+0021 ±7.5 000 ±7.1
+0030 +008

107642 12 19.7 −15 17 6.7 gR2 +10.3

16868

7424 42.877 1900.9 −15 16 38.97 1894.8

−103

774

25.282

17.541

42.823

.882

874

884

+110

36.8

0

20.68

17.00

37.68

+14

37.54

+3.9

41

1933.85

293

146

38.65

+32

1941.49

7534

37.7

37.9

11.866

21.035

42.901

+6

−13

894

37.

20.45

19.73

40.18

0

+4

40.12

4.5

Com B 12 20.0 +26 40

$\lambda - \Lambda = 4.5°$

$\rho = 0$

+16 +44
-0150 -0165
-013 -012 ←

+16

12 Com
-00085 -0142
16 44
-0113 -0142
-010 -010

+26 2337 -0011 -016
~~+26 2113 -0008 -008~~

↓

→ [-012 -011]

8 Com -0013 -014
~~-0012 -0155~~
+
-00110 -0147
-015
+16
-013 -010

12 Com -0085 -0142

9.000*

12.000*
20.000*
25.000*
40.000*
-0.013*
-0.012*
4.500*
73.433
3.000

0.025
0.089

1.995

-0.080
-0.069

52

-5.928

-0.000
3.954

-0.621

0.000*

12.000*
23.000*
25.000*
40.000*
-0.012*
-0.011*
4.500*
79.433
0.000

0.023
0.089

1.847

-0.073
-0.069

-5.916

-0.007
0.994

-0.572

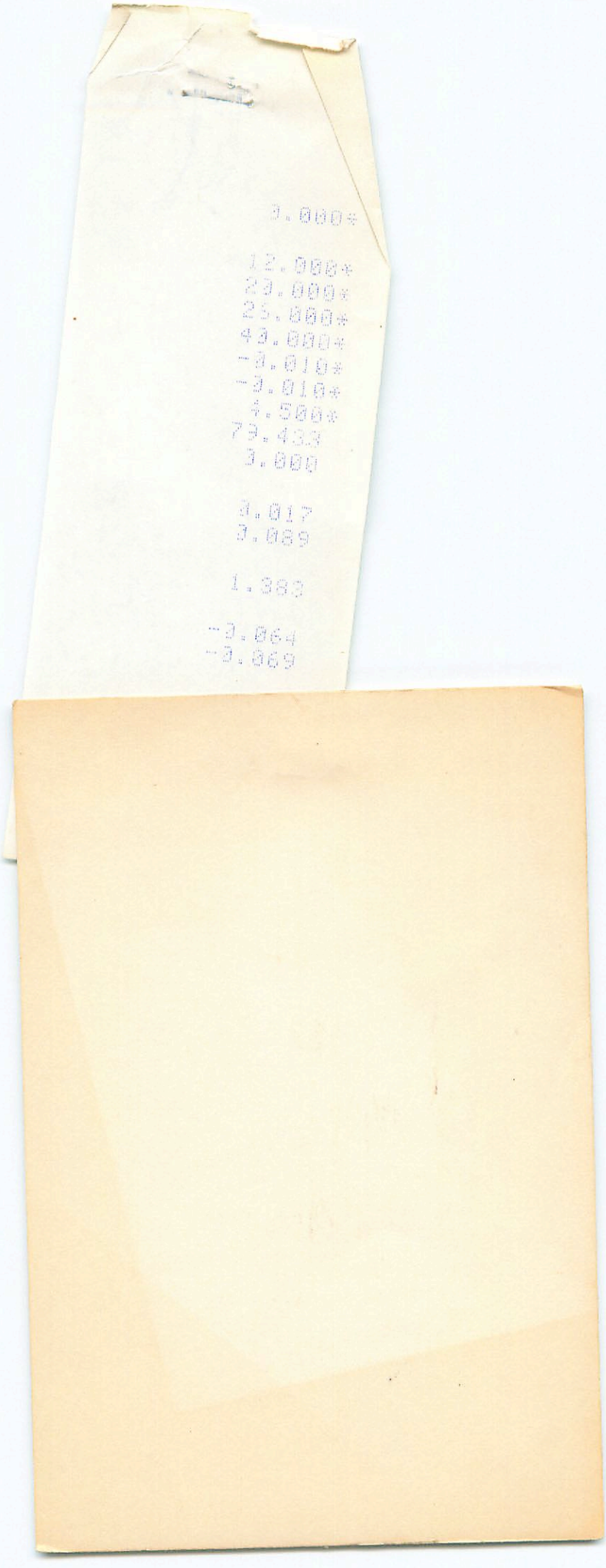
52

TA3

−15.3 ocm

10.81 +0.90 +0.57

→ 4.00


3.000*
12.000*
23.000*
25.000*
43.000*
-3.010*
-3.010*
4.500*
73.433
3.000
3.017
3.089
1.383
-3.064
-3.069

TA 14

5 +55.9 ccw

10.00 +0.74 +0.33

3.80 +08

TA21

+28.1 OCW

10.38 +0.83 +0.42

→ 3.40

126om 4.83 +0.495 +0.265 +16.4 (2) Jan A Sp: B, P = 396.

107700 12 20.0 +26 07 4.8 dF2 +0.5a

11873 46 8.3 dF8 -1.6 b

7428 -0011 -016 N30

A0595'30 -0007 ±1.6 -011 ±1.4 Go III-IV +A3 (4)

9m 66' Nonvariable ~2

Dm = 3.77'

+49.2132

-0018 +004

HD107740 12 20.1 +48 38

53.03
13.682
66.712
090
.622
626

1926.1

-0039 +014

-0030 +010
0
+2

-0028 +010

-028

66.4
19.42
46.98
+14
47.12
10
47202

6.502
21
523
.103

47.68 1952.25
-30
4738
36

-98.4 Orbit wrong

107760 12 20.1 +73 31 dGC -97.9a

GC16874 abt 5 ref

W7430 8.00 +0.73 +0.26 GIER -97.1±0.4 18(W)

Y2852 GIER K+K

+74°493

-457 H60 GC

+30 -77 -93 .030

+44 -81 -98 .025

$\gamma = -97.1$

$K_1 = 67.2 \pm 0.9$

$K_2 = 70$

$e = .073 \pm .014$

$\omega = 229 \pm 11$

032±11 G(B) $P = 5.45$

$m_1/m_2 = 1.04$

$m_1 \sin i = 0.73$

$m_2 \sin i = 0.90$

$\Delta m_v \leq 0.4$ Spectrophotometric

-1072 ± 73 $+160 \pm 10.0$
-1065 $+179$

3.921 1502.2 +73 81 21.88 1509.7
4.588 − 6.45
8,509 15.43
4.450 21.91 1944.82
35
485
6.01 19.1 1930.2
67 −17
077 8,93
10562 7502
5281 37.5
3,228 27.8
30.3
4084
20.42
+4.99

-8.16 (3)

107774 12 20.5 +12 57 120

+18°2526

9.26 +1.05 +0.93 (2)

8.86 +0.385 (1)

8.5

7.95

-31.4 Muffin

-056 -008 Tab

-056 -014 BC

-056 -012 Fin

-054 -006

Var

-0047 ±7.8 -023 ±6.9
-0035 -017

107814 12 20.7 -11 32 6.7 gM3 +3.5 6

16886

7433 43.903 1900.5 -11 32 5.94 1897.5

233

44,136

-0041 -020

-0041 -0185 +44

-061

-059 -014

7.8

26.572

17.340

43.962 +28 .990 44.002

13.034 20.970

44.004 +5 -8 005

604 -132

6.05 492 965

454 127 327

51.4

506 1015

468 183 5

3.0 4.25 7.6

+1.2

4.73

46.54 1934.36

19.32

1.33 1.65 5.86 +1.2 5.71 +35 5.76 5.3

45.96 1941.43

19.67

5.53 +2 +1 5.46

5.41 -.68

7.19 37.9 40.4

54

107814.000*

12.000*
20.700*
-11.000*
-32.000*
-0.059*
-0.014*
7.800*
363.078
3.500

0.212
-0.239

76.092

-0.180
-0.590

-67.527

-0.072
0.771

-23.513

107813 12 20.8 -6 46 -2x8 R(3)

-6°35-59 9.41 +0.35 -0.11 F2E

wh lim

δ=.14

-56 +15 -34 .010

-34 +15 -31 .015

+110±7 -071±7 X

-068 →

G 55-18 12 21.0 +17 10 +26.7 Sw

W 1444 +2473 10.18 +715 +10 21' +2816 (3)

+2927 (7)

3.50

+584 (3)

107906 12 24+ +16 42 122

+1702475 (10)

+53.9 Huffman

-069 -239 Yale

-047 -248 ~~Meriden~~ ~~GC~~ East

8.42 +0.835 +0.32 (2)

847 +0.26 (1)

83

7.9 C 45 / 3.05 MG

-071 -244 GC

-055 -241 GC

~~-065 -252~~

-065 -240 Flat

~~-063 -236~~

-060 -210 BPM

+26C SB(28 days)

107537 12 21.6 +6 15 8.0 gm 4

1,4,6

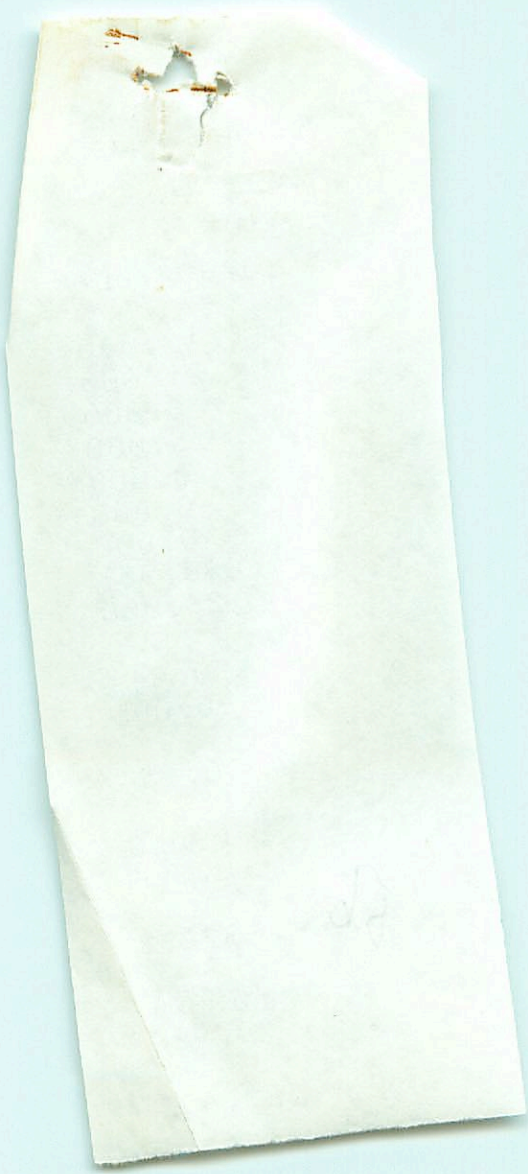
6.19 1.17

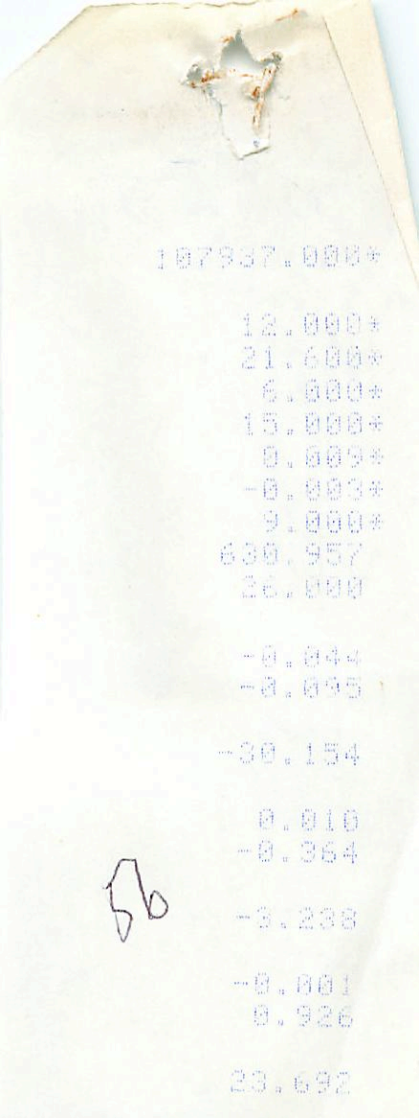
591
15 = 6016907
73
44
8.9

5.87
154
4.3
4.7
9.0

9.0

+0005 -007 Latvia
0 +4
+007 -003
+2 +4
+009 +003





107937.000*

12.000*
21.600*
6.000*
15.000*
0.009*
-0.003*
9.000*
630.957
36.000

-0.044
-0.095

-30.154

0.010
-0.364

-3.238

-0.001
0.926

23.692

#03 (2) (5) (6)

+0.58539 12 21.9 +25 52 -8c

.0112

-009 -014 H

$$-5x^2 - 4x - 5 = 0 \quad \text{و} \quad 5x^2 + 4x + 5 = 0 \quad \text{و} \quad 5x^2 - 4x - 5 = 0$$

$$x^2 + 2x + 1 = 0 \quad \text{و} \quad x^2 - 2x + 1 = 0 \quad \text{و} \quad x^2 + 2x + 1 = 0$$

$$x^2 + 2x - 15 = 0$$

تمرين - ٦ -

5 Cen 12 21.9 -4 9 10 N -9.4 (5)

↓ ~~9.924~~ 6 RM -41 -0267 -026 York Exp

HD107431 6.64 -0.07 -0.195 B9 (2) +0.03 6.1 + 4 + 1

=0003 -025

"003

-864	210	-459	+0123	-0248	-0125	+12.7	+18.8
492	148	-858	-0070	-0178	-0245	+23.1	+35.1
112	967	230	-0016	-1146	-1162	-4.6	-9.4

S 258 +13 2-M

106902 257 +17 7.55 -08 -56 BG +11 8.60

108021 12 22.0 +31 83 G6IV
+82.224

108063 12 22.5 -42 14 G4 IV +33.5 C4

PD 1189

6.10 +0.65 (1.80)

-0118 -032 N30

-0130 -032 GV

-0124 -032

57

12.400
25.850
-11.000
-16.000
4.500
79
-0.400

-0.861
0.504
0.069
2.177
0.145

0.499
0.863
-0.074
-88.899
-7.032

0.097
0.029
0.995
-6.761
-0.935

58

9.10 +22 +12 +1.9 -19
19

+35 02337 12 226 +3; 02 9.4

10 8101

AG12-1 0005 +013 NE30
0027 +012
0016 +012
(+014)

9.13 +139 +215 +816 +14 ±3 ② Swb
9.10 +118 256 823 -19 ±2 ② Pang
35.82
14
884

29.7 1930.1
-18
24.5

35.769
14
7.83
.051

29.47 1949.4
-18
29.29

+0147 ±15.0 +003 ±10.0 −451 (15)
+0198 −029

10813Y 12 22.7 +60 58 7.4 dGO −46.28

16937

7457 42.933 1913.7 +60 58 27.13 1913.1

715 − 0.11

218 27.02

3147 45.12 19273

11.142 15.60

42.612 26.30

−132 26.14

480 26.46 BG 7225

89 −7 26.82 861

489 26.39 (22.4) (23.0)

1324 27.38 19449

42.806 662 −14 −.20

29 27.24

835 +444

-0032 ± 3.9 -013 ± 3.0
-0042 -014

108114 12 22.7 -34 55 5.8 B9 -11.46

16938 -11 3St
7438

-0038

43.258 1906.3 -34 54 34.22 1905.2
148 +.58
1398 33.64

43.260 42.2 34.00 1941.06
-13 244 -14
247 34.16

5445 43222 97.03
-1676 -176 34.25 46.5 43.3
-.61

43.206 43.198 34.06 1955.97
-8 -28
34.34

+3202244 2.30 −0287 ± 8.0 −220 ± 8.3
−273 −250 3W
108153 12 22.8 +32 09 9.3 d184 −19C
16942
7461
148553

50.509 1906.9 +320 8 40.60 1907.7
1.237 9.31
51.746 49.91

51.09 44.5 1930.1
23 −21
.113 44.29

W Vii 1.2 23.4 −03 07 −05.4

−0008 +0007 N30

−0003 +0005 FN3

(N30)

−862	475	−178	+0143	+0156	+0301	+503	3000	+11.6
497	720	−485	−0082	+0239	+0157	+471		+31.7
102	506	856	−0017	+0168	+0151	+453		+56.0

+0184 +0112 +0296

−0106 +0171 +0065

−0022 +0120 +0098

14Com

For Shel

10 5283 12 23.9 +27 33 5.2 A8 -4.3 6

16955

7474

HR 8533

-0013 39 -008 N30

-0011 ±2.0 -010 ± 1.6 OC → N3V

-36 (5)

-44 (1)

4.95 +0.275 +0.175

HR4734

108309 12 24.2 -48 38 6.26 +68 +0.24 5 BS +29.7 7 SA

+29.3 ±0.3 C_2(4)

G-C16557 6.25 +0.68 +0.21 G-5 I-V Cam

X2867 6.25 +0.67 +0.21 18" (1) 5 99 S=00

-48°7426 18.40 +1.28

cpm unk

-48°4744 C0

+28 -51 -4 .06

+36 -61 -7 05

+49 -63 -9 .04

+72 -76 -13 .03

C0321

2864.0

48°7426

9.40 2nd

12 233 377

428 209 371

416 223

414 195

422 220

-0650 -0605hy

-0646 -084

-641

-640 -080

29.5

3.0

-638 -051 GL

-635 -050 CP

-631 -02 N30

-635 -080

15Y(8) 44Y(10)

50L(16) 28L(16)

22(17) 21-C(16)

36±6 32±6

Y2867 Y2864

-0645 ±4.7 -091±4.9
-0648 -086

-105 -994 ~~994 -105~~ -750 661 -635 -058 +24.3 066 -22 -275

-067 007 634 -066 0 3.037 +19.4 -19 -2

-19 +85 -30 035

+59 -70 -11

9.164 1907.3 -4838 7.61 1903.8

2.754

11.918

9.832

-14

818

39.8

18679

9340

2,578

8.883

-20

863

7.20

3.41

6.21 1939.86

-15

6.36

7.46 1954.33

-42

7.88 7.424

7.124

-3.71

9419

47.1

43.3

XX

4784 12 242 -48 44 GSD-T

108305

16957

6.30 +0.68 +0.215 4E

6.05 +0.21 3E

597

545 → +23

315 → +33 → MDA

10.75 +1.12 +0.96 4E

740

10.12 +0.485 3E

+7.57

2.55

W7443 Obs 46,34 /2 24.3 +42 49 Gaugform spo

-10C

G616899 6.5

e=+5

125p

+43

-17

-2

+0.8

126 -077 +00C +3 +0079

+41.8 +1.1

-18.0 +05

-4.5 +4.8

-84 451 225 | +8153 +0193 | +33,44 .1 36.8 -2.2 +34.6

452 853 178 | -1754 +0364 | -1432 -15.7 -1.8 -17

112 -264 956 | -0409 -0113 | 0524 -5.6 -16

125M 5.50

+334 41.7 +43 +1.1

1.1 -14.3 -17.9 -17 +0.8

-5.2 -6.8 -2 +4.8

890 +90

690

5.01 +08 +14 +2.5
1.5

+27°2134 12 24.5 +27 06 A45 5.1

10838?
GC16945

-014
-0005 -016
=0009

-2.4 (8)
+0.4 (3)

29.426 1892.7
025
451

-0007 -015

8.45 1893.5
90
9.35

29.405 -0007 -011 8.88 1941.0?
+9 -0009 -3
414 8.83

71.65

414
29.403 -040 861 1830.63
+10 +6
413 8.67

8.75 1935.8
-.60

87.22278

108408

12 24.7

+36 39 177 −216 (16) 3 (2)

+0036 −019

−0007 023

−0007 −020

29.82
14.262
44.082
−055
44.037
5
032

(27.4)

1524.7
18.

24.0
18.48
5.52
17
5.69
−18
5.51

24.81
18.48
6.33
1
6.50

1430.1
5.4
−21
5.69

1430.1

43.99
11
44.001

44.016

1422.48

43.990
+9
43.999

−017

5.04 1952.41
−20
4.84

7.74 +1.5 +1.3 −23.0

1.4

+37°2278 12 24.7 +36 8 9 7.5

1927.7

10840B 23 29.82 47 24.0 +0036 −019 Gm 25

1 14.242 78.44

44.08 5.52 5.98 548

43.55.02 −5 −017 34 5.9 5.49 1930.1 | 1927.9

24

44.01 .020 −19

5.71 5.70

−034

−0015 −031

0 +3

−0015 −028

−018

−037

24 43.990 05.04 15524

−7 −4

993 64.93

−75

6.81 +7.6 (10)

4740 12 24.2 +72. 43 4 G8 +6.3 f

G8 III

6.24 +1.06 +0.85 3 20" -155 -021 GL

=1

-02

17.34 45.40 23.81

-4 -9

314 2377

4740.000*

12.000*
24.200*
72.000*
13.000*
-0.155*
-0.022*
5.000*
100.000
6.300

0.601
0.412

62.726

-0.435
0.574

60 -39.868

0.003
0.700

4.713

4737 12 24S R28 32

10(38)

R512 (16)
R256 (8)

1023 080 FRS Supp

11845 12 250 +24 56 −13.5 (4)

Van?

+25.2507

b_z m_y c_y β −070 −068 AGN

551 28 8.31 .172 1.2−.754 2.075

−046 −059 Y

−7 −3

−067 −057

−055

−0185 −0.0015

−067 −057

$\beta/(1+z) = 003$

$m_V = 12.6$ $\sigma_V = 0185$

−74

−57

−5.7

−13.9

12.400
24.950
74.000

108464 1g 25.1 +41 38 6.8 dF4 -5.6 δ

16978

7456 −0014 21 −018 N30

−0022 ±3.2 −011 ±2.5 βc → N30

-0014±3.3 -003±3.0
-0005 +005

108477 12 25.2 -16 21 6.5 g64 -8.3 1

16986

7490 13.417 1904.9 -16 21 19.84 1900.5

063 ← 15

1480 19.69

55.583 1.48 1933.89

17.832 18.40

13.415 19.88

40 19.418

455 464 32.4 19.70 .02 -455

12 +35 37.3

467 -016 19.35

13.464 19.67 1940.66 36.8

-2 0

462 19.51

+.18

-1403521

34

108523 12 25.5 -15 22 8.3 dR4 +21.26

L1576

8.34 + 0.685 - 1.81 = 2 24"

7444

-1287

-29 -.13

29 ± 12 C

-226 ± 9 -100 ± 5 CR

-294 ± 14 -123 ± 10 Y

-7 -10

-301 -136


12.400
-15.350
-270.000
-136.000
3.000
40
21.200
-0.861
0.425
-0.280
788.917
25.467
0.499
0.601
-0.624
-1003.585
-53.188
0.097
0.677

(+1) 108564

-16 0341.4 12 25.5 -16 8T

Approx
+81.7 (7)

-540 000

-540 -10

544 to 3 CR

-545 000

033 with 7 c

0251

-17°3632 1668 10858 12 21.0 12 23.5 12 25.9 26.0 -17 29 65 658 -17 -18 0.54

9780 6805 2645 2087 7227 0.34 0.77 .70 x3 x2.7 2.4 7.3 2066 823 757 76 8.6 +0.475 (3) 813

Yale Zone +.185 -.188 -3 -9 +1 +3 9780 6805 2087 7227 35" 25.7 247 2.02 604 9.2: MO +8.7

+0.183 -0.194 17/178 201 -144 120 178

.8861 7088 =1660 -7183 2666 -0054 -0.35 +140 -194 +2.7 1.75 0711 0.74 7.55

658.000*

12.000*
25.900*
-18.000*
-1.000*
0.190*
-0.194*
1.750*
22.387
2.700

-1.150
-0.306

-26.575

-0.073
-0.648

-3.389

-0.573
0.698

-10.949

658 (40866) 12 25.4 −18 01

−17°36'32"

= 24.4

9.16 +1.21 +1.13 ① +0.47 ②

5780 6804
7087 −7327

−39

6453 +04

+2.7

8.13

~1 arc