

B 06

MFS: The Basics and Beyond.....

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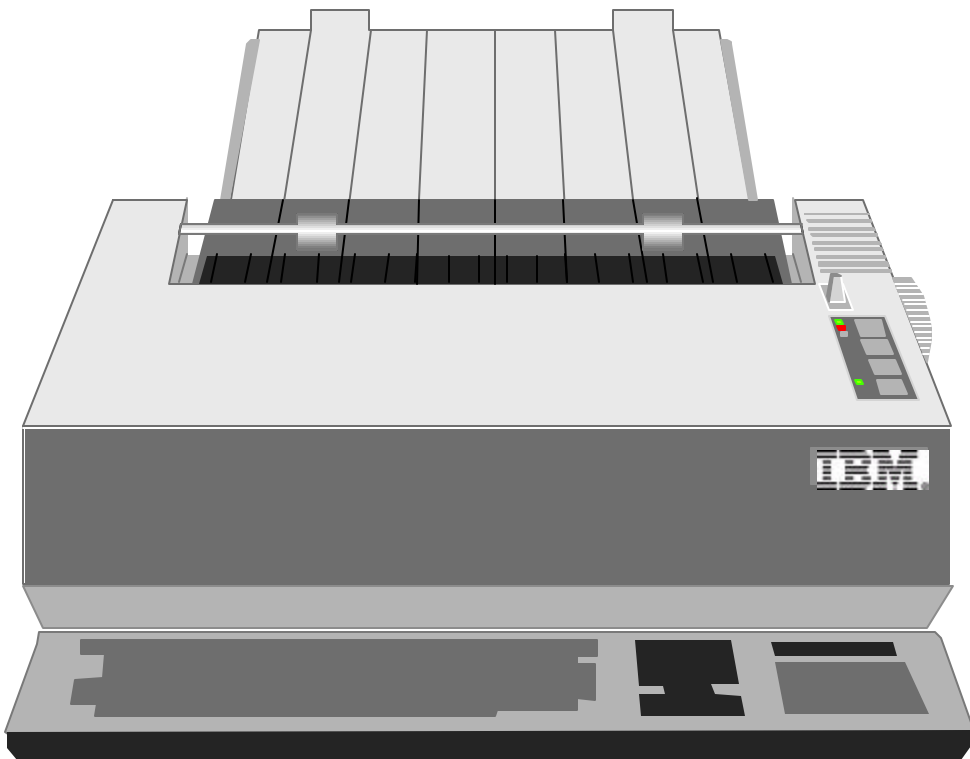
October 22-25, 2001

Agenda

- To Introduce MFS, its Features and Functions
- To Show the Significance of MODNAME
- To Illustrate the MFS Reversal Utility

Why Message Format Service?

Typewriter / Printer Devices
-- Spacing and pagination
built by application



Debtors List
01/10/09

Custno	Debt	Date
-----	-----	-----
139409	91328	010413
265026	36	010726
536184	1849	010102
762094	196	001111

Why Message Format Services?



Debtors List 01/10/09

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Page 1

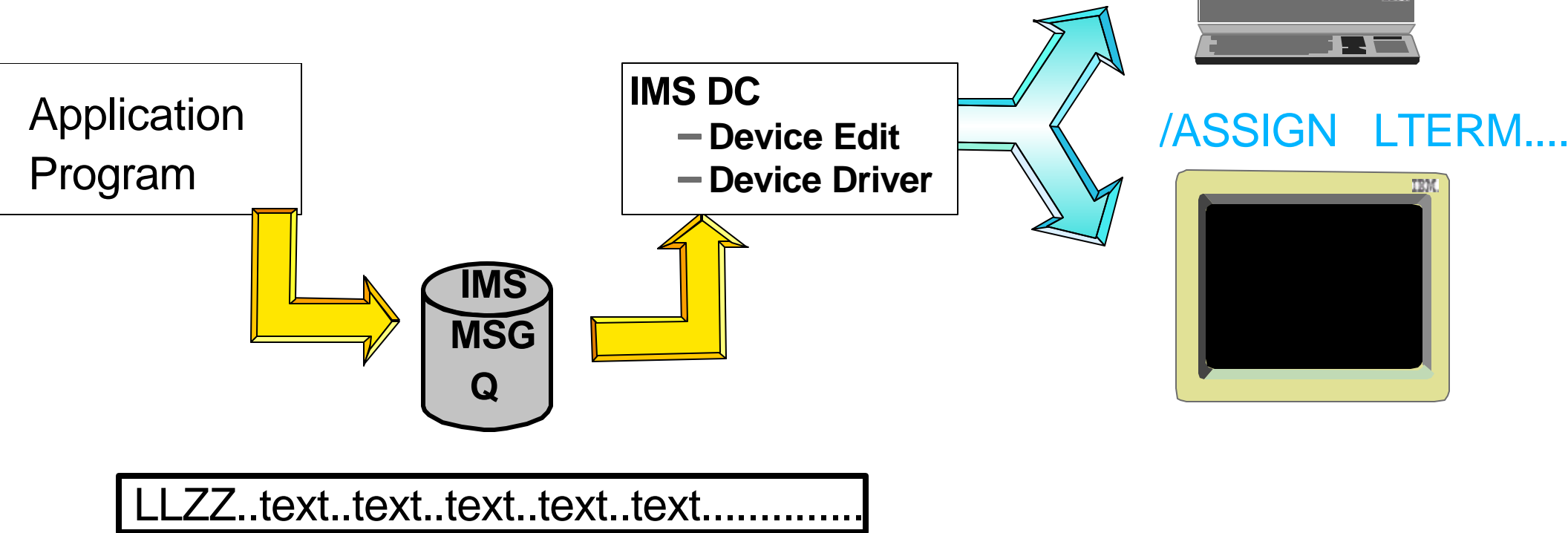
Text located by screen position



Program Device Independence

IMS knows output device type - even when it changes

- let IMS do the formatting
- based on user specifications



Primer Sample Screen Image

```
-----*
*** IMS/VIS PRIMER: ::: CUSTOMER ORDER ***

CUST. ID  ::::::::::::::::::::: ORDER STATUS: :::::::::::::::
ORDER ID:  ::::::::::::::::::::: STATUS CODE  :  ::
RECEIVED:  :::::::::::::::::::::

PART ID   QTY   TAX LN  UNIT PRICE   U/M   DESCRIPTION           STATUS
::::::::: :   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :
::::::::: :   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :
::::::::: :   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :
::::::::: :   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :
::::::::: :   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :
::::::::: :   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :
::::::::: :   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :

SHIPMENT  SHIPMENT METHOD      STAT DATE
::::::::: :   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :
::::::::: :   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :
::::::::: :   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :
::::::::: :   :   :   :   :   :   :   :   :   :   :   :   :   :   :   :

FUNCTION:  ____ ORDER ID:  _____ CUST ID:  _____ CNG FUNC:  _ PASSWORD
-----*
```

Literals in Format,
not Program

} Repeated
(stacked)
Lines

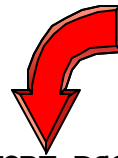
} Repeated
(stacked)
Lines

System Message Line



Primer Sample Format (1)

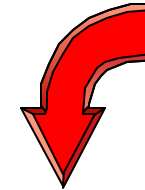
Ignore Specific Device Features -- like PEN
[recommended -- extra blocks for each variant]



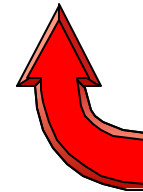
```
OE4COR  FMT
PORDER  DEV  TYPE=( 3270 , 2 ) , SYMSG=SYMSG , FEAT=IGNORE , DSCA=X'00A0 '
DIV      TYPE=INOUT
A1203   DPAGE CURSOR=(( 23 , 12 ))
DFLD    '*** IMS/V5 PRIMER: ', POS=( 1 , 20 ) , ATTR=( NUM , HI , PROT )
MSGTLE  DFLD  POS=( 1 , 39 ) , ATTR=( HI , NUM , PROT ) , LTH=3
DFLD    'CUSTOMER ORDER ***' , POS=( 1 , 43 ) , ATTR=( NUM , HI , PROT )
DFLD    'CUST. ID' , POS=( 3 , 2 ) , ATTR=( NUM , PROT )
CUSTID  DFLD  POS=( 3 , 12 ) , LTH=27 , ATTR=( NUM , HI , PROT )      CUSTNO AND NAME
DFLD    ' ORDER STATUS: ' , POS=( 3 , 40 ) , ATTR=( NUM , PROT )
STATS   DFLD  POS=( 3 , 55 ) , LTH=17 , ATTR=( NUM , HI , PROT )      STATUS MSG
DFLD    'ORDER ID: ' , POS=( 4 , 2 ) , ATTR=( NUM , PROT )
CADR    DFLD  POS=( 4 , 12 ) , LTH=27 , ATTR=( NUM , HI , PROT )      ADDR - ORDER NO
DFLD    ' STATUS CODE : ' , POS=( 4 , 40 ) , ATTR=( NUM , PROT )
GSTA    DFLD  POS=( 4 , 55 ) , LTH=2 , ATTR=( NUM , HI , PROT )
DFLD    'RECEIVED: ' , POS=( 5 , 2 ) , ATTR=( NUM , PROT )
CITY    DFLD  POS=( 5 , 12 ) , LTH=34 , ATTR=( NUM , HI , PROT )      DATE CITY ZIP
DFLD    'PART ID  QTY  TAX LN UNIT PRICE  U/M  DESCRIPTION
        STATUS ' , POS=( 7 , 2 ) , ATTR=( NUM , PROT )
DO      6
DPNB    DFLD  POS=( 8 , 2 ) , LTH=8 , ATTR=( NUM , HI , PROT )      PART NO
DQTY    DFLD  POS=( 8 , 11 ) , LTH=6 , ATTR=( NUM , HI , PROT )      QTY
DTAX    DFLD  POS=( 8 , 18 ) , LTH=1 , ATTR=( NUM , HI , PROT )      TAX
DLNR    DFLD  POS=( 8 , 20 ) , LTH=3 , ATTR=( NUM , HI , PROT )
DINFO   DFLD  POS=( 8 , 24 ) , LTH=55 , ATTR=( NUM , HI , PROT )
ENDDO
```

Default Cursor Position

Assembler
Syntax
Rules



Explanatory
Comments



Primer Sample Format (2)

```
DFLD  'SHIPMENT  SHIPMENT METHOD    STAT DATE' ,           X
      POS=(17,2),ATTR=(NUM,PROT)
DO      2
SHIP    DFLD  POS=(18,2),LTH=8,ATTR=(HI,PROT)
METH    DFLD  POS=(18,11),LTH=20,ATTR=(HI,PROT)
STAT    DFLD  POS=(18,32),LTH=2,ATTR=(NUM,HI,PROT)
SDATE   DFLD  POS=(18,35),LTH=6,ATTR=(HI,NUM,PROT)
      ENDDO
MESSAGE DFLD  POS=(21,2),LTH=79,ATTR=(NUM,HI,PROT)
      DFLD  'FUNCTION:' ,POS=(23,2),ATTR=(NUM,PROT)
FUNC    DFLD  POS=(23,12),LTH=3,ATTR=HI
      DFLD  'ORDER ID:' ,POS=(23,16),ATTR=(NUM,PROT)
ORDID   DFLD  POS=(23,26),LTH=6,ATTR=HI
      DFLD  'CUST ID:' ,POS=(23,33),ATTR=(NUM,PROT)
CUSID   DFLD  POS=(23,42),LTH=6,ATTR=HI
      DFLD  'CNG FUNC:' ,POS=(23,49),ATTR=(NUM,PROT)
CHANGE  DFLD  POS=(23,59),LTH=1,ATTR=HI
      DFLD  'PASSWORD' ,POS=(23,61),ATTR=(NUM,PROT)
PASSWD  DFLD  POS=(23,71),LTH=8,ATTR=NODISP
SYSMSG  DFLD  POS=(24,2),LTH=79,ATTR=HI
      FMTEND
```

Default Cursor Position

**FORMAT -- usually Input and Output
Hence DIF and DOF**

Primer Sample Output Message

```
* MESSAGE DESCRIPTION FOR CUSTOMER ORDERS
OE4COR01 MSG TYPE=OUTPUT, X
          SOR=(OE4COR,IGNORE), X
          NXT=OE4CORI1, X
          PAGE=YES, X
          OPT=2
```

[Link to Format MOD to MID](#)

```
LPAGE01 LPAGE SOB/A1203
          SEG
```

```
* OUTPUT MESSAGE
MFLD MESSAGE, LTH=79
```

[Editing Option](#)

```
* HEADER DATA
MFLD MSGTLE, LTH=3 TITLE/FUNCTION CODE
MFLD CUSTID, LTH=27 CUSTOMER NUMBER AND NAME
MFLD CADR, LTH=27 ORDER NUMBER + CUSTOMER ADDRESS
MFLD CITY, LTH=34 DATE/CITY/ZIP
MFLD GSTA, LTH=2
MFLD STATS, LTH=17
```

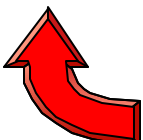
[Application Sets Attributes](#)

```
* LINE ITEM DETAILS
DO 6
MFLD DPNB, LTH=10, ATTR=1 PART NUMBER
MFLD DQTY, LTH=8, ATTR=YES QUANTITY
MFLD DTAX, LTH=3, ATTR=YES TAX CODE
MFLD DLNR, LTH=3 LINE NUMBER
MFLD DINFO, LTH=55 PART DESCRIPTION
ENDDO
```

} Repeated (stacked) Lines

```
* SHIPPING DETAILS
DO 2
MFLD SHIP, LTH=10, ATTR=YES SHIPMENT
MFLD SDATE, LTH=8, ATTR=YES SHIPMENT DATE
MFLD METH, LTH=22, ATTR=YES SHIPMENT METHOD
MFLD STAT, LTH=4, ATTR=YES SHIPMENT STATUS
ENDDO
MSGEND
```

} Repeated (stacked) Lines



[DFLD for this field of Message Segment](#)



Primer Sample Input Message

```
OE4CORI1 MSG      TYPE=INPUT,                                X
                  SOR=(OE4COR,IGNORE),                     X
                  NXT=OE4COR01,                             X
                  OPT=2
LPAGE SOR=A1203
PASSWORD          USED FOR TRANSACTION TE4CODEL
MFLD  PASSWD,LTH=8
SEG
*  INPUT AREA FOR COMMANDS, MESSAGE SWITCHES ETC
MFLD  SYSMMSG,LTH=79,FILL=NULL
MFLD  'TE4CO',LTH=5
MFLD  FUNC,LTH=3      FUNCTION (WILL COMPLETE TRAN CODE)
MFLD  ' '
*  FUNCTIONAL DATA
MFLD  FUNC,LTH=3
MFLD  ORDIR,LTH=6
MFLD  CUSID,LTH=6
MFLD  CHANGE,LTH=1
*  LINE ITEM DETAILS
DO    6
MFLD  DPNB,LTH=10,ATTR=YES
MFLD  DQTY,LTH=8,ATTR=YES,FILL=C'0',JUST=R
MFLD  DTAX,LTH=3,ATTR=YES
ENDDO
*  SHIPPING DETAILS
DO    2
MFLD  SHIP,LTH=10,ATTR=YES
MFLD  SDATE,LTH=8,ATTR=YES
MFLD  METH,LTH=22,ATTR=YES
MFLD  STAT,LTH=4,ATTR=YES
ENDDO
MSGEND
```

.....and back to MID

*TRANCODE is
Stem + FUNC then
blank separator*

*DFLDs can be used
multiple times*

*Repeated
(stacked)
Lines*

*Repeated
(stacked)
Lines*



MFS Devices

274X 3770 SLU1 NTO and SLU4

3270 and SLU2

Finance and SLUP (DPM)

ISC (DPM)

Distributed Presentation Management shares
formatting with external device

Prepare the Users Screen

Format Device by

`/FORmat modname`

or

Other IMS Command - uses DFSMO2

`/SIGN xxxxxxxx` plus Greetings Message Exit

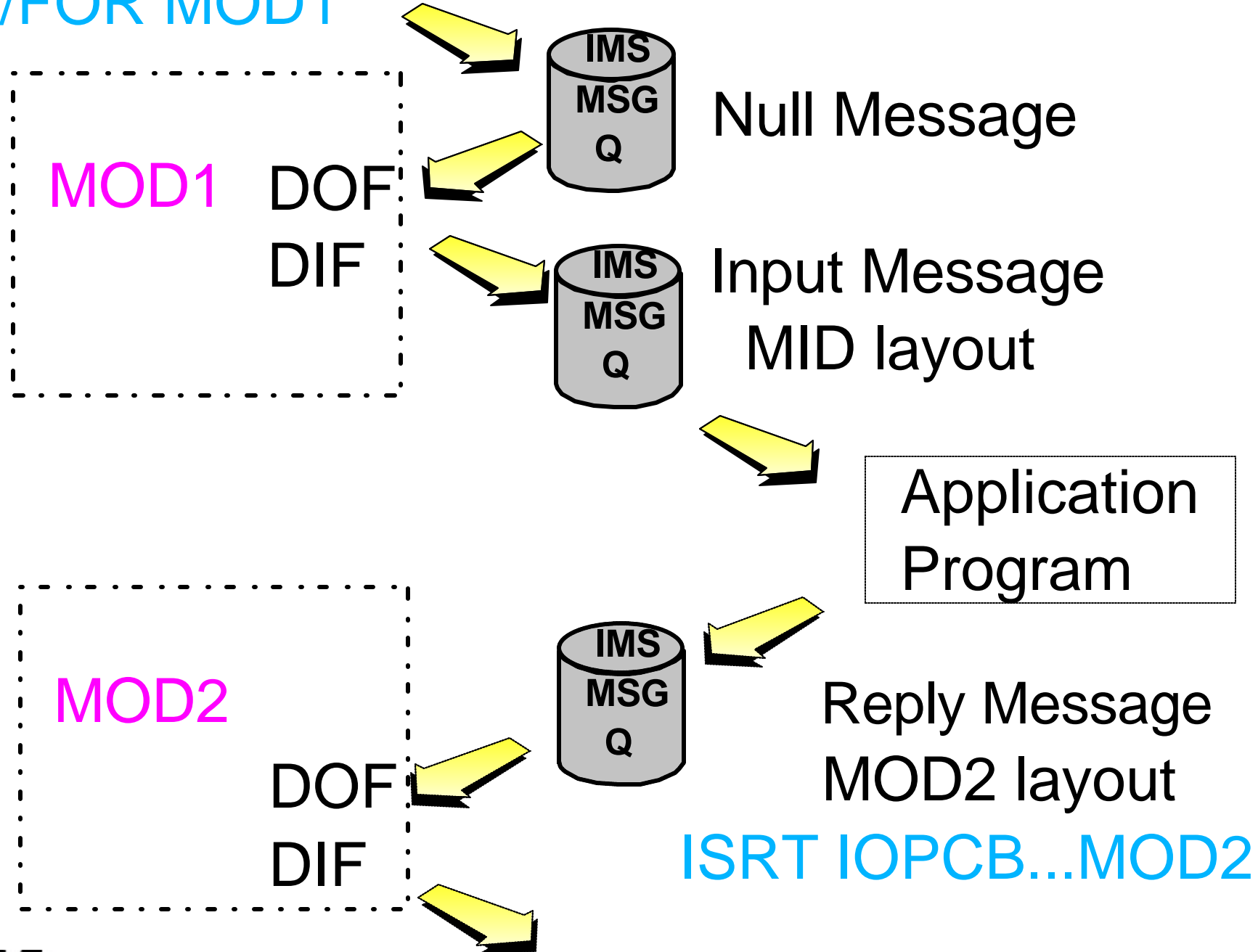
or

Enter transaction on unformatted screen

Often a Menu transaction

Application Screen Logic Flow

/FOR MOD1



Significance of MODNAME

Typically, changing MODNAME changes the output message layout, changes the Format and changes the next input message layout.

Program logic is usually affected

MODNAME is supported for non-MFS devices for this reason (along with LTERM override).

- ▶ APPC
- ▶ OTMA

MFS Extended with Edit Routines

Field Edit - DFSME000

DFSMExxx (001 - 126)

Invoked for MFLD statement

Use for

- Numeric Validation

- Blank / Zero replacement

Segment Edit - DFSME127

DFSMEyyy (001 - 126)

Invoked for SEG statement

Can

- modify message

- cancel seg or msg

Message Formatting Options

◆ OPT1

Eliminate any Empty Segment
Empty Fields Filled with Default

◆ OPT2 -- most common, recommended

Eliminate only trailing empty segments
Empty Fields Filled with Default

◆ OPT3

Only Present (pre-) Modified Fields
Operator Action or Modify Data Tag Set
by Application

Operator Paging

Physical - output larger than screen

Operator Pages Down

Logical - determined by Application

Page Bit Set in Z2

Groups Segments into LPAGEs

Program Output

A B C D E F G

H I J K L M N

NEXTPP NEXTMSG
NEXTLP NEXTMSGP
ENDMPPI

3270-A1

A B C

M N

D E F

H I

J K L

G

3270-A2

A B C

H I

D E F G

J K L M

N

Attribute Characteristics

Dynamic Attribute Modification

ATTR=YES in MFLD

Brightness, Protection, Alpha / Numeric, Modified

Extended Attributes

Blinking, Colour, Field Outlining

Extended Character Graphics Set (DBCS)

Program Function Keys

Specify Literals in DEV Statement

PFK=(dfldname,integer=' literal ',...)

or NEXTPP, NEXTLP, NEXTMSG, ...

To "Unformat" a Screen

User CLEARs screen

must then enter data in MID layout !

Application requests MFS Bypass

Special MODNAMEs

DFS.EDT - bypass on output, basic edit on input

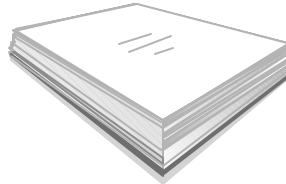
DFS.EDTN - bypass on output and next input

MFSBypass is typical with applications using GDDM
or special output using Programmed Symbols

MFS Utility

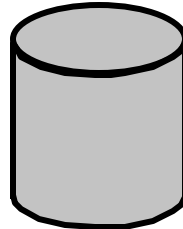
*Validates Source and Builds Control Blocks
for Test and Production*

SOURCE



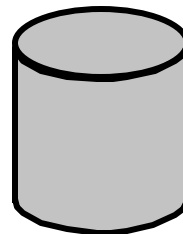
**Preprocessor Builds
Control Table of
Relationships**

**REFERAL
(Temp PDS)**



**ITBs for
MSG
FMT
PDB
TABLE**

**FORMATx
(MFSTEST)**

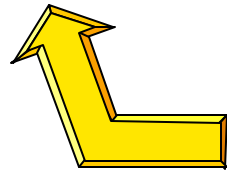


**FMT
MID
MOD**

**MFSTEST Reads REFERAL but
avoids Main Libraries**

REFERAL Members

FORMAT Members



Device Code / Feature Code

Member Name Device Codes

Device Code	Device	Device Code	Device
00	3270,1	21	DPM-B01
01	3270P,1	22	DPM-B02
02	3270,2	23	DPM-B03
03	3270P,2	24	DPM-B04
04	274X	25	DPM-B05
05	FIDS	26	DPM-B06
06	FIDS3	27	DPM-B07
07	FIDS4	28	DPM-B08
08	FIN	29	DPM-B09
09	FIJP	2A	DPM-B10
0A	FIPB	2B	DPM-B11
0B	FIFP	2C	DPM-B12
0C	SCS1	2D	DPM-B13
0D	SCS2	2E	DPM-B14
0E	FIDS7	2F	DPM-B15
11	DPM-A01	41	3270-A01
12	DPM-A02	42	3270-A02
13	DPM-A03	43	3270-A03
14	DPM-A04	44	3270-A04
15	DPM-A05	45	3270-A05



Member Name Feature Codes

Feature Code	Feature	Feature Code	Feature
01	FEAT=1	50	FEAT=126
02	FEAT=2	60	FEAT=132
03	FEAT=3	7F	FEAT=IGNORE
04	FEAT=4	C1	FEAT=(CARD,NOPFK,NOPEN)
05	FEAT=5	C2	FEAT=(NOCD,NOPFK,PEN)
06	FEAT=6	C3	FEAT=(CARD,NOPFK,PEN)
07	FEAT=7	C4	FEAT=(NOCD,PFK,NOPEN)
08	FEAT=8	C5	FEAT=(NOCD,PFK,NOPEN)
09	FEAT=9	C6	FEAT=(NOCD,PFK,PEN)
0A	FEAT=10	C7	FEAT=(CARD,PFK,PEN)
		C8	FEAT=(NOCD,DEKYBD,NOPEN)
		C9	FEAT=(CARD,DEKYBD,NOPEN)
40	FEAT=120		
4A	FEAT=(NOCD,DEKYBD,PEN)		
4B	FEAT=(CARD,DEKYBD,PEN)		

MFS Service Utility

Index

Builds \$\$IMSDIR of Named Entries
(Loaded by MFS for High Speed Retrieval)

Delete

Removes Entries from \$\$IMSDIR

Scratch

Removes Entries from
FORMAT (temporarily only)
REFERAL (propagates to FORMAT on Set Rebuild)

Relate

Lists REFERAL

List

Lists FORMAT, MFSTEST....

Testing

Use MFSTEST for online testing

Set Terminal Mode -- /TEST MFS

Uses MFTEST Library

BTS supports MFS with Program Testing

MFS Reversal Status

MFS REVERSAL

DATE: 07/31/2001

TIME: 18.37.25

DSNAME: IMS.PRIMER.FORMAT

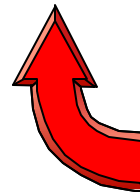
MSGNAME	SOR=	DCODE	DEVICE	FCODE	FEATURE
OE4CNII1 (I)	OE4CNI	02	3270,2	7F	FEAT=IGNORE
OE4CNIO1 (O)	OE4CNI	02	3270,2	7F	FEAT=IGNORE
OE4CORI1 (I)	OE4COR	02	3270,2	7F	FEAT=IGNORE
OE4CORO1 (O)	OE4COR	02	3270,2	7F	FEAT=IGNORE
OE4MSGI1 (I)	OE4MSG	02	3270,2	7F	FEAT=IGNORE
OE4MSGO1 (O)	OE4MSG	02	3270,2	7F	FEAT=IGNORE
OE4MSGO1 (O)	OE4MSG	03	3270P,2	7F	FEAT=IGNORE
OE4MSGO2 (O)	OE4MSG	02	3270,2	7F	FEAT=IGNORE
OE4MSGO2 (O)	OE4MSG	03	3270P,2	7F	FEAT=IGNORE
OE4PACO1 (O)	OE4PAC	03	3270P,2	7F	FEAT=IGNORE

MSG NUMBER	MSG TEXT
0044I	0044I SOURCE FOR MEMBER OE4CNI BUILT
0044I	0044I SOURCE FOR MEMBER OE4COR BUILT
0044I	0044I SOURCE FOR MEMBER OE4MSG BUILT
0044I	0044I SOURCE FOR MEMBER OE4PAC BUILT



Reversed Primer Format(1)

```
OE4COR  FMT
DEV027F  DEV  TYPE=(3270,2),FEAT=IGNORE,DSCA=X'0220',SYSMSG=DL000100
DIVINOUT DIV  TYPE=INOUT
DPA00001 DPAGE FILL=PT,CURSOR=((23,12,CS000102))
        DFLD  '*** IMS/VIS PRIMER:',POS=(1,20),ATTR=(PROT,NUM,HI,DET)
DL000080 DFLD  POS=(1,39),LTH=3,ATTR=(PROT,NUM,HI,DET)
        DFLD  'CUSTOMER ORDER ***',POS=(1,43),ATTR=(PROT,NUM,HI,DET)
        DFLD  'CUST. ID',POS=(3,2),ATTR=(PROT,NUM)
DL000008 DFLD  POS=(3,12),LTH=27,ATTR=(PROT,NUM,HI,DET)
        DFLD  ' ORDER STATUS:',POS=(3,40),ATTR=(PROT,NUM)
DL000094 DFLD  POS=(3,55),LTH=17,ATTR=(PROT,NUM,HI,DET)
        DFLD  'ORDER ID:',POS=(4,2),ATTR=(PROT,NUM)
DL000000 DFLD  POS=(4,12),LTH=27,ATTR=(PROT,NUM,HI,DET)
        DFLD  ' STATUS CODE :',POS=(4,40),ATTR=(PROT,NUM)
DL000072 DFLD  POS=(4,55),LTH=2,ATTR=(PROT,NUM,HI,DET)
        DFLD  'RECEIVED:',POS=(5,2),ATTR=(PROT,NUM)
DL000004 DFLD  POS=(5,12),LTH=34,ATTR=(PROT,NUM,HI,DET)
        DFLD  'PART ID  QTY  TAX LN UNIT PRICE  U/M      DESCRIPTION X
                STATUS',POS=(7,2),ATTR=(PROT,NUM)
```



**NO
Explanatory
Comments**

Reversed Primer Format(2)

```
DL000034 DFLD POS=(8,2),LTH=8,ATTR=(PROT,NUM,HI,DET)
DL000046 DFLD POS=(8,11),LTH=6,ATTR=(PROT,NUM,HI,DET)
DL000058 DFLD POS=(8,18),LTH=1,ATTR=(PROT,NUM,HI,DET)
DL000022 DFLD POS=(8,20),LTH=3,ATTR=(PROT,NUM,HI,DET)
DL000010 DFLD POS=(8,24),LTH=55,ATTR=(PROT,NUM,HI,DET)
DL000036 DFLD POS=(9,2),LTH=8,ATTR=(PROT,NUM,HI,DET)
DL000048 DFLD POS=(9,11),LTH=6,ATTR=(PROT,NUM,HI,DET)
DL000060 DFLD POS=(9,18),LTH=1,ATTR=(PROT,NUM,HI,DET)
DL000024 DFLD POS=(9,20),LTH=3,ATTR=(PROT,NUM,HI,DET)
DL000012 DFLD POS=(9,24),LTH=55,ATTR=(PROT,NUM,HI,DET)
DL000038 DFLD POS=(10,2),LTH=8,ATTR=(PROT,NUM,HI,DET)
DL000050 DFLD POS=(10,11),LTH=6,ATTR=(PROT,NUM,HI,DET)
DL000062 DFLD POS=(10,18),LTH=1,ATTR=(PROT,NUM,HI,DET)
DL000026 DFLD POS=(10,20),LTH=3,ATTR=(PROT,NUM,HI,DET)
DL000014 DFLD POS=(10,24),LTH=55,ATTR=(PROT,NUM,HI,DET)
DL000040 DFLD POS=(11,2),LTH=8,ATTR=(PROT,NUM,HI,DET)
DL000052 DFLD POS=(11,11),LTH=6,ATTR=(PROT,NUM,HI,DET)
DL000064 DFLD POS=(11,18),LTH=1,ATTR=(PROT,NUM,HI,DET)
DL000028 DFLD POS=(11,20),LTH=3,ATTR=(PROT,NUM,HI,DET)
DL000016 DFLD POS=(11,24),LTH=55,ATTR=(PROT,NUM,HI,DET)
DL000042 DFLD POS=(12,2),LTH=8,ATTR=(PROT,NUM,HI,DET)
DL000054 DFLD POS=(12,11),LTH=6,ATTR=(PROT,NUM,HI,DET)
DL000066 DFLD POS=(12,18),LTH=1,ATTR=(PROT,NUM,HI,DET)
DL000030 DFLD POS=(12,20),LTH=3,ATTR=(PROT,NUM,HI,DET)
DL000018 DFLD POS=(12,24),LTH=55,ATTR=(PROT,NUM,HI,DET)
DL000044 DFLD POS=(13,2),LTH=8,ATTR=(PROT,NUM,HI,DET)
DL000056 DFLD POS=(13,11),LTH=6,ATTR=(PROT,NUM,HI,DET)
DL000068 DFLD POS=(13,18),LTH=1,ATTR=(PROT,NUM,HI,DET)
DL000032 DFLD POS=(13,20),LTH=3,ATTR=(PROT,NUM,HI,DET)
DL000020 DFLD POS=(13,24),LTH=55,ATTR=(PROT,NUM,HI,DET)
```

NO
stacked
Lines

Reversed Primer Format(3)

```
          DFLD  'SHIPMENT SHIPMENT METHOD      STAT DATE',POS=(17,2),      X
          ATTR=(PROT,NUM)
DL000090 DFLD  POS=(18,2),LTH=8,ATTR=(PROT,HI,DET)
DL000076 DFLD  POS=(18,11),LTH=20,ATTR=(PROT,HI,DET)
DL000096 DFLD  POS=(18,32),LTH=2,ATTR=(PROT,NUM,HI,DET)
DL000086 DFLD  POS=(18,35),LTH=6,ATTR=(PROT,NUM,HI,DET)
DL000092 DFLD  POS=(19,2),LTH=8,ATTR=(PROT,HI,DET)
DL000078 DFLD  POS=(19,11),LTH=20,ATTR=(PROT,HI,DET)
DL000098 DFLD  POS=(19,32),LTH=2,ATTR=(PROT,NUM,HI,DET)
DL000088 DFLD  POS=(19,35),LTH=6,ATTR=(PROT,NUM,HI,DET)
DL000074 DFLD  POS=(21,2),LTH=79,ATTR=(PROT,NUM,HI,DET)
          DFLD  'FUNCTION:',POS=(23,2),ATTR=(PROT,NUM)
DL000070 DFLD  POS=(23,12),LTH=3,ATTR=(HI,DET)
          DFLD  'ORDER ID:',POS=(23,16),ATTR=(PROT,NUM)
DL000082 DFLD  POS=(23,26),LTH=6,ATTR=(HI,DET)
          DFLD  'CUST ID:',POS=(23,33),ATTR=(PROT,NUM)
DL000006 DFLD  POS=(23,42),LTH=6,ATTR=(HI,DET)
          DFLD  'CNG FUNC:',POS=(23,49),ATTR=(PROT,NUM)
DL000002 DFLD  POS=(23,59),LTH=1,ATTR=(HI,DET)
          DFLD  'PASSWORD',POS=(23,61),ATTR=(PROT,NUM)
DL000084 DFLD  POS=(23,71),LTH=8,ATTR=(NODISP)
DL000100 DFLD  POS=(24,2),LTH=79,ATTR=(HI,DET)
*-----*
          FMTEND
```

Reversed Primer MOD(1)

```
OE4CORO1 MSG      TYPE=OUTPUT ,SOR=( OE4COR , IGNORE ) ,OPT=2 ,NXT=OE4CORI1 ,      X
                PAGE=YES
LPAGE SOR=DPA00001 ,NXT=OE4CORI1
SEG
MFLD  DL000074 ,LTH=79
MFLD  DL000080 ,LTH=3
MFLD  DL000008 ,LTH=27
MFLD  DL000000 ,LTH=27
MFLD  DL000004 ,LTH=34
MFLD  DL000072 ,LTH=2
MFLD  DL000094 ,LTH=17
MFLD  DL000034 ,LTH=10 ,ATTR=YES
MFLD  DL000046 ,LTH=8 ,ATTR=YES
MFLD  DL000058 ,LTH=3 ,ATTR=YES
MFLD  DL000022 ,LTH=3
MFLD  DL000010 ,LTH=55
MFLD  DL000036 ,LTH=10 ,ATTR=YES
MFLD  DL000048 ,LTH=8 ,ATTR=YES
MFLD  DL000060 ,LTH=3 ,ATTR=YES
MFLD  DL000024 ,LTH=3
MFLD  DL000012 ,LTH=55
MFLD  DL000038 ,LTH=10 ,ATTR=YES
MFLD  DL000050 ,LTH=8 ,ATTR=YES
MFLD  DL000062 ,LTH=3 ,ATTR=YES
MFLD  DL000026 ,LTH=3
MFLD  DL000014 ,LTH=55
```


Reversed Primer MOD(2)

```
MFLD DL000040,LTH=10,ATTR=YES
MFLD DL000052,LTH=8,ATTR=YES
MFLD DL000064,LTH=3,ATTR=YES
MFLD DL000028,LTH=3
MFLD DL000016,LTH=55
MFLD DL000042,LTH=10,ATTR=YES
MFLD DL000054,LTH=8,ATTR=YES
MFLD DL000066,LTH=3,ATTR=YES
MFLD DL000030,LTH=3
MFLD DL000018,LTH=55
MFLD DL000044,LTH=10,ATTR=YES
MFLD DL000056,LTH=8,ATTR=YES
MFLD DL000068,LTH=3,ATTR=YES
MFLD DL000032,LTH=3
MFLD DL000020,LTH=55
MFLD DL000090,LTH=10,ATTR=YES
MFLD DL000086,LTH=8,ATTR=YES
MFLD DL000076,LTH=22,ATTR=YES
MFLD DL000096,LTH=4,ATTR=YES
MFLD DL000092,LTH=10,ATTR=YES
MFLD DL000088,LTH=8,ATTR=YES
MFLD DL000078,LTH=22,ATTR=YES
MFLD DL000098,LTH=4,ATTR=YES
MSGEND
```

Reversed Primer MID(1)

No PRINT NOGEN Statement Generated

```
OE4CORI1 MSG    TYPE=INPUT,SOR=OE4COR,OPT=2
  LPAGE SOR=DPA00001,NXT=OE4CORO1
  PASSWORD
  MFLD  DL000084,LTH=8
  SEG
  MFLD  DL000100,LTH=79,FILL=NULL
  MFLD  'TE4CO'
  MFLD  DL000070,LTH=3
  MFLD  ' '
  MFLD  DL000070,LTH=3
  MFLD  DL000082,LTH=6
  MFLD  DL000006,LTH=6
  MFLD  DL000002,LTH=1
  MFLD  DL000034,LTH=10,ATTR=YES
  MFLD  DL000046,LTH=8,JUST=R,ATTR=YES,FILL=C'0'
  MFLD  DL000058,LTH=3,ATTR=YES
  MFLD  DL000036,LTH=10,ATTR=YES
  MFLD  DL000048,LTH=8,JUST=R,ATTR=YES,FILL=C'0'
  MFLD  DL000060,LTH=3,ATTR=YES
  MFLD  DL000038,LTH=10,ATTR=YES
```

Reversed Primer MID(2)

```
MFLD DL000050,LTH=8,ATTR=YES
MFLD DL000062,LTH=3,ATTR=YES
MFLD DL000026,LTH=3
MFLD DL000014,LTH=55
MFLD DL000040,LTH=10,ATTR=YES
MFLD DL000052,LTH=8,ATTR=YES
MFLD DL000064,LTH=3,ATTR=YES
MFLD DL000028,LTH=3
MFLD DL000016,LTH=55
MFLD DL000042,LTH=10,ATTR=YES
MFLD DL000054,LTH=8,ATTR=YES
MFLD DL000066,LTH=3,ATTR=YES
MFLD DL000030,LTH=3
MFLD DL000018,LTH=55
MFLD DL000044,LTH=10,ATTR=YES
MFLD DL000056,LTH=8,ATTR=YES
MFLD DL000068,LTH=3,ATTR=YES
MFLD DL000032,LTH=3
MFLD DL000020,LTH=55
MFLD DL000090,LTH=10,ATTR=YES
MFLD DL000086,LTH=8,ATTR=YES
MFLD DL000076,LTH=22,ATTR=YES
MFLD DL000096,LTH=4,ATTR=YES
MFLD DL000092,LTH=10,ATTR=YES
MFLD DL000088,LTH=8,ATTR=YES
MFLD DL000078,LTH=22,ATTR=YES
MFLD DL000098,LTH=4,ATTR=YES
MSGEND
```

MFS Reversal Compare

FORMAT: IMS.PRIMER.FORMAT

FORMAT2: SADLERP.PRIMER.REVFMT

LABEL STATEMENT KEYWORD

LABEL STATEMENT KEYWORD

OE4MSG FMT
DEV027F DEV
DIVINOUT DIV
DPA00001 DPAGE CURSOR=((3,15,CS000020))
OE4MSGO1 MSG

DPA00001 DPAGE CURSOR=((3,15,CS000000))

LPAGE

SEG

MFLD (DL000004,LTNAME)

MFLD (DL000006,LTNAME)

MFLD (DL000018,TIME)

MFLD (DL000020,TIME)

MFLD (DL000000,DATE3)

MFLD (DL000002,DATE3)

OE4MSGO2 MSG

LPAGE

SEG

MFLD DL000018

MFLD DL000020

MFLD DL000008

MFLD DL000010

OE4MSGI1 MSG

LPAGE

SEG

MFLD DL000018

MFLD DL000020

MFLD DL000008

MFLD DL000010

----- FORMAT COMPARE COMPLETED -----



Summary

Introduced MFS, its Features and Functions
Showed the Significance of MODNAME
Illustrated the MFS Reversal Utility

References

IMS Application Programming : Design Guide

IMS Application Programming : Transaction Manager

IMS Message Format Services Reversal Utilities for z/OS
User's Guide SC27-0823

IMS/ESA BTS Users Guide and Reference SC26-8850

