

5033 5444 IPL TEST

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
		2		DECK	4
		3		DISK	START 0
		4		JRG	X'A00'
		5		*****	
		6	*	10/06/71	LAST UPDATE
		7		*****	
		8	*	DISK IPL FORMAT CHECK	*
		9		*****	
		10	*	SECTION B03	ROUTINE 01
		11		*****	
		12	*	SECTION PREFACE	*
		13		*****	
0A00	B033	0A01	14	DC	XL2'B033'
0A02	00	0A02	15	DC	XL1'00'
0A03	01	0A03	16	DC	XL1'01'
0A04	0000	0A05	17	DC	XL2'0000'
0A06	0A00	0A07	18	DC	AL2(RTN01)
0A08	0000	0A09	19	DC	XL2'0000'
0A0A	A05000	0A0C	20	AUDT DC	XL3'A05000'
		21		*****	
		22	*	PROGRAM NOTES	*
		23		*****	
		24	*	*****	
		25	*	PROGRAM CONTAINS ONLY ONE ROUTINE. THIS ROUTINE IS USED TWICE,	
		26	*	ONCE PER EACH DISK ON SPINDLE 1. THIS PROGRAM CHECKS THAT THE	
		27	*	IPL DATA LOADED BY PROGRAM LOAD IS THE SAME AS IS READ BY A	
		28	*	READ COMMAND.	
		29	*	*****	
		30		*****	
		31		*****	
		32		*****	
		33	*	RTN01	*
		34		*****	
		35	*	*****	
		36	*	ROUTINE 01	PROGRAM READS SECTOR 0 OF TRACK 0 FROM BOTH
		37	*		THE FIXED AND REMOVABLE DISKS. THE FORMAT
		38	*		IS CHECKED FOR THE CORRECT IPL PROGRAM FOR
		39	*		EACH DISK.
		40	*	*****	
		41		*****	
0A0D	01	0A0D	42	RTN01 DC	XL1'01'
0A0E	80	0A0E	43	DC	XL1'80'
0A0F	FFFF	0A1C	44	DC	XL2'FFFF'
0A11	0C 5A 15BA 15BB		45	MVC	PRT(91),PRT+1
0A17	C0 57 021A		46	B	PRINT
0A1B	46	0A1B	47	DC	XL1'46'
0A1C	13	0A1C	48	DC	IL1'19'
0A1D	115F	0A1E	49	DC	AL2(IPLHD)
0A1F	A0E0	0A20	50	DC	XL2'A0E0'
		51		*****	
		52	*	RECALIBRATE DISK DRIVE 1	*
		53		*****	
0A21	3B 08 0A65	0A21	54	BEGIN SBP	RDSIO-1,X'08'
0A25	3B 08 0A3E		55	SBP	SK00+1,X'08'
0A29	3C FF 15BF		56	RDNIT MVI	CNTRL+3,X'FF'
0A2L	C1 A0 0D56		57	TIO	MTDYA,X'A0'
0A31	C1 A2 0D28		58	TIO	BSYCK,X'A2'
0A35	31 A4 15CD		59	LIO	READ,X'A4'
0A39	31 A6 15CF		60	LIO	CCW,X'A6'
0A3D	F3 00 00		61	S'00 SIO	X'00',X'A0'
0A40	30 A2 15C1		62	SNSIT SNS	STS5T1,X'A2'
0A44	38 10 15C1		63	TBM	STS2T1,X'10'
0A48	C0 10 0A40		64	BT	SNSIT
0A4C	38 10 15C1		65	TBM	STS5T1,X'40'
0A50	C0 90 0C89		66	BP	CYLCK
0A54	C1 A0 0D56		67	TIO	MTDYA,X'A0'
0A58	3C 00 15BF		68	MVI	CNTRL+3,X'00'
0A5C	31 A6 15CF		69	LIO	CCW,X'A6'
					LOAD CONTROL REGISTER.

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT	
	0A60	31	A4	15CD	70	LIO	READ,X'A4'	LOAD DATA ADDRESS REGISTER.
	0A64	F3	A1	00	71	RDSIO	SIO X'00',X'A1'	READ DATA FROM SECTOR 00.
	0A67	C1	A2	0A67	72	TIO	*.X'A2'	LOOP TILL BUSY DROPS.
	0A6B	C1	A0	0D56	73	TIO	NTRDYA,X'A0'	BRANCH OUT IF DISK DRIVE-1 NOT READY
					74		*****	
					75	*	PRINT LIST OF OPERATOR INSTRUCTIONS.	*
					76		*****	
	0A6F	38	08	0A65	77	IBM	RDSIO+1,X'08'	FIXED DISK SELECTED?
	0A73	F2	10	09	78	JT	**+12	JUMP IF SO.
	0A76	0C	0D	0F5D 1005	79	MVC	STIPL(14),BMV	SET UP REMOVABLE DISK HEADING.
	0A7C	F2	87	06	80	J	**+9	
	0A7F	0C	0D	0F5D 0FF7	81	MVC	STIPL(14),FIX	SET FIXED DISK HEADING.
	0A85	C2	01	0ED1	82	LA	INST,XR1	STORE MESSAGE ADDRESS.
	0A89	3C	09	15C7	83	MVI	TEMP,9	SET LOOP COUNT TO 9.
	0A8D	34	01	0A98	84	MIXMS	ST CRMES,XR1	STORE CURRENT MESSAGE ADDRESS.
	0A91	C0	87	021A	85	B	PRINT	PRINT CURRENT MESSAGE.
	0A95	02			CA95	86	DC	XL1'02'
	0A96	23			CA96	87	DC	XL1'35'
	0A97	0000			CA98	88	CRMES	DC AL2(*-*)
	CA99	D2	01	23	89	LA	35(XR1),XR1	BUMP UP MESSAGE POINTER.
	0A9C	0F	00	15C7 15D3	90	SLC	TEMP(1),NO91	DECREMENT LOOP COUNT.
	0AA2	C0	84	0A8D	91	BP	MIXMS	CONTINUE LOOP TILL ALL DONE.
					92			
	0AA6	C0	87	021A	93	B	PRINT	SPACE UP THE PAPER.
	0AAA	16			0AAA	94	DC	XL1'16'
					95		*****	
					96	*	SEND THE DISK HEADS TO TRACK 50 TO AID IN CHECKING THE	*
					97	*	THE MECHANICS OF THE IPL PROCESS.	*
					98		*****	
	0AAB	31	A4	15CD	99	LIO	READ,X'A4'	LOAD THE DATA ADDRESS REGISTER.
	0AAF	31	A6	15D5	100	LIO	OUT,X'A6'	LOAD THE CONTROL REGISTER.
	0AB3	F3	A0	00	101	SIO	X'00',X'A0'	DO A SEEK START I/O COMMAND.
	0AB6	0C	7F	145F 00FF	102	MVC	DCP(128),255	SAVE BOTTOM CORE.
	0ABC	0C	7F	13DF 007F	103	MVC	DCP-128(128),127	
	0AC2	3C	FF	00FF	104	MVI	255,X'FF'	LOAD BOTTOM CORE WITH FF'S, 00'S
	0AC6	0C	FE	00FE 00FF	105	MVC	254(255),255	
	0ACC	3C	00	007F	106	MVI	127,X'00'	
	0AD0	0C	7E	007E 007F	107	MVC	126(127),127	
	0AD6	0C	03	0003 15D9	108	STHUP	3(4),BRANCH	STORE BRANCH IN VERY BOTTOM.
	0ADC	0C	FF	155F 00FF	109	MVC	CHECK(256),255	
	0AE2	C0	87	0222	110	B	HALT	INLINE HALT -EC-
	0AE6	A0EC			0AE7	111	DC	XL2'A0EC'
	0AE8	C0	87	0AD6	112	B	STHUP	GO REPEAT MESSAGES.
	0C00				113	ORG	X'0C00'	
					114		*****	
					115	*	OPERATOR MUST DIAL IN -0C00- TO START RUNNING THE PROGRAM.	*
					116		*****	
	0C00	0C	7F	135F 00FF	117	MVC	CODE(128),255	SAVE THE IPL CODE.
	0C06	0C	7F	12DF 007F	118	MVC	CODE-128(128),127	
	0C0C	0E	FF	155F 00FF	119	CLC	CHECK(256),255	DID ANY DATA GET TRANSFERRED ?
	0C12	C0	81	0D3C	120	RE	NOPS	BRANCH IF NOT.
	0C16	0D	7F	00FF 125F	121	C'C	255(128),READIN+255	IPL CORE CORRESPOND TO READ DATA ?
	0C1C	C0	01	0C9D	122	BNE	NOPE	BRANCH IF NOT.
	0C20	0E	7F	007F 11DF	123	CLC	127(128),READIN+127	
	0C26	C0	01	0C9D	124	BNE	NOPE	BRANCH IF NOT.
	0C2A	0C	7F	00FF 145F	125	MVC	255(128),DCP	RESTORE DCP.
	0C30	0C	7F	007F 13DF	126	MVC	127(128),DCP-128	
	0C36	38	10	020B	127	TBN	SBYTE3,SSW1B	SSW 1B SET ?
	0C3A	F2	10	07	128	JT	**+10	JUMP IF SO.
	0C3D	3C	06	0C52	129	MVI	UP,X'06'	SET SPACE UP FOR 6 LINES.
	0C41	F2	87	04	130	J	**+7	
	0C44	3C	02	0C52	131	MVI	UP,X'02'	SET SPACE UP FOR 2 LINES.
	0C48	0C	0E	1118 0F5D	132	MVC	OKIPL(15),STIPL	STORE DISK ID.
	0C4E	C0	87	021A	133	B	PRINT	PRINT IPL DATA OK.
	0C52	00			0C52	134	UP	DC XL1'00'
	0C53	25			0C53	135	DC	IL1'37'
	0C54	1118			0C55	136	DC	AL2(OKIPL)
	0C56	38	10	020B	137	TBN	SBYTE3,SSW1B	SSW 1B SET ?

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT
	0C5A	F2	9D	18	138	JF	NEXT JUMP IF NOT.
	0C5D	0C	0E	10F3	139	MVC	DHOP(15),STIPL SET UP DISK ID.
	0C63	C0	87	021A	140	B	PRINT PRINT DUMP OPTION.
	0C67	42		0C67	141	DC	XL1'42'
	0C68	22		0C68	142	DC	IL1'34'
	0C69	10F3		0C6A	143	DC	AL2(DHOP)
	0C6B	A0EE		0C6C	144	DC	XL2'A0EE'
	0C6D	3C	EE	0D23	145	MVI	ILHLT,X'EE' SET UP FOR -EE- HALT.
	0C71	C0	87	0CCD	146	B	PRTHD GO DUMP THE IPL AND READ DATA.
				147			*****
				148	*		CHECK BOTH DISKS BEFORE TERMINATING SECTION. *
				149			*****
	0C75	38	08	0A65	150	NEXT	TBN RDSIO+1,X'08' FIXED DISK CHECKED YET ?
	0C79	C0	10	0216	151	BT	LINK TERMINATE SECTION IF SO.
	0C7D	3A	08	0A65	152	SBN	RDSIO+1,X'08' SET READ COMMAND FOR FIXED DISK.
	0C81	3A	08	0A3E	153	SBN	SKG+1,X'08'
	0C85	C0	87	0A29	154	B	RDNXT GO CHECK THE FIXED DISK.
				155			*****
				156	*		CHECKS *
				157			***** SUBROUTINE HANDLES ALL ERROR MESSAGES. *
				158	*		*
				159			*****
	0C89	C0	87	021A	160	CYLCK	B PRINT PRINT RECAL. CHECK.
	0C8D	C6		0C8D	161	DC	XL1'C6' ID -A0EE-
	0C8E	1F		0C8E	162	DC	IL1'31'
	0C8F	1024		0C90	163	DC	AL2(CAL)
	0C91	A00E		0C92	164	DC	XL2'A00E'
	0C93	C0	87	0222	165	B	HALT ERROR HALT -0E-
	0C97	A00E		0C98	166	DC	XL2'A00E'
	0C99	C0	87	0A21	167	B	BECLM GO TRY AGAIN.
	0C9D	38	08	0A65	168	NOPE	TBN RDSIO+1,X'08' THIS A FIXED DISK BUG ?
	0CA1	F2	10	09	169	JT	**12 JUMP IF SO.
	0CA4	0C	0D	1049	170	MVC	CKIPL(14),BNV BUILD REMOVABLE MESSAGE.
	0CAA	F2	87	06	171	J	**9
	0CAD	0C	0D	1049	172	MVC	CKIPL(14),FIX BUILD FIX MESSAGE.
	0CB3	0C	7F	001F	173	MVC	255(128),DCP RESTORE DCP.
	0CB9	0C	7F	001F	174	MVC	127(128),DCP-128
	0CBF	C0	87	021A	175	B	PRINT PRINT IPL CHECK.
	0CC3	C2		0CC3	176	DC	XL1'C2' ID -A09E-
	0CC4	25		0CC4	177	DC	IL1'37'
	0CC5	1049		0CC6	178	DC	AL2(CKIPL)
	0CC7	A09E		0CC8	179	DC	XL2'A09E'
	0CC9	3C	9E	0D23	180	MVI	ILHLT,X'9E' SET UP FOR ERROR HALT -9E-
	0CCD	C0	87	021A	181	PRTHD	B PRINT PRINT DUMP HEADING.
	0CD1	82		0CD1	182	DC	XL1'82'
	0CD2	4F		0CD2	183	DC	IL1'79'
	0CD3	10BA		0CD4	184	DC	AL2(HDM)
	0CD5	C2	01	126F	185	LA	CODE-240,XR1 INITIALIZE INPUT ADDRESSES.
	0CD9	C2	02	116F	186	LA	READIN+15,XR2
	0CDD	3C	10	15C7	187	MVI	TEMP,16 SET LOOP COUNTER.
	0CE1	34	01	0CEB	188	LPY	ST OUT1,XR1
	0CE5	C0	87	021E	189	B	UNPACK UNPACK IPL DATA.
	0CE9	10		0CE9	190	DC	IL1'16'
	0CEA	0000		0CEB	191	OUT1	DC AL2(*-*)
	0CEC	1582		0CED	192	DC	AL2(PRT-56)
	0CEE	34	02	0CF8	193	ST	OUT2,XR2
	0CF2	C0	87	021E	194	B	UNPACK UNPACK READ DATA.
	0CF6	10		0CF6	195	DC	IL1'16'
	0CF7	0000		0CF8	196	OUT2	DC AL2(*-*)
	0CF9	15BA		0CPA	197	DC	AL2(PRT)
	0CFB	C0	87	021A	198	B	PRINT PRINT THE IPL AND READ DATA.
	0CFE	01		0CFE	199	DC	XL1'01'
	0D00	5B		0D00	200	DC	IL1'91'
	0D01	15BA		0D02	201	DC	AL2(PRT)
	0D03	0C	5A	15BA	202	MVC	PRT(91),PRT+1 CLEAR PRINT AREA.
	0D09	D2	01	10	203	LA	16(,XR1),XR1 INCREMENT POINTERS.
	0D0C	E2	02	10	204	LA	15(,XR2),XR2
	0D0F	0F	00	15C7	205	SLC	TEMP(1),N001 DECREMENT LOOP COUNT.

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
0D15	C0	84	0CE1	206	BP	LPY LOOP TILL COUNT RUNS OUT.
0D19	C0	87	021A	207	B	PRINT SPACE UP PAPER.
0D1D	16			0D1D 208	DC	XL1'16'
0D1E	C0	87	0222	209	B	HALT IN THE HALT -9E- OR -EE-.
0D22	A000			0D23 210	ILHLT DC	XL2'A000'
0D24	C0	87	0C75	211	B	NEXT GO DO NEXT DISK OR TERMINATE.
0D28	C0	87	021A	212	BSYCK B	PRINT PRINT BUSY CHECK.
0E2C	C6			0D2C 213	DC	XL1'C6'
0D2D	15			0D2D 214	DC	IL1'21'
0D2E	106B			0D2E 215	DC	AL2(BUSY)
0D30	A098			0D31 216	DC	XL2'A098'
0D32	C0	87	0222	217	B	HALT ERROR CLAT -98-.
0D36	A098			0D37 218	DC	XL2'A098'
0D38	C0	87	0A21	219	B	BEGIN GO START OVER.
0E3C	0C	0E	114C	0F5D 220	NOPS MVC	NIPL(14),STIPL SET UP DISK ID.
0D42	C0	87	021A	221	B	PRINT PRINT NO DATA TRANSFERRED.
0D46	C6			0D46 222	DC	XL1'C6'
0D47	34			0D47 223	DC	IL1'52'
0D48	114C			0D49 224	DC	AL2(NIPL)
0D4A	A09F			0D4B 225	DC	XL2'A09F'
0D4C	C0	87	0222	226	B	HALT ERROR HALT -9F-.
0D50	A09F			0D51 227	DC	XL2'A09F'
0D52	C0	87	0C75	228	B	NEXT GO DO NEXT DISK OR TERMINATE.
229	*****					
230	* NTRDYX *					
231	*****					
232	*					
233	* SUBROUTINE IS CALLED WHEN A SPINDLE DROPS					
234	* READY. THE STATUS BYTES FOR THAT SPINDLE					
235	* ARE SENSED AND CHECKED. A -NOT READY-					
236	* MESSAGE IS PRINTED IF ONLY THE -INTERVENTION					
237	* BIT- IS ON. OTHERWISE THE STATUS BITS ARE					
238	* INTERPRETED AND PRINTED.					
239	* NOTE - ISSUE A TIO AS FOLLOWS,					
240	*					
241	* TIO NTRDYX BRANCH IF NOT RDY.					
242	* J **7 JUMP IF ON.					
243	* B AFTER RETURN HERE IS NT RDY*					
244	*					
245	*****					
0D56	36	08	15D1	246	NTRDYA A	NEG4,ARR
0D5A	34	08	0D8E	247	ST	RDY+3,ARR STORE RETURN ADDRESS.
0D5E	30	A2	15C1	248	SNS	STS,Y1,X'A2' SENSE SPNDL 1 STATUS BYTES 0 & 1.
0D62	30	A3	15C3	249	SNS	STS,BY3,X'A3' SENSE SPNDL 1 STATUS BYTES 2 & 3.
0D66	38	40	15C0	250	TBN	STS,BY0,X'40' INTERVENTION BIT ON ?
0D6A	F2	90	22	251	JF	DMP JUMP IF NOT.
0D6D	39	BF	15C0	252	TBF	STS,BY0,X'BF' ARE REST OF THE BITS OFF ?
0D71	F2	90	1B	253	JF	DMP JUMP IF NOT.
0D74	39	8C	15C2	254	TBF	STS,BY2,X'8C' ANY BITS ON IN BYTF 2 ?
0D78	F2	90	14	255	JF	DMP JUMP IF SO.
0D7B	C0	87	021A	256	* NOT READY ERROR MESSAGE *	
0D7F	C6			0D7F 257	B	PRINT PRINT SPINDLE NOT READY.
0D80	17			0D80 258	DC	XL1'C6' ID -A0FE-.
0D81	10D1			0D82 259	DC	IL1'23'
0D83	A0FE			0D84 260	DC	AL2(SPDNR)
0D85	C0	87	0222	261	DC	XL2'A0FE'
0D89	A0FE			262	B	HALT ERROR HALT -FE-.
0D8B	C0	87	0000	0D8A 263	DC	XL2'A0FE'
0D8F	C0	87	021A	264	RDY B	** RETURN TO NOT READY BRANCH.
0D93	C2			265	* STATUS BYTE ERROR MESSAGE *	
0D94	0D			0D93 266	DMP B	PRINT PRINT STATUS CHECK.
0D95	1056			0D94 267	DC	XL1'C2' ID -A097-.
0E97	A097			0D96 268	DC	IL1'13'
0D99	C2	01	0E0E	0D98 269	DC	AL2(STSCK)
0D9D	3C	01	0DA2	270	DC	XL2'A097'
0DA1	38	00	15C0	271	LA	STS0+2,XR1 LOAD TABLE ADDRESS IN INDEX REG 1.
				272	MVI	TST0+1,X'01' PRESET BIT POINTER FOR BYTE 0.
				273	TST	STS,BY0,X'00' CURRENT BIT ON ?

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT		
ODA5	C0	10	ODE7	274	BT	PRTSTS	GO PRINT ID IF SO.
ODA9	D2	01	03	275	LA	3(,XR1),XR1	INCREMENT TABLE POINTER.
ODAC	CE	00	ODA2 ODA2	276	ALC	TST0+1(1),TST0+1	SHIFT BIT POINTER TO NEXT BIT.
ODB2	3D	00	ODA2	277	CLI	TST0+1,X'00'	ALL BITS TESTED ?
ODB6	C0	01	ODA1	278	BNE	TST0	BRANCH BACK IF NOT.
ODEA	38	04	15C2	279	TBM	STSBY2,X'04'	HEAD SETTLING BIT ON ?
ODEE	C0	10	ODE7	280	BT	PRTSTS	GO PRINT ID IF SO.
ODC2	D2	01	03	281	LA	3(,XR1),XR1	INCREMENT TABLE POINTER.
ODC5	38	0E	15C2	282	TBM	STSBY2,X'08'	INDEX BIT ON ?
ODC9	C0	10	ODE7	283	BT	PRTSTS	GO PRINT ID IF SO.
ODCD	D2	01	03	284	LA	3(,XR1),XR1	INCREMENT TABLE POINTER.
ODD0	38	80	15C2	285	TBM	STSBY2,X'80'	UNSAFE BIT ON ?
ODD4	C0	10	ODE7	286	BT	PRTSTS	GO PRINT ID IF SO.
ODD8	C0	87	021A	287	B	PRINT	SPACE UP THE PAPER.
ODDC	16			288	DC	XL1'16'	
ODDD	C0	87	0222	289	B	HALT	ERROR HALT -97-.
ODE1	A097			290	DC	IL2'A097'	
ODE3	C0	87	0A21	291	B	BEGIN	GO START ALL OVER.
				292		* PRINT BIT ID *	
ODE7	34	0E	ODFB	293	PRTSTS	SPT+3,ARR	STORE RETURN ADDRESS.
ODER	1C	02	ODF7 00	294	MVC	SPT-1(3),0(,XR1)	STORE CORR MESSAGE ADRS/LENGTH.
ODFO	C0	S7	021A	295	B	PRINT	PRINT THIS BIT ID.
ODF4	J1			296	DC	XL1'81'	
ODF5	00			297	DC	XL1'00'	RESERVED FOR MESSAGE LENGTH.
ODF6	0000			298	DC	IL2'0000'	RESERVED FOR MESSAGE ADDRESS.
ODF8	C0	87	0000	299	SPT	B	*-*
				300		*****	
				301		* IDIOT *	
				302		*	
				303		*	BRANCH HERE IF OPERATOR DOES SYSTEM RESET,
				304		*	START BEFORE DOING AN IPL FROM THE DISK.
				305		*****	
ODFC	0C	7F	00FF 145F	306	IDIOT	MVC 255(128),DCP	RESTORE DCP'S BOTTOM.
OE02	0C	7F	0C7F 13DF	307	MVC	127(128),DCP-128	
OE08	C0	87	0A21	308	B	BEGIN	GO START OVER.
				309		*****	
				310		* TABLES *	
				311		*****	
				312	BTS0	EQU *	TABLE OF STATUS BYTE 0 ID'S.
OE0C	0A			313	DC	IL1'10'	BIT 7.
OE0D	OE9B			314	DC	AL2(BT07)	
OE0F	15			315	DC	IL1'21'	BIT 6.
OE10	0E'1			316	DC	AL2(BT06)	
OE12	0F			317	DC	IL1'15'	BIT 5.
OE13	0E7C			318	DC	AL2(BT05)	
OE15	0A			319	DC	IL1'10'	BIT 4.
OE16	0E6D			320	DC	AL2(BT04)	
OE18	0F			321	DC	IL1'15'	BIT 3.
OE19	0E63			322	DC	AL2(BT03)	
OE1B	11			32	DC	IL1'17'	BIT 2.
OE1C	0E54			32	PC	AL2(BT02)	
OE1E	15			32	DC	IL1'21'	BIT 1.
OE1F	0E43			326	DC	AL2(BT01)	
OE21	05			327	DC	IL1'5'	BIT 0.
OE22	0E2E			328	DC	AL2(BT00)	
				329	BTS3	EQU *	TABLE OF STATUS BYTE 3 ID'S
OE24	0D			330	DC	IL1'13'	BIT 5.
OE25	0E1E			331	DC	AL2(BT35)	
OE27	06			332	DC	IL1'6'	BIT 0.
OE28	0EA1			333	DC	AL2(BT30)	
				334		*****	
				335		* MESSAGES *	
				336		*****	
OE2A	D5D660D6D7	OE2E		337	BTS0	DC	CL5'NO-OP'
OE2F	C985E3C5D9E5C5D5	OE43		338	BT01	DC	CL2'INTERVENTION REQUIRED'
OE37	E3C9D6D540D9C5D8			338			
OE3F	E4C9D9C5C4			338			
OE44	D5D640C1C4C4D9C5	OE54		339	BT02	DC	CL17'NO ADDRESS MARKER'

B033 5444 IPL TEST

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT
0E4C	E2E240D4C1D9D2C5				339		
0E54	D9				339		
0E55	C5D8E4C9D7D4C5D5	0E63		340	BT03	DC	CL15'EQUIPMENT CHECK'
0E5D	E340C3C8C5C3??			340			
0E64	C4C1E3C140C C8C5	0E6D		341	BT04	DC	CL10'DATA CHECK'
0E6C	C3D2			341			
0E6E	D5D640E9C5C3D6D9	0E7C		342	BT05	DC	CL15'NO RECORD FOUND'
0E76	C440C6D6E4D5C6			342			
0E7D	E3E9C1C3D240C3D6	0E91		343	BT06	DC	CL21'TRACK CONDITION CHECK'
0E85	D5C4C9E3C9D6D540			343			
0E8D	C3C8C5C3D2			343			
0E92	E2C5C5D240C3C8C5	0E9B		344	BT07	DC	CL10'SEEK CHECK'
0E9A	C3D2			344			
0E9C	E4D5E2C1C6C5	0EA1		345	BT30	DC	CL6'UNSAFE'
0EA2	C8C5C1C440E2C5E3	0EAE		346	BT35	DC	CL13'HEAD SETTLING'
0EAA	E3D3C9D5C7			346			
				347	*		OPERATOR INSTRUCTIONS.
0EAF	C4D640E3C8C540C6	0ED1		348	INST	DC	CL35'DO THE FOLLOWING VERY CAREFULLY - '
0EB7	D6E3D3D6E6C9D5C7			348			
0EBF	40E5C5D9E840C3C1			348			
0EC7	D9C5C6E4D3D3E840			348			
0ECP	604040			348			
0ED2	F14B40E2C5E340C4	0EFA		349		DC	CL35'1. SET DISPLAY ROLLER TO ROLL 1 '
0EDA	C9E2D7D3C1E840D9			349			
0EE2	D6D3D3C5D940E3D6			349			
0EEA	40D9D6D3D340F140			349			
0EF2	404040			349			
0EFE	F24B40E3E4D9D540	0F17		350		DC	CL35'2. TURN ON ADDRESS COMPARE STOP '
0EFL	D6D540C1C4C4D9C5			350			
0F05	E2E240C3D6D4D7C1			350			
0F0E	D9C540E2E3D6D740			350			
0F15	404040			350			
0F18	F34B40E2C5E340C3	0F3A		351		DC	CL35'3. SET CONSOLE SWITCHES TO 0000 '
0F20	D6E5E2D6D3C540E2			351			
0F28	E6C9E3C3C8C5E240			351			
0F30	E3E640F0F0F0F0C40			351			
0F38	404040			351			
0F3B	F44B40E2C5E340C9	0F5D		352	STIPL	DC	CL35'4. SET IPL SWITCH TO '
0F43	D7D340E2E6C9E3C3			352			
0F4B	C840E3D640404040			352			
0F53	4040404040404040			352			
0F5B	404040			352			
0F5E	F54B40C4D640D7D9	0F80		353		DC	CL35'5. DO PROGRAM LOAD '
0F66	D6C7D9C1D440D3D6			353			
0F6E	C1C4404040404040			353			
0F76	4040404040404040			353			
0F7E	404040			353			
0F81	F64B40C1D3E3C5D9	0FA3		354		DC	CL35'6. ALTER SAB TO -0C00- '
0F89	40E2C1D940E3D640			354			
0F91	60F0C3FCF06C4040			354			
0F99	4040404040404040			354			
0FA1	404040			354			
0FA4	F74B40E3E4D9D540	0FC6		355		DC	CL35'7. TURN OFF ADDRESS COMPARE STOP '
0FAC	D6C6C640C1C4C4D9			355			
0FB4	C5E2E240C3D6D4D7			355			
0FBC	C1E9C540E2E3D6D7			355			
0FC4	404040			355			
0FC7	F84B40C4D640D7D9	0FE9		356		DC	CL35'8. DO PROGRAM START '
0FCE	D6C7D9C1D440E2E3			356			
0FD7	C1D9E34040404040			356			
0FDF	4040404040404040			356			
0FE7	404040			356			
0FZA	C6C9E7C C440C4C9	0FF7		357	FIX	DC	CL14'FIXED DISK'
0FF2	E2E240C3D6D4D7C1			357			
0FF8	D9C5D4D6E5C1C2D3	1005		358	PHV	DC	CL14'REMOVABLE DISK'
1000	C540C4C9E2D2			358			
1006	C4C9E2D240C4D9C9	1024		359	CAL	DC	CL31'DISK DRIVE 1 RECALIBRATE CHECK.'
1008	E5C54CF140D9C5C3			359			

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ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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1016 C1D3C9C2D9C1E3C5 359
101E 40C3C8C5C3D24B 359
1025 C9D7D340C4C1E3C1 1049 360 CKIPL DC CL37'IPL DATA CHECK FOR THE'
102D 40C3C8C5C3D240C6 360
1035 D6D940E3C8C5'040 360
103D 4040404040404040 360
1045 4040404040 360
104A E2E3C1E3E4E240C3 1056 361 STSCK DC CL13'STATUS CHECK.'
1052 C8C5C3D24B 361
1057 C4C9E2D240C4D9C9 106B 362 BUSY DC CL21'DISK DRIVE 1 IS BUSY.'
105F E5C540F140C9E240 362
1067 C2E4E2E84B 362
106C 4040404040404040 10B1 363 DC CL70' IPL DATA'
1074 40404040C9D7D340 363
107C C4C1E3C1404C4G40 363
1084 404C404040404040 363
108C 4040404040404040 363
1094 4040404040404040 363
109C 4040404040'04040 363
10A4 4040404040404040 363
10AC 404040404040 363
10B2 D9C5C1C440C4C1E3 10BA 364 HDM DC CL9'READ DATA'
10BA C1 364
10BB C4C9E2D240C4D9C9 10D1 365 SPDNP LC CL23'DISK DRIVE 1 NOT READY.'
10C3 E5C540F140D5D6E3 365
10CB 40D9C5C1C4E84B 365
10D2 C4C1E3C140C4E4D4 10F3 366 DMOP DC CL34'DATA DUMP OPTION --'
10DA D740D6E7E3C9D6D5 366
10E2 4060404040404040 366
10EA 4040404040404040 366
10F2 4040 366
10F4 C9D7D340C4C1E3C1 1118 367 OKIPL DC CL37'IPL DATA IS OK FOR THE'
10FC 40C9E240D6D240C6 367
1104 D6D940E3C8C54040 367
110C 4040404040404040 367
1114 4040404040 367
1119 C9D7D340C4C1E3C1 114C 368 MIPL DC CL52'IPL DATA WAS NOT TRANSFERRED FROM THE'
1121 40E6C1E240D5D6E3 368
1129 40E3E9C1D5E2C6C5 368
1131 D9D9C5C440C6D9D6 368
1139 E440E3C8C5404040 368
1141 4040404040404040 368
1149 40404040 368
1146 F5F4F4F440C4C9E2 115P 369 IPLHD DC CL19'5444 DISK IPL TEST.'
1155 D240C9D7D340E3C5 369
115D E2E34B 369
370 *****
371 * RESERVED AREAS *
372 *****
1160 373 READLN EQU *
125P 374 DS CL256 READ FIELD STORAGE.
1260 135P 375 CODE DS CL256 EXPECTED IPL PROGRAM FORMAT.
1360 145P 376 DCP DS CL156 DCP CORE STORAGE.
1460 155P 377 CHECK DS CL256
1560 15BA 378 PRT DS CL1
15BB 40 15BB 379 DC XL1'40' PRINT AREA.
15BC 380 CNTRL EQU *
15C0 00 15BP 381 DC XL4'00000000' DISK CONTROL FIELD.
15C1 00 15C0 382 STSBY0 DC XL1'00' STATUS BYTES
15C2 00 15C1 383 STSBY1 DC XL1'00'
15C3 00 15C2 384 STSBY2 DC XL1'00'
15C4 00000000 15C3 385 STSBY3 DC XL1'00'
15C8 386 TEMP DC XL4'00000000' WORK STORAGE.
15C9 00320132 15CB 387 MIDL EQU *
15CB 388 DC XL4'00320132' SEEK TO TRACK 50 CONTROL FIELD.
389 *****
390 * CONSTANTS *
391 *****

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B033 5444 IPL TEST

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
15CC	1160	15CD	392	READ DC	AL2(READIN)
15CE	15BC	15CF	393	CCW DC	AL2(CNTRL)
15D0	FFFC	15D1	394	NEG4 DC	XL2'FFFC'
15D2	0001	15D3	395	N001 DC	IL2'1'
15D4	15C8	15D5	396	OUT DC	AL2(MIDL)
15D6	C087	15D7	397		XL2'C087'
15D8	0DFC	15D9	398	BRNCH DC	AL2(IDIOT)
		399	*****		
		400	* EQUATES *		
		401	*****		
C008		402	ARR	EQU	X'08'
C001		403	XR1	EQU	X'01'
0002		404	XR2	EQU	X'02'
021E		405	UNPACK	EQU	X'21E'
021A		406	PRINT	EQU	X'21A'
0222		407	HALT	EQU	X'222'
0216		408	LINK	EQU	X'0216'
020B		409	SBYTE3	EQU	X'020B'
0010		410	SSW1B	EQU	X'10'
0A21		411	END		BEGIN

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CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ARR	C	001	C008	0402	0246* 0247 0293
AUDT	A	003	0A0C	0020	
BEGIN	A	004	0A21	0054	0167 0219 0291 0308 0411
BRNCH	A	002	15D9	0398	0108
BSYCK	A	004	0D28	0212	0058
BTS0	A	001	0E0C	0312	0271
ETS3	A	001	0E24	0329	
BT00	A	005	0E2E	0337	0328
BT01	A	021	0E43	0338	0326
BT02	A	017	0E54	0339	0324
BT03	A	015	0E63	0340	0322
BT04	A	010	0E6D	0341	0320
BT05	A	015	0E7C	0342	0318
BT06	A	021	0E93	0343	0316
BT07	A	010	0E9B	0344	0314
BT3C	A	006	0EA1	0345	0333
BT35	A	013	0EAE	0346	0331
BUSY	A	021	106B	0362	0215
CAJ	A	031	1024	0359	0163
CCW	A	002	15CP	0393	0060 0069
CHECK	A	256	155P	0377	0109* 0119
CKIPL	A	037	1049	0360	0170* 0172* 0178
CNTRL	A	001	15BC	0330	0056* 0068* 0393
CODE	A	256	135P	0375	0117* 0118* 0185
CRRES	A	002	0A98	0083	0084*
CYLCK	A	004	0089	0160	0066
DCP	A	256	145Z	0376	0102* 0103* 0125 0126 0173 0174 0306 0307
DISK	A	001	0000	0003	
DMOP	A	034	10F3	0366	0139* 0143
DHP	A	001	0D8F	0266	0251 0253 0255
FIX	A	014	0FF7	0357	0081 0172
HALT	C	001	0222	0407	0110 0165 0209 0217 0226 0267 0289
HDM	A	009	10BA	0364	0184
IDIOT	A	006	0DFC	0306	0398
ILHLT	A	002	0D23	0210	0145* 0180*
INST	A	035	0ED1	0348	0082
IPLHD	A	019	115P	0369	0049
LINK	C	001	0215	0408	0151
LPY	A	004	0CE1	0188	0206
MIDL	A	001	15C8	0387	0396
NEG4	A	002	15D1	0394	0245
NEXT	A	004	0C75	0150	0138 0211 0228
NIPL	A	052	114C	0368	0220* 0224
NOPE	A	004	0C9D	0168	0122 0124
NOPS	A	006	0D3C	0220	0120
NTRDYA	A	004	0D56	0246	0057 0067 0073
NXTMS	A	004	0A8D	0084	0091
NOO1	A	002	15D3	0395	0090 0205
GKIPL	A	037	1118	0367	0132* 0136
OUT	A	002	15D5	0396	0100
OUT1	A	002	0CEB	0191	0188*
OUT2	A	002	0CF8	0196	0193*
PRINT	C	001	0214	0406	0046 0085 0093 0132 0140 0160 0175 0181 0198 0207 0212 0221 0257 0266 0287 0295 0045 0045* 0192 0197 0201 0202 0202*
PRT	A	031	15BA	0378	
PRTHD	A	004	0CCD	0181	0146
PRTSTS	A	004	0DE7	0293	0274 0280 0283 0286
RDNXT	A	004	0A29	0056	0154
RDSIO	A	003	0A64	0071	0054* 0077 0150 0152* 0168
RDY	A	004	0D8B	0264	0247*
READ	A	002	15CD	0392	0059 0070 0059
READIN	A	001	1160	0373	0121 0123 0186 0392
RHV	A	014	1005	0358	0079 0170
RTM01	A	001	0A0D	0042	0018
SBYTE3	C	001	020B	0409	0127 0137
SK00	A	003	0A3D	0061	0055* 0153*

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CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
SMSIT	A	004	0A40	0062	0064
SPDNR	A	023	10D1	0365	0260
SPT	A	004	0DF8	0299	0293* 0294*
SSW1B	C	001	0010	0410	0127 0137
STIPL	A	035	0F5D	0252	0079* 0081* 0132 0139 0220
STHUP	A	006	0AD6	0108	0112
STSBY0	A	001	15C0	0382	0250 0252 0273
STSBY1	A	001	15C1	0383	0062* 0063 0065 0248*
STSBY2	A	001	15C2	0384	0254 0279 0282 0285
STSBY3	A	001	15C3	0385	0249*
STSCK	A	013	1056	0361	0269
TEMP	A	004	15C7	0366	0083* 0090* 0187* 0205*
TST0	A	004	05A1	0273	0272* 0276 0276* 0277 0278
UNPACK	C	001	021E	0405	0189 0194
UP	A	001	0C52	0134	0129* 0131*
XR1	C	001	0001	0403	0082* 0084 0089 0089* 0185* 0188 0203 0203* 0271* 0275 0275* 0281 0281* 0284 0284* 0294
XR2	C	001	0002	0404	0186* 0193 0204 0204*

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

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OBJECT CARD LISTING

THE CHARACTER ' INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
T+-Y:4C< ' & ' B-4	' H A E ' ' F ' " * a < O / O	: E S ? ' / O H E J / < J P : C	- + O - H R L X H B T 8 a " 1 O	" O E ' (W X P S C K - 1 Z A P	(< E Q ' 3 Z 8 B 0 3 3 0 0 0 1
T+-25E**3Y ' OY/P	A + A ' N O * ' 8 B U ' 8 8 A P	A G I ' < S * P - C H Q a ' A O	" < E Q N 3 3 P U E * 7 3 ' 1 6 C	A Y - Z X O E ' (N T - H B W P	2 D ' U ' O : ' B 0 3 3 0 0 0 2
T+-I O C ' 4 | P J ' E a Y *	F C ' 4 | P 6 * 7 0 - D + 4 L O	I E * * 4 ' 8 D Q Q H * B F - B	T ' C K ' K | ' A P G E | |	' / ' D { O H * B P / Q I Z A P	(< E Q ' W 2 D B 0 3 3 0 0 0 3
T+- , , E) P 3 Y ' < - 1 J	- ' | a < - 1 | - ' G a a " O C	" C | B ' " - C " | ' " " - 0 1	= ' G 3 ' - 0 0 C ' < N 6 8 3	" E N a ' " a B G ' S H - # < B	G B _ Q ' 5 S a B 0 3 3 0 0 0 4
T+-0:CGaLP0C"CGa	K 7 0 A " C - a N P 0 C * 0 1 D	(' 5 " | 3 K P a ' A C I 4	(- 0 A * D) " ' 8 2) C G a	" 1 J - C G a ' - 1 | - + A	B B " H ' * 6 8 B 0 3 3 0 0 0 5
T+-15D ' * a A - 1 K a Y *	D | ' H < E - 0 + D J - | P * B	G ' / Y ' I J D Q + A ' 9 B " E	8 P ' 0 + P | < | P * B 3 ' / Z	B H / C 3 Y + 8 a # - 4 T O H *	< 3 L - ' 1 H Y B 0 3 3 0 0 0 6
T+-20B ' Z V O A ' B E T Y	H B W M : B ' Y = O H * H H * B	G ' / , P G 1 ' U Y ' # ' , O	S Y ' # ' / O Y / + ' - H B - H	8 B 6 0 (D D U 6 A - H E G A - 0	(D D U ' = 8 4 B 0 3 3 0 0 0 7
T+-3 , C * * < - 0 C " E E a	< - 0 A " D ' " ' / O H E O S M	8 K E B ; | I 8 (H a B G ' / D	8 L 1 3 : 0 - D K \$ a H B D O a	a D A P G (' D < : a B G ' / 8	8 ' " " " * 0 4 B 0 3 3 0 0 0 8
T+-4 H E Q H a ' - 3 9 0 H *	B G / ' " " A C : O H * B F - E	8 E S Y < O / O : P 6 ? K ' J C	S ' / ' | ' A P G E | | ' / 3	' / O H * B P / S ' / O H S Y ' C	' / O O ' R , W B 0 3 3 0 0 0 9
T+-5 /) * B G ' / , P E J A	' Y I T ' / O H S Y I T ' / O Y	' C ' 4 J L ' ') O H * B F * Q	4 D H 2 - X a B G ' S H - Y a B	G C G H 6 B A P J (' - (T T B	S E * D ' 3 T ' B 0 3 3 0 0 1 0
T+-6 * < H < N O 3 / ' E * C	2 U B H 9 ? 1 E ' a Z ' S + Q O	N O ? H E E < B G ' / , P E 1 C	J Y | # ' / O H S Y | # ' / 0	' O H * B P * H (D E F - V a H	A C - 8 ' 6 - U B 0 3 3 0 0 1 1
T+-7 5 | ' D (Y T - ' a * C	' D ' 7 X 4 - D C C - ' Y - 6	S | 8 ' (Y * A C E D 9 A A P	B O A ' (9 ' H A ' 3 - H E * .	' D ' 7 X 4 - D C + H ' N O X	8 C ; * ' 8 I - B 0 3 3 0 0 1 2
T+-8 K O H * B F / S ' / O E	S Y I - ' / O Y / (' - (- 1 0	B C - * ' O H * B F Y D ' " " C	' / 0 ' " C G a ' " 1 J - C G a	' - 1 | - O H * H H 6 Y + W 1 H	+ U 8 a ' 8 . - B 0 3 3 0 0 1 3
T+-9 (X I O R C W 4 | C W <	J C V a N C U < E C S H (C U 8	F C D G N 5 W C O 5 a X N 8 a P	B 9 * P M 8 a X O 5 H C R 1) T	U 2) X E 1 (P O 8 < G D 1 (X	E 8 > H ' 9 , a B 0 3 3 0 0 1 4
T+- : H E (L A 6) . 8 5 * 2	Q 3 < X P 5 < P N 8 4 C C 2 < P	C 4 % L A 8 2 E ' 0 a T E O ' .	N 5 U C R 1 * | O 6 * J ' 1 _ \$	U 5 * L T 6 * G C 4 U C C 5 _ P	D 2 ; < ' 8 0 8 B 0 3 3 0 0 1 5
T+- (C 2) S E 8 < | H 1 * |	K 8 % P E 4 U C C 2 < P C 4 > L	N 8 % G F 1 * T E O * J ' 8 % P	T 8 ' | I 5 * - D 5 U C T ? < N	' 1 _ S L C ' \$ W 2) P G 6 + P	E 6 ; - ' 9 L 0 3 0 3 3 0 0 1 6
T+- 6 - 8 < | 1 6 * P P 9 ( |	L : D A - 8 D C 1 K 4 C S ' ; (	' 1 < X S 5 ' | P : D C R 5 _ |	L 1) V ' 8 ' R ' 6) 2 L 4 4 C	1 8 D A ' 8 | I . 8 + | U 6 | W	' 5 _ H ' 7 7 U B 0 3 3 0 0 1 7
T+- 3 ' < G D 1 (X E 3) I	' 0 ' 3 H 5 1 G R 1 4 C S 8 ' 3	P 8 D ' 8 ; (. 8 + . 8 8 4 C	C 5 _ P S 5 _ | E 8 + . W 2 ; |	C 2 < P S 2 + | O 8 | C O a | A	' 8 D ' 6 1 * B 0 3 3 0 0 1 8
T+- * 0 6 | J . 8 + . 8 8 4 C	I 5 ' (' 8 > | I 8 a | H 8 + |	O 8 D A ' 8 D A ' 8 D A ' 8 D A	' 8 D A ' H _ 1 (R ' 5 ' X	O 1 ' X A 5 D C L 5 % G D 6 D A	' 8 D ' ' - < B 0 3 3 0 0 1 9
T+- * ? 8 D A ' 8 D A ' 8 D A	' 8 D A ' ' U _ O ) | T 1) V	' 8 % G R 6 + | O 8 P C 0 0 * C	O Q D A ' 8 D A ' 8 D A ' 8 D A	' 8 0 C 7 K 4 C T 9 (X H 6 (\$	P 1 0 ' 7 : Q B 0 3 3 0 0 2 0
T+- * D O * L D 6 * P S 8 U C	C 5 _ I P 0) I E 8 + . T 5 _)	' 8 D C 8 K 4 C D 5 U C P 6) \$	G 6 * G H 6 + . T 0) X T 6 D A	' 8 D A ' 8 D A ' 8 D A ' 8 D A	' 8 < Q ') \$ H B 0 3 3 0 0 2 1

B033 5444 IPL TEST

OBJECT CARD LISTING

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
T+/V2;-Z1DCD2;.	K&DA &(XE5(\$V0*.	LIMCD2;.K1<XS4UC	D6*XV1MC1&(XE0&G	L2*.B0;|E&< H1*|	KK&U :QHB0330022
T+/A-5' (1<G10MC	C2<EC4UCF5_v 8&T	E&DA &DA &DA &DA	&DA &8>|A8=LS&<	H1*|KK&LI8_I 1(X	I9*M 4H0B0330023
T+/B&E|E 2;I 0>L	S:E_ &DA &DA &DA	&DCI5' (1<GTOMA	&DA &DA &DA &DA	&DA &DA &DA &DA	&D''=.0B0330024
T+/COSDA &DA &DA	&DA &A &DA &DA	&(XE0*J 1<GT0*L	I8_I 1(XI9*N &MC	N5>(6*PA1+/.1<G	TCH'')HHF0330025
T+/DJ1+LMS4C05=|	I5_F QDA &DA &DA	&DA &DA &DCI5' (	1<GT0MC18UCO4UC	F5_v 8&T&E&DA &DA	&D'' JBDB0330026
T+/E<&DA &DA &<X	P44CD0;|A&+\$A&UC	N5>(8'XA5;.P1) X	R1*J 1_X05DCT2<M	&DA &DA &DA &DA	&D'' @S-B0330027
TD/E-'-L4'DCD2;.	K&<XF44CT1;.TKO	.....	.....	.....	K XB0330028
TG/PR&	2 LHJQAD	@''0 JPHOH*(.....	1-*B0330029
EHSE*E7*=-DC"PH\$	=*7H5P C	F% ASC E A	S0 Q	15470501701	02171E\$-B0330030

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