

## Recent Minima of 161 Eclipsing Binary Stars

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*Received November 1, 2014; accepted November 1, 2014*

**Abstract** This paper continues the publication of times of minima for 161 eclipsing binary stars from observations reported to the AAVSO EB section. Times of minima from observations received by the author from October 2013 through September 2014 are presented.

### 1. Recent observations

The accompanying list contains times of minima calculated from recent CCD observations made by participants in the AAVSO's eclipsing binary program. This list will be web-archived and made available through the AAVSO ftp site at <ftp://ftp.aavso.org/public/datasets/gsamoj422.txt>. This list, along with the eclipsing binary data from earlier AAVSO publications, is also included in the Lichtenknecker database (Kreiner 2011) administrated by the Bundesdeutsche Arbeitsgemeinschaft für Veränderliche Sterne e. V. (BAV) at: <http://www.bav-astro.de/LkDB/index.php?lang=en>. These observations were reduced by the observers or the writer using the method of Kwee and van Woerden (1956). Column F in Table 1 indicates the filter used. A "C" indicates a clear filter. The standard error is included when available.

The linear elements in the *General Catalogue of Variable Stars* (GCVS; Kholopov *et al.* 1985) were used to compute the O–C values for most stars. For a few exceptions where the GCVS elements are missing or are in significant error, light elements from another source are used: V702 And (Watson *et al.* 2014), V1713 Aql (Paschke 2014), CD Cam (Baldwin and Samolyk 2007), AC CMi (Samolyk 2008), CW Cas (Samolyk 1992a), LQ Dra (Nelson 2014), DF Hya (Samolyk 1992b), DK Hya (Samolyk 1990), V576 Lyr (Nelson 2014), V502 Oph (Paschke 2014), EF Ori (Baldwin and Samolyk 2005), GU Ori (Samolyk 1985). The light elements used for QX And, V728 Her, V582 Lyr, V351 Peg, V1121 Tau, V1223 Tau, V1234 Tau, BS UMa, and MS Vir are from (Kreiner 2004). O–C values listed in this paper can be directly compared with values published in the *AAVSO Observed Minima Timings of Eclipsing Binaries* series.

## References

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Table 1. Recent times of minima of stars in the AAVSO eclipsing binary program.

<i>Star</i>	<i>HJD</i> 2400000+	<i>Cycle</i>	<i>O–C</i> (day)	<i>F</i>	<i>Observer</i>	<i>Standard</i> <i>Error (day)</i>
RT And	56579.5825	24546	–0.0103	V	G. Samolyk	0.0001
RT And	56872.6630	25012	–0.0110	V	G. Samolyk	0.0001
TW And	56929.6908	4344	–0.0499	V	G. Samolyk	0.0001
UU And	56584.7111	10048	0.0689	V	K. Menzies	0.0003
WZ And	56921.8741	23071	0.0676	V	R. Sabo	0.0001
XZ And	56603.6150	24038	0.1749	V	G. Samolyk	0.0001
XZ And	56862.8562	24229	0.1760	V	R. Sabo	0.0001
AB And	56610.5241	61770	–0.0333	V	G. Samolyk	0.0001
AB And	56643.5469	61869.5	–0.0338	V	K. Menzies	0.0001
AB And	56879.6869	62581	–0.0350	V	R. Sabo	0.0001
AB And	56888.8141	62608.5	–0.0349	V	K. Menzies	0.0001
AB And	56900.4300	62643.5	–0.0352	R	L. Corp	0.0001

*Table continued on following pages*

Table 1. Recent times of minima of stars in the AAVSO eclipsing binary program, cont.

<i>Star</i>	<i>HJD</i> 2400000+	<i>Cycle</i>	<i>O-C</i> (day)	<i>F</i>	<i>Observer</i>	<i>Standard</i> <i>Error (day)</i>
DS And	56594.8035	20239.5	0.0032	V	K. Menzies	0.0003
DS And	56619.5609	20264	0.0029	V	G. Samolyk	0.0001
DS And	56929.7902	20571	0.0029	V	G. Samolyk	0.0002
QX And	56929.8441	10747.5	0.0016	V	G. Samolyk	0.0003
V702 And	56556.3496	9685	0.0141	C	Y. Ogmen	0.0001
CX Aqr	56898.8486	36773	0.0131	V	G. Samolyk	0.0001
XZ Aql	56890.7372	7006	0.1741	V	G. Samolyk	0.0001
OO Aql	56573.6098	35439.5	0.0573	V	G. Samolyk	0.0001
OO Aql	56589.3239	35470.5	0.0609	V	L. Corp	0.0003
OO Aql	56927.6036	36138	0.0593	V	G. Samolyk	0.0002
V1182 Aql	56480.4593	2454	0.0248	C	L. Corp	0.0005
V1713 Aql	56831.7394	8181	-0.0155	V	R. Sabo	0.0003
RX Ari	56610.6607	17688	0.0663	V	G. Samolyk	0.0002
SS Ari	56572.6836	43214	-0.3188	V	R. Poklar	0.0002
SS Ari	56633.5810	43364	-0.3205	V	G. Samolyk	0.0002
SS Ari	56676.6163	43470	-0.3205	V	R. Sabo	0.0004
BQ Ari	56908.8959	19572.5	-0.0275	V	R. Sabo	0.0002
RY Aur	56729.5780	6766	0.0195	V	G. Samolyk	0.0001
SX Aur	56603.7113	13587	0.0161	V	G. Samolyk	0.0001
TT Aur	56671.6781	26584	-0.0055	V	G. Samolyk	0.0001
WW Aur	56723.6470	9417	0.0017	V	G. Samolyk	0.0001
CL Aur	56566.7963	18965	0.1616	V	G. Samolyk	0.0001
EM Aur	56613.8259	14063	-1.1092	V	K. Menzies	0.0005
EP Aur	56567.8221	51198	0.0125	V	G. Samolyk	0.0002
TU Boo	56720.8736	72943.5	-0.1446	V	K. Menzies	0.0001
TU Boo	56795.6194	73174	-0.1469	V	K. Menzies	0.0001
TY Boo	56732.8551	70164	0.0789	V	K. Menzies	0.0001
TZ Boo	56720.7588	57503.5	0.0619	V	K. Menzies	0.0002
VW Boo	56738.8870	74682.5	-0.2282	V	K. Menzies	0.0001
AD Boo	56806.7206	14861	0.0334	V	G. Samolyk	0.0001
GU Boo	54888.5666	-98	0.0001	V	L. Corp	0.0001
GU Boo	56819.2847	3852.5	-0.0096	C	Y. Ogmen	0.0001
CD Cam	56603.8673	5026.5	-0.0034	V	G. Samolyk	0.0006
CD Cam	56924.8240	5446.5	-0.0041	V	G. Samolyk	0.0005
TX Cnc	56765.3567	48981	0.0452	R	L. Corp	0.0004
RT CMa	56633.8395	23195	-0.7490	V	G. Samolyk	0.0001
SX CMa	56610.9066	17556	0.0265	V	G. Samolyk	0.0002
YY CMi	56746.6502	26255	0.0160	V	G. Samolyk	0.0002

*Table continued on following pages*

Table 1. Recent times of minima of stars in the AAVSO eclipsing binary program, cont.

<i>Star</i>	<i>HJD</i> 2400000+	<i>Cycle</i>	<i>O-C</i> (day)	<i>F</i>	<i>Observer</i>	<i>Standard</i> <i>Error (day)</i>
AC CMi	56753.6495	5506	0.0040	V	G. Samolyk	0.0001
AK CMi	56679.7955	23994	-0.0211	V	R. Sabo	0.0001
AK CMi	56725.6321	24075	-0.0222	V	G. Samolyk	0.0001
AM CMi	56733.6375	30896	0.2138	V	G. Samolyk	0.0004
TV Cas	56681.5628	6664	-0.0277	V	K. Menzies	0.0004
ZZ Cas	56620.5781	18643	0.0092	V	G. Samolyk	0.0001
AB Cas	56924.6078	10396	0.1251	V	G. Samolyk	0.0001
CW Cas	56610.5878	46974.5	-0.0789	V	G. Samolyk	0.0002
CW Cas	56843.8317	47706	-0.0841	V	G. Samolyk	0.0001
CW Cas	56880.8195	47822	-0.0845	V	K. Menzies	0.0001
DZ Cas	56185.7831	35357	-0.1852	V	G. Samolyk	0.0006
IR Cas	56587.6647	20896	0.0086	V	R. Poklar	0.0001
IR Cas	56898.7389	21353	0.0096	V	G. Samolyk	0.0001
IS Cas	56842.8212	15241	0.0677	V	G. Samolyk	0.0003
IT Cas	56619.5649	7149	0.0658	V	G. Samolyk	0.0003
IT Cas	56872.8473	7214	0.0668	V	G. Samolyk	0.0003
IV Cas	56549.3033	15718	-0.1017	C	Y. Ogmen	0.0001
IV Cas	56872.8190	16042	-0.1080	V	G. Samolyk	0.0001
OR Cas	56566.5754	9919	-0.0270	V	G. Samolyk	0.0001
OR Cas	56927.8305	10209	-0.0282	V	G. Samolyk	0.0001
PV Cas	56634.5237	9373	-0.0347	V	G. Samolyk	0.0002
V364 Cas	56886.7561	14616	-0.0238	V	G. Samolyk	0.0002
V523 Cas	55460.3352	60935	0.0900	C	Y. Ogmen	0.0001
U Cep	56615.6221	4843	0.1900	V	G. Samolyk	0.0001
SU Cep	56894.6864	33913	0.0059	V	G. Samolyk	0.0001
WZ Cep	56872.6508	69068	-0.1415	V	G. Samolyk	0.0002
TW Cet	56602.6943	44908.5	-0.0273	V	R. Poklar	0.0002
TW Cet	56927.7833	45934.5	-0.0283	V	G. Samolyk	0.0001
TX Cet	56603.7190	18251	0.0093	V	R. Poklar	0.0002
RW Com	56725.8726	70376	0.0012	V	G. Samolyk	0.0003
RW Com	56738.6891	70430	0.0011	V	K. Menzies	0.0001
RW Com	56741.6539	70442.5	-0.0010	V	K. Menzies	0.0001
RZ Com	56725.7762	64661.5	0.0481	V	G. Samolyk	0.0001
CC Com	56664.0031	77623.5	-0.0214	V	R. Sabo	0.0001
CC Com	56695.8926	77768	-0.0210	V	K. Menzies	0.0001
RW CrB	56753.8457	22029	-0.0012	V	G. Samolyk	0.0001
TW CrB	56735.8844	31989	0.0493	V	K. Menzies	0.0001
W Crv	56746.8200	44060.5	0.0186	V	G. Samolyk	0.0002

*Table continued on following pages*

Table 1. Recent times of minima of stars in the AAVSO eclipsing binary program, cont.

<i>Star</i>	<i>HJD</i> 2400000+	<i>Cycle</i>	<i>O-C</i> (day)	<i>F</i>	<i>Observer</i>	<i>Standard</i> <i>Error (day)</i>
RV Crv	56723.8314	21003	-0.0885	V	G. Samolyk	0.0003
V Crt	56729.7961	21840	-0.0046	V	G. Samolyk	0.0002
AE Cyg	56831.9048	12635	-0.0042	V	R. Sabo	0.0001
CG Cyg	56842.7937	27597	0.0734	V	G. Samolyk	0.0001
KR Cyg	56924.5997	32915	0.0185	V	G. Samolyk	0.0003
V387 Cyg	56843.7085	45049	0.0203	V	G. Samolyk	0.0001
V388 Cyg	56843.7804	17334	-0.1077	V	G. Samolyk	0.0002
V447 Cyg	56511.3731	12360	0.0958	C	Y. Ogmen	0.0001
V447 Cyg	56532.3344	12369.5	0.1041	C	Y. Ogmen	0.0004
V704 Cyg	56929.6183	33275	0.0337	V	G. Samolyk	0.0002
TT Del	56894.7945	4062	-0.1099	V	G. Samolyk	0.0002
YY Del	56593.5700	17191	0.0100	V	G. Samolyk	0.0001
FZ Del	56923.6029	32685	-0.0299	V	G. Samolyk	0.0001
RZ Dra	56773.8958	22866	0.0600	V	G. Samolyk	0.0003
LQ Dra	56525.3710	209	0.0051	R	Y. Ogmen	0.0001
TZ Eri	56609.8162	5447	0.3155	V	G. Samolyk	0.0001
YY Eri	56589.9254	46682.5	0.1507	V	R. Sabo	0.0001
SX Gem	56610.7643	27493	-0.0551	V	G. Samolyk	0.0005
SX Gem	56610.7644	27493	-0.0550	V	K. Menzies	0.0002
SX Gem	56688.6777	27550	-0.0537	V	K. Menzies	0.0003
WW Gem	56737.7065	24845	0.0352	V	G. Samolyk	0.0003
AL Gem	56620.9214	21775	0.0789	V	G. Samolyk	0.0002
SZ Her	56843.6584	18310	-0.0263	V	G. Samolyk	0.0001
TT Her	56816.4453	18442	0.0417	V	L. Corp	0.0004
TU Her	56801.7769	5620	-0.2279	V	G. Samolyk	0.0001
LT Her	56823.3441	14822	-0.1421	V	Y. Ogmen	0.0001
V728 Her	56766.8327	9053	0.0028	V	G. Samolyk	0.0003
V728 Her	56767.7789	9055	0.0064	V	K. Menzies	0.0001
V1091 Her	56805.3057	11056.5	0.1113	C	Y. Ogmen	0.0001
AV Hya	56773.6097	29412	-0.1095	V	G. Samolyk	0.0002
DF Hya	56725.5929	42158.5	-0.0039	V	G. Samolyk	0.0001
DK Hya	56746.6452	26638	0.0036	V	G. Samolyk	0.0002
SW Lac	56573.6080	35228	-0.0956	V	G. Samolyk	0.0002
SW Lac	56924.6377	36322.5	-0.0949	V	G. Samolyk	0.0003
CO Lac	56567.6736	18826	0.0024	V	G. Samolyk	0.0001
CO Lac	56574.6043	18830.5	-0.0068	V	G. Samolyk	0.0002
XY Leo	56766.6154	41155	0.1169	V	G. Samolyk	0.0001
AP Leo	56725.4405	39941	-0.0144	R	L. Corp	0.0001

*Table continued on following pages*

Table 1. Recent times of minima of stars in the AAVSO eclipsing binary program, cont.

<i>Star</i>	<i>HJD</i> 2400000+	<i>Cycle</i>	<i>O-C</i> (day)	<i>F</i>	<i>Observer</i>	<i>Standard</i> <i>Error (day)</i>
CE Leo	56778.2805	38661	-0.0206	C	Y. Ogmen	0.0001
RR Lep	56651.7373	28702	-0.0392	V	R. Sabo	0.0002
RY Lyn	56733.6121	9649	-0.0301	V	G. Samolyk	0.0001
UZ Lyr	56754.8230	6908	-0.0303	V	K. Menzies	0.0004
V576 Lyr	56486.3197	735	0.0029	R	Y. Ogmen	0.0001
V582 Lyr	56470.3694	15514	-0.0047	C	Y. Ogmen	0.0001
Beta Lyr	56509.08	581	1.66	R	G. Samolyk	0.03
Beta Lyr	56509.10	581	1.68	B	G. Samolyk	0.02
Beta Lyr	56509.11	581	1.68	V	G. Samolyk	0.03
Beta Lyr	56515.53	581.5	1.64	B	G. Samolyk	0.03
Beta Lyr	56515.56	581.5	1.67	V	G. Samolyk	0.03
Beta Lyr	56515.61	581.5	1.72	R	G. Samolyk	0.04
RW Mon	56753.6389	12105	-0.0785	V	G. Samolyk	0.0001
BB Mon	56737.5960	41021	-0.0043	V	G. Samolyk	0.0001
V502 Oph	56854.4515	18426.5	-0.0030	V	L. Corp	0.0003
V502 Oph	56886.4168	18497	-0.0016	V	L. Corp	0.0003
V508 Oph	56801.8335	33989.5	-0.0216	V	G. Samolyk	0.0003
V1010 Oph	56843.7295	27072	-0.1677	V	G. Samolyk	0.0002
EF Ori	56604.8873	2627	0.0070	V	G. Samolyk	0.0004
EQ Ori	56609.8632	14416	-0.0375	V	G. Samolyk	0.0002
ER Ori	56579.9108	35317.5	0.1122	V	G. Samolyk	0.0001
ER Ori	56634.7423	35447	0.1136	V	G. Samolyk	0.0001
ER Ori	56695.5029	35590.5	0.1165	V	K. Menzies	0.0003
FF Ori	56694.6945	13520	0.0430	C	G. Frey	0.0001
FR Ori	56610.8880	32552	0.0340	V	G. Samolyk	0.0001
FZ Ori	56618.9885	31487.5	-0.0479	V	R. Sabo	0.0002
FZ Ori	56688.5870	31661.5	-0.0470	V	K. Menzies	0.0001
GU Ori	56592.9843	28731	-0.0545	V	R. Sabo	0.0001
GU Ori	56715.5940	28991.5	-0.0572	V	K. Menzies	0.0001
V648 Ori	56654.6683	18849	0.0630	C	G. Frey	0.0001
V648 Ori	56680.6934	18865	0.0646	C	G. Frey	0.0001
U Peg	56634.6557	53693	-0.1523	V	G. Samolyk	0.0001
U Peg	56886.5064	54365	-0.1548	R	L. Corp	0.0001
U Peg	56925.6710	54469.5	-0.1548	V	R. Sabo	0.0001
TY Peg	56620.6228	5229	-0.3796	V	G. Samolyk	0.0001
AT Peg	56906.4119	10197	0.0146	V	L. Corp	0.0004
BB Peg	56580.6570	35453	-0.0104	V	R. Poklar	0.0001
BB Peg	56593.6709	35489	-0.0105	V	G. Samolyk	0.0001

*Table continued on following pages*

Table 1. Recent times of minima of stars in the AAVSO eclipsing binary program, cont.

<i>Star</i>	<i>HJD</i> 2400000+	<i>Cycle</i>	<i>O-C</i> (day)	<i>F</i>	<i>Observer</i>	<i>Standard</i> <i>Error (day)</i>
BB Peg	56897.6910	36330	-0.0137	V	G. Samolyk	0.0001
BG Peg	56906.8988	5826	-2.1659	V	R. Sabo	0.0002
BX Peg	56619.5935	44306	-0.1076	V	R. Sabo	0.0001
DI Peg	56219.6785	15486	-0.0044	C	G. Frey	0.0001
DI Peg	56229.6439	15500	-0.0045	C	G. Frey	0.0001
DI Peg	56231.7796	15503	-0.0043	C	G. Frey	0.0001
DI Peg	56256.6934	15538	-0.0041	C	G. Frey	0.0001
DI Peg	56557.7946	15961	-0.0013	C	G. Frey	0.0001
DI Peg	56567.7599	15975	-0.0014	C	G. Frey	0.0001
DI Peg	56572.7430	15982	-0.0011	C	G. Frey	0.0001
DI Peg	56577.7255	15989	-0.0013	C	G. Frey	0.0001
DI Peg	56587.6911	16003	-0.0011	C	G. Frey	0.0001
DI Peg	56597.6568	16017	-0.0009	C	G. Frey	0.0001
DI Peg	56602.6394	16024	-0.0010	C	G. Frey	0.0001
V351 Peg	56615.6050	13679	0.0058	C	G. Frey	0.0003
Z Per	56655.5709	3598	-0.2652	V	G. Samolyk	0.0002
RT Per	56610.6411	27354	0.0864	V	N. Simmons	0.0001
RV Per	56573.7908	7361	-0.0019	V	G. Samolyk	0.0002
ST Per	56655.6185	5369	0.3073	V	G. Samolyk	0.0001
IT Per	56609.6175	17752	-0.0285	V	G. Samolyk	0.0004
IU Per	56566.7931	12783	0.0052	V	G. Samolyk	0.0003
IU Per	56681.6349	12917	0.0057	V	K. Menzies	0.0001
V432 Per	56591.6694	64436	0.0240	V	R. Poklar	0.0002
V432 Per	56615.6254	64510.5	0.0270	V	G. Samolyk	0.0002
Y Psc	56574.7805	2905	-0.0136	V	G. Samolyk	0.0001
RV Psc	56663.6112	58272	-0.0586	V	R. Sabo	0.0001
UZ Pup	56725.6319	15238	-0.0090	V	G. Samolyk	0.0001
AV Pup	56737.6404	45942	0.1877	V	G. Samolyk	0.0001
U Sge	56923.6827	11771	0.0012	V	G. Samolyk	0.0001
V1968 Sgr	56887.7883	33852	-0.0163	V	G. Samolyk	0.0003
CC Ser	56800.3306	37437	1.0365	V	Y. Ogmen	0.0001
RW Tau	56634.6893	3955	-0.2595	V	G. Samolyk	0.0001
RZ Tau	56591.9160	45505	0.0718	V	R. Sabo	0.0001
WY Tau	56620.8219	27742	0.0604	V	G. Samolyk	0.0002
AQ Tau	56594.8847	22156	0.5417	V	K. Menzies	0.0002
CT Tau	56613.7159	16810	-0.0604	V	K. Menzies	0.0001
EQ Tau	56590.8546	47979	-0.0291	V	R. Sabo	0.0001
EQ Tau	56619.8684	48064	-0.0299	V	G. Samolyk	0.0001

*Table continued on next page*

Table 1. Recent times of minima of stars in the AAVSO eclipsing binary program, cont.

<i>Star</i>	<i>HJD</i> 2400000+	<i>Cycle</i>	<i>O-C</i> (day)	<i>F</i>	<i>Observer</i>	<i>Standard</i> <i>Error (day)</i>
V1121 Tau	56685.7383	9931	-0.0105	C	G. Frey	0.0002
V1223 Tau	56649.6955	9811	0.0010	C	G. Frey	0.0002
V1223 Tau	56653.7121	9820	-0.0047	C	G. Frey	0.0002
V1223 Tau	56662.6506	9840	-0.0045	C	G. Frey	0.0002
V1234 Tau	56656.7027	11209	-0.0077	C	G. Frey	0.0002
V1234 Tau	56657.6748	11211.5	-0.0056	C	G. Frey	0.0003
V1234 Tau	56663.6883	11227	-0.0051	C	G. Frey	0.0002
X Tri	56929.9326	14850	-0.0861	V	G. Samolyk	0.0001
RS Tri	56567.7158	9758	-0.0487	V	R. Poklar	0.0001
RS Tri	56634.5274	9793	-0.0495	V	G. Samolyk	0.0002
RV Tri	56593.6441	14012	-0.0386	V	R. Poklar	0.0001
TY UMa	56766.6086	48609	0.3453	V	G. Samolyk	0.0002
UX UMa	56395.2749	96417	-0.0003	C	Y. Ogmen	0.0001
UX UMa	56750.8559	98225	-0.0010	V	K. Menzies	0.0001
UX UMa	56792.3527	98436	-0.0018	C	Y. Ogmen	0.0001
UX UMa	56794.3190	98446	-0.0022	C	Y. Ogmen	0.0001
VV UMa	56766.6178	15932	-0.0569	V	G. Samolyk	0.0001
BS UMa	56409.2698	8944.5	0.0325	C	Y. Ogmen	0.0001
RU UMi	56725.7450	28822	-0.0139	V	G. Samolyk	0.0001
AH Vir	56737.8410	26804	0.2631	V	G. Samolyk	0.0001
AK Vir	56801.6800	11918	-0.0302	V	G. Samolyk	0.0002
AW Vir	56773.7785	33195.5	0.0277	V	G. Samolyk	0.0001
AZ Vir	56753.8036	36541.5	-0.0240	V	G. Samolyk	0.0002
MS Vir	56725.8947	13525.5	-0.0042	V	G. Samolyk	0.0004
BE Vul	56575.5521	10608	0.0883	V	G. Samolyk	0.0003
BS Vul	56613.5046	28031	-0.0297	V	K. Menzies	0.0001
BS Vul	56927.6448	28691	-0.0306	V	G. Samolyk	0.0002
BU Vul	56929.5523	41118	0.0151	V	G. Samolyk	0.0002