$F = \frac{1}{2\pi RC}$ $RC = \frac{1}{2\pi \cdot f}$ $\frac{6.3}{.08}$ $\frac{}{.504}$

$= \frac{1}{6.3 \times .6} = 4\,Hz$ $= \frac{1}{6.3 \times .08}$ $= 2\ sec$

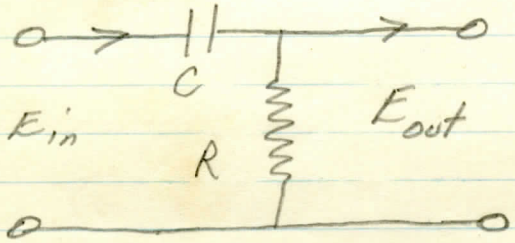
~~Cor~~ Myocardial Ischemia, electronically induced

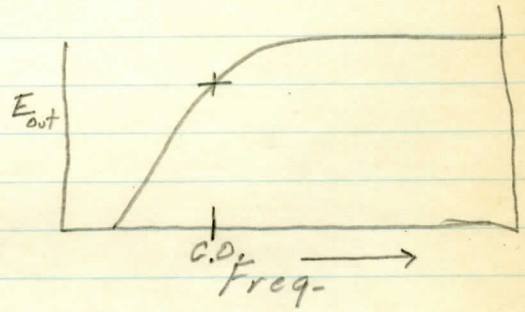
~~After~~ Some casual conversations had me to believe that there is ~~the~~ at least a possibility of NASA falling into the trap that numerous investigators (1) have done. This is the ~~possibility of~~ confusion of S.T. segment depression ~~c~~ an indistinguishable electronic artefact. ~~All so appreciate the~~ ~~note course of this elementary An understanding of~~ the nature of recording systems must always be kept in mind to avoid this difficulty - All modern ~~or~~ E K G amplifiers ~~XX~~ are A.C. coupled i.e. do not record D.C. levels but cut off ~~at i.e.~~ or progressively attenuate both low & high frequencies above some critical value. This is to avoid the problems of base line warder from electrode half cells or other D.C. signals as well as to simplify amplifier design.

Bellet concluded that % of young cardiac males had myocardial ischemia during exercise. Those of us familar ~~c~~ the equipment he used, an only 5 elemedics, realized that he was observing artifacts. The work, to Dr. Bellets, cost so has been repeatedly disproven.

However as will be shown, the low frequency response of the amplifier is critical for accurate EKG registration.

Modern amplifiers are capacity coupled. ~~Good design dictates that a single~~ To a first approximation the low frequency response of any recording system ~~is des~~ may be discussed by in the circuit below.





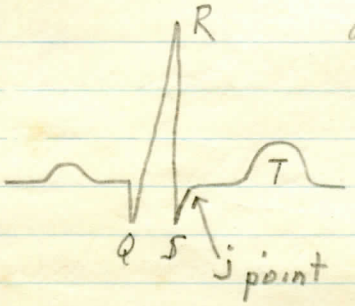
~~If a D.C. steps~~ ~~If~~ In terms of A.C. theory the capacitor passes ~~A~~ varying or A.C. signals while blocking D.C. The lowest frequency which will be passed is a function of the value of the ~~resis~~ capacitor & resistor, C & R. This cut off frequency is defined as that ~~freq~~ point ~~C.O~~ at which E_{out} has dropped 3 db. below E_{in} (C.O. in fig 2.)

Most physiological ~~measurement~~ phenomena that we record ~~is has is a low~~ slow i.e. has a low frequency ~~Conversely~~ and are frequently at a low level. From an engineering standpoint this is an unfortunate area in which to work. To use electronic recording in these areas requires that ~~the engineer doctor physician~~ biologically trained user of the recordings be not only aware of the ~~minimum~~ minimum acceptable performance of the system but ~~is responsible for insuring that~~ must accept responsibility for determining whether or not the system has met the performance criteria. Conversely the engineer must be aware of effects of his systems limitations will affect the ultimate use of the signal and must make the user aware of all limitations, especially changes, in the system.

One point at which this critical interface breaks down again & again is recording

of the EKG. As will be shown one peculiarity, critical aspect of the EKG recording makes it particulary susceptible to system response limitations. If a pun were allowed, the interface is most critical at the 'j' point.

One of the few bits of pathognomonic, ~~signs~~ EKG data is S.T. segment depression.



my engineering definition of this ~~typically~~ obscure + impressive bit of argot is - 'there ain't no doubt about it'