



the  
**HIDDEN WONDER**

designed by **BOB BAGGERMAN** 21706

Originally this design started off as a joke to pull on our rival rocket club across the river. I wanted to see the looks on their faces when this "single stage" rocket took off and several hundred feet above the ground, sprouted fins and leaped another couple of hundred feet up, to their surprise and bewilderment!

Going back, the original concept and the first actual plans struck me like a sledge hammer during a very dull science class. My mind kept wandering from covalent bonds and valence numbers (I knew them anyway) to rockets. I scrawled my thoughts and designs on scrap paper and stuck them in my notebook. Well, as it turned out, I got an "A" on the science test and had a very interesting and workable design for a sport rocket.

The operation of the rocket is quite simple. Basically this is what happens: the first stage is ignited and the rocket as a whole flies in a conventional manner with the booster fins used for stabilization, but when the booster ignites, the sustainer drag pulls the booster section away and it flutters to earth harmlessly. When the upper stage clears the booster, rubber bands pull the folded fins out to stabilize it through the rest of the flight.

Basic construction is pretty much conventional until you get to the folding fin assembly. For the hinges, I used cloth squares and epoxied them on.

A words about the rubber bands. I used miniature ones given to me by my orthodontist. Their size and strength made them ideal for this purpose. You will have to use similar ingenuity because regular rubber bands will be much too big.

Series 20 body tube was used for both the main fuselage and booster. Anything much smaller would give you a hard time building the folding fin assembly and making it fly in a stable manner.

Stability can be critical in the upper stage. The first and second stage configuration is very stable, which opens up the possibility of boosting it with "D" power (no D-13's, but a D12-0 would be very impressive for demonstration.

If you take your time and put some care into the construction and preparation of the Hidden Wonder, you will have a rocket that will make fellow rocketeers look twice and will really "WOW" the crowd at demonstrations. It may be just the thing to liven up a dull meet!

# HIDDEN WONDER



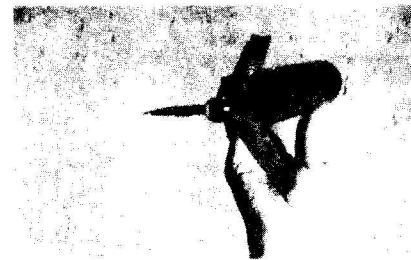
*This "single stage" rocket*



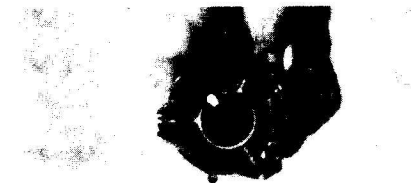
*Sprouts fins,*



*Separates,*

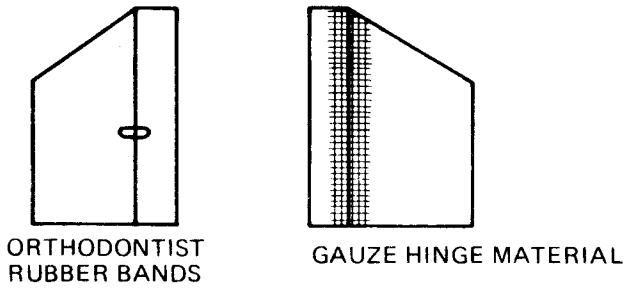


*And continues flying upward.*

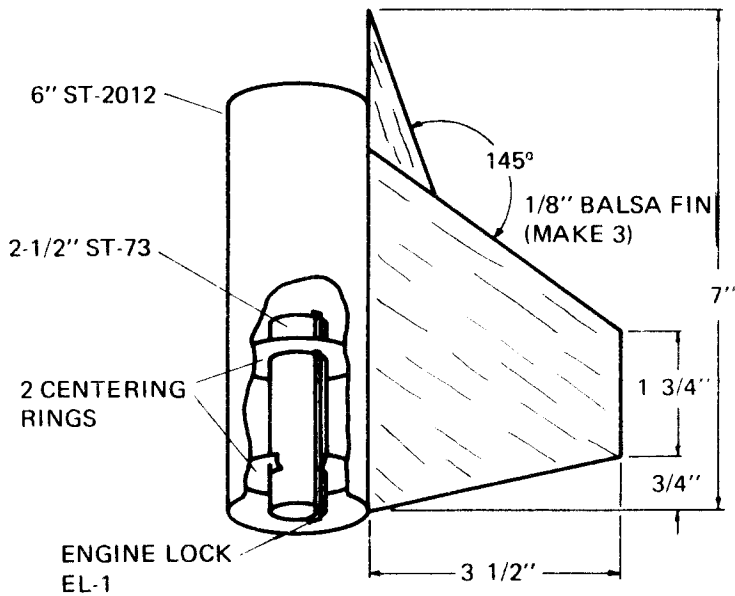
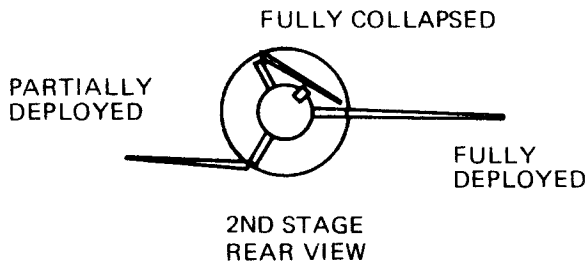


*THE HIDDEN WONDER's fins in their fully collapsed position.*

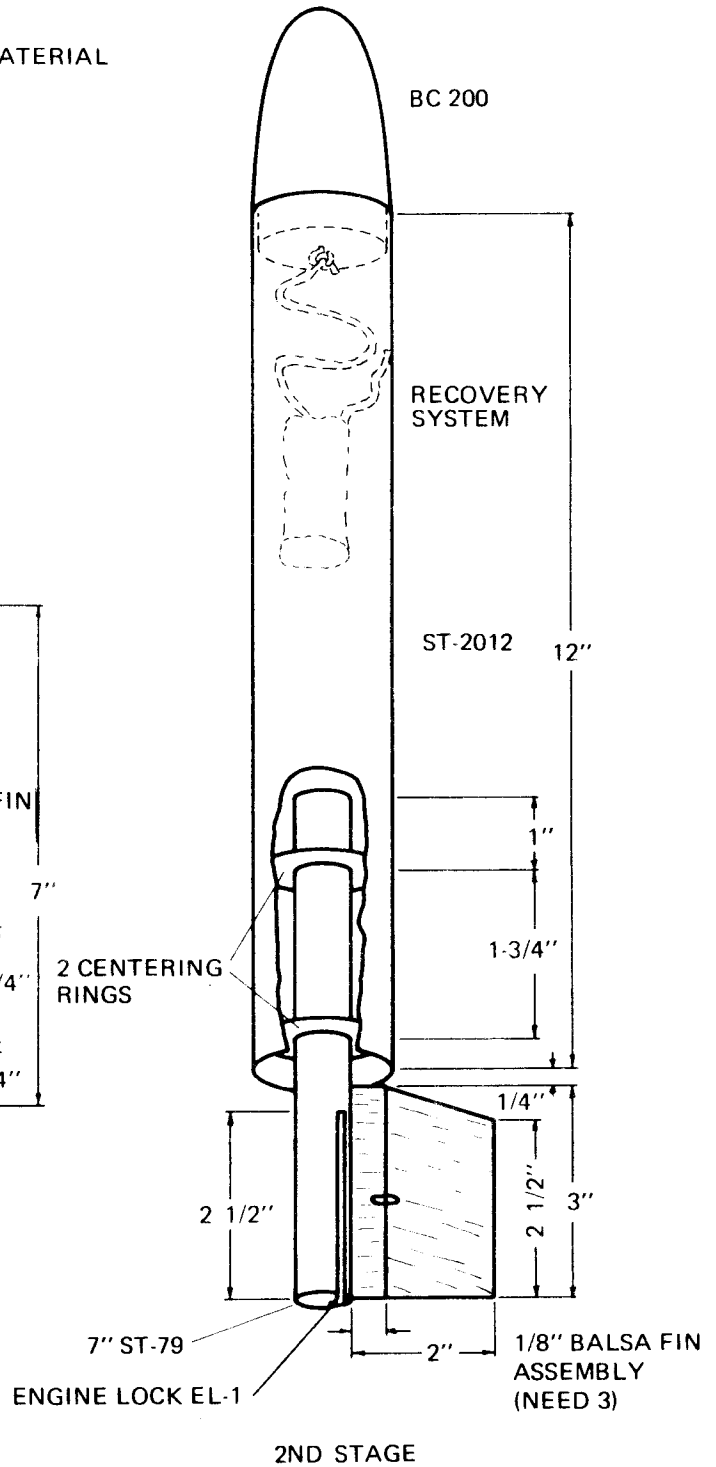
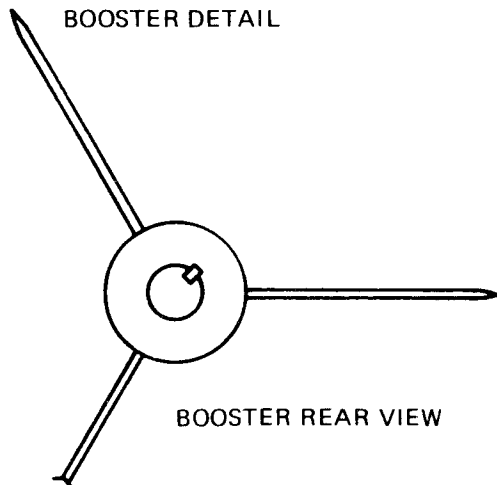
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FIN HINGE DETAIL

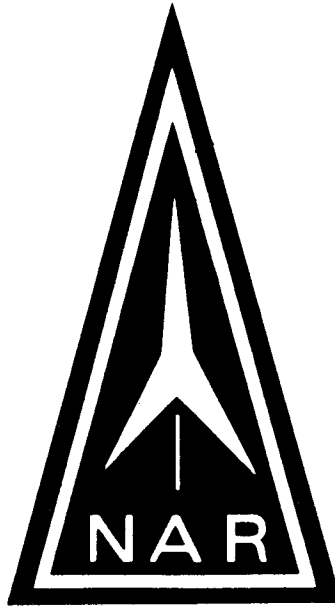


BOOSTER DETAIL



# HIDDEN WONDER

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