

# **Hopper Modifications**

Advanced Warp Feed Installation



To obtain a tighter setup with your Warp Feed and hopper the following two options are suggested:

- (A) Melting a groove in the side of the hopper.
- (B) Drilling a pass-thru hole in the hopper.



The feed hose limiting the parallel positioning of the hopper

#### What you'll need to melt the hopper:



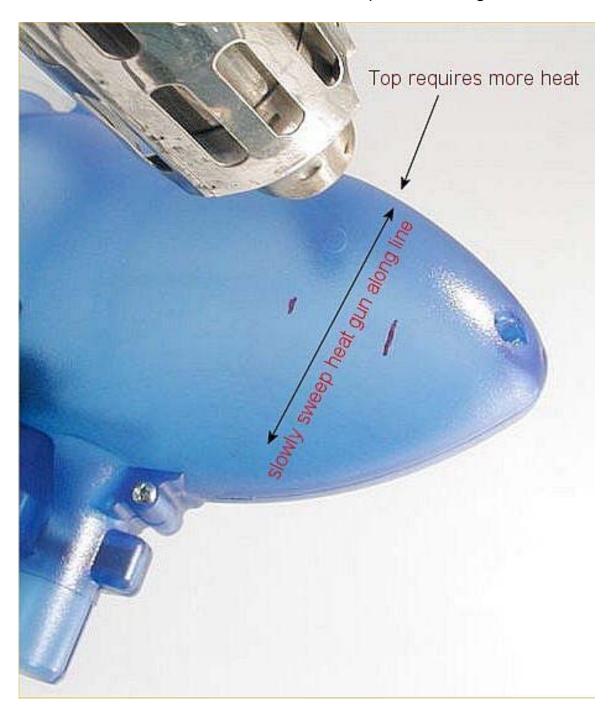
You'll need either a high wattage heat gun or propane torch and a felt tipped marker. This pictorial will show us using a heat gun but the effect is the same with the propane torch. In either case, exercise caution and safety. Do this outside or in the garage!

### Mark both sides of the feed tube on the hopper.



You'll be able to remove this later with some solvent when you're finished.

You'll need to apply more heat to the upper end of the hopper where the material will have to be pushed in edge on.



When you see that the plastic is starting to sag, it's time to make the depression with a barrel or length of pipe.



Press the barrel in and hold it for several seconds. The barrel will help cool off the plastic. Fit the hopper back on the gun to see if you need to deepen the notch anywhere. Don't be alarmed if at first you don't make a notch as deep as you planned on. Its better to err on that side! It may be helpful to go after it a little bit at a time anyway by repeating the process. This will also help give you a feel for how much heat to apply.

### Now we're cooking!



Now, let's look at option (B)

Drilling a pass-thru hole in the hopper



You'll need a Dremel Tool or equivalent with a rotary file bit.



Another option would be a one inch hole saw and a drill, but keep in mind that because of the curved surface of the hopper, the holes will most likely have to be out of round. For that reason, the Dremel is superior.

With the feed tube off, adjust the hopper to a position you are going to be comfortable with and secure it.



From the side, mark where the center of the feed hose will pass through the hopper.



#### Now do the same looking from the front.



Verify the center marks by taking the power feed plug off and looking straight through the feed tube. This will insure you are in the right place.

Turn the marker over and mark the entrance hole from the underside.



Finally, estimate where the center of the hose will pass through from this angle and mark it.





The width of the feed hose is just under one inch. Because the surface of the hopper is curved, the entrance hole will have to be elongated.

If you're not very experienced using a Dremel tool, practice on some similar material until you feel confident. Keep your hand away from the bit! Make sure you hold both the work and the tool firmly as it has a tendency to walk so GO SLOWLY!!





Keep checking your work until the hose will pass through in a direction towards the other hole. A little bit more of this side here and we'll have it!



Remember, there is plenty of room for error, just less than the size of a paintball!

## Nice!!!



Wait till the blimp patrol gets some of this!



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