THE MAXIRAN RADIOPOSITIONING SYSTEM   (continued)

Beacon, it responds by transmitting a radio signal reply. The Monitor measures the amount of time elapsed between the Interrogator's transmission and the received reply sent by the Beacon. Since, for all practical purposes, radio signals travel at a known speed, the time elapsed between transmission and response is a measure of the distance the radio signal travelled. The elapsed time is converted by the Monitor into distance and then displayed. Knowing the location of the land stations and the current distance from the ship to each of them, the position of the ship can be readily calculated.

For the purposes of this discussion, let us first assume that only two Beacons are being utilized. They are the Beacons marked "A" and "B" in Figure 1. Since the distance from Beacon "A" to the Interrogator (call it distance A1), and the distance from Beacon "B" to the Interrogator (call it distance B1) are now known (these distances are the distances displayed on the Monitor front panel), we can use some geometry to calculate the position of the ship with reference to Beacons "A" and "B".