



SUMMARY OF OSFO RELEASE

Due to the large number of files on the OSFO release, there is not enough room on the single density diskettes to edit or compile more than a very small file. Some of the files should be copied to another diskette.

OPERATING SYSTEM:

The OSFO Operating System includes the following:

1. The LONG INTEGER procedures have been removed from the Operating System and put into SYSTEM.LIBRARY, reducing the size of the operating system by about 2000 words. This means that a USES LONGINT statement must be included in any program using the LONG INTEGER procedures.
2. UNITREAD and UNITWRITE now have 2 new options; to not convert DLE control characters into spaces, and to not append a line feed onto a carriage return. (The syntax for these options is described later in this document.)
3. The operating system now uses the general vertical delay character as described in SETUP.
4. EXTERNAL was removed from the reserved word table.

The following problems have been fixed:

1. A failure in the read address command does not cause the terminal to beep.
2. Zero length disk transfers now work.
3. Disk transfers to any index of an array now work.
4. The CRT write routine no longer strips the high order bit of a character.

5. UNITCLEAR now works for UNIT #1:.
6. When the diskette other than the boot disk is in the boot unit, it may now be retrieved as the delay to allow the diskette head to unload was lengthened.
7. The NOBREAK facility using SYSCOM is implemented in the CRT driver.
8. The IPC printed out when a run-time error occurs is now correct.

COMPILER:

1. The compiler now supports the new linker by recognizing Unit definitions as described in the WD/90 Pascal MICROENGINE Reference Manual.
2. Programs that use long integers must now contain a "USES LONGINT" statement. If long integers are used without the Uses statement the compiler will give syntax error number 196, ('Uses longint' required). All previously compiled programs with long integers must be recompiled with the Uses statement.
3. The misspelling of reserved words now leads to a syntax error rather than the compiler dying.

EDITOR:

The Editor will now work correctly when the SETUP fields ERASE TO END OF LINE and ERASE TO END OF SCREEN are set to NUL (=0).

LIBRARY:

The System Library contains the LONG INTEGER unit and the SCREENCONTROL unit. (The interface to the SCREENCONTROL unit is described later in this document.)

LINKER:

The Linker as described in the WD/90 Pascal MICROENGINE Reference Manual is included in this release. The support utilities Library Map, Librarian and System Library are also part of this release.

YALOE:

The line-oriented editor, as described in the WD/90 Pascal MICROENGINE Reference Manual, is included in this release.

UTILITIES:

The Calculator program as described in the WD/90 Pascal Reference Manual is included in this release.

The Disassembler utility has been updated to display data pools correctly and now lists operating system calls as names rather than numbers. The Disassembler now locks the output file.

The Setup utility has been modified to add two new fields, VERTICAL DELAY CHARACTER and KEY TO BACKSPACE. (These fields are described later in this document.) Also, the maximum value of VERTICAL MOVE DELAY has been increased to 41.

The Booter utility now works correctly on single drive systems.

SETUP

The SETUP utility has been modified to add two fields:

VERTICAL DELAY CHARACTER: The pad character output after a slow terminal operation such as home or clearscreen. (The default vertical delay character is NUL=0.)

KEY TO BACKSPACE: Configures the backspace key for a terminal.

The SETUP program also has three fields, 'DISK SEEK RATE', 'DISK READ RATE', and 'DISK WRITE RATE' that tailor disk accesses.

The operating system tailors disk I/O operations by means of these fields. This allows a user to configure the disk transfer delays and stepping rates of any type of floppy disk drive according to values set in SETUP. User tailoring of disk I/O commands is useful due to the wide variance of disk drives. By allowing user configuration of disk I/O commands, full advantage can be taken of each type of disk drive. For example, some floppy disk drives have a fast head stepping rate, so the system stepping rate would be modified using SETUP to specify fast step rates. The SYSTEM.MISCINFO that is shipped has fields that reflect the slowest step rates and disk transfer delays.

Values that can be inserted into 'DISK SEEK RATE' are:

Hex	Decimal	Step rate	
		Single density	Double density
1B	27	30 ms.	15 ms. (slowest)
1A	26	20 ms.	10 ms.
19	25	12 ms.	6 ms.
18	24	6 ms.	3 ms. (fastest)

Fast drives can have a value of 24 for this field due to their fast step capability. Slower drives may use a value of 27 or 26 as they have a slow step rate. Note that the SYSTEM.MISCINFO that is shipped has a value of 1F hex, 31 decimal, which is the slowest step rate and also requests the 1791 Controller to verify that the seek is on the destination track. The verify option may be removed to produce a command of hex 1B which is the slowest step rate.

The 'DISK READ RATE' and 'DISK WRITE RATE' fields specify if there is a delay before head load. The values for 'DISK READ RATE' are:

Hex	Decimal	
90	144	no delay
94	148	delay ;

The values for 'DISK WRITE RATE' are:

Hex	Decimal	
B0	176	no delay
B4	180	delay

These three fields correspond to Western Digital 1791 Floppy Disk Controller commands described in section 5.6.4 of the Pascal Microengine Hardware Reference Manual.

UNITREAD AND UNITWRITE

UNITREAD and UNITWRITE now have an option to not convert DLE control characters into spaces, and an option to not append a line feed onto a carriage return.

The options for UNITREAD and UNITWRITE are as follows:
UNITREAD (unit number, array, length, [block number], [flags])
Where flags is an integer specifying the options:

MSB 15	4	3	2	1	0 LSB
Reserved	NOCRLF	NOSPEC	Reserved		

- BIT 0-1 Reserved

- BIT 2 NOSPEC SET implies no special character handling for DLE.

 RESET implies special character handling for DLE, i.e., expand to blanks.

- BIT 3 NOCRLF SET implies no LF's are appended to CR's.
 RESET implies LF's are appended to CR's.

- BIT 4-15 Reserved

Example:

```
Var p: packed array [0..3] of char;  
unitwrite (1,p,4,,4) {DLE not stripped and replaced by blanks}
```

SYSTEM.LIBRARY

In addition to the LONGINT UNIT the SYSTEM.LIBRARY contains a UNIT SCREENCONTROL. This unit accesses fields in the record SYSCOM, which is set up by SYSTEM.MISCINFO. It contains several procedures that cause screen control action or return information about the user's terminal. In addition there is a procedure that returns the date. The procedures the user may access in this UNIT are:

```
PROCEDURE HOME;                {Homes the cursor}

PROCEDURE CLEAREOS;            {Clears the screen starting at the
                                current cursor position}

PROCEDURE CLEAREOL;           {Clears the line starting at the
                                current cursor position}

FUNCTION SCREENWIDTH: INTEGER;
    {Returns the width of the screen}

FUNCTION SCREENHEIGHT: INTEGER;
    {Returns the height of the screen}

PROCEDURE DATE(VAR M:MONTHS; VAR D:DAY; VAR Y:YEARS);
    {Returns the current date as stored by the operating
    system. MONTHS, DAYS, and YEARS are types declared
    in the INTERFACE and are therefore available to the
    user. The declarations are:

                                TYPE MONTHS = 0..12;
                                    DAYS   = 0..31;
                                    YEARS  = 0..99;}
```

THE SYNTAX FOR UNIT DEFINITION

The following should replace Figure 3-4, Syntax for a Unit Definition, in the Pascal Operations Manual which is the second part of the WD/90 Pascal MICROENGINE Reference Manual.

```
<Compilation unit> ::= <Program heading>;{<Unit definition>;}
                    <Uses part> <Block> |
                    <Unit definition>; <Unit definition>}.

<Unit definition> ::= <Unit heading>;
                    <Interface part>
                    <Implementation part>
                    End

<Unit heading>    ::= Unit <Unit identifier>

<Unit identifier> ::= <Identifier>

<Interface part> ::= Interface
                    <Uses part>
                    <Constant definition part>
                    <Type definition part>
                    <Variable declaration part>
                    <Procedure and function heading part>

<Procedure and function heading part>
                    ::= {<Procedure or function heading>}

<Procedure or function heading>
                    ::= <procedure heading>|<function heading>

<Implementation part> ::= Implementation
                    <Label declaration part>
                    <Constant definition part>
                    <Type definition part>
                    <Variable declaration part>
                    <Procedure and Function declaration part>

<Uses part>      ::= Uses <Unit identifier>
                    {, <Unit Identifier>;} | <Empty>
```

FORMAT.HELP

Format formats floppy disks in either single or double density mode. Either a whole diskette or a track range may be formatted. Verification of formatting may be selected as an option. Format prompts with the following sequence:

Enter unit number containing disk to be formatted

Format single or double density? (S or D)

Format all tracks? (Y or N)

if No

Enter starting track number

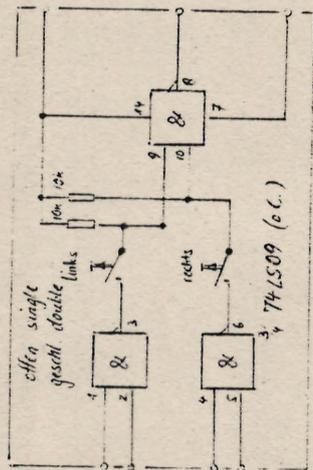
Enter final track number

Verify? (Y or N)

The formatting process will over-write all information presently on the floppy disk. The Verify option reads the floppy disk using the operating system intrinsic UNITREAD to ascertain the presence of the known data pattern which Format has written.

Drive Force IC
Sel (NAND)

1 2 3
b0 A26.40
or A26.6
..
3 4
A26.4
A26.2



+5V WS

A 26.40 gn

0V bl

SE-90 / Multi-density

Modifikation 22.09.80 JS

SE 90
MULTI DENSITY SWITCH