

DATA SET CATALOG #157

67-042A-03A

2 tapes

ARIEL III, MOLECULAR OXYGEN

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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 paper documentation in the Data Set Catalogs have been made into digital images, and then collected into a single PDF file for each Data Set Catalog. The inventory information in these DSCs is current as of July 1, 2004. This inventory information is now no longer maintained in the DSCs, but is now managed in the inventory part of the NSSDC information system. The information existing in the DSCs is now not needed for locating the data files, but we did not remove that inventory information.

The offline tape datasets have now been migrated from the original magnetic tape to Archival Information Packages (AIP's).

A prior restoration may have been done on data sets, if a requestor of this data set has questions; they should send an inquiry to the request office to see if additional information exists.

2. ERRATA/CHANGE LOG:

NOTE: Changes are made in a text box, and will show up that way when displayed on screen with a PDF reader.

When printing, special settings may be required to make the text box appear on the printed output.

Version	Date	Person	Page	Description of Change
01				
02				

3 LINKS TO RELEVANT INFORMATION IN THE ONLINE NSSDC
INFORMATION SYSTEM:

<http://nssdc.gsfc.nasa.gov/nmc/>

[NOTE: This link will take you to the main page of the NSSDC Master Catalog. There you will be able to perform searches to find additional information]

4. CATALOG MATERIALS:

- a. Associated Documents To find associated documents you will need to know the document ID number and then click here.
<http://nssdcftp.gsfc.nasa.gov/miscellaneous/documents/>

- b. Core Catalog Materials

ARIEL 3

ESAC 00056

MOL OXY VOLT OUTPUT, TAPE

67-042A-03A

THIS DATA SET HAS BEEN RESTORED. THERE WERE ORIGINALLY TWO 7-TRACK, 556 BPI TAPES WRITTEN IN BCD. THERE IS ONE RESTORED TAPE WRITTEN IN ASCII. THE TIME SPANS ON THE ORIGINAL TAPES WERE NOT IN ORDER, AND WHEN RESTORED, REMAINED THAT WAY. THE DR TAPE IS A 3480 CARTRIDGE AND THE DS TAPE IS 9-TRACK, 6250 BPI. THE ORIGINAL TAPES WERE CREATED ON AN IBM 7094 COMPUTER AND THE RESTORED TAPES WERE CREATED ON AN IBM 9021 COMPUTER. THE DR AND DS NUMBER ALONG WITH THE CORRESPONDING D NUMBERS ARE AS FOLLOWS:

DR#	DS#	D#	FILES	TIME SPAN
DR005954	DS005954	D007080	1-609	05/05/67 - 01/12/68
		D007081	610-959	05/07/67 - 11/21/67

ARIEL III
MOLECULAR OXYGEN

67-042A-03A

This data set contains 2 tapes in BCD format. The original tapes are 200 BPI, 7-trk. The duplicates are 556 BPI, 7-trk. These tapes are not time ordered. The following are the time spans and the duplicates available:

<u>D#</u>	<u>C#</u>	<u>START-TIME</u>	<u>STOP-TIME</u>	<u>FILES</u>
D-07080	C-05611	May 5, 1967	Jan. 12, 1968	609
D-07081	C-05612	May 7, 1967	Nov. 21, 1967	350

January 17, 1972

To: Capt. Norman Stoldt
From: Manager, ADP Services
Subject: 2 Ariel 3 Molecular Oxygen tapes (67-042A-03A)

In response to your request RA9038, the following two tapes have been duped and entered into the tape library

<u>D#</u>	<u>C#</u>	<u>TIME SPAN</u>
D-07080	C-05611	5/05/67 - 1/12/68
D-07081	C-05612	5/07/67 - 11/21/67

These two tapes are not time ordered.

DATA FROM METEOROLOGICAL OFFICE MOLECULAR OXYGEN EXPERIMENT ON ARIEL 3

The experiment has been described in references 1 and 2 (which are essentially identical) with further details of the equipment in reference 3.

Essentially, the experiment measures solar ultra-violet radiation in the band 142.5 - 149 nm. The measurements are not absolute, because the sensitivity of the ion-chamber sensors decayed with time and also because of attitude and temperature effects, but relative values (over a few orbits) are reliable, as can be judged from the data itself. It is thus possible to use the rise and fall of the signal at satellite sunrise and sunset to deduce the molecular oxygen profile in the thermosphere, as explained in ref. 1.

The radiation measurements were modulated (ref. 1) by spurious effects connected with the spin of the satellite. These have been removed, in the archive tape by averaging the signal over 3 revolutions of the spacecraft (approximately 60 telemetry data points). The tabulated values are thus the mean value of telemetered voltage (corrected for non-linearity of the telemetry system) for successive 3-rotation periods. Each voltage is preceded on the tape by identifying data, the time, the position of the spacecraft and the position and height of the point of closest approach to the earth of the ray from the centre of the sun to the spacecraft. These were calculated from orbital data supplied by the Royal Aircraft Establishment, Farnborough (ref. 4) and the error in height of the ray from sun to spacecraft is estimated to be less than 0.5 km.

The tape contains data for all recorded sunrise and sunset occasions from the launch of the satellite (5 May 1967) to mid-November 1967, by which time the sensitivity of the sensors had decayed so far that the data are no longer considered useable. The tape also includes some data for passes when the spacecraft was in the dark or in full sunlight for the whole pass (these represent a failure of the data selection process, but they have not been deleted, because they may be of some interest).

The general character of the variations of signal and one method of processing them to determine oxygen profiles are described in ref. 1. It should be noted that in addition to the main passband at 145 nm, the system has some sensitivity to radiation at about 200 nm which can be allowed for by adopting as zero signal the voltage level measured for ray heights between 95 and 135 km. Ref. 1 mentions a small disturbance of signal when the satellite is in the region of the South Atlantic magnetic anomaly. Later work has confirmed this effect, attributed to particle radiation, and shown that somewhat similar disturbances (< 0.1 volt) may occur in the auroral zones.

Users should make their own assessment of the accuracy of the data, based on the consistency and noise level of the signals received in full sunlight and in the dark. The overall accuracy of estimates of the attenuation by molecular oxygen is naturally much higher early in the life of the experiment, when the sensor sensitivity was high, than it became later on, as the sensors decayed. It should be noted that the orbit was in an all-sun condition (with plane nearly perpendicular to the earth-sun line), so that no sunrises or sunsets were observed, between days 135 and 148. Between days 244 and 292 and again after day 322 the direction of the spin axis became unfavourable, taking the sun out of the $\pm 45^\circ$ field of view of the sensors.

Temperature sensors were mounted at three places on the experiment but no significant correlations have been found with signal output, so the temperature data are not included on the archive tape.

The data are supplied on two $\frac{1}{2}$ inch tapes written at 200 bits per inch, 7-track, in BCD with even parity. Each tape is headed "Ariel 3 Met Data" (read by Fortran format RA2) followed by files of data, each containing all data received during one pass of the satellite over a ground station.

The first block of each file contains the year, day number, hour and ground station code number, followed by a zero: this can be read by Fortran format (2I3, I4, 2I3). This file heading block is followed by a series of data blocks, each containing 30 records in the format:-

1st word	Time from midnight (UT) in seconds.
2nd word	Geocentric latitude (declination) of satellite in degrees (southern latitudes negative).
3rd word	Longitude of satellite in degrees (western longitudes negative).
4th word	Geocentric latitude) of the perpendicular from the
5th word	Longitude) centre of the earth to the sun-satellite line.
6th word	Distance from centre of earth to sun-satellite line minus ($6378.165 - 21.48 \sin^2 L$) km, where L is the latitude defined under "4th word". This is the "ray height" in km.
7th word	Mean signal (averaged over 3 rotations) in volts. (Telemetry scale 0-5 volts).

These records can be read by Fortran format (F9.3, F7.3, F8.3, F7.3, 2F8.3, F6.3). Incomplete blocks are filled with "space" characters (octal 20).

When the angle sun-satellite-earth exceeds a right angle, words 4-6 are given as 999.000.

Each file is terminated by an end file tape mark.

A listing of the first block of each file is appended to this note.

References

1. Stewart K H and Wildman, P J L. Proc. Roy. Soc. A 311 591-600, 1969.
2. Stewart and Wildman. Proceedings of Ariel 3 Symposium. GSFC May 1968.
3. Wildman, P J L, Carruthers, G P and Else, C V. Radio and Electronic Engineer 35 97-101, 1968.
4. Gooding, R H. Royal Aircraft Establishment Tech. Note 69275, 1969.

ARIEL 3 NET DATA TAPE

UNIT 01000

~~FILE~~ ~~YEAR~~ ~~DAY~~ ~~HR~~ ~~MIN~~ ~~SEC~~ ~~STATION~~
 FILE YEAR DAY HOUR STATION

1	67	248	15	15
2	67	249	11	15
3	67	251	13	15
4	67	266	10	15
5	67	274	9	15
6	67	279	7	15
7	67	280	7	15
8	67	329	4	15
9	67	312	3	15
10	67	311	2	15
11	67	312	2	15
12	67	313	1	15
13	67	314	1	15
14	67	318	2	15
15	67	324	2	15
16	67	355	9	15
17	68	12	17	15
18	67	176	13	15
19	67	177	13	15
20	67	265	17	6
21	67	272	16	3
22	67	192	10	15
23	67	204	19	15
24	67	204	20	15
25	67	205	10	15
26	67	205	19	15
27	67	206	9	15
28	67	206	10	15
29	67	207	9	15
30	67	207	10	15
31	67	211	8	15
32	67	212	8	15
33	67	213	8	15
34	67	213	16	15
35	67	210	8	15
36	67	214	10	15
37	67	215	8	15
38	67	216	8	15
39	67	217	8	15
40	67	218	8	15
41	67	221	0	15
42	67	221	7	15
43	67	224	5	15
44	67	155	13	37
45	67	128	9	12
46	67	130	9	12
47	67	128	12	6
48	67	130	17	37
49	67	130	12	6
50	67	128	17	37

FILE	YEAR	DAY	HOOR	STATION
51	67	128	19	37
52	67	130	10	37
53	67	129	4	22
54	67	130	5	19
55	67	130	7	19
56	67	130	6	19
57	67	130	10	19
58	67	130	15	19
59	67	130	17	19
60	67	130	7	15
61	67	130	21	15
62	67	153	8	48
63	67	173	5	3
64	67	150	13	10
65	67	162	9	19
66	67	162	11	19
67	67	166	9	19
68	67	169	9	19
69	67	179	8	19
70	67	172	7	20
71	67	150	7	38
72	67	158	9	38
73	67	129	22	21
74	67	169	7	20
75	67	153	15	37
76	67	127	3	51
77	67	139	16	19
78	67	152	12	19
79	67	269	0	15
80	67	300	11	20
81	67	312	8	19
82	67	226	19	6
83	67	156	9	38
84	67	207	21	21
85	67	213	20	21
86	67	214	20	21
87	67	216	20	21
88	67	239	16	21
89	67	217	10	8
90	67	238	7	8
91	67	245	0	8
92	67	204	21	8
93	67	213	5	37
94	67	214	5	37
95	67	227	16	37
96	67	229	14	37
97	67	231	16	37
98	67	297	4	37
99	67	218	4	16
100	67	219	4	16

FILE	YEAR	DAY	HOURL	STATION
			4	16
101	67	220	4	16
102	67	221	16	16
103	67	222	23	48
104	67	222	21	48
105	67	223	21	48
106	67	225	23	48
107	67	227	2	22
108	67	219	2	22
109	67	229	19	6
110	67	221	19	6
111	67	222	19	6
112	67	245	10	3
113	67	227	15	19
114	67	238	15	19
115	67	239	12	19
116	67	241	12	19
117	67	242	13	19
118	67	242	12	19
119	67	243	13	19
120	67	243	13	19
121	67	244	15	19
122	67	244	17	19
123	67	245	13	19
124	67	219	22	19
125	67	245	15	19
126	67	245	16	19
127	67	245	13	19
128	67	246	15	19
129	67	246	11	19
130	67	248	16	19
131	67	249	11	19
132	67	250	10	19
133	67	297	16	19
134	67	297	16	19
135	67	298	8	19
136	67	299	16	19
137	67	300	3	19
138	67	301	7	19
139	67	304	21	38
140	67	219	23	38
141	67	219	6	38
142	67	225	22	38
143	67	225	22	38
144	67	229	22	38
145	67	231	22	38
146	67	231	22	38
147	67	235	21	38
148	67	238	21	38
149	67	239	7	37
150	67	197		

FILE	YEAR	DAY	HOOR	STATION
121	67	174	0	15
152	67	183	22	15
153	67	181	0	15
154	67	181	24	15
155	67	182	22	15
156	67	184	22	15
157	67	185	20	15
158	67	185	22	15
159	67	186	20	15
160	67	186	22	15
161	67	188	20	15
162	67	188	22	15
163	67	189	20	15
164	67	190	20	15
165	67	190	21	15
166	67	191	20	15
167	67	191	21	15
168	67	192	20	15
169	67	192	21	15
170	67	193	21	15
171	67	194	20	15
172	67	181	6	19
173	67	183	6	19
174	67	183	9	19
175	67	189	1	12
176	67	189	2	12
177	67	190	1	12
178	67	190	2	12
179	67	191	1	12
180	67	191	23	12
181	67	192	1	12
182	67	192	23	12
183	67	193	1	12
184	67	193	23	12
185	67	194	0	12
186	67	194	23	12
187	67	195	0	12
188	67	195	23	12
189	67	196	0	12
190	67	197	22	12
191	67	198	0	12
192	67	198	22	12
193	67	199	22	12
194	67	200	24	12
195	67	194	21	15
196	67	302	6	15
197	67	300	11	19
198	67	301	12	19
199	67	310	17	15
200	67	171	2	12

FILE	YEAR	PAY	HOOR	STATION
201	67	171	4	12
202	67	172	4	12
203	67	173	4	12
204	67	174	2	12
205	67	174	4	12
206	67	175	2	12
207	67	175	4	12
208	67	177	2	12
209	67	178	2	12
210	67	179	2	12
211	67	180	3	12
212	67	181	2	12
213	67	182	1	12
214	67	183	3	12
215	67	184	3	12
216	67	185	1	12
217	67	185	3	12
218	67	186	1	12
219	67	186	3	12
220	67	187	1	12
221	67	302	17	15
222	67	303	4	15
223	67	303	17	15
224	67	303	18	15
225	67	304	3	15
226	67	304	4	15
227	67	304	6	15
228	67	304	17	15
229	67	304	18	15
230	67	305	4	15
231	67	305	6	15
232	67	305	16	15
233	67	306	2	15
234	67	306	4	15
235	67	306	5	15
236	67	224	19	21
237	67	225	18	21
238	67	315	18	21
239	67	312	10	6
240	67	313	8	6
241	67	314	8	6
242	67	315	8	6
243	67	315	10	6
244	67	149	9	38
245	67	150	8	38
246	67	151	8	38
247	67	157	9	38
248	67	205	10	38
249	67	206	11	38
250	67	207	11	38

FILE	YEAR	PAY	GROUP	STATION
281	67	208	10	38
282	67	209	9	38
283	67	210	11	38
284	67	217	8	6
285	67	217	25	6
286	67	223	10	6
287	67	224	10	6
288	67	225	10	6
289	67	226	10	6
290	67	232	9	6
291	67	311	10	6
292	67	175	10	37
293	67	180	10	37
294	67	182	10	37
295	67	183	9	37
296	67	185	9	37
297	67	225	21	38
298	67	316	17	21
299	67	317	17	21
270	67	318	17	21
271	67	319	17	21
272	67	205	12	48
273	67	206	12	48
274	67	207	12	48
275	67	208	12	48
276	67	210	12	48
277	67	211	12	48
278	67	212	12	48
279	67	213	12	48
280	67	214	12	48
281	67	215	12	48
282	67	187	20	15
283	67	202	20	15
284	67	203	19	15
285	67	149	22	48
286	67	150	22	48
287	67	151	22	48
288	67	152	20	48
289	67	153	20	48
290	67	153	22	48
291	67	152	14	37
292	67	175	5	3
293	67	132	13	48
294	67	210	11	38
295	67	141	23	20
296	67	144	8	12
297	67	141	17	15
298	67	143	17	15
299	67	141	20	38
300	67	143	20	12

FILE	YEAR	DAY	HOOR	STATION
301	67	143	21	21
302	67	143	5	21
303	67	143	7	21
304	67	143	6	19
305	67	298	4	37
306	67	218	11	40
307	67	249	14	19
308	67	160	11	19
309	67	171	10	19
310	67	172	10	19
311	67	174	10	19
312	67	175	8	19
313	67	176	10	19
314	67	176	10	19
315	67	177	6	19
316	67	180	10	19
317	67	181	9	19
318	67	142	19	21
319	67	143	19	21
320	67	143	20	38
321	67	184	20	15
322	67	155	5	12
323	67	132	2	20
324	67	152	9	20
325	67	155	6	3
326	67	135	0	5
327	67	132	8	21
328	67	135	6	21
329	67	134	17	10
330	67	148	0	38
331	67	154	7	31
332	67	149	11	38
333	67	302	14	19
334	67	302	15	19
335	67	304	15	19
336	67	305	13	19
337	67	305	15	19
338	67	129	13	48
339	67	130	11	48
340	67	130	13	48
341	67	132	11	48
342	67	133	17	16
343	67	126	21	15
344	67	127	20	15
345	67	128	20	15
346	67	128	21	15
347	67	128	22	38
348	67	130	21	38
349	67	130	22	38
350	67	131	0	38

FILE	YEAR	DAY	HOUP	STATION
351	67	131	21	38
352	67	132	0	38
353	67	126	7	37
354	67	129	21	39
355	67	129	22	38
356	67	126	2	3
357	67	236	4	15
358	67	132	9	21
359	67	133	6	21
360	67	133	9	21
361	67	153	19	21
362	67	129	19	37
363	67	131	5	37
364	67	132	5	37
365	67	132	6	37
366	67	133	5	37
367	67	133	6	37
368	67	130	2	20
369	67	127	2	3
370	67	131	0	3
371	67	127	7	37
372	67	129	6	21
373	67	139	8	21
374	67	128	7	37
375	67	129	7	37
376	67	130	5	37
377	67	130	7	37
378	67	131	0	5
379	67	131	8	21
380	67	125	23	12
381	67	126	1	12
382	67	127	23	12
383	67	126	0	12
384	67	129	23	12
385	67	130	0	12
386	67	128	2	20
387	67	129	2	20
388	67	125	22	15
389	67	126	20	15
390	67	127	21	15
391	67	129	20	15
392	67	134	0	5
393	67	151	9	6
394	67	132	16	22
395	67	133	14	22
396	67	133	16	22
397	67	151	1	22
398	67	129	0	12
399	67	130	23	12
400	67	156	5	12

FILE	YEAR	DAY	HOURL	STATION
401	67	156	7	12
402	67	163	5	12
403	67	163	6	12
404	67	126	20	15
405	67	127	21	30
406	67	127	22	30
407	67	120	0	30
408	67	128	21	30
409	67	120	22	30
410	67	166	23	15
411	67	133	0	20
412	67	163	14	15
413	67	163	15	15
414	67	126	"	30
415	67	126	23	12
416	67	127	1	12
417	67	126	21	30
418	67	151	12	19
419	67	133	11	48
420	67	133	13	48
421	67	150	20	40
422	67	151	20	40
423	67	131	22	8
424	67	133	0	0
425	67	134	0	0
426	67	132	20	30
427	67	132	22	30
428	67	133	20	30
429	67	133	22	30
430	67	134	14	22
431	67	135	14	22
432	67	134	20	30
433	67	134	22	30
434	67	134	16	16
435	67	135	17	16
436	67	134	8	21
437	67	134	9	21
438	67	140	19	21
439	67	149	19	21
440	67	134	13	40
441	67	135	11	48
442	67	156	13	37
443	67	130	6	51
444	67	131	0	51
445	67	131	1	51
446	67	131	3	51
447	67	126	5	51
448	67	131	4	51
449	67	131	6	51
450	67	132	0	51

FILE	YEAR	DAY	HOOR	STATION
451	67	132	1	51
452	67	132	3	51
453	67	132	4	51
454	67	133	0	51
455	67	133	1	51
456	67	133	3	51
457	67	133	4	51
458	67	134	3	51
459	67	151	14	37
460	67	151	15	37
461	67	149	1	22
462	67	151	3	16
463	67	132	17	16
464	67	167	1	15
465	67	167	4	12
466	67	168	4	12
467	67	169	4	12
468	67	158	8	3
469	67	159	8	3
470	67	160	8	3
471	67	226	20	38
472	67	226	22	38
473	67	197	2	20
474	67	197	3	20
475	67	212	1	6
476	67	307	9	20
477	67	307	10	20
478	67	307	15	37
479	67	307	16	15
480	67	307	18	15
481	67	216	19	21
482	67	219	18	21
483	67	225	23	48
484	67	227	21	48
485	67	233	20	48
486	67	230	0	22
487	67	211	11	38
488	67	212	11	38
489	67	213	11	38
490	67	214	9	38
491	67	296	11	48
492	67	297	11	48
493	67	298	11	48
494	67	309	21	48
495	67	312	21	48
496	67	313	21	48
497	67	314	21	48
498	67	152	1	22
499	67	214	15	22
500	67	223	2	22

34.1.11

FILE	YEAR	DAY	HOOR	STATION
501	67	226	2	22
502	67	313	0	22
503	67	150	14	37
504	67	153	15	37
505	67	196	8	37
506	67	196	7	37
507	67	198	7	37
508	67	198	8	37
509	67	199	6	37
510	67	199	8	37
511	67	200	6	37
512	67	200	8	37
513	67	201	0	37
514	67	201	8	37
515	67	202	0	37
516	67	202	8	37
517	67	203	6	37
518	67	204	6	37
519	67	205	6	37
520	67	206	6	37
521	67	207	6	37
522	67	216	12	48
523	67	228	21	48
524	67	229	21	48
525	67	230	21	48
526	67	231	21	48
527	67	293	11	48
528	67	294	11	48
529	67	295	11	48
530	67	303	14	19
531	67	303	15	19
532	67	304	2	19
533	67	304	4	19
534	67	304	2	19
535	67	305	2	19
536	67	305	1	19
537	67	305	5	19
538	67	306	2	19
539	67	306	4	19
540	67	306	5	19
541	67	307	2	19
542	67	307	4	19
543	67	308	2	19
544	67	308	3	19
545	67	308	5	19
546	67	309	2	19
547	67	310	2	19
548	67	311	1	19
549	67	311	3	19
550	67	226	10	8

FILE	YEAR	DAY	HOOR	STATION
551	67	151	19	21
552	67	200	2	20
553	67	201	1	20
554	67	202	1	20
555	67	203	1	20
556	67	204	1	20
557	67	205	1	20
558	67	206	1	20
559	67	208	1	20
560	67	209	1	20
561	67	290	0	20
562	67	298	23	20
563	67	301	23	20
564	67	302	9	20
565	67	302	11	20
566	67	302	23	20
567	67	304	9	20
568	67	303	23	3
569	67	310	10	3
570	67	213	23	5
571	67	292	0	5
572	67	293	0	5
573	67	294	0	5
574	67	295	0	5
575	67	296	0	5
576	67	216	11	38
577	67	218	10	38
578	67	219	10	38
579	67	220	7	38
580	67	220	21	38
581	67	220	23	38
582	67	221	8	38
583	67	221	21	38
584	67	221	22	38
585	67	222	8	38
586	67	222	10	38
587	67	223	7	38
588	67	223	9	38
589	67	224	21	38
590	67	305	9	20
591	67	305	10	20
592	67	306	9	20
593	67	306	10	20
594	67	308	9	20
595	67	216	9	21
596	67	217	18	21
597	67	217	20	21
598	67	218	8	21
599	67	218	18	21
600	67	218	20	21

1.13

FILE	YEAR	DAY	HOURL	STATION
601	67	219	20	21
602	67	220	18	21
603	67	220	20	21
604	67	221	18	21
605	67	221	20	21
606	67	222	8	21
607	67	222	18	21
608	67	222	20	21
609	67	223	18	21
610	67	223	20	21
611	67	224	8	21

END P3708

TAPE 1

2.1

ARIEL 3 NET DATA TAPE 1P

HHUK3MS9+

TAPE 2

M -- HHUK3MS9UP120/07/71P3714 170-525HHHHUK3MSR-

FILE	YEAR	DAY	HOURL	STATION
1	67	303	4	37
2	67	303	3	15
3	67	303	6	15
4	67	303	4	19
5	67	303	10	19
6	67	303	11	20
7	67	230	9	6
8	67	199	12	38
9	67	295	11	38
10	67	206	10	38
11	67	207	10	38
12	67	208	11	38
13	67	209	11	38
14	67	210	9	38
15	67	211	9	38
16	67	212	9	38
17	67	213	9	38
18	67	312	11	38
19	67	312	2	16
20	67	313	2	16
21	67	314	2	16
22	67	315	2	16
23	67	316	2	16
24	67	317	1	16
25	67	321	1	16
26	67	322	1	16
27	67	323	1	16
28	67	324	1	16
29	67	131	2	20
30	67	154	9	20
31	67	168	7	20
32	67	171	7	20
33	67	172	6	20
34	67	182	5	20
35	67	231	9	3
36	67	239	9	3
37	67	297	0	3
38	67	300	23	3
39	67	303	23	3
40	67	149	8	38
41	67	160	8	38
42	67	222	21	38
43	67	224	7	38
44	67	171	9	19
45	67	173	10	19
46	67	174	8	19
47	67	178	10	19
48	67	179	10	19
49	67	180	8	19
50	67	227	20	38

FILE	YEAR	DAY	HOUR	STATION
51	67	228	22	38
52	67	130	19	15
53	67	208	6	37
54	67	209	6	37
55	67	210	6	37
56	67	211	5	37
57	67	232	14	37
58	67	232	16	37
59	67	233	14	37
60	67	233	16	37
61	67	234	14	37
62	67	235	14	37
63	67	236	14	37
64	67	237	14	37
65	67	300	4	37
66	67	304	15	37
67	67	305	15	37
68	67	306	15	37
69	67	308	15	37
70	67	309	15	37
71	67	311	15	37
72	67	311	5	19
73	67	312	5	19
74	67	312	6	19
75	67	313	3	19
76	67	313	4	19
77	67	313	6	19
78	67	314	4	19
79	67	314	6	19
80	67	315	4	19
81	67	315	6	19
82	67	316	4	19
83	67	316	6	19
84	67	317	2	19
85	67	317	4	19
86	67	317	6	19
87	67	318	4	19
88	67	318	5	19
89	67	319	4	19
90	67	319	5	19
91	67	320	4	19
92	67	320	5	19
93	67	321	3	19
94	67	321	5	19
95	67	322	3	19
96	67	322	2	19
97	67	322	5	19
98	67	153	3	16
99	67	213	17	16
100	67	214	17	16

FILM	YEAR	DAY	HOURL	STATION
101	67	217	16	16
102	67	219	16	16
103	67	222	2	16
104	67	222	4	16
105	67	224	2	16
106	67	293	12	19
107	67	293	13	19
108	67	293	15	19
109	67	225	2	16
110	67	225	3	16
111	67	226	3	16
112	67	294	13	19
113	67	294	15	19
114	67	295	15	19
115	67	296	11	19
116	67	296	13	19
117	67	297	14	19
118	67	298	13	19
119	67	298	14	19
120	67	299	14	19
121	67	300	12	19
122	67	300	14	19
123	67	319	2	19
124	67	320	2	19
125	67	318	2	19
126	67	148	9	38
127	67	148	11	38
128	67	302	6	19
129	67	302	7	19
130	67	303	7	19
131	67	305	7	19
132	67	306	7	19
133	67	307	7	19
134	67	308	7	19
135	67	308	7	19
136	67	321	0	19
137	67	307	5	19
138	67	322	0	19
139	67	323	2	19
140	67	311	8	19
141	67	321	2	19
142	67	324	0	19
143	67	324	1	19
144	67	325	3	19
145	67	325	5	19
146	67	297	23	5
147	67	171	6	20
148	67	173	7	20
149	67	178	5	20
150	67	179	5	20

FILE	YEAR	DAY	HOURL	STATION
151	67	180	5	20
152	67	181	5	20
153	67	183	5	20
154	67	185	4	20
155	67	189	4	20
156	67	191	4	20
157	67	192	2	20
158	67	192	4	20
159	67	193	2	20
160	67	194	2	20
161	67	194	4	20
162	67	195	2	20
163	67	195	4	20
164	67	196	2	20
165	67	321	8	19
166	67	323	8	19
167	67	293	16	19
168	67	294	10	19
169	67	294	11	19
170	67	294	16	19
171	67	295	11	19
172	67	295	13	19
173	67	296	6	19
174	67	296	15	19
175	67	296	16	19
176	67	297	11	19
177	67	297	13	19
178	67	298	11	19
179	67	299	13	19
180	67	195	19	15
181	67	195	21	15
182	67	196	19	15
183	67	196	21	15
184	67	197	19	15
185	67	197	21	15
186	67	198	19	15
187	67	198	21	15
188	67	199	19	15
189	67	199	21	15
190	67	200	19	15
191	67	200	21	15
192	67	201	19	15
193	67	201	21	15
194	67	242	2	15
195	67	242	4	15
196	67	300	6	15
197	67	300	17	15
198	67	300	19	15
199	67	301	3	15
200	67	301	17	15

FILE	YEAR	DAY	HOUR	STATION
201	67	302	3	15
202	67	302	4	15
203	67	196	4	20
204	67	198	2	20
205	67	198	3	20
206	67	199	2	20
207	67	202	0	12
208	67	239	6	12
209	67	239	7	12
210	67	240	6	12
211	67	240	7	12
212	67	174	5	3
213	67	176	5	3
214	67	186	4	3
215	67	187	4	3
216	67	193	4	3
217	67	207	1	3
218	67	240	9	3
219	67	299	23	3
220	67	300	23	3
221	67	201	0	12
222	67	201	22	12
223	67	320	7	38
224	67	321	6	38
225	67	321	7	38
226	67	322	6	38
227	67	322	7	38
228	67	323	6	38
229	67	323	7	38
230	67	324	5	38
231	67	324	7	38
232	67	325	5	38
233	67	325	7	38
234	67	216	23	8
235	67	218	23	8
236	67	222	22	8
237	67	223	10	8
238	67	224	10	8
239	67	225	10	8
240	67	306	16	15
241	67	306	18	15
242	67	307	2	15
243	67	307	4	15
244	67	308	16	15
245	67	309	16	15
246	67	309	18	15
247	67	310	16	15
248	67	308	10	20
249	67	309	8	20
250	67	309	10	20

FILM	YEAR	DAY	HOUR	STATION
251	67	210	1	6
252	67	211	1	6
253	67	212	23	6
254	67	213	1	6
255	67	214	1	6
256	67	215	1	6
257	67	215	23	6
258	67	216	0	6
259	67	153	13	37
260	67	224	22	38
261	67	300	5	15
262	67	228	22	48
263	67	168	10	19
264	67	169	10	19
265	67	165	8	20
266	67	167	6	20
267	67	167	8	20
268	67	168	6	20
269	67	169	6	20
270	67	167	12	19
271	67	131	16	22
272	67	132	0	8
273	67	193	20	15
274	67	132	0	5
275	67	133	0	5
276	67	197	0	12
277	67	226	18	21
278	67	226	19	21
279	67	319	16	15
280	67	155	7	12
281	67	166	6	12
282	67	173	2	12
283	67	177	4	12
284	67	152	7	38
285	67	153	7	38
286	67	153	9	38
287	67	154	9	38
288	67	155	9	38
289	67	154	13	37
290	67	132	0	5
291	67	170	4	12
292	67	156	6	20
293	67	163	8	3
294	67	184	9	37
295	67	184	8	19
296	67	184	9	19
297	67	166	8	20
298	67	297	5	15
299	67	232	20	48
300	67	161	8	3

2.7

FILE	YEAR	DAY	HOURL	STATION
301	67	164	6	3
302	67	162	8	20
303	67	165	6	20
304	67	299	9	19
305	67	299	11	19
306	67	299	17	15
307	67	300	10	48
308	67	163	22	15
309	67	164	1	12
310	67	164	5	20
311	67	152	8	30
312	67	197	8	37
313	67	212	5	37
314	67	317	15	15
315	67	229	16	37
316	67	230	16	37
317	67	210	16	16
318	67	220	16	16

 END
 SEP 70

319	67	223	4	16
320	67	311	6	6
321	67	312	6	6
322	67	313	10	6
323	67	215	9	30
324	67	216	9	30
325	67	217	9	30
326	67	218	9	30
327	67	219	9	30
328	67	220	10	30
329	67	221	7	30
330	67	239	3	15
331	67	153	9	6
332	67	157	5	12
333	67	157	7	12
334	67	158	5	12
335	67	158	7	12
336	67	159	5	12
337	67	159	7	12
338	67	160	5	12
339	67	160	6	12
340	67	161	5	12
341	67	161	6	12
342	67	162	6	12
343	67	164	3	12
344	67	165	4	12
345	67	127	2	51
346	67	127	5	51
347	67	127	6	51
348	67	128	0	51
349	67	128	1	51
350	67	128	3	51

END

TAPE 2

67248 13 15 00

REC 2, LENGTH 18

REC 3, LENGTH 1596

49147.657 64.767 -21.017959.000 999.000 999.000 0.89549155.801 64.305 -22.327999.000 999.000 999.000
 0.88749183.945 64.800 -21.607959.000 999.000 999.000 0.89549172.089 64.301 -21.035999.000 999.000 9
 99.000 0.88949180.232 67.931 -20.442599.000 999.000 999.000 0.90049188.373 67.467 -19.844999.000 999
 0.000 999.000 0.88349156.510 67.002 -19.291499.000 999.000 999.000 0.90849204.662 66.534 -18.756999.0
 00 999.000 999.000 0.88849212.866 66.065 -18.242999.000 999.000 999.000 0.90349220.951 66.593 -17.74
 8999.000 999.000 999.000 0.87249234.619 64.758 -16.961999.000 999.000 999.000 0.89849242.763 64.322
 -16.515999.000 999.000 999.000 0.91749250.906 63.844 -16.035999.000 999.000 999.000 0.89249255.050 6
 3.365 -15.671999.000 999.000 999.000 0.90249267.194 62.885 -15.271999.000 999.000 999.000 0.88149275
 3.330 62.403 -14.885999.000 999.000 999.000 0.92349283.482 61.920 -14.514999.000 999.000 999.000 0.88
 949291.624 61.436 -14.155999.000 999.000 999.000 0.89349299.769 60.951 -13.807999.000 999.000 999.000
 0.0.84949307.312 63.425 -13.4471999.000 999.000 999.000 0.89449315.056 59.977 -13.146999.000 999.000
 999.000 0.90449324.155 59.489 -12.832999.000 999.000 999.000 0.88849332.343 59.000 -12.527999.000 99
 9.000 999.000 0.91049330.487 58.319 -12.231999.000 999.000 999.000 0.88849348.531 58.019 -11.945999.
 0.000 999.000 999.000 0.92349336.774 57.527 -11.668999.000 999.000 999.000 0.86849364.917 57.035 -11.3
 98999.000 999.000 999.000 0.90749373.061 56.961 -11.137999.000 999.000 999.000 0.90349381.205 56.047
 -10.884999.000 999.000 999.000 0.90349389.340 55.553 -10.637999.000 999.000 999.000 0.907 0500

49397.693 55.058 -10.395999.000 999.000 999.000 0.89349405.637 54.562 -10.165999.000 999.000 999.000
 0.91049413.779 54.065 -9.935999.000 999.000 999.000 0.89349421.923 53.568 -9.719999.000 999.000 9
 99.000 0.91649430.367 53.071 -9.505999.000 999.000 999.000 0.88849438.210 52.573 -9.296999.000 999
 0.000 999.000 0.90549445.385 52.074 -9.293999.000 999.000 999.000 0.90149454.493 51.575 -8.895999.0
 00 999.000 999.000 0.90049462.242 51.076 -8.702999.000 999.000 999.000 0.90349470.787 50.576 -8.481
 4999.000 999.000 999.000 0.89549478.931 50.076 -8.331999.000 999.000 999.000 0.90749487.073 49.575
 -8.152999.000 999.000 999.000 0.87149495.217 49.074 -7.977999.000 999.000 999.000 0.91249503.361 4
 8.572 -7.807999.000 999.000 999.000 0.90849511.505 48.070 -7.640999.000 999.000 999.000 0.90849519
 6.649 47.568 -7.478999.000 999.000 999.000 0.90049527.793 47.066 -7.319999.000 999.000 999.000 0.90
 649535.937 46.563 -7.163999.000 999.000 999.000 0.89549544.080 46.060 -7.013999.000 999.000 999.000
 0.90249552.225 45.056 -6.864999.000 999.000 999.000 0.91849560.364 45.053 -6.719999.000 999.000 999.000
 999.000 0.89149568.513 44.549 -6.577999.000 999.000 999.000 0.90749576.657 44.044 -6.448999.000 99
 9.000 999.000 0.87349584.800 43.540 -6.403999.000 999.000 999.000 0.90749592.944 43.035 -6.165999.
 0.000 999.000 999.000 0.89749601.098 42.530 -6.232999.000 999.000 999.000 0.89649609.232 42.025 -5.94
 11999.000 999.000 999.000 0.90649617.376 41.519 -5.736999.000 999.000 999.000 0.90349625.520 41.014
 -5.663999.000 999.000 999.000 0.90549633.664 40.508 -5.543999.000 999.000 999.000 0.895 0000

REC 4, LENGTH 1596

43008.753 72.884 -5.275499.000 999.000 999.000 0.84243016.897 72.257 -4.333999.000 999.000 999.000
 0.84043025.039 71.825 -3.817999.000 999.000 999.000 0.84143033.184 71.349 -2.581999.000 999.000
 99.000 0.86243041.527 70.949 -1.766999.000 999.000 999.000 0.85243059.650 69.745 -0.052999.000 999
 0.000 999.000 0.85843067.794 69.494 0.641999.000 999.000 999.000 0.84843075.937 69.039 -1.131999.00
 0.00 999.000 999.000 0.85443084.061 68.582 1.567999.000 999.000 999.000 0.85443092.225 68.122 2.57
 4999.000 999.000 999.000 0.84343100.368 67.660 3.165999.000 999.000 999.000 0.87543108.513 67.195
 3.732999.000 999.000 999.000 0.84843116.656 66.728 4.275999.000 999.000 999.000 0.84443124.799 6
 6.259 4.795999.000 999.000 999.000 0.84943132.943 65.789 5.302999.000 999.000 999.000 0.86743141
 0.086 65.316 5.785999.000 999.000 999.000 0.85043149.230 64.841 6.249999.000 999.000 999.000 0.85
 243157.374 64.365 6.667999.000 999.000 999.000 0.85343165.518 63.838 7.128999.000 999.000 999.000
 0.0.86343173.662 63.409 7.344999.000 999.000 999.000 0.85543181.804 62.924 7.945999.000 999.000
 999.000 0.83343189.948 62.447 8.132999.000 999.000 999.000 0.87443198.092 61.964 8.705999.000 99
 9.000 999.000 0.85643206.236 61.480 9.065999.000 999.000 999.000 0.85643214.379 60.994 9.414999.
 000 999.000 999.000 0.85943222.523 60.508 9.751999.000 999.000 999.000 0.84343230.667 60.021 10.0
 77999.000 999.000 999.000 0.85143238.811 59.532 10.392999.000 999.000 999.000 0.84343246.955 59.043
 10.658999.000 999.000 999.000 0.84243255.098 58.553 10.995999.000 999.000 999.000 0.843 0000

REC

2, LENGTH 1596

43263.242 58.062 11.282999.000 999.000 999.000 0.86343271.385 57.570 11.560999.000 999.000 999.000
 0.84443279.529 57.078 11.830999.000 999.000 999.000 0.86543287.673 56.584 12.092999.000 999.000 9
 99.000 0.85043295.817 56.090 12.344999.000 999.000 999.000 0.83843303.961 55.596 12.593999.000 99
 0.000 999.000 0.85143312.105 55.109 12.833999.000 999.000 999.000 0.858143320.249 54.604 13.067999.0
 0.00 999.000 999.000 0.85543328.394 54.198 13.294999.000 999.000 999.000 0.84643336.536 53.611 13.51
 4999.000 999.000 999.000 0.85743344.680 53.113 13.729999.000 999.000 999.000 0.84943352.823 52.615
 13.638999.000 999.000 999.000 0.85743352.958 52.117 14.142999.000 999.000 999.000 0.85343369.111 5
 1.618 14.340999.000 999.000 999.000 0.84743377.255 51.118 14.533999.000 999.000 999.000 0.85843385
 3.399 50.618 14.720999.000 999.000 999.000 0.84343393.543 50.118 14.906999.000 999.000 999.000 0.83
 743401.646 49.617 15.085999.000 999.000 999.000 0.84943409.830 49.116 15.260999.000 999.000 999.00
 0.0.8643417.574 48.615 15.431999.000 999.000 999.000 0.84943426.118 48.113 15.598999.000 999.000
 999.000 0.86543434.262 47.611 15.707999.000 999.000 999.000 0.85743442.406 47.108 15.919999.000 99
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