

# KJ11-A

11/40,45 STACK LIMIT  
CCKBFD0

AH-7804D-MC

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## IDENTIFICATION

PRODUCT CODE:	AC-7802D-MC
PRODUCT NAME:	CCKBFD 11/40,45 STACK LIMIT
PRODUCT DATE:	FEB 1978
MAINTAINER:	PRODUCT ENHANCEMENT

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## 1.0 ABSTRACT

THIS PROGRAM INCREMENTLY TESTS THE STACK LIMIT FUNCTION.

THE PROGRAM USES THE CONTENTS OF LOCATION 176 AS THE VALUE OF THE SWITCHES IF NO HARDWARE SWITCH REGISTER IS FOUND. THE OPERATOR IS RESPONSIBLE FOR LOADING THE DESIRED VALUE BEFORE STARTING THE PROGRAM. LOCATION 174 WILL BE USED AS THE SOFTWARE DISPLAY REGISTER.

## 2.0 REQUIREMENTS

## 2.1 EQUIPMENT

BASIC 11/45 SYSTEM OR  
11/40 WITH STACK LIMIT OPTION

## 2.2 STORAGE

THIS PROGRAM USES 0 THRU 17500

## 2.3 PRELIMINARY PROGRAMS

DOAA THRU DOMA

## 3.0 LOADING PROCEDURE

LOAD PROGRAM USING ABS LOADER.

## 4.0 STARTING PROCEDURE

LOAD ADDRESS 200, PRESS START, THE PROGRAM WILL LOOP AND RING BELL AND PRINT '\*' ON PASS COMPLETION.

## 5.0 OPERATING PROCEDURE

## 5.1 SWITCH SETTINGS

NONE

## 5.2 SUBROUTINE ABSTRACTS

## 5.2.1 SCOPE

SCOPE IS A "MOVE PC,R1" WHICH STORES THE PC+2 IN R1.

## 5.2.2 HLT

HLT IS A HALT INSTRUCTION.

## 6.0 ERRORS

ALL ERRORS WILL CAUSE A HALT. TRAP AND INTERRUPT ERRORS WILL CAUSE A HALT AT VECTOR+2.

6.1 ERROR RECOVERY

PRESS CONTINUE TO PROCEED TO NEXT TEST.

6.2 ERROR LOOPING

TO LOOP ON AN ERROR, PLACE A BRANCH TO THE PREVIOUS SCOPE INSTRUCTION IN PLACE OF THE HALT INSTRUCTION. NOTE THAT IF THE ERROR IS INTERMITTANT THAT THE TEST WILL DROP THRU THE HALT AND PROCEED TO THE NEXT TEST. THEREFORE, TO LOOP THE TEST CONTINUOUSLY REPLACE THE BEQ +4 INSTRUCTION IMMEDIATELY PRECEEDING THE HALT WITH A BRANCH BACK TO THE PREVIOUS SCOPE.

TO LOOP ON TRAP FAILURES, PATCH IN THE FOLLOWING ROUTINE AT THE ADDRESS OF THE TRAP VECTOR.

```
TRAPVEC:          TRAPVEC+4
TRAPVEC+2:        0
TRAPVEC+4:        012716          ;MOVE SCOPE ADDRESS TO STACK
TRAPVEC+6:        ADDRESS        ;ADDRESS OF PREVIOUS SCOPE
TRAPVEC+10:       000006        ;RETURN TO TEST AT SCOPE
```

RESTORE ALL LOCATIONS BEFORE PROCEEDING TO NEXT TEST.

7.0 RESTRICTIONS

NONE

8.0 MISCELLANEOUS

ON TRAP ERRORS THE STACK POINTER (R6) WILL CONTAIN ADDRESS WHERE THE TRAP OCCURRED.

8.1 EXECUTION TIME

EACH PROGRAM TAKES ABOUT 1 MINUTE.

9.0 PROGRAM DESCRIPTIONS

THIS IS A TEST OF THE STACK LIMIT REGISTER AND INSURES CORRECT OPERATION OF THE RED AND YELLOW ZONE BOUNDARIES. OVERFLOW TRAPS ARE TESTED FOR ALL VALUES OF THE STACK LIMIT REGISTER.

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148 ;CCKBFD0 11/40,45 STACK LIMIT
149 ;THE STACK LIMIT REGISTER ALLOWS THE 'OVERFLOW' BOUNDARIES TO BE CHANGED.
150 ;FOR EXAMPLE IF THE STACK LIMIT REGISTER IS CLEAR THE BOUNDARY IS AT
151 ;400 (YELLOW ZONE) AND 340 (RED ZONE). IN ALL CASES THE YELLOW ZONE
152 ;BOUNDARY IS AT 400(8) PLUS THE VALUE IN THE STACK LIMIT REGISTER, AND
153 ;THE RED ZONE BEGINS 20(8) WORDS BELOW THE YELLOW ZONE. THIS TEST
154 ;CHECKS THAT THE STACK LIMIT IS 400 GREATER THAN THE CONTENTS OF THE
155 ;STACK LIMIT REGISTER (CORE PERMITTING), AND CHECKS THE LENGTH OF THE
156 ;YELLOW ZONE AND THE BEGINNING OF THE RED ZONE.
157
158 ;STARTING PROCEDURE
159 ;LOAD ADDRESS=200
160 ;PRESS START
161 ;BELL WILL RING WHEN TEST IS COMPLETE
162
163 ;EQUATE STATEMENTS
164 R0=%0
165 R1=%1
166 R2=%2
167 R3=%3
168 R4=%4
169 R5=%5
170 SP=%6
171 PC=%7
172
173 ;REGISTER ADDRESSES
174 PSW=177776 ;ADDRESS OF PROCESSOR STATUS WORD
175 UBREAK=177770 ;ADDRESS OF PDP11/45 MICRO BREAK REGISTER
176 DSWR=177570 ;ADDRESS CONSOLE SWITCH REGISTER
177 TPS=177564
178 TPB=177566
179 DDISP=177570 ;ADDRESS OF CONSOLE DISPLAY REGISTER
180 HLT=HALT
181 POP2=22626
182 SCOPE=010701 ;MOVE PC TO R1
183 PRTY7=340 ;PRIORITY LEVEL 7
184 ERRVEC=4 ;ADDRESS OF ERROR VECTOR
185
186 ;=0
187
188 ;=46
189 000046 $ENDAD
190 000046 002344 ;=52
191 000052 000052 000000
192 000052 000000
193
194 ;=174
195 000174 000000 DISPREG:0
196 000176 000000 SWREG: 0
197
198 ;=200
199 000200 000167 000604 JMP START
200
201 ;=500
202
203 ;TAGS
203 000500 000000 ICNT: 0 ;CONTAINS PASS COUNT

```

```

204 000502 000000          ICNTA: 0
205 000504 177570          SWR: DSWR
206 000506 177570          DISPLAY:DDISP
207 000510 000760          SPBOT: 760
208 000512 177774          SLR: 177774          ;ADDRESS OF STACK LIMIT REGISTER
209 000514 177775          SLH: 177775          ;HIGH (ODD BYTE)
210 000516 000000          TEMP: 0
211 000520 000000          FTITLE: 0          ;TITLE PRINTED = 1
212
213
214 001010 016706 177474          START: . =1010
215 001014 012737 000340 177776          MOV SPBOT,%6          ;INITIALIZE STACK POINTER
216 001022 023737 000042 000046          MOV #PRTY?,@#PSW          ;LOCK OUT INTERRUPTS
217 001030 001475          CMP @#42,@#46          ;ARE WE IN ACT11 AUTOMATIC MODE?
218 001032 005767 177462          BEQ STARTB          ;YES, SKIP THE TITLE
219 001036 001034          TST FTITLE          ;TITLE PRINTED YET?
220 001040 012700 001064          BNE STARTA          ;YES, SKIP TITLE
221 001044 105710          MOV #TITLE,RO          ;GET MESSAGE ADDRESS
222 001046 001430          1$: TSTB (0)          ;END OF MESSAGE?
223 001050 105767 176510          BEQ STARTA          ;YES, GET OVER THE ASCII
224 001054 100375          TSTB TPS
225 001056 112067 176504          BPL -4
226 001062 000770          MOVB (0)+,TPB          ;PRINT CHARACTER
227 001064 005015 041577 045503          BR 1$
228 001072 043102 030104 030440          TITLE: .ASCIZ <15><12><177>?CCKBFDD 11/40,45 STACK LIMIT?<15><12><177>
229 001100 027461 030064 032054
230 001106 020065 052123 041501
231 001114 020113 044514 044515
232 001122 006524 077412 000
233 001130 001130
234 001130 012767 000001 177362          STARTA: .EVEN
235          MOV #1 FTITLE          ;SET TITLE PRINTED FLAG
236          ;;SIZE FOR A HARDWARE SWITCH REGISTER. IF NOT FOUND OR IT IS
237          ;;EQUAL TO A "-1" SETUP FOR A SOFTWARE SWITCH REGISTER.
238 001136 013746 000004          MOV @ERRVEC -(SP)          ;SAVE ERROR VECTOR
239 001142 012737 001176 000004          MOV #64,@ERRVEC          ;SET UP ERROR VECTOR
240 001150 012767 177570 177326          MOV #DSWR,SWR          ;SETUP FOR A HARDWARE SWICH REGISTER
241 001156 012767 177570 177322          MOV #DDISP,DISPLAY          ;AND A HARDWARE DISPLAY REGISTER
242 001164 022777 177777 177312          CMP #-1,@SWR          ;TRY TO REFERENCE HARDWARE SWR
243 001172 001012          BNE 66$          ;BRANCH IF NO TIMEOUT TRAP OCCURRED
244          ;AND THE HARDWARE SWR IS NOT = -1
245          BR 65$          ;BRANCH IF NO TIMEOUT
246          ;SET UP FOR TRAP RETURN
247 001174 000403          64$: BR 65$
248 001176 012716 001204          65$: MOV #65$(,SP)
249 001202 000002          RTI
250 001204 012767 000176 177272          65$: MOV #SWREG,SWR          ;POINT TO SOFTWARE SWR
251 001212 012767 000174 177266          MOV #DISPREG,DISPLAY
252 001220 012637 000004          66$: MOV (SP)+,@ERRVEC          ;RESTORE ERROR VECTOR
253 001224 005067 177250          STARTB: CLR ICNT          ;CLEAR PASS COUNT
254 001230 005767 177246          TST ICNTA
255 001234 001412          BEQ BEGIN
256 001236 022767 177777 001104          CMP #-1,SENDAD+4
257 001244 001006          BNE BEGIN
258 001246 022767 001477 177224          CMP #1477,ICNT
259 001254 001002          BNE BEGIN
260 001256 005067 177220          CLR ICNTA
261 001262 016706 177222          BEGIN: MOV SPBOT,%6          ;INITIALIZE STACK POINTER

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260 001266 016777 177206 177212      MOV      ICNT, @DISPLAY      ;DISPLAY PASS COUNT
261 001274 032777 000400 177202      BIT      #400, @SWR        ;LOAD PDP11/45 MICRO BREAK REGISTER?
262 001302 001403          BEQ      +10
263 001304 117737 177174 177770      MOV      @SWR, @#UBREAK    ;LOAD MICRO BREAK REG WITH SPO-7
264
265          ;CHECK THAT CP CAN TIME OUT TRAP
266 001312 012737 001330 000004      MOV      #TRET, @#ERRVEC   ;LOAD TIMEOUT TRAP VECTOR
267 001320 005037 173000          CLR      @#173000         ;ADDRESS 173000 ALWAYS TIMES OUT ON
268          ;DATIP/DATO BUS CYCLE
269 001324 000000          HLT
270 001326 000755          BR      BEGIN            ;ERROR! FAILED TO TIME OUT TRAP
271 001330 022626      TRET:    CMP      (6)+, (6)+ ;LOOP TEST
272          ;RESTORE THE STACK
273          ;TEST THAT THE STACK LIMIT REGISTER CAN BE REFERENCED USING DATI,
274          ;DATIP/DATO
275 001332 010701      TO:      SCOPE
276 001334 012767 001356 176442      MOV      #TOA, ERRVEC     ;LOAD ERROR VECTOR
277 001342 005067 176440          CLR      ERRVEC+2
278 001346 017737 177140 177774      MOV      @SLR, @#177774   ;REFERENCE STACK LIMIT REGISTER
279 001354 000415          BR      TOB              ;GO TO NEXT TEST
280 001356 022626      TOA:    POP2
281 001360 000000          HLT
282 001362 000763          BR      TO                ;ERROR: CANNOT REFERENCE STACK LIMIT REG.
283          ;LOOP TEST IF ERROR
284          001364      STKLO1=.
285
286
287          ;USING DATI, DATIP/DATOB
288
289          001410      .=1410
290
291 001410 012767 001426 176366      TOB:    MOV      #TOC, ERRVEC ;LOAD ERROR VECTOR
292 001416 117777 177070 177070      MOV      @SLR, @SLH      ;REFERENCE ODD BYTE
293 001424 000403          BR      TOD
294 001426 022626      TOC:    POP2
295 001430 000000          HLT
296 001432 000766          BR      TOB              ;ERROR! CANNOT REFERENCE STACK LIMIT
297          ;USING BYTE INSTRUCTION.
298 001434 012767 000006 176342      TOD:    MOV      #6, ERRVEC  ;RESTORE ERROR TRAP VECTOR
299 001442 000400          BR      T1              ;GO TO NEXT TEST
300
301          ;TEST THAT EACH BIT OF THE STACK LIMIT REGISTER BITS CAN BE SET
302          ;AND CLEARED. THIS TEST ROTATES A BIT THROUGH THE STACK LIMIT REGISTER.
303
304 001444 010701      T1:      SCOPE
305 001446 012702 000400          MOV      #400, R2
306 001452 010277 177034          MOV      R2, @SLR
307 001456 017700 177030          MOV      @SLR, R0
308 001462 020002          CMP      R0, R2
309 001464 001401          BEQ      +4
310 001466 000000          HLT
311          ;LOAD TEST VALUE
312          ;LOAD TEST VALUE INTO STACK LIM. REG.
313 001470 005077 177016          CLR      @SLR
314 001474 017700 177012          MOV      @SLR, R0
315 001500 001401          BEQ      +4
315 001502 000000          HLT
          ;GET RESULT
          ;CHECK RESULT
          ;BRANCH IF RESULT IS CORRECT
          ;ERROR! INCORRECT RESULT. R2 HAS CORRECT
          ;RESULT AND R0 HAS INCORRECT RESULT.
          ;CLEAR STACK LIM. REG.
          ;GET AND CHECK RESULT
          ;ERROR! INCORRECT RESULT

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316 001504 006302          ASL      R2          ;SHIFT TEST VALUE
317 001506 103361          BCC     T1A         ;BRANCH IF NOT DONE
318 001510 000400          BR      T2
319
320
321          ;THIS TEST INCREMENTS THE STACK LIMIT REGISTER
322
323 001512 010701          T2:     SCOPE
324 001514 005067 176776      CLR     TEMP
325 001520 005077 176766      CLR     @SLR        ;CLEAR STACK LIMIT REGISTER
326 001524 017700 176762      MOV     @SLR,R0    ;GET RESULT
327 001530 020067 176762      CMP     R0,TEMP    ;CHECK RESULT
328 001534 001401          BEQ     .+4
329 001536 000000          HLT
330          ;ERROR! STACK LIM. REG. WAS INCORRECT DATA
331 001540 105277 176750      INCB   @SLH        ;TEMP # CORRECT RESULT
332 001544 105267 176747      INCB   TEMP+1     ;INCREMENT VALUE IN STACK LIM. REG.
333 001550 001365          BNE    T2A        ;INCREMENT TEST VALUE
334          ;BRANCH IF ALL VALUES NOT TESTED
335
336          ;TEST THAT RESET CLEARS THE STACK LIMIT REGISTER
337
338 001552 010701          T3:     SCOPE
339 001554 012777 177777 176730  MOV     #-1,@SLR   ;PRESET SLR
340 001562 017700 176724      MOV     @SLR,R0    ;SAVE SLR
341 001566 022700 177400      CMP     #177400,R0 ;CHECK THAT SLR WAS LOADED
342 001572 001401          BEQ     .+4
343 001574 000000          HLT
344          ;! SLR FAILED TO LOAD
345 001576 000005          RESET  ;RESET CLEARS SLR
346 001600 017700 176706      MOV     @SLR,R0    ;GET RESULT OF RESET AND CHECK RESULT
347 001604 001402          BEQ     T4         ;GO TO NEXT TEST IF RESET CLEARED SLR
348 001606 000000          HLT
349          ;ERROR! RESET FAILED TO CLEAR SLR
350          ;LOOP TEST IF ERROR
351
352          ;TEST THAT THE CLEAR INSTRUCTION CLEARS THE STACK LIMIT REGISTER
353
354 001612 010701          T4:     SCOPE
355 001614 112777 177777 176672  MOV     #-1,@SLH   ;PRESET ODD BYTE
356 001622 017700 176664      MOV     @SLR,R0    ;GET RESULT
357 001626 022700 177400      CMP     #177400,R0 ;CHECK RESULT
358 001632 001401          BEQ     .+4
359 001634 000000          HLT
360          ;ERROR! SLR DID NOT PRESET
361 001636 005077 176650      CLR     @SLR
362 001642 017700 176644      MOV     @SLR,R0    ;GET RESULT OF CLEAR & BRANCH IF CLEAR
363 001646 001402          BEQ     T5         ;GO TO NEXT TEST
364 001650 000000          HLT
365          ;ERROR! CLR INST FAILED TO CLEAR SLR
366          ;LOOP TEST IF ERROR
367
368          ;TEST THAT AN OVERFLOW ERROR OCCURS FOR ALL STACK LIMIT REGISTER VALUES.
369          ;(PROVIDED CORE IS AVAILABLE).
370
371 001654 010701          T5:     SCOPE
372 001656 012702 000010      MOV     #10,R2     ;INITIALIZE STACK VALUE AND
373 001662 012703 177400      MOV     #-400,R3   ;STACK LIMIT REGISTER VALUE
374 001666 062702 000400      ADD     #400,R2    ;LOAD NEW STACK VALUE
375 001672 062703 000400      ADD     #400,R3    ;AND NEW STACK LIM. REG. VALUE

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372	001676	005037	000000			CLR	2#0	; CLEAR ADDRESS 0
373	001702	016706	176602			MOV	SPBOT, SP	; INITIALIZE THE STACK POINTER
374	001706	012767	002206	176070	TSB:	MOV	#LIMX, ERRVEC	; LOAD TIME OUT TRAP
375	001714	016204	177776			MOV	-2(2), R4	; SAVE STACK LOCATIONS
376	001720	016205	177774			MOV	-4(2), R5	; EXIT TEST IF EITHER INST TIMES OUT
377	001724	012767	001750	176052		MOV	#LIMA, ERRVEC	; LOAD OVERFLOW VECTOR
378	001732	010206				MOV	R2, SP	; LOAD STACK POINTER
379	001734	010377	176552			MOV	R3, 2SLR	; LOAD STACK LIM. REG.
380	001740	016666	177770	177770		MOV	-10(6), -10(6)	; REFERENCE LIMIT ADDRESS
381	001746	000420				BR	LIMAA	; SHOULD NOT HAVE TRAPPED
382	001750	000000			LIMA:	HLT		; ERROR! REFERENCE TO LIMIT ADDRESS
383								; CAUSED AN OVERFLOW
384	001752	000416				BR	LIMAA	
385								
386		001754						STKLO2=.
387								
388								
389		002010						.=2010
390								
391	002010	010206			LIMAA:	MOV	R2, SP	; REPOINT STACK POINTER
392	002012	012767	002030	175764		MOV	#LIMB, ERRVEC	; REPOINT OVERFLOW VECTOR
393	002020	016666	177766	177766		MOV	-12(6), -12(6)	; REFERENCE FIRST 'YELLOW' ADDRESS
394	002026	000000				HLT		; ERROR! SHOULD HAVE TRAPPED
395	002030	005737	000000		LIMB:	TST	2#0	; WAS IT 'RED' OVERFLOW?
396	002034	001401				BEQ	+.4	
397	002036	000000				HLT		; ERROR! A 'RED' OVERFLOW OCCURRED WHEN
398								; A 'YELLOW' ADDRESS WAS REFERENCED.
399	002040	010206				MOV	R2, SP	; REPOINT STACK POINTER
400	002042	005037	000000			CLR	2#0	; CLEAR ADDRESS 0
401	002046	012767	002064	175730		MOV	#LIMC, ERRVEC	; REPOINT OVERFLOW VECTOR
402	002054	016666	177730	177730		MOV	-50(6), -50(6)	; REFERENCE LAST 'YELLOW' ADDRESS
403	002062	000000				HLT		; ERROR! SHOULD HAVE TRAPPED
404	002064	005737	000000		LIMC:	TST	2#0	; WAS IT 'RED' OVERFLOW?
405	002070	001401				BEQ	+.4	
406	002072	000000				HLT		; ERROR! A 'RED' OVERFLOW OCCURRED WHEN
407								; THE LAST 'YELLOW' ADDRESS WAS REFERENCED
408	002074	005037	000000			CLR	2#0	; CLEAR ADDRESS 0
409	002100	010206				MOV	R2, SP	; REPOINT THE STACK POINTER
410	002102	012767	002124	175674		MOV	#LIMD, ERRVEC	; REPOINT THE OVERFLOW TRAP
411	002110	016267	177726	176400		MOV	-52(2), TEMP	; GET 'RED' LOCATION
412	002116	005166	177726			COM	-52(6)	; REFERENCE 'RED' ADDRESS
413	002122	000000			LIMCC:	HLT		; ERROR! NO OVERFLOW TRAP WHEN 'RED' ADDRESS
414								; WAS REFERENCED
415	002124	026267	177726	176364	LIMD:	CMP	-52(2), TEMP	; WAS INSTRUCTION ABORTED?
416	002132	001401				BEQ	+.4	
417	002134	000000				HLT		; ERROR! COM -52(6) WAS ALLOWED TO CHANGE
418								; A 'RED' ADDRESS.
419	002136	016762	176354	177726		MOV	TEMP, -52(2)	; RESTORE 'RED' LOCATION IN ANY EVENT
420	002144	005706				TST	%6	; WAS STACK POINTER CHANGED TO 0?
421	002146	001401				BEQ	+.4	
422	002150	000000				HLT		; 'RED' OVERFLOW DID NOT ASSUME NEW STACK
423	002152	022737	002122	000000		CMP	#LIMCC, 2#0	; IS RETURN ADDRESS ON NEW STACK?
424	002160	001401				BEQ	+.4	
425	002162	000000				HLT		; ERROR! RETURN ADDRESS NOT SAVED ON NEW
426								; STACK
427	002164	005077	176322			CLR	2SLR	; GET READY TO GET NEW VALUES FOR TEST

```

428 002170 016706 176314      MOV      SPBOT,SP      ;INITIALIZE THE STACK POINTER
429 002174 010462 177776      MOV      R4,-2(2)     ;RESTORE STACK ADDRESS DATA
430 002200 010562 177774      MOV      R5,-4(2)
431 002204 000630          BR       TSA          ;GET NEW VALUES
432 002206 012767 000006 175570 LIMX: MOV      #6,ERRVEC    ;RESTORE TIME OUT TRAP VECTOR
433
434
435 002214 005767 176262      TST      ICNTA        ;TEST FOR
436 002220 001013          BNE     END           ;
437 002222 022767 177777 000120      CMP      #-1,$ENDAD+4 ;SCRIPT
438 002230 001417          BEQ     DONE         ;CONDITION
439 002232 026767 175610 175602      CMP      46,42       ;AND
440 002240 001003          BNE     END           ;SET
441 002242 005267 176234      INC      ICNTA        ;FLAG
442 002246 000410          BR      DONE
443 002250 005267 176224          END:   INC      ICNT
444 002254 026727 176220 001500      CMP      ICNT,#1500  ;HAVE 1500 PASSES BEEN COMPLETED
445 002262 001402          BEQ     DONE
446 002264 000167 176772      JMP     BEGIN
447 002270 012767 000007 175270 DONE: MOV      #7,TPB      ;RING BELL
448 002276 105767 175262      TSTB   TPS
449 002302 100375          BPL     -4
450 002304 012767 000052 175254      MOV      #52,TPB     ;PRINT '*'
451 002312 105767 175246      TSTB   TPS
452 002316 100375          BPL     -4
453 002320 012767 000000 175240      MOV      #0,TPB      ;INSERT
454 002326 105767 175232      TSTB   TPS          ;NULL
455 002332 100375          BPL     -4          ;CHARACTER
456 002334 013702 000042      MOV      @#42,%2     ;GET MONITOR RETURN ADDRESS
457 002340 001410          BEQ     DONE1       ;DO NOT RETURN IF (42)=0
458 002342 000005          RESET
459 002344 004712          SENDAD: JSR      7,(2) ;RETURN TO MONITOR
460 002346 000240          NOP
461 002350 000240          NOP
462 002352 000240          NOP
463 002354 005000          CLR     RO          ;DELAY FOR ACT11
464 002356 005200          INC     RO
465 002360 001376          BNE     -2
466 002362 000167 176422      DONE1: JMP      START   ;RESTART
467
468          002366          STKL03=.
469
470
471          000001          .END
    
```





COMMEN 1#  
 ENDCOM 1#  
 ESCAPE 1#  
 GETPRI 1#  
 GETSWR 1#  
 MULT 1#  
 NEWTST 1#  
 POP 1#  
 PUSH 1#  
 REPORT 1#  
 SETPRI 1#  
 SETUP 1#  
 SKIP 1#  
 SLASH 1#  
 STARS 1#  
 SWRSU 1#  
 TYPBIN 1#  
 TYPDEC 1#  
 TYPNAM 1#  
 TYPNUM 1#  
 TYPOCS 1#  
 TYPOCT 1#  
 TYPTXT 1#  
 \$\$ESCA 1#  
 \$\$NEWT 1#  
 \$\$\$SKIP 1#  
 .EQUAT 1#  
 .HLADE 1#  
 .KT11 1#  
 .SETUP 1#  
 .SWRHI 1#  
 .SACT1 1#  
 .SAPT8 1#  
 .SAPTH 1#  
 .SAPTY 1#  
 .SASTA 1#  
 .SCATC 1#  
 .SCMTA 1#  
 .SDB2D 1#  
 .SDB2O 1#  
 .SDIV 1#  
 .SEOP 1#  
 .SERRO 1#  
 .SERRT 1#  
 .SMULT 1#  
 .SPOWE 1#  
 .SRAND 1#  
 .SRDDE 1#  
 .SRDOC 1#  
 .SREAD 1#  
 .SR2AZ 1#  
 .SSAVE 1#  
 .SSB2D 1#  
 .SSB2O 1#  
 .SSCOP 1#  
 .SSIZE 1#

148# 235

CCKBFD 11/40,45 STACK LIMIT  
CCKBFD.P11 07-DEC-77 15:50

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CROSS REFERENCE TABLE -- MACRO NAMES

SEQ 0013

.SSUPR 1#  
.STRAP 1#  
.STYPB 1#  
.STYPD 1#  
.STYPE 1#  
.STYPO 1#  
.S4OCA 1#  
.1170 1#

. ABS. 002366 000

ERRORS DETECTED: 0

CCKBFD,CCKBFD/CRF/SOL/PAGNUM/NL:TOC=CCKBFD.SML,CCKBFD.P11  
RUN-TIME: 6 6 .1 SECONDS  
RUN-TIME RATIO: 447/13=32.3  
CORE USED: 31K (61 PAGES)

B02