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The restricted three-body problem with the larger primary a source of radiation and the smaller primary an oblate spheroid is investigated. We use a barycentric, rotating and dimensionless coordinate system $Oxyz$; the origin is at the barycenter of the primaries; the axis x is along the line joining with the primaries; the direction of the orbital angular velocity $\dot{\varphi}_0$ of the smaller primary defines the axis z ; and the axis y completes the right-handed triad. We describe the circular restricted three-body problem in Figure 1. For convenience the dimensionless form is often used [20]. To further investigate the characteristics of the solar sail orbit in the circular restricted three-body problem with oblateness, we need to linearize the system because the differential equations are nonlinear.