DECUS
PROGRAM LIBRARY

DECUS NO.	8-120
TITLE	DISK/DECtape FAILSAFE
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COMPANY	Digital Equipment Corporation Maynard, Massachusetts
DATE	April, 1968
SOURCE LANGUAGE	

DECUS Program Library Write-up

DECUS No. 8-120

ABSTRACT

This program will punch the contents of the disk (or DECtape) onto paper tape which then can be loaded back onto the disk using the same program. The paper tape is punched in 200_8 word blocks in binary format, with a checksum for each block. FAILSAFE simplifies and speeds the process of rebuilding the Disk System Monitor after running disk tests.

MINIMUM HARDWARE

PDP-8, 8/S, or 8/I with 32K Disk or DECtape

OTHER PROGRAMS NEEDED

PDP-8 Disk System Builder (DEC-08-SBAB-PB)

SOURCE LANGUAGE

PALD or MACRO-8

STORAGE REQUIREMENT

0 - 1177

OPERATING INSTRUCTIONS

1. Punching the Contents of the Disk Onto Paper Tape

A. Determine how many blocks must be punched.

1. Use PIP to get a directory listing and determine the number of unused blocks.

2. For a one-disk system, the number of unused blocks subtracted from 373_8 will give the number of blocks which must be punched. This number includes the directory (blocks 177 thru 202).

3. For multiple-disk or DECtape systems, it is necessary to have a knowledge of the system directory. Refer to the DISK/DECtape Builder Manual DEC-08-SBAB-D.

NOTE: If, for example, there were 304 unused (free) blocks, then it would be necessary to punch 67 blocks—blocks 0 thru 62 and blocks 177 thru 202 (the directory).

If, however, there were 150 unused blocks, it would only be necessary to punch blocks 0 thru 222, since this includes the directory blocks.

B. Load FAILSAFE, and start at location 200.

C. Indicate that information is to be dumped onto paper tape by typing "DUMP)" or simply "D)".

D. Using the Teletype, enter the first and last block numbers to be punched—as the information is requested.

E. Repeat steps C and D to punch non-contiguous blocks.

II. Verifying a Tape Which Has Been Punched

A. Remove the tape from the punch and place it in the paper tape reader.

B. Indicate that the tape is to be verified by typing "VERIFY)" or simply "V)".

C. Enter the last block number on the tape.

D. When the entire tape has been read, the program will type "TAPE VERIFIED". If a checksum error occurs, the program will indicate the number of the last block which was read correctly. If there is no checksum but the block read from the tape does not correspond with the block on the disk, the program will type "ERROR IN BLOCK nnnn".

III. Reloading the Disk Using the Tape Punched by the PDP-8 FAILSAFE Program

A. The Disk I/O Routine must be in core from locations 7600 to 7777. (It may be useful to punch a binary tape of the Disk I/O Routine which could be loaded with a bootstrap binary loader.)

B. Load FAILSAFE and start at location 200.

C. Place the tape which was previously punched by FAILSAFE in the reader.

D. Indicate that a tape is to be loaded by typing "LOAD)" or simply "L)".

E. Enter the last block number to be loaded from the tape.

F. When the desired part of the tape has been loaded onto the disk, the program will type, "TAPE LOADED!". If there are more tapes, simply repeat steps C, D, and E. It is possible to go to the system monitor at this point by typing a ↑C.

G. If a checksum error occurs, it is possible to reread the block in question by removing the tape from the reader and physically moving the tape backwards to the last section of leader-trailer code. Then type "R)" to reread the desired block from the tape.

IV. Using the Low-Speed Reader and Punch

A. It is possible to use PDP-8 FAILSAFE with the low-speed reader and punch by changing the contents of locations 176 and 177.

B. To use the low-speed reader, change the contents of location 177 to 0743.

C. To use the low-speed punch, change the contents of location 176 to 0633.

D. When using the low-speed reader, it is important to turn the reader off whenever the program begins typing a message. Failure to do so may result in having to reload core.

V. Tape Format

A. Leader-trailer (200) code.

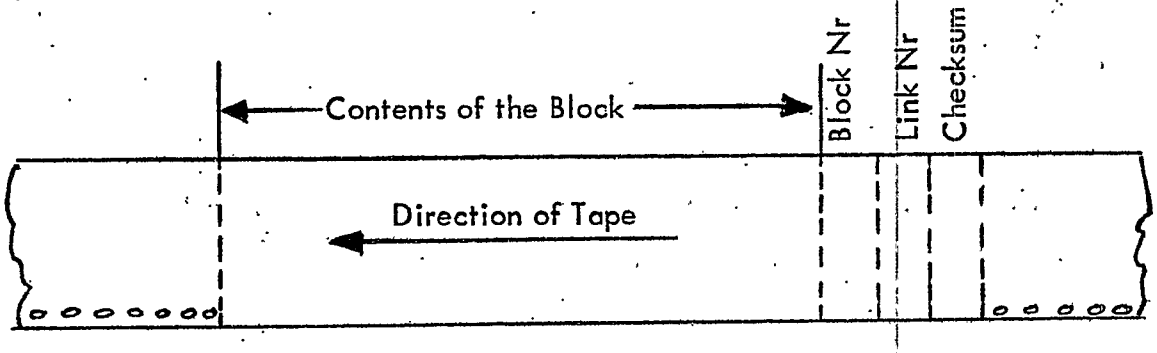
B. Contents of a block which consists of 200 (octal) words in 6 bit binary form.

C. Block number—one 12-bit word in 6 bit binary form.

D. Link number—one 12-bit word in 6 bit binary form.

E. Checksum—one 12-bit word in 6 bit binary form. The checksum is the modulo 4096 (decimal) sum of the 202 (octal) words - B through D above.

F. The tape would appear as follows:



```
.PIP
*OPT-L

*IN-S:

FB=0304

NAME   TYPE     BLK

SD
PIP .SYS (0) 0023
EDIT.SYS (0) 0015
LOAD.SYS (0) 0003
.CD..SYS (0) 0006

*OPT-
.LOAD
*IN-R:
*
*OPT-I
ST=200
↑↑
LOAD DUMP OR VERIFY - D
ENTER FIRST BLOCK NR - 0
ENTER LAST BLOCK NR - 62

LOAD DUMP OR VERIFY - D
ENTER FIRST BLOCK NR - 177
ENTER LAST BLOCK NR - 202

LOAD DUMP OR VERIFY - V
ENTER LAST BLOCK NR - 202
CHECKSUM AFTER BLOCK NR 0005
TYPE "R" TO RETRY, "S" TO RESTART - R

TAPE VERIFIED!

LOAD DUMP OR VERIFY -
.
```

```
.LOAD
*IN-R:
*
*OPT-1
ST=200
↑↑
LOAD DUMP OR VERIFY - L
ENTER LAST BLOCK NR - 202

TAPE LOADED!

LOAD DUMP OR VERIFY -
.PIP
*OPT-L

*IN-S:

FR=0304

NAME  TYPE    BLK

SD
PIP .SYS (0) 0023
EDIT.SYS (0) 0015
LOAD.SYS (0) 0003
.CD..SYS (0) 0006

*OPT-
.
```

```
                    /SYMBOL DEFINITIONS
                    AX1=10
                    AX2=11
                    BUFF=1400
                    READ=3
                    SYSIO=7642
                    TEM1=174
                    TEM2=175
                    WRITE=5
                    /
                    *200
0200  4777  BEGN,   JMS CRLF          /PDP-8 FAILSAFE PROGRAM
0201  4776          JMS TMES
0202  1214          MSG2
0203  4775          JMS RMES
0204  1400  CHAR,   BUFF
0205  1604          TAD I ,-1
0206  7041          CIA
0207  1374          TAD ("L
0210  7650          SNA CLA           /LOAD OR DUMP?
0211  5305          JMP LOAD
0212  1604          TAD I CHAR
0213  7041          CIA
0214  1373          TAD ("V
0215  7650          SNA CLA           /OR VERIFY?
0216  5772          JMP VRFY
0217  1604          TAD I CHAR
0220  7041          CIA
0221  1371          TAD ("D
0222  7640          SZA CLA
0223  5200          JMP BEGN
0224  4776  DUMP,   JMS TMES
0225  1230          MSG3
0226  4770          JMS ROCT
0227  3245          DCA N
0230  4776          JMS TMES
0231  1200          MSG1
0232  4770          JMS ROCT
0233  3303          DCA LB
0234  1367          TAD (200
0235  6026          PLS
0236  7200          CLA
0237  1366          TAD (120
0240  3242          DCA .+2
0241  4765  PLOT,   JMS LOLP
0242  0100          100
0243  4764          JMS SYSIO         /READ BLOCK N
0244  0003          READ
0245  0000  N,      0
0246  1400          BUFF              /CORE LOC'N
0247  0000  L,      0
0250  7402          HLT
0251  1245          TAD N
0252  3763          DCA BUFF+200
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```
0253  1247            TAD L
0254  3762            DCA BUFF+201
0255  1361            TAD (-202       /COMPUTE CHECKSUM
0256  3304            DCA INDX
0257  1360            TAD (BUFF-1
0260  3310            DCA I AX1

0261  1410  LP01,     TAD I AX1
0262  2304            ISZ INDX
0263  5261            JMP LP01
0264  3757            DCA BUFF+202
0265  4756            JMS PBIN
0266  0203            203
0267  1400            BUFF
0270  1355            TAD (14
0271  3242            DCA PLOT+1
0272  2245            ISZ N
0273  1245            TAD N
0274  7041            CIA
0275  1303            TAD LB
0276  7700            SMA CLA
0277  5241            JMP PLOT
0300  4765            JMS LDLP
0301  0040            40
0302  5200            JMP BEGN
0303  0000  LB,       0
0304  0000  INDX,     0
0305  4776  LOAD,     JMS TMES
0306  1200            MSG1
0307  4770            JMS ROCT
0310  3303            DCA LB
0311  6014            RFC
0312  4754            JMS LOOK        /READ ONE BLOCK FROM THE TAPE
0313  1763  LP03,     TAD BUFF+200
0314  3326            DCA BN
0315  1326            TAD BN
0316  7041            CIA
0317  1303            TAD LB
0320  7710            SPA CLA         /IS THIS BLOCK NR OK?
0321  5337            JMP ENDP
0322  1762            TAD BUFF+201
0323  3330            DCA LN
0324  4764            JMS I (SYSIO
0325  0005            WRITE
0326  0000  BN,       0       /BLOCK NUMBER
0327  1400            BUFF
0330  0000  LN,       0       /LINK NUMBER
0331  7402            HLT
0332  1326            TAD BN
0333  7041            CIA
0334  1303            TAD LB
0335  7640            SZA CLA
0336  5312            JMP LOAD+5
0337  4777  ENDP,     JMS CRLF
0340  4776            JMS TMES
0341  1244            MSG4
0342  4777            JMS CRLF
0343  5200            JMP BEGN
0344  0000  CKSM,     0
                /
```

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0354  1055
0355  0014
0356  0462
0357  1602
0360  1377
0361  7576
0362  1601
0363  1600
0364  7642
0365  0517
0366  0120
0367  0200
0370  0641
0371  0304
0372  1000
0373  0326
0374  0314
0375  0704
0376  0600
0377  0531
```

PAGE

```
                *BEGN+200
0400  0000  RBIN, 0                    /SPECIAL BINARY LOADER
0401  1600        TAD I RBIN
0402  2200        ISZ RBIN            /CALL AS FOLLOWS...
0403  7041        CIA
0404  3337        DCA KNDX            / JMS RBIN
0405  7040        CMA                 / N     (N = NR OF 12-BIT WORDS)
0406  1600        TAD I RBIN          / LOC   (LOC = BUFFER ADDRESS)
0407  2200        ISZ RBIN
0410  3010        DCA AX1
0411  1377        TAD (JMP LP04
0412  3216        DCA SWHH
0413  4577  LP04, JMS I [PTRI
0414  1376        TAD (-200
0415  7450        SNA
0416  5213  SWHH, JMP LP04
0417  1375        TAD (200
0420  7106        CLL RTL
0421  7006        RTL
0422  7006        RTL
0423  3174        DCA TEM1
0424  4577        JMS I [PTRI
0425  1174        TAD TEM1
0426  3410        DCA I AX1
0427  1374        TAD (JMP I RBIN
0430  3216        DCA SWHH
0431  2337        ISZ KNDX
0432  5213        JMP LP04
0433  4577        JMS I [PTRI
0434  1376        TAD (-200
0435  7640        SZA CLA
0436  5233        JMP .-3
0437  5600        JMP I RBIN
                  /
0440  0000  PTRI, 0                    /HI-SPEED READER ROUTINE
0441  6011        RSF
0442  5246        JMP WAIT
0443  3261        DCA PTRF            /SET READER FLAG
0444  6016        RRB RFC
0445  5640        JMP I PTRI
0446  3262  WAIT, DCA PBIN
0447  2261        ISZ PTRF
0450  5241        JMP PTRI+1
0451  4331        JMS CRLF
0452  4773        JMS TMES
0453  1253        MSG5
0454  1772        TAD BN
0455  4771        JMS TOCT
0456  4331        JMS CRLF
0457  7402        HLT
0460  5775        JMP BEGN
0461  0000  PTRF, 0
                  /
0462  0000  PBIN, 0                    /SPECIAL BINARY PUNCH ROUTINE
0463  1662        TAD I PBIN
0464  2262        ISZ PBIN            /CALL AS FOLLOWS...
0465  7041        CIA
0466  3337        DCA KNDX            / JMS PBIN
0467  7040        CMA                 / N     (N = NR OF 12-BIT WORDS)
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0470  1662          TAD I PBIN      / LOC   (LOC = BUFFER ADDRESS)
0471  2262          ISZ PBIN
0472  3010          DCA AX1
0473  1410  LP05,   TAD I AX1
0474  3174          DCA TEM1
0475  1174          TAD TEM1
0476  7012          RTR
0477  7012          RTR
0500  7012          RTR
0501  0370          AND (77
0502  4576          JMS I [PTPO
0503  1174          TAD TEM1
0504  0370          AND (77
0505  4576          JMS I [PTPO
0506  2337          ISZ KNDX
0507  5273          JMP LP05
0510  5662          JMP I PBIN
                /
0511  0000  PTPO,   0               /HI-SPEED PUNCH ROUTINE
0512  6021          PSF
0513  5312          JMP .-1
0514  6026          PLS
0515  7200          CLA
0516  5711          JMP I PTPO
                /
0517  0000  LDLP,   0               /LEADER-TRAILER PUNCH ROUTINE
0520  1717          TAD I LDLP
0521  2317          ISZ LDLP
0522  7041          CIA
0523  3337          DCA KNDX
0524  1375          TAD (200
0525  4576          JMS I [PTPO
0526  2337          ISZ KNDX
0527  5324          JMP .-3
0530  5717          JMP I LDLP
                /
0531  0000  CRLF,   0
0532  1367          TAD (215
0533  4766          JMS TTYO
0534  1365          TAD (212
0535  4766          JMS TTYO
0536  5731          JMP I CRLF
                /
0537  0000  KNDX,   0
                /
0540  0000  ERR1,   0               /CHECKSUM ERROR ON READ
0541  4773          JMS TMES
0542  1272          MSG6
0543  1772          TAD BN
0544  4771          JMS TOCT
0545  4331          JMS CRLF
0546  4773          JMS TMES
0547  1307          MSG7
0550  4764          JMS RMES
0551  1604          BUFF+204
0552  1751          TAD I .-1
0553  7041          CIA
0554  1363          TAD ("R
0555  7640          SZA CLA
0556  5775          JMP BEGN        /RESTART
```

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0557  6014          HFC
0560  5740          JMP I ERR1      /RETRY
                    /
0563  0322
0564  0704
0565  0212
0566  0633
0567  0215
0570  0077
0571  1120
0572  0326
0573  0600
0574  5600
0575  0200
0576  7600
0577  5213
                    PAGE
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                *BEGN+400
0600  0000  TMES,  0                    /MESSAGE TYPEOUT ROUTINE
0601  1600        TAD I TMES
0602  2200        ISZ TMES
0603  3217        DCA POIN
0604  1617  LP08,  TAD I POIN
0605  7112        CLL RTR
0606  7012        RTR
0607  7012        RTR
0610  4220        JMS OTCH
0611  5600        JMP I TMES
0612  1617        TAD I POIN
0613  2217        ISZ POIN
0614  4220        JMS OTCH
0615  5600        JMP I TMES
0616  5204        JMP LP08
0617  0000  POIN,  0
                /
0620  0000  OTCH,  0                    /CHARACTER TYPEOUT ROUTINE
0621  0377        AND (77
0622  7450        SNA                    /END OF LIST?
0623  5620        JMP I OTCH             /YES
0624  1376        TAD (-40
0625  7510        SPA
0626  1375        TAD (100
0627  1374        TAD (240
0630  4233        JMS TTYO
0631  2220        ISZ OTCH
0632  5620        JMP I OTCH
                /
0633  0000  TTYO,  0
0634  6046        TLS
0635  6041        TSF
0636  5235        JMP .-1
0637  7200        CLA
0640  5633        JMP I TTYO
                /
0641  0000  ROCT,  0                    /OCTAL READ-IN ROUTINE
0642  3174        DCA TEM1
0643  3175        DCA TEM2
0644  1373        TAD (JMP QUES
0645  3255        DCA SWHP
0646  4304        JMS RMES
0647  1400        BUFF
0650  7040        CMA
0651  1247        TAD .-2
0652  3010        DCA AX1
0653  1410  LP07,  TAD I AX1
0654  7450        SNA
0655  5300  SWHP,  JMP QUES
0656  1372        TAD (-260
0657  7510        SPA
0660  5300        JMP QUES
0661  1371        TAD (-10
0662  7500        SMA
0663  5300        JMP QUES
0664  1370        TAD (10
0665  1175        TAD TEM2
0666  3174        DCA TEM1
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0667  1174          TAD TEM1
0670  7104          CLL RAL
0671  7006          RTL
0672  3175          DCA TEM2
0673  1367          TAD (JMP BYP2
0674  3255          DCA SWHP
0675  5253          JMP LP07
0676  1174  BYP2,   TAD TEM1
0677  5641          JMP I ROCT
0700  1366  QUES,   TAD ("?
0701  4233          JMS TTYO
0702  4765          JMS CRLF
0703  5242          JMP ROCT+1
                /
0704  0000  RMES,   0                    /MESSAGE READ-IN ROUTINE
0705  6032          KCC
0706  7040          CMA
0707  1704          TAD I RMES
0710  2304          ISZ RMES
0711  3010          DCA AX1
0712  4343  LP06,   JMS TTYI
0713  3174          DCA TEM1
0714  1174          TAD TEM1
0715  1364          TAD (-377
0716  7650          SNA CLA
0717  5335          JMP RBOT
0720  1174          TAD TEM1
0721  4233          JMS TTYO
0722  1174          TAD TEM1
0723  1363          TAD (-215
0724  7650          SNA CLA
0725  5331          JMP BYP0
0726  1174          TAD TEM1
0727  3410          DCA I AX1
0730  5312          JMP LP06
0731  3410  BYP0,   DCA I AX1
0732  1362          TAD (212
0733  4233          JMS TTYO
0734  5704          JMP I RMES
0735  1361  RBOT,   TAD ("\
0736  4233          JMS TTYO
0737  7040          CMA
0740  1010          TAD AX1
0741  3010          DCA AX1
0742  5312          JMP LP06
                /
0743  0000  TTYI,   0                    /TELETYPE INPUT ROUTINE
0744  6031          KSF
0745  5344          JMP .-1
0746  6036          KRB
0747  1360          TAD (-203
0750  7450          SNA                  /IS IT A ^C?
0751  5757          JMP I (7600
0752  1356          TAD (203
0753  5743          JMP I TTYI
                /
0756  0203
0757  7600
0760  7575
0761  0334
```

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0762  0212
0763  7563
0764  7401
0765  0531
0766  0277
0767  5276
0770  0010
0771  7770
0772  7520
0773  5300
0774  0240
0775  0100
0776  7740
0777  0077
```

PAGE

```
                *BEGN+600
1000    4777    VRFY,   JMS TMES        /TAPE VERIFICATION ROUTINE
1001    1200            MSG1
1002    4776            JMS ROCT
1003    3775            DCA LB
1004    6014            RFC
1005    4255            JMS LOOK        /READ ONE BLOCK FROM THE TAPE
1006    1774            TAD BUFF+200
1007    3214            DCA BLK
1010    1214            TAD BLK
1011    3773            DCA BN
1012    4772            JMS I (SYSIO
1013    0003            READ
1014    0000    BLK,    0
1015    2000            BUFF+400
1016    0000    LNK,    0
1017    7402            HLT
1020    1371            TAD (BUFF-1
1021    3010            DCA AX1
1022    1370            TAD (BUFF+377
1023    3011            DCA AX2
1024    1367            TAD (-200
1025    3254            DCA IX
1026    1410            TAD I AX1
1027    7041            CIA
1030    1411            TAD I AX2
1031    7640            SZA CLA
1032    5301            JMP ERR2
1033    2254            ISZ IX
1034    5226            JMP .-6
1035    1216            TAD LNK
1036    7041            CIA
1037    1766            TAD BUFF+201
1040    7640            SZA CLA
1041    5301            JMP ERR2
1042    1775            TAD LB
1043    7041            CIA
1044    1214            TAD BLK
1045    7710            SPA CLA         /WAS THIS THE LAST BLOCK?
1046    5205            JMP VRFY+5
1047    4765            JMS CRLF
1050    4777            JMS TMES
1051    1332            MSG8            /TAPE VERIFIED!
1052    4765            JMS CRLF
1053    5764            JMP BEGN
1054    0000    IX,     0
                /
1055    0000    LOOK,   0
1056    6014            RFC
1057    4763            JMS RBIN
1060    0203            203
1061    1400            BUFF
1062    1362            TAD (-202
1063    3254            DCA IX
1064    1371            TAD (BUFF-1
1065    3010            DCA AX1
1066    3761            DCA CKSM
1067    1410    LP02,   TAD I AX1
1070    2254            ISZ IX
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```
1071  5267          JMP LP02
1072  7041          CIA
1073  1760          TAD BUFF+202
1074  7650          SNA CLA
1075  5300          JMP .+3
1076  4757          JMS ERR1
1077  5256          JMP LOOK+1
1100  5655          JMP I LOOK
                /
1101  4777  ERR2,   JMS TMES
1102  1342          MSG9              /ERROR IN BLOCK NR
1103  1214          TAD BLK
1104  4320          JMS TOCT
1105  4765          JMS CRLF
1106  4777          JMS TMES
1107  1307          MSG7
1110  4756          JMS RMES
1111  1604          BUFF+204
1112  1711          TAD I .-1
1113  7041          CIA
1114  1355          TAD ("R
1115  7640          SZA CLA
1116  5764          JMP BEGN
1117  5204          JMP VRFY+4
                /
1120  0000  TOCT,   0                 /OCTAL TYPEOUT ROUTINE
1121  7104          CLL RAL
1122  3174          DCA TEM1
1123  1354          TAD (-4
1124  3175          DCA TEM2
1125  1174  LP10,   TAD TEM1
1126  7006          RTL
1127  7004          RAL
1130  3174          DCA TEM1
1131  1174          TAD TEM1
1132  0353          AND (7
1133  1352          TAD (260
1134  4751          JMS TTYO
1135  2175          ISZ TEM2
1136  5325          JMP LP10
1137  5720          JMP I TOCT
                /
1151  0633
1152  0260
1153  0007
1154  7774
1155  0322
1156  0704
1157  0540
1160  1602
1161  0344
1162  7576
1163  0400
1164  0200
1165  0531
1166  1601
1167  7600
1170  1777
1171  1377
1172  7642
```

```
                *BEGN+1000
1200  0516  MSG1,   TEXT /EN
1201  2405  TE
1202  2240  R
1203  1401  LA
1204  2324  ST
1205  4002   B
1206  1417  LO
1207  0313  CK
1210  4016   N
1211  2240  R
1212  5540  -
1213  0000  /
1214  1417  MSG2,   TEXT /LO
1215  0104  AD
1216  4004   D
1217  2515  UM
1220  2040  P
1221  1722  OR
1222  4026   V
1223  0522  ER
1224  1106  IF
1225  3140  Y
1226  5540  -
1227  0000  /
1230  0516  MSG3,   TEXT /EN
1231  2405  TE
1232  2240  R
1233  0611  FI
1234  2223  RS
1235  2440  T
1236  0214  BL
1237  1703  OC
1240  1340  K
1241  1622  NR
1242  4055   -
1243  4000   /
1244  2401  MSG4,   TEXT /TA
1245  2005  PE
1246  4014   L
1247  1701  OA
1250  0405  DE
1251  0441  D!
1252  0000  /
1253  2201  MSG5,   TEXT /RA
1254  1640  N
1255  1725  OU
1256  2440  T
1257  1706  OF
1260  4024   T
1261  0120  AP
1262  0540  E
1263  0106  AF
1264  2405  TE
1265  2240  R
1266  0214  BL
1267  1703  OC
1270  1340  K
1271  0000  /
```

```
1173  0326
1174  1600
1175  0303
1176  0641
1177  0600
```

```
1272  0310  MSG6,   TEXT /CH
1273  0503  EC
1274  1323  KS
1275  2515  UM
1276  4001   A
1277  0624  FT
1300  0522  ER
1301  4002   B
1302  1417  LO
1303  0313  CK
1304  4016   N
1305  2240  R
1306  0000  /
1307  2431  MSG7,   TEXT /TY
1310  2005  PE
1311  4042   "
1312  2242  R"
1313  4024   T
1314  1740  O
1315  2205  RE
1316  2422  TR
1317  3154  Y,
1320  4042   "
1321  2342  S"
1322  4024   T
1323  1740  O
1324  2205  RE
1325  2324  ST
1326  0122  AR
1327  2440  T
1330  5540  -
1331  0000  /
1332  2401  MSG8,   TEXT /TA
1333  2005  PE
1334  4026  .V
1335  0522  ER
1336  1106  IF
1337  1105  IE
1340  0441  D!
1341  0000  /
1342  0522  MSG9,   TEXT /ER
1343  2217  RO
1344  2240  R
1345  1116  IN
1346  4002   B
1347  1417  LO
1350  0313  CK
1351  4000   /
                    PAGE
0176  0511
0177  0440
```