

## Translation Day Character Code Changes on MTS

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### CONTENTS

1. Introduction .....	1
2. Characters Affected .....	1
2.1 Tilde and "Logical Not" .....	2
3. Impact of the Change .....	3
4. How to Translate Your Files .....	3
4.1 Important Considerations .....	3
4.2 Details on the Free Translation Server .....	4
4.3 How To Use the Translation Server .....	4
4.4 How the Server Works .....	5
4.5 Using the MTS File Editor to Translate Files .....	6
4.5.1 The TRANSLATE Command .....	6
4.5.2 Converting Entire Files .....	6
4.5.3 Other Forms of the TRANSLATE Command .....	7
4.5.4 Changing Individual Characters .....	7
5. T-Day Rebates .....	7
6. Applications Affected .....	9

6.1	MTS System Components	9
6.1.1	MTS Passwords	9
6.1.2	\$MESSAGE and Full Screen Message (\$FSM)	9
6.1.3	Other MTS System Components	9
6.2	Applications Software	10
6.2.1	Conferencing	10
6.2.2	Databases	10
6.2.3	Word processing software	10
6.2.4	Compilers, Libraries and Utilities	10
7.	Translating SPIRES, Taxir, and ILIR:MICRO Database Applications	11
7.1	SPIRES and Taxir	11
7.2	ILIR:MICRO	12
8.	How T-Day Affects Printing on the Xerox 9700 Page Printers	12
8.1	Changes to Printer Defaults	12
8.2	How to Access Page Printer Fonts	12
8.3	Limitations of the New Fonts	14
8.4	Characters Affected by the Font Changes	14
8.5	How to Get the Old Character Set	14
8.6	If You Have Never Specified Fonts	15
8.7	New Fonts and the Check Character	15
9.	T-Day's Effect on Line Printers	16
10.	T-Day and *LOCALPRINT	16
10.1	Characters Available	16
11.	Special T-Day Consulting	17

## Translation Day Character Code Changes on MTS

### 1. Introduction

On Translation Day, February 22, 1988, the Computing Center changed the codes used to represent some characters on MTS. As more and more people transfer information between microcomputers and mainframes and between mainframes and other machines, the translation of some of the less commonly used characters becomes more of an annoyance. The changes made on T-Day improve the ability of those using MTS to move files or send messages to other hosts easily without having characters become unreadable or having to translate a file that contains them upon arrival at another host.

This change brings MTS in line with the current International Standards Organization (ISO) character code standard and the newer EBCDIC standard based on this ISO standard. The resulting "translation table" provides a one-code-per-character, reversible translation between 8-bit ISO and 8-bit EBCDIC codes.

This memo provides details about the change, and explains how to convert affected files easily to the new codes. This memo contains excerpts from (in some cases the entire text of) articles that appeared in the February 1 and February 15, 1988 issues of U-M Computing News (Vol. 3, Nos. 3 and 4). This information is also in files on the CCID NEWS on both UM-MTS and UB-MTS. To see a list of these files enter the command:

```
$F NEWS:TDAY?
```

on either UM or UB.

### 2. Characters Affected

The following characters were affected on Translation Day (T-Day):

- The codes for left and right curly brackets, grave accent, circumflex, tilde, backslash, and left and right square brackets changed. See the table below.
- The "logical not" sign is entered differently from a UMnet terminal. See the following section.
- Box character codes no longer print in the default character sets on any printers. See the sections on T-Day's affect on printers.

Many non-printing characters changed, too, but few if any of them had any defined meaning under the old codes, and they were never documented. Anyone who needs the details of these non-printing codes can contact Kari Gluski at 763-6069 or through \$MESSAGE for more information.

The following table shows the EBCDIC character codes that changed on T-Day, February 22, along with their ISO, old EBCDIC, and new EBCDIC codes. The codes for the characters are given in hexadecimal.

Character Description	Graphic	ISO Code	Old EBCDIC Code	New EBCDIC Code
Left square bracket	[	5B	AD	BA
Right square bracket	]	5D	BD	BB
Backslash	\	5C	BA	E0
Circumflex	^	5E	AA	B0
Grave accent	`	60	9A	79
Left curly brace	{	7B	8B	C0
Right curly brace	}	7D	9B	D0
Tilde and Logical not	(see below)	7E	5F	A1

**Table 1: T-Day Coding Changes**

## 2.1 Tilde and “Logical Not”

One snag in the T-day process is the logical not “¬” character. Although its EBCDIC code did not change like the other characters in the table above (it is 5F and will remain 5F), it is no longer accessible from a standard keyboard. Historically, the tilde “~” has been automatically translated on input by the system to the code for the logical not, for the convenience of people with keyboards that did not have a logical not symbol on them. The system also displayed the logical not symbol as a tilde on terminals and micros that could not display the logical not.

After T-Day, however, a tilde typed at a keyboard will no longer be translated but will remain a tilde. This may present problems for applications that require the use of the logical not character (PL/I, SPIRES, and TEXTFORM are just a few examples).

Some applications have been modified to treat the logical not and the tilde equivalently. Those that are not changed may allow other alternatives. SPIRES, for example, allows the use of the word “not” in many cases. See the following sections for more details.

After T-Day, a logical not character will appear as a question mark on terminals and microcomputers that are not capable of displaying the proper symbol. A displayed tilde will then represent a true tilde. For most people this will result in little change. They will continue to use the tilde, but now listings of files with the tilde in them will print the tilde rather than the logical not. If the application

you use does not recognize both tilde and logical not, you should not translate the logical nots in your input files. Check about any particular application that concerns you in the following sections.

### **3. Impact of the Change**

The change affects all users since it affects most parts of the MTS system. In general, the change affects existing files. The system automatically uses the new codes for information typed into files after February 22, 1988.

If neither your password nor any of your files, including your sigfile or files you have stored on tape, contain any of the characters that are changing, you shouldn't be affected by the changes made on T-Day at all.

If you don't translate files containing affected characters, the characters that have changed will appear as question marks on your screen and will be difficult to edit. Applications that use those files may not work properly. For more information, see the **Applications Affected** sections of this memo.

### **4. How to Translate Your Files**

#### **4.1 Important Considerations**

In general, you should translate an affected file on T-Day or as soon after T-Day as is convenient. There are two important things to keep in mind:

1. Make sure that you don't start making changes to an affected file (one that contains any of the characters in the list) on or after T-Day without first translating it, or you will have a mix of new and old codes for the same characters.
2. You should do translation only once on a given file. If you have used the server, it will not allow you to translate a file twice. If you use the Editor TRANSLATE command and by mistake you translate the file twice, the second translation can be undone using the Editor command:

```
$EDIT filename TRANSLATE@NV /FILE PRETDAY
```

Use the translation server instead of the Editor whenever possible, so that you do not have to absorb the cost of translating many files or large files. If you must use the Editor, the regular rebate process provides rebates for T-Day related expenses. See the section entitled **T-Day Rebates** for details.

When translating files you may want to take some precautions to help ensure that you can recover your original file correctly if the translation turns out to have been a mistake. One way to do this is to translate files as soon after T-Day as possible, since filesave will be run before the T-Day system is released to users. If you don't make any additional changes to your files, you can use \*RESTORE to bring back an exact pre-T-Day copy. You can safely translate unchanged files and expect to use \*RESTORE to get them back after any nightly filesave. You can also make your own copy of important files on disk or tape.

## 4.2 Details on the Free Translation Server

For three main reasons, the Computing Center is providing a free Translation Server on UM-MTS and UB-MTS to help users convert files affected by T-Day:

1. To give users a quick and easy way to find out if a file has the affected characters in it.
2. To save users money when they translate files to the new codes.
3. To help users by issuing a warning if the file seems like one that should not be translated, or if the file has already been translated.

The server is also designed to preserve file security and provide a simple and error-free mode of operation.

## 4.3 How To Use the Translation Server

To access the MTS translation server you must run an interface program on your CCID to translate files on that CCID only. Users with several CCIDs will have to translate the files on each one in a separate signon. To run the server:

```
$RUN *TDAY88TRANS
```

When the server prompts you for a command, enter one of the following:

```
SCAN file1,file2,...filen
TRANSLATE file1,file2,...filen
STOP
```

where 'file1,' 'file2,' etc., indicate one or more filenames separated by commas or blanks. To run the server with a single command that scans a file or list of files for the affected characters, type:

```
$RUN *TDAY88TRANS PAR=SCAN file1,file2,...filen
```

To run the server with a single command to translate a file or files, type this command:

```
$RUN *TDAY88TRANS PAR=TRANSLATE file1,file2,...filen
```

with a filename or list of files as described above.

Since you run the server from your own CCID, you don't have to explicitly permit files to the server. This prevents an extra nuisance step, and also avoids file-security risks from requiring users to permit their files to the server. This means, however, that the program can only change the files on that CCID. Even files on another CCID to which your current CCID has UNLIMITED access will not be translatable from your current CCID.

You can run the server from a terminal or in batch mode.

#### 4.4 How the Server Works

\*TDAY88TRANS just validates the file (ensures the file is indeed owned by the user), permits the file to the server, and then turns control over to the server. The server then performs the actual diagnostics and character translation. Upon returning from the server, \*TDAY88TRANS depermits the file to the server and asks for another file or files to convert. Because the interface program is running on your CCID, there is a minimal cost for the work it does and for the connect time, but it is less expensive than using the MTS Editor for small files and a considerable savings for large files.

The server will warn you, and refuse to translate the file, if it finds that it contains any non-printing characters. This will cause it to reject binary code that should not be translated, such as object code, ILIR:MICRO and STAT:MIDAS internal files, SPSSx internal files, Full Screen Message archive files, and so on. It will warn about page printer-ready files containing \$9700 lines, since there is no way it can tell if those should be translated or not; see the section entitled **How T-Day Affects Printing on the Xerox 9700 Page Printers** for further information.

The server will also print a warning and refuse to translate the file if it has already translated it. It keeps track in its own file "database," a method that is not infallible. For example, if a file was translated using the MTS Editor, the server has no way of knowing that file should not be translated. It also won't know if a file it has recorded as translated has been destroyed and then restored off tape in an untranslated version, and therefore truly needs translation, even though it is on the list of already-translated files. If you rename a file after it has been translated by the server, you might translate it twice by mistake. Be cautious: if you have any doubts, look at the file first to see if affected characters have been translated.

The server runs only on whole files. It does not allow filename patterns, CONTINUE WITH lines, or explicit concatenation of files, e.g., a+b+c+d. If you have a file that contains mixed text and binary data, such as a program file with the source code at one line range and the object at another, you will need to use the MTS Editor to translate the line ranges or individual lines that need changing. In general, if the server will not translate a file for some reason, you can use the Editor instead. Through the normal rebate procedures, you can obtain rebates for translating files using the Editor.

The translation server runs on one host at a time, and does not allow cross-host translations. This means that if you have files on UM and UB you will need to sign on to each system separately to run the server. Again, this simplifies file security issues.

If there is a system crash, or some other interruption in service while you are running the server, the program might be in the middle of translating a file and be unable to complete the translation. This could leave you with a damaged file. Therefore, before the server begins to translate a file it will depermit it so you do not have access to it. It will only restore the original file access once the translation is completed. This means you can tell if a file being translated was damaged after a crash; MTS will tell you "Access not allowed." Use \*RESTORE to restore a correct, untranslated version, and use the \$PERMIT command to get access to the file again.

## 4.5 Using the MTS File Editor to Translate Files

Although the free translation server, invoked by running \*TDAY88TRANS, allows you to translate entire files on your own CCID at minimum cost, in many cases the only way to translate part or all of a file is by using the MTS Editor. Information about the commands to use is provided below.

### 4.5.1 The TRANSLATE Command

A new version of the Editor TRANSLATE command converts files from old to new (and back). The new EBCDIC Codes are called "TDAY88" after the year of their inauguration; the old codes are called "PRETDAY". The EBCDIC codes for the left and right curly brace, grave accent, circumflex, tilde, backslash, and left and right square brackets will change using this command. The "logical not" sign, which uses the tilde as a synonym under the pre-T-Day translation, will be converted automatically to a tilde. If you want to preserve the logical not, do not use the TRANSLATE command with TDAY88. Information on how to change individual codes is given below.

You may find it handy to use filename patterns in these commands where applicable.

### 4.5.2 Converting Entire Files

Entire files can be converted from the old EBCDIC codes to the new EBCDIC codes using the TRANSLATE command. Small files can be converted by using the following sequence (note that the colon is the Editor prefix character, and should not be typed):

```
$EDIT filename
:TRANSLATE@NV /FILE TDAY88
:STOP
```

This method allows you to UNDO the translation by typing UNDO before you type STOP. However, this is not a good way to translate very large files. Use these commands to convert large files:

```
$EDIT filename
:CHECKPOINT NEVER
:TRANSLATE@NV@NCH /FILE TDAY88
:STOP
```

This choice of options disables the Editor's CHECKPOINT facility. This means that UNDO will not work, but this method is cheaper and faster, and prevents the partial conversion of a file that would occur if the CHECKPOINT buffer filled up.

It is hard to define "small" and "large" files in this context, when you are trying to decide which of these methods to use. Variables such as the number of changes needed and the length of the affected lines, rather than the size of the file in disk pages, affect the CHECKPOINT buffer. If you have any doubts, work on a temporary copy of your file. Use a command such as:



```
$DUPLICATE myfile -file
```

to make a copy of your file in “-file.” Then EDIT -file and TRANSLATE it with CHECKPOINT NEVER as described above. When that has worked properly:

```
$DUPLICATE -file myfile
```

to put the translated copy back into your permanent file.

### 4.5.3 Other Forms of the TRANSLATE Command

The following general template shows the options available when using the TRANSLATE command to change character sets. This format lets you select line ranges for the command to operate on. This means that you can change the text in a file that has some lines that are all text and some that are all binary, or otherwise encoded, i.e., data that should not be translated:

```
:TRANSLATE [lpar] [[FROM] PRETDAY] [TO] TDAY88
```

[lpar] indicates the line range you wish to translate. Many predefined Editor regions are useful here. For example, /F would translate the entire file, and /S would translate the result of a previous Editor SCAN command. You could also use a numeric range such as 1 100 (1 to 100 inclusive) or 1, 100 (only two lines). See MTS Volume 18, The MTS File Editor, for a complete list of line-number parameter options. In the TRANSLATE command FROM and TO are optional, as is PRETDAY; only the character set to which you are translating, in this case TDAY88, need be specified.

### 4.5.4 Changing Individual Characters

The TRANSLATE command can also be used to replace any character string with a new one, and it can be used to change characters by entering their hexadecimal values, which is useful when you can't type a particular character directly at your keyboard. With this form of the command you can change a subset of the affected characters if you need to. The general form of this command is:

```
:TRANSLATE [lpar] string-exp1=string-exp2
```

Here ‘string-exp1’ and ‘string-exp2’ can be any Editor string expression. An example would be:

```
:TRANSLATE HEX('A1')=HEX('5F')
```

This translates the hexadecimal value A1 (tilde) into the hexadecimal value 5F (logical not). See the table at the beginning of this memo for the hexadecimal values of other characters affected by T-Day.

## 5. T-Day Rebates

Rebates are available for expenses incurred directly as a result of the T-Day changeover. If you have any questions about whether certain T-Day expenses are eligible for rebates, contact Jim Knox for advance approval. He is available by phone at 936-1614 or through \$MESSAGE.

If all or part of a job is invalidated because T-Day changes prevented things from working as expected, you can request a rebate of the charges for the job involved. If software must be recompiled or an

application such as a database re-processed, these expenses are also rebatable. If you are uncertain whether or not you are eligible for a rebate, we encourage you to request one. Please request rebates as soon as possible after the problem occurs.

Rebate Request forms are available at the Computing Resource Center (CRC), 3113 School of Education Building; and at the output windows at the Computing Center, NUBS, and UNYN. Forms are also available online in the UM-MTS and UB-MTS file \*REBATEFORM. To print a copy on a Xerox 9700 page printer before or after T-Day, type this command:

```
$RUN *PAGEPR SCARDS=*REBATEFORM PAR=PORTRAIT
```

If possible, include all output for the job or session to be rebated along with the request. Turn in the completed rebate request to the output attendants at one of the Campus Computing Sites or at the CRC, or send it through U.S. or campus mail to:

Rebates  
U-M Computing Center  
535 West William Street  
Ann Arbor, MI 48103-4943

Generally, the CC prefers not to return output from rebate requests, but we will do so if you make your request on the Rebate Request form. Local users should provide a campus mail address or arrange to pick up their output. You can also:

```
$MESSAGE  
@SEND TO TDAY_REBATES
```

Include in the message your name, phone, campus or organization address, CCID and system (UM or UB), signon date and signon time; whether you are requesting a full or partial rebate; and, if applicable, the \*PRINT\* receipt number and where the job printed. If the rebate was recommended by someone on the CC staff, please include his or her name.

If you are using either the written form or \$MESSAGE to report a straightforward T-Day expense, simply give "T-Day" as the reason for the rebate request. If your request is complicated, any additional information you can provide will be helpful. You should be able to supply additional information about the request if necessary.

The Computing Center makes a rebate to a CCID by subtracting from the amount used, which increases the remaining balance for that CCID. You can check whether a rebate has been granted by examining the remaining balance on your CCID. You will be notified when a rebate has been denied.

## **6. Applications Affected**

The following is a list of system components and applications software affected by the T-Day coding changes. In many cases, the change is not visible to users, since the application or command has been changed to handle both the old and new versions of whatever affected codes it uses. In other cases, input files must be translated or you must type a new character to accommodate the new codes. The list explains the effect of the T-Day changes on each program.

UNSP (unsupported) software and software maintained by organizations or individuals outside the Computing Center are not on this list unless we know the software has been changed.

### **6.1 MTS System Components**

#### **6.1.1 MTS Passwords**

Password checks could fail at signon if the password includes any of the characters that are changing. If you have such a password, change it before T-Day to one that does not use any of the affected characters. If you find that you cannot sign on after T-Day, you can obtain a new password at the CC Business Office, 535 West William Street, or at the Computing Resource Center, 3113 School of Education Building.

#### **6.1.2 \$MESSAGE and Full Screen Message (\$FSM)**

\$MESSAGE users will not be affected at all by T-Day. Messages currently in \$MESSAGE will not be translated. As new messages are entered after T-Day, they will automatically use the new characters, and any messages containing the old codes will soon disappear (within about a month at most). \$MESSAGE archive files containing affected characters can be translated using the translation server or the Editor TRANSLATE command. \$FSM archive files that need translation must use a special utility program. See the file NEWS:TDAY.MESSAGE for details.

#### **6.1.3 Other MTS System Components**

The following commands have been changed to accept both the tilde and logical not for negation, and to accept both pre- and post-T-Day forms of the other affected characters:

MTS Command Macro Processor  
\$DEBUG, SDS  
\$IF  
\$FILESTATUS  
\$FILEMENU

This is also true for any other commands that use the logical not for negation of input/output modifiers.

\*CLPARSER and \*CLPARSEGEN have been changed to accept either set of codes.

## 6.2 Applications Software

### 6.2.1 Conferencing

Confer—Many Confer II<sup>TM</sup> users will not be affected at all by T-Day. Those with message files containing affected characters will need to translate the files; see the sections on the translation server and the File Editor TRANSLATE command for more information. A utility is available so that conference organizers can translate files; \$COPY CNFR:TRANSLATE on UM-MTS or UB-MTS for details.

\*Forum—A utility program is available to translate \*FORUM conferences if necessary. Conference managers should contact Dave Whipple at 763-6055 or through \$MESSAGE for more information.

### 6.2.2 Databases

SPIRES, Taxir—You may need to dump out, translate or otherwise modify, and regenerate database files. See the section entitled **SPIRES and Taxir** for more information.

SPSSx and SAS should not be affected by the change. For information about ILIR:MICRO, see the file NEWS:TDAY.DATABASE on UM or UB-MTS. Information about STAT:MIDAS is in the file NEWS:TDAY.MIDAS.

### 6.2.3 Word processing software

TeX, LaTeX—Two “versions” of these are available until August 15, 1988. For TeX and LaTeX, \*TEX and \*LATEX only work on translated files, and OLD:TEX and OLD:LATEX work on untranslated files. OLD:TEX and OLD:LATEX will not be available after August 15. See the file NEWS:TDAY.TEX for details.

PC:WORD will change so that files transferred to MTS on or after T-Day will work properly. A file transferred before T-Day can be used by running PC:WORD with PAR=PRETDAY.

STAT:TEXTEDIT and \*TEXTFORM—Files containing the affected codes will need to be translated to work properly after T-Day.

### 6.2.4 Compilers, Libraries and Utilities

\*PASCALJB and \*PASCALVS, their run-time libraries, \*PASCALTIDY, and \*PLUS run on both sets of characters without needing any special options. Note that literals in strings and hexadecimal values must be changed to the post T-Day codes or the program output may be incorrect. The compilers cannot detect this.

\*CBELL will require translated files after T-Day unless an option specifying PRETDAY or TDAY88 is used on untranslated files. The run-time library will accept both old and new codes. See the file NEWS:TDAY.CBELL for more information.

All versions of Prolog will need to be run with translated source code after T-Day if the input uses the affected characters.

BASIC compilers that accept logical not for the negation of a parameter can also use a minus sign (-) or NO.

\*APL and \*APLFONTCONVERT accept both pre- and post-T-Day codes.

\*SORT-Translation can affect the sort order if the characters that changed are involved in the sort. Translation can also make MERGEs fail.

PL/I users should use the CHAR48 option of \*PL1F or the CHARSET(48) option of \*PL1OPT. They can then enter the following equivalents to the symbols that use not signs:

NOT for ¬  
 NL for ¬ <  
 NG for ¬ >  
 NE for ¬ =

\*PLC does not have the CHARSET(48). For either PL/I or \*PLC, users can use \*PL1TIDY, which has the CHAR48 option or will automatically convert a tilde to a logical not.

## 7. Translating SPIRES, Taxir, and ILIR:MICRO Database Applications

### 7.1 SPIRES and Taxir

Translating SPIRES and Taxir applications is complicated for two reasons:

1. The MTS files that contain SPIRES subfiles and Taxir databanks contain both your data and coded information about that data. This means that neither the translation server nor the MTS Editor's TRANSLATE command can be used directly to translate data in those files.
2. Taxir and SPIRES database applications include not only the data files themselves but also database definitions, command files, input and output formats, command protocols, and so on, which may all contain one or more of the characters whose representations were changed on T-Day.

Because it may be a somewhat complicated procedure to translate Taxir and especially SPIRES database applications, we have developed some procedures to make it easier to carry out those translations. This makes it possible for you to convert most applications by entering just one or two commands. The procedures also enable you to do the translations at no cost. The file DBMS:TDAY.HOWTO contains information about when and how to use these procedures to translate your Taxir or SPIRES applications. Please read this file before attempting to translate your Taxir or SPIRES application. To print a copy on your terminal or microcomputer screen, sign on to UM or UB-MTS and issue the following command:

```
$COPY DBMS:TDAY.HOWTO
```

To produce a six-page page printer copy of the file:

```
$RUN *PAGEPR SCARDS=DBMS:TDAY.HOWTO
```

Also please check the file DBMS:TDAY.NEWS regularly for up-to-date information about the T-Day translation process as it affects Taxir and SPIRES applications. New items will be added to the beginning of this file, so that you need read it only until you encounter an item you have already seen.

If you are at all in doubt about the proper procedure to use in your individual case, or if you don't know whether or not you should convert your Taxir or SPIRES application after T-Day, contact one of the CC database consultants either by \$MESSAGE or phone: Rick Riolo (764-5271), Rick Schmalgemeier (747-4267), or Larry Kostecke (763-6065). If you do not do the translation properly, or if you fail to do it, you might damage your database in a way that will make complete repair difficult or impossible.

## 7.2 ILIR:MICRO

If the names, field and category names and abbreviations, or character-type data in your Micro datasets contain any of the special characters involved in the translation, you should use a special program to translate these characters. Do not use the translation server or the MTS File Editor's TRANSLATE command, since these are designed to translate text-only files. Instead, issue this command:

```
$RUN ILIR:MICRO.TRANSL
```

This program prints directions and asks you for the information it needs. If you have specific questions about ILIR:MICRO and T-Day, please contact Dave Hetrick at 763-3118 or through \$MESSAGE.

## 8. How T-Day Affects Printing on the Xerox 9700 Page Printers

### 8.1 Changes to Printer Defaults

After T-Day's character translation changes, the altered character codes need to be printable with the correct symbols on the page printers attached to MTS. To make the new character set printable, some new fonts have been added on the Xerox 9700s at CNTR, NUBS, and UNYN, and the printer defaults have changed. Everything that you type at your keyboard after T-Day automatically uses the new codes, and so will all translated files. Therefore everything needs to be printed with the new fonts, with the caveats described below.

### 8.2 How to Access Page Printer Fonts

Understanding how fonts are accessed on the page printers will help you determine what types of print jobs may be affected by the T-Day change. Fonts can be accessed on the Xerox 9700s in three ways:

1. As a default, either when directing something to \*PRINT\* or running \*PAGEPR with no FORMAT or FONTLIST option and no \$9700 control line in the file. For example, a simple command to \$LIST a file to \*PRINT\* with PRINTER=PAGE would work this way. It actually uses the fonts in the LANDSCAPE format, and will print in fixed pitch with a landscape orientation, but you do not issue any special command requesting this.

2. By explicitly selecting a \*PGF line number or a name such as TWOUP when running \*PAGEPR, either as a parameter on the \$RUN command or with a \$9700 control line in the file. A \*PGF line is a predefined collection of fonts, accessible by using the font index assigned to each one. \*PGF lines are obsolete, but some users and applications still use them. Format names such as LANDSCAPE, PORTRAIT, and TWOUP are still used often. Documents produced using an older word processing program on MTS or a simple fixed-pitch memo typed into a file and just printed in portrait orientation, with no further text processing, would be typical examples of this.
3. By using FONTLIST commands when running \*PAGEPR, either as a parameter on the \$RUN command or with a \$9700 control line in the file. The FONTLIST command refers to fonts by name, and assigns a font index to them according to their order in the FONTLIST command. TeX .DVI files run through \*DVIXER and TEXTEDIT documents set up in proportional fonts for the page printers are examples of files that work this way. The FONTLIST command can also be used for text typed into a file directly, rather than text-processed.

When we say that the printer default formats are changing, we mean that new fonts have been added and that they are the ones used if you just run a batch job, or route something to \*PRINT\*, for example, with \$COPY or \$LIST (as described in the first category above). The second category applies if you \$RUN \*PAGEPR with FORMAT= any of the following, or print files with \$9700 command lines in the file requesting any \*PGF lines that are changed. At present, we plan to change the following:

```
*PGF(1)
*PGF(2)
*PGF(3) (TWOUP)
*PGF(4) (PORTRAIT)
*PGF(5)
*PGF(20) (LANDSCAPE)
```

This is a preliminary list; any additional changes will be announced in the UM-MTS and UB-MTS file NEWS:TDAY.UPDATE.

The problem is that most of the \*PGF lines are not changing, but some are. Therefore if you print using this method you can't be sure what will happen unless you know which \*PGF line is being used, and check it against the list above. If you type FORMAT=\*PGF(12), for example, when you run \*PAGEPR, you can be sure that that will work if the document was set up for that font, and that is how you have always printed it. On the other hand, if it is just a file that you \$RUN \*PAGEPR to print, it may have a line in it that says:

```
$9700 FORMAT=*PGF(5)
```

without your knowing it. Since PGF(5) is one of the ones that is changing, a document that looked fine that way before T-Day may not print correctly after T-Day. The only way to tell is to edit the file yourself and look for such lines, or to run \*TDAY88TRANS (the translation server). It will warn about files with embedded \$9700 control lines, no matter what they say.

Any word processor that uses a FONTLIST command will be changed so it processes the new codes properly on input, and old files that were created before T-Day will be untouched by the T-Day changeover, since none of the font names are changing. You should not translate such files. However, if you construct your own page printer-ready files using the FONTLIST command, type in the characters directly, and use any of the ones that are changing, you will have two relatively simple options: use all new fonts, or use all pre-T-Day fonts and, after typing in the text, “un-translate” the file, using the MTS Editor to convert it back to the characters used in the existing fonts.

To summarize, documents or files that used the following PGF lines before T-Day may be affected: LANDSCAPE (\*PGF(20)), PORTRAIT (\*PGF(4)), and TWOUP (\*PGF(3)), \*PGF(1), \*PGF(2), and \*PGF(5). You are most likely to encounter these changed fonts if they were accessed by directing jobs to \*PRINT\* or by running \*PAGEPR with the default (LANDSCAPE), or either PORTRAIT or TWOUP.

Most text printing applications will not be affected by the changes to the fonts. Complex applications that are particularly dependent on a specific symbol set usually specify a special-purpose format already. Also, none of the proportional fonts is changing. For example, the text processors that generate page-printer ready files such as TeX used with \*DVIXER; TEXTEDIT and TEXTFORM used with the Xerox 9700 as their output device; and PC:WORD used with Microsoft Word, will not need their output files translated.

### **8.3 Limitations of the New Fonts**

At least initially, many of the new fonts may be available only in “normal” or “roman” versions rather than the usual normal, italic, and bold that are found in the \*PGF lines that are changing. In \*PGF(4) font index 2 would normally print italic, for example, but if that is unavailable it will use normal until the missing font can be added.

### **8.4 Characters Affected by the Font Changes**

Most of the common text printing characters are the same in the old and new fonts. The main exception is the set of box drawing characters that is available in the old TN character set but is not part of T-Day’s new EBCDIC “Code Page 37” standard (a new standard released by IBM in 1987). Applications that draw boxes or solid horizontal bars using one of the affected fonts should be altered to use the TN versions discussed below.

Logical not is another affected character; translation will convert it to tilde, but the TN character set does not contain a tilde. Therefore, listings that have been translated and are then printed with one of the “old” TN fonts probably will have a degree symbol or a blank in place of logical not.

### **8.5 How to Get the Old Character Set**

You will always be able to print using the old character set or fonts that are currently in use. No fonts are being removed; new ones are being added and some defaults are being changed. However, you may need to take extra or different steps after T-Day to get what you want.



Many applications make use of the special characteristics of the old extended TN character set. Probably the most common reason for using the TN set is the inclusion of box drawing characters. There are no box segments in the new Code Page 37 symbol set, except for the vertical bar. The TN set will continue to be available on the page printers. There is no intention to remove the fonts with TN characters from any of the printers.

When using \*PAGEPR, all that is necessary to get the TN character set is to use FORMAT= to change the name of the \*PGF line requested. All the fonts that could be obtained before T-Day by asking for \*PGF(1), \*PGF(2), \*PGF(3), \*PGF(4), \*PGF(5), or \*PGF(20), or for LANDSCAPE, PORTRAIT, or TWOUP, will be available under new names indicating their old names, or \*PGF lines with “\_TN” appended. For example, to use the pre-T-Day version of format PORTRAIT, request format PORTRAIT\_TN.

Here is a list of the names:

PORTRAIT\_TN in place of PORTRAIT  
 LANDSCAPE\_TN in place of LANDSCAPE  
 TWOUP\_TN in place of TWOUP  
 PGF1\_TN in place of \*PGF(1)  
 PGF2\_TN in place of \*PGF(2)  
 PGF3\_TN in place of \*PGF(3)  
 PGF4\_TN in place of \*PGF(4)  
 PGF5\_TN in place of \*PGF(5)  
 PGF20\_TN in place of \*PGF(20)

## 8.6 If You Have Never Specified Fonts

If you use \*BATCH\* for batch output or use \$COPY or \$LIST when producing a listing on the Xerox printers, you have been using LANDSCAPE. This should still work after T-Day, but in a few cases you may want to continue using the old characters. The most likely reason for using the old versions is the requirement for box drawing symbols or some other character not included in the new Code Page 37 standard. If you find that you need to continue using the previous default character set you must now \$RUN \*PAGEPR and specify PAR=FORMAT=LANDSCAPE\_TN. Alternatively, you could insert a record with:

```
$9700 FORMAT=LANDSCAPE_TN
```

at the beginning of your printer-ready file to cause the correct font to be selected when you \$RUN \*PAGEPR.

You must make these changes only if the new versions of PORTRAIT, LANDSCAPE, and so on, do not suit your needs.

## 8.7 New Fonts and the Check Character

Each of the modified fonts uses a new font containing the symbols of the Code Page 37 character set. In their initial implementation, not all fonts were supplied with a complete set of symbols. In

some cases where a symbol is missing, a check character (portrayed by an inverted question mark in a box) is printed. If you come across a check character in your printed output, you have probably attempted to print a code with a font that currently lacks the appropriate symbol.

## 9. T-Day's Effect on Line Printers

Line printers will be changed to print as many of the new characters as exist in the TN character set after T-Day. Missing characters will print as blanks. This new line printer print set will be called TN37 and will be the new default after T-Day. Use the PRINT= parameter to request PRINT=TN to restore the pre-T-Day print set, or use PRINT=TN37 to explicitly request the post-T-Day print set. For example, to request the pre-T-Day character set after T-Day on a line printer, use this command:

```
$CONTROL *PRINT* PRINTER=LINE PRINT=TN
```

An alternative that we may offer is to make available both TN and ISO print bands on a set schedule, much as plain or three-hole paper is handled on the page printer. This change will be announced in U-M Computing News and in the file NEWS:TDAY.UPDATE.

## 10. T-Day and \*LOCALPRINT

The Computing Center and other units use the \*LOCALPRINT program to print on Hewlett-Packard LaserJet and Xerox 4045 local printers at various locations. After T-Day, fonts that print the new character set will become the default fonts for these printers.

\*LOCALPRINT works quite simply, with far fewer options than \*PAGEPR. Unlike \*PAGEPR, \*LOCALPRINT options are always specified on the \$RUN command. Commands are never embedded in the file, so you do not need to check there.

The orientations available are PORTRAIT and LANDSCAPE, and these options operate independently of the character set or particular font in use. Therefore, you can specify PORTRAIT or LANDSCAPE without affecting the character set. To explicitly select the present, pre-T-Day, character set with \*LOCALPRINT, use PAR=PRETDAY; to select the post-T-Day character set, use PAR=TDAY88. On T-Day the default, currently PRETDAY, changes to TDAY88. Thus the simplest procedure is to continue using whatever commands you use now to print files, but print only untranslated files before T-Day and only translated ones afterwards. If for some reason you do wish to print an untranslated file after T-Day, you can use the PAR=PRETDAY option to get the correct results.

### 10.1 Characters Available

For the Xerox 4045 page printers, PAR=TDAY88 will select T-Day's new Code Page 37 mapping of ISO 8859-1 to EBCDIC. All characters are available. For the Hewlett-Packard Series II LaserJet printer, PAR=TDAY88 will likewise support the Code Page 37 characters, with the exception of the following ten characters, which are not currently available:

logical not sign  
broken vertical bar  
cedilla  
copyright symbol (c with a circle around it)  
registered symbol (r with a circle around it)  
times (multiplication symbol)  
divide (division symbol)  
superscript 1, 2, 3

A black square will be printed for now in place of unavailable characters. However, this may change without notice if we are able to provide or simulate any of the missing characters in the future.

If PAR=BINARY is specified, however, \*LOCALPRINT just passes the data directly to the printer and thus the printer's base character set will be used. This behavior will be the same after T-Day as before.

## 11. Special T-Day Consulting

During the week of T-Day, February 22–26, 1988, consultants will be available to help you make changes to files and programs that are affected by the coding change. A special consultant, dedicated to T-Day-related questions, problems, and rebates, will be available on a walk-in basis at the Computing Resource Center, 3113 School of Education Building, between 8:00 a.m. and 5:00 p.m. that week only.

Consultants will also be available at 611 Church Street, UNYN, and NUBS. To see a list of hours for each site, check the file \*CONSULTINGHOURS.

You can also contact a consultant by phone at 764-HELP or through \$MESSAGE:

@SEND TO ONLINE\_HELP

You will receive an answer within 24 hours.

