

```
// LOG 1403
// FORMS LINES-66
*
*** RUN THE ASSEMBLER
*
// LOAD $CGDRV,R2
*/ SWITCH 10000000
*/ COMPILE OBJECT-R1
// FILE NAME-$SOURCE,PACK-F2F2F2,UNIT-F2,RETAIN-S,TRACKS-30
// FILE NAME-$WORK,PACK-F2F2F2,UNIT-F2,RETAIN-S,TRACKS-30
// FILE NAME-$WORK2,PACK-F2F2F2,UNIT-F2,RETAIN-S,TRACKS-30
// RUN
```

EXTERNAL SYMBOL LIST

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SYMBOL TYPE

\$SGIPL MODULE

\$SGIPL REPLACE IPLBOT & IPLNIP ON GENNED PACK

```
2 *****
3 *
4 * TITLE: '$SGIPL' IPL INITIALIZATION.
5 *
6 * STATUS: CHANGE LEVEL 0
7 *
8 * FUNCTION: THIS MODULE, CALLED DURING SYSGEN, AFTER A SYSTEM
9 * IS BUILT ON F1, CHECKS THE CONFIG RECORD ON F1 AND IF
10 * 64K OR LARGER, FINDS AN ALTERNATE IPLBOT & IPLNIP ON THE
11 * PID PACK ($SGBOT & $SGNIP) WHICH RUN AT X'F800' RATHER
12 * THEN X'B000' AND REPLACES THEN ON F1.
13 * THE REASON THIS IS DONE IS THERE IS A SUPERVISOR CONFIG
14 * POSSIBLE THAT IS LARGER THEN 44K, WHICH WOULD WIPE OUT
15 * NIP LOCATED AT X'B000'.
16 *
17 * ENTRY POINTS: IPLSTR
18 *
19 * INPUT: OBJECT LIBRARY ON THE PID PACK
20 *
21 * OUTPUT: C/S 0000 ON F1
22 * C/S 00B8 ON F1
23 *
24 * EXITS-NORMAL: END OF JOB
25 * -ERROR: NONE
26 *
27 * TABLES/WORK AREAS: NONE
28 *
29 * ATTIBUTES: N/A.
30 *
31 * CHARACTER CODE DEPENDENCY:
32 *
33 * NOTES: THIS MODULE IS ONLY FOR THE M15A.
34 *
35 *****
```

SSGIPL REPLACE IPLBOT & IPLNIP ON GENNED PACK

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT	S/3 ASSEMBLER	10/07/07	PAGE	3
4000				37	SSGIPL START X'4000'				START AT LOCATION 4000
4000	F2 87 05			38	IPLSTR J IPL				DATE OF LAST CHANGE
				39	* LEVEL 05				
4003	C7C9D7D3		4006	40	DC CL4'GIPL'				4 BYTES
4007	05		4007	41	DC XL1'05'				RELEASE 05
			4008	42	IPL EQU *				
4008	C2 01 40AB			43	LA IPLIOB,XR1				POINT TO IOB
400C	7A 01 07			44	SBN IOBQB(,XR1),RD				SET TO READ
400F	F4 10 00			45	SVC 0				EXECUTE I/O
4012	02		4012	46	DC XL1'02'				RIB
4013	F4 10 00			47	SVC 0				WAIT
4016	03		4016	48	DC XL1'03'				RIB
4017	7D 40 02			49	CLI IOBCMP(,XR1),COMP				READ OK ?
401A	F2 01 8A			50	JNE IPLEOJ				NO - TERMINATE
401D	3D 80 41E3			51	CLI IPLBUF+CFCRTL,F48K				48K SYSTEM ?
4021	F2 81 83			52	JE IPLEOJ				YES - GOTO EOJ, NO CHANGE NEEDED
4024	C2 02 40C9			53	LA IPLBPM,XR2				XR2 --> IPLBOOT PARM.
4028	F4 10 00			54	SVC 0				FIND MODULE
402B	81		402B	55	DC XL1'81'				RIB
				57	*****				
				58	* READ IPL BOOTSTRAP INTO CORE AND WRITE ONTO C/S 0000.				*
				59	*****				
402C	C2 01 40AB			60	LA IPLIOB,XR1				XR1 --> IOS IOB
4030	7C A1 07			61	MVI IOBQB(,XR1),R1QR				SET TO R1 PACK.
4033	4C 02 17 40CB			62	MVC IOBNB(3,XR1),IPLBPM+2				C/S OF IPLBOT
4038	7D D6 15			63	CLI IOBCB(,XR1),C'O'				NAME FOUND ?
403B	F2 81 29			64	JE IPLNIP				NO - CONTINUE
403E	F4 10 00			65	SVC 0				EXECUTE I/O
4041	02		4041	66	DC XL1'02'				RIB
4042	F4 10 00			67	SVC 0				WAIT
4045	03		4045	68	DC XL1'03'				RIB
4046	7D 40 02			69	CLI IOBCMP(,XR1),COMP				READ OK ?
4049	F2 01 1B			70	JNE IPLNIP				NO - JUMP
404C	7C AA 07			71	IPLBGD MVI IOBQB(,XR1),F1QW				SET TO WRITE
404F	3C A8 41E5			72	MVI IPLPQ,F1Q				MOVE Q CODE TO IPL RECORD
4053	4C 02 17 40E3			73	MVC IOBNB(3,XR1),IPLCSB				SET TO WRITE C/S 0000
4058	F4 10 00			74	SVC 0				EXECUTE I/O
405B	02		405B	75	DC XL1'02'				RIB
405C	F4 10 00			76	SVC 0				WAIT
405F	03		405F	77	DC XL1'03'				RIB
4060	7D 40 02			78	CLI IOBCMP(,XR1),COMP				READ OK ?
4063	C0 01 4067			79	BNE IPLNIP				NO - BRANCH TO HPL
				81	*****				
				82	* READ INTO CORE IPLNIP AND WRITE TO C/S 00B8.				*
				83	*****				
4067	C2 02 40D5			84	IPLNIP LA IPLNPM,XR2				XR2 --> IPLNIP PARM
406B	F4 10 00			85	SVC 0				FIND MODULE
406E	81		406E	86	DC XL1'81'				RIB
406F	C2 01 40AB			87	LA IPLIOB,XR1				XR1 --> IPL IOB
4073	7C A1 07			88	MVI IOBQB(,XR1),R1QR				SET TO R1 PACK
4076	4C 02 17 40D7			89	MVC IOBNB(3,XR1),IPLNPM+2				C/S/N TO IOB.
407B	7D D6 15			90	CLI IOBCB(,XR1),C'O'				NAME FOUND ?
407E	F2 81 26			91	JE IPLEOJ				NO - GO TO EOJ
4081	F4 10 00			92	SVC 0				EXECUTE I/O

SSGIPL REPLACE IPLBOT & IPLNIP ON GENNED PACK

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT S/3 ASSEMBLER 10/07/07 PAGE 4

4084	02		4084	93	DC	XL1'02'	RIB
4085	F4 10 00			94	SVC	0	WAIT
4088	03		4088	95	DC	XL1'03'	RIB
4089	7D 40 02			96	CLI	IOBCMP(,XR1),COMP	READ OK ?
408C	C0 01 40A7			97	BNE	IPLEOJ	NO - BRANCH TO HPL
4090	7C AA 07			98	MVI	IOQB(,XR1),F1QW	SET TO WRITE
4093	4C 01 16 40E5			99	MVC	IOBSB(2,XR1),IPLCSN	C/S OF IPLNOP 00B8
4098	F4 10 00			100	SVC	0	EXECUTE I/O
409B	02		409B	101	DC	XL1'02'	RIB
409C	F4 10 00			102	SVC	0	WAIT
409F	03		409F	103	DC	XL1'03'	RIB
40A0	7D 40 02			104	CLI	IOBCMP(,XR1),COMP	WRITE OK ?
40A3	C0 01 40A7			105	BNE	IPLEOJ	NO - BRANCH TO EOJ

107 \*\*\*\*\*

108 \* END OF JOB ROUTINE. \*

109 \*\*\*\*\*

40A7 110 IPLEOJ EQU \*

40A7	F4 10 00			111	SVC	0	END OF JOB
40AA	84		40AA	112	DC	XL1'84'	RIB

\$SGIPL REPLACE IPLBOT & IPLNIP ON GENNED PACK

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	S/3 ASSEMBLER	10/07/07	PAGE	5
			114	*****	*****				
			115	*	DISK INPUT/OUTPUT BLOCK (IOB)				*
			116	*****	*****				
		40AB	117	IPLIOB EQU	* DISK IOB				
40AB	00	40AB	118	DC	XL1'00'				WAIT POST BYTE - 1ST OF 3 BYTES
40AC	00	40AC	119	DC	XL1'00'				COMP. CODE - 2ND BYTE OF ECB
40AD	40	40AD	120	DC	XL1'40'				COMP. CODE - 3ND BYTE OF ECB
40AE	00000000	40B1	121	DC	XL4'00000000'				IOB CHAIN POINTER.
40B2	A8	40B2	122	DC	AL1(X'A8')				Q BYTE
40B3	00	40B3	123	DC	AL1(X'00')				R BYTE
40B4	00	40B4	124	DC	XL1'00'				ERP MODULE DISPL. BYTE
40B5	40E6	40B6	125	DC	AL2(IPLBUF)				DATA (LOGICAL) ADDRESS
40B7	0000	40B8	126	DC	XL2'0000'				SENSE STATUS AREA
40B9	00	40B9	127	DC	AL1(0+0+0+0+0)				FLAG BYTE
40BA	00	40BA	128	DC	XL1'00'				IOS ERP ERROR COUNTER
40BB	0000	40BC	129	DC	XL2'0000'				RESERVED
40BD	00	40BD	130	DC	XL1'00'				IOS PARTIAL COMPLETION CODE
40BE	00	40BE	131	DC	AL1(X'00')				5445 SECOND FLAG BYTE
40BF	00	40BF	132	DC	XL1'00'				RESERVED
40C0	00	40C0	133	DC	AL1(X'00')				5444 CYLINDER
40C1	04	40C1	134	DC	AL1(X'04')				5444 SECTOR
40C2	00	40C2	135	DC	AL1(X'01'-1)				5444 NUMBER OF SECTORS - 1
40C3	40C9	40C4	136	DC	AL2(DC015)				POINTER TO 5445 10 BYTE ADDR.
40C5	FFFF	40C6	137	DC	AL2(X'FFFF')				DATA MGMT CHAIN POINTER
40C7	FFFF	40C8	138	DC	AL2(X'FFFF')				ADDRESS OF ASSOCIATED DTF
		40C9	139	DC015 EQU	*				
			141	*****	*****				
			142	*	PARAMETER LIST FOR IPL BOOT.				*
			143	*****	*****				
		40C9	144	IPLBPM EQU	* IPLBOT PARMS.				
40C9	D65BE2C7C2D6E3E2	40D0	145	DC	CL8'O\$SGBOTS'				
40D1	00000000	40D4	146	DC	XL4'00000000'				PADDING
			147	*****	*****				
			148	*	PARAMETER LIST FOR IPLNIP.				*
			149	*****	*****				
		40D5	150	IPLNPM EQU	* IPLNIP PARMS.				
40D5	D65BE2C7D5C9D7E2	40DC	151	DC	CL8'O\$SGNIPS'				
40DD	00000000	40E0	152	DC	XL4'00000000'				PADDING
			154	*****	*****				
			155	*	DC'S AND EQUATES NEEDED FOR CLEAN ASSEMBLY				*
			156	*****	*****				
40E1	000000	40E3	157	IPLCSB DC	XL3'000000'				C/S/N 0000 --> IPLBOT
40E4	00B8	40E5	158	IPLCSN DC	XL2'00B8'				C/S 00B8 --> IPLNIP
		0001	160	XR1 EQU	1 INDEX REG 1				
		0002	161	XR2 EQU	2 INDEX REG 2				
		00A1	162	R1QR EQU	X'A1' READ R1				
		00A8	163	F1Q EQU	X'A8' F1 Q-BYTE				
		00A9	164	F1QR EQU	X'A9' READ F1				
		00AA	165	F1QW EQU	X'AA' WRITE F1				
		0080	166	F48K EQU	X'80' 48K IN CONFIG RECORD				
		0040	167	COMP EQU	X'40' GOOD I/O COMPLETION				
		0001	168	RD EQU	X'01' READ BIT IN Q BYTE				
		00FD	169	CFCRTL EQU	253 TOTAL MAIN STORAGE SIZE				

\$SGIPL REPLACE IPLBOT & IPLNIP ON GENNED PACK

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	S/3 ASSEMBLER	10/07/07	PAGE	6
		0000	171	IOBECB	EQU 0				WAIT/POST BYTE - 1ST BYTE ECB
		0001	172	IOBCOM	EQU 1				COMPLETION CODE - 2ND BYTE
		0002	173	IOBCMP	EQU 2				COMPLETION CODE - 3TH BYTE
		0006	174	IOBCHN	EQU 6				IOB CHAIN POINTER
		0007	175	IOBQB	EQU 7				Q BYTE
		0008	176	IOBRB	EQU 8				R BYTE
		0009	177	IOBEID	EQU 9				ERP MODULE DISPLACEMENT ID
		000B	178	IOBDAT	EQU 11				DATA ADDR
		000D	179	IOBSNS	EQU 13				SENSE
		000E	180	IOBFLG	EQU 14				FLAG
		000F	181	IOBERR	EQU 15				ERROR
		0011	182	IOBTCB	EQU 17				ADDRESS OF TCB
		0012	183	IOBWRK	EQU 18				IOS PARTIAL COMPLETION CODE
		0013	184	IOBFL2	EQU 19				INTERNAL IOS FLAG BYTE
		0014	185	IOBCC	EQU 20				RESERVED
		0015	186	IOBCB	EQU 21				CYLINDER NUMBER
		0016	187	IOBSB	EQU 22				SECTOR NUMBER
		0017	188	IOBNB	EQU 23				NUMBER OF RECORDS
		0019	189	IOBDCH	EQU 25				DM CHAIN POINTER
		001B	190	IOBDTF	EQU 27				ADDR OF ASSOCIATED DTF
			191	*					
		40E6	192	IPLBUF	EQU *				DISK BUFFER
		41E5	193	IPLPQ	EQU IPLBUF+255				LOCATION OF IPL Q CODE
		FFFF	194		END				

CROSS REFERENCE

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SYMBOL	LEN	VALUE	DEFN	REFERENCES
\$SGIPL	001	4000	0037	
CFCRTL	001	00FD	0169	0051
COMP	001	0040	0167	0049 0069 0078 0096 0104
DC015	001	40C9	0139	0136
F1Q	001	00A8	0163	0072
F1QR	001	00A9	0164	
F1QW	001	00AA	0165	0071 0098
F48K	001	0080	0166	0051
IOBCB	001	0015	0186	0063 0090
IOBCC	001	0014	0185	
IOBCHN	001	0006	0174	
IOBCMP	001	0002	0173	0049 0069 0078 0096 0104
IOBCOM	001	0001	0172	
IOBDAT	001	000B	0178	
IOBDCH	001	0019	0189	
IOBDTF	001	001B	0190	
IOBECB	001	0000	0171	
IOBEID	001	0009	0177	
IOBERR	001	000F	0181	
IOBFLG	001	000E	0180	
IOBFL2	001	0013	0184	
IOBNB	001	0017	0188	0062* 0073* 0089*
IOBQB	001	0007	0175	0044* 0061* 0071* 0088* 0098*
IOBRB	001	0008	0176	
IOBSB	001	0016	0187	0099*
IOBSNS	001	000D	0179	
IOBTCB	001	0011	0182	
IOBWRK	001	0012	0183	
IPL	001	4008	0042	0038
IPLBGD	003	404C	0071	
IPLBPM	001	40C9	0144	0053 0062
IPLBUF	001	40E6	0192	0051 0125 0193
IPLCSB	003	40E3	0157	0073
IPLCSN	002	40E5	0158	0099
IPLEOJ	001	40A7	0110	0050 0052 0091 0097 0105
IPLIOB	001	40AB	0117	0043 0060 0087
IPLNIP	004	4067	0084	0064 0070 0079
IPLNPM	001	40D5	0150	0084 0089
IPLPQ	001	41E5	0193	0072*
IPLSTR	003	4000	0038	
RD	001	0001	0168	0044
R1QR	001	00A1	0162	0061 0088
XR1	001	0001	0160	0043* 0044 0049 0060* 0061 0062 0063 0069 0071 0073 0078 0087* 0088 0089 0090 0096 0098 0099 0104
XR2	001	0002	0161	0053* 0084*

TOTAL STATEMENTS IN ERROR IN THIS ASSEMBLY--- 0

OL103 I TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS 2  
 NAME-\$SGIPL,PACK-R2R2R2,UNIT-R2,RETAIN-P,LIBRARY-R,CATEGORY-000  
 OL105 I THE CODE LENGTH OF \$SGIPL IS 230 DECIMAL.



@1 CT@EJ I  
PROGRAM END

\$CGDRV01

```
*  
*** LINK THE $SGIPL FOR A MODEL 15A WITH IBM 5444 DRIVES.  
*  
// LOAD $OLINK,F1  
// RUN  
// PHASE NAME-$SGIPL,UNIT-R1,LINKADD-X'4000',RETAIN-R,RLD-NO  
// OPTIONS MAP-XREF,LEVEL-8  
// INCLUDE NAME-'$SGIPL',UNIT-R2  
// END
```

START ADDRESS	CATEGORY	NAME AND ENTRY	CODE LENGTH HEXADECIMAL	LENGTH DECIMAL	REFERENCED BY
---------------	----------	----------------	----------------------------	-------------------	------------------

4000	0	\$SGIPL	00E6	230	
------	---	---------	------	-----	--

OL100 I THE TOTAL CORE USED BY \$SGIPL IS 230 DECIMAL.

OL101 I THE START CONTROL ADDRESS OF THIS MODULE IS 4000.

OL104 I TOTAL NUMBER OF LIBRARY SECTORS REQUIRED IS 1

NAME-\$SGIPL,PACK-PID001,UNIT-R1,RETAIN-P,LIBRARY-O

@1 CT@EJ I  
PROGRAM END

\$OLINK01