a good fit). Six stars apparently in the cluster are noticed with $(B-V) \approx 1\overset{m}{.}6$ and $(U-B) \approx 1\overset{m}{.}4$ (big open circles in Figure 2) lying near, but above (i.e., blue-ward of) the giant sequence of SK82, the expected location of the RC stars; their subsequent locations in the CM diagrams confirm this classification (see Figures 3 and 4). A seventh candidate falls further from the expected RC locus in four of the five CM diagrams.

The F-type and RC stars of Be 89 (cf. Figure 2, $(B-V) \approx 1\overset{m}{.}0$ and $\approx 1\overset{m}{.}6$, respectively) lie above the (reddened) ZAMS two-color calibration of SK82 by $\delta(U-B) \simeq 0\overset{m}{.}1$. Our best eyeball fit to the data is shown as the heavy solid curve in Figure 2. In the dereddened two-color diagram, the heavy line gives a value of $(U-B)_0 = -0\overset{m}{.}10 \pm 0\overset{m}{.}02$ at $(B-V)_0 = 0\overset{m}{.}44$, and at this same color index, the highest point of the SK82 hump has $(U-B)_0 = -0\overset{m}{.}02$. The resulting ultraviolet excess, $\delta(U-B) = +0\overset{m}{.}08 \pm 0\overset{m}{.}02$, has been converted to $\delta(0.6) = +0\overset{m}{.}10 \pm 0\overset{m}{.}02$ at $(B-V) = +0\overset{m}{.}60$ with the normalization ratios given by Sandage (1969, his Table 1A). These values have been listed in Table 7, together with the corresponding photometric metallicity [Fe/H]$= -0.35 \pm 0.02$ dex derived with help of the calibration [Fe/H]-$\delta(0.6)$ of Karataş & Schuster (2006). Note that the $\delta(0.6)$ in the notation of the latter authors corresponds to delta(0.6) in the notation of Sandage (1969). Applying the above relation between [Fe/H] and Z, where [Fe/H] has been estimated as -0.35 ± 0.02 dex, gives $Z = +0.008 \pm 0.0003$. The online isochrones of MGBG have been iterated using this metal abundance when further analyzing Be 89.

In Figures 3 and 4, the isochrones of MGBG for $Z = +0.008$ have been over-plotted in five CM diagrams: $(V,\ B-V)$, $(V,\ R-I)$, $(V,\ V-I)$, $(V,\ V-R)$, and $(V,\ B-R)$ after reddening the isochrones along the color axis with a color excess corresponding to $E(B-V) = 0\overset{m}{.}60$, converted with help of Table 6, and adding a visual extinction of $A_V = 3.1 \cdot E(B-V) = 1\overset{m}{.}86$ to the absolute magnitudes of the isochrones. The isochrones have then been shifted vertically to obtain the best fit to the observed lower-MS and and RC sequences. This vertical shift is the (true) distance modulus, $DM = (V_0 - M_V)$. The best fit for Be 89 is $DM = 11\overset{m}{.}90 \pm 0\overset{m}{.}06$ ($d = 2.4 \pm 0.06$ kpc, cf. Table 8).

To derive an age estimate for Be 89, the isochrones of MGBG for $Z = +0.008$ have been shifted in the CM planes as above, i.e., $M_V + 3.1E(B-V) + DM$ and $C_0(\lambda_1-\lambda_2) + E[C(\lambda_1-\lambda_2)]$, respectively, where the latter color excesses have been computed from $E(B-V)$ with help of Table 6, and then the isochrone ages have been varied until a satisfactory fit to the data has been obtained through the observed upper-MS, TO, and RC sequences of the cluster (cf. Figures 3–4). The resulting inferred mean age of Be 89 is $\log(A) = 9.58 \pm 0.06$ dex ($A = 3.8 \pm 0.6$ Gyr).

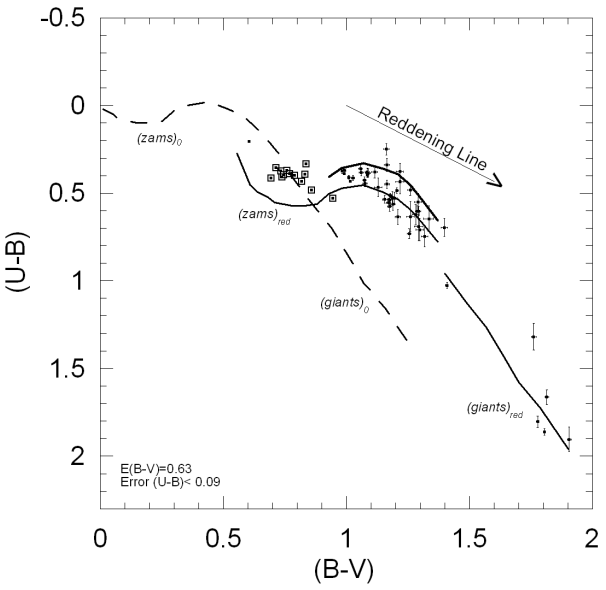

Fig. 5. The CC diagram of Ru135. The SK82 curves and the symbols have the same meaning as in Figure 2. See the text and Table 7 for the inferred values of the reddening and metallicity.

For all of these CM diagrams of Be 89, two isochrones have been plotted to provide a means for appreciating the uncertainties of the derived distances and ages. In Table 8 the range in ages provided by these isochrone pairs, the final values for the distances and ages from each CM diagram, and the mean values for each cluster are given. Error estimates of $(V_0 - M_V)$ and $\log(A)$ are discussed in § 3.4 below, and the mean results given in Table 8 have been calculated with equations (8) and (9) inserting the corresponding parameters summarized in the table.

3.2. *Ru 135*

The same procedures outlined in § 3, and § 3.1 for Be 89, have also been used for the clusters Ru 135 and Be 10. A reddening of $E(B-V) = 0\overset{m}{.}63 \pm 0\overset{m}{.}12$ has been derived for Ru 135 (cf. Figure 5). However, a clump of A-type stars at $(B-V) \simeq 0\overset{m}{.}8$ and $(U-B) \simeq 0\overset{m}{.}4$ seems to be present, with a horizontal-like distribution which does not fit sat-