

ME107A
Experimentation and Measurement

October 24, 2003

TO: ME107A Consulting Group

FROM: George C. Johnson

RE: Heat Transfer

A new heat transfer experiment has been developed for ME107A this semester consisting of a brass ball into which a Type-K thermocouple is embedded. Preliminary tests suggest that the hole for the thermocouple may not be fully sealed allowing water to come into contact with the thermocouple junction. Your task is to devise a test procedure (or procedures) that will allow us to tell whether or not this is the case, or if it matters in terms of the transient response of the ball and thermocouple when immersed in water.

Please present your procedure and examine at least three (nominally identical) balls. In writing your report, please be sure to make clear any assumptions you make. Such assumptions may involve the geometry, the material, the heat transfer characteristics or other items that you find appropriate.