Title:

RC BASIC
Corrections (no. 2) to the RC BASIC
Programming Guide

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Keywords:

RC BASIC, corrections, subcatalogs.

Abstract:

These corrections together with corrections no. 1 (RCSL 43-GL 6940) updates the RC BASIC Programming Guide to a point corresponding to rev. 01.16 of the RC BASIC system.

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CONTENTS PAGE

1. INTRODUCTION.

In the RC BASIC Programming Guide (ref. [1]) chpt. 7 and 8 it is described how files can be handled within the logical discs.

The filesystem based on logical discs was designed especially for flexible discs and was later on implemented in systems using moving head discs (DOMUS-discs).

The logical disc-system has, however, some limitations, and therefore a subcatalog system has been implemented (as an integreted part of the DOMUS-system).

The subcatalogs can be used by the RC BASIC system. In many ways a subcatalog can be used exactly as a logical disc. There is, however, some changes, and they will be described in this manual as corrections/additions to the Programming Guide.

The corrections are mentioned by a page number and a line-number. A positive line-number means that lines should be counted from the top of the page, a negative line-number means that lines should be counted from the buttom.

If a correction is marked with *, this means that the correction concerns a part of the Programming Guide which has already been corrected once (in ref. [2]).

With these corrections included, the Programming Guide corresponds to rev. 01.16 of the RC BASIC System.

2. CORRECTIONS IN CONNECTION WITH SUBCATALOGS

Page 13, insert after line -6:

<subcatname>: The name of a subcatalog.

Page 29, line 7:

Logical disc → logical disc/subcatalog.

Page 124, line 1 and 2:

7. Logical Discs/Subcatalogs and Related Commands.
7.1. Introduction.
7.1.1. Logical Discs.

Page 126, insert before line 14:

7.1.2. Subcatalogs.

The logical discs described in Sect. 7.1.1. are always used on systems with flexible discs. Un systems with moving-head disc (systems running under the DOMUS operating system) RC BASIC will usually use subcatalogs in stead of logical discs. The subcatalogs can be con-considered as being a part of the DOMUS system, and therefore they will not be described in this manual. The reader is referred to ref. [3] and [4].

Once a subcatalog has been created (by means of the DOMUS utility program SUBCA, see ref. [3]) it may from the BASIC-users point of view be looked at as a logical disc except for a few minor differences that will be mentioned in the following:

- The name of a subcatalog consists of max. 5 characters.
- The name of a file contained in a subcatalog consists of max. 5 characters.

- A subcatalog does not have a fixed size. Files may be created within the subcatalog as long as there is space on the disc holding the subcatalog.

- The INIT-, LOCK- and USERS-commands (Sect. 7.4, 7.5 and 7.8) are blind, i.e. they have no effect when used in subcatalog-systems.

- The concept "exclusive user" does not exist in connection with subcatalogs. When a user connects his terminal to a subcatalog and he specifies a correct protection key, he will be allowed to perform all kinds of operations on the files contained in the subcatalog. This does not mean, that other users are excluded from the actual subcatalogs. In other words: all users may perform all kinds of operations at the same time. It is, however, not possible for two or more users to write into or delete the same file at the same time.

- If a subcatalog does not have a protection key, a user is allowed to perform all operations (including "DELETE") if he knows the name of the subcatalog.

- The main catalog of the system can be looked at as a subcatalog named CAT with protection key equal to zero. If a user has not connected his terminal to a subcatalog, he will be connected to CAT. The user is then allowed to read all files described in CAT, but he may only change files, that have been created from BASIC. This means, that all system-files are protected against destruction.

Page 126, CONNECT:

The description of CONNECT has been changed once (ref. [2], page 8). This revised description still applies to logical disc-systems. In subcatalog-systems the remarks should be changed as follows:

Remarks

1. If the user CONNECT's to a subcatalog which has a protection key (<> 0) without specifying this, he may only read from files contained in the subcatalog.
2. If the user specifies a protection key and the value is correct, he is allowed to perform all kinds of operations on files contained in the subcatalog.
3. Unchanged.
4. If a subcatalog does not have a protection key, a user is allowed to perform all kinds of operations on files contained in the subcatalog, if he CONNECT's to the subcatalog.

The following table shows which kind of access the user will have depending on the protection key of the subcatalog and the key specified in the CONNECT-command.

Protection key of the subcatalog \ Key specified in CONNECT-command	= 0 i.e. no key	>0
= 0	all kinds of access is allowed	all kinds of access is allowed
> 0	read-access only	all kinds of access is allowed (if the key is correct)

Page 127-132:

<ldname> → <ldname>/<subcatname>
logical disc → logical disc/subcatalog

Page 128, insert after line -12:

4. The INIT-command has no effect in subcatalog-systems.

Page 129, insert after line 13:

5. The LOCK-command has no effect in subcatalog-systems.

Page 130, Remarks to LOOKUP.

Remarks 1-6 only applies to logical-disc systems.

In subcatalog-systems the listing of files will look as follows: (The headings will only be printed, if the LOOKUP "$LPT" form of the command is used).

NAME	ATTRIBUTE	LENGTH	INDEX	RLENGTH	LBYTE RECSIZE	LBLOCK NO.REC	SEQ RAN
PROG1	 V	3	576	6	133	3	S
DATA1	..... F	7	666	12	80	42	R

LENGTH, INDEX and RLENGTH are usually of no interest for the user of BASIC. For further information, see ref. [4].

NAME: The name of the file.

ATTRIBUTES:

V: The file is extendable.

F: The file has a fixed length i.e. it is not extendable.

LENGTH: The length of the file.

INDEX: The number of the sector, where the indexblock of the file is placed.

RLENGTH: The reserved length of the file.

LBYTE: (sequential files). The number of bytes used in the last block written.

LBLOCK: (sequential files). The number of the last block written.

RECSIZE: (random access files). The length (in bytes) of the record.

NO.REC: (random access files). The number of records in the file.

SEQ/RAN:

S: a sequential file.

R: a random access file.

Only the files that have been created from BASIC will be listed although other files will be accessable for reading.

Page 132, insert after line 6:

3. The USERS-command has no effect in subcatalog-systems.

Page 133, line 6:

Logical discs → logical discs/subcatalogs.

Page 134, line 2-4:

In logical disc-systems a RC BASIC file comprises a number of consecutive blocks in a logical disc. Each file is described separately by an entry in the subcatalog of the logical disc (see Sect. 7.1). In subcatalog-systems a RC BASIC file consists of a number of slices that can be placed anywhere on the disc. A slice is a number of consecutive blocks; the number depends on how the DOMUS-disc has been generated, but it is usually 6 (see also ref. [4]).

Page 134, line 6:

Logical disc → logical disc/subcatalogs.

Page 134, line 13-14:

The statement "A filename may contain from 1 to 8 characters." is replaced by "In logical disc-systems the name consists of 1 to 8 characters, and in subcatalogsystems 1 to 5 characters.

Page 137, line 4:

<filename>: the name of the disc file to be created, expressed as a string literal or by means of a variable. In logical disc-systems the name consists of 1 to 8 characters, and in subcatalog-systems 1 to 5 characters.

Page 137, line -9- -1:

3. In subcatalog-systems a file that is created with size equal to 0 will be extendable. This means that the file will be extended if the user writes more data into the file, than can be hold in the blocks actually allocated to the file. If <size> is >0 the length of the file will be fixed, i.e. the file can not be extended.

4. In logical disc-systems a file that is created with <size> equal to 0 will be given a length corresponding to the number of free blocks in the logical disc. The file can then be used for output, and when it is CLOSEd (see Sect.8.2), the system will truncate it. No more than one file (in logical disc-systems) created with <size> equal to 0 can be used, unless the files in question have already been CLOSEd once.

5. <size> must be positive, if the file is a random access file.

Page 138, line 1:

5 → 6

Page 138, line 7:

6 → 7

Page 138, DELETE:

Remarks 1-3 only applies to logical disc-systems. In subcatalog-systems a file can be deleted, if the user has write-access to the subcatalog.

Page 133-150:

Logical disc → logical disc/subcatalog.

Page 160, line -7 and
page 161, LOAD, remark 3* and
page 170, RUN, remark 3* and
page 170, line -2:

Logical disc → logical disc/subcatalog

Page 238:

line -14 is replaced by:

subcatalog, see Logical disc.
subcatalog (in a logical disc), see Catalog.

3. OTHER CORRECTIONS

Page 29, insert after line -12:

7. When the CHAINed program is executed, it is done without clearing the state of the program. This means that all variables have the values they had, when the program was SAVEd. If a CHAINed program should be executed as if the user had started it by means of the command RUN, then the user must bring the program into "neutral" state before it is SAVEd:

```
1 STOP                  ; insert STOP as the first
                          statement
RUN                     ; execute the program
1                       ; delete STOP-statement
SAVE "<filename>"; SAVE the program
```

Page 133, insert after line -10:

Serial printer ($SP)

4. ERROR MESSAGES

In connection with the subcatalog-system the following error messages have been changed/added (page 185-187).

No. 0105, 0110, 0115:

LD → LD/SUBCATALOG

0160: CATALOG I/O ERROR

Some kind of inconsistences was discovered in the catalog. Contact RC.

0161: SUBCATALOG UNKNOWN

The user attempted to connect his terminal to a subcatalog which does not exist or to which no link has been made (see ref. [3]).

0165: DISC WRITEPROTECTED

An attempt has been made to write data on a (flexible) disc which is writeprotected.

0166: ILLEGAL OPERATION

1) A wrong protection key was specified or
2) The discunit containing a subcatalog has not been initialized or
3) An attempt has been made to connect to a file which is not a subcatalog.

0167:

This error message means that NO FREE AREAPROCESSes are available for the time being (se ref. [5] and [4]). As error messages are fetched from a discfile, and as this operation requires an areaprocess, the text cannot be fetched. Therefore the text that is written in connection with error no. 0167 is random.

0172: INDEXBLOCK FULL

In connection with each file an indexblock is used. This indexblock can be filled up, if a file is very large. Usually the disc must be reorganized.

0180: Same as 0160.

0181: DISC OFF-LINE

An attempt has been made to access a disc, which was not ON-LINE.

0185: Same as 0165.

0186: ILLEGAL OPERATION ON FILE

The file is reserved by another user i.e. by a program running simultaneously with the BASIC-system.

0187: DISC FULL

The disc on which a file is created or extended is full.

0192: Same as 0172.

As it can be seen, many of the messages 0160-0172 and 0180-0192 are alike each other. In general it can be said, that errors 0160-0172 occurs in connection with operations on (sub)catalogs, while 0180-0172 occurs in connection with operations on files.

A. REFERENCES:

[1]: RC BASIC, Programming Guide.

Keywords: RC3600, RC7000, MUS, DOMUS RC BASIC, Programming Guide.

Abstract: This guide describes the RC BASIC language implemented for RC3600 and RC7000 minicomputers.

[2]: RC BASIC

Corrections (no.1) to the RC BASIC Programming Guide.

Keywords: RC BASIC, corrections, string arrays, LOWBOUND, CALL-routines.

Abstract: These corrections updates the RC BASIC Programming Guide to a point corresponding to rev. 01.11 of the RC BASIC system.

[3]: DOMUS-utility SUBCA

User's Guide

Keywords: RC3600, DOMUS, utility, catalog system, subcatalog

Abstract: This manual is a user's guide for the DOMUS utility program SUBCA used for maintenance of subcatalogs.

[4]: RC3600 Catalog System

System Programmer's Guide
edition 78.09.05 or later

Keywords: Catalog system, file system, area process.

Abstract: This manual describes how to use the RC3600 Catalog System from assembled programs. Also the organization of discs is described. The user must be familiar with the MUS system.

5 : RC BASIC

Operation Guide
edition October 1978 or later

Keywords: RC BASIC, DOMUS, MUS, Logical Disc, Subcatalog, Flexible Disc.

Abstract: This manual describes how to use the RC BASIC system under the DOMUS/MUS operating system. The creation and use of logical discs and subcatalogs is shortly described.