

HOW TO MODIFY THE TAMIYA BATTLE UNIT (TBU)

In 2012 FRAG decided that the “shotgun” setup by which Tamiya designed its battle unit did not lead to very realistic battles. In real war, one shot did not typically hit multiple tanks that were setting close together.

While taping over the front of the TBU so that it is impervious to frontal hits is one acceptable modification, this also did not create very realistic battles for medium and small tanks. What FRAG felt was needed was more precise and concentrated hits on the TBU.

So, after various field trials and tests, FRAG elected to constrict the beam coming out of the IR emitter, by placing a tube (painted solid black on the outside...inside too if you wish) over the emitter (we call this a “Restrictor”). The tube has a thin piece of styrene (a cap on the tube end so to speak) glued to the front, which has a pin hole drilled in its center. This styrene cap is also painted black. The theory is that the IR beam can only escape thru the pin hole and the beam is thus much smaller in size. Based on our tests, at 30 feet, the IR beam is no more than 6” in diameter if you use a .0635” diameter hole in the Restrictor. This modification forces each player to aim accurately at his opponent’s IR Apple (that little gadget that looks like R2D2 sticking out of the top of your tank).

We have also elected to remove the flash units from the barrels of our tanks, as the flash doesn’t show up all that much in outdoor daytime games. In place of it, we have located the IR emitter which means you have to solder extensions to the two IR wires so it will extend thru the barrel to where the muzzle brake usually attaches to the barrel. This is the point where the Restrictor is used....slide it down inside the muzzle brake and the open end slides over the IR bulb. If at all possible the end cap of the Restrictor should be flush or almost all the way inside the muzzle brake. If it sticks out a ¼” from the muzzle brake or the end of barrel (because there is no muzzle brake) it will look funny and the tube is probably too long (however it will still function). Just make sure the tube is not longer than an inch. The best way to cut the tube is to stick it in the muzzle brake over the IR bulb and mark it flush to the edge of the muzzle brake. Cut it off there and then add the end cap.

The Restrictor is made from a plastic tube....usually one of those containers you can buy at the hobby shop which holds brass wire or structural shapes (a plastic straw may also work). The outside diameter of the plastic tube FRAG uses is .24”. The length varies depending on how deep your muzzle brake is but it is at least .75” long so that the IR emitter bulb is not up against the end cap. The round end piece (end cap) is made from .020” or .030” thick styrene and can be made using a standard hole punch. Use a .0635” diameter (#52 drill bit) for the pin hole. This size opening is critical and must be the same for all tanks, and it must be drilled dead center in the cap.

If you do not have a tank with a muzzle brake, then obtain a plastic tube small enough to slide down into your barrel. It must be between .75” and 1” long. Glue your IR emitter to the one end....be sure you have the styrene cap piece with the pin hole on the other end and paint the restrictor all black (but not the IR emitter).

If you choose not to place your IR Emitter into a barrel, then it will be most likely mounted in the mantlet and you will still have to install the tube over it. You can glue it in place to the mantlet, but make it “no longer” than ¾” long. You may have to enlarge the opening in your mantlet to fit the .24” diameter tube. The tube still has to be painted black all over. If the paint layer is too light or splotchy, then the IR beams will leak out and defeat the purpose of the pinhole.

Once you are done, it will take some practice to aim the Restrictor accurately at a TBU, but that is precisely what real life tankers have to do as well.