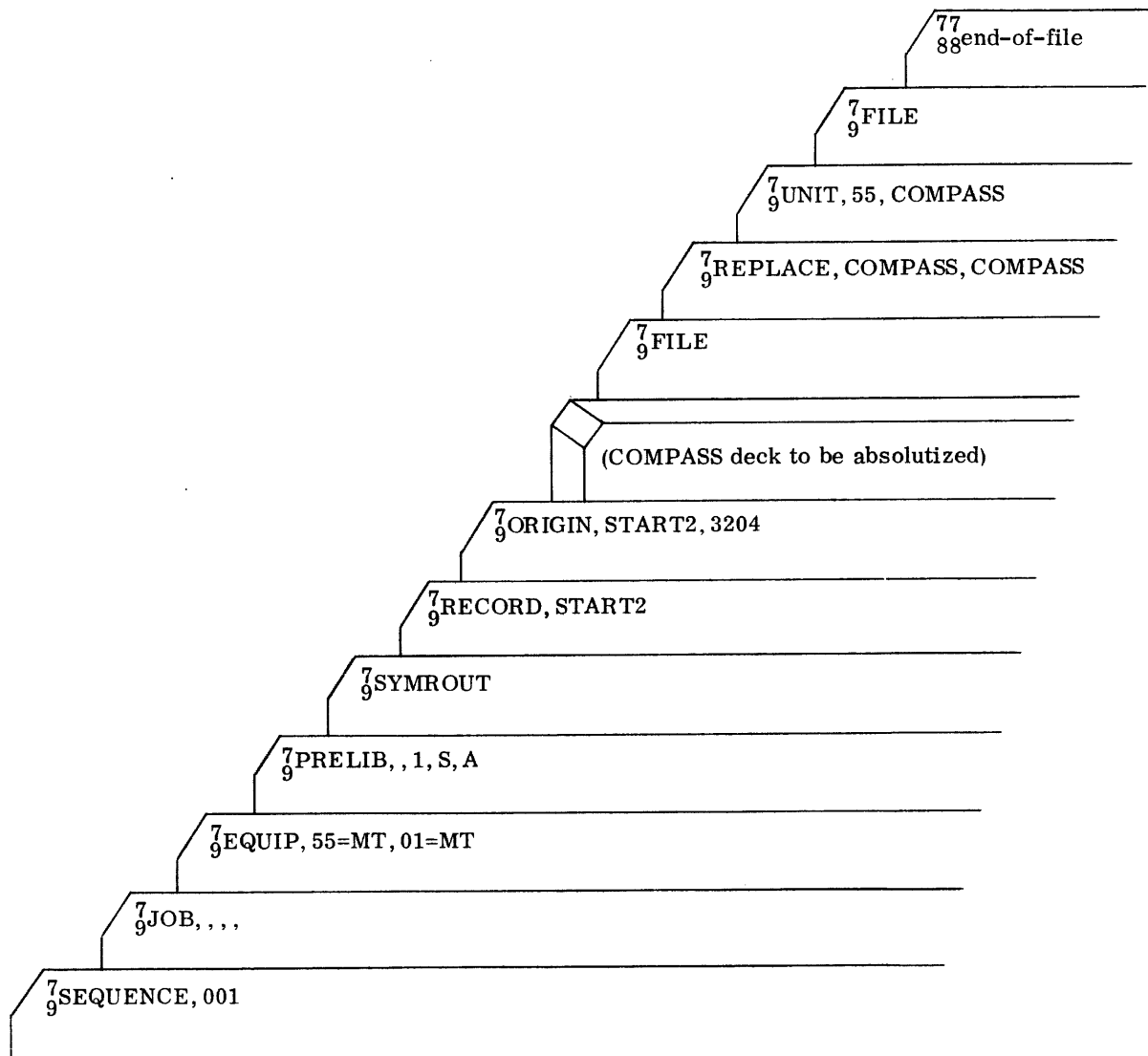
MODIFY file 2 relocatable routine on one system tape (lu=1) and place output on second tape. Use a third system tape as the operating system. (The contents of lu=1 are not altered.)



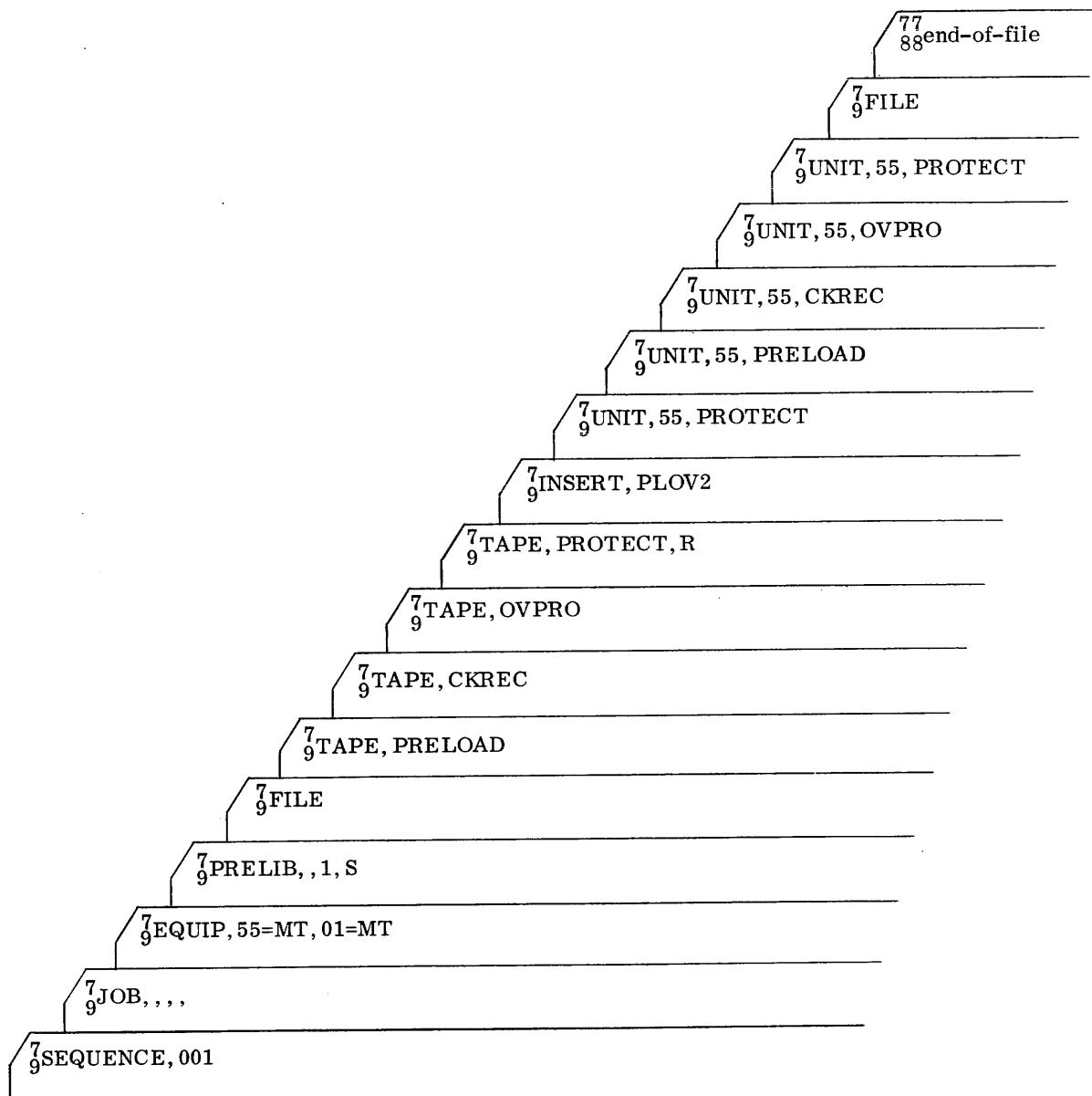
4.3.2 REPLACE ABSOLUTIZED PROGRAMS

Those products in file 2 partially comprised of absolute routines with overlays or segments (COMPASS, FORTRAN, etc.) can be modified during a SYMROUT run. Resident and variable resident need not be changed.

For example, to replace only COMPASS:



Insert variable resident routines at other places on the library.



PRELIB routines PHASE 2 and DEBLOCK write the absolutized records on the intermediate tape. These are transferred to the new library tape by file 2 UNIT cards.

When the PRELIB input deck is relocatable binary card images on tape, a UNIT control card must follow the ORIGIN card but it cannot indicate the original library tape as the input source.

After all records to be absolutized have been read, a ⁷/₉FILE card follows, indicating the end of this phase of the absolutizing process (i. e. , the loading of the decks into target memory). Before any file 2 modifications are made, PHASE 2 links the absolute records to their external references† and DEBLOCK writes them as contiguous records on file 55. Those records in file 2 which have been reabsolutized must be replaced:

```
7/9REPLACE, COMPASS, COMPASS  
7/9UNIT, 55
```

The unit card informs PRELIB that COMPASS has been placed on file 55 previously. The procedure is identical for all other file 2 absolute records.

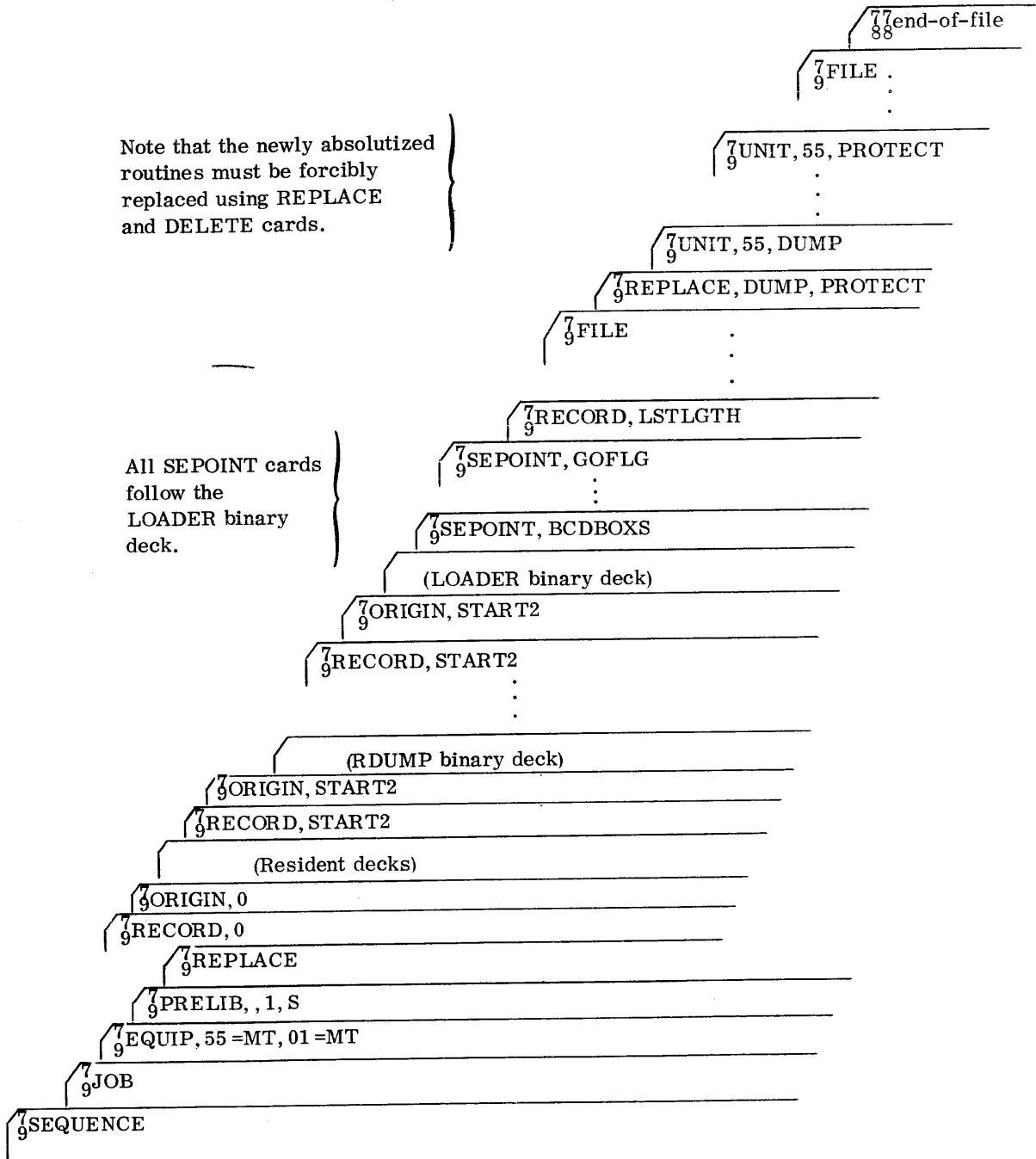
† Linking to externals is the reason that all absolute programs must be reabsolutized if resident is modified, since the absolute fw addresses of some system entry points probably have changed as a result of the modification.

4.3.3 REPLACE RESIDENT

All absolutized routines must be reabsolutized each time resident is modified.

Note that the newly absolutized routines must be forcibly replaced using REPLACE and DELETE cards.

All SEPOINT cards follow the LOADER binary deck.



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COMMENT AND EVALUATION SHEET
3100/3200/3300/3500 REAL-TIME SCOPE
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August 1970

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