HP ALLBASE/BRW (A.01.50)

Software Update Notice

For MPE/iX Systems

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Operating System Name

Recently, the operating system name was changed from MPE XL to MPE/iX, reflecting the broad support of open standards and the integration of POSIX on the system.

The *HP ALLBASE/BRW Reference Manual* has not been re-released since the system name change and the title still refers to MPE XL. Business Report Writer runs under the new MPE/iX system, although it does not use the POSIX interface. Where the manual mentions MPE XL, the new system name, MPE/iX system name can be substituted.

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HP ALLBASE/BRW Software Update Notice

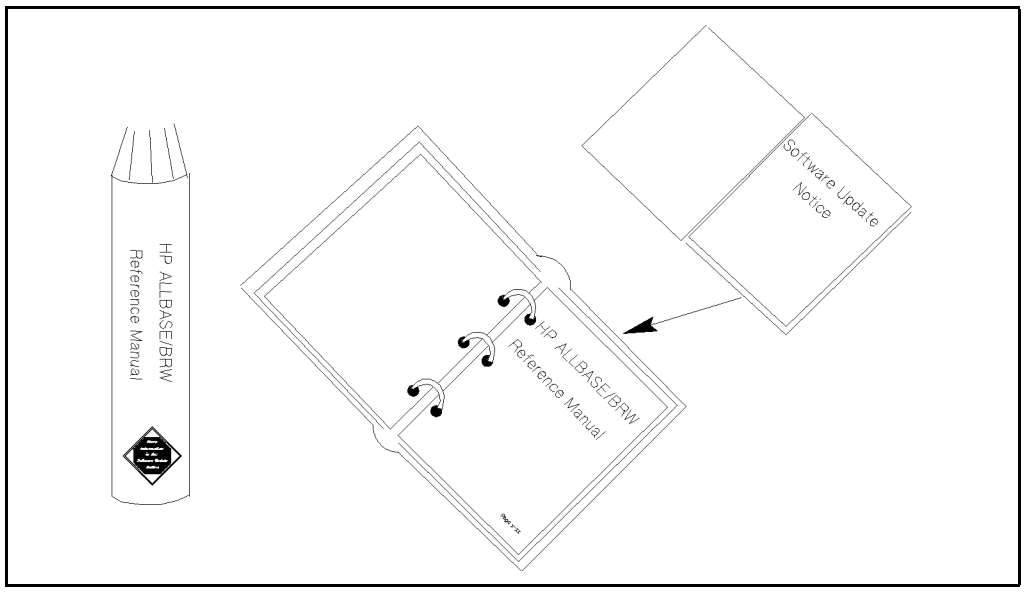
This *Software Update Notice* describes the HP ALLBASE/BRW (Business Report Writer) release A.01.50 for MPE/iX. Functionality described in this *Notice* is available beginning with the A.01.50 Release.

The information described in this *Notice* is NOT documented in the previous editions of the *HP ALLBASE/BRW Reference Manual* or the *HP ALLBASE/BRW Tutorial*.

Note Pages from this *Notice* may be removed and inserted in the *Reference Manual* for your convenience. No other update pages are provided.

Throughout this *Software Update Notice* you will see notes marked by this figure:

In addition, we have provided some self-stick labels with a similar graphic that you can put on the front of your *Reference Manual* or on your *Tutorial*.



Versions

To use this release of HP ALLBASE/BRW, you must have **at least** version 4.0 of the MPE/iX operating system on the HP 3000.

Do not attempt to install this release of HP ALLBASE/BRW under releases of MPE/iX earlier than 4.0. To check the version of MPE/iX, enter the following command at the MPE/iX prompt:

```
:VERSION Return
VERSION> EXIT
```

Product Update Overview

This release of HP ALLBASE/BRW contains several important enhancements:

- Third-party indexing

  BRW now offers full support for third-party indexing extensions.

- Support for laser printer escape sequences

  You can now use laser printer escape sequences in BRW to create reports that take advantage of laser printer capabilities such as additional font sizes, bold typefaces, underlining, and other text enhancements.

- The default value for the print device on the Execution Values screen is now extended so that any print device field in BRW takes its value from the `Default Print Device` field.

- The Online Review screen shows line (or page) and column numbers and also allows you to "go to" a selected line or page.

- Error messages for the compiler have been improved.

- There are improved prompts for saving and deleting reports.

- The VERIFY function now gives full version availability information.

- Additional information on Use Items screen.

  The Use Items screen now shows the data type (N,S,I,D,T,R) and the length for string types.

- BRWSTOA, an improved RSPEC lister utility, has been added.

Each of these enhancements is fully explained in later sections of this Update Notice.

Service Requests

Responses to the following Service Requests (SRs) have been included in this release:

Defect Fixes and Enhancements

SR #	Description
	Enhancements
1650-057539	Be able to have a reduced report specification listing
1650-120501	Add more details to the message "No data selected"
9061-001206	Page numbers for 'Go to Page' function key of the Online Review
D500-158337	Enhance compilation error to include the offending ITEM and expression.
D500-158345	Make it easier to use escape sequences for advanced formatting control.
D500-158352	Customer requires non-printable character error message suppressed.
D500-158766	BRWSTART should take print device from BRWSETUP, not always LP.
no sr	Extend VERIFY function to give all version dependencies
	Defect Fixes
1650-169748	BRW/XL aborts when [Enter] instead of [Add Table] is pressed by mistake.
1653-034728	Numeric division truncates results less than .0001 to zero.
1653-047159	MPE/iX C.45.00, BRW gets FSERR 54 with $NULL printfile
1653-054288	PAGE HEADER/FOOTER >= Page Lines, get Net-lines for report-page is < 0
1653-054445	Answering 'Y' to 'Check SQL Changes prompt' can cause abort # 4118
5000-552414	BRW/XL allows DIGIT_OF DATE during specification but BRWCOMP aborts
5003-092957	Report run in NM attempts a production join on item with NO_VALUE.
5003-124354	Problem using BRW to access SQL DBE on HP-UX via ALLBASE/NET.
5003-124370	BRW: Cannot gen msg 1162 in set 55, when accessing an IRF file > 1 time
5003-124396	BRW: Data Memory Protection Trap: REFCALL, on very large reports.
5003-130278	Problem with Suppress Line when using Array items as of A.01.40 BRW/iX
5003-136556	Receiving FSERR 99 writing to Tape from BRW/XL.
5003-140673	Negative numbers handled incorrectly by MIN/MAX
9061-001099	BRW/XL aborts when it cannot find the required SQL database
9061-001305	BRW does not prompt for confirmation if a source table is deleted
D500-158030	Getting Incorrect Display Lengths for BRW Table Calc Items.
D500-155168	BRW LOG function incorrectly returns 'Natural Logarithm' not Base 10 Log
D500-158774	A user with SM Cap. can delete a BRWCONF file in a different account.
D500-158782	Abort in Define Table after re-arranging tables.
1653-043844	Changes with two-digit years in range 00/49.
1653-063149	BRW abort: BUFSIZE in file BRWSORT is too small.

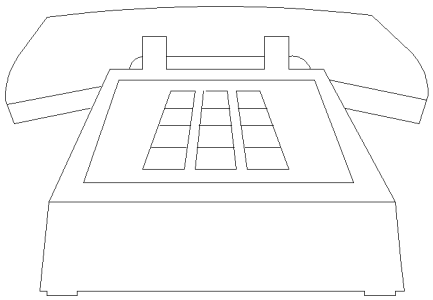
Additional descriptions for enhancements are covered by this *Software Update Notice*.

Documentation

No existing manuals were replaced for this release. This *Software Update Notice for A.01.50* has been added. The following part numbers and edition dates are the current numbers for this release:

Title	Customer Order Number	Edition Date
HP ALLBASE/BRW Reference Manual for MPE/XL	35360-90051	E0192
HP ALLBASE/BRW Tutorial	35360-90201	E0592
HP ALLBASE/BRW Software Update Notice for MPE/iX (MPE/iX Release 4.0)	35360-90200	E0592
HP ALLBASE/BRW Software Update Notice for MPE/iX (BRW Version A.01.50)	35360-90204	E0294
Book binder	9282-1161	

These parts are orderable by calling HP Parts Direct Ordering (1-800-227-8164) and referencing the order numbers.



1-800-227-8164

Parts Direct Ordering has a convenient, electronic method for finding the prices and for ordering manuals or binders. If you need to talk to an ordering representative, the electronic message directs you to press a number so an HP representative can help you.

If you have a customer account number, please have it ready when you order. If you do not have a customer account number, you can still place your order using this 800 number.

Page Changes

Here are the pages in the HP ALLBASE/BRW manuals that are affected by this release:

HP ALLBASE/BRW Reference Manual

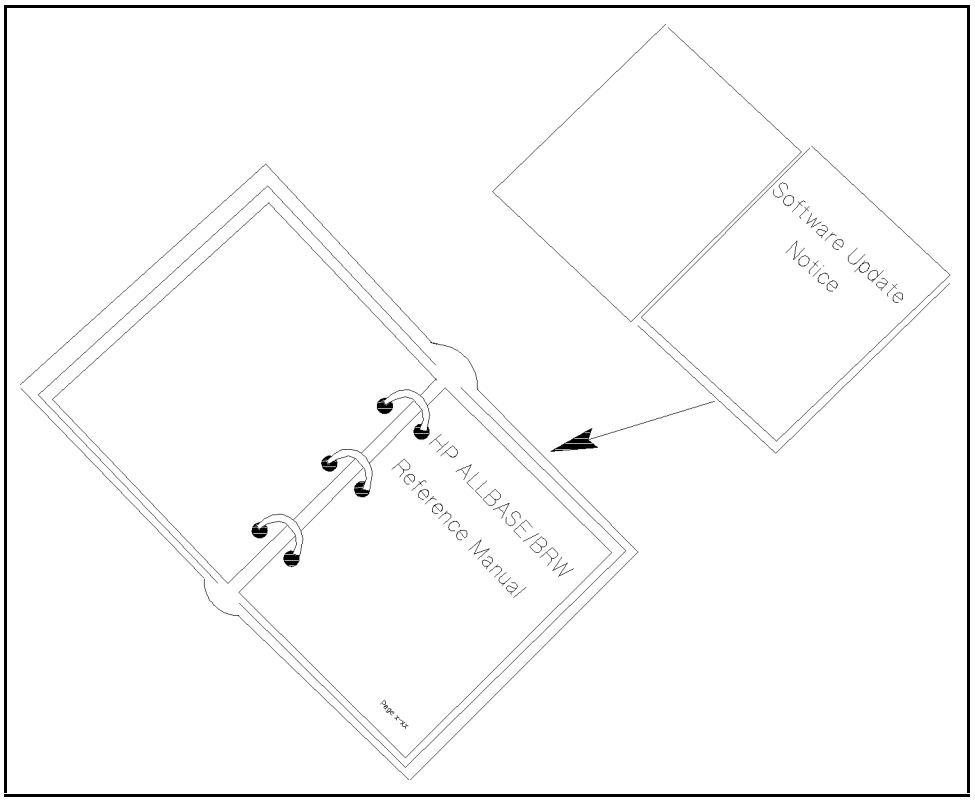
6-20	Third-party indexing feature added.
6-23, 10-2, 10-3, 16-3, and 19-8	New BRWSTOA utility provides more compact and simplified listing of BRW report definition.
7-17	Items and text can be enhanced with font changes, underlining, and boldface type using new escape sequence feature.
16-16	Define Lines screen now allows escape sequence names to be used as item names.
16-26	`Enable Third Party Indexing` field added to Define Report screen.
16-30	New prompt to confirm deletion of source table.
16-47	The Online Review screen allows you to "go to" a selected line or page.
16-65	Request Report screen has a new `LASER` option.
16-71	New prompt to save changes (Y or N) when opening an additional report.
16-72	New prompt to confirm deletion of report.
16-72	Verify function now contains full version availability information.
16-92	Use Items screen now shows item data types and string lengths.
17-7	TPI information added to printout for Execution Statistics.
17-7	The Default Print Device shown on the Execution Values screen in BRWSETUP is extended to become the default print device for every print device field in BRW.
17-13	`Enable Third Party Indexing` field added to Specification Values screen.
17-14	Define Escape Sequence Items screen added.
21-14	Verify function now contains full version availability information.

HP ALLBASE/BRW Tutorial

3-28	(optional) Use new laser escape sequences instead of underlining described.

UPDATE PAGES

The following pages can be used as a separate reference section or copies can be inserted in the *HP ALLBASE/BRW Reference Manual* or in the *HP ALLBASE/BRW Tutorial*.



Each section of this *Notice* has a note describing which pages of the manuals are affected by the new HP ALLBASE/BRW features. The notes are marked by this icon:

Third-party Indexing

As of MPE 4.0, HP supports a front end to third-party indexing (TPI) for IMAGE databases. TPI extensions allow any field in any IMAGE database to support keyed access. In addition, the *generic* and *keyword* styles of keyed access provide greater flexibility in keyed reads compared to IMAGE's *hashed* keyed access.

This supersedes the information on page 6-20 of the *HP ALLBASE BRW Reference Manual*. Also, refer to pages 6-26 to 6-28 in the *Reference Manual* for information on tuning reports that use keyed access.

Prior to this A.01.50 release, HP ALLBASE/BRW had limited transparent support for generic TPI keys. With this release, when you request BRW to compile a report, BRW generates an internal list of all selection conditions applied against datasets accessed with a serial read (that is, no KEY is specified in the Tune Access screen).

When the report is run, if the selection condition (itemname = ?PARM) is a TPI key, the serial dataset read is dynamically converted into a TPI keyed read.

Wildcard and Range Retrievals

Wildcard and range retrievals are available through Comparison Predicate parameters. Composite items are supported by Parent/Child items or SUBSTRING functions to specify components of standard IMAGE items that make up the TPI composite item.

Keyword Retrievals

Keyword retrievals are available by using a new operator, the *tilde* (~). For keyword retrievals on multiple fields, you use the ~ operator on two or more parameter/itemname pairs.

Examples of TPI Keyword Retrievals

The following examples show TPI keyword retrievals:

Selection Condition	Parm Value	Result
(ship-date SATISFIES ?dateparm)	dateparm = 04/@/93	Return everything shipped in April, 1993 (assumes that dates are stored internally as YYYYMMDD or YYYY/MM/DD).
(customer-name SATISFIES ?custparm)	custparm ~smith or jones	Keyword read of any customer with last name Smith or Jones.
(SUBSTRING(order-no,1,3) SATISFIES ?parm1) AND (SUBSTRING(prod-no,4,2) SATISFIES ?parm2)	parm1 = ABC,XYZ parm2 = UX,HP	Assuming there is a composite key of the first 3 bytes of order-no and the 4th and 5th bytes of prod-no, BRW makes a keyed read for values ABCUX, ABCHP, XYZUX, and XYZHP.

Checking for Keyed Reads

Checking for TPI keyed reads at runtime allows BRW to match the flexibility inherent in TPI indexing. As TPI keys are added or deleted, BRW continues to look for the best retrieval method. If no values are given for Comparison Predicate parameters, or if the referenced items are not TPI keys, then BRW reads the data set serially.

If the user authorizes BRW to look for TPI keys, but the referenced itemname is not a TPI item, BRW also checks for simple IMAGE chain or Calc items, assuming the parameter values do not use wildcards or range retrievals. This can be helpful in cases where the report developer did not explicitly tune the report.

To enable TPI keyed reads on all new reports:

1. Start BRWSETUP.

   : `BRWSETUP`

2. Go to the Specification Values screen.
3. Place an `X` in the `Enable Third Party Indexing` field.

```
HP ALLBASE/BRW                Specification Values

     Defaults

        Report Width      132
        Page Length       60

        String Sort Sequence   A


        Column Spacing    2

     Sample Fill Character      .

     Enable Third Party Indexing  X


     Use Function Keys to define default Item Edits.


String  NumFixed NumFloat Integer   17* 37    Date    Time     Help     Exit
Edits   Edits    Edits    Edits       n      Edits   Edits
```

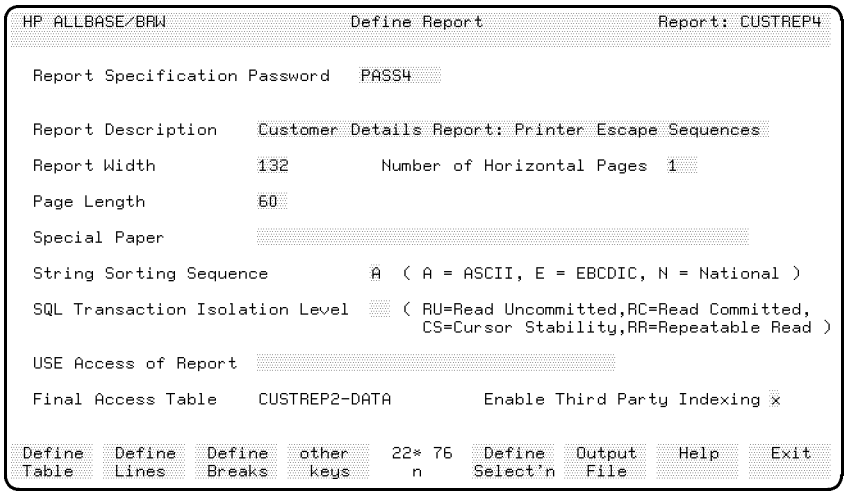
This screen is described on page 17-13 of the *HP ALLBASE/BRW Reference Manual for MPE/XL*. The `Enable Third Party Indexing` field is new to this screen.

To enable TPI keyed reads on a specific report only:

1. Start BRW.

   : `BRWXL`

2. Go to the Define Report screen.
3. Place an `X` in the `Enable Third Party Indexing` field.



To disable third-party indexing for a specific report, remove the `X` from the field.

The Define Report screen is described on page 16-26 of the *HP ALLBASE/BRW Reference Manual for MPE/XL*. The `Enable Third Party Indexing` field is new to this screen.

RSPEC files with third-party indexing enabled are not usable by versions of BRW/iX prior to A.01.50.

If you need to support a customer base of old and new versions of BRW, you can set a JCW (BRWTPIENABLE) instead of using an `X` in the `Enable Third Party Indexing` field. This allows you to build either a TPI or a non-TPI version of the report without going back into the report to change the field.

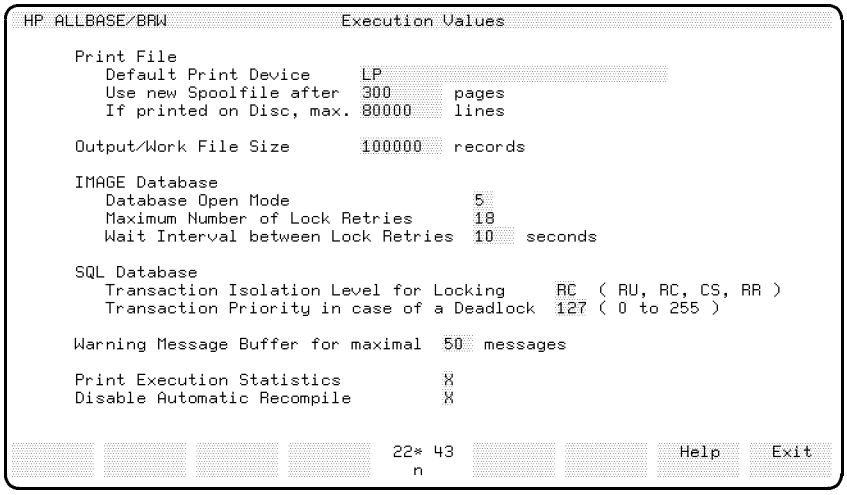
BRWTPIENABLE = 1	Builds a TPI version even if the `Enable Third Party Indexing` field is blank.
BRWTPIENABLE = 0	For 0 or no JCW, BRW only enables third party indexing if there is an `X` in the `Enable Third Party Indexing` field.

Execution Statistics

The user can determine what, if any TPI generic or keyword reads were used by BRW through information provided by the execution statistics that are listed to the $STDLIST when the report is executed.

To print execution statistics:

1. Start BRWSETUP and go to the Execution Values screen.
2. Type an `X` in the `Print Execution Statistics` field.



When the report is run, the execution statistics are listed to $STDLIST.

This screen is described on page 17-7 of the *HP ALLBASE/BRW Reference Manual for MPE/XL*. The screen has not changed, but the TPI generic or keyword read information is a new part of the Execution Statistics printout.

Examples of Execution Statistics

If no TPI index was used for a particular dataset, the execution statistics look like this example:

```
read-dset serial CUSTOMERS,TOYDB.PUB
```

If a generic TPI key was used, BRW lists one or more itemname/parameter pairs, like this:

```
read-tpi generic CUSTOMERS,TOYDB.PUB
          ZIPCODE = ?ZIPPARM
```

The item name will be the TPI key, which may not be the same name as the associated IMAGE data item.

If several parameters are needed to match a TPI composite item, or if two or more conditions involving child items are combined to make a parent item key, then the execution statistics list the TPI key used, and one or more parameters as shown in this example:

```
read-tpi generic COST-ACCOUNTS,GLSYS.PUB
      COMP-L-ACCT = ?COMPANYPARM,
                    ?LEDGERPARM,
                    ?ACCOUNTPARM
```

If the ~ operator is used to get a TPI keyword read, the execution statistics will look like this example:

```
read-tpi keyword CUSTOMERS,TOYDB.PUB
      CUSTOMER-NAME ~ ?CUSTPARM
```

If more than one ~ keyword parameter is used, each itemname/parameter pair is listed in the order that BRW applies the conditions.

Using Laser Escape Sequences (SR D500-158345, SR D500-158352)

Laser escape sequences let you format your BRW reports using standard printer commands for your printer. These commands include (but are not limited to) font changes, underlining, paper source, and paper orientation.

This feature was not described in the *HP ALLBASE/BRW Reference Manual for MPE/XL* or in the *HP ALLBASE/BRW Tutorial*.

Related information about positioning and editing of items and text is located on pages 7-17 through 7-25 of the *Reference Manual*. The new feature can be used in the tutorial lessons in place of the underlining feature described on page 3-28 of the *HP ALLBASE/BRW Tutorial*.

To define escape sequences:

1. Start BRWSETUP.
2. At the Define Escape Sequence Items screen you assign a name for the escape item (for instance, "BOLD"). Escape sequence names have the same syntax rules as item names or parameter names. They have a maximum length of 19 characters.

```
HP ALLBASE/BRW            Define Escape Sequence Items

  Escape Item Name                  Escape Sequence
BIG-BOLD-HELV        ESC '(10U' ESC '(s1p10h22v0s4b4T'
BOLD                 ESC '(s3B'
LANDSCAPE            ESC '&l1O'
PORTRAIT             ESC '&l0O'
SMALL-BOLD-HELV      ESC '(10U' ESC '(s1p14h0v0s3b4T'
TYPEFACE             ESC '(s#T'
UNDERLINE            ESC '&dD'

   Type ESC as the escape char, example: ESC '(s3B' for BOLD. Use # as wildcard

Setup Sequence  ESC '&l1O' ESC '(10U' ESC '(s1p14h0v0s3b4T'

Reset Sequence  ESC '&l0o' ESC '(0@'

Escape Sequence definitions modified                                  200
                                   5*  1   Prev    Next    Help    Exit
                                    n      Items   Items
```

The Define Escape Sequence Items screen is a new screen. Information about this screen could be added near page 17-20 in the *HP ALLBASE/BRW Reference Manual*.

3. Associate the item name with a value for the printer escape sequence you want to use:

   Enter special symbols by using the listed text:

Text	Description
ESC	escape code
SI	shift in
SO	shift out
#	a place holder for a numeric code

   To find the correct escape sequences for your printer, look in the printer reference manual. For instance, for escape sequences for the HP LaserJet III, see the *LaserJet III Printer Technical Reference Manual*.

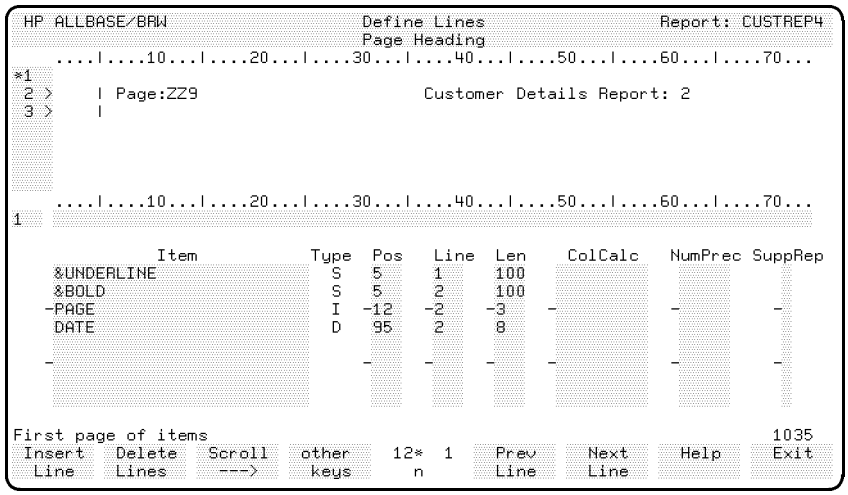
After defining the escape sequences in the Define Escape Sequence Items screen, you can use them in any BRW report.

Setup and Reset Sequences

You can also assign escape sequences for the setup sequence and for the reset sequence. The setup sequence is used before printing the first line of the report (for instance, to change the page orientation). The reset sequence is used after printing the last line of the report (for instance, to return the page orientation to the default for other print jobs).

To use escape sequences in a report:

1. Type the escape sequence name in the `Item` column of the Define Lines screen. Prefix the name by an ampersand (&) as shown in the example below:

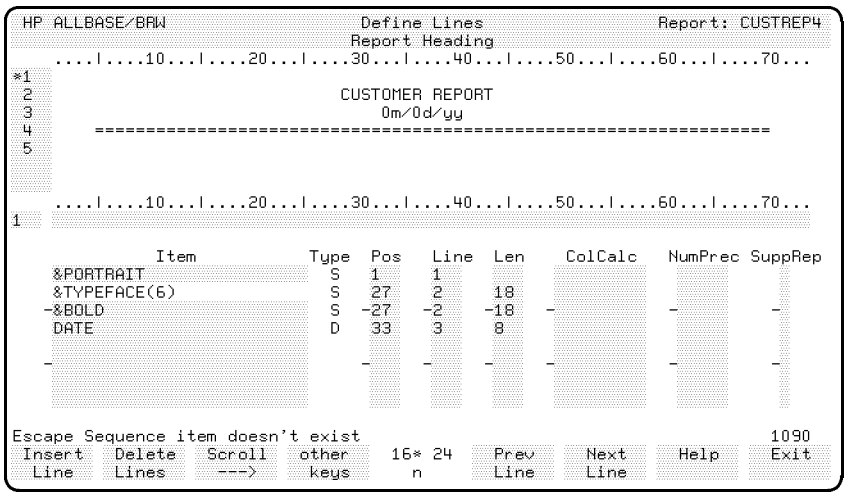


The Define Lines screen is described on page 16-6 of the *HP ALLBASE/4GL Reference Manual*. Using escape sequences in the `Item` column is a new feature.

2. If you use an escape sequence that was defined with a # as a place holder for a number, you supply the correct number in parentheses as part of the item name in the Define Lines screen.

   When you define a report, you can use different values for # by adding a numeric parameter in parentheses in the Define Lines screen.

In the following example, notice the item name, &TYPEFACE(6):



In the above example, the number 6 replaces the wildcard (#) in the escape sequence `TYPEFACE` (`ESC '(s#T'`).

3. Give the escape code a position, line, and length setting that covers the text or item you want to affect by the code. In the previous example, for instance, `&TYPEFACE(6)` and `&BOLD` are placed so that they affect the title, `CUSTOMER REPORT`, on line 2. Escape codes are designed so they can overlap other text or items.

After defining the escape sequences in the Define Escape Sequence Items screen, you can use them in any BRW report.

Page Control Options

There are now three page control options for printing available on the Request Report screen or the Define Selection screen.

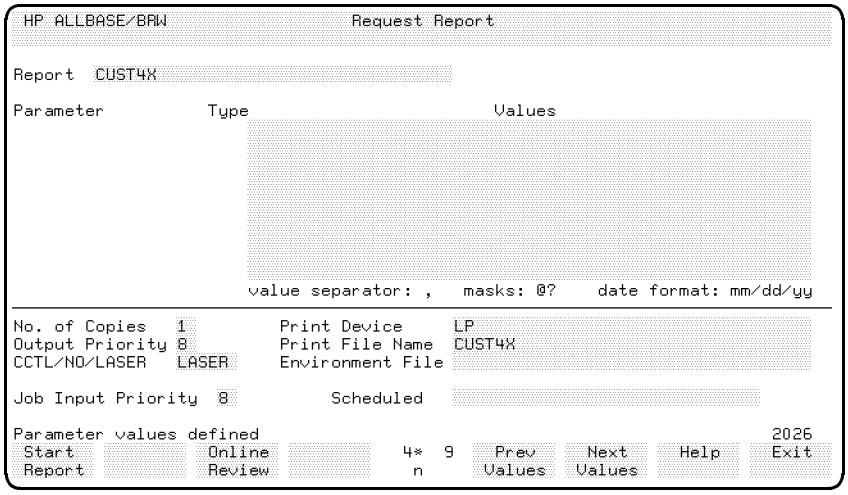
CCTL — Prints HP 3000 carriage control (CCTL) codes.

NO — Does not print CCTL codes. If you choose this option, BRW inserts an empty line in the printfile for every line that must be skipped. The position of a footer at the end of the page may be unpredictable when you are mixing font and character sizes.

LASER — Best choice for printing to a laser printer. BRW includes the ASCII code for Forms Feed (Hex 0cH) to mark a new page. If a report has a page footer, BRW pads the page with blank lines. However, if the page has variable height lines, the number of blank lines would vary and absolute placement of the footer may be difficult.

To use the LASER option:

1. When you request the report, change the `CCTL/NO/LASER` field to `LASER` by pressing the `Prev Values` or `Next Values` function keys.

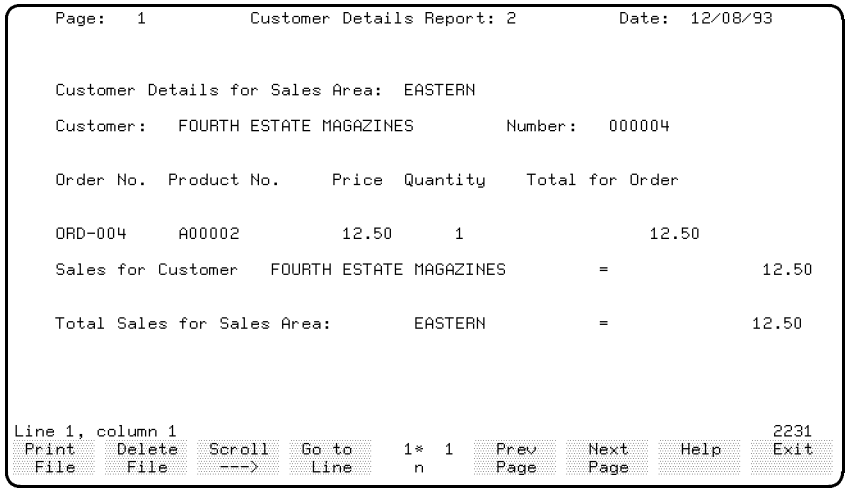


2. Press `Start Report`.

This screen is described on page 16-65 of the *HP ALLBASE/BRW Reference Manual for MPE/XL*. The functions described here are new.

The Online Review Screen (SR 9061-001206)

The Online Review screen now shows line (or page) and column numbers and also allows you to "go to" a selected line or page. The following figure shows the Online Review screen for reviewing print files without CCTL codes (`NO` or `LASER`). Notice the prompt line (above the function key labels) that shows line and column numbers:



(Notice that the Online Review screen does not have a screen name. All you see is the text from the report you are reviewing.)

This screen is described on page 16-47 of the *HP ALLBASE/BRW Reference Manual for MPE/XL*.

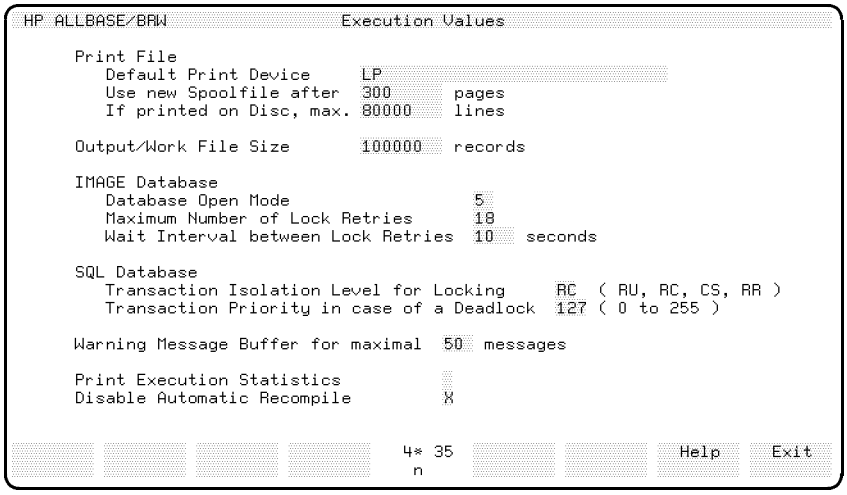
The functions described here are new.

Function key F4 `Go to Line` lets you enter a specific line you would like to see.

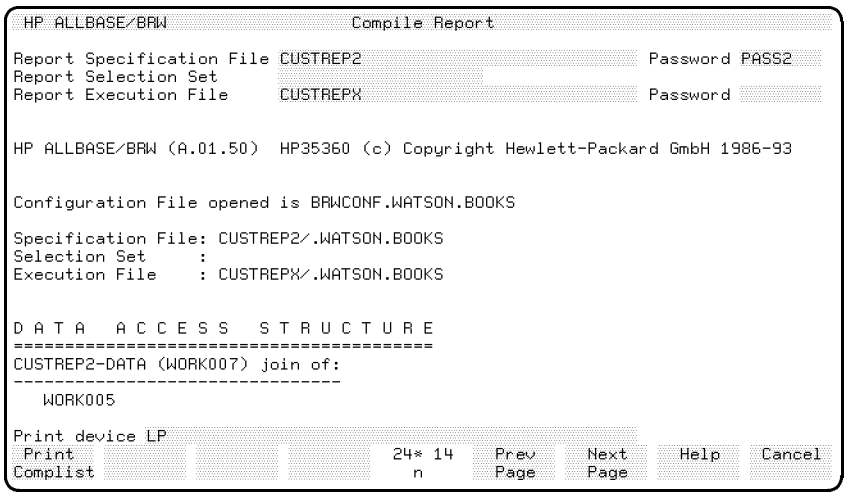
For file with CCTL codes, file locations are described by page number and F4 `Go to Page` lets you go to a specific page.

Print Device Default (SR D500-158766)

The default value for the print device on the Execution Values screen in BRWSETUP is now extended so that any print device field in BRW takes its value from the `Default Print Device` field on this screen.



For instance, if you select the `Print Report` key from the Online Review screen, the Compile Report screen, or any number of other screens where BRW allows printing, the print device will take its default value from the Execution Values screen and give you an option to enter another print device.



In previous versions, the default was `LP` for the print device for these print request fields. More information about the Execution Values screen is found in the *HP ALLBASE/BRW Reference Manual* page 17-7.

Compiler Error Messages (SR D500-158337)

Most compiler errors can now display some context information about the location of an error. For instance:

- If an error happens in the Data Access portion of the report, the active Access File is referenced by the error message.
- If an error happens in the Layout part of the report, BRWCOMP reports the active lineset and line number at the time of the error.
- If the error occurs while evaluating a calc item, BRWCOMP reports the name of the calculated item.

To see the location information, look for lines beginning with the word `LOCATION: ...` in the BRWCOMP listing.

Compiling BRW reports is described in the *HP ALLBASE/BRW Reference Manual* on pages 10-2, 10-3, and 16-72.

Prompts for Modifying and Deleting (SR 9061-001305)

HP ALLBASE/BRW now provides a prompt for saving changes to a report and a confirmation prompt when deleting a report.

Modifying Report Prompt

If you are working in one report and decide to open to another report, the following prompt is displayed:

```
Current report modified.  Do you want to save changes? Y (Y/N)
```

The default is to save the changes. Press Enter to save. To abandon changes, type N and press Enter.

Previously, BRW automatically updated the first report. In some cases, this locked in unintended changes. Now, you can browse multiple reports and have the option of saving or not saving any changes you made. This updates information on page 16-71 of the *HP ALLBASE/BRW Reference Manual*.

Deleting Report Prompt

When you press F2 `Delete Report` on the Select Report screen, you see the following prompt:

```
Confirm deletion of report N (Y/N)
```

The default is N (to save the report). Press F8 or Enter to cancel the deletion. Confirm the deletion by typing Y and pressing Enter.

Previously, no Y or N option appeared. This updates information on page 16-72 of the *HP ALLBASE/BRW Reference Manual*.

Deleting Source Table Prompt

If you change or remove the name of an existing source table, you see this prompt:

```
Confirm deletion of source table TABLE_NAME
```

Press F8 to cancel the deletion or confirm the deletion by pressing Enter.

Previously, no prompt appeared. This updates information on page 16-30 of the *HP ALLBASE/BRW Reference Manual*.

Improvements to VERIFY Function (no SR)

The BRWXL.PUB.SYS program now gives full version availability information. This improvement assists developers who distribute BRW reports to a number of sites running different versions of BRW.

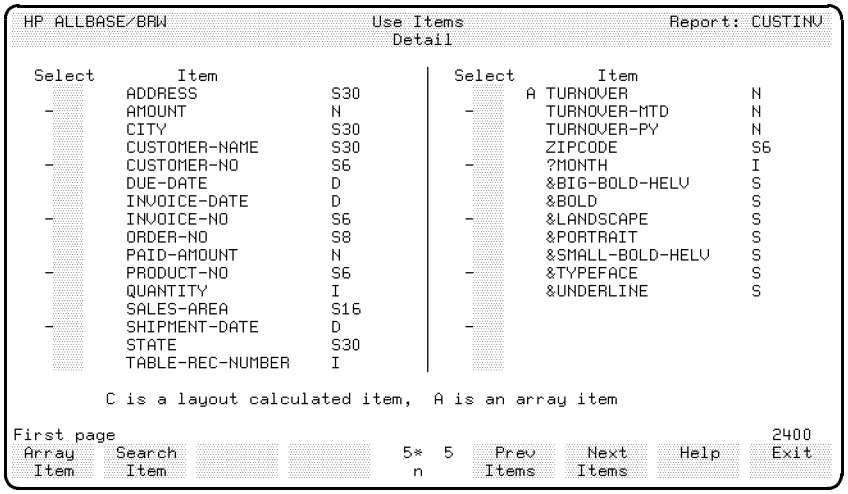
The `Verify` function key on the Select Report screen now lists which versions of BRW are required to modify or execute a given report, along with a detailed list of any advanced features used in the report that require recent versions of BRW.

If a report uses no recently added features such as Third Party Indexing or Laser Printer support, the VERIFY feature reports that the report is backwards compatible to BRW/XL A.01.00 and BRW/V A.02.20.

The VERIFY function is described on pages 16-72 and 21-14 of the *HP ALLBASE/BRW Reference Manual for MPE/XL*. The version availability feature is new. Previously, the VERIFY function only indicated whether a report created by BRW/iX could be used by BRW/V.

Additional Information on Use Items Screen (no SR)

The Use Items screen now shows the data type options (N,S,I,D,T,R) and the length for string types.



For instance, in the example above, CUSTOMER-NAME is a string data type, 30 characters in length.

Data types are:

N	numeric
S	string
I	integer
D	date
T	time
R	real

For more information about data types, see chapter 1 of the *HP ALLBASE/BRW Reference Manual*.

The Use Items screen is described on page 16-92 of the *HP ALLBASE/BRW Reference Manual for MPE/XL*.

The functions described here are new.

Improved RSPEC Lister with BRWSTOA (SR 1650-057539)

This release introduces a new utility called BRWSTOA ("specification file to ASCII"). This utility provides a more compact and simplified listing of the BRW report definition than you currently get with BRWLIST.PUB.SYS or than you get when you use the `List Report` key on the Select Report screen.

BRWSTOA is a new feature with this release and is not described in the *HP ALLBASE/BRW Reference Manual for MPE/XL*. However, other information about using the compile listing is found on pages 6-23, 10-2, 10-3, 16-3, and 19-8 of the manual.

To use BRWSTOA:

Run BRWSTOA and answer the following prompts (user input description or example is underlined):

```
Enter report specification file:  specname/password
Enter report Script file: myfile
Enter project list option: (Minimum,First,Last,All):
minimum
```

The report script file created by BRWSTOA can be printed or displayed online by using MPE/iX printing commands or MPE/iX editors. The project list options available are:

Minimum	Lists only projected items that show non-default attributes on the Project Items screen (such as an alias).
First	Lists items when they are first referenced in a dictionary source table, but not in any later access tables.
Last	Lists all items contained in the final access table.
All	Lists all access table items.

BRWSTOA makes extensive use of defaults to reduce the listing size. In the Lineset definitions, any item edit characteristic that matches the defaults in the BRWCONF file are not listed. The default output file for BRWSTOA is an 80-byte ASCII record, with no file code or CCTL codes.

Note There is no utility to read these ASCII files back into BRW RSPEC format.

BRWSTOA Conventions for Lineset Definitions

In the Lineset Definitions section of the BRWSTOA report, the following conventions apply:

- Text is treated as a pseudo item. The positioning information goes before the text, for example:

  ```
  TEXT 1,3 'Customer Name:'
  ```

  In this example, the text item is positioned in the first column of line 1. The text itself is enclosed in single quotes. No length is given because the length of the text can be seen. If the text is longer than will fit on one output line, it will be broken into two or more text fragments and placed on as many additional output lines as are needed.

- Non-text items show the item name, position, line, length (as defined in the Define Lines screen):

  ```
  ITEM CUSTOMER-NAME 16,3,30
  ```

  In the above example, the item, CUSTOMER-NAME is placed in the 16th column of the third line and has a length of 30 characters.

The example on the next pages shows a BRWSTOA printout.

```
<<------------------------------------------------------------------------>>
<<                  B R W   R E P O R T   L I S T I N G                   >>
<<         CUSTREP2.WATSON.BOOKS from FRI, OCT 22, 1993,  6:07 PM         >>
<<------------------------------------------------------------------------>>
DESCRIPTION 'Customer Details Report: Tutorial Lesson 3'
REPORT WIDTH 132
PAGE LENGTH 60
RESET PAGES 1
SORT SEQUENCE ASCII
FINAL ACCESS TABLE CUSTREP2-DATA


<<------------------------------------------------------------------------>>
<<                  F I N A L   A C C E S S   T A B L E                   >>
<<                            CUSTREP2-DATA                               >>
<<------------------------------------------------------------------------>>

ACCESS TABLE CUSTREP2-DATA

    SOURCE TABLE CUSTOMERS LOCATION TOYDB.PUB.ITF3000

    SOURCE TABLE ORDER-PRODUCTS

    JOIN CUSTOMERS.CUSTOMER-NO,
         ORDER-PRODUCTS.CUSTOMER-NO

    OPEN JOIN ORDER-PRODUCTS


    PROJECT
        CUSTOMERS.ADDRESS,                    << STRING 30 >>
        CUSTOMERS.CITY,                       << STRING 30 >>
        CUSTOMERS.CUSTOMER-NAME,              << STRING 30 >>
        CUSTOMERS.CUSTOMER-NO,                << STRING 6 >>
        ORDER-PRODUCTS.ORDER-DATE,            << DATE >>
        ORDER-PRODUCTS.ORDER-NO,              << STRING 8 >>
        ORDER-PRODUCTS.PRICE,                 << NUMERIC >>
        ORDER-PRODUCTS.PRODUCT-LINE,          << STRING 2 >>
        ORDER-PRODUCTS.PRODUCT-NAME,          << STRING 16 >>
        ORDER-PRODUCTS.PRODUCT-NO,            << STRING 6 >>
        ORDER-PRODUCTS.QUANTITY,              << INTEGER >>
        CUSTOMERS.SALES-AREA,                 << STRING 16 >>
        ORDER-PRODUCTS.SHIPMENT-DATE,         << DATE >>
        CUSTOMERS.STATE,                      << STRING 30 >>
        CUSTOMERS.TABLE-REC-NUMBER,           << INTEGER >>
        CUSTOMERS.TURNOVER,                   << NUMERIC OCCURS 12 >>
        CUSTOMERS.TURNOVER-MTD,               << NUMERIC >>
        CUSTOMERS.TURNOVER-PY,                << NUMERIC >>
        CUSTOMERS.ZIPCODE                     << STRING 6 >>

    UNPROJECT
        ORDER-PRODUCTS.CUSTOMER-NO,           << STRING 6 >>
        ORDER-PRODUCTS.TABLE-REC-NUMBER       << INTEGER >>


<<------------------------------------------------------------------------>>
<<                      A C C E S S   T A B L E                           >>
<<                          ORDER-PRODUCTS                                >>
<<------------------------------------------------------------------------>>

ACCESS TABLE ORDER-PRODUCTS

    SOURCE TABLE PRODUCTS LOCATION TOYDB.PUB.ITF3000

    SOURCE TABLE ORDER-TABLE
```

```
    JOIN ORDER-TABLE.PRODUCT-NO,
         PRODUCTS.PRODUCT-NO


    PROJECT
        ORDER-TABLE.CUSTOMER-NO,                << STRING 6 >>
        ORDER-TABLE.ORDER-DATE,                 << DATE >>
        ORDER-TABLE.ORDER-NO,                   << STRING 8 >>
        PRODUCTS.PRICE,                         << NUMERIC >>
        PRODUCTS.PRODUCT-LINE,                  << STRING 2 >>
        PRODUCTS.PRODUCT-NAME,                  << STRING 16 >>
        PRODUCTS.PRODUCT-NO,                    << STRING 6 >>
        ORDER-TABLE.QUANTITY,                   << INTEGER >>
        ORDER-TABLE.SHIPMENT-DATE,              << DATE >>
        PRODUCTS.TABLE-REC-NUMBER               << INTEGER >>

    UNPROJECT
        ORDER-TABLE.PRODUCT-NO,                 << STRING 6 >>
        PRODUCTS.QUANTITY,                      << INTEGER >>
        ORDER-TABLE.TABLE-REC-NUMBER            << INTEGER >>


<<-------------------------------------------------------------------------->>
<<                        A C C E S S   T A B L E                           >>
<<                              ORDER-TABLE                                 >>
<<-------------------------------------------------------------------------->>

ACCESS TABLE ORDER-TABLE

    SOURCE TABLE ORDERS LOCATION TOYDB.PUB.ITF3000

    SOURCE TABLE ORDER-DETAILS LOCATION TOYDB.PUB.ITF3000

    JOIN ORDER-DETAILS.ORDER-NO,
         ORDERS.ORDER-NO

    TABLE CONDITION
    {
MONTH_OF (ORDER-DATE) = 6
<< Selects only those orders placed in June. >>
    }


    PROJECT
        ORDERS.CUSTOMER-NO,                     << STRING 6 >>
        ORDERS.ORDER-DATE,                      << DATE >>
        ORDERS.ORDER-NO,                        << STRING 8 >>
        ORDER-DETAILS.PRODUCT-NO,               << STRING 6 >>
        ORDER-DETAILS.QUANTITY,                 << INTEGER >>
        ORDER-DETAILS.SHIPMENT-DATE,            << DATE >>
        ORDERS.TABLE-REC-NUMBER                 << INTEGER >>

    UNPROJECT
        ORDER-DETAILS.ORDER-NO,                 << STRING 8 >>
        ORDER-DETAILS.TABLE-REC-NUMBER          << INTEGER >>


<<-------------------------------------------------------------------------->>
<<                             L A Y O U T                                  >>
<<                                                                          >>
<<-------------------------------------------------------------------------->>

LAYOUT

BREAK LEVEL 1 BREAK ON SALES-AREA
BREAK LEVEL 2 BREAK ON CUSTOMER-NO
```

```
BREAK LEVEL 3 BREAK ON ORDER-NO


    CALC ITEM ORDER-TOTAL: NUMERIC
    {
PRICE * QUANTITY
<< This item finds the total value of an order by multiplying
   the price of the product by the quantity ordered.  >>
    }



<<-------------------------------------------------------------------------->>
<<                  L I N E S E T   D E F I N I T I O N                    >>
<<                            REPORT FOOTER                                >>
<<-------------------------------------------------------------------------->>

REPORT FOOTER
    PAGE BEFORE

    TEXT 58, 2 '================'

    TEXT 21, 3 'Total Sales for All Sales Areas is:'
    ITEM TURNOVER-MTD 58, 3, 16 TOTAL R, 2

    TEXT 21, 4 '----------------------------------  ================'

    TEXT 1, 5 ' '

<<-------------------------------------------------------------------------->>
<<                  L I N E S E T   D E F I N I T I O N                    >>
<<                              PAGE HEADER                                >>
<<-------------------------------------------------------------------------->>

PAGE HEADER
    ABSOLUTE POSITION 1

    ITEM &BOLD 5, 1, 60
    TEXT 5, 1 'Page:'
    ITEM PAGE 11, 1, 3 EDIT MASK 'ZZ9'
    ITEM &UNDERLINE 24, 1, 23
    TEXT 24, 1 'Customer Details Report: 2          Date:'
    ITEM DATE 67, 1, 8

    ITEM &UNDERLINE 5, 3, 70

    ITEM &UNDERLINE 5, 4, 70


<<-------------------------------------------------------------------------->>
<<                  L I N E S E T   D E F I N I T I O N                    >>
<<                                DETAIL                                   >>
<<-------------------------------------------------------------------------->>

DETAIL

    LINESET SUPPRESS
    {
ORDER-NO = NO_VALUE
<< Suppress this lineset, which prints the details of each order,
   if the customer has no orders.  >>
    }


    ITEM ORDER-NO 5, 1, 8
    ITEM PRODUCT-NO 17, 1, 6
```

```
    ITEM PRICE 30, 1, 8 EDIT MASK 'ZZZZ9', '.99'
    ITEM QUANTITY 41, 1, 4 EDIT MASK 'ZZZ9'
    ITEM ORDER-TOTAL 52, 1, 16

<<-------------------------------------------------------------------------->>
<<                  L I N E S E T   D E F I N I T I O N                    >>
<<                            BREAK 1 HEADER                               >>
<<-------------------------------------------------------------------------->>

BREAK 1 HEADER

    ITEM &UNDERLINE 5, 1, 31
    ITEM &BOLD 5, 1, 31
    TEXT 5, 1 'Customer Details for Sales Area:'
    ITEM SALES-AREA 39, 1, 16

    TEXT 1, 2 ' '

<<-------------------------------------------------------------------------->>
<<                  L I N E S E T   D E F I N I T I O N                    >>
<<                            BREAK 1 FOOTER                               >>
<<-------------------------------------------------------------------------->>

BREAK 1 FOOTER

    TEXT 5, 2 'Total Sales for Sales Area:'
    ITEM SALES-AREA 40, 2, 16
    TEXT 58, 2 '='
    ITEM TURNOVER-MTD 62, 2, 16 TOTAL  1, 2

    TEXT 1, 4 ' '

<<-------------------------------------------------------------------------->>
<<                  L I N E S E T   D E F I N I T I O N                    >>
<<                            BREAK 2 HEADER                               >>
<<-------------------------------------------------------------------------->>

BREAK 2 HEADER

    ITEM &BOLD 5, 1, 9
    TEXT 5, 1 'Customer:'
    ITEM CUSTOMER-NAME 17, 1, 30
    ITEM &BOLD 50, 1, 7
    TEXT 49, 1 'Number:'
    ITEM CUSTOMER-NO 59, 1, 6

    ITEM &UNDERLINE 5, 3, 61

    LINE SUPPRESS 4
    {
ORDER-NO = NO_VALUE
<< Suppress this line, which introduces the detail lines,
   if the customer has no orders.  >>
    }

    ITEM &UNDERLINE 5, 4, 61
    ITEM &BOLD 5, 4, 61
    TEXT 5, 4 'Order No.  Product No.     Price  Quantity    Total for Order'

    LINE SUPPRESS 5
    {
order-no = no_value
<< Suppress this line, which introduces the detail lines,
   if the customer has no orders.  >>
    }
```

```
    LINE SUPPRESS 6
    {
not (order-no = no_value)
<< Suppress this line, which warns if a customer has NO orders, if
   the customer has an order.  >>
    }

    TEXT 9, 6 '*****************NO ORDERS FOR THIS CUSTOMER***************'

    TEXT 1, 7 ' '

<<-------------------------------------------------------------------------->>
<<                  L I N E S E T   D E F I N I T I O N                    >>
<<                            BREAK 2 FOOTER                               >>
<<-------------------------------------------------------------------------->>

BREAK 2 FOOTER

    LINESET SUPPRESS
    {
ORDER-NO = NO_VALUE
<< Suppress this lineset, which prints the total sales for the
customer in the month,  if the customer has no order.  >>
    }


    ITEM &BOLD 5, 2, 19
    TEXT 5, 2 'Sales for Customer'
    ITEM CUSTOMER-NAME 26, 2, 30
    ITEM &BOLD 58, 2, 3
    TEXT 58, 2 '='
    ITEM TURNOVER-MTD 63, 2, 16
    ITEM &UNDERLINE 63, 2, 16

    TEXT 1, 3 ' '



<<-------------------------------------------------------------------------->>
<<                      S E L E C T I O N   S E T                          >>
<<                                SET2                                     >>
<<-------------------------------------------------------------------------->>

SELECTION SET SET2
    DEVICE DISC
    FILE CUSTDISC
    LASER
```

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