

XPEDITER/TSO — Reviewing Program Execution

General Questions

Question	Page(s)
What do the MONITOR and REVERSE commands do? (<i>COBOL only</i>)	2
How do I increase the buffer size when I use the MONITOR command? (<i>COBOL only</i>)	2
Is the REVERSE command valid in an unattended batch test? (<i>COBOL only</i>)	2
How do I turn off the MONITOR command? (<i>COBOL only</i>)	2
How do I exit review mode?	2
What does the TRACE command do?	2
How do I stop the TRACE command?	2
How do I use the TRACE command to trace statements only?	2

Functionality / Scenario Questions

Question	Page(s)
How do I review my program's execution?	3
How do I use the MONITOR command?	4
How do I use the REVERSE command?	7
When I am in reverse mode, how do I change direction to go forward?	14
How do I use the RESUME command?	17

NOTE: The following examples apply to COBOL, PL/I, C and Assembler unless otherwise indicated.

What do the MONITOR and REVERSE commands do? (COBOL only)

The MONITOR and REVERSE commands are used to activate review mode. Review mode enables you to record and then review the execution path by reversing the direction of program execution.

Use the MONITOR command before executing your program to record execution. Then use the REVERSE command to review the execution history by tracing through the recorded history in the reverse direction. You can see the execution path and the changing data values as you review program execution.

How do I increase the buffer size when I use the MONITOR command? (COBOL only)

The MONITOR command records the program's execution in a buffer. The default buffer size is 1M. XPEDITER/TSO wraps and overwrites the existing data when the buffer is filled. Use the SET REVSIZ command to increase or decrease the buffer size.

Is the REVERSE command valid in an unattended batch test? (COBOL only)

No, the REVERSE command is not valid in an unattended batch test.

How do I turn off the MONITOR command?

Use the DELETE MONITOR command to stop recording the execution history of your program. See page 19 for an example.

How do I exit review mode?

Use the RESUME command to exit review mode and regain your current execution position. XPEDITER/TSO moves the execution arrow to the location where the REVERSE command was initially entered and issues a message.

The logical execution direction status in the upper right corner is no longer displayed because XPEDITER/TSO has returned to real-time execution. For an example of how to use the RESUME command, see *“How do I use the RESUME command?”* on page 17.

What does the TRACE command do?

The TRACE command monitors the flow of logic as your program executes. XPEDITER/TSO highlights the specified instruction lines as they are executed, without pausing, when followed by the GO command.

The TRACE command can be interrupted by the PA1 key at any time. A trace is also interrupted by reaching the MAX limit, a pause breakpoint, or by a display to the terminal.

How do I use the TRACE command to trace statements only?

Use the command TRACE ALL or TRACE ALL STATE to only trace the statements.

How do I stop the TRACE command?

Use the DELETE command to end the trace.

How do I review my program's execution?

1. Begin a new test of your program.

```
Profile: DEFAULT ----- XPEDITER/TSO - STANDARD (2.1) -----
COMMAND ==> [ENTER]

COMMANDS:  Setup (Display Setup Menu)

TEST SELECTION CRITERIA:

          Program ==> CWXTCOB
          Entry Point ==>
          Load Module ==>

          Initial Script ==>
          Post Script ==>

          PARM String ==> 00002

          File List/JCL Member ==> 'USERID.XPEDITER.V6R5M0.SAMPLIB(CWXTJCLC) '

          Code Coverage Test? ==> NO
          Is This a DB2 Test? ==> NO   Plan ==>           System ==>
          Test with XPEDITER+ ==> NO   Qualified LU name ==> .
          Press ENTER to process or enter END command to terminate
```

Figure 1: Test Standard Screen

How do I use the MONITOR command?

MONITOR Record the program execution path.

Primary Command: MONITOR, MON

Examples: MONITOR CWXTSUBC:
MON ALL

2. Record the program execution of CWXTCOB.

```

----- XPEDITER/TSO - SOURCE -----
COMMAND ==> monitor                                SCROLL ==> CSR
                BEFORE BREAKPOINT ENCOUNTERED
                -----
000347  01 PARMINFO                                > ..00002
                ** END **

----- Before CWXTCOB <>
===== B  PROCEDURE DIVISION USING PARMINFO.
000351      0000-MAINLINE.
000352          PERFORM 9000-OPEN.
000353          PERFORM 9100-CHECK-PARM.
000354          IF GOOD-PARM
000355              PERFORM 9200-INIT
000356              PERFORM 8000-READ-INPUT
000357                  UNTIL RECORDS-READ = START-NUMBER
000358                  OR END-OF-FILE
000359              PERFORM 1000-PROCESS-DATA
000360              UNTIL END-OF-FILE
000361              PERFORM 6000-PRINT-EMPLOYEE-REPORT
000362              MOVE 1 TO REGION-SUB
000363              IF END-OF-MONTH

```

Figure 2: MONITOR Command

```

-----MONITOR----- XPEDITER/TSO - SOURCE -----
COMMAND ==>                                SCROLL ==> CSR
PROGRAM: CWXTCOB  MODULE: CWXTCOB  COMP DATE: 02/25/99  COMP TIME: 09:47:36
                -----
000347  01 PARMINFO                                > ..00002
                ** END **

----- Before CWXTCOB <>
===== B  PROCEDURE DIVISION USING PARMINFO.
000351      0000-MAINLINE.
000352          PERFORM 9000-OPEN.
000353          PERFORM 9100-CHECK-PARM.
000354          IF GOOD-PARM
000355              PERFORM 9200-INIT
000356              PERFORM 8000-READ-INPUT
000357                  UNTIL RECORDS-READ = START-NUMBER
000358                  OR END-OF-FILE
000359              PERFORM 1000-PROCESS-DATA
000360              UNTIL END-OF-FILE
000361              PERFORM 6000-PRINT-EMPLOYEE-REPORT
000362              MOVE 1 TO REGION-SUB
000363              IF END-OF-MONTH

```

Figure 3: Results of MONITOR Command

3. Begin program execution.

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==> go                                SCROLL ==> CSR
PROGRAM: CWXTCOB      MODULE: CWXTCOB      COMP DATE: 02/25/99  COMP TIME: 09:47:36
-----+-----
000347  01 PARMINFO                                >  ..00002
        ** END **

-----
----- Before CWXTCOB <>
=====> B  PROCEDURE DIVISION USING PARMINFO.
000351  0000-MAINLINE.
000352          PERFORM 9000-OPEN.
000353          PERFORM 9100-CHECK-PARM.
000354          IF GOOD-PARM
000355              PERFORM 9200-INIT
000356              PERFORM 8000-READ-INPUT
000357                  UNTIL RECORDS-READ = START-NUMBER
000358                  OR END-OF-FILE
000359              PERFORM 1000-PROCESS-DATA
000360              UNTIL END-OF-FILE
000361              PERFORM 6000-PRINT-EMPLOYEE-REPORT
000362              MOVE 1 TO REGION-SUB
000363              IF END-OF-MONTH
000364              PERFORM 7000-PRINT-REGION-REPORT

```

Figure 4: GO Command

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==>                                SCROLL ==> CSR
      SOC7 ABEND ENCOUNTERED, USE "AA SNAP" COMMAND FOR ADDITIONAL INFORMATION
000129  05 EMP-COMPENSATION                        >  01000.00          PACKED
000137  05 GRAND-TOTAL-EMP                          >  ??????????????  INVALID PACKED
        ** END **

-----
----- Abend at CWXTCOB:432 <>
000431          CALC-COMMISSION.
=====>      ADD EMP-COMPENSATION TO GRAND-TOTAL-EMP.
000433      CALL 'CWXTDATE' USING END-OF-MONTH-SW
000434          YRS-OF-SERVICE
000435          TODAYS-DATE
000436          WA-EMP-HIRE-DATE.
000437      PERFORM 5000-STORE-EMPLOYEE-DETAIL.
000438      SET HOLD-IX UP BY 1.
000439      ***
000440      *** PROCESS TYPE M (MANAGEMENT) RECORDS. THE MANAGER NAME AND
000441      *** SALARY ARE STORED IN A TABLE FOR USE DURING PRINTING OF THE
000442      *** REGIONAL SALES REPORT.
000443      ***
000444      4000-PROCESS-MANAGEMENT.
000445      MOVE WA-EMP-NAME      TO REGION-MANAGER (WA-EMP-REGION).

```

Figure 5: Result of GO Command

4. Continuously display the variables referenced by the abending statement.

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ===>                                     SCROLL ===> CSR
      SOC7 ABEND ENCOUNTERED, USE "AA SNAP" COMMAND FOR ADDITIONAL INFORMATION
000129 05 EMP-COMPENSATION > 01000.00 PACKED
000137 05 GRAND-TOTAL-EMP > ???????????? INVALID PACKED
      ** END **

-----
----- Abend at CWXTCOB:432 <>
000431                                     CALC-COMMISSION.
k*===>      ADD EMP-COMPENSATION TO GRAND-TOTAL-EMP.
000433      CALL 'CWXTDATE' USING END-OF-MONTH-SW
000434                                     YRS-OF-SERVICE
000435                                     TODAYS-DATE
000436                                     WA-EMP-HIRE-DATE.
000437      PERFORM 5000-STORE-EMPLOYEE-DETAIL.
000438      SET HOLD-IX UP BY 1.
000439      ***
000440      *** PROCESS TYPE M (MANAGEMENT) RECORDS. THE MANAGER NAME AND
000441      *** SALARY ARE STORED IN A TABLE FOR USE DURING PRINTING OF THE
000442      *** REGIONAL SALES REPORT.
000443      ***
000444      4000-PROCESS-MANAGEMENT.
000445      MOVE WA-EMP-NAME TO REGION-MANAGER (WA-EMP-REGION).
    
```

Figure 6: KEEP Commands

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ===>                                     SCROLL ===> CSR
                                     1 COMMAND(S) COMPLETED
000129 K 05 EMP-COMPENSATION > 01000.00 PACKED
000137 K 05 GRAND-TOTAL-EMP > ???????????? INVALID PACKED
000129 05 EMP-COMPENSATION > 01000.00 PACKED
000137 05 GRAND-TOTAL-EMP > ???????????? INVALID PACKED
      ** END **

-----
----- Abend at CWXTCOB:432 <>
000431                                     CALC-COMMISSION.
=====>      ADD EMP-COMPENSATION TO GRAND-TOTAL-EMP.
000433      CALL 'CWXTDATE' USING END-OF-MONTH-SW
000434                                     YRS-OF-SERVICE
000435                                     TODAYS-DATE
000436                                     WA-EMP-HIRE-DATE.
000437      PERFORM 5000-STORE-EMPLOYEE-DETAIL.
000438      SET HOLD-IX UP BY 1.
000439      ***
000440      *** PROCESS TYPE M (MANAGEMENT) RECORDS. THE MANAGER NAME AND
000441      *** SALARY ARE STORED IN A TABLE FOR USE DURING PRINTING OF THE
000442      *** REGIONAL SALES REPORT.
000443      ***
000444      4000-PROCESS-MANAGEMENT.
000445      MOVE WA-EMP-NAME TO REGION-MANAGER (WA-EMP-REGION).
    
```

Figure 7: Results of KEEP Commands

How do I use the REVERSE command?

REVERSE Activate review mode or change the direction of your review of program execution.

Primary Command: REVERSE, REV

5. Activate review mode.

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==> reverse                               SCROLL ==> CSR
                                1 COMMAND(S) COMPLETED
000129 K 05 EMP-COMPENSATION                       > 01000.00          PACKED
000137 K 05 GRAND-TOTAL-EMP                       > ??????????????  INVALID PACKED
000129 05 EMP-COMPENSATION                       > 01000.00          PACKED
000137 05 GRAND-TOTAL-EMP                       > ??????????????  INVALID PACKED
** END **

-----
                                Abend at CWXTCOB:432 <>
000431                                CALC-COMMISSION.
=====>      ADD EMP-COMPENSATION TO GRAND-TOTAL-EMP.
000433      CALL 'CWXTDATE' USING END-OF-MONTH-SW
000434                                YRS-OF-SERVICE
000435                                TODAYS-DATE
000436                                WA-EMP-HIRE-DATE.
000437      PERFORM 5000-STORE-EMPLOYEE-DETAIL.
000438      SET HOLD-IX UP BY 1.
000439      ***
000440      *** PROCESS TYPE M (MANAGEMENT) RECORDS.  THE MANAGER NAME AND
000441      *** SALARY ARE STORED IN A TABLE FOR USE DURING PRINTING OF THE
000442      *** REGIONAL SALES REPORT.
000443      ***
000444      4000-PROCESS-MANAGEMENT.
000445      MOVE WA-EMP-NAME      TO REGION-MANAGER (WA-EMP-REGION).

```

Figure 8: REVERSE Command

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==>                                         SCROLL ==> CSR
PROGRAM: CWXTCOB      MODULE: CWXTCOB      COMP DATE: 02/25/99  COMP TIME: 09:47:36
000129 K 05 EMP-COMPENSATION                       > 01000.00          PACKED
000137 K 05 GRAND-TOTAL-EMP                       > ??????????????  INVALID PACKED
000129 05 EMP-COMPENSATION                       > 01000.00          PACKED
000137 05 GRAND-TOTAL-EMP                       > ??????????????  INVALID PACKED
** END **

-----
                                Reverse - Before CWXTCOB:432 <>
000431                                CALC-COMMISSION.
=====>      ADD EMP-COMPENSATION TO GRAND-TOTAL-EMP.
000433      CALL 'CWXTDATE' USING END-OF-MONTH-SW
000434                                YRS-OF-SERVICE
000435                                TODAYS-DATE
000436                                WA-EMP-HIRE-DATE.
000437      PERFORM 5000-STORE-EMPLOYEE-DETAIL.
000438      SET HOLD-IX UP BY 1.
000439      ***
000440      *** PROCESS TYPE M (MANAGEMENT) RECORDS.  THE MANAGER NAME AND
000441      *** SALARY ARE STORED IN A TABLE FOR USE DURING PRINTING OF THE
000442      *** REGIONAL SALES REPORT.
000443      ***
000444      4000-PROCESS-MANAGEMENT.

```

Figure 9: Results of REVERSE Command

6. Begin reverse execution and stop when the value of GRAND-TOTAL-EMP changes because this is the variable that caused the abend.

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==> when grand-total-emp;go                                SCROLL ==> CSR
PROGRAM: CWXTCOB      MODULE: CWXTCOB  COMP DATE: 02/25/99  COMP TIME: 09:47:36
000129 K 05 EMP-COMPENSATION                > 01000.00          PACKED
000137 K 05 GRAND-TOTAL-EMP                 > ??????????????  INVALID PACKED
000129 05 EMP-COMPENSATION                > 01000.00          PACKED
000137 05 GRAND-TOTAL-EMP                 > ??????????????  INVALID PACKED
** END **

----- Reverse - Before CWXTCOB:432 <>
000431                                CALC-COMMISSION.
=====>      ADD EMP-COMPENSATION TO GRAND-TOTAL-EMP.
000433      CALL 'CWXTDATE' USING END-OF-MONTH-SW
000434                                YRS-OF-SERVICE
000435                                TODAYS-DATE
000436                                WA-EMP-HIRE-DATE.
000437      PERFORM 5000-STORE-EMPLOYEE-DETAIL.
000438      SET HOLD-IX UP BY 1.
000439      ***
000440      *** PROCESS TYPE M (MANAGEMENT) RECORDS. THE MANAGER NAME AND
000441      *** SALARY ARE STORED IN A TABLE FOR USE DURING PRINTING OF THE
000442      *** REGIONAL SALES REPORT.
000443      ***
000444      4000-PROCESS-MANAGEMENT.
000445      MOVE WA-EMP-NAME      TO REGION-MANAGER (WA-EMP-REGION).
    
```

Figure 10: WHEN and GO Commands

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==>                                SCROLL ==> CSR
                                WHEN GRAND-TOTAL-EMP CHANGES
000129 K 05 EMP-COMPENSATION                > ??????????????  INVALID PACKED
000137 K 05 GRAND-TOTAL-EMP                 > 0000000.00      PACKED
                                S=5                                OCCURS
                                -----+
000111 10 REGION-COMMENT                   > .....

----- Reverse - Before CWXTCOB:429 <>
000416 *** DATA IN THE HOLD-TABLE IS USED FOR PRINTING THE EMPLOYEE
000417 *** COMPENSATION REPORT.
000418 ***
000419      3000-PROCESS-SALES.
000420      IF WA-SALES-AMOUNT > 0
000421          ADD WA-SALES-AMOUNT TO REGION-SALES (WA-EMP-REGION)
000422          MOVE WA-SALES-AMOUNT TO CALC-SALES
000423          MOVE 0 TO CALC-COMMISSION
000424          MOVE 'S' TO EMP-TYPE
000425          CALL 'CWXGSUBC' USING EMP-TYPE,
000426                                CALC-SALES,
000427                                CALC-COMMISSION
000428      ELSE
=====>      MOVE 'UH-OH' TO REGION-COMMENT (WA-EMP-REGION).
000430      COMPUTE EMP-COMPENSATION = WA-SALES-SALARY +
    
```

Figure 11: Result of WHEN and GO Commands

7. Display the contents of REGION-COMMENT (WA-EMP-REGION) in the Working Storage section of the program.

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ===>                                SCROLL ===> CSR
                WHEN GRAND-TOTAL-EMP CHANGES
000129 K 05 EMP-COMPENSATION                > ??????????    INVALID PACKED
000137 K 05 GRAND-TOTAL-EMP                > 0000000.00          PACKED
                                                S=5                  OCCURS
                                                -----
000111 10 REGION-COMMENT                   > .....
----- Reverse - Before CWXTCOB:429 <>
000416 *** DATA IN THE HOLD-TABLE IS USED FOR PRINTING THE EMPLOYEE
000417 *** COMPENSATION REPORT.
000418 ***
000419 3000-PROCESS-SALES.
000420     IF WA-SALES-AMOUNT > 0
000421         ADD WA-SALES-AMOUNT TO REGION-SALES (WA-EMP-REGION)
000422         MOVE WA-SALES-AMOUNT TO CALC-SALES
000423         MOVE 0 TO CALC-COMMISSION
000424         MOVE 'S' TO EMP-TYPE
000425         CALL 'CWXGSUBC' USING EMP-TYPE,
000426                                 CALC-SALES,
000427                                 CALC-COMMISSION
000428     ELSE
P  =>         MOVE 'UH-OH' TO REGION-COMMENT (WA-EMP-REGION).
000430     COMPUTE EMP-COMPENSATION = WA-SALES-SALARY +

```

Figure 12: PEEK Line Command

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ===>                                SCROLL ===> CSR
                1 COMMAND (S) COMPLETED
000129 K 05 EMP-COMPENSATION                > ??????????    INVALID PACKED
000137 K 05 GRAND-TOTAL-EMP                > 0000000.00          PACKED
                                                S=5                  OCCURS
                                                -----
000111 10 REGION-COMMENT                   > .....
----- Reverse - Before CWXTCOB:429 <>
000110          10 REGION-SALES            PIC 9(6)V99.
                                                S=5                  OCCURS
                                                -----
000111 P          10 REGION-COMMENT        PIC > .....
000112 **
000113 ** FIELDS USED BY CALLED PROGRAM CWXGSUBC TO CALCULATE
000114 ** COMMISSION BASED ON SALES AMOUNT
000115 **
000116 01 CALC-COMMISSION-FIELDS.
000117 05 EMP-TYPE                            PIC X.
000118 05 CALC-SALES                        PIC 9(6)V99          VALUE 0.
000119 05 CALC-COMMISSION                  PIC 9(5)V99 COMP-3  VALUE 0.
000120 **
000121 ** ACCUMULATORS USED FOR CALCULATING HOURLY EMPLOYEE WAGES,
000122 ** TOTAL EMPLOYEE COMPENSATION (SALARY PLUS COMMISSION OR

```

Figure 13: Results of PEEK Command

8. Scroll up 5 statements to view the REGION-SALES-TABLE definition.

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==> up 5                                SCROLL ==> CSR
                1 COMMAND (S) COMPLETED
000129 K 05 EMP-COMPENSATION                      > ??????????   INVALID PACKED
000137 K 05 GRAND-TOTAL-EMP                      > 0000000.00   PACKED
                                                S=5           OCCURS
                -----
000111 10 REGION-COMMENT                          > .....
                -----
000110 10 REGION-SALES                            PIC 9(6)V99.   Reverse - Before CWXTCOB:429 <>
                                                S=5           OCCURS
                -----
000111 P 10 REGION-COMMENT                        PIC > .....
000112 **
000113 ** FIELDS USED BY CALLED PROGRAM CWXGSUBC TO CALCULATE
000114 ** COMMISSION BASED ON SALES AMOUNT
000115 **
000116 01 CALC-COMMISSION-FIELDS.
000117 05 EMP-TYPE                                PIC X.
000118 05 CALC-SALES                              PIC 9(6)V99   VALUE 0.
000119 05 CALC-COMMISSION                        PIC 9(5)V99  COMP-3  VALUE 0.
000120 **
000121 ** ACCUMULATORS USED FOR CALCULATING HOURLY EMPLOYEE WAGES,
000122 ** TOTAL EMPLOYEE COMPENSATION (SALARY PLUS COMMISSION OR

```

Figure 14: UP 5 Command

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==>                                     SCROLL ==> CSR
PROGRAM: CWXTCOB  MODULE: CWXTCOB  COMP DATE: 02/25/99  COMP TIME: 09:47:36
000129 K 05 EMP-COMPENSATION                      > ??????????   INVALID PACKED
000137 K 05 GRAND-TOTAL-EMP                      > 0000000.00   PACKED
                                                S=5           OCCURS
                -----
000111 10 REGION-COMMENT                          > .....
                -----
000105 01 REGION-SALES-TABLE.  ← This is the REGION-
000106 05 REGION-DATA          OCCURS 4 TIMES.    SALES-TABLE definition.
000107 10 REGION-NAME          PIC X(5).
000108 10 REGION-MANAGER       PIC X(15).
000109 10 REGION-SALARY        PIC 9(4)V99.
000110 10 REGION-SALES         PIC 9(6)V99.
                                                S=5           OCCURS
                -----
000111 P 10 REGION-COMMENT      PIC > .....
000112 **
000113 ** FIELDS USED BY CALLED PROGRAM CWXGSUBC TO CALCULATE
000114 ** COMMISSION BASED ON SALES AMOUNT
000115 **
000116 01 CALC-COMMISSION-FIELDS.
000117 05 EMP-TYPE              PIC X.

```

Figure 15: Table Overflow - REGION-DATA Occurs 4 Times

9. Scroll down to verify that GRAND-TOTAL-EMP comes after REGION-SALES-TABLE.

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==> [PF8]                                SCROLL ==> CSR
PROGRAM: CWXTCOB   MODULE: CWXTCOB   COMP DATE: 02/25/99  COMP TIME: 09:47:36
000129 K 05 EMP-COMPENSATION          > ??????????   INVALID PACKED
000137 K 05 GRAND-TOTAL-EMP          > 0000000.00     PACKED
                                                S=5             OCCURS
                                                -----+
000111 10 REGION-COMMENT              > .....
----- Reverse - Before CWXTCOB:429 <>
000105 01 REGION-SALES-TABLE.
000106 05 REGION-DATA                 OCCURS 4 TIMES.
000107 10 REGION-NAME                 PIC X(5).
000108 10 REGION-MANAGER              PIC X(15).
000109 10 REGION-SALARY               PIC 9(4)V99.
000110 10 REGION-SALES                PIC 9(6)V99.
                                                S=5             OCCURS
                                                -----+
000111 P 10 REGION-COMMENT            PIC > .....
000112 **
000113 ** FIELDS USED BY CALLED PROGRAM CWXGSSUBC TO CALCULATE
000114 ** COMMISSION BASED ON SALES AMOUNT
000115 **
000116 01 CALC-COMMISSION-FIELDS.
000117 05 EMP-TYPE                    PIC X.

```

Figure 16: Scroll Down Command

10. Continue to scroll down.

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==> [PF8]                                SCROLL ==> CSR
PROGRAM: CWXTCOB   MODULE: CWXTCOB   COMP DATE: 02/25/99  COMP TIME: 09:47:36
000129 K 05 EMP-COMPENSATION          > ??????????   INVALID PACKED
000137 K 05 GRAND-TOTAL-EMP          > 0000000.00     PACKED
                                                S=5             OCCURS
                                                -----+
000111 10 REGION-COMMENT              > .....
----- Reverse - Before CWXTCOB:429 <>
000118 05 CALC-SALES                  PIC 9(6)V99     VALUE 0.
000119 05 CALC-COMMISSION             PIC 9(5)V99    COMP-3   VALUE 0.
000120 **
000121 ** ACCUMULATORS USED FOR CALCULATING HOURLY EMPLOYEE WAGES,
000122 ** TOTAL EMPLOYEE COMPENSATION (SALARY PLUS COMMISSION OR
000123 ** HOURLY EMPLOYEE WAGES PLUS OVERTIME), AND TOTAL MANAGEMENT
000124 ** COMPENSATION (SALARY PLUS COMMISSION BASED ON TOTAL SALES
000125 ** FOR THE REGION)
000126 **
000127 01 TOTAL-FIELDS.
000128 05 EMP-WAGES                    PIC 9(5)V99    COMP-3.
000129 05 EMP-COMPENSATION            PIC 9(5)V99    COMP-3.
000130 05 MGMT-COMPENSATION           PIC 9(5)V99    COMP-3.
000131 **
000132 ** TOTAL COMPENSATION GIVEN TO ALL EMPLOYEES (HOURLY AND SALES)

```

Figure 17: Scroll Down Command

11. Add WA-EMP-REGION to the keep window to view the value of its occurrence.

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==> k wa-emp-region                                SCROLL ==> CSR
PROGRAM: CWXTCOB    MODULE: CWXTCOB    COMP DATE: 02/25/99  COMP TIME: 09:47:36
000129 K 05 EMP-COMPENSATION          > ??????????    INVALID PACKED
000137 K 05 GRAND-TOTAL-EMP           > 0000000.00      PACKED
                                                S=5              OCCURS
                                                -----+
000111 10 REGION-COMMENT              > .....
----- Reverse - Before CWXTCOB:429 <>
000133 ** OR MANAGEMENT.  EACH SUM IS PRINTED AT THE END OF THEIR
000134 ** RESPECTIVE REPORTS.
000135 **
000136 01 GRAND-TOTAL-FIELDS.
000137 05 GRAND-TOTAL-EMP             PIC 9(7)V99    COMP-3  VALUE 0.
000138 05 GRAND-TOTAL-MGMT           PIC 9(7)V99    COMP-3  VALUE 0.
000139 **
000140 ** USED FOR CALCULATING OVERTIME FOR ANY HOURLY EMPLOYEE
000141 ** WHOSE HOURS EXCEEDS 40
000142 **
000143 01 OVERTIME-FIELDS.
000144 05 OT-AMOUNT                   PIC 9(5)V99    COMP-3.
000145 05 OT-HOURS                   PIC 9(2).
000146 **
000147 ** EMPLOYEE RECORD WORK-AREA.  EMPLOYEE DATA IS REDEFINED

```

Figure 18: KEEP Command

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==>
PROGRAM: CWXTCOB    MODULE: CWXTCOB    COMP DATE: 02/25/99  COMP TIME: 09:47:36
000129 K 05 EMP-COMPENSATION          > ??????????    INVALID PACKED
000137 K 05 GRAND-TOTAL-EMP           > 0000000.00      PACKED
000157 K 05 WA-EMP-REGION             > 5              DECIMAL
                                                S=5              OCCURS
                                                -----+
----- Reverse - Before CWXTCOB:429 <>
000133 ** OR MANAGEMENT.  EACH SUM IS PRINTED AT THE END OF THEIR
000134 ** RESPECTIVE REPORTS.
000135 **
000136 01 GRAND-TOTAL-FIELDS.
000137 05 GRAND-TOTAL-EMP             PIC 9(7)V99    COMP-3  VALUE 0.
000138 05 GRAND-TOTAL-MGMT           PIC 9(7)V99    COMP-3  VALUE 0.
000139 **
000140 ** USED FOR CALCULATING OVERTIME FOR ANY HOURLY EMPLOYEE
000141 ** WHOSE HOURS EXCEEDS 40
000142 **
000143 01 OVERTIME-FIELDS.
000144 05 OT-AMOUNT                   PIC 9(5)V99    COMP-3.
000145 05 OT-HOURS                   PIC 9(2).
000146 **
000147 ** EMPLOYEE RECORD WORK-AREA.  EMPLOYEE DATA IS REDEFINED

```

Figure 19: Results of KEEP Command

12. Continue reviewing the execution in reverse and stop when the value of WA-EMP-REGION changes.

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==> when wa-emp-region;go                                SCROLL ==> CSR
PROGRAM: CWXTCOB      MODULE: CWXTCOB      COMP DATE: 02/25/99  COMP TIME: 09:47:36
000129 K 05 EMP-COMPENSATION                > ??????????          INVALID PACKED
000137 K 05 GRAND-TOTAL-EMP                 > 0000000.00           PACKED
000157 K 05 WA-EMP-REGION                   > 5                     DECIMAL
                                           S=5                     OCCURS
                                           -----
Reverse - Before CWXTCOB:429 <>
000133 ** OR MANAGEMENT.  EACH SUM IS PRINTED AT THE END OF THEIR
000134 ** RESPECTIVE REPORTS.
000135 **
000136 01 GRAND-TOTAL-FIELDS.
000137 05 GRAND-TOTAL-EMP                   PIC 9(7)V99      COMP-3  VALUE 0.
000138 05 GRAND-TOTAL-MGMT                 PIC 9(7)V99      COMP-3  VALUE 0.
000139 **
000140 ** USED FOR CALCULATING OVERTIME FOR ANY HOURLY EMPLOYEE
000141 ** WHOSE HOURS EXCEEDS 40
000142 **
000143 01 OVERTIME-FIELDS.
000144 05 OT-AMOUNT                         PIC 9(5)V99      COMP-3.
000145 05 OT-HOURS                         PIC 9(2).
000146 **
000147 ** EMPLOYEE RECORD WORK-AREA.  EMPLOYEE DATA IS REDEFINED
    
```

Figure 20: WHEN Command

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==>
                                WHEN WA-EMP-REGION CHANGES
                                SCROLL ==> CSR
000129 K 05 EMP-COMPENSATION                > ??????????          INVALID PACKED
000137 K 05 GRAND-TOTAL-EMP                 > 0000000.00           PACKED
000157 K 05 WA-EMP-REGION                   > 2                     DECIMAL
                                           -----1-----2-----3
MORE-> 01 EMPLOYEE-RECORD                   > 03431H2GAIL LAWRENCE 123 NORT
Reverse - Before CWXTCOB:621 <>
000608 WRITE REPORT-RECORD FROM BLANK-LINE.
000609 WRITE REPORT-RECORD FROM BLANK-LINE.
000610 WRITE REPORT-RECORD FROM BLANK-LINE.
000611 WRITE REPORT-RECORD FROM REGION-HDR1.
000612 WRITE REPORT-RECORD FROM BLANK-LINE.
000613 WRITE REPORT-RECORD FROM BLANK-LINE.
000614 WRITE REPORT-RECORD FROM REGION-HDR2.
000615 WRITE REPORT-RECORD FROM BLANK-LINE.
000616 ADD 1 TO PAGE-COUNT.
000617 MOVE 10 TO REG-LINE-COUNT.
000618 ***
000619 ***
000620 8000-READ-INPUT.
====> READ EMPLOYEE-FILE INTO EMPLOYEE-WORK-AREA
000622 AT END
    
```

The occurrence of WA-EMP-REGION has changed from 5 to 2.

Figure 21: Results of WHEN Command

When I am in reverse mode, how do I change direction to go forward?

13. Toggle the direction of review mode from reverse to forward to continue execution.

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==> rev                                     SCROLL ==> CSR
                WHEN WA-EMP-REGION CHANGES
000129 K 05 EMP-COMPENSATION > ??????????      INVALID PACKED
000137 K 05 GRAND-TOTAL-EMP > 0000000.00      PACKED
000157 K 05 WA-EMP-REGION > 2                                DECIMAL
                -----1-----2-----3
MORE-> 01 EMPLOYEE-RECORD > 03431H2GAIL LAWRENCE 123 NORT
                ----- Reverse - Before CWXTCOB:621 <>
000608          WRITE REPORT-RECORD FROM BLANK-LINE.
000609          WRITE REPORT-RECORD FROM BLANK-LINE.
000610          WRITE REPORT-RECORD FROM BLANK-LINE.
000611          WRITE REPORT-RECORD FROM REGION-HDR1.
000612          WRITE REPORT-RECORD FROM BLANK-LINE.
000613          WRITE REPORT-RECORD FROM BLANK-LINE.
000614          WRITE REPORT-RECORD FROM REGION-HDR2.
000615          WRITE REPORT-RECORD FROM BLANK-LINE.
000616          ADD 1 TO PAGE-COUNT.
000617          MOVE 10 TO REG-LINE-COUNT.
000618          ***
000619          ***
000620          8000-READ-INPUT.
=====>      READ EMPLOYEE-FILE INTO EMPLOYEE-WORK-AREA
000622          AT END

```

Figure 22: REVERSE Command

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==>                                         SCROLL ==> CSR
PROGRAM: CWXTCOB  MODULE: CWXTCOB  COMP DATE: 02/25/99  COMP TIME: 09:47:36
000129 K 05 EMP-COMPENSATION > ??????????      INVALID PACKED
000137 K 05 GRAND-TOTAL-EMP > 0000000.00      PACKED
000157 K 05 WA-EMP-REGION > 2                                DECIMAL
                -----1-----2-----3
MORE-> 01 EMPLOYEE-RECORD > 03431H2GAIL LAWRENCE 123 NORT
                ----- Forward - Before CWXTCOB:621 <>
000608          WRITE REPORT-RECORD FROM BLANK-LINE.
000609          WRITE REPORT-RECORD FROM BLANK-LINE.
000610          WRITE REPORT-RECORD FROM BLANK-LINE.
000611          WRITE REPORT-RECORD FROM REGION-HDR1.
000612          WRITE REPORT-RECORD FROM BLANK-LINE.
000613          WRITE REPORT-RECORD FROM BLANK-LINE.
000614          WRITE REPORT-RECORD FROM REGION-HDR2.
000615          WRITE REPORT-RECORD FROM BLANK-LINE.
000616          ADD 1 TO PAGE-COUNT.
000617          MOVE 10 TO REG-LINE-COUNT.
000618          ***
000619          ***
000620          8000-READ-INPUT.
=====>      READ EMPLOYEE-FILE INTO EMPLOYEE-WORK-AREA
000622          AT END

```

Figure 23: Results of REVERSE Command

14. Step forward one statement to execute the Read statement.

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==> go 1                                SCROLL ==> CSR
PROGRAM: CWXTCOB    MODULE: CWXTCOB    COMP DATE: 02/25/99  COMP TIME: 09:47:36
000129 K 05 EMP-COMPENSATION                > ??????????    INVALID PACKED
000137 K 05 GRAND-TOTAL-EMP                > 0000000.00    PACKED
000157 K 05 WA-EMP-REGION                  > 2                                DECIMAL
-----+-----1-----+-----2-----+-----3
MORE-> 01 EMPLOYEE-RECORD                    > 03431H2GAIL LAWRENCE 123 NORT
-----
                                Forward - Before CWXTCOB:621 <>
000608          WRITE REPORT-RECORD FROM BLANK-LINE.
000609          WRITE REPORT-RECORD FROM BLANK-LINE.
000610          WRITE REPORT-RECORD FROM BLANK-LINE.
000611          WRITE REPORT-RECORD FROM REGION-HDR1.
000612          WRITE REPORT-RECORD FROM BLANK-LINE.
000613          WRITE REPORT-RECORD FROM BLANK-LINE.
000614          WRITE REPORT-RECORD FROM REGION-HDR2.
000615          WRITE REPORT-RECORD FROM BLANK-LINE.
000616          ADD 1 TO PAGE-COUNT.
000617          MOVE 10 TO REG-LINE-COUNT.
000618          ***
000619          ***
000620          8000-READ-INPUT.
=====>          READ EMPLOYEE-FILE INTO EMPLOYEE-WORK-AREA
000622          AT END
    
```

Figure 24: GO 1 Command

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==>                                SCROLL ==> CSR
                                WHEN WA-EMP-REGION CHANGES
000129 K 05 EMP-COMPENSATION                > ??????????    INVALID PACKED
000137 K 05 GRAND-TOTAL-EMP                > 0000000.00    PACKED
000157 K 05 WA-EMP-REGION                  > 5                                DECIMAL
-----+-----1-----+-----2-----+-----3
MORE-> 01 EMPLOYEE-RECORD                    > 01431S5TED HESSMAN ONE COPL
-----
                                Forward - After CWXTCOB:621 <>
000608          WRITE REPORT-RECORD FROM BLANK-LINE.
000609          WRITE REPORT-RECORD FROM BLANK-LINE.
000610          WRITE REPORT-RECORD FROM BLANK-LINE.
000611          WRITE REPORT-RECORD FROM REGION-HDR1.
000612          WRITE REPORT-RECORD FROM BLANK-LINE.
000613          WRITE REPORT-RECORD FROM BLANK-LINE.
000614          WRITE REPORT-RECORD FROM REGION-HDR2.
000615          WRITE REPORT-RECORD FROM BLANK-LINE.
000616          ADD 1 TO PAGE-COUNT.
000617          MOVE 10 TO REG-LINE-COUNT.
000618          ***
000619          ***
000620          8000-READ-INPUT.
=====>          READ EMPLOYEE-FILE INTO EMPLOYEE-WORK-AREA
000622          AT END
    
```

WA-EMP-REGION has changed.

Figure 25: Results of GO 1 Command

15. Display the elementary items of EMPLOYEE-WORK-AREA to see how many occurrences exist.

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ===>                                     SCROLL ===> CSR
                WHEN WA-EMP-REGION CHANGES
000129 K 05 EMP-COMPENSATION > ??????????      INVALID PACKED
000137 K 05 GRAND-TOTAL-EMP > 0000000.00      PACKED
000157 K 05 WA-EMP-REGION   > 5                DECIMAL
                -----1-----2-----3
MORE-> 01 EMPLOYEE-RECORD > 01431S5TED HESSMAN ONE COPL
                ----- Forward - After CWXTCOB:621 <>
000608          WRITE REPORT-RECORD FROM BLANK-LINE.
000609          WRITE REPORT-RECORD FROM BLANK-LINE.
000610          WRITE REPORT-RECORD FROM BLANK-LINE.
000611          WRITE REPORT-RECORD FROM REGION-HDR1.
000612          WRITE REPORT-RECORD FROM BLANK-LINE.
000613          WRITE REPORT-RECORD FROM BLANK-LINE.
000614          WRITE REPORT-RECORD FROM REGION-HDR2.
000615          WRITE REPORT-RECORD FROM BLANK-LINE.
000616          ADD 1 TO PAGE-COUNT.
000617          MOVE 10 TO REG-LINE-COUNT.
000618          ***
000619          ***
000620          8000-READ-INPUT.
pe2 >          READ EMPLOYEE-FILE INTO EMPLOYEE-WORK-AREA
000622          AT END
    
```

You want to view the variable in Working Storage at the time of the problem.

Figure 26: PEEK Line Command

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ===>                                     SCROLL ===> CSR
                1 COMMAND (S) COMPLETED
000129 K 05 EMP-COMPENSATION > ??????????      INVALID PACKED
000137 K 05 GRAND-TOTAL-EMP > 0000000.00      PACKED
000157 K 05 WA-EMP-REGION   > 5                DECIMAL
                -----1-----2-----3
MORE-> 01 EMPLOYEE-RECORD > 01431S5TED HESSMAN ONE COPL
                ----- Forward - After CWXTCOB:621 <>
000151 01 EMPLOYEE-WORK-AREA.
000152 P 05 WA-EMP-NUM      PIC > 01431          DECIMAL
                -----
000153 P 05 WA-EMP-TYPE    PIC > S
000154          88 HOURLY   VALUE 'H'.
000155          88 SALES    VALUE 'S'.
000156          88 MANAGEMENT VALUE 'M'.
000157 P 05 WA-EMP-REGION PIC > 5
000158          88 NORTH    VALUE 1.
000159          88 SOUTH    VALUE 2.
000160          88 EAST     VALUE 3.
000161          88 WEST     VALUE 4.
                -----1-----
000162 P 05 WA-EMP-NAME    PIC > TED HESSMAN
000163          05 WA-EMP-ADDRESS.
    
```

The maximum number of occurrences for EMP-REGION-TYPE is four, not five. This explains why you abended with bad data.

Figure 27: Results of PEEK Command

How do I use the RESUME command?

RESUME Exit review mode and return to the current execution position.

Primary Command: RESUME

16. Exit review mode and resume program execution.

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==> resume                                SCROLL ==> CSR
                                1 COMMAND(S) COMPLETED
000129 K 05 EMP-COMPENSATION > ?????????? INVALID PACKED
000137 K 05 GRAND-TOTAL-EMP > 0000000.00 PACKED
000157 K 05 WA-EMP-REGION > 5 DECIMAL
                                -----1-----2-----3
MORE-> 01 EMPLOYEE-RECORD > 01431S5TED HESSMAN ONE COPL
                                ----- Forward - After CWXTCOB:621 <>
000151 01 EMPLOYEE-WORK-AREA.
000152 P 05 WA-EMP-NUM PIC > 01431 DECIMAL
                                -
000153 P 05 WA-EMP-TYPE PIC > S
000154 88 HOURLY VALUE 'H'.
000155 88 SALES VALUE 'S'.
000156 88 MANAGEMENT VALUE 'M'.
000157 P 05 WA-EMP-REGION PIC > 5 DECIMAL
000158 88 NORTH VALUE 1.
000159 88 SOUTH VALUE 2.
000160 88 EAST VALUE 3.
000161 88 WEST VALUE 4.
                                -----1-----+
000162 P 05 WA-EMP-NAME PIC > TED HESSMAN
    
```

Figure 28: RESUME Command

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==>                                SCROLL ==> CSR
                                AT CURRENT EXECUTION POSITION
000129 K 05 EMP-COMPENSATION > 01000.00 PACKED
000137 K 05 GRAND-TOTAL-EMP > ?????????????? INVALID PACKED
000157 K 05 WA-EMP-REGION > 5 DECIMAL
000129 05 EMP-COMPENSATION > 01000.00 PACKED
000137 05 GRAND-TOTAL-EMP > ?????????????? INVALID PACKED
                                ----- Abend at CWXTCOB:432 <>
000431                                CALC-COMMISSION.
=====> ADD EMP-COMPENSATION TO GRAND-TOTAL-EMP.
000433 CALL 'CWXGDATE' USING END-OF-MONTH-SW
000434 YRS-OF-SERVICE
000435 TODAYS-DATE
000436 WA-EMP-HIRE-DATE.
000437 PERFORM 5000-STORE-EMPLOYEE-DETAIL.
000438 SET HOLD-IX UP BY 1.
000439 ***
000440 *** PROCESS TYPE M (MANAGEMENT) RECORDS. THE MANAGER NAME AND
000441 *** SALARY ARE STORED IN A TABLE FOR USE DURING PRINTING OF THE
000442 *** REGIONAL SALES REPORT.
000443 ***
000444 4000-PROCESS-MANAGEMENT.
    
```

Figure 29: Results of RESUME Command

17. Initialize the GRAND-TOTAL-EMP field to zero to continue actual program execution to test the rest of the program.

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==> move 0 to grand-total-emp                SCROLL ==> CSR
                AT CURRENT EXECUTION POSITION
000129 K 05 EMP-COMPENSATION                > 01000.00                PACKED
000137 K 05 GRAND-TOTAL-EMP                > ????????????          INVALID PACKED
000157 K 05 WA-EMP-REGION                  > 5                        DECIMAL
000129 05 EMP-COMPENSATION                > 01000.00                PACKED
000137 05 GRAND-TOTAL-EMP                > ????????????          INVALID PACKED
----- Abend at CWXTCOB:432 <>
000431                                CALC-COMMISSION.
=====
000433      ADD EMP-COMPENSATION TO GRAND-TOTAL-EMP.
000434      CALL 'CWXGDATE' USING END-OF-MONTH-SW
000434                                YRS-OF-SERVICE
000435                                TODAYS-DATE
000436                                WA-EMP-HIRE-DATE.
000437      PERFORM 5000-STORE-EMPLOYEE-DETAIL.
000438      SET HOLD-IX UP BY 1.
000439      ***
000440      *** PROCESS TYPE M (MANAGEMENT) RECORDS. THE MANAGER NAME AND
000441      *** SALARY ARE STORED IN A TABLE FOR USE DURING PRINTING OF THE
000442      *** REGIONAL SALES REPORT.
000443      ***
000444      4000-PROCESS-MANAGEMENT.
000445      MOVE WA-EMP-NAME TO REGION-MANAGER (WA-EMP-REGION).

```

Figure 30: MOVE Command

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==>
PROGRAM: CWXTCOB    MODULE: CWXTCOB    COMP DATE: 02/25/99    COMP TIME: 09:47:36
                SCROLL ==> CSR
000129 K 05 EMP-COMPENSATION                > 01000.00                PACKED
000137 K 05 GRAND-TOTAL-EMP                > 0000000.00            PACKED
000157 K 05 WA-EMP-REGION                  > 5                        DECIMAL
000129 05 EMP-COMPENSATION                > 01000.00                PACKED
000137 05 GRAND-TOTAL-EMP                > 0000000.00            PACKED
----- Abend at CWXTCOB:432 <>
000431                                CALC-COMMISSION.
=====
000433      ADD EMP-COMPENSATION TO GRAND-TOTAL-EMP.
000433      CALL 'CWXGDATE' USING END-OF-MONTH-SW
000434                                YRS-OF-SERVICE
000435                                TODAYS-DATE
000436                                WA-EMP-HIRE-DATE.
000437      PERFORM 5000-STORE-EMPLOYEE-DETAIL.
000438      SET HOLD-IX UP BY 1.
000439      ***
000440      *** PROCESS TYPE M (MANAGEMENT) RECORDS. THE MANAGER NAME AND
000441      *** SALARY ARE STORED IN A TABLE FOR USE DURING PRINTING OF THE
000442      *** REGIONAL SALES REPORT.
000443      ***
000444      4000-PROCESS-MANAGEMENT.
000445      MOVE WA-EMP-NAME TO REGION-MANAGER (WA-EMP-REGION).

```

Figure 31: Results of MOVE Command

18. Remove the monitor and WHEN breakpoints and continue program execution.

```

-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==> d monitor;d when;go                                SCROLL ==> CSR
PROGRAM: CWXTCOB      MODULE: CWXTCOB   COMP DATE: 02/25/99  COMP TIME: 09:47:36
000129 K 05 EMP-COMPENSATION          > 01000.00          PACKED
000137 K 05 GRAND-TOTAL-EMP           > 0000000.00         PACKED
000157 K 05 WA-EMP-REGION              > 5                  DECIMAL
000129 05 EMP-COMPENSATION            > 01000.00          PACKED
000137 05 GRAND-TOTAL-EMP             > 0000000.00         PACKED
-----
000431                                CALC-COMMISSION.
=====>      ADD EMP-COMPENSATION TO GRAND-TOTAL-EMP.
000433      CALL 'CWXGDATE' USING END-OF-MONTH-SW
000434      YRS-OF-SERVICE
000435      TODAYS-DATE
000436      WA-EMP-HIRE-DATE.
000437      PERFORM 5000-STORE-EMPLOYEE-DETAIL.
000438      SET HOLD-IX UP BY 1.
000439      ***
000440      *** PROCESS TYPE M (MANAGEMENT) RECORDS. THE MANAGER NAME AND
000441      *** SALARY ARE STORED IN A TABLE FOR USE DURING PRINTING OF THE
000442      *** REGIONAL SALES REPORT.
000443      ***
000444      4000-PROCESS-MANAGEMENT.
000445      MOVE WA-EMP-NAME TO REGION-MANAGER (WA-EMP-REGION).
-----
Abend at CWXTCOB:432 <>

```

Figure 32: DELETE MONITOR and WHEN Commands

```

-----XPEDITER/TSO - SOURCE -----
COMMAND ==>
                                TEST COMPLETED
                                SCROLL ==> CSR
000129 K 05 EMP-COMPENSATION          > 06750.00          PACKED
000137 K 05 GRAND-TOTAL-EMP           > 0046366.00         PACKED
000157 K 05 WA-EMP-REGION              > 3                  DECIMAL
      ** END **

-----
                                After CWXTCOB <>
000366      PERFORM 9900-CLOSE.
=====> A      GOBACK.
000368      ***
000369      *** DIFFERENT PROCESSING OCCURS BASED ON EMPLOYEE TYPE. THERE
000370      *** ARE 3 VALID EMPLOYEE TYPES. IF A RECORD IS READ CONTAINING
000371      *** A RECORD TYPE OTHER THAN H, S OR M, AN ERROR MESSAGE IS
000372      *** WRITTEN AND PROCESSING CONTINUES.
000373      ***
000374      1000-PROCESS-DATA.
000375      IF HOURLY
000376      PERFORM 2000-PROCESS-HOURLY
000377      ELSE
000378      IF SALES
000379      PERFORM 3000-PROCESS-SALES
000380      ELSE

```

Figure 33: Test Complete

19. Exit the session.

```
-----MONITOR--- XPEDITER/TSO - SOURCE -----
COMMAND ==> exit                                SCROLL ==> CSR
                                TEST COMPLETED
000129 K 05 EMP-COMPENSATION                    > 06750.00          PACKED
000137 K 05 GRAND-TOTAL-EMP                    > 0046366.00       PACKED
000157 K 05 WA-EMP-REGION                      > 3                DECIMAL
** END **

----- After CWXTCOB <>
000366          PERFORM 9900-CLOSE.
====>> A      GOBACK.
000368      ***
000369      *** DIFFERENT PROCESSING OCCURS BASED ON EMPLOYEE TYPE.  THERE
000370      *** ARE 3 VALID EMPLOYEE TYPES.  IF A RECORD IS READ CONTAINING
000371      *** A RECORD TYPE OTHER THAN H, S OR M, AN ERROR MESSAGE IS
000372      *** WRITTEN AND PROCESSING CONTINUES.
000373      ***
000374      1000-PROCESS-DATA.
000375          IF HOURLY
000376              PERFORM 2000-PROCESS-HOURLY
000377          ELSE
000378              IF SALES
000379                  PERFORM 3000-PROCESS-SALES
000380          ELSE
```

Figure 34: EXIT