#295

OSO-3

ORBITAL ATTITUDE

67-020A-00D

OSO 3

ORBIT ATTITUDE TAPE

67-020A-00D

This data set has been restored. There were originally 60 7-track, 556 BPI tapes written in Binary. There are six restored tapes. The DR tapes are 3480 cartridges and the DS tapes are 9-track, 6250 BPI. The tapes were created on a 7094 Computer. The DR and DS numbers along with the corresponding D numbers and the time spans are as follows:

DR#	DS#	DD#	FILES	TIME SPAN
DR03895	DS03895	D15973	1-100	03/08/67 - 03/15/67
		D15974	101-200	03/15/67 - 03/21/67
		D15970	201-300	03/21/67 - 03/28/67
		D15971	301-400	03/28/67 - 04/04/67
		D15972	401-500	04/04/67 - 04/10/67
		D15967	501-600	04/10/67 - 04/17/67
		D15968	601-700	04/17/67 - 04/24/67
		D15969	701-800	04/24/67 - 04/30/67
		D15964	801-900	04/30/67 - 05/07/67
		D15965	901-1000	05/07/67 - 05/13/67
DR03896	DS03896	D15966	1-100	05/13/67 - 05/20/67
		D15961	101-200	05/20/67 - 05/27/67
		D15962	201-300	05/27/67 - 06/02/67
		D15963	301-400	06/02/67 - 06/09/67
		D16023	401-500	06/09/67 - 06/16/67
		D16021	501-600	06/22/67 - 06/29/67
		D16022	601-700	06/29/67 - 07/06/67
		D16019	701-800	07/06/67 - 07/12/67
		D16020	801-900	07/12/67 - 07/19/67
		D16017	901-1000	07/19/67 - 07/25/67
DR03897	DS03897	D16018	1-100	07/25/67 - 08/01/67
		D16015	101-200	08/01/67 - 08/08/67
		D16016	201-300	08/08/67 - 08/14/67
		D16014	301-400	08/14/67 - 08/21/67
		D16011	401-500	08/21/67 - 08/28/67
		D16012	501-600	08/27/67 - 09/03/67 (a)
		D16009	601-700	09/03/67 - 09/10/67
		D16010	701-800	09/10/67 - 09/16/67
		D16055	801-900	09/16/67 - 09/23/67
		D16053	901-1000	09/23/67 - 09/30/67

DR#	DS#	DD#	FILES	TIME SPAN
DR03898	DS03898	D16054	1-100	09/29/67 - 10/06/67
		D16051	101-200	10/06/67 - 10/13/67(b)
		D16052	201-300	10/13/67 - 10/20/67
		D16049	301-400	10/20/67 - 10/26/67
		D16050	401-500	10/25/67 - 11/02/67
		D16047	501-600	11/09/67 - 11/15/67(c)
		D16048	601-700	11/13/67 - 11/22/67
		D16045	701-800	11/22/67 - 11/28/67
		D16046	801-900	11/27/67 - 12/05/67
		D16043	901-1000	12/04/67 - 12/08/67
DR03899	DS03899	D16044	1-100	12/12/67 - 12/18/67
		D16041	101-200	12/18/67 - 12/25/67
		D16042	201-300	01/01/68 - 01/07/68
		D16069	301-400	01/07/68 - 01/14/68
		D16067	401-500	01/14/68 - 01/20/68
		D16068	501-600	01/20/68 - 01/27/68
		D16065	601-700	01/27/68 - 02/03/68
		D16066	701-800	02/03/68 - 02/09/68
		D16063	801-900	02/09/68 - 02/16/68
		D16064	901-1000	02/16/68 - 02/23/68
DR03900	DS03900	D16061	1-100	02/23/68 - 02/29/68(d)
		D16062	101-200	02/29/68 - 03/07/68
		D16059	201-300	03/07/68 - 03/13/68
		D16060	301-400	03/13/68 - 03/20/68(e)
		D16057	401-500	03/20/68 - 03/27/68
		D16058	501-600	03/27/68 - 04/02/68
		D16056	601-700	04/02/68 - 04/09/68
		D15947	701-800	04/09/68 - 04/16/68
		D15948	801-900	04/16/68 - 04/22/68
		D15949	901-1000	04/22/68 - 04/29/68

(a) Read error occurred in record 7, File 1 of D16012
(b) Read error occurred in record 7, File 76 of D16051
(c) Read error occurred in record 2, File 46 and record 12, File 61 of D16047
(d) Read error occurred in record 13, File 100 of D16061
(e) Read error occurred in record 12, file 100 of D16060

REQ. AGENT	RAND NO.	ACQ. AGENT
VJP	RC1867	CDW

OSO-3

ORBITAL ATTITUDE

67-020A-00D

This data set catalog consists of 60 OSO-3 Orbital Attitude data tapes. The tapes are 7 track, Bin, 556 with 100 files each. The tapes were produced on the IBM 7094.

D#	C#	ORBIT#	TIME SPAN
D-15947	C-13648	6000 - 6099	4/09/68 - 4/16/68
D-15948	C-13649	6100 - 6199	4/16/68 - 4/22/68
D-15949	C-13650	6200 - 6299	4/22/68 - 4/29/68
D-15961	C-13651	1100 - 1199	5/20/67 - 5/27/67
D-15962	C-13652	1200 - 1299	5/27/67 - 6/02/67
D-15963	C-13653	1300 - 1399	6/02/67 - 6/09/67
D-15964	C-13654	800 - 899	4/30/67 - 5/07/67
D-15965	C-13655	900 - 999	5/07/67 - 5/13/67
D-15966	C-13656	1000 - 1099	5/13/67 - 5/20/67
D-15967	C-13657	500 - 599	4/10/67 - 4/17/67
D-15968	C-13658	600 - 699	4/17/67 - 4/24/67
D-15969	C-13659	700 - 799	4/24/67 - 4/30/67
D-15970	C-13660	200 - 299	3/21/67 - 3/28/67
D-15971	C-13661	300 - 399	3/28/67 - 4/04/67
D-15972	C-13662	400 - 499	4/04/67 - 4/10/67
D-15973	C-13663	0 - 99	3/08/67 - 3/15/67
D-15974	C-13664	100 - 199	3/15/67 - 3/21/67
D-16009	C-13665	2700 - 2799	9/03/67 - 9/10/67
D-16010	C-13666	2800 - 2899	9/10/67 - 9/16/67
D-16011	C-13667	2500 - 2599	8/21/67 - 8/28/67
D-16012	C-13668	2600 - 2699	8/27/67 - 9/03/67
D-16014	C-13669	2400 - 2499	8/14/67 - 8/21/67
D-16015	C-13670	2200 - 2299	8/01/67 - 8/08/67
D-16016	C-13671	2300 - 2399	8/08/67 - 8/14/67
D-16017	C-13672	2000 - 2099	7/19/67 - 7/25/67
D-16018	C-13673	2100 - 2199	7/25/67 - 8/01/67
D-16019	C-13674	1800 - 1899	7/06/67 - 7/12/67
D-16020	C-13675	1900 - 1999	7/12/67 - 7/19/67
D-16021	C-13676	1600 - 1699	6/22/67 - 6/29/67

D#	C#	ORBIT#	TIME SPAN
D-16022	C-13677	1700 - 1799	6/29/67 - 7/06/67
D-16023	C-13678	1400 - 1499	6/09/67 - 6/16/67
D-16041	C-14253	4300 - 4399	12/18/67 - 12/25/67
D-16042	C-14254	4500 - 4599	1/01/68 - 1/07/68
D-16043	C-14255	4100 - 4199	12/04/67 - 12/12/67
D-16044	C-14256	4200 - 4299	12/12/67 - 12/18/67
D-16045	C-14257	3900 - 3999	11/22/67 - 11/28/67
D-16046	C-14258	4000 - 4099	11/27/67 - 12/05/67
D-16047	C-14259	3700 - 3799	11/09/67 - 11/15/67
D-16048	C-14260	3800 - 3899	11/15/67 - 11/22/67
D-16049	C-14261	3400 - 3499	10/20/67 - 10/26/67
D-16050	C-14262	3500 - 3599	10/25/67 - 11/02/67
D-16051	C-14263	3200 - 3299	10/06/67 - 10/13/67
D-16052	C-14264	3300 - 3399	10/13/67 - 10/20/67
D-16053	C-14265	3000 - 3099	9/23/67 - 9/30/67
D-16054	C-14266	3100 - 3199	9/29/67 - 10/06/67
D-16055	C-14267	2900 - 2999	9/16/67 - 9/23/67
D-16056	C-14268	5900 - 5999	4/02/68 - 4/09/68
D-16057	C-14269	5700 - 5799	3/20/68 - 3/27/68
D-16058	C-14270	5800 - 5899	3/27/68 - 4/02/68
D-16059	C-14271	5500 - 5599	3/07/68 - 3/13/68
D-16060	C-14272	5600 - 5699	3/13/68 - 3/20/68
D-16061	C-14273	5300 - 5399	2/23/68 - 2/29/68
D-16062	C-14274	5400 - 5499	2/29/68 - 3/07/68
D-16063	C-14275	5100 - 5199	2/09/68 - 2/16/68
D-16064	C-14276	5200 - 5299	2/16/68 - 2/23/68
D-16065	C-14277	4900 - 4999	1/27/68 - 2/03/68
D-16066	C-14278	5000 - 5099	2/03/68 - 2/09/68
D-16067	C-14279	4700 - 4799	1/14/68 - 1/20/68
D-16068	C-14280	4800 - 4899	1/20/68 - 1/27/68
D-16069	C-14281	4600 - 4699	1/07/68 - 1/14/68

Decommutation Program

The decommutation process produces experimenter tapes from the edit tapes. The basic output is one data record for each experimenter from each 96-frame edit record. The experimenter may request almost any arrangement of both experimenter data and necessary subcommutated data from that 96-frame edit record. In most cases, more than one of these experimenter records are written without the usual intervening gaps, thus producing longer tape records and achieving higher tape utilization. times six for experiment 23.

Since the unit of importance is a file and not a tape, summary labels will not be written on experimenter tapes. Each reel of tape mailed to the experimenter will be labeled with the following information: satellite name, experimenter's name, decommutation run number, experimenter's tape-sequence number from this run, and the number. and # of files?

Analysis Program for the Goddard Experimenter

In addition to the data processing discussed throughout the remainder of this document, data from the GSFC experiment will be analyzed using programs written under the supervision of the OSO data processing engineer. This program will provide the experimenter with a display of the data acquired by his experiment in such a manner that his study of the data and final conclusions may be accomplished readily.

Attitude-Determination Program

In order that attitude information be as accurate as possible, the initial computations will be delayed for at least one month after launch. This will permit an accumulation of a large sample of magnetometer data to be used in the attitude computation. Since the hour-by-hour variations in the spin-axis orientation solution error are large and range from a couple of degrees to no solution at all when the sun vector and the local magnetic field vector are nearly parallel, the roll-angle will be based upon a highly weighted curve which essentially excludes all data where the probable error in the observation exceeds 2 degrees. The computed attitude will be merged with an orbit tape (orb 3A) yielding a tape consisting of a tape label, orbit label, and aspect (attitude-orbit) data records. The contents of the OSO attitude-orbit tape are given in Tables 6, 7, and 8. The attitude-orbit tapes (like the data tapes) will be binary and either high or low density as requested by experimenters.

Table 5

Aspect Tape Label Format

Word	Description	Units
1	Satellite identification	
2	Year	
3	Beginning time of first orbit on this tape	Day count
4	Beginning time of first orbit on this tape	Milliseconds of day
5	End time of last orbit on this tape	Day count
6	End time of last orbit on this tape	Milliseconds of day
7	Number of records/tape	
8	First orbit number	
9	Last orbit number	
10-520	Unassigned	

(All data are represented in IBM-7094 floating point form.)

Table 6

Aspect Orbital Identification Records

Word	Description	Units
1	Orbit number (pass no.)	
2	Orbit start time	Day count
3	Orbit start time	Milliseconds of day
4	Orbit end time	Day count
5	Orbit end time	Milliseconds of day
6	Sampling rate	Milliseconds
7	Satellite ID	
8	Year	

Table 6 (continued)

Word	Description	Units
9	Eclipse start time (present orbit)	Day count
10	Eclipse start time (present orbit)	Milliseconds of day
11	Eclipse end time (present orbit)	Day count
12	Eclipse end time (present orbit)	Milliseconds of day
13	Eclipse start time (next orbit)	Day count
14	Eclipse start time (next orbit)	Milliseconds of day
15	Eclipse end time (next orbit)	Day count
16	Eclipse end time (next orbit)	Milliseconds of day
17	Date	
18	Day count of year	
19	Apparent sidereal time	Radians
20-30	Some of these are used for harmonics	
31	Date (epoch)	
32	Day count of year (epoch)	
33	Seconds of day (epoch)	
34	Semi-major axis	Kilometers
35	Eccentricity	
36	Inclination	Degrees
37	Right ascension of ascending node	Degrees
38	Rate of change of right ascension of ascending node	Degrees/day
39	Argument of perigee	Degrees
40	Rate of change of argument of perigee	Degrees/day
41	Period	Minutes
42	Rate of change of period	Minutes/day
43	Minimum roll error	Radians
44	Time of minimum roll error	Day count
45	Time of minimum roll error	Milliseconds of day
46	Roll-axis orientation	X-component
47	Roll-axis orientation	Y-component
48	Roll-axis orientation	Z-component
49	Right ascension of roll-axis	Degrees
50	Declination of roll-axis	Degrees

Table 6 (continued)

Word	Description	Units
51	Pitch-axis orientation	X-component
52	Pitch-axis orientation	Y-component
53	Pitch-axis orientation	Z-component
54	Right ascension of pitch-axis	Degrees
55	Declination of pitch-axis	Degrees
56	Yaw/spin-axis orientation	X-component
57	Yaw/spin-axis orientation	Y-component
58	Yaw/spin-axis orientation	Z-component
59	Right ascension of yaw/spin-axis	Degrees
60	Declination of yaw/spin-axis	Degrees
61-520	Unassigned	

(All data are represented in IBM-7094 floating point form.)

Table 7

Aspect Data Record

36 bit

Word	Description	Units
1	Time	Day count
2	Time	Milliseconds of day
3	Satellite position vector	X-component (km)
4	Satellite position vector	Y-component (km)
5	Satellite position vector	Z-component (km)
6	Right ascension of satellite position vector	Degrees
7	Declination of satellite position vector	Degrees
8	Velocity vector	X-component (km/sec)
9	Velocity vector	Y-component (km/sec)
10	Velocity vector	Z-component (km/sec)
11	Right ascension of velocity vector	Degrees
12	Declination of velocity vector	Degrees

Every minute only

Table 7 (continued)

Word	Description	Units
13	Geodetic latitude	Degrees
14	Geodetic longitude	Degrees
15	Geodetic altitude	Kilometers
16	Unit solar vector	X-component
17	Unit solar vector	Y-component
18	Unit solar vector	Z-component
19	Right ascension of unit solar vector	Degrees
20	Declination of unit solar vector	Degrees
21	McIllwain's "L" parameter	Earth radii
22	Magnetic field strength	Gamma
23	Unit magnetic vector	X-component
24	Unit magnetic vector	Y-component
25	Unit magnetic vector	Z-component
26	Right ascension of magnetic vector	Degrees
27	Declination of magnetic vector	Degrees
28	Pitch angle	Radians
29	Roll angle: Smoothed value using roll angles with less than 2° roll angle error	Radians
30	Aspect angle (between roll axis and aspect reference axis)	Radians
31	Time increment (Δt) since digital subcommutator word number one	Milliseconds
32	Roll-axis orientation	X-component
33	Roll-axis orientation	Y-component
34	Roll-axis orientation	Z-component
35	Right ascension of roll-axis	Degrees
36	Declination of roll-axis	Degrees
37	Pitch-axis orientation	X-component
38	Pitch-axis orientation	Y-component
39	Pitch-axis orientation	Z-component
40	Right ascension of pitch-axis	Degrees
41	Declination of pitch-axis	Degrees

53 Stress Day
54 millisec
55 End Day
56 millisec
57 PASS #
58 Day or night 1 or zero

Table 7 (continued)

Word	Description	Units
42	Yaw/spin-axis orientation	X-component
43	Yaw/spin-axis orientation	Y-component
44	Yaw/spin-axis orientation	Z-component
45	Right ascension of yaw/spin-axis	Degrees
46	Declination of yaw/spin-axis	Degrees
47	Aspect reference—axis orientation	X-component
48	Aspect reference—axis orientation	Y-component
49	Aspect reference—axis orientation	Z-component
50	Right ascension of aspect reference—axis	Degrees
51	Declination of aspect reference—axis	Degrees
52	Spin rate	Rev/sec.
53-65	Unassigned	
66-520	Seven additional 65-word items	
*	End of record flag (*will appear in first word after last item with data.)	-666.666

One minute

Item: 65 word

Total of 8 min/record

(All data are represented in IBM-7094 floating point form.)

Command Record

Punched cards and/or listings of commands which were recorded on the analog tape will be provided to the experimenters. Each command and the time of the execution pulse will be included.

FUNCTIONS OF THE QUALITY CONTROL GROUP

The Quality Control Group shall have the responsibility of assuring that the tapes produced for the experimenters by the Information Processing Division contain the proper information. To do this, Quality Control must check and approve the edit tapes before they are decommutated as well as check the output of the decommutation run. The duties of Quality Control are:

- Quality Control and Edit Program Output Check—To verify that the files processed were in chronological order without any skips other than file rejections listed in the summary list.

FILE 0001 REC 0001 CH 3120

D-15947

ORBITS
6000 - 6099

DAY 100 - 107
TR 1968

4/9/68 - 4/16/68

	YEAR 68	START (DAY) 100		STOP (DAY) 107			START (ORBIT) 6000
0001	221406402000	207420000000	207620000000	232450277335	207654000000	227612331240	213536200000	215567000000
0049	245575140000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0097	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0145	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0193	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0241	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0289	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0337	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0385	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0433	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0481	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0529	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0577	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0625	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0673	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0721	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0769	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0817	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0865	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0913	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0961	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1009	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1057	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1105	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1153	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1201	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1249	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1297	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1345	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1393	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1441	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1489	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1537	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1585	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1633	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1681	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1729	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1777	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1825	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1873	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1921	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1969	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2017	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2065	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2113	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2161	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2209	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2257	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2305	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2353	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2401	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2449	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2497	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2545	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2593	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2641	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2689	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2737	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2785	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2833	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2881	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2929	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000

FILE 0001 REC 0001 CH 3120

D-16069

ORBITS
4600 - 4699

DAY 7 - 14
YR 1968

1/7/68 - 1/14/68

0001	221406402000	207420000000	203700000000	232677022533	204700000000	231623340430	213536200000	215437400000
0049	215445540000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0097	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0145	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0193	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0241	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0289	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0337	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0385	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0433	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0481	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0529	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0577	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0625	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0673	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0721	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0769	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0817	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0865	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0913	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
0961	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1009	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1057	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1105	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1153	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1201	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1249	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1297	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1345	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1393	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1441	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1489	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1537	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1585	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1633	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1681	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1729	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1777	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1825	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1873	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1921	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
1969	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2017	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2065	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2113	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2161	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2209	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2257	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2305	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2353	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2401	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2449	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2497	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2545	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2593	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2641	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2689	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2737	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2785	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2833	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2881	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000
2929	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000	000000000000