3. CALCULATOR

Press <C> to get the next menu:

Arithmetic Functions Units Statistics Clear Help

3.1 ARITHMETIC

Press <A> to get the next menu:

+ - * / SQRT X^2 Memory Help

The mathematical operations are apply on the number in the
Output/Input display. The <Memory> switch to the next menu:

+ M   - M   * M   / M   C M   R M   X M   Help

      - The first four menu items apply on the Memory display
C M - Clear memory
R M - Recall memory to the Output/Input display
X M - Exchange the numbers between the Memory and the Output/Input
      displays

3.2 FUNCTIONS

Press <F> and the next menu will appear:

Calc_func Edit_func Help

3.2A <E>dit_func

Press <E> to get the next menu:

1_Func 2_Func 3_Func 4_Func 5_Func 6_Func 7_Func Help

1_Func - One variable function
       - The rest are 2 to 7 variables functions

When we choose one of these options a table of the relevant functions
appears. Using the menu we can scroll through the functions table and
edit or add names, functions and to give a one line or a full
description document for the function. The variables names should be
the following:

1_func - The variable name is OUT or T, for example the function
         @SIN(X) should be written as @SIN(OUT) or @sin(T)
Other - The variable names are RG1, RG2, RG3 ... RG7 or A, B, C, D,
         E, F and G, for example the function x^2+y^3+z^4 should be
         written as: +RG1^2+RG2^3+RG3^4 or +A^2+B^3+C^4

We recommend using the RG1.....RG7 and the OUT unless the function
occupies more than 240 characters.

Press <1> to get the next screen:

_____

Down Up Right Left Next Previous Edit
Move one cell down   [ESC] - Previous menu
              A   B   C   D   E
1 ==
2   Units | Output/Input | Memory |
3 ==
4   None | 0.00 | 0.00|
5 ==
              L   M   N   O   P
1   sin(x)   COSH(X)
2   COS(X)   TANH(X)
3   TAN(X)   CTANH(X)
4   ASIN(X)   SECH(X)
5   ACOS(X)   CSCH(X)
6   ATAN(X)   ASINH(X)
7   SEC(X)   ATANH(X)
8   CSC(X)   ACTANH(X)
9   COT(X)   ASECH(X)
10   ASEC(X)   ACSCH(X)
11   ACSC(X)
12   ACOT(X)
13   SINH(X)

_____

This is a sample of the 1 variable functions in the table. Using the
first six menu items the user can scroll through the functions, edit
the names or add new function names. The user can scroll and fill the
table all the way to row 8192 in 5 columns.

Press <E> to get the next prompt:

Input the new function name -

The user can type a new function name and press the ENTER key or just
press the ENTER for no changes. The next prompt and screen appear:

_____

Type the function -
              A   B   C   D   E
1 ==
2   Units | Output/Input | Memory |
3 ==
4   None | 0.00 | 0.00|
5 ==
                                          Q
1   @SIN(C4)
2   @COS(C4)
3   @TAN(C4)
4   @ASIN(C4)
5   @ACOS(OUT)
6   @ATAN(OUT)
7   1/@COS(OUT)
8   1/SIN(OUT)

```
9    1/@TAN(OUT)
10   @ACOS(1/OUT)
11   @ASIN(1/OUT)
```

This is the functions table, the program is now in the Lotus EDIT
mode, the user can edit or add a function and than to press the ENTER
key or just to press the ENTER key for no changes. The user can define
a spreadsheet which will be retrieved when he chooses the <c>alculate
option by typing the keyword FN followed by the a file name which holds
a spreadsheet (like FNC:\LOTUS\CHECBOOK.WK1). When the user uses the
<c>alculate option the spreadsheet C:\LOTUS\CHECBOOK.WK1 will be
retrieved and will replace the current program. This way the user can
use this program as a file manager for all his scientific and
engineering spreadsheets.

IMPORTANT

All LOTUS rules apply here, the function should be written as a LABEL
(with a prefix like "'") and than the + or - sign or the @ character.
The program stores the functions on a separate file FORMULAS.WK1 as
LABELS. When the user chooses the <c>alculate option the program
deletes the prefix and the label becomes a formula.

The user can insert 240 character long functions from the keyboard.
To enable the user to calculate functions with number of variables
higher than 7, in the case of 7 variable functions, the user can
define functions with any number of variables (less or equal than 7).
For example: a 10 variables function can be calculated by splitting
it to 7 and 3 variables functions in the same table. Then calculate
the first and put the result in the memory, and than calculate the
second function and add the result to the memory to get the final
result.

Now the description screen appears:

Description -

```
            A              B             C             D             E
1  ====================================================================
2         Units          |      Output/Input      |       Memory       |
3  ====================================================================
4    None                |                 0.00 |                 0.00|
5  ====================================================================
                                          V
1    This function calculates the sine of the output number
2    This function calculates the cosine of the output number
3
4
5
6
7
8
9
10
11
```

The program has two description modes:

1. One line description: type the description and press ENTER or just
   press ENTER for no changes and you are back in the edit menu.
2. Full document description: type FN followed by the file name you
   want to assign to the description file like: FNC:\LOTUS\CHECBOOK.WK1
   which means that the file is CHECBOOK.WK1 located at drive C: in the
   LOTUS subdirectory (the .WK1 extension. can be omitted). The
   program will switch to EDIT mode where the user can type the
   description document. To move through the description file press the
   DOWN key. Don't press the ENTER key unless you are finished typing.
   The ENTER key exits the EDIT mode. The program can view only 76
   character long lines, therefore start a new line after typing 76
   characters in the previous line.

Note:

If a description file is already exists and you press the ENTER key
only, the program retrieves the description file.

                          ***** WARNING *****

Since the program is now in the EDIT mode the Lotus keys are
operative, however the user is strongly advised to use ONLY the UP,
PGUP, DOWN and PGDN keys to scroll between the lines, the program
will not allow scrolling to the sides by hiding all the columns
except the current column. Trying to unhide the columns MAY destroy
the program code. For example: if by mistake you have pressed the
"/" key press ESC to get back to the READY mode and then press F2 to
enter EDIT mode or just continue to type, or press ENTER to exit
the description mode.

Type FNCHECBOOK (the file name is CHECBOOK) and press ENTER, the next
menu appears:

Down Up Next Previous Edit Save

Using the first 4 menu items the user can scroll through the
description.

Press <E> to enter the EDIT mode, when you are finished editing or
typing the description file press ENTER to return to the previous menu.

Press <S> to save the description file, the next prompt appears:

File name (press ENTER for no changes) -

Type the file name or press ENTER for no changes (CHECBOOK).

As we mentioned earlier if a description file is already exists and
you press the ENTER key only the program retrieves the file.

3.2B <C>alc_func

Press <C> to brings the next menu:

1_Func   2_Func   3_Func   4_Func   5_Func   6_Func   7_Func   Help

Choosing one of the menu items brings the relevant functions table.
Press <1> to get the next screen:

Down   Up   Right   Left   Next   Previous   Calculate   Help
Move one cell down   [ESC] - Previous menu
              A   B   C   D   E
1 ==
2   Units | Output/Input | Memory |
3 ==
4   None | 0.00 | 0.00|
5 ==
              L   M   N   O   P
1   sin(x)   COSH(X)
2   COS(X)   TANH(X)
3   TAN(X)   CTANH(X)
4   ASIN(X)   SECH(X)
5   ACOS(X)   CSCH(X)
6   ATAN(X)   ASINH(X)
7   SEC(X)   ATANH(X)
8   CSC(X)   ACTANH(X)
9   COT(X)   ASECH(X)
10   ASEC(X)   ACSCH(X)
11   ACSC(X)
12   ACOT(X)
13   SINH(X)

The first 6 menu items control the cursor (highlight) movement. The
<Calculate> item calculates the functions. In all cases the program
prompts the user to insert the values for RG1 to RG7 depends on the
number of variables.

REMEMBER:

1. In the case of 7_func the user can define functions with less than
   7 variables, for example: if the user wants to calculate 2
   variables function he needs to give values for RG1 and RG2 and to
   press only the ENTER key when the prompt asks for RG3.
2. If instead of a function the program finds the keyword FN at the
   beginning of the function string the program will retrieve the
   spreadsheet with the file name follows the FN keyword.