In measuring of electrical activity of hearts, the control of accurate function of electrocardiograph and elimination of the measurement deviations is essential. This diploma thesis describes the procedure of putting together and use of nine gauging fixture according to international recommendation R 90 (Edition 1990). These devices are directly connected to the tested electrocardiograph. When following the recommended procedure of measurements and equations it is possible to find out if the parameters of electrocardiograph don't exceed the allowed measurement deviations.