March 25, 2005 A.D.

I. Introduction

There are four versions of the DOCALL program:

1. The original version, as originally specified in the Functional Block Outlines in Tables 13 through 16 of our COMP-AID report, *Use of Functional Blocks in the Design, Coding, and Checkout of FORTRAN Modules*.
2. Version 2, in which alternate path names may be specified by adding them to the PATHNAME.DAT file located within the current directory, which DOCALL then uses to *subsequently* search for located subroutines.
3. Version 3, in which the Hierarchical listing of all modules called by the originally specified module are now sorted by module name, using a Shell sort.
4. Version 4, in which an alphabetically sorted listing of the *called* modules is presented, with the list of modules which called them following each called module. Additionally, the number of characters in the pathname returned by GCDIRNAM is now included as an output argument within that module. Finally, a problem with the display of the name of the input root module is now corrected.

II. The DOCALL.ZIP File

When unzipped, the associated zip file, DOCALL.ZIP, will contain the following eight files,

1. POSTN.FOR — Get position of target string within source string
2. POSTN.PRT — Listing of RENUMF processing of above source
3. DOCALL1.ZIP — Version 1 DOCALL modules
4. DOCALL2.ZIP — Version 2 DOCALL modules
5. DOCALL3.ZIP — Version 3 DOCALL modules
6. DOCALL4.ZIP — Version 4 DOCALL module
7. PATHNAME.DAT — A sample file specifying alternate path names
8. CALLLIST.DAT — The file containing a sample DOCALL run

where POSTN.FOR is a module called by all four versions of the DOCALL program, and where each of the DOCALL zip files contain the following four modules,

1. DOCALL.FOR — DOCALL FORTRAN source file
2. DOCALL.PRT — Listing of a RENUMF processing of source file
3. DOCALL.EXE — DOS executable for PC computer
4. **GCDIRNAM.FOR** — Get the name of the current directory

Each version of DOCALL will identify its version number when executed.

III. Compilation and Linking

The POSTN module is the same for all four versions. The enclosed EXE files were produced using the Microsoft FORTRAN PowerStation Optimizing Compiler Version 1.0, in which — for example — the following command both compiles the source files and links the intermediate object files:

```
fl32  docall.for  gcdirnam.for  postn.for
```

If you want to experiment with the various versions, why not place each in separate directories, such as \DOCALL\VERSIONn, where n=1,2,3,4.

IV. Execution

The DOCALL program executes in a DOS box. All options are printed out, so that it should be fairly straightforward to run. Input can be either in upper or lower case, and output can be specified to

1. **S** — The screen
2. **P** — The Printer
3. **F** — The CALLLIST.DAT file

Since you have access to the source code, you will be able to see all that.

V. A Couple of Closing Comments

Two problems within Version 3 of the enclosed code have now been corrected.

1. The addition of NCDIRNAM as an output argument to the GCDIRNAM module permits the number of characters within the pathname returned by that module to be immediately used by the calling module. The addition of a third argument, citing any error detected, is unnecessary, since the sign and value of NCDIRNAM can serve that purpose.
2. The entry of a root FORTRAN module with an invalid suffix (e.g., TEST.F, when no TEST.F exists) now causes a warning message to occur, citing it as non-existent.