

*NEWRAD/
230 MONIT.*

```

RAD IDENT 411 3/4/67
*RAD HANDLER J.T. HOLLAND 3/4/67

LRCQ EQU 20
BR4 EQU 4300000B
GRC ZRD
BR4 RWAIT
DIR
BR4 IRINS PUT COMMAND IN QUEUE
SKV NRCL RAD RUNNING?
BRJ GRC1 YES
EIR
MIV NRCL NOW IT IS.
ALRS
PIN CSEC READ RAD SECTOR.
LDA CSEC
ADD =2
LRSH 5
ETR SEC4SK

BR4 RGD STA CSEC
STA 64B START RAD
GRC1 EIR
BR4 GRC

RSTI ZRD
SKV ICJNT ANY COMMANDS WAITING?
BRJ RSTI1 YES
STA NRCL
LDA =-1
MVA NRCL NOTE RAD IDLE
EIR
BRJ RSTI
RSTI1 BR4 IREGSV
LDA CSEC UPDATE SECTOR
ADD =1
ETR SEC4SK
STA CSEC
COPY AX, B
BR4 CHCS ANY COMMANDS FOR THIS SECTOR
BRJ RSTI2
BR4 RGD NO, WAIT FOR THE NEXT SECTOR
BRJ IREX
RSTI2 BR4 IGC GENERATE RAD COMMANDS
STA RSTI4
STX RSTI5
RSR
BRJ *-1 WAIT FOR RAD READY
ALR
PJT COPWR
CATE
BRJ *-1
RSTI4 NOP 0 START DATA TRANSFER
RSTI5 NOP 0 SET UP INTERLACE

```

	PJT	CJPMC	
	LDA	?BR4+RSUI	SET UP PROPER INTERRUPT
IREX	X1A	64B	
	STA	IRET	
	BR4	IREGRS	
	EIR		
	BRI*	IRET	
IRET	ZRD		
RGD	ZRD		
	LDA	CSEC	
	LSH	5	
	MFG	=37B	
	STA	RGD1	
	RSR		
	BRU	*-1	
	ALR		
	PJT	RGD1	
	EOD*	2226B	
	EOD	17200B	
	PJT	RGD2	
	LDA	=BR4+RSTI	
	BRR	RGD	
RGD1	ZRD		
RGD2	ZRD*	RGD1	
RSUI	ZRD		
	DIR		
	RSR		
	BRU	*-1	
	RSE		
	MIN	IRFLG	
	ALR		
	PJT	SUPWR	
	CATE		
	BRU	*-1	
	CETE		
	MIN	IRFLG	
RSUI1	NJP	0	START DATA TRANSFER
RSUI2	EOD	0	SET UP INTERLACE
	PJT	SJPMC	
	EIR		
	BR4	IREGSV	
	LDA	CSEC	
	STA	PSEC	REMEMBER PREVIOUS SECTOR
	ADD	=1	
	ETR	SEC1SK	
	STA	CSEC	ADVANCE SECTOR POINTER
	CAX		
	BR4	CHCS	ANY COMMANDS FOR THIS SECTOR?
	BRU	RSUI3	
	LDA	=BR4+RCLI	
	BRU	IREX	
RSUI3	BR4	IGC	GENGRATE RAD COMMANDS

	STA	RCJ11	
	STX	RCJ12	
	LDA	=BR4+RCJ1	
	BRU	IREX	
RCJ1	ZR0		
	DIR		
	RSR		
	BRU	*-1	
	RSE		
	MIN	IRFLG	
	ALR		
	PJT	COPWR	
	CATE		
	BRU	*-1	
	CETE		
	MIN	IRFLG	
RCJ11	VJP	0	START DATA TRANSFER
RCJ12	VJP	0	SET UP INTERLACE
	PJT	COPWC	
	EIR		
	BR4	IRCLU	CLEAN UP AFTER DATA TRANSFER
	LDA	=BR4+RSJ1	
	BRU	IREX	
RCJ1	ZR0		
	RSR		
	BRU	*-1	
	RSE		
	MIN	IRFLG	
	CATE		
	BRU	*-1	
	CETE		
	MIN	IRFLG	
	BR4	IRCLU	
RCL13	SKN	ICOUNT	
	BRU	RCL11	MORE COMMANDS IN QUEUE
	LDA	=-1	
	STA	NRCL	
	LDA	=BR4+RST1	
	BRU	IREX	
RCL11	BR4	RG0	RESTART RAD
	BRU	IREX	
CHCS	ZR0		
CHCS4	SKN	IRCTR,2	STACK EMPTY?
	BRU	CHCS3	NO
CHCS2	MIN	CHCS	YES
	BRR	CHCS	
CHCS3	LDA	=1	
CHCS1	AD4	IRJP,2	ADVANCE POINTER
	LDA*	IRJP,2	FETCH COMMAND
	SKA	=40B	WATCH OUT FOR WRAP-AROUND

BRU	CHCS1
ETR	=378
COPY	AX, XB
LDA*	RMT, 2
CBX	
SKR	IRCTR, 2
VJP	
SKR	ICOUNT
VJP	
SKA	=BIT4+BIT5
BRR	CHCS
BRU	CHCS4

RWAIT	ZRD	
	CAX	
	LRSH	6
	ETR	SECMASK
	COPY	AX, XB
	LDA	=LRCQ/2-1
	SKG	IRCTR, 2
	BRU	*-1
	CBA	
	BRR	RWAIT

IGC	ZRD	
	LDA*	IRDP, 2
	COPY	AX, B
	ETR	=77700B
	LRSH	1
	STA	COPWR
	ARG	=37B
	STA	SUPWR
	COPY	KA, B
	ETR	=7
	LSH	11
	ARG	=74000000B
	STA	COPWC
	EJR	=70003700B
	STA	SUPWC
	COPY	KA, B
	ETR	=30B
	LSH	2
	ARG	=617200B
	CKB	
	SKB	=BIT4
	ARG	=BIT0
	STA	RSUI2
	EJR	=1
	CAX	
	LDA	=642226B
	SKB	=BIT5
	ARG	=40B

STA RSUI1
BRR IGC

IRINS ZR0
ETR =BIT0+BIT2+BIT4+BIT5+BIT7+77737B
CAK
LRSH 6
ETR SECMSK DETERMINE SECTOR
COPY AX, XB
MIN IRIP, 2 ADVANCE READ-IN POINTER
LDA* IRIP, 2
SKA =40B WATCH OUT FOR WRAP AROUND
ADM IRIP, 2
STB* IRIP, 2
MIN IRCTR, 2
MIN ICJUNT
BRR IRINS

IRER ZR0
SKV NRCL RAD BUSY?
CATE 0 CHANNEL ACTIVE?
BRU IRER1 IGNORE INTERRUPT
RSE
BRU IRER2
CETE
BRU IRER2

IRER1 EIR
IRER2 X4A IRER
STA* 64B
LDA IRER
BRR 64B

IREGSV ZR0; STA IRSA; STB IRSB; STK IRSX; BRR IREGSV
IREGRS ZR0; LDA IRSA; LDB IRSB; LDK IRSX; BRR IREGRS

IRSA ZR0
IRSB ZR0
IRSX ZR0
COPWR ZR0
COPWC ZR0
SUPWR ZR0
SUPWC ZR0
CSEC ZR0
PSEC ZR0

ICJUNT DATA -1
IRCTR DATA -1, -1
IRFLG DATA -1
IRIP DATA RC00, RC01
IRJP DATA RC00, RC01
NRCL DATA -1
RC00 BSS LRC0
DATA -LRC0
RC01 BSS LRC0

	DATA	-LRCD	
IRCLU	ZRD		
	BRM	IREGSV	
	LDX	PSEC	GET SECTOR
	LDA*	IRDP, 2	
	ETR	=37B	
	SKN*	IRDP, 2	
	BRU	IRCLU3	NOT SWAPPER
	AXC		
	LDB*	R4T, 2	GET PAT ENTRY
	SKB	=BIT4+BIT5	
	BRU	IRCLU1	
IRCLU4	LDA	=-1	
	STA	IRFLG	
	BRR	IRCLU	
IRCLU1	SKN	IRFLG	ANY ERRORS?
	BRU	IRCLU2	YES
	SKB	?BIT4	
	LDA	=BIT3+BKT4	
	SKB	=BIT5	
	LDA	=BIT0+BIT5	
	EJR*	R4T, 2	
	STA*	R4T, 2	
	SKB	=BITZ	CONTINGENT READ?
	BRU	*+2	YES
	BRR	IRCLU	
	ETR	=40177740B	
	STA*	R4T, 2	
	LDA	AR4T, 2	
	STA	R4T, 2	
	LDA*	R4T, 2	
	SKA	=BIT2	
	EJR	=BIT3+BIT4	
	STA*	R4T, 2	
	SKA	=BIT2	
	BRR	IRCLU	
	ETR	=BIT4+77737B	
	BRM	IRINS	
	BRR	IRCLU	
IRCLU2	MIN	RADTER	
	SKB	=BIT4	
	MIN	RADRER	
	CBA		
	MRG	=BIT0	
	BRM	IRINS	
	BRU	IRCLU4	
IRCLU3	LDB*	IRDP, 2	
	AXC		
	SKR	R4C, 2	
	VJP		
	SKN	IRFLG	
	BRU	*+3	
	BRR	IRCLU	

MIN RADTER
SKB =BI T4
MIN RADRER
BRU IRCLU4
END