
TBC HARD BOOTSTRAP

FOR

CARTRIDGE DISK

and RX01 Floppy.

STARTING ADDRESS	PROGRAM
173000	RK0 BOOTSTRAP
173030	RK2 BOOTSTRAP
173040	MT0 BOOTSTRAP
173100	DX0 BOOTSTRAP
173200	DX1 BOOTSTRAP
173210	MEMORY DIAGNOSTIC
173240	FD0 BOOTSTRAP
173300	INTERRUPT DIAGNOSTIC
173400	DISK DMA DIAGNOSTIC

MEMORY DIAGNOSTIC:

LOAD R4 WITH TOP MEMORY ADDRESS. THEN START PROGRAM AT 173210. A HALT AT LOCATION 173230(PC=173232) INDICATES A COMPARE ERROR. EXAMINE R3 TO FIND THE ADDRESS OF THE FAILING LOCATION((R3)-2=ADDRESS). IF NO FAILURES OCCUR, THE RUN LIGHT WILL COME ON AND STAY ON UNTIL A MANUAL HALT.

INTERRUPT DIAGNOSTIC:

START PROGRAM AT 173300. THEN TYPE ON CONSOLE KEYBOARD. IF INTERRUPTS TO CONSOLE ARE OK, THESE KEYS WILL ECHO.

DISK DMA DIAGNOSTIC:

LOAD INITIALIZED, BLANK MEDIA IN 6200, 3100 AND/OR CARTRIDGE DISK. START PROGRAM AT 173400. PROGRAM WILL LOOK FOR EACH DEVICE IN ORDER. PRINTOUT OF N6, N3 OR N2 MEANS THESE DEVICES WERE NOT FOUND. FOR DEVICES FOUND, PROGRAM WILL WRITE, READ, AND COMPARE. NON COMPARE ERROR FOR 6200 OR 3100 WILL HALT AT 173670; FOR CARTRIDGE AT 173550. A NORMAL PASS WILL HALT AT 173562.

173000	105737	RK:	TSTB	#177400	; RK0 BOOTSTRAP
173002	177400				; STARTING ADDR:
173004	100375		BPL	RK	; @173000G
173006	12700		MOV	#177406, R0	
173010	177406				
173012	12710		MOV	#177406, (R0)	
173014	177400				
173016	12740		MOV	#5, -(R0)	
173020	5				
173022	105710		TSTB	(R0)	
173024	100376		BPL	. -1	
173026	5007		CLR	PC	
173030	12737		MOV	#20000, @#177412	; RK2 BOOTSTRAP
173032	40000				; STARTING ADDR:
173034	177412				; @173030G
173036	760		BR	RK	
173040	12700	MT:	MOV	#172524, R0	; MT0 BOOTSTRAP
173042	172524				; STARTING ADDR:
173044	5310		DEC	(R0)	; @173040G
173046	12740		MOV	#60011, -(R0)	
173050	60011				
173052	105710		TSTB	(R0)	
173054	100376		BPL	. -1	
173056	5710		TST	(R0)	
173060	100767		BMI	MT	
173062	12710		MOV	#60003, (R0)	
173064	60003				
173066	105710		TSTB	(R0)	
173070	100376		BPL	. -1	
173072	5710		TST	(R0)	
173074	100777		BMI	.	
173076	5007		CLR	PC	
173100	12702	\$0:	MOV	#100247, R2	; DX0 BOOTSTRAP
173102	100247				; STARTING ADDR:
173104	12701	\$1:	MOV	#177170, R1	; @173100G
173106	177170				
173110	130211		BITB	R2, (R1)	
173112	1776		BNE	. -1	
173114	112703		MOVB	#7, R3	
173116	7				
173120	10100		MOV	R1, R0	
173122	10220		MOV	R2, (R0)+	
173124	402		BR	. +2	
173126	12710	\$2:	MOV	#1, (R0)	
173130	1				
173132	6203		ASR	(R3)	
173134	103402		BCS	R2	
173136	112711		MOVB	#111023, (R1)	
173140	111023	\$3:			
173142	30211		BIT	R2, (R1)	
173144	1776		BNE	. -1	
173146	100756		BMI	#1	
173150	103766		BCS	#2	
173152	105711		TSTB	(R1)	
173154	100771		BMI	#3	

173156	5000		CLR	R0	
173160	22710		CMP	#240, (R0)	
173162	240				
173164	1347		BNE	#1	
173166	122702		CMPB	#247, R2	
173170	247				
173172	5500		ADC	R0	
173174	5007		CLR	PC	
173176	0				
173200	12702		MOV	#100267, R2	; DX1 BOOTSTRAP
173202	100267				; STARTING ADDR:
173204	737		BR	#0	; @1773210G
173206	0				
173210	5002		CLR	R2	; MEMORY DIAG.
173212	10401		MOV	R4, R1	; LOAD R4 WITH
173214	5000		CLR	R0	; TOP MEMORY ADDR
173216	5102	M0:	COM	R2	; STARTING ADDR:
173220	10003		MOV	R0, R3	; @173210G
173222	10213	M1:	MOV	R2, (R3)	
173224	20223		CMP	R2, (R3)+	
173226	1401		BEQ	. +1	
173230	0		HLT		
173232	20301		CMP	R3, R1	
173234	1372		BNE	M1	
173236	767		BR	M0	
173240	12700		MOV	#164010, R0	; F00 BOOTSTRAP
173242	164010				; STARTING ADDR:
173244	12740		MOV	#177400, -(R0)	; @173240G
173246	177400				
173250	5040		CLR	-(R0)	
173252	5040		CLR	-(R0)	
173254	12740		MOV	#1000, -(R0)	
173256	1000				
173260	12720		MOV	#20000, (R0)+	
173262	20000				
173264	105710		TSTB	(R0)	
173266	100376		BPL	. -1	
173270	5007		CLR	PC	
173272	0				
173274	0				
173276	0				
173300	12737		MOV	#173332, @#60	; INTERRUPT DIAG.
173302	173332				; STARTING ADDR:
173304	60				; @173300G
173306	12737		MOV	#340, @#62	; TYPE KEYS
173310	340				; ON CONSOLE
173312	62				; KEYBOARD
173314	12706		MOV	#10000, SP	; TO GET ECHO
173316	10000				
173320	12737	I:	MOV	#100, @#177560	
173322	100				
173324	177560				
173326	1		WAIT		
173330	773		BR	I	
117332	5037		CLR	@#177560	
173334	177560				

173336	13737	MOV	@#177562, @#177566	
173340	177562			
173342	177566			
173344	2	RTI		
173346	0			
173350	0			
173352	0			
173354	0			
173356	3			
173360	0			
173362	0			
173364	0			
173366	0			
173370	0			
173372	0			
173374	0			
173376	0			
173400	5001	CLR	R1	; DISK DMA DIAG.
173402	12706	MOV	#10000, SP	; STARTING ADDR:
173404	10000			; @173400G
173406	12703	MOV	#177566, R3	; LOOKS FOR 6200,
173410	177566			; 3100, 2200
173412	5037	CLR	@#6	; WRITES ONE WORD
173414	6			; READS ONE WORD
173416	12737	MOV	#173674, @#4	; DRIVE 0, TRACK0
173420	173674			; OUTPUT:
173422	4			; N6-N0 6200
173424	105737	TSTB	@#164000	; N3-N0 3100
173426	164000			; N2-N0 2200
173430	12700	MOV	#164000, R0	
173432	164000			
173434	4567	JSR	A, R5	
173436	124			
173440	12737	MOV	#173702, @#4	
173442	173702			
173444	4			
173446	105737	TSTB	@#164400	
173450	164400			
173452	12700	MOV	#164400, R0	
173454	164400			
173456	4567	JSR	A, R5	
173460	102			
173462	12737	MOV	#173710, @#4	
173464	173710			
173466	4			
173470	105737	TSTB	@#177400	
173472	177400			
173474	12700	MOV	#177406, R0	
173476	177406			
173500	240	NOP		
173502	240	NOP		
173504	12711	MOV	#33066, (R1)	
173506	33066			
173510	12710	MOV	#177777, (R0)	
173512	177777			
173514	12740	MOV	#3, -(R0)	

173516	3		
173520	105710	TSTB	(R0)
173522	100376	BPL	. -1
173524	5037	CLR	@#177412
173526	177412		
173530	240	NOP	
173532	5200	INC	R0
173534	5200	INC	R0
173536	12710	MOV	#-1, (R0)
173540	177777		
173542	12740	MOV	#5, -(R0)
173544	5		
173546	105710	TSTB	(R0) 4
173550	100376	BPL	. -1
173552	21161	CMP	(R1), 2(R1)
173554	2		
173556	1401	BEO	. +1
173560	0	HLT	
173562	0	HLT	; ERROR HALT
173564	12711	MOV	#33066, (R1)
173566	33066		; NORMAL HALT
173570	12760	MOV	#-1, 6(R0)
173572	177777		
173574	6		
173576	10160	MOV	R1, 4(R0)
173600	4		
173602	5060	CLR	2(R0)
173604	2		
173606	12710	MOV	#1000, (R0)
173610	1000		
173612	12710	MOV	#140000, (R0)
173614	140000		
173616	105760	TSTB	2(R0)
173620	2		
173622	100375	BPL	. -2
173624	5011	CLR	(R1)
173626	12760	MOV	#-1, 6(R0)
173630	177777		
173632	6		
173634	10160	MOV	R1, 4(R0)
173636	4		
173640	5060	CLR	2(R0)
173642	2		
173644	12710	MOV	#1000, (R0)
173646	1000		
173650	12710	MOV	#20000, (R0)
173652	20000		
173654	105760	TSTB	2(R0)
173656	2		
173660	100375	BPL	. -2
173662	22711	CMP	#33066, (R1)
173664	33066		
173666	1401	BEO	. +1
173670	0	HLT	; NON COMPARE
173672	205	RTS	R5
173674	12702	MOV	#66, R2

173676	66		
173700	405	BR	. +5
173702	12702	MOV	#63, R2
173704	63		
173706	402	BR	. +2
173710	12702	MOV	#62, R2
173712	62		
173714	105737	TSTB	@#177564
173716	177564		
173720	100375	BPL	. -2
173722	12713	MOV	#116, (R3)
173724	116		
173726	105737	TSTB	@#177564
173730	177564		
173732	100375	BPL	. -2
173734	10213	MOV	R2, (R3)
173736	62716	ADD	#10, (SP)
173740	10		
173742	11607	MOV	(SP), PC
173744	0		
173746	0		
173750	0		
173752	0		
173754	0		
173756	0		
173760	0		
173762	0		
173764	0		
173766	0		
173770	0		
173772	0		
173774	0		
173776	0		