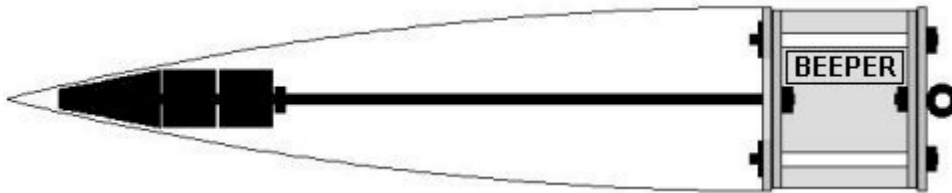
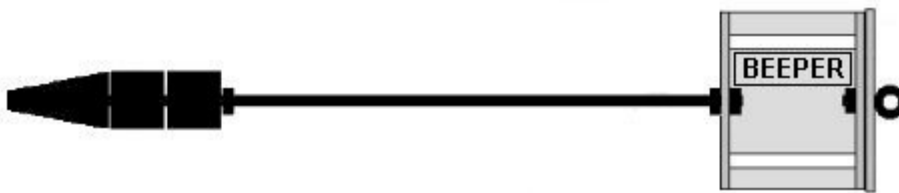


# Nose Cone Design with Beeper and Adjustable CG System

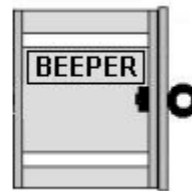
This design all started with trying to find a better way to secure a screw eye to a plastic nose cone. I really liked the 6" fiberglass nose cone that uses a bulkhead at the aft end of the shoulder so I decided to do the same thing with my 4" nose cones. I also liked having the beeper installed in the nose cone and so the next logical step was to change the bulkhead to a removable electronics section for a beeper. Then I started on the scale military missiles, most of which needed considerable weight in the nose for CG control. Rather than making a weighted nose cone for each rocket, I decided on the current system you see here.



This design is based on a 4" diameter nose cone since that is the size of most of my current projects. The only permanent installation in the nosecone is the forward centering ring (3.9" to 2.1") with two 10-24 threaded rods installed in blind nuts. The remainder of the system is removable:



The electronics section is constructed of two coupler bulkheads held together by half sections of 38mm motor mount tube. One of the sections (right) houses the 9v battery used for the beeper. A final bulkhead is mounted to the aft end of the electronics section with the screw eye, a washer and a nut. This bulkhead has the same outside diameter as the nose cone shoulder and it is the primary means of keeping ejection gases out of the nose cone.



The adjustable weight system is a 5/16 threaded rod secured to the electronics section with two washers and nuts. The 5/8 x 1 3/4 steel washers used for weights fit through the permanently installed ring in the nose cones and conveniently weigh 1 ounce each. The nose weight (and rocket center of gravity) is then controlled by the number of removable weights installed on the rod and secured with a washers and nuts. The total weight of the system shown below is 36 ounces (30 oz for the washers and 6 oz for the rod, retaining nuts and washers).

