COGO-10/20
Installation Guide

Order No. AA-5511A-TK

June 1978

This installation guide is written for the system manager of a DECsystem-10 or a DECSYSTEM-20 computer installation using the TOPS-10 or TOPS-20 Operating System. The procedures for building and installing the COGO program from the distribution medium are described.

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PREFACE

This document serves as a guide to the system manager of a DECsystem-10 computer installation using the TOPS-10 Operating System or a DECSYSTEM-20 computer installation using the TOPS-20 Operating System. The procedures for building and installing the COGO program from the distribution medium are described. The following documents provide further details of the installation procedure:

Operator's Guide	DEC-10-ODOGA-B-D
Operator's Guide (KL Series)	AA-5104A-TB
Operator's Guide	DEC-20-OTPGA-B-D
REACT Specification	DECsystem-10 Notebook 11
System Manager's Guide	AA-4169C-TM

1.0 DISTRIBUTION MEDIUM

COGO-10/20 is distributed on 9-channel magtape. The DEC order numbers for the TOPS-10 and TOPS-20 versions are as follows:

Operating System	Order Number
TOPS-10	QH095-YD
TOPS-20	QT095-YD

COGO-10/20 is distributed both as a source program including FORTRAN and MACRO subroutines and as an executable file.

Backing up a distribution medium is recommended.

2.0 INSTALLATION PROCEDURES FOR COGO-10/20

Tables 1 through 3 in this section describe installation procedures for COGO-10/20 as follows:

Table	Description
1	TOPS-10 Procedures for Installing, Compiling, and Loading COGO
2	TOPS-20 Procedures for Installing, Compiling, and Loading COGO
3	COGO Default Values

The following assumptions are made for the installation procedure:

1. All user typeins are terminated by pressing RETURN.

2. For TOPS-10, a directory with the project-programmer number [200,200] and the password COGO was created on the system disk before installation; for TOPS-20, a directory with the user name COGO and password COGO was created on the system disk before installation.

3. All distribution files will be copied to [200,200] on the DECsystem-10 or to <COGO> on the DECSYSTEM-20.

4. After copying files, the correct directory has READ/WRITE privilege.

5. The user knows how to use an available text editor.

To recompile the FORTRAN source subprograms, FORTRAN Version 5A or a later version must be used. If any subprogram is recompiled, all subprograms must be recompiled.

Table 1
TOPS-10 Procedures for Installing, Compiling, and Loading COGO

Step	System Typeout	User Typein	Comments
1		CTRL/C	Call the operating system prompt.
2	.	LOGIN 200,200	Type the command LOGIN and the appropriate project-programmer number.
3	PASSWORD	COGO	The password does not appear at the terminal.
4	JOB1 DECsystem-1099 60312B TTY1 1024 22-MAY-78 MON .	MOUNT MTA:COGO/REELID:COGO	Ask the operator to mount the distribution tape.
5	REQUEST QUEUED Waiting ... 2^C's to EXIT COGO Mounted, MTA000: USED		Wait until the tape is mounted. The operator mounted the distribution tape on device MTA0.
6	.	BACKUP	Call the system program BACKUP to transfer COGO files from magtape to disk.
7	/	TAPE COGO:	After the BACKUP prompt /, enter the device on which your tape is mounted.
8	/	REWIND	Make certain that the tape is at the beginning.
9	/	DENSITY 1600	Set the tape density to 1600 bits per inch (bpi).

Table 1 (Cont.)
TOPS-10 Procedures for Installing, Compiling, and Loading COGO

Step	System Typeout	User Typein	Comments
10	/	RESTORE *.*=ALL:*.*[*,*]	Use the RESTORE command to search the tape and copy the specified files to disk.
11	. . . "DONE /	UNLOAD	After the RESTORE command is done, rewind the magtape to its physical beginning for dismount.
12	/	EXIT	Leave BACKUP, and return to the TOPS-10 command level.
13	.	DISMOUNT COGO/RELEASE	Tell the operator to dismount the distribution tape, and release the tape handler.
14	COGO DISMOUNTED	(no user response)	
15	.	SOS COGO.FOR	To substitute for the default values given in Table 3, use the text editor SOS to make the required changes in the main program of COGO.

Table 1 (Cont.)
TOPS-10 Procedures for Installing, Compiling, and Loading COGO

Step	System Typeout	User Typein	Comments
16	.	COMPILE @COGCOM	Relocatable (REL) binary files for COGO are provided on the distribution tape, but to recompile, use the COMPILE command with the indirect file COGCOM.
	(messages)		Ignore all messages that are not prefixed with the percent sign %.
17	.	R LINK	Call the LINK program.
18	*	@COGLNK	Use the indirect file COGLNK to take the REL files and generate an EXE file.
19	.		COGO-10 is now installed.

Table 2
TOPS-20 Procedures for Installing, Compiling, and Loading COGO

Step	System Typeout	User Typein	Comments
1		CTRL/C	Call the operating system prompt.
2	@	LOGIN COGO COGO PROJ.TASK	Type the command LOGIN followed by the appropriate user name, password, and account string. The password does not appear on the terminal. TOPS-20 recognition input can be used by pressing the ESCape key after LOGIN, after the user name, and after the password to call the guide words (USER NAME), (PASSWORD), and (ACCOUNT), respectively.
3	@	TMOUNT TAPE:COGO	Ask the operator to mount the distribution tape.
4	[OPERATOR NOTIFIED] [MTA0: ASSIGNED]	(no user response)	The operator mounted the distribution tape on device MTA0.
5	@	DUMPER	Call the DUMPER program to transfer the COGO files from the distribution tape to the disk.
6	DUMPER>	TAPE MTA0:	Specify the device on which the tape is mounted.

Table 2 (Cont.)
TOPS-20 Procedures for Installing, Compiling, and Loading COGO

Step	System Typeout	User Typein	Comments
7	DUMPER>	REWIND	Make certain that the tape is at the beginning.
8	DUMPER>	DENSITY 1600	Set the tape density to 1600 bits per inch (bpi).
9	DUMPER>	RESTORE <*>*.* <COGO>	Use the RESTORE command to search the tape and copy the specified files to disk.
10	END OF SAVESET	(no user response)	DUMPER has finished restoring the files.
11	DUMPER>	EXIT	Leave DUMPER, and return to the TOPS-20 command level.
12	@	UNLOAD MTA0:	Rewind the magtape to its physical beginning for dismount.
13	@	DEASSIGN MTA0:	Release the tape handler.
14	@	COMPILE @COGCOM	Relocatable (REL) binary files for COGO are provided on the distribution tape, but to recompile, use the COMPILE command with the indirect file COGCOM.

Table 2 (Cont.)
TOPS-20 Procedures for Installing, Compiling, and Loading COGO

Step	System Typeout	User Typein	Comments
	(messages)		Ignore all messages, unless the messages are prefixed by %.
15	@	LINK	Call the LINK program and the
	*	@COGLNK	indirect file COGLNK to take the REL files and generate an executable (EXE) program file.
16	@	SAVE COGO	Save the executable COGO program.
17	@		COGO-20 is now installed.

Table 3
COGO Default Values

Description	FORTRAN Name	Default Value
Logical unit numbers		
Primary card reader	IVCD	02
Printer (if no printer, set MTPR to 01)	MTPR	03
Card punch	MTCD	20
Positive direction of horizontal axis R for right L for left	ISGH	R
Positive direction of vertical axis U for up D for down	ISGV	U
Coordinate pair sequence HV = Horizontal first, then vertical VH = Vertical first, then horizontal	ISEQ	VH
Zero azimuth direction R for right L for left U for up D for down	IZZ	U
Direction of 90 degree azimuth R for right L for left U for up D for down	IZ90	R
Azimuth symbols		
0 degrees	MZ	N
90 degrees	M90	E
180 degrees	M180	S
270 degrees	M270	W

COGO is now ready to run. To check the installation procedures, run the test problem.

3.0 RUNNING THE COGO-10/20 TEST PROBLEM

To run the test problem, follow the instructions in Table 4 for TOPS-10 and in Table 5 for TOPS-20.

Table 4
Running the Test Problem under TOPS-10

Step	System Typeout	User Typein	Comments
1		CTRL/C	Call the operating system prompt.
2	.	LOGIN 200,200	
3	PASSWORD:	COGO	
4	.	RUN COGO	
5	SPECIFY INPUT DEVICE/FILENAME>	TEST.DAT	
6	SPECIFY OUTPUT DEVICE/FILENAME>	TTY:	

Table 5
Running the Test Problem under TOPS-20

Step	System Typeout	User Typein	Comments
1		CTRL/C	Call the operating system prompt.
2	@	LOGIN COGO COGO PROJ.TASK	
3	@	RUN COGO	
4	SPECIFY INPUT DEVICE/FILENAME>	TEST.DAT	
5	SPECIFY OUTPUT DEVICE/FILENAME>	TTY:	

3.1 Test Problem Input

```
S O J  * EXAMPLES FROM SELLS COGO VERSION 3 MANUAL
*    EXAMPLE OF LOCATE AZIMUTH AND LOCATE BEARING
DELETE COORDINATES 1-100
STORE 40 10000 20000
LOCATE AZIMUTH 40 41 45-00-00 100.
           41 42 S 45-00-00E 100
          42 43 A 41 40 100
LOCATE BEARING 43 44 4 45-00-00 100
              40 50 N45 0 0E 200
               50 51 A41 43 D41 43
DISTANCE 51 42
**    EXAMPLE OF EXTEND ARC COMMAND
DELETE COORDINATES 1-100
STORE 1 200 600
50 1200 600
EXTEND ARC 50 1 200 1570.8
50 1 201 -785.4
**  EXAMPLES OF LOCATE ANGLE, DEFLECTION AND LINE
STORE 3 8000 5000
       4 7700 5000
LOCATE ANGLE 3 4 8 90 0 0 250
            4 8 9 90 0 0 300
            8 9 10 G4 8 9 250
LOCATE DEFLECTION 4 3 12 045-00-00.0 100.00
              4 3 13 -045-00-00.0 100.00
               4 3 22 60-0-0 200
             4 3 23 -G 4 3 22 D 3 22
LOCATE LINE 3 4 5 500
              3 4 6 -500
**    EXAMPLE OF POINTS INTERSECT, AZIMUTH INTERSECT, AND
*  BEARING INTERSECT
DELETE COORDINATES 1-100
STORE 1 5000 5000
      2 5000 4500
AZIMUTH INTERSECT 3 1 10 1 30.1  2 30.
BEARING INTERSECT 4  1 N 20 W   2 N60 E
POINTS INTERSECT 5 2 1  3 4
*    EXAMPLE OF POINTS AZIMUTH INTERSECT AND
*  POINTS BEARING INTERSECT
POINTS AZIMUTH INTERSECT  6  1 3  2 45.
POINTS BEARING INTERSECT   7 1 3  3 S45W  -400
*    EXAMPLE OF ARC LINE AZIMUTH, ARC LINE BEARING,
*  ARC LINE POINTS, AND ARC ARC INTERSECT
STORE 10 0 0
      11 900 900
ARC LINE AZIMUTH 15  10 1500 11 -90.  11
ARC LINE BEARING 16 10 1500  10 N15E  11
ARC LINE POINTS 17  11 1000.  10 16  10
ARC ARC INTERSECT 18   10 D 10 15   11 500  15
**    EXAMPLE OF TANGENT COMMAND
DELETE COORDINATES 1-100
STORE 1 200 100
      2 200 300
  TANGENT 9 1 -50 10 2 -25
     7 1  -50 6 2 25
     5 1 50 8 2 -25
     3 1 50 4 2 25
```

```
**   EXAMPLE OF TANGENT OFFSET COMMAND
DELETE COORDINATES 1-10
STORE 2 100 100
       3 500 600
       1 400 150
TANGENT OFFSET 10  1 2 3
**    EXAMPLE OF FIT CURVE COMMAND
DELETE COORDINATES 1-100
STORE 1  200 200
     2  400 200
      3  500 400
FIT CURVE 1 2 3  5 6 7  100.
DIVIDE LINE 1 5 2 8
*    FIT CURVE WITH RADIUS UNKNOWN
FIT CURVE  8 2 3  8 9 10
*    EXAMPLE OF DIVIDE LINE AND DIVIDE ARC COMMANDS
STORE 15 0 0
      20 1000 0
     30 0 1000
DIVIDE LINE  15 20 3
DIVIDE ARC  20 30 15 4
*    EXAMPLE OF PARALLEL LINE
STORE 31 200 200
  32  400 100
PARALLEL LINE 31 32 150.  33 34
PARALLEL LINE 31 32 -100.  35 36
PARALEL LINE 34 36 100. 37 38
**    EXAMPLE OF PARALLEL FIGURE COMMAND
DELETE COORDINATES 1-100
STORE  11  982.8517 1140.9693
STORE 14  907.4955  1177.3215
STORE 23  1000.0000   1000.0000
STORE 24 1044.3302  1023.1214
STORE 25  980.3919  1181.7215
STORE 26  942.9598 1195.8224
STORE 27  1027.1821 1164.0954
STORE FIGURE 1 (23 14 C26L 25 C27R 11 24)
PARALLEL FIGURE 1 10. 30
PARALLEL FIGURE 1 -20. 35
STORE FIGURE 2 (30 31 C26L 32 C27R 33 34)
STORE FIGURE 3 (35 36 C26L 37 C27R 38 39)
E O R
@
```

3.2 Test Problem Output

```
COGO OPENING FILE: COGTAB.TMP FOR TABLE
*    EXAMPLE OF LOCATE AZIMUTH AND LOCATE BEARING
DELETE COORDINATES 1-100
STORE 40 10000 20000
     40
LOCATE AZIMUTH 40 41 45-00-00 100.
     41      10070.7107      20070.7107

           41 42 S 45-00-00E 100
     42      10000.0000      20141.4214

          42 43 A 41 40 100
     43       9929.2893      20070.7107
```

```
LOCATE BEARING 43 44 4 45-00-00 100
     44      10000.0000      20000.0000

              40 50 N45 0 0E 200
     50      10141.4214      20141.4214

              50 51 A41 43 D41 43
     51      10000.0000      20141.4214

DISTANCE 51 42
                     FROM   51   TO   42         0.0000 FT.

**    EXAMPLE OF EXTEND ARC COMMAND
DELETE COORDINATES 1-100
STORE 1 200 600
      1
50 1200 600
     50
EXTEND ARC 50 1 200 1570.8
    200       199.9963      1600.0000

50 1 201 -785.4
    201       907.1055      -107.1081

**  EXAMPLES OF LOCATE ANGLE, DEFLECTION AND LINE
STORE 3 8000 5000
      3
       4 7700 5000
      4
LOCATE ANGLE 3 4 8 90 0 0 250
      8       7700.0000      5250.0000

            4 8 9 90 0 0 300
      9       8000.0000      5250.0000

            8 9 10 G4 8 9 250
     10       8000.0000      5000.0000

LOCATE DEFLECTION 4 3 12 045-00-00.0 100.00
     12       8070.7107      5070.7107

              4 3 13 -045-00-00.0 100.00
     13       8070.7107      4929.2893

               4 3 22 60-0-0 200
     22       8100.0000      5173.2051

             4 3 23 -G 4 3 22 D 3 22
     23       7900.0000      5173.2051

LOCATE LINE 3 4 5 500
      5       7500.0000      5000.0000

              3 4 6 -500
      6       8500.0000      5000.0000
```

```
**    EXAMPLE OF POINTS INTERSECT, AZIMUTH INTERSECT, AND
*  BEARING INTERSECT
DELETE COORDINATES 1-100
STORE 1 5000 5000
      1
      2 5000 4500
      2
AZIMUTH INTERSECT 3 1 10 1 30.1  2 30.
      3       6248.2124       5220.6558

BEARING INTERSECT 4  1 N 20 W   2 N60 E
      4       5238.5472       4913.1759

POINTS INTERSECT 5 2 1  3 4
      5       5000.0000       4840.5296

*    EXAMPLE OF POINTS AZIMUTH INTERSECT AND
*  POINTS BEARING INTERSECT
POINTS AZIMUTH INTERSECT  6  1 3  2 45.
      6       5607.3691       5107.3691

POINTS BEARING INTERSECT   7 1 3  3 S45W  -400
      7       5754.7833       4727.2267

*    EXAMPLE OF ARC LINE AZIMUTH, ARC LINE BEARING,
*  ARC LINE POINTS, AND ARC ARC INTERSECT
STORE 10 0 0
     10
      11 900 900
     11
ARC LINE AZIMUTH 15  10 1500 11 -90.  11
     15        900.0000       1200.0000

ARC LINE BEARING 16 10 1500  10 N15E  11
     16       1448.8887        388.2286

ARC LINE POINTS 17  11 1000.  10 16  10
     17        319.6325         85.6453

ARC ARC INTERSECT 18   10 D 10 15   11 500  15
     18        668.1270       1342.9841

**    EXAMPLE OF TANGENT COMMAND
DELETE COORDINATES 1-100
STORE 1 200 100
      1
    2 200 300
      2
TANGENT 9 1 -50 10 2 -25
      9        249.6078        106.2500

     10        224.8039        303.1250

                    FROM    9  TO   10         97-10-50.7         198.4313


   7 1  -50 6 2 25
      7        246.3512        118.7500

      6        176.8244        290.6250

                    FROM    7  TO    6        112- 1-27.5         185.4050
```

```
   5 1 50 8 2 -25
      5        153.6488        118.7500

      8        223.1756        290.6250

                    FROM     5  TO     8         67-58-32.5         185.4050

   3 1 50 4 2 25
      3        150.3922        106.2500

      4        175.1961        303.1250

                    FROM     3  TO     4         82-49- 9.3         198.4313

**   EXAMPLE OF TANGENT OFFSET COMMAND
DELETE COORDINATES 1-10
STORE 2 100 100
      2
       3 500 600
      3
       1 400 150
      1
TANGENT OFFSET 10  1 2 3
     10        241.4634        276.8293

                    FROM     2  TO    10       226.4520 FT.

                    FROM    10  TO     1       203.0259 FT. LEFT

**    EXAMPLE OF FIT CURVE COMMAND
DELETE COORDINATES 1-100
STORE 1  200 200
      1
     2  400 200
      2
      3  500 400
      3
FIT CURVE 1 2 3  5 6 7  100.
      5        338.1966        200.0000

      6        338.1966        300.0000

      7        427.6393        255.2786

DIVIDE LINE 1 5 2 8
      8        269.0983        200.0000

*    FIT CURVE WITH RADIUS UNKNOWN
FIT CURVE  8 2 3  8 9 10
      8        269.0983        200.0000

      9        269.0983        411.8034

     10        458.5410        317.0820

*    EXAMPLE OF DIVIDE LINE AND DIVIDE ARC COMMANDS
STORE 15 0 0
     15
      20 1000 0
     20
     30 0 1000
     30
```

```
DIVIDE LINE  15 20 3
     16        333.3333         -0.0000

     17        666.6667         -0.0000

DIVIDE ARC  20 30 15 4
     21        923.8795        382.6834

     22        707.1068        707.1068

     23        382.6834        923.8795

*    EXAMPLE OF PARALLEL LINE
STORE 31 200 200
     31
  32  400 100
     32
PARALLEL LINE 31 32 150.  33 34
     33        267.0820        334.1641

     34        467.0820        234.1641

PARALLEL LINE 31 32 -100.  35 36
     35        155.2786        110.5573

     36        355.2786         10.5573

PARALLEL LINE
              34 36 100. 37 38
     37        556.5248        189.4427

     38        444.7214        -34.1641

**    EXAMPLE OF PARALLEL FIGURE COMMAND
DELETE COORDINATES 1-100
STORE  11  982.8517 1140.9693
     11
STORE 14  907.4955  1177.3215
     14
STORE 23  1000.0000   1000.0000
     23
STORE 24 1044.3302  1023.1214
     24
STORE 25  980.3919  1181.7215
     25
STORE 26  942.9598 1195.8224
     26
STORE 27  1027.1821 1164.0954
     27
STORE FIGURE 1 (23 14 C26L 25 C27R 11 24)
               1
PARALLEL FIGURE 1 10. 30
     30        991.1339         995.3748

     31        898.6294       1172.6963

     32        989.7499       1178.1963

     33        991.7178       1145.5945

     34       1053.1963       1027.7466
```

```
 PARALLEL FIGURE 1 -20. 35
      35       1017.7322       1009.2505

      36        925.2277       1186.5720

      37        961.6758       1188.7720

      38        965.1195       1131.7189

      39       1026.5980       1013.8710

 STORE FIGURE 2 (30 31 C26L 32 C27R 33 34)
                2
 STORE FIGURE 3 (35 36 C26L 37 C27R 38 39)
                3
 END OF RUN
@
```

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