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LITTLETON SHOTMAKER INSTRUCTIONS

WARNING! READ AND UNDERSTAND ALL INSTRUCTIONS BEFORE USING THE LITTLETON SHOTMAKER! THE LITTLETON SHOTMAKER MUST BE USED IN A WELL VENTILATED AREA AT A ROOM TEMPERATURE OF NO LESS THAN 65 DEGREES FARHRENHEIT. NEVER LEAVE YOUR LITTLETON SHOTMAKER UNATTENDED. NEVER ALLOW YOUR COOLANT TEMPERATURE TO EXCEED 140 DEGREES F. ALWAYS KNOW THE FLASH POINT OF YOUR COOLANT AND STAY AT LEAST 100 DEGREES F. BELOW THAT FLASH POINT.

FAILURE TO HEED ALL OF THE WARNINGS IN THIS DOCUMENT MAY RESULT IN LOSS OF WARRANTY, EQUIPMENT DAMAGE, PERSONAL INJURY, AND / OR FIRE.

1. Purchase or make all of your needed accessories. This includes 1 or 2 coolant tanks, 1 secondary containment tank, a metal bench to mount the Littleton Shotmaker on, a drying screen, coolant, graphite, 600 grit sandpaper, as a minimum. A 30 or 50-caliber ammo can without the lid, can be used as a coolant tank. A plastic dishpan can be used as a secondary containment tank. We will be offering many accessories for the Littleton Shotmaker in the future. This will include the graphite, coolant, tanks, and a stand, as a minimum.
2. Clean your wheel weights by melting them in a different heating pot and forming the lead in small ingots. A small size, round muffin pan works. The ingots work best if they are no more than 1 to 1 1/2" thick and no more than 3" around. You can also use the RCSB or Lyman 1 pound lead molds. All the steel clips and impurities should be skimmed off of the molten lead prior to making the lead into ingots.
3. The lower the Littleton Shotmaker is to the ground, the safer it is to operate. If you should accidentally drop anything into the molten lead, it will splash back at you. **You should always wear safety glasses when you operate the Littleton Shotmaker. Molten lead can cause blindness or severe burns. Be very careful!** Place the ladle lip no further than 1/4" from the top of the coolant tank. Your coolant tank should be inside your secondary containment tank at this time. Mix and add your coolant to

the very top of the coolant tank. (See the section on coolants). **The Shot must drop no more than ¼ " or your shot will not be round.**

4. Clean the ladle lip with 600 grit sandpaper and put a good coating of soapstone on the ladle lip. **If you do not keep a good soapstone coating on the ladle lip, the shot will be teardrop shaped.** Before using a new set of drippers, put the drippers in a cup of rubbing alcohol and swish them around. Remove the drippers from the alcohol and dry them. This will remove any machine oil, and prevent a hard crust from forming in your drippers.
5. Add about 6 pounds of wheel weight lead into the ladle.
6. Plug in the Littleton Shotmaker and turn on the master switch. The lead will now begin to heat.
7. When the lead is ready it will begin to drip out of each of the individual drippers. The first few minutes of shot will not be as good as shot dropped when everything is perfect. We recommend you catch the first few minutes of shot in a dry, shallow pan and cool it to be remelted. **Never put wet lead into molten lead. Steam rapidly develops and will splash molten lead on you. This can cause severe burns.**
8. Keep the molten lead level about 1/8 " above the top of the drippers. **If the level is too high, the lead will run out, instead of dripping.** It is very important to keep scum from entering the drippers. The most critical time to watch for scum in the drippers is when you first start a new set of drippers or if you allow the level to get below the drifter openings. **If the molten lead becomes too hot, the lead will run, not drip. If your alloy is reclaimed shot, it will make shot ½ size smaller than the drifter is marked.** When the lead begins to drip, take a spoon and moderately rap the top of the ladle. This will cause all of the drippers to become more uniform in the dripping action.
9. After you have accumulated about 1/3 to 1/2 of your coolant tank filled with shot, you should tip the Littleton Shotmaker up in the front and put a 2" X 2" block under the front. **Do not use your bare hands for this operation. Always use vise grips or pliers and heavy leather gloves. Failure to do this will result in severe burns.** You can now empty your shot into a screen with a container under it to recover your coolant. Put your coolant back into your coolant tank and top off the coolant tank with fresh coolant. You should remove the 2" X 2" block after lifting the front of the Littleton Shotmaker, (using the above cautions), and start the shotmaker working again. While the Littleton Shotmaker is running again, you can rinse the coolant off of your shot and dry it on a screen fastened to a frame. A wooden frame with chicken wire under window screen works well. Using a fan and / or adding heat can expedite drying.
10. The shot dropped from the Littleton Shotmaker is "relatively round" just as the shot from a 120 foot shot tower. The dried shot can be used like it is, coated with graphite, or tumbled with graphite prior to being loaded. Adding graphite to the shot helps keep the shot from clumping together when loaded. If you choose to tumble your shot, it will

be more round. You must use a tumbler that has no obstructions in it and is round, not hexagonal shaped.

COOLANTS

There are four different coolants being used, by our customers, with good success.

1. The first coolant is a mixture of water-soluble oil and water. Many of these machine oils do not work well. Use the lightest weight water-soluble oil available. Two parts water-soluble oil to three parts distilled water is a very good place to start. Metsafe FR 210 seems to be the best of this type, but is getting expensive. This is the coolant that Jerry Littleton favored. **If your shot is out of round, add a little more water and mix again. If your shot has dimples, add a little more water-soluble oil and mix again.**

2. The second coolant is liquid soap. The best of these seems to be **ALL**. This is available in most locations and rinses off the shot with a lot of water. If you choose this coolant you will need to add a little distilled water to thin it out a bit. We will have more detailed information on this coolant as it is tested here in our shop. This coolant requires a lot of rinsing to remove the soap. We did test this coolant and found the manufacturer has recently changed the formula. **We do not recommend this as a coolant because it is hard to wash off.**

3. **One of the best choices of the easy to find coolants is a RV antifreeze. Use it straight out of the container. This is a recommended coolant!**

4. Several of our customers have reported very good results with Altra Performance Products FR 200 WG from ~~Alegany~~ petroleum. This is a water-soluble flame retardant machine oil that is used without dilution. It is a 10-weight oil and does not cause dimples in the shot.

The Best
Now - Advantage FR 46 800.600-2900

No matter which coolant you use, the rules boil down to: **If the shot is out of round, the coolant is too thick. If the shot has dimples, the coolant is too thin.**

TROUBLESHOOTING PROBLEMS

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PROBLEM	POSSIBLE SOLUTION
1. Shot out of round	Molten lead is dropping more than ¼", position the coolant tank closer to the ladle lip. Coolant is too thick, add a little distilled water. Need to clean and coat ladle lip with soapstone. Liquid lead is too cool, solid lead may be touching the liquid lead.
2. Dimples on shot	Coolant too thin, add a little more oil or soap.
3. Lead runs not drips	Lead is too hot, add more lead to the ladle.

Lead may be too pure, add more wheel weight to your Alloy.

4. Lead will not drip out
Or is an unusual size

Dripper has scum in it, clean out the drippers.
You may rap the top of the ladle with a spoon to try to clear it out. A short moderate rap is sufficient. If this does not clear up your problem, you will have to remove each dripper, heat it up and rap it sharply on a piece of wood to clean it out. Use pliers to hold the dripper, it will be hot and could burn you.

Attention:

We have found that SIERRA BRAND Antifreeze is foolproof, and there is no need to dilute this coolant. However, it may leave a small dimple in the shot.

Cautions:

If you allow the temperature to get above 140 degrees F. you may have a fire on your hands.

Do not allow the coolant temperature to get too hot.

Do not use diesel fuel as a coolant.

Never leave your Littleton Shotmaker unattended! You will run out of lead and cause damage to the Shotmaker, void your warranty, and / or cause a fire!