

Rooster's step-by-step mine tutorial

This tutorial teaches you how to make a pyrotechnical object called a mine. Most people who have been into some pyrotechnics know what a mine is. A mine is essentially any pyrotechnic garnitures that are shot straight out of a mortar standing on the ground. It is assembled with a fuse that goes down to the lift powder, ignites it, and throws whatever is on top burning into the sky. Mostly these garnitures are stars, but also salutes (maroons), spinners, whistles, and other items can be used.

In this tutorial I will make a 4" mine, but the same technique can be used for any mines ranging from 2" to 6". In this tutorial I will load the mine with stars only, not other garnitures. That does not mean you have to do the same. The only way to learn and achieve breathtaking effects in the night sky is to experiment!

Making the mine casing:

Start by cutting a strip of paper (I use kraft for its strength in handling). The paper I use for the 4" mine is 25x65cm. This will make a bit more than 2 turns on a 4" former. I like to make neat, straight cuts, so I use a ruler. 2 turns is appropriate for my medium-weight kraft paper, and the mine can be handled quite roughly without it being destroyed.



Find a plate of corrugated cardboard/carton, and draw a circle around your case former. My case former is my ~3" mortar. I used an old wine-box for the carton(it is the stuff grocery stores get their stuff in, banana

boxes, anything). It does not really matter if the carton is strong or very strong, just make sure it is not more than 1cm thick. Mine is around 3mm.

Cut out the circles you just made.



Now you should have 2 round discs, and one rectangular piece of (kraft) paper:



Now roll it tightly around your case former, and attach it to itself with a piece of tape. It should look like the picture below:



Put the carton disc inside the former, making it rest on the top of the former. Ideally your former does not have a hole in the middle, like mine, but it's not a big deal.





After this, pull your canister off the former till you have enough paper to get to the center of the disc when you fold it down.



Cut the paper protruding from the former into 1-2cm strips(not too big), and fold it outwards, leaving the end disc exposed like the picture below.



Smear carpenters glue or wood glue(what I use) on the surface of the end disc.



Start pleating down each of the small strips of paper towards the center, like seen above. Put glue on top of these again, so the next set of strips will adhere to them again.



When you are done, it should look something like this. Make sure you pull the strips when gluing them to the end disc, so they stay tight and you get a smooth finish:



Then, gently, pull the mine can off the former, and let the glue dry. When the glue is dry, the can should look like this:



Now, weigh out your lift powder. I use 20grams of pressed black powder (I just run it through a 5mesh screen after smashing it), but since you most likely do not have the exact same lift as I have, you should experiment with your own. You can use a variety of lift powders, including pressed BP, granulated BP, and benzolift. The amount of lift powder I use, does not even cover the bottom of the can:



Make 5 small holes in the disc you have left. One in the middle for the quickmatch or stickymatch to go through, the other four for the fire from the lift powder to ignite the garnitures we will add later.



Now push your quickmatch or stickymatch (I use my own variety of stickymatch, blackmatch in duct tape) through the hole in the middle:



Secure in on the underside of the lift disc by taping it, trying to not tape over any of the other holes in the disc:

Bottom view:



Top view:



Then, gently push this disc down the mine can, so that the match goes down through the middle of the lift disc to the lift powder like this:



Add stars or whatever other garnitures you would like to add. I use chrysanthemum 6 stars of different size here, since I had many of them left, and I didn't want to use them in shells, since the stars are very spiked (non-smooth surface). After adding stars, it looks like this:



Then, twist the paper above the stars (garnitures) together, so it looks like this:



Tie the paper shut with a clove hitch right above the stars. I use linen thread because of its strength, but cotton thread will for just as good. Then it should look like this:



I like to rip off the excess paper above the knot, since I find it better looking. It has no practical use anyway. Do what you like. Looks like this:



I write what the effects are on the side of the mine, so that when I make many mines, I can distinguish them from each other:



And congratulations! Your mine is done, ready to load in the mortar!

Action shot from a 4" D1 glitter mine:

