[redacted]

#421

OSO-8

SOFT X-RAY EXPERIMENT

75-057A-05A

OSO 8

REDUCED DATA TAPES

75-057A-05A

This data set has been restored. There was originally 144 Binary 9-Track, 1600 BPI tapes. There are 36 restored tapes. The DR and DS tapes are 9-track, 6250 BPI. The tapes were created on an Univac 1110 computer. The DR and DS numbers along with the corresponding D numbers and the time spans are as follows:

DR#	DS#	D#	FILES	TIME SPAN
DR01687	DS01687	D30364	1-17	06/25/75 - 07/02/75
		D30365	18-36	07/03/75 - 07/10/75
		D30366	37-52	07/11/75 - 07/18/75
		D30367	53-70	07/19/75 - 07/26/75
DR01688	DS01688	D30368	1-19	07/27/75 - 08/03/75
		D30369	20-40	08/04/75 - 08/11/75
		D30370	41-60	08/12/75 - 08/19/75
		D30371	61-80	08/20/75 - 08/27/75
DR01689	DS01689	D30372	1-21	08/28/75 - 09/04/75
		D30373	22-41	09/05/75 - 09/12/75
		D30374	42-59	09/13/75 - 09/20/75
		D30375	60-79	09/21/75 - 09/28/75
DR01690	DS01690	D30376	1-18	09/29/75 - 10/06/75
		D30377	19-36	10/07/75 - 10/14/75
		D30378	37-54	10/15/75 - 10/22/75
		D30379	55-73	10/23/75 - 10/30/75
DR01735	DS01735	D30380	1-17	10/31/75 - 11/07/75
		D30381	18-35	11/08/75 - 11/15/75
		D30382	36-56	11/16/75 - 11/23/75
		D30383	57-75	11/24/75 - 12/01/75
DR01691	DS01691	D30389	1-17	12/02/75 - 12/09/75
		D30390	18-38	12/10/75 - 12/17/75
		D30391	39-56	12/18/75 - 12/25/75
		D30392	57-77	12/26/75 - 01/02/76
DR01692	DS01692	D30393	1-18	01/03/76 - 01/10/76
		D30384	19-39	01/11/76 - 01/18/76
		D30385	40-59	01/19/76 - 01/26/76
		D30386	60-79	01/27/76 - 02/03/76
DR01693	DS01693	D30387	1-18	02/04/76 - 02/11/76
		D30388	19-39	02/12/76 - 02/19/76
		D30394	40-58	02/20/76 - 02/27/76
		D30395	59-76	02/28/76 - 03/06/76

DR#	DS#	D#	FILES	TIME SPAN
DR01694	DS01694	D30396	1-18	03/07/76 - 03/14/76
		D30397	19-37	03/15/76 - 03/22/76
		D30398	38-55	03/23/76 - 03/30/76
		D30399	56-72	03/31/76 - 04/07/76
DR01695	DS01695	D30400	1-18	04/07/76 - 04/15/76
		D30401	19-36	04/16/76 - 04/23/76
		D30402	37-56	04/24/76 - 05/01/76
		D30403	57-72	05/02/76 - 05/09/76
DR01698	DS01698	D30404	1-17	05/09/76 - 05/17/76
		D30405	18-34	05/17/76 - 05/25/76
		D30406	35-52	05/25/76 - 06/02/76
		D30407	53-70	06/02/76 - 06/10/76
DR01699	DS01699	D30408	1-19	06/10/76 - 06/18/76
		D30409	20-40	06/18/76 - 06/26/76
		D30410	21-58	06/26/76 - 07/04/76
		D30411	59-77	07/04/76 - 07/12/76
DR01700	DS01700	D30412	1-18	07/12/76 - 07/20/76
		D30413	19-37	07/20/76 - 07/28/76
		D30591	38-55	07/28/76 - 08/05/76
		D30592	56-72	08/05/76 - 08/13/76
DR01701	DS01701	D30593	1-17	08/13/76 - 08/21/76
		D30594	18-34	08/21/76 - 08/29/76
		D30595	35-50	08/29/76 - 09/06/76
		D30596	51-67	09/06/76 - 09/14/76
DR01702	DS01702	D30597	1-17	09/14/76 - 09/22/76
		D30598	18-33	09/22/76 - 09/30/76
		D30599	34-51	09/30/76 - 10/08/76
		D30600	52-70	10/08/76 - 10/16/76
DR01708	DS01708	D30635	1-17	10/16/76 - 10/24/76
		D30636	18-33	10/24/76 - 11/01/76
		D30637	34-42	11/01/76 - 11/08/76
		D30638	43-56	11/10/76 - 11/16/76
DR01709	DS01709	D30639	1-17	11/16/76 - 11/25/76
		D30640	18-33	11/25/76 - 12/03/76
		D30641	34-50	12/03/76 - 12/11/76
		D30642	51-66	12/11/76 - 12/19/76
DR01710	DS01710	D30643	1-16	12/19/76 - 12/27/76
		D30644	17-33	12/28/76 - 01/04/77
		D30645	34-49	01/04/77 - 01/12/77
		D30646	50-66	01/12/77 - 01/20/77
DR01711	DS01711	D30647	1-16	01/20/77 - 01/28/77
		D30648	17-33	01/28/77 - 02/05/77
		D30649	34-49	02/05/77 - 02/13/77
		D30650	50-65	02/13/77 - 02/21/77
DR01712	DS01712	D30651	1-17	02/21/77 - 03/01/77
		D30652	18-33	03/01/77 - 03/09/77
		D30653	34-48	03/09/77 - 03/17/77
		D30654	49-53	03/17/77 - 03/20/77

DR#	DS#	D#	FILES	TIME SPAN
DR01715	DS01715	D34038	1-17	03/25/77 - 04/02/77
		D34039	18-34	04/02/77 - 04/10/77
		D34040	35-55	04/10/77 - 04/18/77
		D34041	56-73	04/18/77 - 04/26/77
DR01716	DS01716	D34042	1-17	04/26/77 - 05/04/77
		D34043	18-33	05/04/77 - 05/12/77
		D34047	34-50	05/05/77 - 06/13/77
		D34044	51-67	05/12/77 - 05/20/77
DR01717	DS01717	D34045	1-17	05/21/77 - 05/28/77
		D34046	18-33	05/28/77 - 06/05/77
		D34048	34-49	06/13/77 - 06/21/77
		D34049	50-67	06/21/77 - 06/30/77
DR01718	DS01718	D34050	1-13	06/29/77 - 07/07/77
		D34051	14-29	07/07/77 - 07/15/77
		D34052	30-46	07/15/77 - 07/23/77
		D34053	47-62	07/23/77 - 07/31/77
DR01719	DS01719	D34054	1-17	07/31/77 - 08/08/77
		D34055	18-33	08/08/77 - 08/16/77
		D34056	34-49	08/16/77 - 08/24/77
		D34057	50-68	08/24/77 - 09/01/77
DR01720	DS01720	D40942	1-18	09/01/77 - 09/09/77
		D40933	19-34	09/10/77 - 09/17/77
		D40934	35-50	09/17/77 - 09/25/77
		D40935	51-67	09/25/77 - 10/03/77
DR01721	DS01721	D40936	1-16	10/03/77 - 10/11/77
		D40937	17-32	10/12/77 - 10/19/77
		D40938	33-49	10/19/77 - 10/27/77
		D40939	50-65	10/27/77 - 11/04/77
DR01722	DS01722	D40940	1-16	11/04/77 - 11/12/77
		D40941	17-32	11/12/77 - 11/20/77
		D41527	33-49	11/20/77 - 11/28/77
		D41528	50-65	11/28/77 - 12/06/77
DR01723	DS01723	D41529	1-16	12/06/77 - 12/14/77
		D41530	17-32	12/14/77 - 12/22/77
		D41531	33-48	12/22/77 - 12/30/77
		D41536	49-65	01/31/78 - 02/08/78
DR01724	DS01724	D41868	1-17	02/08/78 - 02/16/78
		D41869	18-33	02/16/78 - 02/24/78
		D41870	34-50	02/24/78 - 03/04/78
		D41871	51-66	03/04/78 - 03/12/78
DR01729	DS01729	D41872	1-14	03/12/78 - 03/20/78
		D41873	15-30	03/20/78 - 03/28/78
		D41874	31-46	03/28/78 - 04/05/78
		D41875	47-63	04/06/78 - 04/13/78
DR01730	DS01730	D41876	1-17	04/13/78 - 04/21/78
		D41877	18-41	04/21/78 - 04/29/78
		D41880	42-57	05/15/78 - 05/23/78
		D41881	58-76	05/24/78 - 05/31/78

DR#	DS#	D#	FILES	TIME SPAN
DR01731	DS01731	D41882	1-17	05/31/78 - 06/08/78
		D41883	18-33	06/08/78 - 06/16/78
		D41884	34-48	06/16/78 - 06/24/78
		D41885	49-70	06/24/78 - 07/02/78
DR01732	DS01732	D41886	1-15	07/02/78 - 07/10/78
		D41887	16-25	07/10/78 - 07/18/78
		D41888	26-41	07/18/78 - 07/26/78
		D41889	42-57	07/26/78 - 08/03/78
DR01733	DS01733	D41890	1-16	08/03/78 - 08/14/78
		D41891	17-32	08/14/78 - 08/19/78
		D41892	33-48	08/19/78 - 08/27/78
		D41893	49-65	08/27/78 - 09/04/78
DR01734	DS01734	D41894	1-16	09/04/78 - 09/12/78
		D41895	17-33	09/13/78 - 09/20/78
		D41896	34-49	09/20/78 - 09/28/78
		D41897	50-53	09/28/78 - 09/30/78

REQ. AGENT	RAND NO.	ACQ. AGENT
WKD	RC8285	CDW
DAD	V0198	RP

OSO-8

SOFT X-RAY EXPERIMENT

75-057A-05A

This data set catalog consists of 124 OSO-8 data tapes. The tapes are 1600 BPI, Binary, 9 track and have multi-files. The tapes were created on a UNIVAC 1110 computer and consequently all references to 'words' mean 36-bit words. Also, any words in Real format are in UNIVAC 1110 series floating point format.

D#	C#	FILES	TIME SPAN
D-30364	C-19540	17	6/25/75 - 7/02/75
D-30365	C-19541	19	7/03/75 - 7/10/75
D-30366	C-19542	16	7/11/75 - 7/18/75
D-30367	C-19543	17	7/19/75 - 7/26/75
D-30368	C-19544	19	7/27/75 - 8/03/75
D-30369	C-19545	21	8/04/75 - 8/11/75
D-30370	C-19546	20	8/12/75 - 8/19/75
D-30371	C-19547	20	8/20/75 - 8/27/75
D-30372	C-19548	21	8/28/75 - 9/04/75
D-30373	C-19549	20	9/05/75 - 9/12/75
D-30374	C-19550	18	9/13/75 - 9/20/75
D-30375	C-19551	20	9/21/75 - 9/28/75
D-30376	C-19552	18	9/29/75 - 10/06/75
D-30377	C-19553	18	10/07/75 - 10/14/75
D-30378	C-19554	18	10/15/75 - 10/22/75
D-30379	C-19555	19	10/23/75 - 10/30/75
D-30380	C-19556	17	10/31/75 - 11/07/75
D-30381	C-19557	18	11/08/75 - 11/15/75
D-30382	C-19558	21	11/16/75 - 11/23/75
D-30383	C-19559	19	11/24/75 - 12/01/75
D-30384	C-19583	21	1/11/76 - 1/18/76
D-30385	C-19584	20	1/19/76 - 1/26/76
D-30386	C-19585	20	1/27/76 - 2/03/76
D-30387	C-19586	18	2/04/76 - 2/11/76
D-30388	C-19587	21	2/12/76 - 2/19/76
D-30389	C-19588	17	12/02/75 - 12/09/75
D-30390	C-19589	21	12/10/75 - 12/17/75
D-30391	C-19590	18	12/18/75 - 12/25/75

D#	C#	FILES	TIME SPAN
D-30392	C-19591	21	12/26/75 - 1/02/76
D-30393	C-19592	18	1/03/76 - 1/10/76
D-30394	C-19593	19	2/20/76 - 2/27/76
D-30395	C-19594	18	2/28/76 - 3/06/76
D-30396	C-19595	18	3/07/76 - 3/14/76
D-30397	C-19596	19	3/15/76 - 3/22/76
D-30398	C-19597	18	3/23/76 - 3/30/76
D-30399	C-19598	17	3/31/76 - 4/07/76
D-30400	C-19599	18	4/07/76 - 4/15/76
D-30401	C-19600	18	4/16/76 - 4/23/76
D-30402	C-19601	20	4/24/76 - 5/01/76
D-30403	C-19602	16	5/02/76 - 5/09/76
D-30404	C-19622	17	5/09/76 - 5/17/76
D-30405	C-19623	17	5/17/76 - 5/25/76
D-30406	C-19624	18	5/25/76 - 6/02/76
D-30407	C-19625	18	6/02/76 - 6/10/76
D-30408	C-19626	19	6/10/76 - 6/18/76
D-30409	C-19627	21	6/18/76 - 6/26/76
D-30410	C-19628	18	6/26/76 - 7/04/76
D-30411	C-19629	19	7/04/76 - 7/12/76
D-30412	C-19630	18	7/12/76 - 7/20/76
D-30413	C-19631	19	7/20/76 - 7/28/76
D-30591	C-19734	18	7/28/76 - 8/05/76
D-30592	C-19735	17	8/05/76 - 8/13/76
D-30593	C-19736	17	8/13/76 - 8/21/76
D-30594	C-19737	17	8/21/76 - 8/29/76
D-30595	C-19738	16	8/29/76 - 9/06/76
D-30596	C-19739	17	9/06/76 - 9/14/76

D#	C#	FILES	TIME SPAN
D-30597	C-19740	17	9/14/76 - 9/22/76
D-30598	C-19741	16	9/22/76 - 9/30/76
D-30599	C-19742	16	9/30/76 - 10/08/76
D-30600	C-19743	19	10/08/76 - 10/16/76
D-30635	C-19744	17	10/16/76 - 10/24/76
D-30636	C-19745	16	10/24/76 - 11/01/76
D-30637	C-19746	9	11/01/76 - 11/06/76
D-30638	C-19747	14	11/10/76 - 11/16/76
D-30639	C-19748	17	11/16/76 - 11/25/76
D-30640	C-19749	16	11/25/76 - 12/03/76
D-30641	C-19750	17	12/03/76 - 12/11/76
D-30642	C-19751	16	12/11/76 - 12/19/76
D-30643	C-19752	16	12/19/76 - 12/27/76
D-30644	C-19753	17	12/28/76 - 1/04/77
D-30645	C-19799	16	1/04/77 - 1/12/77
D-30646	C-19800	17	1/12/77 - 1/20/77
D-30647	C-19801	16	1/20/77 - 1/28/77
D-30648	C-19802	17	1/28/77 - 2/05/77
D-30649	C-19803	16	2/05/77 - 2/13/77
D-30650	C-19804	16	2/13/77 - 2/21/77
D-30651	C-19805	17	2/21/77 - 3/01/77
D-30652	C-19806	16	3/01/77 - 3/09/77
D-30653	C-19807	15	3/09/77 - 3/17/77
D-30654	C-19808	5	3/17/77 - 3/20/77
D-34038	C-20802	17	3/25/77 - 4/02/77
D-34039	C-20803	17	4/02/77 - 4/10/77
D-34040	C-20804	21	4/10/77 - 4/18/77
D-34041	C-20805	18	4/18/77 - 4/26/77

D#	C#	FILES	TIME SPAN
D-34042	C-20806	17	4/26/77 - 5/04/77
D-34043	C-20807	16	5/04/77 - 5/12/77
D-34044	C-20808	17	5/12/77 - 5/20/77
D-34045	C-20809	17	5/21/77 - 5/28/77
D-34046	C-20810	16	5/28/77 - 6/05/77
D-34047	C-20811	17	6/05/77 - 6/13/77
D-34048	C-20812	16	6/13/77 - 6/21/77
D-34049	C-20813	18	6/21/77 - 6/30/77
D-34050	C-20814	13	6/29/77 - 7/07/77
D-34051	C-20815	16	7/07/77 - 7/15/77
D-34052	C-20816	17	7/15/77 - 7/23/77
D-34053	C-20817	16	7/23/77 - 7/31/77
D-34054	C-20818	17	7/31/77 - 8/08/77
D-34055	C-20819	16	8/08/77 - 8/16/77
D-34056	C-20820	16	8/16/77 - 8/24/77
D-34057	C-20821	19	8/24/77 - 9/01/77
D-40942	C-23256	18	9/01/77 - 9/09/77
D-40933	C-23247	16	9/10/77 - 9/17/77
D-40934	C-23248	16	9/17/77 - 9/25/77
D-40935	C-23249	17	9/25/77 - 10/03/77
D-40936	C-23250	16	10/03/77 - 10/11/77
D-40937	C-23251	16	10/12/77 - 10/19/77
D-40938	C-23252	17	10/19/77 - 10/27/77
D-40939	C-23253	16	10/27/77 - 11/04/77
D-40940	C-23254	16	11/04/77 - 11/12/77
D-40941	C-23255	16	11/12/77 - 11/20/77
D-45127	C-23257	17	11/20/77 - 11/28/77
D-41528	C-23258	16	11/28/77 - 12/06/77

D#	C#	FILES	Time Span
D-41529	C-23259	16	12/06/77 - 12/14/77
D-41530	C-23260	16	12/14/77 - 12/22/77
D-41531	C-23261	16	12/22/77 - 12/30/77
D-41536	C-23262	17	1/31/78 - 2/8/78
D-41868	C-23276	17	2/08/78 - 2/16/78
D-41869	C-23277	16	2/16/78 - 2/24/78
D-41870	C-23278	17	2/24/78 - 3/04/78
D-41871	C-23279	16	3/04/78 - 3/12/78
D-41872	C-23280	14	3/12/78 - 3/20/78
D-41873	C-23281	16	3/20/78 - 3/28/78
D-41874	C-23282	16	3/28/78 - 4/05/78
D-41875	C-23283	17	4/06/78 - 4/13/78
D-41876	C-23284	17	4/13/78 - 4/21/78
D-41877	C-23285	24	4/21/78 - 4/29/78
D-41880	C-23286	16	5/15/78 - 5/23/78
D-41881	C-23287	19	5/24/78 - 5/31/78
D-41882	C-23288	17	5/31/78 - 6/08/78
D-41883	C-23289	16	6/08/78 - 6/16/78
D-41884	C-23290	15	6/16/78 6/24/78
D-41885	C-23291	22	6/24/78 - 7/02/78
D-41886	C-23292	15	7/02/78 - 7/10/78
D-41887	c-23293	10	7/10/78 - 7/18/78
D-41888	C-23294	16	7/18/78- 7/26/78
D-41889	C-23295	16	7/26/78 - 8/03/78
D-41890	C-23296	16	8/03/78 - 8/14/78
D-41891	C-23297	16	8/14/78 - 8/19/78
D-41892	C-23298	16	8/19/78 - 8/27/78
D-41893	C-23299	17	8/27/78 - 9/04/78

D#	C#	FILES	Time Span
D-41894	C-23300	16	9/04/78 - 9/12/78
D-41895	C-23301	17	9/13/78 - 9/20/78
D-41896	C-23302	16	9/20/78 - 9/28/78
D-41897	C-23303	4	9/28/78 - 9/30/78

April 1977

LIST OF DATA COVERED ON TAPES

TAPE NAME	FROM DAY	FROM SECONDS	TO DAY	TO SECONDS
0S0Z20	336	141	343	82466
0S0Z21	343	100	351	86398
0S0Z22	352	18	359	86398
0S0Z23	360	18	367 1976	86397
0S0Z24	368	17	375	86397
0S0Z25	376	17	383	86397
0S0Z26	384	17	391	84431
0S0Z27	392	1307	399	86397
0S0Z28	400	17	407	86397
0S0Z29	408	17	415	86397
0S0Z30	416	17	423	86356
0S0Z31	424	775	431	86397
0S0Z32	432	17	439	85905
0S0Z33	440	140	447	86397
0S0Z34	448	17	455	86356
0S0Z35	456	222	463	82690
0S0Z36	463	82792	471	86397
0S0Z37	472	18	479	86397
0S0Z38	480	18	487	86397
0S0Z39	488	18	495	80827
0S0Z40	495	81646	503	84574
0S0Z41	503	84595	511	81277
0S0Z42	511	81482	519	83530
0S0Z43	519	84123	527	79475

	FROM		TO	
TAPE NAME	DAY	SECONDS	DAY	SECONDS
0S0Z44	527	79598	535	80970
0S0Z45	535	81235	543	85271
0S0Z46	543	86152	551	83018
0S0Z47	551	83038	559	85722
0S0Z48	559	85865	567	83428
0S0Z49	567	83448	575	85087

Rationale and Motivation; Phenomena Measured

The University of Wisconsin Soft X-ray Experiment on OSO-8 was designed to measure, both spatially and spectrally, cosmic X-ray radiation, principally the low-energy background radiation. The spectral range of the instrument spans X-ray energies from below the carbon K-edge at 284 ev (44 Å) to approximately 35 keV (0.25 Å) and is divided into 16 pulse-height channels. Three types of proportional counters are employed in order to cover this range. Spatial selection is provided by collimators of honeycomb construction with an optical beam width of 3°.1 (FWHM). Instrumental detail are provided elsewhere.

We will assume that the reader is familiar with the general course and history of X-ray astronomy and so that will not be treated in detail other than to explain the motivation for this specific instrument. In the late 1960's and early 1970's it became clear that in addition to the numerous discrete cosmic X-ray sources there was also a general background X-radiation. At high energies, in excess of a few keV, this was evidently extragalactic and followed a well-defined power law in energy. At lower energies, below ∿1. keV, however, the intensity of the background radiation was measured to be considerably in excess of the extrapolation of the higher-energy power-law relation. Also the low-energy flux showed considerable spatial structure and was seen in directions where the amount of galactic absorbing material should have been opaque to extragalactic radiation. These observations had been made entirely from sounding rockets and due to the severe exposure limitations only the gross, large-scale structure could be

mapped. The OSO-8 experiment, then, was designed to perform long-exposure, relatively high spatial resolution studies of individual features in the X-ray background radiation. The primary goal of the experiment was the nature of the low-energy radiation, but the instrumental energy range was extended to higher energies in order to gain insight into the relation between the low and high-energy X-ray background.

In order to obtain adequate exposure in any single direction it was necessary to place the detectors' fields of view along the OSO-8 spin and anti-spin axes. The fields of view generally drift slowly over the sky at $\sim 1°$ day^{-1} to $\sim 3°$ day^{-1}. It was impractical to survey the entire sky in this manner, but existing sky surveys were used as a guide to select the regions to be studied in detail.

In addition to the cosmic background X-ray data, a number of discrete X-ray sources were naturally included in the observing plan. Also a substantial amount of time was spent viewing the earth.

SCIENCE DATA TAPE CHARACTERISTICS:

9-track, 1600 BPI, odd party, unlabeled

An EOF mark is written if:

a) >12 hrs elapsed since beginning of file.

b) total movement of positive spin axis ≥ 10° change since beginning of file.

c) merging data in later resulted in some shorter files.

2 EOF's written at EOT or at about 8 days of data on tape. Logical records are packed 10 to a physical record giving 300 x 10 = 3000 word blocks. Blocks are filled with zeros if necessary at end of file (ID = 0). Tapes were written by a Univac 1110 and consequently all references to 'words' mean 36-bit words. Also, any words in Real format are in Univac 1100 series floating point format.

The word packing mode is 4.5 frames (8-bit bytes) per word.

Data records on any tape are always in ascending time order.

SCIENCE DATA RECORD DEFINITION

The science data tapes contain science data records, major frame by major frame, of those records we kept. The processor that created these records from the raw data we call PASS1. S/C means Space Craft. EXP.DESC. refers to OSO-8 Soft X-Ray Experiment (Wisconsin) Final Report.

WORD	TYPE	ORIGIN	DESCRIPTION
1	Integer	PASS1	ID word (10_{10} in 12 most significant bits)
2	Integer	--	flag word (see separate description)
3	Real	GSFC	day of data (beginning with day 174 (June 23, 1975) and continuing in ascending order until satellite shut-down)
4	Real	GSFC	seconds of data. (Beginning of major frame)
5-204	Real	S/C	* minor frame 0-99 of telemetry words 49, 50 (data system output) organized 49,50,49, 50 ... (see TABLE 5-5, EXP.DESC.)
205-214	Integer	S/C	digital subcom words 0-9 (98-27,...,31, 91,...,95) (see TABLE 5-1, EXP.DESC.)
215-220	Integer	S/C	high voltage power supply (HVPS) 1-6 analog monitors (98-58,...,63) (see TABLE 5-1, EXP.DESC.)
221-222	Real	PASS1	RA,DEC of top sky (degrees)
223-238	Real	PASS1	RA,DEC of centers of sectors 0-7 (degrees)
239-240	Real	GSFC	geodetic latitude, east longitude (degrees)
241-242	Real	GSFC	McIllwain L,B parameters
243-244	Real	GSFC	RA,DEC of $\vec{B}$ (magnetic field-degrees)
245-246	Real	PASS1	solar zenith, azimuth (degrees)
247-264	Real	PASS1	look zenith, azimuth (degrees) for sectors top, 0-7

265	Real	GSFC	height of satellite (Km)
266-277	--	--	meant to be total rates--never implemented
278	Real	PASS1	horizon zenith angle (degrees--allowing for 160 Km atmosphere)
279-284	Real	PASS1	latest calculable calibrate ratios for counters 1-6
285-286	Real	PASS1	RA,DEC of roll axis (degrees)
287-289	Integer	S/C	relay monitors (98-64,65,66) (see TABLE 5-1, EXP.DESC.)
290	Real	GSFC	spin rate (RPM)
291	Integer	GSFC	attitude flags (see separate description)
292-299	--	--	spares, not used
300	Integer	PASS1	checksum (XOR of 1-299)

*Data system output is recorded on science data record with other data that occurred at the same time, i.e., data system output is from next telemetry frame.

TYPES OF FILL DATA IN SCIENCE DATA RECORD:

Normally, all data words (5-220, 287-289) should be between 0 and 255.

If a minor frame synch word (from satellite telemetry) has more than zero bit errors (see also flag word description), associated data is set negative (words 5-220, 287-289 only).

If a minor frame is missing (rare), data is set to 5555. (for reals) or 5555 (for integers) (words 5-220, 287-289 only).

If a minor frame has fill data (as reported in raw data) 1000. (for reals) or 1000 (for integers) is added to data (words 5-220, 287-289 only).

If data is impossible to write or calculate for some other reason, data is set to 9999, (for reals) or 9999 (for integers) (all words).

SCIENCE DATA RECORD - FLAG WORD DEFINITION

BIT	MEANING
0 (MB)	attitude computation type (from label record) 0 = fine, 1 = coarse
1-6	Not used
7-9	**number of bit errors in minor frame synch words for count data in this major frame. If ≥ 7, set to 7.
10	*1 = fill data present in this frame, 0 = none
11	1 = gas flow HVPS on/off transition calc impossible to do
12	D/N override (0 = off, 1 = on)
13	*overflow correction mode (1 = yes) (only during calibrates)
14	calibrate valid frame (1 = yes)
15	partial calibrate frame (1 = yes)
16	calibrate turn-off frame (= yes)
17	gas flow HVPS on/off transient (1 = yes)
18	all HVPS on/off transient (1 = yes)
19	dwell mode transient (possibly dwell mode data) (1 = yes)
20	radiation monitor override (0 = off, 1 = on)
21	D/N status (0 = night, 1 = day) - from actual space craft sun sensor
22	missing adjacent frame (1 = yes)
23	previous frame missing (1 = yes)
24	1 or more ratemeters high (1 - yes)
25	B/V valve open (1 = yes)
26	*1 or more solenoid 1 counts (1 = yes)
27	*1 or more solenoid 2 counts (1 = yes)
28	*data system error (1 - yes)

29	VHF transmitter on (1 - yes)
30	S-Band transmitter on (1 = yes)
31	probable error of attitude solution > 0.1° (1 = yes)
32	*suspect extra MIP
33	*self test frame (1 = yes)
34	illegal non D/S data (1 = yes)
35	all HVPS on/off transition calculations impossible to do

** sum of relevant minor frame data.

* these flags are written with subcom to which they correspond--not with next frame as in telemetry format.

We have been using these flags in the following manner (for data selection):

bits 0 thru 6	- ignore (don't care)
bits 7 thru 11	- require zeros
bit 12	- usually required zero, but also left as don't care during specific intervals
bit 13	- usually left as don't care, but can be required to be zero
bits 14 thru 19	- require zeros
bit 20	- usually required to be zero, but can be left as don't care over specific intervals (with caution)
bit 21	- required to be zero for night data, one for day data
bits 22 thru 25	- require zeros
bits 26 thru 27	- ignore (don't cares)
bit 28	- require zeros
bits 29 thru 32	- ignore (don't cares)
bits 33 thru 35	- require zeros

ATTITUDE FLAGS WORD DESCRIPTION

The attitude flag field contains 20 bits. They are bits 16 thru 35 in the 36-bit word (BIT 0 = MSB). These flags are determined by GSFC when creating the raw data tapes. When the respective bit is set, the condition is present. All unused bits = 0.

BIT	SIGNIFICANCE	
16	1 = night, 0 = day at beginning of major frame (from orbit predictions)	
17	Spin rate ω was present from MIP	
18	Aspect angle B_s was present from MIP	
19	Spin rate ω	Raw data values were present
20	Aspect angle B_s	
21	Pitch angle η	
22	Roll angle ϕ	
23	Spin rate ω was calculated	
24	Aspect angle B_s was calculated	
25	Pitch angle η was calculated (in day time from sun sensor, at night from a star solution)	
26	Roll angle ϕ was calculated from a star solution	
27	Spin rate ω was interpolated	
28	Aspect angle B_s was interpolated	
29	Pitch angle η was interpolated	
30	Roll angle ϕ was interpolated	
31	Spin rate ω was extrapolated	
32	Aspect angle B_s was extrapolated	
33	Pitch angle η was extrapolated	

34	Roll angle Ø was extrapolated
35	A gas firing has occurred

The following is GSFC's suggested interpretation:
The general guidelines in interpreting the bit setting are as follows: When the lower 9 bits are not set except for bit 6 in the daytime, there were good solutions for the attitude state vector. The interpolation of missing values yields, generally, good results. Extrapolation over long periods of time, generally, yield less confident results and should be carefully interpreted by the user. Gas firings should be carefully interpreted because of larger uncertainty in the state vector, particularly during the gas firings.

We have been using these flags in the following manner:

Require bit 35 to be zero and ignore the rest of the flags. We have found the attitude information to be sufficiently accurate independent of these flags.

MISCELLANEOUS

Occasionally the first record on a tape has an ID = 10 but a time of zero. This is an anomaly of PASS1 and these records should be ignored as they contain no data.

Filler records (ID = 0) should always be ignored.

Sep 1977

LIST OF DATA COVERED ON TAPES

Tape Name	From Day	From Seconds	To Day	To Seconds
A75 0S0Z00	176	33585	183	86397
0S0Z01	184	18	191	86234
0S0Z02	192	100	199	80868
0S0Z03	200	652	207	86398
0S0Z04	208	18	215	85927
0S0Z05	216	38	223	86398
0S0Z06	224	18	231	86398
0S0Z07	232	18	239	86193
0S0Z08	240	469	247	86398
0S0Z09	248	18	255	86398
0S0Z10	256	18	263	86398
0S0Z11	264	18	271	86398
0S0Z12	272	10	279	84862
0S0Z13	280	5711	287	85108
0S0Z14	288	1267	295	85845
0S0Z15	296	387	303	85866
0S0Z16	304	837	311	86398
0S0Z17	312	18	319	86398
0S0Z18	320	18	327	86398
0S0Z19	328	18	335	86213

Sep 1977

LIST OF DATA COVERED ON TAPES

TAPE NAME	FROM DAY	FROM SECONDS	TO DAY	TO SECONDS
0S0Z60	655	79189	663	84698
0S0Z61	663	85005	671	78800
0S0Z62	671	78922	679 676	82302
0S0Z63	679	82322	686	78446
0S0Z64	687	81032	695	83428
0S0Z65	696	40609	703	80500
0S0Z66	703	80519	711	83100
0S0Z67	712	40323	719	79578
0S0Z68	719	86029	727	76526
0S0Z69	728	18	735	84820

Sep 1977

LIST OF DATA COVERED ON TAPES

TAPE NAME	FROM DAY	FROM SECONDS	TO DAY	TO SECONDS
OSOZ70	735	85249	743	81011
OSOZ71	743	81707	751	83100
OSOZ72	751	83345	759	80253
OSOZ73	759	80273	767	83960
OSOZ74	767	84062	775	84513
OSOZ75	775	84595	783	80663
OSOZ76	783	81154	791	85086
OSOZ77	791	85967	799	82670
OSOZ78	799	82587	807	85373
OSOZ79	807	85557	815 810	81584

Sep 1977

LIST OF DATA COVERED ON TAPES

TAPE NAME	FROM DAY	FROM SECONDS	TO DAY	TO SECONDS
OSOZ50	575	85107	583	82015
OSOZ51	583	82035	591	83797
OSOZ52	591	84595	599	81011
OSOZ53	599	81175	607	82424
OSOZ54	607	82834	615	80499
OSOZ55	615	80888	623	84739
OSOZ56	623	84902	631	83879
OSOZ57	631	84063	639	82773
OSOZ58	639	82793	647	84042
OSOZ59	647	84165	655	79168

LIST OF DATA COVERED ON TAPES

TAPE NAME	FROM DAY	FROM SECONDS	TO DAY	TO SECONDS	WISCONSIN TAPE #	SDR-2 DATE
ZC0	1135	81830	1143	83202	3611	PASS 1
ZC1	1143	83222	1151	81133	6874	PASS 1
ZC2	1151	80990	1159	82976	5032	PASS 1
ZC3	1159	82976	1167	79106	3610	PASS 1
ZC4	1167	79556	1175	57438	3492	PASS 1
ZC5	1175	85250	1183	84328	4933	PASS 1
ZC6	1183	84348	1191	82383	6883	PASS 1
ZC7	1192	3949	1199	82546	6871	PASS 1
ZC8	1199	82567	1207	84861	4313	PASS 1
ZC9	1207	85148	1215	80560	4395	PASS 1

D-41600-
41887

LIST OF DATA COVERED ON TAPES

TAPE NAME	FROM DAY	FROM SECONDS	TO DAY	TO SECONDS	WISCONSIN TAPE #	SDR-2 DATE
ZD0	1216	3663	1223	58421	6876	PASS 1
ZD1	1223	71999	1231	82668	4946	PASS 1
ZD2	1231	83100	1239	74641	650	PASS 1
ZD3	1240	5096	1247	76198	470	PASS 1
ZD4	1247	81216	1255	78164	510	PASS 1
ZD5	1255	78164	1263	79372	6879	PASS 1
ZD6	1263	79373	1271	85127	621	PASS 1
ZD7	1271	85005	1279	76587	4364	PASS 1
ZD8	1279	85967	1287	75665	5031	PASS 1
ZD9	1287	80110	1295	81646	544	PASS 1

Q-41888-41891

LIST OF DATA COVERED ON TAPES

TAPE NAME	FROM DAY	FROM SECONDS	TO DAY	TO SECONDS	WISCONSIN TAPE #	SDR-2 DATE
ZE0	1295	81667	1303	69173	6077	PASS 1
ZE1	1303	77570	1311	78021	5030	PASS 1
ZE2	1311	78512	1319	83735	4407	PASS 1
ZE3	1319	83755	1327	85537	4393	PASS 1
ZE4	1327	85864	1335	80827	4378	PASS 1
ZE5	1335	81502	1343	80315	4290	PASS 1
ZE6	1343	80150	1351	77734	6090	PASS 1
ZE7	1352	9233	1359	81277	4324	PASS 1
ZE8	1359	81379	1367	74560	4309	PASS 1
ZE9	1367	74396	1369	73566	6091	PASS 1

0-40933-40936

LIST OF DATA COVERED ON TAPES

TAPE NAME	FROM DAY	FROM SECONDS	TO DAY	TO SECONDS	WISCONSIN TAPE #	SDR-2 DATE
ZA0	975	77918	983	82362	313	Partial
ZA1	984	1845	991	85353	4063	Partial
ZA2	991	85373	999	80458	5007	9/26/78
ZA3	999	80580	1007	84697	479	12/18/78
ZA4	1007	84717	1016	83986	602	10/21/78
ZA5	1016	4277	1023	77980	613	PASS 1
ZA6	1023	78062	1031	85660	4312	PASS 1
ZA7	1031	86070	1039	81625	3603	PASS 1
ZA8	1039	82506	1047	83571	174	PASS 1
ZA9	1047	83673	1055	81605	3335	PASS 1

0-415 & 1-41536

LIST OF DATA COVERED ON TAPES

TAPE NAME	FROM DAY	FROM SECONDS	TO DAY	TO SECONDS	WISCONSIN TAPE #	SDR-2 DATE
ZB0	1055	81707	1063	83571	321	PASS 1
ZB1	1063	84124	1071	81830	327	PASS 1
ZB2	1071	81830	1079	80581	309	PASS 1
ZB3	1079	80806	1087	78717	347	PASS 1
ZB4	1087	79435	1095	80581	3524	PASS 1
ZB5	1095	80601	1103	84512	3608	PASS 1
ZB6	1103	84574	1111	80703	6873	PASS 1
ZB7	1111	80847	1119	83263	6875	PASS 1
ZB8	1119	83283	1127	78962	6878	PASS 1
ZB9	1127	78963	1135	81399	3523	PASS 1

D-30644

Day 363 - 4 (1977) 12/28/76 - 1/4/77

```
$JOB  12:39:41
$ASS IN MS1
$NOP ***** DUMP OF KDOUT-20 *********
$EXE DPHEX BS
 INPUT TAPE ON MS1
 DATA INPUT     1 1 STOP
  FILE  1       RECORD    1        LENGTH    13500BYTES
  (     0)  00A00000  00000640  60455B00  00042C93  22D1447F  80000447  30000042  D4000004  2D400000  44730000
  (    40)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (    80)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (   120)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (   160)  000040C0  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (   200)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (   240)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (   280)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (   320)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (   360)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (   400)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (   440)  00000000  00000000  00000000  00000000  00000040  C0000000  00000000  00000000  00000000  00000000
  (   480)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (   520)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (   560)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (   600)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (   640)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (   680)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (   720)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (   760)  00000000  00000000  00044420  00004442  00000444  20000044  42000004  44200000  44420000  04442000
  (   800)  00444200  00044420  00004442  00000444  20000044  42000004  44200000  44420000  04442000  00444200
  (   840)  00044420  00004442  00000444  20000044  42000004  44200000  43DC0000  043DC000  0043DC00  000446F0
  (   880)  0000446D  00000447  48000043  CC000004  3CC00000  43C70000  00000000  00000000  00000000  00000000
  (   920)  00031000  00001F00  00000050  000000C5  00000000  00000000  33000000  01E00000  00220000  0000D000
  (   960)  0000A100  00000000  00000000  00000000  00000000  00000000  00000000  00004457  D7B4CBD2  FE216944
  (  1000)  D8A14B24  2E26A936  44D99A03  C42DFFB1  18404BA5  80042D41  5D1844D9  F75AE42C  5F948B44  D9322EE4
  (  1040)  27B93C52  44D84651  442C0184  7544D7B6  14A42CB9  D79044D7  D7BFA42D  9DAD92BD  15463CE4  3FF7DC44
  (  1080)  40EA71C7  A3FEDDF5  3B4470D6  51541 7C0  565C435F  5B75243E  233AD843  597642A4  4C2EEA84  4443BCF1
  (  1120)  543D10B0  A0444563  5D043D32  2B484445  F9A1343D  85A3F844  451643E4  3DD1F450  44435695  243DE525
  (  1160)  204441CC  B8E43DBC  6A784441  4ADF243D  73362844  42115B74  3D2E1638  4544765C  E474E1E0  00474E1E
  (  1200)  000474E1  E000474E  1E000474  E1E00047  4E1E0004  74E1E000  474E1E00  0474E1E0  00474E1E  000474E1
  (  1240)  E000474E  1E00043E  D42FFC00  00000000  00000000  00000000  00000000  00000000  00000000  00044C4
  (  1280)  BEA88BD2  06CD6200  00000720  00000072  00000007  241DA3D0  DE46F800  000474E1  E000474E  1E000474
  (  1320)  F1E00047  4E1E0004  74E1E000  474E1E00  0474E1E0  00474E1E  000C5A51  898000A0  00000000  00426045
  (  1360)  5B000004  34D8ED91  447F8000  04469800  0043D500  00043D50  00004469  80000000  00000000  00000000
  (  1400)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (  1440)  00000000  00000000  00000000  00000000  00000000  00000000  00000040  C0000000  00000000  00000000
  (  1480)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (  1520)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (  1560)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (  1600)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (  1640)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (  1680)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (  1720)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (  1760)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (  1800)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (  1840)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (  1880)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (  1920)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (  1960)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (  2000)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (  2040)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
  (  2080)  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000004
  (  2120)  44200000  44420000  04442000  00444200  00044420  00004442  00000444  20000044  42000004  44200000
  (  2160)  44420000  04442000  00444200  00044420  00004442  00000444  20000044  42000004  44200000  44420000
  (  2200)  043E9000  0043E900  00043E90  000043F7  0000043F  70000043  F7000004  47080000  44750000  0446E000
  (  2240)  0043C000  00043C00  000043CC  0000040C  00000000  00000000  00000000  00000003  10000000  1F000000
```

512
192
24
728
365
363

PRINTED IN U.S.A.

INPUT TAPE ON MS1
DATA INPUT 1 0 1

0100 6 1 0 1 2 0 1 1 0 7 1 0 7 1 1 7 1 1 0

FILE 1 RECORD 159 LENGTH 13500 BYTES

(0)	00A00030	04000040	60455BEC	00048D2C	FD9A447F	80000444	C0000042	D4000004	2D400000	444C0000	512
(40)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
(80)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	192
(120)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
(160)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	24
(200)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
(240)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	7
(280)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
(320)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	735
(360)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
(400)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	731
(440)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
(480)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	4
(520)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
(560)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
(600)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
(640)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
(680)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
(720)	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
(760)	00000000	00000000	00044400	00004440	00000444	00000044	40000004	44000000	44400000	04440000	
(800)	00444000	00044400	00004440	00000444	00000044	40000004	3F700000	43F70000	043F7000	00444000	
(840)	00044400	00004440	00000444	00000044	40000004	44000000	44400000	04440000	00444000	00044718	
(880)	00004473	00000447	20000043	C8000004	3C700000	43C80000	00000000	00000000	00000000	00000000	
(920)	00031000	00001F00	00000050	000000C5	00000000	00000000	33000000	01E00000	00220000	0000D000	
(960)	0000A100	00000000	00000000	00000000	00000000	00000000	00000000	0000445F	27468BD8	59751242	
(1000)	4B0BF404	2CFAB949	4268E0C0	042CCA89	824278EA	B4042C07	B7FE4272	44FC0426	4F1DA742	598AD404	
(1040)	25572BDF	41F9B240	0425B3B4	F841D89F	00042730	9DF941E3	A6A0042C	7A5FC842	C07541DB	C0014C07	
(1080)	40CE40F5	53FCB524	8144E039	D7443493	9D9E4373	E1B46447	2A134444	468E27B4	4C255DF6	434B6B94	
(1120)	643CDFF4	3043527D	55E43CF0	4D704356	C993043D	34C91043	56336204	3D887218	435101B5	A43DC41A	
(1160)	A04349D1	B7A43DC4	92884344	DB55E43D	7D2F9843	45908684	3D186520	4544BCDD	1474E1E0	00474E1E	
(1200)	000474E1	E000474E	1E000474	E1E00047	4E1E0004	74E1E000	474E1E00	0474E1E0	00474E1E	000474E1	
(1240)	E000474E	1E00043E	D5054840	DC09AB34	0E64D1EB	00000000	00000000	00414172	3304076E	E51F44C7	
(1280)	BC5CABD2	6B8F4500	00000720	00000072	00000007	241DCFC4	3749FDC2	000474E1	E000474E	1E000474	
(1320)	E1E00047	4E1E0004	74E1E000	474E1E00	0474E1E0	00474E1E	00084A14	2E8D00A0	00000000	00000045	
(1360)	5BE00004	8D2D4F86	474E1E00	0474E1E0	00474E1E	000474E1	E000474E	1E000474	E1E00047	4E1E0004	
(1400)	74E1E000	474E1E00	0474E1E0	00474E1E	000474E1	E000474E	1E000474	E1E00047	4E1E0004	74E1E000	
(1440)	474E1E00	0474E1E0	00474E1E	000474E1	E000474E	1E000474	E1E00047	4E1E0004	74E1E000	474E1E00	
(1480)	0474E1E0	00474E1E	000474E1	E000474E	1E000474	E1E00047	4E1E0004	74E1E000	474E1E00	0474E1E0	
(1520)	00474E1E	000474E1	E000474E	1E000474	E1E00047	4E1E0004	74E1E000	474E1E00	0474E1E0	00474E1E	
(1560)	000474E1	E000474E	1E000474	E1E00047	4E1E0004	74E1E000	474E1E00	0474E1E0	00474E1E	000474E1	
(1600)	E000474E	1E000474	E1E00047	4E1E0004	74E1E000	474E1E00	0474E1E0	00474E1E	000474E1	E000474E	
(1640)	1E000474	E1E00047	4E1E0004	74E1E000	474E1E00	0474E1E0	00474E1E	000474E1	E000474E	1E000474	
(1680)	E1E00047	4E1E0004	74E1E000	474E1E00	0474E1E0	00474E1E	000474E1	E000474E	1E000474	E1E00047	
(1720)	4E1E0004	74E1E000	474E1E00	0474E1E0	00474E1E	000474E1	E000474E	1E000474	E1E00047	4E1E0004	
(1760)	74E1E000	474E1E00	0474E1E0	00474E1E	000474E1	E000474E	1E000474	E1E00047	4E1E0004	74E1E000	
(1800)	474E1E00	0474E1E0	00474E1E	000474E1	E000474E	1E000474	E1E00047	4E1E0004	74E1E000	474E1E00	
(1840)	0474E1E0	00474E1E	000474E1	E000474E	1E000474	E1E00047	4E1E0004	74E1E000	474E1E00	0474E1E0	
(1880)	00474E1E	000474E1	E000474E	1E000474	E1E00047	4E1E0004	74E1E000	474E1E00	0474E1E0	00474E1E	
(1920)	000474E1	E000474E	1E000474	E1E00047	4E1E0004	74E1E000	474E1E00	0474E1E0	00474E1E	000474E1	
(1960)	E000474E	1E000474	E1E00047	4E1E0004	74E1E000	474E1E00	0474E1E0	00474E1E	000474E1	E000474E	
(2000)	1E000474	E1E00047	4E1E0004	74E1E000	474E1E00	0474E1E0	00474E1E	000474E1	E000474E	1E000474	
(2040)	E1E00047	4E1E0004	74E1E000	474E1E00	0474E1E0	00474E1E	000474E1	E000474E	1E000474	E1E00047	
(2080)	4E1E0004	74E1E000	474E1E00	0474E1E0	00474E1E	000474E1	E000474E	1E000474	E1E00047	4E1E0004	
(2120)	74E1E000	474E1E00	0474E1E0	00474E1E	000474E1	E000474E	1E000474	E1E00047	4E1E0004	74E1E000	
(2160)	474E1E00	0474E1E0	00474E1E	000474E1	E000474E	1E000474	E1E00047	4E1E0004	74E1E000	474E1E00	
(2200)	0474E1E0	00474E1E	000474E1	E000474E	1E000474	E1E00047	4E1E0004	74E1E000	474E1E00	0474E1E0	
(2240)	00474E1E	000474E1	E000474E	1E000474	E1E00047	4E1E0004	74E1E000	00000270	F0000027	0F000002	
(2280)	70F00000	270F0000	0270F000	00270F00	000270F0	000027CF	00000270	F0000027	0F000002	70F00000	
(2320)	270F0000	0270F000	00270F00	000270F0	0000270F	445F2746	8BD85975	12424B0B	F4042CFA	B9494268	
(2360)	E0C0042C	CA898242	78EAB404	2C07B7FE	427244FC	04264F1D	A742598A	D4042557	2BDE41F9	B2400425	
(2400)	B3B4F841	D89F0004	27309DF9	41E3A6A0	042C7A5F	C842C2F5	B5FBC012	A41B40CF	16A2F3FC	C2EE9744	
(2440)	FD4628C4	345CBD5B	43766592	C4472DF4	3C444723	32B44C29	6A964348	F8AC243C	ED5B2043	500DFA24	
(2480)	3CFD22F8	43546B9B	643D42A0	584353EF	6D043D98	3BD0434E	D384E43D	D64D1043	47A40B64	3DD896A8	

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