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F I N A L R E P O R T

on

'REPROGRAMMING OF COMFAR 2.0 TO COMFAR 2.1'

during

JULY/SEPTEMBER 1986

by

R. NOVAK

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The scope of the work was to reprogram the COMFAR version 2.0 to enable the easy and quick translation of the dialogue appearing on the screen and of the outputs produced by COMFAR. The name of the new COMFAR version is 2.1. The aim of the work was realized by separating the dialogue- and outputtext from the program source and to store this text on external files (so called dialogue files). For each language in which COMFAR is available one of this files has been created. During the execution of the COMFAR program this text is loaded into the computer. At the moment COMFAR is available in 5 (five) different languages which are: english, french, spanish, german and russian. As a sixth language arabic is already under preparation. Additionally the new version COMFAR 2.1 offers the possibility to include 3 (three) other languages into the program structure (see also 4. Restrictions of COMFAR 2.1) which means that COMFAR is ready for the implementation of 9 (nine) dialogue- and output languages. For detailed information concerning the implementation of a new language please refer to 3. (Utility and help programs) and to 4. (Restrictions of COMFAR 2.1 concerning new languages).

1. Detailed description  
1.1. Basic structure of the COMFAR 2.1 program

2.1. Basic structure of the COMFAR 2.1 program

The structure of the program has changed. COMFAR 2.0 is a version which allows only the computation and calculation of financial projects. The new version COMFAR 2.1 has already built in the link to a graphic system (will be finished and released mid of october) and to an economic cost benefit system (should be finished during january 1987). Concerning the 'financial part' of the COMFAR 2.1 program the basic structure has not changed. COMFAR 2.1 is still divided into three executable programs (DATEN, CALCUL, REPORT) and offers the same utility and help programs (printer- and system-configuration, save recovery aid) as COMFAR 2.0. The printer- and systemconfiguration program has been expanded due to the need to initialize and configurate 9 (nine) different languages.

2.2. Structure of COMFAR 2.1 after installation

The structure of COMFAR 2.1 after the installation is different to the structure of COMFAR 2.0. For COMFAR 2.0 it was necessary to create for different dialogue languages different subdirectories (comfar.eng, comfar.fre, ...). For the new COMFAR version 2.1 only one subdirectory is needed. The name of this subdirectory is 'comfar' (see 3. Utility and helpprograms). For the rest of the structure there are no differences between COMFAR 2.0 and the new COMFAR 2.1. The proposed names of the needed subdirectories and their functions are:

C:\COMFAR	.....	storing of executable programs, dialogue files and all language independent files.
C:\CALC	.....	storing of results during the calculation.
C:\SAVE	.....	storing of input data during the data entry phase.
C:\DODFINE	.....	storing of english description files.
NF	.....	storing of french description files.
NS	.....	storing of spanish description files.
NG	.....	storing of german description files.
NR	.....	storing of russian description files.
NA	.....	storing of arabic description files.
N7	.....	storing of lang. 7 description files.
N8	.....	storing of lang. 8 description files.
N9	.....	storing of lang. 9 description files.

For a detailed information of the contents of these directories please refer to Annex A (Contents of diskettes and directories).

This chapter gives a description how an executable COMFAR 2.1 version can be produced from the source program. All the given information is based on the assumption that the files for the compiling and the linking are stored in the correct directories (start, daten, calcul, report, libprog, asm) and that the pascal compiler is stored in the directory \pascal. Additionally the 'path' has to be set at least to this directory \pascal (for more detailed information please refer to the MS-DOS manual on pages 2-113 ff).

#### 2.3.1. Menu.exe (chain program between the subsystems of COMFAR)

For the compilation of this file the following source files are needed (in brackets the location of the specific files on the backup disks) :

- menu.pas (start)
- conf.pas (start)
- ibmddodl.int & ibmddodl.pas (libprog & asm)
- screenfu.int & screenfu.pas (libprog & asm)
- printfu.int & printfu.pas (libprog & asm)
- config.int & config.pas (libprog & asm)
- valueche.int & valueche.pas (libprog & asm)
- sound.asm (libprog & asm)
- nosound.asm (libprog & asm)
- delay.asm (libprog & asm)
- sierwrite.asm (libprog & asm)
- setdat.asm (libprog & asm)
- printer.asm (libprog & asm)

For the linking of the executable file menu.exe all the object files of the source files listed above have to exist already. On the backup disk 'start' the file for the linking of menu.exe is stored. The name of the file is 'ldm'. The linking command is : >link @ldm

### 2.3.2. Daten.exe (data entry system of COMFAR)

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For the compilation of this file the following source files are needed (in brackets the location of the specific files on the backup disks) :

- daten.pas (daten)
  - includes : - bob.pas
  - branchb.pas
  - branchc.pas
- tage.pas (daten)
  - includes : - part1.pas
  - part2.pas
- matr.pas (daten)
  - includes : - part3.pas
  - part4.pas
  - part5.pas
  - part6.pas
- pc.pas (daten)
  - includes : - pock.pas
- globals.int & globals.pas (daten)
- ibmdod1.int & ibmdod1.pas (libprog & asm)
- screenfu.int & screenfu.pas (libprog & asm)
- tabidoku.int & tabidoku.pas (libprog & asm)
- config.int & config.pas (libprog & asm)
- valueche.int & valueche.pas (libprog & asm)
- sound.asm (libprog & asm)
- nosound.asm (libprog & asm)
- delay.asm (libprog & asm)
- scrwrite.asm (libprog & asm)
- chckdsk.asm (libprog & asm)

For the linking of the executable file daten.exe all the object files of the source files listed above have to exist already. On the backup disk 'daten' the file for the linking of daten.exe is stored. The name of the file is 'ld'. The linking command is : >link @ld

### 2.3.3. Calcul.exe (calculation system of COMFAR)

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For the compilation of this file the following source files are needed (in brackets the location of the specific files on the backup disks) :

- calcul.pas (calcul)
  - includes : - sim.pas
  - test.pas
  - bob.pas
- calc3.pas (calcul)
- calc4.pas (calcul)
- calc5.pas (calcul)
- calc6.pas (calcul)
- calc7.pas (calcul)
  - includes : - c7.pas
  - c8.pas
- calc9.pas (calcul)
  - includes : - c9p1.pas
  - c9p2.pas
  - c9p3.pas
- globals.int & globals.pas (calcul)
- ibmdodl.int & ibmdodl.pas (libprog & asm)
- screenfu.int & screenfu.pas (libprog & asm)
- printfu.int & printfu.pas (libprog & asm)
- helpfu.int & helpfu.pas (libprog & asm)
- access.int & access.pas (libprog & asm)
- config.int & config.pas (libprog & asm)
- valueche.int & valueche.pas (libprog & asm)
- header.int & header.pas (libprog & asm)
- emblem.pas (libprog & asm)
- sound.asm (libprog & asm)
- nosound.asm (libprog & asm)
- delay.asm (libprog & asm)
- scrwrite.asm (libprog & asm)
- chkdsk.asm (libprog & asm)
- printer.asm (libprog & asm)

For the linking of the executable file calcul.exe all the object files of the source files listed above have to exist already. On the backup disk 'calcul' the file for the linking of calcul.exe is stored. The name of the file is 'ld'. The linking command is : >link @ld

#### 2.3.4. Report.exe (reporting and printing program of COMFAR)

For the compilation of this file the following source files are needed (in brackets the location of the specific files on the backup disks) :

- report.pas (report)
- mcalc1.pas (report)
  - includes : - rep1.pas
  - rep5.pas
- mcalc2.pas (report)
  - includes : - rep2.pas
  - cft2.pas
- mcalc3.pas (report)
  - includes : - rep3.pas
  - rep4.pas
- summ.pas (report)
- psumm.pas (report)
- iprint.pas (report)
- oprint.pas (report)
- sprint.pas (report)
- uglob.int & uglob.pas (report)
- uopenc.int & uopenc.pas (report)
- usched.int & usched.pas (report)
- uminp.int & uminp.pas (report)
- umout.int & uminp.pas (report)
- umsch.int & umsch.pas (report)
- udispi.int & udispi.pas (report)
- udispw.int & udispw.pas (report)
- udispo.int & udispo.pas (report)
- uihead.int & uihead.pas (report)
- ibmdodl.int & ibmdodl.pas (libprog & asm)
- screenfu.int & screenfu.pas (libprog & asm)
- printfu.int & printfu.pas (libprog & asm)
- access.int & access.pas (libprog & asm)
- config.int & config.pas (libprog & asm)
- valueche.int & valueche.pas (libprog & asm)
- tabidoku.int & tabidoku.pas (libprog & asm)
- tabodoku.int & tabodoku.pas (libprog & asm)
- header.int & header.pas (libprog & asm)
- emblem.pas (libprog & asm)
- sound.asm (libprog & asm)
- nosound.asm (libprog & asm)
- delay.asm (libprog & asm)
- scrwrite.asm (libprog & asm)
- chkdsk.asm (libprog & asm)
- printer.asm (libprog & asm)

For the linking of the executable file report.exe all the object files of the source files listed above have to exist already. On the backup disk 'report' the file for the linking of report.exe is stored. The name of the file is 'ld'. The linking command is : >link ld

### 2.3.5. Rec.exe (save recovery aid program of COMFAR)

For the compilation of this file the following source files are needed (in brackets the location of the specific files on the backup disks) :

- REC.EXE (start)  
    includes : - wave.pas
- ibmdad1.int & ibmdad1.pas (libprog & asm)
- screenfu.int & screenfu.pas (libprog & asm)
- config.int & config.pas (libprog & asm)
- sound.asm (libprog & asm)
- nosound.asm (libprog & asm)
- delay.asm (libprog & asm)
- scrwrite.asm (libprog & asm)
- chckdisk.asm (libprog & asm)

For the linking of the executable file rec.exe all the object files of the source files listed above have to exist already. On the backup disk 'start' the file for the linking of rec.exe is stored. The name of the file is 'ldr'. The linking command is : >link @ldr

## 2.4. Master copies

After the programming of the COMFAR 2.1 version the following sets of master disks have been prepared :

### 2.4.1. Backup disks of source files

The source of the COMFAR 2.1 version is stored on 8 master diskettes. The label on each of these diskettes indicates which subsystem-source is stored on the specific diskette. For detailed information of the contents of these diskettes please refer to Annex A (Contents of diskettes and directories).

- COMFAR 2.1. Backup disk  
Subsystem : START
- COMFAR 2.1. Backup disk  
Subsystem : DATEN
- COMFAR 2.1. Backup disk  
Subsystem : CALCUL
- COMFAR 2.1. Backup disk  
Subsystem : REPORT
- COMFAR 2.1. Backup disk  
Subsystem : UTILITY
- COMFAR 2.1. Backup disk  
Subsystem : LIBPROG & ASM
- COMFAR 2.1. Backup disk  
Subsystem : DIALOGFILES (E,F,S,G,R)
- COMFAR 2.1. Backup disk  
Subsystem : DIALOGFILES (E,F,S,G,R)

After finalizing the graphix- and the national cost benefit modules additional master copies for these two subsystems have to be created.

### 3.4.2. Backup disks of object files

The objects of the COMFAR 2.1 version are stored on 6 master diskettes. The label on each of these diskettes indicates which subsystem-source is stored on the specific diskette. For detailed information of the contents of these diskettes please refer to Annex A (Contents of diskettes and directories).

- COMFAR 2.1. Object-files  
Subsystem : START
- COMFAR 2.1. Object-files  
Subsystem : DATEN
- COMFAR 2.1. Object-files  
Subsystem : CALCUL
- COMFAR 2.1. Object-files  
Subsystem : REPORT
- COMFAR 2.1. Object-files  
Subsystem : UTILITY
- COMFAR 2.1. Object-files  
Subsystem : LIBPROG & ASM

After finalizing the graphix- and the national cost benefit moduls additional master copies for these two subsystems have to be created.

#### 2.4.3. Backup disks of executable COMFAR 2.1

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The executable COMFAR 2.1 version is stored on 5 sets of master diskettes (for each language one diskette). Every set consists of three diskettes. The label on each of these diskettes indicates which language is stored on the specific diskette. For detailed information of the contents of these diskettes please refer to Annex A (Contents of diskettes and directories).

- COMFAR 2.1. English version
  - Disk A
  - COMFAR 2.1. English version
    - Disk B
    - COMFAR 2.1. English version
      - Disk C
- COMFAR 2.1. French version
  - Disk A
  - COMFAR 2.1. French version
    - Disk B
    - COMFAR 2.1. French version
      - Disk C
- COMFAR 2.1. Spanish version
  - Disk A
  - COMFAR 2.1. Spanish version
    - Disk B
    - COMFAR 2.1. Spanish version
      - Disk C
- COMFAR 2.1. German version
  - Disk A
  - COMFAR 2.1. German version
    - Disk B
    - COMFAR 2.1. German version
      - Disk C
- COMFAR 2.1. Russian version
  - Disk A
  - COMFAR 2.1. Russian version
    - Disk B
    - COMFAR 2.1. Russian version
      - Disk C

For every new dialogue language to which COMFAR will be translated a new set of master diskettes should be created. After finalizing the graphix- and the national cost benefit modules additional master copies for these two subsystems have to be created.

## 3. Utilities and helpprograms

For the internal use five helpprograms have been programmed. The first two help programs allow the editing of the already mentioned dialogue files. The third program is a program for interactive copying of a COMFAR 2.1 version from the master diskettes to user diskettes which are purchased. The last two programs allow the automatic loading of a COMFAR 2.1 version from the purchased disks.

### 3.1. Dialogue editor CEDITOR

The source of this program is stored on the backup disk 'utility'. The object file of this program is stored on the object-files disk 'utility'. The executable program is stored on a diskette called 'utility + executable programs'. For executing this program it has to be loaded in addition to a COMFAR 2.1 version into the directory 'COMFAR'. The program has been written mainly for the internal use. Therefore at the moment it is only available in english.

#### 3.1.1. Compiling and linking of ceditor.exe

For the compilation of this file the following source files are needed (in brackets the location of the specific files on the backup disks) :

- ceditor.pas (utility)
- ibmdodl.int & ibmdodl.pas (libprog & asm)
- screenfu.int & screenfu.pas (libprog & asm)
- printfu.int & printfu.pas (libprog & asm)
- config.int & config.pas (libprog & asm)
- sound.asm (libprog & asm)
- nosound.asm (libprog & asm)
- delay.asm (libprog & asm)
- scrwrite.asm (libprog & asm)
- printer.asm (libprog & asm)

For the linking of the executable file ceditor.exe all the object files of the source files listed above have to exist already. On the backup disk 'utility' the file for the linking of ceditor.exe is stored. The name of the file is 'ldc'. The linking command is : >link @ldc

### 3.2. Output language editor CHEADER

The source of this program is stored on the backup disk 'utility'. The object file of this program is stored on the object-files disk 'utility'. The executable program is stored on a diskette called 'utility - executable programs'. For executing this program it has to be loaded in addition to a COMFAR 2.1 version into the directory \COMFAR. The program has been written mainly for the internal use. Therefore at the moment it is only available in english.

#### 3.2.1. Compiling and linking of cheader.exe

For the compilation of this file the following source files are needed (in brackets the location of the specific files on the backup disks) :

- cheader.pas (utility)
- ibmdodl.int & ibmdodl.pas (libprog & asm)
- screenfu.int & screenfu.pas (libprog & asm)
- printfu.int & printfu.pas (libprog & asm)
- config.int & config.pas (libprog & asm)
- sound.asm (libprog & asm)
- nosound.asm (libprog & asm)
- delay.asm (libprog & asm)
- scrwrite.asm (libprog & asm)
- printer.asm (libprog & asm)

For the linking of the executable file cheader.exe all the object files of the source files listed above have to exist already. On the backup disk 'utility' the file for the linking of cheader.exe is stored. The name of the file is 'ldch'. The linking command is : >link @ldch

### 7.3. User copy program CRCOMFAR

The source of this program is stored on the backup disk 'utility'. The object file of this program is stored on the object-files disk 'utility'. The executable program is stored on a diskette called 'utility - executable programs'. For executing this program it has to be loaded into the directory c:\UTILITY. In addition this sub-directory \UTILITY has to include the subdirectories \prcomfar\doku. Additional this program needs a special subdirectory on the harddisk which is called \LDCOMFAR (for details referr to 3.4, 3.5). The program has been written mainly for the internal use. Therefore at the moment it is only available in english.

#### 7.3.1. Compiling and linking of crcomfar.exe

- - - - -

For the compilation of this file the following source files are needed (in brackets the location of the specific files on the backup disks) :

- crcomfar.pas (utility)
- ibmdodl.int & ibmdodl.pas (libprog & asm)
- screenfu.int & screenfu.pas (libprog & asm)
- sound.asm (libprog & asm)
- nosound.asm (libprog & asm)
- delay.asm (libprog & asm)
- scrwrite.asm (libprog & asm)
- chckdisk.asm (libprog & asm)
- setdat.asm (libprog & asm)
- printer.asm (libprog & asm)

For the linking of the executable file crcomfar.exe all the object files of the source files listed above have to exist already. On the backup disk 'utility' the file for the linking of crcomfar.exe is stored. The name of the file is 'ldcrcm'. The linking command is : >link @ldcrcm

#### 3.4. Automatic loading program LDCOMFAR

The source of this program is stored on the backup disk 'utility'. This program includes during the execution some other files. The names of this files are : - cfolsy1.bat  
- cfolsy2.bat  
- cfoltx1.txt  
- cfoltx2.txt

During the execution of the automatic copying program crcomfar this file has to be loaded on the harddisk into a subdirectory \LDCOMFAR.

#### 3.5. Automatic loading program LDDESC

The source of this program is stored on the backup disk 'utility'. During the execution of the automatic copying program crcomfar this file has to be loaded on the harddisk into a subdirectory \LDCOMFAR.

#### 4. Restrictions of COMFAR 2.1 concerning new languages

As already mentioned is COMFAR 2.1 already prepared for the translation into nine different dialogue languages. Six of these nine languages are already introduced (english, french, spanish, german, russian; arabic is under preparation). For the arabic version some amandments still have to be programmed like :

- screen write from right to left
- character conversion concerning the characterchip which will be produced.

For any other dialogue language it will be very simple to introduce the text which appears on the screen or which is printed if this language fullfills the following characteristics :

- standard 'european' characters.
- if characters are not 'european' they have to fit within the normal charactermatrix (.. x ..) of the IBM PC (no chinese).
- if characters are not 'european' the displayable charset has to consists of approximatlly the same number of characters.

Chapter 8 : Content of diskettes and directories

1. Source diskettes

1.1 Subsystem START

Volume in drive A has no label  
Directory of A:\

CONF	PAS	28785	9-15-86	11:34a
ENTRY	CFR	2	7-01-86	10:05a
LDM		136	9-03-85	11:31a
LDR		102	9-25-85	1:39p
MENU	PAS	20660	9-23-86	10:21a
REC	PAS	11533	7-08-86	9:41a
SAVE	PAS	18783	7-07-86	10:50a
		7 File(s)	276480 bytes free	

1.2 Subsystem DATEN

Volume in drive A has no label  
Directory of A:\

POCK	PAS	9033	7-15-86	9:47a
PART2	PAS	38016	9-15-86	11:51a
MATR	PAS	1056	9-15-86	11:53a
PART3	PAS	59726	9-15-86	11:55a
GLOBALS	PAS	5432	9-06-85	11:41a
BRANCHC	PAS	386	7-14-86	10:55a
PART1	PAS	11637	7-16-86	4:18p
PART6	PAS	12996	9-15-86	12:00p
BRANCHB	PAS	2339	7-15-86	8:26a
PART4	PAS	32603	9-15-86	11:56a
PART5	PAS	26854	9-15-86	11:56a
PC	PAS	422	7-14-86	10:52a
TEGE	PAS	1280	9-15-86	11:48a
BOB	PAS	18676	9-15-86	12:46p
DATEN	PAS	18669	9-15-86	12:46p
LD		145	7-15-86	9:46a
GLOBALS	INT	6278	9-06-85	12:00p
		17 File(s)	105472 bytes free	

1. 1970-1971 by *University of Texas* (DAU-71-1)

Volume in drive A has no label  
Directory of A:\

CALC9	PAS	351	7-24-86	11:40a
CALC4	PAS	15090	7-24-86	11:38a
C9P3	PAS	34299	9-17-86	5:00p
SIM	PAS	5621	7-25-86	11:48a
C9P1	PAS	31887	5-10-85	11:04a
C9P2	PAS	34961	11-05-85	5:16p
CALC3	PAS	38785	7-24-86	11:38a
CALC6	PAS	18356	7-24-86	11:39a
C7	PAS	27819	7-24-86	11:02a
GLOBALS	PAS	18558	7-25-86	8:46a
BOB	PAS	19068	7-25-86	8:53a
CALC7	PAS	580	7-24-86	11:40a
C8	PAS	38355	7-24-86	10:58a
TEST	PAS	3981	7-17-86	3:38p
CALC5	PAS	26163	7-25-86	8:41a
CALCUL	PAS	23103	9-17-86	10:05a
GLOBALS	INT	4059	7-23-86	11:02a
LD		197	7-24-86	9:32a

## 1.4 Subsystem REPORT

Volume in drive A has no label  
Directory of A:\

OPRINT	PAS	22375	9-23-86	1:23p
REP2	PAS	15236	8-07-86	3:29p
UMINP	PAS	11945	8-07-86	7:39a
REPS	PAS	18079	8-04-86	9:36a
CFT2	PAS	9959	8-04-86	11:17a
MCALC2	PAS	688	8-04-86	11:16a
REP3	PAS	17072	8-04-86	9:26a
REP1	PAS	9500	8-04-86	8:57a
UTHEAD	PAS	2967	9-05-85	3:57p
MCALC1	PAS	633	8-04-86	11:16a
REP4	PAS	18107	8-04-86	9:33a
REPORT	PAS	10014	9-17-86	9:21a
UMSCH	PAS	7590	8-07-86	7:37a
UMOUT	PAS	11758	8-07-86	7:48a
MCALC3	PAS	612	8-04-86	11:17a
UDISPO	PAS	9134	8-06-86	1:10p
UOPENC	PAS	8081	8-06-86	8:51a
SUMM	PAS	18542	8-05-86	4:26p
PSUMM	PAS	13932	8-06-86	8:29a
UGLOB	PAS	4665	8-06-86	8:35a
USCHED	PAS	11737	8-06-86	8:56a
UDISPI	PAS	17726	8-06-86	10:23a
UDISPW	PAS	8208	8-06-86	12:59p
IPRINT	PAS	27950	9-23-86	1:25p
SPRINT	PAS	19396	8-06-86	2:09p
LD		290	8-05-86	1:33p
UMOUT	INT	216	1-01-80	1:22a
UMINP	INT	218	1-01-80	1:06a
UDISPI	INT	101	1-01-80	1:36a
UMSCH	INT	189	1-01-80	1:23a
UDISPO	INT	102	1-01-80	1:43a
UDISPW	INT	101	1-01-80	1:40a
USCHED	TNT	1311	9-17-85	1:50p
UGLOB	TNT	3470	9-04-85	4:04p
UTHEAD	TNT	475	6-04-85	7:22p
UOPENC	TNT	573	4-04-85	3:21p

Volume in drive A has no label

Directory of A:\

LIBPROG	<DIR>	9-18-86	10:43a
ASM	<DIR>	9-18-86	10:43a
2 File(s) 159744 bytes free			

Volume in drive A has no label

Directory of A:\libprog

.	<DIR>	9-18-86	10:43a
..	<DIR>	9-18-86	10:43a
PRINTFU	PAS	8790	9-15-86 11:27a
SCREENFU	PAS	17284	7-03-86 9:29a
IBMDODL	PAS	2184	7-21-86 1:07p
VALUECHE	PAS	21870	8-06-85 4:59p
TABIDOKU	PAS	8225	7-16-85 4:49p
HEADER	PAS	419	7-22-86 8:49a
HELPFU	PAS	20749	2-15-85 11:48a
ACCESS	PAS	8291	2-15-85 11:49a
EMBLEM	PAS	8170	9-23-86 2:14p
TABODOKU	PAS	7202	2-15-85 11:50a
CONFIG	PAS	6643	9-16-86 5:47p
HEADER	INT	453	7-21-86 4:49p
SCREENFU	INT	3325	9-10-85 12:09p
CONFIG	INT	1116	7-21-86 9:46a
PRINTFU	INT	3400	7-21-86 8:36a
VALUECHE	INT	3949	6-27-84 9:39a
IBMINTRP	INT	229	3-14-84 12:00p
FINU	INT	5319	3-14-84 12:00p
FINK	INT	3301	3-14-84 12:00p
IBMDODL	INT	824	7-07-86 2:59p
TABIDOKU	INT	5214	7-16-85 4:54p
HELPFU	INT	3977	10-02-84 9:29a
ACCESS	INT	9055	7-23-84 10:14a
TABODOKU	INT	5643	7-23-84 10:14a
26 File(s) 159744 bytes free			

Volume in drive A has no label

Directory of A:\asm

.	<DIR>	9-18-86	10:43a
..	<DIR>	9-18-86	10:43a
CHKDSK	ASM	652	2-14-86 12:52p
DELAY	ASM	461	4-02-85 10:52a
NOSOUND	ASM	296	4-02-85 10:50a
PRINTER	ASM	431	4-03-85 4:23p
SCRWRITE	ASM	1505	9-18-85 11:13a
SETDAT	ASM	364	4-02-85 12:45p
SOUND	ASM	509	4-02-85 10:53a
9 File(s) 159744 bytes free			

1.6 Utilities and Tools

Volume in drive A has no label

Directory of A:\

CHEADER	PAS	10465	9-17-86	2:32p
CEDITOR	PAS	46407	9-17-86	2:31p
LDC		114	9-17-86	10:49a
LDCH		114	9-17-86	1:41p
RCOMFAR	PAS	23996	1-01-80	12:15a
LCRCRCOM		115	9-22-86	2:00p
LCOMFAR	<DIR>		9-30-86	12:43p
		7 File(s)		267264 bytes free

Volume in drive A has no label

Directory of A:\ldcomfar

.	<DIR>		9-30-86	12:43p
..	<DIR>		9-30-86	12:43p
LCOMFAR	BAT	118	9-18-86	1:54p
CFOLTX1	TXT	897	9-18-86	3:04p
CFOLSY1	BAT	1737	9-18-86	2:41p
CFOLTX2	TXT	697	9-18-86	3:06p
CFOLSY2	BAT	37	9-18-86	2:16p
LDDESC	BAT	1586	9-18-86	4:08p
	8 File(s)			267264 bytes free

1.7 Dialogfiles (E,F,S,G,R) - disk 1

Volume in drive A has no label

Directory of A:\

ENGLISH	CFR	73920	9-11-86	10:10a
FRENCH	CFR	73832	9-11-86	10:13a
SPANISH	CFR	73832	9-11-86	10:15a
GERMAN	CFR	73832	9-11-86	10:20a
POINTERF	CFF	14	8-06-86	3:06p
POINTERF	CFS	14	8-06-86	3:10p
POINTERF	CFE	14	8-06-86	3:04p
POINTERF	CFG	14	8-06-86	3:13p
POINTERF	CFR	14	8-06-86	3:18p
ENTRY	CFR	2	9-17-86	11:00a
LANGREF	CFR	756	9-17-86	10:06a
	11 File(s)			51200 bytes free

1.8 Dialogfiles (E,F,S,G,R) - disk 2

Volume in drive A has no label

Directory of A:\

RUSSIAN	CFR	73832	9-11-86	10:22a
F_HEADER	CFE	7310	8-06-86	3:30p
F_HEADER	CFF	7310	8-07-86	8:48a
F_HEADER	CFS	7310	8-07-86	8:51a
F_HEADER	CFG	7310	8-07-86	8:54a
F_HEADER	CRU	7310	8-07-86	8:57a
LENGREF	CFE	2	8-06-86	3:30p
LENGREF	CFF	2	8-07-86	8:48a
LENGREF	CFS	2	8-07-86	8:51a
LENGREF	CFG	2	8-07-86	8:54a
LENGREF	CRU	2	8-07-86	8:57a
	11 File(s)			241664 bytes free

Subsystems diskette

2.1 Subsystem START

Volume in drive A has no label  
Directory of A:\

MENU	OBJ	16179	9-23-86	10:23a
REC	OBJ	14729	7-21-86	10:07a
CONF	OBJ	28294	9-15-86	11:38a
		3 File(s)	302080 bytes free	

2.2 Subsystem DATEN

Volume in drive A has no label  
Directory of A:\

DATEN	OBJ	15716	9-15-86	12:50p
GLOBALS	OBJ	2868	9-15-86	12:07p
TEGE	OBJ	31209	9-15-86	12:12p
MATR	OBJ	40777	9-15-86	12:17p
PC	OBJ	8685	9-15-86	12:19p
		5 File(s)	261120 bytes free	

2.3 Subsystem CALCUL

Volume in drive A has no label  
Directory of A:\

GLOBALS	OBJ	11029	9-16-86	12:05p
CALC9	OBJ	33074	9-17-86	5:05p
CALC3	OBJ	14617	9-16-86	12:07p
CALC4	OBJ	4776	9-16-86	12:08p
CALC5	OBJ	15876	9-16-86	12:11p
CALC6	OBJ	8369	9-16-86	12:12p
CALC7	OBJ	30535	9-16-86	12:16p
CALCUL	OBJ	23654	9-17-86	10:09a
		8 File(s)	216064 bytes free	

2.4 Subsystem REPORT

Volume in drive A has no label  
Directory of A:\

USCHED	OBJ	10217	9-16-86	5:21p
REPORT	OBJ	9123	9-17-86	9:22a
MCALC1	OBJ	12919	9-16-86	5:04p
MCALC2	OBJ	18061	9-16-86	5:07p
MCALC3	OBJ	14751	9-16-86	5:09p
SUMM	OBJ	18544	9-16-86	5:11p
PSUMM	OBJ	11307	9-16-86	5:14p
UGLOB	OBJ	3950	9-16-86	5:14p
UOPENC	OBJ	7336	9-16-86	5:19p
UMINP	OBJ	11007	9-16-86	5:22p
UMOUT	OBJ	10990	9-16-86	5:24p
UMSCH	OBJ	7343	9-16-86	5:25p
UDISPI	OBJ	14540	9-16-86	5:27p
UDISPO	OBJ	6581	9-16-86	5:29p
UDISFW	OBJ	6462	9-16-86	5:30p
UIHEAD	OBJ	2107	9-16-86	5:30p
IPRINT	OBJ	13952	9-23-86	1:27p
OPRINT	OBJ	9876	9-23-86	1:29p
SPRINT	OBJ	16301	9-16-86	5:37p

2.5 Execution LIBPROG & ASM

Volume in drive A has no label  
Directory of A:\

LIBPROG	<DIR>	9-18-86	1:31p
ASM	<DIR>	9-18-86	1:31p
2 File(s)		293888 bytes free	

Volume in drive A has no label  
Directory of A:\libprog

.	<DIR>	9-18-86	1:31p
..	<DIR>	9-18-86	1:31p
IBMDODL	OBJ 2338	9-15-86	10:56a
PRINTFU	OBJ 7311	9-15-86	11:28a
SCREENFU	OBJ 8783	9-15-86	11:01a
CONFIG	OBJ 5279	9-15-86	10:57a
VALUECHE	OBJ 3640	9-15-86	10:58a
TABIDOKU	OBJ 1991	9-15-86	10:58a
HEADER	OBJ 815	9-15-86	11:01a
HELPFU	OBJ 5386	9-15-86	11:02a
ACCESS	OBJ 4878	9-15-86	10:57a
EMBLEM	OBJ 10957	9-23-86	2:17p
TABODOKU	OBJ 2117	9-15-86	10:59a
13 File(s)		293888 bytes free	

Volume in drive A has no label  
Directory of A:\asm

.	<DIR>	9-18-86	1:31p
..	<DIR>	9-18-86	1:31p
CHKDSK	OBJ 203	2-14-86	12:53p
DELAY	OBJ 127	4-02-85	10:54a
NOSOUND	OBJ 103	4-02-85	10:54a
PRINTER	OBJ 105	4-03-85	4:23p
SCRWRITE	OBJ 174	9-18-85	11:13a
SETDAT	OBJ 115	4-02-85	12:47p
SOUND	OBJ 130	4-02-85	10:53a
9 File(s)		293888 bytes free	

2.6 Subsystem UTILITY

-----

Volume in drive A has no label  
Directory of A:\

CEDITOR	OBJ 17268	9-17-86	2:34p
CHEADER	OBJ 10138	9-17-86	2:46p
RCOMFAR	OBJ 27595	9-26-86	1:13p
3 File(s)		307200 bytes free	

3.1 English version

- Disk A

Volume in drive A has no label  
Directory of A:\

DOKU	<DIR>	9-18-86	1:38p
POINTERF	CFE	14	8-06-86 3:04p
ENGLISH	CFR	73920	9-17-86 11:10a
GENTEXDU	CFR	3148	2-15-85 2:10p
TABIDU	CFR	16188	3-07-85 11:16a
CONFIG	CFR	1092	9-17-86 9:18a
CNFEPSON	CFR	2926	9-17-86 1:46p
CNFQUME	CFR	2926	9-15-86 3:03p
LANGREF	CFR	756	9-12-86 2:53p
ENTRY	CFR	2	9-17-86 5:10p
MODE	COM	3139	1-30-84 12:00p
COMFAR	BAT	116	1-01-80 6:06a
MENU	EXE	96546	9-23-86 10:24a
LDCOMFAR	BAT	118	9-18-86 1:54p
CFOLSY1	BAT	1737	9-18-86 2:41p
CFOLSY2	BAT	37	9-18-86 2:16p
CFOLTX1	TXT	897	9-18-86 3:04p
CFOLTX2	TXT	697	9-18-86 3:06p
18 File(s)		35840 bytes free	

Volume in drive A has no label  
Directory of A:\doku

.	<DIR>	9-18-86	1:38p
..	<DIR>	9-18-86	1:38p
PSUMM	CFE	1146	11-22-85 12:57p
NWC	CFE	819	9-16-86 10:35a
NWCH	CFE	820	11-07-85 4:26p
SOF	CFE	391	10-08-84 10:50a
TCI	CFE	540	10-08-84 1:32p
TPC	CFE	895	11-06-84 11:15a
TII	CFE	540	1-15-85 12:15p
CFT	CFE	607	10-08-84 1:54p
CFT1	CFE	695	6-11-86 2:23p
PBS	CFE	733	10-28-85 3:08p
VEC	CFE	3834	10-31-85 11:53a
COL	CFE	26250	10-31-85 11:54a
TABOCOL	CFE	11808	10-31-85 11:54a
TABOSUB	CFE	1558	10-31-85 11:54a
TABWCOL	CFE	213	2-06-85 11:09a
NIS	CFE	949	11-05-85 5:43p
SUBT	CFE	1176	10-31-85 11:54a
BVAR	CFE	322	11-26-85 9:29a
TABROWS	CFE	426	2-06-85 11:05a
TABROWS	CFE	21328	11-07-85 5:52p
TVAR	CFE	160	6-07-85 12:05p
CDOKU	CFE	744	9-12-86 1:38p
HELPINFO	CFE	2012	8-29-85 10:04a
ROWS	CFE	10836	2-17-86 2:00p
SUMM	CFE	1335	8-05-86 1:20p
F_HEADER	CFE	7310	9-17-86 10:16a
LENGREF	CFE	2	8-06-86 3:30p
29 File(s)		35840 bytes free	

Disk B

Volume in drive A has no label

Directory of A:\

DATEN	EXE	137814	9-15-86	12:51p
CALCUL	EXE	196856	9-24-86	10:47a
2 File(s) 26624 bytes free				

- Disk C

Volume in drive A has no label

Directory of A:\

REPORT	EXE	230774	9-24-86	10:45a
REC	EXE	50378	7-21-86	10:08a
2 File(s) 79872 bytes free				

## 1.0 French Version

- Disk A

Volume in drive A has no label

Directory of A:\

DOKU	<DIR>	9-18-86	3:10p
MENU	EXE	96546	9-23-86 10:24a
POINTERF	CFF	14	8-06-86 3:06p
FRENCH	CFR	73832	9-11-86 10:13a
GENTEXDU	CFR	3148	2-15-85 2:10p
TABIDU	CFR	16188	3-07-85 11:16a
CONFIG	CFR	1092	9-15-86 10:44a
CNFEPSON	CFR	2926	9-17-86 10:09a
CNFQUME	CFR	2926	9-15-86 11:30a
ENTRY	CFR	2	9-18-86 3:24p
MODE	COM	3139	1-30-84 12:00p
COMFAR	BAT	116	1-01-80 6:06a
LANGREF	CFR	756	9-18-86 3:36p
LDCOMFAR	BAT	118	9-18-86 1:54p
CFOLTX1	TXT	897	9-18-86 3:04p
CFOLSY1	BAT	1737	9-18-86 2:41p
CFOLTX2	TXT	697	9-18-86 3:06p
CFOLSY2	BAT	37	9-18-86 2:16p
18 File(s)		34816 bytes free	

Volume in drive A has no label

Directory of A:\doku

.	<DIR>	9-18-86	3:10p
..	<DIR>	9-18-86	3:10p
CDOKU	CFF	744	10-09-85 12:16p
F_HEADER	CFF	7310	8-07-86 8:48a
GVAR	CFF	329	11-26-85 9:38a
TABROWS	CFF	635	10-09-85 12:02p
TABROWS	CFF	21328	10-31-85 11:58a
NIS	CFF	991	10-09-85 12:29p
NWC	CFF	711	8-07-86 3:52p
SOF	CFF	503	10-09-85 12:31p
HELPINFO	CFF	1925	10-15-85 9:54a
CFT	CFF	817	10-09-85 12:24p
PBS	CFF	769	10-28-85 3:18p
TCI	CFF	613	7-04-86 4:22p
TPC	CFF	979	10-09-85 12:26p
TABOSUB	CFF	1558	10-31-85 11:58a
VEC	CFF	3834	10-31-85 11:57a
ROWS	CFF	10836	10-31-85 11:58a
TABOCOL	CFF	13284	10-31-85 11:59a
COL	CFF	26250	10-31-85 11:57a
TABWCOL	CFF	394	10-09-85 12:03p
SUMM	CFF	1300	6-16-86 3:14p
PSUMM	CFF	1210	6-16-86 3:16p
NWCH	CFF	762	10-14-85 5:28p
SUBT	CFF	1176	10-31-85 11:57a
TVAR	CFF	161	10-16-85 3:39p
CFT1	CFF	740	6-16-86 3:11p
TII	CFF	548	7-04-86 4:20p
LENGREF	CFF	2	8-07-86 8:48a
29 File(s)		34816 bytes free	

- Disk B

Volume in drive A has no label  
Directory of A:\

DATEN	EXE	137814	9-15-86	12:51p
CALCUL	EXE	196856	9-24-86	10:47a
2 File(s) 26624 bytes free				

- Disk C

Volume in drive A has no label  
Directory of A:\

REPORT	EXE	230774	9-24-86	10:45a
REC	EXE	50378	7-21-86	10:08a
2 File(s) 79872 bytes free				

## 5.3 Update 2000 - PMS LOG

- Disk A

Volume in drive A has no label  
 Directory of A:\

DOKU	<DIR>	9-18-86	3:13p
MENU	EXE	96543	9-23-86 10:24a
POINTERF	CFS	14	8-06-86 3:10p
SPANISH	CFR	73832	9-11-86 10:15a
GENTEXDU	CFR	3148	2-15-85 2:10p
TABIDU	CFR	16188	3-07-85 11:16a
CONFIG	CFR	1092	9-15-86 10:44a
CNFEPSON	CFR	2926	9-17-86 10:09a
CNFQUME	CFR	2926	9-15-86 11:30a
ENTRY	CFR	2	9-18-86 3:24p
MODE	COM	3139	1-30-84 12:00p
COMFAR	BAT	116	1-01-80 6:06a
LANGREF	CFR	756	9-18-86 3:51p
LDCOMFAR	BAT	118	9-18-86 1:54p
CFOLTX1	TXT	897	9-18-86 3:04p
CFOLSY1	BAT	1737	9-18-86 2:41p
CFOLTX2	TXT	697	9-18-86 3:06p
CFOLSY2	BAT	37	9-18-86 2:16p
18 File(s)		33792 bytes free	

Volume in drive A has no label  
 Directory of A:\doku

.	<DIR>	9-18-86	3:13p
..	<DIR>	9-18-86	3:13p
NWC	CFS	760	1-30-86 1:29p
TPC	CFS	895	10-09-85 10:03a
TCI	CFS	597	10-09-85 10:02a
SOF	CFS	559	9-30-85 12:13p
NWCH	CFS	764	11-07-85 4:30p
CFT	CFS	817	10-09-85 10:04a
CFT1	CFS	718	6-11-86 2:40p
VEC	CFS	3834	10-31-85 12:00p
ROWS	CFS	10836	10-31-85 12:01p
CDOKU	CFS	744	9-30-85 3:14p
COL	CFS	26250	10-31-85 12:01p
TABROWS	CFS	707	9-30-85 3:17p
SUMM	CFS	1324	10-29-85 12:35p
GVAR	CFS	295	11-26-85 9:46a
HELPINFO	CFS	1924	10-28-85 1:29p
SUBT	CFS	1176	10-31-85 12:01p
NIS	CFS	1033	10-08-85 11:55a
TII	CFS	587	10-09-85 9:57a
TABWCOL	CFS	548	9-30-85 3:15p
TABROWS	CFS	21328	10-31-85 12:02p
TABOSUB	CFS	1558	10-31-85 12:02p
TVAR	CFS	185	10-16-85 3:46p
TABOCOL	CFS	13284	10-31-85 12:02p
PBS	CFS	805	1-16-86 3:38p
PSUMM	CFS	1402	1-27-86 10:43a
F_HEADER	CFS	7310	8-07-86 8:51a
LENGREF	CFS	2	8-07-86 8:51a
29 File(s)		33792 bytes free	

- Disk A

Volume in drive A has no label  
Directory of A:\

DATEN	EXE	137814	9-15-86	12:51p
CALCUL	EXE	196856	9-24-86	10:47a
2 File(s)		26624 bytes free		

- Disk C

Volume in drive A has no label  
Directory of A:\

REPORT	EXE	230774	9-24-86	10:45a
REC	EXE	50378	7-21-86	10:08a
2 File(s)		79872 bytes free		

- Disk A

Volume in drive A has no label

Directory of A:\

DOKU	<DIR>	9-18-86	3:14p
MENU	EXE	96546	9-23-86 10:24a
LANGREF	CFR	756	9-18-86 3:54p
GERMAN	CFR	73832	9-11-86 10:20a
GENTEXDU	CFR	3148	2-15-85 2:10p
TABIDU	CFR	16188	3-07-85 11:16a
CONFIG	CFR	1092	9-15-86 10:44a
CNFEPSON	CFR	2926	9-17-86 10:09a
CNFQUME	CFR	2926	9-15-86 11:30a
ENTRY	CFR	2	9-18-86 3:24p
MODE	COM	3139	1-30-84 12:00p
COMFAR	BAT	116	1-01-80 6:06a
POINTERF	CFG	14	8-06-86 3:13p
LDCOMFAR	BAT	118	9-18-86 1:54p
CFOLTX1	TXT	897	9-18-86 3:04p
CFOLSY1	BAT	1737	9-18-86 2:41p
CFOLTX2	TXT	697	9-18-86 3:06p
CFOLSY2	BAT	37	9-18-86 2:16p
18 File(s)		32768 bytes free	

Volume in drive A has no label

Directory of A:\doku

.	<DIR>	9-18-86	3:14p
..	<DIR>	9-18-86	3:14p
PBS	CFG	733	10-28-85 1:47p
SOF	CFG	391	10-28-85 2:11p
TCI	CFG	537	10-28-85 1:52p
TABWCOL	CFG	300	5-07-85 7:00p
NIS	CFG	942	10-28-85 2:10p
CFT	CFG	707	10-28-85 2:29p
SVAR	CFG	377	10-28-85 2:37p
HELPINMAP	CFG	2044	10-28-85 3:20p
TTT	CFG	541	10-28-85 1:52p
NWD	CFG	754	7-31-86 10:44a
VFC	CFG	5834	10-31-85 10:04p
CDI	CFG	38000	11-06-85 7:56p
SURT	CFG	1176	10-31-85 12:05p
ROWS	CFG	10836	11-06-85 7:26p
TABROWS	CFG	21328	10-31-85 12:06p
TABOSDU	CFG	1558	10-31-85 12:06p
TABOOCOL	CFG	13204	10-31-85 12:06p
CDOUTU	CFG	744	10-28-85 3:42p
TVAR	CFG	174	10-28-85 1:22p
SUMM	CFG	1359	6-16-86 3:24p
TABWROWS	CFG	424	10-28-85 3:27p
TPC	CFG	706	11-06-85 7:33p
PSUMM	CFG	1189	6-16-86 10:54a
NWCH	CFG	755	11-07-85 4:28p
CFT1	CFG	686	6-16-86 3:22p
F_HEADER	CFG	7310	8-07-86 8:54a
LENREF	CFG	2	8-07-86 8:54a
29 File(s)		32768 bytes free	

File 1

Volume in drive A has no label  
Directory of A:\

DATEN	EXE	137814	9-15-86	12:51p
CALCUL	EXE	196856	9-24-86	10:47a
2 File(s) 26624 bytes free				

- Disk C

Volume in drive A has no label  
Directory of A:\

REPORT	EXE	230774	9-24-86	10:45a
REC	EXE	50378	7-21-86	10:08a
2 File(s) 79872 bytes free				

MS-DOS 5.0 FDISK AND FORMAT CDP  
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- Disk A

Volume in drive A has no label  
Directory of A:\

DOKU	<DIR>	9-18-86	3:16p
MENU	EXE	96546	9-23-86 10:24a
RUSSIAN	CFR	73832	9-11-86 10:22a
POINTERF	CFR	14	8-06-86 3:18p
GENTEXDU	CFR	3148	2-15-85 2:10p
TABIDU	CFR	16188	3-07-85 11:16a
CONFIG	CFR	1092	9-15-86 10:44a
CNFEPSN	CFR	2926	9-17-86 10:09a
CNFOUME	CFR	2926	9-15-86 11:30a
ENTRY	CFR	2	9-18-86 3:24p
MODE	COM	3139	1-30-84 12:00p
COMFAR	BAT	116	1-01-80 6:06a
LANGREF	CFR	756	9-18-86 3:59p
LDCOMFAR	BAT	118	9-18-86 1:54p
CFOLTX1	TXT	897	9-18-86 3:04p
CFOLSY1	BAT	1737	9-18-86 2:41p
CFOLTX2	TXT	697	9-18-86 3:06p
CFOLSY2	BAT	37	9-18-86 2:16p
18 File(s)		32768 bytes free	

Volume in drive A has no label  
Directory of A:\doku

.	<DIR>	9-18-86	3:16p
..	<DIR>	9-18-86	3:16p
SUBT	CRU	1176	11-20-85 7:09p
COL	CRU	26250	11-27-85 11:41a
ROWS	CRU	10836	4-08-86 2:50p
TABORROWS	CRU	21328	4-08-86 3:05p
TABOSUB	CRU	1558	4-08-86 2:52p
TABOCOL	CRU	11808	11-27-85 11:42a
VEC	CRU	3834	11-20-85 7:11p
NWCH	CRU	770	4-08-86 2:40p
DOWN1	CRU	1099	4-04-86 8:30a
TVAR	CRU	254	11-22-85 2:35p
GVAR	CRU	326	11-25-85 7:40p
CFT1	CRU	808	4-07-86 2:53a
SUMM	CRU	1367	4-08-86 2:38p
PSUMM	CRU	1374	4-08-86 2:45p
NWC	CRU	757	6-11-86 2:44p
PBS	CRU	727	4-08-86 2:40p
NIS	CRU	944	4-08-86 2:41p
CFT	CRU	604	4-08-86 2:40p
SOF	CRU	404	11-20-85 7:03p
TII	CRU	546	4-08-86 2:41p
TCI	CRU	560	11-20-85 7:03p
TPC	CRU	915	11-20-85 7:04p
CDOKU	CRU	742	4-08-86 2:41p
TABWCOL	CRU	233	11-28-85 5:41p
TABWROWS	CRU	456	4-08-86 2:40p
HELPINFO	CRU	2226	11-21-85 10:11a
F_HEADER	CRU	7310	8-07-86 8:57a
LENGREF	CRU	2	8-07-86 8:57a
30 File(s)		32768 bytes free	

Volume in drive A has no label  
Directory of A:\

DATEN EXE 137814 9-15-86 12:51p  
CALCUL EXE 196856 9-24-86 10:47a  
2 File(s) 26624 bytes free

- Disk C

Volume in drive A has no label  
Directory of A:\

REPORT EXE 230774 9-24-86 10:45a  
REC EXE 50378 7-21-86 10:08a  
2 File(s) 79872 bytes free

3.5 Utility - executable programs

Volume in drive A has no label  
Directory of A:\

CEDITOR	EXE	65032	9-17-86	2:35p
CHEADER	EXE	60728	9-17-86	2:47p
CRCOMFAR	EXE	51846	9-26-86	1:14p
3 File(s)		183296	bytes free	