

ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
112001 2002 <i>GW</i> ₁₃₇	14.6	X	26.63112	244.56272	104.46304	9.80551	0.0654956	0.17764173	3.1340509	21	11 9.7	18.9
112002 2002 <i>GH</i> ₁₃₈	16.4	X	24.26881	10.30712	32.41175	6.69862	0.0904123	0.28711865	2.2755958	21	—	—
112003 2002 <i>GB</i> ₁₃₉	15.6	X	219.76803	236.43865	83.92220	14.56854	0.1634969	0.25265695	2.4780794	21	2 16.5	19.8
112004 2002 <i>GM</i> ₁₄₄	14.4	X	141.79102	253.10846	87.03353	16.04636	0.2014932	0.18991547	2.9975227	21	1 8.6	19.1
112005 2002 <i>GL</i> ₁₄₆	16.5	X	39.54199	298.08735	133.12410	4.01961	0.1631605	0.29822773	2.2187279	21	—	—
112006 2002 <i>GH</i> ₁₅₁	16.7	X	178.08014	311.41444	220.86064	1.08592	0.0669373	0.27697115	2.3308430	21	10 6.5	19.7
112007 2002 <i>GG</i> ₁₅₃	15.3	X	134.52285	275.66450	73.27616	14.14408	0.1811065	0.24262695	2.5459118	21	—	—
112008 2002 <i>GA</i> ₁₅₄	14.3	X	47.58430	278.80963	69.83347	16.31799	0.2549331	0.17557041	3.1586524	21	12 27.5	18.9
112009 2002 <i>GO</i> ₁₅₄	16.5	X	111.23391	155.43499	149.76521	7.38392	0.1146425	0.28690814	2.2767087	21	—	—
112010 2002 <i>GR</i> ₁₅₄	16.2	X	4.33907	197.73100	105.32139	4.93824	0.0721743	0.27193331	2.3595423	21	8 14.6	18.6
112011 2002 <i>GW</i> ₁₅₈	16.3	X	144.30113	233.24289	88.00001	6.83912	0.1603884	0.28965492	2.2622926	21	—	—
112012 2002 <i>GL</i> ₁₅₉	15.8	X	134.28229	340.44746	12.90184	6.08589	0.2175373	0.29367314	2.2416092	21	—	—
112013 2002 <i>GP</i> ₁₆₁	15.4	X	318.69851	325.01942	31.70694	5.31174	0.0966174	0.22255321	2.6967880	21	8 11.6	18.6
112014 2002 <i>GE</i> ₁₆₃	16.2	X	145.73180	64.36542	60.42580	3.20783	0.1381550	0.26831006	2.3807369	21	6 28.8	19.6
112015 2002 <i>GX</i> ₁₆₃	16.8	X	230.72939	182.64684	78.18985	3.14511	0.1536931	0.29539915	2.2328689	21	—	—
112016 2002 <i>GC</i> ₁₆₄	16.7	X	32.41317	107.91533	182.20650	1.94339	0.2227853	0.26965303	2.3728258	21	10 5.4	18.9
112017 2002 <i>GA</i> ₁₆₅	16.4	X	198.25702	97.06775	187.81052	6.86461	0.1556964	0.29260875	2.2470420	21	—	—
112018 2002 <i>GM</i> ₁₆₅	15.6	X	357.05825	192.48708	202.48809	6.54227	0.1059320	0.28118228	2.3075126	21	12 20.7	18.1
112019 2002 <i>GL</i> ₁₆₈	16.9	X	326.24210	138.14107	344.11010	5.39722	0.0282110	0.29146554	2.2529138	21	—	—
112020 2002 <i>GW</i> ₁₆₈	16.3	X	272.17670	162.94443	27.14766	7.06573	0.0344984	0.29283300	2.2458946	21	—	—
112021 2002 <i>GY</i> ₁₇₅	14.7	X	50.08799	239.18883	168.45075	14.53985	0.2660048	0.24235833	2.5477927	21	—	—
112022 2002 <i>GG</i> ₁₇₆	15.9	X	359.68699	352.56919	347.76336	6.36587	0.1305791	0.27652000	2.3333776	21	10 4.9	17.9
112023 2002 <i>GO</i> ₁₇₈	15.9	X	5.77763	237.94790	193.51619	1.96597	0.1845800	0.24016229	2.5633004	21	—	—
112024 2002 <i>HY</i> ₁	15.6	X	349.01990	289.96364	47.53294	7.45867	0.1304190	0.27424584	2.3462594	21	9 14.7	17.7
112025 2002 <i>HE</i> ₃	16.6	X	99.30074	275.08466	197.51813	6.00824	0.2078974	0.26092583	2.4254444	21	4 29.3	19.6
112026 2002 <i>HZ</i> ₄	15.7	X	188.02402	231.57805	71.72358	9.61046	0.2465359	0.29286063	2.2457533	21	—	—
112027 2002 <i>HL</i> ₅	15.9	X	109.81069	155.32440	104.79076	5.98269	0.1505649	0.27581461	2.3733542	21	11 19.4	19.5
112028 2002 <i>HZ</i> ₆	16.5	X	248.93972	250.00734	355.80136	9.06309	0.1004031	0.29576649	2.2310197	21	—	—
112029 2002 <i>HB</i> ₇	16.4	X	101.67690	345.90543	282.16979	5.56392	0.0948298	0.28045485	2.3115010	21	11 15.1	19.6
112030 2002 <i>HF</i> ₇	15.8	X	154.92830	236.80116	78.74493	7.66239	0.1802125	0.28999183	2.2605401	21	—	—
112031 2002 <i>HH</i> ₇	15.1	X	190.93345	113.68451	72.90451	10.97601	0.1040493	0.22857795	2.6491903	21	11 3.6	19.1
112032 2002 <i>HJ</i> ₈	16.4	X	359.63660	317.16025	307.73451	1.52917	0.1835695	0.26043043	2.4285193	21	6 2.3	18.3
112033 2002 <i>HO</i> ₉	16.6	X	299.04407	188.14500	57.65903	4.11655	0.0617065	0.30477112	2.1868560	21	2 1.6	19.2
112034 2002 <i>HT</i> ₉	15.9	X	298.04919	111.53234	194.49321	5.57966	0.1228165	0.26028231	2.4294406	21	4 21.2	18.9
112035 2002 <i>HW</i> ₁₀	14.4	X	114.90039	233.45023	43.26653	17.33449	0.1912599	0.17570934	3.1569872	21	11 29.1	19.7
112036 2002 <i>HZ</i> ₁₁	16.3	X	90.78659	317.01080	40.78722	23.84065	0.0584695	0.39156373	1.8504091	21	—	—
112037 2002 <i>HH</i> ₁₂	17.0	X	44.95904	160.90936	32.78955	2.54137	0.0285519	0.31118905	2.1566840	21	4 29.7	19.1
112038 2002 <i>HL</i> ₁₂	15.8	X	289.63124	351.02986	318.49205	5.15401	0.1514457	0.31036401	2.1605044	21	4 1.3	18.6
112039 2002 <i>HU</i> ₁₃	15.1	X	254.62149	242.71707	108.07472	23.17562	0.2298439	0.25798509	2.4438412	21	4 28.7	19.5
112040 2002 <i>HU</i> ₁₄	15.9	X	334.71772	117.25578	173.15764	5.75853	0.0961928	0.26459270	2.4029836	21	5 31.4	18.5
112041 2002 <i>JG</i>	16.3	X	142.97818	138.83193	158.41782	5.88698	0.1803049	0.28655993	2.2785277	21	—	—
112042 2002 <i>JR</i> ₁	16.3	X	105.44321	289.82972	38.61639	4.91678	0.1708884	0.28451705	2.2894466	21	—	—
112043 2002 <i>JB</i> ₂	16.6	X	104.36995	109.40628	152.87646	5.50557	0.1416431	0.27575160	2.3377103	21	11 16.3	20.1
112044 2002 <i>JO</i> ₄	15.2	X	178.16871	148.63875	132.16671	23.95405	0.0551174	0.24174534	2.5520770	21	—	—
112045 2002 <i>JP</i> ₄	16.2	X	5.79517	183.50835	90.29890	23.60098	0.0643312	0.36912423	1.9246615	21	6 29.4	17.3
112046 2002 <i>JR</i> ₇	14.7	X	230.19138	85.37266	71.52215	11.06794	0.0214875	0.17861632	3.1226403	21	11 12.1	19.1
112047 2002 <i>JG</i> ₈	16.5	X	40.65131	115.31656	128.84609	5.79060	0.1964552	0.26548706	2.3975839	21	8 5.7	18.6
112048 2002 <i>JL</i> ₈	16.0	X	323.53345	204.34504	115.13485	7.20277	0.0499724	0.26518731	2.3993903	21	6 29.8	18.7
112049 2002 <i>JP</i> ₈	15.6	X	119.78025	193.31728	167.29410	8.23037	0.1250141	0.29180930	2.2511441	21	—	—
112050 2002 <i>JF</i> ₉	16.7	X	277.99636	20.63909	202.09979	2.27566	0.0841992	0.29709484	2.2243646	21	—	—
112051 2002 <i>JL</i> ₉	14.7	X	47.36799	272.94962	56.37541	5.90864	0.1401941	0.17280783	3.1922270	21	11 18.6	19.1
112052 2002 <i>JG</i> ₁₀	16.0	X	310.14420	3.33449	79.20161	26.00298	0.0610517	0.38428176	1.8737121	21	—	—
112053 2002 <i>JE</i> ₁₃	16.7	X	97.85405	94.55132	169.13887	2.80635	0.1512505	0.27499428	2.3420003	21	11 11.3	20.2
112054 2002 <i>JF</i> ₁₃	15.9	X	249.01081	241.88252	77.18809	3.20656	0.1522729	0.30306936	2.1950346	21	3 5.2	19.1
112055 2002 <i>JH</i> ₁₃	16.4	X	142.91190	88.92960	134.90229	2.34628	0.1697099	0.27660355	2.3329076	21	11 4.9	20.0
112056 2002 <i>JK</i> ₁₃	15.4	X	116.18983	338.08070	210.73033	1.02993	0.1565366	0.21776936	2.7361393	21	8 20.8	19.6
112057 2002 <i>JO</i> ₁₃	16.1	X	235.31779	5.92072	124.80522	7.35694	0.0470854	0.27640871	2.3340039	21	10 28.8	19.1
112058 2002 <i>JR</i> ₁₃	16.3	X	82.08766	151.27702	145.85380	23.24633	0.0374213	0.37873962	1.8919467	21	12 19.5	18.9
112059 2002 <i>JS</i> ₁₃	16.3	X	87.93687	53.33381	141.22815	24.63545	0.0494079	0.36588297	1.9360114	21	7 14.5	18.6
112060 2002 <i>JT</i> ₁₃	15.4	X	228.30823	68.02942	149.86430	22.82377	0.2428215	0.28726253	2.2748358	21	—	—
112061 2002 <i>JT</i> ₁₄	15.5	X	33.88327	161.23159	92.50262	4.09166	0.1122320	0.21399302	2.7682351	21	7 23.8	18.8
112062 2002 <i>JD</i> ₁₅	16.7	X	220.40060	139.03417	161.57008	3.57080	0.2230913	0.29695516	2.2250621	21	1 13.4	20.4
112063 2002 <i>JA</i> ₁₆	16.4	X	147.28231	290.54731	203.74907	21.67936	0.1080524	0.37476615	1.9052961	21	7 7.6	19.3
112064 2002 <i>JL</i> ₁₆	16.3	X	314.76540	219.61953	92.27127	3.90837	0.1757037	0.31256076	2.1503694	21	5 11.9	18.3
112065 2002 <i>JM</i> ₁₆	16.8	X	6.28356	308.91922	61.58820	22.48886	0.0923332	0.38079259	1.8851405	21	12 21.8	18.6
112066 2002 <i>JC</i> ₁₇	15.9	X	25.94601	173.60419	63.45660	7.66136	0.1092955	0.26401485	2.4064886	21	6 12.8	18.3
112067 2002 <i>JD</i> ₁₇	15.9	X	259.57240	59.97436	112.42808	6.04036	0.1205184	0.29004503	2.2602636	21	—	—
112068 2002 <i>JN</i> ₁₇	16.7	X	182.47408	262.93116	32.54063	6.52612	0.1383574	0.29174720	2.2514635	21	—	—
112069 2002 <i>JD</i> ₁₈	17.0	X	107.59439	279.21130	2.92472	2.92787	0.1681536	0.27878655	2.3207134	21	12 14.3	20.5
112070 2002 <i>JR</i> ₁₉	16.3	X	30.31258	319.64075	180.93591	7.60901	0.0367412	0.30114309	2.2043850	21	1 17.7	18.7
112071 2002 <i>JV</i> ₂₀	16.3	X	13.55592	187.49521	115.26268	6.53203	0.2452162	0.26674195	2.3900583	21	9 24.8	18.2
112072 2002 <i>JF</i> ₂₁	16.3	X	312.86641	228.14385	37.84119	5.22433	0.1174237	0.30657644	2			

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112081 2002 JG ₂₅	16.1	X	219.22206	34.52561	159.94083	3.83233	0.1567476	0.23477082	2.6023955	21	12 6.2	19.9
112082 2002 JX ₂₅	16.5	X	45.90088	42.72591	174.61560	4.29445	0.0864075	0.31394304	2.1440528	21	6 15.3	18.4
112083 2002 JC ₂₆	16.4	X	225.97284	195.62578	97.48961	5.24641	0.1940329	0.29595171	2.2300887	21	1 9.2	19.9
112084 2002 JQ ₂₆	15.9	X	157.74748	184.22920	142.43904	6.13390	0.1801679	0.29163450	2.2520435	21	—	—
112085 2002 JK ₂₇	14.8	X	177.59577	264.40463	64.55690	10.92593	0.1314816	0.19191595	2.9766561	21	1 24.8	19.6
112086 2002 JO ₂₇	16.5	X	262.66845	98.14337	103.86925	6.53148	0.0589949	0.29143244	2.2530844	21	—	—
112087 2002 JY ₂₇	15.8	X	103.50276	271.38383	60.38520	7.47064	0.1388075	0.28363742	2.2941776	21	—	—
112088 2002 JZ ₂₇	16.1	X	244.52374	138.67761	211.25336	2.37996	0.1719698	0.30600023	2.1809961	21	4 6.7	19.1
112089 2002 JM ₂₈	16.1	X	111.36345	140.81573	62.90437	7.00597	0.0521177	0.27015983	2.3698573	21	8 31.6	19.3
112090 2002 JD ₃₀	15.5	X	326.48652	330.47373	59.76080	7.20938	0.0396065	0.22370071	2.6875577	21	10 13.9	18.9
112091 2002 JU ₃₀	16.7	X	113.02078	323.91583	172.69065	3.10680	0.0418884	0.31216673	2.1521786	21	5 22.5	19.1
112092 2002 JA ₃₁	16.0	X	22.34216	295.42021	62.57962	7.54499	0.1315402	0.27678123	2.3319091	21	12 10.7	18.7
112093 2002 JM ₃₁	16.8	X	220.15946	126.16010	194.94903	5.03163	0.2134148	0.29804857	2.2196169	21	2 5.9	20.4
112094 2002 JB ₃₂	15.8	X	143.97034	170.55547	129.52580	1.84647	0.0732885	0.23540037	2.5977536	21	—	—
112095 2002 JT ₃₂	16.8	X	260.82578	332.23999	196.50768	5.08473	0.0634458	0.28694414	2.2765183	21	—	—
112096 2002 JA ₃₃	16.3	X	193.78235	55.45911	227.07261	7.48216	0.2244580	0.28912396	2.2650615	21	—	—
112097 2002 JG ₃₃	16.6	X	105.23570	43.78014	216.92335	2.46629	0.2174114	0.27470750	2.3436300	21	11 18.1	20.4
112098 2002 JL ₃₃	15.9	X	203.06251	219.95355	56.43988	6.35969	0.1542239	0.29094547	2.2555977	21	—	—
112099 2002 JZ ₃₃	16.5	X	129.14666	169.79657	95.77049	3.82402	0.1402795	0.27934603	2.3176137	21	12 13.4	19.8
112100 2002 JZ ₃₄	15.1	X	158.46985	143.27466	191.02441	3.28780	0.2570409	0.23801561	2.5786897	21	1 13.7	19.3
112101 2002 JB ₃₅	16.8	X	336.01978	65.40309	93.22357	4.77648	0.1047386	0.29601616	2.2297650	21	—	—
112102 2002 JL ₃₅	15.9	X	205.60857	193.29754	108.60748	3.55244	0.2058794	0.24163775	2.5528553	21	1 10.9	20.2
112103 2002 JF ₃₆	16.8	X	225.07261	175.92344	142.12589	3.08724	0.1928305	0.29835886	2.2180777	21	2 7.6	20.2
112104 2002 JV ₃₇	16.6	X	322.72853	175.74866	347.77219	2.71890	0.1203408	0.29580465	2.2308278	21	—	—
112105 2002 JX ₃₇	16.5	X	327.21576	208.08467	355.46629	5.48307	0.128464	0.30123639	2.2039298	21	1 13.7	19.1
112106 2002 JF ₃₈	16.2	X	143.58394	207.29373	227.40785	21.29308	0.0958975	0.36072455	1.9544246	21	3 31.3	18.7
112107 2002 JT ₃₈	14.7	X	118.01144	8.74272	250.76290	8.18569	0.0522566	0.17565350	3.1576562	21	11 4.2	19.3
112108 2002 JC ₃₉	16.6	X	192.89477	353.18082	257.54538	5.18705	0.1551639	0.28701828	2.2761262	21	—	—
112109 2002 JD ₃₉	15.7	X	184.36716	56.03274	255.00221	6.54297	0.1753771	0.29260095	2.2470818	21	—	—
112110 2002 JF ₃₉	16.4	X	330.79502	131.43169	128.33272	4.32341	0.1165139	0.30780459	2.1724643	21	3 31.1	18.5
112111 2002 JC ₄₀	14.0	X	106.17353	315.65390	226.90155	11.54306	0.1130118	0.16917769	3.2377302	21	7 23.6	19.0
112112 2002 JF ₄₁	16.5	X	6.01578	243.52361	1.15058	1.81133	0.1655266	0.26132867	2.4229512	21	5 14.7	18.6
112113 2002 JP ₄₃	16.2	X	298.87813	228.11336	16.13839	9.02450	0.1386617	0.30228947	2.1988083	21	1 21.9	19.3
112114 2002 JE ₄₄	16.2	X	172.29536	5.61364	254.01107	6.98696	0.1061312	0.28707584	2.2758220	21	—	—
112115 2002 JR ₄₄	16.5	X	203.07886	166.86220	350.79271	4.93869	0.1579525	0.27989429	2.3145862	21	10 7.5	19.9
112116 2002 JW ₄₄	16.2	X	174.82489	220.83939	5.68045	7.17347	0.0668644	0.28299088	2.2976706	21	12 14.1	19.3
112117 2002 JX ₄₄	15.9	X	74.38840	57.90680	227.24558	6.33174	0.1136809	0.27610626	2.3357080	21	11 8.6	19.0
112118 2002 JQ ₄₆	16.7	X	171.87429	294.86312	338.17977	4.47526	0.1735630	0.28692036	2.2766441	21	—	—
112119 2002 JR ₄₆	16.5	X	193.28931	329.64376	273.69427	3.89762	0.1119153	0.28722768	2.2750199	21	—	—
112120 2002 JS ₄₆	14.9	X	110.32510	286.90033	250.32053	7.73766	0.1329062	0.21630844	2.7448452	21	7 26.3	19.0
112121 2002 JT ₄₆	15.2	X	165.84642	20.38343	292.39944	3.35450	0.2236573	0.23880060	2.5730355	21	—	—
112122 2002 JY ₄₆	16.1	X	28.74294	207.06982	8.38366	2.87388	0.1212132	0.26045392	2.4283733	21	5 15.9	18.5
112123 2002 JZ ₄₆	15.7	X	291.06799	219.58724	315.20175	3.68758	0.1415085	0.24186659	2.5512448	21	—	—
112124 2002 JS ₄₇	16.3	X	206.40199	203.61376	26.28031	8.75706	0.0855821	0.28713463	2.2755113	21	—	—
112125 2002 JT ₄₇	14.7	X	158.46555	187.30768	30.57535	13.74054	0.1194932	0.17639460	3.1488056	21	10 29.9	19.7
112126 2002 JV ₄₇	16.6	X	121.29811	33.19030	267.11817	5.67999	0.1493792	0.28284269	2.2984730	21	—	—
112127 2002 JW ₄₇	16.9	X	287.26598	275.17873	10.83896	5.36308	0.2696666	0.30324791	2.1941728	21	2 17.9	20.2
112128 2002 JA ₄₈	16.4	X	249.65275	302.69543	272.15615	4.78604	0.1017491	0.29145480	2.2529691	21	—	—
112129 2002 JG ₄₈	16.3	X	178.59310	323.46623	28.04268	6.42269	0.1038901	0.29905875	2.2146157	21	2 3.7	19.4
112130 2002 JF ₄₉	16.5	X	61.20369	307.07281	313.97443	2.93348	0.1667084	0.26929544	2.3749258	21	9 25.8	19.4
112131 2002 JA ₅₀	16.5	X	54.76871	269.45426	2.24557	1.14907	0.1686922	0.26935925	2.3745507	21	10 3.4	19.1
112132 2002 JF ₅₀	16.3	X	306.33820	268.69238	357.15862	3.32916	0.1134744	0.30503187	2.1856095	21	3 2.4	18.8
112133 2002 JL ₅₂	16.6	X	221.11652	198.95308	52.92633	7.41837	0.1469040	0.29078818	2.2564110	21	—	—
112134 2002 JO ₅₂	16.9	X	335.71592	173.57142	56.66917	4.85054	0.1686154	0.30489777	2.1862503	21	2 14.6	19.3
112135 2002 JS ₅₂	16.5	X	57.12341	315.38258	308.45099	0.64218	0.1623321	0.26842079	2.3800822	21	9 24.4	19.2
112136 2002 JB ₅₃	16.3	X	246.26704	106.10606	25.84790	7.26318	0.0402296	0.27993552	2.3143589	21	11 11.4	19.2
112137 2002 JE ₅₆	16.5	X	51.26120	348.58796	208.69175	0.56690	0.1318293	0.26107804	2.4245017	21	6 2.2	19.0
112138 2002 JE ₅₈	16.0	X	86.52978	199.54047	56.77683	6.77879	0.1577553	0.27191204	2.3596654	21	10 22.2	19.4
112139 2002 JV ₅₈	16.3	X	184.84943	27.04492	275.07797	3.25140	0.1584568	0.29071034	2.2568138	21	—	—
112140 2002 JQ ₅₉	16.1	X	254.96686	312.07436	236.31086	5.43272	0.0751364	0.28738553	2.2741867	21	—	—
112141 2002 JT ₅₉	15.9	X	148.32716	241.93816	56.78634	11.48878	0.2054733	0.28404280	2.2919943	21	—	—
112142 2002 JV ₆₁	16.3	X	10.78315	162.39435	140.00902	6.13443	0.2408011	0.26646898	2.3916903	21	9 14.5	17.9
112143 2002 JY ₆₂	15.5	X	270.46993	11.36483	163.27830	6.98276	0.1005841	0.23668755	2.5883268	21	—	—
112144 2002 JS ₆₃	16.0	X	253.09141	176.89396	171.23106	6.06677	0.1023743	0.29455735	2.2371210	21	—	—
112145 2002 JL ₆₄	16.6	X	131.50329	48.13518	227.82330	7.13920	0.1375710	0.28007590	2.3135855	21	12 27.9	20.2
112146 2002 JZ ₆₄	16.4	X	348.83248	30.03328	142.98023	4.22111	0.1972640	0.30091986	2.2054750	21	—	—
112147 2002 JH ₆₅	16.4	X	10.83827	72.93888	199.76716	3.95229	0.1793167	0.26215441	2.4178607	21	7 13.6	18.4
112148 2002 JK ₆₅	16.0	X	162.96740	150.41663	90.21478	5.37605	0.1524279	0.28083382	2.3094210	21	12 14.2	19.3
112149 2002 JJ ₆₇	16.1	X	71.83542	132.64224	126.11857	3.46394	0.1318201	0.26982433	2.3718214	21	10 4.4	19.1
112150 2002 JK ₆₉	15.8	X	33.79213	146.32999	133.11458	7.23496	0.1055075	0.26964283	2.3728856	21	9 3.3	18.3
112151 2002 JF ₇₁	16.0	X	258.71127	116.30120	143.18655	6.95311	0.0979966	0.29837845	2.2179806	21	—	—
112152 2002 JO ₇₁	16.5	X	54.78098	103.58612	176.39816	2.35970	0.1498699	0.27197121	2.3593231	21	10 12.9	19.4
112153 2002 JP ₇₁	16.2	X	245.58545	40.27287	153.50291	6.59762	0.1323646	0.28899620	2.2657290	21	—	—
112154 2002 JA ₇₂	15.1	X	47.45971	168.53643	160.57576	10.31828	0.2848053	0.22282682	2.6945799	21	12 18.0</	

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>		
112161	2002	JH ₇₈	15.2	X	239.12735	3.93969	273.57273	2.20961	0.0687659	0.19672568	2.9279389	21	1 20.7	19.5
112162	2002	JS ₇₈	16.0	X	202.73791	105.88511	198.93168	0.55281	0.1352821	0.29688713	2.2254020	21	—	—
112163	2002	JZ ₇₉	15.7	X	258.07641	164.60877	230.01013	7.22792	0.1270013	0.26842550	2.3800543	21	6 28.8	18.9
112164	2002	JH ₈₀	16.2	X	98.17941	272.44210	41.65176	3.95509	0.2174680	0.28178277	2.3042332	21	—	—
112165	2002	JO ₈₀	16.3	X	162.54662	89.40998	37.06815	3.21537	0.0822336	0.26894561	2.3769848	21	7 17.8	19.6
112166	2002	JT ₈₀	16.2	X	295.11979	322.51971	235.85645	4.33884	0.1133585	0.24575239	2.5242801	21	—	—
112167	2002	JM ₈₁	16.9	X	163.82820	270.44898	210.89471	4.05562	0.1418509	0.26976317	2.3721798	21	7 12.4	20.6
112168	2002	JR ₈₁	16.2	X	95.25917	308.84563	20.49008	5.95649	0.1436289	0.28516818	2.2859602	21	—	—
112169	2002	JX ₈₁	16.8	X	57.17588	42.32054	238.89331	2.53993	0.2294269	0.27169904	2.3608985	21	10 28.6	19.9
112170	2002	JQ ₉₁	16.5	X	97.45199	332.48788	54.19753	4.15535	0.1543306	0.29244428	2.2478843	21	—	—
112171	2002	JQ ₉₃	16.5	X	266.96326	174.27623	50.79189	5.77506	0.0826637	0.29449064	2.2374588	21	—	—
112172	2002	JY ₉₃	16.7	X	71.09446	343.46454	266.93226	2.99729	0.1608340	0.26921169	2.3754183	21	9 22.7	19.9
112173	2002	JP ₉₄	16.4	X	258.31382	119.10007	23.26206	1.01499	0.1686126	0.28405187	2.2919455	21	11 25.1	18.7
112174	2002	JV ₉₄	16.4	X	79.25243	306.97473	241.49116	2.92104	0.0368473	0.31394586	2.1440400	21	6 17.7	18.5
112175	2002	JP ₉₅	16.7	X	178.43416	246.11383	309.10228	2.43491	0.1386595	0.27849649	2.3223245	21	11 1.3	20.3
112176	2002	JT ₉₅	16.2	X	157.15733	105.61391	53.26199	6.17883	0.1335434	0.27028466	2.3691276	21	8 28.5	19.8
112177	2002	JA ₉₆	17.0	X	153.69696	48.37126	258.13393	3.48440	0.1851097	0.28644920	2.2791398	21	—	—
112178	2002	JZ ₉₆	15.8	X	269.40879	299.20925	277.06725	7.88955	0.0982157	0.24385038	2.5373892	21	—	—
112179	2002	JO ₉₇	16.2	X	351.39849	76.20204	140.27812	24.01563	0.0496341	0.35509101	1.9750417	21	2 28.3	18.0
112180	2002	JE ₉₈	15.2	X	141.12268	175.21824	160.21337	12.17740	0.2552456	0.23460609	2.6036136	21	—	—
112181	2002	JJ ₉₈	15.3	X	119.68968	264.11061	254.52038	7.84065	0.0890200	0.21570521	2.7535669	21	7 8.9	19.3
112182	2002	JV ₉₈	16.3	X	248.98399	120.87014	62.38907	6.47669	0.0953817	0.28754932	2.2733230	21	—	—
112183	2002	JD ₁₀₀	16.1	X	315.35611	257.54179	90.43061	5.13012	0.0387493	0.26614262	2.3936451	21	7 31.6	18.9
112184	2002	JG ₁₀₀	16.6	X	291.62104	306.79929	249.81565	7.47104	0.0637233	0.29439125	2.2379624	21	—	—
112185	2002	JU ₁₀₁	15.9	X	112.20173	253.96476	228.23278	5.15830	0.0993408	0.25860713	2.4399207	21	5 12.4	19.1
112186	2002	JJ ₁₀₂	15.9	X	357.47116	292.39201	63.67868	8.75386	0.0825972	0.27239927	2.3568508	21	10 24.4	18.4
112187	2002	JP ₁₀₂	16.8	X	96.95645	48.85444	182.92420	1.15196	0.1400477	0.27032023	2.3689198	21	9 27.5	20.1
112188	2002	JL ₁₀₄	16.3	X	72.32084	324.47928	189.82255	5.24647	0.0128036	0.25728407	2.4482783	21	4 18.5	19.2
112189	2002	JO ₁₀₄	15.7	X	44.05389	125.39187	208.53706	4.33353	0.1760849	0.27987225	2.3147077	21	12 15.8	18.6
112190	2002	JF ₁₀₅	16.5	X	171.26263	94.47148	202.34272	6.36474	0.1572196	0.28869976	2.2627297	21	—	—
112191	2002	JU ₁₀₅	15.5	X	236.14020	106.43621	80.38674	1.25527	0.2158286	0.23430222	2.6058642	21	12 7.3	19.1
112192	2002	JR ₁₀₆	16.3	X	71.53539	316.74343	299.57618	6.11912	0.0833963	0.27196447	2.3593621	21	9 18.4	19.4
112193	2002	JA ₁₀₉	15.5	X	285.35729	348.80800	155.45875	24.42925	0.2140806	0.28730590	2.2746069	21	—	—
112194	2002	JG ₁₁₀	17.0	X	182.05512	327.53686	259.29636	5.76381	0.1378942	0.28244983	2.3006038	21	12 16.9	20.3
112195	2002	JM ₁₁₀	15.7	X	148.34001	11.87225	284.28534	6.99656	0.1823386	0.23371704	2.6102121	21	—	—
112196	2002	KC ₁₁₁	15.5	X	296.55377	229.47591	333.50537	3.73849	0.1736633	0.24468395	2.5316232	21	—	—
112197	2002	JY ₁₁₁	15.8	X	157.43596	2.72034	352.05785	4.40387	0.1755928	0.29490564	2.2353592	21	1 22.4	18.8
112198	2002	JB ₁₁₂	16.3	X	122.64881	259.61918	326.19611	3.48246	0.1306407	0.27391868	2.3481272	21	10 15.0	19.7
112199	2002	JV ₁₁₃	16.8	X	152.45326	238.49469	338.89617	5.67549	0.1899204	0.27900893	2.3194801	21	11 2.3	20.6
112200	2002	JG ₁₁₇	16.8	X	20.86301	194.52900	151.41747	4.15308	0.1083418	0.27466198	2.3438889	21	11 19.2	19.4
112201	2002	JK ₁₁₈	15.0	X	77.46199	204.56956	74.98115	15.92842	0.0765923	0.22790733	2.6543846	21	10 30.5	18.9
112202	2002	JK ₁₂₀	16.1	X	334.68573	34.39098	94.85132	6.25437	0.0347901	0.29067494	2.2569970	21	—	—
112203	2002	JG ₁₂₂	16.1	X	128.02727	273.19910	302.82976	6.09142	0.0625387	0.27551075	2.3390725	21	10 2.5	19.5
112204	2002	JT ₁₂₂	15.1	X	276.29235	348.02852	122.57550	10.68465	0.0421021	0.18054532	3.1003584	21	11 11.7	19.6
112205	2002	JR ₁₂₃	15.9	X	250.08419	188.45511	159.77334	6.87312	0.1160673	0.25591779	2.4569844	21	4 21.8	19.5
112206	2002	JT ₁₂₃	16.2	X	270.25467	41.57991	179.53378	7.26216	0.0795302	0.29419455	2.2389598	21	—	—
112207	2002	JQ ₁₂₇	15.5	X	70.90341	216.29197	161.69663	5.28394	0.0667449	0.23746218	2.5826948	21	—	—
112208	2002	JA ₁₃₂	16.5	X	312.00636	326.86572	30.08992	2.73763	0.0835850	0.26964349	2.3728817	21	8 3.4	19.1
112209	2002	JX ₁₃₃	16.7	X	143.19570	248.81625	6.31467	5.96822	0.1490618	0.28124189	2.3071866	21	12 13.2	20.3
112210	2002	JZ ₁₃₃	16.9	X	271.97281	248.79542	340.58375	4.47649	0.0996865	0.29667431	2.2264661	21	—	—
112211	2002	JL ₁₃₅	16.9	X	90.57043	49.80452	171.17336	1.16334	0.1378672	0.26842877	2.3800350	21	9 4.9	19.9
112212	2002	JS ₁₃₅	16.8	X	313.53612	102.03965	138.82582	3.78959	0.1191764	0.30231461	2.1986864	21	2 4.2	19.5
112213	2002	JT ₁₃₅	16.5	X	239.23630	189.44506	109.30516	5.22230	0.1753313	0.29750610	2.2223142	21	1 27.8	19.8
112214	2002	JD ₁₃₆	16.5	X	172.23940	152.82848	149.00506	3.25889	0.1544076	0.28896584	2.2658877	21	—	—
112215	2002	JR ₁₃₉	16.9	X	213.18492	282.15306	343.94161	2.59290	0.0522699	0.29314150	2.2443186	21	—	—
112216	2002	JH ₁₄₁	16.8	X	103.71610	289.54629	312.87785	2.84342	0.0829492	0.27351262	2.3504506	21	10 12.3	20.1
112217	2002	JJ ₁₄₂	15.2	X	75.89772	164.93896	84.44776	11.94401	0.2054565	0.22062195	2.7125031	21	10 6.7	19.4
112218	2002	JF ₁₄₈	16.1	X	347.87511	351.04439	104.64347	7.91733	0.1197832	0.29362054	2.2418769	21	—	—
112219	2002	KV	16.1	X	89.90732	286.16949	9.97056	6.12906	0.1025297	0.28001846	2.3139019	21	12 9.4	19.4
112220	2002	KC ₄	15.0	X	256.75690	184.81753	93.65619	14.17431	0.2636025	0.24204007	2.5500256	21	1 22.2	19.5
112221	2002	KH ₄	15.5	X	235.13899	356.29474	230.10452	58.73903	0.4449714	0.28838247	2.2689424	21	12 15.5	19.8
112222	2002	KS ₄	16.1	X	145.80385	177.28793	94.15987	3.09976	0.0601274	0.28190948	2.3035427	21	—	—
112223	2002	KE ₆	15.8	X	32.44807	247.03946	47.24526	2.74085	0.2134215	0.26360801	2.4089640	21	10 9.7	18.3
112224	2002	KD ₉	15.7	X	169.77920	131.38351	207.92446	9.13306	0.1138625	0.24262928	2.5458956	21	1 15.6	19.7
112225	2002	KX ₉	16.7	X	64.15785	98.11235	194.91552	1.96930	0.2120982	0.27354901	2.3502422	21	11 19.6	20.0
112226	2002	KO ₁₂	17.0	X	146.84371	36.18421	256.87598	2.30476	0.1695330	0.28367703	2.2939640	21	—	—
112227	2002	KS ₁₂	15.5	X	102.64165	197.96632	121.37891	11.28566	0.1941592	0.22908925	2.6452471	21	—	—
112228	2002	KX ₁₃	16.5	X	221.66564	182.39411	113.70396	4.21372	0.1646696	0.24347030	2.5400293	21	1 16.6	20.4
112229	2002	KZ ₁₃	16.2	X	176.93208	155.93975	124.65975	5.62353	0.1856242	0.28391475	2.2926833	21	—	—
112230	2002	KA ₁₄	14.4	X	119.52457	151.92395	198.98755	9.78990	0.2110639	0.17556016	3.1587753	21	1 1.4	19.

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
112241 2002 LL ₄	16.0	X	196.59858	148.97073	216.28742	5.49694	0.1490167	0.30023323	2.2088364	21	3 10.6	19.3
112242 2002 LP ₄	16.1	X	205.88868	133.17149	122.77514	6.05401	0.1400304	0.28797294	2.2710930	21	—	—
112243 2002 LZ ₄	15.8	X	300.27858	147.16554	177.07102	1.37601	0.2080234	0.25349151	2.4726374	21	5 6.3	18.7
112244 2002 LD ₅	16.3	X	125.75443	224.07282	85.77998	9.50002	0.1656133	0.28003393	2.3138167	21	—	—
112245 2002 LK ₅	15.4	X	99.07548	146.69524	181.20624	9.23669	0.3161855	0.22333729	2.6904724	21	—	—
112246 2002 LH ₇	16.5	X	253.23167	14.36147	160.69643	4.50673	0.0535693	0.28522028	2.2856819	21	—	—
112247 2002 LY ₈	16.3	X	331.33545	86.39882	203.95655	6.02352	0.0863958	0.31062146	2.1593104	21	5 22.9	18.3
112248 2002 LG ₉	15.2	X	87.55554	179.33895	95.67028	9.97142	0.1332805	0.22196302	2.7015663	21	11 8.7	19.3
112249 2002 LM ₉	16.2	X	285.57013	101.77827	111.72716	5.59789	0.0872002	0.29450297	2.2373964	21	—	—
112250 2002 LG ₁₀	16.4	X	201.61902	109.99948	120.51739	5.85598	0.1232878	0.28480310	2.2879133	21	—	—
112251 2002 LO ₁₀	16.3	X	198.08424	94.20925	134.83283	5.02626	0.0790889	0.28364425	2.2941407	21	—	—
112252 2002 LU ₁₀	16.1	X	304.09024	351.70616	201.91795	5.23991	0.1112235	0.29458167	2.2369978	21	—	—
112253 2002 LD ₁₁	15.6	X	234.53428	167.67751	128.93289	6.19392	0.1625846	0.24458617	2.5322978	21	1 28.3	19.5
112254 2002 LD ₁₂	16.2	X	89.82381	114.62023	124.66916	4.31767	0.1302542	0.26943466	2.3741077	21	9 30.2	19.5
112255 2002 LR ₁₂	16.5	X	212.56402	71.12787	178.69784	3.62810	0.1316886	0.28802216	2.2708343	21	—	—
112256 2002 LR ₁₂	14.7	X	158.86776	238.31247	98.20565	14.00108	0.1265625	0.18714822	3.0269988	21	1 14.3	19.4
112257 2002 LC ₁₃	16.2	X	251.62643	48.75181	266.81215	5.84828	0.1593669	0.29760988	2.2217975	21	2 26.8	19.6
112258 2002 LR ₁₃	15.6	X	202.97177	14.38478	297.15449	3.37260	0.1981462	0.24218603	2.5490009	21	1 19.8	19.8
112259 2002 LY ₁₃	16.4	X	3.66576	334.68933	337.85756	1.91220	0.2139828	0.26485713	2.4013840	21	9 7.3	18.0
112260 2002 LG ₁₄	16.3	X	125.88186	358.52100	278.80727	4.83472	0.2096545	0.27880437	2.3206145	21	12 25.4	20.0
112261 2002 LT ₁₅	16.2	X	127.27536	325.91920	311.55637	3.29014	0.1500976	0.27913661	2.3187727	21	12 26.5	19.7
112262 2002 LV ₁₅	16.3	X	111.11785	301.12419	290.74385	4.02209	0.1536283	0.27202289	2.3590243	21	10 11.9	20.0
112263 2002 LN ₁₆	16.2	X	165.81448	165.13821	34.76115	5.82151	0.1354492	0.27663365	2.3327384	21	10 26.8	19.6
112264 2002 LW ₁₆	15.9	X	63.48056	199.95512	67.50013	4.80186	0.1283527	0.26878029	2.3779594	21	10 5.6	18.8
112265 2002 LM ₁₇	16.2	X	62.70365	155.77404	86.42008	3.22069	0.1686205	0.26630448	2.3926751	21	9 4.5	19.0
112266 2002 LP ₁₉	14.9	X	156.80147	47.73609	276.15283	7.40597	0.2267974	0.23581654	2.5946964	21	—	—
112267 2002 LA ₂₀	16.2	X	21.97232	334.52073	315.61155	2.15059	0.1757155	0.26306012	2.4123077	21	9 5.8	18.3
112268 2002 LX ₂₀	13.8	X	48.41980	110.44435	302.63360	13.35812	0.2380498	0.17704590	3.1410786	21	—	—
112269 2002 LM ₂₁	15.8	X	20.44506	125.74501	163.63254	2.46870	0.1686097	0.26132131	2.4229967	21	8 31.7	18.0
112270 2002 LR ₂₁	16.1	X	117.11789	203.02797	178.74984	6.46308	0.1579493	0.27616905	2.3355339	21	12 21.9	19.8
112271 2002 LQ ₂₁	15.5	X	264.82246	307.36190	291.50118	12.91685	0.0773364	0.23971779	2.5664681	21	—	—
112272 2002 LZ ₂₂	15.3	X	119.00444	100.81696	254.64868	10.85403	0.1702891	0.23521634	2.5991084	21	—	—
112273 2002 LL ₂₃	14.7	X	192.56164	75.30059	284.72086	9.03252	0.1436572	0.19197129	2.9760841	21	3 9.2	19.7
112274 2002 LR ₂₃	15.7	X	301.39703	153.07642	87.84694	9.62337	0.1377249	0.24540509	2.5266612	21	1 30.3	19.2
112275 2002 LG ₂₄	15.9	X	13.32653	107.71796	178.41769	4.73842	0.1960530	0.26043906	2.4284657	21	8 12.9	17.9
112276 2002 LK ₂₄	15.8	X	81.08523	215.24571	126.18526	13.36807	0.2361053	0.28043516	2.3116092	21	—	—
112277 2002 LO ₂₅	15.9	X	203.85926	150.36603	93.68468	8.17225	0.1624590	0.28672529	2.2776765	21	—	—
112278 2002 LK ₂₆	16.8	X	349.53793	146.47046	110.26672	3.89473	0.0937407	0.30878744	2.1678520	21	5 2.3	18.7
112279 2002 LN ₂₆	16.2	X	21.60745	146.41404	147.14780	2.75065	0.2310778	0.26455114	2.4032353	21	9 21.7	18.3
112280 2002 LR ₂₇	16.5	X	260.24996	215.85152	109.59586	6.55627	0.1341522	0.30465783	2.1873980	21	3 28.5	19.5
112281 2002 LG ₂₈	15.9	X	104.81240	250.64889	114.68713	7.24950	0.2082669	0.28554000	2.2839753	21	—	—
112282 2002 LL ₂₈	15.7	X	180.60184	124.80181	197.01850	4.43655	0.1298256	0.23987827	2.5653234	21	1 8.4	19.6
112283 2002 LS ₂₈	15.8	X	20.64896	34.89924	243.66456	9.14122	0.2347910	0.26270246	2.4144968	21	8 19.8	18.0
112284 2002 LK ₂₉	15.2	X	141.20926	354.47554	259.84768	12.33296	0.1431628	0.22407130	2.6845936	21	12 2.7	19.4
112285 2002 LN ₃₀	16.4	X	299.40464	16.52076	183.13002	6.14765	0.0906060	0.29566901	2.2315100	21	—	—
112286 2002 LP ₃₀	15.9	X	286.15489	117.13813	116.80207	5.03062	0.0412317	0.24585476	2.5235794	21	1 13.9	19.3
112287 2002 LZ ₃₀	16.4	X	228.31946	58.60795	132.33268	4.43587	0.0928656	0.28366774	2.2940141	21	12 31.1	19.2
112288 2002 LK ₃₁	16.0	X	233.96694	189.08996	53.49721	3.86826	0.1325844	0.28997437	2.2606308	21	—	—
112289 2002 LL ₃₂	14.8	X	109.57405	266.50080	105.11562	16.76713	0.2704862	0.23611578	2.5925037	21	1 11.6	18.0
112290 2002 LB ₃₃	14.2	X	146.16207	114.97258	170.73618	16.38875	0.2136940	0.17849710	3.1240306	21	—	—
112291 2002 LO ₃₃	16.1	X	57.15584	333.51830	286.53699	7.05173	0.1703960	0.26827005	2.3809737	21	9 16.4	19.1
112292 2002 LJ ₃₅	16.1	X	155.48918	194.77338	115.75862	6.51569	0.1785742	0.28289370	2.2981967	21	—	—
112293 2002 LD ₃₆	15.7	X	85.62117	114.83071	127.78047	9.44828	0.1811027	0.26748558	2.3856266	21	10 7.9	19.2
112294 2002 LU ₃₆	16.3	X	21.10315	105.38758	191.39182	3.48531	0.2058737	0.26335562	2.4105209	21	9 19.6	18.4
112295 2002 LA ₃₇	16.4	X	67.64923	71.25209	222.59385	6.04236	0.1861188	0.26809256	2.3820244	21	11 20.4	19.8
112296 2002 LO ₃₇	15.0	X	258.75977	86.45110	161.47504	11.94847	0.1955319	0.24175275	2.5520457	21	—	—
112297 2002 LC ₃₉	16.4	X	202.92969	118.95243	183.71957	6.15789	0.2469434	0.28883119	2.2665918	21	1 3.9	20.3
112298 2002 LF ₃₉	15.2	X	14.81421	223.55661	106.23009	13.60240	0.2029155	0.21836744	2.7311411	21	10 26.1	18.4
112299 2002 LK ₃₉	15.7	X	8.09771	201.32190	128.56138	10.27189	0.1665507	0.21718414	2.7410522	21	10 5.9	18.8
112300 2002 LC ₄₁	16.0	X	44.13814	152.34900	154.56168	6.09318	0.2590068	0.26866242	2.3786549	21	11 21.8	19.2
112301 2002 LY ₄₂	16.2	X	150.26277	134.25819	158.88232	8.25962	0.1746294	0.28159442	2.3052606	21	—	—
112302 2002 LC ₄₄	16.7	X	263.37812	267.17177	301.90707	4.99433	0.1383129	0.29294941	2.2452996	21	—	—
112303 2002 LK ₄₄	16.3	X	150.26794	182.57271	91.66622	6.78134	0.0988419	0.28216525	2.3021504	21	—	—
112304 2002 LJ ₄₆	15.7	X	51.24887	178.09888	127.72121	11.99160	0.2479921	0.26973330	2.3723550	21	11 28.6	19.2
112305 2002 LL ₄₆	14.9	X	143.67125	193.00659	128.73694	14.53324	0.2543423	0.23224661	2.6212179	21	—	—
112306 2002 LL ₄₇	15.5	X	67.26369	178.86691	138.54445	13.76718	0.2531417	0.22285075	2.6943871	21	12 20.3	19.9
112307 2002 LQ ₄₇	15.2	X	94.61155	189.81847	158.03903	14.04307	0.2111697	0.22962093	2.6411621	21	—	—
112308 2002 LR ₄₇	15.7	X	301.43249	148.45837	127.33667	15.49538	0.1550869	0.25194886	2.4827202	21	3 15.9	19.2
112309 2002 LQ ₄₈	14.9	X	80.36252	272.84882	129.13983	10.98788	0.1098871	0.18711510	3.0273560	21	—	—
112310 2002 LV ₄₈	16.4	X	71.70605	325.56796	311.85365	2.07069	0.1586930	0.26876794	2.3780322	21	10 30.1	19.7
112311 2002 LV ₅₄	16.1	X	175.38234	242.64822	92.34194	5.63398	0.0610742	0.29048292	2.2579915	21	1 3.6	19.0
112312 2002 LW ₅₄	16.4	X	145.28152	272.20517	47.03800	1.46856	0.2507660	0.28272166	2.2991289	21	—	—
112313 2002 LL ₅₅	15.7	X	224.35856	307.91742	292.05598	6.39176	0.1569671	0.23537040	2.5979741	21	—	—
112314 2002 LN ₅₆	15.5	X	331.48308	166.63897	148.54602	9.48684	0.3175936	0.25542496	2.4601438	21	5 29.9	17.6

ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
112321 2002 MY ₁	16.7	X	82.14023	71.97853	253.18979	1.20062	0.2416316	0.27453921	2.3445876	21	—	—
112322 2002 MC ₂	16.6	X	235.23854	194.77820	109.26791	5.15258	0.1919486	0.29468268	2.2364866	21	1 31.1	20.1
112323 2002 MF ₂	16.1	X	155.88290	168.78927	117.85452	8.51573	0.1141698	0.28133310	2.3066878	21	—	—
112324 2002 MA ₃	16.4	X	83.77608	241.44358	91.14214	1.82315	0.2227930	0.27422804	2.3463609	21	—	—
112325 2002 MD ₃	14.8	X	108.21516	290.51715	81.23360	12.55162	0.3139473	0.22907218	2.6453785	21	1 19.2	18.3
112326 2002 MM ₄	16.3	X	233.95281	329.70381	202.60450	5.77980	0.0305075	0.27607319	2.3358945	21	12 21.5	19.3
112327 2002 MR ₄	16.1	X	313.59862	273.18776	148.80358	24.09494	0.0958376	0.37318794	1.9106640	21	12 14.5	18.2
112328 Klinkerfues	16.7	X	88.83299	41.25989	192.19545	0.91704	0.1408104	0.26512839	2.3997457	21	9 19.8	20.0
112329 2002 NY	14.8	X	134.34134	215.66097	193.75367	16.08636	0.2773413	0.18581484	3.0414623	21	3 30.2	19.8
112330 2002 NC ₁	16.6	X	40.21572	178.55564	130.72394	2.49163	0.2420958	0.26733843	2.3865019	21	11 16.4	19.5
112331 2002 NM ₁	15.6	X	74.51037	214.44118	291.86253	9.41612	0.0357911	0.24783200	2.5101391	21	4 8.5	18.9
112332 2002 NT ₁	15.9	X	222.34099	230.71383	81.28762	0.32602	0.1750253	0.24216945	2.5491173	21	2 5.3	19.8
112333 2002 NA ₂	16.7	X	343.39902	304.12006	297.15730	5.00566	0.0855431	0.30194580	2.2004764	21	3 24.6	19.1
112334 2002 ND ₄	15.9	X	25.27071	227.50560	128.34173	4.54416	0.2357195	0.26927761	2.3750307	21	12 27.4	18.7
112335 2002 NE ₄	16.6	X	2.98388	206.68517	145.60502	3.02658	0.1929544	0.26605888	2.3941473	21	11 8.4	18.7
112336 2002 NJ ₄	16.2	X	9.89358	106.69233	184.21094	5.31398	0.1267040	0.25990628	2.4317833	21	8 5.8	18.5
112337 2002 NR ₄	16.8	X	73.97669	110.81224	141.83274	2.95556	0.1904713	0.26612902	2.3937267	21	10 6.0	20.0
112338 2002 NX ₅	15.9	X	203.70468	97.63495	273.29323	2.88559	0.0293553	0.24727477	2.5139088	21	3 30.3	19.3
112339 2002 NF ₆	15.7	X	124.22462	105.30769	243.81112	1.79101	0.0974536	0.17898540	3.1183461	21	—	—
112340 2002 NN ₆	15.5	X	35.73645	239.48522	147.59716	3.90064	0.0882475	0.22354956	2.6887690	21	—	—
112341 2002 NY ₆	15.8	X	87.39486	180.35772	182.24908	4.86276	0.0287613	0.22903431	2.6456701	21	—	—
112342 2002 NB ₇	16.2	X	123.70738	37.70035	238.68312	4.63089	0.1847518	0.27538434	2.3397883	21	12 21.5	20.1
112343 2002 NE ₇	15.5	X	152.02843	110.92097	203.42129	13.03032	0.0402373	0.22996016	2.6385641	21	—	—
112344 2002 NW ₈	16.3	X	32.50615	169.12692	162.49469	4.13513	0.1702507	0.26839329	2.3802447	21	11 25.1	19.0
112345 2002 ND ₉	16.6	X	50.13672	347.45341	4.99996	2.11475	0.2420220	0.27283226	2.3543566	21	—	—
112346 2002 NC ₁₀	15.8	X	37.91573	346.11487	304.38343	1.68464	0.1867038	0.21266475	2.7797498	21	9 29.4	19.1
112347 2002 NS ₁₀	14.6	X	95.54969	276.34699	125.69029	4.43536	0.1875291	0.18264701	2.7055289	21	1 30.5	18.6
112348 2002 NU ₁₀	17.0	X	104.37114	53.81085	208.12983	1.67820	0.1940003	0.27183846	3.3600912	21	11 17.4	20.7
112349 2002 NA ₁₁	16.4	X	99.42672	72.91258	170.02614	1.31383	0.1454671	0.26857144	2.3791920	21	10 15.5	19.7
112350 2002 NN ₁₁	15.4	X	311.60438	68.10728	286.25934	6.78862	0.2020312	0.25881276	2.4386282	21	7 9.3	17.7
112351 2002 NO ₁₁	16.5	X	96.56013	1.27604	229.31989	0.72542	0.1408554	0.26640662	2.3920635	21	9 24.9	19.7
112352 2002 NK ₁₂	15.5	X	17.27271	50.87454	281.72898	1.82253	0.2029937	0.21394166	2.7686782	21	10 25.4	18.4
112353 2002 NB ₁₃	16.6	X	59.24281	104.07846	165.15932	2.64293	0.1652938	0.26523287	2.3991155	21	10 5.8	19.5
112354 2002 NE ₁₃	16.3	X	50.85961	143.29699	120.22536	3.62805	0.1589207	0.26329286	2.4108859	21	9 15.7	19.0
112355 2002 NU ₁₄	14.5	X	203.05339	319.37010	325.37065	8.87742	0.0594807	0.18367673	3.0650199	21	—	—
112356 2002 NY ₁₄	16.2	X	6.93760	271.12285	25.58787	3.66282	0.1986757	0.26066618	2.4270548	21	8 19.1	18.0
112357 2002 NV ₁₅	15.9	X	286.13858	331.87799	289.28611	8.86358	0.1643938	0.24483153	2.5306057	21	2 1.2	19.7
112358 2002 NH ₁₆	16.3	X	76.32555	300.50583	291.24090	6.19708	0.2211132	0.26801369	2.3824917	21	9 10.6	19.7
112359 2002 NJ ₁₆	15.5	X	336.43952	253.94149	115.45720	7.60815	0.0684005	0.21371075	2.7706721	21	9 29.7	19.0
112360 2002 NN ₁₇	14.7	X	119.79372	232.04670	117.28351	12.29173	0.1896272	0.18178260	3.0862742	21	—	—
112361 2002 NB ₁₈	16.2	X	277.70229	332.65349	236.97847	6.06450	0.0548801	0.28845539	2.6856000	21	—	—
112362 2002 ND ₁₈	17.7	X	224.14564	108.69623	214.08601	4.02092	0.2221440	0.29464012	2.2367020	21	2 11.6	21.5
112363 2002 NH ₁₈	16.6	X	320.77392	96.04461	168.28905	5.07587	0.1655451	0.30270959	2.1967734	21	3 12.1	18.9
112364 2002 NK ₁₈	15.8	X	272.85981	90.97973	161.76536	5.09859	0.1677353	0.24249396	2.5468426	21	1 9.9	19.8
112365 2002 NS ₁₈	16.0	X	131.58597	117.47029	161.14694	6.65621	0.1357080	0.27650609	2.3334558	21	12 30.9	19.7
112366 2002 NU ₁₈	15.8	X	75.36003	160.64266	155.82461	6.84007	0.1508134	0.27237812	2.3569728	21	12 23.8	19.2
112367 2002 NV ₁₈	15.5	X	169.08830	99.06585	177.09115	4.83453	0.1144708	0.22934255	2.6432990	21	—	—
112368 2002 NC ₁₉	15.5	X	75.92156	180.15590	138.51580	8.15489	0.1562587	0.22057690	2.7128724	21	12 19.1	19.7
112369 2002 NN ₁₉	15.6	X	320.00079	178.16305	107.27137	2.64285	0.1738191	0.25699364	2.4501225	21	6 30.6	18.0
112370 2002 NO ₂₀	16.4	X	152.67379	153.51231	174.10498	6.59471	0.1555433	0.28417269	2.2912958	21	—	—
112371 2002 NV ₂₀	16.4	X	208.61653	117.34049	178.34362	5.76120	0.1477555	0.28876405	2.269432	21	—	—
112372 2002 NN ₂₁	16.6	X	54.19613	130.64426	158.50379	2.87113	0.1726676	0.26621704	2.3931990	21	10 27.9	19.6
112373 2002 NM ₂₂	16.3	X	105.91724	96.06747	219.78483	2.21511	0.1547258	0.27603120	2.3361314	21	—	—
112374 2002 NC ₂₄	16.0	X	149.42113	323.49354	300.99456	9.68918	0.2178213	0.27271305	2.3294869	21	12 29.1	19.9
112375 2002 ND ₂₄	16.3	X	90.46132	224.98466	132.45126	6.86648	0.2205439	0.27735096	2.3287146	21	—	—
112376 2002 NF ₂₄	15.4	X	164.49268	6.35492	115.97704	13.23547	0.1601747	0.23194305	2.6235045	21	—	—
112377 2002 NP ₂₄	15.3	X	117.26638	140.68570	315.01002	15.12907	0.1214485	0.22271237	2.6955030	21	12 27.1	19.7
112378 2002 NV ₂₅	16.4	X	10.15225	100.58791	212.44435	1.81662	0.2436968	0.26094344	2.4253353	21	9 27.7	18.1
112379 2002 NW ₂₅	15.6	X	99.24758	36.41595	297.83716	5.77819	0.1448816	0.27592690	2.3367200	21	—	—
112380 2002 NN ₂₇	17.5	X	155.34247	173.83068	146.78691	3.84205	0.3184290	0.28220147	2.3019534	21	—	—
112381 2002 NR ₂₇	15.2	X	198.06475	11.02319	283.89273	11.10786	0.1787312	0.23445200	2.6047542	21	—	—
112382 2002 NY ₂₇	14.7	X	278.18429	8.59548	333.40036	12.04617	0.0987136	0.19706939	2.9245335	21	5 17.3	19.0
112383 2002 NL ₂₈	15.8	X	324.08127	32.42660	319.27372	3.62934	0.2218053	0.26032170	2.4291955	21	7 29.3	17.6
112384 2002 NO ₂₈	14.9	X	124.10221	43.47948	319.69808	6.66617	0.0935344	0.18217600	3.0818295	21	1 6.2	19.2
112385 2002 NY ₂₈	14.5	X	109.56798	299.63180	99.60241	3.13677	0.1745365	0.18284635	2.4742925	21	2 12.1	18.9
112386 2002 NL ₂₉	16.3	X	283.90196	177.26847	85.17421	4.65933	0.1643563	0.29726979	2.2234918	21	1 25.4	19.6
112387 2002 NM ₂₉	16.8	X	49.58930	334.19728	8.49889	2.36661	0.2546672	0.27111648	2.3642793	21	—	—
112388 2002 NU ₂₉	15.4	X	94.51824	45.97177	169.93323	9.77744	0.1931066	0.26331220	2.4107679	21	9 8.8	18.9
112389 2002 NC ₃₁	16.0	X	137.10485	163.67288	106.08966	5.49679	0.1383922	0.27681469	2.3317212	21	12 25.6	19.5
112390 2002 NN ₃₁	16.3	X	79.28271	158.32188	183.05220	1.60427	0.0936735	0.22461512	2.6802587	21	—	—
112391 2002 NZ ₃₂	14.1	X	155.34373	65.98078	274.96111	10.85847	0.1351028	0.17729941	3.1380837	21	1 16.7	18.9
112392 2002 NA ₃₃	15.5	X	40.06837	80.68416	223.31744	8.12931	0.2736683	0.26263349	2.4149195	21	11 12.6	18.3
112393 2002 ND ₃₃	13.9	X	105.85226	53.20865	295.09506	11.84684	0.2037572	0.17034786	3.2228859	21	—	—
112394 2002 NF ₃₃	15.1	X	136.05952	173.87809	215.98192	12.67096	0.1604900	0.23127516	2.6285529	21	2 15.5	19.1

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
112401 2002 <i>NN</i> ₃₇	16.6 ^m	X	275.64868	2.76734	258.67067	6.78988	0.1579514	0.29451104	2.2373555	21	1 14.8	20.0
112402 2002 <i>NO</i> ₃₇	14.7	X	76.99219	248.18756	159.74693	11.16334	0.1414690	0.17872930	3.1213242	21	1 5.5	18.8
112403 2002 <i>NZ</i> ₃₇	15.0	X	282.47171	292.11814	297.13808	26.61831	0.0771426	0.23758833	2.5817805	21	1 4.1	18.8
112404 2002 <i>NC</i> ₃₈	16.3	X	307.84393	353.76582	241.10447	7.11514	0.1641777	0.29565552	2.2315779	21	1 13.6	19.4
112405 2002 <i>NS</i> ₃₈	15.1	X	159.37086	76.46756	234.97731	21.56554	0.0215870	0.23207807	2.6224868	21	—	—
112406 2002 <i>NJ</i> ₃₉	15.3	X	139.48607	159.38091	213.33031	13.42008	0.1942548	0.23075856	2.6324745	21	2 2.2	19.5
112407 2002 <i>NU</i> ₃₉	15.3	X	148.18434	299.03885	54.74350	1.56494	0.1764382	0.18221473	3.0813928	21	1 29.5	20.1
112408 2002 <i>NE</i> ₄₀	15.6	X	232.74325	61.17402	125.38213	15.29596	0.0576243	0.22503431	2.6769293	21	12 24.2	19.3
112409 2002 <i>NH</i> ₄₀	15.4	X	229.98524	91.63928	270.32480	0.87903	0.1071090	0.19585715	2.9365885	21	4 20.7	19.9
112410 2002 <i>NT</i> ₄₀	15.9	X	285.95251	207.86023	113.23636	1.55857	0.1351234	0.19890171	2.9065449	21	4 29.3	19.9
112411 2002 <i>NN</i> ₄₁	15.5	X	130.48282	347.21961	316.62830	12.35126	0.2229703	0.22711543	2.6605512	21	—	—
112412 2002 <i>NH</i> ₄₂	15.2	X	156.28609	314.16298	45.74693	3.23982	0.0634652	0.18469182	3.0537791	21	2 3.6	19.7
112413 2002 <i>NQ</i> ₄₂	16.0	X	48.69833	16.74775	326.06756	6.26815	0.1274714	0.27154512	2.3617906	21	12 24.8	19.1
112414 2002 <i>NV</i> ₄₂	16.4	X	64.45290	251.23764	34.41365	3.68998	0.1231652	0.26729585	2.3867553	21	10 27.9	19.4
112415 2002 <i>NW</i> ₄₂	15.1	X	236.41177	345.13222	14.96624	5.25805	0.0586455	0.19765875	2.9187172	21	4 28.3	19.3
112416 2002 <i>NB</i> ₄₃	15.3	X	340.85688	114.87982	322.42547	14.22680	0.0448041	0.22353782	2.6888632	21	—	—
112417 2002 <i>NH</i> ₄₃	16.1	X	33.11061	272.49298	93.19174	4.96475	0.2155179	0.27059882	2.3672936	21	—	—
112418 2002 <i>NY</i> ₄₄	16.0	X	13.71069	205.91561	158.06479	7.36708	0.2213802	0.26709207	2.3879692	21	12 19.1	18.7
112419 2002 <i>NH</i> ₄₅	15.9	X	288.42239	223.94423	128.13403	2.94273	0.2056800	0.25541267	2.4602227	21	5 29.5	19.0
112420 2002 <i>NF</i> ₄₆	16.6	X	139.15825	351.27279	283.83401	5.10839	0.0997582	0.27747114	2.3280422	21	—	—
112421 2002 <i>NT</i> ₄₆	16.5	X	180.56777	243.96933	50.02376	1.85360	0.1105239	0.28483389	2.2877485	21	—	—
112422 2002 <i>NU</i> ₄₆	15.6	X	358.79315	298.13550	311.27761	4.90403	0.1050811	0.25327280	2.4740607	21	5 9.6	18.2
112423 2002 <i>NH</i> ₄₇	15.4	X	10.31004	305.27135	347.74060	4.43745	0.1632065	0.26045198	2.4283854	21	8 16.4	17.3
112424 2002 <i>NU</i> ₄₇	16.2	X	278.03222	91.11598	128.16056	4.79265	0.1566329	0.29115822	2.2544988	21	—	—
112425 2002 <i>NX</i> ₄₇	15.8	X	317.59914	297.09665	254.53086	4.89729	0.0801590	0.23949100	2.5680881	21	—	—
112426 2002 <i>NO</i> ₄₈	15.8	X	113.68961	79.53634	255.64702	0.88125	0.0913185	0.22803731	2.6533759	21	—	—
112427 2002 <i>NC</i> ₄₉	15.4	X	71.64522	333.33532	3.40848	3.49349	0.1081198	0.22227550	2.6990338	21	12 31.2	19.4
112428 2002 <i>NP</i> ₅₀	16.4	X	91.85631	135.83868	242.62169	2.89628	0.2552277	0.27997090	2.3141639	21	—	—
112429 2002 <i>NC</i> ₅₁	16.0	X	88.28778	37.71622	270.67734	5.53233	0.1141285	0.27350643	2.3504861	21	12 23.9	19.2
112430 2002 <i>NJ</i> ₅₁	15.0	X	271.00493	6.65834	303.97409	11.66682	0.0838809	0.19648692	2.9303103	21	3 29.2	19.5
112431 2002 <i>NV</i> ₅₂	16.8	X	85.84615	0.15211	304.77111	1.66847	0.2231855	0.27237994	2.3569623	21	12 25.4	20.5
112432 2002 <i>ND</i> ₅₃	14.6	X	109.97245	273.97032	105.29646	1.64607	0.3079575	0.12528049	3.9556127	21	2 13.5	20.7
112433 2002 <i>NC</i> ₅₇	15.1	X	183.34385	57.55577	326.83188	8.87010	0.1316607	0.19126798	2.9833751	21	3 30.4	20.0
112434 2002 <i>OD</i>	15.9	X	138.96727	8.65427	334.76596	4.70821	0.1996010	0.23225928	2.6211226	21	1 2.2	19.7
112435 2002 <i>OO</i>	16.2	X	226.47994	151.77181	196.08153	6.06274	0.2382182	0.29530079	2.2333647	21	3 16.6	20.1
112436 2002 <i>OG</i> ₁	14.2	X	83.49898	180.13911	246.72468	8.68893	0.1777876	0.18181649	3.0858907	21	2 8.7	18.3
112437 2002 <i>OA</i> ₂	15.2	X	151.89555	23.95332	275.98479	12.10168	0.0667018	0.22721990	2.6597357	21	—	—
112438 2002 <i>OJ</i> ₂	15.0	X	57.93620	208.47411	220.21969	15.19754	0.1544302	0.22992457	2.6388363	21	—	—
112439 2002 <i>OB</i> ₃	14.7	X	93.59992	42.35081	255.65197	7.88465	0.1526191	0.21787843	2.7352260	21	12 10.5	19.0
112440 2002 <i>OC</i> ₃	15.7	X	133.06803	88.35961	179.58194	22.93530	0.2574991	0.27409584	2.3471153	21	12 19.6	20.3
112441 2002 <i>OL</i> ₃	13.6	X	166.79135	174.14011	250.91699	8.94014	0.0687992	0.19084763	2.9877542	21	5 2.2	18.1
112442 2002 <i>OM</i> ₃	13.6	X	117.51422	116.48624	264.15467	7.94521	0.2494464	0.12330986	3.9976446	21	2 12.5	19.8
112443 2002 <i>OF</i> ₄	14.1	X	194.63086	154.82268	248.26336	8.41410	0.0794890	0.19264440	2.9691476	21	5 5.4	18.7
112444 2002 <i>OR</i> ₄	15.7	X	236.34231	31.14732	307.27196	2.25596	0.1395037	0.24664254	2.5182030	21	3 21.7	19.6
112445 2002 <i>OS</i> ₅	14.8	X	13.91154	103.76644	246.43528	11.27574	0.1658589	0.21494102	2.7600895	21	11 7.2	18.0
112446 2002 <i>OV</i> ₆	15.5	X	194.25667	73.93403	173.93221	12.22912	0.2320303	0.22937791	2.6430274	21	—	—
112447 2002 <i>OB</i> ₇	15.7	X	54.07826	195.77513	178.63940	11.91289	0.2059823	0.22111276	2.7084876	21	—	—
112448 2002 <i>OJ</i> ₇	14.8	X	177.41194	78.84149	219.27351	8.89638	0.0207641	0.17774708	3.1324953	21	—	—
112449 2002 <i>OD</i> ₈	14.9	X	109.11752	104.49220	306.65849	13.96939	0.1611651	0.18408432	3.0604939	21	2 19.4	19.3
112450 2002 <i>OF</i> ₈	15.8	X	356.27157	308.16489	305.10482	7.04163	0.1610331	0.25373352	2.4710649	21	5 5.2	18.3
112451 2002 <i>OU</i> ₈	16.2	X	255.09188	22.15364	166.45396	5.15045	0.1611701	0.28309122	2.2971276	21	—	—
112452 2002 <i>OY</i> ₈	14.8	X	294.72199	159.98257	240.21625	5.07598	0.0624413	0.15766111	3.3935402	21	8 28.8	19.5
112453 2002 <i>OC</i> ₉	15.2	X	285.98536	204.49693	161.01089	7.84533	0.1435163	0.20401192	2.8578035	21	6 24.5	19.2
112454 2002 <i>OQ</i> ₉	15.5	X	73.93750	99.87198	239.32270	4.40730	0.0737360	0.22175113	2.7032870	21	12 31.8	19.4
112455 2002 <i>OQ</i> ₁₀	16.5	X	33.65439	46.27032	290.68316	0.37629	0.2017786	0.26758542	2.3850332	21	12 7.7	19.3
112456 2002 <i>OR</i> ₁₀	15.8	X	204.45787	215.78899	133.89660	5.09419	0.1066629	0.24206820	2.5498280	21	3 7.8	19.6
112457 2002 <i>OT</i> ₁₀	16.1	X	92.67776	174.67990	108.99847	3.50984	0.1701130	0.27081495	2.3660339	21	12 1.9	19.8
112458 2002 <i>OX</i> ₁₀	16.5	X	167.29100	137.63314	196.95791	2.95634	0.1925747	0.28644428	2.2791659	21	1 8.6	19.7
112459 2002 <i>OG</i> ₁₁	15.6	X	7.62613	150.34480	163.55009	8.35948	0.2209511	0.21069384	2.7970581	21	9 11.7	18.2
112460 2002 <i>OW</i> ₁₂	14.8	X	34.15299	168.38265	222.82487	8.23328	0.1215687	0.21883520	2.7272478	21	—	—
112461 2002 <i>OX</i> ₁₂	13.3	X	152.72132	78.71624	314.61069	12.85014	0.2540659	0.18058290	3.0999282	21	3 19.5	18.7
112462 2002 <i>OJ</i> ₁₃	15.1	X	142.81878	311.88031	261.69017	12.89201	0.0291496	0.21580328	2.7527325	21	10 6.5	19.3
112463 2002 <i>OO</i> ₁₃	15.0	X	151.00898	231.55876	169.87331	13.19788	0.0581095	0.19055106	2.9908535	21	3 17.6	19.2
112464 2002 <i>OQ</i> ₁₃	16.9	X	212.42461	145.95207	225.22973	6.32844	0.2971100	0.29617737	2.2289559	21	4 2.4	21.0
112465 2002 <i>OR</i> ₁₃	14.5	X	147.75804	222.02500	205.20916	10.77209	0.1036287	0.19310782	2.9643955	21	4 18.2	18.8
112466 2002 <i>OE</i> ₁₄	15.7	X	197.87867	323.88170	263.85010	11.81363	0.1133002	0.22608844	2.6686020	21	12 26.5	19.6
112467 2002 <i>OM</i> ₁₄	15.0	X	229.16184	287.38507	276.45221	13.74541	0.0766948	0.22593781	2.6697880	21	—	—
112468 2002 <i>OF</i> ₁₅	16.3	X	174.21489	117.81342	167.30618	9.64509	0.0208540	0.28308461	2.2971633	21	—	—
112469 2002 <i>OV</i> ₁₇	16.4	X	29.96754	161.51965	205.99852	6.30360	0.1220410	0.27221535	2.3579123	21	12 31.6	19.4
112470 2002 <i>OK</i> ₁₈	16.2	X	90.04156	302.42253	268.96676	8.94113	0.1984208	0.26133669	2.4229017	21	8 25.1	19.8
112471 2002 <i>OU</i> ₁₈	15.0	X	127.59389	167.21653	233.97596	7.85762	0.0902504	0.18678235	3.0309504	21	2 19.1	19.5
112472 2002 <i>OC</i> ₁₉	15.4	X	325.29337	291.02988	278.98824	12.2605						

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
112481 2002 OZ ₂₅	15.6 ^m	X	156.57923	229.15487	136.09248	3.97417	0.2674867	0.18303269	3.0722056	21	2 25.3	20.7
112482 2002 OJ ₂₆	15.1	X	309.34687	338.99835	112.52213	10.15314	0.1169989	0.21781833	2.7357292	21	12 2.7	18.3
112483 2002 PA	15.9	X	51.89832	166.08219	186.91755	6.45055	0.0370974	0.22203150	2.7010108	21	12 18.2	19.6
112484 2002 PB ₁	14.5	X	140.26180	54.54497	341.84755	8.96756	0.1369849	0.18407707	3.0605743	21	3 7.6	19.0
112485 2002 PJ ₁	15.4	X	182.98666	160.35085	211.45689	4.97941	0.2968480	0.23641495	2.5903161	21	3 18.5	20.0
112486 2002 PT ₁	16.1	X	172.36708	317.37916	313.68211	6.55826	0.2426456	0.28125653	2.3071065	21	—	—
112487 2002 PO ₂	15.5	X	283.46838	271.17455	257.69467	13.45847	0.0616736	0.22827926	2.6515007	21	—	—
112488 2002 PY ₂	15.1	X	64.60061	28.85680	267.63348	12.62252	0.1475852	0.21509851	2.7587422	21	11 4.4	19.1
112489 2002 PG ₃	15.3	X	303.14933	236.36941	261.19282	12.97413	0.1287114	0.22402278	2.6849813	21	—	—
112490 2002 PB ₅	15.2	X	193.82030	269.80121	265.62247	13.49321	0.1083771	0.21665521	2.7455117	21	10 13.8	19.6
112491 2002 PH ₅	14.9	X	47.88637	236.93219	212.79142	8.96858	0.1479742	0.17979235	3.1090085	21	1 10.7	18.7
112492 2002 PA ₆	15.8	X	187.49412	7.47824	236.27966	3.27969	0.0266534	0.22497152	2.6774273	21	—	—
112493 2002 PR ₆	15.6	X	294.57729	310.91773	142.61743	13.41871	0.3378932	0.31991840	2.1172716	21	11 10.9	16.6
112494 2002 PJ ₈	15.7	X	328.19418	189.59628	179.30493	4.91763	0.0871741	0.21182501	2.7870915	21	9 10.5	19.1
112495 2002 PQ ₁₀	16.6	X	245.91256	153.37509	191.05365	3.15405	0.2706792	0.29830271	2.2183560	21	3 26.9	20.4
112496 2002 PR ₁₀	15.6	X	127.47602	128.66276	159.30641	13.12975	0.1647101	0.22354100	2.6888377	21	12 30.5	20.2
112497 2002 PO ₁₀	14.4	X	72.95949	114.26354	172.63983	22.24528	0.0380273	0.18100779	3.0950752	21	1 15.8	18.8
112498 2002 PU ₁₁	15.6	X	112.39345	336.00401	351.68404	9.59734	0.1454877	0.22568157	2.6718084	21	—	—
112499 2002 PC ₁₄	17.0	X	179.29824	61.71061	171.06338	2.01908	0.1778353	0.27882780	2.3204845	21	12 17.9	20.5
112500 2002 PP ₁₅	14.8	X	36.16141	239.40059	140.23637	18.46465	0.1145342	0.17040190	3.2222044	21	12 31.4	19.5
112501 2002 PT ₁₅	17.2	X	124.12259	15.68843	244.46105	2.30183	0.1964535	0.27390438	2.3482089	21	12 2.4	20.8
112502 2002 PA ₁₈	16.4	X	114.59876	62.23942	277.15814	1.24760	0.0948178	0.22855399	2.6493755	21	—	—
112503 2002 PU ₁₈	15.6	X	240.48173	293.03041	187.40920	4.31544	0.0457437	0.21546473	2.7556153	21	10 10.4	19.4
112504 2002 PT ₁₉	16.4	X	313.37843	318.46394	276.66283	1.93787	0.1074531	0.24442385	2.5334188	21	2 8.8	19.6
112505 2002 PM ₂₁	16.4	X	41.78231	215.47641	170.22493	3.12742	0.1088030	0.22326708	2.6910365	21	—	—
112506 2002 PV ₂₁	16.2	X	118.77810	97.77328	179.28418	4.65814	0.1472134	0.22180966	2.7028114	21	12 9.8	20.6
112507 2002 PE ₂₂	14.8	X	143.25775	102.98145	305.94749	8.14238	0.0699177	0.18992946	2.9973756	21	3 15.0	19.4
112508 2002 PF ₂₂	16.1	X	126.65423	167.71487	206.80638	2.34596	0.0966007	0.23414402	2.6070378	21	1 11.3	19.6
112509 2002 PV ₂₂	14.9	X	53.49247	146.94274	278.59143	3.53830	0.1166321	0.17851806	3.1237860	21	—	—
112510 2002 PO ₂₃	16.7	X	340.28838	111.00417	155.86672	1.86100	0.1741375	0.25287262	2.4766702	21	4 25.8	19.2
112511 2002 PP ₂₄	16.1	X	30.01665	221.38772	145.27899	6.40206	0.0149186	0.22014524	2.7164175	21	12 5.0	19.8
112512 2002 PV ₂₄	16.3	X	35.44976	200.38837	147.71872	3.18581	0.2201684	0.26886696	2.3774484	21	12 27.7	19.3
112513 2002 PA ₂₅	16.6	X	168.81230	78.24630	149.34829	2.39133	0.1761931	0.27530753	2.3402234	21	12 1.9	20.4
112514 2002 PA ₂₆	15.8	X	49.69640	179.70579	171.01492	6.33308	0.0380432	0.22031872	2.7149913	21	12 12.8	19.5
112515 2002 PC ₂₆	16.4	X	275.15563	70.42794	202.95722	2.21847	0.0669148	0.29488009	2.2354884	21	2 7.6	19.2
112516 2002 PG ₂₆	14.9	X	148.75477	71.90019	302.11212	8.74947	0.1114396	0.18472972	3.0533613	21	2 13.9	19.6
112517 2002 PT ₂₇	16.3	X	171.12949	129.69331	199.33616	0.75018	0.1916532	0.23426608	2.6061322	21	1 14.2	20.5
112518 2002 PG ₂₈	16.1	X	224.56494	123.12557	245.25639	1.16134	0.1041780	0.24719789	2.5144299	21	4 19.2	19.7
112519 2002 PL ₂₈	15.4	X	83.32622	50.03018	227.97237	2.70460	0.0700904	0.21549222	2.7553810	21	10 26.5	19.2
112520 2002 PD ₂₉	15.6	X	246.08064	180.86990	165.51171	3.57987	0.0823067	0.19565140	2.9386470	21	4 22.2	19.9
112521 2002 PK ₂₉	16.2	X	50.26161	122.59043	173.68781	3.61911	0.0685632	0.26499395	2.4005573	21	10 15.6	19.0
112522 2002 PA ₃₀	15.0	X	74.41878	102.02351	113.34100	5.76134	0.1119388	0.17936082	3.1139933	21	1 8.4	18.9
112523 2002 PF ₃₀	16.7	X	154.54910	36.55020	192.80459	2.51935	0.1395217	0.27233269	2.3572349	21	11 21.8	20.4
112524 2002 PS ₃₀	15.9	X	115.90576	346.87542	295.02333	5.75387	0.1019389	0.27295999	2.3536220	21	12 18.7	19.3
112525 2002 PQ ₃₁	15.0	X	41.53249	246.51451	158.36223	7.07603	0.1318858	0.17256939	3.1951669	21	—	—
112526 2002 PJ ₃₂	15.6	X	311.44928	292.73363	307.63456	2.41406	0.0925505	0.19102019	2.9859546	21	2 24.7	19.8
112527 2002 PJ ₃₃	15.5	X	128.73799	358.28419	285.94418	10.14425	0.0540465	0.22424498	2.6832073	21	12 25.2	19.3
112528 2002 PF ₃₅	15.5	X	99.69014	247.75284	150.92337	2.39638	0.1780047	0.18021659	3.1041273	21	1 30.5	19.7
112529 2002 PR ₃₅	16.0	X	21.58217	182.25881	167.65081	7.02710	0.1415226	0.26683169	2.3895224	21	11 29.6	18.8
112530 2002 PH ₃₆	15.5	X	177.68114	273.12896	291.73097	3.85359	0.0490031	0.21784628	2.7354952	21	11 9.6	19.5
112531 2002 PK ₃₆	15.7	X	94.12523	149.49660	150.95124	6.62381	0.0611670	0.21938608	2.7226804	21	12 6.8	19.7
112532 2002 PY ₃₇	16.5	X	39.27069	65.60953	177.29975	6.31606	0.0997987	0.25709000	2.4495102	21	7 14.8	19.4
112533 2002 PC ₃₈	17.2	X	175.70873	101.49522	139.85544	2.83150	0.1695889	0.27874100	2.3209662	21	12 25.7	20.6
112534 2002 PG ₃₈	16.4	X	179.38986	163.39379	134.63796	7.00831	0.1439978	0.28501603	2.2867737	21	—	—
112535 2002 PQ ₃₈	16.2	X	69.24075	92.51901	145.14796	1.94558	0.1687969	0.26191687	2.4193223	21	9 5.3	19.1
112536 2002 PS ₃₈	14.9	X	329.85336	273.96776	212.69035	4.37939	0.0981147	0.17645938	3.1480350	21	—	—
112537 2002 PK ₃₉	15.8	X	59.74801	283.16462	133.99197	5.35564	0.0840961	0.23130737	2.6283089	21	—	—
112538 2002 PU ₃₉	15.0	X	40.10182	267.96872	164.88299	7.01995	0.1905071	0.17660483	3.1463063	21	—	—
112539 2002 PB ₄₀	14.7	X	81.15946	220.39365	127.90664	4.96546	0.1567388	0.16922437	3.2371348	21	—	—
112540 2002 PE ₄₀	15.9	X	33.07437	244.48825	26.01588	2.41900	0.1493272	0.26029171	2.4293821	21	8 24.9	18.2
112541 2002 PL ₄₀	15.5	X	168.08554	247.86180	327.26359	22.87860	0.2519083	0.27422703	2.3463666	21	11 1.9	20.2
112542 2002 PN ₄₀	16.7	X	22.18597	228.01256	326.32366	16.84922	0.0605068	0.35024630	1.9932128	21	3 9.4	18.5
112543 2002 PP ₄₁	16.1	X	152.13259	272.24870	28.13553	3.61675	0.2472836	0.27862492	2.3216108	21	—	—
112544 2002 PY ₄₁	16.3	X	165.86229	292.61912	17.08546	2.81501	0.2551841	0.28119174	2.3074609	21	—	—
112545 2002 PD ₄₂	14.0	X	146.39287	317.65277	21.60024	11.57912	0.2477287	0.17537698	3.1609745	21	1 21.1	19.3
112546 2002 PF ₄₂	14.1	X	88.18700	250.48249	126.10675	6.70395	0.1315383	0.17058841	3.2198554	21	—	—
112547 2002 PK ₄₂	15.5	X	41.58541	290.80613	6.24150	10.78092	0.2950824	0.26203916	2.4185696	21	11 4.7	18.6
112548 2002 PL ₄₂	16.5	X	278.36889	332.01650	23.04950	4.89295	0.2449208	0.30145108	2.2028833	21	5 11.2	19.5
112549 2002 PZ ₄₂	15.9	X	198.26245	8.08377	292.34802	4.43652	0.1336086	0.28665656	2.2780406	21	—	—
112550 2002 PY ₄₃	16.1	X	66.80501	232.95161	83.06900	2.22276	0.1933710	0.26740297	2.3861179	21	12 17.9	19.5
112551 2002 PA ₄₄	15.9	X	84.23804	324.47493	344.96980	1.99742	0.2066775	0.26921818	2.3753802	21	12 27.9	19.6
112552 2002 PB ₄₄	16.5	X	36.65717	335.34816	353.70647	0.18492	0.2535654	0.26466402	2.4025519	21	12 8.4	19.5
112553 2002 PK ₄₄	14.0	X	147.11773	216.96625	129.41133	3.64066	0.2544105	0.12407967	3.9810927	21	2 2.4	20.5
112554 2002 PP ₄₄	15.0	X	99.16355	251.54595	113.77179							

ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
112561 2002 <i>PM</i> ₄₇	14.9	X	186.58185	202.64923	206.06411	8.88454	0.0767377	0.19314106	2.9640553	21	5 5.6	19.5
112562 2002 <i>PA</i> ₄₈	15.1	X	40.47749	98.02329	205.66757	10.90246	0.1031152	0.21043728	2.7993310	21	10 7.7	18.7
112563 2002 <i>PC</i> ₄₈	14.6	X	61.93283	146.16846	282.97407	11.16957	0.0449190	0.17737127	3.1372361	21	1 1.6	18.8
112564 2002 <i>PZ</i> ₄₉	15.2	X	117.60552	260.20842	51.56365	3.40047	0.3357542	0.22193424	2.7017998	21	—	—
112565 2002 <i>PA</i> ₅₀	15.8	X	239.70834	230.18799	124.79199	4.53604	0.3194191	0.24315894	2.5421971	21	4 7.9	20.4
112566 2002 <i>PE</i> ₅₀	15.8	X	101.80452	216.79663	140.52128	6.62383	0.2468480	0.27512282	2.3412707	21	—	—
112567 2002 <i>PL</i> ₅₀	16.5	X	155.19206	188.96889	159.79643	12.63428	0.2311284	0.28320098	2.2965340	21	1 18.2	20.0
112568 2002 <i>PR</i> ₅₀	15.8	X	249.30922	293.16175	47.01741	4.71409	0.2061009	0.24337138	2.5407175	21	4 3.6	19.9
112569 2002 <i>PS</i> ₅₀	15.5	X	33.81898	246.65457	162.93224	10.42650	0.1978100	0.21827016	2.7319525	21	—	—
112570 2002 <i>PV</i> ₅₀	15.9	X	210.79954	263.63369	101.15566	4.51213	0.2246339	0.23946001	2.5683097	21	4 1.9	20.3
112571 2002 <i>PX</i> ₅₀	14.9	X	90.68491	160.03954	174.42172	13.47431	0.1697663	0.21795081	2.7346205	21	—	—
112572 2002 <i>PO</i> ₅₁	15.1	X	195.09776	12.50216	324.10978	12.73242	0.0762999	0.18759427	3.0221986	21	2 15.5	19.5
112573 2002 <i>PU</i> ₅₁	14.8	X	297.09791	188.62200	354.27185	5.30520	0.1108080	0.18189553	3.0849966	21	—	—
112574 2002 <i>PW</i> ₅₁	16.5	X	77.28074	216.23913	55.95874	2.76107	0.1061036	0.26684815	2.3894242	21	10 24.3	19.5
112575 2002 <i>PH</i> ₅₂	16.6	X	101.35708	246.44783	356.42729	0.91941	0.1533778	0.26713173	2.3877329	21	10 17.5	20.1
112576 2002 <i>PY</i> ₅₂	16.0	X	161.33440	239.21310	5.59855	4.25707	0.0701932	0.22236982	2.6982705	21	12 11.2	20.1
112577 2002 <i>PO</i> ₅₃	15.1	X	160.27092	343.83539	338.43430	9.79965	0.0876554	0.17968733	3.1102198	21	—	—
112578 2002 <i>PN</i> ₅₄	13.8	X	90.55139	71.35007	13.81636	20.98067	0.1699200	0.17919318	3.1159350	21	3 20.6	18.1
112579 2002 <i>PT</i> ₅₄	16.0	X	110.26046	219.85955	105.93228	5.96941	0.1786628	0.27339470	2.3511265	21	—	—
112580 2002 <i>PV</i> ₅₄	15.9	X	105.86340	149.81635	178.76801	5.40483	0.2053426	0.27676129	2.3320212	21	—	—
112581 2002 <i>PY</i> ₅₄	16.2	X	345.51318	46.64259	254.89975	2.21268	0.1827364	0.25634044	2.4542830	21	6 30.5	18.1
112582 2002 <i>PZ</i> ₅₄	14.9	X	117.97883	119.48514	228.89293	2.84330	0.2215280	0.17493368	3.1663124	21	—	—
112583 2002 <i>PA</i> ₅₅	16.3	X	242.35138	37.26678	254.96520	4.56359	0.2233272	0.29283577	2.2458804	21	1 20.6	20.0
112584 2002 <i>PS</i> ₅₅	14.9	X	231.36125	60.57786	301.88920	10.89892	0.0727148	0.19515559	2.9436221	21	4 20.6	19.5
112585 2002 <i>PD</i> ₅₆	15.4	X	337.97321	141.45005	201.58841	6.13390	0.1267872	0.25879718	2.4387261	21	8 22.2	17.9
112586 2002 <i>PE</i> ₅₆	13.6	X	113.75020	48.18078	330.78472	14.52146	0.1975294	0.12457993	3.9704280	21	2 6.2	19.4
112587 2002 <i>PU</i> ₅₆	15.7	X	17.98936	165.04949	184.59510	5.35379	0.1835301	0.21308118	2.7761270	21	11 17.8	18.9
112588 2002 <i>PV</i> ₅₇	15.2	X	247.25554	168.14487	169.18537	1.66764	0.1687662	0.19292258	2.9662927	21	4 4.2	20.0
112589 2002 <i>PD</i> ₅₇	15.6	X	182.48138	93.17647	240.70337	3.42279	0.1695859	0.23477075	2.6023961	21	1 27.7	19.7
112590 2002 <i>PJ</i> ₅₇	14.7	X	227.02911	22.25683	333.11644	10.20160	0.1023795	0.19106884	2.9854478	21	4 6.3	19.4
112591 2002 <i>PK</i> ₅₇	14.9	X	99.67329	145.93187	162.83451	14.56953	0.2119942	0.22031029	2.7150606	21	—	—
112592 2002 <i>PP</i> ₅₇	16.1	X	147.59714	23.15204	264.16683	6.22832	0.1465355	0.27771903	2.3266566	21	—	—
112593 2002 <i>PS</i> ₅₇	16.2	X	92.60612	127.10819	201.01711	4.91003	0.2521120	0.27422388	2.3463846	21	—	—
112594 2002 <i>PQ</i> ₅₈	16.1	X	54.84508	314.92792	11.69311	1.32078	0.1957046	0.26829670	2.3808160	21	12 19.0	19.4
112595 2002 <i>PR</i> ₅₈	14.6	X	96.80159	220.72225	147.43106	8.73826	0.1163893	0.17410276	3.1763788	21	—	—
112596 2002 <i>PZ</i> ₅₈	15.3	X	67.21640	19.35063	353.01074	3.43277	0.0912362	0.22264511	2.6960458	21	—	—
112597 2002 <i>PA</i> ₅₉	16.3	X	91.23729	343.27862	337.57568	1.88580	0.1220176	0.27251835	2.3561642	21	—	—
112598 2002 <i>PE</i> ₅₉	16.2	X	210.01562	144.69982	139.69275	6.66628	0.2567460	0.28685150	2.2770084	21	—	—
112599 2002 <i>PQ</i> ₅₉	15.1	X	84.59451	254.46523	155.17348	13.90107	0.1954308	0.22798338	2.6537943	21	1 13.2	18.2
112600 2002 <i>PJ</i> ₆₀	15.3	X	206.69556	174.31760	149.69873	13.51930	0.1633164	0.23645098	2.5900529	21	2 6.1	19.4
112601 2002 <i>PN</i> ₆₀	15.8	X	23.19096	271.07492	92.31830	3.19984	0.1641328	0.26594058	2.3948573	21	—	—
112602 2002 <i>PP</i> ₆₀	15.5	X	154.22342	154.34003	151.25013	12.55803	0.1975017	0.22638632	2.6662606	21	12 22.5	18.3
112603 2002 <i>PW</i> ₆₀	16.3	X	230.53047	343.06514	6.67896	7.23192	0.1431642	0.29443809	2.2377250	21	3 26.5	19.7
112604 2002 <i>PX</i> ₆₀	15.9	X	83.85546	249.95313	71.98442	3.33881	0.2232281	0.27035674	2.3687065	21	—	—
112605 2002 <i>PZ</i> ₆₀	15.8	X	89.48918	217.43398	117.69353	5.72802	0.1550752	0.27231929	2.3573123	21	—	—
112606 2002 <i>PL</i> ₆₁	16.1	X	107.70311	125.49871	210.96701	7.10258	0.1328420	0.27711253	2.3299773	21	—	—
112607 2002 <i>PT</i> ₆₂	15.9	X	47.82952	355.03264	319.25168	4.25204	0.1160646	0.21535650	2.7565385	21	11 2.3	19.5
112608 2002 <i>PC</i> ₆₃	15.3	X	90.01341	303.32650	130.57844	15.38281	0.0240216	0.23802353	2.5786325	21	1 28.6	18.5
112609 2002 <i>PE</i> ₆₃	15.7	X	32.67449	352.27291	151.78375	5.64446	0.0801949	0.26411840	2.4058596	21	10 4.0	18.5
112610 2002 <i>PE</i> ₆₄	15.9	X	0.96546	297.48615	269.42118	3.27777	0.0362585	0.24703309	2.5155481	21	3 18.4	18.9
112611 2002 <i>PQ</i> ₆₄	16.8	X	270.84283	71.43704	162.70116	4.02814	0.1063932	0.29030323	2.2589232	21	—	—
112612 2002 <i>PA</i> ₆₄	14.4	X	279.57539	350.99792	167.74933	24.92752	0.1140199	0.17526674	3.1622999	21	12 30.9	19.1
112613 2002 <i>PL</i> ₆₅	15.5	X	117.12277	244.89224	167.38225	14.74302	0.1021868	0.23852104	2.5750456	21	2 15.4	18.9
112614 2002 <i>PM</i> ₆₇	15.6	X	50.44050	183.19544	169.38594	5.29298	0.0602437	0.22106626	2.7088674	21	12 19.0	19.3
112615 2002 <i>PW</i> ₆₇	16.6	X	109.39085	18.27629	202.81511	2.84565	0.1205290	0.26428588	2.4048431	21	9 24.1	19.9
112616 2002 <i>PD</i> ₆₈	15.9	X	129.34558	184.90857	189.94071	3.89440	0.0739455	0.23432666	2.6056830	21	1 11.5	19.4
112617 2002 <i>PW</i> ₆₉	15.4	X	136.73260	18.29972	202.92231	12.13883	0.2261812	0.26966015	2.3727840	21	10 27.2	19.3
112618 2002 <i>PZ</i> ₆₉	15.5	X	291.88774	160.71495	190.67779	11.60386	0.2197668	0.25361500	2.4718347	21	5 31.8	18.9
112619 2002 <i>PR</i> ₇₀	14.9	X	147.08872	128.92328	219.10744	11.31028	0.0802400	0.17961878	3.1110110	21	1 9.8	19.7
112620 2002 <i>PT</i> ₇₀	14.9	X	95.33813	165.45760	181.13564	17.14961	0.1670019	0.22400280	2.6851409	21	—	—
112621 2002 <i>PV</i> ₇₀	14.7	X	348.20239	141.07361	227.08369	8.37570	0.1713551	0.21052187	2.7985812	21	10 13.9	17.5
112622 2002 <i>PY</i> ₇₀	14.5	X	223.03256	96.11693	243.53847	9.77317	0.0258005	0.18886281	3.0086506	21	3 18.3	19.0
112623 2002 <i>PB</i> ₇₁	14.6	X	82.19268	242.01565	200.60419	13.76214	0.2531889	0.18091673	3.0961137	21	3 11.1	18.7
112624 2002 <i>PM</i> ₇₃	16.2	X	110.08167	178.37817	195.34859	14.20714	0.1704298	0.22906785	2.6454118	21	—	—
112625 2002 <i>PO</i> ₇₃	16.0	X	123.04902	195.85299	210.71296	9.04789	0.1313182	0.23682993	2.5872893	21	2 18.2	19.7
112626 2002 <i>PV</i> ₇₄	14.0	X	71.77938	253.31727	169.23465	17.16140	0.1438618	0.17593687	3.1542			

ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
112641 2002 PC ₈₂	16.1	X	302.46448	219.50991	175.05035	2.06593	0.2191949	0.25931082	2.4355046	21	8 20.1	18.4
112642 2002 PE ₈₂	15.4	X	228.07259	314.89786	320.65944	12.44243	0.1548605	0.23602497	2.5931686	21	—	—
112643 2002 PP ₈₂	16.0	X	265.88983	140.92125	120.08788	5.60509	0.1817202	0.24024989	2.5626773	21	1 13.1	20.1
112644 2002 PV ₈₂	17.0	X	32.07544	243.81947	78.28105	2.25334	0.1976812	0.26507046	2.4000954	21	11 14.5	19.6
112645 2002 PX ₈₂	16.0	X	179.59104	342.54123	340.78026	7.94479	0.1942189	0.28648407	2.2789549	21	1 8.4	19.5
112646 2002 PJ ₈₃	16.1	X	4.01677	334.41956	2.90375	2.53960	0.2003860	0.26235483	2.4166292	21	10 16.5	18.0
112647 2002 PQ ₈₃	14.8	X	250.14901	349.09558	44.19559	2.57025	0.1070873	0.20066940	2.8894506	21	6 21.4	19.0
112648 2002 PR ₈₃	16.2	X	32.16117	235.92539	116.50659	3.26197	0.2257448	0.26789137	2.3832169	21	12 29.9	19.2
112649 2002 PA ₈₄	15.3	X	201.08559	138.86753	143.13779	8.22376	0.1373276	0.23226410	2.6210863	21	—	—
112650 2002 PF ₈₄	15.0	X	120.92357	346.68547	338.97358	13.33651	0.1258736	0.22556713	2.6727120	21	—	—
112651 2002 PK ₈₄	14.7	X	61.97329	48.71597	355.04478	8.40932	0.2020030	0.17366480	3.1817168	21	—	—
112652 2002 PB ₈₅	15.8	X	200.23630	233.61879	135.09752	4.82789	0.2476521	0.24088303	2.5581848	21	3 28.9	20.2
112653 2002 PN ₈₅	15.0	X	231.92286	197.65258	137.40726	10.38822	0.0694381	0.19084250	2.9878077	21	3 27.5	19.5
112654 2002 PV ₈₅	16.3	X	303.10504	208.66206	135.49844	3.17869	0.2062835	0.25388778	2.4700638	21	6 8.4	19.1
112655 2002 PT ₈₅	16.3	X	20.97058	186.27017	200.15534	0.64414	0.1916416	0.26966389	2.3727620	21	—	—
112656 Gines	15.8	X	69.03476	126.88198	226.71463	5.53058	0.0861447	0.22257478	2.6966138	21	—	—
112657 2002 PO ₈₆	16.1	X	51.98552	75.31170	192.40290	1.92525	0.1933325	0.26287096	2.4134648	21	9 27.1	18.9
112658 2002 PQ ₈₆	16.0	X	319.57007	287.11172	35.10913	2.90712	0.1959608	0.25523234	2.4613814	21	6 5.1	18.3
112659 2002 PS ₈₆	15.8	X	190.96792	331.94524	323.18974	11.65359	0.1575673	0.23327779	2.6134877	21	—	—
112660 2002 PX ₈₆	14.5	X	149.54437	177.69261	139.68743	11.43834	0.2075851	0.17667399	3.1454851	21	—	—
112661 2002 PR ₈₇	16.5	X	218.93225	128.10820	115.63654	8.75549	0.3321340	0.28528934	2.2853130	21	—	—
112662 2002 PE ₈₈	16.4	X	71.74660	104.03505	166.30238	2.30281	0.1848511	0.26490353	2.4011036	21	10 25.4	19.6
112663 2002 PK ₈₈	15.5	X	281.17018	333.09804	17.75825	1.46895	0.0930341	0.19919632	2.9036784	21	6 6.3	19.3
112664 2002 PN ₈₉	15.9	X	125.35202	156.37003	216.36805	12.04040	0.1644187	0.23143609	2.6273343	21	1 15.1	19.8
112665 2002 PY ₈₉	15.4	X	123.52060	189.91294	194.91480	14.71418	0.2346617	0.23133347	2.6281112	21	2 5.9	19.4
112666 2002 PK ₉₁	15.6	X	36.32331	33.20498	285.88911	11.25506	0.2730187	0.26288943	2.4133518	21	11 26.4	18.8
112667 2002 PR ₉₁	15.6	X	335.52924	212.57235	156.94163	4.50485	0.1028610	0.26222036	2.4174552	21	10 2.5	18.0
112668 2002 PH ₉₂	15.1	X	22.89223	331.52355	132.15581	22.73405	0.0353118	0.23164004	2.6257919	21	—	—
112669 2002 PM ₉₂	14.6	X	123.16094	266.83538	127.47481	17.09522	0.1139583	0.18321228	3.0701976	21	2 14.1	19.1
112670 2002 PT ₉₃	17.2	X	121.35296	259.74005	37.20600	2.54723	0.2307159	0.27559260	2.3386093	21	—	—
112671 2002 PV ₉₄	15.8	X	285.08709	295.62245	355.73449	7.81629	0.0664145	0.24466769	2.5317353	21	3 24.1	19.2
112672 2002 PW ₉₄	14.8	X	75.31153	276.16683	115.51602	6.14894	0.1431789	0.17413024	2.1760446	21	—	—
112673 2002 PA ₉₅	16.0	X	13.17692	255.09153	130.89364	7.31617	0.1260868	0.26875549	2.3781057	21	—	—
112674 2002 PJ ₉₅	16.5	X	215.53028	173.44458	121.35796	11.23274	0.1808156	0.28862110	2.2676917	21	1 3.0	20.1
112675 2002 PK ₉₅	15.3	X	87.66511	348.68902	331.51400	3.21310	0.2165380	0.22219742	2.6996660	21	—	—
112676 2002 PQ ₉₅	15.5	X	234.53688	33.16174	317.72720	11.19269	0.0337877	0.24710656	2.5150495	21	4 6.6	19.1
112677 2002 PW ₉₅	16.4	X	90.61934	151.14084	158.28510	7.92148	0.1212149	0.27279552	2.3545679	21	12 28.0	19.9
112678 2002 PD ₉₆	15.6	X	27.91028	326.62461	345.03297	4.35282	0.0664840	0.21159880	2.7890775	21	9 25.2	19.0
112679 2002 PL ₉₆	16.1	X	103.23389	297.88457	59.61992	3.02411	0.2175812	0.22633283	2.6666807	21	—	—
112680 2002 PS ₉₆	16.8	X	110.64178	177.78120	108.62310	3.37912	0.2011309	0.27290273	2.3539512	21	12 22.8	20.5
112681 2002 PX ₉₆	14.8	X	128.48649	332.58562	64.99050	6.49798	0.1694188	0.18309803	3.0714746	21	3 4.4	19.5
112682 2002 PX ₉₇	15.6	X	296.18750	330.63957	41.48090	7.08259	0.1200173	0.25611583	2.4557177	21	7 25.5	18.5
112683 2002 PG ₉₈	16.6	X	46.54852	276.05649	39.19532	5.64393	0.1230447	0.31783112	2.1265313	21	11 22.1	18.8
112684 2002 PK ₉₈	14.9	X	220.26298	331.45575	78.27447	2.97732	0.1421448	0.19740916	2.9211768	21	6 7.3	19.4
112685 2002 PY ₉₈	16.1	X	15.13925	203.06331	131.36280	6.38240	0.1255186	0.26321599	2.4113553	21	10 26.5	18.7
112686 2002 PD ₉₉	16.1	X	247.22164	295.28520	37.70835	5.58069	0.1359839	0.24519066	2.5280763	21	3 28.8	19.8
112687 2002 PF ₉₉	16.1	X	34.36112	183.97922	79.30864	5.34486	0.1113883	0.25786055	2.4446280	21	8 11.1	18.7
112688 2002 PH ₉₉	16.1	X	118.50308	245.07347	67.70904	3.89761	0.1722391	0.27577617	2.3375714	21	—	—
112689 2002 PR ₉₉	15.9	X	324.30737	237.67003	101.94160	6.31888	0.0842479	0.25663929	2.4523773	21	7 28.3	18.5
112690 2002 PB ₁₀₀	14.2	X	37.78592	270.19020	129.99194	11.61473	0.1276718	0.16946001	3.2341332	21	—	—
112691 2002 PN ₁₀₀	15.3	X	63.78126	326.98570	38.00931	10.23922	0.1977543	0.22075153	2.7114415	21	—	—
112692 2002 PC ₁₀₁	16.8	X	183.32963	198.06403	41.60980	3.24568	0.1438668	0.27822501	2.3238349	21	—	—
112693 2002 PF ₁₀₁	16.5	X	273.91928	83.50282	188.05595	8.53427	0.0910658	0.29550409	2.2323402	21	1 30.6	19.6
112694 2002 PO ₁₀₁	14.1	X	86.17003	201.57982	197.62763	11.24023	0.1812770	0.12423350	3.9778508	21	2 5.7	19.7
112695 2002 PY ₁₀₁	15.7	X	112.55863	79.72394	191.22224	9.28130	0.0681460	0.21893774	2.7263961	21	11 22.1	19.7
112696 2002 PJ ₁₀₂	16.4	X	82.83198	52.98392	237.15014	5.94062	0.0997022	0.26918366	2.3755833	21	11 22.4	19.4
112697 2002 PC ₁₀₃	16.2	X	103.02339	168.37389	199.33775	4.45944	0.2770456	0.27952520	2.3166232	21	—	—
112698 2002 PP ₁₀₃	14.8	X	216.84282	9.85765	276.41636	9.07027	0.0798520	0.18292701	3.0733887	21	1 10.1	19.5
112699 2002 PH ₁₀₄	14.9	X	73.07027	147.41734	274.57649	9.07374	0.1555097	0.18077989	3.0976759	21	1 3.4	19.2
112700 2002 PY ₁₀₄	16.1	X	75.51211	315.40372	270.49565	8.73958	0.1835038	0.25969288	2.4331153	21	8 25.4	19.5
112701 2002 PX ₁₀₅	15.1	X	86.70555	276.26464	212.00979	10.08048	0.0640123	0.19283705	2.9671698	21	4 16.6	19.0
112702 2002 PJ ₁₀₆	17.1	X	230.78392	55.47291	210.07046	6.20747	0.1013813	0.28695659	2.2764525	21	—	—
112703 2002 PS ₁₀₆	15.0	X	351.87163	280.21132	207.59628	9.01381	0.0617290	0.17781567	3.1320068	21	—	—
112704 2002 PZ ₁₀₆	16.3	X	69.07357	346.54671	242.45113	7.18763	0.1265270	0.25871879	2.4392187	21	8 13.1	19.5
112705 2002 PK ₁₀₇	16.9	X	116.74562	276.87358	57.83137	3.25469	0.2205997	0.27938387	2.3174044	21	—	—
112706 2002 PM ₁₀₈	16.4	X	213.01185	150.76164	80.82639	4.42151	0.0915953	0.28069739	2.3101693	21	—	—
112707 2002 PD ₁₀₉	15.3	X	210.18069	14.83910	94.20217	4.73126	0.0676640	0.20794993	2.8216092	21	8 17.9	19.4
112708 2002 PG ₁₀₉	15.0	X	13.26506	154.49214	349.28001	9.71784	0.0423281	0.18562310	3.0435565	21	1 28.6	19.1
112709 2002 PW ₁₀₉	16.9	X	151.99871	21.04028	220.93029	6.40076	0.1220318	0.27272722	2.3549611	21	12 5.4	20.4
112710 2002 PS ₁₁₀	15.8	X	202.77961	326.49509	45.13989	4.16731	0.1190027	0.24408661	2.5357518	21	4 2.5	19.7
112711 2002 PT ₁₁₀	14.7	X	119.52725	200.34910	337.95852	16.28105	0.0327929	0.20552679	2.8437435	21	8 2.4	18.8
112712 2002 PO ₁₁₁	16.4	X	290.02901	212.41617	109.74062	5.00423	0.2172205	0.30308646	2.1949520	21	4 16.4	19.2
112713 2002 PJ ₁₁₁	15.6	X	25.64298	201.31428	96.50886	3.73841	0.2500789	0.21063321	2.7975948	21	10 1.9	18.6
112714 2002 PX ₁₁₁	16.1	X	85.24873	327.24724	44.97011	3.72717	0.1308989	0.22680533				

ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
112721 2002 PA ₁₁₈	16.1	X	346.76922	150.58223	242.63487	5.35922	0.1332385	0.26749478	2.3855719	21	11 29.8	18.4
112722 2002 PB ₁₁₈	15.3	X	356.87359	203.95958	211.23849	5.39633	0.0343312	0.22055404	2.7130598	21	12 24.1	18.8
112723 2002 PC ₁₁₉	16.7	X	144.03731	5.81577	240.80552	2.87550	0.1830942	0.27322826	2.3520812	21	12 2.6	20.3
112724 2002 PE ₁₁₉	14.9	X	138.60186	184.23006	168.16361	8.51755	0.1017954	0.17951100	3.1122562	21	1 9.6	19.6
112725 2002 PO ₁₁₉	15.2	X	60.40656	226.32136	254.87149	3.36299	0.0462297	0.18721380	3.0262919	21	2 28.5	19.2
112726 2002 PN ₁₂₀	14.7	X	71.87035	176.14037	257.52224	4.02677	0.1535904	0.17969166	3.1101698	21	1 30.6	18.6
112727 2002 PY ₁₂₀	14.5	X	221.97702	316.38865	307.06548	9.33731	0.0554756	0.17923795	3.1154162	21	—	—
112728 2002 PQ ₁₂₁	14.6	X	73.67011	136.40178	298.20242	10.60645	0.1468060	0.17953792	3.1119450	21	2 2.4	18.6
112729 2002 PP ₁₂₂	16.2	X	180.43822	132.52854	210.84666	2.71616	0.1537287	0.23708382	2.5854418	21	2 5.1	20.2
112730 2002 PU ₁₂₄	15.0	X	152.00550	225.01123	151.81570	9.93705	0.0983900	0.18458103	3.0550009	21	2 21.2	19.6
112731 2002 PW ₁₂₅	16.4	X	72.64334	197.16154	68.76883	2.21396	0.1716068	0.26540857	2.3980566	21	10 19.1	19.6
112732 2002 PH ₁₂₆	15.1	X	165.51414	256.98574	147.70711	0.46848	0.1741676	0.18999968	2.9966370	21	4 13.0	20.0
112733 2002 PP ₁₂₆	16.3	X	125.34298	301.95083	1.07665	7.15753	0.1761266	0.27693349	2.3310543	21	—	—
112734 2002 PX ₁₂₆	16.4	X	350.42270	256.73380	71.51139	2.27493	0.1971166	0.25963658	2.4334670	21	8 30.2	18.1
112735 2002 PM ₁₂₇	15.5	X	341.56800	13.61541	347.29853	7.79561	0.2346694	0.20955826	2.8071537	21	9 19.2	17.8
112736 2002 PX ₁₂₇	16.3	X	359.29580	180.87721	67.66238	4.30803	0.1150991	0.30365989	2.1921879	21	5 5.7	18.2
112737 2002 PY ₁₂₈	15.7	X	171.26925	287.92396	4.17270	2.51854	0.0681844	0.22898407	2.6460570	21	—	—
112738 2002 PK ₁₂₈	15.6	X	272.56152	334.11786	56.09490	6.56820	0.1224247	0.25434700	2.4670899	21	7 14.3	18.9
112739 2002 PX ₁₂₈	14.5	X	106.42904	308.67643	69.38082	10.47939	0.1045952	0.17659077	3.1464733	21	1 5.0	18.9
112740 2002 PA ₁₂₉	14.1	X	193.75190	296.80864	8.51194	21.71950	0.0828226	0.18014604	3.1049378	21	1 16.4	19.3
112741 2002 PK ₁₂₉	15.7	X	8.48080	117.02506	247.33415	1.19527	0.0697825	0.21529968	2.7570235	21	11 7.1	19.1
112742 2002 PM ₁₃₀	15.7	X	28.98542	310.36812	76.05317	9.48815	0.2411755	0.21797846	2.7343892	21	—	—
112743 2002 PR ₁₃₀	15.2	X	250.50093	47.02784	246.50038	8.48757	0.0551488	0.23977100	2.5660884	21	2 11.9	19.0
112744 2002 PG ₁₃₂	15.7	X	350.08690	20.13762	338.08865	0.58412	0.2041645	0.26409039	2.4060297	21	10 19.2	17.4
112745 2002 PK ₁₃₂	14.7	X	203.84612	63.32570	309.62026	9.77839	0.1696259	0.19341917	2.9621234	21	4 2.8	19.8
112746 2002 PR ₁₃₂	16.1	X	66.36568	114.41939	169.95490	2.81250	0.1652466	0.26702881	2.3883463	21	11 4.4	19.2
112747 2002 PU ₁₃₂	14.5	X	49.74420	249.86031	148.47454	10.06194	0.0756695	0.17419879	3.1752113	21	—	—
112748 2002 PV ₁₃₂	14.7	X	98.36518	137.60905	284.73867	3.68514	0.1394902	0.18374069	3.0643085	21	2 19.3	18.9
112749 2002 PV ₁₃₃	14.8	X	26.37995	146.69796	320.73957	10.22163	0.0221691	0.18127687	3.0920116	21	1 1.6	19.1
112750 2002 PV ₁₃₄	16.3	X	49.31790	267.89982	35.64607	4.89642	0.1936106	0.26588547	2.3951882	21	11 11.5	19.4
112751 2002 PW ₁₃₄	16.7	X	13.76946	266.57367	92.25350	6.07898	0.2045994	0.26611327	2.3938211	21	12 8.8	19.2
112752 2002 PA ₁₃₅	16.2	X	5.12523	321.38642	2.62286	6.44861	0.1297734	0.26113388	2.4241560	21	9 20.0	18.5
112753 2002 PC ₁₃₅	16.9	X	183.31725	212.90958	59.19547	1.13271	0.1968200	0.28183958	2.3039235	21	—	—
112754 2002 PD ₁₃₅	16.5	X	91.97095	253.54431	73.94013	3.02032	0.2293809	0.27431089	2.3458884	21	—	—
112755 2002 PV ₁₃₅	15.5	X	346.63695	341.84409	62.73110	2.93387	0.2241222	0.21432595	2.7653677	21	12 8.8	18.0
112756 2002 PB ₁₃₆	15.5	X	222.58223	13.83647	21.58712	2.19579	0.0970742	0.19738463	2.9214188	21	5 25.2	20.0
112757 2002 PF ₁₃₆	14.8	X	113.67016	293.88843	110.40643	11.34238	0.1051593	0.18229609	3.0804758	21	2 14.9	19.3
112758 2002 PN ₁₃₆	16.3	X	273.85695	300.28101	336.38016	2.83408	0.0868881	0.24256316	2.5463582	21	2 17.9	19.7
112759 2002 PX ₁₃₇	16.2	X	89.77050	99.18138	148.18890	6.13580	0.0706431	0.26333883	2.4106053	21	10 2.7	19.4
112760 2002 PD ₁₄₀	14.7	X	326.40018	18.22521	180.73050	11.09288	0.0541788	0.17978982	3.1090376	21	1 29.8	19.1
112761 2002 PF ₁₄₀	16.3	X	221.72969	203.31873	107.90500	5.57112	0.2294115	0.29032014	2.2588355	21	1 29.2	20.0
112762 2002 PN ₁₄₀	16.7	X	4.18914	147.42100	166.00052	4.33251	0.1872203	0.30971173	2.1635368	21	9 14.9	17.7
112763 2002 PE ₁₄₁	15.3	X	247.36454	48.18789	296.00984	15.77450	0.1187510	0.24399204	2.5364070	21	4 3.1	19.5
112764 2002 PA ₁₅₄	14.7	X	9.12894	145.45189	323.34374	26.68013	0.1251344	0.17850393	3.1239508	21	—	—
112765 2002 PR ₁₅₅	16.2	X	198.27193	318.29027	22.91054	2.18888	0.0399966	0.24024377	2.5627208	21	2 16.8	19.6
112766 2002 PJ ₁₅₆	15.5	X	273.47362	159.64693	318.96038	4.64655	0.0690489	0.21917152	2.7244571	21	11 15.8	19.0
112767 2002 PO ₁₅₆	16.7	X	27.25973	303.05878	315.29153	0.66311	0.1555815	0.25814341	2.4428419	21	7 25.2	18.7
112768 2002 PS ₁₅₆	15.4	X	104.34242	110.46610	314.40114	8.04246	0.1702124	0.18489699	3.0515196	21	3 4.8	19.8
112769 2002 PU ₁₅₆	15.9	X	227.73531	161.69991	131.09959	2.54938	0.0356712	0.18617228	3.0375682	21	1 30.2	20.3
112770 2002 PK ₁₅₇	16.5	X	180.96172	310.95663	337.30819	1.74420	0.0422565	0.23086157	2.6316913	21	—	—
112771 2002 PU ₁₅₇	15.3	X	176.90516	261.93988	90.30674	3.34715	0.0983680	0.18624017	3.0368300	21	2 18.3	19.9
112772 2002 PJ ₁₅₇	16.8	X	44.34244	284.28985	78.51318	1.17887	0.0868276	0.27271795	2.3550144	21	—	—
112773 2002 PD ₁₅₈	16.0	X	251.74875	255.79429	125.84600	3.69187	0.0705868	0.20125144	2.8838769	21	6 13.1	20.2
112774 2002 PK ₁₅₈	15.8	X	177.04661	12.38614	130.96766	4.77898	0.0327589	0.20898493	2.8122855	21	8 24.2	19.6
112775 2002 PR ₁₅₈	17.0	X	210.20103	260.65035	326.25361	1.04231	0.1615077	0.28059341	2.3107400	21	—	—
112776 2002 PA ₁₅₉	15.9	X	212.39175	300.80370	311.88833	2.92009	0.0428223	0.20354306	2.8621904	21	7 4.4	20.1
112777 2002 PD ₁₅₉	15.5	X	343.18268	36.04460	341.11867	4.71642	0.0674292	0.21406627	2.7676036	21	10 14.9	18.8
112778 2002 PJ ₁₅₉	15.7	X	312.19631	164.73503	82.83555	4.13448	0.0570083	0.19268368	2.9687441	21	3 14.2	19.8
112779 2002 PK ₁₆₀	15.8	X	239.12554	260.24004	152.10184	2.51633	0.0616733	0.20360387	2.8616205	21	7 8.3	19.8
112780 2002 PO ₁₆₀	16.1	X	219.87005	70.77999	287.01417	0.54771	0.1112519	0.19311351	2.9643373	21	4 5.5	20.8
112781 2002 PR ₁₆₀	15.6	X	298.23539	197.94659	109.26140	3.22847	0.0512005	0.19875104	2.9080137	21	5 10.2	19.5
112782 2002 PU ₁₆₀	15.7	X	231.33463	158.61400	350.56966	4.58389	0.0543779	0.21846686	2.7303124	21	11 1.9	19.6
112783 2002 PC ₁₆₁	15.7	X	144.53621	75.95916	330.57893	9.53684	0.0688531	0.18913532	3.0057599	21	3 14.7	20.2
112784 2002 PD ₁₆₁	15.8	X	5.78483	57.90115	79.68842	2.40863	0.1217538	0.23511426	2.5998606	21	—	—
112785 2002 PK ₁₆₁	15.2	X	209.34836	335.50472	54.34594	2.69991	0.1029951	0.19585348	2.9366252	21	5 4.8	19.8
112786 2002 PM ₁₆₁	15.9	X	33.05865	13.23408	43.13165	2.65316	0.0806908	0.22610908	2.6684396	21	—	—
112787 2002 PH ₁₆₂	14.8	X	84.77920	123.63127	289.48248	0.40442	0.1180996	0.18040651	3.1019484	21	1 20.1	18.8
112788 2002 PC ₁₆₃	15.5	X	174.03975	202.12623	335.42258	12.44454	0.0985142	0.21410762	2.7672472	21	9 27.2	19.9
112789 2002 PR ₁₆₃	16.2	X	55.32800	130.30511	111.66853	2.34801	0.1549282	0.26050841	2.4280347	21	8 20.4	18.9
112790 2002 PC ₁₆₄	16.6	X	95.76483	186.73645	328.24205	2.74423	0.1285952	0.26360994	2.4089522	21	9 16.3	19.8
112791 2002 PE ₁₆₄	15.5	X	135.18126	319.23837	104.23721	1.24977	0.2036135	0.18906758	3.0064778	21	4 10.9	20.2
112792 2002 PF ₁₆₄	16.8	X	102.42031	252.57625	338.55356	1.35252	0.1791674	0.26634412	2.3924377	21	10 5.5	20.3
112793 2002 PH ₁₆₄	15.4	X	267.99994	236.00608	56.39058	2.43362	0.0425379	0.19239565	2.9717063	21	3 16.3	19.7

ELEMENTS AND OPPOSITION DATES IN 2021

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
112801 2002 <i>PS</i> ₁₆₈	15.4	X	111.21709	41.49050	126.25799	2.93520	0.0072999	0.20168527	2.8797399	21	6 30.7	19.3
112802 2002 <i>PU</i> ₁₆₈	16.8	X	67.45501	216.76459	31.37054	1.36154	0.1734513	0.26196743	2.4190110	21	9 18.4	19.8
112803 2002 <i>QG</i>	16.7	X	183.31643	78.53726	231.75265	5.30518	0.2110584	0.28483700	2.2877318	21	—	—
112804 2002 <i>QR</i>	13.9	X	204.20022	20.46965	265.42014	21.55841	0.0839958	0.17573554	3.1566733	21	—	—
112805 2002 <i>QL</i> ₂	15.3	X	334.71610	25.73798	147.60756	15.45506	0.0592904	0.23536541	2.5980108	21	—	—
112806 2002 <i>QT</i> ₂	16.1	X	229.25133	152.75906	221.30414	2.27411	0.1302361	0.24745479	2.5126894	21	4 30.3	19.8
112807 2002 <i>QV</i> ₂	14.7	X	38.40863	174.13058	319.15073	14.99407	0.0938021	0.18548472	3.0450700	21	2 16.1	18.4
112808 2002 <i>QW</i> ₂	15.3	X	21.15777	41.87920	288.76840	3.26981	0.0746755	0.21211427	2.7845571	21	10 10.7	18.9
112809 2002 <i>QA</i> ₃	15.1	X	275.78598	172.91977	269.16592	3.20830	0.0296196	0.21226693	2.7832218	21	10 6.7	18.8
112810 2002 <i>QB</i> ₃	14.9	X	125.15331	219.12827	184.81256	9.83095	0.0951841	0.18419300	3.0592900	21	2 22.2	19.4
112811 2002 <i>QD</i> ₃	15.4	X	249.96250	171.04577	233.10895	5.04741	0.0694932	0.20242579	2.8727124	21	7 9.4	19.5
112812 2002 <i>QG</i> ₃	15.0	X	112.67663	159.49309	287.95003	7.76775	0.0494335	0.18914176	3.0056917	21	3 23.5	19.4
112813 2002 <i>QT</i> ₃	16.4	X	22.72027	182.29758	184.62374	4.25122	0.1757047	0.26813178	2.3817921	21	12 28.7	19.2
112814 2002 <i>QC</i> ₅	14.4	X	103.36017	14.24480	305.97619	13.43388	0.0897345	0.16962359	3.2320535	21	—	—
112815 2002 <i>QF</i> ₅	14.8	X	99.04478	234.55068	197.97475	8.83289	0.0907336	0.18391220	3.0624031	21	2 24.7	19.2
112816 2002 <i>QO</i> ₅	14.9	X	324.36605	113.16106	308.84423	9.39381	0.1173251	0.21445350	2.7642711	21	11 12.3	18.2
112817 2002 <i>QI</i> ₅	15.1	X	268.04530	234.81933	11.76035	6.77554	0.0923119	0.23205301	2.6226756	21	1 7.3	19.0
112818 2002 <i>OT</i> ₅	14.5	X	150.24462	28.96400	284.10163	22.60358	0.1198743	0.22580461	2.6708378	21	—	—
112819 2002 <i>QM</i> ₇	14.5	X	164.69253	212.65681	83.68638	6.43437	0.1505046	0.17747728	3.1359867	21	—	—
112820 2002 <i>QK</i> ₇	15.4	X	58.55954	226.97717	122.00152	12.86290	0.0765167	0.22076991	2.7112910	21	12 26.9	19.2
112821 2002 <i>QX</i> ₇	16.0	X	229.64283	194.38671	70.17474	3.98836	0.1442153	0.23389177	2.6089120	21	—	—
112822 2002 <i>QO</i> ₈	13.8	X	146.45151	338.10554	5.51458	10.47963	0.1876917	0.12615751	3.9372590	21	1 28.0	20.0
112823 2002 <i>QR</i> ₈	15.6	X	260.74033	145.52815	100.92839	10.68399	0.1659900	0.23806476	2.5783348	21	—	—
112824 2002 <i>QA</i> ₉	16.1	X	189.72979	173.33879	101.37499	7.36851	0.1165195	0.28177818	2.3042582	21	—	—
112825 2002 <i>QN</i> ₉	16.5	X	150.71181	241.28065	34.65081	7.45846	0.0991264	0.27586758	2.3370550	21	—	—
112826 2002 <i>QQ</i> ₉	15.9	X	55.31436	215.20630	162.61416	2.39907	0.1687831	0.27314986	2.3525312	21	—	—
112827 2002 <i>QS</i> ₉	15.3	X	143.19178	218.13185	168.83151	1.84579	0.2741450	0.18235920	3.0797652	21	3 11.8	20.4
112828 2002 <i>QE</i> ₁₀	16.4	X	138.45364	208.52775	91.87133	8.08149	0.2953854	0.27686015	2.3141660	21	—	—
112829 2002 <i>QF</i> ₁₁	16.8	X	72.10776	17.43204	244.44210	1.67061	0.1950229	0.26529349	2.3987500	21	10 14.7	20.0
112830 2002 <i>QF</i> ₁₂	15.6	X	163.40802	98.13581	197.19452	5.01697	0.1131369	0.22878982	2.6475545	21	—	—
112831 2002 <i>QJ</i> ₁₄	15.5	X	103.96324	262.26108	205.92798	13.16960	0.1153477	0.24207522	2.5497787	21	4 16.1	18.5
112832 2002 <i>QX</i> ₁₄	16.2	X	178.28828	293.73597	299.13985	10.13293	0.2566859	0.27663982	2.3327038	21	12 11.5	20.3
112833 2002 <i>QH</i> ₁₅	15.7	X	256.98509	58.28061	176.87008	8.36609	0.1764794	0.23544625	2.5974161	21	—	—
112834 2002 <i>QQ</i> ₁₆	15.6	X	81.88150	234.29304	229.51871	3.40850	0.0577801	0.23912955	2.5706753	21	2 28.2	18.8
112835 2002 <i>QL</i> ₁₇	15.4	X	256.75983	29.93896	5.04607	15.18523	0.1468533	0.20401081	2.8578138	21	6 27.1	19.9
112836 2002 <i>QM</i> ₁₇	16.1	X	214.17862	189.31384	131.56945	2.36976	0.1402538	0.18770630	3.0209960	21	2 16.0	20.8
112837 2002 <i>QS</i> ₁₇	16.6	X	135.12016	311.90846	329.16640	2.54644	0.1881894	0.27514220	2.3411608	21	—	—
112838 2002 <i>QZ</i> ₁₇	15.2	X	118.17223	329.26998	45.76792	0.22955	0.1793350	0.17785240	3.1315756	21	1 24.8	19.8
112839 2002 <i>QJ</i> ₁₈	14.5	X	44.77555	98.53577	339.48336	14.53763	0.1061371	0.17518801	3.1632472	21	—	—
112840 2002 <i>QN</i> ₁₈	16.3	X	79.86760	276.92231	17.20236	5.00794	0.1582497	0.26865391	2.3787051	21	11 29.4	19.8
112841 2002 <i>QO</i> ₁₉	16.2	X	167.61256	320.00187	283.26382	7.49743	0.1537595	0.27389539	2.3482603	21	12 20.8	19.9
112842 2002 <i>QU</i> ₁₉	15.0	X	5.81634	266.44220	177.37755	18.68988	0.1432707	0.17053364	3.2205448	21	—	—
112843 2002 <i>QM</i> ₂₀	16.2	X	88.01352	119.86505	148.12622	1.25075	0.2167785	0.26714753	2.3786387	21	11 11.4	19.9
112844 2002 <i>QW</i> ₂₀	14.9	X	175.66468	271.98161	75.56003	0.66023	0.0431398	0.18308035	3.0716724	21	2 7.7	19.3
112845 2002 <i>QX</i> ₂₀	15.9	X	162.11501	15.18845	154.67073	4.82866	0.0298892	0.25976775	2.4326478	21	9 13.7	18.9
112846 2002 <i>QZ</i> ₂₀	16.9	X	175.04229	153.44294	158.47367	4.09319	0.1117835	0.28324338	2.2963048	21	—	—
112847 2002 <i>QA</i> ₂₁	15.5	X	185.68272	302.26709	338.29058	8.50214	0.0060961	0.22688339	2.6623649	21	—	—
112848 2002 <i>QE</i> ₂₁	16.8	X	112.48177	101.22543	184.81669	1.94546	0.2119996	0.27224980	2.3577134	21	12 24.1	20.6
112849 2002 <i>QH</i> ₂₁	15.9	X	217.42164	232.64197	193.94692	1.36105	0.2516300	0.24492886	2.5299352	21	4 30.8	20.3
112850 2002 <i>QX</i> ₂₂	15.6	X	162.26389	246.63276	344.38615	1.58881	0.0466689	0.22025144	2.7155442	21	11 25.8	19.4
112851 2002 <i>QM</i> ₂₃	16.3	X	326.73868	89.32376	128.82733	1.24584	0.0849733	0.24090334	2.5580410	21	2 9.3	19.4
112852 2002 <i>QT</i> ₂₄	15.2	X	58.46532	137.02365	312.27034	25.20148	0.2314567	0.27775068	3.3264798	21	1 8.6	16.9
112853 2002 <i>QP</i> ₂₅	15.6	X	216.51123	223.77789	180.10600	2.26211	0.1030012	0.19667829	2.9284093	21	5 29.9	20.0
112854 2002 <i>QT</i> ₂₇	15.3	X	146.03878	202.03115	135.14563	12.52900	0.0887298	0.23098633	2.6307436	21	—	—
112855 2002 <i>QJ</i> ₂₈	15.9	X	54.10029	169.98618	169.22224	5.71892	0.1276694	0.26891667	2.3771554	21	12 25.6	19.1
112856 2002 <i>QS</i> ₂₉	16.8	X	112.18067	218.58374	27.66893	3.78878	0.1048394	0.26762723	2.3847847	21	10 29.4	20.2
112857 2002 <i>QX</i> ₂₉	15.5	X	59.55464	105.99906	76.91019	3.08062	0.0485868	0.19745881	2.9206871	21	5 18.9	19.2
112858 2002 <i>QY</i> ₂₉	15.5	X	354.61650	11.77481	0.06303	4.74751	0.0788625	0.21393827	2.7687074	21	10 26.4	18.8
112859 2002 <i>QZ</i> ₂₉	15.9	X	124.57997	29.10289	23.47940	4.96797	0.1157207	0.23775524	2.5805720	21	3 2.7	19.4
112860 2002 <i>QF</i> ₃₀	15.1	X	93.59350	347.16842	136.23800	13.20379	0.0589809	0.19277810	2.9677746	21	4 24.4	19.4
112861 2002 <i>QE</i> ₃₁	16.3	X	96.09106	198.69027	34.09012	4.38187	0.1835744	0.26396776	2.4067748	21	10 2.9	19.9
112862 2002 <i>QG</i> ₃₁	15.2	X	28.00368	9.74171	358.24888	7.12667	0.0465300	0.21813831	2.7330532	21	12 5.6	18.9
112863 2002 <i>QM</i> ₃₁	15.2	X	21.23814	41.49050	133.89822	11.15472	0.0551040	0.18982182	2.9985085	21	3 19.8	19.2
112864 2002 <i>QZ</i> ₃₂	16.4	X	153.63735	300.29028	44.61422	0.71260	0.0890335	0.23155879	2.6264061	21	1 6.5	19.9
112865 2002 <i>QE</i> ₃₃	15.7	X	310.86905	308.26536	111.37561	2.55363	0.0722261	0.21185737	2.7868077	21	10 24.8	19.0
112866 2002 <i>QM</i> ₃₃	14.7	X	279.46592	230.28595	140.92551	13.71843	0.1411394	0.20144809	2.8819998	21	6 24.6	18.9
112867 2002 <i>QQ</i> ₃₄	16.4	X	145.32089	253.90279	172.23177	5.45737	0.1183361	0.23753529	2.5821648	21	3 11.7	20.1
112868 2002 <i>QT</i> ₃₄	15.3	X	234.19413	174.51342	152.26000	9.13824	0.1632327	0.18958527	3.0010022	21	3 12.4	20.1
112869 2002 <i>QH</i> ₃₅	15.7	X	356.79254	17.97481	357.08236	5.01481	0.0777581	0.21305600	2.7763456	21	11 2.5	19.0
112870 2002 <i>QC</i> ₃₆	15.5	X	191.84314	192.13002	93.28397	3.99964	0.0685373	0.22960706	2.6412685	21	—	—
112871 2002 <i>QT</i> ₃₆	14.9	X	96.32649	98.32268	0.61155	2.23113	0.1263107	0.18596336	3.0398428	21	4 1.9	19.1
112872 2002 <i>QG</i> ₃₇	15.8	X	278.30655	83.70871	0.43530	8.82246						

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
112881 2002 QV ₄₂	15.1	X	26.06670	254.91231	88.54538	8.58403	0.1447287	0.21574938	2.7531910	21	11 17.8	18.5
112882 2002 QC ₄₃	16.1	X	76.45156	276.27403	57.01747	2.99107	0.2303946	0.27330883	2.3516189	21	—	—
112883 2002 QJ ₄₃	16.0	X	99.97018	209.92277	113.10042	8.21621	0.1441935	0.27576882	2.3376130	21	—	—
112884 2002 QL ₄₃	15.3	X	0.12276	296.08176	97.78895	10.29681	0.0977694	0.21811189	2.7332739	21	12 7.9	18.6
112885 2002 QP ₄₃	16.3	X	91.28570	257.80635	83.79587	3.35056	0.2316594	0.27603922	2.3360862	21	—	—
112886 2002 QU ₄₃	14.3	X	31.94049	283.81818	127.43781	17.57807	0.1009036	0.17249818	3.1960461	21	—	—
112887 2002 QQ ₄₄	15.0	X	176.17109	60.80332	357.11120	10.15467	0.0888575	0.19145444	2.9814378	21	5 1.9	19.7
112888 2002 QR ₄₄	14.9	X	292.76772	312.38282	31.17605	2.41980	0.1102546	0.19905487	2.9050538	21	6 9.5	18.7
112889 2002 QV ₄₅	16.1	X	307.95292	76.93678	194.45261	2.07473	0.1070713	0.24579180	2.5240103	21	3 21.7	19.3
112890 2002 QO ₄₆	14.8	X	145.62620	287.70428	104.50813	12.16400	0.1209695	0.18648794	3.0341395	21	3 11.6	19.6
112891 2002 QG ₄₇	16.9	X	23.69787	248.84024	57.99311	6.22002	0.2775006	0.31421338	2.1428228	21	11 3.7	18.7
112892 2002 QS ₄₇	15.3	X	43.75081	270.68171	237.56397	13.01643	0.0711959	0.23601872	2.5932144	21	2 28.1	18.7
112893 2002 QF ₄₈	16.1	X	151.20563	5.96685	132.20435	1.30281	0.1180213	0.23066799	2.6331635	21	—	—
112894 2002 QM ₄₈	16.4	X	223.15816	173.53833	310.90146	1.87163	0.1759028	0.23940109	2.5687310	21	1 28.3	20.5
112895 2002 QQ ₄₈	15.6	X	293.28571	300.65335	79.48517	3.05732	0.0956008	0.20665235	2.8334082	21	8 2.1	19.3
112896 2002 QS ₄₈	16.6	X	5.85371	164.94198	8.58518	3.38724	0.0465348	0.24124905	2.5555966	21	2 11.9	19.7
112897 2002 QD ₄₉	15.1	X	32.02320	316.75935	158.53523	14.72288	0.1024594	0.18000667	3.1065403	21	1 16.4	19.1
112898 2002 QX ₄₉	15.9	X	300.55670	178.97697	5.48605	7.65123	0.0818180	0.23029936	2.6359727	21	—	—
112899 2002 QJ ₅₀	16.6	X	323.16127	7.49670	206.02154	3.91475	0.0990804	0.23991854	2.5650363	21	1 26.1	19.8
112900 2002 Tonyhoffman	16.3	X	45.47205	315.27459	148.88034	2.56141	0.0981407	0.22870989	2.6481713	21	—	—
112901 2002 QK ₅₁	16.5	X	320.38795	139.82082	223.21679	5.00974	0.0532755	0.25903629	2.4372251	21	8 25.4	19.3
112902 2002 QO ₅₂	15.4	X	82.03184	101.06378	12.59518	5.16445	0.1602648	0.18733855	3.0249482	21	4 6.5	19.2
112903 2002 QB ₅₃	16.1	X	303.21221	236.18299	127.46942	3.07761	0.0853113	0.20436785	2.8544843	21	7 25.8	19.5
112904 2002 QS ₅₃	16.5	X	184.79797	352.70898	129.62730	4.60604	0.0651348	0.25643673	2.4536686	21	8 6.5	19.8
112905 2002 QD ₅₄	16.8	X	112.68535	111.52731	139.63565	6.94020	0.1005161	0.26837743	2.3803385	21	11 18.6	20.3
112906 2002 QP ₅₄	16.4	X	96.58494	196.03287	21.52802	2.41917	0.1265568	0.25997959	2.4313261	21	9 6.4	19.6
112907 2002 QR ₅₄	16.2	X	226.17970	13.08355	338.06064	1.27805	0.1362789	0.19214527	2.9742873	21	4 2.5	21.0
112908 2002 QX ₅₄	16.1	X	169.35537	281.20996	24.67279	3.07336	0.0657607	0.22988969	2.6391033	21	—	—
112909 2002 QL ₅₆	16.3	X	179.82430	294.46408	75.83018	2.91274	0.1648417	0.23890617	2.5722774	21	3 11.9	20.4
112910 2002 QJ ₅₆	15.5	X	318.73457	37.31636	133.27517	8.62249	0.0476262	0.23150988	2.6267759	21	—	—
112911 2002 QB ₅₇	15.7	X	164.26316	221.94956	204.52669	1.69171	0.0454700	0.19387670	2.9565528	21	5 1.1	20.0
112912 2002 QF ₅₈	16.0	X	73.78076	68.45418	0.34550	1.89816	0.0591902	0.23210917	2.6222526	21	1 5.0	19.3
112913 2002 QP ₅₈	16.1	X	311.70311	216.39916	1.87867	5.40600	0.0582276	0.23791499	2.5794167	21	1 26.7	19.5
112914 2002 QA ₅₉	15.1	X	35.06898	203.40082	294.94845	4.52165	0.0510144	0.18548473	3.0450700	21	2 16.5	19.0
112915 2002 QC ₆₀	15.5	X	205.70635	273.61143	293.31600	10.22196	0.1436825	0.22309327	2.6924340	21	12 5.9	19.6
112916 2002 QM ₆₀	15.7	X	312.80441	127.68847	268.01385	2.74017	0.1027065	0.20970617	2.8058336	21	9 19.6	19.1
112917 2002 QD ₆₁	15.6	X	253.69565	180.19719	153.09675	2.39965	0.0330631	0.19384938	2.9568306	21	4 19.9	19.7
112918 2002 QD ₆₂	15.6	X	113.25738	33.18082	181.54829	2.33144	0.0501909	0.20869231	2.8149137	21	9 8.6	19.6
112919 2002 QQ ₆₂	16.3	X	281.99091	262.14067	321.77485	6.71201	0.1648949	0.23694701	2.5864369	21	—	—
112920 2002 QR ₆₂	17.1	X	216.76324	65.94654	159.58428	6.09198	0.0615610	0.27844406	2.3226160	21	—	—
112921 2002 QK ₆₃	16.4	X	199.45406	52.74266	184.89995	2.54711	0.1210384	0.27877687	2.3207671	21	—	—
112922 2002 QN ₆₃	15.9	X	267.62689	256.91646	99.80810	3.35572	0.0920230	0.19911906	2.9044294	21	5 28.5	19.9
112923 2002 QA ₆₅	15.2	X	26.21193	185.02288	322.59464	14.52615	0.0884276	0.18634556	3.0356848	21	2 16.1	18.8
112924 2002 QD ₆₅	16.0	X	302.38801	56.95415	90.52217	9.12003	0.0351569	0.22772815	2.6557768	21	—	—
112925 2002 QK ₆₅	15.8	X	50.07173	221.91518	142.76091	3.97857	0.0874599	0.22062541	2.7124747	21	—	—
112926 2002 QJ ₆₆	16.4	X	146.93219	246.91725	5.53445	1.81578	0.0280849	0.21995436	2.7179888	21	12 5.0	20.1
112927 2002 QU ₆₆	16.9	X	181.54036	143.73394	82.93549	3.24873	0.1713323	0.27580793	2.3373920	21	12 12.5	20.2
112928 2002 QZ ₆₆	15.2	X	300.19439	196.28751	347.72970	11.84884	0.1049627	0.23260807	2.6185017	21	—	—
112929 2002 QN ₆₇	15.5	X	44.23218	258.30372	297.08398	0.73908	0.1538344	0.19800015	2.9153612	21	5 24.8	18.9
112930 2002 QW ₆₇	15.8	X	197.44826	249.17653	303.42942	7.25201	0.1935116	0.21972485	2.7198812	21	11 4.1	20.3
112931 2002 QW ₆₈	15.9	X	39.30807	295.85788	120.14360	2.07273	0.0712409	0.17356663	3.1829164	21	—	—
112932 2002 RQ ₂	15.1	X	126.69543	304.19159	35.19002	0.87854	0.1383219	0.17401504	3.1774461	21	—	—
112933 2002 RT ₂	15.0	X	169.78726	236.49072	164.55057	9.81343	0.0663554	0.18849030	3.0126132	21	4 9.4	19.5
112934 2002 RG ₃	14.7	X	219.06807	206.40272	74.28763	2.71544	0.1027264	0.17998302	3.1068124	21	1 6.8	19.4
112935 2002 RH ₃	15.9	X	18.82089	325.13572	52.47035	3.02552	0.2332352	0.26710951	2.3878652	21	—	—
112936 2002 RO ₃	15.8	X	310.65543	62.70657	192.20567	15.09542	0.1058941	0.24583088	2.5237428	21	2 28.9	19.2
112937 2002 RU ₃	16.3	X	235.01544	0.75777	162.32507	8.42493	0.0167768	0.27043744	2.3682353	21	12 12.4	19.4
112938 2002 RK ₄	16.1	X	262.57681	39.97068	209.45894	12.81782	0.1205018	0.23674582	2.5879020	21	—	—
112939 2002 RP ₄	15.3	X	34.51345	301.95587	254.33565	13.48526	0.0527159	0.24554855	2.5256769	21	4 22.4	18.5
112940 2002 RK ₅	15.3	X	265.63767	50.81034	232.30994	12.15729	0.1276299	0.23918095	2.5703069	21	2 8.3	19.4
112941 2002 RD ₆	15.1	X	165.14698	196.42326	170.79422	9.09711	0.1318340	0.18460217	3.0547677	21	2 24.7	20.0
112942 2002 RN ₆	15.3	X	132.93034	29.52466	339.49458	6.61728	0.1968025	0.17949032	3.1124952	21	2 4.8	20.2
112943 2002 RU ₆	16.6	X	73.44100	111.64432	190.68144	2.85125	0.1330736	0.26810383	2.3819577	21	12 1.5	20.0
112944 2002 RV ₆	14.9	X	179.88616	97.64594	304.57046	2.86533	0.1199260	0.19085039	2.9877254	21	4 19.6	19.6
112945 2002 RA ₇	16.5	X	100.42314	197.66601	154.30537	6.91223	0.1132744	0.27859614	2.3217707	21	—	—
112946 2002 RZ ₇	15.4	X	289.77226	235.07824	346.92807	11.42900	0.0916539	0.23529401	2.5985364	21	—	—
112947 2002 RQ ₈	16.3	X	174.28985	280.16090	99.32127	3.74905	0.1984577	0.28759644	2.2730747	21	3 15.4	19.9
112948 2002 RX ₈	16.2	X	238.46892	257.02282	146.69694	7.11243	0.1412669	0.25185141	2.4833606	21	6 17.7	19.9
112949 2002 RG ₉	16.4	X	222.36715	15.38355	318.32533	1.90666	0.1138075	0.24124531	2.5556231	21	3 4.2	20.3
112950 2002 RK ₉	14.9	X	198.93165	274.51755	23.07937	2.72076	0.0609284	0.18080725	3.0973634	21	1 6.3	19.5
112951 2002 RZ ₉	15.9	X	219.55809	147.34287	165.24667	10.27526	0.0937475	0.23813873	2.5778008	21	2 3.2	19.9
112952 2002 RJ ₁₀	16.2	X	220.02684	202.68334	147.98831	3.47759	0.1018150	0.24291580	2.5438932	21	3 24.7	20.0
112953 2002 RF ₁₁	15.2	X	100.42536	132.72119	150.22259	7.16388	0.1794389	0.21842464	2.7306642	21	12 2.5	19.6
112954 2002 RM ₁₂	14.6	X	163.60638	177.50588	181.75247	2.30789	0.1533442	0.18149341	3.0			

ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
112961 2002 RE ₁₄	16.1	X	69.39060	138.28789	154.43459	1.96756	0.2203203	0.21401933	2.7680082	21	11 17.4	20.2
112962 2002 RV ₁₄	16.2	X	42.43665	358.42923	331.50005	1.58302	0.2033584	0.26604984	2.3942016	21	12 9.4	19.3
112963 2002 RV ₁₅	17.2	X	198.19665	97.95711	212.52687	1.77958	0.1718090	0.28667914	2.2779210	21	1 6.5	20.5
112964 2002 RW ₁₅	16.6	X	226.55302	123.39436	183.41564	3.75277	0.1746975	0.29045392	2.2581419	21	1 26.2	20.1
112965 2002 RU ₁₆	16.4	X	140.55933	125.01476	178.46301	2.91347	0.1630826	0.27754401	2.3276346	21	—	—
112966 2002 RA ₁₉	15.3	X	230.83774	184.69146	133.12371	4.70397	0.0927451	0.18620171	3.0372481	21	3 2.5	19.9
112967 2002 RF ₁₉	15.5	X	60.63821	297.91087	66.65245	2.50625	0.1587844	0.21927901	2.7235667	21	—	—
112968 2002 RH ₁₉	15.1	X	164.96678	26.43340	82.50914	3.08443	0.0589829	0.19649522	2.9302279	21	6 25.5	19.2
112969 2002 RL ₁₉	15.2	X	304.48215	196.19404	160.62901	12.65441	0.0751790	0.20141159	2.8823479	21	7 18.5	19.1
112970 2002 RN ₁₉	14.5	X	290.39413	335.84636	10.15414	13.20457	0.1106712	0.19847155	2.9107431	21	6 7.3	18.7
112971 2002 RA ₂₀	14.0	X	42.70393	74.05908	13.39348	17.85597	0.1619473	0.17411654	3.1762112	21	1 5.9	18.0
112972 2002 RJ ₂₀	15.3	X	243.49653	317.94911	74.00888	3.13024	0.1236343	0.19740988	2.9211697	21	6 10.4	19.7
112973 2002 RK ₂₀	16.5	X	111.79130	245.83962	80.43297	3.14077	0.1417775	0.27541059	2.3396396	21	—	—
112974 2002 RP ₂₀	15.3	X	180.17842	20.29431	11.10915	10.47568	0.1656909	0.18794269	3.0184623	21	4 8.7	20.2
112975 2002 RX ₂₀	14.5	X	151.67574	14.45603	5.50236	9.57791	0.0906391	0.18298935	3.0726906	21	2 26.7	19.1
112976 2002 RF ₂₂	15.1	X	273.50196	24.22174	6.79634	6.93985	0.1215154	0.20183438	2.8783214	21	7 16.9	19.1
112977 2002 RJ ₂₃	16.8	X	110.23865	139.44181	168.09054	5.13735	0.2393799	0.27452720	2.3446560	21	—	—
112978 2002 RY ₂₃	17.1	X	171.70077	109.01505	224.04019	0.81746	0.2114428	0.28566009	2.2833352	21	1 13.2	20.6
112979 2002 RK ₂₄	15.8	X	141.99389	357.68940	323.16964	3.39444	0.0998983	0.22712245	2.6604964	21	—	—
112980 2002 RT ₂₄	15.1	X	61.38546	72.23792	317.32833	1.58685	0.2082311	0.21774857	2.7363134	21	—	—
112981 2002 RK ₂₅	14.6	X	234.74174	292.66492	34.05123	12.48001	0.1760626	0.23628052	2.5912985	21	3 11.8	18.9
112982 2002 RA ₂₇	15.7	X	174.28816	110.01518	159.63050	22.22750	0.1947276	0.27870751	2.3211521	21	—	—
112983 2002 RV ₂₇	15.4	X	65.29035	123.30704	161.08875	20.74743	0.1637687	0.21104972	2.7939129	21	10 30.3	19.7
112984 2002 RF ₂₈	14.5	X	82.29801	290.66901	68.20367	6.83283	0.1167260	0.21755605	2.7379275	21	—	—
112985 2002 RS ₂₈	15.7	X	274.09854	105.32791	211.96140	46.98378	0.4926667	0.29791676	2.2202715	21	2 23.2	21.0
112986 2002 RJ ₂₉	16.7	X	169.97102	52.97395	254.68997	2.01845	0.1660367	0.28254139	2.3001068	21	—	—
112987 2002 RK ₃₁	16.4	X	51.80701	51.70005	242.24272	3.69390	0.1914941	0.26375966	2.4084006	21	11 1.1	19.5
112988 2002 RO ₃₁	15.1	X	314.33766	151.91866	294.13823	3.94826	0.0849425	0.21552113	2.7551345	21	12 2.2	18.3
112989 2002 RB ₃₂	15.7	X	68.70320	220.45107	228.74919	4.05670	0.0715679	0.23249488	2.6193516	21	1 23.9	19.0
112990 2002 RN ₃₂	14.5	X	356.12383	147.98103	314.26494	4.40072	0.1240188	0.17092871	3.2155805	21	—	—
112991 2002 RG ₃₃	15.0	X	315.07921	190.64750	176.99499	15.34156	0.1593067	0.20484032	2.8500933	21	8 6.7	18.5
112992 2002 RX ₃₃	14.8	X	156.11693	339.94793	325.55311	8.11192	0.0587784	0.17406443	3.1768450	21	—	—
112993 2002 RY ₃₃	15.8	X	185.04840	336.01356	301.06293	2.61424	0.0746326	0.22723774	2.6597057	21	—	—
112994 2002 RP ₃₄	14.8	X	140.01181	175.73341	158.51762	18.11994	0.1271720	0.17502116	3.1652572	21	—	—
112995 2002 RD ₃₅	15.3	X	270.78211	250.04407	333.88278	14.35227	0.0340964	0.23143090	2.6273736	21	—	—
112996 2002 RF ₃₇	16.2	X	130.11812	289.70964	325.06839	5.86559	0.0849348	0.26923323	2.3752917	21	11 26.9	19.7
112997 2002 RK ₃₇	15.5	X	127.03794	295.11914	47.27642	1.34700	0.1654342	0.17619815	3.1511457	21	—	—
112998 2002 RN ₃₇	15.9	X	185.48257	105.77771	189.79482	6.21859	0.1224534	0.28333249	2.2958233	21	—	—
112999 2002 RG ₃₈	15.1	X	145.04931	297.39477	311.06610	7.53587	0.1196743	0.21937859	2.7227424	21	11 27.3	19.5
113000 2002 RL ₃₈	16.1	X	79.14515	59.64313	200.00998	4.53605	0.2453181	0.26545132	2.3977991	21	10 26.1	19.6
113001 2002 RT ₃₈	15.7	X	121.79782	314.29029	43.08468	2.71068	0.0773314	0.22979559	2.6398237	21	—	—
113002 2002 RW ₃₈	15.1	X	224.23865	241.66701	313.53472	10.73016	0.1008852	0.22231480	2.6987156	21	12 17.3	19.0
113003 2002 RY ₃₈	15.8	X	1.46659	24.67114	290.84769	4.25323	0.1143077	0.25904873	2.4371471	21	8 26.7	18.1
113004 2002 RD ₃₉	16.9	X	12.73895	105.35987	229.59926	1.79170	0.2065948	0.26327593	2.4109893	21	11 1.3	19.2
113005 2002 RF ₃₉	15.7	X	352.62907	190.31858	186.82941	4.37403	0.0450484	0.21373071	2.7704997	21	10 30.8	19.3
113006 2002 RG ₃₉	15.1	X	111.72124	315.42595	315.42403	7.65276	0.1076705	0.21754094	2.7380543	21	11 20.4	19.4
113007 2002 RJ ₃₉	14.6	X	80.88466	146.45162	354.11738	10.71656	0.0429017	0.19261944	2.9694041	21	4 18.2	18.7
113008 2002 RQ ₃₉	15.7	X	52.37580	188.06968	110.87893	3.43495	0.2000710	0.21343885	2.7730247	21	11 3.9	19.4
113009 2002 RY ₃₉	16.5	X	143.29336	168.51703	127.36261	3.27560	0.1448081	0.27775548	2.3264530	21	—	—
113010 2002 RZ ₃₉	16.7	X	40.21372	318.94013	11.80168	2.91978	0.1644381	0.26677487	2.3898617	21	12 1.6	19.8
113011 2002 RL ₄₀	15.1	X	219.75591	226.78843	96.90675	3.42846	0.0665418	0.18702134	3.0283677	21	2 27.5	19.6
113012 2002 RP ₄₀	14.6	X	135.85471	160.56588	132.12163	6.71727	0.0818553	0.17072028	3.2181971	21	—	—
113013 2002 RS ₄₀	14.8	X	128.54477	285.25393	105.22855	3.20262	0.1810947	0.18156146	3.0887797	21	2 23.4	19.5
113014 2002 RG ₄₁	15.4	X	14.30507	181.41145	136.36973	6.45029	0.0575214	0.20828410	2.8185904	21	9 14.8	18.9
113015 2002 RN ₄₁	15.7	X	110.82038	228.90586	124.52712	6.56999	0.0318578	0.22726226	2.6594052	21	—	—
113016 2002 RO ₄₁	15.8	X	93.67498	336.19806	43.53502	4.25024	0.1224589	0.22747832	2.6577210	21	—	—
113017 2002 RK ₄₂	16.6	X	102.92343	251.89310	61.92930	3.01626	0.0616875	0.27298712	2.3534661	21	—	—
113018 2002 RQ ₄₂	15.2	X	196.13329	317.36837	84.54611	2.13847	0.1554352	0.19244950	2.9711519	21	5 6.4	19.9
113019 2002 RW ₄₂	16.2	X	57.02288	167.42712	116.99580	3.58921	0.1849499	0.26381212	2.4077213	21	10 27.4	19.3
113020 2002 RJ ₄₃	16.4	X	54.20064	206.27677	118.49535	3.18426	0.2284553	0.26797440	2.3827246	21	12 20.1	19.8
113021 2002 RO ₄₃	15.0	X	197.03312	344.21597	120.63839	3.15921	0.0178333	0.20266089	2.8704903	21	7 29.3	18.9
113022 2002 RB ₄₄	15.7	X	300.76914	155.64704	127.78752	4.64245	0.0892939	0.24545843	2.5262951	21	4 2.5	19.0
113023 2002 RU ₄₄	16.3	X	265.29069	274.56841	12.73847	5.09014	0.1764321	0.24180109	2.5517055	21	2 15.3	20.2
113024 2002 RW ₄₄	14.5	X	90.53015	12.26517	0.87319	10.16625	0.0627626	0.17368700	3.1814456	21	—	—
113025 2002 RK ₄₅	15.1	X	337.77649	198.42263	138.85847	6.85725	0.0704516	0.20481785	2.8503018	21	8 14.1	18.4
113026 2002 RR ₄₅	15.3	X	43.89262	203.03512	55.93453	2.84496	0.0185086	0.20300429	2.8672523	21	8 3.7	19.2
113027 2002 RH ₄₆	16.6	X	74.14120	237.24229	82.97460	3.18860	0.2211489	0.27025796	2.3692836	21	—	—
113028 2002 RL ₄₆	15.8	X	66.66231	274.54403	9.94095	6.93635	0.2762960	0.26607412	2.3940559	21	11 15.3	19.4
113029 2002 RZ ₄₆	16.5	X	2.03251	134.30831	129.45490	4.58874	0.1662124	0.30486958	2.1863851	21	6 4.9	18.0
113030 2002 RF ₄₇	16.3	X	257.45681	74.85867	188.67601	4.31768	0.1710444	0.23791699	2.5794023	21	1 9.1	20.4
113031 2002 RL ₄₇	16.5	X	286.62817	294.30094	82.39868	3.18866	0.2006402	0.25400236	2.4693210	21	7 1.2	19.5
113032 2002 RH ₄₈	16.0	X	202.56974	138.34452	145.63826	5.77927	0.1609266	0.28386536	2.2929493	21	—	—
113033 2002 RL ₄₈	15.8	X	229.20455	210.83826	77.88617	3.93187	0.0926191	0.23509886	2.5999741	21	1 17.3	19.6
113034 2002 RM ₄₈	16.4	X	83.10577	237.75313	80.91392	3.35405	0.2006719	0.27096620	2.3651533	21	—	

ELEMENTS AND OPPOSITION DATES IN 2021

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>		
113041	2002	RS ₄₉	15.6	X	79.75769	325.30032	36.40927	6.30127	0.0351365	0.22218136	2.6997961	21	—	—
113042	2002	RO ₅₀	15.8	X	57.29613	218.21579	113.40082	3.49678	0.1789167	0.26782494	2.3836109	21	12 25.9	19.0
113043	2002	RR ₅₀	16.1	X	50.75788	264.45820	67.74200	2.24335	0.2029401	0.26706163	2.3881506	21	12 22.3	19.2
113044	2002	RJ ₅₁	15.2	X	203.21342	225.19294	106.27650	2.31050	0.1796459	0.18379757	3.0636763	21	2 19.6	20.3
113045	2002	RM ₅₁	16.1	X	56.43859	178.18907	135.49002	3.06821	0.1682848	0.26543657	2.3978879	21	11 30.9	19.4
113046	2002	RR ₅₁	15.9	X	186.67980	309.80731	31.43896	4.50991	0.2047969	0.23491371	2.6013401	21	2 13.5	20.3
113047	2002	RW ₅₁	14.1	X	34.62890	70.09142	25.20887	11.89269	0.1756044	0.17323198	3.1870143	21	—	—
113048	2002	RY ₅₁	15.5	X	198.59247	238.41338	60.64823	5.45145	0.1260168	0.23129136	2.6284301	21	—	—
113049	2002	RE ₅₂	15.0	X	278.49787	240.04012	123.70760	2.93126	0.0956598	0.19802991	2.9150691	21	6 19.7	19.0
113050	2002	RR ₅₂	16.6	X	110.38246	183.05358	122.33208	3.69802	0.2300158	0.27285291	2.3542378	21	—	—
113051	2002	RQ ₅₃	15.7	X	90.29359	144.91776	132.81793	5.82291	0.1315558	0.21458471	2.7631441	21	11 12.4	19.9
113052	2002	RU ₅₃	15.7	X	36.07048	251.14687	58.97646	3.64982	0.0569717	0.20958024	2.8069574	21	10 5.8	19.3
113053	2002	RW ₅₃	16.8	X	279.16113	252.44710	133.23188	6.45841	0.1343477	0.25423861	2.4677910	21	7 13.9	20.0
113054	2002	RO ₅₄	14.9	X	127.25278	31.73044	21.17964	9.34203	0.1568550	0.18157610	3.0886137	21	3 19.2	19.5
113055	2002	RQ ₅₄	15.5	X	83.87706	332.05188	145.31889	10.05513	0.0559678	0.24005452	2.5640675	21	3 25.6	18.8
113056	2002	RL ₅₅	15.8	X	59.51834	169.16298	226.67146	5.53974	0.1106499	0.22285254	2.6943726	21	—	—
113057	2002	RM ₅₅	16.6	X	312.27395	160.71899	208.00323	7.19520	0.2278002	0.25628703	2.4546240	21	7 26.2	19.0
113058	2002	RY ₅₅	15.0	X	124.37011	141.34199	197.28096	11.38260	0.2022658	0.22581292	2.6707723	21	—	—
113059	2002	RF ₅₆	15.0	X	98.89746	205.65907	226.04690	4.61106	0.1520071	0.18011755	3.1052652	21	3 5.2	19.4
113060	2002	RE ₅₇	14.2	X	208.85420	10.54829	248.87368	4.16207	0.1284087	0.17530889	3.1617929	21	—	—
113061	2002	RA ₅₈	14.7	X	275.45637	315.83169	323.97153	9.32567	0.0671851	0.18729066	3.0254639	21	3 4.1	19.1
113062	2002	RW ₅₈	15.0	X	259.23190	60.90879	210.02398	8.84709	0.0563430	0.18385762	3.0630092	21	2 4.1	19.7
113063	2002	RF ₅₉	15.6	X	10.71734	78.58291	308.52016	6.00762	0.0371078	0.21578207	2.7529129	21	12 5.8	19.2
113064	2002	RU ₅₉	15.6	X	220.67353	308.95915	24.04684	9.28557	0.1742875	0.23870218	2.5737427	21	3 4.9	19.9
113065	2002	RB ₆₀	15.1	X	57.62745	84.91795	286.60605	5.21462	0.0309094	0.22075077	2.7114477	21	—	—
113066	2002	RK ₆₀	16.3	X	5.33110	222.06938	81.39409	3.08194	0.2152843	0.25685575	2.4509993	21	8 27.9	18.0
113067	2002	RN ₆₀	14.5	X	341.32871	283.04744	79.43399	3.07573	0.0860818	0.20634892	2.8361852	21	9 24.8	17.8
113068	2002	RS ₆₀	16.8	X	147.31397	70.87774	200.22724	8.29570	0.2151086	0.27529859	2.3402741	21	—	—
113069	2002	RM ₆₁	15.3	X	119.54105	278.98783	34.22691	8.65242	0.0275910	0.22211192	2.7003588	21	—	—
113070	2002	RN ₆₁	14.9	X	349.94598	354.96179	26.54447	13.78731	0.0598334	0.20988331	2.8042546	21	10 30.2	18.5
113071	2002	RK ₆₂	16.5	X	133.61474	167.75237	144.80315	4.82854	0.3004843	0.27646456	2.3336895	21	—	—
113072	2002	RM ₆₂	15.2	X	235.64254	159.45389	176.59628	15.64880	0.1709654	0.23953508	2.5677730	21	3 18.3	19.1
113073	2002	RO ₆₂	14.9	X	179.43040	302.25423	34.24967	15.02347	0.1037042	0.23057863	2.6338438	21	1 30.9	19.2
113074	2002	RP ₆₂	15.9	X	97.95589	178.81733	139.35700	5.24176	0.2691442	0.27140029	2.3626307	21	—	—
113075	2002	RB ₆₃	14.8	X	282.65593	298.74277	112.58035	3.12465	0.2119288	0.20039108	2.8921254	21	8 9.9	18.6
113076	2002	RN ₆₃	16.3	X	192.72241	263.64117	90.82884	4.14922	0.1761558	0.28720003	2.2751659	21	2 27.5	19.8
113077	2002	RR ₆₃	14.9	X	186.41007	321.98588	27.02664	10.42594	0.1003356	0.18175292	3.0866102	21	2 27.7	19.8
113078	2002	RU ₆₃	15.9	X	157.24784	219.01977	168.72976	7.82808	0.1988907	0.23476468	2.6024409	21	3 14.1	20.1
113079	2002	RD ₆₄	16.1	X	230.26160	226.03695	142.94163	5.62548	0.2243307	0.24294030	2.5437222	21	4 22.3	20.4
113080	2002	RP ₆₄	15.3	X	9.60112	228.56480	182.78030	13.39269	0.1930233	0.21299481	2.7768774	21	—	—
113081	2002	RU ₆₄	15.0	X	161.54033	323.91638	45.57648	12.38152	0.1973927	0.23129017	2.6284392	21	3 2.2	19.4
113082	2002	RW ₆₄	15.8	X	76.28681	233.11556	91.85008	4.57435	0.2034865	0.26671330	2.3902295	21	—	—
113083	2002	RC ₆₅	14.8	X	10.63623	206.02685	176.89960	9.90951	0.2096891	0.20997286	2.8034573	21	12 21.9	18.2
113084	2002	RG ₆₅	15.2	X	123.41170	273.70389	120.12287	6.69224	0.1905769	0.22732579	2.6589096	21	2 16.6	18.9
113085	2002	RA ₆₆	14.4	X	155.49516	14.11821	358.05592	9.05532	0.1034426	0.18219611	3.0816028	21	2 22.2	19.1
113086	2002	RQ ₆₇	14.5	X	82.09007	230.57120	249.21536	8.69522	0.0170069	0.18583218	3.0412732	21	3 21.5	18.9
113087	2002	RE ₆₉	16.5	X	196.06031	116.77500	168.34201	3.58735	0.1774917	0.23136385	2.6278811	21	—	—
113088	2002	RA ₇₀	15.4	X	204.10832	110.28546	289.02183	1.62249	0.1062319	0.19373208	2.9580240	21	5 10.5	20.0
113089	2002	RR ₇₀	16.0	X	289.24941	6.36144	232.90592	8.11781	0.1198236	0.23850693	2.5751472	21	1 14.3	19.9
113090	2002	RK ₇₁	14.8	X	108.68057	164.32707	250.32789	8.71013	0.0632629	0.18166572	3.0875978	21	2 10.0	19.3
113091	2002	RO ₇₁	16.0	X	7.25331	273.17685	122.61081	2.85613	0.0864162	0.21715896	2.7412641	21	12 18.7	19.4
113092	2002	RT ₇₁	14.2	X	317.45167	137.08836	329.30765	9.34285	0.0494266	0.16858672	3.2452922	21	12 23.8	18.6
113093	2002	RM ₇₂	16.2	X	30.68776	302.84403	342.74066	4.47795	0.1093451	0.25933863	2.4353305	21	9 5.0	18.6
113094	2002	RT ₇₂	15.8	X	31.97616	38.73911	319.88473	2.93517	0.1123680	0.21603797	2.7507386	21	12 8.8	19.4
113095	2002	RU ₇₂	15.9	X	242.59307	71.36908	171.69176	7.63010	0.1235672	0.23222086	2.6214117	21	—	—
113096	2002	RO ₇₃	14.6	X	95.79736	135.27157	332.45053	9.35889	0.0637199	0.18822578	3.0154351	21	3 30.4	18.8
113097	2002	RK ₇₄	17.0	X	44.68805	298.32499	58.17953	0.94958	0.2397968	0.26949437	2.3737570	21	—	—
113098	2002	RV ₇₄	15.7	X	191.17350	175.35224	135.72680	1.24872	0.1790951	0.18099268	3.0952475	21	1 17.5	20.7
113099	2002	RX ₇₅	15.0	X	253.40846	107.78351	243.15136	1.05892	0.1274473	0.19487804	2.9464163	21	4 30.1	19.4
113100	2002	RC ₇₆	15.1	X	160.83873	273.91921	347.06167	14.21379	0.0872284	0.22209071	2.7005307	21	12 31.9	19.5
113101	2002	RO ₇₆	14.9	X	190.78115	201.43657	135.29877	2.69558	0.0255258	0.18351321	3.0668403	21	2 10.7	19.3
113102	2002	RR ₇₆	16.0	X	68.55480	18.17109	9.16765	2.44332	0.1481276	0.22379043	2.6868394	21	—	—
113103	2002	RS ₇₆	16.6	X	45.52568	349.12305	334.54255	0.63745	0.2032227	0.26635847	2.3923518	21	12 5.1	19.6
113104	2002	RT ₇₆	15.5	X	223.14897	251.62448	348.45754	11.15096	0.1501679	0.22875773	2.6478021	21	—	—
113105	2002	RV ₇₆	16.9	X	39.53050	154.40502	159.78078	2.41321	0.1819075	0.26430993	2.4046972	21	11 12.1	19.7
113106	2002	RD ₇₇	15.4	X	158.28380	328.27927	338.62444	8.79800	0.1675417	0.22819821	2.6521285	21	—	—
113107	2002	RM ₇₇	15.7	X	53.69683	167.92408	214.75968	2.42773	0.1857709	0.22065616	2.7122227	21	—	—
113108	2002	RS ₇₇	15.4	X	65.50325	268.56066	349.47985	4.50017	0.0558907	0.20649819	2.8348183	21	9 5.7	19.1
113109	2002	RB ₇₈	15.2	X	232.71671	349.64020	30.05553	1.42658	0.1117202	0.19492963	2.9458964	21	5 15.4	19.8
113110	2002	RH ₇₈	16.4	X	314.72407	207.26836	181.98794	2.36000	0.0982435	0.25913013	2.4366367	21	9 10.7	

ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 TT

Table with 13 columns: Planet, H, G, M, ω, Ω, i, e, μ, a, TE, Oppos., V. It lists 136 numbered objects with their orbital parameters and opposition data for 2021.

ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
113681 2002 TL ₁₁₀	16.3	X	9.75955	192.06960	116.44217	8.61385	0.3265180	0.31182139	2.1537673	21	10 24.1	17.9
113682 2002 TQ ₁₁₀	14.4	X	103.26479	293.43251	107.95626	11.64480	0.0658320	0.17624757	3.1505566	21	1 24.1	18.8
113683 2002 TB ₁₁₁	14.6	X	115.85898	177.75417	246.25526	8.55705	0.1000445	0.18066658	3.0989709	21	3 6.7	19.3
113684 2002 TG ₁₁₁	14.6	X	62.66354	100.59047	355.93656	14.23641	0.0418411	0.17739298	3.1369801	21	2 9.0	19.0
113685 2002 TQ ₁₁₁	15.1	X	234.63421	279.55610	138.43244	2.86148	0.0765763	0.20132445	2.8831797	21	7 8.6	19.2
113686 2002 TL ₁₁₂	15.2	X	310.79440	30.60747	168.00838	13.09563	0.0741856	0.23228358	2.6209397	21	—	—
113687 2002 TZ ₁₁₃	14.3	X	211.10052	86.76284	324.58286	11.42023	0.1167242	0.19336215	2.9617956	21	5 30.9	19.1
113688 2002 TW ₁₁₄	15.3	X	278.73681	357.17995	268.46035	8.97537	0.1043545	0.23679897	2.5875148	21	2 5.2	19.1
113689 2002 TP ₁₁₅	14.7	X	222.57090	337.74961	325.30600	12.04379	0.0226484	0.17994910	3.1072027	21	2 7.9	19.1
113690 2002 TK ₁₁₆	15.3	X	117.40728	117.39005	265.90601	7.40198	0.0714056	0.22832584	2.6511401	21	1 8.0	18.7
113691 2002 TG ₁₂₀	15.4	X	146.85374	130.63050	228.87092	12.89902	0.1500859	0.22940634	2.6428090	21	1 20.5	19.5
113692 2002 TH ₁₂₀	15.7	X	160.24268	334.22074	331.19387	6.98811	0.2718016	0.27937807	2.3174365	21	—	—
113693 2002 TS ₁₂₀	15.1	X	23.75453	173.51235	228.69604	11.61986	0.1442952	0.21603521	2.7507621	21	—	—
113694 2002 TB ₁₂₁	15.4	X	66.50461	351.46657	318.39458	6.22056	0.0221729	0.20962885	2.8065235	21	11 5.2	19.3
113695 2002 TF ₁₂₁	16.5	X	327.09504	86.83173	304.00204	4.74372	0.1505707	0.31159104	2.1548287	21	10 25.6	18.0
113696 2002 TL ₁₂₁	14.3	X	308.17807	48.92270	252.23232	9.21708	0.0833724	0.19200077	2.9757799	21	5 9.6	18.3
113697 2002 TM ₁₂₁	16.3	X	334.91927	317.31663	302.41584	5.87713	0.0556801	0.29447443	2.2375404	21	4 12.6	18.9
113698 2002 TS ₁₂₄	14.6	X	32.13702	220.42576	273.42010	9.84050	0.0959974	0.17960181	3.1112070	21	2 6.7	18.6
113699 2002 TT ₁₂₄	16.6	X	308.25673	279.40394	313.01300	7.02416	0.0560605	0.28882216	2.2666391	21	1 29.2	19.2
113700 2002 TV ₁₂₄	14.9	X	96.18922	170.96680	297.14045	9.22932	0.0986470	0.18511233	3.0491526	21	4 4.5	19.4
113701 2002 TT ₁₂₅	14.5	X	53.96531	68.96699	20.13933	16.60334	0.0724423	0.17818564	3.1276699	21	1 21.9	18.9
113702 2002 TJ ₁₂₆	14.4	X	15.20020	66.90582	22.46923	16.92483	0.1863146	0.17050868	3.2208590	21	—	—
113703 2002 TS ₁₂₆	16.6	X	2.58378	196.00372	116.39924	6.50098	0.1252761	0.30969785	2.1636014	21	9 4.5	18.2
113704 2002 TQ ₁₂₇	14.7	X	137.03501	187.40381	255.61886	8.38867	0.0782376	0.18766954	3.0213904	21	4 21.6	19.3
113705 2002 TS ₁₂₇	15.0	X	100.89324	14.22390	27.33928	10.17218	0.1601371	0.17809956	3.1286776	21	2 6.7	19.5
113706 2002 TB ₁₂₉	14.8	X	106.45613	179.17306	258.68006	8.37124	0.0318792	0.18276617	3.0751916	21	3 2.3	19.3
113707 2002 TM ₁₂₉	14.6	X	343.54623	248.27909	260.05055	8.18224	0.0530887	0.17481021	3.1678031	21	—	—
113708 2002 TW ₁₃₀	14.8	X	195.29428	201.10993	208.28948	9.66373	0.0661144	0.19219789	2.9737444	21	5 16.1	19.2
113709 2002 TS ₁₃₁	16.3	X	26.06408	329.61805	275.98640	3.70516	0.1835055	0.30327204	2.1940564	21	7 5.4	17.4
113710 2002 TH ₁₃₂	15.0	X	128.42461	27.86915	214.71639	7.49883	0.1649506	0.21224322	2.7834291	21	11 7.1	19.5
113711 2002 TK ₁₃₂	16.2	X	104.68194	17.01018	275.27181	2.51140	0.1420870	0.26864191	2.3787760	21	12 21.4	19.9
113712 2002 TN ₁₃₂	14.9	X	98.04655	231.56188	239.37956	6.48648	0.2040624	0.18281742	3.0746169	21	4 29.8	19.3
113713 2002 TO ₁₃₂	14.1	X	112.22627	145.19913	224.15607	8.31990	0.0840453	0.17367753	3.1815613	21	—	—
113714 2002 TK ₁₃₃	14.7	X	5.79474	195.30439	292.59411	3.55497	0.1281881	0.17281456	3.1921441	21	—	—
113715 2002 TM ₁₃₃	14.3	X	51.27207	219.26733	226.64946	12.53549	0.2971429	0.17431566	3.1737919	21	1 25.8	17.6
113716 2002 TH ₁₃₄	14.5	X	250.82461	314.98915	321.91671	9.74560	0.0640398	0.18122890	3.0925573	21	2 5.1	18.9
113717 2002 TV ₁₃₄	16.2	X	4.46146	266.42728	298.56974	5.74134	0.0385321	0.29163034	2.2520560	21	3 12.3	18.8
113718 2002 TJ ₁₃₅	14.6	X	10.91762	209.03862	273.27736	9.66767	0.0961196	0.17165300	3.2065285	21	—	—
113719 2002 TH ₁₃₆	15.2	X	281.10720	349.47766	281.41308	8.82037	0.1756514	0.23756081	2.5819799	21	2 6.9	19.1
113720 2002 TZ ₁₃₆	14.9	X	241.49185	21.49161	327.12107	7.67719	0.0426666	0.18944517	3.0024816	21	4 19.5	19.3
113721 2002 TB ₁₃₇	14.7	X	6.41935	356.73714	254.10137	8.73753	0.0340189	0.19258846	2.9697225	21	6 1.3	18.6
113722 2002 TV ₁₃₇	16.2	X	209.82900	52.87844	351.61202	8.42869	0.1604470	0.29474514	2.2361707	21	5 13.7	19.8
113723 2002 TD ₁₃₈	14.1	X	308.35538	257.27773	271.33129	11.11090	0.0560600	0.16869519	3.2439009	21	—	—
113724 2002 TL ₁₃₈	14.2	X	13.26352	351.76136	339.44337	10.72535	0.1460057	0.20513118	2.8473986	21	10 3.7	17.5
113725 2002 TV ₁₃₉	16.2	X	313.11167	80.26938	304.94781	4.60994	0.1470881	0.30819401	2.1706339	21	9 12.4	18.0
113726 2002 TJ ₁₄₀	16.7	X	232.70182	42.02958	225.36200	1.83859	0.1989651	0.23258939	2.6186419	21	—	—
113727 2002 TO ₁₄₁	15.2	X	348.95857	302.06022	9.05538	14.10072	0.2374254	0.25811195	2.4430404	21	7 31.6	17.2
113728 2002 TR ₁₄₂	15.7	X	17.65882	326.29440	32.50467	8.45596	0.2341865	0.26658087	2.3910210	21	12 19.0	18.4
113729 2002 TZ ₁₄₂	15.9	X	65.11088	260.38753	73.12125	6.27278	0.1418257	0.26763875	2.3847163	21	—	—
113730 2002 TA ₁₄₃	14.9	X	56.70666	279.50698	45.22539	13.22607	0.0911971	0.21218234	2.7839615	21	11 22.9	18.7
113731 2002 TO ₁₄₃	15.2	X	0.80109	322.05958	133.15539	9.57999	0.0965108	0.21999638	2.7176427	21	—	—
113732 2002 TQ ₁₄₃	15.3	X	309.22576	234.50160	42.50774	14.65010	0.0683286	0.24172012	2.5522753	21	4 11.2	18.6
113733 2002 TX ₁₄₄	15.9	X	230.01477	83.54024	14.88356	1.96680	0.0204098	0.20358572	2.8617905	21	9 1.3	19.9
113734 2002 TS ₁₅₀	17.1	X	43.94601	265.04044	359.57851	3.48294	0.1571408	0.30872090	2.1681365	21	9 9.8	19.1
113735 2002 TF ₁₅₄	14.7	X	332.06044	323.06534	229.70317	9.70358	0.0075866	0.18360938	3.0657693	21	2 1.9	19.2
113736 2002 TD ₁₅₅	15.3	X	113.72104	177.57439	221.93816	10.74301	0.0861036	0.18107145	3.0943498	21	2 1.1	19.9
113737 2002 TB ₁₅₆	15.8	X	200.82252	320.80014	296.31485	8.87336	0.0862516	0.22601308	2.6691952	21	—	—
113738 2002 TM ₁₅₇	15.7	X	286.88838	215.13122	109.47389	10.24533	0.1218560	0.24581273	2.5238670	21	5 6.9	19.2
113739 2002 TX ₁₅₇	15.3	X	220.12949	293.38187	96.77222	13.93798	0.1574555	0.24334580	2.5408956	21	5 15.1	19.5
113740 2002 TJ ₁₅₉	15.7	X	236.51308	170.89649	142.65690	14.94358	0.1281105	0.23670886	2.5881715	21	2 22.7	19.7
113741 2002 TS ₁₆₀	14.5	X	13.58084	81.89992	96.73041	14.66429	0.1456407	0.18034954	3.1026017	21	3 16.3	18.3
113742 2002 TD ₁₆₂	14.9	X	184.92914	198.80145	155.26200	15.51644	0.0630417	0.23269025	2.6178851	21	2 18.7	18.6
113743 2002 TL ₁₆₂	15.9	X	256.30867	192.71753	98.08860	15.16412	0.2064770	0.23702881	2.5858418	21	2 11.1	20.3
113744 2002 TE ₁₆₃	14.4	X	117.13574	249.28072	143.77957	16.76946	0.1345386	0.17535381	3.1612529	21	2 8.3	18.9
113745 2002 TS ₁₆₃	15.6	X	177.89122	277.97990	116.83966	12.29560	0.1704799	0.23693837	2.5864998	21	4 14.0	20.0
113746 2002 TA ₁₆₄	15.5	X	143.20686	267.02015	132.14844	15.13586	0.1925352	0.23215718	2.6218910	21	3 18.5	19.7
113747 2002 TH ₁₆₄	14.1	X	193.79153	202.54503	113.49951	19.02336	0.1863045	0.17727875	3.1383275	21	1 26.3	19.3
113748 2002 TN ₁₆₄	13.7	X	181.97913	131.99923	99.39065	20.12359	0.0643397	0.16040964	3.3546643	21	12 9.8	18.9
113749 2002 TB ₁₆₆	14.5	X	199.38531	336.37751	301.35159	16.30116	0.1016776	0.17643335	3.1483446	21	—	—
113750 2002 TL ₁₆₆	15.3	X	118.18254	124.34603	217.34443	2.80119	0.1422122	0.22654167	2.6650416	21	—	—
113751 2002 TR ₁₆₆	14.2	X	110.52294	167.26619	222.13451	22.16320	0.0493397	0.17789440	3.1310826	21	1 10.0	19.0
113752 2002 TF ₁₆₇	15.3	X	1.42551	234.75884	242.50673	12.92055	0.0468442	0.22604886	2.6689135	21	—	—
113753 2002 TP ₁₆₇	14.0	X	284.42006	98.33860	272.32780	12.18112	0.1203161	0.19982792	2.8975567	21	7 2.5	17.9

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
113761 2002 TH ₁₇₂	14.2	X	188.57259	241.26444	26.26161	13.95821	0.1743028	0.17391987	3.1786052	21	—	—
113762 2002 TJ ₁₇₂	15.0	X	56.94867	159.17265	266.90452	14.21734	0.0809615	0.22805989	2.6532007	21	—	—
113763 2002 TL ₁₇₂	14.2	X	74.71835	142.14052	287.45974	15.40023	0.0888085	0.17875648	3.1210078	21	1 21.4	18.3
113764 2002 TO ₁₇₂	16.0	X	55.05791	59.84591	265.57544	12.36395	0.1097687	0.26768944	2.3844153	21	12 6.2	19.1
113765 2002 TX ₁₇₂	14.8	X	224.46446	263.40345	47.56063	9.81789	0.0684604	0.18358036	3.0660924	21	2 20.9	19.6
113766 2002 TR ₁₇₃	14.7	X	79.26067	307.25488	148.67196	10.16805	0.0533620	0.18099371	3.0952357	21	2 26.3	18.7
113767 2002 TY ₁₇₄	14.5	X	172.19706	260.39588	65.80269	10.09716	0.1052494	0.17713498	3.1400255	21	1 16.2	19.4
113768 2002 TJ ₁₇₇	15.3	X	160.12983	218.12178	127.77317	16.45110	0.2215970	0.22876500	2.6477461	21	1 27.8	19.4
113769 2002 TB ₁₇₈	15.0	X	257.30717	46.74346	286.91688	11.10537	0.1705188	0.24222211	2.5487478	21	3 29.4	19.2
113770 2002 TA ₁₇₉	14.4	X	229.36199	202.03718	10.00878	34.58327	0.1338265	0.21532634	2.7567958	21	—	—
113771 2002 TQ ₁₈₁	16.0	X	232.90334	324.92777	15.77168	2.16586	0.1391680	0.23842690	2.5757234	21	3 23.3	20.0
113772 2002 TK ₁₈₃	14.4	X	210.63963	45.76916	351.05204	10.17328	0.1204703	0.19261604	2.9694391	21	5 10.5	19.2
113773 2002 TY ₁₈₃	14.9	X	176.93757	153.30249	216.72120	9.10758	0.0412363	0.18410708	3.0602417	21	3 4.4	19.6
113774 2002 TL ₁₈₄	15.8	X	278.15955	338.34552	317.81959	5.41566	0.1256852	0.24223938	2.5486266	21	3 13.1	19.5
113775 2002 TM ₁₈₄	14.8	X	124.68042	64.26847	343.91049	9.63168	0.0970181	0.18114866	3.0934704	21	3 1.6	19.2
113776 2002 TP ₁₈₄	15.2	X	20.66593	190.21383	245.54526	4.58856	0.0428516	0.22254163	2.6968815	21	—	—
113777 2002 TS ₁₈₄	16.8	X	68.89194	148.64889	200.71310	8.34735	0.1559279	0.27104482	2.6646960	21	—	—
113778 2002 TC ₁₈₅	17.0	X	238.42643	159.81190	226.59615	3.54583	0.1404392	0.29967148	2.2115959	21	5 23.2	20.1
113779 2002 TT ₁₈₇	15.1	X	127.79929	284.38862	349.30600	10.93297	0.2086381	0.21784110	2.7355386	21	12 13.8	19.9
113780 2002 TC ₁₈₈	16.9	X	303.10535	350.13318	283.12787	4.60806	0.1379110	0.29449072	2.2374584	21	3 3.5	19.8
113781 2002 TF ₁₈₈	14.8	X	112.65132	200.75188	228.61018	9.66001	0.1151090	0.18131773	3.0915471	21	3 11.8	19.4
113782 2002 TU ₁₈₈	14.6	X	276.05508	43.71939	261.41318	3.77599	0.1653655	0.18710466	3.0274686	21	3 23.7	19.2
113783 2002 TA ₁₉₁	14.4	X	63.47202	165.89137	279.35682	15.08601	0.0972892	0.17339585	3.1850060	21	1 25.5	18.7
113784 2002 TO ₁₉₁	14.5	X	20.23659	239.17756	288.65951	14.92630	0.0233348	0.18061449	3.0995668	21	2 27.6	19.0
113785 2002 TS ₁₉₁	14.2	X	253.96515	343.17141	323.94475	13.97716	0.1401360	0.18521866	2.3447958	21	3 4.9	19.1
113786 2002 TZ ₁₉₂	15.0	X	117.25012	233.20880	186.51822	3.34890	0.1669757	0.18338620	3.0682562	21	3 15.1	19.6
113787 2002 TH ₁₉₃	15.0	X	250.83508	23.98646	179.20334	14.74045	0.0577732	0.22400972	2.6850856	21	—	—
113788 2002 TY ₁₉₄	16.3	X	104.83325	63.27899	211.85802	1.23263	0.1528626	0.26563909	2.3966690	21	11 30.7	20.0
113789 2002 TZ ₁₉₄	15.8	X	251.23526	29.21434	13.40035	1.81479	0.0897774	0.19710224	2.9242085	21	7 7.3	19.9
113790 2002 TF ₁₉₅	15.1	X	154.43047	131.26891	180.91486	0.79775	0.2119123	0.17190313	3.2034173	21	—	—
113791 2002 TM ₁₉₅	15.4	X	59.01912	315.05542	57.06615	6.55775	0.0610689	0.21634011	2.7481769	21	—	—
113792 2002 TX ₁₉₅	15.6	X	305.12310	272.94231	44.97515	6.55525	0.1446700	0.24519430	2.5281090	21	5 14.8	18.8
113793 2002 TR ₁₉₆	15.3	X	335.67199	4.58874	175.83588	11.41105	0.1539887	0.23297394	2.6157596	21	—	—
113794 2002 TV ₁₉₇	14.6	X	233.01242	156.38575	218.75255	10.97685	0.0441570	0.19148940	2.9810749	21	5 16.8	18.8
113795 2002 TZ ₁₉₇	14.5	X	42.77193	255.62694	221.47321	5.47063	0.1229227	0.17529533	3.1619560	21	2 5.6	18.3
113796 2002 TQ ₁₉₈	15.3	X	258.90606	304.77928	342.22340	8.68175	0.2177443	0.23797856	2.5789573	21	2 6.7	19.5
113797 2002 TB ₂₀₀	14.1	X	359.49067	256.92674	262.46351	20.78681	0.0351360	0.17765904	3.1338408	21	1 22.5	18.7
113798 2002 TG ₂₀₃	15.2	X	121.27036	212.89203	108.94503	5.63062	0.0867253	0.22146704	2.7055983	21	—	—
113799 2002 TW ₂₀₃	16.5	X	185.75337	257.45993	144.88493	7.73753	0.1049726	0.29313836	2.2443347	21	4 21.9	19.7
113800 2002 TG ₂₀₄	16.2	X	314.70392	258.83231	99.22211	6.15973	0.1369773	0.30650094	2.1786201	21	8 4.9	17.9
113801 2002 TM ₂₀₅	16.0	X	128.09226	1.49478	330.86933	3.44950	0.2617246	0.27721063	3.2959004	21	—	—
113802 2002 TD ₂₀₆	14.7	X	240.76394	317.48048	11.13715	9.64956	0.0905546	0.18581947	3.0414119	21	3 25.5	19.4
113803 2002 TJ ₂₀₆	16.3	X	152.15346	129.73108	231.56208	5.14918	0.1206630	0.28233234	3.2012420	21	1 17.9	19.3
113804 2002 TA ₂₀₇	15.3	X	156.28398	120.37378	218.91477	10.91045	0.2122437	0.22839753	2.6505852	21	1 13.4	19.7
113805 2002 TF ₂₀₇	16.4	X	167.05500	35.84456	12.64171	6.84683	0.0976336	0.28990453	2.2609939	21	4 5.4	19.6
113806 2002 TM ₂₀₈	15.7	X	259.32634	24.57440	291.03846	2.82196	0.2008316	0.24004837	2.5641113	21	3 11.3	19.8
113807 2002 TB ₂₀₉	14.8	X	184.45988	278.23116	129.72884	9.71738	0.1353261	0.18893611	3.0078723	21	5 6.3	19.8
113808 2002 TC ₂₀₉	14.3	X	207.29705	207.91615	137.95120	10.88326	0.0692899	0.18437811	3.0572419	21	3 14.3	19.0
113809 2002 TG ₂₁₀	15.1	X	45.99267	43.03689	49.31363	5.87910	0.1675356	0.17150155	2.2084161	21	1 17.7	18.8
113810 2002 TG ₂₁₀	15.0	X	131.84551	273.12206	36.87776	9.57756	0.0844515	0.21867456	2.7285833	21	—	—
113811 2002 TZ ₂₁₀	16.6	X	74.90578	40.91541	291.01960	1.34090	0.2194407	0.26845268	2.3798937	21	—	—
113812 2002 TK ₂₁₁	15.3	X	78.17140	279.11310	110.97477	10.02311	0.1186751	0.22399002	2.6852431	21	—	—
113813 2002 TN ₂₁₂	14.1	X	86.79863	134.82802	133.81253	17.99949	0.1980625	0.17951022	3.1122652	21	3 24.6	18.5
113814 2002 TG ₂₁₃	16.2	X	68.43271	243.37544	183.12881	11.42404	0.0894962	0.22625467	2.6672948	21	—	—
113815 2002 TA ₂₁₅	16.9	X	215.76457	218.16085	152.14109	6.37525	0.1253764	0.29319832	2.2440286	21	4 10.3	20.1
113816 2002 TM ₂₁₆	14.4	X	133.81063	326.39378	117.44363	12.01348	0.0859590	0.18548785	3.0450359	21	4 27.6	19.1
113817 2002 TN ₂₁₆	14.0	X	83.21133	357.89791	73.64061	16.58536	0.1768005	0.17561559	3.1581106	21	2 26.5	18.5
113818 2002 TR ₂₁₆	15.1	X	55.41607	296.32135	128.60485	12.64475	0.1880359	0.22171745	2.7035608	21	—	—
113819 2002 TQ ₂₁₇	14.8	X	148.86995	11.77911	58.32793	10.15280	0.0877661	0.18348302	3.0671767	21	4 24.6	19.5
113820 2002 TX ₂₁₈	14.5	X	228.02760	53.89177	335.22450	9.59499	0.1046340	0.19353972	2.9599836	21	5 20.3	19.2
113821 2002 TM ₂₂₁	15.5	X	347.60567	298.74771	302.18379	9.67043	0.1217782	0.24562504	2.5251526	21	4 1.8	18.5
113822 2002 TS ₂₂₁	14.8	X	189.47834	326.59898	75.70949	11.11232	0.0865368	0.18860605	3.0113805	21	5 3.4	19.5
113823 2002 TY ₂₂₁	14.9	X	292.40946	319.42058	288.23009	4.79166	0.2422782	0.18482787	3.0522803	21	1 24.2	19.7
113824 2002 TG ₂₂₂	15.9	X	48.46863	166.09005	208.23495	5.33822	0.0401514	0.21677135	2.7445309	21	—	—
113825 2002 TS ₂₂₃	14.9	X	10.69490	272.64894	213.70341	9.51226	0.1024891	0.17101507	3.2144978	21	—	—
113826 2002 TV ₂₂₃	14.6	X	24.17592	91.71797	33.04904	8.55742	0.0032083	0.17391608	3.1786513	21	1 22.6	19.2
113827 2002 TG ₂₂₅	14.3	X	356.90755	116.18629	44.18689	13.93529	0.0468531	0.17461038	3.1702196	21	1 31.2	18.8
113828 2002 TC ₂₂₆	15.0	X	32.99289	187.51038	187.50078	8.13221	0.2323923	0.21217079	2.7840626	21	—	—
113829 2002 TN ₂₂₆	14.6	X	149.39737	342.07662	57.00711	18.78284	0.1724447	0.17978486	3.1090948	21	4 1.9	19.8
113830 2002 TA ₂₂₇	16.5	X	241.44038	185.86091	179.31679	6.50467	0.1049817	0.29483881	2.2356970	21	5 2.0	19.5
113831 2002 TC ₂₂₇	14.7	X	156.34740	354.45651	63.95169	10.44838	0.1104825	0.18314976	3.0708963	21	4 20.8	19.5
113832 2002 TP ₂₂₇	15.3	X	74.44312	196.25487	176.64968	5.44004	0.0905194	0.21840849	2.7307988	21	—	—
113833 2002 TC ₂₂₉	15.0	X	265.79400	323.57842	101.76295	6.14413	0.0924008	0.20102316	2.8860597	21	8 25.9	18.9
113834 2002 TH ₂₃₁												

ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
113841 2002 <i>TO</i> ₂₃₆	14.5	X	55.46371	72.73999	267.39000	11.06607	0.1347403	0.21366268	2.7710877	21	12 18.4	18.4
113842 2002 <i>TR</i> ₂₃₆	13.9	X	43.00776	218.35041	238.48164	21.26155	0.0727852	0.17357940	3.1827602	21	1 6.9	18.4
113843 2002 <i>TG</i> ₂₃₇	16.1	X	36.53788	37.33467	278.33890	9.88200	0.2792512	0.26202440	2.4186604	21	11 22.9	19.2
113844 2002 <i>TV</i> ₂₃₇	15.2	X	226.07484	349.80317	320.00079	14.17979	0.1781267	0.23536143	2.5980401	21	2 6.9	19.3
113845 2002 <i>TD</i> ₂₃₈	15.3	X	165.00019	96.37602	259.93876	14.30817	0.0756401	0.23221934	2.6214231	21	1 27.0	19.3
113846 2002 <i>TV</i> ₂₃₉	16.5	X	349.08426	43.26929	262.44051	3.29146	0.2146151	0.30567588	2.1825386	21	7 16.1	17.2
113847 2002 <i>TR</i> ₂₄₀	14.5	X	113.59415	256.68722	162.36168	18.19824	0.1411268	0.17780580	3.1321227	21	3 8.5	18.9
113848 2002 <i>TH</i> ₂₄₁	14.8	X	34.64626	253.93097	185.74641	5.03225	0.1398748	0.16966678	3.2315051	21	—	—
113849 2002 <i>TL</i> ₂₄₁	14.7	X	109.39310	83.14515	32.68555	12.28433	0.0830172	0.18583179	3.0412775	21	5 2.2	19.0
113850 2002 <i>TG</i> ₂₄₂	15.0	X	284.01582	238.92942	86.32710	11.85672	0.1034845	0.19156334	2.9803078	21	5 10.2	19.3
113851 2002 <i>TL</i> ₂₄₂	14.9	X	209.80371	244.67047	170.41464	16.31576	0.0652279	0.19182575	2.9775892	21	6 9.3	19.6
113852 2002 <i>TF</i> ₂₄₅	15.8	X	64.71252	121.34717	184.19811	17.00829	0.1566056	0.21090569	2.7951848	21	11 21.3	20.0
113853 2002 <i>TK</i> ₂₄₆	15.1	X	73.26860	6.50627	349.50472	5.60653	0.2495916	0.21850536	2.7299917	21	—	—
113854 2002 <i>TN</i> ₂₄₆	14.9	X	74.97382	101.57662	29.01064	1.65982	0.1056122	0.18236149	3.0797393	21	4 11.3	18.9
113855 2002 <i>TL</i> ₂₄₉	15.2	X	35.29497	163.95127	150.25611	2.34399	0.0677006	0.20694966	2.8306939	21	10 10.4	18.9
113856 2002 <i>TB</i> ₂₅₀	16.3	X	60.96549	91.59258	193.62471	10.26826	0.1809716	0.26107464	2.4245227	21	10 31.9	19.6
113857 2002 <i>TF</i> ₂₅₀	16.1	X	182.73630	248.09597	17.82481	6.25106	0.1193268	0.27290045	2.3539643	21	—	—
113858 2002 <i>TY</i> ₂₅₂	16.8	X	278.24340	51.52552	355.54325	0.99896	0.1457415	0.30533818	2.1841475	21	8 14.2	18.7
113859 2002 <i>TM</i> ₂₅₃	15.3	X	165.62875	197.15360	204.95723	8.83212	0.1039582	0.18295605	3.0730635	21	4 6.2	19.9
113860 2002 <i>TE</i> ₂₅₄	15.3	X	3.76645	344.07990	73.98686	3.25253	0.0682846	0.21505705	2.7590968	21	—	—
113861 2002 <i>TZ</i> ₂₅₄	15.7	X	59.11590	233.45959	169.15648	7.30968	0.1539421	0.22013714	2.1746841	21	—	—
113862 2002 <i>TD</i> ₂₅₅	14.2	X	74.39258	340.13786	47.24973	20.53134	0.1208950	0.16893751	3.2407982	21	—	—
113863 2002 <i>TG</i> ₂₅₅	14.8	X	148.35374	223.19759	178.63377	8.84482	0.0812214	0.18170534	3.0871490	21	3 17.8	19.2
113864 2002 <i>TN</i> ₂₅₅	15.7	X	64.51953	114.23219	261.75371	1.24051	0.0868794	0.21793377	2.7347630	21	—	—
113865 2002 <i>TR</i> ₂₅₅	16.3	X	218.99862	170.90671	219.53785	1.82986	0.1021303	0.294671199	2.2365407	21	5 9.6	19.3
113866 2002 <i>TZ</i> ₂₅₆	15.6	X	247.86769	227.31047	178.67340	3.94264	0.1285008	0.19568580	2.9383026	21	7 2.3	20.0
113867 2002 <i>TA</i> ₂₅₈	16.4	X	267.46084	302.27994	67.56030	5.69107	0.1079419	0.29968965	2.2115065	21	6 8.2	18.9
113868 2002 <i>TR</i> ₂₅₈	16.8	X	181.00715	215.26224	141.77925	2.86830	0.1602625	0.28533738	2.2850564	21	2 17.4	20.1
113869 2002 <i>TV</i> ₂₅₈	16.3	X	3.97961	254.39729	190.90480	6.89801	0.1768872	0.26859876	2.3790307	21	—	—
113870 2002 <i>TE</i> ₂₅₉	16.1	X	102.45314	203.28110	180.32321	6.83998	0.1149495	0.27612125	2.3356235	21	—	—
113871 2002 <i>TH</i> ₂₅₉	16.2	X	117.69140	227.54010	107.59172	4.43263	0.2600675	0.27440319	2.3453623	21	—	—
113872 2002 <i>TM</i> ₂₅₉	14.3	X	80.97619	9.86113	79.87021	10.27148	0.0698313	0.17519487	3.1631646	21	2 28.2	18.7
113873 2002 <i>TY</i> ₂₅₉	15.8	X	314.73166	182.22874	175.03508	1.75543	0.1144876	0.20000132	2.8958817	21	7 30.6	19.3
113874 2002 <i>TY</i> ₂₅₉	15.4	X	262.71357	235.76731	55.32453	6.76009	0.1270488	0.23617254	2.5920883	21	2 23.9	19.4
113875 2002 <i>TE</i> ₂₆₀	16.0	X	199.58463	14.95945	64.70873	6.95696	0.1350811	0.29600620	2.2298151	21	6 23.6	19.3
113876 2002 <i>TE</i> ₂₆₁	16.2	X	228.26261	177.60490	195.23146	8.06622	0.1838660	0.29314169	2.2443176	21	4 22.7	19.7
113877 2002 <i>TG</i> ₂₆₁	15.0	X	141.82828	162.16958	209.09087	12.03887	0.2134828	0.22649664	2.6653948	21	2 6.0	19.3
113878 2002 <i>TR</i> ₂₆₁	14.7	X	179.04946	249.51412	107.13676	11.86324	0.2509951	0.22900574	2.6458902	21	3 2.0	19.4
113879 2002 <i>TB</i> ₂₆₂	16.4	X	29.76862	333.42922	149.73248	5.31496	0.0791861	0.28090294	2.3090421	21	—	—
113880 2002 <i>TB</i> ₂₆₂	16.8	X	148.65905	274.30211	177.48682	2.24466	0.0572407	0.29403622	2.2397635	21	5 9.7	19.5
113881 2002 <i>TB</i> ₂₆₄	14.7	X	252.28833	1.12325	293.80914	7.93252	0.0279167	0.18088202	3.0965097	21	2 27.9	19.2
113882 2002 <i>TF</i> ₂₆₄	15.8	X	104.85088	90.14343	288.39553	1.42039	0.1501304	0.22344758	2.6895871	21	—	—
113883 2002 <i>TD</i> ₂₆₅	16.2	X	71.00795	344.44494	39.90711	7.08351	0.1250523	0.27131451	2.3631287	21	—	—
113884 2002 <i>TS</i> ₂₆₅	15.2	X	108.32734	326.86568	48.20708	5.88620	0.2469197	0.22253867	2.6969055	21	1 14.9	18.8
113885 2002 <i>TU</i> ₂₆₅	15.4	X	267.82329	52.97638	306.48978	1.16870	0.2111319	0.24416319	2.5352216	21	5 13.7	19.2
113886 2002 <i>TG</i> ₂₆₆	15.1	X	54.33943	90.68419	243.23909	7.86962	0.1605854	0.26051951	2.4279657	21	12 21.6	18.5
113887 2002 <i>TC</i> ₂₆₇	15.4	X	223.08874	109.39490	239.24738	11.10207	0.1891823	0.23628262	2.5912831	21	3 17.7	19.9
113888 2002 <i>TG</i> ₂₆₇	14.9	X	124.54516	82.82001	224.31784	21.73428	0.2082730	0.27224403	2.3577467	21	—	—
113889 2002 <i>TD</i> ₂₆₇	14.6	X	146.63317	275.58341	43.38104	15.58236	0.2435229	0.22128081	2.7054861	21	—	—
113890 2002 <i>TA</i> ₂₇₀	15.2	X	142.25310	310.83133	349.49240	8.58321	0.1241671	0.22202585	2.7010566	21	—	—
113891 2002 <i>TG</i> ₂₇₀	15.1	X	255.62480	359.38435	358.65771	10.42658	0.0554724	0.19279897	2.9675604	21	5 16.9	19.5
113892 2002 <i>TD</i> ₂₇₀	15.2	X	69.51959	161.00929	214.87185	10.88796	0.1733838	0.22029719	2.7151682	21	—	—
113893 2002 <i>TN</i> ₂₇₀	16.0	X	183.26462	141.50236	215.20209	9.74412	0.1627256	0.23495087	2.6010658	21	2 21.9	20.4
113894 2002 <i>TP</i> ₂₇₁	15.7	X	159.71021	120.05609	217.42796	9.14411	0.0833013	0.22841282	2.6504670	21	1 2.8	19.6
113895 2002 <i>TR</i> ₂₇₁	15.6	X	87.75570	169.42744	210.11106	13.58617	0.1893841	0.22315032	2.6919751	21	—	—
113896 2002 <i>TB</i> ₂₇₂	14.6	X	19.51915	171.66972	284.53404	3.55972	0.1230861	0.17004020	3.2267722	21	—	—
113897 2002 <i>TF</i> ₂₇₃	16.4	X	37.56573	274.80730	225.24085	5.98227	0.0538552	0.28565413	2.2833669	21	1 30.7	18.9
113898 2002 <i>TT</i> ₂₇₃	14.4	X	353.23082	167.37292	354.51338	8.91524	0.0436009	0.17671925	3.1449480	21	1 25.9	18.8
113899 2002 <i>TO</i> ₂₇₄	14.6	X	118.96157	104.46890	275.00004	3.86854	0.0452325	0.17408289	3.1766204	21	1 13.6	19.1
113900 2002 <i>TR</i> ₂₇₄	15.6	X	209.32663	201.66677	4.79621	7.19979	0.0699682	0.26719863	2.3873342	21	12 27.1	18.8
113901 2002 <i>TX</i> ₂₇₄	16.7	X	253.12915	23.64748	347.41883	3.78817	0.0659647	0.29854735	2.2171440	21	5 14.4	19.9
113902 2002 <i>TK</i> ₂₇₆	15.6	X	261.86453	49.25949	353.59161	5.41297	0.1765048	0.19829797	2.9124414	21	7 23.9	19.8
113903 2002 <i>TO</i> ₂₇₆	15.4	X	174.37089	29.75648	216.45715	11.48651	0.0887681	0.21691736	2.7432992	21	12 24.3	19.7
113904 2002 <i>TQ</i> ₂₇₆	14.8	X	41.48644	150.97976	4.39672	7.77377	0.0307856	0.18253855	3.0777475	21	3 19.7	18.8
113905 2002 <i>TV</i> ₂₇₇	14.5	X	212.31828	116.42025	297.40498	8.73140	0.0915063	0.19319083	2.9635463	21	6 6.9	19.0
113906 2002 <i>TJ</i> ₂₇₈	14.8	X	227.92051	13.74350	227.34380	16.79107	0.0541020	0.22313438	2.6921034	21	—	—
113907 2002 <i>TV</i> ₂₇₈	16.5	X	8.81321	192.96327	12.38669	10.13550	0.0389960	0.29011136	2.2599191	21	3 24.3	18.9
113908 2002 <i>TX</i> ₂₇₉	15.6	X	12.93618	284.18801	310.96592	6.2475	0.1669406	0.29624861	2.2285985	21	5 7.8	17.2
113909 2002 <i>TC</i> ₂₈₀	14.9	X	75.39982	263.52028	233.02826	14.89564	0.1772269	0.18141097	3.0904877	21	4 29.2	18.9
113910 2002 <i>TO</i> ₂₈₀	15.8	X	213.47215	3.11898	323.14229	7.56360	0.1345037	0.28704551	2.2759823	21	2 8.7	19.1
113911 2002 <i>TW</i> ₂₈₁	15.0	X	178.49425	306.66090	14.14332	13.45548	0.1854710	0.22864102	2.6487031	21	1 14.7	19.5
113912 2002 <i>TD</i>												

