The Effect of Using Gapped Beams on a Storage Ring RF System, E.A. HUGHES, CLRC Daresbury Laboratory, Warrington WA4 4AD, UK - The use in electron storage rings of a circulating beam with a significant beam-free gap is growing in popularity. Obviously such a beam induces a voltage in the accelerating RF cavities which is different to that induced by a continuous beam. This paper analyses the cavity voltage seen by the circulating beam in the presence of a gap and the resultant longitudinal motion of the electrons. The importance of gapped beam effects on the RF system for storage ring operation is necessarily a function of the specific accelerator parameters. The Daresbury SRS, which makes increasing use of gapped beams, is presented as an example to assess this importance.