

Plan

13 55.2 -41 5-1

02 75

121743

5248

$V_0$  3.78

$(n-n)_0 = -86$

6.25 322  
2.644

-027 -018

±1025

1241 #4.9±0.6

6.25

6.8

-3.

-0272 -0174

29 46

0233 -123



~~0223 -013~~

~~-0027 + 026~~

Spring

~~-00247 -0220~~

~~-0277~~

0324  
0044

~~-0276 -0180~~

36m

120709

HR520

13 48.9 -82 45

B5 III

110507

0

Server

Date

2:44:2-

L-

-4:288

S-

2:28:0

-0:045

-0:32

-0:029

2:58:35

S-

-24:918

S-

2:59:6

-0:116

-0:652

-0:494

31

1:4:686

+13

13:990

+11

-0:580

-0:890

-0:680

-0:812

-0:300

-0:528

+0:500

+0:618

+0:820

+0:000

+0:000

+0:200

+0:000

+0:000

+0:000

1891

L-2

-0:900

-0:820

+0:250

+0:610

+0:000

+0:000

+0:000

+0:200

+0:000

+0:000

+0:000

230

L-2

Comments:

152 226

of len  
5248

10 55.2 41 51 B2 IV

121743

3.82 -21 -94 C

14874

~~3.83 -21 -83 3 5~~

2684

~~-105 +063 +166 (3) 2.628 (3)~~

126  
292

56

-027-018 <sup>+2.5</sup>

+4.9

Varied

E +3

$v_0 = 3.73$

-24 (6.85)

-86

$m\sqrt{-3.12}$

1025±20  
1026±20

13.250 2.1 26.70 94.7

1022  
1022  
1028  
131  
33  
39  
-026  
-035  
-025

26.78  
-20  
27.11

49.8

13.254  
9  
243

90.6

13.242  
15  
330

26.7  
-20  
26.7  
-20  
26.7  
-20  
-0242 -0022  
-0221 -00232

1024  
-0247 -0193

26.78  
69  
69  
26.78

86.78

13.244  
17  
261

Observer:

-9.024

Date

/

0.327

STAF

-0.045

MAGN

TIME

-30.406

-0.657

-0.116

17.837

-0.680

0.090

4.900

234.423

6.850\*

-0.018\*

-0.027\*

-51.000\*

-41.000\*

55.200\*

13.000\*

5248.000\*

Comments:

3.82-21-84

+03

-1.89

5248

18

55.2

-41

51

B2 IV

121743

005

0267

2634

-627 = 018

+49

-105

092

145

2624

9559 7154

0452

063

146

0907 -6445

0022

126

272

375

0078-030

031-023

105 or

(2.1)

-285

6.6

24-19

9995 - 7482

0316

- 034

0306

007

-13

0062

004

-714 247

-7235 247

-980 2458 5.26

-7216 2458 4.5

$$\begin{array}{r} 13.240 \\ 124 \\ \hline 410 \end{array}$$

2.1

$$\begin{array}{r} -002530 \\ -0022 \\ -0027 \\ -0022 \end{array}$$

$$\begin{array}{r} -026 \pm 28 \\ -027 \\ -028 \\ -035 \\ \hline 2539 \end{array}$$

99.7

$$\begin{array}{r} 13.254 \\ +9 \\ \hline 203 \end{array}$$

64.06

26.98

$$\begin{array}{r} -23 \\ 27.21 \\ \hline 26.98 \\ -89 \\ \hline 26.97 \end{array}$$

(26.98)

$$\begin{array}{r} -00240 \\ -00219 \\ -0248 \\ -245 \\ \hline 2539 \end{array}$$

-00240 -0270

-00219 -0232

$$\begin{array}{r} -0248 \\ -245 \\ \hline 2539 \end{array}$$

(34.06)

$$\begin{array}{r} 13.342 \\ -11 \\ \hline 330 \end{array}$$

26.54

$$\begin{array}{r} -27 \\ \hline 2675 \end{array}$$



Observer:

898.2-

L

- 1

0.327

STA

-0.045

IME

-27.450

25-

-0.657

-0.116

15.535

hit

-0.680

0.090

4.900

208.930

188  
6.35

\*6.600\*

\*-0.018\*

\*-0.027\*

\*-51.000\*

\*-41.000\*

\*55.200\*

\*13.000\*

\*5248.000\*

137

~~21~~

Comments:

12/10/87

12 54 20 248 41 30

13 51.2 48 26

A4 D

50034 2016

035-016

9844 → 9330 ✓ 034 ✓  
D58 4802

17 A.36 < 87 06

119221

13 297

44B

119221

13 297

44B

71

020

1

$49.4 \rightarrow -104 + 0.98 + 182 \text{ (3)}$   
 $2 \text{ mm} \quad 21.5 \quad 12 \quad 34.2 \quad -68 \text{ out} \quad 52 \quad 280 \quad 2 \text{ IV-V}$

$47 \text{ mm}$   
 $109618$

$2.68 - 0.20 - 0.84 \quad \leftarrow$

$(257) \quad 2.681$

$(2.645) \quad (3) \quad 1333$   
 $283 \quad 125$   
 $(97) \quad 808$   
 $1108$

$E+105$   
 $-0480 - 0125$   
 $FRS$

$+11.8 \pm 1.1$

$2.58$   
 $2.35$   
 $4.88$

$2.19 \quad 480$   
 $2.61$   
 $V_0$

$E = 4$   
 $V_0 = 2.56 \text{ (5.0)}$

$8169 \quad -9296 \quad 0493$   
 $4934 \quad -3687 \quad -056125$

$9133 \quad -9310 \quad 0492$   
 $4073 \quad -3652 \quad 42.2 - 3550$   
 $0411 \quad \pm 6 \quad 0792$   
 $000 \quad 0-55 \quad 515$

$-24$   
 $-879$   
 $m \checkmark -242$

4787

109387

12 31.4

170 04

06209

352 10.756

005929 -018±28 -019  
-0073 Scan -028  
-0070  
1000  
37.0650  
57  
2525  
1007

10.10

37.24  
4000  
37.149

15.89  
31  
552

16.600 57.04

37.34  
-35  
1.69

62  
62

10.742 39.20

36.93  
-44  
37.16

22  
81

A.	:	12.600	
C.	:	-68.900	
A.	:	-133.300	
C.	:	-12.500	
NCE	:	5.080	
LUS	:	104	
EL.	:	<del>10.800</del> 12.2	
(U)	:	-0.852	
(U)	:	-0.015	
3 (U)	:	-0.524	
DU	:	194.582	
U	:	<del>14.528</del> 13.00	13.25
q1 (V)	:	0.522	
q2 (V)	:	-0.120	
q3 (V)	:	-0.845	
VP	:	-111.581	
V	:	<del>-20.697</del> -22.00	22.02
q1 (M)	:	0.050	
q2 (M)	:	0.993	
q3 (M)	:	-0.110	
MP	:	-70.263	
M	:	-8.481	8.963

STAR

Observer:

Slur

-113 0876 0463 2617  
12 ~~0876~~

-58

28

9656

F144

(120)

W0444 -0101

-27

W387

W0420 0420

-0390 W055

W380 W058

W380

W020  
W096

W057 -017

S.10

W0535 -0171

-0414

W041 -013

0.220  
 -07220  
 110  
 -011  
 -023  
 15.19 2.7  
 $\frac{50}{80}$   
 1,439

1007220  
 1007  
 1008  
 10059

28.130 5.14  
 $\frac{210}{840}$

28.54 70.16  
 $\frac{210}{478}$

15.19  
 $\frac{29}{15.98}$

28.537  
 $\frac{210}{511}$

17.66  
 9.71  
 -0.2  
 $\frac{29}{29.4.98}$

28.672  
 $\frac{210}{639}$

34.61 15.09  
 $\frac{11}{11}$   
 $\frac{11}{15.24}$



Nov 31

-113 + 086 + 066 (132) (3)

Sum 12 12.5 -58 28 (198) 320

4656

10649

Peak 10054  
9800-20-410  
10054  
10054

2.20  
2.617 (3) 5

(43)

2.71 V  
2.7  
59

941  
247  
-1044

-0412 -1089

9224 -9887  
3970 -1325

116

-0387

7844 -9226  
5460 -3858

0414  
10770 2410

B 13  
V0 = 271 (5.95)

-038 -033

941 -9804  
1328 -1471

-93

-24

MV -3.25

-038 -006

4656.000\*

4656.000\*

12.000\*

12.000\*

12.500\*

12.500\*

-58.000\*

-58.000\*

-28.000\*

-28.000\*

-0.038\*

-0.038\*

-0.007\*

-0.006\*

5.900\*

5.950\*

151.356

154.882 *not*

20.100

20.100

0.151

0.152

-0.472

-0.472

13.391

14.038

-0.086

-0.086

-0.879

-0.879

-30.616

-30.924

-0.058

-0.053

0.066

0.066

-7.469

-6.949

37~

B2 D -E

4406 11 22.2 -71 58 B3 TI

99264 5.58 +0.06 -0.58 C  
15667 +0.22 +0.65 +2.48 B 2.6073

0.90 0.36 2.64 2.64

B2184

204  
-90  
-3  
7.28  
14

Fick bump

F35

77064

4199

AP6 1.003

244  
728

-0.28 -0.03

-0.08 2.50

8105  
5857  
-4992  
-0750

0309  
0289

-1.24 2.14  
-56.7 25.06

4017 25.0

5771

R.A.	:	11.400
DEC.	:	-71.950
PM. R.A.	:	-90.000
PM. DEC.	:	-3.000
DISTANCE	:	7.280
MODULUS	:	286
RAD. VEL.	:	14.000

q1 (U)	:	-0.872
q2 (U)	:	0.217
q3 (U)	:	-0.438
du	:	112.245
u	:	25.944

q1 (V)	:	0.368
q2 (V)	:	-0.299
q3 (V)	:	-0.881
dv	:	-44.353
v	:	-25.002

q1 (M)	:	0.322
q2 (M)	:	0.929
q3 (M)	:	-0.181
PM	:	-55.749
M	:	-18.467

94560

GC15677

W 0757

10 56.0 475 029 67 -48.50

4.3

-50.40(15)  
-48.20(11)

GB

N30

-0217 -022

-0230 13 -031 1.5

-073 -030 6c

HR4222

978 206

4194 10 40.1 -32 25 40

9814 4497  
3441 over  
for

49 1984

\*  
 103 020  
 -145 2495  
 -----  
 2350  
 28  
 40  
 44

92845

14732

1002 144

1131 2351

563 00 (01) C

2.408

(147) 1121  
 FPK  
 6

562 002459 1121 2549

(0.35)

134

28.9 9.1.5

-10234 1021 F124

160 (144)

02

10.66  
 -321  
 -1124 2088

-0246

1760 6

0.7

-32  
 +2  
 111 2088

-0.31

5.9

623

-0217 +002

8324 9999 } 287  
 3641 -1054 } ~



10.860

-32.500

-32.000

2.000

5.900

151.3

154.9

4.000

-0.843

0.535

-0.060

112.367

16.843

417

0.254

0.296

-0.921

-29.631

-8.168

8

0.475

0.791

0.385

-53.273

-6.522

7

9222

12 288 - 57 11

108257

-10231-028

-025-0217

9198

-8836

03'23

3525

-4162

1064

90711

10 25.7

-06 20

+2052

8039

9015

540

8329

P=14.9

0 lev 9 38.5 +10 07 +27.0 a

AR3852

A057480 83808  
13366  
6240

A2+F6 II-III

-142 -04160

~~-142 -0400~~

-142 -0398

-142 -0410

102

-0096 -040 N30

-0096 ± 0.8 -040 ± 0.7 GL 7M30

7A(16)  
30M(14)

10<sup>m</sup> 85<sup>h</sup> optical

-00960 -0407 W<sub>3</sub> SD

80956 -141

-140 -037

7374

6744

1000  
-0070

1403

0360

8.6

0158

529-815 175 985 -142-040 +27.0-007 +5 ✓  
~~1043~~ ✓  
~~1003~~ -185 ✓

082-004116 006 360 569 +24.4 -22 +15 ✓  
2 2901

-8 +35 -2  
+81-22-1

-10 +34 -1 03

+27-20  
-4 +13 -4  
+36-24-6

015

+2 +53

018  
-2 +44 -5

017  
-1 +48 -6

+34 -25-10

83808

9 38.5 +10 7

A2+FL III

HR3852

GL13344

3.52 +49 +21

14(0) L<sub>10</sub>

SB 14

.306

.234

.615 (4) SPC 2.684 (5)

CT

29

351

289

29  
306  
351

2.60

+28.7 -20.4 +0.3

+411 -186 -512

82558  
-102857

9 30.0 -10 57

-0183 +028

8/355 banking  
0171 +081  
-252 +031

0.543 94.2  
1021  
1564

-0173 +025  
-0173 +019  
48.60  
1.39  
49.99

0.5

22  
0.231  
253

70.14

-4  
47.59  
47.63

-0123 +024  
-0195 +0238

0.247 69.17

48.60  
12  
48.12

-258  
-256 +027

261

5089 -8101  
5947 -5863

~~2573~~ 2503

β Cas

311 + 10105

A<sub>1</sub> III

0

9 12.7 69 31 10m -5C

1+R 3655

FIC

W6042

0295 +100 -465

-154 +1095 AC

+106 A1 IV

-156 +102 N

265

-147 +1031

+105

-152 +101

+095

004 140 1272 2736

92  
69.5  
12.5  
106.5  
2.8  
45

2800

02097  
+106.5

-0298  
-0292

-694 +668 -264  
-006 -364 -931  
+719 +648 -248

+5096 +3166 +8262 +23.1 40  
0 -1725 -1725 -4.8  
-5279 +3072 -2207 -6.2

9.2  
B. W. N  
-005040184  
-1.15



667-745 - 937 350-152+101-5-095+47 166  
101 063 113 071 152 834 -1.7 + 1.3 -1.1

R.A. : 9.200  
DEC. : -69.500  
R.A. : -465.000  
DEC. : 106.000  
ANCE : 2.680  
JLUS : 34  
VEL. : -5.000  
  
(U) : -0.693  
(U) : 0.670  
(U) : -0.266  
dU : 871.732  
U : 31.278  
  
(V) : 0.005  
(V) : -0.364  
(V) : -0.931  
dV : -186.960  
V : -1.767  
  
(W) : 0.721  
(W) : 0.647  
(W) : -0.249  
dW : -231.085  
W : -6.692

78316

9 05.0 710 52

8623

108  
-040 115  
565  
859 2.215

(021)

(711)

Sp.R. P-1.8<sup>d</sup> 6

602  
-109  
709

Ampro  
granula

6.4 line

8 56.5 132 37

9 69 +23.37

1+R3575

5.4

-039-041/GC

76813

12417

8-907

43

-0029 -037 N30

-0032±28 -041 ±2.3 GC → N30

718-694 539 842 -039-041 +23.3 -022 +13 -166

028 016 027 015 062  $\sqrt{204}$  +19.6 -14 +14

-5 +43 007

-8 +34 -4 01

+27 -22 0

-10 +25 +2  
+25 -15 +5

015

4 Hops

73840 8 32.7 -12 18 51.2 8125 -10.64

-70 518

5718  
11908

60  
-0056 000 R30  
-0056±1.4 -005±1.4

2481

W<sub>8</sub> 50

8.6

00562 -0079  
-00503 -0053

8.6

-12.3

-84

-6

21  
-00440

-70

-082-056

50-45

12961197 244

1.330 1.224 2.720  
MF

R.A. : 8.600  
DEC. : -12.300  
PM. R.A. : -84.000  
PM. DEC. : -6.000  
DISTANCE : 4.500  
MODULUS : 79  
RAD. VEL. : -7.000

q1 (U) : -0.601  
q2 (U) : 0.608  
q3 (U) : 0.518  
dU : 216.630  
U : 13.578

q1 (V) : -0.100  
q2 (V) : 0.587  
q3 (V) : -0.804  
dV : 22.022  
V : 7.374

q1 (W) : 0.793  
q2 (W) : 0.535  
q3 (W) : 0.292  
dW : -323.625  
W : -27.753

2554 6 44.2 -80 4 6 005

50500

3 Mon

-0176 +0545

FHS

-109.5

+54.5

5.5

20

200 107  
125 142 1103 2810

(2478)

2150

2221-2283  
4520 9786

0591  
0049

}

718  
72  
73  
726  
-13

Remarks

~~242~~ 256  
~~238~~ 254 4118

R.A. : 6.750  
 DEC. : -80.750  
 PM. R.A. : -109.500  
 PM. DEC. : 54.500  
 DISTANCE : 5.500  
 MODULUS : 126  
 RAD. VEL. : 20.000

q1 (U) : -0.236  
 q2 (U) : 0.910  
 q3 (U) : -0.342  
 DU : 254.686  
 U : 25.228

q1 (V) : -0.395  
 q2 (V) : -0.411  
 q3 (V) : -0.821  
 DV : -73.219  
 V : -25.645

q1 (M) : 0.888  
 q2 (M) : 0.059  
 q3 (M) : -0.457  
 DM : -58.902  
 M : -16.549



35072 5 18.1 -50 40

391  
375 185 456 2.634  
1325

189 3/8  
4  
12.8  
+ 8  
46  
2.664  
B 312

1320

2692 4.29 - 05 - 53 52

2.664 32.24

(W380)

(4)

394 %

L.C. - 205

2755  
2664  
09

10015 - 0237  
10015 PRK  
- 20

11.14  
11.10  
+ 18.28

E = +18

V<sub>0</sub> = 350 (6.56)

L. 1002 - 0239

4458

BV = 18

1020  
1021 - 024

7730  
5778  
4953  
1014

2-130 - 6.25

1020  
1021 - 024

6344  
5778  
1014

MV = -2.35

6.36

-7.250

-0.483

0.007

-25.021

-0.064

-0.151

14.070

0.873

-0.097

12.400

158.489

6.000\*

-0.024\*

0.011\*

46.000\*

8.000\*

12.000\*

4.000\*

1220.000\*