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1. Introduction:

The documentation for this data set was originally on paper kept in NSSDC's Data Set Catalogs (DSCs). The offline tape datasets have now been migrated from the original magnetic tape to magnetic disk (starting in mid-2004). Accordingly, statements in the format descriptions that address such tape relevant factors as blocking and but density are no longer applicable. The paper documentation in the Data Set Catalogs have been scanned and made into digital images of the pages, the collected into a single PDF file for each Data Set Catalog.

The inventory information in these DSCs is current as of July 1, 2004. But this inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system, and the user should go to that interface (JIN) if further information existing in the DSCs is now not needed for locating data files, but we did not go to the trouble of removing that inventory information.

2. CHANGE LOG

Version	Date	Person	Page	Description of Change
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01				
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3. LINKS TO RELEVANT INFORMATION IN THE ONLINE NSSDC INFORMATION SYSTEM:

[NOTE: ANY OF THE INFORMATION FIELDS MIGHT BE BLANK.]

[THE “MATERIALS FOR DISTRIBUTION” FIELD IS HERE CALLED JUST “MATERIALS”]

“Remarks” for spacecraft SCNAME1”:

<http://nssdc.gsfc.nasa.gov/database/MasterCatalog?sc=1977-102A--remark-->

“Materials” for spacecraft SCNAME1”:

<http://nssdc.gsfc.nasa.gov/database/MasterCatalog?sc=1977-102A--mat-->

“Remarks” for SCNAME1 experiment EXNAME1:

<http://nssdc.gsfc.nasa.gov/database/MasterCatalog?sc=1977-102A&ex=09--remark-->

“Materials” for SCNAME1 experiment EXNAME1:

<http://nssdc.gsfc.nasa.gov/database/MasterCatalog?sc=1977-102&ex=09--mat-->

“Remarks” for EXNAME1 data set DSNAME1:

<http://nssdc.gsfc.nasa.gov/database/MasterCatalog?ds=SPHE-00677--remark-->

“Materials” for EXNAME1 data set DSNAME1:

<http://nssdc.gsfc.nasa.gov/database/MasterCatalog?ds=SPHE-00677--mat-->

“Remarks” for EXNAME1 data set DSNAME2:

<http://nssdc.gsfc.nasa.gov/database/MasterCatalog?ds=SPHE-00677--remark-->

“Materials” for EXNAME1 data set DSNAME2:

<http://nssdc.gsfc.nasa.gov/database/MasterCatalog?ds=SPHE-00677--mat-->

“Remarks” for EXNAME1 data set DSNAME3:

“Materials” for EXNAME1 data set DSNAME3:

“Remarks” for SCNAME1 experiment EXNAME2:

“Materials” for SCNAME1 experiment EXNAME2:

“Remarks” for EXNAME2 data set DSNAME1:

“Materials” for EXNAME2 data set DSNAME1:

“Remarks” for EXNAME2 data set DSNAME2:

“Materials” for EXNAME2 data set DSNAME2:

DATA SET CATALOG # 41

OSO III Solar X-RAY Detector

67020A-06A

21 tapes

OSO 3

CORRECTED 8-12A X-RAY FLUX

67-020A-06A

THIS DATA SET HAS BEEN RESTORED. ORIGINALLY THERE WERE 20
7-TRACK, 556 BPI TAPES, WRITTEN IN BINARY. THERE ARE THREE
RESTORED TAPES. THE DR TAPES ARE 3480 CARTRIDGES AND THE DS TAPES
ARE 9-TRACK, 6250 BPI. THE ORIGINAL TAPES WERE CREATED ON AN IBM
7094 COMPUTER. THE DR AND DS NUMBERS ALONG WITH THE CORRESPONDING
D NUMBERS AND TIME SPANS ARE AS FOLLOWS:

DR#	DS#	D#	FILES	TIME SPAN
DR003066	DS003066	D001582	1-417	04/05/67 - 05/02/67
		D001583	418-839	05/02/67 - 05/29/67
DR003067	DS003067	D001585	1-403	06/25/67 - 07/20/67
		D001586	404-820	07/20/67 - 08/15/67
		D001587	821-1231	08/15/67 - 09/10/67
		D001588	1232-1651	09/10/67 - 10/06/67
		D001589	1652-2069	10/06/67 - 11/02/67
		D001590	2070-2471	11/02/67 - 11/28/67
		D001591	2472-2879	11/28/67 - 12/23/67
		D001592	2880-3297	12/23/67 - 01/18/68
		D001593	3298-3712	01/18/67 - 02/13/68
DR003068	DS003068	D001594	1-426	02/13/68 - 03/11/68
		D001595	427-845	03/11/68 - 04/06/68
		D001596	846-891	04/06/68 - 04/09/68
		D005165	892-1294	04/11/68 - 05/06/68
		D005166	1295-1684	05/06/68 - 05/31/68
		D005167	1685-1995	05/31/68 - 06/30/68
		D005168	1996-2363	07/06/68 - 07/16/68

CORRECTED 8-12A X-RAY FLUX

67-020A-06A

This data set has been restored. There were originally 20 7-track, 556 BPI tapes written in Binary. There are 3 restored tapes. The DR tapes are 3480 cartridges and the DS tapes are 9-track, 6250 BPI. The original tapes were created on a 7094 computer. The DR, DS, and DD numbers along with the time spans are given as follows:

DR #	DS #	DD #	FILES	TIME SPAN
-----	-----	-----	-----	-----
DR03066	DS03066	D-01582	1 - 417	04/05/67 - 05/02/67
		D-01583	418 - 839	05/02/67 - 05/29/67
DR03067	DS03067	D-01585	1 - 403	06/25/67 - 07/20/67
		D-01586	404 - 820	07/20/67 - 08/15/67
		D-01587	821 - 1231	08/15/67 - 09/10/67
		D-01588	1232 - 1651	09/10/67 - 10/06/67
		D-01589	1652 - 2069	10/06/67 - 11/02/67
		D-01590	2070 - 2471	11/02/67 - 11/28/67
		D-01591	2472 - 2879	11/28/67 - 12/23/67
		D-01592	2880 - 3297	12/23/67 - 01/18/68
		D-01593	3298 - 3712	01/18/68 - 02/13/68
DR03068	DS03068	D-01594	1 - 426	02/13/68 - 03/11/68
		D-01595	427 - 845	03/11/68 - 04/06/68
		D-01596	846 - 891	04/06/68 - 04/09/68
		D-05165	892 - 1294	04/11/68 - 05/06/68
		D-05166	1295 - 1684	05/06/68 - 05/31/68
		D-05167	1685 - 1995	05/31/68 - 06/30/68
		D-05168	1996 - 2363	07/06/68 - 07/16/68

DESCRIPTION OF MICHIGAN OSO III X-RAY DATA

I. Operation of Instrument and Its Calibration

The instrument uses as detector an ion chamber with an aluminum foil window (surface density 3.27 gm cm^{-2}) which is filled with N_2 gas (surface density 3.18 gm cm^{-2}). The effective aperture of the ion chamber is 3.22 cm^2 . The average depth of the cylindrical chamber is 2.58 cm . The band-pass for a similar ion chamber has been published by Acton, Chubb, Kreplin and Meekins (Journal of Geophysical Research 68, 3335, 1963).

The solar flux in the interval $8 \leq \lambda \leq 12 \text{ \AA}$ is calculated from the expression

$$I = 1.602 \times 10^{-19} \omega a E(8,12) \frac{\int_0^{\infty} \epsilon(\lambda) B(\lambda) d\lambda}{\int_8^{12} B(\lambda) d\lambda} \text{ ampere.}$$

Here,

I = ion chamber current in amperes,

ω = 36 eV per ion pair,

a = aperture (3.22 cm^2),

$\epsilon(\lambda)$ = efficiency of ion chamber,

$B(\lambda)$ = solar flux distribution, in $\text{ergs cm}^{-2} \text{ sec}^{-1} \text{ \AA}^{-1}$,

$E(8,12)$ = energy flux between $8 \leq \lambda \leq 12 \text{ \AA}$, $\text{ergs cm}^{-2} \text{ sec}^{-1}$.

In the calculations, $B(\lambda)$ is taken to be a black-body distribution at $2 \times 10^6 \text{ deg K}$, at all times. Thus:

$$E(8,12) = 7.75 \times 10^8 I \text{ ergs cm}^{-2} \text{ sec}^{-1}.$$

This calibration has been checked with an Fe^{55} pre-calibrated source. The recovery of I from the telemetry depends upon instrumental calibration. The estimated over-all accuracy of a measurement, subject to calibration uncertainties and restricted by the assumption on $B(\lambda)$, is $\pm 6\%$. This does not include the effects of amplifier noise, which are small, as we now describe.

Data positions in the storage register are restricted to the 7 least-significant bits. Each digital level of the available 127 corresponds to an increment of about 37 millivolts amplifier output. Pre-launch amplifier noise levels were about 25 millivolts (high-sensitivity range) and about 5 millivolts (low-sensitivity range). Zero-offset drift, measured electrically at 5-minute intervals, has been less than 3% since launch, and much less than 1% per orbit (relative to 5 volt full-scale).

Two ranges of sensitivity are automatically selected. High sensitivity range runs from 0 to about $0.0044 \text{ ergs cm}^{-2} \text{ sec}^{-1}$, with each of the 127 digital steps corresponding to increments of about $0.000035 \text{ ergs cm}^{-2} \text{ sec}^{-1}$. Low sensitivity range runs from 0 to about $0.12 \text{ ergs cm}^{-2} \text{ sec}^{-1}$, with each digital step corresponding to about $0.00095 \text{ ergs cm}^{-2} \text{ sec}^{-1}$. Above this, the instrument saturates.

II. Data Reduction

The data presented on the data tapes were reduced as follows:

1. The data were scanned to separate solar information from background information. Each main-frame word is read out at 64 millisecond intervals. The OSO III wheel period has ranged upward from 1.7 seconds. Thus there are more non-solar background data readings than solar readings.

2. The "lowest" background data level during a 3¹/₄-second interval was then selected, using criteria developed from experience with amplifier noise, commensuration of main-frame frequency and wheel rotation frequency, etc. This level includes amplifier zero offset.
3. The "lowest" background reading was subtracted from each of the solar data words for the same time interval.
4. The difference was expressed in terms of solar soft X-ray flux, taking into account the effects of instrumental temperature upon the amplifier calibration.

Particle fluxes affect the instrumental measures, in spite of the subtraction of background data. When particle fluxes are low, the subtraction technique is adequate. When particle fluxes are high, the effect is to reduce the "observed" soft X-ray fluxes, that is, a rapid and otherwise unaccountable decline in X-ray flux is caused.

These data tapes do not contain information on background measures. Users will find, however, that particle interference is generally easily discernible. Michigan has computer print-outs of all background data which can be used, if necessary.

III. Format of Data Tapes

Tapes TSK1 Corrected through TSK16 Corrected contain an initial file which is a tape label. Later tapes do not contain this tape label; these start directly with the data.

The tapes contain information in BCD, in integer binary and in floating point binary, as described below. They are seven-track tapes (the 7th track is the parity bit), generated at 556 EPI.

Blank files occur when data to be included in them was unprocessable or too "dirty" to be useful.

File 1. (Tapes TSK1 Corrected through TSK16 Corrected)

Record 1: Word 1 = 1HDRbb (b indicates blank)

(All words are BCD, with 6 characters per word.)

2 = b00000 (zero indicates zero)

3 = b00000

4 = b0000b

5 = 00b000

6 = bb0000

7 = b00000

8,9,10 = 18-character BCD name of tape.

11,12 = all blanks

13 = DDbMMM (day, month of labelling)

14 = bYYYYb (year of labelling)

Record 2: End of file mark.

Files 2 through last. (After TSK16 this would be Files 1 through last.)

Record 1: File label, BCD. Eight 6-character words.

Identical to file label on NASA experimenter tapes.

Contains information as to time-accuracy of data

to follow. Refer to NASA write-up of OSO III

Experimenter Tapes File Label Format.

Records 2 through last (usually 4 or 5 records per file):

Word 1 - Start time of record, in integer milliseconds.

Word 2 - End time of record, in integer milliseconds.

Word 3 - Day count of year, as an integer.

Words 4 through last - Quality Control Words and Data.

There are usually about 1400 words per record, never more than 2100. These words occur in pairs: even words (4,6,8,...last -1) are Quality Control; odd words (5,7,9,...last) are Data.

Data Words: Floating-point solar X-ray flux,
 $E(8,12) \text{ ergs cm}^{-2} \text{ sec}^{-1}$.

Quality Control Words: (these refer to the Data word which follows them):

Bits 1-27: Integer millisecond time for the solar data point which follows.

Bit 28: Sensitivity range of operation

0 = High sensitivity

1 = Low sensitivity

Bits 29 and 30: Data Quality; 0 = good, 1 = fair,

2 = poor, 3 = very poor. This

is assessed from NASA reliability flags.

Bit 31: Questionable data flag taken directly from NASA flags.

0 = not questionable

1 = questionable

Bit 32:

Last word/Time gap flag

- 0 = The data word is not
the last word of a record
preceding a time gap.
- 1 = The data word is the last
word of a record preceding
a time gap.

Note: This flag does not necessarily occur
preceding an EOF.

Bits 33-36: All zero.

When a blank file (containing no data) occurs, only the first record,
which contains the file label format, is included.

Users of the data on these tapes are cautioned concerning the follow-
ing errors which occasionally occur in the data:

1. The first three or four data points following turn-on at
satellite dawn may be excessively high.
2. Momentary very high flux readings (one data word or two or three
successive data words) caused by telemetry noise and occasionally
by (a) interrupted calibration signals, (b) uncompleted logic
signals.
3. Telemetry noise causing very high flux readings during satellite
night produces records whose length is only one or several data
words.

DATA ORGANIZATION

<u>Tape</u>	<u>No. of Files</u>	<u>Start Time U.T.</u>	<u>Last Time U.T.</u>
TSK1 Corrected	413	14 ^h 30 ^m ^{04 MTH YR} 09/03/67	15 ^h 20 ^m ^{04 MTH YR} 05/04/67 D-015810K C-01056
2 "	417	15 24 05/04/67	12 40 02/05/67 D-01582 C-01057DK
3 "	4203	12 46 02/05/67	06 42 29/05/67 D-01583 C-01058DK
4 "	432	06 47 29/05/67	02 10 25/06/67 D-01584 C-01059DK
5 "	403 <i>data header</i>	03 24 25/06/67	03/04 20/07/67 D-01585 C-01060DK
6 "	419	03 09 20/07/67	03 49 15/08/67 D-015860K C-01061
7 "	411	03 54 15/08/67	01 04 10/09/67 D-01587DK C-01062
8 "	420	01 15 10/09/67	15 32 06/10/67 D-01588DK C-01063
9 "	418	17 17 06/10/67	02 16 02/11/67 D-01589DK C-01064
10 "	403	02 25 02/11/67	01 11 28/11/67 D-01590DK C-01065
11 "	408	01 16 28/11/67	18 45 23/12/67 D-01591DK C-01066
12 "	418	18 50 23/12/67	21 59 18/01/68 D-01592DK C-01067
13 "	415	22 11 18/01/68	21 19 13/02/68 D-01593DK C-01068
14 "	427	23 08 13/02/68	14 37 11/03/68 D-01594DK C-01069
15 "	419	16 23 11/03/68	11 24 06/04/68 D-01595DK C-01070
16 "	46	13 09 06/04/68	09 19 09/04/68 D-01596DK C-01071
17 <i>NO header BCD</i>	403	11/04/68	06/05/68 D-05165 C-03464K
18 "	390	04/05/68	31/05/68 D-05166DK C-03470
19 "	311	31/05/68	30/04/68 D-05167 C-03471DK
20 "	366- 1st file header only	06/07/68	16/07/68 D-05168 C-03472

June 2, 1970

OS0-3

67-020A-06A

I have successfully duped the 4 OS0-3 Teske tapes (2 dupes each).
According to Charlie Marks, the number of files on each tape are as follows:

1.	#17	403
2.	#18	390
3.	#19	311
4.	#20	1631

I ran End-of-File Parity Checks on these tapes and found the number of files to be:

1.	#17	400 3
2.	#18	390
3.	#19	316* 311
4.	#20	366

The tapes were dupes with the number of files indicated above.

	<u>1st Dupe</u>	<u>2nd Dupe</u>
#17	D-05165	C-03469
#18	D-05166	C-03470
#19	D-05167	C-03471
#20	D-05168	C-03472

* Tape #19 - files 312 to 316 are all EOF marks.

FILE 0413 REC 0301 CH 0036

OCTAL DUM

0001 063702000106 070000100001 010400010002 0011051110

FILE 0413 REC 3002 CH 7500

TSK-1
D-01581

0001	000245165603	000251724600	000000000137	2452636004
0049	167460403260	245277000400	167460403260	2453026004
0097	167460403260	245314600400	167460403260	2453230004
0145	170455253230	245336200400	170455253230	2453420004
0193	170662434370	245355200400	170662434370	2453576004
0241	167404062660	245376600400	167404062660	2454024004
0289	170404062660	245413200400	170404062660	2454170004
0337	170404062660	245433400400	170626004330	2454360004
0385	170626004330	245446600400	170626004330	2454524004
0433	167443643140	245465600400	167443643140	2454714004
0481	167443643140	245503400400	170423753000	2455104004
0529	170423753000	245521200400	170423753000	2455320004
0577	170645674450	245546400400	000000000000	2455522004
0625	000000000000	245564200400	167443643140	2455712004
0673	167443643140	245602000400	167443643140	2456056000
0721	167765125360	245621000400	167765125360	2456246000
0769	170623313540	245636600400	167765125360	2456412000
0817	167602764140	245654400400	167602764140	2456625000
0865	170475143340	245677200400	170475143340	2457016000
0913	170475143340	245713400400	170475143340	2457172000
0961	170475143340	245732400400	170717065020	2457364000
1009	167443643140	245747200400	167443643140	2457530000
1057	167443643140	245766200400	167443643140	2457706000
1105	170423753000	246013400400	170423753000	2460160000
1153	170423753000	246033600400	170423753000	2460404000
1201	170423753000	246052400400	170423753000	2460550000
1249	170423753000	246070200400	170423753000	2460740000
1297	170423753000	246107200400	170631134340	2461130000
1345	170423753000	246123600400	170423753000	2461334000
1393	000000000000	246151200400	167412342700	2461550000
1441	000000000000	246167000400	000000000000	2461736000
1489	000000000000	246204400400	000000000000	2462102000
1537	000000000000	246223400400	170617524260	2462272000
1585	170617524260	246241200400	170617524260	2462602000
1633	170617524260	246271000400	170617524260	2462746000
1681	170415472740	246310000400	170415472740	2463124000
1729	170415472740	246330200400	170415472740	2463352000
1777	170415472740	246347200400	170415472740	2463516000
1825	170415472740	246365000400	166756645300	2463706000
1873	166756645300	246407600400	000000000000	2464134000
1921	167602764140	246424200400	167602764140	2464300000
1969	166642544440	246443600400	166642544440	2464514000
2017	166642544440	246463400400	000000000000	2464704000
2065	000000000000	246501200400	000000000000	2465050000
2113	170645674450	246520200400	170645674450	2465264000
2161	170645674450	246551200400	170645674450	2465550000
2209	170423753000	246565600400	170423753000	2465714000
2257	170645674450	246604600400	170443643140	2466072000
2305	170443643140	246623600400	167443643140	2466262000
2353	167443643140	246640200400	167443643140	2466440000
2401	000000000000	246665400400	000000000000	2466700000
2449	171417146744	246704400400	170634264370	2467070000
2497	170634264370	246721000400	170634264370	2467246000
2545	170432233040	246740000400	170432233040	2467426000
2593	170432233040	246754400400	167452123200	2467602000
2641	167452123200	246773400400	170657304540	2467760000
2689	170432233040	247015000400	170432233040	2470206000
2737	167404062660	247032600400	167404062660	2470376000
2785	000000000000	247050400400	000000000000	2470542000

L DUMP OF LAST FILE OF TAPES

01105111011	010403030104	00041100020E	020500000000	000300000205
45263600400	000000000000	2452674000400	000000000000	2452744000400
45302600400	167450403260	2453052000400	167460403260	2453110000400
45323000400	170455253230	2453300000400	170455253230	2453324000400
45342000400	170882434570	2453444000400	170882434570	2453502000400
45357600400	000000000000	2453634000400	000000000000	2453672000400
45402400400	170404062650	2454050000400	157404062660	2454106000400
45417000400	170404062650	2454226000400	170404062650	2454276000400
45436000400	170626004330	2454404000400	170626004330	2454442000400
45452400400	000000000000	2454562000400	000000000000	2454632000400
45471400400	167443643140	2454740000400	167443643140	2454776000400
45510400400	170423753000	2455130000400	170423753000	2455166000400
45532000400	170645674450	2455370000400	170645674450	2455440000400
45552200400	000000000000	2455546000400	000000000000	2455604000400
45571200400	167443643140	2455736000400	167443643140	2455774000400
45605600400	167443643140	2456114000400	167443643140	2456164000400
45624600400	167765125360	2456272000400	167765125360	2456330000400
45641200400	170523313540	2456450000400	167602764140	2456520000400
45662600400	170475143340	2456664000400	170475143340	2456722000400
45701600400	170475143340	2457052000400	170475143340	2457076000400
45717200400	170475143340	2457242000400	170475143340	2457266000400
45736400400	167443643140	2457410000400	167443643140	2457446000400
45753000400	167443643140	2457600000400	167443643140	2457624000400
45770600400	167443643140	2457744000400	167443643140	2460110000400
46016000400	170423753000	2460216000400	167443643140	2460254000400
46040400400	170423753000	2460430000400	170423753000	2460466000400
46055000400	170423753000	2460606000400	170423753000	2460656000400
46074000400	170423753000	2460776000400	170621134340	2461022000400
46113000400	170423753000	2461154000400	170423753000	2461212000400
46133400400	000000000000	2461416000400	000000000000	2461466000400
46155000400	000000000000	2461574000400	000000000000	2461632000400
46173600400	000000000000	2461762000400	000000000000	2462020000400
46210200400	000000000000	2462140000400	000000000000	2462210000400
46227200400	170617524260	2462316000400	170617524260	2462354000400
46260200400	170617524260	2462626000400	170617524260	2462664000400
46274600400	170415472740	2463016000400	170415472740	2463042000400
46312400400	170415472740	2463164000400	170415472740	2463222000400
46335200400	170415472740	2463376000400	170415472740	2463434000400
46351600400	170415472740	2463554000400	166756645300	2463624000400
46370600400	166756645300	2463744000400	166756645300	2464040000400
46413400400	170475143340	2464160000400	170475143340	2464204000400
46430000400	167602764140	2464362000400	167602764140	2464432000400
46451400400	166642544440	2464552000400	166642544440	2464576000400
46470400400	000000000000	2464730000400	000000000000	2464766000400
46505000400	000000000000	2465120000400	171433707054	2465156000400
46526400400	171433707054	2465322000400	170645674450	2465442000400
46555000400	170645674450	2465574000400	170423753000	2465620000400
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46607200400	170443643140	2466130000400	170443643140	2466186000400
46626200400	167443643140	2466320000400	167443643140	2466344000400
46644700400	167443643140	2466522000400	167443643140	2466616000400
46667000400	000000000000	2466736000400	000000000000	2466774000400
46707000400	170634264370	2467126000400	170634264370	2467152000400
46724600400	170432233040	2467316000400	170432233040	2467342000400
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46760200400	167452123200	2467652000400	167452123200	2467676000400
46776000400	170432233040	2470016000400	170432233040	2470054000400
47020600400	167404062620	2470232000400	167404062620	2470270000400
47037600400	000000000000	2470422000400	167404062620	2470450000400
47054200400	000000000000	2470600000400	000000000000	2470624000400

FILE 0413 REC 0002 CH 7500

2833	000000000100	247066200400	171417146750	247073
2881	170626004320	247104000400	170626004320	247107
2929	170404062659	247123000400	170404062659	247124
2977	165756645260	247140600400	165756645260	247151
3029	000000000000	247162200400	170427103020	247164
3073	170427103020	247201200400	167451403230	247201
3121	167460403230	247215600400	167460403230	247221
3169	167460403230	247234600400	000000000000	247231
3217	000000000000	247251200400	000000000000	247251
3265	170437414410	247270200400	170427103024	247271
3313	167452123170	247311600400	167452123170	247311
3361	167452123170	247327400400	167452123170	247331
3409	000000000000	247345200400	000000000000	247351
3457	170443643130	247363000400	170443643130	247371
3505	167435363064	247400600400	167435363064	247401
3553	167435363064	247417600400	167435363064	247421
3601	000000000000	247445000400	000000000000	247451
3649	167765125344	247462600400	167765125344	247461
3697	166773405410	247476000400	166773405410	247501
3745	166773405410	247512400400	166773405410	247511
3793	000000000000	247531400400	000000000000	247531
3841	000000000000	247550400400	000000000000	247551
3889	165714421540	247570600000	166624705750	247571
3937	165476422510	247620400000	165476422510	247621
3985	000000000000	247637400000	166664430620	247641
4033	166615541540	247654000000	166547240160	247651
4081	166572766444	247667200000	166572766444	247671
4129	165547240160	247703600000	166523124174	247701
4177	166523124174	247720200000	166523124174	247721
4225	165501324270	247734600000	167570064667	247731
4273	167570064667	247750000000	167570064667	247751
4321	167570064667	247764400000	167546264763	247761
4369	167546264763	250001000000	167146264763	250001
4417	167546264763	250014200000	167546264763	250011
4465	167747121415	250030600000	167747121415	250041
4513	167723565765	250051400000	167735246261	250051
4561	167735246261	250070000000	167711712631	250071
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4657	167711712631	250117600000	167700037477	250111
4705	170424244160	250134200000	170424244160	250131
4753	170424244160	250150600000	170424244160	250151
4801	170424244160	250154000000	170424244160	250151
4849	170417316503	250200400000	170417316503	250211
4897	170417316503	250215000000	170417316503	250211
4945	170450745640	250231400000	170450745640	250231
4993	170443625324	250244600000	170443625324	250231
5041	170443625324	250261200000	170443625324	250231
5089	170450745640	250275600000	170443625324	250311
5137	170443625324	250311000000	170443625324	250311
5185	170471302175	250325400000	170464452036	250311
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5377	170471302175	250406200000	170476035014	250411
5425	170471667672	250422600000	170476035014	250411
5473	170476035014	250437200000	170476035014	250411
5521	170502665157	250452400000	170476035014	250411
5569	170471667672	250467000000	170476035014	250411
5617	170476035014	250503400000	170511153516	250511
5665	170511153516	250520000000	170505006374	250511
5713	170505006374	250533000000	170511153516	250511

750	247073200400	170626004320	247075600400	170626004320	247101400400
320	247107600400	170626004320	247113400400	170404062650	247120400400
650	247126600400	170404062650	247131200400	170404062650	247135000400
260	247150200400	166756645260	247154000400	166756645260	247156400400
020	247164600400	170427103020	247170400400	170427103020	247174200400
020	247203500400	170427103020	247207400400	167460403230	247212000400
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0000	247237200400	000000000000	247243000400	000000000000	247246600400
0000	247255000400	000000000000	247262000400	170427103024	247265600400
0024	247272600400	170427103024	247302400400	167452123170	247307200400
0170	247315400400	167452123170	247320000400	167452123170	247323600400
0170	247334400400	167452123170	247337000400	000000000000	247342600400
0000	247351000400	000000000000	247364600400	170443643130	247357200400
0130	247370000400	167435363064	247372400400	167435363064	247376200400
0064	247404400400	167435363064	247410200400	167435363064	247415200400
0064	247431600400	000000000000	247435400400	000000000000	247442400400
0000	247450500400	167765125344	247453200400	167765125344	247457000400
0344	247465200400	166773405410	247467600400	166773405410	247472200400
0410	247500400400	166773405410	247504200400	166773405410	247506600400
0410	247516200400	166773405410	247523200400	000000000000	247525600400
0000	247534000400	000000000000	247537600400	000000000000	247543400400
0000	247556600000	166714421540	247561200000	166737174630	247565000000
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0510	247624200000	164572013240	247631200000	562433776100	247633600000
0620	247643200000	166637727144	247645600000	166615541540	247650200000
0160	247656400000	166615541540	247661000000	166572766444	247664600000
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0174	247732200000	166547240160	247712000000	166523124174	247714400000
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0667	247737200000	167570064667	247741600000	167570064667	247745400000
0667	247753600000	167557745257	247756200000	167600764631	247762000000
0763	247767000000	167546264763	247772600000	167546264763	247775200000
0763	250003400000	167546264763	250007200000	167557745257	250011600000
0763	250020000000	167534411627	250022400000	167534411627	250026200000
0141	250042600000	167723565765	250045200000	167723565765	250047600000
0261	250056000000	167735246261	250061600000	167735246261	250064200000
0261	250072400000	167723565765	250075000000	167723565765	250106600000
0576	250107000000	167723565765	250111400000	167711712631	250115200000
0747	250123400000	170424244160	250126000000	170426021774	250130400000
04160	250136600000	170424244160	250142400000	170424244160	250145000000
04160	250153200000	170417316503	250156600000	170417316503	250161400000
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06503	250203000000	170424244160	250206600000	170412176167	250211200000
06503	250217400000	170450745640	250223200000	170450745640	250225600000
05640	250234000000	170443625324	250236400000	170443625324	250242200000
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05324	250314600000	170471302175	250317200000	170464452036	250323000000
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052036	250344400000	170471302175	250350200000	170464452036	250352600000
052036	250361000000	170464452036	250364600000	170471302175	250367200000
052036	250375200000	170471302175	250377600000	170471302175	250403400000
035014	250412000000	170502665153	250414400000	170502665153	250417000000
035014	250425200000	170476035014	250431000000	170476035014	250433400000
035014	250441600000	170476035014	250444600000	170476035014	250450000000
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035014	250472600000	170471667672	250475200000	170476035014	250477600000
035116	250506000000	170511153516	250511600000	170511153516	250514200000
06374	250522400000	170505006374	250526200000	170505006374	250530400000
035116	250536600000	170505006374	250541200000	170511153516	250545000000

END JOB 5160 AT 0513-54 03/08/69

NIGHT/SUNDAY RATE

CHARGES -- 3.64 MIN. (3 MIN. 38 SEC.) 3600 TIME, PLUS 2 TAPE MOUNTINGS

5 CARDS READ
116 LINES PRINTED (2 PAGES, EXCLUSIVE OF SIGN-OFF)
0 CARDS PUNCHED

#####	\$	SS	#####	#####	\$	
#####	SS	SS	#####	#####	SS	SS
SS	SSS	SS	SS	SS	SS	SS
SS	SSSS	SS	SS	SS	SS	SS
#####	SS SS	SS	SS	SS	SS	SS
#####	SS SS	SS	SS	SS	SS	SS
SS	SS	SSSS	SS	SS	SS	SS
SS	SS	SS	SS	SS	SS	SS
#####	SS	SS	#####	#####	SS	SS
#####	SS	S	#####	#####	SSSSSS	SSSSSS

SUNDAY RATE

AB30 SCHWARTZ

US 2 TAPE MOUNTINGS

OFF)

6.50
 8.53
 +2
 5

53

SSSSSS	S	SSSSSS	SSSS
SSSSSS	SS	SSSSSSSS	SSSSSS
SSSSSS	SSS	SS SS	SS SS
SSSSSS	SS	SS	SS SS
SSSSSS	SS	SSSSSSSS	SS SS
SS	SS	SSSSSSSSSS	SS SS
SS	SS	SS SS	SS SS
SS	SS	SS SS	SS SS
SSSSSSSS	SS	SSSSSSSS	SSSSSS
SSSSSS	SSSSSS	SSSSSS	SSSS