

CICS/VS PROGRAMMING I HANDOUT

U3681

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DAILY SUBJECT/LAB SCHEDULE

MONDAY

INTRODUCTION
CICS/VS OVERVIEW (VIDEO)
PROGRAMMING CONCEPTS
PROGRAM CONTROL
TERMINAL CONTROL (WRITE)
LAB EXERCISE 1

TUESDAY

TERMINAL CONTROL (READ)
STORAGE CONTROL
3270 OVERVIEW
BASIC MAPPING INTRODUCTION
BMS SERVICE INVOCATION (OUT)
LAB EXERCISE 2

WEDNESDAY

BMS SERVICE INVOCATION (IN)
FILE CONTROL
DEBUGGING INTRODUCTION
LAB EXERCISE 3

THURSDAY

TRANSIENT DATA
TRACE CONTROL
TRANSACTION DEBUGGING
LAB EXERCISE 4

FRIDAY

SYSTEM TRANSACTION FLOW
BASIC APPLICATION DESIGN

OVERVIEW

CUSTOMER INFORMATION CONTROL SYSTEM (CICS)
TWO IBM PROGRAM PRODUCTS

- CICS/DOS/VS (5746 - XX3)
- CICS/OS/VS (5740 - XX1)

OVERVIEW

- DB/DC FOR OS/VS AND DOS/VS
SYSTEM/370 MODEL 115 AND UP
- FILE SUPPORT
 - ISAM
 - DAM
 - VSAM
 - DL/I
- TERMINAL SUPPORT
 - BTAM
 - SAM
 - VTAM
 - GAM
 - TCAM
- LANGUAGE SUPPORT
 - ASSEMBLER
 - COBOL
 - PL/I

IBM CORPORATION

IBM CORPORATION, THE GOVERNMENT OF THE STATE OF NEW YORK, AND THE CITY OF NEW YORK

IBM CORPORATION, THE GOVERNMENT OF THE STATE OF NEW YORK, AND THE CITY OF NEW YORK

SYSTEM
MANAGEMENT
FUNCTIONS

- TASK MANAGEMENT
- STORAGE MANAGEMENT
- PROGRAM MANAGEMENT
- TIME MANAGEMENT
- TERMINAL MANAGEMENT
- FILE MANAGEMENT
- TRANSIENT DATA MANAGEMENT
- TEMPORARY STORAGE MANAGEMENT
- JOURNAL MANAGEMENT

ENVIRONMENT DEFINITION

PROGRAM CONTROL TABLE

PROCESSING PROGRAM TABLE

TERMINAL CONTROL TABLE

SYSTEM RECOVERY TABLE

FILE CONTROL TABLE

DESTINATION CONTROL TABLE

JOURNAL CONTROL TABLE

TEMPORARY STORAGE TABLE

SIGN-ON TABLE

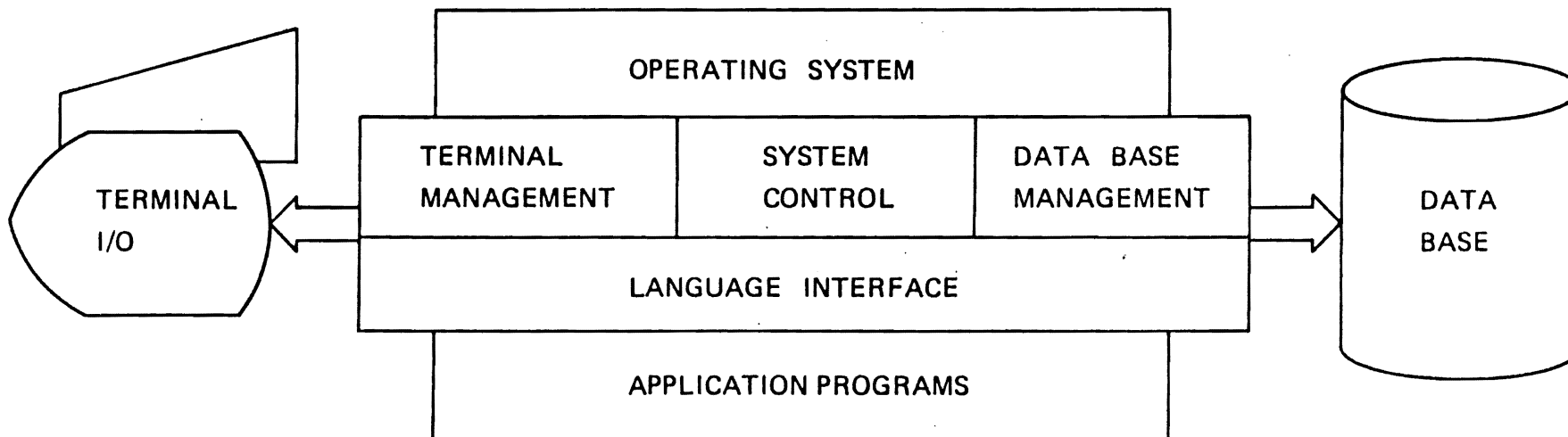
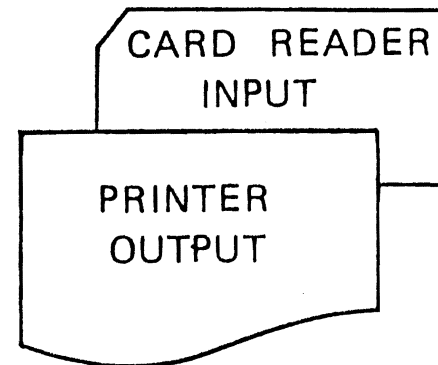
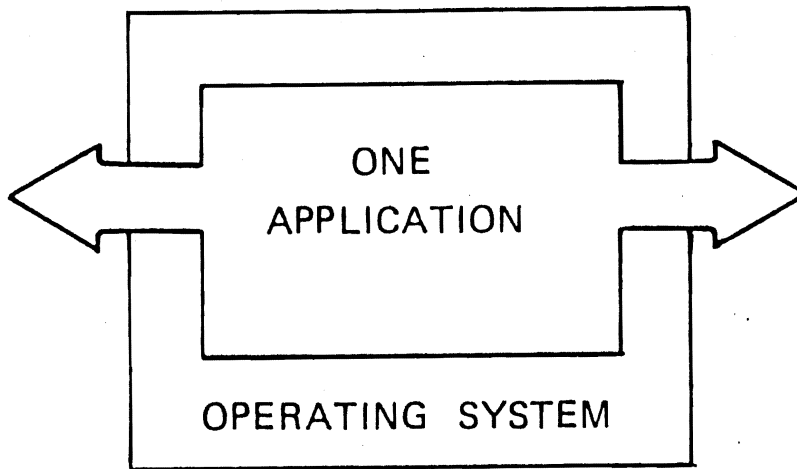
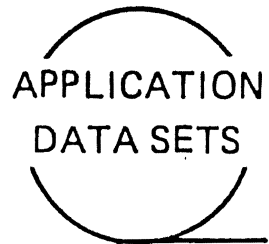
TERMINAL LIST TABLE

PROGRAM LIST TABLE

TRANSACTION LIST TABLE

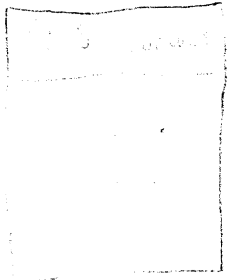
SYSTEM INITIALIZATION TABLE

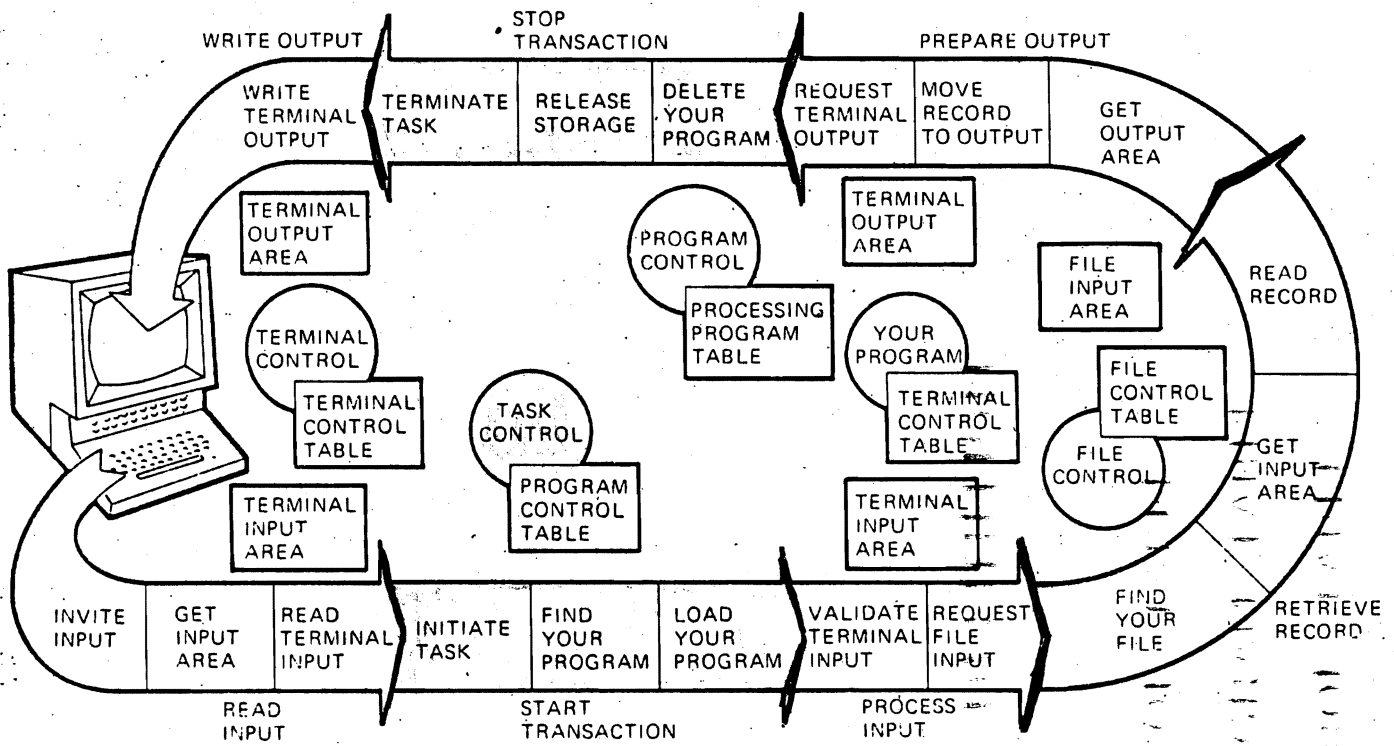
OVERVIEW



STORAGE MANAGEMENT

- STORAGE ACQUISITION AND DISPOSITION
- STORAGE ACCOUNTING
- VERIFICATION AND RECLAMATION
- SYSTEM OVERLOAD DETECTION
- STORAGE REQUEST QUEUEING
- STORAGE INITIALIZATION

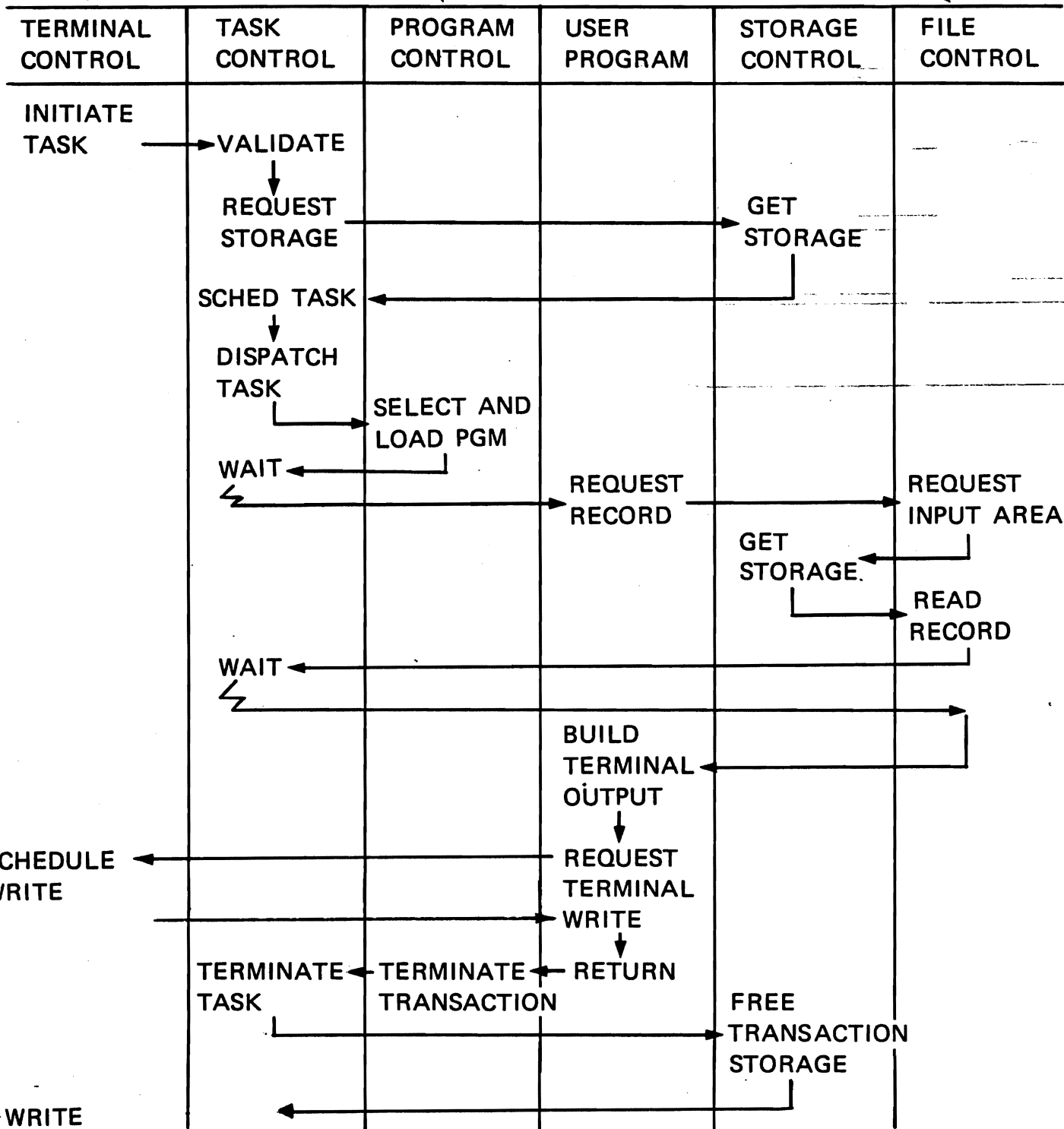




TERMINAL

PROGRAM LIBRARY

DATA BASE



APPLICATION PROGRAMMING

BATCH

START

READ TRANSACTIONS

PROCESS

(SEPARATE PASSES FOR
EDIT, UPDATE, REPORT)

UNTIL END OF FILE

CONTIGUOUS STORAGE

IO AREAS, WORK AREAS,
EXECUTABLE INSTRUCTIONS
. . . . ARE PART OF PROGRAM

OPERATING SYSTEM SERVICE
REQUESTS (OS/VS - DOS/VS)

MAY BE REENTRANT

CICS/VS

SINGLE TRANSACTION

PROCESS

(EDIT, UPDATE,
TERMINAL RESPONSE)

NON CONTIGUOUS STORAGE

IO AREAS, WORK AREAS,
CONTROL BLOCKS ARE
OUTSIDE THE PROGRAM

CICS/VS SERVICE REQUESTS

MUST BE QUASI-REENTRANT
(CODE AS REENTRANT)



QUASI-REENTRANCE

TCA - TASK A TWA

TCA - TASK B TWA

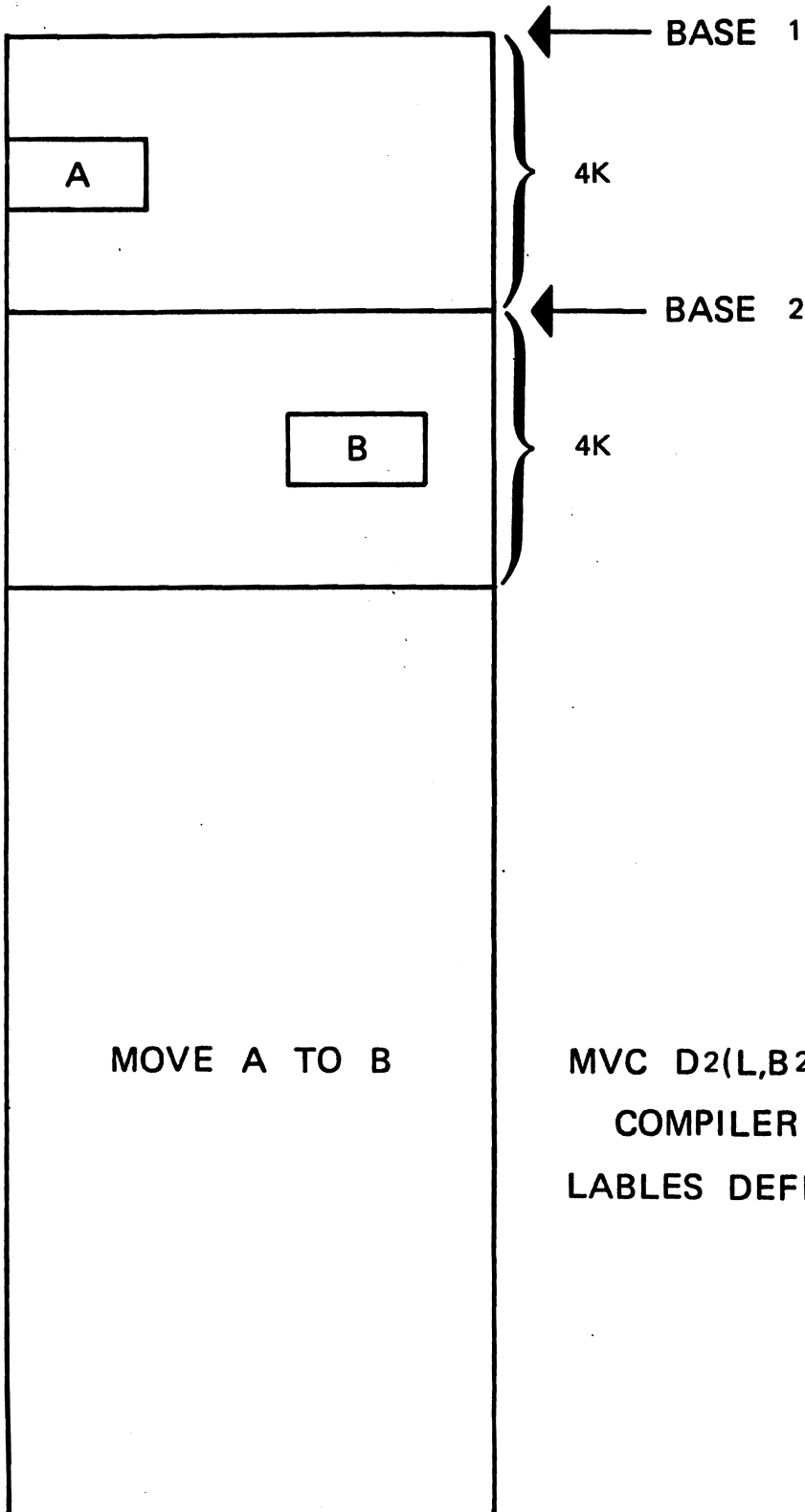
STORAGE
AREA
-
TASK A

PROGRAM X

GETMAIN

STORAGE
AREA
-
TASK B

CONTIGUOUS STORAGE



ADDRESSABILITY
PROVIDED BY
COMPILER USING
BASE AND
DISPLACEMENT

MOVE A TO B

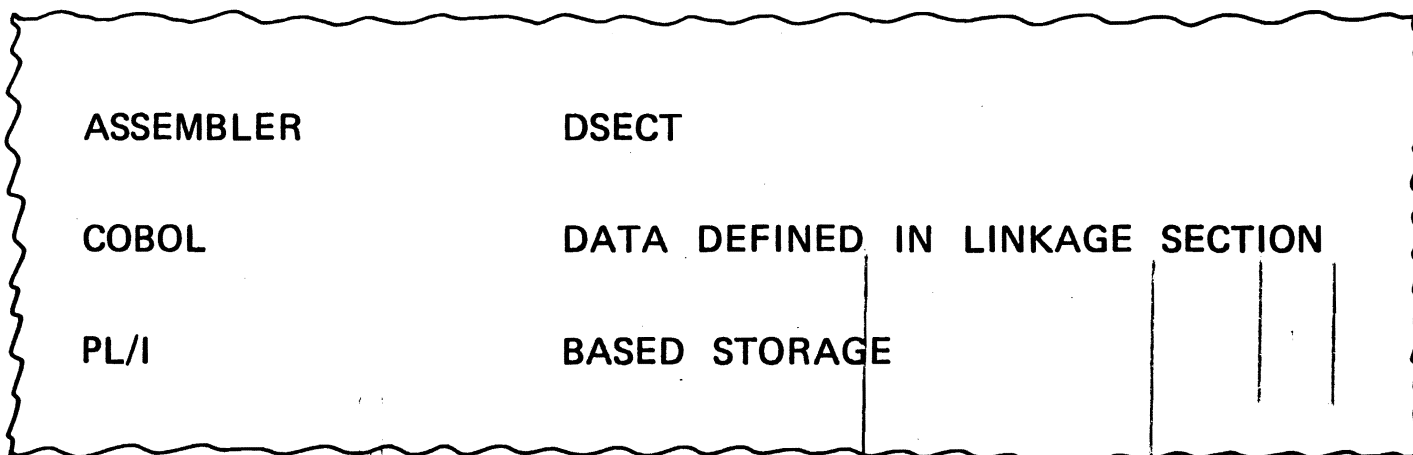
MVC D2(L,B2), D1(B1)

COMPILER LOADS BASE

LABLES DEFINE DISPLACEMENT

DUMMY SECTIONS

- CONVENIENT MEANS OF DESCRIBING STORAGE LAYOUT WITHOUT RESERVING STORAGE
- REPRESENTS A CONTROL SECTION ASSEMBLED OR COMPILED BUT NOT PART OF OBJECT CODE



DUMMY SECTION

ASSEMBLER

```
USERBAR EQU 3
AREA      DSECT
          USING *, USERBAR
FLDA     DS CL -
FLDB     DS CL -
FLDC     DS CL -
FLDD     DS CL -
```

COBOL

```
LINKAGE SECTION.
01 BLL SYNCHRONIZED.
   02 USERBAR PICTURE S9(8)
      USAGE IS COMPUTATIONAL
01 AREA SYNCHRONIZED.
   02 FLDA PICTURE - .
   02 FLDB PICTURE - .
   02 FLDC PICTURE - .
   02 FLDD PICTURE - .
```

PL/I

```
DECLARE 1 AREA BASED (USERBAR),
  2 FLDA CHAR - ,
  2 FLDB CHAR - ,
  2 FLDC CHAR - ,
  2 FLDD CHAR - ;
```

COBOL

SOURCE

WORKING-STORAGE SECTION.

```
77  ZZ ...  
01  STUDENT ...  
    02  NAME ...  
    02  BASE-PAY ...  
    02  ...  
01  REC-FILE ...  
    02  ...  
01  ...  
...  
01  STU-INFO ...
```

OBJECT

WORKING STORAGE
ZZ STUDENT

BASE-PAY

REC-FILE

STU-INFO

TASK GLOBAL TABLE (TGT)

BL-1 (ADDR 1ST 4K)

BL-2 (ADDR 2ND 4K)

PROCEDURE DIVISION

{ LOAD REGISTERS FROM
BL CELLS
MOVE DATA

4K

4K

PROCEDURE DIVISION.

MOVE BASE-PAY TO STU-INFO.

COBOL

SOURCE

OBJECT

WORKING-STORAGE SECTION.

```

77  ZZ ...
01  STUDENT ...
    02  NAME ...
    02  BASE-PAY ...
    02  ...
01  REC-FILE ...
    02  ...
01  ...
...
01  STU-INFO ...
    
```

LINKAGE SECTION.

```

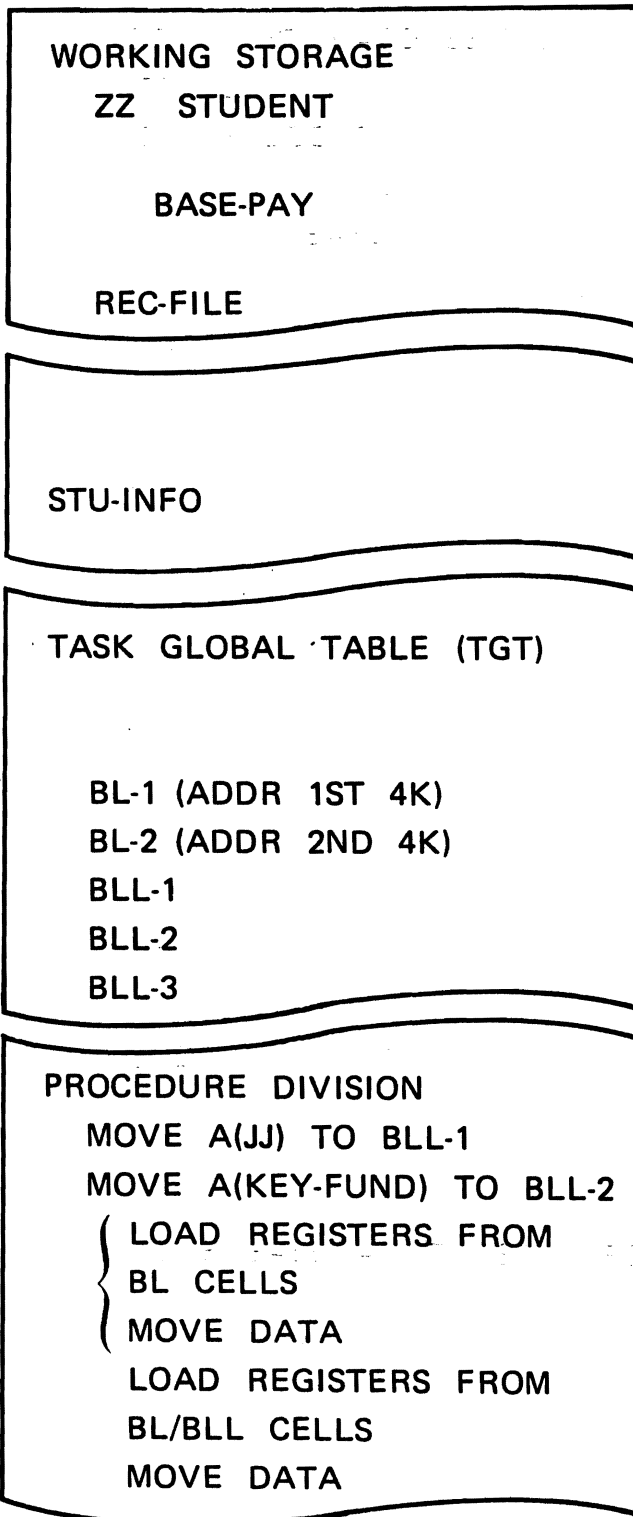
77  JJ. - - - - -
01  KEY-FUND ...
    02  ...
    02  ...
...
01  BILLS-PD. - - - - -
    
```

PROCEDURE DIVISION.

ENTRY USING JJ,KEY-FUND. →

MOVE BASE-PAY TO STU-INFO. →

MOVE KEY-FUND TO REC-FILE. →



COPYING SOURCE LANGUAGE CODING

ASSEMBLER

COPY DFHCSADS

COBOL

LINKAGE SECTION.
01 DFHCSADS COPY DFHCSADS.

PL/I

%INCLUDE DFHCSADS;

REQUIRED CONTROL AREAS

COMMON SYSTEM AREA (CSA)

MAIN CONTROL AREA FOR CICS/VS

CONTAINS: SYSTEM PARAMETERS,
POINTERS TO NUCLEUS MODULES,
SYSTEM TABLES, ACTIVE TASK(S),
SUSPENDED TASK(S) ,

TASK CONTROL AREA (TCA)

MAIN CONTROL AREA FOR EACH TASK

CONTAINS: REGISTER SAVE AREAS,
COMMUNICATION AREAS,
POINTERS TO TRANSACTION STORAGE,
CONTROL AREAS ,

COBOL - BASE LINKAGE LOCATORS (BLL)

COBOL PROGRAM COPY OF BLL

CONTAINS: REGISTERS FOR ACCESS TO NON-
CONTIGUOUS STORAGE

ASSEMBLER

COPY DFHCSADS

```
DFHCSADS DSECT
          USING      *,13
DFHCSABA EQU        *
CSAXXX   DS         ...
```

COPY DFHTCADS

```
DFHTCADY DSECT
TCACBAR  EQU      12
          USING   DFHTCADS ,TCACBAR
DFHTCADS DS       ...
```

L111111

D1

DFHTCADS

COBOL

LINKAGE SECTION

01 DFHBLLDS COPY DFHBLLDS.

01 DFHBLLDS SYNCHRONIZED.

02 BLLCBAR PIC XXXX.

02 CSACBAR PIC XXXX.

02 CSAOPBAR PIC S9(8) COMP.

02 TCACBAR PIC S9(8) COMP.

01 DFHCSADS COPY DFHCSADS

01 DFHCSADS SYNCHRONIZED.

02 ...

01 DFHTCADS COPY DFHTCADS

01 DFHTCADS PIC X(64) SYNC.

01 CSAOPFL REDEFINES DFHTCADS SYNC.

02...

01 DFHTCA SYNCHRONIZED.

02...

PL/I

% INCLUDE DFHCSADS;

PL/I INTERFACE INITIALIZATION

CALL DFHPLIC (CSACBAR);

DCL 1 DFHCSADS BASED (CSACBAR),
2...

CSAOPBAR=CSAOPFLA;

DCL 1 CSAOPFL BASED (CSAOPBAR),
2...

% INCLUDE DFHTCADS;

TCACBAR=CSACDTA;

DCL 1 DFHTCAXX BASED (TCACBAR),
2...

PROGRAMMING INTRODUCTION

CICS PROVIDED DUMMY SECTIONS

CSA	*	USER AREA**
TCA	*	TWA **
TCTTE	*	

- TIOA
- FIOA
- FWA
- TDIA
- TDOA
- TSIOA



CONTROL INFORMATION *	DATA**
-----------------------	--------

USER STORAGE

*
**

AREA MAPPED BY CICS PROVIDED DUMMY SECTION
 USER PROVIDES CONTINUING DESCRIPTION OF
 AREA FOLLOWING COPY OR INCLUDE FOR CICS
 PROVIDED DUMMY SECTION.

PROGRAMMING INTRODUCTION

CICS/VS PROVIDED DUMMY SECTIONS

<u>CICS/VS CONTROL AREA</u>	<u>SYMBOLIC NAME FOR COPY OR % INCLUDE</u>	<u>SYMBOLIC NAME FOR BASE REGISTER, BLL. OR POINTER</u>
CSA	DFHCSADS	CSACBAR
TCA	DFHTCADS	TCACBAR
TCTTE	DFHTCTTE	TCTTEAR
TIOA	DFHTIOA	TIOABAR
FWA	DFHFWADS	FWACBAR
FIOA	DFHFIOA	FIOABAR
VSWA	DFHVSWA	VSWABAR
SAA	DFHSAADS	SAACBAR
TDIA	DFHTDIA	TDIABAR
TDOA	DFHTDOA	TDOABAR
TSIOA	DFHTSIOA	TSIOABAR
JCA	DFHJCADS	JCABAR

PROGRAMMING INTRODUCTION

MACRO INSTRUCTIONS

COMMUNICATE

BETWEEN CICS MANAGEMENT MODULES

BETWEEN USER WRITTEN PROGRAMS AND CICS

MANAGEMENT MODULES

BETWEEN USER WRITTEN PROGRAMS

CICS MACROS ARE PROCESSED BY AN ASSEMBLER LANGUAGE PROGRAM USING CICS MACRO LIBRARIES CREATED AT CICS SYSTEM GENERATION.

CODING CONSIDERATIONS

CICS MACRO FORMAT IS THE SAME REGARDLESS OF LANGUAGE

NAME FIELD OF MACRO MUST BE BLANK (COBOL & PL/I)

OP CODE MUST BEGIN BEFORE COLUMN 16 (DFHXXX)

**MACRO CONTINUATION CARDS REQUIRE A NON-BLANK IN COLUMN
72. NEXT CARD BEGINS IN COLUMN 16.**

OPERAND MAY NOT CONTAIN IMBEDDED BLANKS

ONLY CICS MACROS MAY BEGIN WITH 'DFH'

MAY NOT BE PART OF COBOL OR PL/I STATEMENT

MACRO FORMAT

NAME	OPERATION	OPERANDS	COMMENTS
BLANK OR SYMBOL	DFHxxxxx	ONE OR MORE OPERANDS SEPARATED BY COMMAS	

SEGSET= { symbolic address
 YES
 ALL }

[,INTRVAL= { numeric value }] | [,TIME= { numeric value }]
 YES

[MODE= { MOVE
 LOCATE }]

TYPE=READ

TYPE=(READ,WAIT)

COBOL

IDENTIFICATION DIVISION.

ENVIRONMENT DIVISION.

CONFIGURATION SECTION.

DATA DIVISION.

WORKING-STORAGE SECTION.

LINKAGE SECTION.

PROCEDURE DIVISION.

RESTRICTED USE OF —

SPECIAL FEATURES

FLOW, TRACE, EXHIBIT

STXIT, STAE OPTIONS

DISPLAY, ACCEPT

INPUT/OUTPUT OPERATIONS

PL/I

PROGNM: PROCEDURE OPTIONS (MAIN, *REENTRANT*);

RESTRICTED USE OF —
MULTITASKING FUNCTIONS
MULTITASKING OPTIONS
INPUT/OUTPUT OPERATIONS
DISPLAY, SORT, ON, HALT, EXIT
OTHER PL/I STATEMENTS

% INCLUDE DFHXXX
PROVIDES BASE POINTER VARIABLE
DFHXXX BASED (NAME);

ASSEMBLER

CICS/VS DSECTS

ASSIGN REGISTERS FOR —
TCA (REGISTER 12)
CSA (REGISTER 13)

ASSIGN REGISTER NAMES —
USING *, REGNAME

PROGRAM REQUIREMENTS

CSECT

LTORG

CICS/VS SERVICES —

COBOL -- PL/I

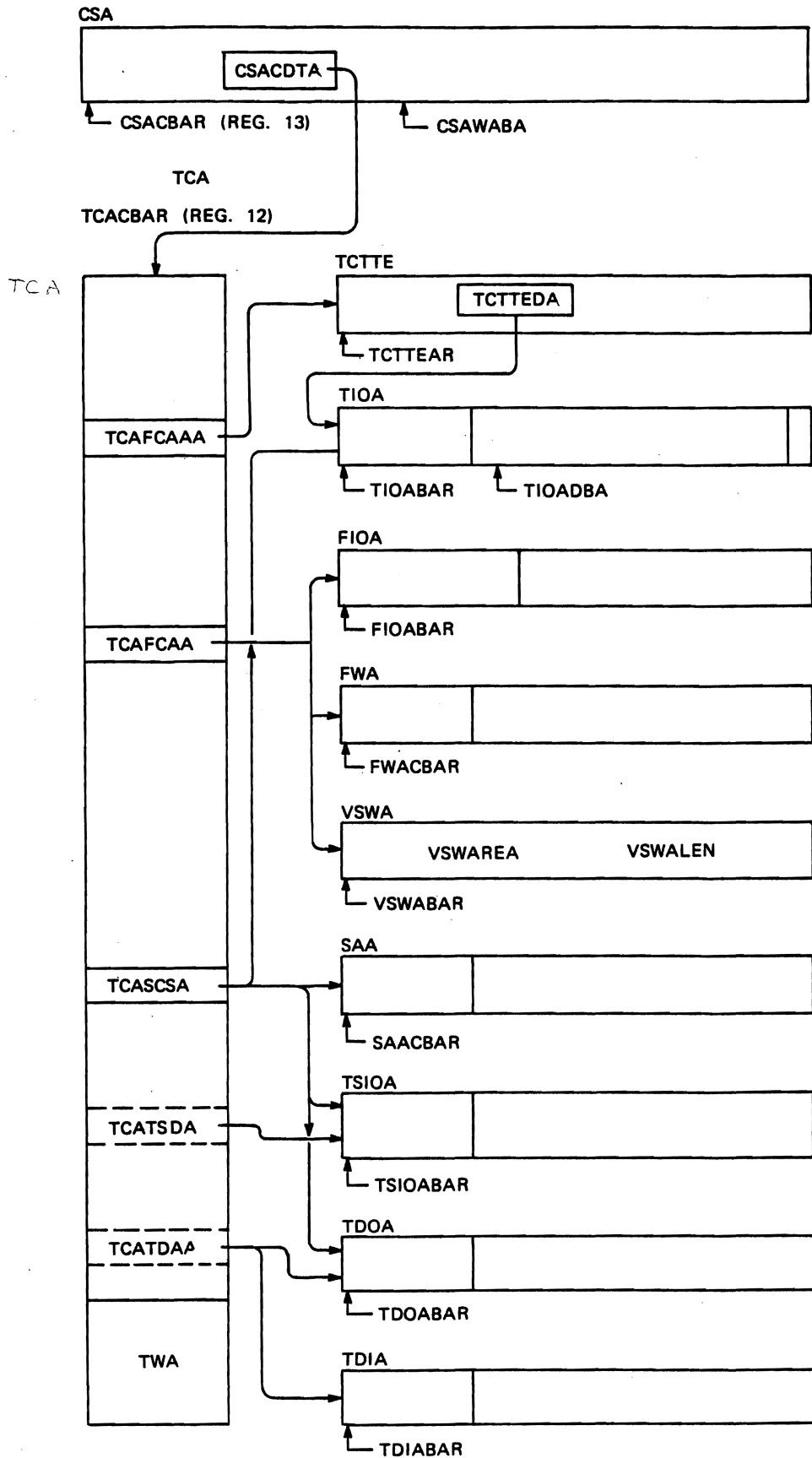
COMPILE

DOS/VS ANS COBOL

OS/VS ANS COBOL

PL/I

LINKAGE EDITOR

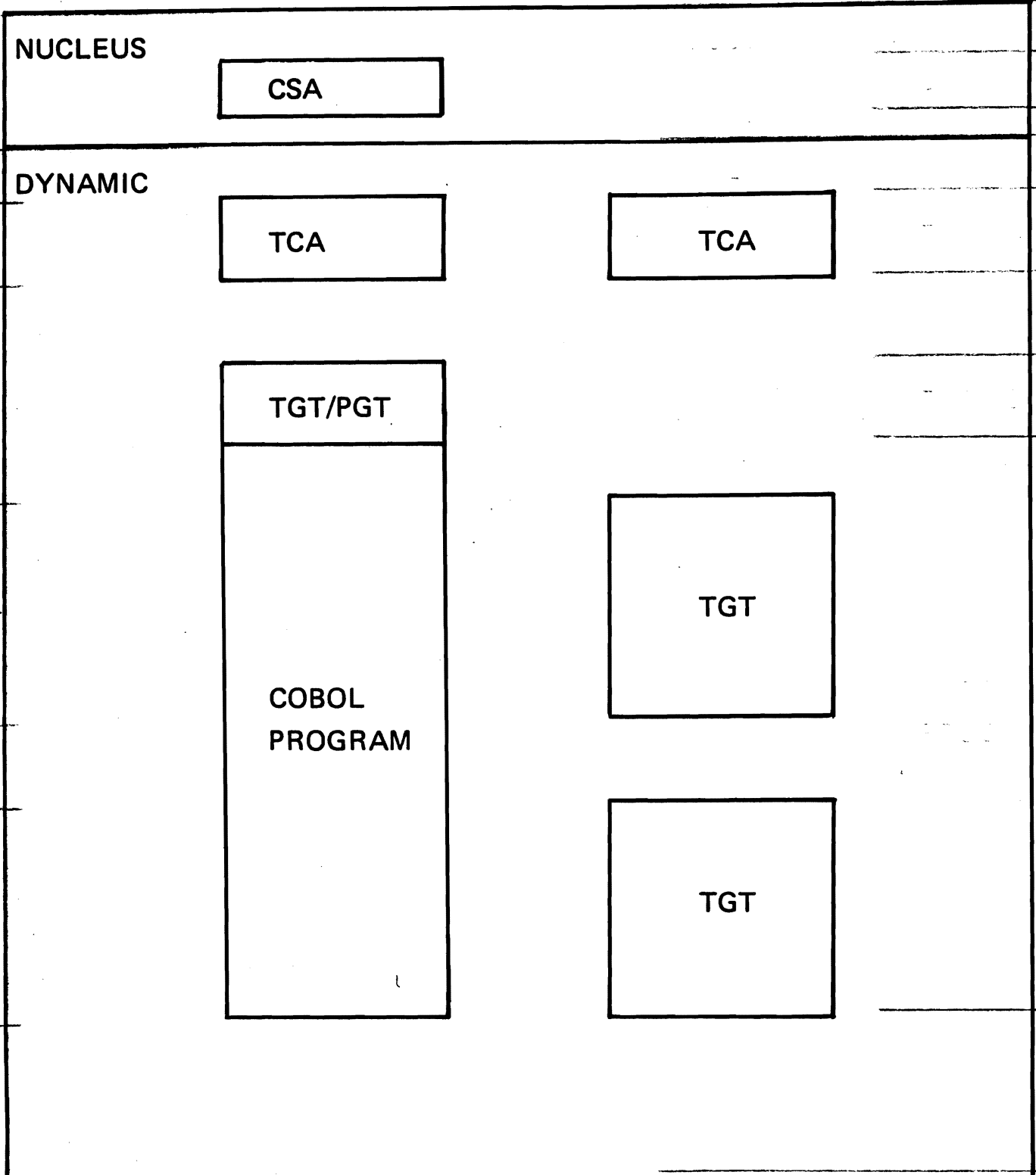


COBOL ADDRESSABILITY

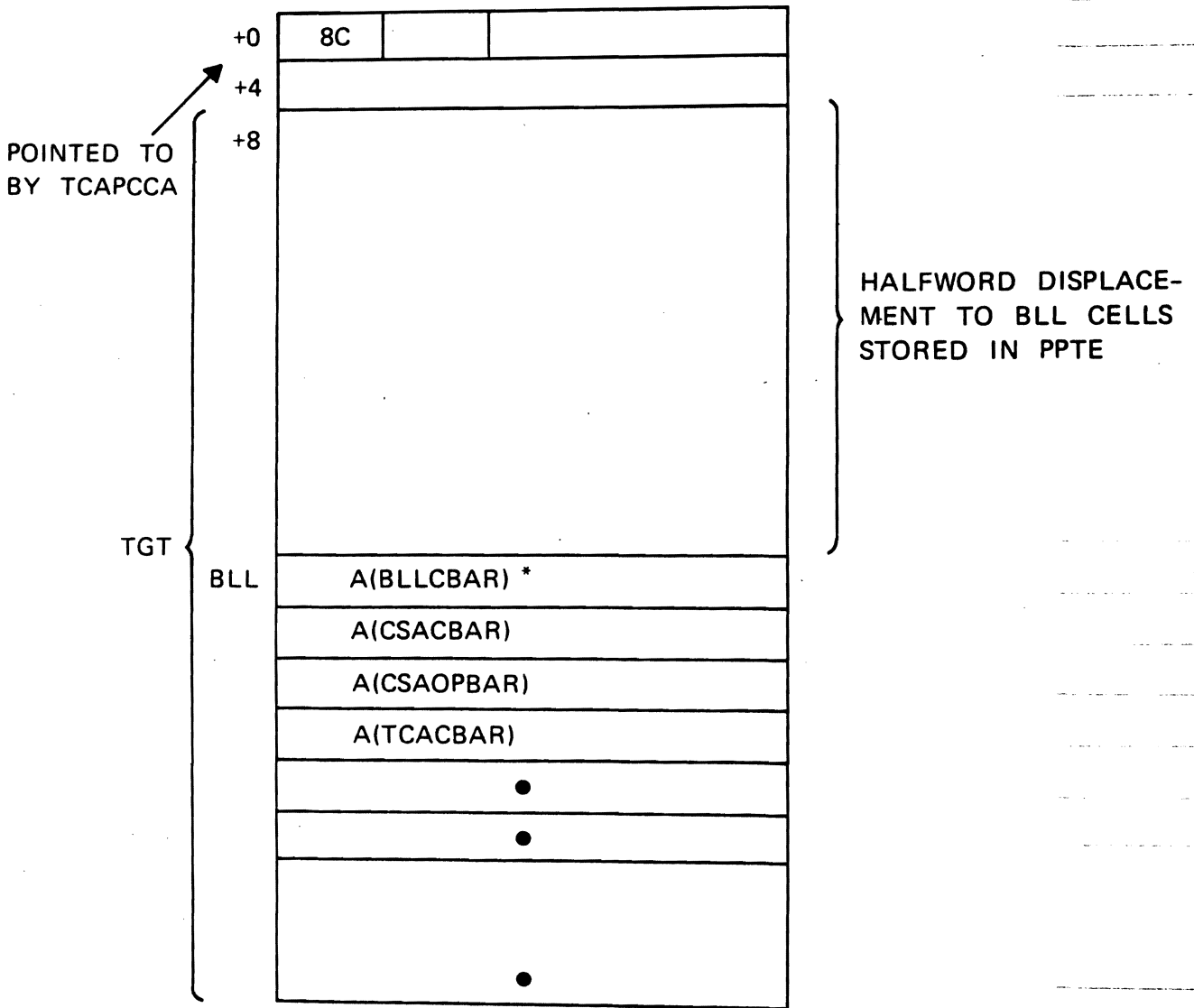
PROCEDURE DIVISION.

MOVE CSACDTA TO TCACBAR.

COBOL INTERFACE



CICS COBOL AREA



MAPPED IN COBOL LISTING (PMAP)

COBOL

01 DFHBLDLS COPY DFHBLDLS

ASSIGNS BASE FOR —

BLLCBAR

CSACBAR

CSAOPBAR

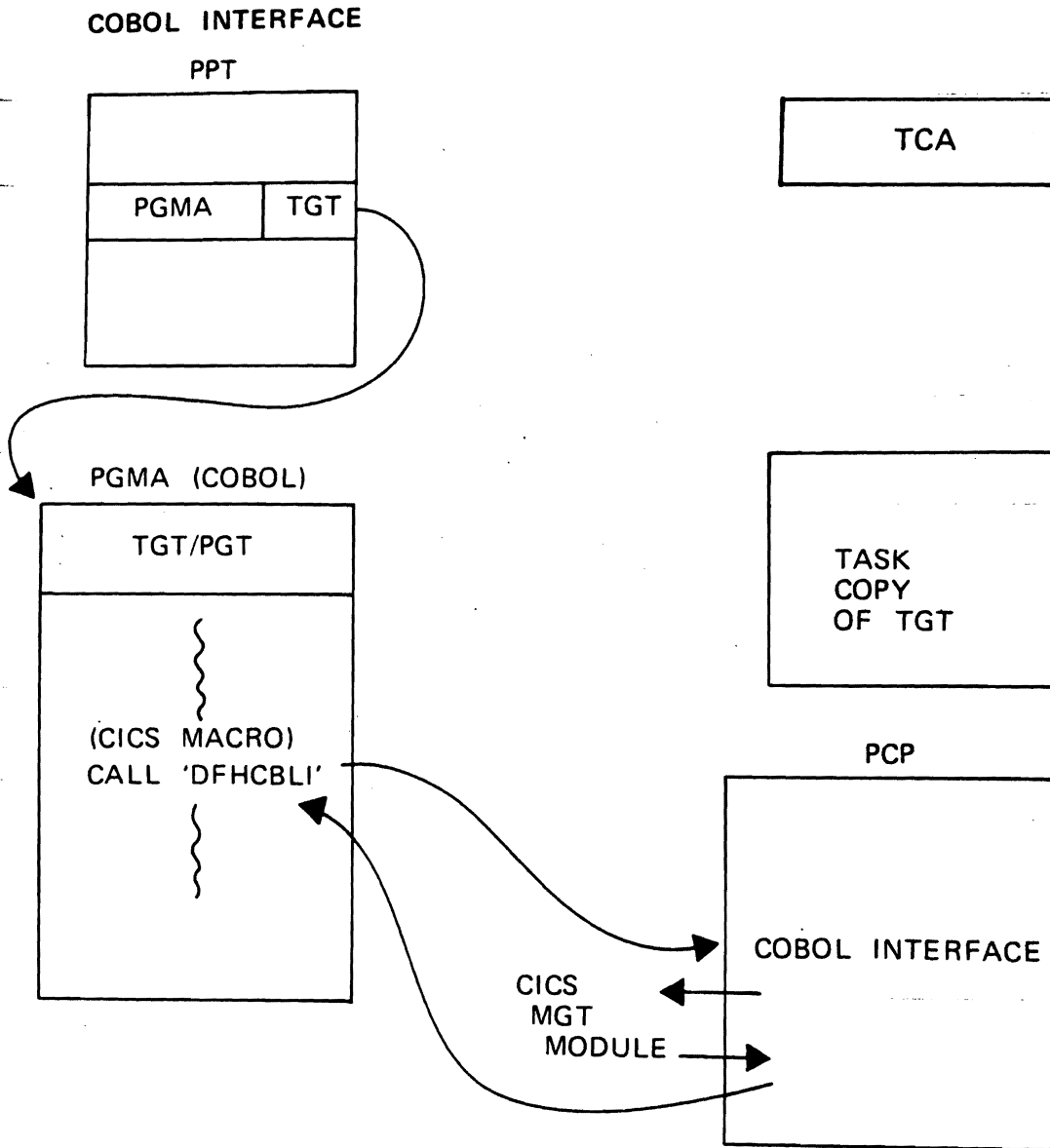
TCACBAR

SEQUENCE REQUIRED FOR —

DFHCSADS

DFHTCADS

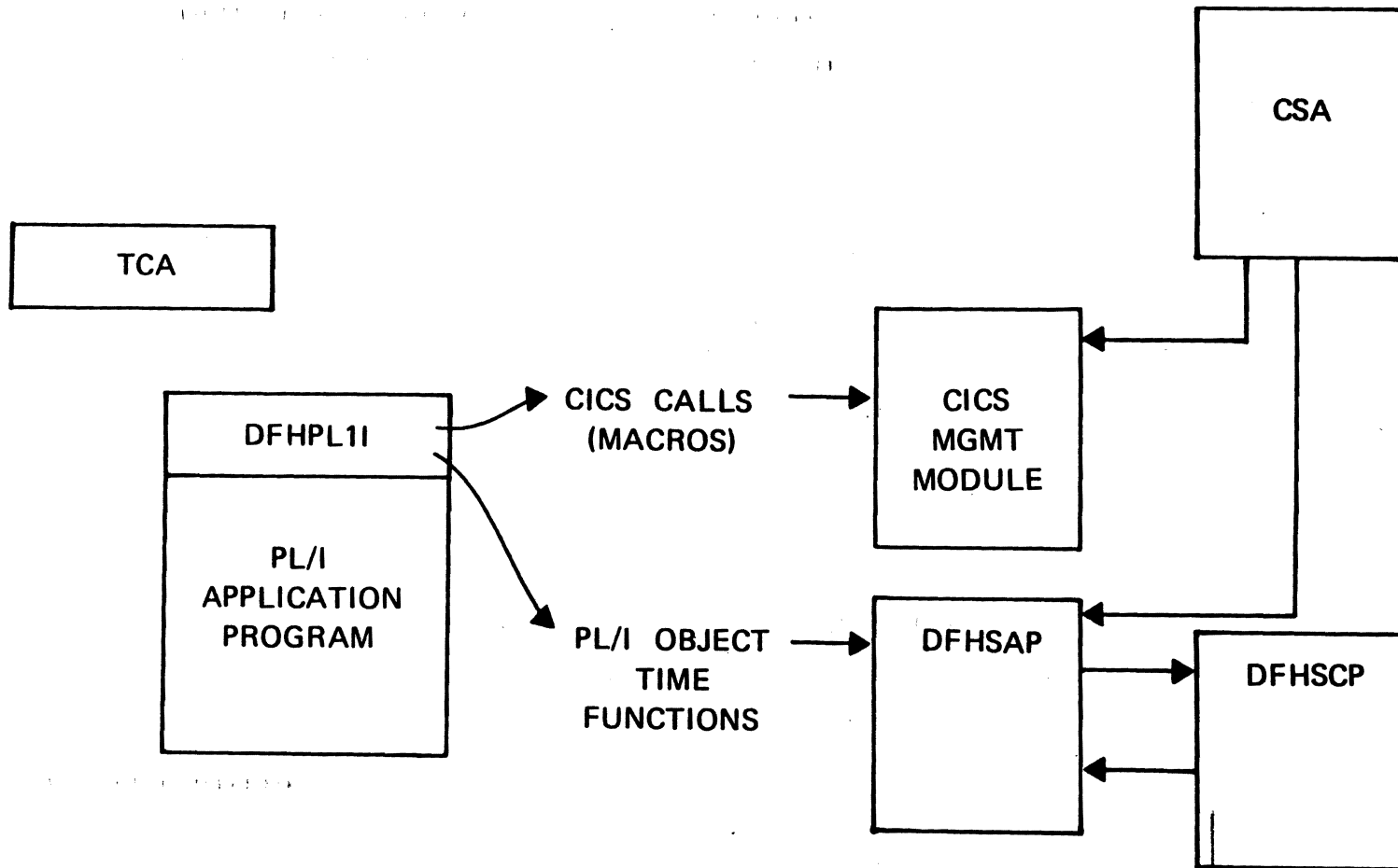
PROGRAM MANAGEMENT



- ORIGINAL TGT LOCATION AND SIZE NOTED IN PPT
- COPY OF TGT CREATED FOR EACH USE OF PROGRAM
- ADDRESS OF 'DFHCBLI' RESOLVED WHEN PROGRAM IS LOADED

PROGRAM MANAGEMENT

CICS PL/I INTERFACE



- DFHPL11 COMBINED WITH PROGRAM AT LINK EDIT
- DFHSAP LOADED INTO CICS/VS NUCLEUS
- CICS MACROS EXPAND TO CALL DFHPL11

PL/1 IMPLEMENTATION

DFHPL11 – CICS PL/1 INTERFACE MODULE

LINK EDITED WITH EACH PL/1 APPLICATION
REPLACES NORMAL PL/1 PROGRAM ENTRY POINT
RESOLVES AND ROUTES CALLS TO CICS
RESOLVES AND ROUTES CALLS TO DFHSAP

CICS/OS LINK EDIT CONTROL STATEMENTS

```
INCLUDE syslib (DFHPL11)
REPLACE IHENTRY
INCLUDE objmod
NAME progname (R)
```

CICS/DOS LINK EDIT CONTROL STATEMENTS

```
OPTION CATAL
PHASE name, R
INCLUDE DFHPL11
```

PROGRAM CONTROL

PROGRAM MANAGEMENT

PROGRAM STRUCTURES

LINK — RETURN

LOAD — DELETE

XCTL

SUPPLEMENTAL SERVICES

CHECK

ABEND

COBADDR

PROGRAM CONTROL

ASSEMBLER

```
MVC TCAPCPI , =CL8 'PROGB'  
DFHPC TYPE = LINK
```

*[PROGB = 'PROGB'] must be per location of CL8
[COND YES] - ...
[COND NO] - ...
[COND YES] - ...*

COBOL

*TCAPCPI TR ...
DFHPC ...*

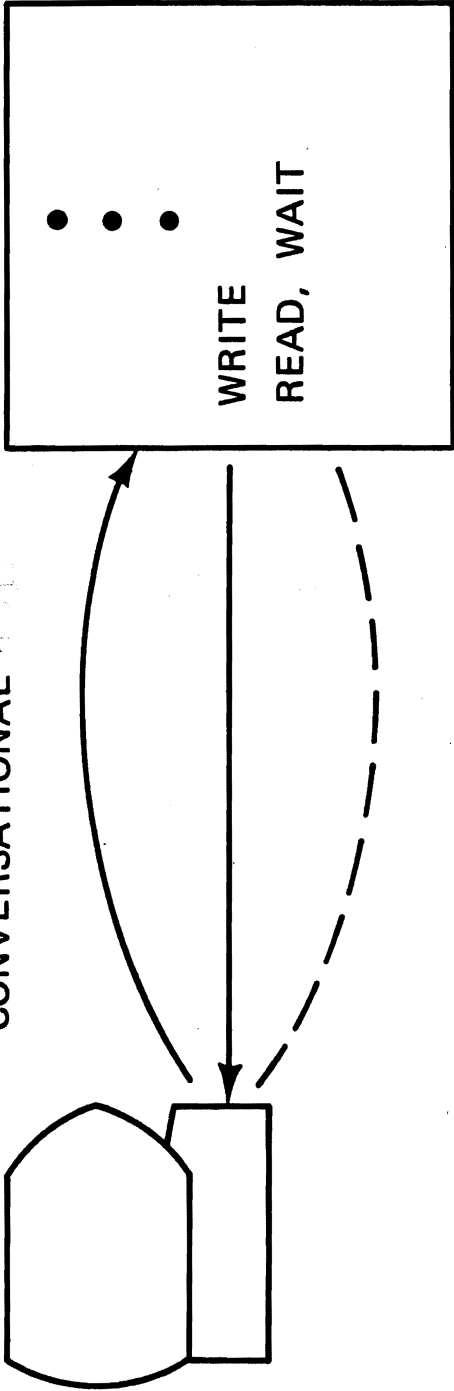
```
MOVE 'PROGB' TO TCAPCPI.
```

```
DFHPC TYPE = LINK  
DFHPC TYPE = CHECK
```

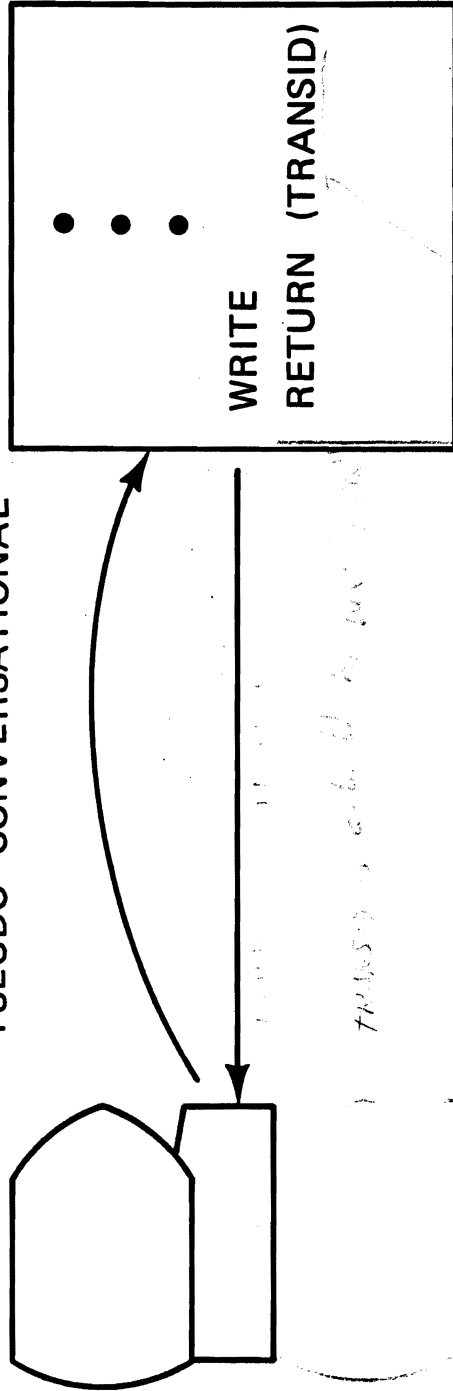
PL/I

```
TCAPCPI = 'PROGB';  
DFHPC TYPE = LINK
```

CONVERSATIONAL



PSEUDO CONVERSATIONAL



RETURN (TRANSID) CA

TRANSID is sent to the server

TERMINAL CONTROL

*is the highest priority Tech
with the other systems*

INITIATES TRANSACTIONS

**PROVIDES COMMUNICATION BETWEEN USER WRITTEN
APPLICATION PROGRAMS AND TERMINALS**

READ

WRITE

WAIT

SUPPLEMENTAL SERVICES

CODE TRANSLATION

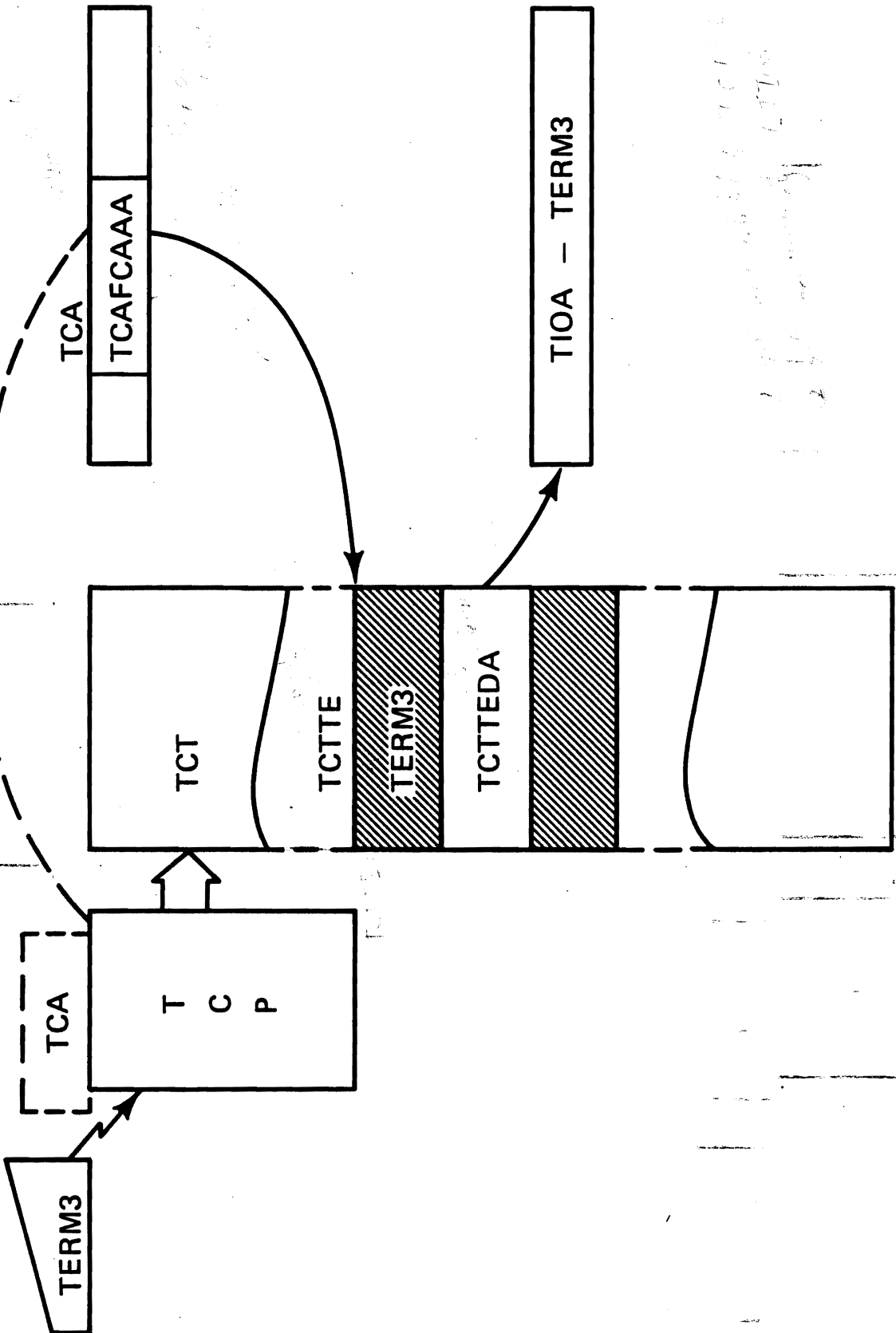
TERMINAL STORAGE MANAGEMENT

ERROR HANDLING INTERFACE

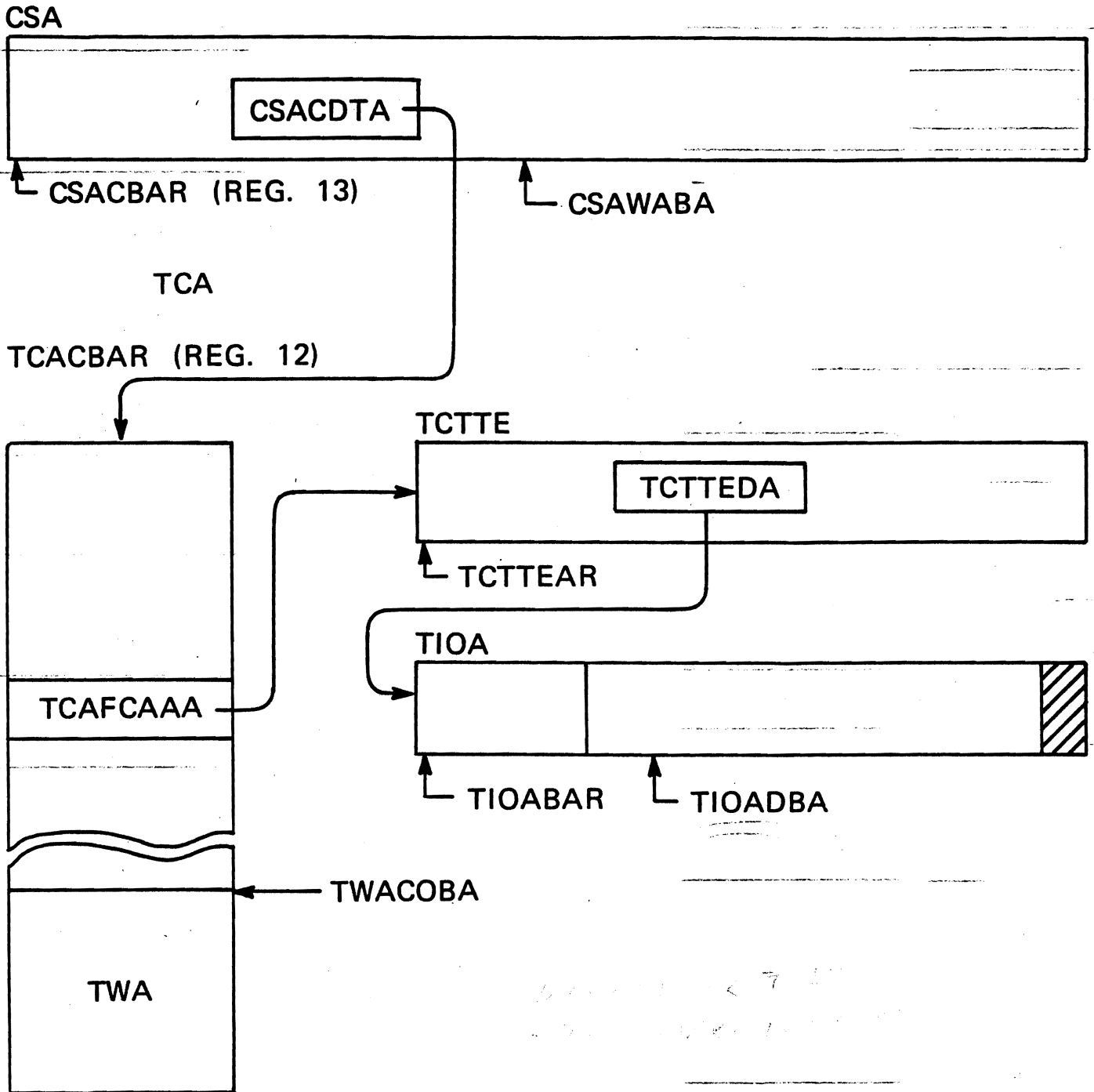
*TCTTC
5/1/74*

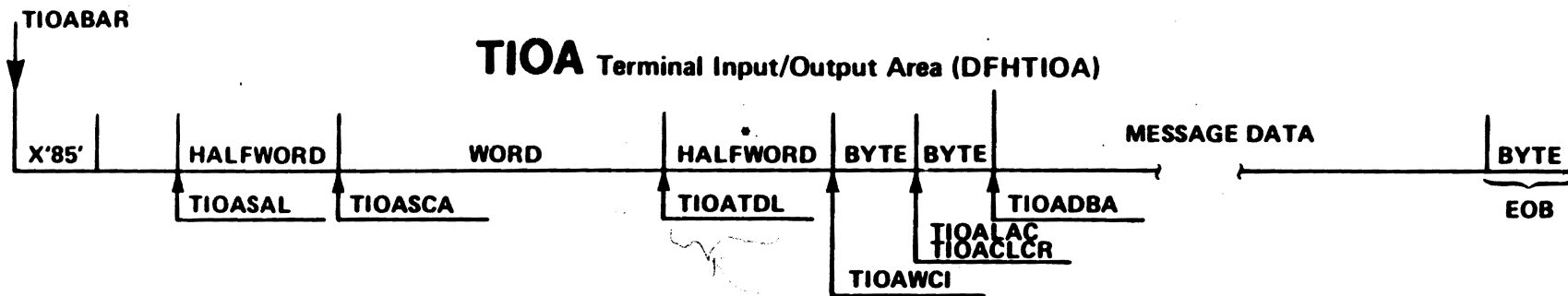
TCTTC

TEP



TERMINAL CONTROL





TIOABAR - TIOA Base Address Register

TIOACLCR - TIOA Control write - Line or Copy Request (same as TIOALAC)

TIOADBA - TIOA Data Begin Address

TIOALAC - TIOA Line Address Control (same as TIOACLCR)

TIOASAL - TIOA Storage Accounting - area Length

TIOASCA - TIOA Storage Chain Address

TIOATDL - TIOA Terminal - message Data Length

TIOAWCI - TIOA Write Control Indicator

TCTTEAR	EQU	9
TIOABAR	EQU	10
	COPY	DFHCSADS
	COPY	DFHTCADS
TWADEF	DS	CL20
	COPY	DFHTCTTE
	COPY	DFHTIOA
TRNCD	DS	CL4
MSSG	DS	CL20
	CSECT	
	BALR	2,0
	USING	*,2
	L	TCTTEAR,TCAFCAAA
	L	TIOABAR,TCTTEDA

PROCESS INPUT FROM TRANSACTION

IDENTIFICATION DIVISION.

ENVIRONMENT DIVISION.

DATA DIVISION.

LINKAGE SECTION.

01 DFHBL LDS COPY DFHBL LDS.

02 TCTTEAR PIC S9(8) COMP.

02 TIOABAR PIC S9(8) COMP.

01 DFHCSADS COPY DFHCSADS.

01 DFHTCADS COPY DFHTCADS.

02 TWADEF PIC X(20).

01 DFHTCTTE COPY DFHTCTTE.

01 DFHTIOA COPY DFHTIOA.

02 TRNCD PIC X(4).

03 MSSG PIC X(20).

PROCEDURE DIVISION.

MOVE CSACDTA TO TCACBAR.

MOVE TCAFCAAA TO TCTTEAR.

MOVE TCTTEDA TO TIOABAR.

PROCESS INPUT FROM TRANSACTION

CICSPG: PROC OPTIONS (MAIN,REENTRANT);

%INCLUDE (DFHCSADS);

%INCLUDE (DFHTCADS);

2 TWADEF CHAR (20);

%INCLUDE (DFHTCTTE);

%INCLUDE (DFHTIOA);

2 TRNCD CHAR (4);

2 MSSG CHAR (20);

PROCESS INPUT FROM TRANSACTION

DFHTC TYPE = WRITE

INSURE THAT PRIOR TO ISSUING MACRO:

- ① ADDRESS OF TIOA TO BE WRITTEN IS IN TCTTEDA
- ② LENGTH OF THE DATA TO BE WRITTEN IS IN TIOATDL

TIOA DATA AREA IS LARGE ENOUGH TO CONTAIN DATA

TCTTEAR	EQU	9
TIOABAR	EQU	10
	COPY	DFHCSADS
	COPY	DFHTCADS
TWADEF	DS	CL20
	COPY	DFHTCTTE
	COPY	DFHTIOA
TRNCD	DS	CL4
MSSG	DS	CL20
	CSECT	
	BALR	2,0
	USING	*,2
	L	TCTTEAR,TCAFCAAA
	L	TIOABAR,TCTTEDA
		•
		•
		•
	MVC	TIOADBA(20),=CL20'YOUR20CHAR/MSG'
	MVC	TIOATDL,=H'20'
	DFHTC	TYPE=(WRITE, [*] WAIT)
		•
		•
		•

*OPTIONAL

IDENTIFICATION DIVISION.

ENVIRONMENT DIVISION.

DATA DIVISION.

LINKAGE SECTION.

01 DFHBL LDS COPY DFHBL LDS.

02 TCTTEAR PIC S9(8) COMP.

02 TIOABAR PIC S9(8) COMP.

01 DFHCSADS COPY DFHCSADS.

01 DFHTCADS COPY DFHTCADS.

02 TWADEF PIC X(20).

01 DFHTCTTE COPY DFHTCTTE.

01 DFHTIOA COPY DFHTIOA.

02 INPUT

03 TRNCD PIC X(4)

03 MSSG PIC X(20).

02 OUTPUT REDEFINES INPUT.

03 YOUR-MSG PIC X (20).

PROCEDURE DIVISION.

MOVE CSACDTA TO TCACBAR.

MOVE TCAFCAAA TO TCTTEAR.

MOVE TCTTEDA TO TIOABAR.

•
•
•

MOVE 'YOUR20 CHAR MSG' TO YOUR-MSG.

MOVE 20 TO TIOATDL.

DFHTC TYPE=(WRITE, WAIT^{*})

•
•
•

* OPTIONAL

CICSPG: PROC OPTIONS (MAIN,REENTRANT);

%INCLUDE (DFHCSADS);

%INCLUDE (DFHTCADS);

2 TWADEF CHAR (20);

%INCLUDE (DFHTCTTE);

%INCLUDE (DFHTIOA);

2 TRNCD CHAR (4)

2 MSSG CHAR (20);

•
•
•

DCL MESSAGE BASED(TIOABAR);

2 TIOA_PREFIX CHAR 12

2 YOUR_MSG CHAR 20;

•
•
•

YOUR_MSG='YOUR 20 CHAR MSG';

TIOATDL=20;

DFHTC TYPE=(WRITE,WAIT)

•
•
•

*OPTIONAL

DFHTC TYPE=READ *[WAIT] [SAVE]*

you must:

INSURE THAT AFTER ISSUING MACRO

ADDRESS OF NEW TIOA IS PLACED IN TIOABAR

(LENGTH MAY BE OBTAINED FROM TIOATDL)

TCTTEAR	EQU	9
TIOABAR	EQU	10
	COPY	DFHCSADS
	COPY	DFHTCADS
TWADEF	DS	CL20
	COPY	DFHTCTTE
	COPY	DFHTIOA
TRNCD	DS	CL4
MSSG	DS	CL20
	CSECT	
	BALR	2,0
	USING	*,2
	L	TCTTEAR,TCAFCAAA
	L	TIOABAR,TCTTEDA
		•
		•
		•
	DFHTC	TYPE=READ
	L	TIOABAR,TCTTEDA
		•
		•
		•

IDENTIFICATION DIVISION.

ENVIRONMENT DIVISION.

DATA DIVISION.

LINKAGE SECTION.

01 DFHBLDLS COPY DFHBLDLS.

02 TCTTEAR PIC S9(8) COMP.

02 TIOABAR PIC S9(8) COMP.

01 DFHCSADS COPY DFHCSADS.

01 DFHTCADS COPY DFHTCADS.

02 TWADEF PIC X(20).

01 DFHTCTTE COPY DFHTCTTE.

01 DFHTIOA COPY DFHTIOA.

02 TRNCD PIC X(4).

02 MSSG PIC X(20).

PROCEDURE DIVISION.

MOVE CSACDTA TO TCACBAR.

MOVE TCAFCAAA TO TCTTEAR.

MOVE TCTTEDA TO TIOABAR.

•
•
•

01 DFHTC TYPE=(READ, *W1/T1*)

MOVE TCTTEDA TO TIOABAR.

•
•
•

01
01
01
01

CICSPG: PROC OPTIONS (MAIN,REENTRANT);

%INCLUDE (DFHCSADS);

%INCLUDE (DFHTCADS).

2 TWADEF CHAR (20);

%INCLUDE (DFHTCTTE);

%INCLUDE (DFHTIOA);

2 TRNCD CHAR (4);

2 MSSG CHAR (20);

•
•
•

DFHTC TYPE=READ

TIOABAR=TCTTEDA;

DFHTC TYPE=READ (DFHTC TYPE=READ)

DFHTC TYPE=READ (DFHTC TYPE=READ)

DFHTC TYPE=READ (DFHTC TYPE=READ)

DFHTC TYPE=READ (DFHTC TYPE=READ)

DFHTC TYPE=READ (DFHTC TYPE=READ)

DFHTC TYPE=WAIT

DFHTC TYPE=READ

•
•
•

DFHTC TYPE=(READ,WAIT)

DFHTC TYPE=WAIT

OR

DFHTC TYPE=WRITE

•
•
•

DFHTC TYPE=(WRITE,WAIT)

DFHTC TYPE=WAIT

ASSEMBLER AND PL/I ONLY

SAVE OPERAND

WRITE

WRITE,SAVE

WRITE,READ

WRITE,READ,SAVE

READ

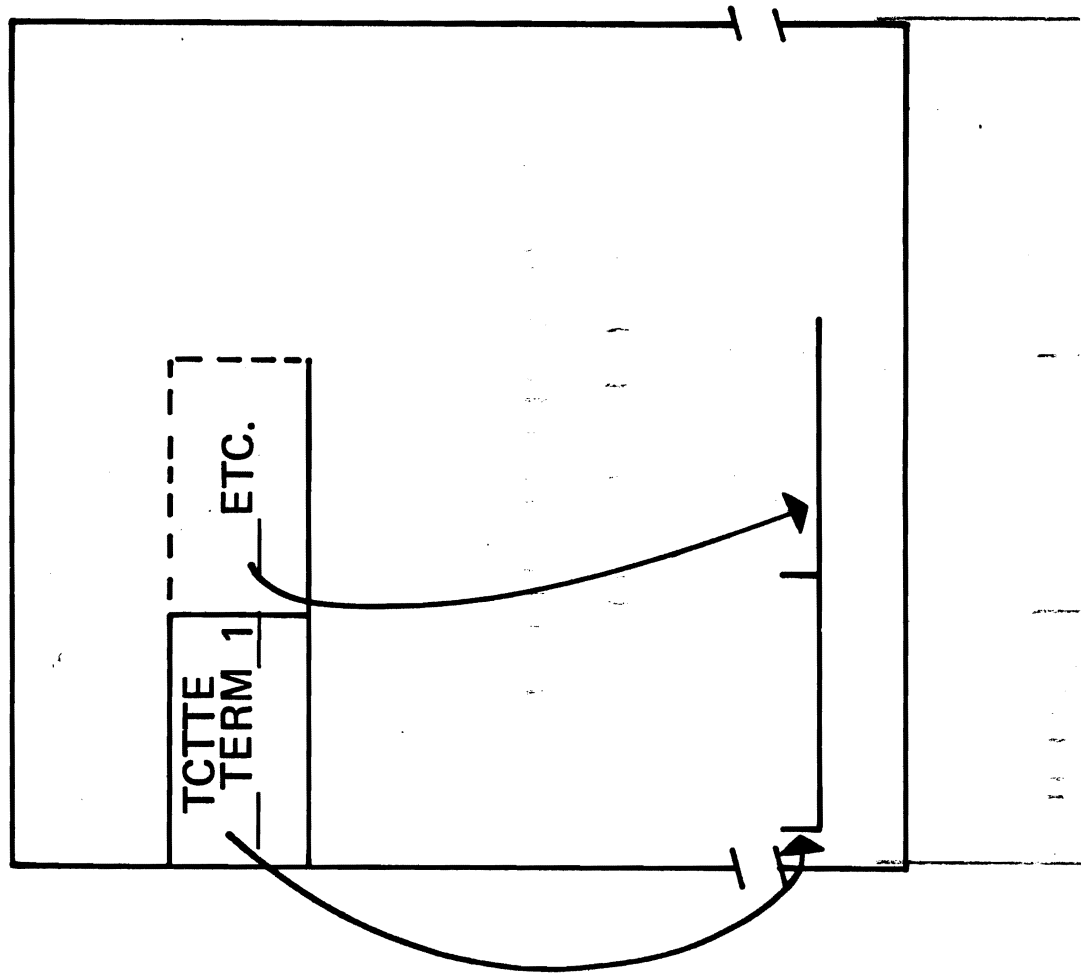
READ,SAVE

WRITE

WRITE

TCTTE USER AREA
(TCTTECIA)

T C T



ASSEMBLER

TCTTEAR EQU 9
TIOABAR EQU 10
COPY DFHTCADS
COPY DFHCSADS
COPY DFHTCTTE
COPY DFHTIOA
...
TCTXBAR EQU 11
USING *, TCTXBAR
TCTEXT DS

...
CSECT

...
L TCTTEAR, TCAFCAAA
L TCTXBAR, TCTTECIA

COBOL

LINKAGE SECTION.

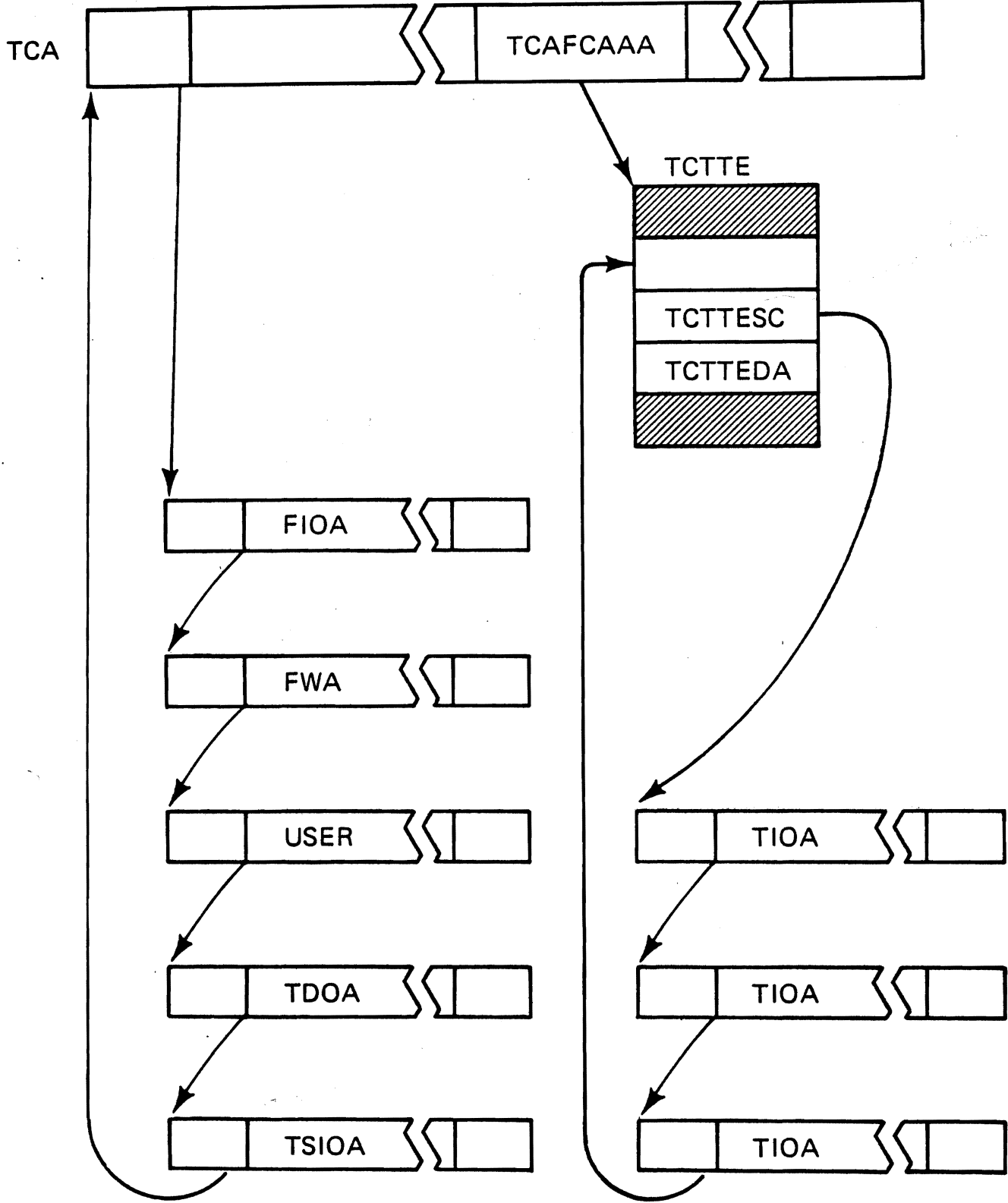
01 DFHBL LDS COPY DFHBL LDS.
 02 TCTTEAR PIC S9(8) COMP.
 02 TIOABAR PIC S9(8) COMP.
 02 TCTXBAR PIC S9(8) COMP.
01 DFHCSADS COPY DFHCSADS.
01 DFHTCADS COPY DFHTCADS.
 02 ...
01 DFHTCTTE COPY DFHTCTTE.
01 DFHTIOA COPY DFHTIOA.
 02 ...
01 TCT-EXT.
 02 ...

PROCEDURE DIVISION.

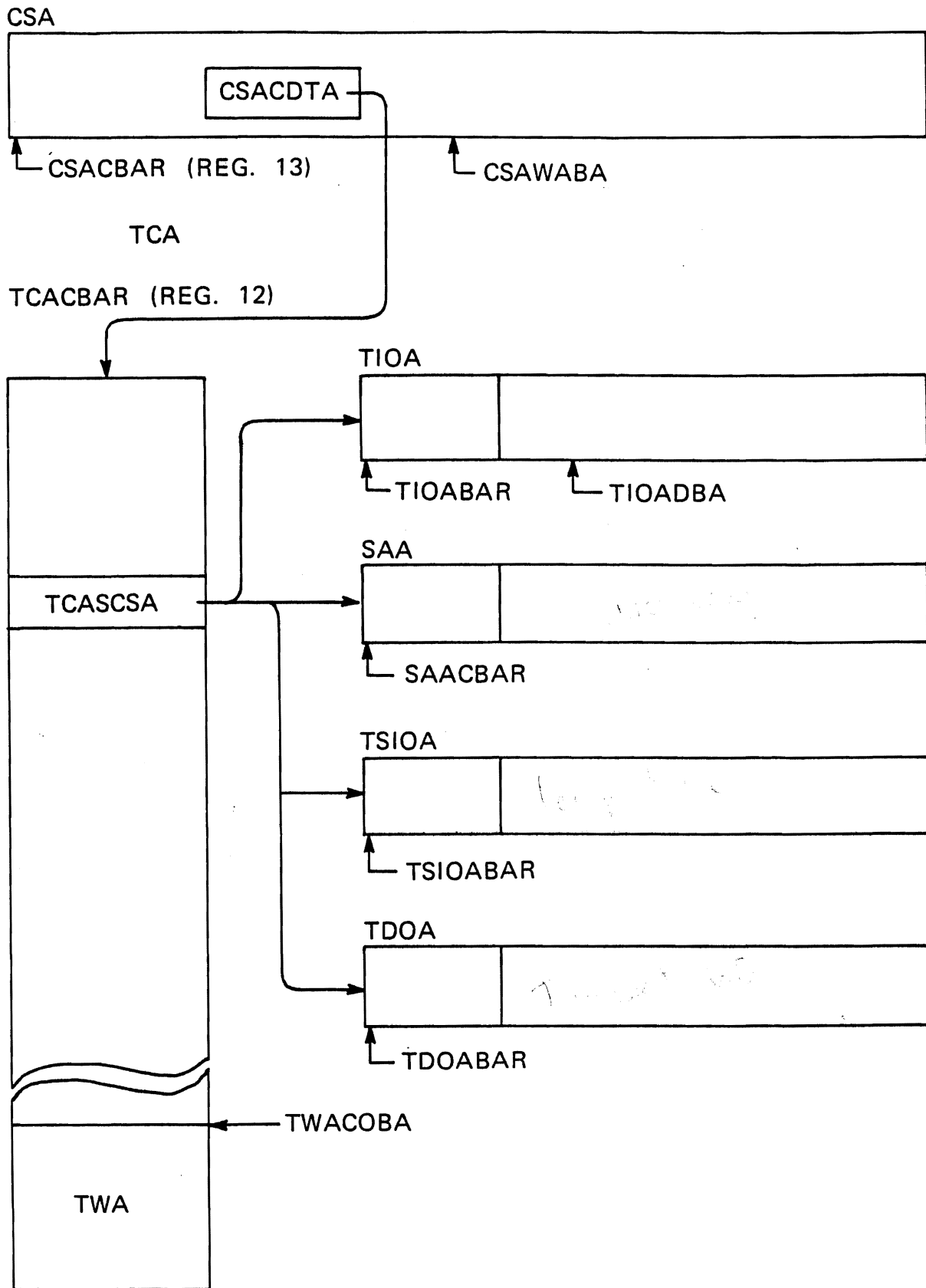
01 MOVE CSACDTA TO TCACBAR.
 MOVE TCAFCAAA TO TCTTEAR.
 MOVE TCTTECIA TO TCTXBAR.

PL/I

```
%INCLUDE (DFHCSADS) ;
%INCLUDE (DFHTCADS) ;
%INCLUDE (DFHTCTTE) ;
%INCLUDE (DFHTIOA) ;
      2 ... ;
DECLARE 1 TCTEXT BASED (TCTXBAR) ,
      2 ... ;
      TCTXBAR=TCTTECIA;
```



STORAGE CONTROL



COPY DFHTCADS , DFHCSADS , DFHTCTTE , DFHTIOA

EQUATE REGISTERS FOR TCTTEAR , TIOABAR

CSECT

BALR 2,0

USING *,2

L TCTTEAR,TCAFCAAA

DFHSC TYPE=GETMAIN, X

INITIMG=00, X

NUMBYTE=100, X

CLASS=TERMINAL

L TIOABAR,TCASCSA

ST TIOABAR,TCTTEDA

MVC TIOADBA(100), MSSG

MVC TIOATDL,=H'100'

DFHTC TYPE=(WRITE,WAIT)

Note

COPY DFHBL LDS

INCLUDE BASE LOCATORS FOR TCTTEAR , TIOABAR

COPY DFHCSADS , DFHTCADS

COPY DFHTCTTE , DFHTIOA IN BLL SEQUENCE

PROCEDURE DIVISION.

MOVE CSACDTA TO TCACBAR.

MOVE TCAFCAAA TO TCTTEAR.

DFHSC TYPE=GETMAIN,

X

INITIMG=00,

X

NUMBYTE=100,

X

CLASS=TERMINAL

MOVE TCASCSA TO TIOABAR.

MOVE TIOABAR TO TCTTEDA.

MOVE MSSG TO OUT-AREA.

MOVE 100 TO TIOATDL.

DFHTC TYPE=(WRITE,WAIT)

```
%INCLUDE DFHTCADS , DFHCSADS , DFHTCTTE, , DFHTIOA
```

```
DFHSC TYPE=GETMAIN, X  
INITIMG=00, X  
NUMBYTE=100, X  
CLASS=TERMINAL
```

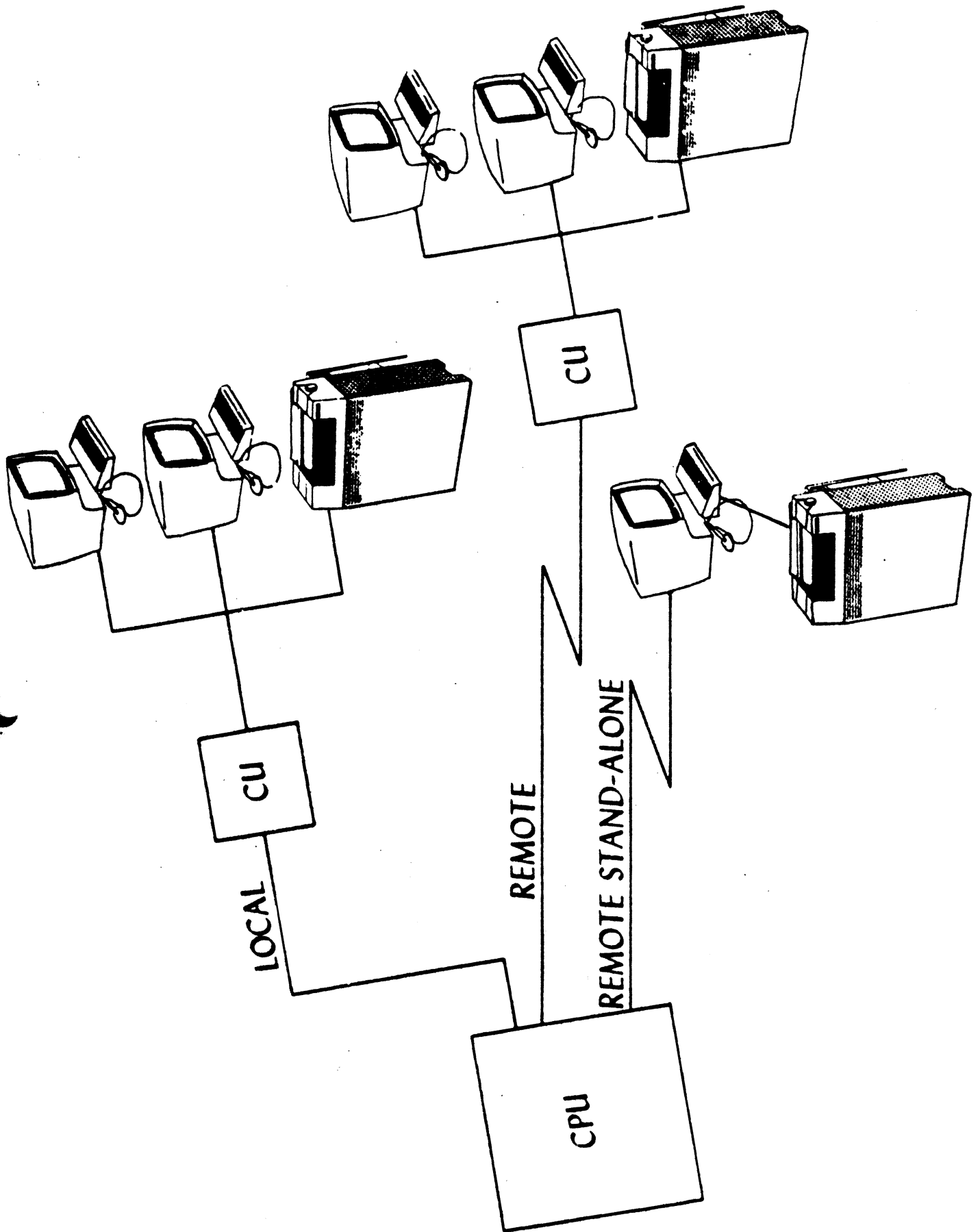
```
TIOABAR=TCASCSA;
```

```
TCTTEDA=TIOABAR;
```

```
TIOATDL=100;
```

```
MSGOUT=MSSG;
```

```
DFHTC TYPE=(WRITE,WAIT)
```



3270

KEYBOARD

CURSOR MOVEMENT KEYS

ERASE KEYS

ATTENTION KEYS

PROGRAMMABLE FEATURES

FIELD CONCEPT

PROTECTED _ UNPROTECTED

ALPHAMERIC _ NUMERIC

BRIGHT _ NORMAL _ NON DISPLAY

AUTOSKIP

SELECTOR LIGHT PEN

AUDIBLE ALARM

PRINTER FORMATTING

3270 OUTPUT DATA STREAM

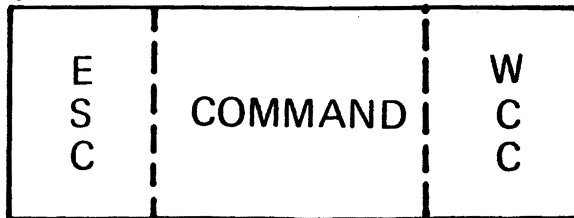
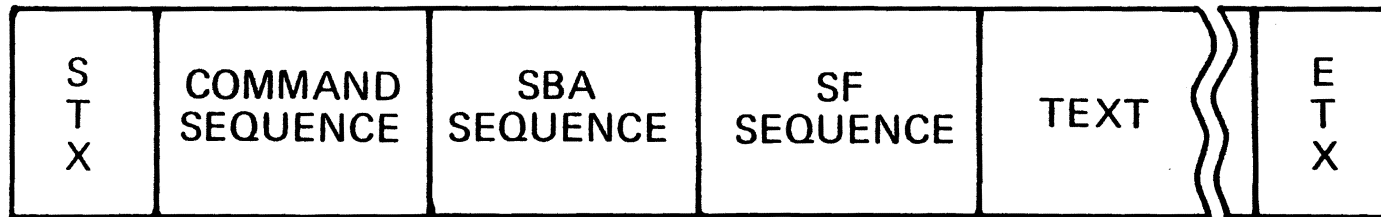
LOCAL

WCC	SBA SEQUENCE	SF SEQUENCE	TEXT
-----	-----------------	----------------	------

REMOTE

S T X	COMMAND SEQUENCE	SBA SEQUENCE	SF SEQUENCE	TEXT	E T X
-------------	---------------------	-----------------	----------------	------	-------------

REMOTE 3270 OUTPUT DATA STREAM
COMMAND SEQUENCE



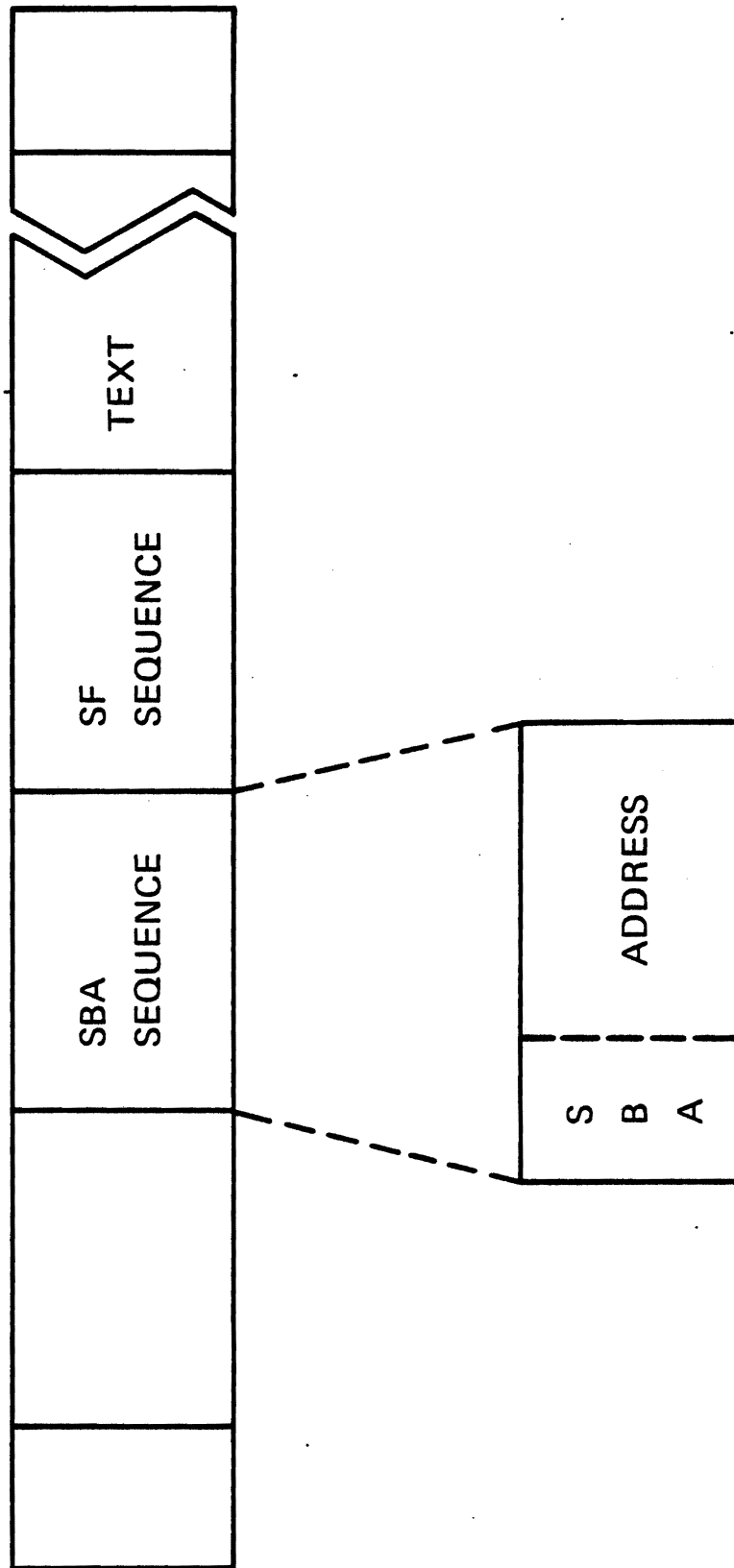
COMMANDS

ERASE/WRITE
WRITE
ERASE ALL UNPROTECTED
READ MODIFY

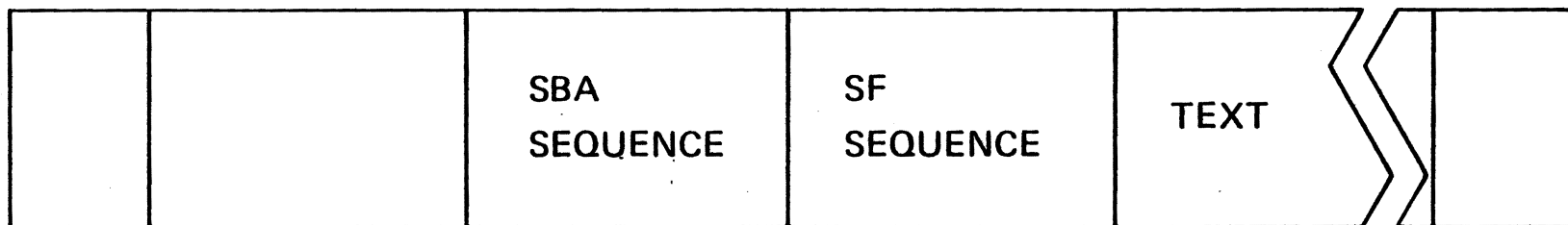
WCC

KEYBOARD RESTORE
RESET MODIFIED DATA TAG

REMOTE 3270 OUTPUT DATA STREAM
SBA SEQUENCE

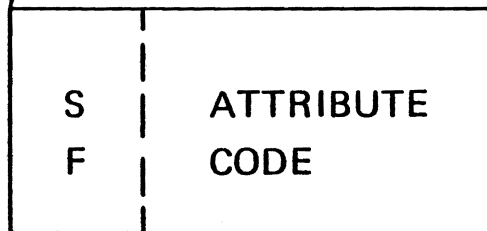


REMOTE 3270 OUTPUT DATA STREAM SF SEQUENCE



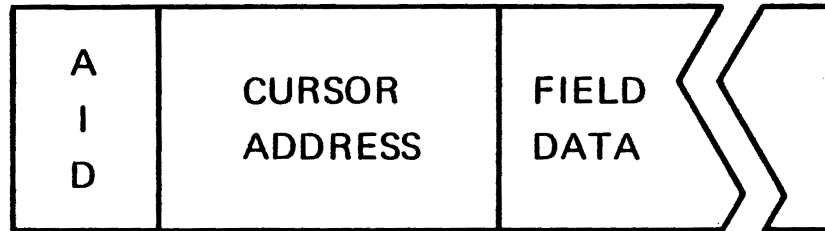
CHARACTERISTICS

- PROTECTED
- UNPROTECTED
- BRIGHTNESS
- NUMERIC
- SELECTOR PEN DETECT
- MODIFIED DATA

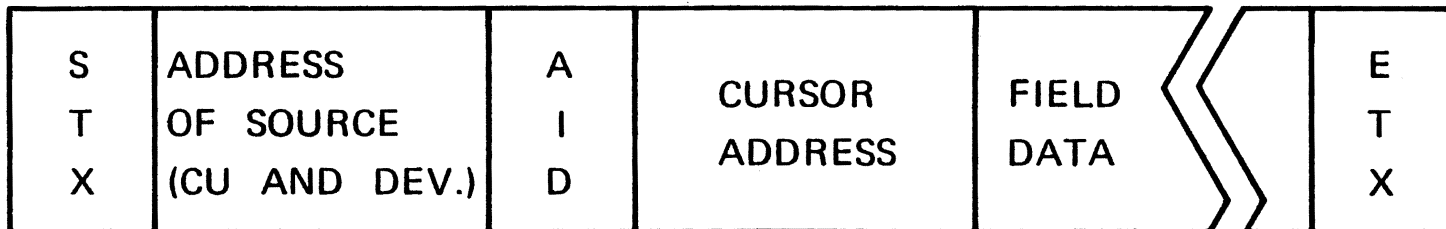


3270 INPUT DATA STREAM READ MODIFIED

LOCAL

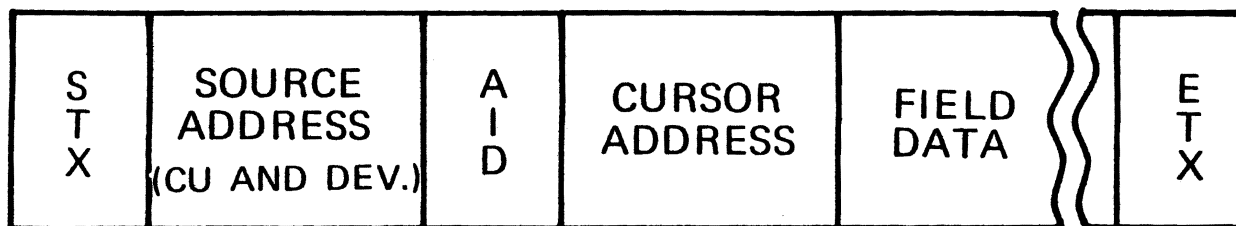


REMOTE



REMOTE 3270 INPUT DATA STREAM

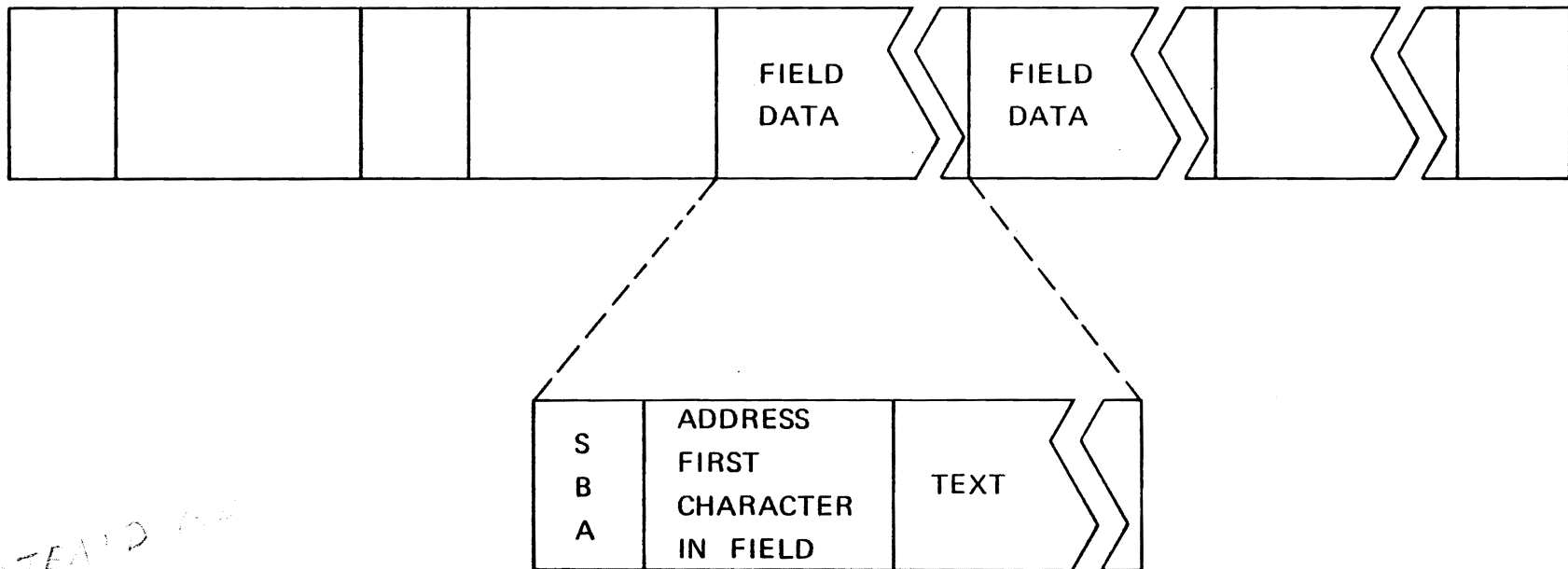
ATTENTION ID



AID SETTINGS

- ENTER
- CLEAR
- PA KEYS
- PF KEYS
- SELECTOR PEN DETECT
- CANCEL
- TEST REQUEST

REMOTE 3270 INPUT DATA STREAM
FIELD DATA



ICITENAD 100

FIELD FORMAT FOR SELECTOR PEN DETECTION

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39				
0																																												
40				□	?	Я	У	Я	Я	Я										□	?	N																						
80																																												
120																																												
160				□	Я	D	O	N	E	Я	Я	Я								□	Я	N	E	X	T	Я	S	C	R	E	E	N												
200																																												
240																																												
280																																												
320																																												
360																																												
400																																												
440																																												

S F	ATT CODE	DESIGNATOR	1 OR MORE DISPLAYED ALPHAMERIC	3 Я OR У (IF NOT LAST FIELD ON LINE)
--------	-------------	------------	--------------------------------------	--

? ~~Я~~ ~~У~~

WHAT IS BASIC MAPPING?

FACILITY OF CICS

COLLECTION OF MACROS

within **WITHIN APPLICATION PROGRAM**

external **EXTERNAL TO APPLICATION PROGRAM**

DESCRIBES TERMINAL DATA STREAM

OUTPUT *to terminal*

INPUT *from terminal*

ALLOWS UTILIZATION OF TERMINAL FEATURES

WHY USE BASIC MAPPING?

NO TERMINAL DATA STREAM CODING REQUIRED

PROVIDES ACCESS TO DATA FIELDS USING
SYMBOLIC FIELDNAMES

ASSEMBLED MAPS CONTAIN THE TERMINAL DEVICE
DEPENDENT CODE

MAPS NOT REQUIRED TO BE PART OF PROGRAM

ALLOWS REPOSITIONING FIELDS WITHOUT MODIFYING
APPLICATION PROGRAM

MULTIPLE LANGUAGE SUPPORT

DEVICE INDEPENDENCE

**PERMITS THE APPLICATION PROGRAM TO BE WRITTEN
WITHOUT REGARD TO THE PHYSICAL CHARACTERISTICS
OF THE USER TERMINAL**

FORMAT INDEPENDENCE

PERMITS THE APPLICATION PROGRAM TO BE WRITTEN
WITHOUT REGARD TO THE PHYSICAL PLACEMENT OF
FIELDS ON THE TERMINAL

DEVICE INDEPENDENCE

WHY IS DEVICE INDEPENDENCE IMPORTANT?

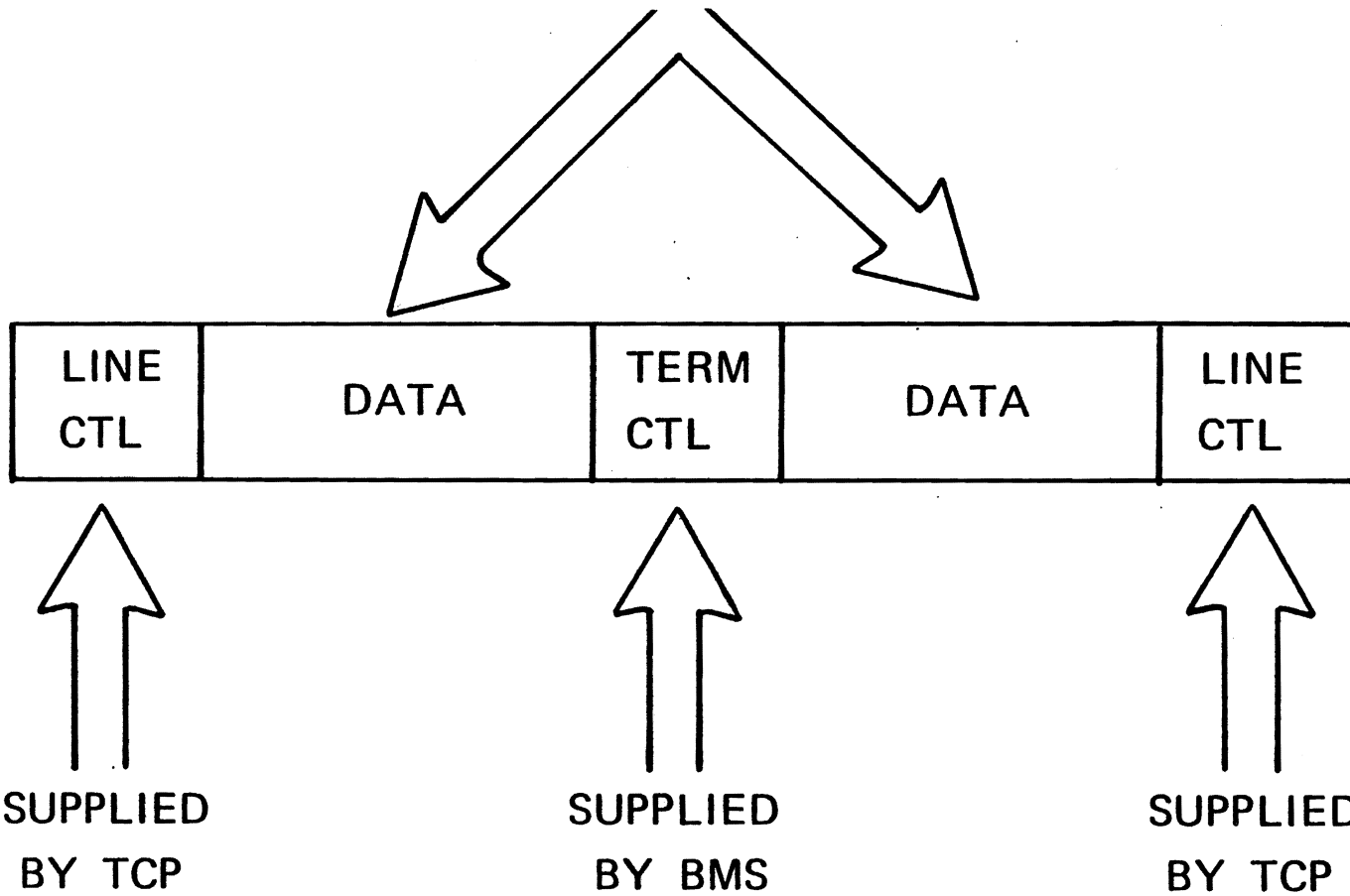
MULTIPLE TERMINAL TYPES

TERMINAL CONVERSION

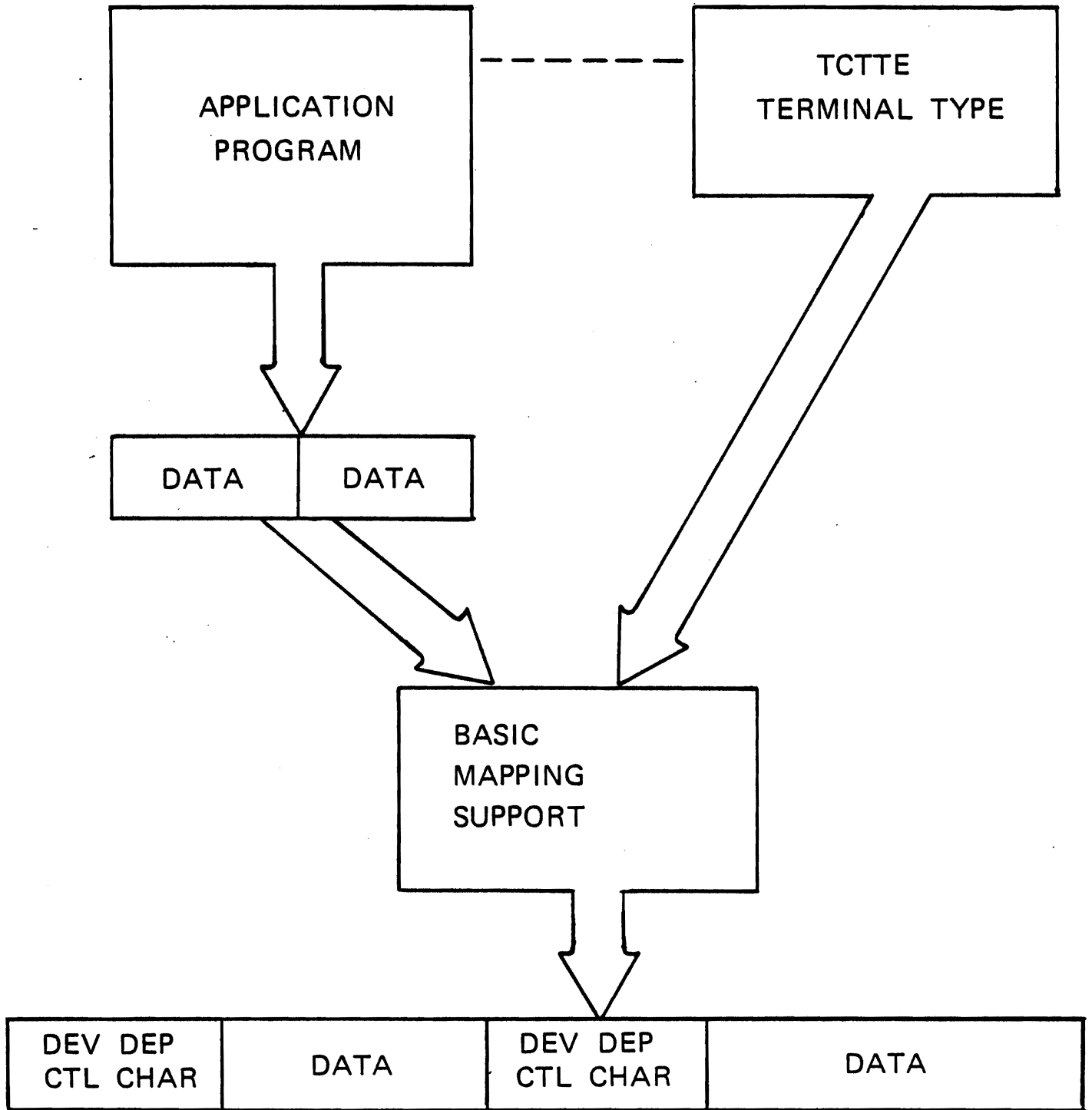
MAPPING

DEVICE INDEPENDENCE

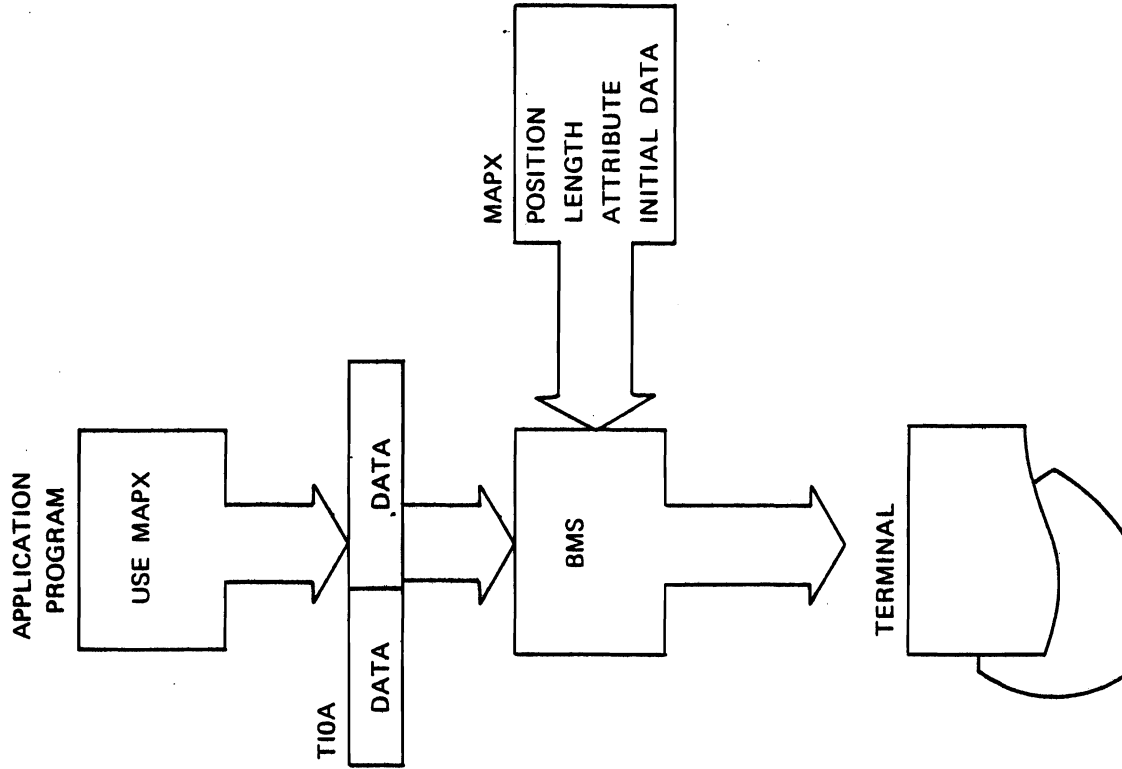
SUPPLIED BY
APPLICATION
PROGRAM



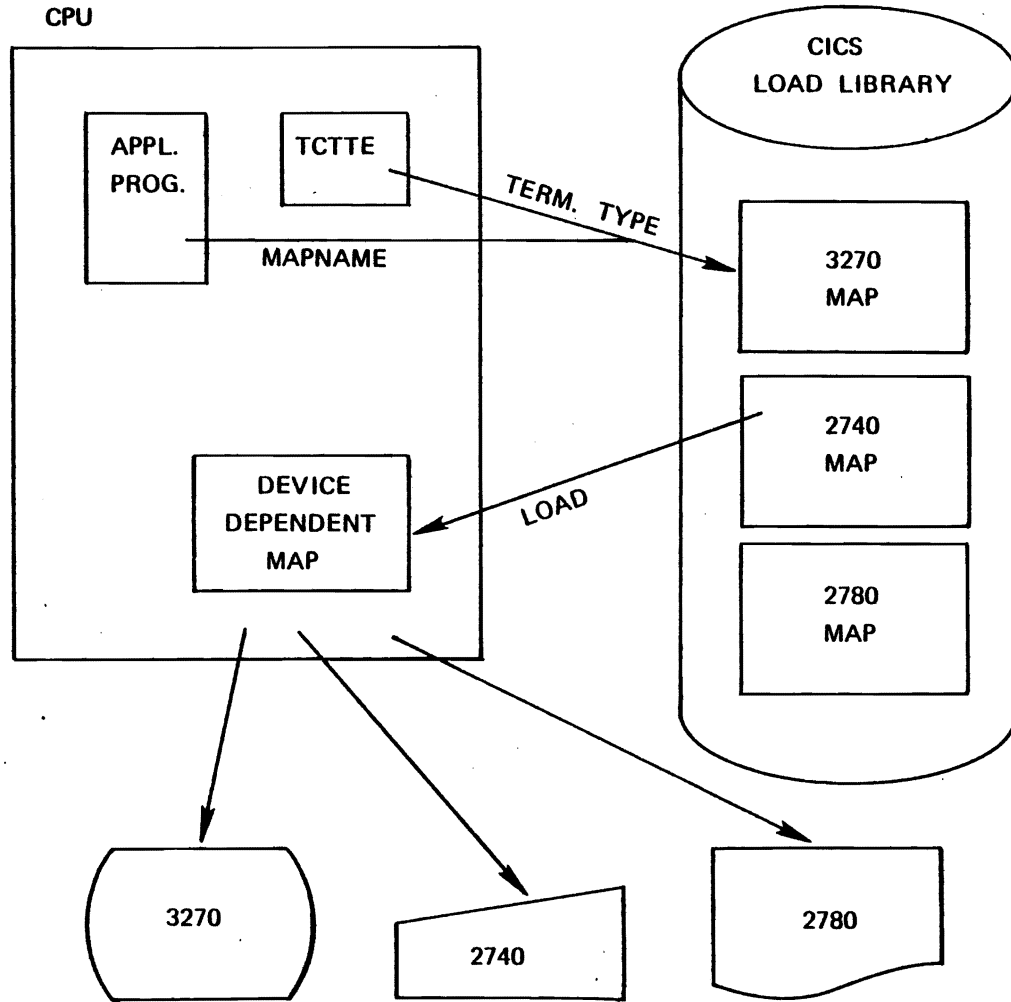
DEVICE INDEPENDENCE



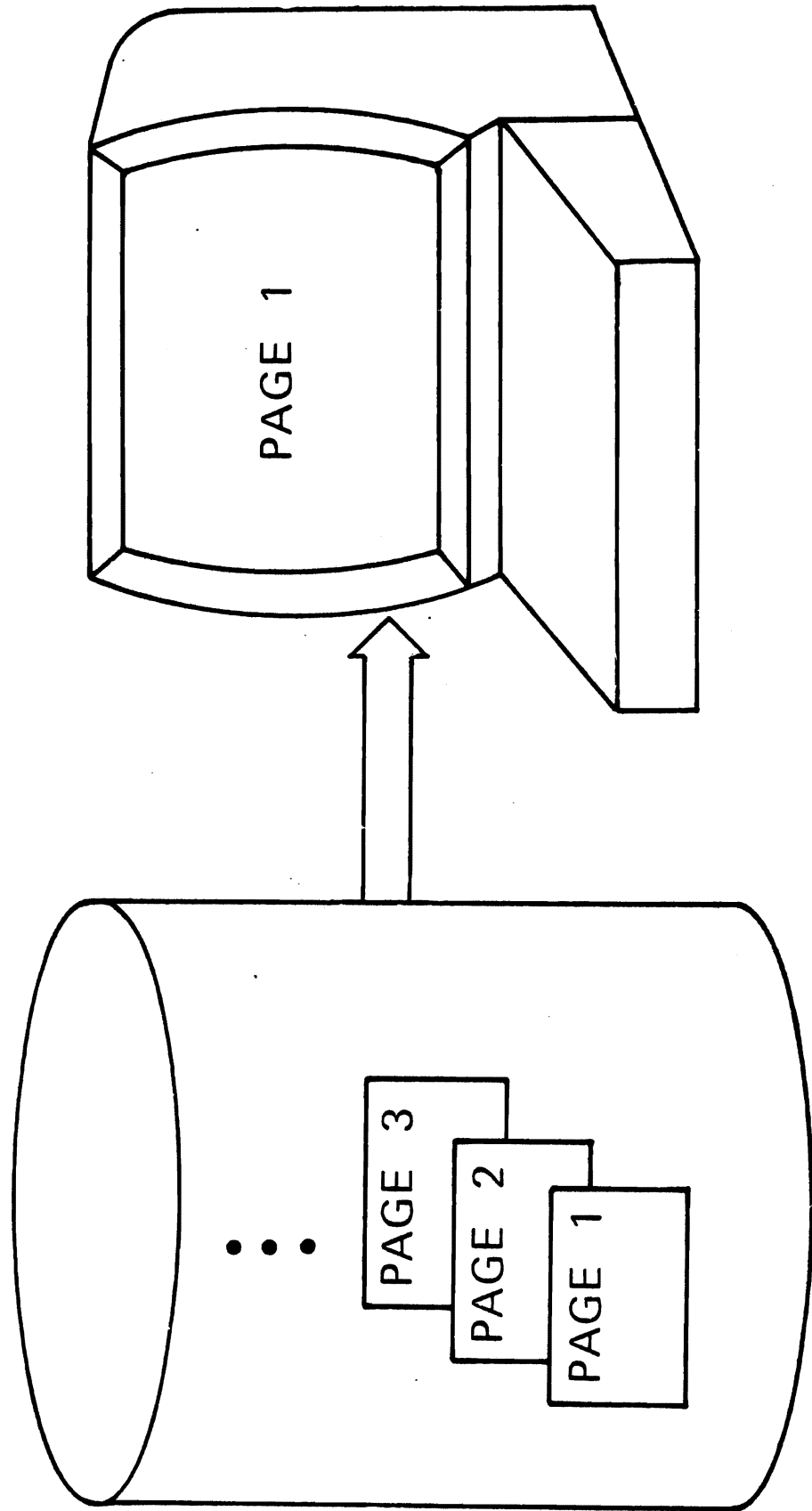
DEVICE INDEPENDENCE



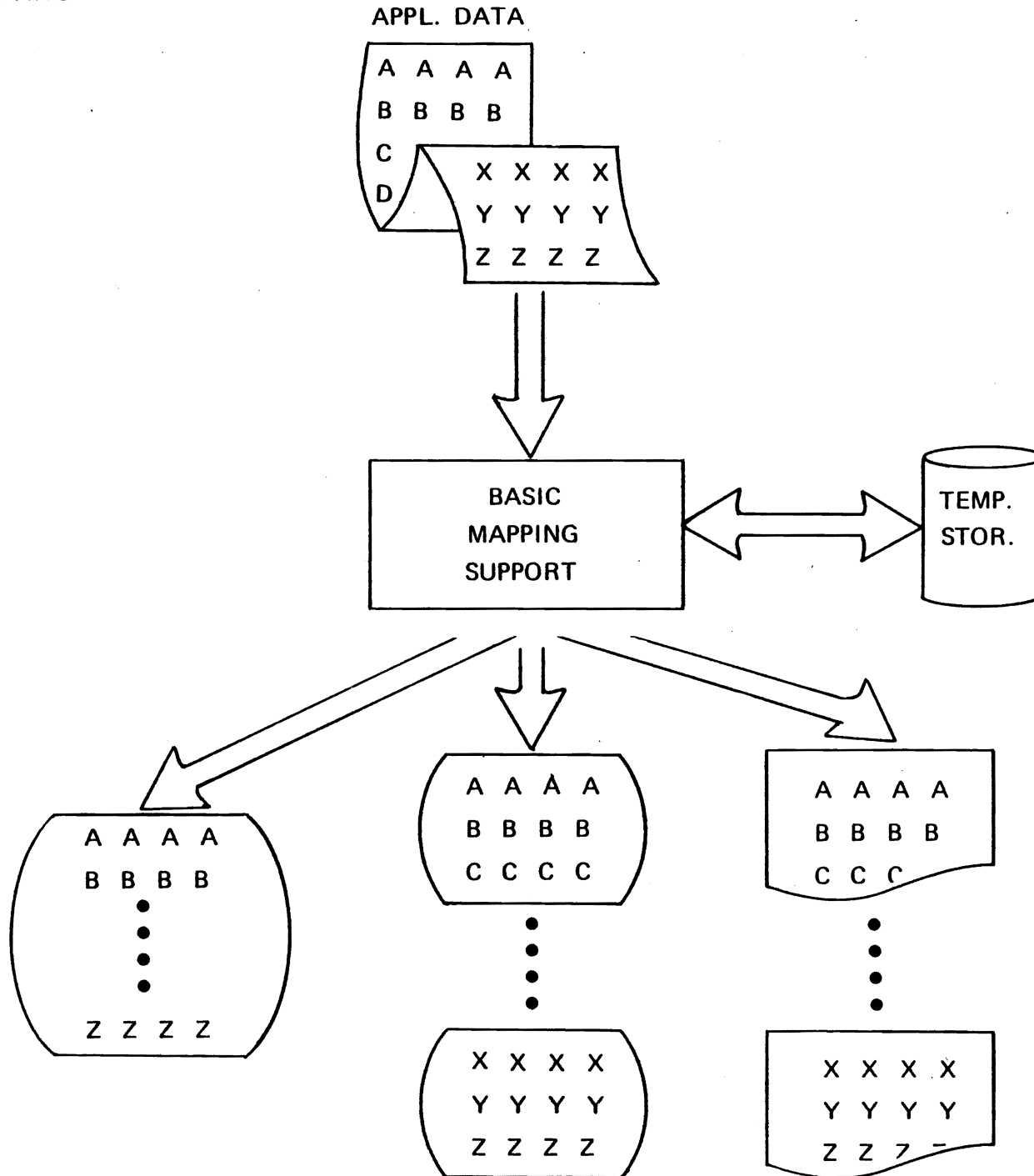
DEVICE INDEPENDENCE



PAGING



ROUTING



FORMAT INDEPENDENCE

WHY IS FORMAT INDEPENDENCE IMPORTANT?

REDUCES PROGRAM MAINTENANCE

FIELDS	}	REARRANGE
		ADD
		REMOVE
SCREEN	}	HEADINGS
		KEYWORDS
		FORMATS

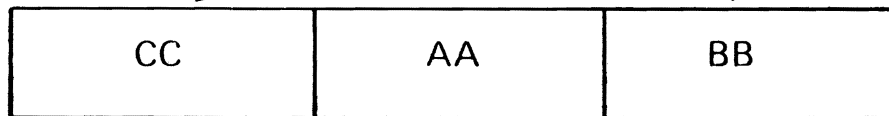
FORMAT INDEPENDENCE

APPL. PROG.

```
MOVE 'AA' TO FLD1.  
MOVE 'BB' TO FLD2.  
MOVE 'CC' TO FLD3.
```

SYMBOLIC
FIELDNAMES

TIOA

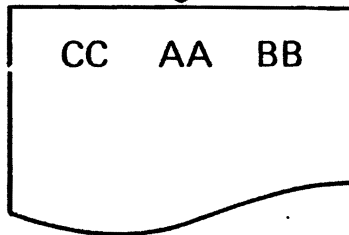


FLD3

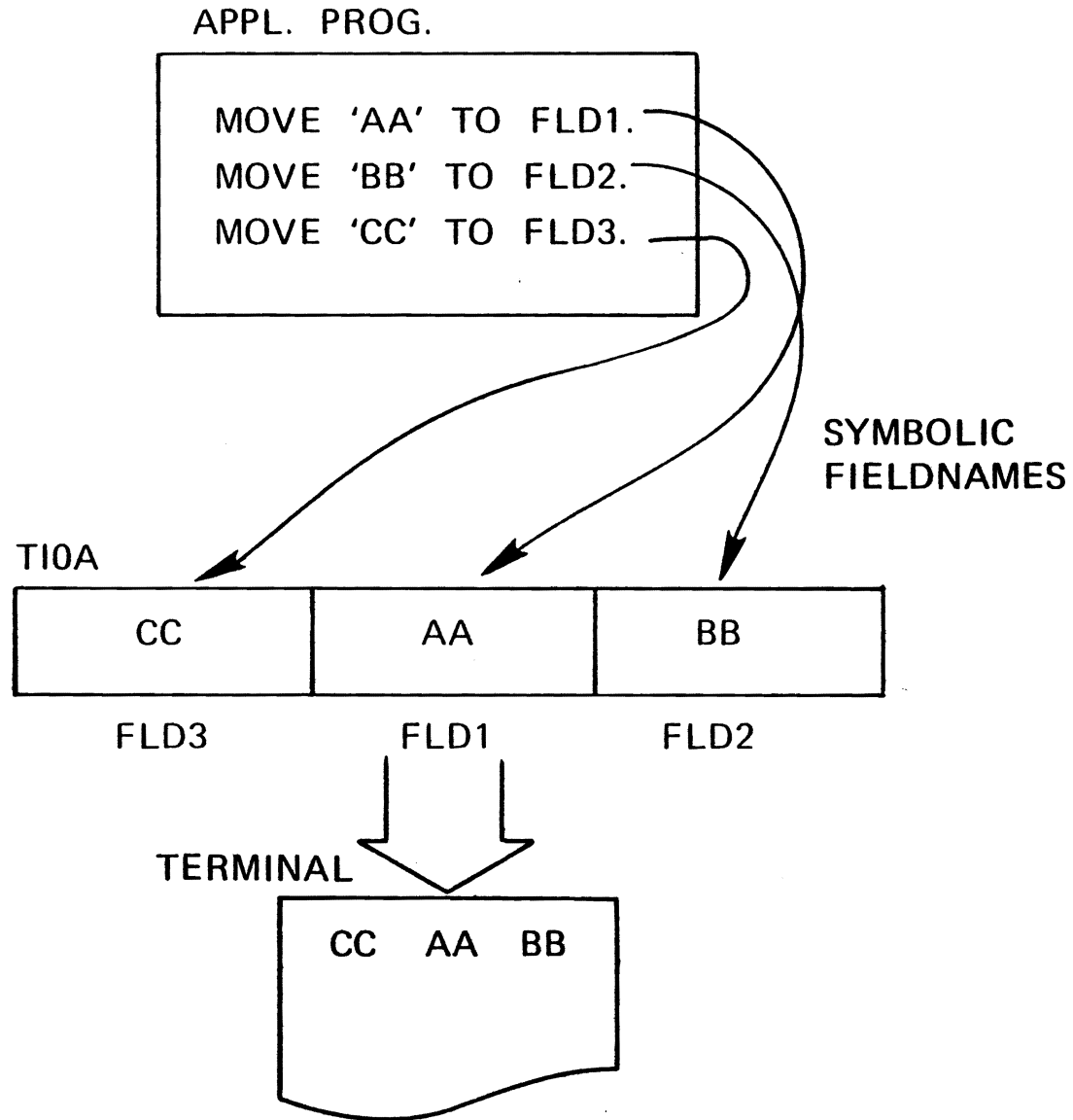
FLD1

FLD2

TERMINAL

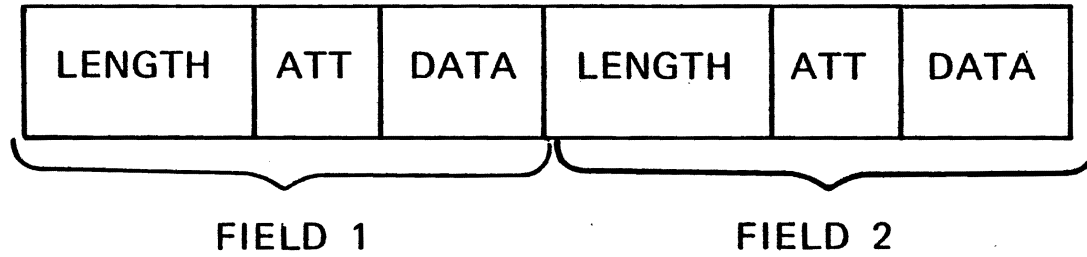


FORMAT INDEPENDENCE

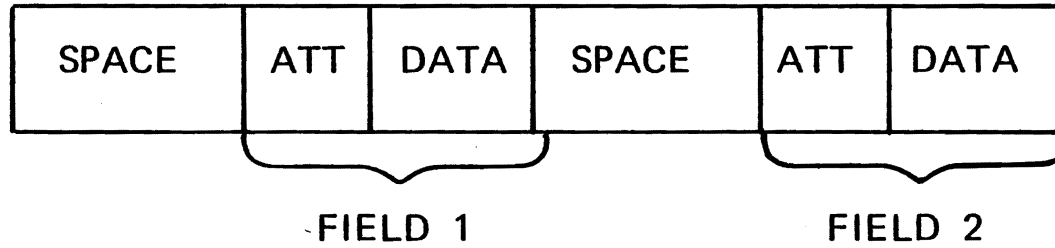


FORMAT INDEPENDENCE

FIELD FORMAT



BLOCK FORMAT



TEXT FORMAT



USING MAPPING

MAPS ASSEMBLED OFF-LINE

CSECTS (PHYSICAL MAPS) PROGRAM LIBRARY

DSECTS – SOURCE STATEMENT LIBRARY

MAP DEFINITIONS MAY BE OVERRIDDEN AT EXECUTE TIME

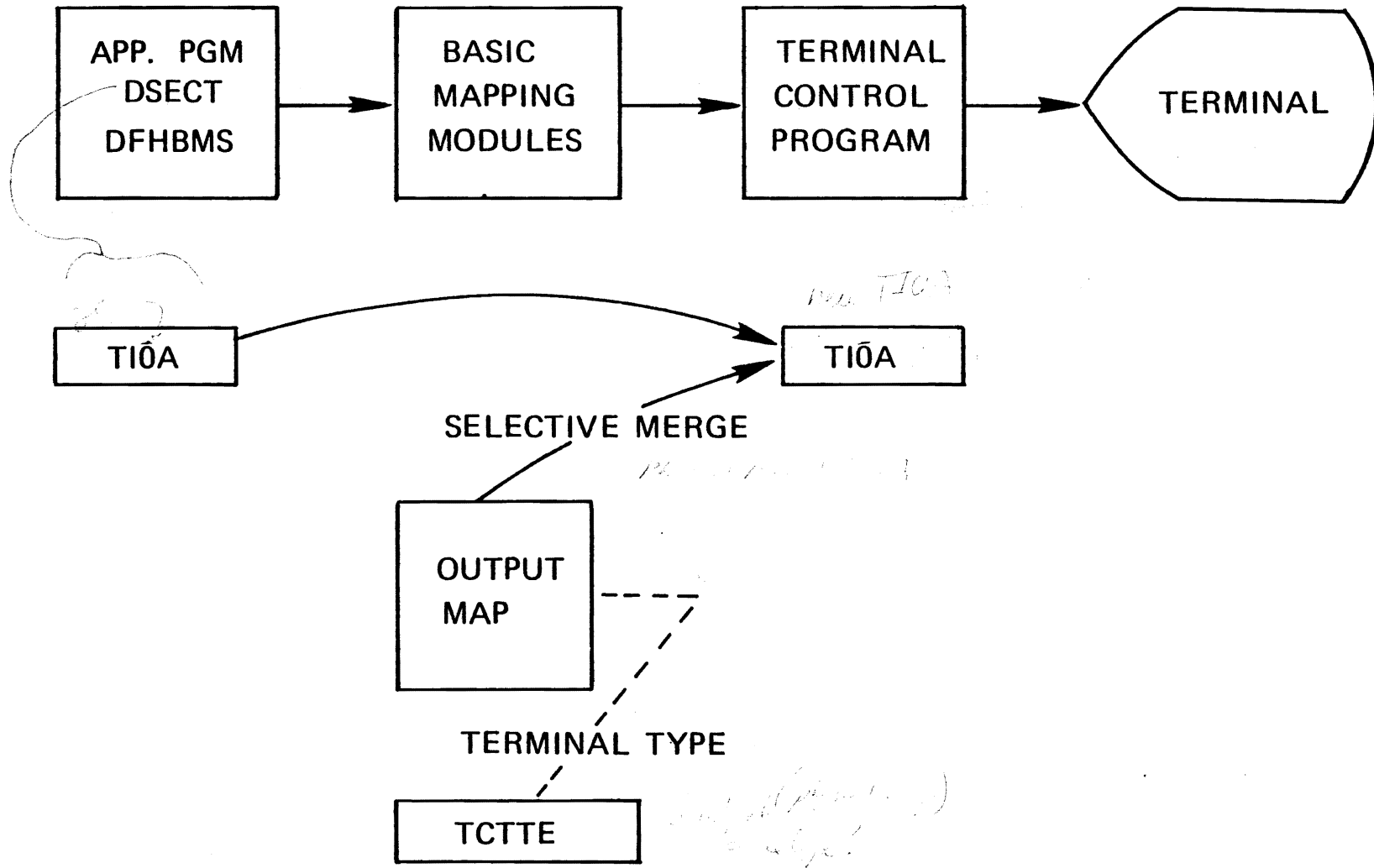
MULTIPLE LANGUAGE SUPPORT

INVOKED BY USING DFHBMS MACROS

MAY INTERMIX DFHBMS MACROS AND TERMINAL CONTROL MACROS

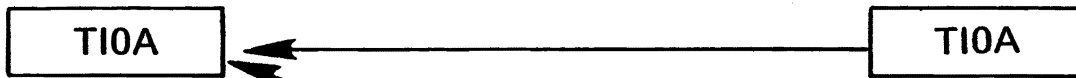
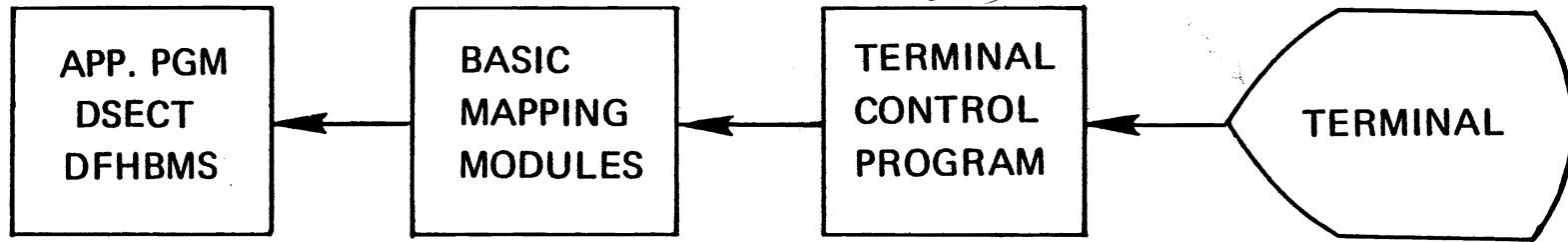
BASIC MAPPING

GENERAL FLOW OUTPUT

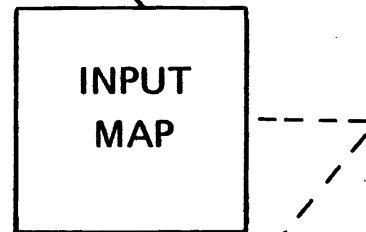


BASIC MAPPING

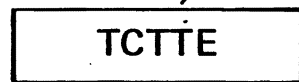
GENERAL FLOW INPUT



SELECTIVE MOVE



TERMINAL TYPE



BASIC MAPPING

HOW TO USE BASIC MAPPING

DEFINE NEEDS OF OPERATOR

HEADINGS

DATA

DISPLAYABLE

HIGH LIGHTED

PEN DETECTABLE

CURSOR POSITION

DEFINE NEEDS OF APPLICATION PROGRAM

NO HEADINGS

TYPE OF ACTION

DATA PERTINENT TO ACTION

CREATE OUTPUT MAPS TO SUPPLY OPERATOR NEEDS

CREATE INPUT MAPS TO SUPPLY APPLICATION PROGRAM
NEEDS

CREATE DSECTS TO MATCH MAPS (INPUT AND OUTPUT)

MAPPING

MACROS AVAILABLE

MAPSET DEFINITION

sd name DFHMSD TYPE=MAP

PHYSICAL MAP DEFINITION

DFHMDI (SCREEN POSITION OF MAP)

DFHMDF (SPECIFIC FIELD INFORMATION
ONE PER FIELD)

DFHMSD TYPE=FINAL

SYMBOLIC STORAGE DEFINITION

DFHMSD TYPE=DSECT

DFHMDI (SCREEN POSITION OF MAP)

DFHMDF (SPECIFIC FIELD INFORMATION
ONE PER FIELD)

DFHMSD TYPE=FINAL

APPLICATION PROGRAM

DFHBMS TYPE=IN,MAP,OUT,TEXTBLD,PAGEBLD,
PAGEOUT,ROUTE

**TERMINAL
TYPE**

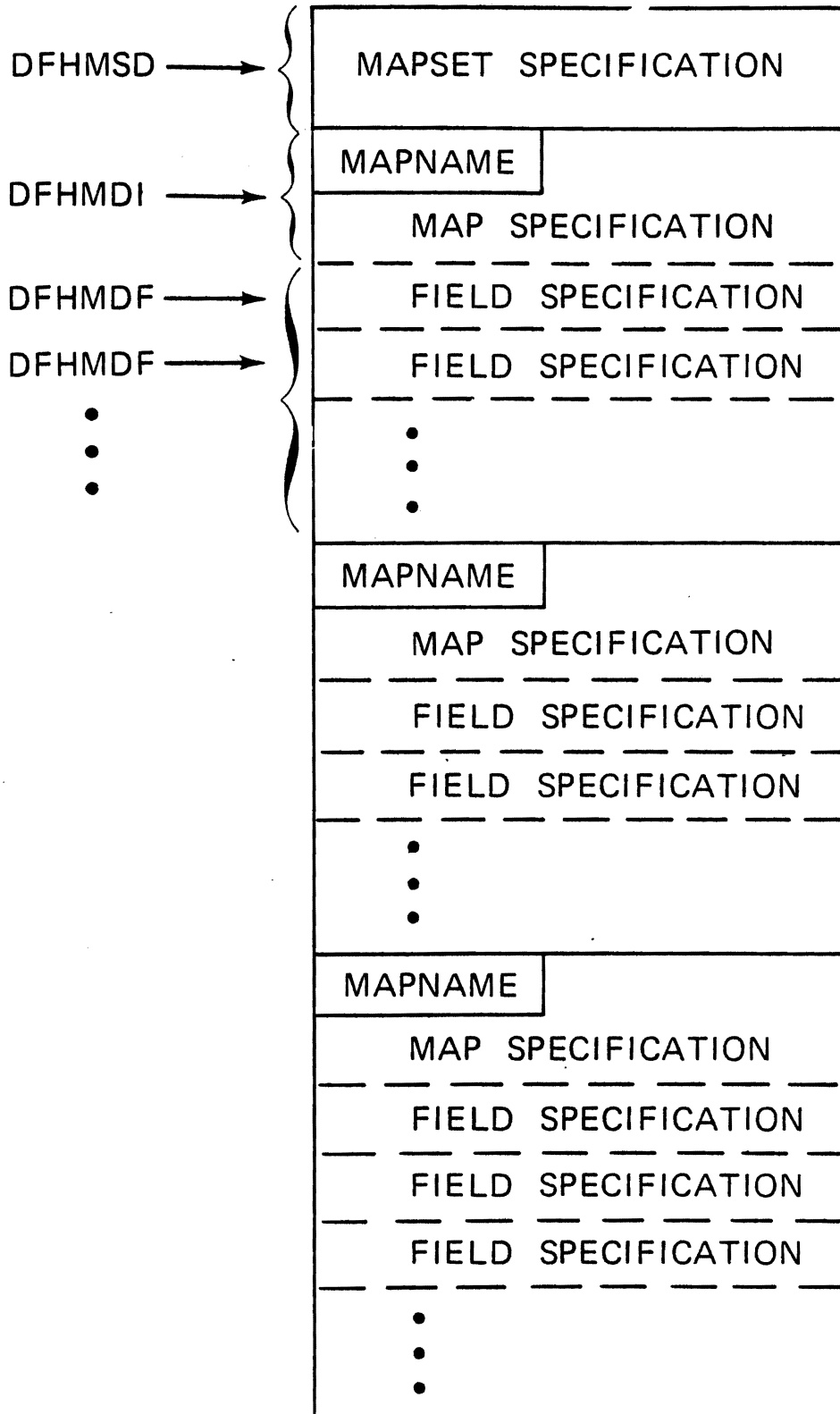
**MAP SET
SUFFIX**

CRLP	A
TAPE	B
DISK	C
TWX	D
1050	E
2740	F
2741	G
2770	I
2780	J
3780	K
3270-1	L
3270-2	M
2980 (EXCEPT MODEL 4)	Q
2980-4	R
3600	U
3653	V
3650U	W
3650/3270	X
<u>3270</u> _	BLANK
ALL (OF THE ABOVE	BLANK

MAPPING

MAPSET

MAPSETNAME (PPT)



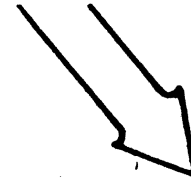
MAPPING

JUSTIFICATION

NUMERIC DATA —

INPUT

12345



DSECT

0000012345

ALPHAMERIC DATA —

INPUT

JONES



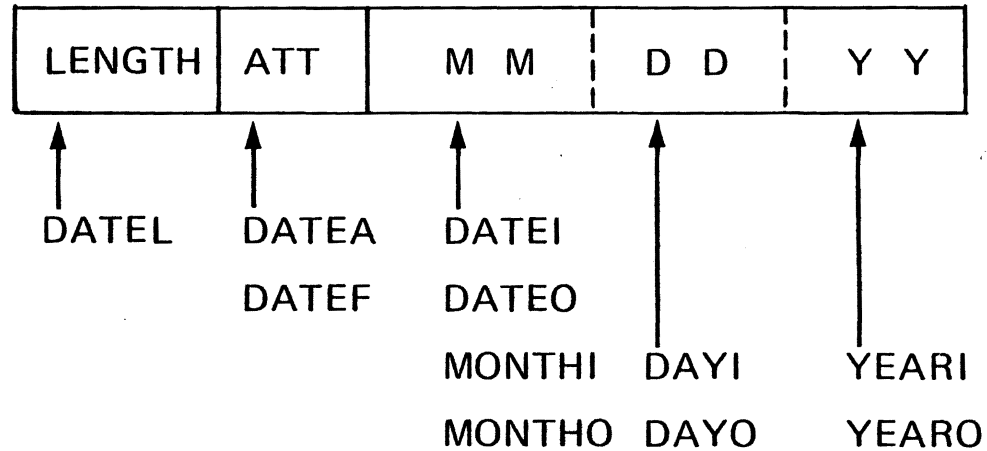
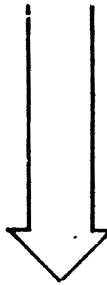
DSECT

JONESBBBBB

B=BLANK

GROUP NAME

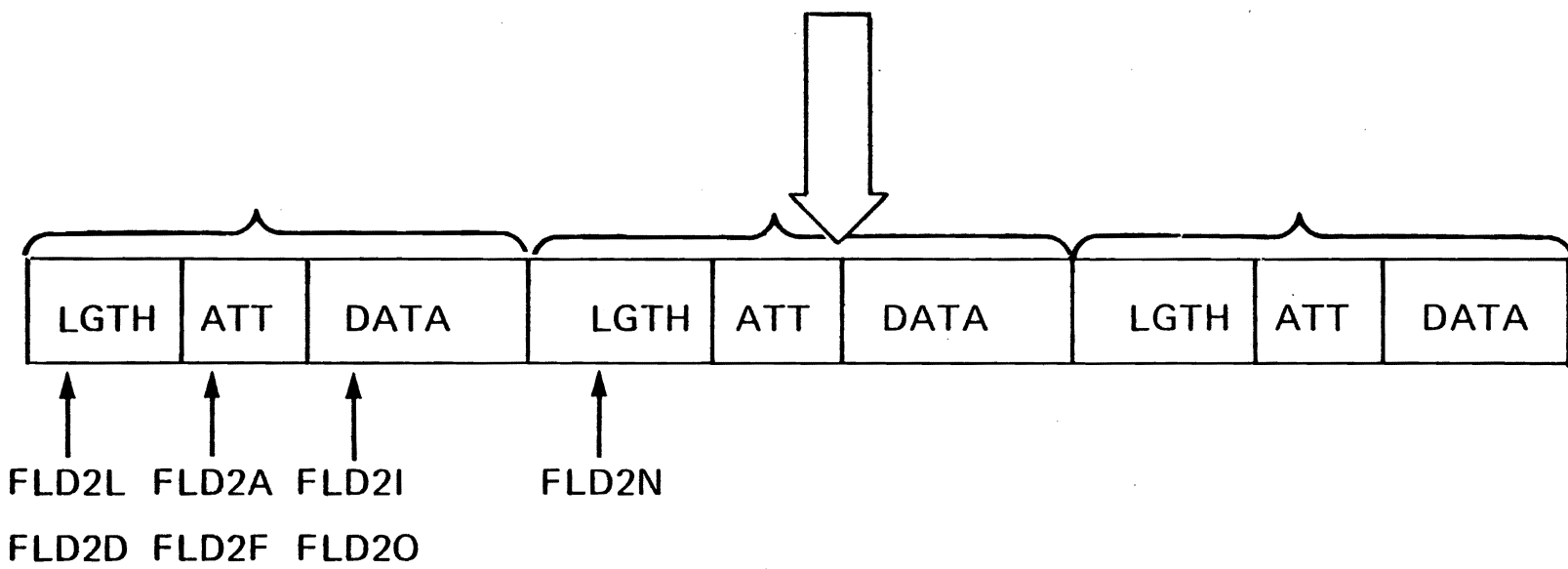
MONTH	DFHMDF	POS=1,LENGTH=2,GRPNAME=DATE,ATTRB=NUM
DAY	DFHMDF	POS=4,LENGTH=2,GRPNAME=DATE
YEAR	DFHMDF	POS=6,LENGTH=2,GRPNAME=DATE



THE ATTRB PARAMETER IS PERMITTED ON THE FIRST FIELD OF GROUP ONLY

OCCURS

FLD2 DFHMDF . . . LENGTH=4, OCCURS=3



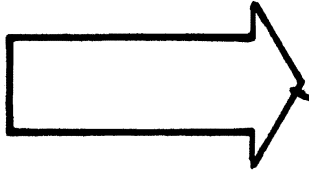
OCCURS AND GRPNAME ARE MUTUALLY EXCLUSIVE

FIELDX DFHMDF

LENGTH=6, PICIN='9999V99',PICOUT='ZZZ.99'

GENERATES

DSECT



02 FIELDXI PIC 9999V99.

02 FIELDXO PIC ZZZ.99

APPLICATION 3041 - MASTER

NAME: _____

DEPARTMENT: _____

NAME: NAMEI (INPUT) NAMEO (OUTPUT)

DEPARTMENT: DEPTI (INPUT) DEPTO (OUTPUT)

MAPSETA	DFHMSD	TYPE=MAP,MODE=INOUT,LANG=	
MAPA	DFHMDI	LINE=1,COLUMN=1,SIZE=(10,40)	
	DFHMDF	POS=(1,1),LENGTH=30,ATTRB=(ASKIP,PROT),	X
		INITIAL='APPLICATION 3041 -MASTER'	
	DFHMDF	POS=(2,1),LENGTH=8,ATTRB=(ASKIP,PROT),	X
		INITIAL='NAME:'	
NAME	DFHMDF	POS=(2,10),LENGTH=20,ATTRB=(IC),	X
		JUSTIFY=(LEFT,BLANK)	
	DFHMDF	POS=(3,1),LENGTH=12,ATTRB=(ASKIP,PROT),	X
		INITIAL='DEPARTMENT:'	
DEPT	DFHMDF	POS=(3,14),LENGTH=(12)	

MAPB	DFHMDI	(DEFINE NEXT MAP IN MAPSET)	

		(TERMINATE MAPSET)	
	DFHMSD	TYPE=FINAL	

APPLICATION 3041 - MASTER

NAME: _____

DEPARTMENT: _____

NAME: NAMEI (INPUT) NAMEO (OUTPUT)

DEPARTMENT: DEPTI (INPUT) DEPTO (OUTPUT)

MAPSETA — TYPE=DSECT,LANG=ASM

MAPAI	DS	OC	
MAPAO	DS	OC	
NAMEL	DS	H	'LENGTH'
NAMEF	DS	OC	'FLAG'
NAMEA	DS	C	'ATTRIBUTE'
NAMEI	DS	OCL20	'NAME — INPUT'
NAMEO	DS	CL20	'NAME — OUTPUT'
DEPTL	DS	H	
DEPTF	DS	OC	
DEPTA	DS	C	
DEPTI	DS	OCL12	
DEPTO	DS	CL12	

MAPAE	EQU	*	
	ORG	MAPAI	
MAPBI	DS	OC	

MAPSETA — TYPE=DSECT,LANG=COBOL

```
01  MAPAI
    02  NAMEL PIC S9(4) COMP.          'LENGTH'
    02  NAMEF PIC X.                  'FLAG'
    02  FILLER REDEFINES NAMEF.
        03  NAMEA PIC X.              'ATTRIBUTE'
    02  NAMEI PIC X(20).              'NAME — INPUT'
    02  FILLER PIC X.                 HWORD ALIGNMENT
    02  DEPTL PIC S9(4) COMP.
    02  DEPTF PIC X.
    02  FILLER REDEFINES DEPTF.
        03  DEPTA PIC X.
    02  DEPTI PIC X(12).
    ----

01  MAPAO REDEFINES MAPAI.
    02  FILLER X(3).
    02  NAMEO PIC X(20).              'NAME — OUTPUT'
    02  FILLER PIC X.                 ALIGNMENT
    02  FILLER X(3).
    02  DEPTO PIC X(12)
    ----

01  MAPBI REDEFINES MAPAI.
```

MAPSETA — TYPE=DSECT,LANG=COBOL,BASE=DFHTIOA,
TIOAPFX=YES

*

01 MAPAI REDEFINES DFHTIOA
02 FILLER PIC X(12). TIOA PREFIX
02 NAMEL PIC S9(4) COMP. 'LENGTH'
02 NAMEF PIC X. 'FLAG'
02 FILLER REDEFINES NAMEF
03 NAMEA PIC X. 'FLAG'
02 NAMEI PIC X(20). 'NAME — INPUT'
02 FILLER PIC X.
02 DEPTL PIC S9(4) COMP.
02 DEPTF PIC X.
02 FILLER REDEFINES DEPTF.
03 DEPTA PIC X.
02 DEPTI PIC X(12).

01 MAPAO REDEFINES DFHTIOA
02 FILLER X(12). TIOA PREFIX
02 FILLER X(3).
02 NAMEO PIC X(20). 'NAME — OUTPUT'
02 FILLER PIC X. ALIGNMENT
02 FILLER X(3).
02 DEPTO PIC X(12).

01 MAPBI REDEFINES DFHTIOA

MAPSETA — TYPE=DSECT,LANG=COBOL,TIOAPFX=YES

01 MAPAI

02 FILLER PIC X(12).

02 NAMEL PIC S9(4) COMP. 'LENGTH'

02 NAMEA PIC X. 'ATTRIBUTE'

02 FILLER REDEFINES NAMEA.

03 NAMEF PIC X. 'FLAG'

02 NAMEI PIC X(20). 'NAME — INPUT'

02 DEPTL PIC S9(4) COMP.

02 DEPTA PIC X.

02 FILLER REDEFINES DEPTA.

03 DEPTF PIC X.

02 DEPTI PIC X(12).

01 MAPAO REDEFINES MAPAI.

02 FILLER PIC X(12).

02 FILLER PIC X(3).

02 NAMEO PIC X(20). 'NAME — OUTPUT'

02 FILLER PIC X(3).

02 DEPTO PIC X(12).

01 MAPBI REDEFINES MAPAI.

MAPSETA — TYPE=DSECT,LANG=PL1,TIOAPFX=YES

DECLARE 1 MAPAI BASED(BMSMAPBR),

2 DFHMSI CHAR (12),

2 NAMEL FIXED BINARY (15,0),

'LENGTH'

2 NAMEA CHAR (1),

'ATTRIBUTE'

2 NAMEI CHAR (20),

'NAME — INPUT'

2 DEPTL FIXED BINARY (15,0),

2 DEPTA CHAR (1),

2 DEPTI CHAR (12),

DECLARE 1 MAPAO BASED(BMSMAPBR),

2 DFHMS2 CHAR (12),

2 DFHMS3 CHAR (2),

2 NAMEF CHAR (1),

'FLAG'

2 NAMEO CHAR (20),

'NAME — OUTPUT'

2 DFHMS4 CHAR (2),

2 DEPTF CHAR (1),

2 DEPTO CHAR (12),

DECLARE 1 MAPBI BASED(BMSMAPBR),

MAPSETA – TYPE=DSECT,LANG=PL1,BASE=TIOABAR, *
.TIOAPFX=YES

DECLARE 1 MAPAI BASED (TIOABAR),
2 DFHMS1 CHARACTER (12),
2 NAMEL FIXED BINARY (15,0), 'LENGTH'
2 NAMEF CHAR (1), 'FLAG'
2 NAMEI CHAR (20), 'NAME – INPUT'
2 DEPTL FIXED BINARY (15,0),
2 DEPTF CHAR (1),
2 DEPTI CHAR (12),

DECLARE 1 MAPAO BASED (TIOABAR),
2 DFHMS4 CHAR (12),
2 DFHMS2 CHAR (2),
2 NAMEA CHAR (1), 'ATTRIBUTE'
2 NAMEO CHAR (20), 'NAME – OUTPUT'
2 DFHMS3 CHAR (2),
2 DEPTA CHAR (1),
2 DEPTO CHAR (12),

DECLARE 1 MAPBI BASED (TIOABAR),

•
•
•

TIOABAR EQU 10
COPY DFHTIOA
COPY MAPSETA

TIOABAR EQU 10
COPY DFHTIOA
COPY MAPSETA
ORG TIOADBA
COPY MAPSETB

TIOABAR EQU 10
MAPBBAR EQU 9
COPY DFHTIOA
COPY MAPSETA
USING *,MAPBBAR
DS CL12
COPY MAPSETB

L. MAPBBAR

LINKAGE SECTION.

01 DFHBL LDS COPY DFHBL LDS.
02 ...
02 TIOABAR ...
02 MAPBAR ...
01 ...
01 DFHTIOA COPY DFHTIOA.
01 MAPA COPY MAPSETA.

LINKAGE SECTION.

01 DFHBL LDS COPY DFHBL LDS.
02 ...
02 TIOABAR ...
02 MAPBAR ...
01 ...
01 DFHTIOA COPY DFHTIOA.
01 CBASE PIC
01 MAPSETA COPY MAPSETA.
01 MAPSETB COPY MAPSETB

LINKAGE SECTION.

01 DFHBL LDS COPY DFHBL LDS.

02 . . .

02 TIOABAR . . .

02 MAPBARA . . .

02 MAPBARB . . .

01 . . .

01 DFHTIOA COPY DFHTIOA.

01 MAPA COPY MAPSETA.

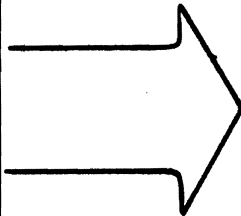
01 MAPB COPY MAPSETB.

```
%INCLUDE DFHTIOA;  
%INCLUDE MAPSETA;  
%INCLUDE MAPSETB;
```

MAPPING

FIELD POSITIONING

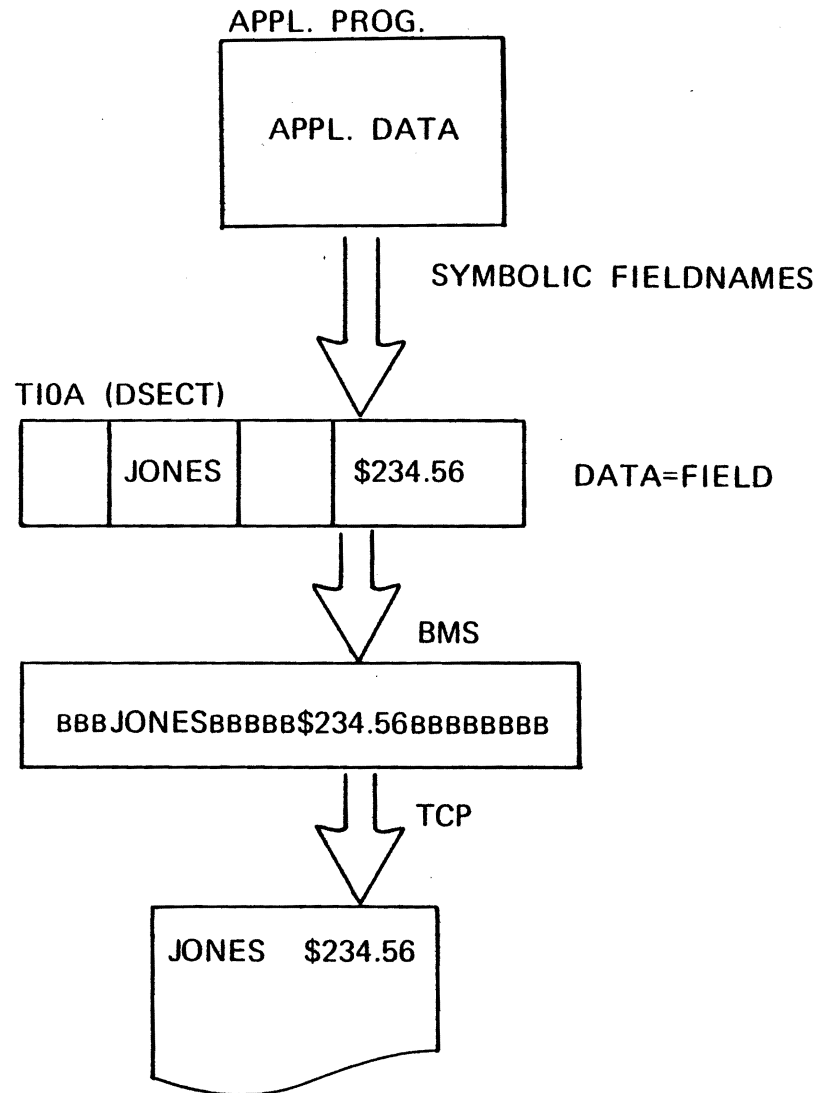
BBBJONESBBBB\$234,56BB



BBBJONESBBBB\$234,56BB

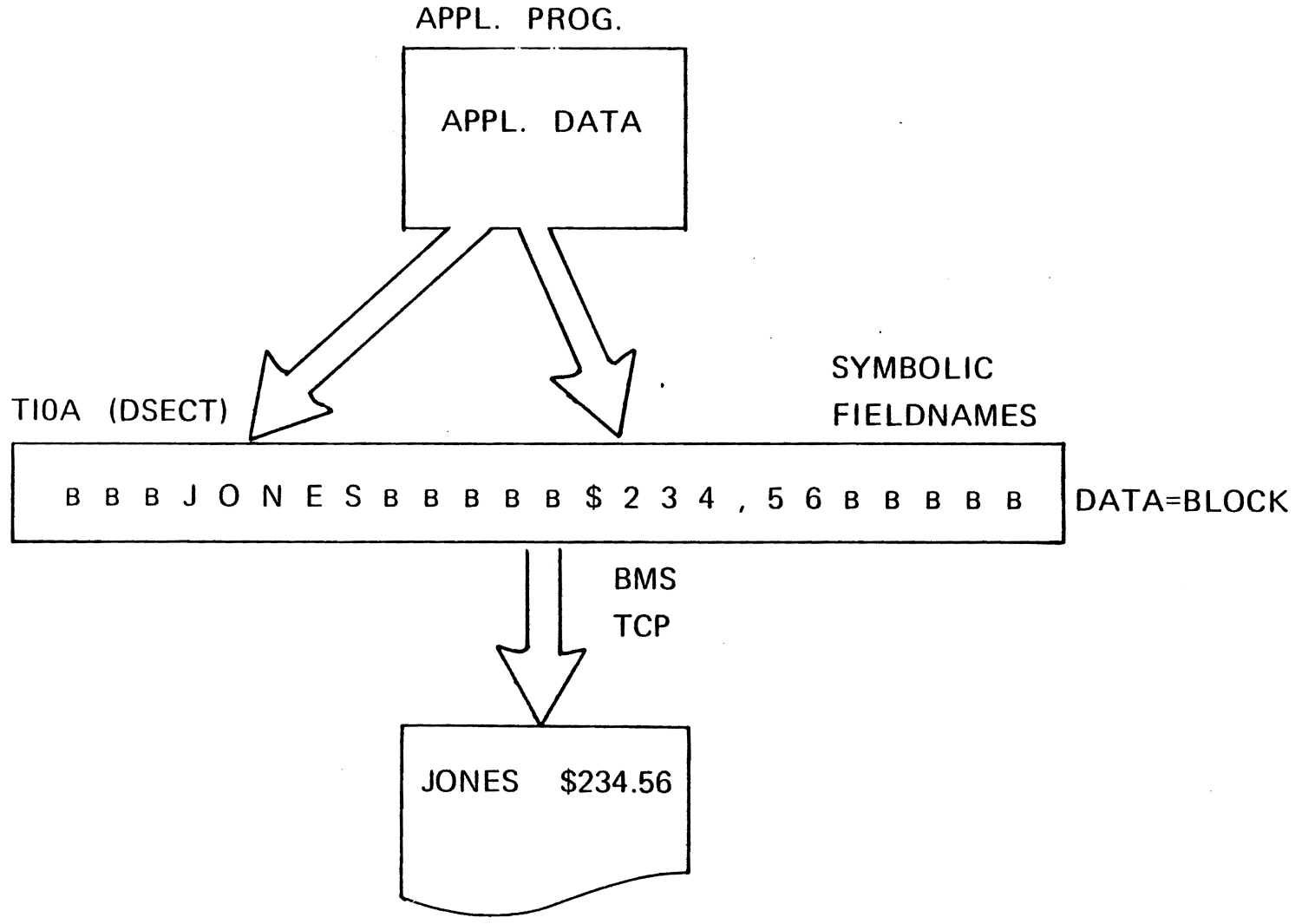
MAPPING

FORMAT INDEPENDENCE



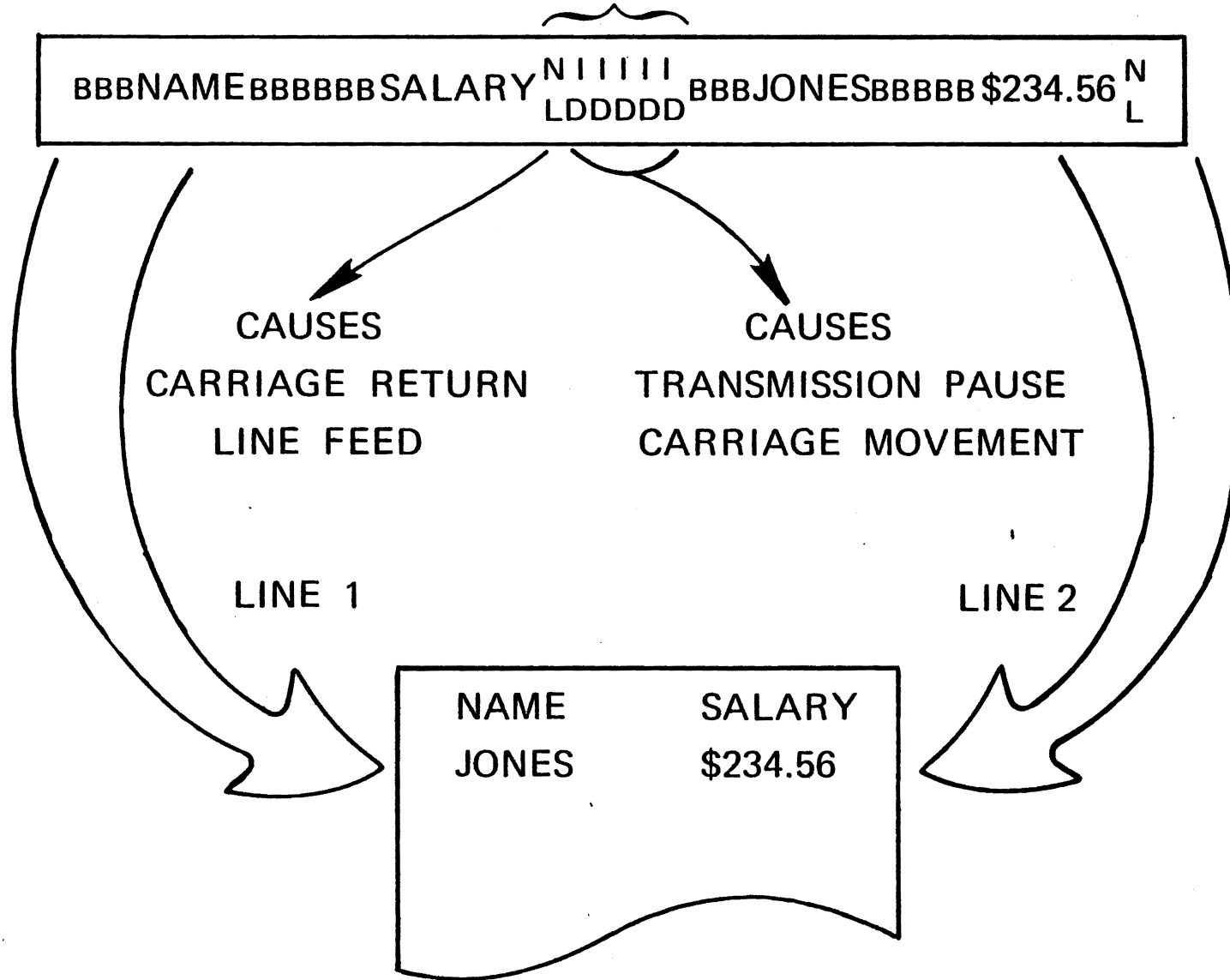
MAPPING

BLOCK FORMAT



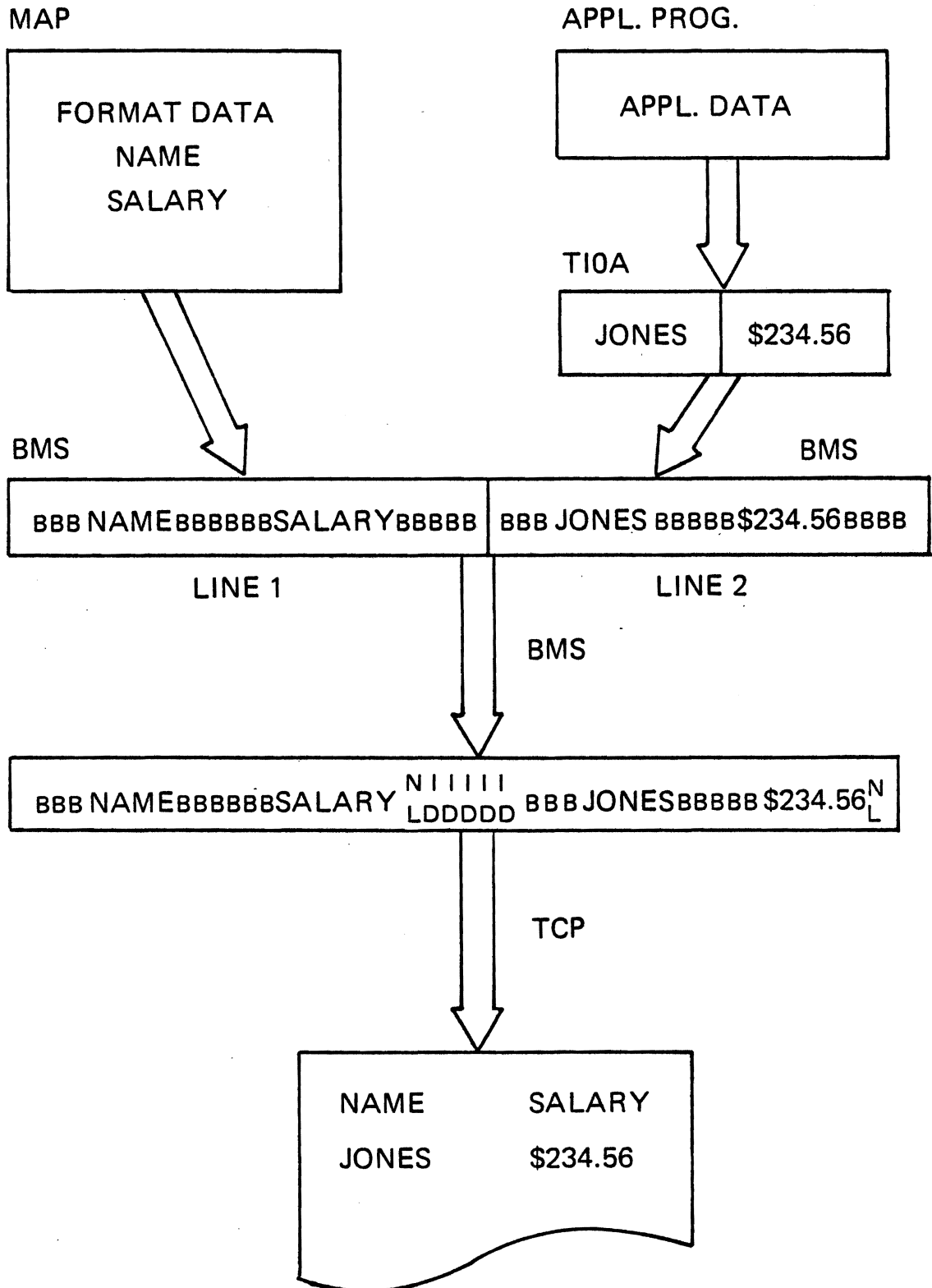
LINE CONTROL

DEVICE DEPENDENT



MAPPING

LINE CONTROL



BASIC MAPPING

Send error WAIT also
269 just get program Physical map
Generate the screen

DFHBMS TYPE=(ERASE,OUT),DATA=YES, X
MAP=MAP14,MAPSET=MAPSETA, X
ERROR=CHECK

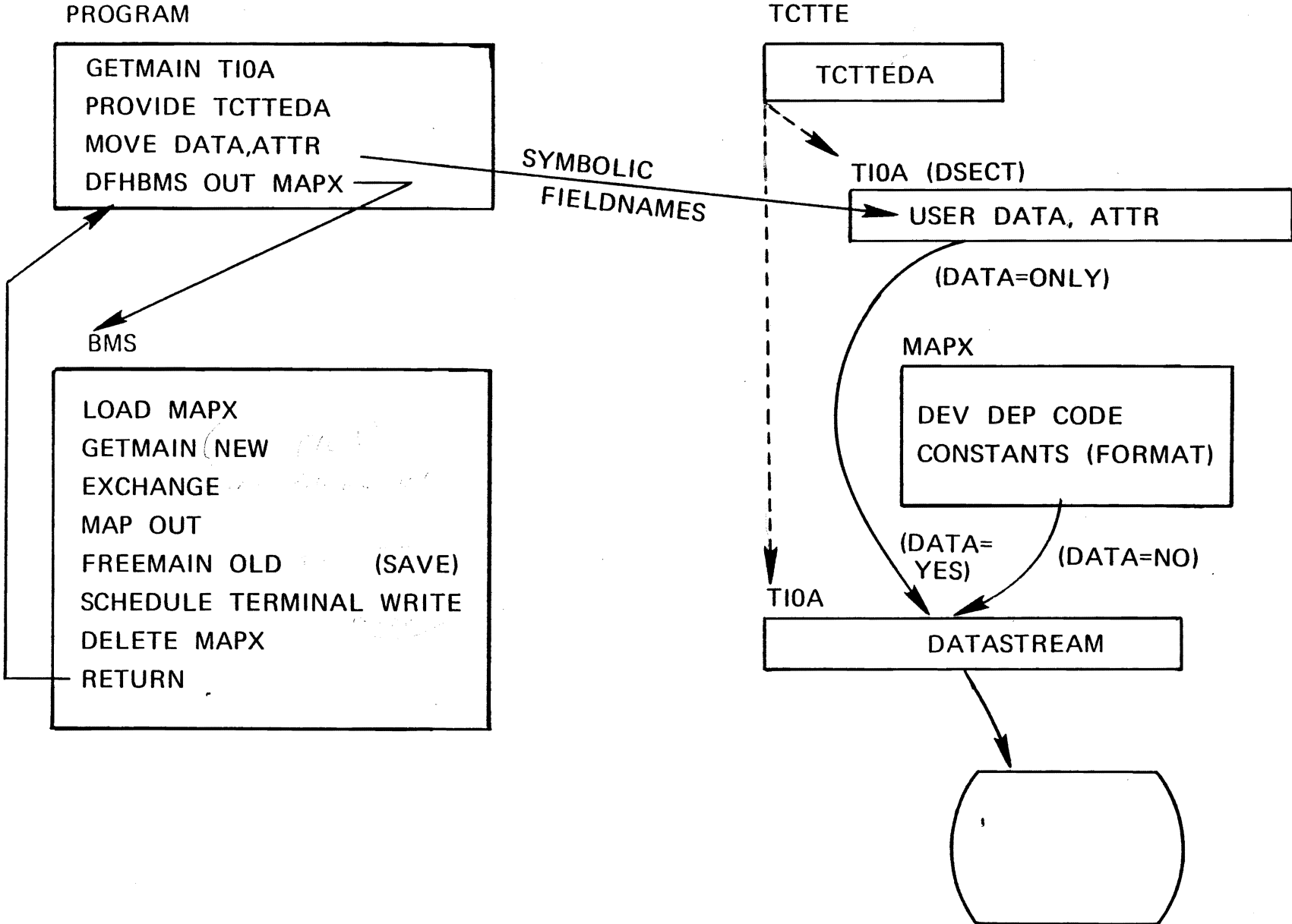
TC ARMSPIH - 2
map

TC MAP14
map

TC MAP14
map

OUTPUT MAPPING FLOW

MAPPING



TERMINAL TASK —

TIOA

TCTTEDA

ADDRESS

TCAMSIOA

(UNUSED)

OR

TCTTEDA

ZERO

TCAMSIOA

ADDRESS

NOT TIOA

TCTTEDA

ZERO

TCAMSIOA

ADDRESS

NON-TERMINAL TASK —

NOT TIOA

TCTTEDA

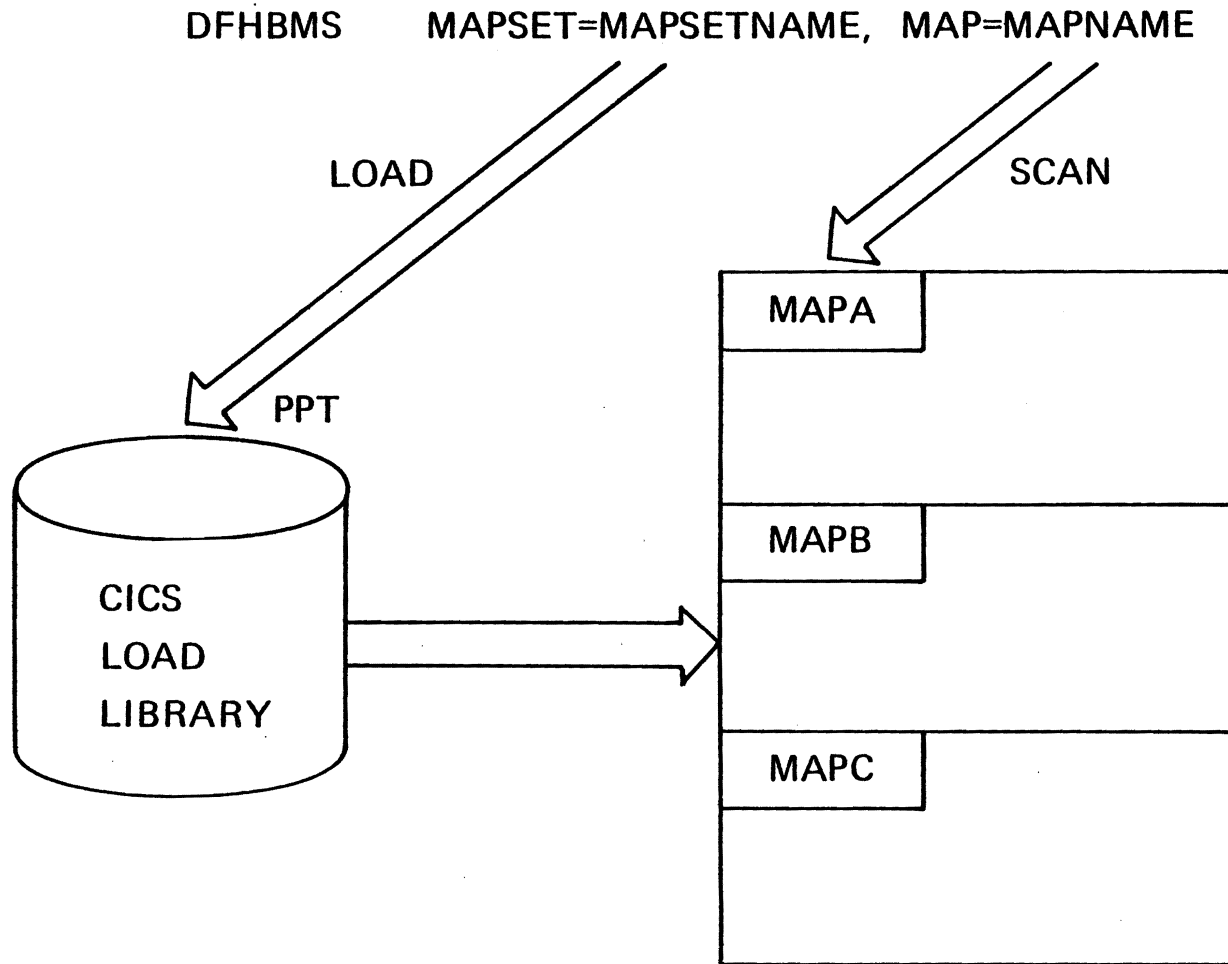
(NOT EXIST)

TCAMSIOA

ADDRESS

MAPPING

MAPSET/MAP



MAPSET=YES

MAPSETNAME → TCAMSM SN

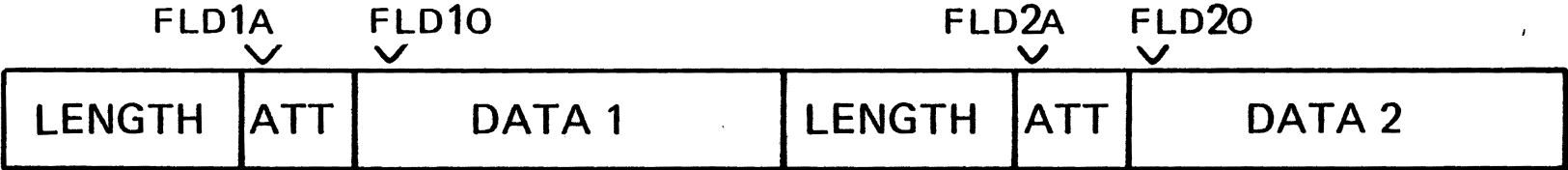
MAP=YES

MAPNAME → TCABMSMN

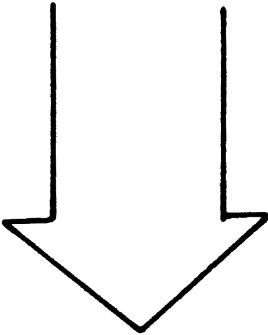
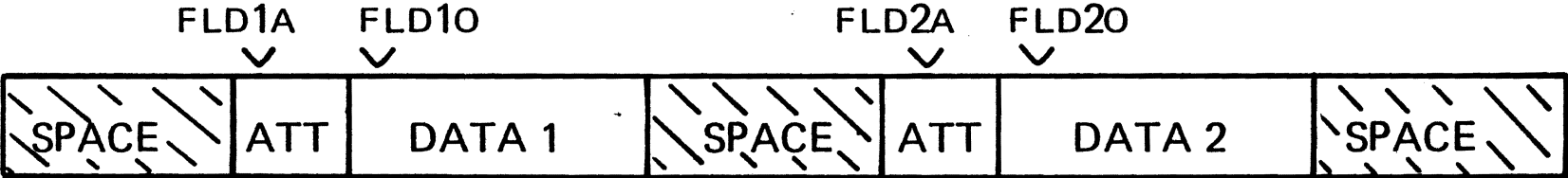
MAPPING

OUTPUT MAPPING

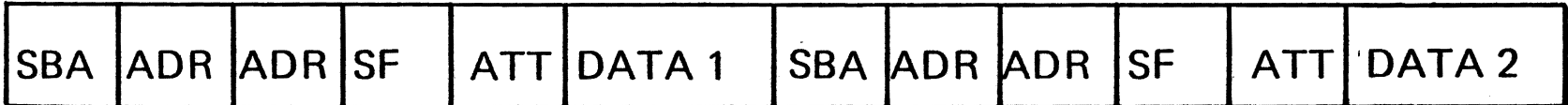
DATA = FIELD



DATA = BLOCK



BMS




```
TIOABAR  EQU      10
          COPY     DFHTIOA
          COPY     MAPSETA
          ----
          DFHSC    TYPE=GETMAIN,NUMBYTE=480,INITIMG=00,CLASS=TERMINAL
          L        TIOABAR,TCASCSA
          ----
WRITE     ST       TIOABAR,TCTTEDA
          DFHBMS   TYPE=OUT,MAP=MAPA,MAPSET=MAPSETA,DATA=YES
```

COBOL NO TIOAPFX EXAMPLE

01 DFHBL LDS COPY DFHBL LDS.

02 ----

02 TIOABAR PIC S9(8) COMP.

02 MAPBAR PIC S9(8) COMP.

01 ----

01 DFHTIOA COPY DFHTIOA.

← ---- 01 CBASE PIC X(----)

01 MAPAI COPY MAPSETA.

PROCEDURE DIVISION.

DFHSC TYPE=GETMAIN,CLASS=TERMINAL,INITIMG=00,NUMBYTE=480

MOVE TCASCSA TO TIOABAR.

ADD 12 TIOABAR GIVING MAPBAR

MOVE TIOABAR TO TCTTEDA.

DFHBMS TYPE=OUT,MAP=MAPA,MAPSET=MAPSETA,DATA=YES

PL/I NO TIOAPFX EXAMPLE

```
%INCLUDE (DFHTIOA);
```

```
  2 TIOADATA CHAR (1);
```

```
%INCLUDE (MAPSETA);
```

```
----
```

```
  DFHSC TYPE=GETMAIN,NUMBYTE=480,INITIMG=00,CLASS=TERMINAL
```

```
TIOABAR=TCASCSA,
```

```
BMSMAPBR=ADDR(TIOADATA);
```

```
----
```

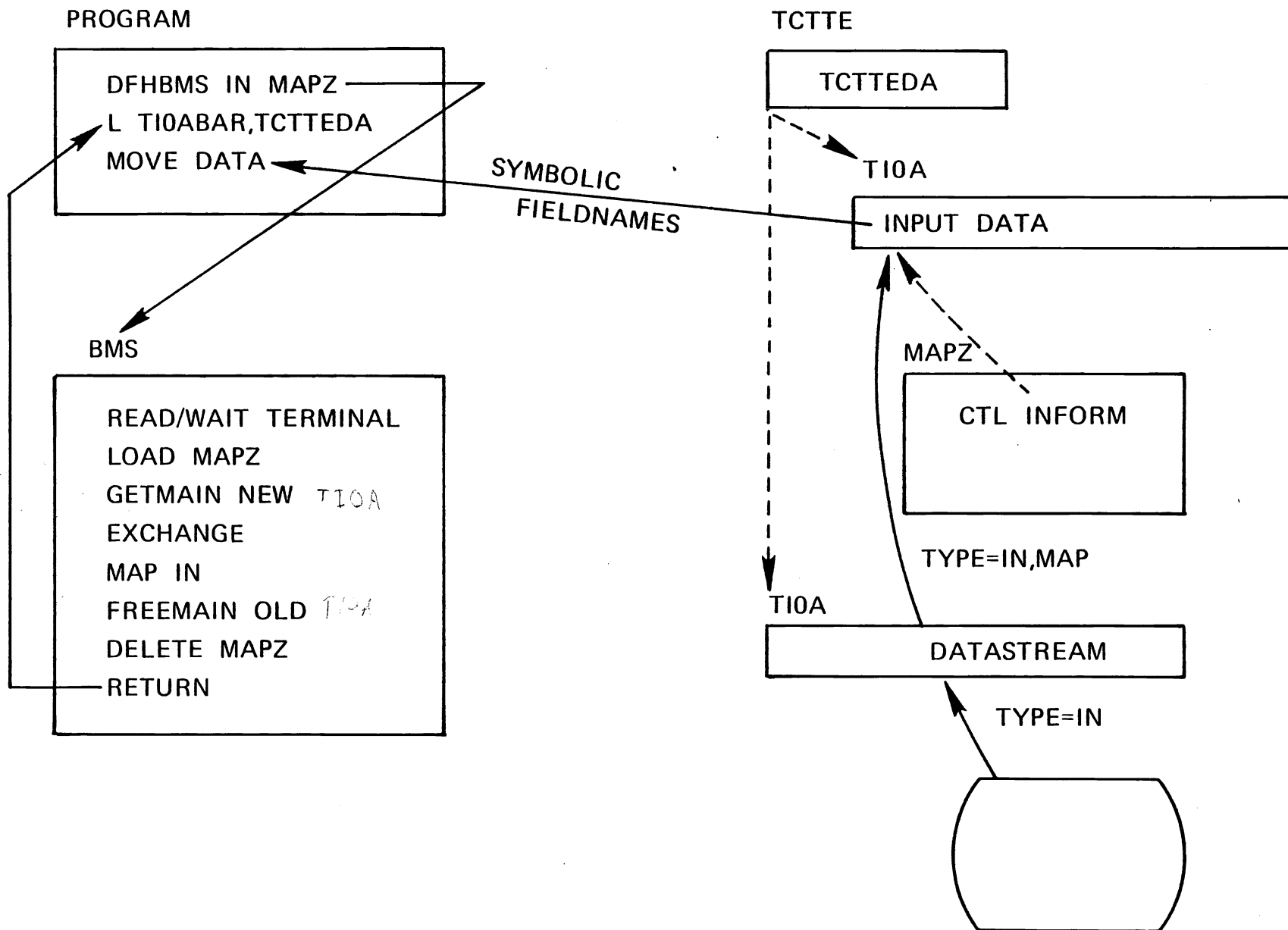
```
WRITE:
```

```
TCTTEDA=TIOABAR;
```

```
  DFHBMS TYPE=OUT,MAP=MAPA,MAPSET=MAPSETA,DATA=YES
```

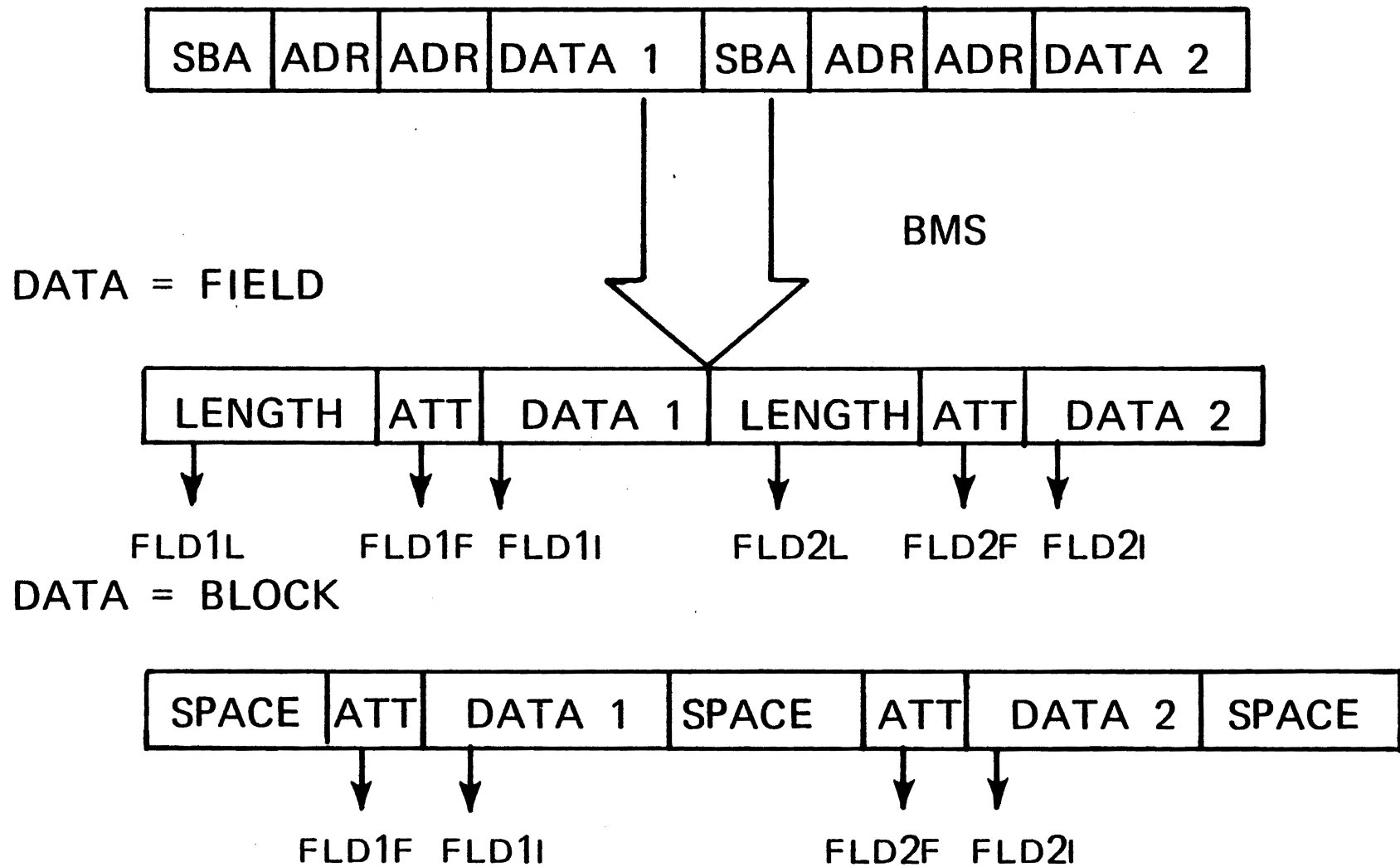
MAPPING

INPUT MAPPING FLOW



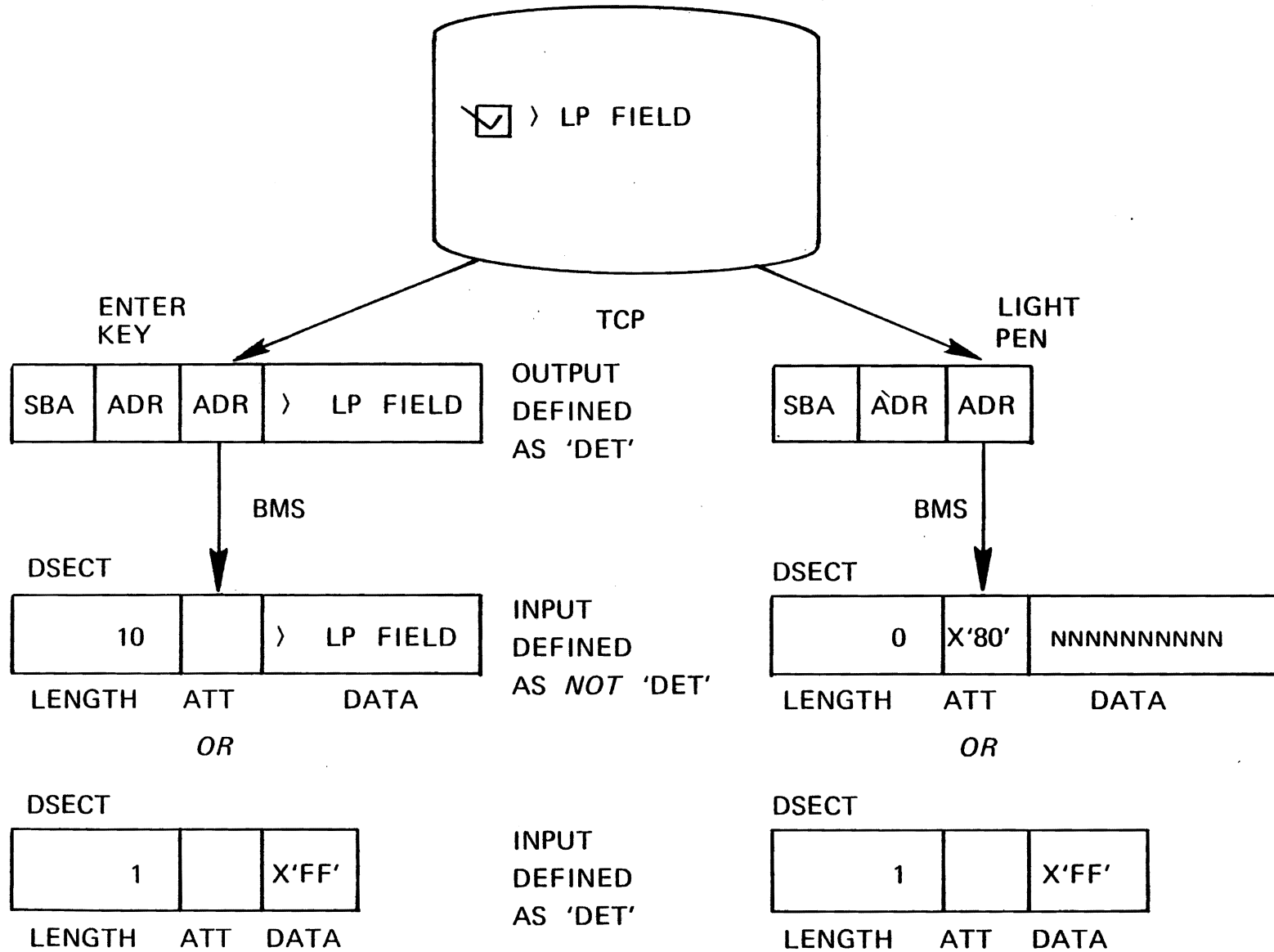
MAPPING

INPUT MAPPING



MAPPING

LIGHT PEN FIELDS



TIOABAR	EQU	10
	COPY	DFHTIOA
	COPY	MAPSETA

READIN	DFHBMS	TYPE=IN,MAP=MAPA,MAPSET=MAPSETA
	L	TIOABAR,TCTTEDA

01 DFHBL LDS COPY DFHBL LDS.

02 ----

02 TIOABAR PIC S9(8) COMP.

02 MAPBAR PIC S9(8) COMP.

01 ----

01 DFHTIOA COPY DFHTIOA.

←---- 01 CBASE PIC X(----)

01 MAPAI COPY MAPSETA.

PROCEDURE DIVISION.

DFHBMS TYPE=IN,MAP=MAPA,MAPSET=MAPSETA

{ MOVE TCTTEDA TO TIOABAR.
ADD 12 TO TIOABAR GIVING MAPBAR.

OR

MOVE TCTTEDA TO MAPBAR.


```
%INCLUDE (DFHTIOA);
```

```
- { 2 TIOADATA CHAR (1);
```

```
%INCLUDE (MAPSETA);
```

```
---
```

```
READIN:
```

```
DFHBMS TYPE=IN,MAP=MAPA,MAPSET=MAPSETA
```

```
- { TIOABAR=TCTTEDA;
```

```
BMSMAPBR=ADDR(TIOADATA);
```

```
OR
```

```
BMSMAPBR=TCTTEDA
```

MAPPING

COPY DFHBMSCA

100

DFHBMPPEM	3270 PRINTER END OF MESSAGE
DFHBMPNL	3270 PRINTER NEW LINE SYMBOL
DFHBMASK	AUTOSKIP
DFHBMUNP	UNPROTECTED
DFHBMUNN	UNPROTECTED AND NUMERIC
DFHBMPRO	PROTECTED
DFHBMBRY	HIGH INTENSITY
DFHBMDAR	DARK, NONPRINT
DFHBMFSE	MDT ON
DFHBMPRF	PROTECTED AND MDT ON
DFHBMASF	AUTOSKIP AND MDT ON
DFHMASB	AUTOSKIP AND HIGH INTENSITY

MAPPING

COPY DFHAID

DFHENTER	ENTER KEY
DFHCLEAR	CLEAR KEY
DFHPEN	IMMEDIATELY DETECTABLE FIELD
DFHPA1	PA1 KEY
DFHPA2	PA2 KEY
DFHPA3	PA3 KEY
DFHPPF1	PF1 KEY
●	●
●	●
●	●
DFHPPF12	PF12 KEY

*COPY TO THE DFHAID
PF1 ENTER
COPY TO THE DFHAID
PF12 PROGRAM
COPY TO THE DFHAID*

TIOABAR	EQU	10
	COPY	DFHTIOA
	COPY	MAPSETA

	L	TCTTEAR,TCAFCAAA
	DFHSC	TYPE=FREEMAIN,RELEASE=ALL
INITIAL	DFHBMS	TYPE=(ERASE,OUT),MAP=MAPA,MAPSET=MAPSETA,DATA=NO
READIN	DFHBMS	TYPE=IN,MAP=MAPA,MAPSET=MAPSETA
	L	TIOABAR,TCTTEDA
PROCESS	---	
	DFHSC	TYPE=GETMAIN,NUMBYTE=480,INITIMG=00,CLASS=TERMINAL
	L	TIOABAR,TCASCSA

WRITE	ST	TIOABAR,TCTTEDA
	DFHBMS	TYPE=OUT,MAP=MAPA,MAPSET=MAPSETA,DATA=YES

01 DFHBLDLS COPY DFHBLDLS.

02 ----

02 TIOABAR PIC S9(8) COMP.

02 MAPBAR PIC S9(8) COMP.

01 ----

01 DFHTIOA COPY DFHTIOA.

←----01 CBASE PIC X(----)

01 MAPAI COPY MAPSETA.

PROCEDURE DIVISION.

MOVE CSACDTA TO TCACBAR.

MOVE TCAFCAAA TO TCTTEAR.

DFHSC TYPE=FREEMAIN,RELEASE=ALL

DFHBMS TYPE=(ERASE,OUT),MAP=MAPA,MAPSET=MAPSETA,DATA=NO
READIN.

DFHBMS TYPE=IN,MAP=MAPA,MAPSET=MAPSETA

MOVE TCTTEDA TO TIOABAR.

ADD 12 TO TIOABAR GIVING MAPBAR.

PROCESS.

DFHSC TYPE=GETMAIN,CLASS=~~USER~~, INITIMG=00, X
NUMBYTE=480

MOVE TCASCSA TO TIOABAR.

ADD 12 TO TIOABAR GIVING MAPBAR.

MAPOUT.

MOVE TIOABAR TO TCTTEDA.

DFHBMS TYPE=OUT,MAP=MAPA,MAPSET=MAPSETA,DATA=YES

%INCLUDE (DFHTIOA);

2 TIOADATA CHAR (1);

%INCLUDE (MAPSETA);

DFHSC TYPE=FREEMAIN,RELEASE=ALL

DFHBMS TYPE=(ERASE,OUT),MAP=MAPA,MAPSET=MAPSETA,DATA=NO

READIN:

DFHBMS TYPE=IN,MAP=MAPA,MAPSET=MAPSETA

TIOABAR=TCTTEDA,

BMSMAPBR=ADDR(TIOADATA);

PROCESS:

DFHSC TYPE=GETMAIN,NUMBYTE=480,INITIMG=00,CLASS=TERMINAL

TIOABAR=TCASCSA,

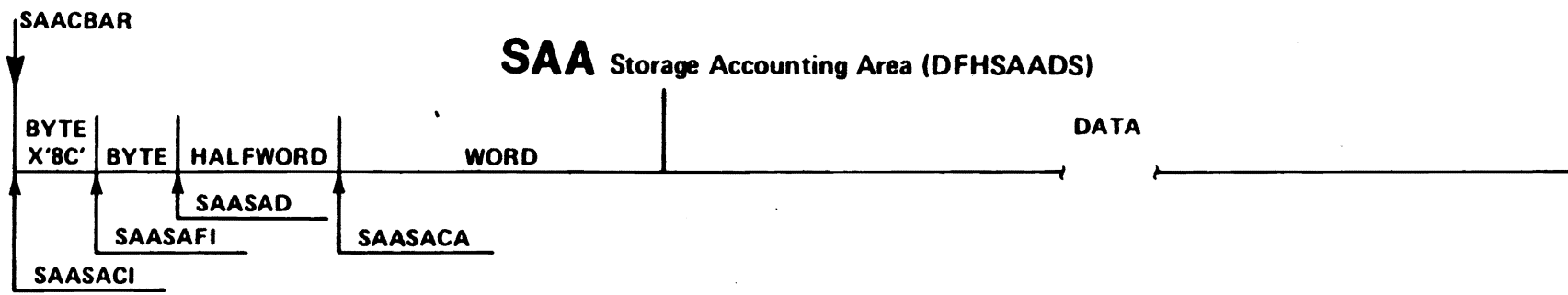
BMSMAPBR=ADDR(TIOADATA);

WRITE:

TCTTEDA=TIOABAR;

DFHBMS TYPE=OUT,MAP=MAPA,MAPSET=MAPSETA,DATA=YES

Handwritten notes:
 - from SAA doc. use the same as the original
 - use the original



SAACBAR – SAA Control Base Address Register
 SAASACA – SAA Storage Accounting Chain Address
 SAASACI – SAA Storage Accounting Class Identification

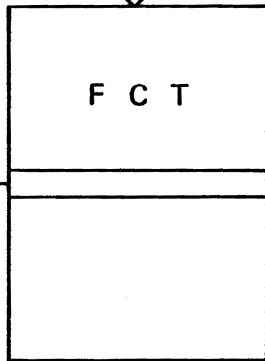
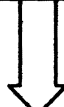
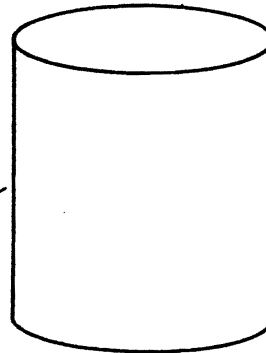
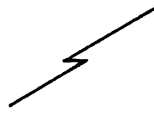
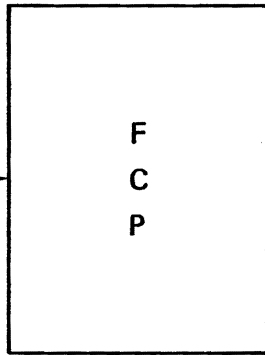
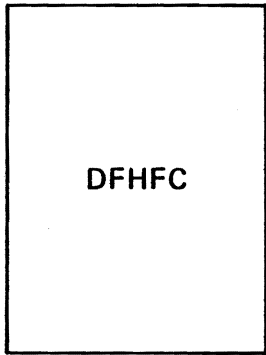
SAASAFI – SAA Storage Accounting Format Identification
 SAASAD – SAA Storage Accounting Displacement (length)

Handwritten notes:
 SAA BAR EGSA R
 CPT DFHSAADS

TCA

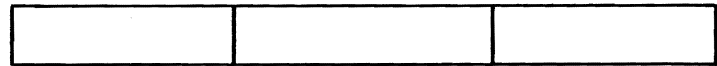


Organization

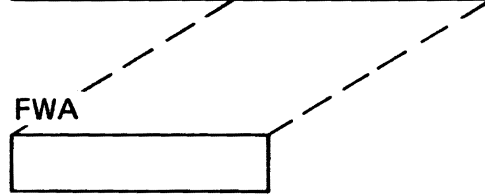
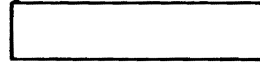


- DATA SET NAME
- ACCESS METHOD
- DEVICE TYPE
- SERVICES ALLOWED *Control*
- RECORD - LENGTH, FORMAT, BLOCKING
- KEY - LENGTH, POSITION

FIOA



FWA



FILE I/O AREA — FILE WORK AREA

ISAM - J.111

FILE I/O AREA (DFHFIOA)

READ ONLY

UNBLOCKED

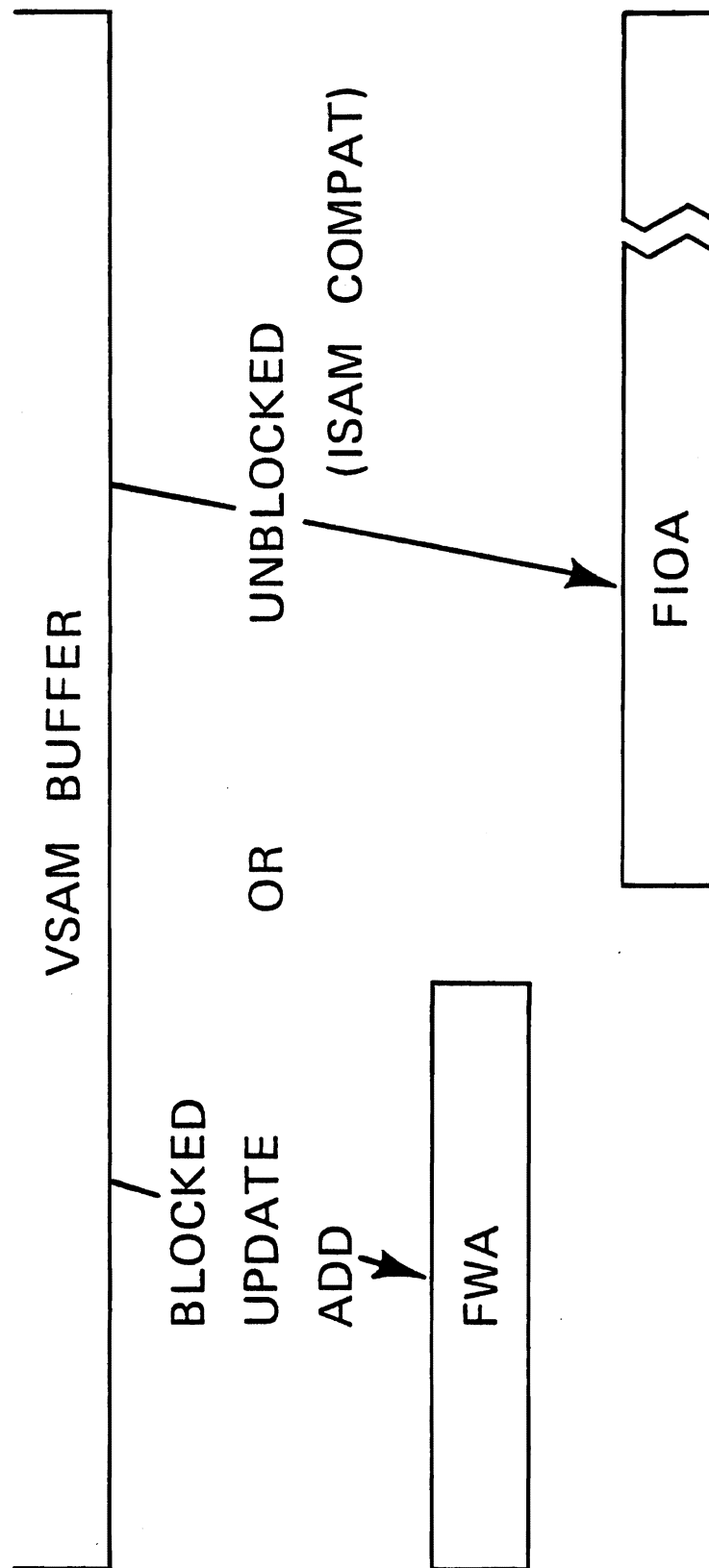
FILE WORK AREA (DFHFWADS)

UPDATE

ADDITIONS (NEW)

BLOCKED

VSAM (MOVE MODE)



RECORD IDENTIFICATION _____ RDIDADR

USER PROVIDED AREA

TWA RECOMMENDED

ISAM — RECORD KEY

VSAM — RECORD KEY

RELATIVE BYTE ADDRESS

GENERIC KEY WITH EXPLICIT LENGTH



DAM RECORD IDENTIFICATION_____RDIDADR

- UNBLOCKED – PHYSICAL RECORD SEARCH ARGUMENT
- BLOCKED – PHYSICAL RECORD SEARCH ARGUMENT
CICS/VS DEBLOCKING ARGUMENT

PHYSICAL RECORD SEARCH

REL BLK

T T R

M B B C C H H R

REL BLK | KEY

T T R | KEY

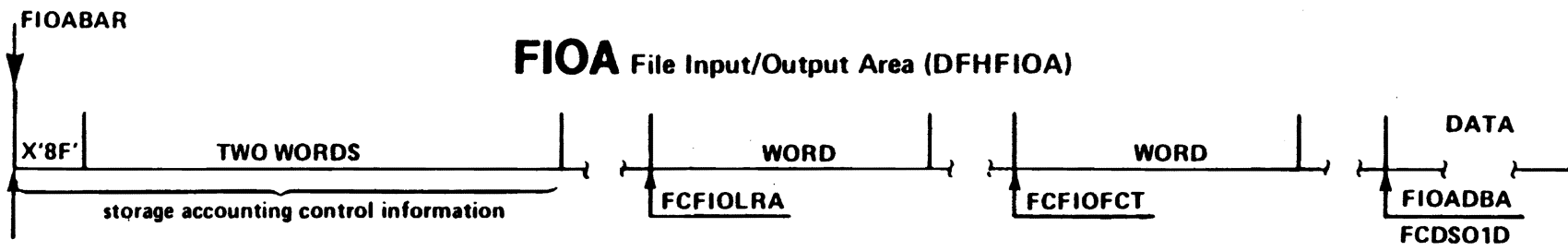
M B B C C H H R | KEY

DEBLOCKING

REL BLK | RECORD NUMBER OR KEY

TYPE SPECIFIED IN
DFHFC RETMETH = RELREC OR KEY

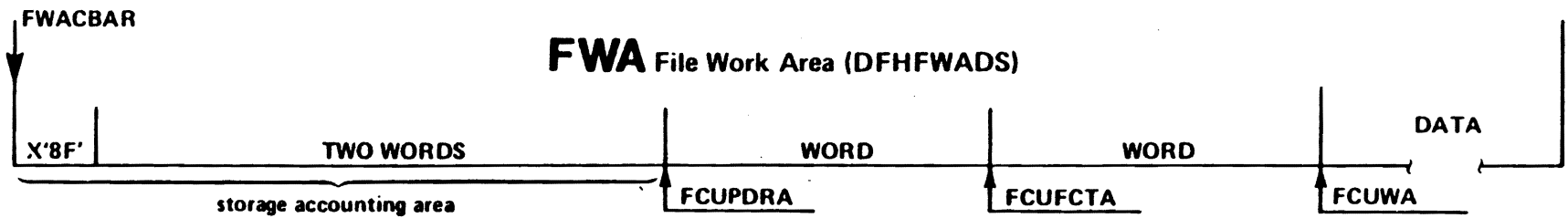
T T R | KEY | RECORD NUMBER OR KEY



FIOABAR – File Input/Output Area Base Address Register
 FCFIOxxx – File Control File Input/Output xxx
 FCFIOFCT – FCFIO File Control Table – entry address

FCFIOLRA – FCFIO Logical Record Address
 FIOADBA – File Input/Output Area Data Begin Address (DOS)
 FCDSO1D – File Control Data – area (OS variable)

FWACBAR



FWACBAR – File Work Area Control Base Address Register
FCUFCTA – File Control Update File Control Table Address

FCUPDRA – File Control UPDATE Record Address
FCUWA – File Control Update Work Area (data begin address)

FIOABAR	EQU	6		OS/VIS ISAM UNBLOCKED (VSAM)
FWACBAR	EQU	7		
	COPY	DFHFIOA		
BLOCK	DS	CL120	←	DS CL16 <i>copy</i>
	COPY	DFHFWADS		
RECD	DS	CL80		

```

%INCLUDE (DFHFIOA);
  2 BLK_DESC CHAR (120); ← 2 OS_FILLR CHAR (16);
%INCLUDE (DFHFWADS);
  2 RECD_DESC CHAR (80);

```

LINKAGE SECTION.

01 DFHBL LDS COPY DFHBL LDS.

02 ----

02 FIOABAR PIC S9(8) COMP.

02 FWACBAR PIC S9(8) COMP.

01 ----

OS/VS ISAM UNBLOCKED (VSAM)

01 DFHFIOA COPY DFHFIOA.

02 BLOCK-DESC PIC X(120).

← 02 FILLER PIC X(16).

~~03~~

01 DFHFWADS COPY DFHFWADS.

02 REC-DESC PIC X(80).

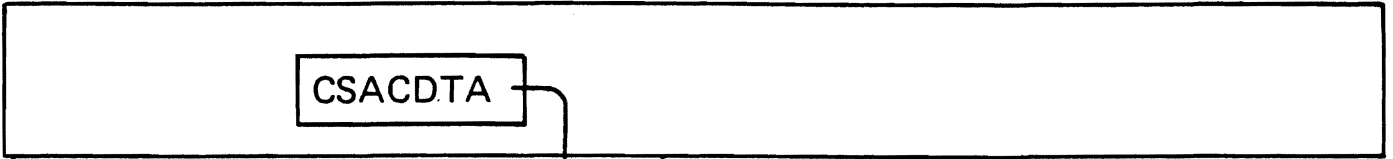
~~03~~

FILE CONTROL

DFHFC	TYPE=GET,	X
	DATASET=MASTER,	X
	RDIDADR=KEYFLD,	X
	ERROR=CHECK	

FILE CONTROL

CSA

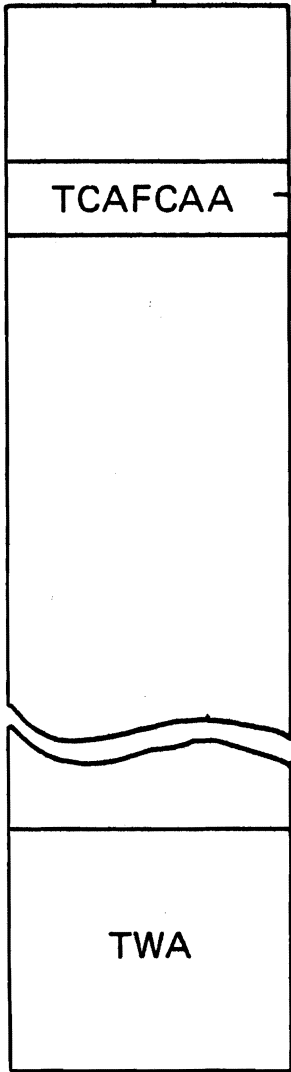


CSACBAR (REG. 13)

CSAWABA

TCA

TCACBAR (REG. 12)

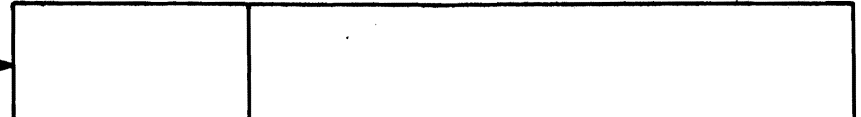


FIOA



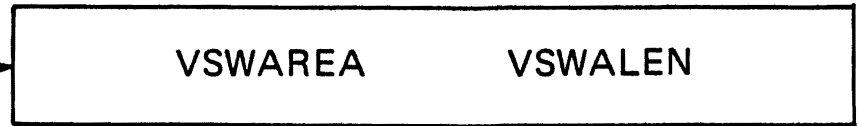
FIOABAR

FWA



FWACBAR

VSWA



VSWABAR

TWACOBAB

TWA

READ-ONLY RETRIEVAL

FWACBAR	EQU	6

	COPY	DFHCSADS
	COPY	DFHTCADS
KEYF	DS	CL8
	COPY	DFHFWADS
RECORD	DS	CL100

	MVC	KEYF,ACCTNO
READREC	DFHFC	TYPE=GET,DATASET=MASTERA,RDIDADR=KEYF
	L	FWACBAR,TCAFCAA

READ-ONLY RETRIEVAL

LINKAGE SECTION.

01 DFHBL LDS COPY DFHBL LDS.

02 ----

02 FWACBAR PIC S9(8) COMP.

01 DFHCSADS COPY DFHCSADS.

01 DFHTCADS COPY DFHTCADS.

02 KEYF PIC X(8).

01 ----

01 DFHFWADS COPY DFHFWADS.

02 RECORD PIC X(100).

03 ~~-----~~

PROCEDURE DIVISION.

MOVE CSACDTA TO TCACBAR.

MOVE TCAFCAA TO TCTTEAR.

MOVE ACCTNO TO KEYF.

READ-REC.

DFHFC TYPE=GET,DATASET=MASTERA,RDIDADR=KEYF

MOVE TCAFCAA TO FWACBAR.

READ-ONLY RETRIEVAL

%INCLUDE (DFHCSADS);

%INCLUDE (DFHTCADS);

2 KEYF CHAR (8);

%INCLUDE (DFHFWADS);

2 RECORD CHAR (100);

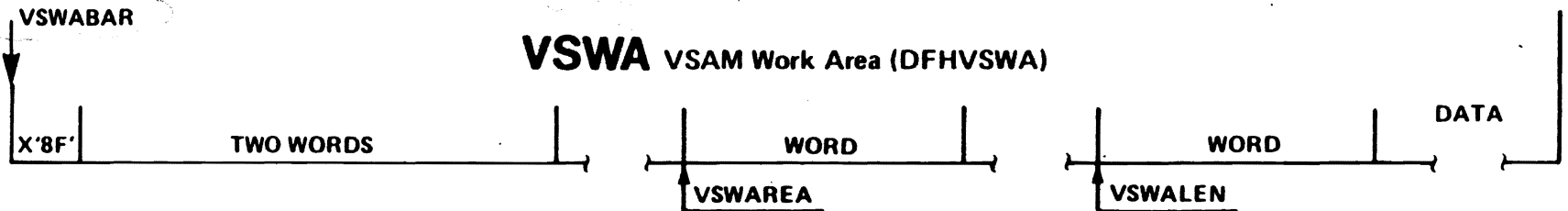
KEYF=ACCTNO;

DFHFC TYPE=GET,DATASET=MASTERA,RDIDADR=KEYF

FWACBAR=TCAFCAA;

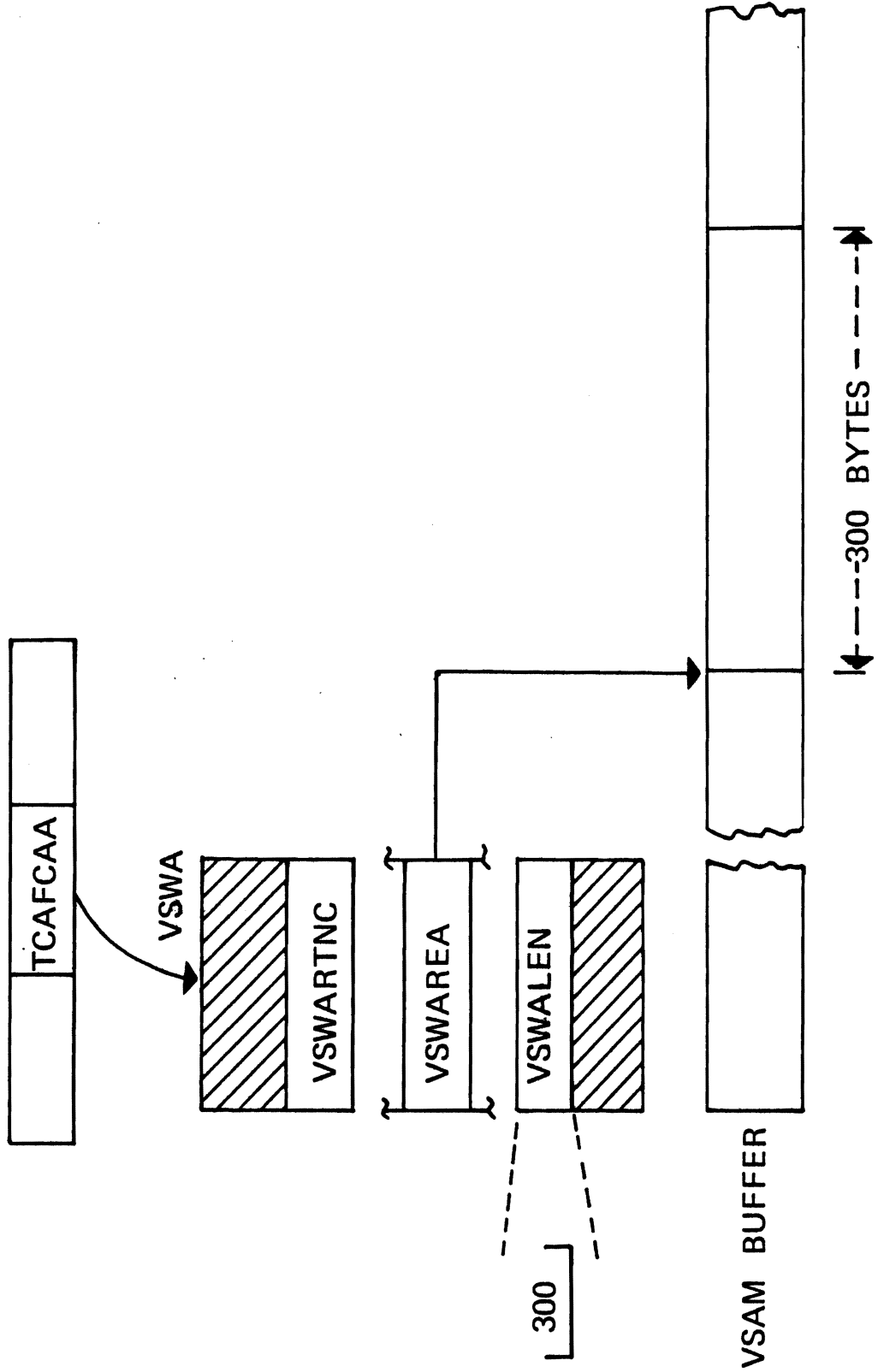
VSAM
LOCATE
MODE

VSAM LOCATE MODE



- VSWABAR - VSAM Work Area Base Address Register
- VSWAREA - VSAM Work Area REcord Address *Record Address*
- VSWALEN - VSAM Work Area Record LENgth

VSAM LOCATE MODE



LOCATE MODE

	COPY	DFHCSADS	
	COPY	DFHTCADS	
KEYF	DS	CL8	

VSWABAR	EQU	7	
	COPY	DFHVSWA	

RECDBAR	EQU	8	
	DSECT		
	USING	*,RECDBAR	
RECORD	DS	CL80	

READREC	MVC	KEYF,ACCTNO	
	DFHFC	TYPE=GET,DATASET=VSMSTR,RDIDADR=KEYF,	X
		<u>MODE=LOCATE</u>	
	L	VSWABAR,TCAFCAA	
	L	RECDBAR,VSWAREA	
	L	3,VSWALEN	
PROCESS	----		

LOCATE MODE

01 DFHBL LDS COPY DFHBL LDS.
02 ----
02 VSWABAR PIC S9(8) COMP.
02 RECDBAR PIC S9(8) COMP.
01 DFHCSADS COPY DFHCSADS.
01 DFHTCADS COPY DFHTCADS.
02 KEYF PIC X(8).
02 RECD-LENGTH PIC S9(8) COMP.
01 ----
01 DFHVSWA COPY DFHVSWA.
01 RECORD-DESCRIPTION.
02 RECORD PIC X(80).
PROCEDURE DIVISION

MOVE ACCTNO TO KEYF.
READ-REC.
DFHFC TYPE=GET,DATASET=VSMSTR,RDIDADR=KEYF, X
MODE=LOCATE
MOVE TCAFCAA TO VSWABAR.
MOVE VSWAREA TO RECDBAR.
MOVE VSWALEN TO RECD-LENGTH.
PROCESS.

LOCATE MODE

```
%INCLUDE (DFHCSADS);
```

```
%INCLUDE (DFHTCADS);
```

```
  2 KEYF CHAR (8),
```

```
  2 RECD_LEN FIXED BINARY (31);
```

```
%INCLUDE (DFHVSWA);
```

```
----
```

```
DECLARE 1 RECDESC BASED (RECDBAR),
```

```
  2 RECD_DESC CHAR (80);
```

```
----
```

```
READREC:
```

```
  KEYF=ACCTNO;
```

```
    DFHFC  TYPE=GET,DATASET=VSMSTR,RDIDADR=KEYF,      X  
          MODE=LOCATE
```

```
  VSWABAR=TCAFCAA;
```

```
  RECDBAR=VSWAREA;
```

```
  RECD_LEN=VSWALEN;
```

```
PROCESS:
```

```
----
```

TEST FOR FIOA

```
FIOABAR EQU 7
COPY DFHFIOA
----
L FIOABAR,TCAFCAA
TM FIOAIND,FIOAM WAS FIOA RETURNED?
BM GOTFIOA YES
```

```
01 DFHFIOA COPY DFHFIOA.
```

```
----
```

```
MOVE TCAFCAA TO FIOABAR.
IF FIOAM, GO TO GOTFIOA.
```

```
%INCLUDE (DFHFIOA);
```

```
----
```

```
FIOABAR=TCAFCAA;
IF FIOAIND='01'B THEN GO TO GOTFIOA;
```

TEST FOR FWA

```
FWACBAR EQU 7
COPY DFHFWADS
-----
L FWACBAR,TCAFCAA
TM FWAIND,FWAM WAS FWA RETURNED?
BO GOTFWA YES
```

```
01 DFHFWADS COPY DFHFWADS.
```

```
-----
MOVE TCAFCAA TO FWACBAR.
IF FWAM, GO TO GOTFWA.
```

```
%INCLUDE (DFHFWADS);
```

```
-----
FWACBAR=TCAFCAA;
IF FWAIND='11'B THEN GO TO GOTFWA;
```

TEST FOR VSWA

```
VSWABAR EQU 7  
COPY DFHVSWA  
----  
L VSWABAR,TCAFCAA  
TM VSWAID,VSWAM WAS VSWA RETURNED?  
BZ GOTVSWA YES
```

```
01 DFHVSWA COPY DFHVSWA.  
----  
MOVE TCAFCAA TO VSWABAR.  
IF VSWAM, GO TO GOTVSWA.
```

```
%INCLUDE (DFHVSWA);  
----
```

```
VSWABAR=TCAFCAA;  
IF VSWAIO='00000000'B THEN GO TO GOTVSWA;
```

UPDATE

FWACBAR	EQU	7	

	COPY	DFHCSADS	
	COPY	DFHTCADS	
KEYF	DS	CL8	
	COPY	DFHFWADS	
RECORD	DS	CL100	

READUPD	MVC	KEYF,ACCTNO	
	DFHFC	TYPE=GET,DATASET=MASTERB,RDIDADR=KEYF,	X
		TYPOPER=UPDATE	
	L	FWACBAR,TCAFCAA	

WRITEUP	ST	FWACBAR,TCAFCAA	
	DFHFC	TYPE=PUT	

UPDATE

LINKAGE SECTION.

01 DFHBLLDS COPY DFHBLLDS.

02 ----

02 FWACBAR PIC S9(8) COMP.

01 DFHCSADS COPY DFHCSADS.

01 DFHTCADS COPY DFHTCADS.

02 KEYF PIC X(8).

01 ----

01 DFHFWADS COPY DFHFWADS.

02 RECD PIC X(100).

PROCEDURE DIVISION.

MOVE CSACDTA TO TCACBAR.

READUPD.

MOVE ACCTNO TO KEYF.

DFHFC TYPE=GET,DATASET=MASTERB,RDIDADR=KEYF, X

TYPOPER=UPDATE

MOVE TCAFCAA TO FWACBAR.

WRITEUPD.

MOVE FWACBAR TO TCAFCAA.

DFHFC TYPE=PUT

UPDATE

```
% INCLUDE (DFHCSADS);  
% INCLUDE (DFHTCADS);  
    2 KEYF CHAR (8);  
% INCLUDE (DFHFWADS);  
    2 RECORD CHAR (100);
```

READUPD:

KEYF=ACCTNO;

DFHFC TYPE=GET,DATASET=MASTERB,RDIDADR=KEYF, X

TYOPER=UPDATE

FWACBAR=TCAFCAA

WRITEUP:

TCAFCAA=FWACBAR

DFHFC TYPE=PUT

DELETE

FWACBAR	EQU	7	

	COPY	DFHCSADS	
	COPY	DFHTCADS	
KEYF	DS	CL8	
	COPY	DFHFWADS	
RECORD	DS	CL100	

READUPD	MVC	KEYF,ACCTNO	
	DFHFC	TYPE=GET,DATASET=VSMSTR,RDIDADR=KEYF,	X
		TYOPER=UPDATE,ARGTYP=KEY	
	L	FWACBAR,TCAFCAA	

DELRECD	ST	FWACBAR,TCAFCAA	
	DFHFC	TYPE=PUT,TYOPER=DELETE	

DELETE

LINKAGE SECTION.

01 DFHBL LDS COPY DFHBL LDS.

02 ----

02 FWACBAR PIC S9(8) COMP.

01 DFHCSADS COPY DFHCSADS.

01 DFHTCADS COPY DFHTCADS.

02 KEYF PIC X(8).

01 ----

01 DFHFWADS COPY DFHFWADS.

02 RECD PIC X(100).

PROCEDURE DIVISION.

MOVE CSACDTA TO TCACBAR.

READUPD.

MOVE ACCTNO TO KEYF.

DFHFC TYPE=GET,DATASET=VSMSTR,RDIDADR=KEYF, X
TYPOPER=UPDATE,ARGTYP=KEY

MOVE TCAFCAA TO FWACBAR.

DELRECD.

MOVE FWACBAR TO TCAFCAA.

DFHFC TYPE=PUT,TYPOPER=DELETE

DELETE

```
%INCLUDE (DFHCSADS);  
%INCLUDE (DFHTCADS);  
  2 KEYF CHAR (8);  
%INCLUDE (DFHFWADS);  
  2 RECORD CHAR (100);
```

READUPD:

KEYF=ACCTNO;

DFHFC TYPE=GET,DATASET=VSMSTR,RDIDADR=KEYF, X
TYPOPER=UPDATE,ARGTYP=KEY

FWACBAR=TCAFCAA;

DELRECD:

TCAFCAA=FWACBAR

DFHFC TYPE=PUT,TYPOPER=DELETE

NEW RECORD

FWACBAR	EQU	7

	COPY	DFHCSADS
	COPY	DFHTCADS
KEYF	DS	CL8
	COPY	DFHFWADS
RECORD	DS	CL100

	DFHFC	TYPE=GETAREA,DATASET=MASTER
	L	FWACBAR,TCAFCAA

NEWREC	MVC	KEYF,ACCTNO
	ST	FWACBAR,TCAFCAA
	DFHFC	TYPE=PUT,RDIDADR=KEYF,TYPOPER=NEWREC

6/20/75 10:10 AM

NEW RECORD

LINKAGE SECTION.

01 DFHBL LDS COPY DFHBL LDS.

02 ----

02 FWACBAR PIC S9(8) COMP.

01 DFHCSADS COPY DFHCSADS.

01 DFHTCADS COPY DFHTCADS.

02 KEYF PIC X(8).

01 ----

01 DFHFWADS COPY DFHFWADS.

RECD-DESC PIC X(100).

PROCEDURE DIVISION.

MOVE CSACDTA TO TCACBAR.

DFHFC TYPE=GETAREA,DATASET=MASTER

MOVE TCAFCAA TO FWACBAR.

NEW-REC.

MOVE ACCTNO TO KEYF.

MOVE FWACBAR TO TCAFCAA.

DFHFC TYPE=PUT,RDIDADR=KEYF, X

TYPOPER=NEWREC

NEW RECORD

%INCLUDE (DFHCSADS);

%INCLUDE (DFHTCADS);

2 KEYF CHAR (8);

%INCLUDE (DFHFWADS);

2 RECD CHAR (100);

DFHFC TYPE=GETAREA,DATASET=MASTER

FWACBAR=TCAFCAA;

NEW REC:

KEYF=ACCTNO;

TCAFCAA=FWACBAR;

DFHFC TYPE=PUT,RDIDADR=KEYF,TYPOPER=NEWREC

FILE CONTROL

DFHFC

TYPE=RELEASE

[,NOESP=symbolic address]

[,ERROR=symbolic address]

[,INVREQ=symbolic address]

[,IOERROR=symbolic address]

[,ILLOGIC=symbolic address] ← VSAM

DFHFC

TYPE=RELEASE

VSAM

RECORD DELETION (KSDS ONLY)

NO FILE AREAS REQUIRED.

DELETE SINGLE RECORD

FULL KEY OR RBA

DELETE MULTIPLE RECORDS

GENERIC KEY

VSAM RECORD DELETION

SINGLE RECORD

DFHFC TYPE=DELETE,DATASET=VSMSTR,RDIDADR=KEYF, X
 ARGTYP=KEY,SRCHTYP=FKEQ

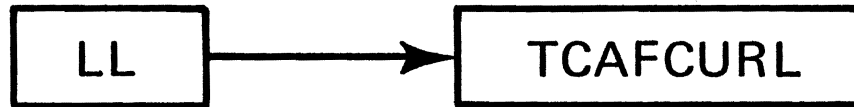
MULTIPLE RECORDS

DFHFC TYPE=DELETE,DATASET=VSMSTR,RDIDADR=KEYF X
 ARGTYP=KEY,SRCHTYP=GKEQ



UNDEFINED RECORDS

OUTPUT RECORD LENGTH SPECIFIED BY APPLICATION.



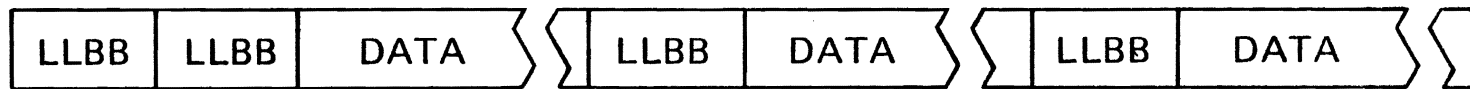
VARIABLE LENGTH RECORDS

BLOCK LENGTH - RECORD LENGTH
INCLUDED WITH DATA



variable length records

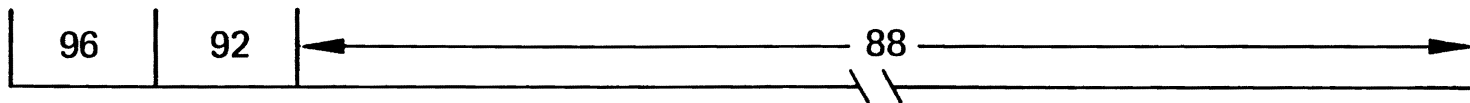
VARIABLE LENGTH RECORDS



↑
BLOCK RDF

↑ LOGICAL RECORD

↑ RDFs



LEVEL OF ERROR

what to look for

- SOURCE CODE
- LINK EDIT
- EXECUTION TIME
 - OPERATOR ERROR
 - TERMINAL/LINE ERROR
 - APPLICATION LOGIC

INFORMATION SOURCE

COMPILER LISTINGS

MAPS AND LISTINGS

MESSAGE TO TERMINAL

CSMT/CSTL MESSAGES

CSMT/CSTL MESSAGES

CICS DUMP

TRACE TABLE

CSMT/CSTL MESSAGES

TERMINAL MESSAGE

OPERATOR ERRORS AND MESSAGES

SIGN ON

NAME, PASSWORD ERRORS

TRANSACTION INITIATION

INVALID TRANSACTION ID
SECURITY KEY VIOLATION

DATA ENTRY

MESSAGE TOO LONG
FORMAT ERRORS

TERMINAL ERRORS AND MESSAGES

HARDWARE/TABLE ERRORS

{TEP

BTAM

VTAM/NCP

UNIT CHECK/UNIT EXCEPTION

APPLICATION ORIENTED ERRORS

ZERO OUTPUT LENGTH IN TIOA

NO TIOA

TIOA TOO SMALL

OUTPUT TOO LONG FOR BUFFERED DEVICE

APPLICATION PROGRAM ERRORS AND MESSAGES

- MESSAGE TO TERMINAL

DFH2005 TRANSACTION xxxx ABEND xxxx
 ↑ ↑
 TRANSID CODE

- MESSAGE TO 'CSMT'

DFH2006 TRANSACTION xxxx ABEND xxxx AT xxxx
 ↑ ↑ ↑
 TRANSID CODE TERMID

- CICS/VS TRANSACTION DUMP

CODE = xxxx TASK = xxxx
 ↑ ↑
 CODE TRANSID

BASIC APPROACH

LISTINGS

MESSAGES

DUMPS

M & C MANUAL

REGS 14-4 500AA55C 000AB23E 00000208 00000000 0003FE20 0003F300 0008E808
 REGS 5-11 0008FE28 0008899F 000BE990 00000000 00089408 0008E9F0 0008F2C8

PSW AT ENTRY TO ABEND 078D0004 C008EC4C

TASK CONTROL AREA (USER AREA) ADDRESS 088880 TO 0889EF LENGTH 000170

000000	0008E800	0009CD78	010AEED0	00000000	00000000	0009CD60	8C402100	043100A0	*.....*	088880
000020	4009CC5A	92D5F3F0	00000208	0009CD60	5009C60A	A009C73C	00088800	8009CC1A	*....N30.....F...G.....*	0888A0
000040	00000080	0008E990	00000000	00089408	000ABDF4	0008F2C8	4009CC5A	40089A60	*.....Z.....4..2H.....*	0888C0
000060	0008FE20	0008899F	0008FE28	00089A68	500A7104	000A8104	0008831C	00089A60	*.....*	0888E0
000080	FE009AD0	D7C1D9E3	E2404040	C1E2D9C1	078D0004	C008EC4C	00090000	00087816	*....PARTS ASRA.....*	088900
0000A0	500AA55C	000AB23E	00000208	00000000	0008FE20	0008F300	0008E808	0008FE28	*.....3...Y.....*	088920
0000C0	0008899F	000BE990	00000000	00089408	0008E9F0	0008F2C8	00000000	00000000	*.....Z.....Z0..2H.....*	088940
0000E0	00000000	00000000	24F00000	00000000	00000000	00000000	000A700A	00000000	*.....0.....*	088960
000100	00270000	D7C1D9E7	6BC4C9E2	D78BE2D1	F0F1F000	00000000	E3F0F0F1	F04040F1	*....PARX.DISP.SJ010.....T0010 1*	088980
000120	F0F3F3F3	F6F34000	00000000	00000000	00000000	00000000	00000000	00000000	*033363.....*	0889A0
000140	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	*.....*	0889C0
000160	00000000	00000000	8A0401E8	00089AD0					*.....Y.....*	0889E0

TASK CONTROL AREA (SYSTEM AREA) ADDRESS 088800 TO 08887F LENGTH 000080

000000	8A0401E8	00089AD0	00089A30	00089B50	0000005C	000ABDF4	00088000	00000000	*...Y.....4.....*	088800
000020	0008E4E0	00000000	00000000	00000000	00000000	010AA158	00000000	00089220	*..U.....*	088820
000040	00089210	00000000	00000000	00000000	00000000	00000000	00000000	00000000	*.....*	088840
000060	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	*.....*	088860

ASRA REGS 0 THRU 15 ADDRESS 09CCF8 TO 09CD37 LENGTH 000040

000000	00000208	00000000	0008FE20	0008F300	0008E808	0008FE28	0008899F	000BE990	*.....3...Y.....Z.*	09CCF8
000020	00000000	00089408	0008E9F0	0008F2C8	00088908	00089220	4008EC20	000AB23E	*.....Z0..2H.....*	09CD18

PROGRAM	STORAGE	ADDRESS	08E808	TO	090D77	LENGTH	002570		
000000	5860F018	5850F010	9238F0CC	47F0F0B0	0008FE28	0008E653	00000064	58FF0303	*..0...0...00.....Y.....*
000020	07FF00C0	000AB23E	9200F0A4	47F0F088	9204F09C	47F0F050	9208F094	47F0F078	*.....0...00...0...00...00.*
000040	920CF08C	47F0F070	9210F034	47F0F068	9214F07C	47F0F060	9218F074	47F0F058	*..0..00...0..00...0..00...00.*
000060	921CF06C	47F0F050	9220F064	47F0F048	9224F05C	47F0F040	9228F054	47F0F038	*..0..00...0..00...0..00...00.*
000080	922CF04C	47F0F030	9230F044	47F0F028	9234F03C	47F0F020	9238F034	47F0F018	*..0..00...0..00...0..00...00.*
0000A0	923CF02C	47F0F010	9240F024	47F0F008	05F09024	D01C5830	F0165840	304CD200	*..0..00...0..00...0..00...00.*
0000C0	4080F01A	47F0F01C	003EE990	00005820	310407F2	00300000	00000004	030060CC	*..0..00...Z.....2.....*
0000E0	00000010	00000014	00000018	0000001C	00000020	00000024	00000028	0000002C	*.....Z.....*
000100	00000030	00000034	00000038	0000003C	00000040	00000044	00000048	0000004C	*.....*
000120	00000050	00000054	00000058	07FE0000	47F0F014	06E201D7	C7D4E740	00000208	*.....00..SJFGMX....*
000140	0009F2C8	90EED00C	58B0F010	5800F00C	58F0B020	05EF05A0	4190D1E8	500CC030	*..2H.....0...0...0.....JY....*
000160	9280D060	9270D1C0	9260D1C1	927ED1C2	926CD1C3	926ED1C4	926ED1C5	92F1D1C6	*.....J...JA..JB..JC..JD..JE..JF*
000180	92F2D1C7	92F3D1C8	92F4D1C9	92F5D1CA	92F6D1CB	92F7D1CC	92F8D1CD	92F9D1CE	*..2JG..3JH..4JI..5J..6J..7J..8J..9J.*
0001A0	927AD1CF	927BD1D0	927CD1D1	9219D1D2	9215D1D3	92F0D1D4	9246D1D5	9250D1D6	*..J...J...JJ..JK..JL..JM..JN..JO*
0001C0	9260D1D7	9268D1D8	924CD1D9	92C1D1DA	9261D1DB	92F1D1DC	92F8D1DD	9207D1DE	*..JP..HJQ..JR..AJ...J..1J..8J..K..J.*
0001E0	E10341A0	A0900700	418CD1B4	5030D080	9680D050	4110D030	58F0E05C	05EF5000	*.....J.....*
000200	D1B4D203	D1A080C8	5830D1B4	D203D1A4	804C5880	D1A4D203	D1A38008	5880D1A8	*J.K.J..H..J.K.J.....J.K.J.....J.*
000220	D203D1AC	80C0C5880	D1A4D201	8100B07A	5830D1AC	D213C030	800CE870	D1A4D213	*K.J.....J.K.....J.K.....J.K.*
000240	7104D050	5880D1A8	D203D030	80005870	D1A4D203	7118D060	5830D1A3	D120D030	*.....J.K.....J.K.....J.K.....*
000260	80255870	D1A4D202	711CD080	9367B720	5A60D1A4	9067D030	41F0D030	408CD028	*.....J.K.....J.....0.....*
000280	D207E000	EB5050F0	80001818	58F0B053	05EF4180	A0C05870	D1B44110	70504120	*K.....0.....0.....J.....*
0002A0	EB580578	47F0A0D0	41303038	58F0B050	18E7058F	47F0A0C0	58F0B054	05EF5880	*.....0.....0...X...0...0.....*
0002C0	D1A441E0	810050E0	80805860	D1A4D200	8030E102	5880D1A4	D2038034	80FE5880	*J.....J.K.....J.K.....J.K.....*
0002E0	D1A45870	D1B4D203	80F870FC	41100000	58F0B060	05EF5890	D1ACD503	8011B0F2	*J...J.K..8.....0.....J.N....2*
000300	4760A174	5880D1A4	D2078080	B0EA58E0	D1A4D207	809830E2	5880D1A4	D2078090	*.....J.K.....J.K.....S..J.K...*
000320	B0F65880	D1A45870	D1A0D203	80F87010	41100000	58F0B060	05EF5830	D1A4D200	*..6..J...J.K..8.....0.....J.K.*
000340	6080B0E1	5880D1A4	5870D1B4	D20380F8	70E84110	000058F0	B0C005EF	5880D1AC	*.....J...J.K..8.Y.....0.....J.*
000360	D5038011	B0D04760	A3F65880	D1AC48E0	800859E0	B07447A0	A1EA5C80	D1A4D207	*N.....6...J.....0.....J.K.*
000380	80380EA	5830D1A4	D2078098	B0E25890	D1A4D207	8090B005	5880D1A4	5870D1A0	*.....J.K.....S..J.K.....N..J...J.*
0003A0	D20380F8	70104110	000058F0	B06005EF	5880D1A4	D2008030	B0E15880	D1A45870	*K..8.....0.....J.K.....J...*
0003C0	D1E4D203	80F870E8	41100000	58F0B060	05EF5880	D1A4D207	8084E0CD	5880D1AC	*J.K..8.Y.....0.....J.K.....J.*
0003E0	41E08016	5870D1A4	50E0709C	5880D1A4	D2008080	B0CC5880	D1A4D200	809C80CB	*.....J.....J.K.....J.K.....J.K.....*
000400	5880D1A4	5870D1B4	D20380F8	70F84110	000058F0	B06005EF	5880D1A4	D5008080	*..J...J.K..8..8.....0.....J.N...*
000420	B0C94770	A3A5880	D1A4D203	D1B03080	5880D1AC	D203D1AC	80205880	D1A4D200	*.....J.K.J.....J.K.J.....J.K.*
000440	800ED1D0	5880D1AC	D2008016	D1D05880	D1B0D204	D0808014	5870D1AC	D204700F	*..J...J.K...J...J.K.....J.K...*
000460	D0805380	D1B0D204	D0808019	5870D1AC	D2047017	D0805380	D1B0D213	D080801E	*.....J.K.....J.K.....J.K.....*
000480	5870D1AC	D213701F	D0805880	D1B0D202	D0808035	5870D1AC	D2027037	D0805830	*..J.K.....J.K.....J.K.....*
0004A0	D1B0D202	D0808038	5870D1AC	D202703D	D0805830	D1B0D202	D080303B	5870D1AC	*J.K.....J.K.....J.K.....J.*
0004C0	D2027043	D0805830	D1B0D202	D080803E	5870D1AC	D2027049	D0805880	D1A4D207	*K.....J.K.....J.K.....J.K.*
0004E0	8080B0C3	5880D1A4	D2078098	B0E25880	D1A4D207	8090B0B8	5880D1A4	5870D1A0	*..C..J.K...S..J.K.....J...J.*
000500	D20380F8	70104110	000058F0	B06005EF	5880D1A4	D2008080	B0E15880	D1A45870	*K..8.....0.....J.K.....J...*
000520	D1B4D203	80F870E8	41100000	58F0B060	05EF5880	D1A4D21F	D0803080	D21F8100	*J.K..8.Y.....0.....J.K.....K...*
000540	D0805880	D1A4D500	808050BA	4790A39E	5880D1A4	D2008081	B0CB5880	D1A4D200	*.....J.N.....J.K.....J.K...*
000560	8080B0B9	5880D1A4	D203808C	B0855880	D1A45870	D1B4D203	80F870E8	41100000	*.....J.K.....J...J.K..8.Y.....*
000580	58F0B060	05EF5880	D1A4D207	808030EA	5880D1A4	D2078093	B0E25880	D1A4D207	*..0.....J.K.....J.K.....S..J.K.*
0005A0	8090B0AD	5880D1A4	5870D1A0	D20380F8	70104110	000058F0	B06005EF	5880D1A4	*.....J...J.K..8.....0.....J.*
0005C0	D2008080	B0E15880	D1A45870	D1B4D203	80F870E8	41100000	58F0B060	05EF5830	*K.....J...J.K..8.Y.....0.....*
0005E0	D1ACD503	8011B0A9	4760A7D2	5880D1AC	48E08008	58E0B074	47A0A46C	5880D1A4	*J.N.....K..J.....J.K.....J.*
000600	D2078080	B0EA5880	D1A4D207	8098B0E2	5880D1A4	D2078090	B0805880	D1A45870	*K.....J.K...S..J.K.....N..J...*
000620	D1A0D203	80F87010	41100000	58F0B060	05EF5880	D1A4D200	8080B0E1	5880D1A4	*J.K..8.....0.....J.K.....J...*
000640	5870D1B4	D20380F8	70E84110	000058F0	B06005EF	5880D1A4	D2078084	B0CD5880	*..J.K..8.Y.....0.....J.K.....*
000660	D1AC41E0	80165870	D1A450E0	709C5880	D1A4D200	8080B0A8	5880D1A4	D200809C	*J.....J.....J.K.....J.K...*

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CONDENSED LISTING

534	MOVE	0003B8	535	MOVE	0003C6	536	MOVE	0003D0
537	MOVE	0003DA	538	MOVE	0003E4	539	MOVE	0003EE
540	MOVE	0003F8	541	MOVE	0003FE	545	MOVE	00040C
546	MOVE	000412	547	MOVE	000418	548	CALL	00041E
549	IF	000448	549	GO	000458	550	IF	00045E
550	GO	00046E	551	IF	000474	551	GO	000484
558	MOVE	00048A	559	MOVE	000494	560	MOVE	00049E
561	MOVE	0004AE	562	MOVE	0004BC	563	CALL	0004CA
566	MOVE	0004E6	567	MOVE	0004F0	568	CALL	0004FA
575	MOVE	000516	576	MOVE	000520	577	MOVE	00052A
578	MOVE	00053A	579	MOVE	000548	580	CALL	000556
583	MOVE	000572	584	MOVE	00057C	585	CALL	000586
587	IF	0005A2	587	GO	0005B4	592	MOVE	0005BA
593	MOVE	0005CE	594	MOVE	0005D4	595	MOVE	0005DA
596	CALL	0005E4	597	IF	000612	597	GO	000620
598	MOVE	000626	599	MOVE	000634	600	MOVE	000642
601	MOVE	00064C	602	MOVE	000652	603	MOVE	000658
604	MOVE	00065E	605	MOVE	000664	605	MOVE	00066A
613	MOVE	000670	614	MOVE	00067A	615	MOVE	000684
616	MOVE	00068E	617	MOVE	00069C	618	CALL	0006AA
621	MOVE	0006C6	622	MOVE	0006D0	623	CALL	0006DA
630	MOVE	0006F6	631	MOVE	000700	632	MOVE	00070A
633	MOVE	00071A	634	MOVE	000728	635	CALL	000736
638	MOVE	000752	639	MOVE	00075C	640	CALL	000766
644	IF	000782	644	GO	000790	645	MOVE	000796
648	MOVE	0007A0	649	MOVE	0007A6	650	MOVE	0007AC
651	CALL	0007B6	658	MOVE	0007D2	659	MOVE	0007DC
660	MOVE	0007E6	661	MOVE	0007F6	662	MOVE	000804
663	CALL	000812	666	MOVE	00082E	667	MOVE	000838
668	CALL	000842	670	IF	00085E	670	GO	000870

TABLE OF OFFSETS AND STATEMENT NUMBERS WITHIN PROCEDURE

SJPGMX

OFFSET (HEX)	0000	00B8	00CE	00D8	00E2	00EC	00F6	0100	0114	0128	013C	018E	019A	01A4	01AE	01BC	01C6	01D4	01D4	01DE	01E8
STATEMENT NO	1	3	5	7	31	35	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
OFFSET (HEX)	01F2	0200	020A	0214	0222	022C	022C	023A	023A	024A	024A	0254	025E	0268	0276	0280	028A	0298	02A2	02A2	02AC
STATEMENT NO	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93
OFFSET (HEX)	02BC	02C6	02D0	02DE	02E8	02F2	02F6	0300	030A	0314	0328	033C	0350	0364	0378	038C	03A0	03AA	03B4	03BE	03CC
STATEMENT NO	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114
OFFSET (HEX)	03D6	03E0	03EE	03F8	0408	0412	0416	0420	042A	0434	0442	044C	0456	0460	046A	0478	0482	048C	049A	04A4	04A4
STATEMENT NO	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135
OFFSET (HEX)	04B2	04B2	04C2	04C2	04CC	04D6	04E0	04EE	04F8	0502	0510	051A	051A	0524	0534	053E	0548	0556	0560	056A	056E
STATEMENT NO	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156
OFFSET (HEX)	0578	0582	058C	05A0	05B4	05C8	05DC	05F0	0604	0618	0622	062C	0636	0644	064E	0658	0662	066C	067A	0684	0692
STATEMENT NO	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177
OFFSET (HEX)	0692	069C	06A6	06B4	06BE	06C8	06D2	06DC	06EA	06F4	06FE	070C	0716	0716	0720	0730	0744	0754	0768	0778	078C
STATEMENT NO	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198
OFFSET (HEX)	079C	07B0	07C0	07D4	07DE	07EE	07F8	0802	0810	081A	0824	0828	0832	083C	0846	0854	085E	0868	0876	0880	0880
STATEMENT NO	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219
OFFSET (HEX)	088A	0894	089E	08AC	08B6	08C0	08CE	08D8	08E8	08F2	08FC	0906	0914	091E	0928	0932	0940	094A	0954	095E	0968
STATEMENT NO	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
OFFSET (HEX)	0976	0980																			
STATEMENT NO	241	242																			

TRANSIENT DATA

MACROS

DFHTD TYPE= { PUT
GET
FEOV
CHECK }

PUT PROCESSING

RECORD CAN BE WRITTEN FROM ANYWHERE IN MAIN STORAGE

TRANSACTION STORAGE
PROGRAM STORAGE
TERMINAL STORAGE
TWA

AREA NOT RELEASED BY TRANSIENT DATA PROGRAM

DFHTDOA AVAILABLE *request for*

USER MUST KNOW DATA FORMAT AND BUILD PROPER LL**bb** FIELD

DATA FORMAT - PUT

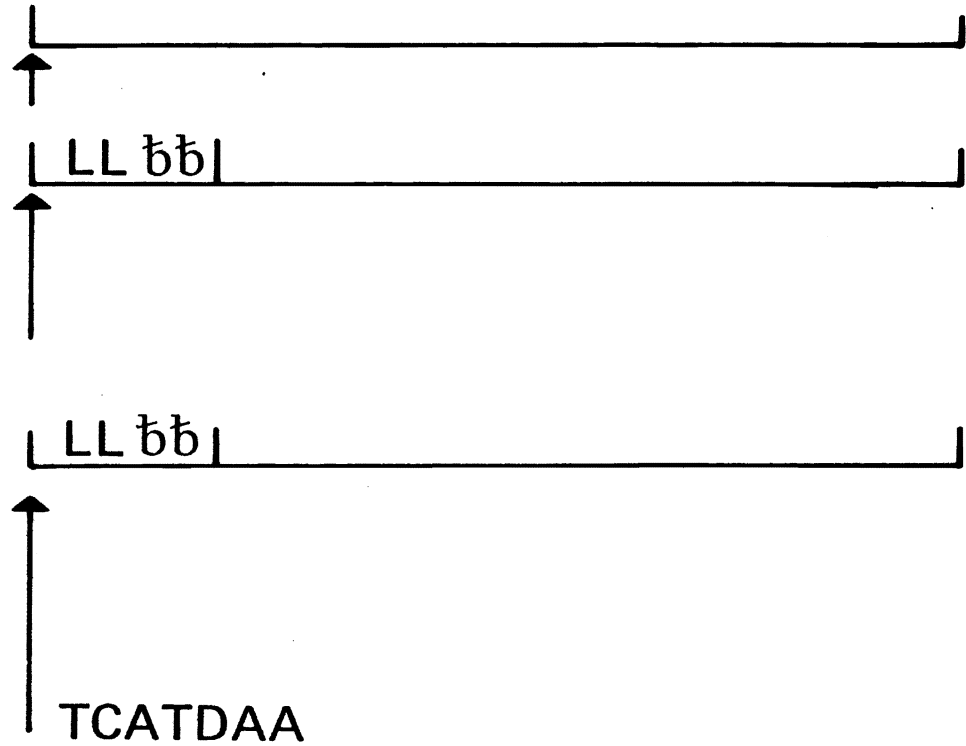
EXTRAPARTITION

FIXED

VARIABLE

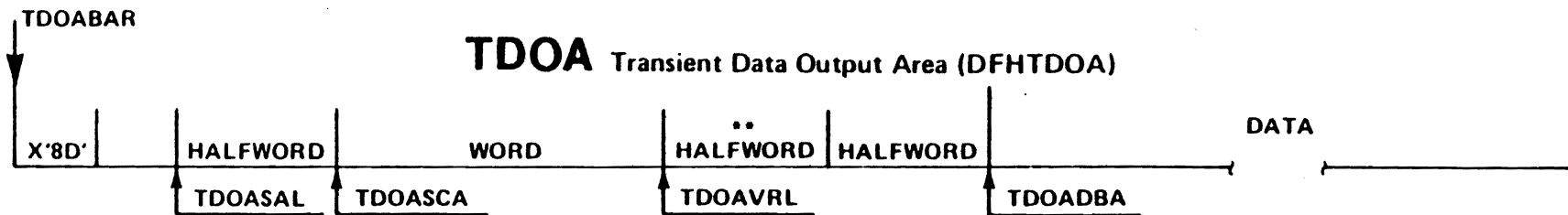
INTRAPARTITION

VARIABLE



TCATDAA

Handwritten note: TCATDAA
TCATDAA



TDOABAR – TDOA Base Address Register
 TDOADBA – TDOA Data Begin Address
 TDOASAL – TDOA Storage Accounting – area Length

TDOASCA – TDOA Storage Chain Address
 TDOAVRL – TDOA Variable Record Length (LLbb)**

ASSEMBLER

TYPE=PUT
VARIABLE LENGTH RECORD

```
-----  
COPY DFHCSADS  
COPY DFHTCADS  
RECLL DS CL2  
DS CL2  
RECORD DS CL24  
-----  
MVC RECLL,=H'28' REC LN  
MVC RECORD,YOURDATA DATA  
DFHTD TYPE=PUT,DESTID=XXXX,TDADDR=RECLL,NORESP=GOODPUT  
(PROCESS ERRORS HERE)  
-----  
GOODPUT EQU *  
-----
```

COBOL

TYPE=PUT
VARIABLE LENGTH RECORD

LINKAGE SECTION.

01 DFHBL LDS COPY DFHBL LDS.

02----

01 DFHCSADS COPY DFHCSADS.

01 DFHTCADS COPY DFHTCADS.

02 RECLL PIC S9(4) COMP.

02 FILLER PIC XX.

02 RECORD PIC X(24).

01 ----

PROCEDURE DIVISION.

MOVE YOURDATA TO RECORD.

MOVE 28 TO RECLL.

DFHTD TYPE=PUT,DESTID=XXXX,TDADDR=RECLL,NOESP=GOODPUT
(PROCESS ERRORS HERE)

GOODPUT.

PL/I

TYPE=PUT
VARIABLE LENGTH RECORD

```
%INCLUDE (DFHCSADS);  
%INCLUDE (DFHTCADS);  
  2 RECLL FIXED BINARY (15),  
  2 RECBB CHAR (2),  
  2 RECORD CHAR (24);
```

```
RECLL=28;
```

```
RECORD=YOURDATA;
```

```
          DFHTD TYPE=PUT,DESTID=XXXX,TDADDR=RECLL,NORESP=GOODPUT  
(ERROR PROCESSING HERE)
```

```
GOODPUT:
```

ASSEMBLER

TYPE=PUT
FIXED LENGTH RECORD

```
-----  
COPY      DFHCSADS  
COPY      DFHTCADS  
RECORD    DS      CL24  
-----  
MVC       RECORD,YOURDATA          DATA  
MVC       TCATDDI,=C'XXXX'         ID  
MVC       TCATDAA,=A###(RECORD)    DATA ADDR  
DFHTD     TYPE=PUT  
CLI       TCATDTR,0                GOOD RESP ?  
BE        GOODPUT                   YES  
(PROCESS ERRORS HERE)  
-----  
GOODPUT   EQU      *  
-----
```

COBOL

TYPE=PUT
FIXED LENGTH RECORD

LINKAGE SECTION.

01 DFHBL LDS COPY DFHBL LDS.

02 ----

01 DFHCSADS COPY DFHCSADS.

01 DFHTCADS COPY DFHTCADS.

02 RECORD PIC X(24).

01 ----

PROCEDURE DIVISION.

MOVE YOURDATA TO RECORD.

MOVE 'XXXX' TO TCATDDI.

DFHTD TYPE=PUT,TDADDR=RECORD

IF TCATDRC EQ 0 THEN GOTO GOODPUT.

(PROCESS ERRORS HERE)

GOODPUT,

PL/I

TYPE=PUT
FIXED LENGTH RECORD

```
%INCLUDE (DFHCSADS);  
%INCLUDE (DFHTCADS);  
  2 RECORD CHAR (24);
```

```
-----  
RECORD=YOURDATA;
```

```
TCATDAA=ADDR(RECORD);
```

```
TCATDDI='XXXX';
```

```
          DFHTD TYPE=PUT
```

```
IF TCATDTR = 0 THEN GO TO GOODPUT;  
(PROCESS ERRORS HERE)
```

```
-----  
GOODPUT:  
-----
```

TYPE=PUT
USING DFHTDOA

TCATDAA MUST POINT TO (TDADDR=) :

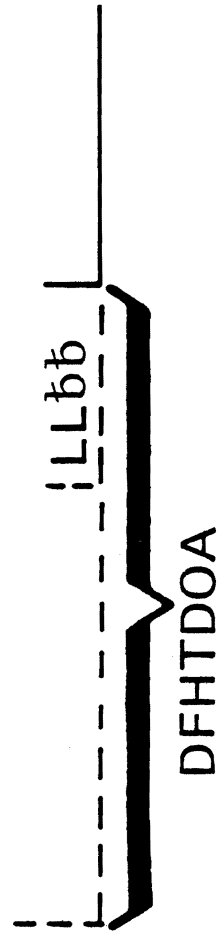
(FIXED)

TDOADBA

OR

(VAR)

TDOAVRL



ASSEMBLER

TYPE=PUT
USING DFHTDOA

```
-----  
TDOABAR EQU X  
COPY DFHTDOA  
RECORD DS CL24  
-----  
DFHSC TYPE=GETMAIN,CLASS=TRANSDATA,NUMBYTE=24  
L TDOABAR,TCASCSA  
MVC RECORD,YOURLDATA  
MVC TDOAVRL,H'28' (VAR LN REC)  
DFHTD TYPE=PUT,DESTID=XXXX,NORESP=GOODPUT,  
TDADDR=TDOAVRL (VAR LN REC)  
OR  
TDADDR=TDOADBA (FIXED LN REC)  
(PROCESS ERRORS HERE)  
-----  
GOODPUT EQU *  
-----
```


GET PROCESSING

INPUT AREA SUPPLIED BY TRANSIENT DATA PROGRAM

ADDRESS FOUND AT TCATDAA AFTER GET

INTRAPARTITION – ADDR OF DFHTDIA PREFIX RETURNED

EXTRAPARTITION – ADDR OF RECORD RETURNED

DATA FORMAT – GET

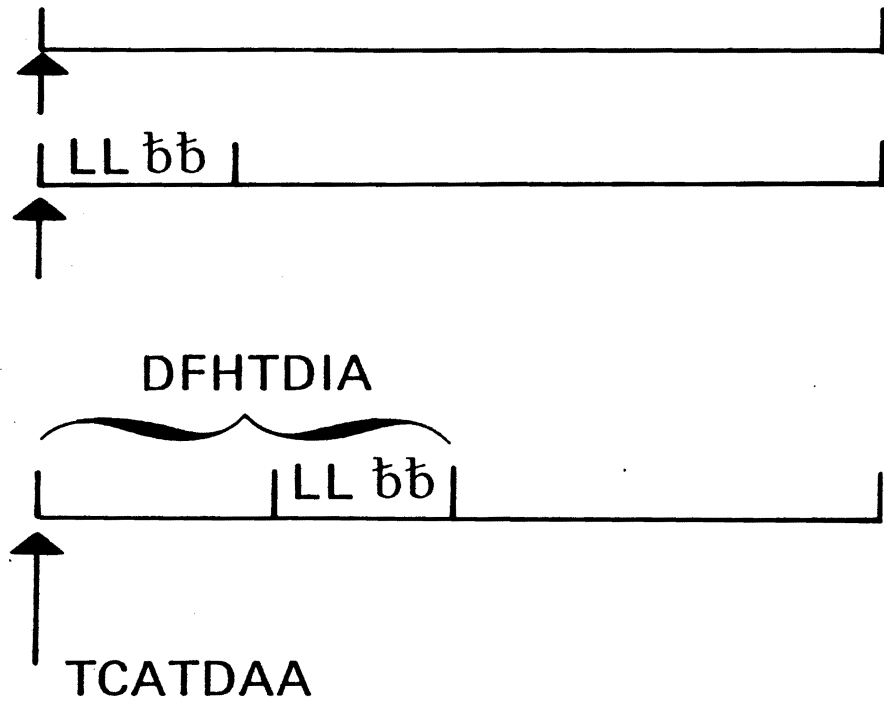
EXTRAPARTITION

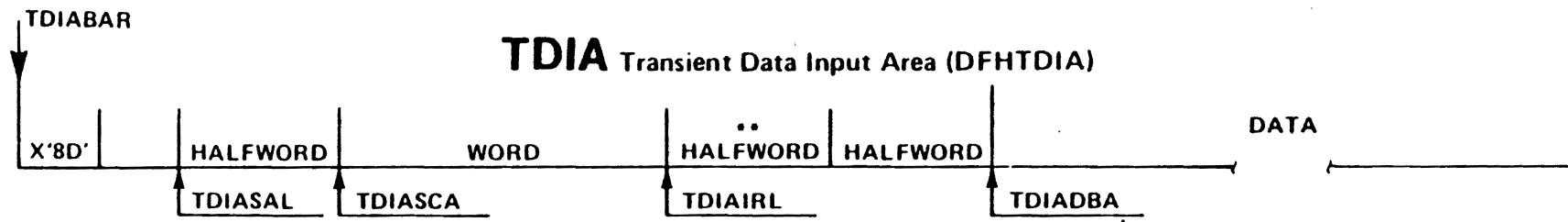
FIXED

VARIABLE

INTRAPARTITION

VARIABLE





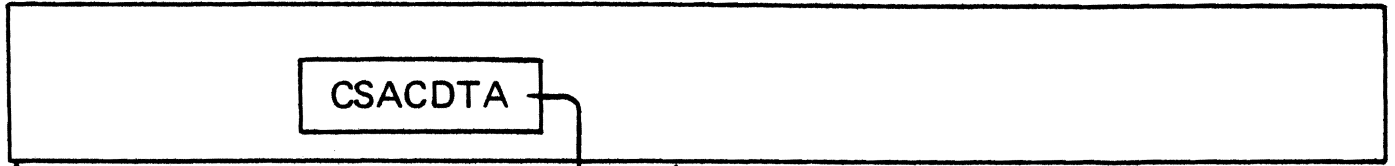
TDIABAR - TDIA Base Address Register
 TDIADBA - TDIA Data Begin Address
 TDIAIRL - TDIA Intrapartition Record Length (LLbb)**

TDIASAL - TDIA Storage Accounting - area Length
 TDIASCA - TDIA Storage Chain Address

*data will be input to TDIA
 DFHTDIA is not in TDIA
 ...*

TRANSIENT DATA

CSA



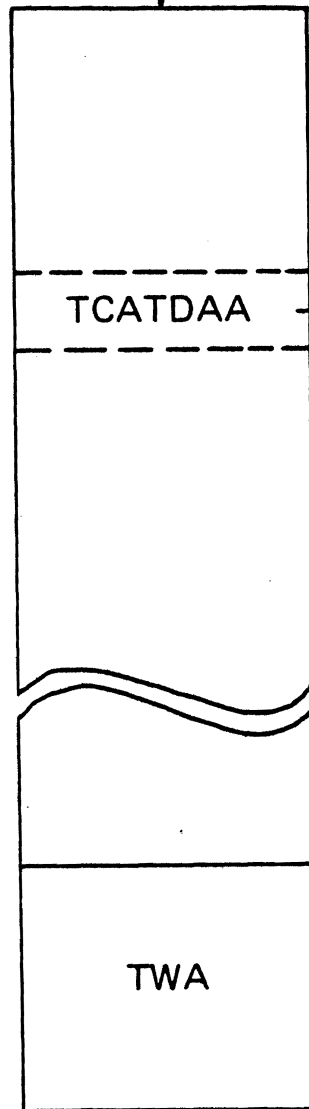
CSACDTA

CSACBAR (REG. 13)

CSAWABA

TCA

TCACBAR (REG. 12)



TCATDAA

TDOA



TDOABAR

TDIA



TDIABAR

TWACOBAR

TWA

ASSEMBLER

TYPE=GET
INTRAPARTITION

```
-----  
COPY DFHCSADS  
COPY DFHTCADS  
-----  
TDIABAR EQU X  
COPY DFHTDIA  
RECORD EQU *
```

```
-----  
DFHTD TYPE=GET,DESTID=XXXX,NORESP=GOODGET,QUEZERO=EMPTY  
(PROCESS ERRORS HERE)
```

```
-----  
GOODGET EQU *  
L TDIABAR,TCATDAA  
-----  
EMPTY EQU *  
-----
```

COBOL

TYPE=GET
INTRAPARTITION

LINKAGE SECTION.

01 DFHBL LDS COPY DFHBL LDS.

02 ----

02 TDIABAR PIC S9(8) COMP.

01 DFHCSADS COPY DFHCSADS.

01 DFHTCADS COPY DFHTCADS.

01 DFHTDIA COPY DFHTDIA.

02 RECORD.

03 ----

PROCEDURE DIVISION.

DFHTD TYPE=GET,DESTID=XXXX,NOESP=GOODGET,QUEZERO=EMPTY
(PROCESS ERRORS HERE)

GOODGET.

MOVE TCATDAA TO TDIABAR,

EMPTY.

PL/I

TYPE=GET
INTRAPARTITION

%INCLUDE (DFHCSADS);
%INCLUDE (DFHTCADS);

%INCLUDE (DFHTDIA):
 2 REC,
 3 ----

DFHTD TYPE=GET,DESTID=XXXX,NOESP=GOODGET,QUEZERO=EMPTY
(PROCESS ERRORS HERE)

GOODGET:
 TDIABAR=TCATDAA;

EMPTY:

ASSEMBLER

TYPE=GET
EXTRAPARTITION

COPY DFHCSADS
COPY DFHTCADS

REC

DSECT
USING *,3

(RECLL DS CL2)
DS CL2)

VAR. LN. RECS. ONLY

RECORD

EQU *

DFHTD TYPE=GET,DESTID=XXXX,NORESP=GOODGET,QUEZERO=EMPTY

(PROCESS ERRORS HERE)

GOODGET

EQU *

L 3,TCATDAA

DATA ADDR

EMPTY

EQU *

COBOL

TYPE=GET
EXTRAPARTITION

LINKAGE SECTION.

01 DFHBL LDS COPY DFHBL LDS.

02 ----

02 RECBAR PIC S9(8) COMP.

01 DFHCSADS COPY DFHCSADS.

01 DFHTCADS COPY DFHTCADS.

01 REC.

(02 RECLL PIC S9(4) COMP.)
(02 FILLER PIC X(2).)

VAR. LN. RECS. ONLY

02 RECORD.

03 ----

PROCEDURE DIVISION.

DFHTD TYPE=GET,DESTID=XXXX,NOESP=GOODGET,QUEZERO=EMPTY
(PROCESS ERRORS HERE)

GOODGET,

MOVE TCATDAA TO RECBAR.

EMPTY

PL/I

TYPE=GET
EXTRAPARTITION

%INCLUDE (DFHCSADS);
%INCLUDE (DFHTCADS);

DEF REC BASED (RECBAR),
 (2 RECLL PIC FIXED BINARY (15),)
 (2 ZEROS PIC CHAR (2),
 2 RECORD,
 3 ----

VAR. LN. RECS. ONLY

DFHTD TYPE=GET,DESTID=XXXX,NOESP=GOODGET,QUEZERO=EMPTY
(PROCESS ERRORS HERE)

GOODGET:
 RECBAR=TCATDAA;

EMPTY:

FEOV PROCESSING

USED WITH EXTRAPARTITION MAGNETIC TAPE DATA SET

CAUSES A REWIND AND UNLOAD OF TAPE REEL

NEXT TAPE REEL MUST BE LOADED

CAUTION: CICS/VS PARTITION WAITS UNTIL NEW

TAPE REEL IS LOADED

TRACE CONTROL

DEBUGGING AID FOR APPLICATION DEVELOPMENT

SELECTIVE RECORDING OF CICS/VSE MANAGEMENT REQUESTS

RECORD OF USER SPECIFIED ENTRIES

SIZE OF TRACE TABLE SPECIFIED IN SIT (TRT=NN)

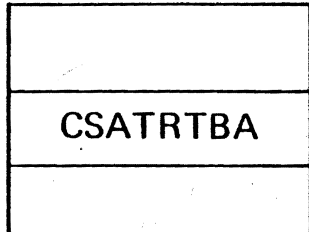
DUMMY TRACE

16 BYTE ENTRIES

WRAP AROUND TABLE

FIRST ENTRY IS 'CONTROL'

11C



0

CURRENT ENTRY ↓	FIRST ENTRY ↓	LAST ENTRY ↓	RESV
--------------------	------------------	-----------------	------

10

ID	REG14	REQ TYPE	TASK ID	FIELD A	FIELD B

20

30

TRACE IDENTIFICATION

ID

00 — C7	0 — 199	USER ENTRIES
C8 — E5	200 — 229	SYSTEM ENTRIES
E6 — EF	230 — 239	F E ENTRIES
FO — FD	240 — 253	TRACE CONTROL ENTRIES (CICS/VS)
FE	254	TRACE ON
FF	255	TRACE OFF

TRACE TABLE ENTRIES

<i>ID</i>	<i>MODULE</i>	<i>FLD A/B (COMMON)</i>
F0	KC	
F1	SC	# BYTES (A)
C8	AFTER GETMAIN	ADR STORAGE
C9	AFTER FREEMAIN	ADR STORAGE
F2	PC	PGM ID OR ABCODE
F3	IC	TRANSID
F4	DC	ABCODE
F5	FC	DATA SET ID
F6	TD	DESTINATION ID
F7	TS	DATA ID
F8	DLI	CALL TYPE/PCB ADR
F9	JC	TYPE REQ,JCA ADR
FA	BMS	TYPE REQ
CF	AFTER MAPPING	RESPONSE
FB	BUILT-IN FUNCTIONS	VARIES BY TYPE
FD	DUPLICATE	NO OF ENTRIES
FE	TRACE ON	TRACE BITS
FF	TRACE OFF	TRACE BITS

P Y 111
F2651D80 0200007C D7C7D4D7 E8404040

F16561E5 E500E3C3 000003C2 00655AD0

mag
C8653946 0000E3C3 005E6C20 850003D8

RC
F065279A 4000007C 80000000 00652F40

ECB
FD000000 00000000 00000000 0000001C

point
10/1/80
(1)

TRANSACTION DEBUGGING

CONTROL BLOCK OVERVIEW

TCA – INCLUDING REGISTER
SAVING CONVENTIONS

TCTTE

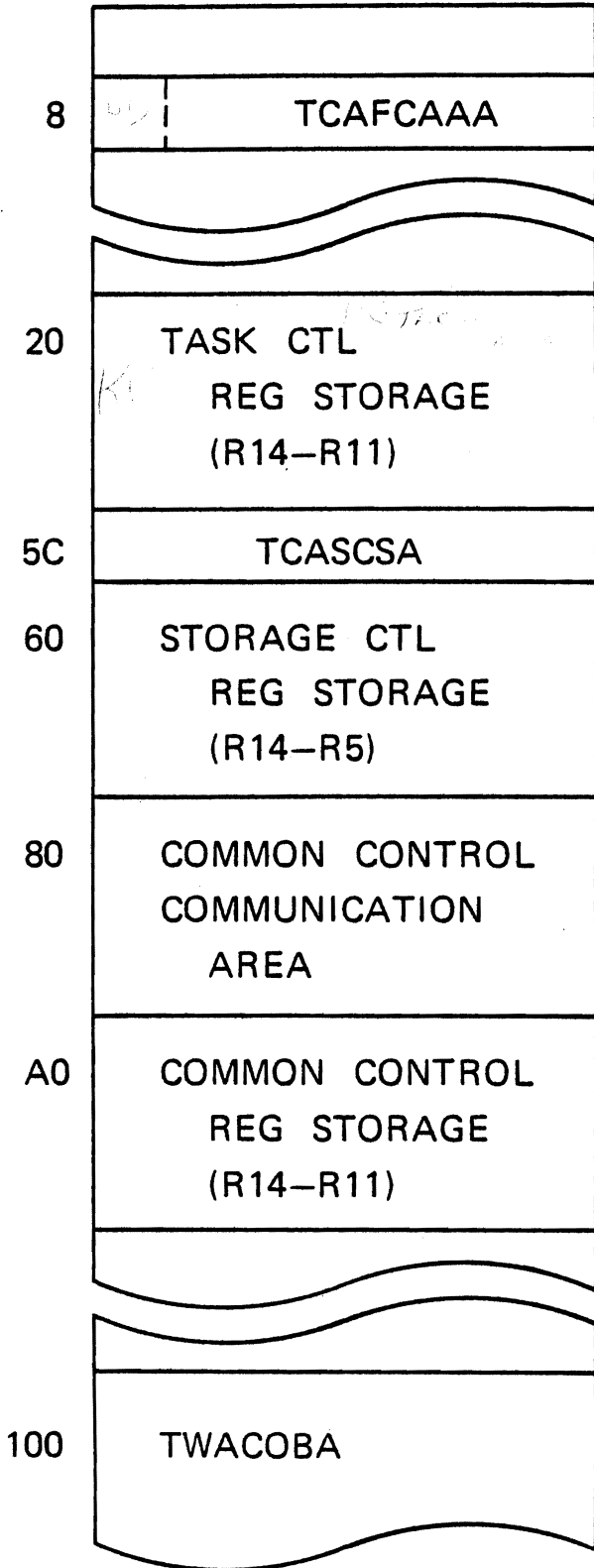
CSA

COMMON APPLICATION PROGRAMMING ERRORS

BASIC TRANSACTION DEBUGGING

TRACE ANALYSIS

TCA (USER AREA)



For 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

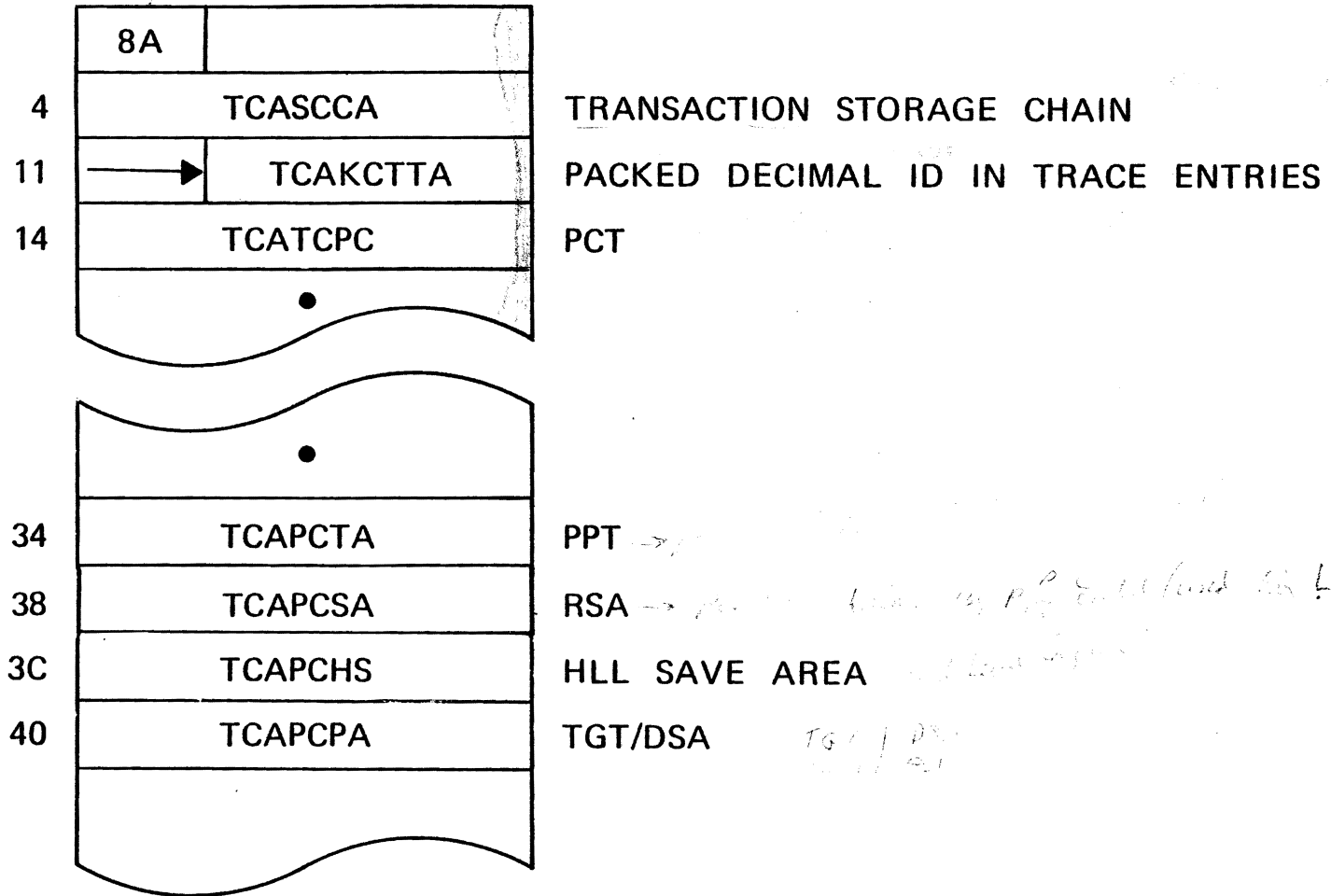
USED BY KC, PC, FC, TD, TS, IC,
BMS, DL/I, BIF, SYNC PT
AND DC

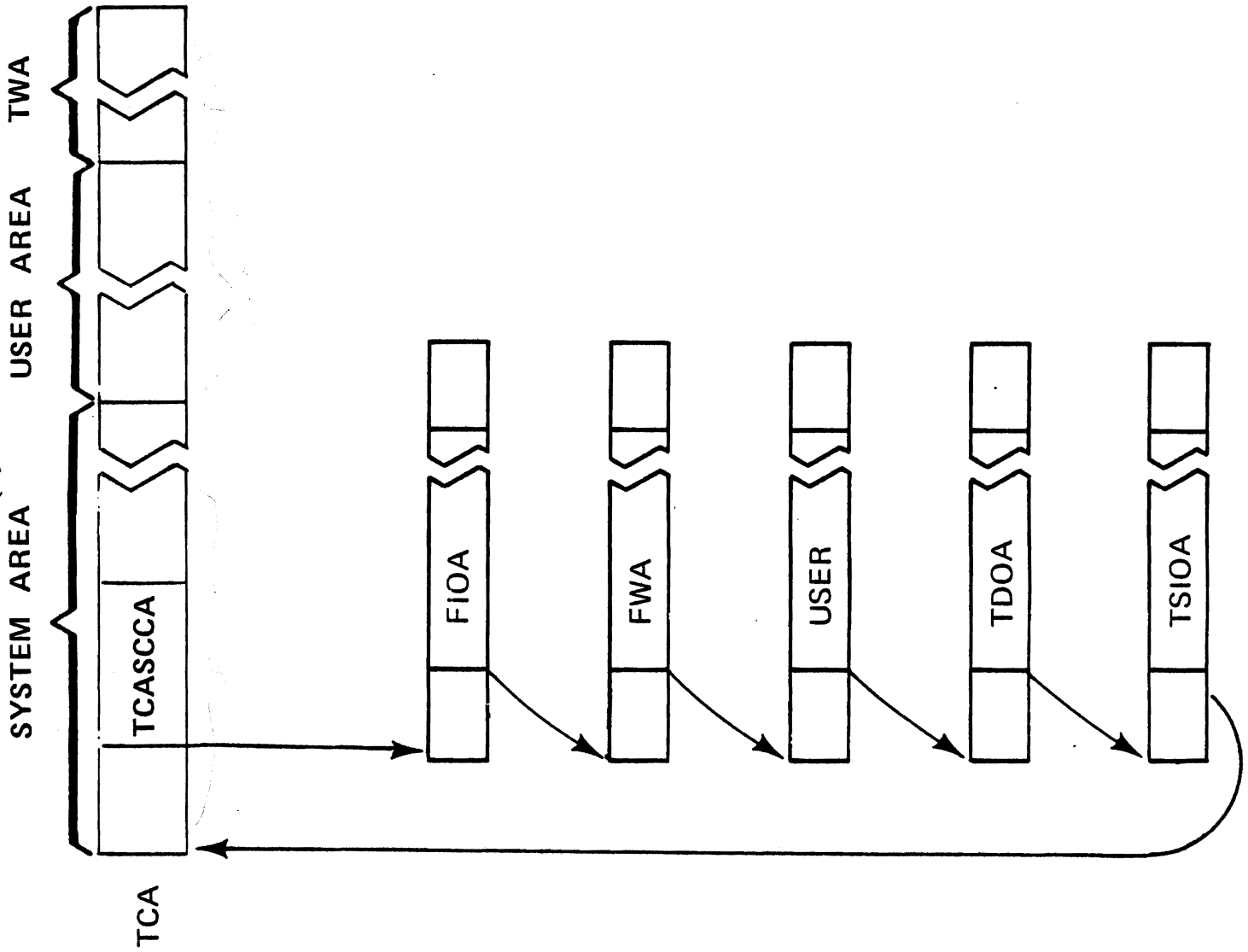
BEGINNING OF TWA

TCA COMMON CONTROL COMMUNICATION AREA

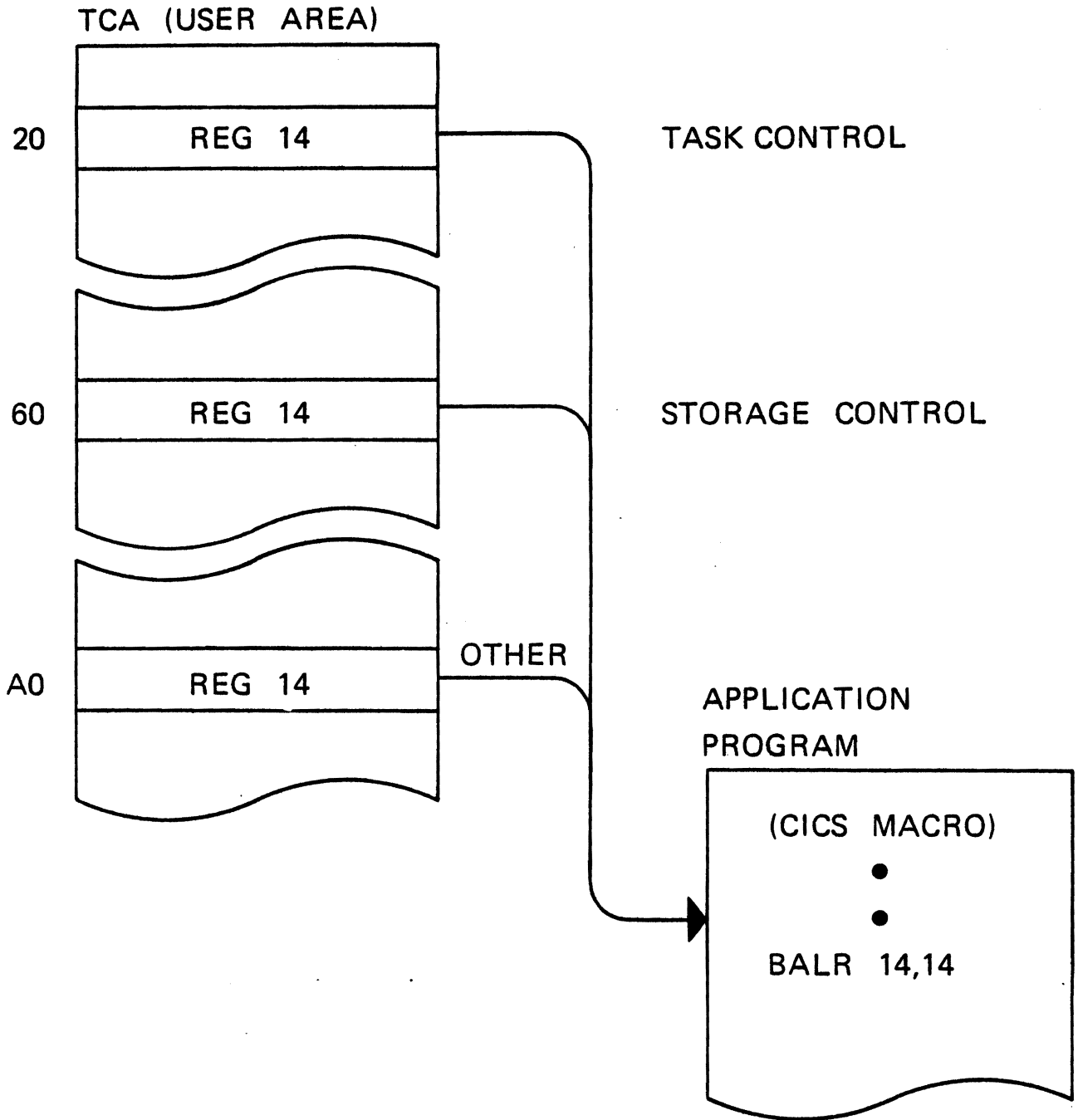
KC	R C												TRANS ID	FCA ADDR						
IC	T R	↑DATA ↑ECA	REQUEST ID					REQD TIME			↑FCA TRN ID	TRML ID								
PC	T R	PGM ADDR	PROGRAM ID					ABEND CODE			SYS RECOVERY PSW									
BM	RETURN/ REQUEST		PG NO	OFL CTL	↑ALT ID AREA	F B	J F Y	CUR POS			↑MAP				↑MSET					
											MAP NAME			MAPSET NAME						
DC	TYP REQ	NUM BYT	STORAGE ADDR						DUMP CODE											
FC	T R	FIOA FWA	DATA SET ID					INDIRECT IDENTI-			ACCESS FICATION		SEGMENT SET ID		RECORD ID ADR					
DL1	↑	WORK AREA		PCB ADDR	PSB NAME					↑SSA LIST	↑PARAM LIST		LANG ECB	DL/I FUNC						
TD	T R	DATA ADDR	DEST ID																	
TS	T R	DATA ADDR	TEMPORARY DATA ID			REC NO														
BIF	REDEFINED DEPENDING										UPON SERVICE REQUESTED									

TCA (SYSTEM AREA)



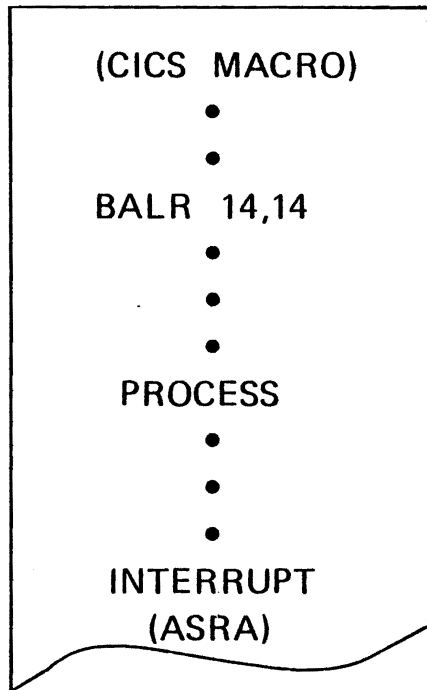


ASSEMBLER

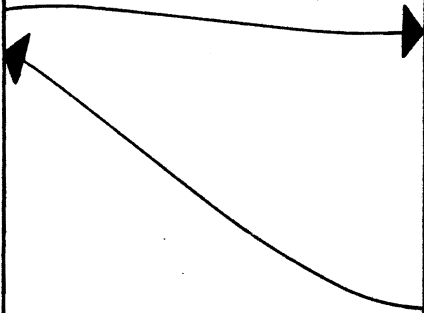
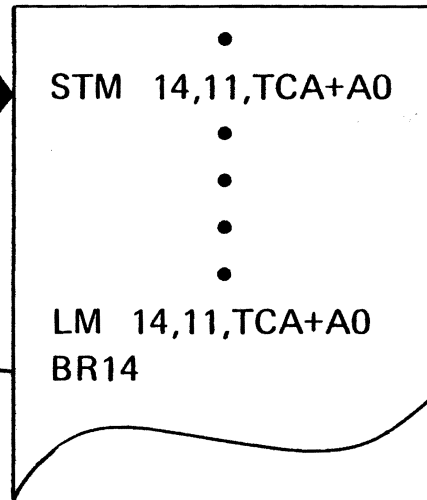


ASSEMBLER

APPLICATION PROGRAM

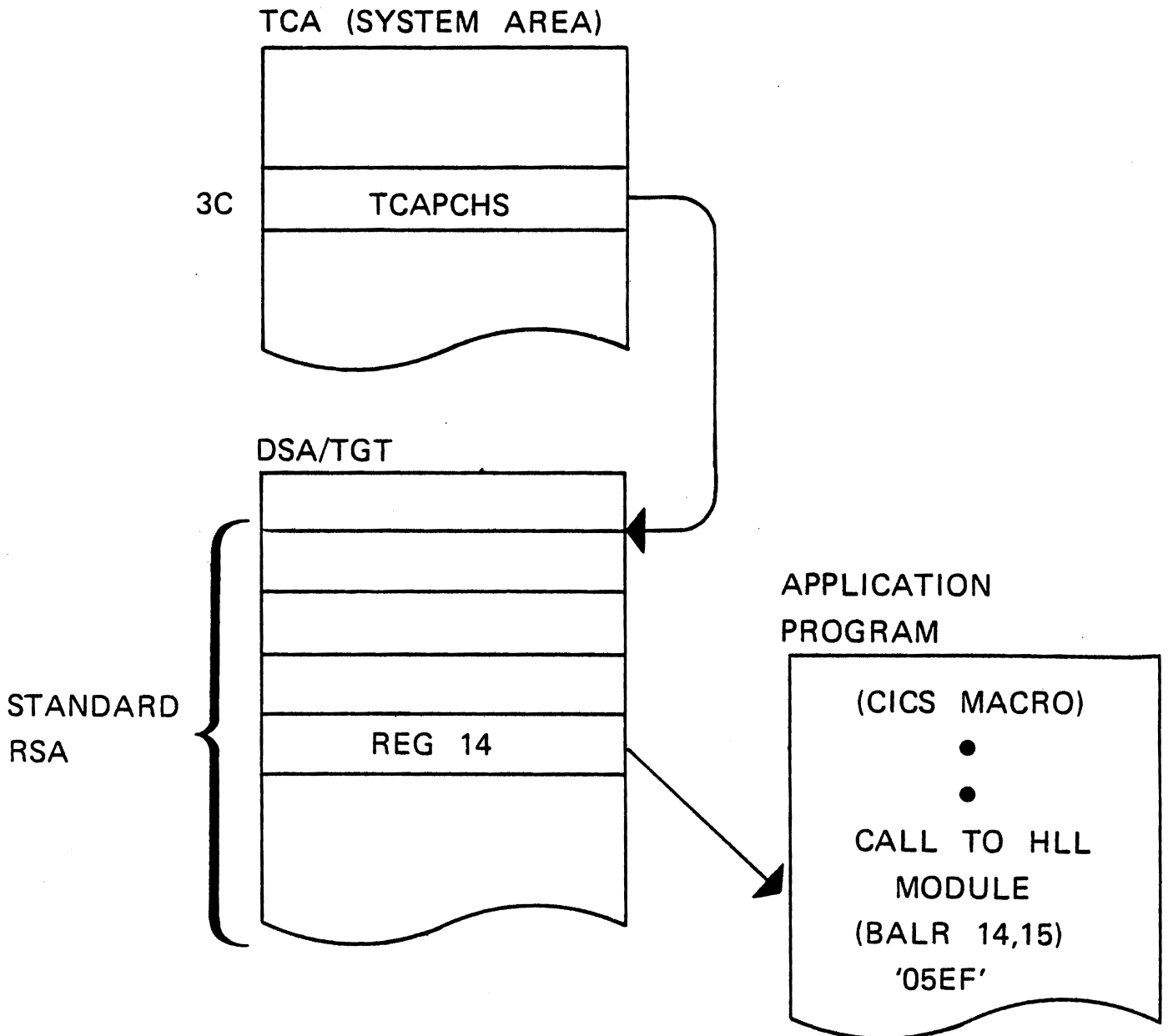


MANAGEMENT MODULE



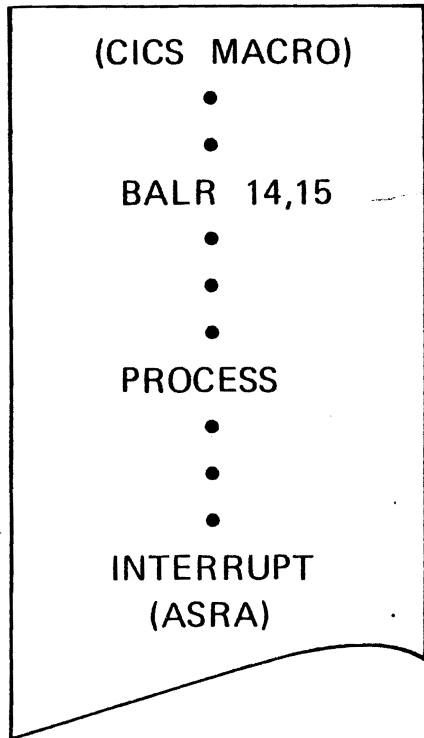
[Handwritten notes]

COBOL – PL/I

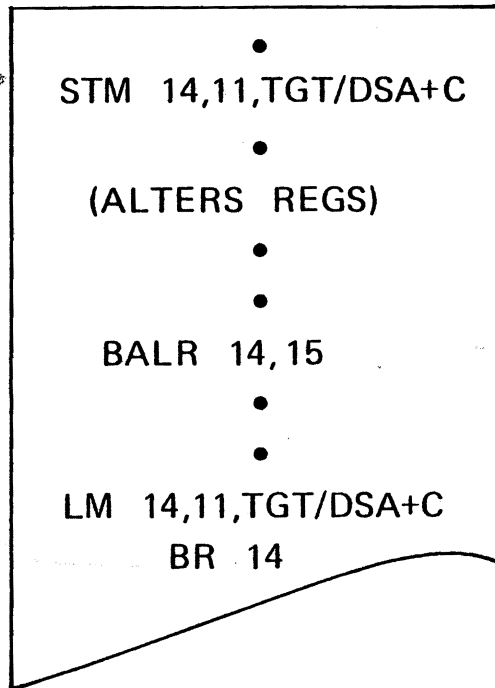


COBOL/PL/I

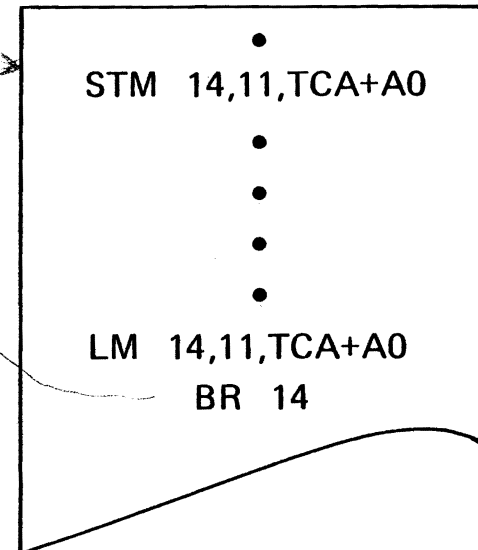
APPLICATION PROGRAM



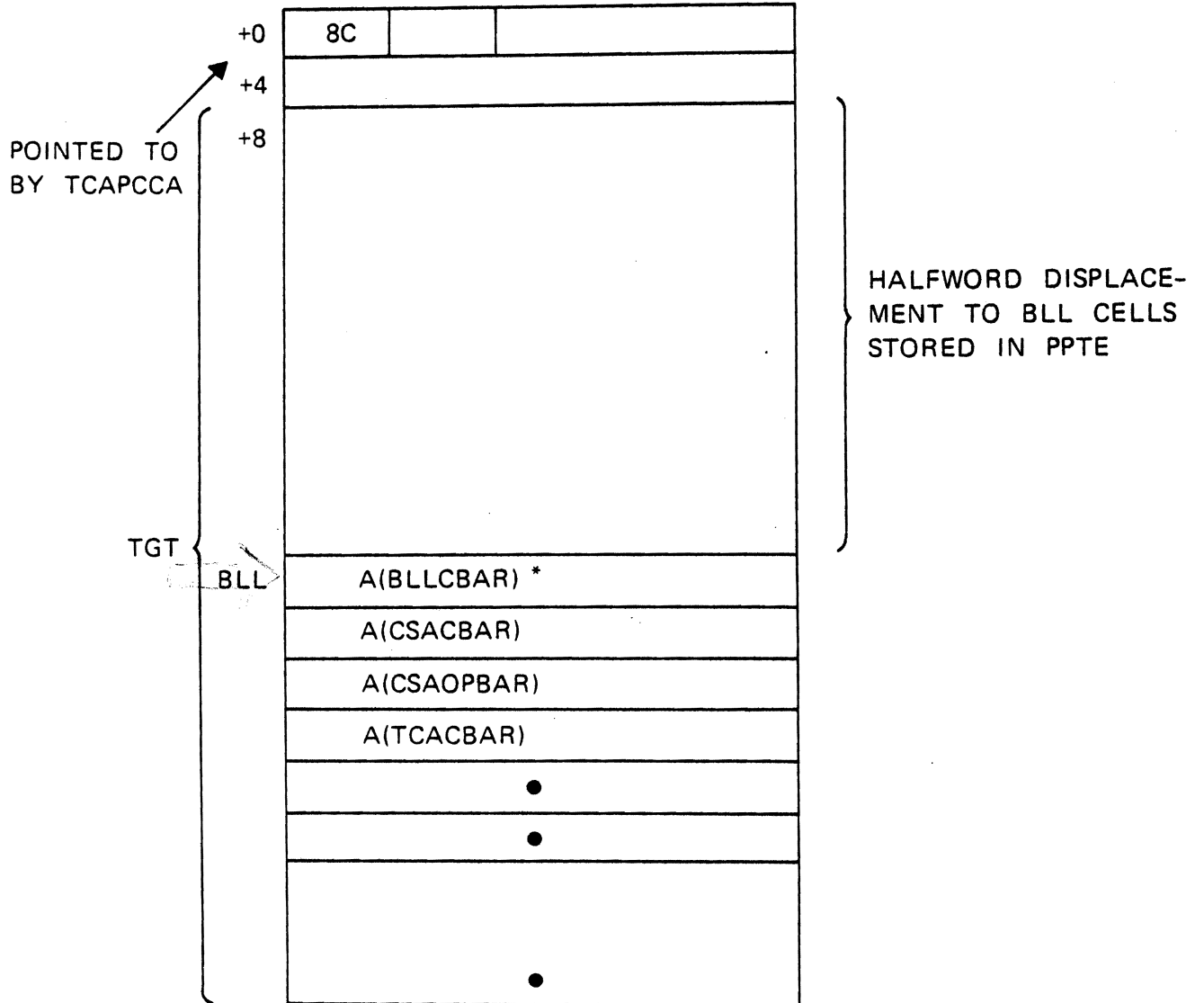
HLL INTERFACE



MANAGEMENT MODULE



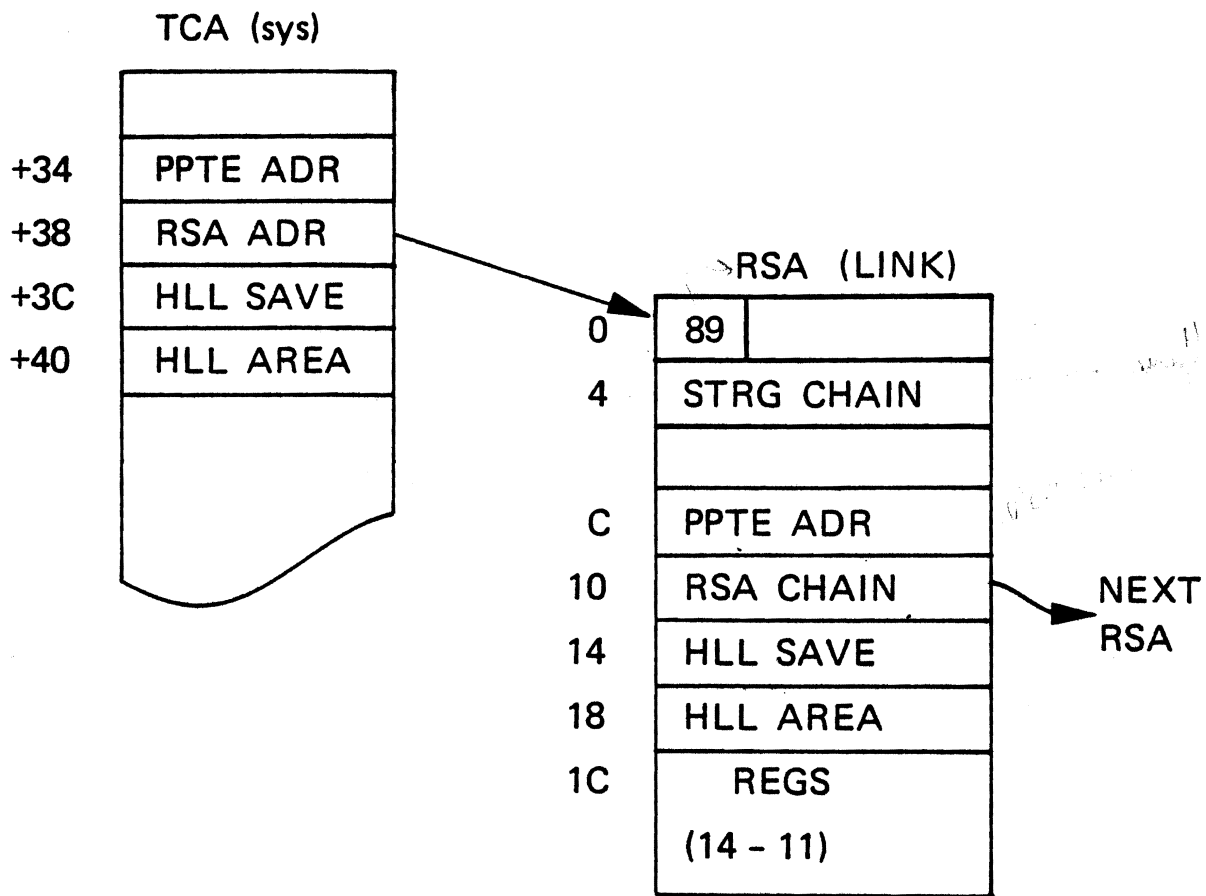
CICS COBOL AREA



MAPPED IN COBOL LISTING (PMAP)

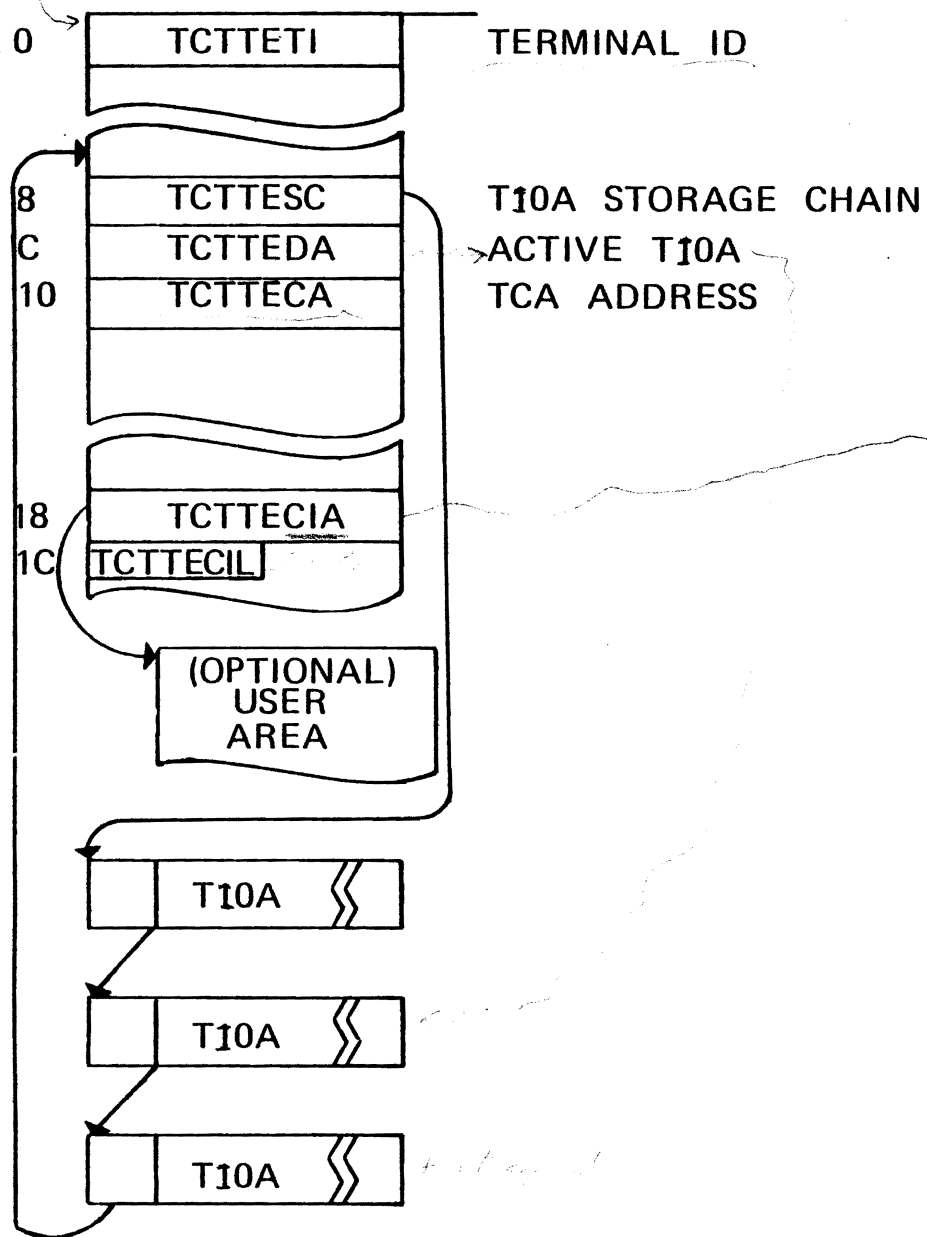
LINK

MODULE ACCOUNTING

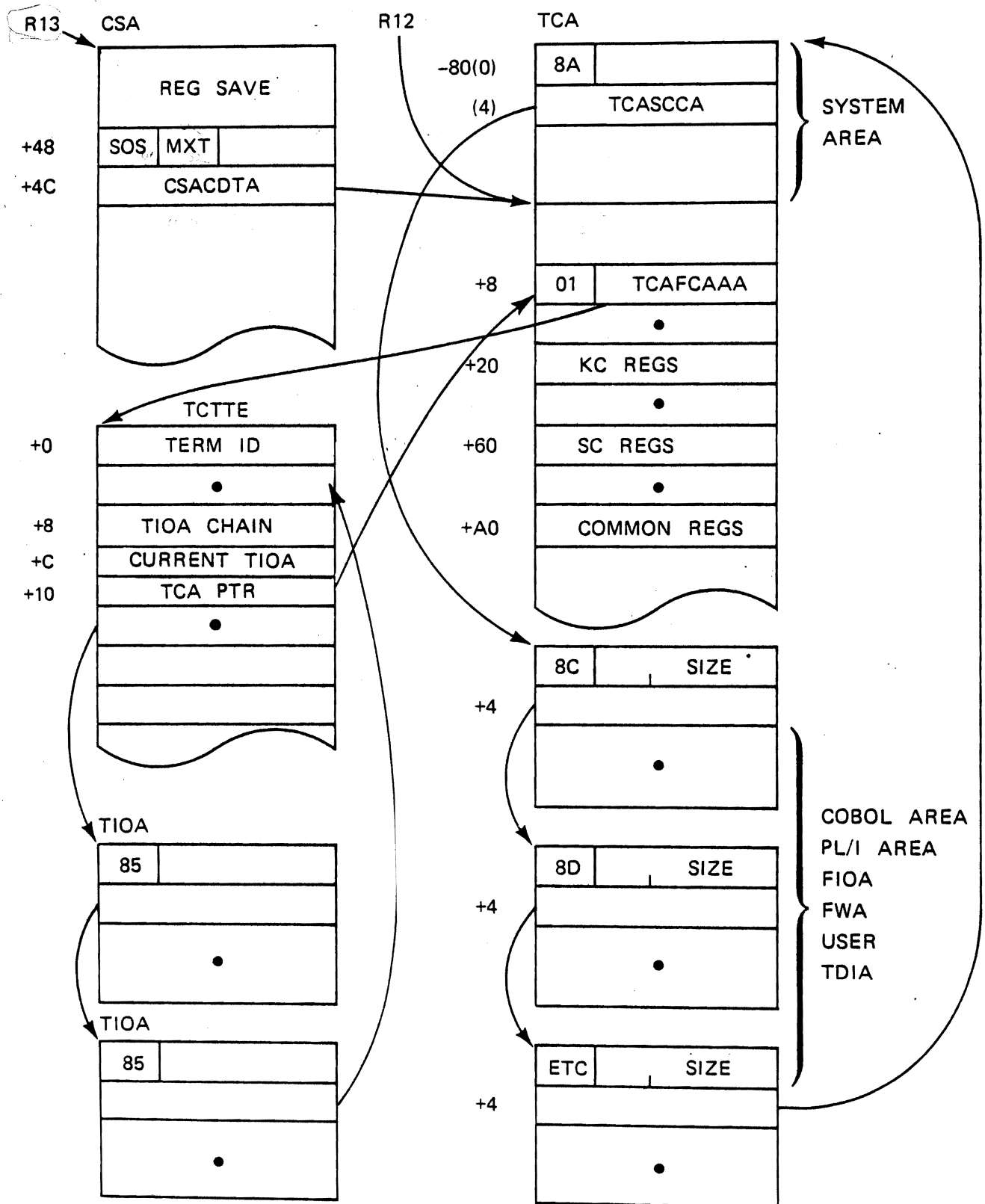


TCTTE

TCTTE



CSA CONTROL BLOCK RELATIONSHIP – STORAGE CHAINING



COMMON ERRORS

FILE CONTROL

WHEN TO USE - FIOA/FWA/VSWA ?

FILE CONTROL TABLE

USER RESPONSIBILITIES

TRANSIENT DATA

EXTRAPARTITION

INTRAPARTITION

ADDRESSING

BMS

PPT ENTRIES *map entries in the*

MAP DEFINITIONS

STORAGE CONTROL

FREEMAIN *map entries in the*

GETMAIN

STORAGE RECOVERY

A CONVERSATIONAL TECHNIQUE

KC	ENQ	ON RECORD ID
FC	GET	FOR INQUIRY (MOVE MODE)
BMS	OUT	DISPLAY
BMS	IN	READ CHANGES
FC	GET,UP	FOR UPDATE (MAY STILL BE IN BUFFER)
FC	PUT,UP	ALTERED RECORD
BMS	OUT	NORMAL RESPONSE
KC	DEQ	FREE RECORD ID
PC	RETURN	TERMINATE

ADDITIONAL CICS/VS FACILITIES

ADVANCED PROGRAMMING

MORE BMS

MORE DATA BASE CAPABILITIES

MULTI-TASK HANDLING

TEMP STORAGE

TRACE CONTROL

DUMP CONTROL

TRANSACTION DEBUGGING EXERCISE

The CICS/VS formatted dump includes a dump header on the first page which indicates the 4-character dump code (if any), the identification of the task being abnormally terminated, the program registers, and, under certain conditions, the program PSW at entry to the ABEND.

1. What is the dump code? ASAB
2. What does this dump code indicate? (Look in the 'Messages and Codes' manual). Program check

Notice that each block of storage has its own heading indicating the type of storage, the inclusive storage addresses and the storage length. The addresses on the right are the actual addresses. This differs from an operating system dump where actual addresses appear on the left. The addresses on the left are relative addresses and indicate the relative displacement from the beginning of each block. These relative displacements can be used in conjunction with the PLM (Program Logic Manual) when trying to locate specific fields.

TCA USER AREA

3. Does this task have a terminal associated with it? (TCAFCAAA) Y
4. What is the address of the TCTTE obtained from the TCA? (TCAFCAAA) E0100
5. Locate the Task Control register storage area. What registers are stored there? R14-R11
6. What registers are stored in the Storage Control register save area? R14-R5
7. What registers are stored in the Common Control register save area? R14-R11

8. How long is the TWA? 78 x = 1200

TCA SYSTEM AREA

9. What is the storage class identifier for the TCA?
8A

10. What is the address pointed to by the transaction storage chain address? (TCASCCA)
8D2A0 Transaction storage chain (not valid)

11. How many areas are on this chain? Use the storage accounting prefix chain address field to locate the next storage area. Notice the duplicate storage accounting fields for transaction storage and TIOA's.
1

12. What does the storage chain address of the last entry point to?
back to TCA

13. Why aren't the CSA, Trace Table, Terminal Control Table, TIOA's and Program Storage on this chain?
only program in TASK area

14. What is the ID of the task that was abended? (TCAKCTTA). #1

TCTTE AND TIOA

15. What is the ID of the terminal being used by this task? (TCTTETI)
CRLP

16. How many TIOA's are used by this task?
2

17. What is the storage class identifier for a TIOA?
85

18. What is the first TIOA in the chain? (TCTTESC)

8B17C

19. Follow the TIOA chain by using the Storage accounting prefix chain address. What does the last TIOA chain address point to? point to TCTTE

20. What is the current TIOA? (TCTTEDA)

21000

21. What does the field TCTTECA point to? Verify

TCA address 8D8FC ✓

22. Why are there no length codes in field TIOATDL in the TIOA's in this dump?

No I/O

23. What does field TCTTECIA point to? How long is it?

incl. address

MISCELLANEOUS

24. How many programs are in use by this task? (Hint: Each block of program storage is printed separately.)

1

25. Locate field CSACDTA in the CSA. What does this field point to? Verify.

current TASK
Done ✓

26. What is the address of the current entry in the trace table?

D03E0

27. What is the current entry?

Trace control (-) - repeat previous 10

A1

CICS/VS PROGRAMMING I - LAB EXERCISE

The purpose of this class exercise is to create an application program and BMS map for use with CICS/VS. The program is to be built partially each day. Certain "dummy" routines inserted at the beginning are to be replaced by "real" ones as the class progresses. The full program will not be completed until the end of the class.

General Information

1. MVS Job Control cards for assembly, compile, link edit, and execution will be supplied. See next page for listing of supplied JCL.
2. All class transactions will receive a TWA of 100 bytes.
3. Do not submit reassemblies or recompiles solely for the purpose of obtaining additional listings for team members.
4. All PCT and PPT entries exist for the student transactions and maps. The naming conventions indicated in this handout must be used to insure proper execution of your program.
5. COBOL - Programs must include the SUPPRESS option in the copy statements for the CSA, TCA, and TCTTE dummy sections. e.g.:

01 DFHTCADS COPY DFHTCADS SUPPRESS.

CICS/VS Programming I (U3681) - JCL

General program execution

```
//WS3681XY JOB (3U368116236544,0402), 'CICS AAA AAA TEAM Y PGM', CLASS=A
// EXEC DFHESAAA, PROG=WSMODXYA
***** REPLACE THIS CARD WITH YOUR SOURCE DECK *****
// EXEC DFHESICS, EC=WS, PARAM='SIT=WS'
//CICS.READER DD *
WSXY HELPa
WSXY BADFa
WSXY DISP WSNNNa
WSXY UPDT WSNNNa
CSMTa
SHUTDOWNa
YESa
```

Mapbuilding

```
//WS3681XY JOB (3U368116236544,0402), 'CICS AAA TEAM Y MAP', CLASS=A
// EXEC DFHESMAP, PROG=WSMAPXY
//UPDTE.INPUT DD *
./ ADD NAME=MEMBER
***** REPLACE THIS CARD WITH YOUR MAP DEFINITION *****
./ ENDUP
```

Variables

A-Assembler teams
x=C-COBOL teams
P-PL1 teams

y=Team number

nnn=any number between 001 and 099

ASM - Assembler teams
AAA=COB - COBOL teams
PL1 - PL1 teams

Input Message Description

The input message has the following format:

cc 1
WS.xy ffff nnnnn@

Where:

x - is the programming language (A for Assembler, C for COBOL, P for PL/I).

y - is the team identification (1 thru 9).

ffff - is a function code:

HELP - to display a prompter message

DISP - to display an inventory record

UPDT - to update an inventory record

nnnn - is an optional field containing the key of a record on the inventory file.

@ - is an "end-of-message" character used to end the data on a card. It is not used for input on the 3270.

Examples:

WSA3 HELP@

WSC2 DISP CH037@

WSP1 BADF@

WSA4 UPDT CH021@

Furnished Mapset Description

Mapset name: LABMAPS

<u>Map Name</u>	<u>Contents</u>
MSG1	TRANSACTION CANCELLED
MSG2	INVALID FUNCTION
MSG3	INVALID FORMAT
MSG4	NO RECORD FOUND
MSG5	UPDATE COMPLETED
HELP	A "prompter" display containing the input message format.

Inventory Dataset Description

The dataset name is CLASSDS. It is a VSAM Key-Sequenced dataset with variable-length records. The format of the records is as follows:

<u>Field Location</u>	<u>Contents</u>
1-4	Record length - LLbb (not a part of the physical record, but must be defined in a File Work Area).
5-9	Record Key (New Part Number) - WS001 thru WS099.
10-14	Old Part Number - Alphameric
15-34	Description - Alphameric
35-37	Branch Office - Alpha
38-40	Quantity On-hand
41-43	Quantity On-order
44-46	Quantity Shipped
47-49	Order Point

Note - The above four fields are Zoned Decimal.

50- Variable - not used in this class.

The last three digits of the record key are the key number, right justified and padded to the left with zeros. Any team may display any record, but to avoid confusion, each team will only update those key numbers assigned to it in the following table:

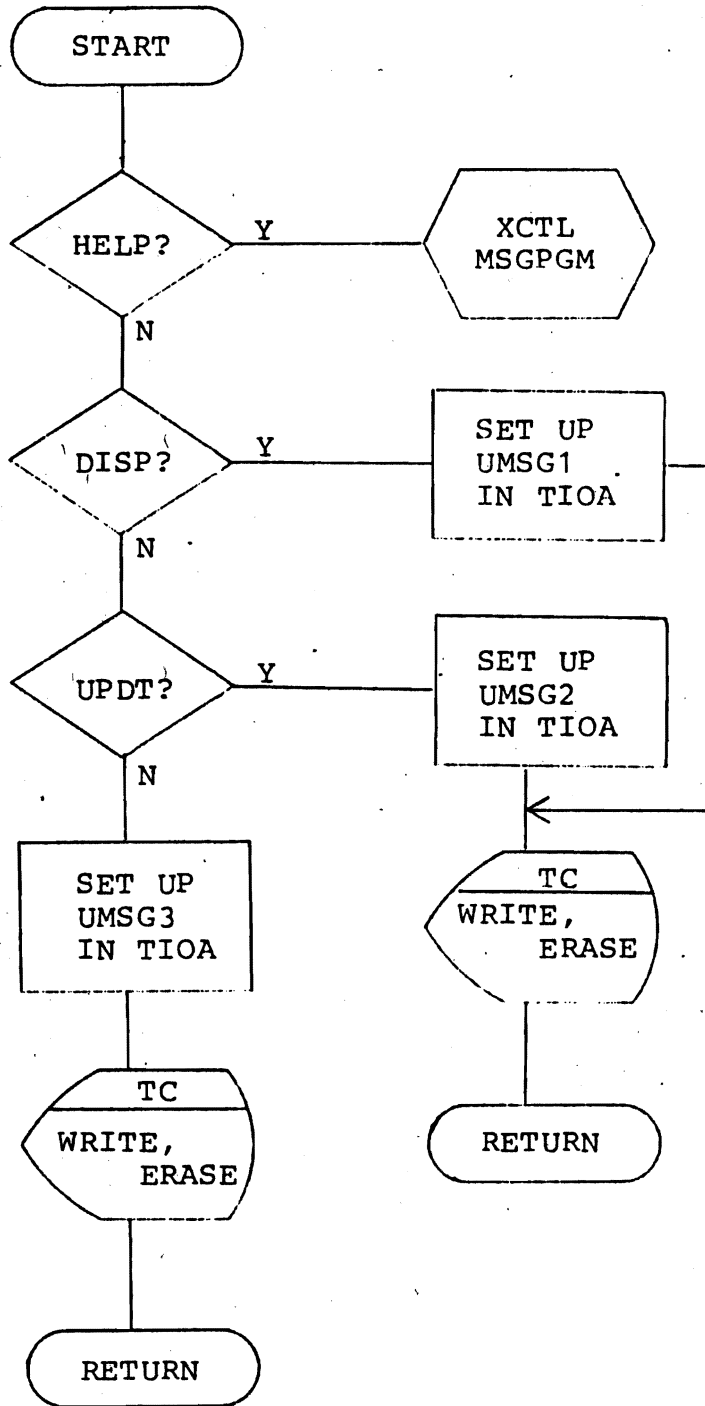
	<u>ASSY</u>	<u>COBOL</u>	<u>PL/I</u>
TEAM ID - 1	1-5	41-45	86-90
2	6-10	46-50	91-95
3	11-15	51-55	96-99
4	16-20	56-60	
5	21-25	61-65	
6	26-30	66-70	
7	31-35	71-75	
8	36-40	76-80	
9		81-85	

Day One

Create an application program to perform the following functions:

1. If the function code in the input message is equal to HELP, transfer control to a supplied program named MSGPGM. This program will send a "prompter" display to the terminal and terminate the task.
2. If the code is DISP or UPDT, send a message to the terminal indicating that the "Display" or "Update" routine was entered. Then terminate the task.
3. If the code is other than the above, send an "invalid code" message to the terminal, and terminate the task. Also, identify your terminal.

TCTTET I



- UMSG1 - A message indicating that the routine was entered.
- UMSG2 - Same as above.
- UMSG3 - A message indicating that an invalid code was entered.

Day Two - Part One

Create a mapset and a dummy section to be used in your application program on Day Three.

The mapset will be cataloged under the name `WSMAPxy`. It will produce a display with the format shown in Figure 1.

The dummy section will be cataloged into a source library, also under the name `WSMAPxy`, so that it may later be `COPYed` or `%INCLUDEd` into your application program.

Notes:

1. The mapset and dummy section will be used for both input and output.
2. The terminal to be used is a 3270 Model 2. The display size is 24 lines by 80 columns.

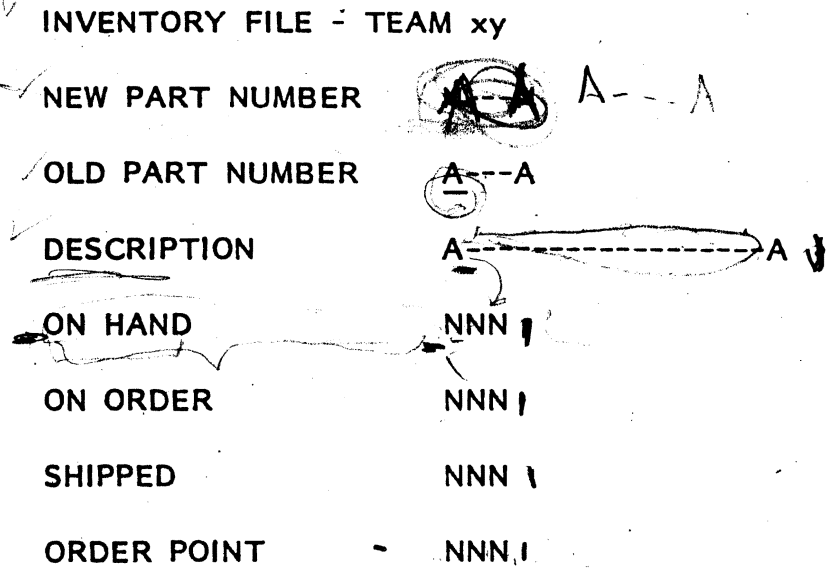
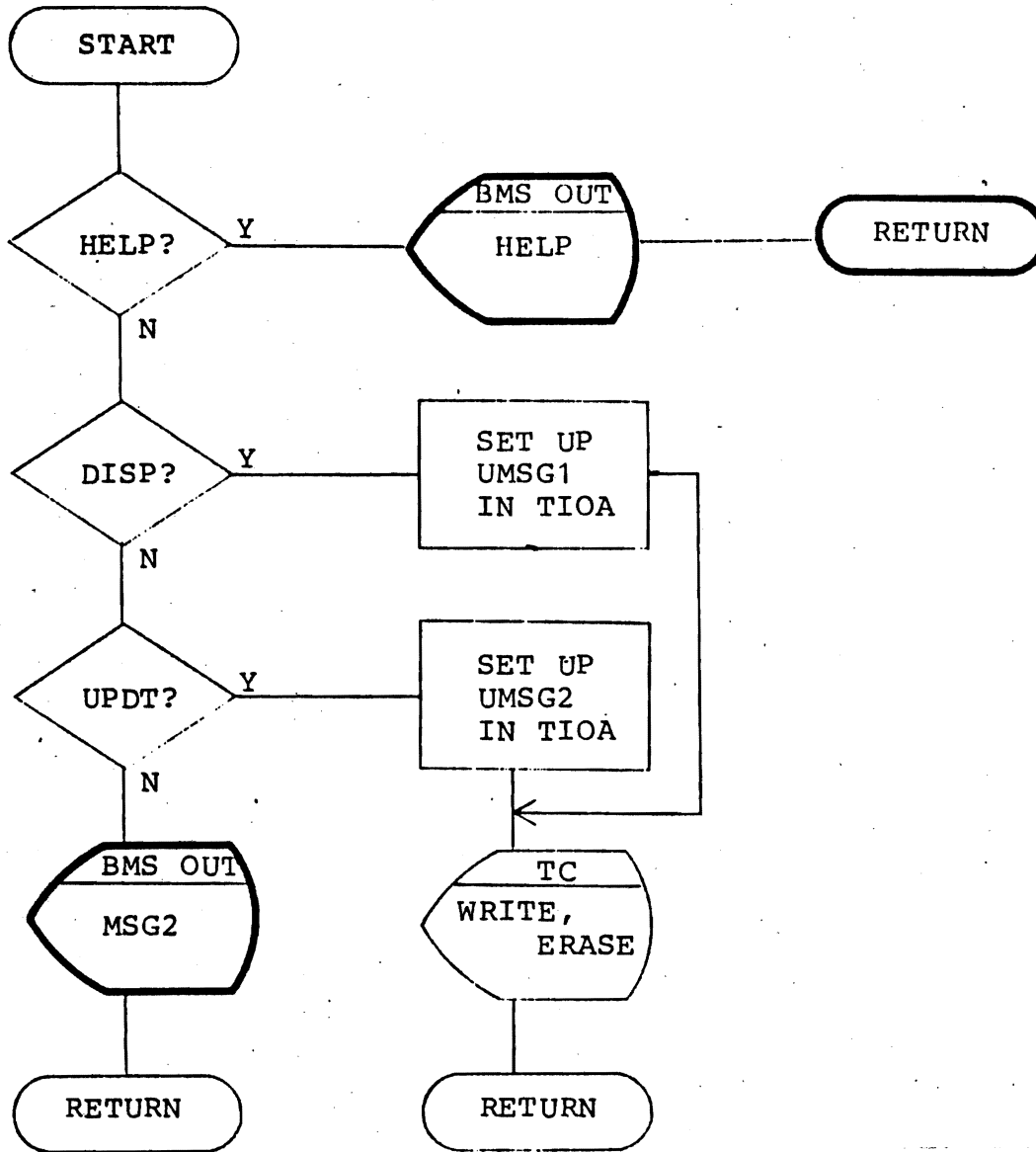


Figure 1. Inventory File Display and Update Screen Layout.

Day Two - Part Two

Modify the program from Day One to perform the following functions:

1. If the function code is HELP, send the "prompter" display in the furnished mapset to the terminal, and terminate the transaction.
2. If the function code is other than HELP, DISP, or UPDT, send the Invalid Function map in the furnished mapset to the terminal, and terminate the transaction.



UMSG1 - A message indicating that the routine was entered.
UMSG2 - Same as above.

Day Three

Modify the application program to display and update a record on the CLASSDS dataset:

If the function code is DISP:

1. If the input message is invalid (i.e. less than fifteen bytes long), send the Invalid Format map in the furnished mapset to the terminal, and terminate the transaction.
2. Retrieve the requested record from the CLASSDS dataset.
If the record cannot be found, send the No Record Found map in the furnished mapset to the terminal and terminate the transaction.
If any other error occurs, abnormally terminate the transaction with abend code 1111.
3. Display the record on the terminal, using the map which was created on Day Two.

If the function code is UPDT:

4. Check the record key in the input message as in step 1.
5. Retrieve the record in order to update it. Process any errors as in step 2.
6. Display the record on the terminal, as in step 3.

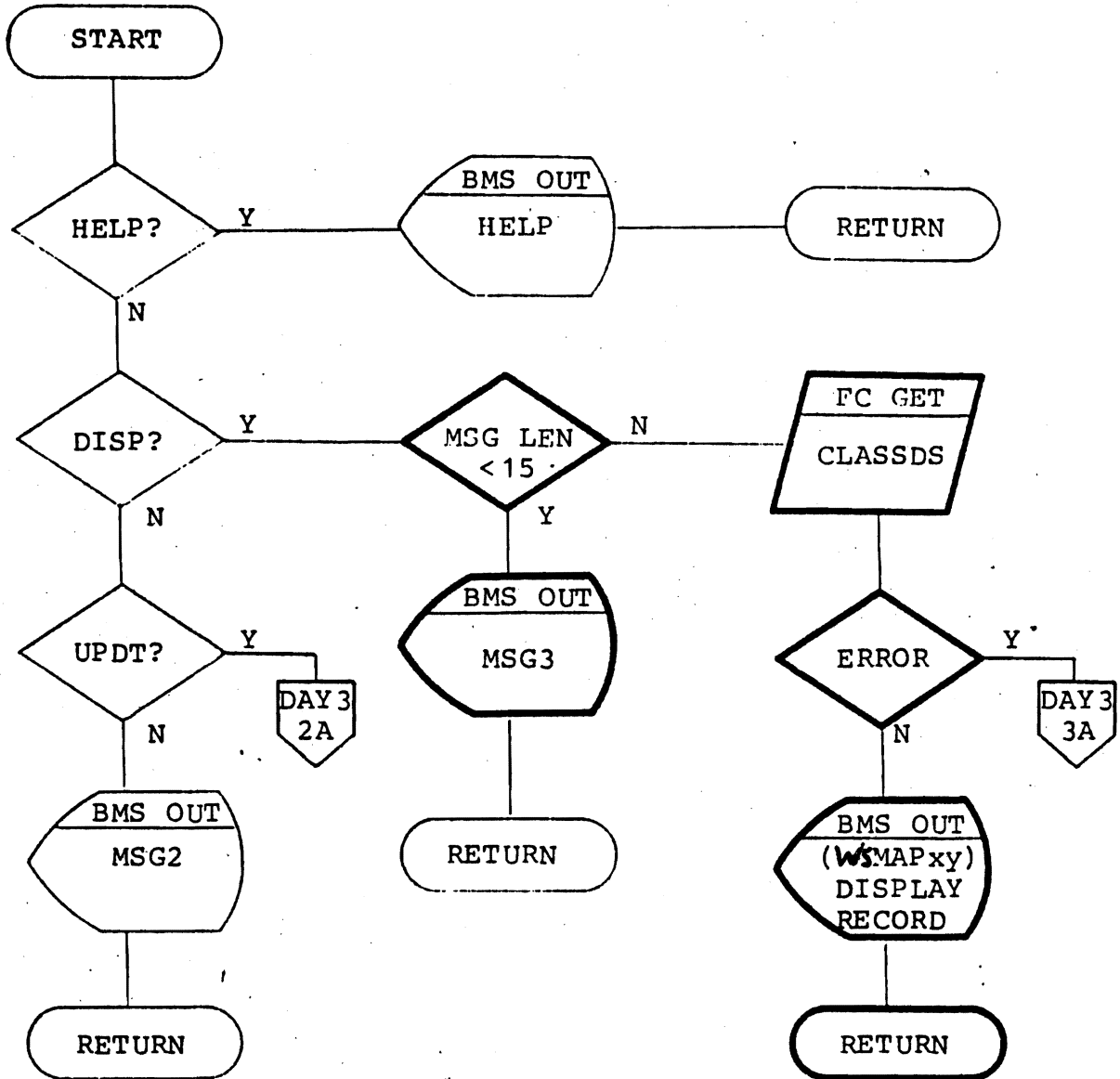
7. Read the operator's response, using the map which was created on Day Two.

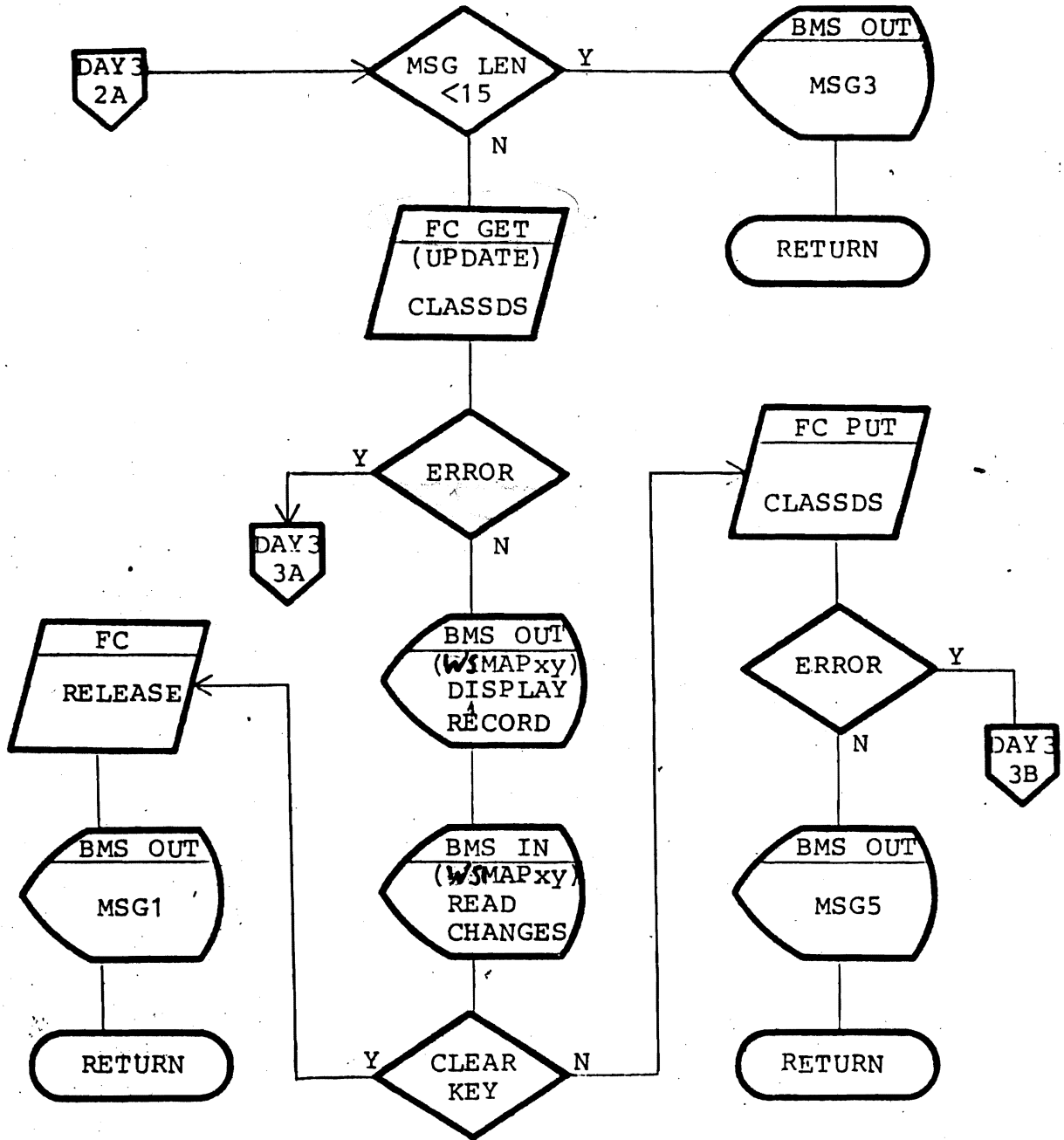
If the operator cancelled the transaction by depressing the CLEAR key, then release any resources connected with the file operation, send the Transaction Cancelled map in the furnished mapset to the terminal, and terminate the transaction.

8. Alter the file record, using the information supplied by the operator, and write the record back to the dataset.

If any error occurs during the write operation, send the Transaction Cancelled map in the furnished mapset to the terminal, and abnormally terminate the transaction with dump code 2222.

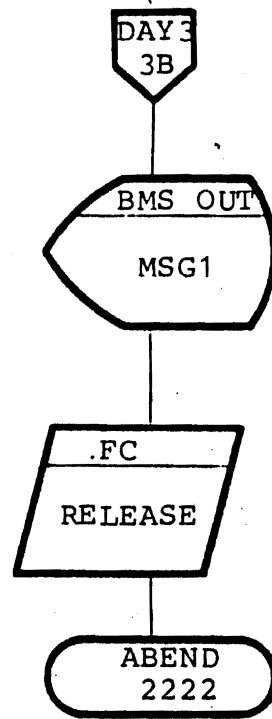
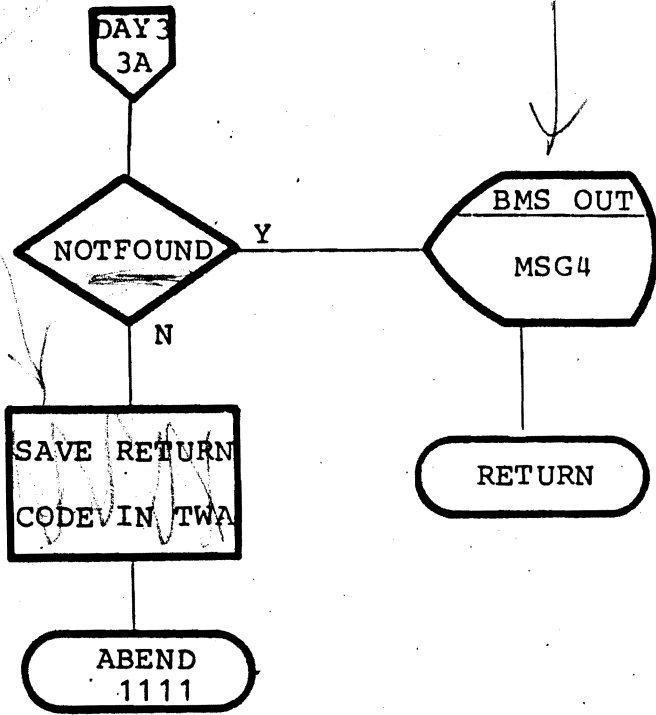
9. Send the Update Completed map in the furnished mapset to the terminal and terminate the transaction.





PROGRAMMING I PROBLEM

DAY 3.3



Day Four

Modify the application program to perform the following functions:

1. Before determining if the function code is HELP, DISP, or UPDT, write a statistics record to the Transient Data Extrapartition Destination named **STAT**. The format of the record is as follows:

<u>Positions</u>	<u>Contents</u>
1-4	Record Length - LLbb.
5-24	The input message.
25-28	Terminal ID
29-34	Time-of-day (from CSATODP - a Packed-Decimal field - format HHMMSS+).

RECORD DESCRIPTION

STAT Record

<u>LN</u>	<u>DESCRIPTION</u>	<u>FORMAT</u>
4	Record length (LLbb)	Binary
4	'STAT'	Character
20	Input message (from label TIOADBA)	Alphameric
4	Terminal ID	Alphameric
6	Julian Date YYDDD CSAJYDP contains the julian date in packed form (OOYYDBDC).	Zoned-decimal
8	Time-of-day HHMMSS CSATOEP contains the time in packed form (OHMMSSTC).	Zoned-decimal

PROGRAM CONTROL EXERCISE

PROG A
DTYPE TYPE=LINK, PROGRAM=PROG B
PROG B
DTYPE TYPE=XCTL, PROGRAM=PROG A
PROG A
DTYPE TYPE=LINK, PROGRAM=PROG B
DTYPE TYPE=XCTL, PROGRAM=PROG A

1. PROGA, PROGB, PROGC are the names of three programs. PROGA is to pass control to PROGB which is to pass control to PROGC in such a way that when PROGC issues a RETURN, control is passed back to PROGA. Code the program control macros for each program that will allow the sequence above to occur.

2. When passing control to another program, application programmer must provide the name of the program to which control is to be passed. Illustrate the two ways in which this can be accomplished by coding the necessary instructions for PROGA to pass control to PROGB in problem 1 above.

DTYPE TYPE=LINK, PROGRAM=PROG B

DTYPE TYPE=XCTL, PROGRAM=PROG B
DTYPE TYPE=LINK

3. What program control macro could PROGC, in problem 1, issue that would cause control to return to CICS Program Control instead of to PROGA?

(PROG A
DTYPE TYPE=XCTL, PROGRAM=PROG B)

LOAD

4. After a program terminates and its use count is decremented to zero, the storage occupied by that program is released to the dynamic storage area.

T

F

5. What is the difference between pre-loading and hard-coding as a method of passing parameters to CICS/VS? When is pre-loading preferred?

No real difference

6. The TRANSID option of the Program Control RETURN macro "passes control" to another CICS/VS program. Briefly explain the difference between this "passing control" and "passing control" though use of LINK or XCTL.

In the case of TRANSID, the program is loaded and control is passed to it. In the case of LINK or XCTL, the program is not loaded and control is passed to it.

7 IBM-02

TERMINAL CONTROL EXERCISE

- 7
IBM 02
1. Assume the input transaction consists of a 4-character transaction ID and a 30-character message. Write a complete program that will do the following:
 - a) If the transaction data length is less than 24 characters, write the message 'INVALID LENGTH' along with the transaction ID to the terminal using the original TIOA. (Use the terminal control macros that will cause the TIOA to be released when the write is completed.) Abend the transaction with an abend code of ABCD.
 - b) If the transaction data length is 24 or greater, issue the program control RETURN macro.
 2. Code one terminal control macro that will write to a terminal and read a response without acquiring a new TIOA for the read. *DIPT TYPE (CORRECTED)*
 3. When a WRITE is completed by Terminal Control, the TIOA is always released to the dynamic storage pool. T / F
 4. CICS/VS allows more than one TIOA to be associated with a terminal at a given time. T / F
 5. Define the use of the following fields:
TIOABAR - *Response to a write*
TCTTEDA - *Transaction ID*
TIOATDL - *Transaction ID length*
 6. When a Terminal Control READ or WRITE is issued, control is immediately given to Terminal Control to perform that service. T / F

STORAGE CONTROL EXERCISE

- 7 IBM 02
1. Code the storage control macro to acquire a new TIOA of 100 bytes to be initialized to binary zeros. If the storage is not available, go to a routine called NOTAVAIL.

*DFPS C TYPE=GETMAIN, RELEASE=00,
NUMBER=100, (CLASS=TEMP),
COND= (NO,NOTAVAIL)*

2. Before issuing a storage control FREEMAIN, the programmer must place the address of the storage to be released into which field in the TCA? Why doesn't the programmer specify the length of the area to be released?

*storage in field of TCA
TCA SC SA*

3. The address of the storage area obtained upon execution of a GETMAIN macro for a Transient Data output area is placed in the field _____ by CICS/VS.

TCA SC SA

4. TYPE=FREEMAIN, RELEASE=ALL is used to release all of the storage associated with a task.

(T) / (F)

BASIC MAPPING SUPPORT EXERCISE

1. Basic Mapping, with Device Independence, can be used to simulate all of the functions of the 3270 Information Display System using the card reader-line printer simulated terminal.

T / F

2. When acquiring a TIOA to be used for output mapping, the area should be initialized to:

- a) Blanks
- b) The data you wish sent to the terminal
- c) Nothing - initialization takes too much time
- d) Binary zeros

3. Terminal oriented tasks need not use actual TIOA's when requesting BMS output services.

T / F

4. What is the function of the DFHBMS TYPE=MAP macro?

to map data already in a TIOA

5. How does a 3270 know that a field is supposed to be 20 bytes long?

- a) BMS automatically positions the attribute characters 20 bytes apart.
- b) A special character is sent after each attribute character with the length of the field.
- c) By magic.
- d) It doesn't.

FILE CONTROL EXERCISE

1. What type of data set access methods are supported by CICS/VS File Services? *{-VSAM (B) (V) (M)}*

2. Indicate in each case below whether the data record sought is in an FIOA, or FWA. (non-VSAM only)

- a) Read and update unblocked record *FWA*
- b) Read only record in blocked file *FWA*
- c) Add a new record to unblocked file *FWA*
- d) Read only, unblocked and unsegmented records *FIOA*

3. When processing a read-only request against an unsegmented VSAM data set, the record is in an FIOA. *← VSAM*

T / F

4. A DPHFC TYPE=RELEASE must be used after a File Control PUT to release the I/O areas and control blocks as soon as possible.

T / F

5. After issuing a DPHFC TYPE=GETAREA, THE address of the area obtained is returned in the TCA at TCAFCAAA.

T / F

6. The proper sequence of macros to add a record to a data set is:

- a) GET,DELETE,PUT
- b) GETAREA,PUT
- c) GETAREA,PUT,RELEASE
- d) It depends on the access method

7. Acquire main storage for the purpose of adding a 200-byte record to a file called EXAMPLE. Copy the necessary dummy section and load the necessary register for the storage acquired.

8. Issue the necessary instructions to retrieve a record from an unblocked ISAM file whose name is EXMPL1 and establish addressability to the record retrieved. The key is in a field called KEYFLD. Go to a routine called ERROR for any condition other than NORESP.

Handwritten notes and scribbles on the right side of the page, including the word 'COMB' at the bottom.

PROGRAM	STORAGE	ADDRESS	OC0008	TC	OC02E7	LENGTH	OC02E0			
000000	4100F00C	9248F0A8	47F0F08C	000C00C0	00000000	00000000	00000000	00000000	*..0...0..00.....*	OC0008
000020	00000000	00000000	00000000	58FF0008	07FF0000	000E29CE	9244FC70	47F0FC54	*.....0..00.*	OC0028
000040	9248F068	47F0F04C	924CF060	47F0F044	9250F058	47F0F03C	9254F050	47F0FC34	*..0..00...0..00...0..00...0..00.*	OC0048
000060	9258F048	47F0F02C	925CF040	47F0F024	926CF038	47F0F01C	9264F030	47F0FC14	*..0..00...0..00...0..00...0..00.*	OC0068
000080	9268F028	47F0F00C	926CF020	05F09024	D01C5830	F0165840	304CD2C0	408CF01A	*..0..00...0..0.....0.. ..K. .0.*	OC0088
0000A0	47F0F024	000F0590	48C4C6C8	D7D3C9D6	D7005820	310407F2	000C0138	00000000	*.00.....DFHPLICP.....2.....*	OC00A8
0000C0	800C0128	000C0138	000C018A	000C018A	000C018A	000C10C8	00320000	00000000	*.....H.....*	OC00C8
0000E0	91E091E0	80000000	000C0034	000C0034	C4C5C2E4	C7C7C9D5	C74CC5E7	C1D4D7D3	*.....DEBUGGING EXAMPL*	OC00E8
000100	C5406040	D7D361C9	40404040	40404040	C3C3C1E2	E2C4E240	C6C9D3C5	D7D9D6C3	*E . PL.I CLASSDS FILEPRCC*	OC0108
000120	80000007	00000000	C5E7C1D4	D7D3C507	50ECD00C	47F0F010	000C00E8	000C00C8	*.....EXAMPLE.....00....Y...H*	OC0128
000140	5830F00C	5810L04C	5800F008	1E015500	000C47D0	FC2C58FC	C074C5EF	58E0DC48	*..0.....0.....0..0.....*	OC0148
000160	18F090E0	104850C0	100441D1	00005050	00589280	D0009220	D0C1D203	D0543020	*.0.....J.....K.....*	OC0168
000180	0520D203	D0E03024	4170D0B8	5070DC00	9680DC00	18554110	D0E058F0	302805EF	*..K.....0.....*	OC0188
0001A0	5870D0B8	589070C8	5090D0BC	58A0704C	50A0C0C0	5850C0C0	58F05008	50FC0CCC	*.....H.....0...0..*	OC01A8
0001C0	5840D0CC	586040CC	5060DCDC	D21F51C0	3030D207	50843050	5890D0D0	41F09C11	*.K.....K.....0..*	OC01C8
0001E0	50F0509C	5880D0C0	928080E0	9200809C	586CD0B8	58A060F8	50AC80F8	1B111B55	*.0.....8...8...*	OC01E8
000200	58F0302C	05EF5850	D0C09285	505C48E0	301840E0	505E58F0	D0B85880	F0E450B0	*.0.....0....0U..*	OC0208
000220	50F81811	1B5558F0	302C05EF	5850D0C0	58FC5C5C	50FC5124	58FC505C	50F0DCD0	*.8.....0.....0...0...0..*	OC0228
000240	58F0C0C4	95C6F025	47802122	92C7F025	58E0CC00	58B0E12C	5ABCFC26	50B0E120	*.0.M.F0.....G0.....0.....*	OC0248
000260	5870D0CC	D2077084	30505850	D0D041A0	5C1750A0	709C5840	D0C09280	40809200	*....K.....*	OC0268
000280	409C5890	D0B858A0	90F850AC	40F81811	1B555EFC	302CC5EF	5850DC00	588050B0	*8.. 8.....0.....*	OC0288
0002A0	5080D0D4	5870D0C0	92027080	92007081	D2077084	30585850	D0B858E0	50E850C0	*...M.....K.....Y..*	OC02A8
0002C0	70F81811	1B5558F0	302C05EF	180D58D0	D0C458E0	D0CC582C	D01C051E	00000000	*.8.....0.....*	OC02C8

LOC	OBJECT CODE	ADDR1	ADDR2	STMT	SOURCE STATEMENT	
		00005	2	TCTTEAR	EQU 5	
		00006	3	TIOABAR	EQL 6	
		00007	4	FWACBAR	EQU 7	
			5		CCPY DFHCSADS	
			6		PRINT OFF	00000100
			371		PRINT ON	00036800
			372		CCPY DFHTCACS	
			373		PRINT OFF	00000100
			1003		PRINT ON	00000300
000100			1004	STAT	DS CL32	
000120			1005	ITEMTOT	CS F	
000124			1006	SAVEADDR	DS CL4	
			1007		COPY DFHTCTTE	
			1008		PRINT OFF	00000100
			1589		PRINT CN	00000300
			1590		COPY DFHTIOA	
			1591	*****		00010000
			1592	* * * TERMINAL I / O AREA * * *		00020000
			1593	*****		00030000
000000			1594	DFHTIOA	DSECT DUMMY SECTION - TERM I / O AREA	00040000
	00000		1595		USING *,TIOABAR USING REGISTER TIOABAR AT *	00050000
			1596	*****		00060000
000000			1597	DS	H STORAGE ACCOUNTING	00070000
000002			1598	TIOASAL	CS H STORAGE ACCOUNTING - AREA LNGTH	00080000
000004			1599	TIOASCA	DS A TERMINAL STORAGE CHAIN ADDRESS	00090000
000008			1600	TIOATDL	DS H TERMINAL DATA LENGTH	00100000
00000A			1601	TIOAWCI	DS B WRITE CONTROL INDICATOR	00110000
00000B			1602	TIOACLDR	DS 0B WCC OR CCC CHARACTER	00120000
00000B			1603	TIOALAC	DS B LINE ADDRESS CONTROL	00130000
		0000C	1604	TIOACAC	EQU *-DFHTIOA CONTROL AREA DISPLACEMENT	00140000
			1605	*****		00150000
	0000C		1606	TIOADBA	EQL * TERMINAL DATA BEGINNING ADDRESS	00160000
			1608	DS	CL5	
00000C			1609	ITEM1	CS CL5	
000016			1610	DS	CL1	
000017			1611	ITEM2	CS CL5	
			1612		CCPY DFHFWDAS	
			1613	*****		00010000
			1614	* * * FILE WORK AREA * * *		00020000
			1615	*****		00030000
000000			1616	DFHFWDAS	DSECT DUMMY SECTION - FILE WORK AREA	00040000
	00000		1617		USING *,FWACBAR USING REGISTER FWACBAR AT *	00050000
00000C			1618	DS	2F STORAGE ACCOUNTING INFORMATION	00060000
00000B			1619	FWAIND	CS 0B FILE WORK AREA INDICATORS	00070000
	0000C		1620	FWAM	EQL X'CO' FILE WORK AREA MASK	00080000
	00020		1621	FWABRZI	EQU X'20' THIS IS A BROWSE FWA	00090000
00000B			1622	FWAMASSI	DS 0B MASS INSERT INDICATOR	00100000
	00010		1623	FWAMASS	EQU X'10' MASS INSERT IN PROGRESS	00110000
00000B			1624	FCUPDRA	DS A FILE INPUT / OUTPUT AREA ADDR	00120000
00000C			1625	FCUFCTA	DS A FILE CONTROL TABLE ENTRY ADDR	00130000
000010			1626	FWACAEA	DS 0D CONTROL AREA ENDING ADDRESS	00140000
	00010		1627	FCLWALCH	FCL *-DFHFWDAS CONTROL AREA DISPLACEMENT	00150000

LCC	OBJECT	CCDE	ADDR1	ADDR2	STMT	SOURCE	STATEMENT	ASM H V	05 09.20	07/09/76
CCCC10					1629	FCUWA	DS CD			
										DATA AREA BEGINNING ADDRESS
										00170000
000010					1631		DS CL21			
C00025					1632	CLASSIF	DS CL1			
C00028					1633	CNHAND	DS F			
000000					1634	MYPROG	CSECT			
000000	0520				1635		BALR 2,0			
			00002		1636		USING *,2			
000002	5850	C008		00008	1637		L TCTTEAR,TCAFCAAA			
000006	5860	500C		0000C	1638		L TIQABAR,TCITEDA			
00000A	D21F	C1C0	2096	00100	00098		MVC STAT,=CL32'DEBUGGING EXAMPLE - ASSEMBLER'			
					1640		CFHFC TYPE=GET,RDIDADR=ITEM1,DATASET=CLASSDS			
					1641+		*****			
000010	D207	C084	2086	00084	00088		MVC TCAFCDI,=CL8'CLASSDS'			01-DFHFC
000016	41E0	6011		00011	00011		LA 14,ITEM1			01-DFHFC
00001A	50E0	C09C		0009C	1644+		ST 14,TCAFCTRI			01-DFHFC
00001E	9280	C080		00080	1645+		MVI TCAFCTR,B'1000000'	*		01-DFHFC
C00022	92C0	C09C		0009C	1646+		MVI TCAFCTRI,B'0'	*		01-DFHFC
000026	58E0	DOF8		000F8	1647+		L 14,CSAFCNAC			01-DFHFC
00002A	05EE				1648+		BALR 14,14			01-DFHFC
					1649+		*****			
					1651		DFHFC TYPE=GETMAIN,CLASS=TERM,NUMBYTE=50			
					1652+		*****			
C0002C					1653+		DS OH STORAGE CONTROL CALL@			01-DFHFC
00002C	D201	C05E	20C6	0005E	000C8		MVC TCASCNB,=AL2(50)			01-DFHFC
000032	9285	C05C		0005C	1655+		MVI TCASCCTR,B'10000101'			01-DFHFC
000036	58E0	C0E4		000E4	1656+		L 14,CSASCNAC			01-DFHFC
C0003A	05EE				1657+		BALR 14,14			01-DFHFC
					1658+		*****			
00003C	5860	C05C		0005C	1660		L TIQABAR,TCASCSCA			
C00040	D203	C124	C05C	00124	0005C		MVC SAVEADDR,TCASCSCA			
000046	95C6	7025		00025	1662		CLI CLASSIF,C'F'			
00004A	4780	207C		0007E	1663		BE SUBRTN			
C0004E	92C7	7025		00025	1664		MVI CLASSIF,C'G'			
C00052	5830	C120		00120	1665		L 3,ITEMTOT			
000056	5A30	7028		00028	1666		A 3,ONHAND			
00005A	5030	C120		00120	1667		ST 3,ITEMTOT			
					1668	READ2	CFHFC TYPE=GET,RDIDADR=ITEM2,DATASET=CLASSDS			
					1669+		*****			
00005E					1670+READ2		DS OH			01-DFHFC
C0005E	D2C7	C084	2086	00084	00088		MVC TCAFCDI,=CL8'CLASSDS'			01-DFHFC
C00064	41E0	6017		00017	1672+		LA 14,ITEM2			01-DFHFC
000068	50E0	C09C		0009C	1673+		ST 14,TCAFCTRI			01-DFHFC
C0006C	9280	C080		00080	1674+		MVI TCAFCTR,B'1000000'	*		01-DFHFC
C00070	92C0	C09C		0009C	1675+		MVI TCAFCTRI,B'0'	*		01-DFHFC
000074	58E0	B		000F8	1676+		L 14,CSAFCNAC			01-DFHFC
000078					1677+		BALR 14,14			01-DFHFC

LCC OBJECT CCDE ADDR1 ADDR2 STMT SOURCE STATEMENT

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```

00007A 5870 C080          00080 1680      L      FWACBAR,TCAFCAA
00007E          0007E 1681 SUBRTN EQU      *
1682      CFHPC TYPE=XCTL,PROGRAM=FILEPROC
1683+*****
00007E 9202 C080          00080 1684+     MVI    TCAPCTR,B'0000010'  MOVE TYPE OF REQUEST TO TCA      01-DFHPC
000082 D207 C084 20BE 00084 000C0 1685+     MVC    TCAPCPI,=CL8'FILEPROC'  MOVE PROGRAM IDENT TO TCA      01-DFHPC
000088 9200 C081          00081 1686+     MVI    TCAPCSR,X'00'          CLEAR SECONDARY REQUEST          01-DFHPC
00008C 58E0 00E8          000E8 1687+     L      14,CSAPCNAC          LOAD PROGRAM CONTROL ENTRY ADDR  01-DFHPC
000090 05EE          1688+     BALR   14,14                GO TO PROGRAM CONTRCL          01-DFHPC
1689+*****

000098          1691      LTCRG
000098 C4C5C2E4C7C7C9D5  1692      =CL32'DEBUGGING EXAMPLE - ASSEMBLER'
000088 C3D3C1E2E2C4E240  1693      =CL8'CLASSDS'
0000C0 C6C9D3C5D7D9D6C3  1694      =CL8'FILEPROC'
0000C8 C032          1695      =AL2(5C)
1696      ENC
    
```


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NO STATEMENTS FLAGGED IN THIS ASSEMBLY

OVERRIDING PARAMETERS- NODECK,OBJECT,XREF(SHCR),NCESD,NORLD

OPTIONS FOR THIS ASSEMBLY

NODECK, LBJECT, LIST, XREF(SHCR), NCRENT, NCTEST, NCRATCH, ALIGN, NOESD, NORLD, LINECOUNT(55), FLAG(0), SYSPARM()

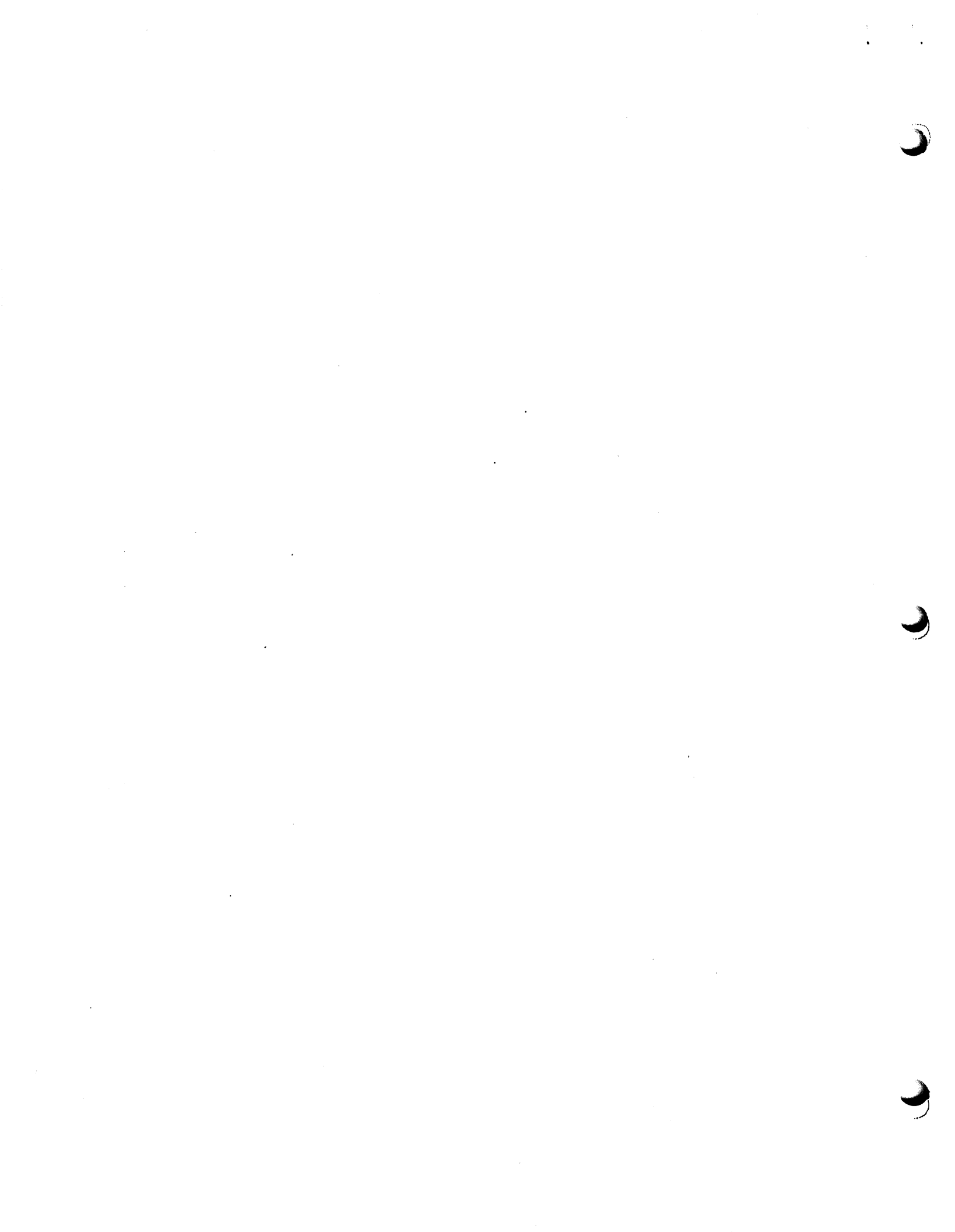
NO OVERRIDING CD NAMES

41 CARDS FROM SYSIN

3841 CARDS FROM SYSLIB

191 LINES OUTPUT

6 CARDS OUTPUT



1 9.21.41 JUL 9,1976

```

CC001 IDENTIFICATION DIVISION.
00002 PROGRAM-ID.
00003     DEBUGGING-EXAMPLE-COBOL.
00004 ENVIRONMENT DIVISION.
00005 DATA DIVISION.
00006 LINKAGE SECTION.
00007 01 DFHBLDLS COPY DFHBLDLS.
00008 C 01 DFHBLDLS SYNCHRONIZED.                                C0010000
00009 C     02 BLLCBAR PICTURE XXXX.                            C0020000
00010 C     02 CSACBAR PICTURE XXXX.                            C0030000
00011 C     02 CSACPBAR PICTURE S9(8) USAGE IS COMPUTATIONAL. C0040000
00012 C     02 TCACBAR PICTURE S9(8) USAGE IS COMPUTATIONAL. C0050000
00013     02 TCTTEAR PIC S9(8) USAGE IS COMPUTATIONAL.
00014     02 TIOABAR PIC S9(8) USAGE IS COMPUTATIONAL.
00015     02 FWACBAR PIC S9(8) USAGE IS COMPUTATIONAL.
00016 01 DFHCSADS COPY DFHCSADS SUPPRESS.
00054 01 DFHTCADS COPY DFHTCADS SUPPRESS.
00337     02 STAT PIC X(32).
00338     02 ITEMTOT PIC 9(8) COMP.
00339     02 SAVEADDR PIC S9(8) CCMP.
00340 01 DFHTCTTE COPY DFHTCTTE SUPPRESS.
00389 01 DFHTIOA COPY DFHTIOA SUPPRESS.
00400     02 FILLER PIC X(5).
00401     02 ITEM1 PIC X(5).
00402     02 FILLER PIC X(1).
00403     02 ITEM2 PIC X(5).
00404 01 DFHFWADS COPY DFHFWADS SUPPRESS.
0041C     02 FILLER PIC X(21).
00411     02 CLASSIF PIC X(1).
00412     02 ONHAND PIC 9(5) COMP-3.
00413 PROCEDURE DIVISION.
00414     MOVE CSACDTA TO TCACBAR.
00415     MOVE TCAFCAA TO TCTTEAR.
00416     MOVE TCTTEDA TO TICABAR.
00417     MOVE 'DEBUGGING EXAMPLE - CCBCL' TO STAT.
00418 *     DFHFC TYPE=GET      ****.
00419 *     DATASET=CLASSSDS  ****.
00420 *     RIDADR=ITEM1      ****.
00421     MOVE 'CLASSSDS' TO TCAFCDI.
00422     MOVE 32768 TO TCAFCTR.
00423     MOVE 0 TO TCAFCTRI.
00424     MOVE CSAFCNAC TO TCACSPE.
00425     CALL 'DFHCBLI' USING ITEM1.
00426 *     DFHSC TYPE=GETMAIN ****.
00427 *     NUMBYTE=50        ****.
00428 *     CLASS=TERM       ****.
00429     MOVE 34048 TO TCASCRI.
00430     MOVE 50 TO TCASCNB.
00431     MOVE CSASCNAC TO TCACSPE.
00432     CALL 'DFHCBLI'.
00433     MOVE TCASCSEA TO SAVEADDR, TICABAR.
00434     IF CLASSIF = 'F' GO TO SUBRTN.
00435     MOVE 'C' TO CLASSIF.

```

```
00437 READ2.
00438 *      DFHFC TYPE=GET      ****.
00439 *      DATASET=CLASSDS   ****.
00440 *      RCIDADR=ITEM2     ****.
00441 MOVE 'CLASSDS' TO TCAFCDI.
00442 MOVE 32768 TO TCAFCTR.
00443 MOVE 0 TO TCAFCTR1.
00444 MOVE CSAFCNAC TC TCACSPE.
00445 CALL 'DFHCBLI' USING ITEM2.
00446 MOVE TCAFCAA TO FwACBAR.
00447 SUBRTN.
00448 *      DFHPC TYPE=XCTL    ****.
00449 *      PROGRAM=FILEPROC  ****.
00450 MOVE 512 TO TCAPCTR.
00451 MOVE 'FILEPROC' TC TCAPCPI.
00452 MOVE CSAPCNAC TC TCACSPE.
00453 CALL 'DFHCBLI'.
00454 GOBACK.
```

MEMORY MAP

TGT	000A0
SAVE AREA	CCCAC
SWITCH	000E8
TALLY	000EC
SCRT SAVE	000F0
ENTRY-SAVE	CCCC4
SCRT CORE SIZE	000F8
RET CODE	C0CFC
SORT RET	CCCFC
WORKING CELLS	00100
SCRT FILE SIZE	00230
SCRT MODE SIZE	00234
PGT-VN TBL	00238
TGT-VN TBL	0023C
VCONPTR	00240
LENGTH OF VN TBL	00244
LABEL RET	00246
CURRENT PRIORITY	00247
DBG R14SAVE	00248
CCBCL INDICATOR	0024C
A(INIT1)	00250
DEBUG TABLE PTR	00254
SUBCOM PTR	00258
SCRT-MESSAGE	0025C
SYSOUT DDNAME	00264
RESERVED	00265
CCBCL ID	00266
COMPILED POINTER	00268
COUNT TABLE ADDRESS	0026C
RESERVED	00270
DBG R11SAVE	00278
COUNT CHAIN ADDRESS	0027C
FRBL1 CELL PTR	00280
RESERVED	00284
TA LENGTH	00289
RESERVED	0028C
CVERFLW CELLS	00298
BL CELLS	00298
CECBADR CELLS	00298
FIB CELLS	00298
TEMP STORAGE	00298
TEMP STORAGE-2	002AC
TEMP STORAGE-3	002AC
TEMP STORAGE-4	002AC
BLL CELLS	002AC
VLC CELLS	002C8
SBL CELLS	002C8
INDEX CELLS	002C8
SUBADR CELLS	002C8
CNCTL CELLS	002C8
PFMCTL CELLS	002C8

SAVE AREA =2 00208
 SAVE AREA =3 00208
 XSASH CELLS 00208
 XSA CELLS 00208
 PARAM CELLS 00208
 RPTSAV AREA 00200
 CHECKPT CTR 00200
 VCON TBL 00200

LITERAL POOL (HEX)

002F8 (LIT+0) 80000085 00320200 C4C5C2E4 C7C7C9D5 C740C5E7 C1D4D7D3
 CC31C (LIT+24) C5406040 C3D6C2D6 D3C3D3C1 E2E2C4E2 C6C9D3C5 D7D9D6C3

PGT 00208
 OVERFLOW CELLS 00208
 VIRTUAL CELLS 00208
 PROCEDURE NAME CELLS 002E8
 GENERATED NAME CELLS 002EC
 DCB ADDRESS CELLS 002F4
 VMI CELLS 002F4
 LITERALS 002F8
 DISPLAY LITERALS 00328

CONDENSED LISTING

414	MOVE	000328	415	MOVE	000336	416	MOVE	000340
417	MOVE	00034A	421	MOVE	00035E	422	MOVE	000368
423	MOVE	00036E	424	MOVE	000374	425	CALL	00037E
429	MOVE	0003AC	430	MOVE	000386	431	MOVE	0003BC
432	CALL	0003C6	433	MOVE	0003E2	434	IF	0003FA
434	GC	000408	435	MOVE	00040E	436	ADD	000416
441	MOVE	00042E	442	MOVE	00043C	443	MOVE	000442
444	MOVE	000448	445	CALL	000452	446	MOVE	000480
450	MOVE	00048E	451	MOVE	000498	452	MOVE	00049E
453	CALL	0004A8	454	GOBACK	0004C4			

STATISTICS SCURCE RECORDS = 454 DATA DIVISION STATEMENTS = 406 PROCEDURE DIVISION STATEMENTS = 29
OPTIONS IN EFFECT SIZE = 253952 BUF = 77824 LINECNT = 57 SPACE1, FLAGW, SEQ, SOURCE
OPTIONS IN EFFECT NODMAP, NCPMAP, CLIST, SUPMAP, NOXREF, NCSXREF, LOAD, NODECK, APOST, NOTRUNC, NOFLOW
OPTIONS IN EFFECT NOTERM, NCCNUM, NOBATCH, NCCNAME, CCMPILE=01, NCSTATE, NCRESIDENT, NODYNAM, LIB, NOSYNTAX
OPTIONS IN EFFECT NCCPTIMIZE, NCSYMDMP, NOTEST, VERB, ZWB, SYST, NOENDJOB, NOLVL
OPTIONS IN EFFECT NOLST, NCFDECK, NCCDECK, LCCL2, L120, CUMP, NOADV, NOPRINT,
OPTIONS IN EFFECT NOCOUNT, NOVBSUM, NOVBREF.

SOURCE LISTING

STMT

```

/* DEBUGGING EXAMPLE - PL/I */
1  EXAMPLE: PRCC OPTICNS(MAIN,REENTRANT);
% INCLLDE (DFHCSADS);*****
/*****
* * *          COMMON SYSTEM AREA          * * *00010000
*****00020000
*****/00030C00
2  DECLARE DFHPLIC ENTRY (POINTER),          00040C00
      DFHPLII ENTRY ();                    00050C00
3  CALL DFHPLIC (CSACBAR);                  /* GO TO C I C S TO GET C S A */00060000
4  DECLARE 1 DFHCSADS BASED                 /* COMMON SYSTEM AREA          */00070000
      (CSACBAR),                            /* COMMON SYSTEM AREA POINTER */00080000
      2 CSAOSRA CHAR (76),                  00090C00
      2 CSACDTA POINTER,                    /* CURRENTLY DISPATCHED TASK */00100000
      2 CSATODP FIXED DECIMAL (7), /* TIME OF DAY PACKED          */00110000
      2 CSAFILL2 CHAR (12),                00120000
      2 CSACTCDB FIXED BINARY (31), /* CURRENT TIME OF DAY          */00130000
      2 CSAFILL3 CHAR(24),                00140C00
      2 CSAJYDP FIXED DECIMAL(7), /*JLL DT                        */00150C00
      2 CSAFILL6 CHAR(72),                 /*                               */00160C00
      2 CSACPFLA PCINTER,                  /* CPT FEATURES LIST ADDR      */00170000
      2 CSAFILL4 CHAR (20),                00180000
      2 CSAKCNAC PCINTER,                  /* TASK CONTROL ENTRY ADDRESS */00190000
      2 CSASCNAC PCINTER,                  /* STRG CONTROL ENTRY ADDRESS */00200C00
      2 CSAPCNAC POINTER,                  /* PRCG CONTROL ENTRY ADDRESS */00210000
      2 CSAICNAC POINTER,                  /* TIME CONTROL ENTRY ADDRESS */00220000
      2 CSACCNAC PCINTER,                  /* DUMP CONTROL ENTRY ADDRESS */00230C00
      2 CSATCNAC PCINTER,                  /* TERM CONTROL ENTRY ADDRESS */00240000
      2 CSAFCNAC PCINTER,                  /* FILE CONTROL ENTRY ADDRESS */00250000
      2 CSATDNAC PCINTER,                  /* T D CONTROL ENTRY ADDRESS  */00260000
      2 CSATSNAC PCINTER,                  /* T S CONTROL ENTRY ADDRESS  */00270C00
      2 CSASANAC PCINTER,                  /* PL/I STRG ALLCC MOD ADDR    */00280000
      2 CSATRNAC PCINTER,                  /* TRACE CCNTRCL ENTRY ADDR   */00290000
      2 CSAPIKAC PCINTER,                  /* PROG INTRPT ENTRY ADDRESS  */00300C00
      2 CSAFILL5 CHAR (4),                00310C00
      2 CSASPNAC PCINTER,                  /* SYNC CONTROL ENTRY ADDRESS */00320000
      2 CSATCRWE PCINTER,                  /* TCP READ-WRITE ENTRY ADDR  */00325000
      2 CSAFILL1 CHAR (215),              00330C00
      2 CSAUTA1 FIXED DECIMAL (5) ALIGNED, /* USER STATISTICS            */00340000
      2 CSAUTA2 FIXED DECIMAL (5) ALIGNED, /* USER STATISTICS            */00350C00
      2 CSAUTA3 FIXED DECIMAL (5) ALIGNED, /* USER STATISTICS            */00360C00
      2 CSAUTA4 FIXED DECIMAL (5) ALIGNED; /* USER STATISTICS            */00370000
/*****/00380C00
5  CSACPBAR = CSACPFLA;                    /* MOVE CPT FEATURES LIST PTR */00390C00
6  DECLARE 1 CSACPFL BASED (CSACPBAR),     00400C00
      2 CSAATP PCINTER,                    /* ATP INTERFACE ADDR          */00410000
      2 CSAATCH PCINTER,                   /* ATTCF INTERFACE ADDR       */00420C00

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STMT

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2 CSADLI PCINTER, /* GL/I INTERFACE ADDR */00430C00
2 CSABFNAC PCINTER, /* BIF INTERFACE ADCR */00440000
2 CSABMS POINTER, /* BMS INTERFACE ADDR */00450000
2 CSATMSVT POINTER, /* ADDR TMS VECTOR TABLE */00460000
2 CSAJCNA1 PCINTER, /* JRNL CTL MACRO ENTRY PTR.1 */00470000
2 CSAJCNA2 PCINTER, /* JRNL CTL MACRO ENTRY PTR.2 */00480000
2 CSASRNAC PCINTER, /* SRP ENTRY ADDRESS */00490000
2 CSASRTBA PCINTER, /* SRT BEGIN ADDRESS */00500000
2 CSAKPNAC PCINTER, /* KPP ENTRY ADDRESS */00510000
2 CSAATMSP PCINTER, /* ATMS CONTRCL POINTER */00520000
2 CSAHLTBA PCINTER, /* SYS.TERM.TRANS.LIST TABLE */00530000
2 CSAJCTBA PCINTER; /* JCT BEGIN ADDRESS */00540C00
*****
% INCLUDE DFHTCADS;*****
/*****0001C000
* * * TASK C C N T R L A R E A * * 00020000
*****/00030000
7 TCACBAR = CSACDTA; /* MOVE TASK CONTROL AREA PNTR*/00040000
/*****/0005C000
8 DECLARE 1 DFHTCATP BASED /* T C A TCP COMMUNICATION */00050500
(TCACBAR), /* COMMUNICATION AREA POINTER */00051000
2 TCATPSD CHAR (128), /* */00051500
2 TCATPAPR BIT (8) ALIGNED, /* RETURN CODE */00052000
2 TCATPSD1 CHAR (1), /* */00052500
2 TCATPOS1 BIT (8) ALIGNED, /* */00053000
2 TCATPOS2 BIT (8) ALIGNED, /* OPERATICN REQUESTS */00053500
2 TCATPCS1 BIT (8) ALIGNED, /* */00054000
2 TCATPCS2 BIT (8) ALIGNED, /* CCNTRCL REQUESTS */00054500
2 TCATPOC1 BIT (8) ALIGNED, /* OP CNTRL REQUESTS 1 */00055000
2 TCATPOC2 BIT (8) ALIGNED, /* OP CONTROL REQUESTS 2 */00055500
2 TCATPLDM CHAR (2), /* LDC MNEMONIC */ 00056400
2 TCATPCCN BIT (8) ALIGNED, /* CCNNECTION TYPE */ 00057300
2 TCATPFIL CHAR(1), /* RESERVED */ 00058200
2 TCATPPNM CHAR (8); /* PROGRAM NAME */ 00059100
9 DECLARE 1 DFHTCAFC BASED /* T C A FILE COMMUNICATION */00060000
(TCACBAR), /* COMMUNICATCN AREA POINTER */00070000
2 TCAFCSC CHAR (28), 00080000
2 TCAPURGI BIT (8) ALIGNED, /* STALL PURGE INDICATOR */00090000
2 TCAFCSD1 CHAR (99), 00100000
2 TCAFCAA POINTER, /* FILE AREA ADDRESS *//C0110000
2 TCAFCDI CHAR (8), /* DATA SET IDENTIFICATION *//00120000
2 TCAFCAI CHAR (8), /* INDIRECT ACCESS IDENT *//00130000
2 TCAFCSI CHAR (8), /* SEGMENT SET IDENTIFICATION *//00140000
2 TCAFCRI POINTER, /* RECORD IDENTIFICATION *//00150000
2 TCATRF1I CHAR (64), 00160000
2 TCATRF1H BIN FIXED (15), /* BINARY HALFWORD TRACE FLD 1*//00170000
2 TCATRF1E CHAR (2), 00180000
2 TCATRF2H BIN FIXED (15); /* BINARY HALFWORD TRACE FLD 2*//C019C000
10 DECLARE 1 DFHTCADC BASED /* T C A DUMP COMMUNICATION *//00210C00

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STMT

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                2 TCANXTID CHAR (4),          /* NEXT TRANSACTION ID          */0219CC60
*****
                2 STAT CHAR (32),
                2 ITEMTOT FIXED BIN (31,0),
                2 SAVEACDR POINTER;
% INCLUDE DFHTCTTE;*****
/*****
***          T E R M I N A L   C O N T R O L   T A B L E * 01896600
***          T E R M I N A L   E N T R Y                   * * 03783200
*****
30 TCTTEAR = TCAFCAA;          /* MOVE TERMINAL ENTRY POINTER*/07556400
31 DECLARE 1 DFHTCTTE BASED (TCTTEAR), /* T C T TERMINAL ENTRY      */09443000
                2 TCTTETI CHAR (4),          /* TERMINAL IDENTIFICATION    */11329600
                2 TCTTETT BIT (8) ALIGNED, /* TERMINAL TYPE              */13216200
                2 TCTTETM CHAR (1),          /* TERMINAL MODEL             */15102800
                2 TCTTESD1 CHAR (1),          /*                             */16989400
                2 TCTTETS BIT (8) ALIGNED, /* TERMINAL STATUS           */18876000
                2 TCTTESD2 CHAR (4),          /*                             */20762600
                2 TCTTEDA POINTER,           /* TERMINAL AREA ADDRESS      */22649200
                2 TCTTECA POINTER,          /* TASK CONTROL AREA ADDRESS */24535800
                2 TCTTESD3 CHAR (4),          /*                             */26422400
                2 TCTTECIA POINTER,          /* USER EXTENSION ADDRESS     */28309000
                2 TCTTECIL CHAR (1),          /* USER EXTENSION LENGTH      */30195600
                2 TCTTEPCF BIT (8) ALIGNED, /* PASSBOOK CONTROL FIELD     */32082200
                2 TCTTEURC CHAR (1),          /* USER RETURN CODE           */33968800
                2 TCTTESD4 CHAR (6),          /*                             */35855400
                2 TCTTECI CHAR (3),          /* OPERATOR IDENTIFICATION    */37742000
                2 TCTTESD5 CHAR (8),          /*                             */39628600
                2 TCTTECAD BINARY FIXED (15), /* CURSOR ADDRESS IN BINARY   */41515200
                2 TCTTEAID CHAR (1),          /* ATTENTION IDENTIFIER       */43401800
                2 TCTTEFIB BIT (8) ALIGNED, /* TERMINAL FEATURE FLAG     */45288400
                2 TCTTEBMN CHAR (8),          /* MAP NAME                    */47175000
                2 TCTTESD6 CHAR (4),          /*                             */49061600
                2 TCTTETA CHAR(4),           /* TERMINAL ADDRESS           */50948200
                2 TCTTESD7 CHAR (8),          /*                             */52834800
                2 TCTTETC CHAR (4),          /* TRANSACTION CCDE           */54721400
                2 TCTTESD8 CHAR (7),          /*                             */56608000
                2 TCTTETP BIT (8) ALIGNED, /* TERMINAL PRIORITY         */58494600
                2 TCTTESD9 CHAR (17),         /*                             */60381200
                2 TCTTEAM18 BIT (8) ALIGNED, /* ACCESS METHOD FLAG         */62267800
                2 TCTTECS BIT (8) ALIGNED, /* OPERATION REQUEST         */64154400
                2 TCTTECS BIT (8) ALIGNED, /* CONTROL REQUEST           */66041000
                2 TCTTEOC BIT (8) ALIGNED, /* OPTIONAL CONTROL REQUEST   */67927600
                2 TCTTESDA CHAR (15),         /*                             */69814200
                2 TCTTEFLG BIT (8) ALIGNED, /* 2580 FLAGS                 */71700800
                2 TCTTESDB CHAR (59);         /*                             */73587400
32 DECLARE 1 DFHTCTE1 BASED (TCTTEAR), /* TCTTE OVERLAY              */75474000
                2 TCTTESDC CHAR (29),        /*                             */77360600
                2 TCTTECR BIT (8) ALIGNED, /* CONDITIONAL RETURN REQUEST */79247200

```

STMT

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2 TCTTESDD CHAR (18),          /* */                               */81133800
2 TCTTENZA CHAR (1),          /* NORMAL ADDRESS                 */83020400
2 TCTTEBAA CHAR (1),          /* ALTERNATE ADDRESS             */84907000
2 TCTTESID CHAR (1),          /* STATION IDENTIFICATION        */86793600
2 TCTTETAB CHAR (1),          /* NUMBER OF TABS REQUIRED        */88680200
2 TCTTETID CHAR (1);          /* MODEL 4 TELLER IDENTIFIER     */90566800
33  DECLARE 1 DFHTCTE2 BASED (TCTTEAR), /* TCTTE OVERLAY                 */92453400
2 TCTTESDE CHAR (29),          /* */                               */94340000
2 TCTESIGI BIT (8) ALIGNED; /* SIGNAL RECEIVED INDICATOR     */96226600
*****
% INCLUDE (DFHTIOA);*****
/*****CC01CC00
* * *          T E R M I N A L   I   /   O   A R E A   * * *00020000
*****/00030000
34  TICABAR = TCTTEDA;          /* MOVE TRM I / O AREA POINTER*/00040000
35  DECLARE 1 DFHTICA BASED (TICABAR), /* TERMINAL I / O AREA          */00050000
2 TIOASAL CHAR (8),          00060000
2 TIOATCL BINARY FIXED (15); /* TERMINAL DATA LENGTH        */00070000
2 TIOAWCI BINARY FIXED (15); /* WRITE CONTROL INDICATOR      */00080000
36  DECLARE 1 DFHTIOAB BASED (TIOABAR), 00090000
2 TIOAFL2 CHAR (10),          00100000
2 TIOACLOR BINARY FIXED (15); /* CONTROL CHARACTER            */00110000
37  DECLARE 1 DFHTICAA BASED (TIOABAR), 00120000
2 TIOAFL1 CHAR (10),          00130000
2 TIOALAC BINARY FIXED (15); /* LINE ADDRESS CONTROL         */00140000
/*****/00150000
*****
2 FILL1 CHAR (5),
2 ITEM1 CHAR (5),
2 FILL2 CHAR (1),
2 ITEM2 CHAR (5);
% INCLUDE (DFHFWADS);*****
/*****0001CC00
* * *          F I L E   W O R K   A R E A   * * *0002C000
*****/0003C000
38  DECLARE 1 DFHFWADS BASED (FWACBAR), /* FILE WCRK AREA              */0004CC00
2 FWAFFILL1 CHAR (8),          /*@BC5840Y*/00050000
2 FWAIND BIT (2),             /*@BC5840Y*/00060000
2 FWAFFILL2 BIT (6),          /*@BC5840Y*/00070000
2 FIOADS CHAR (7),           /*@BC5840Y*/00080000
/*****/0009C000
*****
2 FILLER CHAR (21),
2 CLASSIF CHAR (1),
2 CNHAND FIXED BIN (31,0);
39  STAT = 'DEBUGGING EXAMPLE - PL/I';
    /**/ DFHFC TYPE=GET          /**/
    /**/ DATASET=CLASSSDS       /**/
    /**/ R0IDADR=ITEM1          /**/

```

STMT

```
40      TCAFCDI = 'CLASSDS' ;
41      TCAFCRI = ADDR(ITEM1) ;
42      TCAFCTR = '10C00000'B;
43      TCAFCTR1 = '0C000000'B;
44      TCACSPE = CSAFCNAC;
45      CALL DFHPLI1;
      /** DFHSC TYPE=GETMAIN      ***/
      /**          NUMBYTE=50      ***/
      /**          CLASS=TERM      ***/
46      TCASCTR = '10C00101'B;
47      TCASCNB = 50 ;
48      TCACSPE = CSASCNAC;
49      CALL DFHPLI1;
50      SAVEADDR, TIOABAR = TCASCSA;
51      IF CLASSIF = 'F' THEN GO TO SUBRTN;
52      CLASSIF = 'G';
53      ITEMTCI = ITEMTCI + CNHAND;
54 READ2:
      /** DFHFC TYPE=GET      ***/
      /**          DATASET=CLASSDS      ***/
      /**          RDIOADR=ITEM2      ***/
55      TCAFCDI = 'CLASSDS' ;
56      TCAFCRI = ADDR(ITEM2) ;
57      TCAFCTR = '10C00000'B;
58      TCAFCTR1 = '0C000000'B;
59      TCACSPE = CSAFCNAC;
60      CALL DFHPLI1;
61      FNACBAR = TCAFCAA;
SUBRTN:
      /** DFHPC TYPE=XCTL      ***/
      /**          PROGRAM=FILEPRCC      ***/
62      TCAPCTR = '00C00010'B;
63      TCAPCSR = '00000000'B;
64      TCAPCPI = 'FILEPRCC' ;
65      TCACSPE = CSAPCNAC;
66      CALL DFHPLI1;
      END;
```

STATIC INTERNAL STORAGE MAP

000000	00000060	PROGRAM ADCON
000004	00000008	PROGRAM ADCON
000008	0000005A	PROGRAM ADCON
00000C	0000005A	PROGRAM ADCON
000010	0000005A	PROGRAM ADCON
000014	00000000	A..STATIC
000018	0032	CONSTANT
00001A		
000020	91E091E0	CONSTANT
000024	80000000	A..CSACBAR
000028	00000000	A..ENTRY DFHPLIC
00002C	00000000	A..ENTRY DFHPLII
000030	C4C5C2E4C7C7C9D5	CONSTANT
	C740C5E7C1D4D7D3	
	C5406040D7D361C9	
	4040404040404040	
000050	C3D3C1E2E2C4E240	CONSTANT
000058	C6C9D3C5D7D9D6C3	CONSTANT

VARIABLE STORAGE MAP

IDENTIFIER	LEVEL	OFFSET	(HEX)	CLASS	BLOCK
CSACBAR		184	B8	AUTO	EXAMPLE
CSACPBAR		188	BC	AUTO	EXAMPLE
TCACBAR		192	C0	AUTO	EXAMPLE
TCATRF1A		196	C4	AUTO	EXAMPLE
TCATRF2A		200	C8	AUTO	EXAMPLE
TCTTEAR		204	CC	AUTO	EXAMPLE
TICABAR		208	DC	AUTO	EXAMPLE
FWACBAR		212	D4	AUTO	EXAMPLE

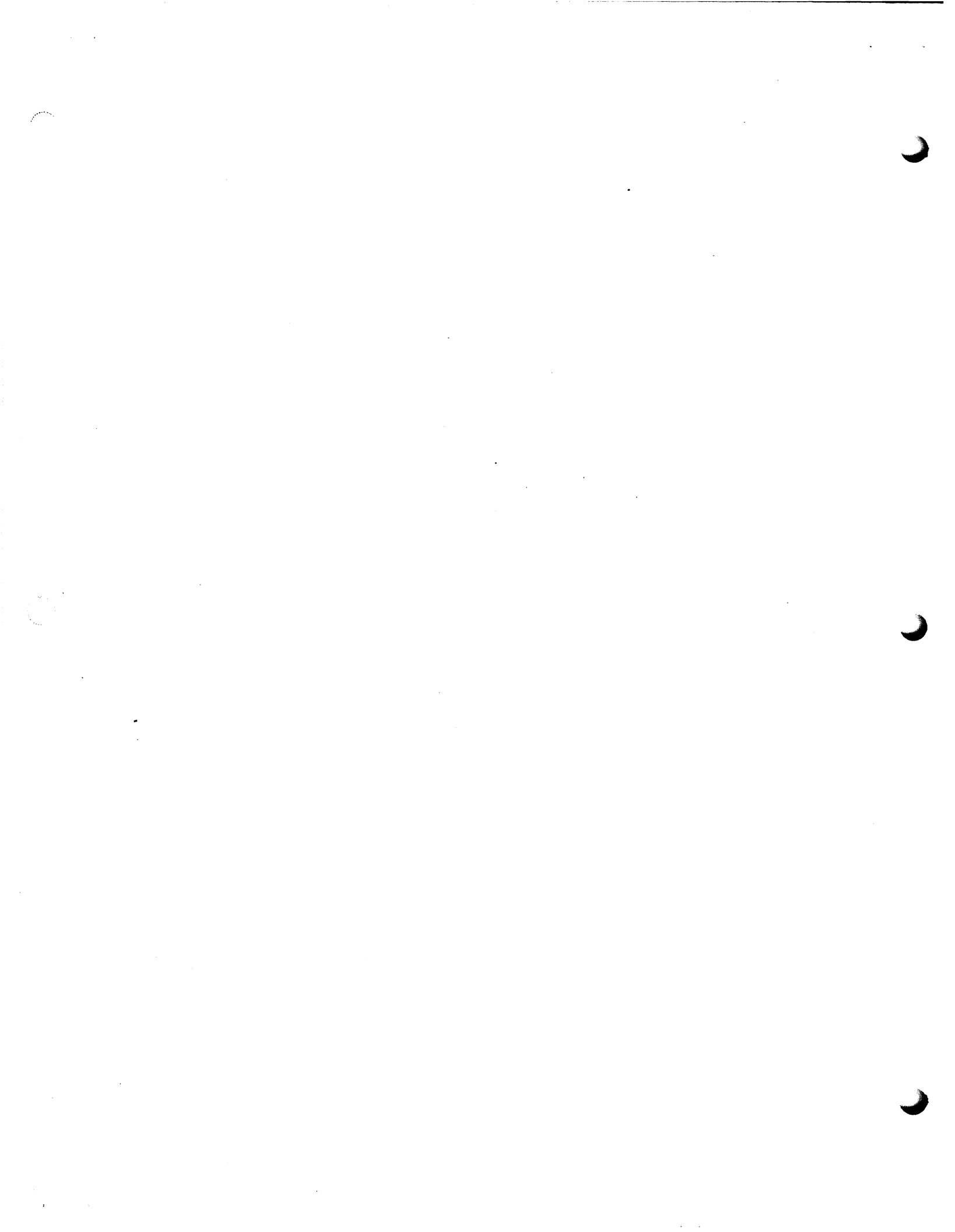
TABLES OF OFFSETS AND STATEMENT NUMBERS

WITHIN PROCEDURE EXAMPLE

OFFSET (HEX)	0	52	70	7C	84	90	9C	A2	A8	B4	BC	C0	CC	D6	DE
STATEMENT NO.	1	3	5	7	30	34	39	40	41	42	43	44	45	46	47
OFFSET (HEX)	E6	F2	FC	110	11C	120	13C	13A	146	14E	152	15E	168	174	17C
STATEMENT NO.	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62
OFFSET (HEX)	18C	186	192	19C											
STATEMENT NO.	63	64	65	66											

NO MESSAGES PRODUCED FOR THIS COMPILATION

COMPILE TIME 0.10 MINS SPILL FILE: 11 RECORDS, SIZE 3491



DFH2005 TRANSACTION CHA1 ABEND ASRA
DFH2005 TRANSACTION CHC1 ABEND ASRA
DFH2005 TRANSACTION CFI1 ABEND ASRA

DFH1701 - C. I. C. S. IS BEING TERMINATED


```

*****TRANSIENT DATA STATISTICS*****
DFHTC DESTINATION EXTRAPARTITION INTRAPARTITION INDIRECT AUTOMATIC
DFHTC IDENT CPUTS CPUTS CPUTS TRANSACTION
DFHTC INITIATION CPUTS
DFHTC CSMT 3
DFHTC CSSL 63
DFHTC LOGA 67
DFHTC **TCTALS** 67 C 66 0
DFHTC NUMBER OF TRACKS USED BY TRANSIENT DATA FOR INTRAPARTITION 0

```

```

*****TEMPORARY STORAGE STATISTICS*****
DFHTS NUMBER OF RECCRDS PUT/PUTQ MAIN 0
DFHTS NUMBER OF RECORDS PUT TO UNIQUE IDs 0
DFHTS MAX VIRT STRG USED FOR RECORDS 0

```

DFH2006 TRANSACTION CHA1 ABEND ASRA AT CRLP
 DFH2006 TRANSACTION CHC1 ABEND ASRA AT CRLP
 DFH2006 TRANSACTION CHP1 ABEND ASRA AT CRLP
 CICS ELAPSED TIME IS 13 SEC RELATIVE DAY IS 0

DFHKC*****TASK CONTROL STATISTICS*****

DFHKC PEAK NUMBER OF TASKS 1
 DFHKC NUMBER OF TIMES AT MAX TASK 0
 DFHKC TOTAL NUMBER OF TASKS 4
 DFHKC MAX. NO. ACTIVE TASKS REACHED 0

DFHST*****STORAGE STATISTICS*****

DFHST NUMBER OF STORAGE ACQUISITIONS 50
 DFHST NUMBER OF STORAGE RELEASES 27
 DFHST * NO STORAGE VIOLATIONS *

DFHPP*****TRANSACTION STATISTICS*****

DFHPP	TRANSACTION	PROGRAM	TIMES CALLED BY TRANSACTION	TIMES STALL-PURGED	TIMES ACC'L REQ'D FOR ISOLATED TASK PAGING	STORAGE	TIME TO FIND PCT ENTRY (SECONDS)
DFHPP	CHA1	CHMODA1A	1	0			0.000022
DFHPP	CHC1	CHMOCC1A	1	0			0.000147
DFHPP	CHP1	CHMCP1A	1	0			0.000234
DFHPP	CSMT	DFHMTPA	1	0			0.000317
DFHPP	****TOTALS****		4	0			

DFHPP*****PROGRAM STATISTICS*****

DFHPP	PROGRAM NAME	TIMES PROGRAM USED	TIME TO FIND PPT ENTRY
DFHPP	CHMODA1A	1	0.000000
DFHPP	CHMODC1A	1	0.000000
DFHPP	CHMCP1A	1	0.000000
DFHPP	DFHACP	3	0.000804
DFHPP	DFHMTPA	1	0.000000
DFHPP	DFHJCSDJ	1	0.000922
DFHPP	DFHPEP	3	0.001020
DFHPP	DFHSTKC	1	0.001082
DFHPP	DFHSTP	1	0.001075
DFHPP	DFHSTPC	1	0.001094
DFHPP	****TOTALS****		14

DFHDP*****DUMP STATISTICS*****

DFHDP NUMBER OF STORAGE DUMPS 3

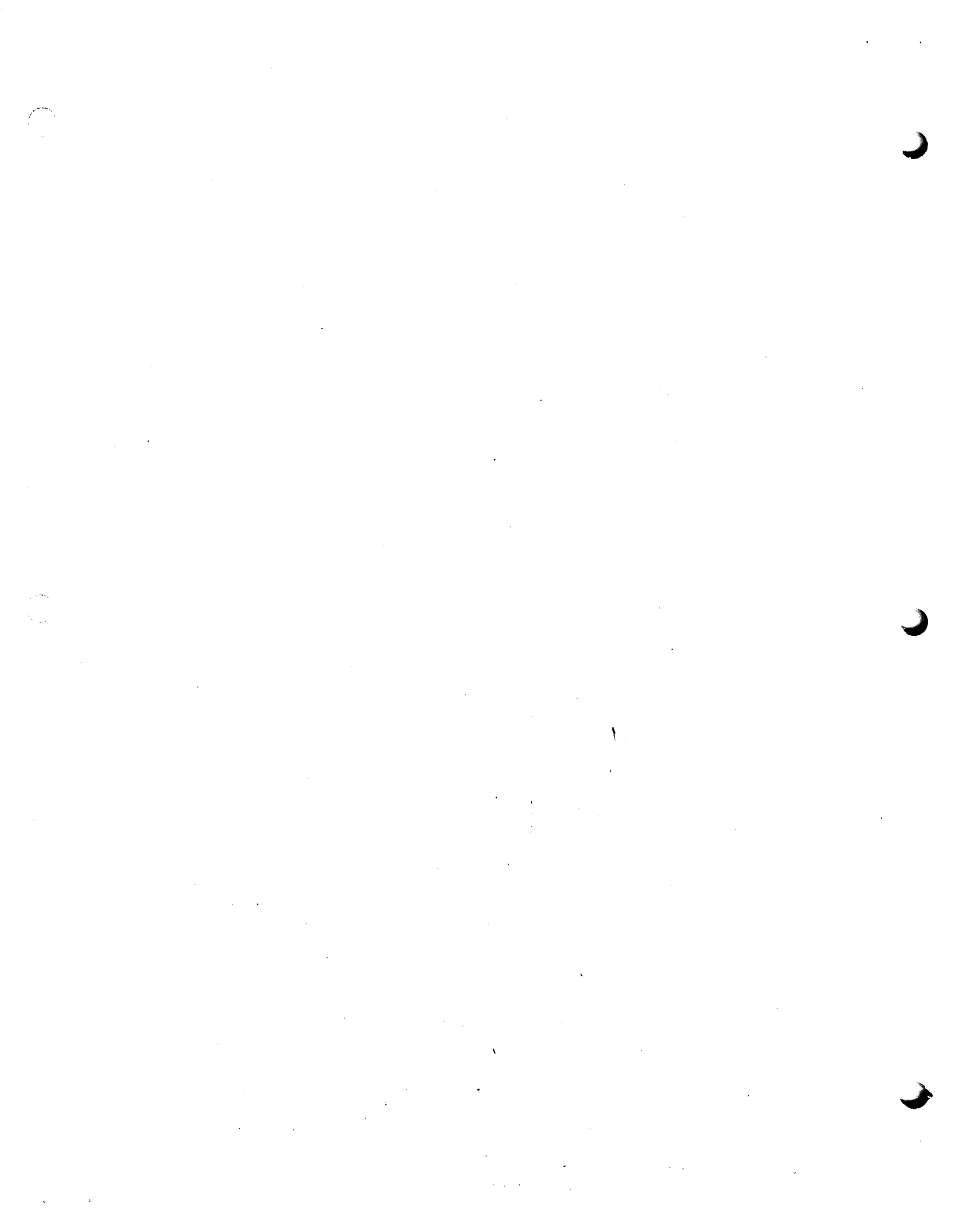
DFHTR*****TERMINAL STATISTICS*****

DFHTR	LINE ID	NO OF PCLLS	TERMINAL ID	INPUT MSGS	OUTPUT MSGS	TRANS-MISSION ERRORS	TRANS-ACTION	TRANS-ACTION ERRORS	PIPELINE MESSAGES NOT PROCESSED	TOTAL	GRCLPS	MAX CONSEC
DFHTR	0001	0										
DFHTR			CRLP	4	4	0	4	0				
DFHTR	**TOTALS**			4	4	0	4	0				

DFHFL*****FILE STATISTICS*****

DFHFL	FILE NAME	SEGMENT NAME	SEGMENT USAGE	READ REQUESTS	ADD REQ'STS	UPDATE REQ'STS	OV'FLOW RECORDS	DELETE REQ'STS	WAIT-CN-STRING	TOTAL HIGHEST
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DFHFL CLASSES 3 0 0 0 0 0 0



PSW AT ENTRY TC ABEND 078D0004 900C141E

REGS 14-4 500E1CFC 0008D080 00000C2C CCCCCCCC 000C1416 C00E27D4 C00C1008
 REGS 5-11 C00E2B3A 000C0004 000C12FF 800C1014 000C1536 000C1008 C00C1008

TASK CONTROL AREA (USER AREA)	ADDRESS	08D08C	TO	08C1FF	LENGTH	000180			
C00000	0008D0C0	000C358C	010E6B30	0C000000	CCCCCCCC	C0CD35A4	804C11CC	C031CCA0 *.....*	08D080
C00020	400D34A0	92C0BCC0	0000002D	000D35A4	500C2F2A	A00D305C	0008D000	900D3442 *.....*	08D0A0
C00040	C00C0080	C00C12FF	800C1014	0C0C1536	CC0E3344	C00C1008	400D34A0	0008B190 *.....*	08D0C0
C00060	000C1416	00000004	000E2B3A	00000000	500C13DA	C00E27D4	C00C1008	C00E2B3A *.....M.....*	08D0E0
C00080	FE00D4FC	C3D3C1E2	E2C4E240	C1E2D9C1	078D0004	900C141E	0C000000	C008B011 *..MOCLASSDS ASRA.....*	08D100
C000A0	500E1CFC	C008D080	0000002D	00C0C0C0	C00C1416	000E27D4	C00C1008	000E2B3A *.....M.....*	08D120
C000C0	C0000004	000C12FF	800C1014	C00C1536	C00C1008	C00C1008	CCCCCCCC	C0000000 *.....*	08D140
C000E0	0000000C	00000000	24F00000	00000000	C0000000	C000C000	00CE4014	C0000000 *.....0.....*	08D150
C00100	C4C5C2E4	C7C7C9D5	C740C5E7	C1D4D7D3	C54C6040	C3C6C2D6	D3404040	40404040 *DEBUGGING EXAMPLE . COBOL *	08D180
C00120	C0000000	0008B190	000000C0	0C0C0C00	CCCCCCCC	CCCCCCCC	0C0C0C00	0C0C0C00 *.....*	08D1A0
C00140	CC00C0C0	0C0C00C0	00000000	0C000000	CC0C0000	000C0000	000C0C00	CC0C0C00 *.....*	08D1C0
C00160	C0000000	CCCC00C0	0C0C00C0	C0C00C00	CCCCCCCC	CCCCCCCC	8A0401F8	0008D4F0 *.....B..M0*	08D1E0

TASK CONTROL AREA (SYSTEM AREA)	ADDRESS	08D0C0	TO	08D07F	LENGTH	000080			
C00000	8A0401F8	0008D4F0	0008D450	0008D5E0	CCCC002C	000E3344	0008C04C	CCCC00C0 *...8..M0..M...N.....*	08D000
C00020	CC0FC0EC	0C0C0000	00000000	C0C0C000	CCCC0000	FE0E08BC	00000000	0008D208 *.....K.*	08D020
C00040	C008D200	00000000	00000000	C0C0C0C0	CCCCCCCC	CCCC00C0	00000000	00000000 *..K.....*	08D040
C00060	C00C00C0	00000000	00000000	0C000000	CCCCCCCC	CCCCCCCC	CCCC00C0	CCCC00C0 *.....*	08D060

ASRA REGS 0 THRU 15	ADDRESS	0D353C	TC	0D357E	LENGTH	000040			
C00000	C000C02C	CCCC00C0	000C1416	000E27D4	CCCC1008	C00E2B3A	0C0C0004	000C12FF *.....M.....*	0D353C
C00020	800C1014	C00C1536	000C1008	000C1008	CC0C12EC	C008D208	CCCC00C0	C0C8D080 *.....K.....*	0D355C

COMMON SYSTEM AREA	ADDRESS	CF059C	TG	CF0D9D	LENGTH	OC080E				
CCCC00	C000C00C	00074F98	00000000	4C0D34A0	92CC8C00	4CCD3492	92C0B000	CCCC002D *.....*	0F0590	
CC0020	C00D35A4	5C0D2F2A	9C0D30B4	C008D000	8C0C3460	C000C080	000C12FF	800C1014 *.....*	0F0580	
00C040	C00C1536	C00E3344	0000025C	CC08D08C	C925456F	CCCCC0C0	07D0C0100	00000C00 *.....*	0F05D0	
CCCC60	C033CC0F	000A8C00	0088B6F8	0C008494	CCCC2C00	CCC7508C	0CCF1000	0076191F *.....8.....*	0F05F0	
CCCC80	C00F0418	E0FF0F00	0C00012C	000F0E80	C00C0000	C0C0C000	C00C6030	00000C00 *.....*	0F0610	
0000A0	C00000C0	0008C0C0	0C0F062C	CC0F062C	CC08C040	C0CF0350	000F00E0	1000FF00 *.....*	0F0630	
0000C0	0019C000	000C080E	000EFA8	00000000	CCCCCCCC	CCCCC0C0	CCCC0000	C3D5E2E3 *.....CNST*	0F0650	
CCCC00	400ED010	000E4014	000E18C0	000E800C	C00C2F00	C00EAB0C	C00CD98A	0C0DCC32 *.....R.....*	0F0670	
000100	000DCF9C	C00D415A	0C0D07A4	CC0D2780	CCCF0DFA	C00ECB1C	C00EAC18	000D0794 *.....*	0F0690	
000120	000E3044	000E033C	000E6998	CC0DD8A0	CCCD8E7C	CCCC6FC0	0CC8AC00	0CCCCC00 *.....C.....*	0FC680	
CC0140	CC0E1AFC	000D2EFC	000E6BCC	000CD958	000DBFFC	0000C000	0CCCC000	0CCCCC00 *.....R.....*	0F06D0	
000160	000D272A	7F59C0C0	000C00C0	4318BED6	CC985E7B	0CC0C000	000C0000	00000C00 *.....0.....*	0F06F0	
000180	000F0DFC	000F0E00	00C000C0	CC0F0E14	CCCCCC00	C0C0C0C0	0CCC0000	FF0F0E6C *.....*	0F0710	
C001A0	070E58F0	D19C07FF	0098642E	00986E1C	C005CC00	C00CC0C0	E6D6D9D2	C1D9C5C1 *...0J.....WORKAREA*	0F0730	
CC01C0	C000C00C	000C00C0	001C001C	CC002C00	CC025C00	C0011CC0	0C0C0C00	0C000C00 *.....*	0F0750	
0001E0	2C002C00	000C0000	0C000C00	0CC0C00C	CCCCCC00	CCCCC0C0	0CCC000C	00000C00 *.....*	0F0770	
C002C0	C000C0C0	00000000	000C0000	00000000	CCCCCC00	CCCCC000	0CCC0000	00CCCC00 *.....*	0F0790	
LINES	C00220-0C07C0	SAME AS ABOVE							0F0780-0F0D50	
0007E0	C000C000	00000000	0C0000C0	0CC0CC00	CCCCCC00	CCCCC000	C000C3C9	C3E261D6 *.....CICS.0*	0F0D70	
C008C0	E261E5E2	40F5F7F4	F060E7E7	F140				*S.VS 5740.XX1 * *	0F0D90	

TRACE TABLE

	ADDRESS	000120	TC	CCC76F	LENGTH	CCC650			
CCCC00	C00D0270	0C0D0130	000D0760	000D0794	F00E276E	2000002C	110CCCC0	CCCCCCC0 *.....0.....*	0C0120
000020	F10E28F0	8CCCC02C	000C0238	010E6B30	C80E415E	CCCCC02C	0008D200	8C0C0248 *1..0.....H.....K.....*	0D0140
000040	F50E2C8E	8000002C	C3D3C1E2	E2C4E24C	F10CFA6A	9DCCCC2C	CCC8001C	010E6B3C *5.....CLASSDS 1.....*	0DC160
0CCC60	C80E415E	0000002C	0008D450	9C080028	F10CF8AA	8F00C02C	00080060	010E6B3C *H.....M.....1.8.....*	0C0180
CCCC80	C80E415E	0C00002C	0008D480	8F080068	FC0DE7AA	40C0C02C	800C0000	0008D490 *H.....M.....0.X.M.*	0D01A0
0000A0	F10DF8AA	8F00002C	00080060	010E6B3C	C8CE415E	CCCCC02C	0008D4F0	8F080C68 *1.8.....M.....M.....MO....*	0D01C0
0000C0	F10DFA52	4C00002C	0008D450	010E6B30	C90E4248	00C0C02C	0008D450	9D080C28 *1... ..M.....I.....M.....*	0C01E0
CCCCE0	F10DFA52	4C00002C	0008D480	010E6B30	C90E4248	00C0C02C	0008D480	8F080C68 *1.....M.....I.....M.....*	0D0200
000100	F10E2C8E	8500002C	000C0032	010E6B30	C8CE415E	CCCCC02C	0008B190	85000048 *1.....H.....*	0D0220
000120	F200C0C0	6000002C	C1E2D9C1	00000000	F40E1CFC	FEC0C02C	00000000	C1E2D9C1 *2.....ASRA...4.....ASRA*	0C0240
000140	F00D34A0	4000002C	80000000	0C0D35A4	F0000000	0033CC02	0033CC10	0000010C *0... ..*	0DC260
000160	F00D34A0	4000002C	80000000	0C0D35A4	FC0E2416	20CC001C	FF000000	00000000 *0... ..0.....*	0D0280
000180	F00E25D8	4000001C	80000000	000E2E60	F0000000	0033CACA	0033CACA	0000001C *0..Q ..*	0D02A0
0001A0	F00E276E	2000001C	11000000	00000000	F50C5034	80C0C01C	C3D3C1E2	E2C4E240 *0.....5.....CLASSDS *	0D02C0
0001C0	F10CFA6A	9D00001C	000C001C	010E6B3C	C80E415E	CCCCC01C	0008D200	9D0C0C28 *1.....H.....K.....*	0D02E0
0001E0	F10DF8AA	8FC0001C	000C0060	010E6B30	C80E415E	00C0C01C	0008D230	8F0C0C68 *1.8.....H.....K.....*	0C0300
000200	F00DE7AA	4000001C	80000000	0008D240	F10CF8AA	8FC0C01C	000C0060	010E6B30 *0.X.K 1.8.....*	0D0320
000220	C80E415E	0000001C	0008D2A0	8F0C0C68	F10CFA52	4000001C	0008D200	010E6B30 *H.....K.....1... ..K.....*	0DC340
000240	C90E4248	0000001C	0008D200	9C0C0C28	F10CFA52	4000001C	0008D230	010E6B30 *1.....K.....1... ..K.....*	0D0360
000260	C90E4248	0000001C	0008D230	8F0C0C68	F10C5044	85C0C01C	00080032	010E6B30 *1.....K.....1.....*	0D0380
000280	C80E415E	0000001C	0008B190	85C80048	F2CC5044	60CC001C	C1E2D9C1	00000000 *H.....2.....ASRA...*	0DC3A0
0002A0	F40E1CFC	FE00001C	00000000	C1E2D9C1	F00D34A0	40C0C01C	80000000	0C0D35A4 *4.....ASRA0... ..*	0D03C0
0002C0	F00CC000	0C33CAE7	0C33CAED	0C00021C	F10E23C2	88C0C01C	0008018C	010E6B30 *.....X.....1..B.....*	0D03E0
0002E0	C80E415E	0000001C	000C4000	8E001000	FC0E2416	20CC001C	FF000000	00000000 *H.....0.....*	0D0400
000300	F00E25D8	4000001C	80000000	000E2E60	F0000000	0033CAF9	0033CAF9	0000001C *0..Q ..9...9...*	0C0420
000320	F00E276E	2000001C	11000000	00000000	F10C4230	E5CC001C	00400050	010E6B30 *0.....1...V.... ..*	0D0440
000340	C80E415E	0000001C	0008B1E0	85400068	FC0C48B4	08C0C01C	00050000	020E6B30 *.....*	0D0460

TRACE TABLE	ADDRESS	CDC12C	TC	CDC76F	LENGTH	CC065C			
000360	F00EACFA	4000001C	10000000	000E2E60	F00EABDC	4000E3C3	40000000	000E68C0 *0... ..0... .TC*	000480
000380	F10E7102	4000E3C3	0008B1E0	8C0E6B30	C9CE4248	0000E3C3	0008B1E0	85400068 *1... .TC.....I.....TC.....*	0004A0
0003A0	F00E7686	0800E3C3	0008D080	CCCCCCCC	FCCEABDC	4000E3C3	40000000	000E68C0 *0.....TC.....0... .TC*	0004C0
0003C0	F20C4348	8100001C	C4C6C8D7	C5D74040	F1CE1CC6	89C0C01C	0008004C	010E6B30 *2.....DFHPEP 1..F.....*	0004E0
0003E0	C80E415E	0000001C	0008D2C0	89080058	F10E23C2	88C0C01C	00080076	010E6B30 *H.....K.....1..B.....*	000500
000400	C80E415E	0000001C	000C30C0	88001C00	FCCE2416	2000001C	FF0C0000	00000C00 *H.....0.....*	000520
000420	F00E25D8	4000001C	80000000	000E2E60	FD000000	0033CB6C	0033CB6C	00C0001C *0..Q	000540
000440	F00E276E	2000001C	11000000	00000000	F2CC335E	1C00C01C	C4C6C8D7	C5D74040 *0.....2.....DFHPEP *	000560
000460	F10E209C	4000001C	0008D2C0	010E6B3C	C9CE4248	CCCCC01C	C008D200	89080058 *1... ..K.....I.....K.....*	000580
000480	F10C4380	E000001C	00400046	010E6B30	C80E415E	0000001C	0008D200	8D4C0058 *1..... ..H.....K.. ..*	0005A0
0004A0	F60C43D8	4000001C	0008D208	C3E2D4E3	FC0DCEA2	40C0C01C	200C0000	000E2E60 *6..QK.CSMT0... ..*	0005C0
0004C0	F20C470C	1000001C	C4C6C8C1	C3D74040	FC0E1FBC	8CCCC01C	CCCC0000	000C0C00 *2.....DFHACP 0.....*	0005E0
0004E0	D80EC850	0000001C	0200D208	00000000	F10ECF94	4A00C2C3	CC08D0C0	00000C00 *Q.....K.....1.....KC.....*	000600
000500	C90E4248	CC00D2C3	0008D0C0	8A04C1F8	F10EDFA6	4CC0C2C3	0008C000	00000000 *I.....KC.....81... .KC.....*	000620
000520	C90E4248	0000D2C3	0008C0C0	81000040	F1CE7182	6C00E3C3	0CCCC000	800E6B30 *I.....KC..... 1.....TC.....*	000640
000540	C90E4248	0000E3C3	0008B190	85080048	C9CE4248	CC00E3C3	CC08B0C0	85C00118 *I.....TC.....I.....TC.....*	000660
000560	F10E706E	E500E3C3	00000102	800E6B30	C80E415E	0000E3C3	0008B000	85000118 *1...V.TC.....H.....TC.....*	000680
000580	F00EABDC	4000E3C3	40000000	000E68C0	FCCEA3E6	1100E3C3	010E6B30	C3C8C3F1 *0... .TC0..W..TC....CPC1*	0006A0
0005A0	F10EDB08	EA00E3C3	000001E9	800E6B30	C80E415E	0000E3C3	0008D000	8A0401F8 *1.....TC...Z.....H.....TC.....8*	0006C0
0005C0	F10EDB42	E100E3C3	00000038	8C0E6B30	C8CE415E	0000E3C3	0008CC00	810C0C40 *1.....TC.....H.....TC.....*	0006E0
0005E0	F00EABDC	4000E3C3	40000000	000E68C0	F20E1800	02C0C02C	C3C8D4D6	C4C3F1C1 *0... .TC2.....CHMODC1A*	000700
000600	F10E23C2	8800002C	00000208	010E6B30	C8CE415E	0000C02C	000C1C00	88002C00 *1..B.....H.....*	000720
000620	F00E2416	2000002C	FF000000	00000000	FCCE25DE	4CCCC02C	80CCCC00	C00E2E60 *0.....0..Q	000740
000640	FD000000	0033CBE9	0033CBF0	0000002C				*.....Z...0.... *	000760

TRANSACTION STORAGE-FILE	ADDRESS	OBC4F0	TC	OBC55F	LENGTH	CCC070			
CCCC00	8F08CC68	C008D2C0	CC0C00C0	CC0DC8A0	C054CC00	C3C8F0F1	F040405C	5C5C5C40 *.....K.....Q.....CH010 *	08C4F0
000020	E3C8C9E2	40C9E240	E3C8C540	C9D5C9E3	C9C1D34C	C4C1E3C1	40C9D540	E3C8C540 *THIS IS THE INITIAL DATA IN THE *	08D510
CCCC4C	D9C1C3D6	D9C4405C	5C5C5C40	40404040	4C4C4C4C	40404040	40404040	40404C4C *RECORD *	08C530
CCCC60	40404040	C0CC00C0	8F080068	CC08D2C0				*K. *	08D550

TRANSACTION STORAGE-USER	ADDRESS	OBD2C0	TO	OBD44F	LENGTH	000250			
CCCC00	8C0C0248	C008D000	00300000	000E2D7C	CCCCCCCC	50CC13DA	CCCE2A4E	00CCCC2D *.....*	08D200
CCCC20	000C0C0C	5C0E1B3A	000E27D4	0C0C1008	CC0E2B3A	C0C0C004	000C12FF	800C1014 *.....M.....*	08D220
000040	000C1536	CC0C1008	0C0C1008	CC0C12E0	3CC2AC48	CCCCCCCC	00CC0000	000C1330 *.....*	08D240
000060	00000000	2A4E0000	00000000	00000000	CC0CCCCC	CCCCCCCC	CCCC0000	CCCC0C00 *.....*	08C260
C0C080	C0000000	00000000	00000000	00000000	C0000000	00000000	00000000	00000C00 *.....*	08D280

LINES C00CA0-C00180 SAME AS ABOVE 08D2A0-08D380

0001A0	C0000000	00000000	0C000000	00000000	CCCCCCCC	CCCCCCCC	C0CC1008	C0C0CC00 *.....*	08D3A0
C001C0	C0C11578	E2E8E2D6	E4E34040	E3000008	000C1090	00C0C000	00CC0C00	00CC0C00 *....SYSOUT T.....*	08D3C0
0001E0	00000000	C0000000	00000000	0C000000	CCCCCCCC	C0C0C000	00000000	00000C00 *.....*	08D3E0
C00200	00000000	00000000	00000000	CCCCCCCC	CCC8D410	CCCF059C	00CC0C00	C0C8D080 *.....M.....*	08D4C0
C00220	C10E6B3C	C008B190	00000000	00000000	8008E011	00C0C001	00CC0000	CCCCCCCC *.....*	08C420
C00240	0000CCCC	CC0CC000	8C0C0248	C008DCCC				*.....*	08D440

TERMINAL CONTROL TABLE	ADDRESS	CE6B3C	TO	CE6BBB	LENGTH	0C008C			
CCCC00	C3D9D3D7	18FC0004	0008B190	0008E000	C008D080	C0C0C000	CCCCCCCC	C0C0CCCC *CRLP.0.....*	0E6B30
CCCC20	CCCCCCCC	0CF04040	000C01C0	C0C0C000	CCCCCCCC	00C0C000	00000000	008C0C00 *.....0.....*	0E6B50
000040	00000000	000E6AD0	000E6BAC	C0C0CCCC	CCCCCCCC	CC84C01C	C1CC002C	00001C00 *.....*	0E6B70
C0CC60	0C00002C	C00C8000	00200000	00020000	CCCCCCCC	CCC0C000	CCCCCCCC	10CCCC00 *.....*	0E6B90
C0C080	010C045C	C0C0C0C0	C1C100C0					*.....AA.. *	0E6BB0

TERMINAL STORAGE	ADDRESS	08B190	TC	08B1CF	LENGTH	CCCC5C				
CCCCC0	850CC048	C008B0C0	000C6040	0CC0CC00	CCCCCCCC	00C0C000	000C0000	00000C00	*.....*	08B190
000020	00000000	00000000	00000C00	0CC0CC00	CCCCCCCC	CCCCCCCC	00000000	00000C00	*.....*	08B1B0
CCCC40	C00CC000	00000000	85000048	0C08B0C0					*.....*	08B1D0

TERMINAL STORAGE	ADDRESS	08B000	TC	08B11F	LENGTH	000120				
000C00	85000118	000E6B34	00100C00	C3C8C3F1	40C3C8F0	F1F0E1C3	C8F0F1F5	7C0C0000	*.....CHC1 CH010.CH015....*	08BCC0
000C20	00000000	00000000	00000000	00000000	CCCCCCCC	CCCCCCCC	CCCCCCCC	CCCCC0C0	*.....*	08B020

LINES CCC040-CC00EC SAME AS ABOVE 08B040-08B0E0

000100	00000000	C00C00C0	000C0C00	0CC0CC00	CCCCCCCC	CCCCCCCC	850C0118	000E6B34	*.....*	08B1C0
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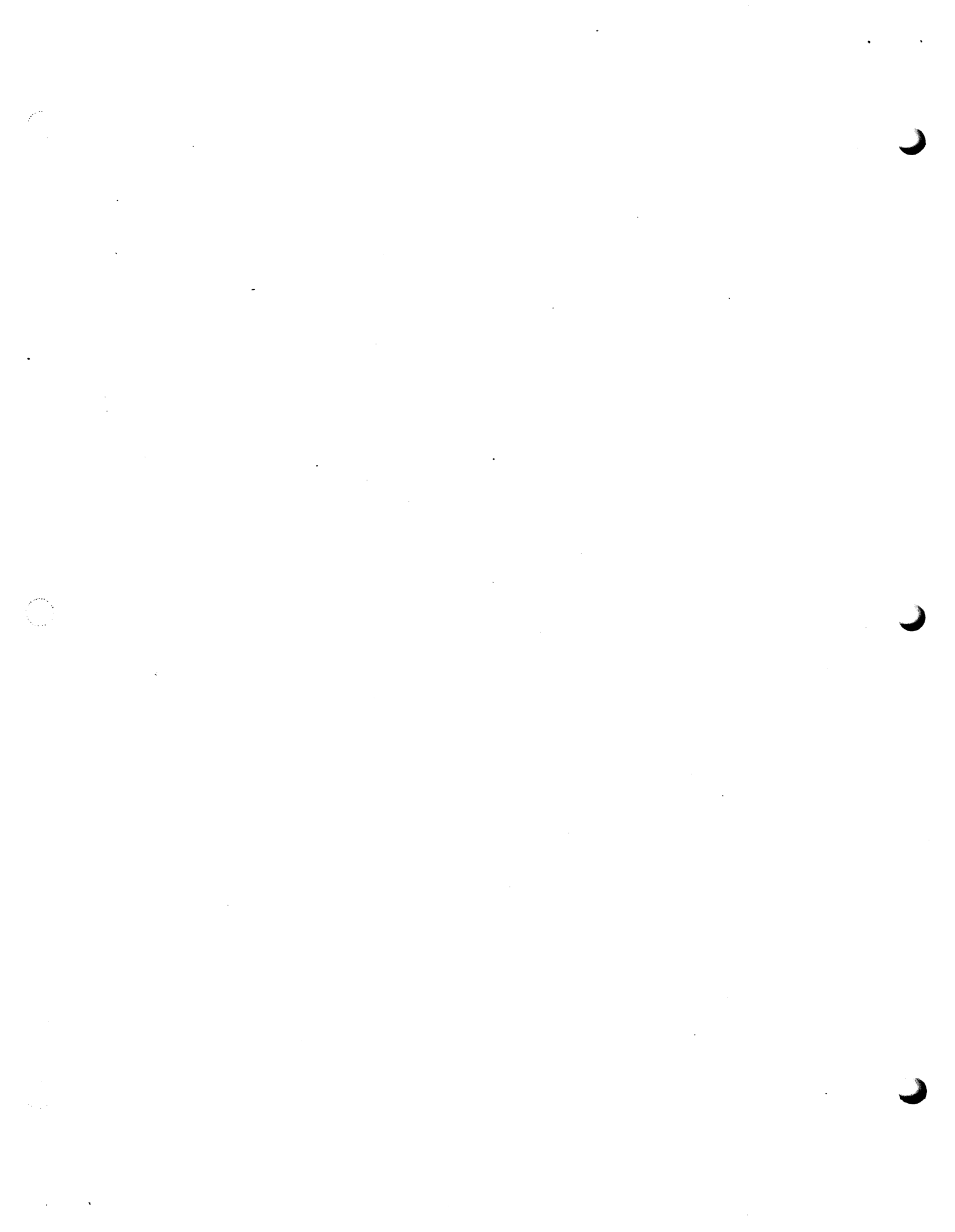
PROGRAM STORAGE	ADDRESS	CC1008	TG	CC203F	LENGTH	001038			
C00000	90ECD0CC	185D05F0	4580F010	C4C5C2E4	C7C7C9D5	E5E2D9F1	C700989F	F02407FF *.....0..0.DEBUGGINVSR1....0...*	OC1008
C00020	96021034	C7FE41F0	000107FE	C00C1536	CCCC1008	C00C1008	C00C12E0	C00C10A8 *.....0.....*	CC1028
C00040	0001330	000C14F6	000C002D	C00C12E4	5CCE1B3A	CCCE27D4	00CC1008	000E2E3A *.....6.....U.....M.....*	OC1048
C00060	C0000004	000C12FF	800C1014	000C1536	CCCC1008	C00C1008	CCCC12E0	C00E0208 *.....K.*	OC1068
C00080	C0000000	C00C1280	40F94BF2	F14BF4F1	C1E4C34C	40F96B40	F1F9F7F6	00000C00 *.....9.21.41JUL 9. 1976....*	OC1088
0000A0	C0300000	CCCE2D7C	00000000	C0000000	CCCC0000	C0000000	00000000	00000000 *.....*	OC10A8
0000C0	00000000	00000000	00000000	00000000	CCCC0000	CCCC0000	CCCC0000	C0000000 *.....*	OC10C8
C000E0	C0000000	00000000	2002A048	00000000	CCCC0000	C00C1330	CCCC0000	C0000000 *.....*	OC10E8
000100	00000000	00000000	00000000	00000000	CCCC0000	CCCC0000	00000000	00000000 *.....*	OC1108
LINES		000120-000220	SAME AS ABOVE			OC1128-OC1228			
C00240	00000000	00000000	00000000	00000000	C00C1008	00000000	CCCC1578	E2E2E2D6 *.....SYSD*	OC1248
000260	E4E34040	E30000C8	00CC1C9C	CCCC0000	CCCC0000	CCCC0000	00000000	00000000 *UT T.....*	OC1268
000280	00000000	00000000	00000000	00000000	CCCC0000	CCCC0000	CCCC0000	CCCC0000 *.....*	OC1288
LINE	C002A0	SAME AS ABOVE			OC12A8				
C002C0	00000000	00000000	00000000	00000001	CCCC0000	C0000000	000C16D2	000C16D2 *.....K...K*	OC12C8
C002E0	000E2A4E	000C16D6	000C1496	C00C1416	CCCC14CC	C00C1008	800C0085	003202C0 *.....0.....*	OC12E8
C00300	C4C5C2E4	C7C7C9D5	C740C5E7	C1D4C7D3	C54C6C40	C3D6C2D6	D3C3D3C1	E2E2C4E2 *DEBUGGING EXAMPLE . COBCLCLASSDS*	OC1308
C00320	C6C9D3C5	D7D9D6C3	58E0D2C8	58F0D20C	D203E00C	F04C58F0	D214D203	E010FC08 *FILEPROC...K..OK.K...0..OK.K...0.*	OC1328
000340	58F0D218	D203E014	F00C58E0	D214D218	E10CC028	9240E119	D2C5E11A	E119D206 *.OK.K...0...K.K..... .K.....K.*	OC1348
C00360	E084C041	9240E08B	D201E080	C020C201	EC9CCC21	58F0D2CC	D2C3E0F8	F0F858E0 *.....K.....K.....OK.K..808..*	OC1368
C00380	D21C411C	E0115010	D2289680	D2284110	D228964C	C04958F0	C00805EF	94BFDC49 *K.....K...K...K.. ...0.....*	OC1388
C003A0	40F0C05C	58F0D188	50D0F080	58E0D214	D201EC5C	C023D201	E05ECC24	58F0D2CC * 0...0J...0...K.K.....K.....OK.*	OC13A8
C003C0	D203E0F8	F0E41811	964C0049	58F0C008	05EF948F	C04940F0	D05C58F0	D18850D0 *K..80U... ..0..... 0...0J...*	OC13C8
0003E0	F08058E0	D214D2C3	E124EC5C	58E0D208	58F0D214	D2C3E014	F05C5820	C01458E0 *0...K.K.....K..OK.K...0.....*	OC13E8
C00400	D22C95C6	E0250772	5810C010	07F158E0	D22092C7	E025F872	D1F8E026	4F30D1F8 *K..F.....l..K..G..8.J8....J8*	OC1408
000420	58E0D214	5A30E120	10335030	E12C58E0	D214D206	E084C041	9240E08B	D201E080 *..K.....K.K..... .K...*	OC1428
000440	C020C201	E09CC021	58F0D2CC	D203E0F8	F0F858EC	D21C411C	EC175010	D2289680 *..K.....OK.K..808..K.....K...*	OC1448

PROGRAM	STORAGE	ADDRESS	OC1008	TC	OC203F	LENGTH	001038			
000460	D2284110	D2289640	D04958F0	CC0805EF	948FDC49	4CF0DC5C	58FCD1B8	500DF080	*K...K.. ...0..... 0...0J...0.*	OC1468
000480	58E0D208	58F0D214	D2C3E018	F08058E0	D214D201	E080C026	D2C7E084	C04858F0	*..K..OK.K...0...K.K.....K.....0*	OC1488
0004A0	D20CD203	E0F8F0E8	1E119640	DC4958FC	CCC8C5EF	948FD049	40FCDC5C	58FCD1B8	*K.K..80Y... ...0..... 0...0J.*	OC14A8
0004C0	50D0F080	58F0D1E0	900EF048	05F09110	D04847E0	F00E58F0	C0CC07FF	48F0DC5C	*..0...0J...0..0.....0..0.....0..*	OC14C8
0004E0	58D0DC04	980CD014	58E0D0CC	C7FE5CDD	5C085C50	D0C450EC	D0549120	D04847E0	*.....*	OC14E8
000500	F02E582D	D1889140	D04947E0	F02E9604	2C0C58F0	203841FC	FCC4C7FF	94EFD048	*0...J.. ...0.....0...00.....*	OC1508
000520	58F0C0CC	05EF12C0	07899610	D04805F0	9120D048	47E0F016	58C0B048	982DBC50	*.0.....0.....0.....*	OC1528
000540	58E0D054	07FE9620	D0484160	CC044110	CC1C4170	C02CC67C	055C5840	10C01E4B	*.....*	OC1548
000560	504010C0	87165000	58E0D054	07FE0000	800C0000	00CC10A8	C9C3C2D6	D5E3D9F0	*.ILBONTR0*	OC1568
000580	C000C0C0	C000C0C0	000C00C0	00CC00C0	00000000	00000000	00000000	00000000	*.....*	OC1588
0005A0	00000000	00000000	000C16C2	00CC00C0	00000000	00000000	00000000	00000000	*.....K.....*	OC15A8
0005C0	C000C0C0	C0000000	00000000	00000000	00000000	00000000	00000000	00000000	*.....*	OC15C8
0005E0	C000C0C0	00000000	00CC00C0	00000000	0008C208	C0C0C000	00000000	00000000	*.....K.....*	OC15E8
000600	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	*.....*	OC1608
000620	C000C0C0	000C0000	00000000	00000000	00000000	00000000	00000000	00000000	*.....*	OC1628
000640	C000C0C0	00000000	00000000	00000000	00000000	0000C9D3	C2D6C3D6	D4400000	*.....ILBOCOM ...*	OC1648
000660	F5F7F4FC	60C3C2F1	40C3D6C7	E8D9C9C7	C8E340C9	C2C440C3	D6D9D74B	40F1F9F7	*5740.CB1 COPYRIGHT IBM CORP. 197*	OC1668
000680	F4F5F7F4	F060C3C4	F168F2F4	F0F3F7F7	F5F7F4FC	60C3C2F1	40C3D6D7	E8D9C9C7	*45740.LM1.2403775740.CB1 COPYRIG*	OC1688
0006A0	C8E340C9	C2D440C3	D6D9D74B	40F1F9F7	F5F5F7F4	F060C3D4	F168F2F4	F0F3F7F7	*HT IBM CORP. 19755740.LM1.240377*	OC16A8
0006C0	C000C0C0	C00C19B8	00CC47F0	F0CC47F0	FC8A47FC	FG7A50F0	F30E90E7	F2E6185F	*.....00..00..00..03..X2W..*	OC16C8
0006E0	582052CE	584052CA	58F052D2	056FD503	530E52EA	47E05C56	58E052E6	D503EC00	*.....0.K..N.....WN...*	OC16E8
000700	504A4780	50624BE0	52DED503	EC005052	47705062	5010D1B8	47F05062	58F0CC00	*.....N.....J..0...0..*	OC1708
000720	9140D04A	47805062	96011C00	591052CA	478C5072	501052CA	960152E2	180498EF	*.S....*	OC1728
000740	52E69827	F2F65810	F2CA07FE	50F0F306	48FCF2D8	47FCFC1C	9CECF30E	184F5820	*.w..26..2....03..02Q.00...3.....*	OC1748
000760	D1B89140	2C024710	40A49104	2C004780	410C58F0	42C212FF	478040B4	056F47F0	*J..0.K.... ...0*	OC1768
000780	0DC41CC	4C8C47F0	40C4C9D3	C2D6D4E2	C7FC4110	0000CA08	18FC056F	450040DA	*0 DILBOMSGO.....0.... *	OC1788
0007A0	C6	D4E2C7F0	0A091255	477040E8	98EC43CE	C7FE58EC	2...BEO	42DC48EE	*ILBOMSGO..... Y.....*	OC1808

PROGRAM	STORAGE	ADDRESS	CC1CC8	TO	CC2C3F	LENGTH	001038			
C007C0	000040E0	D05C12EE	4780410C	47F04106	80CC0127	58104102	0A009180	20024780	*..0.....*	OC17C8
C007E0	414258E0	20384BE0	42DC48EE	CCC040E0	C05C12EE	474040FE	58F0202C	12FF4780	*.....0.....*	OC17E8
000800	4142943E	200241FF	001C05EF	47FC416C	58FC2C8C	12FF4780	4160189D	41D0D0A8	*.....0...0.....*	OC1808
C00820	50D9C0C8	509D0004	181105EF	18D9C502	42D6205D	47804186	411C205C	18744580	*.R.....RN..C.....*	OC1828
000840	426C05C2	42D63065	47804186	41130064	47F04170	D5C242C6	20594780	419A4110	*..N..0.....0..N..0.....*	OC1848
C00860	20581874	4580426C	D7072058	2058D502	42D62C51	478041C6	411C2050	18774580	*.....P.....N..0.....F.....*	OC1868
000880	426C05C2	42D63075	478041C6	41130074	47F041B0	D50242D6	20554780	41DA4110	*..N..0.....F.....0..N..0.....*	OC1888
0008A0	20541877	4580426C	D50242D6	20614780	42265850	20604135	C0909110	30304780	*.....N..C.....*	OC18A8
0C08C0	42D25035	02144115	02141874	4580426C	5835C2D8	12334780	42264133	05A09110	*.....Q.....*	OC18C8
C008E0	30304780	42265035	02149280	52144115	C2140A14	947F2000	910142DE	4780423C	*.....*	OC18E8
000900	D70342C6	42C694FE	42DE9101	2C0047E0	42AC45CC	4250C9D3	C2D6E2E3	E3F00A09	*P..F.F.....ILBOSTTO..*	OC1908
C00920	4100425A	47F04262	C9D3C2D6	E2E3E3F0	411CCCCC	CA0818F0	C7FF5831	00C09110	*.....0..ILBOSTTO.....0.....*	OC1928
000940	3020C788	92801000	0A141277	07881813	58F01014	96011017	18EE43E0	F0054CE0	*.....0.....0...*	OC1948
000960	F0064100	E0089140	F00447E0	42A441C0	EC1C4110	FCCCCACA	C7F848F0	D05C58C0	*0.....0.....0....8.0....*	OC1968
C00980	200458D0	D00458E0	D00C980C	D01407FE	404C0000	000C1578	CCCC1B8A	000C1ACA	*.....*	OC1988
0009A0	00DC1F4A	00000000	00060008	00000000	5C0C152E	CCCC16D2	CCCC002D	000C12E4	*.....K.....U*	OC19A8
C009C0	C00C1578	C00E27D4	000C1008	000E2D7C	C0C8C000	000C10A8	000C16D2	CCCCCCCC	*.....N.....K....*	OC19C8
0009E0	00000000	00000000	00000000	00000000	CCCCCCCC	00000000	00000000	00000000	*.....*	OC19E8
000AA0	C000C000	00000000	00000000	C0000000	CCCCCCCC	CCCCCCCC	FFFFFFFF	FFFFFFFF	*.....*	OC1A08
COCA20	FFFFFFFF	FFFFFFFF	FFFFFFFF	FFFFFFFF	FFFFFFFF	FFFFFFFF	FFFFFFFF	FFFFFFFF	*.....*	OC1A28
LINE	OCCA40	SAME AS ABOVE							OC1A48	
000A60	FFFFFFFF	FFFFFFFF	FFFFFFFF	FFFFFFFF	FFFFFFFF	FFFFFFFF	FFFFFFFF	C9D3C2D6	*.....ILBO*	OC1A68
COCA8C	E2D9E54C	E5E2D9F1	F1C7F0F5	00000000	F5F7F4F0	60C3C2F1	40C3D6D7	E8D9C9C7	*SRV VSR11P05....5740.CB1 CCPYRIG*	OC1A88
CO0AA0	C8E340C9	C2D440C3	D6D9D748	4CF1F9F7	F5F5F7F4	F060C3D4	F168F2F4	F0F3F7F7	*MT IBM CORP. 19755740.LM1.240377*	OC1AA8
000AC0	000047F0	F004187F	18341244	47707026	41CC7C16	47F0701E	C9D3C2D6	C3D6D4F0	*...00.....0..ILBOCOMO*	OC1AC8
C00AE0	41100000	0A081830	91803000	4710703E	968C3C00	4140C001	50D03C04	47FC7C54	*.....0..*	OC1AE8
CO0BC0	1244477C	705245C0	7050C9D3	C2D6C3D6	D4F00A09	18445020	30AC1222	47707078	*.....ILBOCOMO.....*	OC1B08

PROGRAM	STORAGE	ADDRESS	OC1008	TC	OC203F	LENGTH	001038			
C00B20	41007066	47F0706E	C9D3C2D6	C3D4D4F0	411CC000	0A085000	30AC5050	30381813	*.....0..ILBOCMM0.....*	OC1B28
C00B40	07F6C9D3	C2D6C2C5	C740B16E	C1C10101	F5F7F4FC	60C3C2F1	40C3D6D7	E8D9C9C7	*.6ILBCBEG5740.CB1 COPYRIG*	OC1B48
C00B60	C8E340C9	C2D440C3	D6C9D74E	40F1F9F7	F5F5F7F4	FC60C3D4	F168F2F4	FCF3F7F7	*HT 1dM CCRP. 19755740.LM1.240377*	OC1B68
C00B80	C00047F0	F00847F0	F17450E0	D1AC58E0	C18858E0	E0384BE0	F2D658EE	00009C26	*...00..01...J...J.....20.....*	OC1B88
C00BA0	E0005860	F2C21821	542062F8	478060D0	542C62FC	1E2247D0	62CC8ECC	001812C0	*....28.....8.....*	OC1BA8
C00BC0	477062C0	8A100008	121147D0	62C04121	C00F5420	63C0411E	CC145021	C0CC4201	*.....*	OC1BC8
C00BE0	C009410E	00205001	00049220	10080A04	12FF4770	608C1802	581E0020	45306194	*.....*	OC1BE8
000C00	4800630A	41110008	47F0618A	9240D10E	C276D10F	D10ED258	D1CE630C	47F062D0	*.....0... J.K.J.J.K.J....0..*	OC1C08
C00C20	95201008	47706122	95001009	477062C0	5821C000	122247D0	62CC4122	C00F5420	*.....*	OC1C28
000C40	63005021	00C00AC4	4820630A	5C210CC0	12FF4770	618A4102	00085821	00045812	*.....*	OC1C48
000C60	C0004530	61944111	00085012	0C0047F0	618A95E0	10084770	62CC9500	10C94770	*.....0.....*	OC1C68
C00C80	62C05821	00G09834	20001233	47C062C0	19344720	62C04133	CCCF5430	63004144	*.....*	OC1C88
000CA0	C00F5440	63009034	2C000A04	4830630A	484C630A	90342000	12FF4770	618A5821	*... ..*	OC1CA8
C00CC0	C0049834	20001813	18044133	00084B40	63CA9034	2C004530	61949826	E00058E0	*.....*	OC1CC8
C00CE0	D1AC07FE	50010004	5840D1B8	5850406C	5C51CC00	5010406C	07F350E0	D1AC58E0	*J..... J... ..3..J..*	OC1CE8
000D00	C18858E0	E0384BE0	F2D258EE	C0009026	E0005860	F2BE1821	542C6304	477062C0	*J.....2K.....2.....*	OC1D08
C00D20	18208A20	00184770	62C012C0	47C062C0	4ACC630A	C6C05400	63CC1820	1A215830	*.....*	OC1D28
C00D40	D1B8414C	306C5834	00001233	478062C0	19314780	62C04720	621A1853	5A530004	*J.. ..*	OC1D48
000D60	19514780	62CC4720	622C1843	47F061F6	19524740	62C04720	62484A00	630A5903	*.....0.6... ..*	OC1D68
CC0D80	CC044780	62AC48C0	630A5823	00041B20	5023C004	47F062B6	481C630A	19314720	*.....0.....*	CC1D88
C0CDA0	62C04740	E2725823	0C041B20	5C23C004	18201A23	D2C72000	30005024	000047F0	*... ..K.....0*	OC1DA8
C00CC0	62B64111	00084B00	630A4740	62C04B20	63CA5854	CCC05052	CCC05024	C0001841	*.....*	OC1DC8
C00DE0	18435853	C0041B50	18545043	0C045052	C0041200	4780618A	47FC62B6	18135833	*.....0.....*	OC1DE8
000E00	C0005034	0C004111	0CC0ACA	47F0618A	9240D10E	D276C10F	D10ED248	D10E6368	*.....0... J.K.J.J.K.J....*	OC1E08
000E20	58F0D188	9641F002	58F0F038	41FFC004	C5EFC700	47FC62EC	8CCC0D70	581062E8	*.0J...0..00.....0.....Y*	OC1E28
COCE40	CA0DC000	0C0C1B58	F00C00C0	CCCC0000	FFFFFFFF	FF00C007	0006C008	C9D2C6F9	*.....0.....8.....IKF9*	OC1E48
COCE60	18435853	40D5D640	E2E3D6D9	C1C7C540	C1E5C1C9	D3C1C2D3	C00060D6	D940C7C5	*93I NO STORAGE AVAILABLE FOR GE*	68

PROGRAM STORAGE	ADDRESS	OC1008	TC	OC203F	LENGTH	001038				
000E80	E3D4C1C9	D5484040	C9D5C3D9	C5C1E2C5	40D9C5C7	C9D6D54C	E2C9E9C5	40C1D5C4	*TMAIN. INCREASE REGION SIZE AND*	OC1E88
000EA0	40D9C560	C5E7C5C3	E4E3C540	E3C8C540	C7D9C6C7	D9C1D44B	C9D2C6F9	F9F4C940	* RE.EXECUTE THE PROGRAM.IKF994I *	OC1EA8
000EC0	40C7C5E3	D4C1C9D5	61C6D9C5	C5D4C1C9	C54CC9C5	D8E4C5E2	E340C9D5	E5C1D3C9	* GETMAIN.FREEMAIN REQUEST INVALID*	OC1EC8
000EE0	C448404C	C7D9D6C7	D9C1D440	C5E7C5C3	E4E3C9D6	D540E3C5	D9D4C9D5	C1E3C5C4	*D. PROGRAM EXECUTION TERMINATED*	OC1EE8
000FC0	4BC9D3C2	D6C3D4D4	40B16E00	0C000000	F5F7F4F0	60C3C2F1	40C3D6D7	E8D9C9C7	*.ILBOCPM5/40.CB1 COPYRIG*	OC1F08
000F20	C8E340C9	C2D440C3	D6D9D74B	4CF1F9F7	F5F5F7F4	F060D3D4	F16BF2F4	F0F3F7F7	*PT IBM CCRP. 19755740.LM1.240377*	OC1F28
000F40	C00047F0	F004187F	91042000	4780705C	9240C10E	C276D10F	D10ED224	D10E7C9E	*...00..... J.K.J.J.K.J...*	OC1F48
000F60	5830D18C	D207D133	300CD20C	D13B70C3	181D58DD	C0C4C501	D000700B	4770704C	*..J.K.J...K.J..C.....N.....*	OC1F68
000F80	5830D180	C2071148	300C47F0	7052D20A	C1487C0C	18C194FB	20CC47F0	70709104	*..J.K.....C..K.J....J.....0....*	OC1F88
000FA0	20024780	707C94FB	20025810	D10847F0	7C744110	D108C203	1000700E	D203107E	*.....J..0....J.K.....K...*	OC1FA8
000FC0	70E2D201	1004709C	0A23415C	001C9101	2C02478C	709A1B55	943A2002	07F64040	*.SK.....6 *	OC1FC8
000FE0	C9D2C6F9	F9F2C940	40404040	D9C5C3E4	C9E2C9E5	C540C3C1	D3C340E3	D640D4D6	*IKF992I RECURSIVE CALL TO MO*	OC1FE8
001000	C4E4D3C5	4040C6D9	D6D440D4	D6C4E4D3	C54C4CD5	C6E340C3	D6C2D6D3	5D00300C	*DULE FROM MODULE .NOT COBOL....*	OC2008
001020	C07E80C0	02004020	C9D3C2D6	D4E2C740	E5E2C9F1	F1C7FCF5			*..... .ILBCMSG VSR11P05 *	OC2028



PSW AT ENTRY TC ABEND 078DCC04 9CCC0258

REGS 14-4 500E1CFC C00C0000 FE08D7F0 0C000C00 500C018A C00C00C8 010E6B30
 REGS 5-11 C008D080 C00C0590 C00F059C C008C08C 0008B000 000CC98A 000E4014

TASK CONTROL AREA (USER AREA)	ADDRESS	08D080	TC	08D1FF	LENGTH	0C018C			
C00000	0008D0C0	000D35BC	010E6B30	C0000000	00000000	000D35A4	804C11C0	C031CCA0 *.....*	08D080
000020	400D34A0	92C0B000	FE08D7F0	0C0D35A4	5C0D2F2A	A00D305C	0008D000	900D3442 *.....PO.....*	08D0A0
000040	00000080	000F0590	0C08D080	C008BC00	CCCE36A4	C0CE4014	4C0D34A0	0008B190 *.....*	08D0C0
C00060	500C018A	000F0590	0008D080	0C000000	500C018A	000CC0C8	010E6B30	C0000000 *.....H.....*	08D0E0
C00080	FE00D8A0	C3D3C1E2	E2C4E240	C1E2D9C1	078DCC04	900C0258	C00C0000	0008B011 *..Q.CLASSDS ASRA.....*	08D100
0000A0	500E1CFC	00000000	FE08D7F0	0C000C00	5000018A	C00000C8	010E6B30	0008D080 *.....PO.....H.....*	08D120
C000C0	C00F0590	000F0590	0008D080	0008BC00	CCCCC98A	000E4014	00000000	00000000 *.....R.....*	08D140
C000E0	C0000000	00000000	24F00000	0C000000	CCCC0000	00000000	000E4014	00000000 *.....0.....*	08D160
000100	C4C5C2E4	C7C7C9D5	C740C5E7	C1D4D7D3	C54C604C	D7D361C9	40404040	40404040 *DEBUGGING EXAMPLE . PL.I *	08D180
C00120	C0000000	0008B190	00000000	0C000C00	CCCC0000	CCCC0000	CCCC0000	0CCCC000 *.....*	08D1A0
000140	C0000000	00000000	00000000	00000000	C0000000	CCCC0000	00000000	00000000 *.....*	08D1C0
C00160	C0000000	0C000000	0C000000	0C000000	CCCC0000	CCCC0000	8AC401F8	0008D8A0 *.....8..Q.*	08D1E0

TASK CONTROL AREA (SYSTEM AREA)	ADDRESS	08D000	TC	08D07F	LENGTH	0C008C			
C00000	8A0401F8	C008D8A0	0008D800	C008C910	C000003C	C00E36A4	C0C8C000	00000C00 *...8..Q...Q...R.....*	08D000
000020	C00FC0EC	C0000000	0C000000	0C000000	CCCC0000	C1CE100C	0C000000	0008D708 *.....P.*	08D020
000040	C008D6F0	00000000	00000000	00000C00	CCCC0000	CCCC0000	0C000000	0C000000 *..CO.....*	08D040
000060	C0000000	00000000	00000000	00000000	CCCC0000	00000000	0C000000	0C000000 *.....*	08D060

ASRA REGS 0 THRU 15	ADDRESS	0D353C	TC	0D357E	LENGTH	0C0040			
C00000	FE08D7F0	00000000	500C018A	C00C00C8	C10E6B30	C008D08C	CCCC0590	C0CF0590 *..PO.....H.....*	0D353C
000020	C008D080	C008B000	000CC98A	C00E4014	C008D290	C008D708	40000234	0C000000 *.....R... ..K...P.*	0D355C

COMMON SYSTEM AREA	ADDRESS	OF0590	TC	CF0D9D	LENGTH	CC080E				
CO0000	00000000	00074F98	00000000	4C0D34A0	92C08000	400D3492	92CCB000	FE08D7F0 *.....PO*	OF0590	
000020	000D35A4	5C0D2F2A	9C0D30B4	CC08DCC0	8C0D3460	CC0C08C	000F0590	0008C080 *.....*	OF0580	
000040	0008B000	000E36A4	000C025C	CC08D080	0925497F	CCCCCCCC	C7DC0100	CCCC0000 *.....*	OF05D0	
CCCC60	0033C0CC	000A8CC0	0088B6F8	0C008494	0C002C00	000750B0	00CF1000	0076191F *.....8.....*	OF05F0	
000080	000F0418	E0FF0F00	000C012C	CC0F0EB0	CCCC0000	000C0000	000C6030	00000000 *.....*	OF0610	
0000A0	0000C000	0008C040	000F062C	0C0F062C	CC0ECC00	000F0350	00CF00E0	1000FF00 *.....*	OF0630	
0000C0	0019C000	000C080E	000EFA8	00000000	0C000000	000C0000	00CC0000	C3D5E2E3 *.....CNST*	OF0650	
CCCC00	4C0ED010	000E4014	000E1B00	CC0EB00C	CC002F00	000EAB00	000CD98A	000DC032 *.....R.....*	OF0670	
000100	000CCF90	000D415A	000D07A4	CC0D2780	CCCC0DFA	CC0ECB10	000EAC18	000D0794 *.....*	OF0690	
000120	000E3044	000E033C	000E6998	000DD8A0	CC0DB87C	CCCC6FC0	0008AC00	00000000 *.....C.....*	OF0680	
000140	000E1AFC	000D2EFC	000E6BCC	000DD958	CC0DBFFC	0000C000	000C0000	00000000 *.....R.....*	OF06D0	
000160	000D272A	7F590000	00000000	4318BED6	CC085E7B	0000C000	000C0000	00000000 *.....0.....*	OF06F0	
000180	000F0DFC	000F0E00	00000000	000F0E14	CCCC0000	CCCC0000	00000000	FF0F0E6C *.....*	OF0710	
0001A0	C70E58F0	D19C07FF	009B6965	CC9B71F2	0C050C00	000CC000	E6D6D9D2	C1D9C5C1 *...0J.....2.....WORKAREA*	OF0730	
0001C0	0000C000	000C0000	001C001C	CC003C00	CCC35C00	CC019C00	0C0C0C00	0C000C00 *.....*	OF0750	
0001E0	3C003C00	000C0000	0C000C00	0C000000	CCCC0000	CCCC0000	00000000	00000000 *.....*	OF0770	
000200	CC000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000 *.....*	OF0790	
LINES	CC0220-0CC7C0	SAME AS ABOVE						OF078C-0F0D50		
0007E0	00000000	00000000	00000000	00000000	CCCC0000	CCCC0000	00000000	00000000	C3E261D6 *.....CICS.0*	OF0D70
0008C0	E261E5E2	4CF5F7F4	F060E7E7	F140				*S.VS 574C.XX1	* OF0D90	

TRACE TABLE	ADDRESS	GD012C	TO	CDC76F	LENGTH	000650			
C00000	C00D06C0	000D0130	000D0760	000D0794	FCCE276E	2CCCC02C	11CCCC00	C0000000 *.....0.....*	0C0120
C00020	F10E28F0	8CCCC02C	00CC0238	010E6830	C8CE415E	CCCC02C	0008D200	8C0C0248 *1..0.....H.....K.....*	0D0140
000040	F50C2C8E	8000002C	C3D3C1E2	E2C4E240	F1CCFA6A	9DCCC02C	CCC8001C	010E6830 *5.....CLASSDS 1.....*	0D0160
C00060	C80E415E	0000002C	0008D450	9C080028	F10CF8AA	8FCCCC2C	CCC80060	C10E6830 *H.....M.....1.8.....*	0D0180
C00080	C80E415E	00CC02C	0008D480	8F080068	FC0DE7AA	4CC0C02C	800C0000	0008D490 *H.....M.....0.X.M.*	0D01A0
0000A0	F10CF8AA	3FCCC02C	0C080060	010E6830	C8CE415E	CCCC02C	0008D4F0	8F080068 *1.8.....H.....MO.....*	0D01C0
0000C0	F10CFA52	4000002C	0008D450	010E6830	C9CE4248	CCCC02C	CC08D450	9D080C28 *1... ..M.....I.....M.....*	0C01E0
C000E0	F10DFA52	4C00002C	0008D480	010E6830	C9CE4248	00C0C02C	C008D480	8F080068 *1... ..M.....I.....M.....*	0D0200
000100	F10E2C8E	850C002C	00000032	010E6830	C80E415E	CCCC02C	C008B190	85000048 *1.....H.....*	0D0220
000120	F2000000	6000002C	C1E2D9C1	00000000	F4CE1CFC	FECCCC2C	CCCC0C00	C1E2D9C1 *2.....ASRA....4.....ASRA*	0D0240
C00140	F00D34A0	400C002C	80C00000	000D35A4	FD000000	0033CC02	0033CC2E	0000023C *0... ..*	0D0260
000160	F10C423C	E50C002C	00400050	010E6830	C8CE415E	CCCC02C	0008B1E0	85400068 *1..V.... ..H..... ..*	0D0280
C00180	FC0C48B4	0800002C	00850000	020E6830	F00EACFA	400C02C	10CCCC00	000D35A4 *.....0.....*	0C02A0
C001A0	F00EABDC	4000E3C3	400C0000	0C0E68C0	F10E7102	4000E3C3	C008B1E0	800E6830 *0... .TC1... .TC.....*	0D02C0
C001C0	C90E4248	0000E3C3	0008B1E0	85400068	FCCE7686	C800E3C3	0C08D080	00000C00 *I.....TC..... ..0....TC.....*	0D02E0
C001E0	F00EABDC	4000E3C3	40000000	0C0E68C0	F20C4348	81C0C02C	C4C6C8D7	C5D74C40 *0... .TC2.....DFHPEP *	0D0300
000200	F10E10C6	85CC02C	0C08004C	C10E6830	C8CE415E	CCCC02C	0008D450	89080058 *1..F.....H.....M.....*	0D0320
000220	F20C335E	1000002C	C4C6C8D7	C5D74040	F10E2C90	4CCCC02C	CCC8D45C	010E6830 *2.....DFHPEP 1... ..M.....*	0C0340
C00240	C90E4248	0C0C02C	0008D450	89C80058	F10C4380	E0C0C02C	00400046	010E6830 *I.....M.....1.....*	0D0360
000260	C80E415E	0000002C	0008D450	8D400058	F6CC43D8	4CCCC02C	C008D458	C3E2D4E3 *H.....M... ..6..QM.CSMT*	0D0380
C00280	F00DCEA2	4000002C	200000C0	000D35A4	F2CC47CC	1CCCC02C	C4C6C8C1	C3D74640 *0... ..2.....DFHACP *	0C03A0
C002A0	F00E1FBC	8C0C002C	000000C0	0C000000	C80ECB50	0C0C02C	02C0D458	000C0C00 *0.....Q.....M.....*	0D03C0
0002C0	F10EDF94	4A00D2C3	0C08D0C0	0CCCC000	C9CE4248	CCCC02C3	C008D0C0	8A0401F8 *1.....KC.....I.....KC.....8*	0D03E0
0002E0	F10EDFA6	4000D2C3	0008C040	00000C00	C9CE4248	CCCC02C3	C008C040	81CCCC40 *1... .KC... ..I.....KC... ..*	0C0400
000300	F10E7182	6000E3C3	0C0000C0	8C0E6830	C9CE4248	C000E3C3	C008B190	85000048 *1.....TC.....I.....TC.....*	0D0420
000320	C90E4248	0000E3C3	0008B000	85000118	F10E706E	E500E3C3	CCCC0102	800E6830 *I.....TC.....1...V.TC.....*	0D0440
C00340	C80E415E	0000E3C3	0008B0C0	85000118	F00EABDC	4000E3C3	4CCCC000	000E68C0 *F.....TC.....0... .TC*	0D0460

TRACE TABLE	ADDRESS	OD0120	TC	CCC76F	LENGTH	CC0650		
C00360	F00EA3E6	1100E3C3	010E6B30	C3C8D7F1	F10ECB08	EAC0E3C3	000C01E9	800E6B30 *0..W..TC....CHP11.....TC...Z....* OD0480
000380	C80E415E	0000E3C3	0008D0C0	8A0401F8	F1CEDB42	E1C0E3C3	000C0038	800E6B30 *H.....TC.....81.....TC.....* OD04A0
0003A0	C80E415E	0000E3C3	0008C040	810C0C40	FCCEA8DC	4000E3C3	400C0000	000E6BC0 *H.....TC... .. 0... .TC* OD04C0
C003C0	F20E18CC	020C003C	C3C8D4D6	C4D7F1C1	F10E23C2	88C0C03C	0000005D	010E6B30 *2.....CHMODP1A1..B.....* OD04E0
0003E0	C80E415E	000C003C	000C0000	88001000	FC0E2416	200C003C	FFCCCC00	C0000000 *H.....0.....* OD0500
000400	F00E25D8	400C003C	8C000000	000E2E60	FC0C0000	0033CD2B	0033CD31	0000002C *0..Q* OD0520
000420	F00E276E	200C003C	110C0000	000C0C00	F1CD4CE0	800C003C	000C0070	010E6B30 *0.....1.....* OD0540
000440	C80E415E	0000003C	0008D2C0	8C0C0078	F10D5C00	800C003C	000E0460	010E6B30 *H.....K.....1.....* OD0560
C00460	C80E415E	000C003C	0008D280	8C080468	F10C56EC	800C003C	000E00F8	010E6B30 *H.....K.....1.....8....* OD0580
000480	C80E415E	000C003C	0008D6F0	8C080108	F50E2A38	800C003C	C3D3C1E2	E2C4E240 *H.....00....5.....CLASSDS * OD06A0
0004A0	F10CFA6A	9D00003C	0008001C	010E6B30	C80E415E	000C003C	0008D800	9D080028 *1.....H.....Q.....* OD06C0
0004C0	F10DF8AA	8FC0003C	00080060	010E6B30	C80E415E	000C003C	000E0830	8F080C68 *1.8.....H.....G.....* OD06E0
0004E0	F00DE7AA	4000003C	800C0000	0008D840	F10DF8AA	8FC0003C	00080060	010E6B30 *0.X.Q 1.8.....* OD0600
000500	C80E415E	0000003C	0008D8A0	8FC80C68	F10CFA52	400C003C	000E0800	010E6B30 *H.....Q.....1... ..Q.....* OD0620
000520	C90E4248	0000003C	0008D800	9D080028	F10CFA52	400C003C	0008D830	010E6B30 *I.....Q.....1... ..Q.....* OD0640
000540	C90E4248	000C003C	0008D830	8FC80C68	F10E2A38	850C003C	00080032	010E6B30 *I.....Q.....1.....* OD0660
000560	C80E415E	0000003C	0008B190	85080048	F20CC234	6000003C	C1E2D9C1	C0000000 *H.....2.....ASRA....* OD0680
000580	F40E1CFC	FE0C003C	00000000	C1E2D9C1	FC0C34A0	400C003C	80000000	000D35A4 *4.....ASRA0... ..* OD06A0
0005A0	FD000000	0033CDC5	0033C0CF	0000010C	FC0C34A0	400C003C	800C0000	000D35A4 *.....E.....0... ..* OD06C0
0005C0	F10ECB42	E100E3C3	000C0038	800E6B30	C80E415E	0000E3C3	000E0000	810C0C40 *1.....TC.....H.....TC.....* OD06E0
0005E0	F00EABDC	4000E3C3	40000000	000E6BC0	F20E1800	020C002C	C3C8D4D6	C4C3F1C1 *0... .TC2.....CHMODC1A* OD0700
000600	F10E23C2	8800002C	00000208	010E6B30	C80E415E	0000002C	000C1C00	88002C00 *1..B.....H.....* OD0720
000620	F00E2416	2000002C	FF000000	00000000	FC0E25D8	400C002C	80000000	000E2E60 *0.....0..Q* OD0740
C00640	FD000000	0033CBE9	0033CBF0	0000002C				*.....Z...0.... * OD0760

TRANSACTION STORAGE-FILE	ADDRESS	08C8A0	TC	08C90F	LENGTH	CCCC70				
000000	8F080068	C008D6F0	C00C00C0	CCCCDD8A0	C054C000	C3C8F0F1	F04C405C	5C5C5C40	*.....00.....C.....CH010 *	08C8A0
000020	E3C8C9E2	40C9E240	E3C8C540	C9D5C9E3	C9C1D34C	C4C1E3C1	40C9D540	E3C8C540	*THIS IS THE INITIAL DATA IN THE *	08D8C0
CCCC4C	D9C5C3D6	D9C4405C	5C5C5C40	40404040	404C4040	4040404C	404C404C	404C4C4C	*RECORD *	08C8E0
000060	4040404C	CCCCC0C0	8F080068	CCCC8D6F0					*00	08C9C0

TRANSACTION STORAGE-USER	ADDRESS	08D6F0	TC	08D7FF	LENGTH	CC011C				
CCCCC0	8C0801C8	C008D280	0008D280	0C000000	FF08C290	FF08C6E8	802C0000	C008D528	*.....K...K.....K...CY.....N.*	08C6F0
000020	0000000C	4C0C0234	000E29CE	FE08D7F0	CCCCC000	500C018A	000C00C8	010E6B30	*....PO.....H....*	08C710
000040	00000000	000F0590	000F0590	CC08D080	CCC8BCCC	CCCDD58A	0CCE4014	C008D290	*.....R... ..K.*	08C730
000060	C008D578	FE08D7F0	FE08D7F0	91E091E0	00000000	C0C0C0C0	00CC0000	00CC00C0	*..N...PO..PO.....*	08C750
CCCC80	00000000	00C00000	000C00C0	00000000	00000000	0000C000	00CC0000	00CC00C0	*.....*	08C770
LINE	CCCCA0	SAME AS ABOVE							08D790	
0000C0	00000000	00000000	0000C0C0	CCCCCCCC	CC0FC590	CCCEFFA8	00C8D080	C00000C0	*.....*	08C780
0000E0	00000000	010E6B30	0008B190	00000000	00000000	C0C0C0C0	80C8D7CC	C0CC00C0	*.....P.....*	08C7D0
000100	00000000	000000C0	8CC80108	CC08D280					*.....K. *	08D7F0

TRANSACTION	STORAGE-USER	ADDRESS	08D280	TC	08D6EF	LENGTH	000470			
000000	8C080468	0008D200	0008D2C0	CCCCCCCC	C008D6E8	FE08D700	FE08D7F0	*.....K...K.....CY..P...PO*	08D280	
000020	C000C000	0008D2A0	000E2D7C	0008D450	CC000000	0008C4D8	0008D3B0	C0000000	*.....K.....M.....MQ..L.....*	08D2A0
000040	C008D4EC	C0000000	0008D4A8	CC000000	CC08C470	C0000000	000D5516	00000C00	*..M.....M.....M.....*	08D2C0
000060	C0000000	00000000	00000000	00000000	CCCCCCCC	CCCD4E80	C0000000	000D5508	*.....*	08D2E0
000080	C00D550A	000D551A	00000000	00000000	582ECCCC	58EECCCC	19DF478C	00C295CC	*.....B..*	08D300
0000A0	C001478C	C08C180E	18E1181F	58FC00AC	07FF0000	00C0C000	000C07FE	000D4D46	*.....*	08D320
0000C0	000058FC	0078051F	DB010000	18DF9834	D02C916C	D0C1C78E	914CD001	478C00DC	*.....*	08D340
0000E0	D203D04C	D0509120	D001078E	D201D056	E054918C	D054071E	181F58FC	CCF407FF	*K.....K.....4..*	08D360
000100	C0000000	00000000	0008D33A	0008D33A	C008C33A	0008C33A	00000000	00000C00	*.....L...L...L.....*	08D380
000120	00000000	00000000	00000000	00000000	CC08D6E8	CC000000	00000000	00000C00	*.....OY.....*	08D3A0
000140	00000000	00000000	00000000	00000000	CC08D488	CC08D528	CC0D4DEC	00000C00	*.....M...N.....*	08D3C0
000160	00000000	00000000	00000000	00000000	CC00E4E2	00C0C000	00000000	0000F800	*.....*	08D3E0
000180	0008D445	000080C0	0008D444	CC010C00	CC08D445	CC008000	0008D445	00008C00	*..M.....M.....M.....M.....*	08D4C0
0001A0	0008D445	00008000	0008D445	00008000	CCCC0000	CC000000	CCCC0000	00000C00	*..M.....M.....*	08D420
0001C0	00000000	40000000	00000000	00000000	C0010C00	00000000	00000000	CCCC0000	*.....*	08D440
0001E0	00000000	00000000	00000000	00000000	CCCC0000	CC000000	00000000	00000C00	*.....*	08D460
LINES	000200-000220	SAME AS ABOVE						08D480-08D4A0		
000240	00000000	00000000	00000000	00000000	00000000	00000000	808C00C0	C0000C00	*.....*	08D4C0
000260	0800CCCC	C008D528	00000000	6C0C0164	CC08D4E0	FF08C7D0	FF08D6E8	0008D6E8	*.....N.....M...P...OY..OY*	08D4E0
000280	C00C00C8	FF08D6E8	00000000	CC000014	CCCD4EBC	CCCCC138	CCCC0000	C00E2E60	*..H..OY.....*	08D5C0
0002A0	FFFFFFF2	00000000	82000000	000E2D7C	C00C0000	400D4D2A	00C0C138	C008D6C0	*...2.....C.*	08D520
0002C0	C00E2E6C	0008D6E8	000D4D48	FF08D6E8	CC000000	CC00C014	000C4E80	000C0138	*.....OY.....OY.....*	08D540
0002E0	00000000	000E2E60	FFFFFFF2	0008D290	CCC8D578	FFC8D6E8	08CC0110	00000C00	*.....2..K...N...OY.....*	08D560
000300	00000000	00000000	00000000	00000000	CCCC0000	CCCC0000	00000000	CCCC0000	*.....*	08D580
LINE	000320	SAME AS ABOVE						08D5A0		
000340	0008D6CC	00000000	00000000	00000000	CCCC0000	C0000000	00000000	00000000	*..O.....*	08D5C0
000360	00000000	00000000	00000000	00000000	CCCC0000	CCCC0000	00000000	00000C00	*.....*	08D5E0

TRANSACTION STORAGE-USER		ADDRESS	08D28C	TC	08D6EF	LENGTH	000470				
C00380	08000088	C0000000	00000000	00000000	CCCCCCCC	C0000000	C0000000	C0000000	C0000000	*.....*	08D600
C003A0	C0000000	C0000000	00000000	C0000000	CCCCCCCC	C0000000	00000000	00000000	00000000	*.....*	08D620
0003C0	C0000000	C0000000	0008D6C0	CCCCCCCC	CCCCCCCC	C0000000	00000000	00000000	00000000	*.....0.....*	08D640
C003E0	C0000000	00000000	00000000	00000000	CCCCCCCC	C0000000	C0000000	C0000000	C0000000	*.....*	08D660
C00400	C0000000	C0000000	0008D3F8	00000000	C0000000	C0000000	00000000	00010C00	00010C00	*.....L8.....*	08D680
000420	C0000000	C0000000	00000000	C0000000	CCCCCCCC	00000000	00000000	00000000	00000000	*.....*	08D6A0
000440	C0000000	00000000	00000000	00000000	CCCCCCCC	4CCCCCCC	C0000000	C0000000	C0000000	*.....*	08D6C0
C00460	C00D4E80	C00D4E80	8C080468	C008C200						*.....K.....*	08D6E0

TRANSACTION STORAGE-USER		ADDRESS	08D200	TC	08D27F	LENGTH	000080				
C00000	8C0C0078	0008D000	00000000	00000000	CCCCCCCC	C00E2D7C	CCCCCCCC	500E296A		*.....*	08D200
C00020	C00D4F30	C00D4F30	0008D210	000D4CAA	400E4CB2	C000C000	C0000000	C000C000		*.....K.....*	08D220
000040	00000000	C0000000	00000000	C0000000	CCCCCCCC	C000C000	00000458	00FFFFFF8		*.....8*	08D240
000060	C00D0290	00000458	00000000	C00D54E0	CCCCCCCC	CCCCCCCC	8CCCC078	C008DCC0		*..K.....*	08D260

TERMINAL CONTROL TABLE		ADDRESS	0E6B30	TC	0E6BBB	LENGTH	CC008C				
CCCC00	C3D9D3D7	18FCC004	0008B190	C008B000	C008D080	0000C000	00000000	00000000		*CRLP.0.....*	0E6B30
000020	00000000	0CF04040	00000100	CCCCCCCC	CCCCCCCC	CCCCCCCC	C08CCCC0			*.....0.....*	0E6B50
000040	C0000000	000E6AD0	000E6EAC	00C0C000	C0000000	0084C010	010C003C	C0002CC0		*.....*	0E6B70
000060	0C00003C	C00C80C0	00200000	00020000	CCCCCCCC	CCCCCCCC	00000000	10000000		*.....*	0E6B90
000080	0100045C	00000000	C1C10000							*.....AA..*	0E6BB0

TERMINAL STORAGE		ADDRESS	08B190	TC	08B1DF	LENGTH	CC0050				
000000	85080048	C008B0C0	000C6040	0C000000	CCCCCCCC	C000C000	C0000000	00000000		*.....*	08B190
000020	C0000000	CCCC0000	00000000	C0000000	CCCCCCCC	CCCCCCCC	00000000	00000000		*.....*	08B1B0
000040	C0000000	C0000000	85080048	0008B000						*.....*	08B1D0

CUSTOMER INFORMATION CONTROL SYSTEM STORAGE DUMP CCDE=ASRA TASK=CHP1 DATE=76.191 TIME=C9.25.497 PAGE 008

TERMINAL STORAGE	ADDRESS	08BCCC	TO	C8B11F	LENGTH	C00120				
000000	85000118	000E6B34	00100000	C3C8D7F1	40C3C8F0	F1F0E1C3	C8FCF1F5	7C0C0C00	*.....CHP1 CH010.CH015.....*	08B000
000020	C0000000	00000000	00000000	00000000	C0000000	00000000	00000000	00000000	*.....*	08B020
LINES	000040-0000E0	SAME AS ABOVE								08B040-08B0E0
000100	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	*.....*	08B100

PROGRAM	STORAGE	ADDRESS	OC0008	TC	OC02E7	LENGTH	OC02E0			
000000	4100F00C	9248F0A8	47F0F08C	00000000	00000000	00000000	00000000	*..0...0..00.....*	OC0008	
000020	00000000	00000000	00000000	58FF0008	C7FF0000	000E29CE	9244FC70	47F0FC54	*.....0..00.*	OC0028
000040	9248F068	47F0F04C	924CF060	47F0F044	9250F058	47F0F03C	9254F05C	47F0FC34	*..0..00...0..00...0..00...0..00.*	OC0048
000060	9258F048	47F0F02C	925CF040	47F0F024	926CF038	47F0F01C	9264F030	47F0FC14	*..0..00...0..00...0..00...0..00.*	OC0068
000080	9268F028	47F0F00C	926CF020	05F09024	D01C5830	F0165840	304CD2C0	408CF01A	*..0..00...0..0.....0.. ..K. .0.*	OC0088
0000A0	47F0F024	000F0590	48C4C6C8	D7D3C9D6	D7005820	310407F2	000C0138	00000000	*..00.....DFHPLICP.....2.....*	OC00A8
0000C0	800C0128	000C0138	000C018A	000C018A	000C018A	000C10C8	00320000	00000000	*.....H.....*	OC00C8
0000E0	91E091E0	80000000	000C0034	000C0034	C4C5C2E4	C7C7C9D5	C74CC5E7	C1D4D7D3	*.....DEBUGGING EXAMPL*	OC00E8
000100	C5406040	D7D361C9	40404040	40404040	C3C3C1E2	E2C4E240	C6C9D3C5	D7D9D6C3	*E . PL.I CLASSDS FILEPRCC*	OC0108
000120	80000007	00000000	C5E7C1D4	D7D3C5C7	90ECD00C	47F0F010	000C00E8	000C00C8	*.....EXAMPLE.....00....Y...H*	OC0128
000140	5830F00C	5810L04C	5800F008	1E015500	000C47D0	F02C58F0	C074C5EF	58E0DC48	*..0.....0.....0..0.....*	OC0148
000160	18F090E0	104850C0	100441D1	00005050	C0589280	D0009220	D0C1D203	D0543020	*.0.....J.....K.....*	OC0168
000180	0520D203	D0E03024	4170D0B8	5070DC00	9680DC00	18554110	D0E058F0	302805EF	*..K.....0.....*	OC0188
0001A0	5870D0B8	589070C8	5090D0BC	58A0704C	50A0C0C0	5850C0C0	58F050C8	50FC0CCC	*.....H.....0..0..*	OC01A8
0001C0	5840D0CC	586040CC	5060DCDC	D21F51C0	3030D2C7	50843050	5890D0D0	41F09C11	*.K.....K.....0..*	OC01C8
0001E0	50F0509C	5880D0C0	92808080	92C0809C	586CD0B8	58A060F8	50AC80F8	18111855	*.0.....8...8...*	OC01E8
000200	58F0302C	05EF5850	D0C09285	505C48E0	301840E0	505E58F0	D0885880	F0E450B0	*.0.....0....0U..*	OC0208
000220	50F81811	185558F0	302C05EF	5850D0C0	58FC5C5C	50F05124	58FC505C	50F0DCD0	*.8.....0.....0...0...0..*	OC0228
000240	58F0C0D4	95C6F025	47802122	92C7F025	58ECC0C0	58B0E12C	5ABCFC26	50B0E120	*.0.M.F0.....G0.....0.....*	OC0248
000260	5870D0CC	D2077084	3050585C	D0D041A0	5C1750A0	709C5840	D0C09280	40809200	*....K.....*	OC0268
000280	409C5890	D08858A0	90F85CAG	40F81811	185558FC	302C05EF	585C0CCC	588C5C80	*8.. 8.....0.....*	OC0288
0002A0	5080D0D4	5870D0C0	92027080	92007081	D2077084	30585850	D088586C	50E85C6C	*...M.....K.....Y..*	OC02A8
0002C0	70F81811	185558F0	302C05EF	180D58D0	D0C458E0	D0CC982C	D01C051E	C0000C00	*.8.....0.....*	OC02C8

