

MAPS = CREATION, COMPIRATION, AND EXECUTION
STORAGE ALLOCATION.

COMPASS - VER 2.

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ADDRESS LENGTH BINARY CONTROL CARDS.

0	127	IDENT	MAPS
127		END	

BLOCKS TYPE ADDRESS LENGTH

ABSOLUTE*	ABSOLUTE	0	167
PROGRAM*	LOCAL	0	106
EMAPS	COMMON	0	470
PARAMS	LOCAL	106	21

ENTRY POINTS.

MAPIN	=	0	REFZ	=	60	MKMTY	=	76	SETD	=	106
MAPOUT	=	12	E.REFZ	=	154	E.MKMTY	=	177	E.SETD	=	361
CLCMP	=	50	L.REFZ	=	23	L.MKMTY	=	134	L.SETD	=	50
E.CLCMP	=	0	MAPZERO	=	63	CLRDAE	=	101	E.DSMAP	=	431
L.CLCMP	=	112	CHMPRW	=	67	SETDAE	=	101	L.DSMAP	=	18
REFER	=	55	CHMPRO	=	65	CLRD	=	103	E.DFMAP	=	446
E.REFER	=	112	MPCHGRO	=	71	E.CLRD	=	333	L.DFMAP	=	22
L.REFER	=	42	MPCHGRW	=	72	L.CLRD	=	26			

EXTERNAL SYMBOLS.

SYSRET	E.ERROR	CHKPTR	DISASTR	RADMAPC
SYSFRET	FINDSUB	S.ECSRA	BKPTR	E.ECS

IDENT MAPS

* * SYSTEM ACTIONS HEREIN =
 * MAPZERO CLEAR A MAP ENTRY
 * CHMPRW CHANGE A POSSIBLY ALREADY EXTANT MAP ENTRY, RW
 * CHMPRO CHANGE A POSSIBLY ALREADY EXTANT MAP ENTRY, RO
 * MPCHGRO SET A ZERO MAP ENTRY, RO
 * MPCHGRW SET A ZERO MAP ENTRY, RW
 * CLRDAE CLEAR DIRECT ACCESS MAP ENTRY (7,0 ERROR CURRENTLY)
 * SETDAE SET DIRECT ACCESS MAP ENTRY (7,0 ERROR CURRENTLY)
 * E.DSMAP DISPLAY MAP ENTRY OF SPECIFIED SUBP
 * E.DFMAP DISPLAY MAP ENTRY IN FULL MAP
 * *
 * EXTERNAL SUBROUTINES HEREIN =
 * MAPIN SNAP IN ONE SUBPROCESS
 * MAPOUT SNAP OUT ONE SUBPROCESS
 * REFER INCREMENT REFERENCE COUNTS ON FILE
 * * BLOCKS USED BY SPECIFIED MAP ENTRY
 * REFZ CLEAR REFERENCE COUNTS ON SPECIFIED FILE
 * *
 * INTERNAL SUBROUTINES HEREIN =
 * MAPCHK, MAPCHKNS VALIDATE COMPILED MAP
 * CALLCMP COMPILE LOGICAL MAP
 * MKEMPTY CLEAR A MAP ENTRY
 * *

	RECS	MACRO	A
	RE		A
	RJ		XE.EOS
	ENDN		
	WECS	MACRO	A
	WE		A
	RJ		XE.EOS
	ENDM		
0	ECSMAC	XTEXT	
0	CBLOCK	MICRO	1.0#/EMAPS/#
0	INTSYS	XTEXT	
0	PROCSYM	XTEXT	

* MAPIN/MAPOUT SWAP A SUBPROCESS IN/OUT OF CM. THEY CHECK
 * WHETHER OR NOT THE COMPILED MAP IS CURRENT AND IF NOT USE THE
 * LOGICAL MAP TO RECOMPILE IT. IF THE LOGICAL MAP IS TURNED OFF
 * AN ERROR IS SIGNALLED AND NO SWAPPING IS DONE; IF A FILE REFERENCED
 * BY THE LOGICAL MAP IS GONE, THE MAP ENTRY IS ZEROED PRIOR TO
 * COMPIRATION AND THE MAP SWAPPED AND AN ERROR SIGNALLED TO THE CALLER;
 * IF A BLOCK IS MISSING WHICH IS NECESSARY FOR SOME MAP ENTRY, A
 * DISASTER HAS OCCURRED.

*

AT ENTRY

B1 = SCRATCH AREA

A5,X5 = ADDRESS AND CONTENTS OF SD-MAP WORD IN SUBP

B7 = RETURN LINK

*

AT EXIT

X6 = 0 IF SWAPPING PROCEEDED NORMALLY

= 1 IF THE MAP WAS TURNED OFF

= NON-ZERO IF A FILE WAS GONE

*

THE FOLLOWING REGISTERS ARE CHANGED:

*

A0 = A0

*

A1 (BUT NOT X1)

*

A2 (BUT NOT X2)

*

A3 = X3

*

A4 = X4

*

X5 (BUT NOT A5)

*

A6 = X6

*

A7 = X7

*

B6

*

USES P-TEMP1 THRU P-TEMP5 WHEN COMPILING MAPS

*

		ENTRY	MAPIN,MAPOUT	
0	0160000001 + 0400000023 +	MAPIN	S86 STARTIN . RETURN LINK	
1	0045000003 0304000010 +	STARTIN	EQ MARCK . GET COMPILED MAP UP TO DATE	
2	43703 20401 0334000007 +		SA4 A5+MP,CMAP . PICK UP FIRST ENTRY	
3	20473		ZR X4,END . HMMMS, NO ENTRIES	
			NXT LX4 3 . MASK FOR LOOP	
			NG X4+NXTWRD 1 . LEFT=JUSTIFY DIRECT-ACCESS BIT	
			LX4 5q X4+NXTWRD . DO NOT SWAP	
4	15147 6260000000 21022	INLOOP	Bx0 =X7+X4 S86 X0+0 AX0 18	* REMOVE FLAG BITS * WORD COUNT
5	53001 21022		SA0 X0+B1 AX0 18	* CM ADDRESS, ABSOLUTE NOW
6	0116000000		RECS BA	
7	5044000001	NXTWRD	SA4 A4+1	* GET NEXT COMPILED WORD

MAPS = CREATION, COMPILED, AND EXECUTION
MAPIN SWAPPING LOOP

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10	0214000004 +		NZ	X4-INLOOP	• ZERO WORD MARKS END
10	END		BSS	0	
10	7170000001		SX7	1	SET TO BURCE
	5170000002		SA7	S-FNFLAG	
11	0270000000		JP	B7	• EXIT FROM MAPIN
12	0160000013 +	MAPOUT	SB6	STARTOUT	• RETURN LINK
	0400000023 +		EQ	MAPCHK	• GET COMPILED MAP UP TO DATE
13	5045000003	STARTOUT	SA4	A5+MP.CMAP	• PICK UP FIRST ENTRY
	0300000010 +		ZR	X4-END	• HMMMM, FIRST IS LAST??
14	43703		MX7	2	• FLAG FOR LOOP
	29401		LX4	1	• LEFT JUSTIFY DAE BIT
	0334000021 +		NG	X4-NXTOUT	• DO NOT SWAP
15	20473		LX4	59	
16	0334000021 +	OUTLOOP	NG	X4-NXTOUT	• READONLY ENTRY
	15647		BX0	=X7*X4	• CLEAR FLAGS AND MOVE
	63600		SB6	X0	• WORD COUNT
17	21022		AX0	18	
	53001		SA0	X0+B1	• CM ADDRESS: NOW ABSOLUTE
	21022		AX0	18	
20	0126000000		=ECS	R0	
21	5044000001	NXTOUT	SA4	A4+1	
	0314000016 +		NZ	X4-OUTLOOP	
22	0400000010 +		EG	END	

*
* THIS ROUTINE CHECKS THAT THE BAD MAP COUNT AND THE COMPACTION
* COUNT ON A GIVEN COMPILED MAP ARE UP TO DATE. IF THE COMPACTION
* COUNT IS OFF, THE MAP IS RECOMPILED. IF THE BAD MAP COUNT IS
* OFF, A CHECK IS MADE TO SEE IF ALL THE FILES IN THE LOGICAL MAP
* STILL EXIST. IF NOT, THE MAP IS RECOMPILED. (THE MAP COMPILER
* HANDLES THE MISSING FILE PROBLEM). OH YES, WE ALSO DETECT
* A MAP OFF CONDITION.
*

*
* AT ENTRY
* B1 = SCRATCH AREA
* A5,X5 = ADDRESS AND CONTENTS OF SD.MAP WORD OF SUBP
* B6 = RETURN LINK
*

*
* AT EXIT, X4 SIGNALS THE RESULT AS ADVERTISED IN
* MAPIN,MAPOUT
*

* REGISTER USAGE CONFORMS TO MAPIN/MAPOUT PROMISES
*

23	7160000005	MAPCHK	SX6	F	***** DISPLAY *****
	5160000002		S6	S-FNFLAG	***** PRM *****
24	0325000026 +	MAPCHKIS	PL	X5+X2	JUMP IF MAP IS ON
25	7160777776		SX6	A1	SIGNAL MAP OFF
	0260000000		JP	B6	EXIT
26	50010		SA0	R1	SCRATCH AREA
	7100000000 X		SX0	EXBADMAPC	A(MAP COUNTS IN ECS)
27	5045000002		SA4	A5+MP,CNT	GET LOCAL MAP COUNT WORD
36	0110000002		RECS	Z	READ GLOBAL COUNTS
31	5030000001		SA3	A0+1	GLOBAL COMPACTION COUNT
	0333000054 +		NG	X3+TwncP	COMPACTION IN PROGRESS
32	73640		SX6	X4	LOCAL COMPACTION COUNT
	13636		BX6	X3-X6	COMPARE
	0314000050 +		NZ	X6,CALLCMP	MUST RECOMPILE
33	6033777776		SAG	A3=I	GET GLOBAL BAD MAP COUNT
	204=2		LX4	A0=18	GET LOCAL BAD MAP COUNT
	73740		SX7	X4	
34	13737		BX7	X3=X7	COMPARE
	0317000036 +		NZ	X7,MAPCHK7	A FILE MAY BE GONE
35	0260000000		JP	A6	COMPILED MAP IS CURRENT
36	13446	MAPCHKF	BX4	X4-X6	CLEAR OLD COUNT
	12643		BX6	X4+X3	INSERT CURRENT BAD MAP COUNT
	24622		LX6	Z8	REPOSITION
	54640		SA6	A4	STORE UPDATED COUNT WORD
37	74350		SX4	A5	HORRORS, NO B REG AVAILABLE
	36335		IX3	X3+X5	A(FIRST LOGICAL MAP ENTRY)
	53330		SA3	Y3	
40	5000000002		SA0	A0+2	AVOID CLATTERING GLOBAL COUNTS
	42647		MX6	Z9	MASK FOR LOOP
41	0913000043 +	MAPCHKK	NZ	X3,MAPCHK5	GO CHECK A LIVE ENTRY
	0323000047 +		PL	X3,MAPCHK2	JUMP IF NULL ENTRY
42	7160000000		SX6	A	END OF MAP, WAS OK
	0260000000		JP	B6	
43	73030	MAPCHK6	SX0	X3	NOT FOR FILE

MAPS = CREATION, COMPIRATION, AND EXECUTION
COMPILTED MAP VALIDATOR

44 0110000001
45 54400
13443
11464
46 0314000050 +
47 5033000003
0400000001 +

MAPCHK5

RECS
SA4
BX4
BX4
NZ
SA3
EQ

T
A0
X4-X3
X6-X6
X4, CALL CMP
A3+MP, SIZE
MAPCHK4

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. CHECK UNIQUE NAME

. THIS ONE IS GONE
. GET NEXT ENTRY

```

* AT ENTRY
*      A5 = A(SD,SAFL WORD) OF RELEVANT SUBPROCESS
*      X5 = CONTENTS OF SAME
*      B6 = RETURN LINK
* ALSO, THE GLOBAL BADMAP COUNT AND COMPACTION COUNT MUST
* BE IN THE CELLS ADDRESSED BY B1 AND B1+1 RESPECTIVELY
*
* AT EXIT
*      X6 = 0 IF MAP COMPILED OK
*      = NON-ZERO IF A FILE MENTIONED IN THE MAP WAS GONE.
*
* PRESERVES B2,B3,B4,B5,B6,B7,X1,X2,A4,A5,X5
*
* TEMPORARIES USED = P,TEMP1 THRU P,TEMP4
*
* IF A FILE WAS MISSING FROM THE MAP, THE MAP ENTRY WITH THAT FILE
* IN IT IS ZEROED AND THE RESULTING MAP IS COMPILED.
* IF A BLOCK IS MISSING, A DISASTER IS SIGNALLED.
*
* SAVE REGISTERS

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1	450	13666	E.CLCMP	
		5161000062	ECSSUB	CCLCMP,RUF6
		10611	BX6	X6=X6
	451	10722	SA6	R1+P,TEMP5 .INITIALIZE ERROR FLAG TO 0
		5161000056	BX6	X1
	452	5171000057	SX7	X2 . AND X2
		76670	SA6	R1+P,TEMP1
		43052	SAT	R1+P,TEMP2
	453	15660	SX6	R7
		20622	MX0	42
		76740	BX6	=X0*X6
		15770	LX6	16
	454	12667	SX7	R6
		20622	BX7	=X0*X7
		76740	BX6	X6+X7
		15770	LX6	18
	455	12667	SX7	35
		5161000040	BX6	=X0*X7
		76640	SA6	X6+X7
	456	15660	SX6	R1+P,TEMP3 . AND B7,B6,B5, ...
		20622	BX6	R4
		76740	LX6	=X0*X6
		15770	SX7	18
	457	12667	BX7	33
		20622	BX6	=X0*X7
		76720	LX6	X6+X7
		15770	SX7	18
	460	12667	BX7	R2
		5161000041	BX6	=X0*X7
			SA6	X6+X7
				R1+P,TEMP4 . AND B4,B3,B2

MAPS - CREATION, COMPILEATION, AND EXECUTION
MAIN COMPILEATION LOOP, INITIALIZATION

	56010	SA0	R1	. SET TO SCRATCH AREA
461	6045000003	SB4	A5+MP,CMAP	. A (FIRST COMPILED MAP WORD)
	67441	SB4	R4=R1	. RELATIVE TO R1, THAT IS
		*		
		*REFURISH COUNT WORD ON COMPILED MAP		
		*		
	56110	SA1	R1	. BAD MAP COUNT (GLOBAL)
462	5021000001	SA2	A1+1	. GLOBAL COMPACTION COUNT
	21122	LX1	18	
		BX6	X1+X2	
	12612	SA6	A5+MP,CNT	. NEW COUNT WORD FOR MAP
		*		
		*READY FIRST LOGICAL MAP ENTRY FOR LOOP		
		*		
	64540	SB5	A5	
	53255	SA2	X5+R5	. START OF LOGICAL MAP
464	5035000001	SA3	A5+MP,RAFI	. SUBPROCESS RA, ETC
	21122	AX3	18	
	63230	SB2	X3	
		MX7	59	. RA
465	43773	ZR	Y2,DONE	. CONSTANT OF =1
	0302000553			. FIRST ENTRY IS NULL OR END OF MAP

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* HERE STARTS THE LOOP
* CLOOP    SA0      X2+0      . NOT POINTER TO FILE
*          RECS     1
*          SA1      40
*          MX5      60=21
*          BX0      =X5*X1      . ECS ADDR OF FILE
*          BX1      X1=X2      . COMPARE UNIQUE NAMES
*          BX1      X5*X1
*          ZR       X1,CLOOP2  . FILE STILL THERE

* A FILE HAS BEEN RIPPED OFF
* MX6      2      . ZERO MAP ENTRY
* SA6      2
* SX6      2
* SA6      B1+P,TEMPE  . SET ERROR FLAG
* EQ      CLOOP1    . CONTINUE COMPILE LOOP

* FIX THE COMPILE POINTER
* CLOOP2   MX5      2      . LOGICAL FILE ADDR
*          SA1      A2+MP,FADD  . CM ADDR, WORD COUNT
*          SA3      A2+MP,CADR
*          BX6      X2
*          LX6      60=36      . RIGHT JUSTIFY COMPILE POINTER
*          NX4      60=16
*          BX6      X4*X6      . CLEAR OUT OLD POINTER...
*          SX4      A5+MP,CMAP  . POINTER TO START OF COMPILED MAP
*          BX4      =Y4
*          SX4      Y4+B1
*          SX4      X4+B4      . CURRENT PTR = FIRST WORD PTR
*          BX6      X4+X6      . .. AND ADD NEW ONE
*          LX6      36
*          SA6      A2
*          BX5      X5*X2      . READ ONLY & DIRECT ACCESS BITS
*          SB3      X5
*          AX3      12
*          SX3      X3+B2      . CM ADDRESS (RELATIVE TO B1)
*          RECS     P,SCRL    . READ FILE DESCRIPTION

```

* WE NOW COMPILE A SINGLE SOURCE MAP ENTRY INTO A SERIES OF WORDS OF THE FOLLOWING FORM:

* VFO 1/R-0, I/DAE, 1/LAST, 21/ECS ADDRESS, 18/CM ADDRESS,
*, 1R/WORD COUNT

* THE THREE FLAG FIELDS ARE 1 IF TRUE. THE ECS ADDRESS IS ABSOLUTE,
* WHILE THE CM ADDRESS IS RELATIVE TO B1. THE REGISTERS SHOULD BE SET UP
* THUS:

*	A0	ADDRESS OF FILE DESCRIPTION (AND SCRATCH AREA)
*	A1	LOGICAL FILE ADDRESS
*	A3	CM ADDRESS (RELATIVE TO B1)
*	X5	READ ONLY BIT (POSITIONED AT BIT 59)
*	A7	=1
*	B3	WORD COUNT
*	B4	POINTER TO COMPILE AREA (RELATIVE TO B1)

L 503	6060000003	SB6	A ₀ +3	• START OF DOPE
	6176000505	SB7	MKMAP	• RETURN FROM DOPE VECTOR
L 504	0400000507	EQ	MKMAP1	

* FORM OF POINTER BLOCK LEVEL DESCRIPTION:

*	AX6	X
*	MX0	Y
*	JP	B ₇

L 505	15060	MKMAP	BX0	=X0#X6	• SELECT RELEVANT ADDRESS BITS
	6166000001		SB6	B ₆ +1	
	36004		I ₄ 0	X ₆ #X4	• ECS ADDRESS OF ...
L 506	0410000001		RECS	1	• NEXT POINTER
L 507	54400	MKMAP1	SA4	A ₇	
	0304000003		ZR	X ₄ #MKERROR	• EMPTY BLOCK
	10611		BX6	X ₇	
L 510	0260000000		JP	B ₄	• EXECUTE NEXT LEVEL DESCRIPTION

* FORM OF DATA BLOCK LEVEL DESCRIPTION:

*	SX6	LENGTH OF DATA BLOCK = 1
*	JP	B ₇ #4

L 511		BSS	0	
		IFNE	=MKMAP, 4#1	• LOCATION COUNTER MUST = MKMAP+4
L 511	5256000001	SB5	X ₆ +1	• DATA BLOCK LENGTH
	11661	BX6	X ₆ #X1	• LENGTH=1 IS CORRECT MASK

* FORM OF SINGLE LEVEL FILE DESCRIPTION:

*	SB5	LENGTH OF DATA BLOCK
*	JP	B ₇ #5

L 512		BSS	0
-------	--	-----	---

			IFNE	*MKMAP,5,7	LOCATION COUNTER MSUT = MKMAP+5
L	512	03760	SB7	X6	• STARTING ADDRESS IN FIRST BLOCK
		10169	BX1	X5	• LAST POINTER ADDRESS
		67757	SB7	B5=B7	• WORD COUNT FROM FIRST BLOCK
		67637	SB6	B3=B7	• DECREASE COUNT
L	513	36046	IX0	X4+X6	• ECS ADDRESS
		43647	MX6	A0=21	
		15046	BX0	=X6*X0	• GET RID OF INDEX, INDEF. EXP.
I	514	0606000543	LE	B2+B0+MKMAP2	• THIS IS NOT THE LAST
I	515	10600	MKMAP3	Y0	.. ECS ADDRESS
		20622	LX6	T8	
		12663	BX6	X6+X3	.. CM ADDRESS
		20622	LX2	T6	
L	516	0335000522	NG	X5,MKMAP3A	.. IF R=0, DO NOT SET DIRTY BIT
		36047	IX0	X4+X7	.. ADDR OF WORD WITH DIRTY BIT, REF COUNT
		20765	LX7	53	.. POSITION HOLE
I	517	0110000001	RECS	1	
I	520	54400	SA4	A0	
		15747	BX7	=X7+X4	.. SET DIRTY BIT
		54740	SAT	A4	
		43773	MX7	A9	.. E=1
I	521	0120000001	WECS	1	
I	522	76470	SX4	B7	.. WORD COUNT FOR FIRST BLOCK
		12664	BX6	X6+X4	
		12665	BX6	X5+X6	.. READ-ONLY, DIRECT ACCESS BITS
I	523	0144000001	SA6	B4+B1	
		73357	S84	B4+1	
		66360	SX3	X9+B7	.. BUMP CM ADDRESS
			SBS	B4	.. NEW WORD COUNT
L	524	07017	MKMAP4	IX0	X7=X7
		10169	BX1	X5	• ADDRESS OF ..
I	525	0110000001	RECS	1	• NEXT POINTER
I	526	5040000000	SA4	A0+0	
		0336000053	ZR	X6+MKERROR	• EMPTY BLOCK
I	527	0364000541	DF	X4+MKMAP5	• BRANCH IF POINTER BLOCK IS NEXT
		43647	MX6	A0=21	
		15046	BX0	=X6*X4	
I	530	07635	SB6	B1=B5	• DECREASE WORD COUNT
		0906000543	GE	B0+B6+MKMAP2	• BRANCH IF LAST ENTRY
		66360	SB3	B4	
I	531	10600	BX6	X0	
		20622	LX2	T8	.. ECS ADDRESS
		12663	BX6	X6+X3	.. CM ADDRESS
		20622	LX6	T8	
I	532	0335000536	NG	X5,MKMAP4A	.. IF READ-ONLY DO NOT SET DIRTY BIT
		36047	IX0	X0+X7	.. ADDR OF WORD WITH DIRTY BIT, REF COUNT
		20765	LX7	53	.. POSITION HOLE
I	533	0110000001	RECS	1	
I	534	54400	SA4	A0	

MAPS = CREATION, COPIATION, AND EXECUTION
COMPILE A SOURCE MAP ENTRY

	16747	
	54700	
	43773	
	535 0120000001	
	536 76450	MKMAP4
	12664	
	12656	
	56641	
	537 0144000001	
	79325	
	540 0400000524	
	541 36147	MKMAP5
	0324000524	
	36004	
	542 0160000524	
	0200000000 X	
	543 14677	MKMAP2
	20625	
	12640	
	20622	
	544 0335000550	
	34047	
	20765	
	545 0110000001	
	54400	
	16747	
	54700	
	43773	
	547 0120000001	
	550 12663	MKMAP2A
	20622	
	76420	
	12664	
	551 12656	
	56641	
	6146000001	

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BX7	=X7+X4	.. SET DIRTY BIT
SA7	A0	
MX7	59	.. ==1
RECS	1	
SX4	R5	.. WORD COUNT (= DATA BLOCK SIZE)
BX2	X4+X4	
BX6	X4+X6	.. READ-ONLY BIT
SA6	B4+R1	
SB4	B4+1	
SX5	X4+R5	.. BUMP CM ADDRESS
EQ	MKMAP4	
IX1	X4+X7	.. SET X1 TO ONE BEFORE PTR BLOCK
PL	X4,MKMAP4	.. NOT TO END OF BLOCK YET
IX0	X5+X4	.. A (OBJECT)
SH6	MKMAP4	.. GET THE BACK POINTER FROM THE
JP	=XBKPTR	.. ALLOCATOR
BX6	=X7	.. LAST ENTRY FLAG BIT
LX6	R7	
BX4	X4+X6	.. POSITION
LX6	10	.. ECS ADDRESS
NG	X5,MKMAP2A	.. IF R=0 THEN DO NOT SET DIRTY BIT
IX0	X4+X7	.. ADDR OF WORD WITH DIRTY BIT, REF COUNT
LX7	R3	.. POSITION HOLE
RECS	1	
SA4	A0	
BX7	=X7+X4	.. SET DIRTY BIT
SA7	A0	
NX7	59	.. RESTORE X7 TO -1
RECS	1	
BX6	X6+K3	.. CM ADDRESS
LX6	R2	
SX4	B2	
BX6	X4+X4	.. WORD COUNT
BX6	X4+X6	.. READ-ONLY (AND DIRECT-ACCESS) BIT(S)
SA6	B4+R1	.. STORE NEW COMPILED MAP WORD
SB4	B4+1	.. ADVANCE COMPILED MAP WORD INDEX

MAPS - CREATION, COMPILED, AND EXECUTION
MAN COMPILE LOOP, BOTTOM

E	552	5022000003	CLOOP1	SA2
		031>000466		NZ
E	553	v322000552	DONE	PL
			*	
			# ALL DONE	
			*	
		13646	BX6	X6=X6
		56641	SA6	B4+B1
E	554	5111000062	SA1	B1+P,TEMP5
		13641	BX6	X1
E	555	5111000056	SA1	B1+P,TEMP1
		5121000057	SA2	B1+P,TEMP2
E	556	5131000060	SA3	B1+P,TEMP3
		63620	SB5	X2
		21322	AX3	1B
E	557	63630	SB6	X2
		21322	AX3	1B
		5141000061	SA4	B1+P,TEMP4
E	560	03730	SB7	X3
		63240	SB2	X4
		21422	AX4	1B
		63340	SB3	X4
E	561	21422	AX4	1B
		63440	SB4	X4
		0260000000	JP	BA

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- STEP TO NEXT ENTRY
- REAL LIVE ENTRY TO PROCESS
- NULL ENTRY
- MAP ENDS WITH ZERO WORD
- PICK UP ERROR FLAG
- IN X6
- RESTORE X1
- AND X2
- AND B7, B6, B5, ...
- ... AND B4, B3, AND B2
- CARRY ON WITH SWAPPING

E	562		ENDSUB	CLCMP,BUF#	
		50 + CALLCMD	EQU	CLCMP	
53	0100000000	X	MKERR00	RJ	=XDYSASTP
		*			• A BLOCK REQUIRED FOR A MAP
54	0100000000	X	TWOCP	RJ	DISASTP
		*			• ENTRY GOT RIPPED OFF
					• WHEN WAS THE OTHER CP INSTALLED?
					• (OR IS IT PERCHANCE A SPEED BREAKER?)

* REFER INCREMENTS AND DECREMENTS THE REFERENCE COUNTS ON DATA BLOCKS
* WHICH ARE NEEDED FOR A MAP ENTRY. IT ALSO CHECKS THE VALIDITY OF THE
* FILE ADDRESS, CM ADDRESS, AND WORD COUNT COMBINATION.
* ENTRY:

* X1 THE ADDRESS OF A SOURCE MAP ENTRY (RELATIVE TO B1)
* X4 THE FL OF THE SUBPROCESS INVOLVED
* X5 AMOUNT TO ADD TO THE DATA BLOCK REFERENCE COUNTS
* B4 ↑RETURN↑ (IN CASE OF EMPTY BLOCK)
* B6 ↑RETURN↑
* B7 ↑RETURN↑ (IN CASE OF TOO LARGE WORD COUNT, FILE
* GONE, BAD FILE ADDRESS)

* EXIT:

* B3 WILL BE LARGER THAN ITS INITIAL VALUE BY THE NUMBER
* OF WORDS IN THE COMPILED MAP ENTRY.
* X5, B2, B4, AND B6 ARE NOT CHANGED

112	
450	53111
	56010
	73010
	43747
451	411000001
452	54200
	15027
	1-112
	11171
453	4311000507
	5021000002
454	73320
	21222
	73220
	36223
455	37242
	43773
	0332000507
456	501100001
	0331000507
457	0110000050
458	5020000002
	36413
	37424
461	0334000507
	6170000463
462	6050000003
	0400000465

ECSSUB	REFER, RUEA	
S41	X1+B1	• FIRST WORD FO MAP ENTRY
S40	B1	• SCRATCH AREA
SX0	X1	• NOT POINTER TO FILE
MX7	61-B2	
RECS	I	
S42	A1	
BX2	=X7+X2	• ECS ADDRESS OF FILE
BX1	X1-X2	• COMPARE UNIQUE NAMES
BX1	X3-X1	
NZ	X1,REFABT	• FILE HAS BEEN DELETED
S42	A1+B2	• CM ADDRESS, WORD COUNT
SX3	X3	• WORD COUNT TO X3
AX2	I-B1	
SX2	X2	• CM ADDRESS
LX2	X2+X3	
LX2	X4-X2	• FL = (ADDRESS + COUNT)
MX7	61	• =1
NG	X2,REFABT	• ADDRESS SPACE EXCEEDED
S41	A1+1	• LOGICAL FILE ADDRESS
NG	X1,REFABT	• NO NEGATIVE ADDRESSES, PLEASE
RECS	P,SCRL	• READ FILE DESCRIPTION
S42	A0+2	• LENGTH OF FILE
LX4	X1+X3	
LX4	X3-X4	
NG	X4,REFABT	• FILE SIZE EXCEEDED
S87	REFER1	• RETURN POINT FROM DOPE VECTOR
S85	A0+3	• START OF DOPE
FE9	REFER2	

* FORM OF POINTER BLOCK LEVEL DESCRIPTION:

AX6	X
MX0	Y
JP	Z

MAPS - CREATION, COMPILATION, AND EXECUTION
REFERENCE COUNT MANIPULATION

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463	15060	REFER1	BX0	$X_0 \# X_6$	• SELECT ADDRESS BITS
	6155000001		SB5	$B_5 + 1$	• MOVF TO NEXT LEVEL
			IX0	$X_0 \# X_4$	• ABS ECS ADDRESS OF NEXT POINTER
464	0110000001		RECS	1	
465	5040000000	REFER2	SA4	$A_0 \# 0$	• NEXT POINTER
	0304000510		ZR	$X_4 \# REFFAIL$	• EMPTY BLOCK
466	10611		BX6	X_1	
	0250000000		JP	B_5	• EXECUTE NEXT LEVEL DESCRIPTION
* FORM OF DATA BLOCK LEVEL DESCRIPTIONS:					
			SX6	LENGTH OF DATA BLOCK = 1	
			JP	$B_7 \# 4$	
467			BSS	0	
			IFNE	*REFER1*4,1	• THIS MUST BE AT REFER1+4
467	6256000001		SB5	$X_6 + 1$	• DATA BLOCK LENGTH TO B5
	11641		BX6	$X_6 \# X_1$	• LENGTH=1 IS CORRECT MASK
* FORM OF SINGLE LEVEL FILE DESCRIPTIONS:					
			SB5	LENGTH OF DATA BLOCK	
			JP	$B_7 \# 5$	
470			BSS	0	
			IFNE	*REFER1*5,1	• THIS MUST BE AT REFER1+5
470	67505		SB5	$\# B_5$	• COMPLEMENT OF BLOCK LENGTH
	6276000000		SB7	$X_6 \# 0$	• STARTING ADDRESS IN FIRST BLOCK
			BX1	X_5	• ADDRESS OF LAST POINTER
471	06775		SB7	$B_7 \# B_5$	• COMPLEMENT OF FIRST WORD COUNT
	63737		SB7	$X_3 \# B_7$	• DECREASE WORD COUNT
	36647		LX0	$X_2 \# X_7$	• ADDRESS OF REFERENCE COUNT
472	0110000001	REFER3	RECS	1	
473	54400		SA4	X_2	
	30645		IX6	$X_4 \# X_5$	• INCREMENT (DECREMENT) COUNT
	54600		SA6	A_0	
	76370		SX3	B_7	• WORD COUNT
474	0120000001		WECS	1	
475	0133000001		SB3	$B_2 \# 1$	
	0607000511	REFER4	GE	$B_2 \# B_7 \# REFRET$	• FINISHED
476	37017		IX0	$X_1 = X_7$	• ADDRESS OF ...
	10100		BX1	X_0	
477	0110000001		RECS	1	• ... NEXT POINTER
500	5040000000		SA4	$A_0 \# 0$	
	0304000510		ZR	$X_4 \# REFFAIL$	• EMPTY BLOCK
501	0364000503		DF	$X_4 \# REFERS$	• JUMP IF NOT DATA BLOCK
	36647		IX0	$X_4 \# X_7$	• ADDRESS OF REFERENCE COUNT
	63735		SB7	$X_3 \# B_5$	• DECREASE WORD COUNT
502	0400000472	REFER5	EQ	REFERS	• PREPARE TO READ ...
503	36147		IX1	$X_4 \# X_7$	• ... FIRST POINTER OF POINTER BLOCK
	0324000476		PL	$X_4 \# REFER4$	

MAPS - CREATION, COMPIRATION, AND EXECUTION
REFERENCE COUNT MANTRILATION

		36004		IX0	X6+X4
	504	06760		SB7	B2
	505	0160000506	*	SB6	*+1
		0200000000 X		JP	EXBKPTR
	506	06670		SB6	B7
		0400000476		EQ	RFFER4
	507	0470000000	REFABT	JP	B4
	510	0540000000	REFFAIT	JP	B4
	511	0260000000	REFRET	JP	B4
	512		ENDSUB		RFFER,BUEA

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- END OF BLOCK, ...
- SAVE THE DAMN EXIT
- GET THE BACK POINTER FROM
- THE ALLOCATOR
- (RETURNED IN X1)

* REFZ ZEROS THE REFERENCE COUNTS FOR A FILE. THE BADMAP COUNT IS INCREMENTED IF ANY WERE NON-ZERO. IT IS CURRENTLY CALLED ONLY FROM NEWUN

* AT ENTRY

* A0 = OK FOR ONE WORD OF SCRATCH
* A3 = ECS A(FILE DESCRIPTOR)
* B7 = RETURN LINK
* ENTRY REFZ
* ECSSUB REFZ,BUFA
* S86 00000000
* MX4 40000000
* BX0 X2
* MX7 50000000
* BX6 X2
* SA6 A1
* WECS 1
* BX6 =X4*X1
* SB6 60000000
* BX0 X2
* BX1 X2-X3
* ZR X1,DONENU
* IX0 X0-X7
* DATA
* EQ POINT
* RECS 1
* SA1 A1
* BX0 X2
* BX1 X2-X3
* ZR X1,DONENU
* IX0 X0-X7
* NP
* BX0 X2
* BX1 X2-X3
* ZR X1,DONENU
* IX0 X0-X7
* RECS 1
* SA1 A1
* BX0 X2
* BX1 X2-X3
* ZR X1,DONENU
* IX0 X0-X7
* POINT
* RECS 1
* SA1 A1
* ZR X1,NP
* BX2 X2
* IX0 X1-X7
* ID X1,DATA
* BX0 X1
* BX0 X1,POINT
* IX0 X2-X1
* SB6 N0M1
* IX0 X2-X7
* EQ =XBKPTR
* BX0 X1
* EQ ND
* ZR B1,REFK
* BADMAP COUNT MUST BE INCREMENTED
* SX0 =XBADMPC
* RECS 1
* SA1 A1+0
* IX6 X1-X7
* SA6 A1
* WECS 1
* JP R7
* ENDSUB REFZ,BUFA

* INITIALIZE REFER FLAG
* ADDRESS OF PRIMARY POINTER
* CONSTANT -1
* WORD WITH REF COUNT
* ZERO REF COUNT
* REF COUNT
* ADJUST REFER FLAG
* POINTER TO BLOCK
* COMPARE WITH PRIMARY POINTER
* NEXT POINTER
* POINTER
* EMPTY BLOCK
* SAVE ADDRESS OF POINTER
* WORD WITH REF CNT(IF DATA BLOCK)
* SENSE DATA BLOCK
* A(1ST PTR IN NEXT PTR BLOCK)
* GET A(BLOCK) AND GET
* BACKPOINTER FROM ALLOCATOR
* PTR TO NEXT LEVEL UP
* FILE NOT IN MAP -OK
* INCREDIMENTED BADMAP COUNT

154

450 06500

43452

16623

43773

451 0400000457

452 0110000001

453 0010000000

11661

54610

454 0420000001

455 15614

63565

16622

456 13103

0301000466

37007

457 0110000001

458 24100

0301000466

10200

461 37017

0371000462

10011

462 0301000457

34621

463 0160000465

37007

464 0400000000 X

465 10011

0300000466

466 0450000472

DONENU

467 0110000001

7100000000 X

470 0010000000

37617

54600

471 0420000001

472 0270000000

REFX

473

MAPS = CREATION, COMPIRATION, AND EXECUTION
ACTION TO CHANGE A MAP ENTRY TO ↑EMPTY*

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EXT SYSRET,SYSFRET,E=ERROR

* ENTRY MAPZERO

* THE SYSTEM ACTION TO CLEAR A MAP ENTRY
PARAMETERS =

* AP1 = C:CLASS CODE OF RELEVANT SUBPROCESS

* AP2 = D:INDEX OF MAP ENTRY

* AP3 = C:FILE WHICH IS CURRENTLY IN MAP
(WITH OB=PLMPP)? NOT USED IF ENTRY
ALREADY ZERO

63 0120000000 X MAPZERO SB2 SYSRET * ↑RETURN FROM MKEMPTY
7101000072 SX0 R1+P,PARAM+4 . CAPABILITY FOR FILE
64 0400000075 + EQ MKEMPTY . CURRENTLY IN MAP

SYSTEM ACTIONS TO CHANGE A (POSSIBLY) ALREADY
EXISTING MAP ENTRY

PARAMETERS =

AP1 = C:CLASS CODE OF RELEVANT SUBPROCESS
AP2 = D:INDEX OF MAP ENTRY
AP3 = C:FILE TO BE USED IN NEW MAP ENTRY
AP4 = D:FILE ADDRESS
AP5 = D:CM ADDRESS
AP6 = D:WORD COUNT
AP7 = C:FILE THAT IS IN OLD MAP ENTRY

		ENTRY	
65	43601	CHMPRO	MX6
	7101000077		SX0
66	4400000074 *		EQ
67	43600	CHMPRW	MX6
	7101000077		SX0
70	4400000074 *		EQ

CHMPRW, CHMPRO
READ ONLY FLAG
R1+P, PARAM#9 CAP FOR FILE IN OLD ENTRY
MAPCHNG
READ=WRITE FLAG
R1+P, PARAM#9 CAP FOR FILE IN OLD ENTRY
MAPCHNG

MAPS - CREATION, COMPILATION, AND EXECUTION
ACTIONS TO SET A MAP ENTRY PREVIOUSLY ZERO

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ENTRY MPCHGR0,MPCHGRW
* SYSTEM ACTIONS TO SET A ZERO MAP ENTRY
PARAMETERS =

* AP1 = CFILE CLASS CODE OF RELEVANT SUBPROCESS
* AP2 = DIINDEX OF MAP ENTRY
* AP3 = CFILE TO BE USED IN NEW MAP ENTRY
* AP4 = DIFILE ADDRESS
* AP5 = DPCM ADDRESS
* AP6 = DIWORD COUNT

71 43601 0400000073 *	MPCHGR0	MX6 EQ	1 MPCHGRW1	• READ-ONLY FLAG
72 7150000000	MPCHGR0	SX6	0	• READ/WRITE OK
73 7100000000	MPCHGR01	SX0	0	• SIGNAL NO OLD ENTRY ALLOWED
74 6120004714 5161000100	MAPCHNG	SB2 SA6	MAPCHNG1 B1+P+PARAM+10	• RETURN FROM MKEMPTY • STORE READ-ONLY FLAG

```

# * ↑INTEGER↑ ↑PROCEDURE↑ MKEMPTY(SUBP, INDEX) ..
# * ↑BEGIN↑ MAP := MABBASE(SUBP), MKEMPTY := 0, ..
# * * IF↑ ↑MAP[INDEX] = ↑EMPTY↑ ↑THEN↑
# * * * ↑BEGIN↑ ↑IF↑ IN(MAP) ↑THEN↑ ↑IF↑ ↑READONLY(MAP[INDEX])
# * * * * ↑THEN↑ ↑BEGIN↑ ↑IF↑ OLD(MAP) ↑THEN↑ COMPILE(MAP) ..
# * * * * SWAPOUT(MAP[INDEX])
# * * * ↑END↑ .. MKEMPTY := COUNTDOWN(MAP[INDEX]) ..
# * * MAP[INDEX] := ↑EMPTY↑ .. MAP[GARBGNT] := ↑OLD↑ ..
# * ↑END↑
# * ↑END↑

```

			EXT	FINDSUB
75	10600	MKEMPTY	BX6	X0 . SAVE THE OLD ENTRY FLAG
	5161000161		SA6	↓1+P·PARAM+11
177			ECSSUB	MKEMPTY·RULS
650	5131000067		SA3	BT+P·PARAM+1 . C: CLASS CODE
	6156000001		SB5	1 . CONSTANT FOR LATER
651	6170000652		SB7	MKEMPTY1 . ↑RETURN↑ FROM FINDSUB
	0400000000 X		EQ	FINDSUB
652	0460000773	MKEMPTY1	EQ	B49R0·NO\$URP . NO SUCH SUBPROCESS
	5656000003		SAS	A5=SD·CC·SD·PTRS . SUBPROCESS WORD WITH MAPIN FLG
653	7065777773		SX6	A5=SD·PTRS
	5161000063		SA6	B1+P·TEMP6 . SAVF START OF SUBPROCESS DESCRIPTOR
654	73750		SX7	X5 . MAPIN FLAG
	59550006662		SA7	A5+SD·MAP=SD·PTRS
655	0335001001		NG	X59FAIL3 . THIS MAP IS TURNED OFF
	5045000003		SA4	AR+MP·CMAP . FIRST WORD OF COMPILED MAP AREA
656	54335		SA3	A3+R5 . DI: MAP INDEX
	63450		SB4	X5 . START OF SOURCE MAP
	64454		SB4	B4+45
	67341		SG3	64+81 . ADR OF LOGICAL MAP REL BT
657	36233		IY2	X3+X3 . 2 * INDEX
	36223		IY2	X2+X3 . 3 * INDEX
	0332000775		NG	X2·NGMPIX . NEGATIVE MAP INDEX
660	20552		LX5	65=18 . SOURCE MAP LENGTH
	73150		SX1	IY1 .
	57141		IY1	X2·X1 .
661	0321000776		PL	X1·BGMPIX . TOO-LARGE MAP INDEX
	73623		SX6	X2+83
662	516100064		SA6	B1+P·TEMP7 . SAVE SOURCE MAP ENTRY ADDRESS
	53364		SA3	X2+84 . FIRST WORD OF INDEXED MAP ENTRY
	56010		SA0	B1 . SCRATCH AREA
663	0303000713		ZR	X2·MKEMPTY7 . MAP ENTRY ALREADY ZERO, EXIT
	5111000101		SA1	B1+P·PARAM+11 .
664	0301000777		ZR	X1,ISENTRY . PREVIOUS ENTRY NOT ALLOWED
	53110		SA1	X1 . UNMOT OF FILE CURRENTLY IN MAP
	13113		BX1	X1-X3 . CHECK IF IT REALLY IS
665	0311001000		NZ	X1,NOTSAME . WRONG FILE, NAUGHTY NAUGHTY
	0307000703		ZR	X7,MKEMPTY5 . MAP IS NOT IN CORE, DO NOT SWAP
666	5013000002		SA1	A3+MP·CAADR

MAPS - CREATION, COMPILEATION, AND EXECUTION
CLEAR A MAP ENTRY

	20161
667	0331001003
	20173
670	0331000703
	64710
	20522
671	0160000672
	0400000024 *

LX1	1	• LEFT JUSTIFY DIRECT ACCESS BIT
NG	X ₁ 0NODAE	• ERROR, THIS IS DAE
LX1	S0	
NG	X ₁ 0MKEMPTY5	• THIS ENTRY IS R/O, DO NOT SWAP
S87	A1	• PRESERVE A(THIRD MAP WORD)
LX5	10	• RESTORE X5
S86	MKEMPTY3	• RETURN LINK
EQ	MAPCHKNS	• GET MAP UP TO DATE

* FIELD POSSIBLE FILE GONE ERROR DURING VALIDATION
#

672	0306000675	MKEMPTY3	ZR	X ₁ 0MKPTY3.1	• NO ERROR
	43601		MX6	1	• FLAG SUBPROCESS FOR PENDING
	20673		LX6	6A=SD.FMPE	• FILE GONE FROM MAP ERROR
673	511100063		SA1	81+P.TEMP6	• A(SUP DESC)
	53170		SA1	X ₁	• FLAG WORD
674	54610		BX6	X ₁ 0X6	
675	56170		SA6	A1	• POSSIBLY NEW MAP POINTER
	21144		SA1	87	• RIGHT JUSTIFY COMPILE POINTERE
	607E000003		AX1	3A	• START OF COMPILE AREA
676	43703		SB7	A8+MP.CMAP	
677	53317		MKEMPTY4	MX7	
	15137		SA2	X ₁ 0R7	• NEXT WORD OF COMPILED MAP ENTRIES
	62660		BX0	=X7*X3	
	21022		SB6	X ₁	• WORD COUNT
700	53001		AX0	1B	
	21022		SA0	X ₁ +R1	• CM ADDRESS
	66775		AZ6	1C	
	20302		SB7	07+BS5	• INCREMENT POSITION
701	0126000000		LX3	08	• LEFT JUSTIFY LAST-FLAG BIT
702	0323000677		#ECS	09	
703	77141	MKEMPTY5	PL	X ₂ 0MKEMPTY4	
	35112		SX1	X ₁ 0R1	• RELATIVE ADDRESS, SOURCE MAP ENTRY
	7146377777		SX2	X ₁ 0R2	• DUMMY FL
704	77505		SX4	3777778	• DECREMENT TO REFERENCE COUNTS
	6140000053 *		SX5	1B	• RETURN FROM REFER
	66300		SB4	MERROR	• INCREMENT FOR REFER
705	66740		SB3	1C	• RETURN FROM REFER
	6160000767		SB7	04	• RETURN FROM REFER
706	0400000055 *		SB6	MKEMPTY6	
			EQ	RREFER	
707	511100064	MKEMPTY6	SA1	B1+P.TEMP7	• ADDRESS OF SOURCE MAP ENTRY
	13666		BX6	X ₁ 0X6	
	53611		SA6	X ₁ +R1	
710	511100063		SA1	B1+P.TEMP6	• ADDRESS OF SUBP DESCRIPTOR
	5261000010		SA6	X ₁ +SD.MAP+MP.CNT	
711	523100007		SA3	X ₁ +SD.MAP+MP.RAFL	• ADD FREED SPACE
	76630		SA6	04	
	36636		IX6	X ₁ 0X6	
712	54630		SA6	A2	• UPDATED COMPILED SPACE WORD
713	0220000000	MKEMPTY7	JP	02	• RETURN

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MAPS - CREATION, COMPIRATION, AND EXECUTION
CLEAR A MAP ENTRY

714	5111000064		MAPCHNG1	S1	B1+P TEMP7	• ADDRESS OF MAP ENTRY, REL. TO B1
		5121000072		S2	B1+P PARAM+4	• C: A FILE
715	5131000073			S3	B1+P PARAM+5	• D: ADDRESS IN THE FILE
		5151000074		S4	B1+P PARAM+6	• D: CM ADDRESS
716	5141000075			S5	B1+P PARAM+7	• D: WORDCOUNT
		10422		X2		
		10733		X3		
717	73550			SX5	X3	• WANT ONLY 18 BITS OF ADDRESS
		0335000771		NG	X3+NGCMADR	• NEGATIVE CM ADDRESS
		20522		LX5		
720	73440			SX4	X4	• ALSO AN 18 BIT FIELD
		0334000772		NG	X4+NGWDCNT	• NEGATIVE WORD COUNT
		53611		S4	X1+BL	• SET NEW FILE IN MAP ENTRY
721	5076000001			S7	A6+1	• SET NEW FILE ADDR IN ENTRY
		5121000100		S2	B1+P PARAM+10	• READ-ONLY FLAG, 0 OR 1 * 2 ** 59
722	12654			BX6	X5+X6	• COMBINE CM ADDR, WORD COUNT
		12626		BX6	X5+X6	• STICK IN Q0 BIT
		663n0		SB3	B5	• FOR REFER
723	5067000001			S4	A7+1	• STORE THIRD WORD, WITHOUT PTR
		5121000063		S2	B1+P TEMP6	• ADDRESS OF SUBPROCESS DESCRIPTOR
724	5232000007			S3	X5+SD MAP+MP RAFL	• WORD WITH RA, FL
		21322		AX3	I9	
		63230		SB2	X3	• RA
725	21322			AX3	I8	
		67202		SB2	=B2	
		73422		SX4	X4+B2	• (RA+FL) = RA
726	7150000001			SX5	I	• AMOUNT TO ADD TO REFERENCE COUNTS
		6145000755		SB4	FAIL	• #RETURN# (EMPTY BLOCK)
727	6160000731			SB6	MAPCHNG2	• #RETURN#
		6176000763		SB7	ABORT	• #RETURN# (WORD COUNT TOO LARGE)
730	0400000055	*		EQ	REFER	
731	5111000063		MAPCHNG2	S1	B1+P TEMP6	• ADDRESS OF SP DESCRIPTOR
		5251000005		S2	X1+SD MAP	• MAP WORD
732	5231000007			S3	X1+SD MAP+MP RAFL	• FIRST WORD OF COMPILE BUFFER
		67323		SB3	=B3	• -(AMOUNT OF EXTRA SPACE NEEDED)
733	0336000765			SX6	X3+B3	
		76620		NG	X6+FULL BUFF	• NOT ENOUGH SPACE LEFT
		36630		SX6	I8	
734	54630			I8	X3+X6	• NEW SPACE LEFT IN COMPILED MAP BUFFER
		43601		S4	A2	• FO MP RAFL
		5643000001		MX6	0	• CLEAR LOCAL COUNTS
735	5231000004			S4	A2+MP RAFL+MP CNT	
		73320		S4	X1+SD PTRS	• GET MAPIN-FLAG WORD
736	0303000000	*		SX3	X2	
		616000742		ZR	X2+SYSRET	• EXIT WHEN MAP NOT IN
737	7100000000	*		SB6	MAPCHNG3	• #RETURN# FROM COMPILER
740	0110000002			SX0	=XBADMAPC	• READ GLOBAL COUNTS FOR COMPILER
741	0400000050	*		RECS	2	
				EQ	CALLCMP	• RECOMPILE MAP

*
*
* HANDLE POSSIBLE FILE GONE ERROR

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		*			
742	0306000745		MAPCHNG3	ZR	X6, MPCH3, 1
	43641			MX6	1
	20673			LX6	65+SD, FM ^P E
743	5111000063			SA1	B1+P, TEMP ^P 6
	53110			SA1	X7
	12616			BX6	X7+X6
744	54610			SA6	A7
745	5111000064		MPCH3, i	SA1	B1+P, TEMP ^P 7
	73111			SX1	X7+B1
	43703			MA7	3
746	5211000002			SA1	X7+MP, CADR
	6020000003			SB2	45+MP, CMAP
747	21144			AX1	18+1B
	53212			SA2	X7+B2
750	15027		MAPCHNG4	SA0	=X7*X2
	6220000000			SB2	X6+0
	21022			AX0	18
751	53001			SA0	X6+B1
	21022			AX0	18
	21242			LX2	2
752	0112000000			RECS	02
753	0332000000 X			NG	X6+SYSRET
	5022000001			SA2	A2+1
754	0400000759			EQ	MAPCHNG4
		*			* BLOCK NECESSARY FOR MAP ENTRY IS MISSING
		*			*
755	6120000000 X		FAIL	SB2	SYSRET
756	5111000064		FAIL1	SA1	B1+P, TEMP ^P 7
	7140377777			SX4	377777R
757	7150777776			SX5	07
	6140000761			SB4	FAIL2
760	9400004655 +			EQ	FAIL2
		*			
761	5111000064		FAIL2	SA1	B1+P, TEMP ^P 7
	13646			BX6	X6+X6
	53611			SA6	X7+B1
762	0220000000			JP	02
		*			
763	5111000064		ABORT	SA1	B1+P, TEMP ^P 7
	13646			BX6	X6+X6
	53611			SA6	X7+B1
764	7170000003			SX7	E, BADNWS
	0400001002			EQ	C, FERR
765	6120000767		FULLBUFF	SB2	FULLBUFF1
	6160000761			SB6	FAIL2
766	9400000756			EQ	FAIL1
		*			
767	7160000004		FULLBUFF1	SX6	E, SUBP
	7170000003			SX7	E, COMP
770	0400000000 X			EQ	E, ERROR
771	7110000004		NGCMADD	SX1	4

MAPS - CREATION, COMPILATION, AND EXECUTION
CLEAR A MAP ENTRY

COMPASS - VER 2.
EMAPS

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	0400000122 +		EQ	EPR20	
L	772 7110000005	NGWDCNT	SX1	5	
	0400000122 +		EQ	EPR20	
L	773 7170000005	NOSUBP	SX7	E.NOFIND	
	7160000004		SX6	E.SUBP	
L	774 0400000000 X		EQ	E.ERROR	
L	775 7110000001	NGMPIX	SX1	1	
	0400000122 +		EQ	EPR20	
L	776 7110000001	BGMPIX	SX1	1	
	0400000121 +		EQ	EPR21	
L	777 7170000004	ISENTRY	SX7	E.PRENT	• CANT DO A SET WHEN THERES A
	0400001002		EQ	CHERR	• PREVIOUSLY EXISTING ENTRY
L	1000 7170000005	NOTSAME	SX7	E.WRGFL	• FILE CAP NOT SAME AS FILE IN
	0400001002		EQ	CHERR	• EXISTING ENTRY
L	1001 7170000006	FAIL3	SX7	E.MAPOF	• THIS MAP IS TURNED OFF
L	1002 7160000013	CHERR	SX6	E.MAPS	
	0400000000 X		EQ	E.ERROR	
L	1003 7170000000	NODAE	SX7	E.ISDAE	
	0400001002		EQ	CHERR	
L	1004		ENDSUB	MKMTY,RUEB	

* CLERDAE CLEARS THE DIRECT ACCESS ENTRY IN THE MAP OF A NAMED
* SUBPROCESS. ITS ONLY PARAMETERS ARE A CLASS CODE IN API AND A RETURN
* LINK IN B2. IT LEAVES MAPWORD IN X1, LEFT SHIFTED BY 42.

101	7160000007	101 + 7170000000	SETDAE CLRDAAE	ENTRY SX6 EQU SX7 EQ ECSSUB * NOTE - CLRDAAE IS CLERDAE	7 SETDAE 0 E_Error CLRDABUFA REALLY THE NEXT INST SB2 SA3 SB7 SB5 EQ	CLRDAAE.SETDAE * SORRY, NOT AVAILABLE YET CLRDABUFA * SUBPROCESS IN QUESTION CLERDAE1 FINDSUB AE AA BA+B7,NOSUPP A5-B5 LX1 PL MX7 BX7 LX7 SA7 A1 A1+3 SA2 AX2 SX6 LX6 SA6 AX1 SX7 MX5 SX6 SA6 SB4 SA6 SB7 REF	
102	0400000000 X						
333							
450	6120000000 X						
451	5131000067	617000453	CLERDAE	SB3 BT+DAE.CC+7			
452	6150000001	0400000000 X		SB7 CLERDAE1 EQ	1 FINDSUB		
453	64650 64760	0467000773	CLERDAE1	SB6 SB7 EQ	AE AA BA+B7,NOSUPP		
454	55155 20162	0327000472		SA1 LX1 PL MX7 BX7 LX7 SA7 A1 A1+3 SA2 AX2 SX6 LX6 SA6 AX1 SX7 MX5 SX6 SA6 BT+P.TEMP1 MKERROR CLERDAE2 MKERROR REFER	A5-B5 2 XT,CLEDAE3 1 =X7+X1 58 A1 A1+3 X7+81 12 X2+B5 12 X2 12 X2 58 BT+P.TEMP1 G0 A1-B1 BT+P.TEMP1 MKERROR CLERDAE2 MKERROR REFER	* PICK UP FIRST SUBP. DESCRIPT. WORD * LEFT JUSTIFY DAE BIT * NO DIRECT ACCESS ENTRY * CLEAR BIT * MAP WORD * FIRST WORD OF COMFILED MAP BUFFER * RIGHT JUSTIFY REMAINING-SPACE FIELD * INCREMENT IT (AND CLEAR GARBNT) * RIGHT JUSTIFY SOURCE MAP POINTER * DUMMY FL FOR REFER * DECREMENT FOR REFER * SAVE MAP-WORD ADDRESS * ↑RETURN↑ FROM REFER * ↑RETURN↑ * ↑RETURN↑ * ZERO SOURCE MAP ENTRY	
455	43701 15717	20772 54710					
456	5011000003	53271 21222					
457	73625 20622	54626 21122					
460	717037777	43573 75611					
461	5161000056	614000053 +					
462	6160000464	617000053 +					
463	0400000055 +						
464	5111000056	6231777774	CLERDAE2	SA1 SB3 SA1 LX1 BX6 SA6 SA2 SA2 SB3 NZ	B1+P.TEMP1 X1+3 X1+81 63+16 X2+X6 X1+81 B1+P STACK X2+81 =R3 X5+83 B1+CLERDAE4		
465	53111 20152	13646 53611					
466	5121000162	53221 67303					
467	63323	0530000472					

MAPS - CREATION, COMPILATION, AND EXECUTION
ACTIONS TO MANIPULATE THE DIRECT ACCESS ECS MAP ENTRY

COMPASS - VER 2,
FMAPS

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	43030	MX0	60=18-18	
470	5121000144	SA2	B1+P,XPACK+4	
	15620	BX6	=X0*X2	
	54620	SA6	A2	
471	5022000001	SA2	A2+1	
	15620	BX6	=X0*X2	
	54620	SA6	A2	
472	0420000000	CLERDAE4	JP	* RETURN
		*		
473	5011000003	CLERDAE3	SA1	A1+3
	21152	LX1	60=18	* MAP WORD
	53211	SA2	X1+81	* GET SOURCE MAP POINTER
474	0312000514	NZ	X2+NOTDAE	* ERROR: ENTRY IS SWAPPING DIRECTIVE
	70411	SA6	A1=81	
475	5161000056	SA6	B1+P,TEMP1	
	0226000000	JP	S5	* RETURN
476		ENDSUB	CLRD,BUFA	

* SETDAE SETS THE DIRECT-ACCESS ECS ENTRY IN THE MAP OF A NAMED
* SUBPROCESS. IT USES CLERDAE. PARAMETERS:

2	C:	EQU	2		
1	D:	EQU	1		
		USE	PARAMS		
		ORG	P PARAM		
66	DAE(CC	BSS	C	* A CLASS CODE	
66	DAE(FIL	BSS	C	* A FILE	
70	DAE(FAN	BSS	D	* AN ADDRESS IN THE ABOVE FILE	
72	DAE(WC	BSS	D	* A WORD COUNT	
73		USE	*		
361		ECSSUB	SETD,BUFA		
		* NOTE = SETDAE IS REALLY THE NEXT INST			
450	6120000451	S82	SFTDAE		
	9400000451	EQ	CLERDAE		
451	5121000071	SETDAE	SA2	B1+DAE,FIL+1 * UN. MNT INDEX OF FILE	
	17622		BX6	X2	
	53611		SA6	X1+81	* FIRST WORD OF SOURCE MAP ENTRY
452	5121000072		SA2	B1+DAE,FAD	* FILE ADDRESS
	5141000073		SA4	B1+DAE,WC	* WORD COUNT
453	10622		BX6	X2	
	5066000061		SA6	A6+1	* SECOND SOURCE MAP ENTRY WORD
			SX4	X4	
454	0334000772		NG	X4,NGWDCNT	* ERROR
	73440		MX6	2	* SET READ-ONLY, DAE BITS
	43642		BX6	X2+X4	
	12664		SB3	=1	* REFER WILL INCR. B3 BY NO. OF BLOCKS
455	6130777776		SA6	A6+1	* THIRD (AND LAST) WORD IN MAP ENTRY
	5066000001		SX4	3777778	* HUGE..HUGE..HUGE FL
456	7140377777		SX5	1	* INCREMENT FOR REFER
	7156000001		SB4	FRET	* ↑RETURN↑
457	6140000511		SB6	SFTDAE	* ↑RETURN↑
	6146000461		SB7	RET	* ↑RETURN↑
460	6170000504		EQ	REFER	
	0400000055				
461	0530000477	SETDAE	NZ	B1+NOTIBLK	* ERROR: MORE THAN 1 FILE BLOCK
	5111000056		SA1	B1+P,TEMP1	
462	6221777774		SB2	X1=3	
	53511		SA2	X1+81	* MAP=WORD
	53251		SA2	X1+81	* COMPILED MAP HEADER
463	21222		Ax2	12	
	7262777776		SX6	X2=1	
464	0336000515		NG	X4,FLBF	* INSUFFICIENT COMPILED MAP BUFFER SPAC
	20452		LX6	12	
	54620		SA6	X2	
465	5121000162		SA2	B1+P,STACK	* STACK POINTER
	53221		SA2	X2+81	* TOP OF STACK
	57202		SB2	=B2	
466	63222		SB2	X2+B2	* DID WE DIDDLE CURRENT SUBP?
	0520000000 X		NZ	B5+SYSRET	* NO
	66500		SB5	B5	
467	66700		SB7	B6	

MAPS - CREATION, COMPILATION, AND EXECUTION
SET DAE ENTRY

	6160000471
470	0400000050 +
	*
471	5014000001
	5121000145
472	73610
	2064+
	43620
	15220
473	12662
	54620
	5422777776
474	43603
	15615
	11616
	15220
475	12626
	5130000000 X
	20344
476	36636
	54620
	0600000000 X
	*
477	6120000513
500	6160000505
501	5111000056
	53111
	20152
502	7140377777
	43573
503	617000053 +
	0600000055 +
504	6120000515
	*
505	5111000056
	53111
	20152
506	13666
	53611
	5111777774
507	20102
	43601
	15616
	20672
510	54610
	0220000000
	*
511	6120000000 X
	6140000505
512	0400000501
	*
513	7170000001

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SB6	SETDAE3
EQ	CALLCMP
	*
SA1	A1+1
SA2	B1+P,XPACK+5
SX6	X1
LX6	1a+18
MX0	6a=18=18
BX2	=X0*X2
BX6	X5*X2
SA6	A2
SA2	A2+1
MX6	3
BX6	=X6*X1
BX6	X6*X6
BX2	=X0*X2
BX6	X2+X6
SA3	=YS,ECSPRA
LX3	3A
IX6	X2+X6
SA6	A2
EQ	SYSRET
	*
SB2	NOT1BLK1
SB6	COUNTDN1
SA1	B1+P,TEMP1
SA1	X1+B1
LX1	6a=18
SX4	3777778
MX6	59
SB7	MKEERROR
EQ	REFER
	*
SB2	ABET1
	*
SA1	B1+P,TEMP1
SA1	X1+B1
LX1	6a=18
BX6	X4=X6
SA6	X1+B1
SA1	A1+3
LX1	2
MX6	1
BX6	=X6*X1
LX6	58
SA6	A1
JP	B2
	*
SB2	SYSRET
SB4	COUNTDN1
EQ	COUNTDN
	*
NOT1BLK1	SX7
	ENT1BLK

MAPS - CREATION, COMPUTATION, AND EXECUTION
SET DAE ENTRY

COMPASS = VER 2.
FMAPS

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	0400000517		EQ	MAPERR
	*			
514	7170000002	NOTDAE	SX7	E_NOTDAE
	0400000517		EQ	MAPERR
515	6120000767	FLBF	SB2	FULLBUF1
	0400000500		EQ	COUNTDNO
	*			
516	7170000003	ARET1	SX7	E_BADNWS
517	7160000013	MAPERR	SX6	E_MAPS
	0400000000 X		EQ	E_ERROR
520		ENDSUB		SFTD_BUFA

~~DISMAP IS AN ACTION TO DISPLAY
A MAP ENTRY~~

PARAMETERS: C: A CLASS CODE
D: A MAP INDEX
D: AN ADDRESS

THE THREE-WORD ENTRY SPECIFIED BY API AND AP2
IS TRANSMITTED TO LOCATION AP3

431			ECSCODE	D\$MAP	
51	6150000001	DISMAP	EX7	FINDSUR	
	5111000071		SB5	1	
52	6160000003		SA1	B1+P+PARAM+3	• BUFFER ADDR
	6176000054		SB6	3	• NEEDED SIZE
53	04000000001	*	SB7	DM1	• RETURN LINK
	X		EQ	=XCHKPTR	• CHECK OUT THE BUFFER
54	6170000057	DM1	SB7	DM2	RETURN FROM FINDSUB
	5E215		SA2	A1+B5	X2=AD2
55	0320000111	*	NC	X2+ERR201	ERROR = NEGATIVE MAP INDEX
	+		SA3	A2+B5	X3=A61(CLASS CODE)
56	04000000000	*	EQ	FINDSUB	
57	64350	DM2	SB3	A5	
		*	SB4	FINDSUB RETURNS POINTER TO SUBP DESCRIPTOR IN A5	
	64460		EQ	A6	
	04340000117	*		02+84+ERR46	ERROR = CLASS CODE DID NOT MATCH
60	63620		SB6	X2	• MAP INDEX
	66760		SB7	B6+B6	
	64775	*	SB7	B7+B6	B7 = X2+3
61	5055000006		SA5	A5+SD+MAP	
	21522		AX5	10	
	63350	*	SB3	X5	B5+MAP LENGTH
62	0663000114	*	GE	B2+83+ERR211	ERROR = MAP INDEX TOO LARGE
	+	*			
	62650		SB6	X5	
	54150		SA1	A5+B5	
63	10611		BX6	X1	*
	54601		SA6	A5	*
	000002	*	DUP	Z13	*
			SA1	A1+B5	*
		*	BX6	X1	*
			SA6	A6+B5	*
65	0400000000	*	EQ	SYSRET	N
66	X			DSMAP	S
		*			E
					R

*
* THIS ACTION DISPLAYS AN ENTRY FROM THE FULL MAP
* PARAMETERS : D: AN INDEX IN THE FULL MAP
* D: USFR CM ADDRESS FOR XFER

446			ECSCODE	D:MAP	
51	6120777776	DSFMAP	SB2	=1	
	5111000067		SA1	B1+P.PARAM+1	
52	6160000063		SB6	3	
	6170000054		SB7	D:MAP	
53	0400000000		EQ	=XCHKPTR	
54	54222	DFM1	SA2	A2+B2	
	5131-04142		SA3	B1+PSTACK	
	63620		SB6	X2	
55	53431		SA4	B7+X3	
	0332-04115		NG	X2,ERRP00	
	63440		SB4	X4	
56	21422		AX4	10	
	73441		SA4	y4+B1	
	5221000005		SA2	X2+SD.ORIG	
57	21222		AX2	18	
	63720		SB7	X2	
	5622000001		SA2	A2=SD.ORIG+SD.MAP	
60	21222		AX2	18	
	63727		SB7	B7+X2	
	66541		SB5	94+B1	
61	5125004005		SA2	95+SD.ORIG	
	21222		AX2	18	
	63620		SB6	B6+X2	
62	67667		SB6	96=B7	
		*	B6	CONTAINS (FULL MAP INDEX) + (MAP ORIG - CURR. SURP)	
		*	PL	= (MAP ORIG = TOP) + (LENGTH MAP = TOP)	
63	5244000004		SA4	94,ERRP00	INDEX >GE. TOTAL LENGTH
64	21422	LP2	AX4	X4+SD.PTRS	WORD WITH POINTER
	5034000001		18	18	FATHER POINTER
	21322		SA3	A4=SD.PTRS+SD.ORIG	WORD WITH ORIGINS
65	5244000004		AX3	18	NUM LOGICAL MAP ENTRIES
	50620		SA4	X4+SD.PTRS	NEXT SUBP
66	0760000064		SB6	01+X3	TALLY ENTRIES THIS MAP
	5033000001		NG	B4+LP2	LOOP
67	66766		SA3	A2+=SD.ORIG+SD.MAP	GET MAP WORD
	60776		SB7	01+BD	
	60777		SB7	B7=B4+3	
	54237		SB7	X2+BT	MAP ENTRY REL A3
70	10622		SA2	A3+BT	*
	54600		BX6	X2	R
	55222		SA6	A2	A
	10622		SA2	A2+B2	M
71	55662		BX6	X2	S
	55222		SA6	A2+B2	F
	10622		SA2	A2+B2	E
	10622		BX6	X2	R

MAPS = CREATION, COMPILATIONS AND EXECUTION
DISPLAY AN ENTRY FROM THE FULL MAP

COMPASS - VER 2,
FMAPS

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55662

SA6 A6-B2
EQ SYRET
ENDECS DEMAP

72 0400000000 *
73

MAPS - CREATION, COMPILEATION, AND EXECUTION
MISC ERRORS

COMPASS - VER 2.
PARAMS

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	*		ERRORS	
	*			
111	7110009001 0400000122 *	ERR201	SX1 EQ	1 ERR20
112	7110009002 0400000122 *	ERR202	SX1 EQ	2 ERR20
113	7110009002 0400000121 *	ERR212	SX1 EQ	2 ERR21
114	7110009001 0400000121 *	ERR211	SX1 EQ	1 ERR21
115	7110009000 0400000122 *	ERR200	SX1 EQ	0 ERR20
116	7110009000 0400000121 *	ERR210	SX1 EQ	0 ERR21
117	7170009005 7180000004	ERR45	SX7 SX6	E_NOFIND E_SUBP
120	0400009000 *		EQ	E_ERROR
121	7170009001 0400000123 *	ERR21	SX7 EQ	E_BIGPAR ERR2
122	7170009001	ERR20	SX7	E_NEGPAR
123	20122 44257	ERR2	LX1 MX2	19 42
	11112 12717		BX1 BX7	X1*X2 X1*X7
124	7160009002 0400000000 *		SX6 EQ	E_PARMS E_ERROR
125	7170009002 718000013	ISDAE	SX7 SX6	E_ISDAE E_MAPS E_ERROR
126	0400009000 *		EQ	
		*		
126		ERRNUMS	XTEXT	
127			END	
	36322	STORAGE USED	1789 STATEMENTS	393 SYMBOLS
		6600 ASSEMBLY	9.729 SECONDS	540 REFERENCES

MAPS = CREATION, COMPIRATION, AND EXECUTION
SYMBOLIC REFERENCE TABLE.

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ABORT	763		23/30	24/41 L					
ARET	504		28/34	29/34 L					
ARETI	516		29/34	30/08 L					
BADMPC	0	EXTERNAL*	5/26	17/44	23/45				
BGMPIX	776		21/41	25/09 L					
RKPTR	0	EXTERNAL*	12/18	16/04	17/35				
BUFA	459		7/25	13/29	16/13	17/52	26/10	27/18	30/12
			13/29	14/19	16/13	17/52	27/18	28/13	30/12
			13/29	16/13	17/11	17/52	27/18	30/12	
BUFB	654		21/17	25/21	25/21	25/21			
CALLCMP	50	PROGRAM*	5/23	6/05	13/29 D	23/50	29/02		
CHERR	1002		24/45	25/12	25/14	25/16 L	25/19		
CHKPTR	0	EXTERNAL*	31/18	32/12					
CHMPRO	65	PROGRAM*	19/13 E	19/14 L					
CHMPRW	67	PROGRAM*	19/13 E	19/17 L					
CLOMP	50	PROGRAM*	13/29 L	13/29					
CLERDAE	451		26/12 L	28/15					
CLERDAE1	453		26/13	26/17 L					
CLERDAE2	464		26/39	26/43 L					
CLERDAE3	473		26/22	27/10 L					
CLERDAE4	472		26/53	27/08 L					
CLOOP	469		9/14 L	13/02					
CLOOP1	552		9/19	13/01 L	13/03				
CLOOP2	474		9/11	9/23 L					
CLRD	103	PROGRAM*	27/18 L						
CLRDAE	101	PROGRAM*	26/74 E	26/06 D					
CMBUFF	50		31/13	31/51	32/08	33/04			
COUNTDN	501		29/26 L	29/51					
COUNTDNU	500		29/25 L	30/06					
COUNTDNI	505		29/25	29/36 L	29/50				
C%	2		28/13 D	28/07	28/08				
DAE_CC	66		26/12	28/07 L					
DAE_FAD	72		28/19	28/20					
DAE_FIL	70		26/18	28/17					
DAE_IC	73		28/10	28/21					
DATA	452		17/16 L	17/32					
DFM1	54		32/11	32/13 L					
DISASTR	0	EXTERNAL*	13/32	13/34					
DISMAP	51		31/14 L						
DM1	54		31/17	31/20 L					
DM2	57		31/20	31/25 L					
DONE	553		8/21	13/03 L					
DONENU	466		17/25	17/41 L					
DSFMAP	51		32/18 L						
D1	1		28/64 D	28/09	28/10				
END	10	PROGRAM*	3/39	4/02 L	4/13	4/25			
ERR2	123	PROGRAM*	34/19	34/21 L					
ERR20	122	PROGRAM*	25/01	25/03	25/08	34/04	34/06	34/12	34/20 L
ERR200	115	PROGRAM*	32/17	34/11 L					
ERR201	111	PROGRAM*	31/22	34/03 L					
ERR202	112	PROGRAM*	34/65 L						
ERR21	121	PROGRAM*	25/10	34/08	34/10	34/14	34/18 L		
ERR210	116	PROGRAM*	32/34	34/13 L					

MAPS = CREATION, COMBINATION, AND EXECUTION
SYMBOLIC REFERENCE TABLE.

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ERR211	114	PROGRAM*	31/38	34/09 L							
ERR212	113	PROGRAM*	34/17 L								
ERR45	117	PROGRAM*	31/28	34/15 L							
E.BADNWS	3		24/44	30/06							
E.BIGPAR	1		34/18								
E.CLCMP	0	EWAPS	7/24 L								
E.CLPD	333	EWAPS	26/19 L								
E.COMP	3		24/51								
E.DFMAP	440	EWAPS	32/07 L								
E.DSMAP	431	EWAPS	31/12 L								
E.ECS	0	EXTERNAL*	3/53	9/42	11/53	14/24	15/46	17/46	24/23		
			4/23	10/32	12/05	14/40	16/13	17/50	25/21		
			5/29	11/21	12/28	15/05	17/17	17/52	27/18		
			6/12	11/26	12/33	15/36	17/21	22/32	30/12		
			9/16	11/37	13/29	15/41	17/28	23/50			
			24/52	25/06	25/17	26/08	30/10	34/17	34/26		34/29
		EXTERNAL*	25/18	34/27							
			25/15								
			25/16	30/09	34/28						
E.ERROR	0	EWAPS	21/16 L								
E.ISDAE	0		34/20								
E.MAPOF	0		25/14	34/15							
E.MAPS	13		30/03								
E.MKMTY	177		29/53								
E.NEGPAR	9		34/25								
E.NOFIND	5		25/11								
E.NOTDAE	2		24/50	25/05	34/16						
E.NT1BLK	1		17/10 L								
E.PARMS	2		28/12 L								
E.PRENT	4		24/50	25/05	34/16						
E.REFER	112	EWAPS	14/18 L								
E.REFZ	154	EWAPS	17/10 L								
E.SETD	361	EWAPS	28/12 L								
E.SUBP	4		24/50	25/05	34/16						
E.WRGFL	5		25/13								
FAIL	755		23/28	24/29 L							
FAIL1	756		24/30 L	24/48							
FAIL2	761		24/33	24/36 L	24/47						
FAIL3	1001		21/29	25/15 L							
FINDSUB	0	EXTERNAL*	21/21	26/15	31/24						
FLRF	515		28/44	30/05 L							
FRET	511		28/72	29/49 L							
FULLBUFF	762		23/38	24/46 L							
FULLBUFL	767		24/46	24/50 L	30/05						
INLOOP	4		3/47 L	4/01							
ISDAE	125	PROGRAM*	34/27 L								
ISENTRY	777	PROGRAM*	21/48 L	25/11 L							
LP2	64		32/36 L	32/41							
L.CLCMP	112		13/29 D	13/29							
L.CLRD	26		27/18 D	27/19							
L.DFMAP	22		33/04 D								
L.DSMAP	15		31/51 D								
L.MKMTY	134		25/21 D	25/21							
L.REFER	42		16/13 D	16/13							
L.REFZ	23		17/52 D	17/52							
L.SETD	50		30/12 D	30/12							
MAPCHK	23	PROGRAM*	3/37	4/09	5/20	11					

MAPS - CREATION, COMPILATION, AND EXECUTION
SYMBOLIC REFERENCE TABLE.

COMPASS - VER 2.

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MAPCHKNS	24	PROGRAM*	5/22 L	22/08						
MAPCHK1	36	PROGRAM*	5/28	5/40 L						
MAPCHK2	47	PROGRAM*	5/50	6/06 L						
MAPCHK4	41	PROGRAM*	5/49 L	6/07						
MAPCHK5	43	PROGRAM*	5/49	5/53 L						
MAPCHNG	74	PROGRAM*	19/16	19/19	20/16	L				
MAPCHNG1	714		20/16	23/01	L					
MAPCHNG2	731		23/29	23/33	L					
MAPCHNG3	742		23/47	24/02	L					
MAPCHNG4	750		24/16 L	24/25						
MAPER	517		30/61	30/04	30/09	L				
MAPIN	6	PROGRAM*	3/35 E	3/36	L					
MAPOUT	12	PROGRAM*	3/35 E	4/08	L					
MAPZERO	63	PROGRAM*	18/13 E	18/14	L					
MKEEMPTY	75	PROGRAM*	18/16	21/14	L					
MKEEMPTY1	652		21/20	21/23	L					
MKEEMPTY3	672		22/57	22/12	L					
MKEEMPTY4	677		22/23 L	22/32						
MKEEMPTY5	703		21/52	22/04	22/33	L				
MKEEMPTY6	707		22/40	22/43	L					
MKEEMPTY7	713		21/46	22/52	L					
MKERROR	53	PROGRAM*	10/23	11/36	13/32	L	22/37	26/36	26/40	29/31
MKMAP	505		10/19	10/28	L					
MKMAP1	507		10/20	10/32	L					
MKMAP2	543		11/10	11/43	12/20	L				
MKMAP2A	550		12/24	12/33	L					
MKMAP3	515		11/13 L							
MKMAP3A	522		11/17	11/26	L					
MKMAP4	524		11/34 L	12/11	12/15		12/17			
MKMAP4A	536		11/49	12/05	L					
MKMAP5	541		11/39	12/14	L					
MKMTY	70	PROGRAM*	25/61 L							
MKPTY3.1	675		22/12	22/19	L					
MPCHGRO	71	PROGRAM*	20/61 S	20/11	L					
MPCHGRW	72	PROGRAM*	20/61 E	20/14	L					
MPCHGRW1	73	PROGRAM*	20/12	20/15	L					
MPCH3.1	745		24/92	24/09	L					
MP_CADR	2		9/25	21/53	24/12					
MP_CMAP	6		3/38	4/10	8/02					
MP_CNT	2		5/27	8/11 S	22/47 S					
MP_FADR	1		9/24	23/43 S	23/43 S					
MP_RAFL	1		8/17	22/48	23/21					
MP_SIZE	3		6/06	13/01						
NGCMADR	771		23/29	24/53	L					
NGMPIX	775		21/37	25/07	L					
NGWDNT	776		23/12	25/02	L	26/25				
NODEAE	1003		22/52	25/18	L					
NOSUBP	773		21/23	25/04	L	26/19				
NOTDAE	514		27/13	30/03	L					
NOTSAME	1000		21/51	25/13	L					
NOT1BLK	477		28/37	29/24	L					
NOT1BLK1	513		29/24	29/53	L					
NP	456		17/24 L	17/29	17/40					

