

relative to the laser unit. For example, U.S. Patent No. 7,955,324 which issued to Melcher et al. for an invention entitled "Cornea Contact System," and which is assigned to the same assignee as the present invention, discloses a system for this purpose.

As implied above, the function of an interface device in a surgical laser procedure is essentially two-fold. For one, the interface device is used to stabilize the eye relative to the laser unit. For another, the interface device is used to align the eye with the laser unit. In order to effectively achieve both of these objectives, it is first necessary to maintain the desired optical alignment of the laser unit during the engagement of the eye with the laser unit. Preferably this can be done by avoiding the application of uneven or unopposed forces that may be inadvertently or unintentionally applied against the laser unit during the engagement. It is also desirable during such an engagement that torsional forces against the laser unit be avoided. Further, after a surgical procedure has been completed, it is desirable that the laser unit be disengaged quickly and easily from the eye, without creating unwanted forces on either the eye or the laser unit.

In light of the above, it is an object of the present invention to provide an interface device for engaging a suction ring with a patient interface of a laser unit that symmetrically applies equal and opposite forces against the laser unit during the engagement of an eye with the laser unit. Another object of the present invention is to provide an interface device for engaging a suction ring with a patient interface of a laser unit that avoids the application of torsional forces against the patient interface during an