

MINIMA OF ECLIPSING BINARY STARS, V

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This report continues that given in J.A.A.V.S.O. 5, No. 2. This work is sponsored by the AAVSO with the writer acting as program coordinator. This listing contains 352 observed heliocentric minima of 60 eclipsing binary stars derived from observations submitted by participants in the AAVSO eclipsing binary program. All are visual minima reduced by the writer using the tracing paper method. O-C's are computed using the linear elements given in the main listing of the 1969 General Catalog of Variable Stars without regard to additional linear or non-linear elements which might appear in the notes following the main listing and without regard to more recent elements which may be listed in the supplements to the catalog. The number of estimates used for each minimum is given under n.

<u>J.D. hel.</u> 2,400,000+	<u>E</u>	<u>O - C</u>	<u>n</u>	<u>Observer</u>
<u>RT Andromedae</u>				
42042.574	13944	-0.015	7	B. Small
42308.556	14351	-0.008	13	M. Baldwin
42328.683	14383	-0.007	20	G. Fortier
42330.579	14386	+0.002	10	E. Halbach
42360.751	14434	-0.014	15	G. Wedemayer
42367.670	14445	-0.014	19	M. Baldwin
42374.588	14456	-0.014	15	M. Baldwin
42386.534	14475	-0.018	13	M. Baldwin
42391.570	14483	-0.013	13	M. Baldwin
<u>WZ Andromedae</u>				
42342.608	10448	-0.010	17	M. Baldwin
42359.603	10471	-0.015	20	E. Halbach
42375.633	10494	+0.014	11	C. Scovil
42391.610	10517	-0.009	20	M. Baldwin
<u>XZ Andromedae</u>				
42365.591	2365	-0.018	17	K. Simmons
42365.596	2365	-0.013	9	R. Sweetsir
42403.599	2393	-0.014	24	W. Farrar
42407.686	2396	+0.001	33	G. Samolyk
<u>AB Andromedae</u>				
42266.685	18551.5	+0.027	16	W. Farrar
42284.608	18605.5	+0.028	12	B. Small
42305.671	18669	+0.016	13	M. Baldwin
42309.657	18681	+0.019	17	G. Samolyk
42309.661	18681	+0.023	27	W. Farrar
42309.817	18681.5	+0.028	17	G. Samolyk
42343.681	18783.5	+0.024	11	M. Baldwin
42360.598	18834.5	+0.014	17	G. Samolyk
42360.610	18834.5	+0.027	11	M. Baldwin
42360.610	18834.5	+0.027	14	D. Ruokonon
42360.611	18834.5	+0.028	18	J. Phannerstill
42360.612	18834.5	+0.028	6	E. Halbach
42360.614	18834.5	+0.030	15	B. Awe
42360.769	18835	+0.019	15	J. Phannerstill
42360.770	18835	+0.021	15	G. Samolyk

<u>J.D. hel.</u> 2,400,000+	<u>E</u>	<u>0 - C</u>	<u>n</u>	<u>Observer</u>
42360.771	18835	+0.021	13	D. Ruokonen
42360.775	18835	+0.025	11	B. Awe
42361.602	18837.5	+0.023	10	B. Small
42365.591	18849.5	+0.029	9	R. Sweetsir
42367.568	18855.5	+0.015	15	W. Farrar
42367.582	18855.5	+0.028	19	M. Baldwin
42367.733	18856	+0.014	12	G. Wedemayer
42367.737	18856	+0.018	14	G. Samolyk
42371.568	18867.5	+0.032	11	B. Small
42374.555	18876.5	+0.032	17	M. Baldwin
42376.695	18883	+0.014	18	G. Samolyk
42376.695	18883	+0.015	16	G. Wedemayer
42387.651	18916	+0.019	8	R. Sweetsir
42387.655	18916	+0.022	11	M. Baldwin
42392.626	18931	+0.014	14	M. Baldwin
42404.580	18967	+0.021	8	D. Sharpe
42407.566	18976	+0.020	20	G. Samolyk
<u>RY Aquarii</u>				
42279.702	4275	-0.076	17	P. Atwood
42281.665	4276	-0.080	16	P. Atwood
<u>CX Aquarii</u>				
42298.643	10513	+0.015	13	D. Sharpe
42308.647	10531	+0.011	18	M. Baldwin
42363.693	10630	+0.014	12	G. Wedemayer
42367.577	10637	+0.006	16	M. Baldwin
42377.586	10655	+0.008	17	G. Wedemayer
42387.595	10673	+0.009	18	M. Baldwin
42392.604	10682	+0.014	16	M. Baldwin
<u>OO Aquilae</u>				
42165.813	16260	-0.027	13	M. Baldwin
42249.682	16425.5	-0.032	10	M. Baldwin
42249.685	16425.5	-0.029	21	W. Farrar
42265.653	16457	-0.026	12	H. Smith
42266.669	16459	-0.023	19	W. Farrar
42281.620	16488.5	-0.023	13	H. Smith
42284.639:	16494.5	-0.044:	11	G. Samolyk
42284.653	16494.5	-0.031	13	B. Small
42297.577	16520	-0.029	13	E. Mayer
42305.667:	16536	-0.048:	15	M. Baldwin
42306.707	16538	-0.022	12	T. Cragg
42307.711	16540	-0.031	15	G. Samolyk
42307.712	16540	-0.030	12	G. Wedemayer
42308.726	16542	-0.030	15	G. Wedemayer
42309.754	16544	-0.016	15	G. Samolyk
42334.579	16593	-0.024	17	G. Fortier
42360.661	16644.5	-0.042	9	B. Awe
42360.662	16644.5	-0.041	14	G. Samolyk
42360.667	16644.5	-0.036	5	E. Halbach
42376.626:	16676	-0.040:	9	G. Wedemayer
<u>V 342 Aquilae</u>				
42261.894 ¹	1955	-0.031	12	M. Baldwin
<u>V 346 Aquilae</u>				
42305.612	9921	-0.009	9	M. Baldwin

<u>J.D. hel.</u> 2,400,000+	<u>E</u>	<u>0 - C</u>	<u>n</u>	<u>Observer</u>
<u>V 346 Aquilae</u>				
42306.727	9922	+0.001	14	T. Cragg
<u>SX Aurigae</u>				
42133.559	13543	+0.025	9	B. Small
<u>TT Aurigae</u>				
42087.546	15641	+0.008	8	B. Small
42091.543	15644	+0.007	8	B. Small
<u>WW Aurigae</u>				
42397.943	3743.5	-0.006	11	P. Atwood
42411.838	3749	+0.001	15	P. Atwood
<u>AR Aurigae</u>				
42067.543	3706.5	-0.010	8	B. Small
<u>IM Aurigae</u>				
42134.533	2698	-0.014	7	B. Small
<u>Y Camelopardalis</u>				
42072.725	1866	+0.078	9	E. Mayer
42158.661	1892	+0.070	11	E. Mayer
<u>SV Camelopardalis</u>				
42052.552	13953	-0.004	8	B. Small
42087.535	14012	-0.012	8	B. Small
42145.655	14110	-0.012	27	L. Cook
42266.656:	14314	+0.001:	17	G. Fortier
42387.631	14518	-0.010	18	M. Baldwin
42387.632	14518	-0.009	7	R. Sweetsir
42404.828	14547	-0.012	17	G. Wedemayer
42407.805	14552	-0.001	18	G. Samolyk
42412.543	14560	-0.007	7	G. Wedemayer
42422.622	14577	-0.010	9	K. Simmons
<u>AL Camelopardalis</u>				
42327.584	11982	-0.029	11	E. Halback
42376.761	12019	0.000	24	G. Samolyk
42376.762	12019	+0.001	23	G. Wedemayer
<u>R Canis Majoris</u>				
42362.806	6028	+0.008	12	K. Simmons
42362.816	6028	+0.018	12	R. Sweetsir
42404.821:	6065	-0.007:	19	G. Wedemayer
42404.829	6065	+0.001	18	P. Atwood
<u>RZ Cassiopeiae</u>				
42075.578	4126	0.000	12	B. Small
42075.579	4126	+0.001	15	E. Mayer
42081.561	4131	+0.006	9	B. Small

<u>J.D. hel.</u> 2,400,000	<u>E</u>	<u>0 - C</u>	<u>n</u>	<u>Observer</u>
<u>RZ Cassiopeiae</u>				
42087.532	4136	+0.001	9	B. Small
42241.724	4265	+0.006	17	H. Koller
42241.724	4265	+0.006	11	P. Atwood
42265.630	4285	+0.007	16	G. Fortier
42271.607	4290	+0.008	13	G. Fortier
42290.727	4306	+0.004	18	D. Sharpe
42302.681	4316	+0.005	14	S. Thompson
42308.652	4321	0.000	13	M. Baldwin
42308.655	4321	+0.004	13	S. Thompson
42314.631	4326	+0.003	19	M. Baldwin
42314.634	4326	+0.006	15	E. Mayer
42320.608	4331	+0.004	33	W. Farrar
42326.586	4336	+0.005	12	E. Mayer
42326.588	4336	+0.008	19	H. Smith
42333.757	4342	+0.005	15	S. Thompson
42333.758	4342	+0.006	11	T. Cragg
42345.709	4352	+0.004	14	S. Thompson
42357.663	4362	+0.006	14	S. Thompson
42376.783	4378	+0.002	28	G. Samolyk
42387.545	4387	+0.007	18	M. Baldwin
<u>TV Cassiopeiae</u>				
42057.554	12104	-0.026	9	B. Small
42086.565	12120	-0.017	8	B. Small
42289.574	12232	-0.021	9	B. Small
42365.688	12274	-0.036	10	K. Simmons
<u>AB Cassiopeiae</u>				
42327.646	6373	+0.014	13	G. Samolyk
<u>U Cephei</u>				
42155.743	1550	+0.027	17	M. Baldwin
42357.683	1631	+0.031	19	S. Thompson
42362.670	1633	+0.032	17	S. Thompson
42367.655	1635	+0.031	17	S. Thompson
42367.656	1635	+0.032	27	M. Baldwin
42367.665	1635	+0.041	12	K. Simmons
42367.674	1635	+0.050	9	R. Sweetsir
42387.592:	1643	+0.023:	10	R. Sweetsir
42387.601	1643	+0.032	27	M. Baldwin
42387.605	1643	+0.037	10	K. Simmons
42392.583	1645	+0.028	23	M. Baldwin
<u>XX Cephei</u>				
42357.570	1870	+0.002	10	B. Small
42392.627	1885	-0.001	23	M. Baldwin
<u>EG Cephei</u>				
42249.641	28130	+0.017	9	E. Mayer
42298.639	28220	-0.001	10	D. Sharpe
42328.606	28275	+0.012	37	W. Farrar
42342.766	28301	+0.011	12	M. Baldwin
42358.564	28330	+0.016	10	B. Small
42360.733	28334	+0.006	14	G. Wedemayer
42367.813	28347	+0.006	9	G. Samolyk

<u>J.D. hel.</u> 2,400,000	<u>E</u>	<u>0 - C</u>	<u>n</u>	<u>Observer</u>
<u>EG Cephei</u>				
42367.818	28347	+0.011	8	G. Wedemayer
42404.851	28415	+0.010	12	G. Wedemayer
<u>RW Comae Berenices</u>				
42213.621:	38649	-0.011:	9	H. Smith
<u>W Corvi</u>				
42165.631	36859	-0.007	9	B. Small
42167.572	36864	-0.006	6	B. Small
<u>V Crateris</u>				
42164.652	20945	+0.025	12	M. Baldwin
<u>ZZ Cygni</u>				
42242.616	33574	-0.030	21	W. Farrar
42264.613	33609	-0.034	5	E. Mayer
42269.649	33617	-0.028	14	W. Farrar
42286.619	33644	-0.031	12	D. Sharpe
42291.647	33652	-0.032	13	D. Sharpe
42313.643	33687	-0.037	16	D. Sharpe
42325.588	33706	-0.036	29	W. Farrar
42386.561	33803	-0.038	15	M. Baldwin
42391.595	33811	-0.034	16	M. Baldwin
<u>BR Cygni</u>				
42165.777	6534	+0.018	12	M. Baldwin
<u>W Delphini</u>				
42309.653	5048	+0.129	14	E. Mayer
<u>TT Delphini</u>				
42286.658	1403	+0.044	17	E. Mayer
42309.636	1411	+0.053	14	E. Mayer
<u>TY Delphini</u>				
42256.680	11952	+0.003	13	M. Baldwin
<u>FZ Delphini</u>				
42298.718	14012	+0.014	12	D. Sharpe
42309.666	14026	-0.002	14	E. Mayer
42320.631	14040	-0.002	32	W. Farrar
42360.575	14091	-0.003	8	M. Baldwin
<u>Z Draconis</u>				
42120.574	6521	0.000	17	E. Mayer
42367.629	6703	+0.001	25	M. Baldwin
42386.633	6717	0.000	21	M. Baldwin
<u>Al Draconis</u>				
42296.616	2702	+0.010	11	E. Mayer
42326.586	2727	+0.009	12	E. Mayer

<u>J.D. hel.</u> 2,400,000+	<u>E</u>	<u>0 - C</u>	<u>n</u>	<u>Observer</u>
<u>YY Eridani</u>				
42047.622:	26221.5	-0.011:	7	T. Cragg
42067.563	26283.5	-0.002	6	B. Small
42081.545	26327	-0.006	6	B. Small
42090.546	26355	-0.007	12	M. Baldwin
42094.569	26367.5	-0.002	9	M. Baldwin
42099.547	26383	-0.007	11	M. Baldwin
42376.834	27245.5	-0.011	15	G. Samolyk
42376.835	27245.5	-0.010	14	G. Wedemayer
42387.622	27279	+0.007	7	R. Sweetsir
42427.636	27403.5	-0.005	9	K. Simmons
<u>SZ Herculis</u>				
42195.634	8811	+0.024	28	W. Farrar
42240.631	8866	+0.026	22	W. Farrar
42249.626	8877	+0.022	7	M. Baldwin
42267.626	8899	+0.024	29	W. Farrar
42271.721	9804	+0.028	13	G. Fortier
42325.711	8970	+0.024	11	T. Cragg
<u>CT Herculis</u>				
42249.620	1620	+0.043	9	M. Baldwin
42249.625	1620	+0.049	10	E. Mayer
<u>SW Lacertae</u>				
42050.521	13962	-0.058	5	B. Small
42053.564	13971.5	-0.061	13	B. Small
42054.533	13974.5	-0.054	8	B. Small
42063.514	14002.5	-0.053	7	B. Small
42066.561	14012	-0.053	7	B. Small
42067.521	14015	-0.055	5	B. Small
42068.493	14018	-0.045	7	B. Small
42070.561	14024.5	-0.063	8	B. Small
42071.528	14027.5	-0.058	8	B. Small
42075.539	14040	-0.056	6	B. Small
42080.510	14055.5	-0.056	6	B. Small
42093.507	14096	-0.049	4	B. Small
42249.688:	14583	-0.063:	7	B. Small
42284.645	14692	-0.065	12	B. Small
42285.605	14695	-0.067	10	B. Small
42286.563	14698	-0.071	9	B. Small
42305.653	14757.5	-0.065	9	M. Baldwin
42308.539	14766.5	-0.065	8	B. Small
42308.544	14766.5	-0.060	8	M. Baldwin
42311.585	14776	-0.066	10	B. Small
42312.546	14779	-0.067	9	B. Small
42358.567	14922.5	-0.071	10	B. Small
42360.651	14929	-0.071	7	M. Baldwin
42360.656	14929	-0.067	10	E. Halbach
42360.656	14929	-0.066	9	B. Awe
42361.613	14932	-0.072	10	B. Small
42361.802	14932.5	-0.043	5	R. Sweetsir
42362.577	14935	-0.070	11	B. Small
42362.748	14935.5	-0.059	9	K. Simmons
42362.750	14935.5	-0.057	11	R. Sweetsir
42367.552	14950.5	-0.065	7	B. Small
42367.557	14950.5	-0.061	15	M. Baldwin
42367.717:	14951	-0.061:	16	E. Halbach

<u>J.D. hel.</u> 2,400,000	<u>E</u>	<u>0 - C</u>	<u>n</u>	<u>Observer</u>
<u>SW Lacertae</u>				
42371.557	14963	-0.070	10	B. Small
42374.605	14972.5	-0.069	12	M. Baldwin
42376.689	14979	-0.070	15	E. Halbach
42377.494:	14981.5	-0.066:	7	E. Halbach
42387.593	15013	-0.071	17	M. Baldwin
42387.605	15013	-0.058	7	R. Sweetsir
42388.550	15016	-0.075	6	K. Simmons
42388.553	15016	-0.073	12	B. Small
42392.557	15028.5	-0.077	18	M. Baldwin
42399.622	15050.5	-0.069	7	K. Simmons
<u>VX Lacertae</u>				
42304.682	7520	-0.053	27	W. Farrar
<u>Y Leonis</u>				
42094.604	4985	+0.085	8	M. Baldwin
42099.658	4988	+0.081	24	E. Mayer
42099.658	4988	+0.081	13	M. Baldwin
42121.579	5001	+0.083	8	M. Baldwin
42121.579	5001	+0.083	23	E. Mayer
42131.695	5007	+0.082	9	T. Cragg
42158.671	5023	+0.082	17	E. Mayer
<u>Delta Librae</u>				
42157.754	8295	+0.001	10	R. Harvin
42157.768:	8295	+0.015:	13	M. Baldwin
42199.663	8313	+0.018	17	K. Simmons
<u>EW Lyrae</u>				
42278.645	3741	+0.042	19	E. Mayer
42317.620	3761	+0.042	17	E. Mayer
<u>FL Lyrae</u>				
42270.764	1859	+0.023	10	D. Sharpe
42329.554	1886	+0.003	16	W. Farrar
42342.621	1892	0.000	15	E. Mayer
<u>RU Monocerotis</u>				
42119.609	3481	-0.086	10	E. Mayer
42121.545	3481.5	+0.057	10	E. Mayer
42422.639	3565.5	+0.041	10	K. Simmons
<u>U Ophiuchi</u>				
42267.706	20263	+0.003	11	P. Atwood
<u>ER Orionis</u>				
42052.568	13093.5	-0.017	8	B. Small
42059.557	13110	-0.014	8	B. Small
42067.592	13129	-0.024	7	B. Small
42070.558	13136	-0.021	8	B. Small
42077.548	13152.5	-0.018	7	B. Small
42081.564	13162	-0.024	7	B. Small
42096.606	13197.5	-0.012	10	M. Baldwin

<u>J.D. hel.</u> 2,400,000+	<u>E</u>	<u>0 - C</u>	<u>n</u>	<u>Observer</u>
<u>ER Orionis</u>				
42099.568	13204.5	-0.014	12	M. Baldwin
42117.558	13247	-0.019	5	B. Small
42142.544	13306	-0.014	5	B. Small
42146.559	13315.5	-0.021	7	B. Small
42347.895	13791	-0.012	11	E. Halbach
42358.685	13816.5	-0.018	13	G. Samolyk
42358.686	13816.5	-0.017	12	J. Stafl
42360.788	13821.5	-0.032	14	G. Samolyk
42362.710	13826	-0.016	10	R. Sweetsir
42367.799:	13838	-0.007:	8	R. Sweetsir
42374.771:	13854.5	-0.022:	11	G. Samolyk
42376.684	13859	-0.014	9	G. Wedemayer
42376.693	13859	-0.006	13	G. Samolyk
42383.662	13875.5	-0.022	11	D. Sharpe
42389.594	13889.5	-0.018	8	B. Small
42401.663	13918	-0.016	9	D. Sharpe
42404.630	13925	-0.012	10	D. Sharpe
42407.579	13932	-0.027	17	G. Samolyk
42407.790	13932.5	-0.028	16	G. Samolyk
<u>FL Orionis</u>				
42079.566	9431	+0.087	18	E. Mayer
42096.626	9442	+0.087	18	E. Mayer
<u>U Pegasi</u>				
42270.773	15366.5	+0.018	11	D. Sharpe
42341.590	15555.5	+0.001	16	G. Samolyk
42362.766	15612	+0.002	7	K. Simmons
42362.771	15612	+0.007	6	R. Sweetsir
42363.703	15614.5	+0.002	9	G. Wedemayer
42365.606:	15619.5	+0.031:	14	K. Simmons
42367.635	15625	-0.001	8	R. Sweetsir
42370.620	15633	-0.014	22	G. Fortier
42374.557	15643.5	-0.012	13	M. Baldwin
42376.625	15649	-0.006	14	G. Wedemayer
42377.573	15651.5	+0.005	14	G. Wedemayer
42383.561	15667.5	-0.004	11	D. Sharpe
42386.542:	15675.5	-0.021:	13	M. Baldwin
42387.667:	15678.5	-0.020:	9	R. Sweetsir
42391.619	15689	-0.004	16	M. Baldwin
42392.546	15691.5	-0.014	19	M. Baldwin
42401.563	15715.5	+0.009	9	D. Sharpe
42404.548	15723.5	-0.005	8	D. Sharpe
42407.543	15731.5	-0.008	17	G. Samolyk
42422.528	15771.5	-0.014	8	K. Simmons
<u>TY Pegasi</u>				
42325.669	1066	-0.034	19	E. Mayer
42359.684	1077	-0.034	22	G. Samolyk
<u>RT Persei</u>				
42064.571	20616	-0.056	7	E. Mayer
42374.604	20981	-0.056	14	M. Baldwin
<u>ST Persei</u>				
42330.652	1223	+0.004	15	T. Renner

<u>J.D. hel.</u> 2,400,000+	<u>E</u>	<u>0 - C</u>	<u>n</u>	<u>Observer</u>
<u>ST Persei</u>				
42367.731	1237	+0.006	20	M. Baldwin
42383.623	1243	+0.008	25	D. Sharpe
42391.563	1246	+0.003	17	M. Baldwin
<u>XZ Persei</u>				
42391.542	14971	+0.005	14	M. Baldwin
<u>U Sagittae</u>				
42241.656	3884	+0.011	13	P. Atwood
<u>HU Tauri</u>				
42052.615	7981	+0.024	12	B. Small
<u>X Trianguli</u>				
42337.562	4905	-0.032	36	W. Farrar
42362.820	4931	-0.035	13	R. Sweetsir
42362.820	4931	-0.034	11	K. Simmons
42365.737	4934	-0.032	7	R. Sweetsir
42365.740	4934	-0.029	8	K. Simmons
42367.680	4936	-0.032	18	M. Baldwin
42367.680	4936	-0.032	9	R. Sweetsir
42370.592	4939	-0.035	31	W. Farrar
42370.595	4939	-0.031	12	D. DeVoe
42370.596	4939	-0.031	12	J. Searles
42371.563	4940	-0.035	16	B. Small
42401.689	4971	-0.027	16	D. Sharpe
<u>W Ursae Majoris</u>				
42334.608	10616	-0.098	13	G. Fortier
42362.806	10700.5	-0.093	12	K. Simmons
42367.791	10715.5	-0.112	7	R. Sweetsir
42399.662:	10811	-0.104:	7	K. Simmons
<u>VV Ursae Majoris</u>				
42096.623	6907	+0.064	11	E. Mayer
42105.560	6920	+0.066	9	E. Mayer
42120.671	6942	+0.055	14	E. Mayer
42151.608	6987	+0.060	11	E. Mayer
<u>XZ Ursae Majoris</u>				
42073.678	12835	-0.066	15	E. Mayer
<u>BU Vulpeculae</u>				
42250.654	15320	+0.004	28	W. Farrar
42299.588	15406	+0.004	18	E. Halbach
42303.569	15413	+0.002	12	M. Baldwin
42304.701	15415	-0.004	33	E. Halbach
42365.588	15522	+0.001	11	K. Simmons
42365.592	15522	+0.005	7	R. Sweetsir
42373.561	15536	+0.008	22	W. Farrar

¹Time of minimum determined by combining portions of eclipses observed on JD 2442251 and JD 2442275.