Abnormal 7000A/B tuning ratios

Normally a fully pumped down thermally stable GCMS QQQ will produce a mid-mass ratio of 80-105%. However it has been seen that these ratios can skew dramatically. FSE’s have reported that these ratios can range from very low 20-30%, to extremely high 130-160% relative to 69 m/z.

In many cases this phenomenon has been caused by failure of the Stage Seal p/n G7000-80001

As these instruments age, the stage seal has shown to be subject to wear in the form of a slight tear on the upper leading edge of the seal. Each time the analyzer door is closed the quadrupole mount rubs against this seal. Should a tear occur, the differential vacuum between the source and collision cell becomes compromised resulting in the abnormal tune ratios as previously described.

Over the life of the 7000 GCMS QQQ the rubber compound has changed. Most original 7000A models had a black rubber compound bonded the metal plate forming the seal. This version has been replaced with a Viton rubber version which is now standard. While the Viton version is more durable it is still subject to wear and subsequent failure.