TABLE 1

SOLUTION FOR KINEMATIC PARAMETERS FOR THE G III STARS

Quantity	Value	Mean Error
$\sigma(1)$ (mean error of unit weight in mas km s^{-1})	112.44	···
u_x (in mas km s^{-1})	−7.63	6.13
u_y (in mas km s^{-1})	23.35	4.06
u_z (in mas km s^{-1})	−3.59	5.23
v_x (in mas km s^{-1})	4.75	4.63
v_y (in mas km s^{-1})	−8.08	6.00
v_z (in mas km s^{-1})	−6.87	5.21
w_x (in mas km s^{-1})	1.57	4.15
w_y (in mas km s^{-1})	−7.68	3.74
w_z (in mas km s^{-1})	−11.39	5.86
S_0 (solar velocity in km s^{-1})	16.72	0.41
A (Oort constant in km s^{-1} kpc^{-1})	14.05	3.28
B (Oort constant in km s^{-1} kpc^{-1})	−9.30	2.87
$V0$ (Circular velocity in km s^{-1})	198.48	26.95
l_1 (longitude displacement)	−26.°45	7.°05
K (K term in km s^{-1})	−7.85	4.99

TABLE 2

VELOCITY DISPERSION AND VERTEX DEVIATION OF THE G III STARS

Quantity	Value	Mean Error
Mean absolute deviation of residuals in km s^{-1}	11.00	···
S_0 (solar velocity in km s^{-1})	16.72	1.05
σ_1 (velocity dispersion in x in km s^{-1})	51.78	0.55
σ_2 (velocity dispersion in y in km s^{-1})	42.81	0.32
σ_3 (velocity dispersion in z in km s^{-1})	28.45	0.22
l_1 (longitude of σ_1)	3.°88	6.°62
b_1 (latitude of σ_1)	0.°28	0.°61
l_2 (longitude of σ_2)	93.°93	1.°90
b_2 (latitude of σ_2)	9.°86	0.°65
l_3 (longitude of σ_3)	−87.°72	1.°62
b_3 (latitude of σ_3)	80.°14	0.°49

on the velocity ellipsoid. Branham (2009b) shows how this incompleteness factor can be evaluated. For the G giants this factor becomes an insignificant $5.6 \cdot 10^{-7}$. Therefore, neither the K_1 nor the K_2 incompleteness factor need be applied.

The covariance matrix to calculate mean errors is given in equation (25) of Branham (2006), and equation (26) of that publication shows how to calculate the errors for quantities, such as the Oort constants, derived from the displacement tensor.

6. RESULTS

After the equations of condition for the kinematical parameters had been formed, I applied two checks for the adequacy of the reduction model. The first check simply calculates the singular values of the matrix of