

Part O: Orbital Solutions

Number HIP	Elements								Standard Errors						Notes	
	P days 2	T JD-2 440 000 3	a ₀ mas 4	e 5	ω deg 6	i deg 7	Ω deg 8	P days 9	T days 10	a ₀ mas 11	e 12	ω deg 13	i deg 14	Ω deg 15	Ref.	N
2	499.7989	8397.3152	14.31	0.0000	0.00	118.06	77.28	18.8466	10.1805	2.81			5.05	5.20		
443	72.9300	8319.3259	4.57	0.2720	337.71	35.97	66.30		5.0119	1.08			37.26	25.28	49	
677	96.6960	7374.7700	6.47	0.5270	77.31	105.66	104.16			1.16					81	P
999	1251.3550	8480.6248	18.39	0.0000	0.00	81.27	118.04	88.1887	16.4729	1.24			5.77	4.23		P
1349	411.4490	8245.6103	19.94	0.5671	4.68	80.48	352.57		2.9003	0.97			2.18	3.37	13	
2912	143.5300	7717.7000	1.84	0.5420	170.70	103.00	94.70			0.98					57	
3504	1033.0000	8422.8624	7.15	0.1325	99.70	100.83	88.97		65.0552	1.28	0.1635	20.68	4.51	5.11	4	
5336	7816.0000	2705.5000	188.50	0.6200	157.20	110.00	227.30								55	D
5685	833.3112	8028.0189	15.06	0.0000	0.00	116.69	113.31	39.7531	13.4017	1.47			5.05	6.45		
5778	800.9000	-20735.8000	2.44	0.3100	201.00	152.78	313.40			1.00			36.56	11.48	89	
6867	193.7900	8446.2989	4.91	0.0000	0.00	50.34	25.33		4.0176	0.61			9.15	8.26	73	
7078	134.0780	-10999.5670	6.19	0.3100	188.20	88.04	160.17			0.76			6.24	4.74	94	
7213	611.4908	8059.0715	8.08	0.5160	96.57	25.13	49.33	16.6151	25.9466	1.19	0.1496	82.46	27.37	76.17		
7981	207.2707	8213.7846	4.55	0.0000	0.00	89.01	12.67	6.1799	11.9614	2.10			22.95	23.80		
8514	1122.3937	8401.3833	11.95	0.0000	0.00	106.34	79.00	99.3663	18.0819	0.97			5.21	3.78		
8833	1672.4000	-2348.5000	13.10	0.1800	71.00	65.85	270.13			1.66			12.24	17.03	46	
8882	877.6541	8589.2621	5.91	0.0000	0.00	93.51	161.88	117.3686	38.5598	0.93			5.34	6.94	80	P
8903	106.9954	4274.2760	11.32	0.8950	24.50	44.70	79.10			1.33						
9236	605.9628	8586.0775	21.66	0.6426	233.96	42.50	85.09	4.0765	5.3707	1.38	0.0537	7.56	3.88	6.92		
9727	1616.2692	7969.2575	39.32	0.0000	0.00	148.25	64.59	132.6785	45.3193	7.57			8.51	12.15		
10064	31.3870	7729.0700	-1.56	0.4400	298.10	129.90	64.90			0.92					57	
10324	1642.1000	-5014.5000	-4.52	0.0000	0.00	106.47	71.24			4.50			15.34	23.97	46	
10366	1650.0000	7205.4402	16.75	0.7500	270.00	115.60	168.33		67.9757	1.50			7.72	10.49	16	
10514	1385.0000	1981.5000	5.36	0.0640	63.00	74.09	316.38			1.08			12.76	13.75	47	
10644	10.0200	8117.0000	2.82	0.0200	301.00	167.00	15.00			0.66					57	
10723	93.5000	8298.2488	5.55	0.4450	100.95	118.28	176.19			3.2828	0.80		15.22	17.29	51	
11231	142.3700	8417.5184	5.64	0.2950	192.80	24.95	234.35			6.7984	0.62		14.44	17.85	8	
11840	603.8785	7778.6236	6.29	0.0000	0.00	85.15	17.83	38.6952	51.1785	1.04			9.57	10.93		
12623	331.0000	-24981.0000	4.07	0.6700	267.70	144.47	235.74			1.29			146.49	11.16	17	
12709	1214.0000	4185.5000	31.24	0.5210	117.00	76.48	27.39			6.15			6.25	11.56	45	
12719	490.0000	8581.4153	6.52	0.1400	320.00	154.96	66.46			1.52			21.77	35.99	4	
13531	1515.6000	-24306.6000	8.83	0.7340	234.60	95.00	101.00			5.22					19	
14328	5350.0000	-7736.5000	21.50	0.7200	353.20	88.00	242.60			2.60					75	
14576	680.0500	6931.4000	19.00	0.2250	130.29	83.98	132.26			0.57					82	W
16134	503.3852	8343.4372	19.37	0.3235	235.07	35.04	115.13	12.6924	28.7336	1.98	0.1095	24.07	8.98	22.29		
16369	960.0000	7546.5722	4.25	0.3970	326.32	36.95	207.61			79.6215	1.51		29.53	37.37	48	
16900	717.1133	8169.8740	8.79	0.0000	0.00	135.11	14.25	43.0233	52.0617	0.97			15.65	26.19		
17138	706.5027	8563.8726	3.51	0.0000	0.00	137.99	115.86	100.5719	52.3959	0.80			20.32	22.84		
17296	596.2100	2794.5000	1.80	0.0880	322.00	115.59	166.80			0.60			22.69	24.52	37	
17336	1000.6828	8024.4017	32.12	0.0000	0.00	78.27	79.50	29.5905	10.0292	1.49			1.55	1.86		
17440	1911.5000	8872.4796	27.10	0.2100	13.80	82.85	22.39			18.5393	2.50		3.36	6.82	61	
17694	980.5113	8534.5216	5.88	0.0000	0.00	54.82	137.64	83.2956	29.7977	2.01			12.44	12.91		
17846	1318.1971	8363.1619	9.55	0.0000	0.00	81.95	161.79	170.4159	38.5925	1.21			14.56	9.07		P
17847	290.6598	8305.6949	4.23	0.0000	0.00	106.72	111.54	8.5642	26.6108	0.97			25.02	38.48		
17932	962.8000	2288.1000	7.43	0.7240	108.80	93.35	238.83			1.40			4.92	7.11	83	
19719	2637.0000	2899.5000	22.49	0.3100	312.00	66.80	322.70			2.75					54	
20070	701.7600	143.4000	5.09	0.2350	263.00	83.46	115.29			1.07			10.36	10.00	56	P
20087	4113.8000	3345.2000	35.72	0.1700	330.90	125.30	170.00			7.28					20	
20482	590.6000	3512.9000	7.60	0.6380	303.10	26.83	10.98			2.37			31.68	12.48	45	
20935	238.8700	3298.5000	10.84	0.2420	127.00	19.90	306.69			0.91			4.10		45	
21123	844.6000	4413.5000	13.38	0.1480	325.00	52.80	212.41			1.33			6.41		45	
21273	105.3640	8375.8663	2.41	0.0000	0.00	96.21	60.82	1.9760	4.8979	1.62			10.39	11.50		W
22500	1144.4598	8424.5232	12.78	0.0000	0.00	126.04	158.82	86.6148	33.0962	0.91			8.15	8.53		D
23416	9887.0000	-6626.5000	22.40	0.0700	0.00	87.00	264.00								55	D
23453	972.1620	-5414.2600	4.18	0.4060	336.00	99.33	145.43			0.90			16.54	13.12	95	P
23662	667.7063	8226.0651	6.94	0.0000	0.00	82.69	162.72	42.0115	16.6511	0.80			9.87	10.44		
23786	204.3839	8444.8361	10.14	0.1403	293.11	29.41	152.99	2.4369	41.2870	1.29	0.2447	81.10	35.82	63.00		
23922	672.2226	8541.5310	8.51	0.0000	0.00	68.85	132.72	38.8847	26.3202	2.30			15.54	14.60		
24526	685.1827	7918.4072	19.71	0.1088	221.00	50.33	154.95	8.5280	26.5362	1.08	0.1444	16.27	4.08	5.83		
24608	104.0220	7528.4500	2.16	0.0000	0.00	137.18	220.80			0.60					58	P
24727	434.8000	8348.1170	7.24	0.1000	40.00	52.93	56.20			17.1872	1.59		9.46	11.65	16	
26001	180.8757	8462.7778	4.60	0.5090	332.93	44.63	104.39			5.2399	0.68		11.27	12.80	72	
26563	445.7400	8182.0463	1.84	0.5490	200.70	87.43	326.92			19.8487	1.66		16.20	19.81	2	D
28311	1005.4914	8139.4375	8.37	0.0000	0.00	136.38	11.67	73.6068	41.4312	1.16			11.04	16.83		
28360	3.9600	7438.6500	-0.54	0.0000	0.00	76.00	115.40			0.76					57	
29982	1325.0000	4856.5000	12.18	0.4370	38.60	110.94	264.75			2.24			6.45	6.12	41	
30060	819.8957	8160.7306	8.53	0.2984	298.31	59.80	52.52	36.7104	51.2284	2.32	0.3187	45.38	14.20	31.82		
30277	868.7800	8620.4496	9.55	0.6950	117.08	115.09	282.07			13.1809	0.78		5.91	7.21	62	
30501	577.5000	3626.0000	2.92	0.2400	85.80	120.73	246.08			1.13			20.97	13.03	40	
31150	716.4899	8058.2936	7.													

Number HIP	Elements								Standard Errors						Notes	
	P days	T JD-2 440 000	a ₀ mas	e	ω deg	i deg	Ω deg	P days	T days	a ₀ mas	e	ω deg	i deg	Ω deg	Ref.	N
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
54677	939.2780	8028.4093	38.69	0.7726	258.78	89.10	88.48	28.9558	16.9524	15.38	0.1577	10.77	2.44	4.47		
54977	700.9778	8618.0530	11.27	0.4588	123.63	39.54	15.59	17.5963	38.2466	1.68	0.2498	26.08	10.82	16.18		
55266	1870.0000	6942.5000	11.20	0.1230	45.90	64.40	129.50								77	
56528	500.2892	8402.9094	4.27	0.0000	0.00	53.54	345.85	31.9162	28.4018	2.04			20.84	21.79		
56675	223.1845	8424.8932	7.86	0.3244	253.10	104.88	160.26	1.9460	15.6807	0.83	0.1375	24.98	5.52	7.47		
56731	1707.0000	2240.5000	7.92	0.1960	301.00	73.74	351.35			1.02			24.34	12.61	44	
57363	452.5039	8295.2352	6.31	0.2986	251.46	134.01	29.42	8.2031	19.4047	1.05	0.1492	16.66	8.34	10.76		
57565	71.6900	7642.6000	0.76	0.0000	0.00	50.10	138.00			0.86					57	
57791	486.7000	2352.7000	7.73	0.3090	125.10	87.09	107.63			1.24			5.56	4.52	28	
58113	1004.5721	8951.1937	6.38	0.0000	0.00	119.27	154.74	144.7560	126.0863	1.52			25.83	35.80		
58590	282.6900	8281.3912	3.55	0.2650	312.00	62.71	149.34		11.1289	0.85			24.62	19.07	2	
59459	1355.0000	4398.5000	4.74	0.2970	238.00	63.18	20.20			1.33			17.78	16.00	39	
59468	462.8000	8257.8778	4.83	0.1690	235.29	69.34	320.41		15.2026	1.31			15.84	12.74	50	
59750	852.7113	8515.6678	28.97	0.0813	52.70	73.87	13.30	7.9885	77.2771	0.92	0.0457	32.28	2.39	3.07		
59856	1314.3000	1468.5000	6.60	0.4260	303.60	120.06	77.87			2.89			20.16	16.18	35	
61724	972.4000	3304.0000	9.94	0.5900	102.50	84.50	139.68			1.37			5.69	5.84	32	
61880	1131.5052	8556.0123	21.47	0.2488	36.23	122.94	77.47	117.1785	156.5298	1.21	0.0950	55.59	5.91	5.25		
62124	799.1156	8039.8332	22.10	0.2529	205.49	49.06	87.18	15.0201	51.2925	1.56	0.1310	29.67	11.96	13.78		
62145	270.2108	8401.4253	7.19	0.0000	0.00	48.85	154.94	3.3137	8.9533	0.71			10.20	13.01		
62371	564.6935	8496.3271	8.24	0.0000	0.00	88.52	147.82	17.0412	11.9915	1.27			5.39	6.33		
63406	736.8498	8443.1243	16.49	0.6607	26.48	80.87	98.14	48.2724	29.1227	3.01	0.2843	17.56	6.18	5.69		
63613	422.0266	7947.6687	11.67	0.4918	316.39	120.07	59.27	5.3908	27.5934	1.02	0.1241	26.13	6.02	5.29		
63742	231.2295	8369.7521	11.21	0.5121	42.00	126.48	33.34	1.9606	10.2724	1.57	0.2066	21.77	10.76	14.47		
65135	544.8827	8226.1834	8.76	0.6403	311.92	133.37	31.81	17.1978	36.2169	1.23	0.1882	31.36	14.29	19.70		
65203	1014.3319	8762.9589	4.94	0.0000	0.00	48.34	173.08	241.2519	82.3833	2.60			13.98	22.90		
65417	1366.8000	5497.5000	10.29	0.1930	166.00	60.83	120.16			1.48			9.28	4.14	42	
65420	905.5614	7957.8134	25.18	0.6632	285.62	68.49	69.30	41.7639	24.8322	7.49	0.2623	14.53	6.99	7.12		
65783	860.7029	8828.6918	10.31	0.3163	142.93	148.76	47.88	27.8332	39.8443	1.10	0.0983	23.47	13.09	18.87		
67234	437.0000	8546.0281	6.41	0.1340	58.60	62.35	197.33		10.7584	0.66			7.06	10.94	64	
67483	463.5429	8542.8511	8.18	0.3086	217.23	66.38	23.42	9.0345	33.1814	0.71	0.1676	25.82	6.01	7.03		
67927	494.1730	8398.6479	35.41	0.2575	326.33	116.57	74.53		2.4983	1.36			2.38	1.93	12	
68682	3614.9000	-6001.8000	105.28	0.5470	189.00	93.50	252.30			2.02					68	
68756	51.4167	5117.3748	1.46	0.4000	23.20	131.78	241.14			0.68			25.40	18.91	22	
69112	605.8000	8617.9461	5.73	0.1370	311.80	138.48	143.69		18.0234	0.56			9.20	11.09	86	
69283	1173.1593	8469.2007	10.19	0.0000	0.00	119.88	32.24	99.3373	43.1147	0.96			13.61	15.51		
69879	212.0850	286.0020	3.70	0.5740	224.90	88.21	345.44			0.68			13.00	12.86	87	
70857	179.7320	8361.8580	13.07	0.1478	158.59	54.78	80.38	0.7628	35.0373	0.78	0.1154	69.51	5.16	6.32		
71141	1134.4357	7983.6237	11.18	0.0000	0.00	100.47	344.73	86.4727	31.2177	1.33			9.94	13.44		
71469	1086.2062	8096.6479	21.28	0.0000	0.00	127.58	88.73	77.0010	19.5184	2.88			7.77	7.50		
72848	125.3690	2053.7000	14.31	0.5120	221.90	99.41	247.35			0.91			5.29	4.13	10	P
73199	748.9000	8142.0882	7.14	0.1300	212.00	63.81	228.82		14.2533	0.76			6.70	7.53	9	P
73507	691.0524	8058.5816	6.84	0.0000	0.00	126.06	13.10	17.4599	19.1686	0.74			7.72	8.72		
73787	521.6112	8349.2922	11.35	0.0000	0.00	74.45	33.59	34.0532	14.5214	1.66			18.58	15.64		
75379	226.9500	8341.2028	8.42	0.6800	339.52	49.15	145.09		8.6936	2.02			18.63	16.46	67	
75389	399.1553	8399.9378	7.73	0.1999	246.06	45.92	14.23	5.8026	47.1401	0.73	0.1610	51.39	8.28	24.86		
75508	755.1995	8749.8191	5.98	0.0000	0.00	62.65	137.04	46.9336	35.9229	0.73			8.54	10.43		
75695	3853.8000	4412.0000	56.39	0.5380	178.08	111.11	327.17			1.46					70	P
76031	616.1465	8221.1322	16.96	0.2709	203.93	145.16	336.72	20.8278	37.1701	3.32	0.2180	21.94	8.72	27.68		
76267	17.3599	-3248.4800	1.75	0.3700	311.00	88.20	330.40			0.61				20.47	90	P
76734	893.8955	7533.4853	6.71	0.0000	0.00	70.39	28.94	182.2487	133.6898	1.96			12.72	12.87		
76752	706.5644	8603.8958	7.30	0.0000	0.00	110.15	121.14	70.2293	21.5063	0.85			7.65	6.86		
77541	325.0320	8281.9396	3.99	0.0000	0.00	94.99	321.86	16.1524	10.8319	0.76			26.26	46.86		
77760	51.2865	8349.0036	0.96	0.0000	0.00	131.68	51.69	0.4082	4.4425	0.58			27.61	37.96		D
78459	77.9996	8370.9646	2.34	0.0000	0.00	103.82	91.51	0.9286	2.7457	0.86			16.67	14.40		
78918	1031.8624	7393.3138	7.30	0.0000	0.00	76.89	4.58	90.7992	88.7378	0.73			10.89	7.83		
79101	560.5000	8432.0451	9.09	0.4700	357.00	36.22	187.55		16.5119	0.65			14.03	11.94	5	P
80166	922.8000	2429.5000	2.60	0.3710	230.00	122.96	18.98			0.96			44.42	22.92	29	
80346	1363.4800	-973.2973	51.93	0.5800	254.70	147.40	289.30		4.5227	1.84				74		
80816	410.5750	8393.0617	11.00	0.5498	24.61	46.38	17.81		6.6295	0.74			10.76	7.16	84	D
81023	225.7000	5282.1000	9.87	0.2820	17.60	109.47	320.64			1.62			15.28	8.15	60	
81726	919.8579	8087.6503	13.60	0.0946	101.06	82.98	95.75	29.3520	88.6555	0.94	0.1374	40.07	4.98	4.03		
81754	494.2012	8383.2501	11.54	0.3528	290.12	63.60	164.14	10.0576	44.9993	2.21	0.1805	35.98	9.09	6.85		
82020	1385.7282	8616.7152	39.26	0.7200	99.00	112.44	249.02		5.3981	1.14			1.54	2.11	2	
82860	52.1089	-16.4300	6.73	0.2100	339.00	62.42	224.42			0.67			6.80	4.46	3	
83575	790.6000	6806.5000	8.77	0.2170	348.00	59.67	19.38			0.75			6.11	4.69	43	
83838	2969.1000	2589.8000	4.80	0.5390	235.69	120.49	129.44			1.37					52	
84179	883.0087	8733.3846	11.42	0.1220	202.41											

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	P days 2	T JD-2 440 000 3	a ₀ mas 4	e 5	ω deg 6	i deg 7	Ω deg 8	P days 9	T days 10	a ₀ mas 11	e 12	ω deg 13	i deg 14	Ω deg 15	Ref. 16	N 17
95066	266.5440	-6579.7930	7.74	0.8330	152.65	71.37	132.84			1.59			12.77	9.39		26
95477	3945.0000	-3686.5000	23.36	0.0000	0.00	90.00	85.10			6.78						24
95501	1251.3000	-5044.5000	55.69	0.3600	191.00	150.00	337.00			0.79						69
95769	825.3107	8024.8284	11.27	0.7886	289.45	147.73	173.53	25.7791	13.6953	3.69	0.1822	22.22	12.00	22.04		
96683	434.0400	7332.4500	1.60	0.5610	210.50	78.37	70.36			0.61						7
97016	898.6192	8482.9593	11.58	0.1991	271.87	142.17	128.24	38.1478	270.4615	1.06	0.1919	123.84	14.77	21.85		
97837	512.0666	8260.1406	10.36	0.4323	345.82	142.04	188.44	9.3499	21.0864	1.17	0.1309	22.84	9.43	15.10		
99473	17.1220	7801.7000	1.25	0.6000	215.00	143.50	99.00			1.04						57
99668	737.8686	7644.0621	11.25	0.0000	0.00	105.86	119.25	34.0380	40.7013	0.94		5.06	5.10			
99675	3784.3000	-2830.2700	16.17	0.2220	201.10	88.80	316.48			2.76			7.59			95
99848	1147.8000	-6858.2000	5.29	0.3010	218.20	64.22	226.62			0.73			10.81	7.42		95
99965	407.1834	8427.6863	16.08	0.1032	312.51	98.16	130.74	5.6318	68.3400	1.28	0.0981	60.73	4.86	4.60		
100259	832.0012	8574.1084	14.95	0.3255	146.62	36.29	97.88	50.1881	50.8726	1.45	0.1375	38.79	10.76	21.03		
100345	1374.2300	-18477.6700	28.75	0.4320	120.10	84.00	212.79			2.62				6.66		23
101093	840.6000	9100.9860	14.26	0.0300	83.70	102.50	60.62		7.2398	0.62		2.81	3.29			1
101382	57.3240	3327.5890	5.24	0.3060	356.80	89.50	327.66			0.66		8.43	7.56			21
103519	635.1000	-813.9000	7.32	0.4410	148.10	34.60	307.72			0.60			4.07			85
105431	2200.0000	1950.5000	11.71	0.8200	196.00	125.60	280.00			1.38						92
105712	1060.6122	8167.8898	31.78	0.2874	11.85	110.25	70.71	54.9827	28.3166	2.28	0.0415	13.21	2.49	2.21		
106711	574.6320	8579.5387	8.56	0.5349	306.56	102.10	18.92	9.4158	18.6175	0.91	0.1066	14.01	4.39	4.91		
106985	800.5860	8675.4254	12.85	0.0000	0.00	68.07	63.16	74.9616	30.8810	1.62			6.04	4.47		
108084	831.1756	8177.7715	5.25	0.0000	0.00	35.63	67.41	64.2443	97.9153	0.76			17.36	38.98		
108478	740.5974	8409.7685	14.96	0.4319	273.50	68.80	129.36	19.3669	71.9270	1.80	0.1445	33.10	4.85	5.33		
109554	2825.0000	5569.7000	17.08	0.9040	237.70	87.98	300.14			4.24			9.52	16.25		36
110102	1314.0392	7345.9693	14.72	0.0000	0.00	117.01	323.69	135.4444	90.6785	2.31			5.15	9.29		
110130	4198.0000	7862.9342	32.34	0.3800	76.00	113.00	262.00			3.49						6
111170	641.6938	8439.6483	23.47	0.3508	188.15	59.46	83.50	10.5869	39.8102	2.59	0.1832	25.22	3.77	4.33		
111200	829.9761	8243.8194	7.81	0.0000	0.00	95.66	338.30	72.8747	21.2069	0.82			8.06	9.59		
112158	818.0000	7988.1121	13.60	0.1548	5.61	70.58	203.61			0.88			3.10	3.52		18
113718	428.4911	7966.7518	11.11	0.0000	0.00	58.89	292.72	10.0157	8.9789	2.51			5.77	8.74		
113860	178.3177	-4680.2700	9.29	0.5286	2.62	75.76	304.64			0.90			10.60	17.58		13
114273	780.9324	8064.5496	10.50	0.0000	0.00	80.75	62.70	76.3685	37.3682	2.12			6.95	10.45		
114421	409.6140	-23884.4310	6.22	0.6560	240.76	122.82	127.59			1.07			9.47	8.84		65
115031	98.0276	8268.6951	7.16	0.0000	0.00	142.17	284.97	0.5315	1.0188	4.78			10.03	3.19		D
118169	651.0583	8864.6272	8.32	0.3027	66.20	154.99	172.93	19.7454	51.4157	1.14	0.1734	39.40	18.48	40.38		

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