

RCSL: 43-GL10561  
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; MUI13

; KEYWORDS: MUS, INITIALIZATION, LISTING.  
; ABSTRACT: MUS SYSTEM INITIALIZATION.  
; ASCII PAPER TAPE RCSL 43-GL10560  
; REL. BIN PAPER TAPE RCSL 43-GL10562

10002 MUI13

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01      000010 TTI= 10      ;
02      000011 TTO= TTI+1  ;
03      000014 RTC= 14     ;
04      ; ***** INIT MONITOR *****
05
06      ; THE FOLLOWING CPU-TYPES ARE HANDLED:
07      ;
08      ; 0 : RC3603
09      ; 1 : RC3703
10      ; 2 : RC3803
11      ; 3 : RC3703 WITH MEMORY FACILITY AS RC3803
12      ; 4 : RC3603 WITH MEMORY FACILITY AS RC3803
13
14      .NREL
15      000001 .TXTM 1
          .TITL MUI13
17      000012 .RDX 10
18
19      000156 R12=110
20
21      062601 .DUSR LDB=      DICC      0,1      ; LOAD BYTE
22      063201 .DUSR STB=      DOCC      0,1      ; STORE BYTE
23      062402 .DUSR BMOVE=    DIC        0,2      ; MOVE BYTES
24      062502 .DUSR WMOVE=    DICS      0,2      ; MOVE WORDS
25      062602 .DUSR SCHEL=    DICC      0,2      ; SEARCH ELEMENT
26      062702 .DUSR SFREE=    DICP      0,2      ; SEARCH FREE ELEMENT
27      063002 .DUSR LINK=     DOC        0,2      ; LINK(HEAD,ELEM)
28      063102 .DUSR REMEL=    DOCS      0,2      ; REMOVE(ELEM)
29      063202 .DUSR PLINK=    DOCC      0,2      ; LINKPROCESS(PROC)
30      063302 .DUSR FETCH=    DDCP      0,2      ; INTERPRETER FETCH
31      063402 .DUSR TKADD=    SKPBN     2         ; TAKEADDRESS
32      063502 .DUSR TKVAL=    SKPBZ     2         ; TAKEVALUE
33      063602 .DUSR COMP=     SKPDN     2         ; COMPARE
34      062701 .DUSR MEMON=    DICP      0,1      ; MEMORY ON
35      063601 .DUSR MEMTE=    SKPDN     1         ; TEST MEMORY ON
36
37      000010 .RDX 8
38      000155 AREMOVE=        155          ; REMOVE(ELEM)
39      000156 APLINK=         156          ; LINKPROCESS(PROC)
40      000157 ALINK=          157          ; LINK(HEAD,ELEM)
41      000161 ASEARCH=        161          ; SEARCH(CHAIN,NAMEADDR,ITEM)
42      000224 AMOVE=          224          ; MOVE
43      000225 AINT=           225          ; INTERPRETER
44      000237 ATKVAL=         237          ; TAKEVALUE
45      000236 ATKADD=         236          ; TAKEADDRESS
46      000024 ASEND=          24           ; SENDMESSAGE
47      000234 ACL0=           234          ; INTERPRETER LOOP 0
48      000235 ACL1=           235          ; INTERPRETER LOOP 1
49      003402 INSTR=          3402         ; JMP# +2,3
50      000042 ACOMP=          41+1        ; INTERPR.COMPARE;DISP FROM 'FETCH'
51      000045 ACONV=          44+1        ; INTERPR.CONVERT;DISP FROM 'FETCH'
52      000012 .RDX 10
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10003 MUI13

01 000002 .LOC 2  
02 00002 000006' I8  
03 .NREL  
04  
05 00000'000000 I0: 0  
06 00001'000237 E31: 128+31  
07 00002'000035 I29: 29  
08 000002 .RDX 2  
09 00003'000040 I2: 000000000100000  
10 000012 .RDX 10  
11 00004'000401 I30: DEVTA+9  
12 00005'000464 I31: TOPDEV

13  
14 I8: ; SYSTEM START:  
15 00006'060277 INTDS ; INTERRUPT DISABLE;  
16 00007'060430 DIA 0 24 ; SENSE(MT0,STATUS);  
17 00010'024773 LDA 1 I2 ;  
18 00011'107404 AND 0,1 SZR ; IF STATUS AND ERROR THEN  
19 00012'063077 HALT ; HALT;  
20 00013'020126 LDA 0 .NL ;  
21 00014'061135 DOAS 0 29 ; CLEAR DISPLAY;  
22 00015'063535 SKPBZ 29 ;  
23 00016'000777 JMP .-1 ;  
24 00017'020763 LDA 0 I29 ;  
25 00020'061111 DOAS 0 TTO ; HOMEUP;  
26 00021'020760 LDA 0 E31 ;  
27 00022'063511 SKPBZ TTO ;  
28 00023'000777 JMP .-1 ;  
29 00024'034122 LDA 3 .5 ; COUNT:=-5;  
30 00025'174400 NEG 3,3 ;  
31 00026'061111 DOAS 0 TTO ; REPEAT  
32 00027'063511 SKPBZ TTO ; DOAS(ERASE EOF);  
33 00030'000777 JMP .-1 ;  
34 00031'175404 INC 3,3 SZR ;  
35 00032'000774 JMP .-4 ; UNTIL INC(COUNT)=0;  
36 00033'062677 IORST ; RESET ALL DEVICES;  
37 00034'062701 MEMON ; ENABLE MEM.EXT  
38 00035'020067 LDA 0 MASK ;  
39 00036'062077 MSKO 0 ; MASK OUT(MASK);  
40 00037'020066 LDA 0 FREQUENCY ;  
41 00040'061114 DOAS 0 RTC ; START(RTC,FREQUENCY);  
42 00041'024006 LDA 1 6 ;  
43 00042'044002 STA 1 2 ; WORD 2 := WORD 6;  
44 00043'044005 STA 1 5 ; WORD 5 := WORD 6;  
45 00044'102000 ADC 0,0 ;  
46 00045'042740 STA# 0 I31 ; 0.TOPDEV:=-1;  
47

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10004 MUI13
01 00046'030736      LDA      2      I30      ;
02 00047'050020      STA      2      16      ; INDEX:= WORD 401;
03 00050'030054 I10: LDA      2      PROCESS ; OLD:= PROCESS CHAIN;
04                                     ; NEXT PROCESS:
05 00051'036020      LDA#     3      16      ; PROC:= 0,INCR(INDEX);
06 00052'175015      MOV#    3,3  SNR      ; IF PROC=0 THEN
07 00053'000775      JMP          I10      ; GOTO NEXT PROCESS;
08 00054'175415      INC#    3,3  SNR      ; IF PROC=-1 THEN
09 00055'000422      JMP          I11      ; GOTO CLEAR DEVICE TABLE;
10 00056'025002      LDA      1      CHAIN,2 ;
11 00057'045402      STA      1      CHAIN,3 ; CHAIN.PROC:= CHAIN.PROCESS;
12 00060'055002      STA      3      CHAIN,2 ; CHAIN.PROCESS:= PROC;
13 00061'054717      STA      3      I0      ;
14                                     ;
15                                     ; PROGRAM CHAIN:
16 00062'035412      LDA      3      PROG,3 ; PROG:= PROG,PROC;
17 00063'030071      LDA      2      PROGRAM ;
18 00064'025002      LDA      1      CHAIN,2 ;
19 00065'055002      STA      3      CHAIN,2 ; CHAIN.PROG:= CHAIN.PROGRAM;
20 00066'045402      STA      1      CHAIN,3 ; CHAIN.PROGRAM:= PROG;
21 00067'030711      LDA      2      I0      ;
22                                     ; RUNNING QUEUE:
23 00070'006156      JSR#    R12      ; LINK PROCESS(PROC);
24 00071'035023      LDA      3      PSW,2  ;
25 00072'055003      STA      3      SIZE,2  ; SIZE.CUR(15):=PSW.CUR(15);
26 00073'175220      MOVZR   3,3      ;
27 00074'055023      STA      3      PSW,2  ; PSW.CUR:=PSW.CUR//2;
28 00075'000753      JMP          I10      ; GOTO NEXT PROCESS;
29
30 00076'000331'.I20: I20

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01                                ; SET DEVICE TABLE:
02 00077'030112 I11: LDA 2 CUR2 ; VALUE:= CUR*2;
03 00100'034045 LDA 3 TABLE ; INDEX:= DEVICE TABLE;
04 00101'024046 LDA 1 TOPTABLE ; SET NEXT:
05 00102'051403 I12: STA 2 +3,3 ; 0.INDEX:=VALUE;
06 00103'051400 STA 2 0,3 ; 3.INDEX:=VALUE;
07 00104'175400 INC 3,3 ; INDEX:= INDEX+1;
08 00105'136414 SUB# 1,3 SZR ; IF INDEX<>TOP OF DEV TABLE THEN
09 00106'000774 JMP I12 ; GOTO SET NEXT;
10
11 00107'151400 INC 2,2 ;
12 00110'151400 INC 2,2 ;
13 00111'034045 LDA 3 TABLE ; RTC.DEVTABLE:=
14 00112'020127 LDA 0 .RTC ; VALUE+1
15 00113'117000 ADD 0,3 ;
16 00114'051400 STA 2 +0,3 ;
17
18 00115'024120 LDA 1 .1 ;
19 00116'065002 DOA 1 2 ;
20 00117'060402 DIA 0 2 ; IF CPU-TYPE = 0 THEN
21 00120'040100 STA 0 CPUTY ;
22 00121'101005 MOV 0,0 SNR ;
23 00122'002056 JMP# EXIT ; GOTO EXIT;
24 00123'030116 LDA 2 .4 ;
25 00124'112405 SUB 0,2 SNR ; IF CPU-TYPE = 4 THEN
26 00125'002056 JMP# EXIT ; GOTO EXIT;
27 00126'030174 LDA 2 GETBYT-GOS;
28 00127'006747 JSR# .I20 ; INIT(GETBYTE);
29 00130'000003 3 ;
30 00131'062601 LDB ;
31 00132'030040 LDA 2 CUR ;
32 00133'001400 JMP +0,3 ;
33 00134'030175 LDA 2 PUTBYT-GOS; INIT(PUTBYTE);
34 00135'006741 JSR# .I20 ;
35 00136'000003 3 ;
36 00137'063201 STB ;
37 00140'030040 LDA 2 CUR ;
38 00141'001400 JMP +0,3 ;
39 00142'020100 LDA 0 CPUTY ;
40 00143'152520 SUBZL 2,2 ;
41 00144'112415 SUB# 0,2 SNR ; IF CPU-TYPE = 1 THEN
42 00145'002056 JMP# EXIT ; GOTO EXIT;
43 00146'030121 LDA 2 .3 ;
44 00147'116405 SUB 0,3 SNR ; IF CPY-TYPE = 3 THEN
45 00150'002056 JMP# EXIT ; GOTO EXIT;

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10006 MUI13

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01 ;
02 00151'030155 LDA 2 AREMOVE ; BEGIN ! RC3803 !
03 00152'006724 JSR@ .I20 ; INIT(REMOVE(ELEM))
04 00153'000003 3 ;
05 00154'054000 STA 3 0 ;
06 00155'063102 REMEL ;
07 00156'002000 JMP@ 0 ;
08 00157'030156 LDA 2 APLINK ; INIT(LINKPROCESS(PROC))
09 00160'004551 JSR I20 ;
10 00161'000004 4 ;
11 00162'054000 STA 3 0 ;
12 00163'126520 SUBZL 1,1 ;
13 00164'063202 PLINK ;
14 00165'002000 JMP@ 0 ;
15 00166'030157 LDA 2 ALINK ; INIT(LINK(HEAD,ELEM))
16 00167'004542 JSR I20 ; !NOTE: NOT INSERTED WITHOUT PLINI
17 00170'000003 3 ;
18 00171'054000 STA 3 0 ;
19 00172'063002 LINK ;
20 00173'002000 JMP@ 0 ;
21 00174'030161 LDA 2 ASEARCH ; INIT(SEARCH)
22 00175'004534 JSR I20 ;
23 00176'000003 3 ;
24 00177'054000 STA 3 0 ;
25 00200'062602 SCHEL ;
26 00201'002000 JMP@ 0 ;
27 00202'030024 LDA 2 ASEND ; INIT(SFREE IN SENDMESSAGI
28 00203'020124 LDA 0 .7 ;
29 00204'113000 ADD 0,2 ; START AT 8. INSTR.
30 00205'004524 JSR I20 ;
31 00206'000007 7 ;
32 00207'062702 SFREE ; MUST BE EXACTLY 7 INS
33 00210'151004 MOV 2,2 SZR ;
34 00211'000405 JMP .+5 ; IF NO BUFFER THEN
35 00212'030121 LDA 2 .3 ; RETURN ERROR -3
36 00213'150400 NEG 2,2 ;
37 00214'051421 STA 2 AC2,3 ;
38 00215'002056 JMP@ EXIT ;
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10007 MUI13

```
01 00216'030224   LDA      2   AMOVE      ;           INIT(MOVE)
02 00217'004512   JSR      I20          ;
03 00220'000015   13                  ;
04 00221'055003   STA      3   +3,2     ;
05 00222'034040   LDA      3   CUR      ;
06 00223'051424   STA      2   SAVE,3   ;
07 00224'035000   LDA      3   +0,2     ;
08 00225'174513   NEGL#    3,3  SNC     ;
09 00226'003003   JMP#     +3,2         ;
10 00227'102400   SUB      0,0         ;
11 00230'025002   LDA      1   +2,2     ;
12 00231'031001   LDA      2   +1,2     ;
13 00232'062402   BMOVE                    ;
14 00233'030040   LDA      2   CUR      ;
15 00234'031024   LDA      2   SAVE,2   ;
16 00235'003003   JMP#     +3,2         ;
17 00236'030225   LDA      2   AINT     ;
18 00237'151005   MOV      2,2  SNR     ;           IF INTERPRETER LOADED THEN
19 00240'002056   JMP#     EXIT        ;           BEGIN
20 00241'020467   LDA      0   .INSTR   ;           IF INSTR<>INTPR-ENTRY.12 THEN
21 00242'025014   LDA      1   +12,2    ;
22 00243'106414   SUB#     0,1  SZR     ;
23 00244'000450   JMP      I125        ;           DO NOT CHANGE FETCH,COMPARE,C
24 00245'020115   LDA      0   .8       ;           IF INSTR=INTPR-ENTRY.12 THEN
25 00246'113000   ADD      0,2         ;           BEGIN
26 00247'050225   STA      2   AINT     ;           NEW INTPT-ENTRY;
27 00250'101220   MOVZR    0,0         ;
28 00251'143000   ADD      2,0         ;
29 00252'040234   STA      0   ACL0    ;           NEW INTPR LOOP0;
30 00253'040235   STA      0   ACL1    ;           NEW INTPR-LOOP1;
31 00254'004463   JSR      I25         ;           INIT(FETCH);
32 00255'000005   5                    ;
33 00256'030040   LDA      2   CUR      ;
34 00257'055033   STA      3   PC,2     ;
35 00260'102400   SUB      0,0         ;
36 00261'041034   STA      0   OP,2     ;
37 00262'063302   FETCH                    ;
38 00263'030234   LDA      2   ACL0    ;
39 00264'031042   LDA      2   ACOMP,2  ;           INIT(INTPR-COMPARE)
40 00265'151400   INC      2,2         ;
41 00266'151400   INC      2,2         ;
42 00267'004450   JSR      I25         ;
43 00270'000007   7                    ;
44 00271'121000   MOV      1,0         ;
45 00272'025027   LDA      1   SAVE3,2  ;
46 00273'031030   LDA      2   SAVE4,2  ;
47 00274'063602   COMP                    ;
48 00275'030040   LDA      2   CUR      ;
49 00276'041032   STA      0   R,2     ;
50 00277'002235   JMP#     ACL1        ;
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10008 MUI13
01 00300'030234      LDA      2   ACL0      ;          INIT(INTPR-CONVERT)
02 00301'031045      LDA      2   ACONV,2
03 00302'020116      LDA      0   .4
04 00303'113000      ADD      0,2
05 00304'004433      JSR      I25
06 00305'000006      6
07 00306'135000      MOV      1,3
08 00307'021025      LDA      0   SAVE1,2
09 00310'025027      LDA      1   SAVE3,2
10 00311'031030      LDA      2   SAVE4,2
11 00312'062402      BMOVE
12 00313'002235      JMP@     ACL1
13
14
15 00314'030236      LDA      2   ATKADDR  ;          INIT(TAKEADDRESS)
16 00315'004422      JSR      I25          ;
17 00316'000003      3                  ;
18 00317'055025      STA      3   SAVE1,2  ;
19 00320'063402      TKADD     ;
20 00321'003025      JMP@     SAVE1,2     ;
21 00322'030237      LDA      2   ATKVAL  ;          INIT(TAKEVALUE)
22 00323'004414      JSR      I25          ;
23 00324'000002      2                  ;
24 00325'063502      TKVAL
25 00326'001400      JMP      +0,3        ;
26
27
28 00327'002056      JMP@     EXIT
29
30 00330'003402      .INSTR: INSTR

```

END NEW INTERPRETER;

END;  
END 3803;



```

01 ;PROCEDURE INIT ;
02 ;
03 ; CALL RETURN
04 ;
05 ; AC0 - -
06 ; AC1 - DEST.
07 ; AC2 P.ADDR DEST.
08 ; AC3 - DEST.
09 ;
10 ; +0: NUMBER OF WORDS TO MOVE (COUNT)
11 ; +1...+COUNT: INSTRUCTIONS TO MOVE
12 ; +COUNT+1: RETURN
13 ;
14 ; ENTRY I20: ADDR OF PROCEDURE ENTRY IS CHECKED TO SEE IF
15 ; PROCEDURE IS LOADED.
16 ; ENTRY I25: ADDR OF PROCEDURE ENTRY IS NOT CHECKED.
17 00331'151004 I20: MOV 2,2 SZR ; IF P.ADDR = 0 THEN
18 00332'000405 JMP I25 ; BEGIN
19 00333'021400 LDA 0 +0,3 ;
20 00334'117000 ADD 0,3 ; RETURN AFTER INSTRUCTIONS;
21 00335'175400 INC 3,3 ;
22 00336'001400 JMP +0,3 ; END;
23 00337'021400 I25: LDA 0 +0,3 ; COUNT:= WORD(LINK);
24 00340'175400 INC 3,3 ;
25 00341'163000 ADD 3,0 ; TOP:= LINK+COUNT+1;
26 00342'025400 I21: LDA 1 +0,3 ; REPEAT
27 00343'045000 STA 1 +0,2 ;
28 00344'175400 INC 3,3 ; WORD(P.ADDR):= WORD(LINK);
29 00345'151400 INC 2,2 ; LINK:= LINK+1;
30 00346'116414 SUB# 0,3 SZR ; P.ADDR:= P.ADDR+1;
31 00347'000773 JMP I21 ; UNTIL P.ADDR=TOP;
32 00350'001400 JMP +0,3 ;
33
34 ; ***** END OF INIT MONITOR *****
35
36 .END ; GOTO SYSTEM START;
0000 SOURCE LINES IN ERROR

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## 0010 MUI13

ACLO	000234	2/47	7/29	7/38	8/01			
ACL1	000235	2/48	7/30	7/50	8/12			
ACOMP	000042	2/50	7/39					
ACONV	000045	2/51	8/02					
AINTE	000225	2/43	7/17	7/26				
ALINK	000157	2/40	6/15					
AMOVE	000224	2/42	7/01					
APLIN	000156	2/39	6/08					
AREMO	000155	2/38	6/02					
ASEAR	000161	2/41	6/21					
ASEND	000024	2/46	6/27					
ATKAD	000236	2/45	8/15					
ATKVA	000237	2/44	8/21					
E31	000001'	3/06	3/26					
I0	000000'	3/05	4/13	4/21				
I10	000050'	4/03	4/07	4/28				
I11	000077'	4/09	5/01					
I12	000102'	5/05	5/09					
I125	000314'	7/23	8/14					
I2	000003'	3/09	3/17					
I20	000331'	4/30	6/09	6/16	6/22	6/30	7/02	9/17
I21	000342'	9/26	9/31					
I25	000337'	7/31	7/42	8/05	8/16	8/22	9/18	9/23
I29	000002'	3/07	3/24					
I30	000004'	3/11	4/01					
I31	000005'	3/12	3/46					
I8	000006'	3/02	3/14					
INSTR	003402	2/49	8/30					
R12	000156	2/19	4/23					
RTC	000014	2/03	3/41					
TTI	000010	2/01	2/02					
TTO	000011	2/02	3/25	3/27	3/31	3/32		
.I20	000076'	4/30	5/28	5/34	6/03			
.INST	000330'	7/20	8/30					