

COBOL SAMPLE COPYLIB

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01 SAMPLE-COPYLIB.
  10 WS-ALPHA.
    15 WS-ALPHA-01          PIC A(01).
    15 WS-ALPHA-02          PIC A(02).
    15 WS-ALPHA-255         PIC A(255).
  *PIC CLAUSE LENGTH > 255 ,NOT ALLOWED FOR ALPHA
  *
    15 WS-ALPHA-256         PIC A(256).

  10 WS-ALPHANUMERIC.
    15 WS-ALPHANUMERIC-01   PIC X(01).
    15 WS-ALPHANUMERIC-02   PIC X(02).
    15 WS-ALPHANUMERIC-32767 PIC X(32767).
  *PIC CLAUSE LENGTH > 32767 ,NOT ALLOWED FOR ALPHA NUMERIC
  *
    15 WS-ALPHANUMERIC-32768 PIC X(32768).

  10 WS-NUMERIC.
    15 WS-NUMERIC-01        PIC 9(01).
    15 WS-NUMERIC-02        PIC 9(02).
    15 WS-NUMERIC-17        PIC 9(17).
    15 WS-NUMERIC-18        PIC 9(18).
  *PIC CLAUSE LENGTH > 18 ,NOT ALLOWED FOR NUMERIC
  *
    15 WS-NUMERIC-19        PIC 9(19).

  10 WS-NUMERIC-DECIMAL.
    15 WS-NUMERIC-DEC-01     PIC 9(01)V99.
    15 WS-NUMERIC-DEC-02     PIC 9(02)V99.
    15 WS-NUMERIC-DEC-14     PIC 9(14)V9999.
    15 WS-NUMERIC-DEC-15     PIC 9(15)V999.
    15 WS-NUMERIC-DEC-16     PIC 9(16)V99.
  *PIC CLAUSE TOTAL > 18 ,NOT ALLOWED FOR NUMERIC DECIMAL
  *
    15 WS-NUMERIC-DEC-16     PIC 9(16)V999.
    15 WS-NUMERIC-DEC-17     PIC 9(17)V99.
    15 WS-NUMERIC-DEC-18     PIC 9(18)V99.

  10 WS-SIGNED-NUMERIC.
    15 WS-SIGNED-NUMERIC-01   PIC S9(01).
    15 WS-SIGNED-NUMERIC-02   PIC S9(02).
    15 WS-SIGNED-NUMERIC-17   PIC S9(17).
    15 WS-SIGNED-NUMERIC-18   PIC S9(18).
  *PIC CLAUSE LENGTH > 18 ,NOT ALLOWED FOR SIGNED NUMERIC
  *
    15 WS-SIGNED-NUMERIC-19   PIC S9(19).

  10 WS-SIGNED-NUMERIC-DECIMAL.
    15 WS-SIGNED-NUMERIC-DEC-01 PIC S9(01)V99.
    15 WS-SIGNED-NUMERIC-DEC-02 PIC S9(02)V99.
    15 WS-SIGNED-NUMERIC-DEC-14 PIC S9(14)V9(4).
    15 WS-SIGNED-NUMERIC-DEC-15 PIC S9(15)V999.
    15 WS-SIGNED-NUMERIC-DEC-16 PIC S9(16)V99.
  *PIC CLAUSE TOTAL > 18 ,NOT ALLOWED FOR SIGNED NUMERIC DECIMAL
  *
    15 WS-SIGNED-NUMERIC-DEC-16 PIC S9(16)V999.
    15 WS-SIGNED-NUMERIC-DEC-17 PIC S9(17)V99.
    15 WS-SIGNED-NUMERIC-DEC-18 PIC S9(18)V99.

  10 WS-COMP.
    15 WS-COMP-01            PIC 9(01) COMP.
    15 WS-COMP-02            PIC 9(02) COMP.
    15 WS-COMP-03            PIC 9(03) COMP.
    15 WS-COMP-04            PIC 9(04) COMP.
    15 WS-COMP-05            PIC 9(05) COMP.
    15 WS-COMP-06            PIC 9(06) COMP.
    15 WS-COMP-07            PIC 9(07) COMP.
    15 WS-COMP-08            PIC 9(08) COMP.
    15 WS-COMP-09            PIC 9(09) COMP.
    15 WS-COMP-10            PIC 9(10) COMP.
    15 WS-COMP-11            PIC 9(11) COMP.
    15 WS-COMP-12            PIC 9(12) COMP.
    15 WS-COMP-13            PIC 9(13) COMP.
    15 WS-COMP-14            PIC 9(14) COMP.

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15 WS-COMP-15 PIC 9(15) COMP.
15 WS-COMP-16 PIC 9(16) COMP.
15 WS-COMP-17 PIC 9(17) COMP.
15 WS-COMP-18 PIC 9(18) COMP.
*PIC CLAUSE LENGTH > 18 ,NOT ALLOWED FOR COMP
* 15 WS-COMP-19 PIC 9(19) COMP.
* 15 WS-COMP-20 PIC 9(20) COMP.

10 WS-COMP-DECIMAL.
15 WS-COMP-DEC-01 PIC 9(01)V99 COMP.
15 WS-COMP-DEC-02 PIC 9(02)V99 COMP.
15 WS-COMP-DEC-03 PIC 9(03)V99 COMP.
15 WS-COMP-DEC-04 PIC 9(04)V99 COMP.
15 WS-COMP-DEC-05 PIC 9(05)V99 COMP.
15 WS-COMP-DEC-06 PIC 9(06)V99 COMP.
15 WS-COMP-DEC-07 PIC 9(07)V99 COMP.
15 WS-COMP-DEC-08 PIC 9(08)V99 COMP.
15 WS-COMP-DEC-09 PIC 9(09)V99 COMP.
15 WS-COMP-DEC-10 PIC 9(10)V99 COMP.
15 WS-COMP-DEC-11 PIC 9(11)V99 COMP.
15 WS-COMP-DEC-12 PIC 9(12)V99 COMP.
15 WS-COMP-DEC-13 PIC 9(13)V99 COMP.
15 WS-COMP-DEC-14 PIC 9(14)V99 COMP.
15 WS-COMP-DEC-15 PIC 9(15)V99 COMP.
15 WS-COMP-DEC-16 PIC 9(16)V99 COMP.
*PIC CLAUSE TOTAL > 18 ,NOT ALLOWED FOR COMP DECIMAL
* 15 WS-COMP-DEC-16 PIC 9(16)V999 COMP.
* 15 WS-COMP-DEC-17 PIC 9(17)V99 COMP.
* 15 WS-COMP-DEC-18 PIC 9(18)V99 COMP.

10 WS-SIGNED-COMP.
15 WS-SIGNED-COMP-01 PIC S9(01) COMP.
15 WS-SIGNED-COMP-02 PIC S9(02) COMP.
15 WS-SIGNED-COMP-03 PIC S9(03) COMP.
15 WS-SIGNED-COMP-04 PIC S9(04) COMP.
15 WS-SIGNED-COMP-05 PIC S9(05) COMP.
15 WS-SIGNED-COMP-06 PIC S9(06) COMP.
15 WS-SIGNED-COMP-07 PIC S9(07) COMP.
15 WS-SIGNED-COMP-08 PIC S9(08) COMP.
15 WS-SIGNED-COMP-09 PIC S9(09) COMP.
15 WS-SIGNED-COMP-10 PIC S9(10) COMP.
15 WS-SIGNED-COMP-11 PIC S9(11) COMP.
15 WS-SIGNED-COMP-12 PIC S9(12) COMP.
15 WS-SIGNED-COMP-13 PIC S9(13) COMP.
15 WS-SIGNED-COMP-14 PIC S9(14) COMP.
15 WS-SIGNED-COMP-15 PIC S9(15) COMP.
15 WS-SIGNED-COMP-16 PIC S9(16) COMP.
15 WS-SIGNED-COMP-17 PIC S9(17) COMP.
15 WS-SIGNED-COMP-18 PIC S9(18) COMP.
*PIC CLAUSE LENGTH > 18 ,NOT ALLOWED FOR SIGNED COMP
* 15 WS-SIGNED-COMP-19 PIC S9(19) COMP.

10 WS-SIGNED-COMP-DECIMAL.
15 WS-SIGNED-COMP-DEC-01 PIC S9(01)V99 COMP.
15 WS-SIGNED-COMP-DEC-02 PIC S9(02)V99 COMP.
15 WS-SIGNED-COMP-DEC-03 PIC S9(03)V99 COMP.
15 WS-SIGNED-COMP-DEC-04 PIC S9(04)V99 COMP.
15 WS-SIGNED-COMP-DEC-05 PIC S9(05)V99 COMP.
15 WS-SIGNED-COMP-DEC-06 PIC S9(06)V99 COMP.
15 WS-SIGNED-COMP-DEC-07 PIC S9(07)V99 COMP.
15 WS-SIGNED-COMP-DEC-08 PIC S9(08)V99 COMP.
15 WS-SIGNED-COMP-DEC-09 PIC S9(09)V99 COMP.
15 WS-SIGNED-COMP-DEC-10 PIC S9(10)V99 COMP.
15 WS-SIGNED-COMP-DEC-11 PIC S9(11)V99 COMP.
15 WS-SIGNED-COMP-DEC-12 PIC S9(12)V99 COMP.
15 WS-SIGNED-COMP-DEC-13 PIC S9(13)V99 COMP.
15 WS-SIGNED-COMP-DEC-14 PIC S9(14)V99 COMP.
15 WS-SIGNED-COMP-DEC-15 PIC S9(15)V99 COMP.
15 WS-SIGNED-COMP-DEC-16 PIC S9(16)V99 COMP.
*PIC CLAUSE TOTAL > 18 ,NOT ALLOWED FOR SIGNED COMP DECIMAL

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*      15 WS-SIGNED-COMP-DEC-16          PIC S9(16)V999 COMP.
*      15 WS-SIGNED-COMP-DEC-17          PIC S9(17)V99 COMP.
*      15 WS-SIGNED-COMP-DEC-18          PIC S9(18)V99 COMP.

*PIC CLAUSE IS NOT ALLOWED FOR COMP-1
10 WS-COMP1                              COMP-1.

*PIC CLAUSE IS NOT ALLOWED FOR COMP-2
10 WS-COMP2                              COMP-2.

10 WS-COMP3.
  15 WS-COMP3-01                          PIC 9(01) COMP-3.
  15 WS-COMP3-02                          PIC 9(02) COMP-3.
  15 WS-COMP3-03                          PIC 9(03) COMP-3.
  15 WS-COMP3-04                          PIC 9(04) COMP-3.
  15 WS-COMP3-05                          PIC 9(05) COMP-3.
  15 WS-COMP3-06                          PIC 9(06) COMP-3.
  15 WS-COMP3-07                          PIC 9(07) COMP-3.
  15 WS-COMP3-08                          PIC 9(08) COMP-3.
  15 WS-COMP3-09                          PIC 9(09) COMP-3.
  15 WS-COMP3-10                          PIC 9(10) COMP-3.
  15 WS-COMP3-11                          PIC 9(11) COMP-3.
  15 WS-COMP3-12                          PIC 9(12) COMP-3.
  15 WS-COMP3-13                          PIC 9(13) COMP-3.
  15 WS-COMP3-14                          PIC 9(14) COMP-3.
  15 WS-COMP3-15                          PIC 9(15) COMP-3.
  15 WS-COMP3-16                          PIC 9(16) COMP-3.
  15 WS-COMP3-17                          PIC 9(17) COMP-3.
  15 WS-COMP3-18                          PIC 9(18) COMP-3.
*PIC CLAUSE LENGTH > (18) ,NOT ALLOWED FOR COMP-3
*      15 WS-COMP3-19                      PIC 9(19) COMP-3.

10 WS-COMP3-DECIMAL.
  15 WS-COMP3-DEC-01                      PIC 9(01)V99 COMP-3.
  15 WS-COMP3-DEC-02                      PIC 9(02)V99 COMP-3.
  15 WS-COMP3-DEC-03                      PIC 9(03)V99 COMP-3.
  15 WS-COMP3-DEC-04                      PIC 9(04)V99 COMP-3.
  15 WS-COMP3-DEC-05                      PIC 9(05)V99 COMP-3.
  15 WS-COMP3-DEC-06                      PIC 9(06)V99 COMP-3.
  15 WS-COMP3-DEC-07                      PIC 9(07)V99 COMP-3.
  15 WS-COMP3-DEC-08                      PIC 9(08)V99 COMP-3.
  15 WS-COMP3-DEC-09                      PIC 9(09)V99 COMP-3.
  15 WS-COMP3-DEC-10                      PIC 9(10)V99 COMP-3.
  15 WS-COMP3-DEC-11                      PIC 9(11)V99 COMP-3.
  15 WS-COMP3-DEC-12                      PIC 9(12)V99 COMP-3.
  15 WS-COMP3-DEC-13                      PIC 9(13)V99 COMP-3.
  15 WS-COMP3-DEC-14                      PIC 9(14)V99 COMP-3.
  15 WS-COMP3-DEC-15                      PIC 9(15)V99 COMP-3.
  15 WS-COMP3-DEC-16                      PIC 9(16)V99 COMP-3.
*PIC CLAUSE TOTAL > (18) ,NOT ALLOWED FOR COMP-3 DECIMAL
*      15 WS-COMP3-DEC-16                  PIC 9(16)V999 COMP-3.
*      15 WS-COMP3-DEC-17                  PIC 9(17)V99 COMP-3.
*      15 WS-COMP3-DEC-18                  PIC 9(18)V99 COMP-3.

10 WS-SIGNED-COMP3.
  15 WS-SIGNED-COMP3-01                    PIC S9(01) COMP-3.
  15 WS-SIGNED-COMP3-02                    PIC S9(02) COMP-3.
  15 WS-SIGNED-COMP3-03                    PIC S9(03) COMP-3.
  15 WS-SIGNED-COMP3-04                    PIC S9(04) COMP-3.
  15 WS-SIGNED-COMP3-05                    PIC S9(05) COMP-3.
  15 WS-SIGNED-COMP3-06                    PIC S9(06) COMP-3.
  15 WS-SIGNED-COMP3-07                    PIC S9(07) COMP-3.
  15 WS-SIGNED-COMP3-08                    PIC S9(08) COMP-3.
  15 WS-SIGNED-COMP3-09                    PIC S9(09) COMP-3.
  15 WS-SIGNED-COMP3-10                    PIC S9(10) COMP-3.
  15 WS-SIGNED-COMP3-11                    PIC S9(11) COMP-3.
  15 WS-SIGNED-COMP3-12                    PIC S9(12) COMP-3.
  15 WS-SIGNED-COMP3-13                    PIC S9(13) COMP-3.
  15 WS-SIGNED-COMP3-14                    PIC S9(14) COMP-3.
  15 WS-SIGNED-COMP3-15                    PIC S9(15) COMP-3.

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15 WS-SIGNED-COMP3-16          PIC S9(16) COMP-3.
15 WS-SIGNED-COMP3-17          PIC S9(17) COMP-3.
15 WS-SIGNED-COMP3-18          PIC S9(18) COMP-3.
*PIC CLAUSE LENGTH > (18) ,NOT ALLOWED FOR SIGNED COMP-3
*
15 WS-SIGNED-COMP3-19          PIC S9(19) COMP-3.

10 WS-SIGNED-COMP3-DECIMAL .
15 WS-SIGNED-COMP3-DEC-01      PIC S9(01)V99 COMP-3.
15 WS-SIGNED-COMP3-DEC-02      PIC S9(02)V99 COMP-3.
15 WS-SIGNED-COMP3-DEC-03      PIC S9(03)V99 COMP-3.
15 WS-SIGNED-COMP3-DEC-04      PIC S9(04)V99 COMP-3.
15 WS-SIGNED-COMP3-DEC-05      PIC S9(05)V99 COMP-3.
15 WS-SIGNED-COMP3-DEC-06      PIC S9(06)V99 COMP-3.
15 WS-SIGNED-COMP3-DEC-07      PIC S9(07)V99 COMP-3.
15 WS-SIGNED-COMP3-DEC-08      PIC S9(08)V99 COMP-3.
15 WS-SIGNED-COMP3-DEC-09      PIC S9(09)V99 COMP-3.
15 WS-SIGNED-COMP3-DEC-10      PIC S9(10)V99 COMP-3.
15 WS-SIGNED-COMP3-DEC-11      PIC S9(11)V99 COMP-3.
15 WS-SIGNED-COMP3-DEC-12      PIC S9(12)V99 COMP-3.
15 WS-SIGNED-COMP3-DEC-13      PIC S9(13)V99 COMP-3.
15 WS-SIGNED-COMP3-DEC-14      PIC S9(14)V99 COMP-3.
15 WS-SIGNED-COMP3-DEC-15      PIC S9(15)V99 COMP-3.
15 WS-SIGNED-COMP3-DEC-16      PIC S9(16)V99 COMP-3.
*PIC CLAUSE TOTAL > (18) ,NOT ALLOWED FOR SIGNED COMP-3 DECIMAL
*
15 WS-SIGNED-COMP3-DEC-16      PIC S9(16)V999 COMP-3.
*
15 WS-SIGNED-COMP3-DEC-17      PIC S9(17)V99 COMP-3.
*
15 WS-SIGNED-COMP3-DEC-18      PIC S9(18)V99 COMP-3.

10 WS-COMP4 .
15 WS-COMP4-01                 PIC 9(01) COMP-4.
15 WS-COMP4-02                 PIC 9(02) COMP-4.
15 WS-COMP4-03                 PIC 9(03) COMP-4.
15 WS-COMP4-04                 PIC 9(04) COMP-4.
15 WS-COMP4-05                 PIC 9(05) COMP-4.
15 WS-COMP4-06                 PIC 9(06) COMP-4.
15 WS-COMP4-07                 PIC 9(07) COMP-4.
15 WS-COMP4-08                 PIC 9(08) COMP-4.
15 WS-COMP4-09                 PIC 9(09) COMP-4.
15 WS-COMP4-10                 PIC 9(10) COMP-4.
15 WS-COMP4-11                 PIC 9(11) COMP-4.
15 WS-COMP4-12                 PIC 9(12) COMP-4.
15 WS-COMP4-13                 PIC 9(13) COMP-4.
15 WS-COMP4-14                 PIC 9(14) COMP-4.
15 WS-COMP4-15                 PIC 9(15) COMP-4.
15 WS-COMP4-16                 PIC 9(16) COMP-4.
15 WS-COMP4-17                 PIC 9(17) COMP-4.
15 WS-COMP4-18                 PIC 9(18) COMP-4.
*PIC CLAUSE LENGTH > (18) ,NOT ALLOWED FOR COMP-4
*
15 WS-COMP4-19                 PIC 9(19) COMP-4.

10 WS-COMP4-DECIMAL .
15 WS-COMP4-DEC-01             PIC 9(01)V99 COMP-4.
15 WS-COMP4-DEC-02             PIC 9(02)V99 COMP-4.
15 WS-COMP4-DEC-03             PIC 9(03)V99 COMP-4.
15 WS-COMP4-DEC-04             PIC 9(04)V99 COMP-4.
15 WS-COMP4-DEC-05             PIC 9(05)V99 COMP-4.
15 WS-COMP4-DEC-06             PIC 9(06)V99 COMP-4.
15 WS-COMP4-DEC-07             PIC 9(07)V99 COMP-4.
15 WS-COMP4-DEC-08             PIC 9(08)V99 COMP-4.
15 WS-COMP4-DEC-09             PIC 9(09)V99 COMP-4.
15 WS-COMP4-DEC-10             PIC 9(10)V99 COMP-4.
15 WS-COMP4-DEC-11             PIC 9(11)V99 COMP-4.
15 WS-COMP4-DEC-12             PIC 9(12)V99 COMP-4.
15 WS-COMP4-DEC-13             PIC 9(13)V99 COMP-4.
15 WS-COMP4-DEC-14             PIC 9(14)V99 COMP-4.
15 WS-COMP4-DEC-15             PIC 9(15)V99 COMP-4.
15 WS-COMP4-DEC-16             PIC 9(16)V99 COMP-4.
*PIC CLAUSE TOTAL > (18) ,NOT ALLOWED FOR COMP-4 DECIMAL
*
15 WS-COMP4-DEC-16             PIC 9(16)V999 COMP-4.
*
15 WS-COMP4-DEC-17             PIC 9(17)V99 COMP-4.

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*          15 WS-COMP4-DEC-18          PIC 9(18)V99 COMP-4.

10 WS-SIGNED-COMP4.
  15 WS-SIGNED-COMP4-01          PIC S9(01) COMP-4.
  15 WS-SIGNED-COMP4-02          PIC S9(02) COMP-4.
  15 WS-SIGNED-COMP4-03          PIC S9(03) COMP-4.
  15 WS-SIGNED-COMP4-04          PIC S9(04) COMP-4.
  15 WS-SIGNED-COMP4-05          PIC S9(05) COMP-4.
  15 WS-SIGNED-COMP4-06          PIC S9(06) COMP-4.
  15 WS-SIGNED-COMP4-07          PIC S9(07) COMP-4.
  15 WS-SIGNED-COMP4-08          PIC S9(08) COMP-4.
  15 WS-SIGNED-COMP4-09          PIC S9(09) COMP-4.
  15 WS-SIGNED-COMP4-10          PIC S9(10) COMP-4.
  15 WS-SIGNED-COMP4-11          PIC S9(11) COMP-4.
  15 WS-SIGNED-COMP4-12          PIC S9(12) COMP-4.
  15 WS-SIGNED-COMP4-13          PIC S9(13) COMP-4.
  15 WS-SIGNED-COMP4-14          PIC S9(14) COMP-4.
  15 WS-SIGNED-COMP4-15          PIC S9(15) COMP-4.
  15 WS-SIGNED-COMP4-16          PIC S9(16) COMP-4.
  15 WS-SIGNED-COMP4-17          PIC S9(17) COMP-4.
  15 WS-SIGNED-COMP4-18          PIC S9(18) COMP-4.
*PIC CLAUSE LENGTH > (18) ,NOT ALLOWED FOR SIGNED COMP-4
*          15 WS-SIGNED-COMP4-19          PIC S9(19) COMP-4.

10 WS-SIGNED-COMP4-DECIMAL.
  15 WS-SIGNED-COMP4-DEC-01      PIC S9(01)V99 COMP-4.
  15 WS-SIGNED-COMP4-DEC-02      PIC S9(02)V99 COMP-4.
  15 WS-SIGNED-COMP4-DEC-03      PIC S9(03)V99 COMP-4.
  15 WS-SIGNED-COMP4-DEC-04      PIC S9(04)V99 COMP-4.
  15 WS-SIGNED-COMP4-DEC-05      PIC S9(05)V99 COMP-4.
  15 WS-SIGNED-COMP4-DEC-06      PIC S9(06)V99 COMP-4.
  15 WS-SIGNED-COMP4-DEC-07      PIC S9(07)V99 COMP-4.
  15 WS-SIGNED-COMP4-DEC-08      PIC S9(08)V99 COMP-4.
  15 WS-SIGNED-COMP4-DEC-09      PIC S9(09)V99 COMP-4.
  15 WS-SIGNED-COMP4-DEC-10      PIC S9(10)V99 COMP-4.
  15 WS-SIGNED-COMP4-DEC-11      PIC S9(11)V99 COMP-4.
  15 WS-SIGNED-COMP4-DEC-12      PIC S9(12)V99 COMP-4.
  15 WS-SIGNED-COMP4-DEC-13      PIC S9(13)V99 COMP-4.
  15 WS-SIGNED-COMP4-DEC-14      PIC S9(14)V99 COMP-4.
  15 WS-SIGNED-COMP4-DEC-15      PIC S9(15)V99 COMP-4.
  15 WS-SIGNED-COMP4-DEC-16      PIC S9(16)V99 COMP-4.
*PIC CLAUSE TOTAL > (18) ,NOT ALLOWED FOR SIGNED COMP-4 DECIMAL
*          15 WS-SIGNED-COMP4-DEC-16      PIC S9(16)V999 COMP-4.
*          15 WS-SIGNED-COMP4-DEC-17      PIC S9(17)V99 COMP-4.
*          15 WS-SIGNED-COMP4-DEC-18      PIC S9(18)V99 COMP-4.

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COBOL PICTURE CLAUSE LENGTH

FIELD LEVEL/NAME	PICTURE	FLD	START	END	LENGTH
SAMPLE-COPYLIB			1	34412	34412
10 WS-ALPHA	GROUP	1	1	258	258
15 WS-ALPHA-01	X	2	1	1	1
15 WS-ALPHA-02	XX	3	2	3	2
15 WS-ALPHA-255	X(255)	4	4	258	255
10 WS-ALPHANUMERIC	GROUP	5	259	33028	32770
15 WS-ALPHANUMERIC-01	X	6	259	259	1
15 WS-ALPHANUMERIC-02	XX	7	260	261	2
15 WS-ALPHANUMERIC-32767	X(32767)	8	262	33028	32767
10 WS-NUMERIC	GROUP	9	33029	33066	38
15 WS-NUMERIC-01	9	10	33029	33029	1
15 WS-NUMERIC-02	99	11	33030	33031	2
15 WS-NUMERIC-17	9(17)	12	33032	33048	17
15 WS-NUMERIC-18	9(18)	13	33049	33066	18
10 WS-NUMERIC-DECIMAL	GROUP	14	33067	33127	61
15 WS-NUMERIC-DEC-01	9V99	15	33067	33069	3
15 WS-NUMERIC-DEC-02	99V99	16	33070	33073	4
15 WS-NUMERIC-DEC-14	9(14)V9(4)	17	33074	33091	18
15 WS-NUMERIC-DEC-15	9(15)V999	18	33092	33109	18
15 WS-NUMERIC-DEC-16	9(16)V99	19	33110	33127	18
10 WS-SIGNED-NUMERIC	GROUP	20	33128	33165	38
15 WS-SIGNED-NUMERIC-01	S9	21	33128	33128	1
15 WS-SIGNED-NUMERIC-02	S99	22	33129	33130	2
15 WS-SIGNED-NUMERIC-17	S9(17)	23	33131	33147	17
15 WS-SIGNED-NUMERIC-18	S9(18)	24	33148	33165	18
10 WS-SIGNED-NUMERIC-DECIMAL	GROUP	25	33166	33226	61
15 WS-SIGNED-NUMERIC-DEC-01	S9V99	26	33166	33168	3
15 WS-SIGNED-NUMERIC-DEC-02	S99V99	27	33169	33172	4
15 WS-SIGNED-NUMERIC-DEC-14	S9(14)V9(4)	28	33173	33190	18
15 WS-SIGNED-NUMERIC-DEC-15	S9(15)V999	29	33191	33208	18
15 WS-SIGNED-NUMERIC-DEC-16	S9(16)V99	30	33209	33226	18
10 WS-COMP	GROUP	31	33227	33326	100
15 WS-COMP-01	9	32	33227	33228	2
15 WS-COMP-02	99	33	33229	33230	2
15 WS-COMP-03	999	34	33231	33232	2
15 WS-COMP-04	9(4)	35	33233	33234	2
15 WS-COMP-05	9(5)	36	33235	33238	4
15 WS-COMP-06	9(6)	37	33239	33242	4
15 WS-COMP-07	9(7)	38	33243	33246	4
15 WS-COMP-08	9(8)	39	33247	33250	4
15 WS-COMP-09	9(9)	40	33251	33254	4
15 WS-COMP-10	9(10)	41	33255	33262	8
15 WS-COMP-11	9(11)	42	33263	33270	8
15 WS-COMP-12	9(12)	43	33271	33278	8
15 WS-COMP-13	9(13)	44	33279	33286	8
15 WS-COMP-14	9(14)	45	33287	33294	8
15 WS-COMP-15	9(15)	46	33295	33302	8
15 WS-COMP-16	9(16)	47	33303	33310	8
15 WS-COMP-17	9(17)	48	33311	33318	8
15 WS-COMP-18	9(18)	49	33319	33326	8
10 WS-COMP-DECIMAL	GROUP	50	33327	33422	96
15 WS-COMP-DEC-01	9V99	51	33327	33328	2
15 WS-COMP-DEC-02	99V99	52	33329	33330	2
15 WS-COMP-DEC-03	999V99	53	33331	33334	4
15 WS-COMP-DEC-04	9(4)V99	54	33335	33338	4
15 WS-COMP-DEC-05	9(5)V99	55	33339	33342	4
15 WS-COMP-DEC-06	9(6)V99	56	33343	33346	4
15 WS-COMP-DEC-07	9(7)V99	57	33347	33350	4
15 WS-COMP-DEC-08	9(8)V99	58	33351	33358	8

-----	FIELD LEVEL/NAME	-----	---PICTURE---	FLD	START	END	LENGTH
15	WS-COMP-DEC-09		9(9)V99	59	33359	33366	8
15	WS-COMP-DEC-10		9(10)V99	60	33367	33374	8
15	WS-COMP-DEC-11		9(11)V99	61	33375	33382	8
15	WS-COMP-DEC-12		9(12)V99	62	33383	33390	8
15	WS-COMP-DEC-13		9(13)V99	63	33391	33398	8
15	WS-COMP-DEC-14		9(14)V99	64	33399	33406	8
15	WS-COMP-DEC-15		9(15)V99	65	33407	33414	8
15	WS-COMP-DEC-16		9(16)V99	66	33415	33422	8
10	WS-SIGNED-COMP		GROUP	67	33423	33522	100
15	WS-SIGNED-COMP-01		S9	68	33423	33424	2
15	WS-SIGNED-COMP-02		S99	69	33425	33426	2
15	WS-SIGNED-COMP-03		S999	70	33427	33428	2
15	WS-SIGNED-COMP-04		S9(4)	71	33429	33430	2
15	WS-SIGNED-COMP-05		S9(5)	72	33431	33434	4
15	WS-SIGNED-COMP-06		S9(6)	73	33435	33438	4
15	WS-SIGNED-COMP-07		S9(7)	74	33439	33442	4
15	WS-SIGNED-COMP-08		S9(8)	75	33443	33446	4
15	WS-SIGNED-COMP-09		S9(9)	76	33447	33450	4
15	WS-SIGNED-COMP-10		S9(10)	77	33451	33458	8
15	WS-SIGNED-COMP-11		S9(11)	78	33459	33466	8
15	WS-SIGNED-COMP-12		S9(12)	79	33467	33474	8
15	WS-SIGNED-COMP-13		S9(13)	80	33475	33482	8
15	WS-SIGNED-COMP-14		S9(14)	81	33483	33490	8
15	WS-SIGNED-COMP-15		S9(15)	82	33491	33498	8
15	WS-SIGNED-COMP-16		S9(16)	83	33499	33506	8
15	WS-SIGNED-COMP-17		S9(17)	84	33507	33514	8
15	WS-SIGNED-COMP-18		S9(18)	85	33515	33522	8
10	WS-SIGNED-COMP-DECIMAL		GROUP	86	33523	33618	96
15	WS-SIGNED-COMP-DEC-01		S9V99	87	33523	33524	2
15	WS-SIGNED-COMP-DEC-02		S99V99	88	33525	33526	2
15	WS-SIGNED-COMP-DEC-03		S999V99	89	33527	33530	4
15	WS-SIGNED-COMP-DEC-04		S9(4)V99	90	33531	33534	4
15	WS-SIGNED-COMP-DEC-05		S9(5)V99	91	33535	33538	4
15	WS-SIGNED-COMP-DEC-06		S9(6)V99	92	33539	33542	4
15	WS-SIGNED-COMP-DEC-07		S9(7)V99	93	33543	33546	4
15	WS-SIGNED-COMP-DEC-08		S9(8)V99	94	33547	33554	8
15	WS-SIGNED-COMP-DEC-09		S9(9)V99	95	33555	33562	8
15	WS-SIGNED-COMP-DEC-10		S9(10)V99	96	33563	33570	8
15	WS-SIGNED-COMP-DEC-11		S9(11)V99	97	33571	33578	8
15	WS-SIGNED-COMP-DEC-12		S9(12)V99	98	33579	33586	8
15	WS-SIGNED-COMP-DEC-13		S9(13)V99	99	33587	33594	8
15	WS-SIGNED-COMP-DEC-14		S9(14)V99	100	33595	33602	8
15	WS-SIGNED-COMP-DEC-15		S9(15)V99	101	33603	33610	8
15	WS-SIGNED-COMP-DEC-16		S9(16)V99	102	33611	33618	8
10	WS-COMP1		SPFP	103	33619	33622	4
10	WS-COMP2		DPFP	104	33623	33630	8
10	WS-COMP3		GROUP	105	33631	33729	99
15	WS-COMP3-01		9	106	33631	33631	1
15	WS-COMP3-02		99	107	33632	33633	2
15	WS-COMP3-03		999	108	33634	33635	2
15	WS-COMP3-04		9(4)	109	33636	33638	3
15	WS-COMP3-05		9(5)	110	33639	33641	3
15	WS-COMP3-06		9(6)	111	33642	33645	4
15	WS-COMP3-07		9(7)	112	33646	33649	4
15	WS-COMP3-08		9(8)	113	33650	33654	5
15	WS-COMP3-09		9(9)	114	33655	33659	5
15	WS-COMP3-10		9(10)	115	33660	33665	6
15	WS-COMP3-11		9(11)	116	33666	33671	6
15	WS-COMP3-12		9(12)	117	33672	33678	7
15	WS-COMP3-13		9(13)	118	33679	33685	7
15	WS-COMP3-14		9(14)	119	33686	33693	8
15	WS-COMP3-15		9(15)	120	33694	33701	8

-----	FIELD LEVEL/NAME	-----	---PICTURE---	FLD	START	END	LENGTH
	15	WS-COMP3-16	9(16)	121	33702	33710	9
	15	WS-COMP3-17	9(17)	122	33711	33719	9
	15	WS-COMP3-18	9(18)	123	33720	33729	10
10	WS-COMP3-DECIMAL		GROUP	124	33730	33825	96
	15	WS-COMP3-DEC-01	9V99	125	33730	33731	2
	15	WS-COMP3-DEC-02	99V99	126	33732	33734	3
	15	WS-COMP3-DEC-03	999V99	127	33735	33737	3
	15	WS-COMP3-DEC-04	9(4)V99	128	33738	33741	4
	15	WS-COMP3-DEC-05	9(5)V99	129	33742	33745	4
	15	WS-COMP3-DEC-06	9(6)V99	130	33746	33750	5
	15	WS-COMP3-DEC-07	9(7)V99	131	33751	33755	5
	15	WS-COMP3-DEC-08	9(8)V99	132	33756	33761	6
	15	WS-COMP3-DEC-09	9(9)V99	133	33762	33767	6
	15	WS-COMP3-DEC-10	9(10)V99	134	33768	33774	7
	15	WS-COMP3-DEC-11	9(11)V99	135	33775	33781	7
	15	WS-COMP3-DEC-12	9(12)V99	136	33782	33789	8
	15	WS-COMP3-DEC-13	9(13)V99	137	33790	33797	8
	15	WS-COMP3-DEC-14	9(14)V99	138	33798	33806	9
	15	WS-COMP3-DEC-15	9(15)V99	139	33807	33815	9
	15	WS-COMP3-DEC-16	9(16)V99	140	33816	33825	10
10	WS-SIGNED-COMP3		GROUP	141	33826	33924	99
	15	WS-SIGNED-COMP3-01	S9	142	33826	33826	1
	15	WS-SIGNED-COMP3-02	S99	143	33827	33828	2
	15	WS-SIGNED-COMP3-03	S999	144	33829	33830	2
	15	WS-SIGNED-COMP3-04	S9(4)	145	33831	33833	3
	15	WS-SIGNED-COMP3-05	S9(5)	146	33834	33836	3
	15	WS-SIGNED-COMP3-06	S9(6)	147	33837	33840	4
	15	WS-SIGNED-COMP3-07	S9(7)	148	33841	33844	4
	15	WS-SIGNED-COMP3-08	S9(8)	149	33845	33849	5
	15	WS-SIGNED-COMP3-09	S9(9)	150	33850	33854	5
	15	WS-SIGNED-COMP3-10	S9(10)	151	33855	33860	6
	15	WS-SIGNED-COMP3-11	S9(11)	152	33861	33866	6
	15	WS-SIGNED-COMP3-12	S9(12)	153	33867	33873	7
	15	WS-SIGNED-COMP3-13	S9(13)	154	33874	33880	7
	15	WS-SIGNED-COMP3-14	S9(14)	155	33881	33888	8
	15	WS-SIGNED-COMP3-15	S9(15)	156	33889	33896	8
	15	WS-SIGNED-COMP3-16	S9(16)	157	33897	33905	9
	15	WS-SIGNED-COMP3-17	S9(17)	158	33906	33914	9
	15	WS-SIGNED-COMP3-18	S9(18)	159	33915	33924	10
10	WS-SIGNED-COMP3-DECIMAL		GROUP	160	33925	34020	96
	15	WS-SIGNED-COMP3-DEC-01	S9V99	161	33925	33926	2
	15	WS-SIGNED-COMP3-DEC-02	S99V99	162	33927	33929	3
	15	WS-SIGNED-COMP3-DEC-03	S999V99	163	33930	33932	3
	15	WS-SIGNED-COMP3-DEC-04	S9(4)V99	164	33933	33936	4
	15	WS-SIGNED-COMP3-DEC-05	S9(5)V99	165	33937	33940	4
	15	WS-SIGNED-COMP3-DEC-06	S9(6)V99	166	33941	33945	5
	15	WS-SIGNED-COMP3-DEC-07	S9(7)V99	167	33946	33950	5
	15	WS-SIGNED-COMP3-DEC-08	S9(8)V99	168	33951	33956	6
	15	WS-SIGNED-COMP3-DEC-09	S9(9)V99	169	33957	33962	6
	15	WS-SIGNED-COMP3-DEC-10	S9(10)V99	170	33963	33969	7
	15	WS-SIGNED-COMP3-DEC-11	S9(11)V99	171	33970	33976	7
	15	WS-SIGNED-COMP3-DEC-12	S9(12)V99	172	33977	33984	8
	15	WS-SIGNED-COMP3-DEC-13	S9(13)V99	173	33985	33992	8
	15	WS-SIGNED-COMP3-DEC-14	S9(14)V99	174	33993	34001	9
	15	WS-SIGNED-COMP3-DEC-15	S9(15)V99	175	34002	34010	9
	15	WS-SIGNED-COMP3-DEC-16	S9(16)V99	176	34011	34020	10
10	WS-COMP4		GROUP	177	34021	34120	100
	15	WS-COMP4-01	9	178	34021	34022	2
	15	WS-COMP4-02	99	179	34023	34024	2
	15	WS-COMP4-03	999	180	34025	34026	2
	15	WS-COMP4-04	9(4)	181	34027	34028	2
	15	WS-COMP4-05	9(5)	182	34029	34032	4
	15	WS-COMP4-06	9(6)	183	34033	34036	4
	15	WS-COMP4-07	9(7)	184	34037	34040	4
	15	WS-COMP4-08	9(8)	185	34041	34044	4

-----	FIELD LEVEL/NAME	-----	---PICTURE---	FLD	START	END	LENGTH
15	WS-COMP4-09		9(9)	186	34045	34048	4
15	WS-COMP4-10		9(10)	187	34049	34056	8
15	WS-COMP4-11		9(11)	188	34057	34064	8
15	WS-COMP4-12		9(12)	189	34065	34072	8
15	WS-COMP4-13		9(13)	190	34073	34080	8
15	WS-COMP4-14		9(14)	191	34081	34088	8
15	WS-COMP4-15		9(15)	192	34089	34096	8
15	WS-COMP4-16		9(16)	193	34097	34104	8
15	WS-COMP4-17		9(17)	194	34105	34112	8
15	WS-COMP4-18		9(18)	195	34113	34120	8
10	WS-COMP4-DECIMAL		GROUP	196	34121	34216	96
15	WS-COMP4-DEC-01		9V99	197	34121	34122	2
15	WS-COMP4-DEC-02		99V99	198	34123	34124	2
15	WS-COMP4-DEC-03		999V99	199	34125	34128	4
15	WS-COMP4-DEC-04		9(4)V99	200	34129	34132	4
15	WS-COMP4-DEC-05		9(5)V99	201	34133	34136	4
15	WS-COMP4-DEC-06		9(6)V99	202	34137	34140	4
15	WS-COMP4-DEC-07		9(7)V99	203	34141	34144	4
15	WS-COMP4-DEC-08		9(8)V99	204	34145	34152	8
15	WS-COMP4-DEC-09		9(9)V99	205	34153	34160	8
15	WS-COMP4-DEC-10		9(10)V99	206	34161	34168	8
15	WS-COMP4-DEC-11		9(11)V99	207	34169	34176	8
15	WS-COMP4-DEC-12		9(12)V99	208	34177	34184	8
15	WS-COMP4-DEC-13		9(13)V99	209	34185	34192	8
15	WS-COMP4-DEC-14		9(14)V99	210	34193	34200	8
15	WS-COMP4-DEC-15		9(15)V99	211	34201	34208	8
15	WS-COMP4-DEC-16		9(16)V99	212	34209	34216	8
10	WS-SIGNED-COMP4		GROUP	213	34217	34316	100
15	WS-SIGNED-COMP4-01		S9	214	34217	34218	2
15	WS-SIGNED-COMP4-02		S99	215	34219	34220	2
15	WS-SIGNED-COMP4-03		S999	216	34221	34222	2
15	WS-SIGNED-COMP4-04		S9(4)	217	34223	34224	2
15	WS-SIGNED-COMP4-05		S9(5)	218	34225	34228	4
15	WS-SIGNED-COMP4-06		S9(6)	219	34229	34232	4
15	WS-SIGNED-COMP4-07		S9(7)	220	34233	34236	4
15	WS-SIGNED-COMP4-08		S9(8)	221	34237	34240	4
15	WS-SIGNED-COMP4-09		S9(9)	222	34241	34244	4
15	WS-SIGNED-COMP4-10		S9(10)	223	34245	34252	8
15	WS-SIGNED-COMP4-11		S9(11)	224	34253	34260	8
15	WS-SIGNED-COMP4-12		S9(12)	225	34261	34268	8
15	WS-SIGNED-COMP4-13		S9(13)	226	34269	34276	8
15	WS-SIGNED-COMP4-14		S9(14)	227	34277	34284	8
15	WS-SIGNED-COMP4-15		S9(15)	228	34285	34292	8
15	WS-SIGNED-COMP4-16		S9(16)	229	34293	34300	8
15	WS-SIGNED-COMP4-17		S9(17)	230	34301	34308	8
15	WS-SIGNED-COMP4-18		S9(18)	231	34309	34316	8
10	WS-SIGNED-COMP4-DECIMAL		GROUP	232	34317	34412	96
15	WS-SIGNED-COMP4-DEC-01		S9V99	233	34317	34318	2
15	WS-SIGNED-COMP4-DEC-02		S99V99	234	34319	34320	2
15	WS-SIGNED-COMP4-DEC-03		S999V99	235	34321	34324	4
15	WS-SIGNED-COMP4-DEC-04		S9(4)V99	236	34325	34328	4
15	WS-SIGNED-COMP4-DEC-05		S9(5)V99	237	34329	34332	4
15	WS-SIGNED-COMP4-DEC-06		S9(6)V99	238	34333	34336	4
15	WS-SIGNED-COMP4-DEC-07		S9(7)V99	239	34337	34340	4
15	WS-SIGNED-COMP4-DEC-08		S9(8)V99	240	34341	34348	8
15	WS-SIGNED-COMP4-DEC-09		S9(9)V99	241	34349	34356	8
15	WS-SIGNED-COMP4-DEC-10		S9(10)V99	242	34357	34364	8
15	WS-SIGNED-COMP4-DEC-11		S9(11)V99	243	34365	34372	8
15	WS-SIGNED-COMP4-DEC-12		S9(12)V99	244	34373	34380	8
15	WS-SIGNED-COMP4-DEC-13		S9(13)V99	245	34381	34388	8
15	WS-SIGNED-COMP4-DEC-14		S9(14)V99	246	34389	34396	8
15	WS-SIGNED-COMP4-DEC-15		S9(15)V99	247	34397	34404	8
15	WS-SIGNED-COMP4-DEC-16		S9(16)V99	248	34405	34412	8

*** END OF LAYOUT REPORT ***

SAMPLE DB2 DCLGEN

```

*****
* DCLGEN TABLE(WELZ492.SAMPLE)
* LIBRARY(CSS8.V7F.CNTL(SAMPDCL))
* LANGUAGE(COBOL)
* QUOTE
* ... IS THE DCLGEN COMMAND THAT MADE THE FOLLOWING STATEMENTS
*****
EXEC SQL DECLARE WELZ492.SAMPLE TABLE
( NO CHAR(10),
  NO1 VARCHAR(10),
  NO2 VARCHAR(1970),
  NO3 INTEGER,
  NO4 SMALLINT,
  NO5 FLOAT(4),
  NO6 FLOAT,
  NO7 DECIMAL(15, 2),
  NO8 GRAPHIC(5),
  NO9 VARGRAPHIC(5),
  NO10 VARGRAPHIC(985),
  NO11 DATE,
  NO12 TIME,
  NO13 TIMESTAMP
) END-EXEC.
*****
* COBOL DECLARATION FOR TABLE WELZ492.SAMPLE
*****
01 DCLSAMPLE.
10 NO PIC X(10).
10 NO1.
49 NO1-LEN PIC S9(4) USAGE COMP.
49 NO1-TEXT PIC X(10).
10 NO2.
49 NO2-LEN PIC S9(4) USAGE COMP.
49 NO2-TEXT PIC X(1970).
10 NO3 PIC S9(9) USAGE COMP.
10 NO4 PIC S9(4) USAGE COMP.
10 NO5 USAGE COMP-1.
10 NO6 USAGE COMP-2.
10 NO7 PIC S9(13)V9(2) USAGE COMP-3.
10 NO8 PIC G(5) USAGE DISPLAY-1.
10 NO9.
49 NO9-LEN PIC S9(4) USAGE COMP.
49 NO9-TEXT PIC G(5) USAGE DISPLAY-1.
10 NO10.
49 NO10-LEN PIC S9(4) USAGE COMP.
49 NO10-TEXT PIC G(985) USAGE DISPLAY-1.
10 NO11 PIC X(10).
10 NO12 PIC X(8).
10 NO13 PIC X(26).
*****
* THE NUMBER OF COLUMNS DESCRIBED BY THIS DECLARATION IS 14
*****

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SAMPLE IMS PSB

* PCB 1	PCB TYPE=DB, DBDNAME=FSPDFDST, KEYLEN=050, PROCOPT=GOTP	00000010
	SPACE 1	00000020
	SENSEG NAME=FSP20000, PARENT=0	00000030
	SENSEG NAME=FSP20010, PARENT=FSP20000	00000040
	SENSEG NAME=FSP20030, PARENT=FSP20000	00000050
	SPACE 1	00000060
* PCB 2	PCB TYPE=DB, DBDNAME=FSPDFDST, KEYLEN=060, PROCOPT=GOTP,	00000070
	PROCSEQ=FSPSFNME	00000080
	SPACE 1	X00000090
	SENSEG NAME=FSP20010, PARENT=0	00000100
	SENSEG NAME=FSP20000, PARENT=FSP20010	00000110
	SPACE 1	00000120
* PCB 3	PCB TYPE=DB, DBDNAME=FSPDFDST, KEYLEN=050, PROCOPT=GOTP	00000130
	SPACE 1	00000140
	SENSEG NAME=FSP20000, PARENT=0	00000150
	SENSEG NAME=FSP20010, PARENT=FSP20000	00000160
	SENSEG NAME=FSP20030, PARENT=FSP20000	00000170
	SPACE 1	00000180
* PCB 4	PCB TYPE=DB, DBDNAME=FSPDISSU, KEYLEN=047, PROCOPT=GOT	00000190
	SPACE 1	00000200
	SENSEG NAME=FSP40000, PARENT=0	00000210
	SPACE 1	00000220
* PCB 5	PCB TYPE=DB, DBDNAME=FSPDMULT, KEYLEN=045, PROCOPT=GOT	00000230
	SPACE 1	00000240
	SENSEG NAME=FSP60000, PARENT=0	00000250
	SPACE 1	00000260
* PCB 6	PCB TYPE=DB, DBDNAME=WCEPCASE, KEYLEN=020, PROCOPT=GOTP	00000270
	SPACE 1	00000280
	SENSEG NAME=WCE20010, PARENT=0	00000290
	SENSEG NAME=WCE20020, PARENT=WCE20010	00000300
	SPACE 1	00000310
	PSBGEN LANG=COBOL, PSBNAME=FSP500	00000320
	END	00000330
		00000340
		00000350
		00000360
		00000370
		00000380
		00000390

SAMPLE IMS DBD

```

****
*****
**          COMPRESSION IS ACTIVE ON THIS DATABASE
****
****
***** DBD FOR DATA COMPRESSION(COMPRESS/IMS)
**** ORIGINAL VARIABLE SEGMENT LENGTHS
**** SEGMENT NAME=FSP40020,BYTES=(00036,00023),
****
**** MINIMUM LENGTH OF VARIABLE SEGMENTS MUST BE AT LEAST
**** LENGTH OF KEY + OFFSET + 4
**** MAXIMUM LENGTH OF VARIABLE SEGMENT MUST BE INCREASED
**** BY 10 BYTES FOR EACH 100 BYTES OF SEGMENT LENGTH
**** EX: SEGMENT LENGTH = 2200 WOULD NEED ADDITIONAL 220 BYTES
**** WOULD BE USED FOR COMPRESSION ONLY
****
****
**** 01/96 - ADD NEW SEARCH FLD HHLDSSN ON FSP40000 SEGMENT
*****
*
*          NAME OF THE SYSTEM/SUBSYSTEM
*
*          WHERE GENNED: TEST OR PROD
*          CREATED BY   : DBMZ125
*          DATE         : 6/11/96
*
*          COMMENT      : SECONDARY INDEX FSPSSSN ADDED
*
*****
****
*****
DSG001  DBD          NAME=FSPDISSU,ACCESS=(HIDAM,VSAM)
        DATASET DD1=FSPDISSU,DEVICE=3380,SIZE=(4096),SCAN=003,      X
        FRSPC=(015)
        SPACE 1
        SEGM        NAME=FSP40000,BYTES=00260,                        X
        PARENT=0,                                           X
        POINTER=(TB),RULES=(PPP),                             X
        COMPRTN=COMPRSS1
        FIELD       NAME=(HHLDKY,SEQ,U),BYTES=009,START=00001,TYPE=C
        FIELD       NAME=(HHLDFINT),BYTES=001,START=00029,TYPE=C
        FIELD       NAME=(HHLDSNDX),BYTES=008,START=00222,TYPE=C
        FIELD       NAME=(HHLDSSN),BYTES=009,START=00245,TYPE=C
        FIELD       NAME=/SXRBA
        SPACE 1
        LCHILD      NAME=(FSP400NX,FSPIISSU),POINTER=INDX
        SPACE 1
        LCHILD      NAME=(FSP400SX,FSPSNAME),POINTER=INDX,RULES=LAST
        SPACE 1
        XDFLD       NAME=FSPXNAME,SEGMENT=FSP40000,                X
        SRCH=(HHLDSNDX,HHLDFINT,HHLDKY)
        SPACE 1
        LCHILD      NAME=(FSP402SX,FSPSSSN),POINTER=INDX,RULES=LAST
        SPACE 1
        XDFLD       NAME=FSPXSSN,SEGMENT=FSP40000,                  X
        SRCH=(HHLDSSN),SUBSEQ=(/SXRBA)
        SPACE 1
        SEGM        NAME=FSP40010,BYTES=00116,                      X
        PARENT=FSP40000,                                         X
        POINTER=(TB),                                           X
        COMPRTN=COMPRSS1
        FIELD       NAME=(HISTKEY,SEQ,U),BYTES=024,START=00001,TYPE=C
        FIELD       NAME=(HISTEDTE),BYTES=006,START=00001,TYPE=C
        FIELD       NAME=(HISTITYP),BYTES=002,START=00007,TYPE=C
        FIELD       NAME=(HISTIDTE),BYTES=008,START=00009,TYPE=C
        FIELD       NAME=(HISTCDTE),BYTES=008,START=00017,TYPE=C
        FIELD       NAME=(HISTMODE),BYTES=001,START=00039,TYPE=C
        FIELD       NAME=(HISTHLD),BYTES=009,START=00092,TYPE=C

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```

SPACE 1
LCHILD NAME=(FSP401SX, FSPSHIST), POINTER=INDX, RULES=LAST
SPACE 1
XDFLD NAME=FSPXHIST, SEGMENT=FSP40010, X
      SRCH=(HISTHLD), NULLVAL=X'F0', X
      SUBSEQ=(HISTKEY)
SPACE 1
****  SEGM NAME=FSP40020, BYTES=(00046,00027), 8/98 AW TEST X
      SEGM NAME=FSP40020, BYTES=(00050,00027), X
      PARENT=FSP40000, X
      POINTER=(TB), X
      COMPRTN=COMPRSS1
      FIELD NAME=(REPLKEY, SEQ, U), BYTES=020, START=00003, TYPE=C
      FIELD NAME=(REPLRTYP), BYTES=004, START=00003, TYPE=C
      FIELD NAME=(REPLRPRD), BYTES=006, START=00007, TYPE=C
      FIELD NAME=(REPLIDTE), BYTES=008, START=00013, TYPE=C
      FIELD NAME=(REPLREAS), BYTES=002, START=00021, TYPE=C
SPACE 1
      SEGM NAME=FSP40030, BYTES=00041, X
      PARENT=FSP40000, X
      POINTER=(TB), X
      COMPRTN=COMPRSS1
      FIELD NAME=(CLNTKEY, SEQ, U), BYTES=011, START=00001, TYPE=C
      FIELD NAME=(CLNTSSN), BYTES=009, START=00001, TYPE=C
      FIELD NAME=(CLNTID), BYTES=002, START=00010, TYPE=C
SPACE 1
      DBDGEN
      FINISH
      END
SAMPLE DBDGEN JCL

//GKV2242K JOB 'P01SD110000T', 'GANESH',
//          CLASS=Q, MSGCLASS=Z, MSGLEVEL=(1,1),
//          NOTIFY=&SYSUID
//*JOBPARAM C=0, L=10, T=0, R=90
//GEN EXEC DBDGEN, SOUT='*', COND=(4, LT)
//C.SYSIN DD DSN=GKV2242.TESTIMS.DBDSRC(DEPTDBD), DISP=SHR
//L.SYSLMOD DD DSN=GKV2242.TESTIMS.DBDLIB(DEPTDBD), DISP=SHR
//SYSABEND DD SYSOUT=*
//

```

S0CS

S0CA

This ABEND is a decimal overflow exception. The destination field is too small to contain the result field in a packed decimal operation.

Either the destination field is too small or the number being manipulated is too large for decimal arithmetic instructions. Consider enlarging the destination field, changing the program's algorithm (for example, divide or subtract before multiply or add instructions) or switching from packed decimal (in COBOL, COMP-3) to fixed-point (that is, binary integers or COMP in COBOL) or floating-point (in COBOL, COMP-1 or COMP-2) instructions.

An example of this exception is when an infinite loop occurs while adding to a packed decimal counter.

S0CB

This ABEND is a decimal divide exception. A quotient exceeds the specified data field size.

Dividing by zero is the most common cause of this ABEND. Correct the program logic error that caused the divide exception and rerun the job.

S0CC

This ABEND is an exponent-overflow exception. The result characteristic in a floating-point addition, subtraction, multiplication, or division operation exceeds 127 and the result fraction is not zero.

Correct the program logic error that caused the exception and rerun the job.

S0CD

This ABEND is an exponent-underflow exception. The result characteristic in a floating-point addition, subtraction, multiplication, halving, or division operation is less than zero and the result fraction is not zero.

Correct the program logic error that caused the exception and rerun the job.

S0CE

This ABEND is a significance exception. The result of a floating-point addition or subtraction has an all-zero fraction within it.

Correct the program logic error that caused the exception and rerun the job.

S0CF

This ABEND is a floating-point divide exception. Division by zero was attempted in a floating-point instruction operation.

Correct the program logic error that caused the exception and rerun the job.

S0C1

An attempt was made to execute an invalid machine instruction operation code. The operation code is either invalid or is for an instruction that is not available on this CPU. This failure is usually due to a branch to an invalid storage location, as might occur in a load module with unresolved external references, or when a branch to an address outside of a program occurs.

Correct the program logic or construction error and rerun the job. Possible causes for this abend include:

Subscript error
"Clobbered" code

Tried to read a file that was not open
 Misspelled DDNAME
 Error in parameters passed to subroutines
 Missing DD card
 Recording mode was wrong, or density was incorrect
 Bad load module, possible bad object deck in FORTRAN
 (unresolved external references)
 Missing dimension statement
 Same name for an array and a subroutine
 COBOL: subroutine prog ID was the same as the entry name
 tried to call within COBOL sort I/O procedure
 tried to call a subroutine which could not be found
 incomplete DCB for SORTIN file
 using sort verb, DDNAME was not SORTOUT when the
 "give" option was used.
 executing sort-using after opening SORTIN file

S0C2

An attempt was made to execute a privileged instruction while executing in problem program state. This may be the result of an invalid branch to a storage location that contains a privileged machine instruction operation code. A privileged instruction is an instruction that only certain special system programs are permitted to execute.

Correct the program logic error and rerun the job.

Possible causes for this abend include:

Unintentional branch to invalid instruction due to subscript error
 COBOL: Missing period at end of paragraph or paragraph names
 Missing goback after sort verb - logic fell into input procedure
 ACCEPT verb executed when no SYSIN DD was available.

S0C3

An attempt was made to make the EXECUTE machine instruction the target of an EXECUTE instruction, which is not allowed.

Correct the program logic error and rerun the job.

S0C4

This ABEND is caused by a hardware detected virtual address translation error, or a storage protection violation. One of the following is true:

- The protect key in the program PSW does not match the protect key of an instruction operand or storage area. References to pages protected with the PGSER PROTECT service or specified shared with a read-only view to the IARVSERV service can cause this exception. - this is a page protection exception (reason code 4).
- The requested referenced page was never allocated (i.e., never GETMAIN'ed - reason code 10 or 11) - this is a page-translation or segment-translation exception.
- The requested virtual storage page was paged out and the routine that referenced it was disabled for I/O interrupts (reason code 11 with

disabled PSW).

- A program executing in a subspace referred to storage that was not available to it. A program in a subspace can only refer to storage in the subspace or storage common to all subspaces (reason code 10 or 11).

Correct the program logic error that generated the invalid address or storage reference. When analyzing the dump, remember that the PSW saved when an OC4 abend occurs may point at the failing instruction or it may point at the next instruction after the failing instruction.

Check to ensure that your program is obtaining, using, and freeing storage properly. Moving data to a zero address or to an address less than 512 (decimal) is a very frequent cause of this abend.

Possible causes for this abend include:

COBOL: Invalid address was referenced due to subscript error or bad parameter passed In group move, receiving record variable length defined incorrectly
 Tried moving variable length record that was larger than target field size
 Tried to read or write a file which was not open
 Used DD DUMMY with logic that moves high values to FD
 Tried to call within COBOL SORT I/O procedure
 Tried to "goback" in the SORT output procedure

S0C5

This ABEND is an addressing exception. An address developed and used by the ABENDING program lies outside of the available virtual storage on the processor.

Possible causes for this abend include:

Subscript error - referenced beyond end of a table in program running V=R

COBOL: performed procedure not exited properly
 record described too short
 referenced a record without giving a read
 tried to use write without 'from' option on APPLY
 WRITE ONLY file

Correct the program logic error that generated the invalid address or storage reference.

S0C6

This ABEND is a specification exception. One of the following occurred:

- 1) A data, instruction, or control-word address does not specify the proper storage boundary alignment.
- 2) An instruction specifies an odd register number when it should specify the even numbered register of an even-odd register pair.
- 3) A floating point register other than 0, 2, 4, or 6 was specified in a floating point instruction.
- 4) The multiplier or divisor in a decimal (packed) arithmetic instruction exceeds 15 digits and sign.

- 5) The first operand field is shorter than or equal to the second operand field in a decimal (packed) multiplication or division instruction.
- 6) The block address in a SET STORAGE KEY or INSERT STORAGE KEY instruction has the four low-order bits not all zero.
- 7) A PSW with a non-zero protection key was encountered when protection was not installed.

Correct the program logic error that caused the specification exception and rerun the job.

S0C7

This ABEND is a data exception and can only occur when decimal (packed) instructions are used. One of the following can cause this error:

- 1) The sign or digit codes of one or more bytes manipulated by the packed or CONVERT TO BINARY instructions is invalid for packed decimal use. Packed decimal digits must be in the range 0 through 9, with only the sign digit being a digit in the range A through F.
- 2) Fields in decimal (packed) arithmetic overlap incorrectly.
- 3) A packed decimal multiplicand has too many high-order significant digits.

Possible causes for this abend include:

Subscript error, referenced beyond table
 COBOL: working storage not initialized bad data, should check data for errors garbage in a field being tested or displayed move zeroes to group level is display, had sublevels that were not period missing after imperative statements within AT END clause
 binary field in an arithmetic operation is not large enough to accept result

Correct the format of the data being manipulated by the packed decimal instructions in the program and rerun the job.

S0C8

This ABEND is a fixed-point overflow exception. A high-order (leftmost) carry out of a significant bit has occurred during a fixed-point add, subtract, or shift instruction.

The number being manipulated may be too large for fixed-point arithmetic instructions. Consider changing the program's algorithm or switching to floating-point instructions. You can use the SPM machine instruction to disable S0C8 abends by setting the fixed-point overflow enabling bit in the PSW before fixed-point math is done.

S0C9

This ABEND is a fixed-point divide exception. A quotient has exceeded the register size in a DIVIDE instruction, or the result of a CONVERT TO BINARY instruction is more than 31 bits long.

Dividing by zero is the most common cause of this ABEND. Correct the

program logic error that caused the divide exception and rerun the job.

DFSRRCO0

5.7.1 Procedure Description

C Copyright IBM Corp. 1974, 1995
Topic lines 16 to 32 of 68

```

3 //G      EXEC PGM=DFSRRCO0,REGION=&RGN,
3 //      PARM=(DLI,&MBR,&PSB,&BUF,
3 //      &SPIE&TEST&EXCPVR&RST,&PRLD,
3 //      &SRCH,&CKPTID,&MON,&LOGA,&FMTO,
3 //      &IMSID,&SWAP,&DBRC,&IRLM,&IRLMNM,
3 //      &BKO,&IOB,&SSM,'&APARM',
3 //      &LOCKMAX,&GSGNAME,&TMINAME)

```

APARM=

Specifies the 1- to 32-character parameter to be passed to the application program as part of the information returned in the INQY call with the ENVIRON subfunction. The parameter must be enclosed in single-quotes (') if special characters are used. Embedded commas (,) are not allowed.

BKO=

specifies whether (Y) or not (N) dynamic backout is to be performed, and applies only to pseudoabends. Dynamic backout is to the last synch point. Y only applies if the log data set is assigned to DASD. The default is N.

BUF=

specifies a 1- to 3-digit number defining the number of 1K blocks to be used in calculating the size of the OSAM subpools. This parameter only applies to a DL/I batch environment, and is used only if the DFSVSAMP data set is not supplied, or does not include any IOBF control statements.

For more information, see "OSAM Buffer Pool Compatibility Definition" in topic 7.4.3.

CKPTID=

specifies the checkpoint at which the program is to be restarted:

- A 1- to 8-character extended checkpoint ID
- A 12-character "time-stamp" checkpoint ID

Enclose the checkpoint ID in quotes if it contains any non-ANSI characters, such as the slash in the 12-character "time stamp" checkpoint ID.

DBRC=

specifies whether or not database recovery control is to be used during this execution of IMS. The possible values for DBRC= are:

- C This value has no meaning except during a batch backout run of IMS. If specified for other than a batch backout run, it will be treated as a null.

Specification of DBRC=C will permit you to back out batch jobs that terminated normally during an execution that included DBRC but did not include IRLM. During batch backout of jobs that terminated normally, IMS performs authorization for databases and then backs out database changes, just as is done for jobs that terminate abnormally.

If DBRC=C is specified when the previous execution of IMS included both DBRC and IRLM, batch backout will fail if the previous execution completed normally.

- N DBRC is not used during this execution of IMS, unless DBRC=FORCE was specified on the IMSCTRL macro statement during IMS system definition. If DBRC=FORCE is specified during IMS system definition and if this is not a batch backout execution of IMS, a message is issued, and a nonzero return code is returned.

If this is a batch backout execution of IMS, the DBRC=FORCE system definition specification may be overridden by specifying DBRC=N on the EXEC procedure. Thus, if the previous execution of IMS used DBRC, but not IRLM, batch backout will execute without DBRC.

Null DBRC will or will not be included on the basis of the specification of the IMSCTRL macro statement keyword DBRC= during IMS system definition.

- Y DBRC will be used during this execution of IMS

If the IRLM is not being used, DBRC provides additional database security. If a common RECON data set is shared among subsystems, DBRC allows proper authorization to registered databases so that the subsystems can share data at the database level.

Caution: If DBRC is used to maintain the integrity of databases, DBRC=N should be specified only when DBRC is unavailable or when you are sure that the integrity of databases will not be destroyed. When DBRC=N is specified, before reactivating DBRC, you must register information on the log volumes created while DBRC was inactive.

EXCPVR=

specifies whether (1) or not (0) the OSAM Database Buffer Pool will be page fixed. A value of 0 or 1 must appear in the generated JCL statement for this parameter.

FMTO=

specifies the type of dump output to be produced.

For a detailed explanation of this parameter, see the section "IMS Dumping and Dump Formatting Options" in topic 5.22.

³ GSGNAME=

³ specifies the global service group name to be used. If GSGNAME= is
³ not specified in the DLIBATCH procedure, the default GSG name is the
³ GSG name specified in the IMSCTRL macro.

³ If GSGNAME=NONE is specified, then this procedure will not reference
³ any global service group and any activity performed will not be
³ tracked by RSR.

³ If a GSG name is supplied by either the GSGNAME= specification or from
³ the system definition IMSCTRL macro, then DBRC must be used.

- IMSID=**
specifies a 1- to 4-character identifier that is a valid subsystem identifier to the operating system being used. This identifier will be used instead of the identifier specified at system definition of the IMS system being executed.
- IOB=**
This parameter is no longer used. Requests for I/O are now dynamically allocated.
- IRLM=**
specifies whether (Y) or not (N) you want to use the IRLM during this execution. If the IRLM is not used, then program isolation (PI) is used for locking.
- The default for IRLM= is dependent on whether the IRLMNM= keyword was specified in the IMSCTRL macro. If IRLMNM= was specified, the default is IRLM=Y. If IRLMNM= was not specified, the default is IRLM=N.
- If IRLMNM= is not specified in the IMSCTRL macro or in the execution JCL and IRLM=Y is specified in the execution JCL, then the IRLM name used is 'IRLM'.
- This parameter may not be changed at emergency restart.
- IRLMNM=**
specifies the 1- to 4-character subsystem name to be used for the execution to this IRLM. Unless more than one IRLM is used at the same time on the same system, IRLM is recommended as the subsystem name in each system. When IRLMs are used at the same time on the same system, the subsystem names must be unique. The default is the name specified on the IMSCTRL macro during system definition. This name connects this subsystem with the IRLM specified as cccc.
- This parameter may not be changed at emergency restart.
- LOCKMAX=**
specifies a value between 1- and 32767- (in units of 1000). This parameter overrides the PSBGEN LOCKMAX value if one was specified. An override parameter of LOCKMAX=0 will turn off all locking limitation.
- LOCKMAX=10: allows for 10000 locks
 - LOCKMAX=0: turns off locking limitation
- LOGA=**
this parameter is no longer used and is ignored if specified. In previous releases, it specified whether IMS was to use the BSAM (0) or OSAM (1) logging access method.
- LOGT=**
specifies the tape device type where the log data set will be mounted. The default is device type 2400.
- MBR=**
specifies an application program name.
- MON=**
specifies whether (Y) or not (N) the IMS Monitor is to be active for this execution.
- PRLD=**
specifies a 2-character suffix for DFSMPLxx, the IMS.PROCLIB member that lists the modules to be preloaded in the region/partition. For more information, see "Making High-Use Program Modules Resident" in topic 7.2.6.1.
- PSB=**
is an optional parameter specifying a PSB name when the PSB name and application program name are different.

The use of generated PSB's (GPSB) is supported in a TM Batch environment. If the application program requires a GPSB, it must use the PSB parameter to indicate that request. In this case the PSB parameter does not specify the name of the PSB. Instead, it specifies a code which requests the use of a generated PSB and its language type. The specification of the code as the PSB parameter will cause the specified GPSB to be utilized for the batch application program. The application program name (MBR parameter) will be used as the GPSB name. GPSBs are not available in DB Batch.

The following coded character string will be used to identify the use of a GPSB and its language:

- DFS\$\$ASM - GPSB required which has the Assembler language format.
- DFS\$\$COB - GPSB required which has the COBOL language format.
- DFS\$\$PLI - GPSB required which has the PL/I language format.
- DFS\$\$PAS - GPSB required which has the Pascal language format.

RGN=
specifies the size of the MVS region to be allocated to the IMS control program.

RST=
specifies UCF restart. A value of 0 (no) or 1 (yes) must appear in the generated JCL statement for this parameter. For more information, see IMS/ESA Utilities Reference: Database Manager.

SOUT=
specifies the class assigned to SYSOUT DD statements.

SPIE=
specifies the SPIE option:

0 Allow your SPIE, (the SPIE specified by the application program), if any, to remain in effect while processing the application program call.

1 Negate your SPIE while processing the application program call. Negated SPIEs are reinstated before returning to the application program.

Under MVS, if SPIE=1 is specified a SPIE must be established or system abend ABEND46D will be issued.

A value of 0 or 1 must appear in the generated JCL statement for this parameter. For further information about IMS and SPIEs, refer to the topic, "How PL/I-IMS Error Handling Operates" in OS PL/I Version 2 Programming Guide, SC26-4307.

SRCH=
specifies the module search indicator for directed load.

- 0 standard search
- 1 search JPA and LPA before searching PDS

SSM=
specifies a 1- to 4-character identifier. When building IEBUPDTE JCL, you must generate the member name by concatenating this SSM identifier to the IMSID.

For more information, see Chapter 9, "Accessing DB2 Databases with IMS" in topic 9.0.

SWAP=
makes address space swappable (Y) or nonswappable (N). The default is Y.

SYS2=

specifies an optional second-level dsname qualifier for those data sets which are designated as "optional replicate" in an XRF complex. When specified, the operand must be enclosed in single quotes and must include a trailing period; for example, SYS2='IMSA.'.

TEST=

specifies whether (1) or not (0) the addresses in the call list should be checked for validity. A value of 0 or 1 must appear in the generated JCL statement for this parameter. An address is invalid if it is either lower than the lowest address not in the MVS nucleus or higher than the highest address in virtual storage of the machine.

³ TMINAME=

³ specifies the transport manager instance name the batch job will use.
³ If TMINAME= is not specified in the DLIBATCH procedure, the default
³ TMI name is the TMI name specified in the IMSCTRL macro, or blanks if
³ no TMI name was specified.

COMMON ABEND CODES ³

The following list contains some common ABEND codes. For more information about these codes and for information about other abend codes, see the appropriate MVS completion code manual. For abends resulting from other products, refer to the appropriate product's message library.

001 - I/O ERROR	706 - NON-EXECUTABLE PROGRAM
002 - I/O INVALID RECORD	804 - INSUFFICIENT VIRTUAL STORAGE
004 - OPEN ERROR	806 - UNABLE TO LOAD (LINK ETC) PROGRAM
008 - I/O SYNAD ERROR	80A - INSUFFICIENT VIRTUAL STORAGE
013 - OPEN ERROR	878 - INSUFFICIENT VIRTUAL STORAGE
028 - PAGING I/O ERROR	737 - I/O ERROR
0CX - PROGRAM CHECK EXCEPTIONS:	A14 - I/O ERROR
0C1 - OPERATION,	B37 - INSUFFICIENT DASD SPACE
0C4 - PROTECTION / ADDRESSING,	D37 - INSUFFICIENT DASD SPACE
0C5 - ADDRESSING,	E37 - INSUFFICIENT DASD SPACE