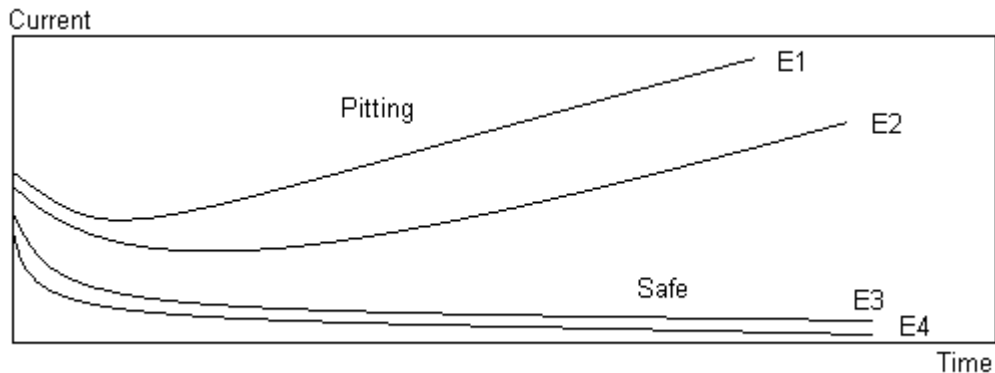
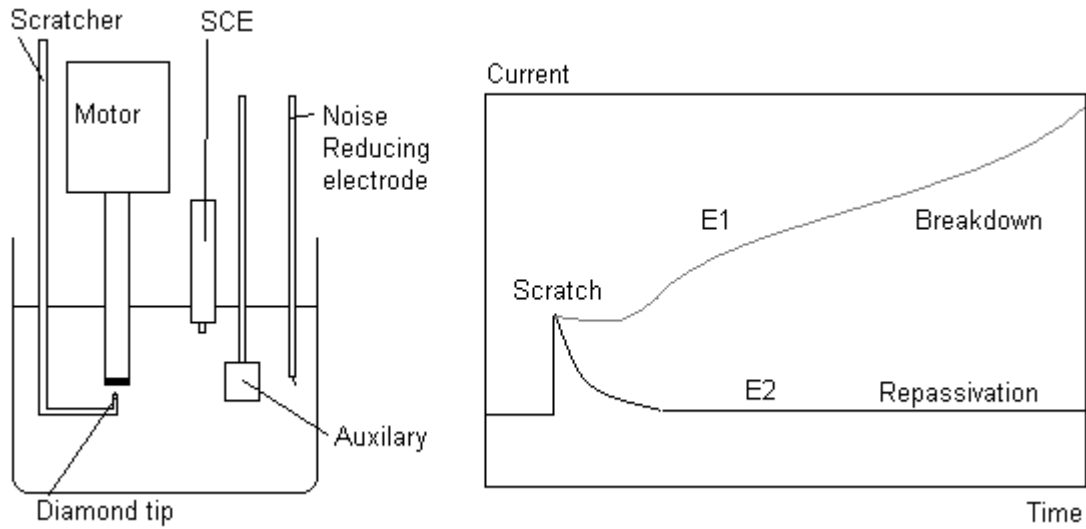

Potentiostatic

The potentiostatic test is usually performed to determine resistance to pit initiation at a given potential and to simulate galvanic situations using any of Gill AC 8 12 Field Machine and manual potentiostat set to a stable potential whilst recording the current. In the study of pitting the cyclic sweep method can have problems related to sweep rate and too much pitting propagation before sweep reversal. The use of individual samples held at potentials around the suspected pitting potential will allow the correct determination of the pitting potential. For example the graph below shows current versus time for samples polarised at different potentials.



In this case potentials E3 and E4 were below the protection potential and E1 and E2 were above the protection potential allowing pits to form. A modification of the potentiostatic method has been built for a customer by ACM. A rig to scratch a rotating electrode with a diamond knife was made and the resulting currents recorded at different potentials.



At potential E2 the mechanically induced scratch repassivated. At potential E1 the induced scratch did not repassivate indicating the potential is above the critical potential. Rapid logging of the current in the first milliseconds after scratching gives kinetic information about the mechanism of repassivation.