#341

IMP-H

5.46 MINUTE AVERAGED COUNT RATES

72-073A-07B

+

SECTORED RATE + PHA (HOST) TAPES

72-073A-07C

# 5.46 MINUTE AVERAGED COUNT RATES ON TAPE

## SECTORED RATE + PHA (HOST) TAPES

## 72-073A-07B

## 72-073A-07C

These data sets have been restored. There were originally five 7-track, and five 9-track, 800 BPI tapes written in Binary for 72-073A-07B. Each of the original tapes had 60 files except D43404 which had only one file. There is one restored tape. The restored tape had to be reconstructed because the original 9-track tapes were not padded so they had to be padded so they would be the same as the 7-track tapes that were converted to 9-track on the Modcomp.

Originally there were 271 7-track and 9-track, 800 BPI tapes written in Binary for 72-073A-07C. There are 47 restored tapes.

The DR tapes are 3480 cartridges and the DS tapes are 9-track, 6250 BPI. The original tapes were created on a XDS 930 computer. The DR and DS numbers along with the corresponding D numbers and the time spans are as follows:

72-073A-07B

| DR# | DS# | DD# | FILES | TIME SPAN |
|---|---|---|---|---|
| DR004156 | DS004156 | D023399 | 1-60 | 09/25/72 - 05/25/73 |
| | | D023400 | 61-120 | 05/26/73 - 01/22/74(a) |
| | | D028846 | 121-180 | 01/22/74 - 09/22/74(b) |
| | | D031125 | 181-240 | 09/21/74 - 05/22/75 |
| | | D031126 | 241-300 | 05/22/75 - 01/21/76 |
| | | D033466 | 301-360 | 01/21/76 - 09/20/76 |
| | | D037896 | 361-420 | 09/20/76 - 05/22/77 |
| | | D043402 | 421-480 | 05/22/77 - 01/20/78 |
| | | D043403 | 481-540 | 01/20/78 - 09/21/78 |
| | | D043404 | 541 | 09/21/78 - 09/25/78 |

(a) Read errors occurred in records 18,21,28,29,57, File 52 of D023400
(b) Read error occurred in record 7, File 2 of D028846

73-073A-070

| DR# | DS# | D# | FILES | TIME SPAN |
|---|---|---|---|---|
| DR01531 | DS01531 | D23354 | 1-2 | 09/28/72 - 10/04/72 |
| | | D23355 | 3-4 | 10/04/72 - 10/13/72 |
| | | D23356 | 5-6 | 10/13/72 - 10/21/72 |
| | | D23357 | 7-8 | 10/21/72 - 10/29/72 |
| | | D23358 | 9-10 | 10/29/72 - 11/05/72 |
| | | D23359 | 11-12 | 11/05/72 - 11/14/72 |
| DR01530 | DS01530 | D23360 | 1-2 | 11/14/72 - 11/22/72 |
| | | D23361 | 3-4 | 11/22/72 - 11/30/72 |
| | | D23362 | 5-6 | 11/30/72 - 12/09/72 |
| | | D23363 | 7-8 | 12/09/72 - 12/17/72 |
| | | D23364 | 9-10 | 12/17/72 - 12/25/72 |
| | | D23365 | 11-12 | 12/25/72 - 12/31/72 |
| DR01534 | DS01534 | D23366 | 1-2 | 12/31/72 - 01/08/73 |
| | | D23367 | 3-4 | 01/08/73 - 01/16/73 |
| | | D23368 | 5-6 | 01/16/73 - 01/24/73 |
| | | D23369 | 7-8 | 01/24/73 - 02/01/73 |
| | | D23370 | 9-10 | 02/01/73 - 02/09/73 |
| | | D23371 | 11-12 | 02/09/73 - 02/17/73 |
| DR01535 | DS01535 | D23372 | 1-2 | 02/17/73 - 02/25/73 |
| | | D23373 | 3-4 | 02/25/73 - 03/05/73 |
| | | D23374 | 5-6 | 03/05/73 - 03/14/73 |
| | | D23375 | 7-8 | 03/14/73 - 03/22/73 |
| | | D23376 | 9-10 | 03/22/73 - 03/30/73 |
| DR01532 | DS01532 | D23377 | 1-2 | 03/30/73 - 04/07/73 |
| | | D23378 | 3-4 | 04/07/73 - 04/13/73 |
| | | D23379 | 5-6 | 04/13/73 - 04/23/73 |
| | | D23380 | 7-8 | 04/23/73 - 05/01/73 |
| | | D23381 | 9-10 | 05/01/73 - 05/09/73 |
| | | D23382 | 11-12 | 05/09/73 - 05/17/73 |
| DR01536 | DS01536 | D23383 | 1-2 | 05/17/73 - 05/25/73 |
| | | D23384 | 3-4 | 05/25/73 - 06/03/73 |
| | | D23385 | 5-6 | 06/03/73 - 06/11/73 |
| | | D23386 | 7-8 | 06/11/73 - 06/17/73 |
| DR01533 | DS01533 | D23387 | 1-2 | 06/19/73 - 06/27/73 |
| | | D23388 | 3-4 | 06/27/73 - 07/05/73 |
| | | D23389 | 5-6 | 07/05/73 - 07/13/73 |
| | | D23390 | 7-8 | 07/13/73 - 07/21/73 |
| | | D23391 | 9-10 | 07/21/73 - 07/29/73 |
| | | D23392 | 11-12 | 07/29/73 - 08/06/73 |
| DR01529 | DS01529 | D23393 | 1-2 | 08/06/73 - 08/14/73 |
| | | D23394 | 3-4 | 08/14/73 - 08/22/73 |
| | | D23395 | 5-6 | 08/22/73 - 08/30/73 |
| | | D23396 | 7-8 | 08/30/73 - 09/07/73 |
| | | D23397 | 9-10 | 09/07/73 - 09/15/73 |
| | | D23398 | 11-12 | 09/15/73 - 09/23/73 |
| DR01571 | DS01571 | D28860 | 1-2 | 09/23/73 - 10/01/73 |
| | | D28881 | 3-4 | 10/01/73 - 10/10/73 |
| | | D28879 | 5-6 | 10/10/73 - 10/18/73 |
| | | D28858 | 7-8 | 10/18/73 - 10/26/73 |
| | | D28877 | 9-10 | 10/26/73 - 11/03/73 |

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| DR# | DS# | D# | FILES | TIME SPAN |
|---|---|---|---|---|
| DR01560 | DS01560 | D28878 | 1-2 | 11/03/73 - 11/11/73 |
| | | D28855 | 3-4 | 11/11/73 - 11/19/73 |
| | | D28884 | 5-6 | 11/19/73 - 11/27/73 |
| | | D28869 | 7-8 | 11/27/73 - 12/05/73 |
| | | D28854 | 9-10 | 12/05/73 - 12/13/73 |
| DR01572 | DS01572 | D28863 | 1-2 | 12/13/73 - 12/21/73 |
| | | D28882 | 3-4 | 12/21/73 - 12/29/73 |
| | | D28848 | 5-6 | 12/29/73 - 01/06/74 |
| | | D28849 | 7-8 | 01/06/74 - 01/14/74 |
| | | D28883 | 9-10 | 01/14/74 - 01/22/74 |
| DR01573 | DS01573 | D28871 | 1-2 | 01/22/74 - 01/30/74 |
| | | D28885 | 3-4 | 01/30/74 - 02/07/74 |
| | | D28890 | 5-6 | 02/07/74 - 02/15/74 |
| | | D28892 | 7-8 | 02/15/74 - 02/23/74 |
| | | D28891 | 9-10 | 02/23/74 - 03/03/74 |
| DR01561 | DS01561 | D28888 | 1-2 | 03/03/74 - 03/11/74 |
| | | D28889 | 3-4 | 03/11/74 - 03/19/74 |
| | | D28853 | 5-6 | 03/21/74 - 03/27/74 |
| | | D28852 | 7-8 | 03/31/74 - 04/05/74 |
| | | D28851 | 9-10 | 04/05/74 - 04/13/74 |
| DR01562 | DS01562 | D28847 | 1-2 | 04/13/74 - 04/21/74 |
| | | D28887 | 3-4 | 04/21/74 - 04/29/74 |
| | | D28886 | 5-6 | 04/29/74 - 05/07/74 |
| | | D28859 | 7-8 | 05/07/74 - 05/15/74 |
| | | D28875 | 9-10 | 05/15/74 - 05/23/74 |
| DR01594 | DS01594 | D28870 | 1-2 | 05/23/74 - 05/31/74 |
| | | D28876 | 3-4 | 05/31/74 - 06/07/74 |
| | | D28864 | 5-6 | 06/07/74 - 06/16/74 |
| | | D28863 | 7-8 | 06/16/74 - 06/24/74 |
| | | D28861 | 9-10 | 06/24/74 - 07/02/74 |
| DR01574 | DS01574 | D28856 | 1-2 | 07/02/74 - 07/10/74 |
| | | D28862 | 3-4 | 07/09/74 - 07/17/74 |
| | | D28865 | 5-6 | 07/18/74 - 07/26/74 |
| | | D28857 | 7-8 | 07/26/74 - 08/04/74 |
| | | D28850 | 9-10 | 08/04/74 - 08/12/74 |
| DR01589 | DS01589 | D28866 | 1-3 | 08/16/74 - 08/20/74 |
| | | D28880 | 4-5 | 08/20/74 - 08/28/74 |
| | | D28873 | 6-7 | 08/28/74 - 09/05/74 |
| | | D28872 | 8-9 | 09/05/74 - 09/13/74 |
| | | D28867 | 10-11 | 09/13/74 - 09/21/74 |
| DR01575 | DS01575 | D28874 | 1-2 | 09/21/74 - 09/29/74 |
| | | D31080 | 3-4 | 09/24/74 - 10/03/74 |
| | | D31082 | 5-6 | 10/07/74 - 10/11/74 |
| | | D31081 | 7-8 | 10/15/74 - 10/19/74 |
| | | D31083 | 9-10 | 10/23/74 - 10/31/74 |

73-073A-07C

| DR# | DS# | D# | FILES | TIME SPAN |
|---|---|---|---|---|
| DR01660 | DS01660 | D31084 | 1-2 | 10/31/74 - 11/08/74 |
| | | D31085 | 3-4 | 11/08/74 - 11/17/74 |
| | | D31086 | 5-6 | 11/17/74 - 11/21/74 |
| | | D31087 | 7-8 | 11/25/74 - 12/03/74 |
| | | D31088 | 9-10 | 12/03/74 - 12/11/74 |
| DR01661 | DS01661 | D31089 | 1-2 | 12/11/74 - 12/30/74 |
| | | D31090 | 3-4 | 12/20/74 - 12/28/74 |
| | | D31091 | 5-6 | 12/28/74 - 01/05/75 |
| | | D31092 | 7-8 | 01/05/75 - 01/13/75 |
| | | D31093 | 9-10 | 01/13/75 - 01/21/75 |
| DR01662 | DS01662 | D31094 | 1-2 | 01/21/75 - 01/29/75 |
| | | D31095 | 3-4 | 01/29/75 - 02/06/75 |
| | | D31096 | 5-6 | 02/06/75 - 02/14/75 |
| | | D31097 | 7-8 | 02/14/75 - 02/22/75 |
| | | D31098 | 9-10 | 02/22/75 - 03/02/75 |
| DR01663 | DS01663 | D31099 | 1-2 | 03/02/75 - 03/10/75 |
| | | D31100 | 3-4 | 03/10/75 - 03/18/75 |
| | | D31101 | 5-6 | 03/18/75 - 03/27/75 |
| | | D31102 | 7-8 | 03/27/75 - 04/04/75 |
| | | D31103 | 9-10 | 04/04/75 - 04/12/75 |
| DR01664 | DS01664 | D31104 | 1-2 | 04/12/75 - 04/20/75 |
| | | D31105 | 3-4 | 04/20/75 - 04/28/75 |
| | | D31106 | 5-6 | 04/28/75 - 05/06/75 |
| | | D31107 | 7-8 | 05/06/75 - 05/14/75 |
| | | D31111 | 9-10 | 05/14/75 - 05/22/75 |
| DR01665 | DS01665 | D31112 | 1-2 | 05/22/75 - 05/30/75 |
| | | D31113 | 3-4 | 05/30/75 - 06/07/75 |
| | | D31114 | 5-6 | 06/07/75 - 06/15/75 |
| | | D31115 | 7-8 | 06/15/75 - 06/24/75 |
| | | D31116 | 9-10 | 06/24/75 - 07/03/75 |
| | | D31117 | 11-12 | 07/02/75 - 07/10/75 |
| DR01666 | DS01666 | D31118 | 1-2 | 07/10/75 - 07/18/75 |
| | | D31119 | 3-4 | 07/18/75 - 07/27/75 |
| | | D31120 | 5-6 | 07/27/75 - 08/04/75 |
| | | D31121 | 7-8 | 08/04/75 - 08/12/75 |
| | | D31122 | 9-10 | 08/12/75 - 08/20/75 |
| | | D31123 | 11-12 | 08/20/75 - 08/28/75 |
| DR01667 | DS01667 | D31124 | 1-2 | 08/28/75 - 09/05/75 |
| | | D31108 | 3-4 | 09/05/75 - 09/13/75 |
| | | D31109 | 5-6 | 09/13/75 - 09/21/75 |
| | | D31110 | 7-8 | 09/21/75 - 09/29/75 |
| DR01470 | DS01470 | D33467 | 1-2 | 09/29/75 - 10/07/75 |
| | | D33468 | 3-4 | 10/07/75 - 10/15/75 |
| | | D33469 | 5-6 | 10/15/75 - 10/23/75 |
| | | D33470 | 7-8 | 10/23/75 - 10/26/75 |
| | | D33471 | 9-10 | 10/26/75 - 11/09/75 |
| | | D33472 | 11-12 | 11/09/75 - 11/17/75 |

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| DF# | DS# | D# | FILES | TIME SPAN |
|---|---|---|---|---|
| DR01471 | DS01471 | D33473 | 1-2 | 11/17/75 - 11/25/75 |
| | | D33474 | 3-4 | 11/25/75 - 12/03/75 |
| | | D33475 | 5-6 | 12/03/75 - 12/11/75 |
| | | D33476 | 7-8 | 12/12/75 - 12/20/75 |
| | | D33477 | 9-10 | 12/20/75 - 12/28/75 |
| | | D33478 | 11-12 | 12/28/75 - 01/04/76 |
| | | D33479 | 13-14 | 01/04/76 - 01/13/76 |
| DR01472 | DS01472 | D33480 | 1-2 | 01/13/76 - 01/21/76 |
| | | D33481 | 3-4 | 01/21/76 - 01/29/76 |
| | | D33482 | 5-6 | 01/29/76 - 02/06/76 |
| DR01473 | DS01473 | D33484 | 1-2 | 02/14/76 - 02/22/76 |
| | | D33485 | 3-4 | 02/22/76 - 03/03/76 |
| | | D33486 | 5-6 | 03/02/76 - 03/10/76 |
| | | D33487 | 7-8 | 03/10/76 - 03/18/76 |
| DR01474 | DS01474 | D33488 | 1-2 | 03/18/76 - 03/26/76 |
| | | D33489 | 3-4 | 03/26/76 - 04/03/76 |
| | | D33490 | 5-6 | 04/03/76 - 04/11/76 |
| | | D33491 | 7-8 | 04/11/76 - 04/19/76 |
| | | D33492 | 9-10 | 04/19/76 - 04/27/76 |
| | | D33493 | 11-12 | 04/27/76 - 05/05/76 |
| | | D33494 | 13-14 | 05/05/76 - 05/13/76 |
| DR01475 | DS01475 | D33495 | 1-2 | 05/13/76 - 05/22/76 |
| | | D33496 | 3-4 | 05/22/76 - 05/27/76 |
| | | D33497 | 5-6 | 05/26/76 - 06/07/76 |
| | | D33498 | 7-8 | 06/07/76 - 06/15/76 |
| | | D33499 | 9-10 | 06/15/76 - 06/23/76 |
| | | D33500 | 11-12 | 06/23/76 - 07/02/76 |
| DR01476 | DS01476 | D33501 | 1-2 | 07/02/76 - 07/10/76 |
| | | D33502 | 3-4 | 07/10/76 - 07/18/76 |
| | | D33503 | 5-6 | 07/18/76 - 07/26/76 |
| | | D33504 | 7-8 | 07/26/76 - 08/03/76 |
| | | D33505 | 9-10 | 08/03/76 - 08/11/76 |
| | | D33506 | 11-12 | 08/11/76 - 08/19/76 |
| | | D33507 | 13-14 | 08/19/76 - 08/27/76 |
| DR01477 | DS01[illegible] | D33508 | 1-2 | 08/27/76 - 09/04/76 |
| | | D33509 | 3-4 | 09/04/76 - 09/12/76 |
| | | D33510 | 5-6 | 09/12/76 - 09/20/76 |
| | | D33511 | 7-8 | 09/20/76 - 09/28/76 |
| | | D37851 | 9-10 | 09/28/76 - 10/07/76 |
| | | D37852 | 11-12 | 10/07/76 - 10/15/76 |
| DR01478 | DS01478 | D37853 | 1-2 | 10/15/76 - 10/23/76 |
| | | D37854 | 3-4 | 10/23/76 - 10/31/76 |
| | | D37855 | 5-6 | 10/31/76 - 11/08/76 |
| | | D37856 | 7-8 | 11/08/76 - 11/16/76 |
| | | D37857 | 9-10 | 11/16/76 - 11/24/76 |
| | | D37858 | 11-12 | 11/24/76 - 12/02/76 |
| | | D37859 | 13-14 | 12/02/76 - 12/11/76 |

73-073A-07C

| DR# | DS# | D# | FILES | TIME SPAN |
|---|---|---|---|---|
| DR01479 | DS01479 | D37860 | 1-2 | 12/11/76 - 12/19/76 |
| | | D37861 | 3-4 | 12/19/76 - 12/27/76 |
| | | D37862 | 5-6 | 12/27/76 - 01/04/77 |
| | | D37863 | 7-8 | 01/04/77 - 01/12/77 |
| | | D37864 | 9-10 | 01/12/77 - 01/20/77 |
| | | D37865 | 11-12 | 01/20/77 - 01/28/77 |
| | | D37866 | 13-14 | 01/28/77 - 02/06/77 |
| DR01480 | DS01480 | D37867 | 1-2 | 02/06/77 - 02/14/77 |
| | | D37868 | 3-4 | 02/14/77 - 02/22/77 |
| | | D37869 | 5-6 | 02/22/77 - 03/02/77 |
| | | D37870 | 7-8 | 03/02/77 - 03/10/77 |
| | | D37871 | 9-10 | 03/10/77 - 03/18/77 |
| | | D37872 | 11-12 | 03/18/77 - 03/26/77 |
| DR01481 | DS01481 | D37873 | 1-2 | 03/26/77 - 04/03/77 |
| | | D37874 | 3-4 | 04/03/77 - 04/11/77 |
| | | D37875 | 5-6 | 04/11/77 - 04/19/77 |
| | | D37876 | 7-8 | 04/19/77 - 04/28/77 |
| | | D37877 | 9-10 | 04/28/77 - 05/06/77 |
| | | D37878 | 11-12 | 05/06/77 - 05/14/77 |
| | | D37879 | 13-14 | 05/14/77 - 05/22/77 |
| DR01482 | DS01482 | D37880 | 1-2 | 05/22/77 - 05/30/77 |
| | | D37881 | 3-4 | 05/30/77 - 06/07/77 |
| | | D37882 | 5-6 | 06/07/77 - 06/15/77 |
| | | D37883 | 7-8 | 06/15/77 - 06/23/77 |
| | | D37884 | 9-10 | 06/23/77 - 07/01/77 |
| | | D37885 | 11-12 | 07/01/77 - 07/10/77 |
| DR01483 | DS01483 | D37886 | 1-2 | 07/10/77 - 07/18/77 |
| | | D37887 | 3-4 | 07/18/77 - 07/26/77 |
| | | D37888 | 5-6 | 07/26/77 - 08/03/77 |
| | | D37889 | 7-8 | 08/03/77 - 08/11/77 |
| | | D37890 | 9-10 | 08/11/77 - 08/19/77 |
| | | D37891 | 11-12 | 08/19/77 - 08/27/77 |
| DR01484 | DS01484 | D37892 | 1-2 | 08/27/77 - 09/05/77 |
| | | D37893 | 3-4 | 09/05/77 - 09/13/77 |
| | | D37894 | 5-6 | 09/13/77 - 09/21/77 |
| | | D37895 | 7-8 | 09/21/77 - 09/29/77 |
| | | D43357 | 9-10 | 09/29/77 - 10/07/77 |
| | | D43358 | 11-12 | 10/07/77 - 10/15/77 |
| DR01485 | DS01485 | D43359 | 1-2 | 10/15/77 - 10/23/77 |
| | | D43360 | 3-4 | 10/23/77 - 10/31/77 |
| | | D43361 | 5-6 | 10/31/77 - 11/08/77 |
| | | D43362 | 7-8 | 11/08/77 - 11/16/77 |
| | | D43363 | 9-10 | 11/16/77 - 11/25/77 |
| | | D43364 | 11-12 | 11/25/77 - 12/03/77 |

| DR# | DS# | D# | FILES | TIME SPAN |
|---|---|---|---|---|
| DR01491 | DS01491 | D43365 | 1-2 | 12/03/77 - 12/11/77 |
| | | D43366 | 3-4 | 12/11/77 - 12/19/77 |
| | | D43367 | 5-6 | 12/19/77 - 12/27/77 |
| | | D43368 | 7-8 | 12/27/77 - 01/04/78 |
| | | D43369 | 9-10 | 01/04/78 - 01/12/78 |
| | | D43370 | 11-12 | 01/12/78 - 01/20/78 |
| | | D43371 | 13-14 | 01/20/78 - 01/28/78 |
| DR01492 | DS01492 | D43372 | 1-2 | 01/28/78 - 02/06/78 |
| | | D43373 | 3-4 | 02/06/78 - 02/14/78 |
| | | D43374 | 5-6 | 02/14/78 - 02/22/78 |
| | | D43375 | 7-8 | 02/22/78 - 03/03/78 |
| | | D43376 | 9-10 | 03/03/78 - 03/10/78 |
| | | D43377 | 11-12 | 03/10/78 - 03/18/78 |
| | | D43378 | 13-14 | 03/18/78 - 03/27/78 |
| | | D43379 | 15-16 | 03/27/78 - 04/04/78 |
| DR01493 | DS01493 | D43380 | 1-2 | 04/04/78 - 04/12/78 |
| | | D43381 | 3-4 | 04/12/78 - 04/20/78 |
| | | D43382 | 5-6 | 04/20/78 - 04/28/78 |
| | | D43383 | 7-8 | 04/28/78 - 05/06/78 |
| | | D43384 | 9-10 | 05/06/78 - 05/14/78 |
| | | D43385 | 11-12 | 05/14/78 - 05/22/78 |
| DR01494 | DS01494 | D43386 | 1-2 | 05/22/78 - 05/30/78 |
| | | D43387 | 3-4 | 05/30/78 - 06/07/78 |
| | | D43388 | 5-6 | 06/07/78 - 06/16/78 |
| | | D43389 | 7-8 | 06/16/78 - 06/24/78 |
| | | D43390 | 9-10 | 06/24/78 - 07/02/78 |
| | | D43391 | 11-12 | 07/02/78 - 07/10/78 |
| | | D43392 | 13-14 | 07/10/78 - 07/19/78 |
| DR01495 | DS01495 | D43393 | 1-2 | 07/19/78 - 07/27/78 |
| | | D43394 | 3-4 | 07/27/78 - 08/04/78 |
| | | D43395 | 5-6 | 08/04/78 - 08/12/78 |
| | | D43396 | 7-8 | 08/12/78 - 08/20/78 |
| | | D43397 | 9-10 | 08/20/78 - 08/28/78 |
| | | D43398 | 11-12 | 08/28/78 - 09/05/78 |
| | | D43399 | 13-14 | 09/05/78 - 09/13/78 |
| | | D43400 | 15-16 | 09/13/78 - 09/21/78 |
| | | D43401 | 17 | 09/21/78 - 09/25/78 |

73-073A-078

| D# | C# | FILES | TIME SPAN |
|---|---|---|---|
| D31125 | D20081 | 60 | 09/21/74 - 05/22/75 |
| D31126 | D20082 | 60 | 05/22/75 - 01/21/76 |
| D23399 | C17669 | 60 | 09/25/72 - 05/23/73 |
| D23400 | C17670 | 60 | 05/26/73 - 01/22/74 |
| D28846 | C18984 | 60 | 01/22/74 - 09/21/74 |
| D33466 | | 60 | 01/21/76 - 09/20/76 |
| D37896 | D21189 | 60 | 09/20/76 - 05/22/77 |
| D43402 | | 60 | 05/22/77 - 01/20/78 |
| D43403 | | 60 | 01/20/78 - 09/21/78 |
| D43404 | | 1 | 09/21/78 - 09/25/78 |

B-23'06-0004
72-073A-07B

# IMP - 7,8 RATE SUMMARY TAPE GENERATOR

# (HRATEGN)

## I. Description of Algorithms

The program produces, for a given decom run of IMP-7 or IMP-8 data, a series of rate summaries for periods of up to 256 pseudo-sequences (256 sequences or 4 albums at 1600 IBPS telemetry rate; 64 sequences or 1 album at 400 IBPS; equals 5.46 minutes approximately).

Normally, the summary intervals will be equally long and contiguous, but data gaps and changes in instrument or spacecraft status can alter that pattern.

The output consists of various housekeeping items, flags, etc., and, for each rate, the total counts in the interval and the time period covered by those counts. Depending on our knowledge (or lack thereof) of the status of the instrument during the time the rates were accumulated in the spacecraft, not all available rate readouts are used. (In addition, of course, unavailable "fill" readouts do not affect the totals. In the following discussion, though, such readouts are included in the "used" readouts).

The following discussion assumes the reader's familiarity with the instrument and the telemetry structure of the spacecraft.

### Time Periods

The start time (in time of day and pseudo-sequence-count) of each interval is given on the output tape. All intervals begin at the start of an album of telemetry and contain data for at most the following 5.46 minutes. Start times of intervals will monotonically increase, but can be spaced either more or less than 5.46 minutes apart -- more, typically in the case of data gaps; less, typically in the case of bit-rate or status changes. If one interval's start-time follows the previous one by less than 5.46 minutes, it also represents the end time of the previous interval. (That is, intervals do not overlap, though 5.46 minute periods with the same start times may.)

All rate counts are accumulated into the interval during which they were counted, not (necessarily) during which they were telemetered.

New time periods are begun--

1. at the start of the first album of the run, regardless of whether it contains usable data.

2. at the start of the first album containing usable data following a change in telemetry bit-rate.

3. at the start of the first album containing usable data following a change in the large telescope's command status (except to "mixed" or "off").

4. at the start of an album containing usable data whose pseudo-sequence-count exceeds that of the beginning of the present interval by more than 200. (Generally, of course, difference will be exactly 256.)

The determination of accumulation intervals is not affected by the beginning or end of calibrate-mode periods or by short data gaps which do not trigger criterion 4.

Rate readouts used

Every unsectored-rate readout is used in accumulation of rates for the period during which it was counted except--

1. any rate counted or telemetered during an album which has the bit rate warning flag or status warning flag on. (See sort output tape format for the definition of these flags).

2. any rate counted or telemetered during an album during which the large telescope command state was mixed or during which the instrument was off.

3. any rate telemetered during one album but counted during the previous one, unless
   (a) previous album had same bit rate,
   (b) previous album was actually present on input tape (and read without error), and
   (c) rates both counted and telemetered during previous album were also used.

4. as shown in the following table, counts of events that occurred during various special instrument states (X = not used).

| RATE | CALIBRATE MODE PAGES 0,2 | CALIBRATE MODE PAGES 1,3 | EMERGENCY MODE PAGES 0,2 | EMERGENCY MODE PAGES 1,3 | HIGH GAIN MODE |
|---|---|---|---|---|---|
| D1 | | | | | |
| D2 | X | X | X | | |
| D3 | X | | X | | |
| D4 | X | | X | | |
| CK | X | X | X | | |
| D6 | | | | | |
| HZLE | X | X | X | X | X |
| HZHE | X | X | X | X | X |
| D46 | X | X | X | X | |
| CKD6 | X | X | X | X | |
| L1 | X | X | | | |
| L2 | X | X | | | |
| $L1_1$ | X | X | | | |
| $L1_2$ | X | X | | | |
| $L1_3$ | | | | | |

The four criteria above are not all independent; in particular, deletions because of 3 should usually already have been made on account of 1 or 2. Also, of course, no fill readout has any affect on the totals for the interval. Readouts with all 10 or 12 log-compressor bits 0 are also ignored; this can happen for non-fill readouts in the case of certain rare hardware glitches.

Sectored rates

No detailed analysis of sectored-rate data is included in this program. For each averaging interval, however, a summary indication of the behavior of a sample of each sectored rate is included. For each sectored rate, the first available readout in the interval among those for pages 0, 1, and 2 of those albums whose unsectored rates were used is examined, except that D2 sectored rates counted during emergency-mode, page-0-or-2 operation or calibration are ignored. (The readouts for pages 0, 1, and 2 are telemetered during pages 1,2, and 3.) A sectored-rate readout is not available if it is fill data or any sector's log-compressor output is $0000_8$ or if the optical aspect system was off as indicated by the OA DPP flag in the input album.

For the single D1 sectored rate readout or single D2 sectored rate readout thus selected, minimum and maximum sector counts are found. If these satisfy the criterion:

$$(MAX - MIN) > 2\sqrt{MAX},$$

then the first occurrence of MAX (i.e., lowest number 1 to 8 of sector with count MAX), first occurrence of MIN, and the quantity:

$$100\ (MAX - MIN) / (MAX + MIN)$$

are placed in the output for the time interval. If the criterion is not met, both sector numbers are set 0 and the percent-anistropy quantity is set to -1. If there were no available readouts for the sectored rate during the interval, all three output values will be 0.

## II. Output Tape Format

Rate summary tapes are ~~7-track~~ 9-track magnetic tapes written in binary (odd) parity at ~~800 BPI~~ 1600. Separate series of summary tapes are kept for the two spacecraft.

Each rate summary tape will contain data for up to 60 runs; there will be one file per run, the last run being followed by an extra, second EOF. Missing runs within the range contained on the tape will be represented by extra EOF's in the appropriate place. (Therefore a double EOF does not necessarily indicate the end of the tape.) The last run on the tape will be written on the label. (Eventually, when all available data have been processed, all tapes except the last one should contain 60 files).

Each file contains some number of 2640-character records (660 24-bit words). Each record contains fifteen 176-character logical records, each containing rate summary data for one interval, except that there will be from one to fifteen empty (all characters $00_8$) logical records at the end of each file--at least one empty logical record, and enough more to pad the last physical record to standard length.

# RATE TAPE LOGICAL RECORD

| 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TENTHS OF SECONDS OF THE DAY | | | | | | | | | | | | | | | | | | | | | | | | 0 | +44*I, I=0 to 14 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | YEAR | | | | DAY OF YEAR | | | | | | | | 1 | |
| S/C ID | | ORBIT | | | | | | RUN | | | | | | | | | | | | | | | | 2 | |
| PSEUDO-SEQUENCE-COUNT | | | | | | | | | | | | | | | | | | | | | | | | 3 | |
| 0 | 0 | 0 | RCM XMTR | ANA XMTR | GR | STATUS | | C | YEAR, | | | MONTH, | | | | DAY RATEGN | | | | | | | | 4 | |
| PROJECTED SUN-EARTH-SPACECRAFT ANGLE | | | | | | | | | | | | | | | | | | | | | | | | 5 | |
| GEOCENTRIC DISTANCE | | | | | | | | | | | | | | | | | | | | | | | | 6 | |
| 0 | 0 | QF | TEMPERATURE | | | | | | | 00 | | QF | BUSS VOLT | | | | | | | | | | | 7 | |
| 0 | 0 | QF | A-D CAL 0 | | | | | | | 00 | | QF | A-D CAL 1 | | | | | | | | | | | 8 | |
| 0 | 0 | QF | A-D CAL 2 | | | | | | | 00 | | QF | A-D CAL 3 | | | | | | | | | | | 9 | |
| TEMPERATURE CONVERTED | | | | | | | | | | BUSS VOLT CONVERTED | | | | | | | | | | | | | | 10 | |
| D1 ANISOTROPY | | | | | | | | | | | | | | | | | | MAX | | | | MIN | | 11 | |
| D2 ANISOTROPY | | | | | | | | | | | | | | | | | | MAX | | | | MIN | | 12 | |
| SPARE (=0) | | | | | | | | | | | | | | | | | | | | | | | | 13 | |
| 0 | QUALITY | | | | | | | COVERAGE | | | | | | | | | | D1 | | | | | | 14 | |
| COUNTS | | | | | | | | | | | | | | | | | | | | | | | | 15 | |
| 0 | QUALITY | | | | | | | COVERAGE | | | | | | | | | | D2 | | | | | | 16 | |
| COUNTS | | | | | | | | | | | | | | | | | | | | | | | | 17 | |
| 0 | QUALITY | | | | | | | COVERAGE | | | | | | | | | | D3 | | | | | | 18 | |
| COUNTS | | | | | | | | | | | | | | | | | | | | | | | | 19 | |
| 0 | QUALITY | | | | | | | COVERAGE | | | | | | | | | | D4 | | | | | | 20 | |
| COUNTS | | | | | | | | | | | | | | | | | | | | | | | | 21 | |
| 0 | QUALITY | | | | | | | COVERAGE | | | | | | | | | | CK | | | | | | 22 | |
| COUNTS | | | | | | | | | | | | | | | | | | | | | | | | 23 | |
| 0 | QUALITY | | | | | | | COVERAGE | | | | | | | | | | D6 | | | | | | 24 | |
| COUNTS | | | | | | | | | | | | | | | | | | | | | | | | 25 | |
| 0 | QUALITY | | | | | | | COVERAGE | | | | | | | | | | HZLE | | | | | | 26 | |
| COUNTS | | | | | | | | | | | | | | | | | | | | | | | | 27 | |
| 0 | QUALITY | | | | | | | COVERAGE | | | | | | | | | | HZHE | | | | | | 28 | |
| COUNTS | | | | | | | | | | | | | | | | | | | | | | | | 29 | |
| 0 | QUALITY | | | | | | | COVERAGE | | | | | | | | | | D46 | | | | | | 30 | |
| COUNTS | | | | | | | | | | | | | | | | | | | | | | | | 31 | |
| 0 | QUALITY | | | | | | | COVERAGE | | | | | | | | | | CKD6 | | | | | | 32 | |
| COUNTS | | | | | | | | | | | | | | | | | | | | | | | | 33 | |
| 0 | QUALITY | | | | | | | COVERAGE | | | | | | | | | | L1 | | | | | | 34 | |
| COUNTS | | | | | | | | | | | | | | | | | | | | | | | | 35 | |
| 0 | QUALITY | | | | | | | COVERAGE | | | | | | | | | | L2 | | | | | | 36 | |
| COUNTS | | | | | | | | | | | | | | | | | | | | | | | | 37 | |
| 0 | QUALITY | | | | | | | COVERAGE | | | | | | | | | | $L1_1$ | | | | | | 38 | |
| COUNTS | | | | | | | | | | | | | | | | | | | | | | | | 39 | |
| 0 | QUALITY | | | | | | | COVERAGE | | | | | | | | | | $L1_2$ | | | | | | 40 | |
| COUNTS | | | | | | | | | | | | | | | | | | | | | | | | 41 | |
| 0 | QUALITY | | | | | | | COVERAGE | | | | | | | | | | $L1_3$ | | | | | | 42 | |
| COUNTS | | | | | | | | | | | | | | | | | | | | | | | | 43 | |
| 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | |

# CONTENTS OF LOGICAL RECORD

(24-bit words, counting from 0)

WORD 0

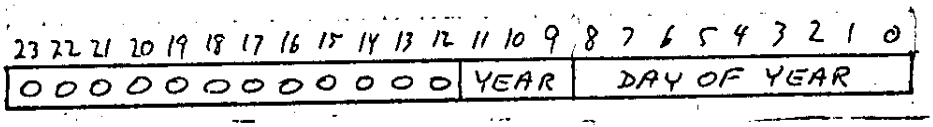
24-bit binary unsigned integer, time of day in tenths of seconds past midnight.

WORD 1 (part)

Day of year (January 1 = 1)

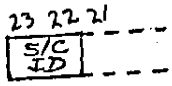
WORD 1 (part)

Year, modulo 1970




The preceeding three items give the time, day, and year, Universal Time, of the start of the rate averaging interval.

WORD 2 (part)

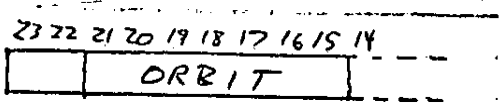



Spacecraft ID.

IMP-7 = 01

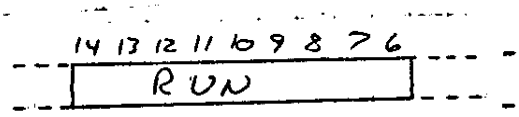
IMP-8 = 10

WORD 2 (part)



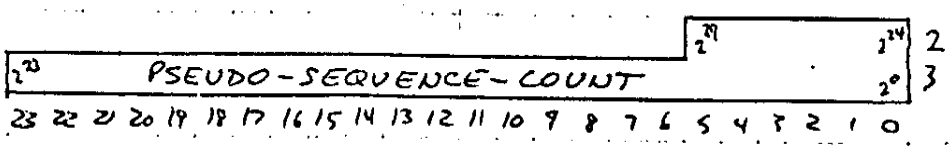

Orbit number of these data. A 7-bit unsigned integer. Orbit boundaries are approximate.

WORD 2 (part)




A 9-bit unsigned integer, the decom run number of these data.

WORD 2 (part)
WORD 3




Pseudo-sequence-count. The 30-bit unsigned integer PSC of the start of the rate averaging interval.

WORD 4 (part)

| 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | PCM XMTR | | ANA XMTR | | BR | STATUS | | | C |

Flags, as follows:

PCM XMTR = 00 if PCM transmitter was always on during interval

01 if PCM transmitter was ever off

10 if no available data on this

11 (never)

A summary of the corresponding flag on the input tape for the albums making up this interval. The 01 value will probably never legitimately occur, but can occur due to errors in our raw data tapes.

ANA XMTR = 00 if analog transmitter always off during interval

01 if analog transmitter ever on

10 if no available data on this

11 (never)

A summary of the corresponding flag on the input tape for the albums making up this interval.

BR = 0 if original data were transmitted at 400 IBPS bit rate

1 if 1600 IBPS

STATUS = Command state of instrument during this period; 3-bit integer

| | | | |
|---|---|---|---|
| 0 | off | 4 | flare-override mode |
| 1 | normal mode | 5 | mixed |
| 2 | high gain mode | 6,7 | (will not occur) |
| 3 | emergency mode | | |

All albums of data used in the interval will have had the indicated command state. "Off" or "mixed" albums are never used, but if there are no usable albums within the first 5.46 minutes of the run, "off" or "mixed" may be indicated for the first interval, which will, however, contain no data.

C = 1 if any calibrate-period data are included in this interval

0 otherwise

WORD 4 (part)

| 11 10 9 8 | 7 6 5 4 | 3 2 1 0 |
|---|---|---|
| YEAR | MONTH | DAY |

Date of RATEGN program run that produced this file. Unsigned binary integers: year (mod 1970), month (Jan = 1), and day of month, all as typed in by the operator.

WORD 5

24-bit signed (2-compliment) integer giving, in tenths of degrees, the projection of the sun-earth-spacecraft angle on the ecliptic plane. This value is added by a separate program. If it is not yet present, a default value of $-5000_{10}$ (=-500 degrees) will be present. If orbit data was not available for this time, a value of $-6000_{10}$ (=-600 degrees) will be present.

If present, the value will range from 0 to 360 degrees. The angle is 0 degrees when the projection of the spacecraft's position onto the ecliptic lies on the earth-sun line; the angle increases counter-clockwise when viewed from the north ecliptic pole.

WORD 6

24 bit signed (2-compliment) integer giving, in tenths of Earth radii, the geocentric distance of the satellite. This value is added by a separate program. If it is not yet present, a default value of $-5000_{10}$ (=-500 Earth radii) will be present. If orbit data was not available for this time, a value of $-6000_{10}$ (=-600 Earth radii) will be present.

WORD 7-9

Analogs

| 23 22 | 21 20 | 19 18 17 16 | 15 14 13 12 | 11 10 | 9 8 | 7 6 5 4 3 2 1 0 | |
|---|---|---|---|---|---|---|---|
| 0 0 | QF | TEMPERATURE | | 0 0 | QF | BUSS VOLTAGE | 7 |
| 0 0 | QF | A-D CAL 0 | | 0 0 | QF | A-D CAL 1 | 8 |
| 0 0 | QF | A-D CAL 2 | | 0 0 | QF | A-D CAL 3 | 9 |

The first non-fill value, if any, of the indicated 8-bit analogs in those albums whose rates were used in compiling the totals for the time interval. If no value is available, the output will be fill (eight 0 bits). The qualify flag will be that of the readout used. Quality flag code:

00 excellent
01 good
10 fill
11 (will not occur)

WORD 10 (part)

| 23 22 21 20 19 18 17 16 15 14 13 12 |
|---|
| CONVERTED TEMPERATURE |

A 12-bit signed integer giving the instrument temperature in tenths of degrees C. This is derived from the count in word 7 above, using the calibration of the temperature sensor and assuming nominal calibration of the spacecraft's A/D converter. If the count is greater than 222, +80°C will be the value. If the count is less than 32 or fill, -40°C will be the value.

WORD 10 (part)

| 11 10 9 8 7 6 5 4 3 2 1 0 |
|---|
| CONVERTED BUSS VOLTS |

A 12-bit unsigned integer giving the converted value of the spacecraft buss voltage in units of 10mV, computed according to

voltage = 25 (230-count) + 24000 mV,

which assumes nominal operation of the A/D converter. If the count in word 7 above was fill, the converted value will be 29750 mV.

WORD 11

D1 sectored rate anisotropy indication.

WORD 12

D2 sectored rate anisotropy indication

| 23 22 21 20 19 18 17 16 15 14 13 12 | 11 10 9 8 7 6 | 5 4 3 2 1 0 | |
|---|---|---|---|
| D1 ANISOTROPY | MAX | MIN | 11 |
| D2 ANISOTROPY | MAX | MIN | 12 |

See the preceeding section on descriptions of algorithms for details on the derivation of these. Briefly, for each case--

if no data, entire word is 0's.

if data available but "significance" criterion not met,

MAX = MIN = 0, anisotropy = -1 (16-bit 2-compliment).

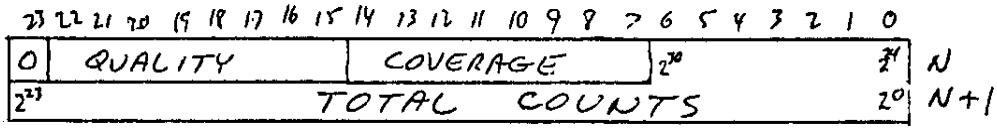
if the criterion is satisfied, then MAX is set to the first sector in which the greatest count occurred, MIN is set to the first sector in which the least count occurred, and the anisotropy measure is set to the binary integer truncated value of

100 (greatest - least) / (greatest + least)

WORD 13

Spare. 24 binary zeroes.

| | | | | |
|---|---|---|---|---|
| WORDS | 14,15 | D1 rate | 30,31 | D46 rate |
| | 16,17 | D2 rate | 32,33 | CKD6 rate |
| | 18,19 | D3 rate | 34,35 | L1 rate |
| | 20,21 | D4 rate | 36,37 | L2 rate |
| | 22,23 | CK rate | 38,39 | $L1_1$ rate |
| | 24,25 | D6 rate | 40,41 | $L1_2$ rate |
| | 26,27 | HZLE rate | 42,43 | $L1_3$ rate |
| | 28,29 | HZHE rate | | |




TYPICAL RATE

The total counts, and the number and quality of the data, for the readouts of the unsectored rates used in this interval, as selected according to the criteria in the earlier description of algorithms.

COUNTS - 31-bit unsigned binary integer (will be 0 if no data).

COVERAGE - 8-bit unsigned integer giving time covered by available data for this rate, in units of 2.56 seconds (at the nominal spacecraft clock frequency). Range 0 (for no data) to 128.

QUALITY - 8-bit unsigned binary integer giving the time covered by available data which were of excellent telemetry quality. In the same units and not greater than the coverage figure above.

72-073A-07C

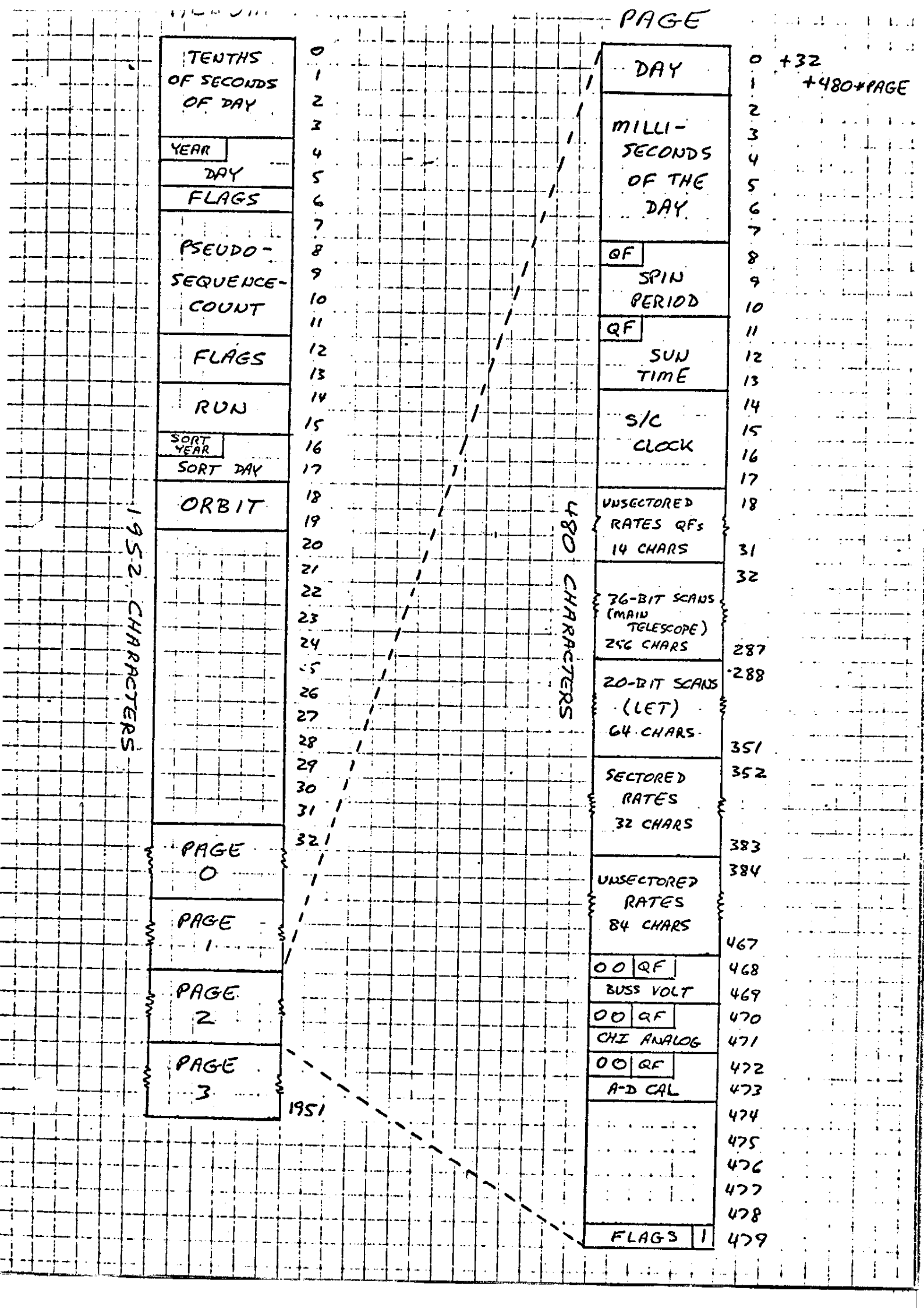
# IMP-7,8 SORTED DATA TAPE FORMATS

The output of the program which reformats, time-sorts and eliminates overlap from the data on our raw data tapes produces an output file for the run. These files are gathered onto HOST (IMP-7) or JOST (IMP-8) tapes. HOST (or JOST) tape n contains runs 2 (n-1) and 2 (n-1)+1, thus:

| HOST (JOST) | FILE | RUN |
|---|---|---|
| 1 | 1 | 0 |
| 1 | 2 | 1 |
| 2 | 1 | 2 |
| 2 | 2 | 3 |
| 3 | 1 | 4 |
| . | . | . |
| . | . | . |
| . | . | . |

Each run is a file. Before processing for the entire mission is complete, some runs may be missing. Their files then consist solely of an end-of-file, with no data records. Note that if there are ultimately an odd number of runs, the final tape for a mission will contain only one run. Also, there was no run 0 for IMP-8; JOST 1 therefore begins with an EOF in place of run 0.

A HOST or JOST tape is a standard 7-track magnetic tape written in binary (odd) parity. Each file (run) consists, unless the run is missing, of some number of 1952-character physical records, each containing data for one album of telemetry. A description of the content of such a record follows. Note that the 6-bit characters in the album header are numbered starting with 0 and that the 480 characters of information for each page are numbered, starting with 0, relative to the start of the page (see diagram on next page).

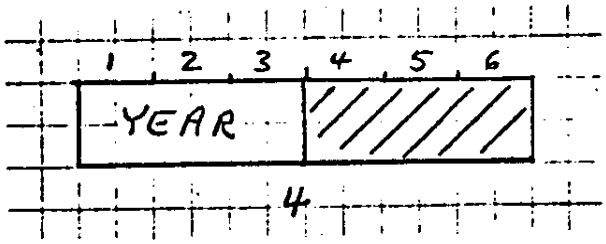

PAGE
TENTHS OF SECONDS OF DAY
YEAR
DAY
FLAGS
PSEUDO-SEQUENCE-COUNT
FLAGS
RUN
SORT YEAR
SORT DAY
ORBIT
PAGE 0
PAGE 1
PAGE 2
PAGE 3
1951
1952 CHARACTERS
480 CHARACTERS
DAY
MILLI-SECONDS OF THE DAY
QF
SPIN PERIOD
QF
SUN TIME
S/C CLOCK
UNSECTORED RATES QFs 14 CHARS
36-BIT SCANS (MAIN TELESCOPE) 256 CHARS
20-BIT SCANS (LET) 64 CHARS
SECTORED RATES 32 CHARS
UNSECTORED RATES 84 CHARS
00 QF
BUSS VOLT
00 QF
CHI ANALOG
00 QF
A-D CAL
FLAGS 1
+32
+480*PAGE

Items Present Once Per Album

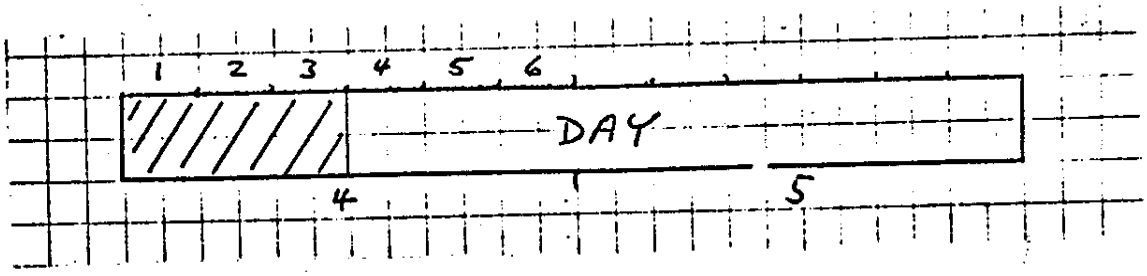
Chars.

0- 3 Tenths of seconds of the day. A 24-bit unsigned integer giving the time in tenths of seconds past midnight, Universal Time.

4(part) Year. A 3-bit unsigned integer giving the year modulo 1970 (e.g. 3=1973).




4(part)-5 Day. A 9-bit unsigned integer giving the day of the year (January 1=1; see table).




The time given in the above three items is the time of the start of the album. This time is extrapolated back, if necessary, from the milliseconds of the day on our raw data tapes for the start of the first non-empty page in the album, and truncated to an even tenth-second. If two albums are merged to create the final output album, an arbitrary one of the times is kept. (Albums are not merged unless, among other things, the times agree within 2 seconds.)

Times in a file will monotonically increase except, perhaps, at a bit-rate change.

Regular Year, January 1 = 1

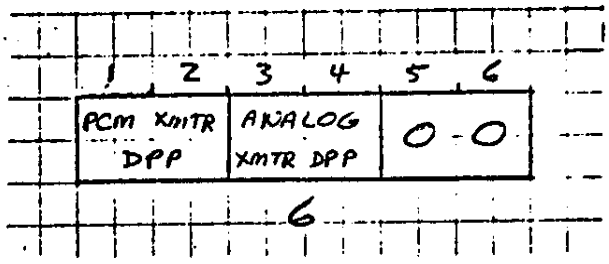
| DAY | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 32 | 60 | 91 | 121 | 152 | 182 | 213 | 244 | 274 | 305 | 335 |
| 2 | 2 | 33 | 61 | 92 | 122 | 153 | 183 | 214 | 245 | 275 | 306 | 336 |
| 3 | 3 | 34 | 62 | 93 | 123 | 154 | 184 | 215 | 246 | 276 | 307 | 337 |
| 4 | 4 | 35 | 63 | 94 | 124 | 155 | 185 | 216 | 247 | 277 | 308 | 338 |
| 5 | 5 | 36 | 64 | 95 | 125 | 156 | 186 | 217 | 248 | 278 | 309 | 339 |
| 6 | 6 | 37 | 65 | 96 | 126 | 157 | 187 | 218 | 249 | 279 | 310 | 340 |
| 7 | 7 | 38 | 66 | 97 | 127 | 158 | 188 | 219 | 250 | 280 | 311 | 341 |
| 8 | 8 | 39 | 67 | 98 | 128 | 159 | 189 | 220 | 251 | 281 | 312 | 342 |
| 9 | 9 | 40 | 68 | 99 | 129 | 160 | 190 | 221 | 252 | 282 | 313 | 343 |
| 10 | 10 | 41 | 69 | 100 | 130 | 161 | 191 | 222 | 253 | 283 | 314 | 344 |
| 11 | 11 | 42 | 70 | 101 | 131 | 162 | 192 | 223 | 254 | 284 | 315 | 345 |
| 12 | 12 | 43 | 71 | 102 | 132 | 163 | 193 | 224 | 255 | 285 | 316 | 346 |
| 13 | 13 | 44 | 72 | 103 | 133 | 164 | 194 | 225 | 256 | 286 | 317 | 347 |
| 14 | 14 | 45 | 73 | 104 | 134 | 165 | 195 | 226 | 257 | 287 | 318 | 348 |
| 15 | 15 | 46 | 74 | 105 | 135 | 166 | 196 | 227 | 258 | 288 | 319 | 349 |
| 16 | 16 | 47 | 75 | 106 | 136 | 167 | 197 | 228 | 259 | 289 | 320 | 350 |
| 17 | 17 | 48 | 76 | 107 | 137 | 168 | 198 | 229 | 260 | 290 | 321 | 351 |
| 18 | 18 | 49 | 77 | 108 | 138 | 169 | 199 | 230 | 261 | 291 | 322 | 352 |
| 19 | 19 | 50 | 78 | 109 | 139 | 170 | 200 | 231 | 262 | 292 | 323 | 353 |
| 20 | 20 | 51 | 79 | 110 | 140 | 171 | 201 | 232 | 263 | 293 | 324 | 354 |
| 21 | 21 | 52 | 80 | 111 | 141 | 172 | 202 | 233 | 264 | 294 | 325 | 355 |
| 22 | 22 | 53 | 81 | 112 | 142 | 173 | 203 | 234 | 265 | 295 | 326 | 356 |
| 23 | 23 | 54 | 82 | 113 | 143 | 174 | 204 | 235 | 266 | 296 | 327 | 357 |
| 24 | 24 | 55 | 83 | 114 | 144 | 175 | 205 | 236 | 267 | 297 | 328 | 358 |
| 25 | 25 | 56 | 84 | 115 | 145 | 176 | 206 | 237 | 268 | 298 | 329 | 359 |
| 26 | 26 | 57 | 85 | 116 | 146 | 177 | 207 | 238 | 269 | 299 | 330 | 360 |
| 27 | 27 | 58 | 86 | 117 | 147 | 178 | 208 | 239 | 270 | 300 | 331 | 361 |
| 28 | 28 | 59 | 87 | 118 | 148 | 179 | 209 | 240 | 271 | 301 | 332 | 362 |
| 29 | 29 | | 88 | 119 | 149 | 180 | 210 | 241 | 272 | 302 | 333 | 363 |
| 30 | 30 | | 89 | 120 | 150 | 181 | 211 | 242 | 273 | 303 | 334 | 364 |
| 31 | 31 | | 90 | | 151 | | 212 | 243 | | 304 | | 365 |

Leap Year, January 1 = 1

| DAY | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 32 | 61 | 92 | 122 | 153 | 183 | 214 | 245 | 275 | 306 | 336 |
| 2 | 2 | 33 | 62 | 93 | 123 | 154 | 184 | 215 | 246 | 276 | 307 | 337 |
| 3 | 3 | 34 | 63 | 94 | 124 | 155 | 185 | 216 | 247 | 277 | 308 | 338 |
| 4 | 4 | 35 | 64 | 95 | 125 | 156 | 186 | 217 | 248 | 278 | 309 | 339 |
| 5 | 5 | 36 | 65 | 96 | 126 | 157 | 187 | 218 | 249 | 279 | 310 | 340 |
| 6 | 6 | 37 | 66 | 97 | 127 | 158 | 188 | 219 | 250 | 280 | 311 | 341 |
| 7 | 7 | 38 | 67 | 98 | 128 | 159 | 189 | 220 | 251 | 281 | 312 | 342 |
| 8 | 8 | 39 | 68 | 99 | 129 | 160 | 190 | 221 | 252 | 282 | 313 | 343 |
| 9 | 9 | 40 | 69 | 100 | 130 | 161 | 191 | 222 | 253 | 283 | 314 | 344 |
| 10 | 10 | 41 | 70 | 101 | 131 | 162 | 192 | 223 | 254 | 284 | 315 | 345 |
| 11 | 11 | 42 | 71 | 102 | 132 | 163 | 193 | 224 | 255 | 285 | 316 | 346 |
| 12 | 12 | 43 | 72 | 103 | 133 | 164 | 194 | 225 | 256 | 286 | 317 | 347 |
| 13 | 13 | 44 | 73 | 104 | 134 | 165 | 195 | 226 | 257 | 287 | 318 | 348 |
| 14 | 14 | 45 | 74 | 105 | 135 | 166 | 196 | 227 | 258 | 288 | 319 | 349 |
| 15 | 15 | 46 | 75 | 106 | 136 | 167 | 197 | 228 | 259 | 289 | 320 | 350 |
| 16 | 16 | 47 | 76 | 107 | 137 | 168 | 198 | 229 | 260 | 290 | 321 | 351 |
| 17 | 17 | 48 | 77 | 108 | 138 | 169 | 199 | 230 | 261 | 291 | 322 | 352 |
| 18 | 18 | 49 | 78 | 109 | 139 | 170 | 200 | 231 | 262 | 292 | 323 | 353 |
| 19 | 19 | 50 | 79 | 110 | 140 | 171 | 201 | 232 | 263 | 293 | 324 | 354 |
| 20 | 20 | 51 | 80 | 111 | 141 | 172 | 202 | 233 | 264 | 294 | 325 | 355 |
| 21 | 21 | 52 | 81 | 112 | 142 | 173 | 203 | 234 | 265 | 295 | 326 | 356 |
| 22 | 22 | 53 | 82 | 113 | 143 | 174 | 204 | 235 | 266 | 296 | 327 | 357 |
| 23 | 23 | 54 | 83 | 114 | 144 | 175 | 205 | 236 | 267 | 297 | 328 | 358 |
| 24 | 24 | 55 | 84 | 115 | 145 | 176 | 206 | 237 | 268 | 298 | 329 | 359 |
| 25 | 25 | 56 | 85 | 116 | 146 | 177 | 207 | 238 | 269 | 299 | 330 | 360 |
| 26 | 26 | 57 | 86 | 117 | 147 | 178 | 208 | 239 | 270 | 300 | 331 | 361 |
| 27 | 27 | 58 | 87 | 118 | 148 | 179 | 209 | 240 | 271 | 301 | 332 | 362 |
| 28 | 28 | 59 | 88 | 119 | 149 | 180 | 210 | 241 | 272 | 302 | 333 | 363 |
| 29 | 29 | 60 | 89 | 120 | 150 | 181 | 211 | 242 | 273 | 303 | 334 | 364 |
| 30 | 30 | | 90 | 121 | 151 | 182 | 212 | 243 | 274 | 304 | 335 | 365 |
| 31 | 31 | | 91 | | 152 | | 213 | 244 | | 305 | | 366 |

Chars.

6 Flags, as shown:




PCM transmitter DPP summary:

00 - All non-fill readouts of the PCM transmitter digital performance parameter in this album agree that the transmitter is on.

01 - One or more PCM transmitter DPP values show transmitter off.

10 - No non-fill readouts of PCM transmitter DPP.

11 - (will not occur)

Analog transmitter DPP summary:

00 - All non-fill readouts of the analog transmitter digital performance parameter in this album agree that the transmitter is off.

01 - One or more analog transmitter DPP values show transmitter on.

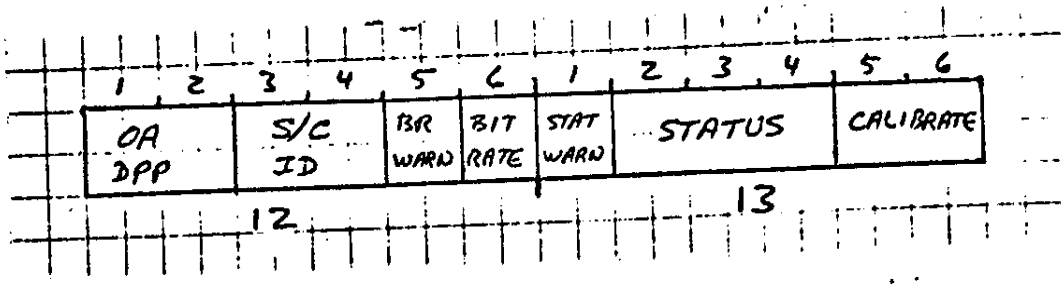
10 - No non-fill readouts of the analog transmitter DPP.

11 - (will not occur)

7-11 Pseudo-sequence-count. A 30-bit unsigned integer giving the PSC of the first sequence in the album. This is extrapolated back as needed from the PSC of the first non-fill sequence of the first non-empty page as given on our raw data tapes. PSCs within a file will increase monotonically except, perhaps, when there is a bit-rate change. (Two albums are never merged to create the output album unless the PSCs are identical.)

Chars.

12-13 Flags, as follows:




OA system DPP summary:

01 - All non-fill values of the optical-aspect system digital performance parameter agree that the system is on.

10 - One or more non-fill OA DPPs is the album state that the system is off.

00 - No non-fill readouts of the OA DPP.

11 - (will not occur)

Spacecraft ID.

01 - IMP-7

10 - IMP-8

00,11 - (will not occur)

Bit rate warning flag. A flag indicating whether it is known that during the preceding album of time the spacecraft was operating at the same bit rate as this album. (If not known, the first rate readouts in the album may cover an unknown amount of time.) This flag is set to 1 during reading of the raw data tape in each album containing the first non-empty page of an input file. If two albums are merged to create the final output file, the flag is reset to 0 unless it was set in both albums. During output, the flag is reset if the preceding album output has the same bit rate and immediately precedes this one in real time.

0 - preceding album known same

1 - otherwise

Bit rate. The telemetry bit rate, from the input file-header record. The program insists that this be consistent with the PSC stepping rate and the "k" bit in the telemetered spacecraft clock.

0 - 400 BPS

1 - 1600 BPS

Status warning flag. This flag is set if the status of the instrument during the preceding album of time is "mixed" (see status below) or is not known to be the same as the status of current album. Specifically, the flag is set to 1 if: (a) last album output is different bit rate or doesn't immediately precede in real time, or (b) the status of last album is "mixed" or different, or (c) the first fourteen snapshots (i.e. all but the last two) of the preceding album were all fill.

0 - previous status known same

1 - otherwise

Status. A 3-bit flag giving the ground-command state of the instrument during the current album. For each non-fill sequence in the album, a status is determined as follows: if the PI bits in the 36-bit scan are 00, the instrument is presumed to be off. Otherwise, the GC bits in the 20-bit scan are used. If all the sequences agree, then that is the summary status for the album; otherwise, the status is "mixed".

000 - off

001 - normal

010 - high gain

011 - emergency

100 - flare override

101 - mixed

110,111 - (will not occur)

Calibrate flag. For each album, the reconstructed spacecraft clock value in the first non-empty page is examined, and a calibrate/normal flag is constructed from the known relation between calibrate mode and the clock.

01 - this is the first album of a calibrate period

10 - this is an album of calibrate other than the first

11 - this is the first album of normal mode data following a calibrate period

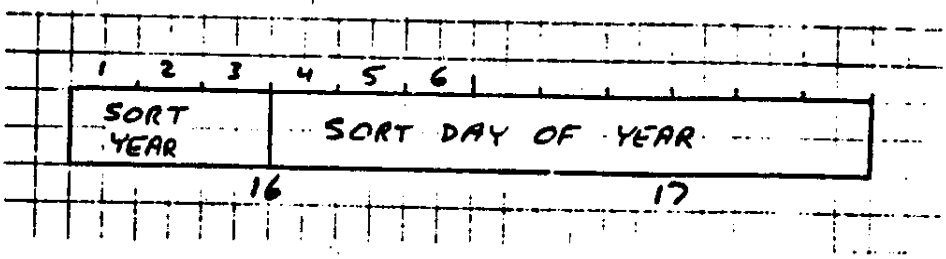
00 - otherwise

(Note: "first album" means the actual first album in real time. The first album may not be present on the tape, owing to a gap in data coverage.)

Chars.

14-15 Decom run number, a 12-bit unsigned integer.

16-17 Date of sort. The date (day, January 1=1, and year modulo 1970) that the sort program was run on the raw data tape. (For bookkeeping and error tracing.)




18-19 Orbit number. A 12-bit unsigned orbit (perigee-crossing) number, taken from the header record in each raw data tape file. Ordinarily, all files in a run are for the same orbit, but in the event that two albums from files with different orbit numbers are merged, the smaller number will be kept. (The orbit number in the file header refers to the beginning time of the file.)

20-31 spares

Items Present in Each Page.

If an entire page is fill, it will be empty; that is, all data quality flags are set to indicate fill, all telemetered data are binary zeros, and the time and reconstructed spacecraft clock are also zero. (The time quality will be binary 00.) *If there are data in the page*, its contents are as follows:

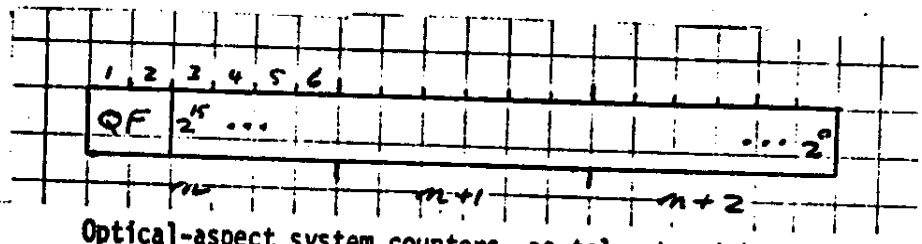
Chars.

0- 1 Day. A 12-bit unsigned day of year (January 1=1.)

2- 7 Milliseconds of the day. A 36-bit unsigned integer. These two items give the time (UT) of the start of the page, copied directly from the Experimenter Data Tape (EDT).

8-10 Spin period.

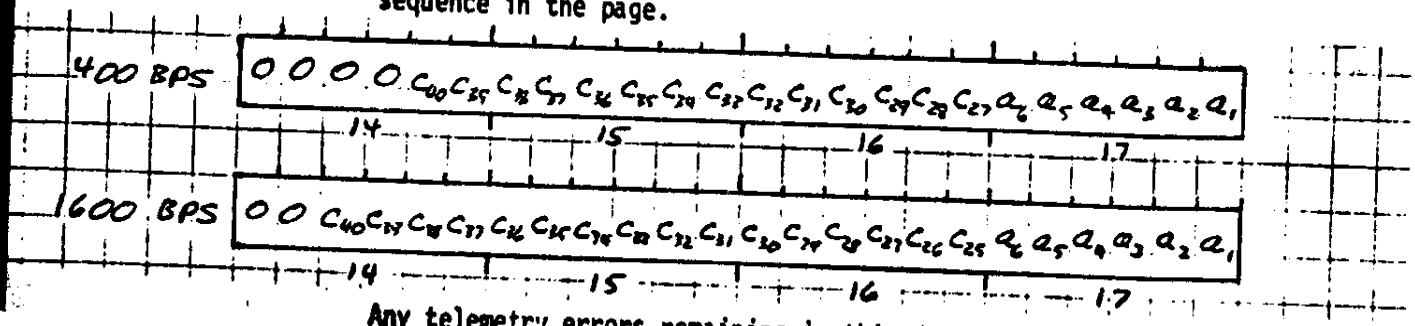
11-13 Sun time.




Optical-aspect system counters, as telemetered in snapshot 3. (They therefore refer to current page.) If fill, count will be 0. The 2-bit quality flag gives the data quality according to the code:

00 - excellent
01 - good
10 - fill
11 - (will not occur)

14-17 Reconstructed spacecraft clock value for the first non-fill sequence in the page.




Any telemetry errors remaining in this datum after convolutional decoding will have been corrected by further processing (hence "reconstructed").

Chars.

18-31 <u>Rate quality flags</u>. The 2-bit quality flags associated with the unsectored rates, which are located in characters 384-467 below. Each quality flag has the meaning:

00 - excellent

01 - good

10 - fill

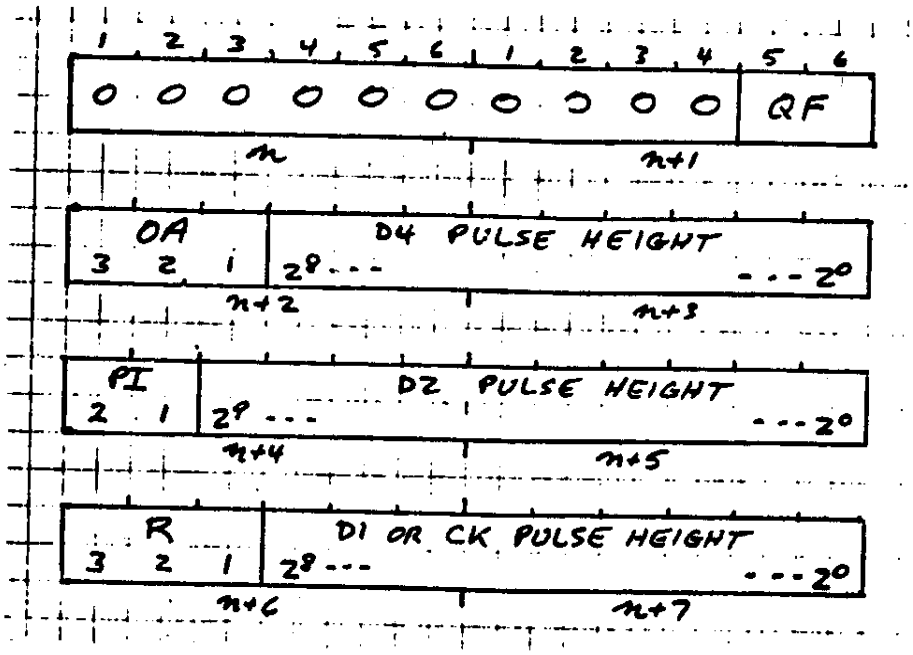
11 - (will not occur)

| 1, 2 | 3, 4 | 5, 6 | 1, 2 | 3, 4 | 5, 6 |
|---|---|---|---|---|---|
| D1a (0) | D1b (0) | D1a (1) | D1b (1) | D1a (2) | D1b (2) |
| 18 | | | | 19 | |
| D1a (3) | D1b (3) | D2 (0) | D2 (1) | D2 (2) | D2 (3) |
| 20 | | | | 21 | |
| D3 (0) | D3 (1) | D3 (2) | D3 (3) | D4 (0) | D4 (1) |
| 22 | | | | 23 | |
| D4 (2) | D4 (3) | CK (0) | CK (2) | L1 (0) | L1 (2) |
| 24 | | | | 25 | |
| $L1_2$ (1) | $L1_2$ (3) | L2 (0) | L2 (2) | $L1_1$ (1) | $L1_1$ (3) |
| 26 | | | | 27 | |
| HZLE (1) | HZLE (3) | HZHE (0) | HZHE (2) | D4b (0) | D4b (2) |
| 28 | | | | 29 | |
| CKD6 (1) | CKD6 (3) | D6 (0) | D6 (2) | $L1_3$ (0) | $L1_3$ (2) |
| 30 | | | | 31 | |

Note that the quality flags appear in the same order as the rates themselves. The digit in parentheses under each rate name is the snapshot of the readout referred to.

Chars.

32-287 Main telescope digital scans.




Thirty-two at eight characters each. These 36-bit scans and associated qualities appear in the order they were read out during the page. Data in fill scans will be binary zeros. The quality flag gives the quality of the readout according to the code:

00 - excellent

01 - good

10 - fill

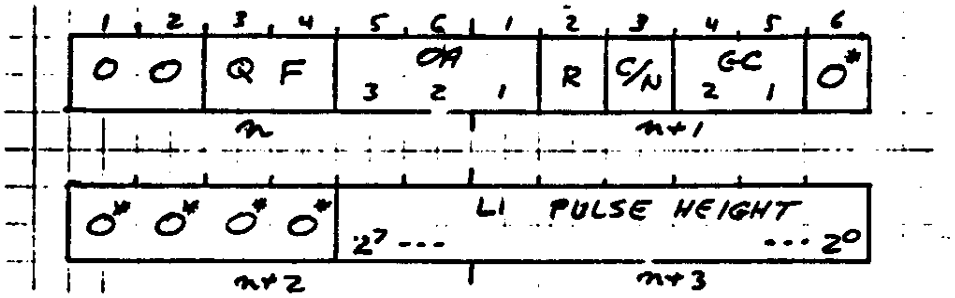
11 - (will not occur)

OA Bits If no event, 000. If an event occurred, the sector geometry (see Appendix 1, page 1.6) is given by:

| OA3 | OA2 | OA1 | Sector |
|---|---|---|---|
| 0 | 0 | 0 | 8 |
| 0 | 0 | 1 | 7 |
| 0 | 1 | 0 | 6 |
| 0 | 1 | 1 | 5 |
| 1 | 0 | 0 | 4 |
| 1 | 0 | 1 | 3 |
| 1 | 1 | 0 | 2 |
| 1 | 1 | 1 | 1 |

Chars.

288-351 L.E.T. digital scans.




Sixteen at four characters each. These 20-bit scans and associated qualities appear in the order they were read out during the page. Data in fill scans will be binary zeros. The binary zeros marked with an asterisk in the diagram are part of the scan and are subject to telemetry errors. The quality flag is coded:

00 - excellent
01 - good
10 - fill
11 - (will not occur)

OA Bits If no event, 000. If an event occurred, the correspondence with sector number (see Appendix 1, page 1.6) is:

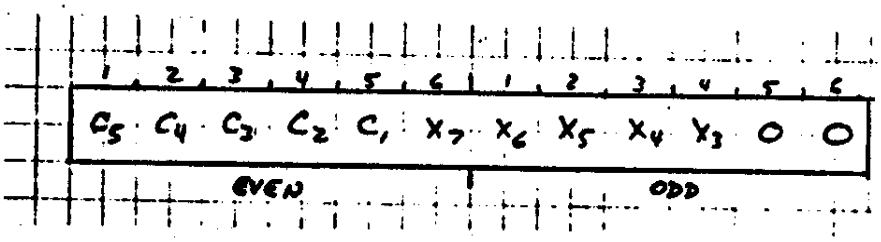
| OA3 | OA2 | OA1 | Sector |
|---|---|---|---|
| 1 | 1 | 1 | 1 |
| 0 | 0 | 0 | 2 |
| 0 | 0 | 1 | 3 |
| 0 | 1 | 0 | 4 |
| 0 | 1 | 1 | 5 |
| 1 | 0 | 0 | 6 |
| 1 | 0 | 1 | 7 |
| 1 | 1 | 0 | 8 |

Note that the OA bit to sector correspondence for the LET is different from that for the Main Telescope!

## Sectored rates

Chars.

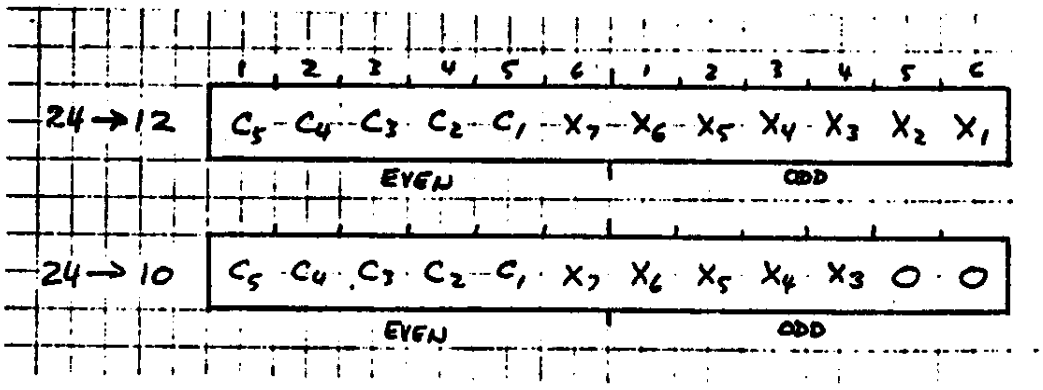
| | | |
|---|---|---|
| 352-353 | D1 sector | 1 sectored rate |
| 354-355 | D1 | 2 |
| 356-357 | D1 | 3 |
| 358-359 | D1 | 4 |
| 360-361 | D1 | 5 |
| 362-363 | D1 | 6 |
| 364-365 | D1 | 7 |
| 366-367 | D1 | 8 |
| 368-369 | D2 sector | 1 |
| 370-371 | D2 | 2 |
| 372-373 | D2 | 3 |
| 374-375 | D2 | 4 |
| 376-377 | D2 | 5 |
| 378-379 | D2 | 6 |
| 380-381 | D2 | 7 |
| 382-383 | D2 | 8 |




The telemetered values of the sectored rates as listed above. Fill data will be all zeros. The quality flag which applies to all these readouts appears in character 479 below.

## Unsectored Rates

| CHARS. | RATE | TELEMETRY SNAP | 24→? | CHARS. | RATE | TELEMETRY SNAP | 24→? |
|---|---|---|---|---|---|---|---|
| 384-385 | D1a | 0 | 12 | 426-427 | CK | 2 | 12 |
| 386-387 | D1b | 0 | 12 | 428-429 | L1 | 0 | 12 |
| 388-389 | D1a | 1 | 12 | 430-431 | L1 | 2 | 12 |
| 390-391 | D1b | 1 | 12 | 432-433 | $L1_2$ | 1 | 12 |
| 392-393 | D1a | 2 | 12 | 434-435 | $L1_2$ | 3 | 12 |
| 394-395 | D1b | 2 | 12 | 436-437 | L2 | 0 | 12 |
| 396-397 | D1a | 3 | 12 | 438-439 | L2 | 2 | 12 |
| 398-399 | D1b | 3 | 12 | 440-441 | $L1_1$ | 1 | 12 |
| 400-401 | D2 | 0 | 12 | 442-443 | $L1_1$ | 3 | 12 |
| 402-403 | D2 | 1 | 12 | 444-445 | HZLE | 1 | 12 |
| 404-405 | D2 | 2 | 12 | 446-447 | HZLE | 3 | 12 |
| 406-407 | D2 | 3 | 12 | 448-449 | HZHE | 0 | 12 |
| 408-409 | D3 | 0 | 12 | 450-451 | HZHE | 2 | 12 |
| 410-411 | D3 | 1 | 12 | 452-453 | D46 | 0 | 12 |
| 412-413 | D3 | 2 | 12 | 454-455 | D46 | 2 | 12 |
| 414-415 | D3 | 3 | 12 | 456-457 | CKD6 | 1 | 12 |
| 416-417 | D4 | 0 | 12 | 458-459 | CKD6 | 3 | 12 |
| 418-419 | D4 | 1 | 12 | 460-461 | D6 | 0 | 10 |
| 420-421 | D4 | 2 | 12 | 462-463 | D6 | 2 | 10 |
| 422-423 | D4 | 3 | 12 | 464-465 | $L1_3$ | 0 | 10 |
| 424-425 | CK | 0 | 12 | 466-467 | $L1_3$ | 2 | 10 |



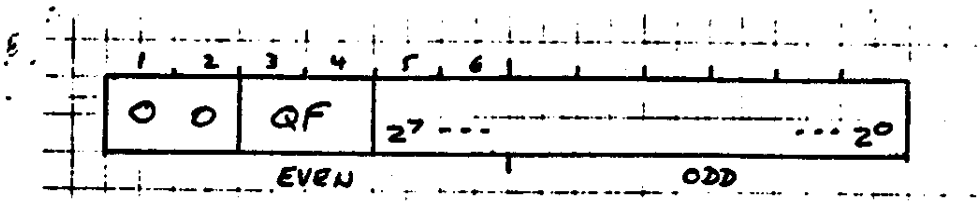

The telemetered values of the unsectored rates. Quality flags appear in characters 18-31 above; fill data are all binary zeros.

Chars.

468-469 Buss voltage analog count

470-471 Instrument temperature

472-473 A-D converter calibration




The telemetered values of the indicated analog parameters. Fill values will be binary zeros; the buss voltage will always be fill in odd-numbered pages, since it really is only telemetered every other page. The quality flags indicate data qualities according to:

00 - excellent

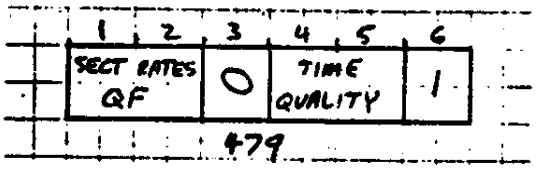
01 - good

10 - fill

11 - (will not occur)

474-478 spares

479 Flags, as shown.




Sectored rates quality flag, for all the data in characters 352-383 above:

00 - excellent

01 - good

10 - fill

11 - (will not occur)

Time quality for the milliseconds of the day for this page, as given on the raw data tape.

01 - analog time agreed with s/c clock

10 - time corrected on basis of s/c clock

00,11 - (will not occur)

$JOB 12:45:15
$NOP DPOCT7 IF TAPE X-397
$ASS IN MS6
$EXEC DPOCT7 BS
INPUT TAPE ON MS6
DATA INPUT 1 1 1

60 FILES

72-073A-07B [OSP]
IMP-H
DVAE OF D-28846
5,46 MIN, AVG, COUNT RATES (RATE)
01/22/74 - 09/21/74

| FILE 1 | RECORD 1 | LENGTH | 2640 BYTES | | | | | |
|---|---|---|---|---|---|---|---|---|
| ( 0) | 175366700000 | 142624717002 | 145377720022 | 643700001416 | 000005240243 | 007403470036 | 020302030252 | 541100013101 |
| ( 48) | 777774000000 | 000016635400 | 000136711603 | 400000000021 | 160340000000 | 011616034000 | 000000141643 | 500000000444 |
| ( 96) | 164350000071 | 733516435000 | 000000011643 | 500000000002 | 164350000000 | 016717036000 | 000004561703 | 600000000221 |
| ( 144) | 164350000000 | 003316435000 | 000000001703 | 600000000000 | 170360000000 | 000001762200 | 000040262471 | 700214540372 |
| ( 192) | 002264370000 | 141600000524 | 024300740347 | 003602030203 | 025254110001 | 052777777400 | 000000001703 | 600000014155 |
| ( 240) | 166354000000 | 004116635400 | 000001521643 | 500000000020 | 200400000000 | 053020040000 | 010026401703 | 600000000000 |
| ( 288) | 200400000000 | 000420040000 | 000002421643 | 500000000461 | 170360000000 | 026720040000 | 000000431703 | 600000000010 |
| ( 336) | 164350000000 | 000017036000 | 000000000177 | 351000004026 | 247170021454 | 077200226437 | 000014200000 | 052402430074 |
| ( 384) | 034700360203 | 020302525411 | 000215307777 | 740000000000 | 166354000001 | 405416635400 | 000000361663 | 540000000157 |
| ( 432) | 170360000000 | 001417036000 | 000004651703 | 600000740136 | 164350000000 | 000217036000 | 000000011703 | 600000000203 |
| ( 480) | 164350000000 | 042017036000 | 000002441703 | 600000000034 | 164350000000 | 001616435000 | 000000001703 | 600000000000 |
| ( 528) | 017770210000 | 402624717002 | 145413720022 | 643700001420 | 000005240243 | 007403470036 | 020302030252 | 541100016101 |
| ( 576) | 777774000000 | 000017437000 | 000140171703 | 600000000030 | 170360000000 | 015017036000 | 000000201643 | 500000000453 |
| ( 624) | 164350000071 | 723516435000 | 000000011643 | 500000000001 | 164350000000 | 017615433000 | 000003732004 | 000000000256 |
| ( 672) | 164350000000 | 004116435000 | 000000171543 | 300000000000 | 200400000000 | 000002005332 | 000040262471 | 700214541772 |
| ( 720) | 002264370000 | 142200000524 | 024300740347 | 003602030203 | 025254110001 | 310777777400 | 000000001723 | 640000013623 |
| ( 768) | 166354000000 | 003316635400 | 000001671643 | 500000000022 | 174370000000 | 047017437000 | 007571371743 | 700000000002 |
| ( 816) | 174370000000 | 000117437000 | 000002271743 | 700000000506 | 174370000000 | 025117437000 | 000000341743 | 700000000006 |
| ( 864) | 174370000000 | 000117437000 | 000000000201 | 364200004026 | 247170021454 | 237200226437 | 000014220000 | 052402430074 |
| ( 912) | 034700360203 | 020302525411 | 000134417777 | 740000000000 | 164350000001 | 320516435000 | 000000311643 | 500000000135 |
| ( 960) | 166340000000 | 002517437000 | 000005251743 | 700000755037 | 160340000000 | 000317437000 | 000000011743 | 700000000236 |
| ( 1008) | 170360000000 | 044117036000 | 000002271743 | 700000000025 | 160340000000 | 001017036000 | 000000001703 | 600000000000 |
| ( 1056) | 020221530000 | 402624717002 | 145427720022 | 643700001424 | 000005240243 | 007403470036 | 020302030252 | 541100014110 |
| ( 1104) | 777774000000 | 000017236400 | 000136431663 | 540000000027 | 166354000000 | 014017036000 | 000000241503 | 200000000406 |
| ( 1152) | 150320000063 | 533217437000 | 000000011503 | 200000000000 | 150320000000 | 017215433000 | 000004211703 | 600000000212 |
| ( 1200) | 150320000000 | 003417437000 | 000000141543 | 300000000000 | 170360000000 | 000002030464 | 000040262471 | 700214543372 |
| ( 1248) | 002264370000 | 142400000524 | 024300740347 | 003602030203 | 025254110002 | 207077777400 | 000000001663 | 540000013644 |
| ( 1296) | 170360000000 | 004617036000 | 000001461703 | 600000000021 | 160340000000 | 044316034000 | 006763341603 | 400000000001 |
| ( 1344) | 160340000000 | 000116034000 | 000002121543 | 300000000411 | 174370000000 | 024416034000 | 000000301603 | 400000000005 |
| ( 1392) | 154330000000 | 000017437000 | 000000000203 | 677500004026 | 247170021454 | 377200226437 | 000014260000 | 052302430074 |
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| ( 1488) | 164350000000 | 001516435000 | 000004551643 | 500000724135 | 174370000000 | 000516435000 | 000000001643 | 500000000160 |
| ( 1536) | 170360000000 | 043320040000 | 000002411643 | 500000000027 | 174370000000 | 000417036000 | 000000002004 | 000000000000 |
| ( 1584) | 020453050000 | 402624717002 | 145443720022 | 643700001430 | 000005230243 | 007403470036 | 020302030252 | 541100010025 |
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| ( 2064) | 154330000000 | 042017437000 | 000002432004 | 000000000034 | 160340000000 | 001715433000 | 000000001743 | 700000000000 |
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$ASS IN MS6
$AVF IN 59
$EXEC DPOCT7 BS
 INPUT TAPE ON MS6
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  (     96)   170360000065  603617036000  000002711703  600000000001  170360000000  034417437000  000005461443  100000157141
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  (    192)   002246150000  301200000553  024000740347  003602030203  024454110000  142500015145  000000001543  300011275354
  (    240)   160340000000  561716034000  000003331563  340000000121  160340000000  030316034000  006224341403  000000000206
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  (    384)   034700360203  020302445406  000011620001  610600000000  162344001125  436215433000  000052111543  300000000365
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  (    528)   027050560000  441027326303  131146720022  461500003014  000005520240  007503470036  020302030244  540600001023
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  (    720)   002246150000  301600000552  024000750347  003602030203  024454060000  105000022501  000000001603  400010772360
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  (   1968)   034700360203  020302445406  000011430001  316400000000  144310001220  534415633400  000060331563  340000000424
  (   2016)   160340000000  011714431000  000003041443  100000535331  130260000000  015314431000  000000031443  100000000302
  (   2064)   170360000000  054515433000  002040231443  100000025072  130260000000  257617036000  000000701543  300000000000
  (   2112)   027764750000  441027326303  131212720022  461500003024  000005520240  007403470036  020302030244  541100003163
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  (   2304)   002246150000  302400000552  024000750347  003602030203  024454060000  252377777400  000000001543  300015457254
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FILE 60

09/21/74

D-28846

09/21/74

07/20/74

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| ( 144) | 144310000002 | 470016435000 | 000034671643 | 500000000065 | 150320000000 | 000003030137 | 000044102732 | 630313123272 |
| ( 192) | 002246150000 | 302700000551 | 024000740347 | 003602030203 | 024454110000 | 253077777400 | 000000001563 | 340012135356 |
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| ( 672) | 160340000002 | 602013026000 | 000023451342 | 700000000047 | 150320000000 | 000003053272 | 000044102732 | 630313124672 |
| ( 720) | 002246150000 | 303200000551 | 024000740347 | 003602030203 | 024454110000 | 253000017461 | 000000001503 | 200011417350 |
| ( 768) | 152324000000 | 531515232400 | 000003401663 | 540000000110 | 170360000000 | 036717036000 | 006422361403 | 000000000210 |
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| ( 1152) | 150320000055 | 323216034000 | 000002171503 | 200000000000 | 150320000000 | 037516034000 | 000005761643 | 500000200045 |
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FILE 1 RECORD 7 LENGTH 2640 BYTES

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