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TIMES OF MINIMA OF ECLIPSING BINARY STARS

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Observatory and telescope:
URSA Observatory at the University of Arkansas (ursa.uark.edu); 10-inch Schmidt-Cassegrain reflector.

Detector:	1020×1530 pixels SBIG ST8EN CCD cooled to (typ.) −20 C; 1.15 ″square pixels; 20′(N-S) × 30′(E-W) FOV.

Method of data reduction:
Virtual measuring engine (Measure 1.97) written by C.H.S. Lacy (2003)

Method of minimum determination:
Kwee & van Woerden (1956)

Observed star(s):

Star name	GCVS type	Coordinates (J2000) RA	Dec	Comp. star	Ephemeris E 2400000+	P [day]	Source
AP And	EA/DM	23 49 31	+45 47 21	03639 00767†	52898.62235	1.5872920	1
CO And	EA/DM	01 11 25	+46 57 49	03268 00400	52245.65158	3.655326	2
HP Aur	EA/DM	05 10 22	+35 47 47	02401 00760	52263.62901	1.4228192	2
KU Aur	EA/SD:	06 28 04	+30 23 34	02422 01381	52263.88113	1.319577	1
CV Boo	EA/DM	15 26 20	+36 58 53	02570 00511	52321.84559	0.8469935	2
SW Cnc	EA/SD:	09 09 00	+09 35 42	00812 00083	52339.81190	1.799211	2
MU Cas	EA/DM	00 15 52	+60 25 54	01331 04014	51876.5835	9.652926	3
V381 Cas	EA/DM	00 32 52	+49 19 39	03256 01906	52968.7011	1.7459455	1
V389 Cas	EA	01 14 05	+48 58 48	03272 00102	51469.4103	4.989514	1
V396 Cas	EA/DM	23 13 36	+56 44 06	01337 04006	52180.7074	5.50545	3
V459 Cas	EA/DM	01 11 30	+61 08 48	00792 04030	51144.6845	8.458294	3
V651 Cas	EA/DM	23 48 34	+57 44 57	04009 00049	52817.87187	0.9968096	1
VZ Cep	EA/DM	21 50 11	+71 26 38	01497 04470	52054.85215	1.18336356	1
V456 Cyg	EA/DM	20 28 51	+39 09 14	03152 00323	52836.7625	0.89119220	1
V1061 Cyg	EA/DM	21 07 21	+52 02 58	03600 00278	52015.90562	2.34663383	1
HD 23642	EA/DM	03 47 29	+24 17 18	01800 01908	36096.5204	2.46113329	4
LV Her	EA/DM	17 35 32	+23 10 31	02076 00580	52490.72613	18.4359348	1
RW Lac	EA/DM	22 44 57	+49 39 28	03629 02473	52253.6669	10.36922	2
V506 Oph	EA/DM	17 41 04	+07 47 04	00993 00762	52858.6752	1.0604262	1
FO Ori	EA	05 28 10	+03 37 23	00105 02342	52275.6149	18.80058	2
V648 Ori	EA/DM	04 52 33	+06 19 24	00096 00758	52934.92834	1.626468	1
IM Per	EA/DM	03 11 42	+52 12 42	03323 01163	52902.9245	2.25422	1
V482 Per	EA/DM	04 15 41	+47 25 20	03332 00388	52266.8056	2.4467549	2
V514 Per	EB/DM	03 19 39	+50 07 12	03319 01713	52261.5563	1.819159	1
RXJ0212.3	EA	02 12 19	−13 30 41	05283 01513	52634.6593	6.709914	1

†Comparison star designations refer to the GSC.

Observed star(s):

Star name	GCVS type	Coordinates (J2000) RA	Dec	Comp. star	Ephemeris E 2400000+	P [day]	Source
AQ Ser	EB/DM	15 22 15	+02 30 11	00340 00252	52834.6937	1.687391	1
CF Tau	EA/D	04 05 10	+22 29 48	01814 00104	51918.3467	2.75589	1
V1094 Tau	EA/DM	04 12 04	+21 56 51	01263 00925	49701.7059	8.988487	5
BP Vul	EA/DM	20 25 33	+21 02 18	01644 01837	52064.89085	1.9403494	6
BT Vul	EA/DM	20 23 05	+27 28 36	02164 00403	52831.72890	1.141200	1

Source(s) of the ephemeris:

1: This paper, 2: Lacy (2002), 3: Lacy et al. (2002), 4: Torres (2003), 5: Kaiser & Frey (1998), 6: Lacy et al. (2003)

Times of minima:

Star name	Time of min. HJD 2400000+	Error	Type	Filter	$O-C$ [day]	Rem.
AP And	52859.7334	0.0004	2	V	−0.0003	Sec. phase=0.5
	52897.82826	0.00010	2	V	−0.00044	
	52898.62235	0.00013	1	V	0.00000	
	52902.59047	0.00013	2	V	−0.00011	
	52936.71705	0.00010	1	V	−0.00031	
CO And	52826.8474	0.0005	1	V	−0.0010	
	52934.68220	0.00018	2	V	+0.00167	Sec. phase=0.5
	52965.7523	0.0003	1	V	+0.0015	
HP Aur	52630.7169	0.0003	1	V	+0.0005	
	52729.60329	0.00023	2	V	+0.00099	Sec. phase=0.5
	52935.91092	0.00015	2	V	−0.00016	
KU Aur	52263.88113	0.00016	1	V	0.00000	
	52250.68535	0.00020	1	V	−0.00001	
	52296.8700	0.0005	1	V	−0.0006	
CV Boo	52714.84970	0.00012	1	V	−0.00087	
	52720.7789	0.0003	1	V	−0.0006	
	52722.89684	0.00010	2	V	−0.00017	Sec. phase=0.5
	52731.79016	0.00008	1	V	−0.00028	
	52739.83638	0.00017	2	V	−0.00050	
	52742.80172	0.00014	1	V	+0.00036	
	52744.9185	0.0003	2	V	−0.00034	
	52750.84701	0.00014	2	V	−0.00079	
	52751.69380	0.00017	2	V	−0.00099	
	52756.77595	0.00015	2	V	−0.00080	
	52765.66967	0.00025	1	V	−0.00051	
	52778.79870	0.00020	2	V	+0.00012	
	52782.60989	0.00020	1	V	−0.00016	
	52787.69192	0.00012	1	V	−0.00010	
	52790.65638	0.00010	2	V	−0.00011	
SW Cnc	52688.8578	0.0006	1	V	−0.0010	
MU Cas	52876.81333	0.00024	2	V	+0.00026	Sec. E=52181.8024
	52905.7704	0.0003	2	V	−0.0015	
V381 Cas	52968.7011	0.0005	1	V	0.0000	
V389 Cas	52898.9432	0.0006	2	V	0.0000	Sec. E=52898.9432
	52928.8808	0.0004	2	V	+0.0005	
V396 Cas	52824.84721	0.00024	1	V	+0.00216	
	52835.8582	0.0003	1	V	+0.0023	
	52868.89072	0.00025	1	V	+0.00207	
V459 Cas	52827.8775	0.0004	1	V	−0.0075	
V651 Cas	52817.87187	0.00007	1	V	0.00000	
	52823.85279	0.00013	1	V	+0.00006	
VZ Cep	52809.8384	0.0003	1	V	+0.0003	
	52812.79737	0.00024	2	V	+0.00086	Sec. phase=0.5
	52818.7140	0.0006	2	V	+0.0007	
	52863.68060	0.00018	2	V	−0.00054	
	52877.8838	0.0006	2	V	+0.0023	
	52889.71630	0.00021	2	V	+0.00116	

Times of minima:						
Star name	Time of min. HJD 2400000+	Error	Type	Filter	$O-C$ [day]	Rem.
V456 Cyg	52831.86188	0.00014	2	V	+0.00094	Sec. phase=0.5
	52836.7625	0.0004	1	V	0.0000	
	52839.8814	0.0004	2	V	−0.0003	
	52869.7371	0.0003	1	V	+0.0005	
	52931.6733	0.0003	2	V	−0.0012	
V1061 Cyg	52786.7736	0.0004	2	V	−0.0012	Sec. phase=0.5
	52813.7610	0.0002	1	V	−0.0001	
	52834.8804	0.0004	1	V	−0.0004	
	52867.7336	0.0003	1	V	−0.0001	
	52887.6813	0.0004	2	V	+0.0012	
	52907.62597	0.00014	1	V	+0.00309	?
HD 23642	52931.9078	0.0020	2	V	+0.0051	Sec. phase=0.5
LV Her	52785.7012	0.0010	1	V	+0.0001	
RW Lac	52844.71005	0.00021	1	V	−0.00239	
	52927.66310	0.00018	1	V	−0.00310	
	52932.77471	0.00017	2	V	−0.00817	Sec. E=51076.6925
V506 Oph	52831.63476	0.00020	1	V	+0.00043	
	52858.6752	0.0005	2	V	0.0000	Sec. phase=0.5
FO Ori	52914.8345	0.0004	1	V	−0.0001	
V648 Ori	52908.9049	0.0006	1	V	+0.0000	
	52930.86274	0.00020	2	V	+0.00057	Sec. phase=0.5
	52934.92834	0.00025	1	V	0.00000	
IM Per	52902.9245	0.0006	1	V	0.0000	
	52910.8277	0.0007	2	V	0.0000	Sec. E=52910.8277
	52972.8038	0.0004	1	V	−0.0015	
	52980.7065	0.0006	2	V	−0.0020	
	52981.8219	0.0004	1	V	−0.0003	
V482 Per	52644.8308	0.0011	2	V	+0.0016	Sec. phase=0.5
	52907.8584	0.0004	1	V	+0.0030	
V514 Per	52974.6667	0.0005	1	V	+0.0001	
RXJ0212.3	52634.6593	0.0009	1	V	0.0000	
AQ Ser	52823.7250	0.0007	2	V	−0.0007	Sec. phase=0.5
	52834.6937	0.0005	1	V	0.0000	
CF Tau	52933.8960	0.0005	2	V	+0.0038	Sec. phase=0.5
V1094 Tau	52628.8429	0.0003	2	V	−0.0002	Sec. E=52601.8776
	52637.83153	0.00021	2	V	−0.00002	
BP Vul	52782.8192	0.0003	1	V	−0.0009	
	52814.7964	0.0005	2	V	−0.0009	Sec. E=52098.80834
	52817.74512	0.00010	1	V	−0.00130	
BT Vul	52831.72890	0.00024	1	V	0.00000	
	52839.71853	0.00020	1	V	+0.00123	
	52843.7114	0.0004	2	V	−0.0001	Sec. phase=0.5
	52908.7621	0.0004	2	V	+0.0022	
	52939.5741	0.0003	2	V	+0.0018	

A sample of the observations has been published by Lacy, Hood & Straughn (2001).

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