



**IMPORTANT:** TO PREVENT DAMAGE TO YOUR MOLD OR POOR QUALITY LEAD CYLINDERS, FOLLOW THESE INSTRUCTIONS EXACTLY.

\*\*\*ALWAYS WEAR SAFETY GLASSES AND GLOVES\*\*\*

- 1** Remove all traces of oil. Wash mold block in white gas, mineral spirits, or strong detergent and water.
- 2** Ensure that the spruce plate is not too tight and clean of debris to prevent galling.
- 3** Never force the mold blocks closed. New mold blocks may be “sticky” at the alignment pins until they are properly broke-in. A touch of silicone bullet lube may be needed.
- 4** Hold a match or candle flame in contact with the mold cavity so it deposits a thin film of carbon in the cavity.
- 5** Preheat mold. Dip corner of the mold into the molten metal and hold there for 20-30 seconds. If the lead solidifies on the mold blocks it's an indication metal is not hot enough.
- 6** Pour the molten metal into the mold blocks through the spruce plate. If you have a problem with trapped air, pour the metal on the spruce chamfer instead of directly into the hole. This causes a swirling action that better fills the cavity.
- 7** Just before complete solidification of the metal in the spruce plate, strike the spruce plate with a wood dowel to cut the spruce. Move the plate 90° to clear the base of the lead cylinder.
- 8** Open handles and tap handle hinge bolt to shake the lead cylinder out. If mold doesn't open easily, gently tap the aluminum block near the bottom while applying light pressure to open the blocks.

**WARNING:** If lead cylinders do not drop out with a tap on the hinge, Heat the corner of the mold in molten lead. NEVER try to pry out the lead cylinder.

**Preparing Lead Alloy**

Pure lead (5 BHN) for grinding medium is too soft. #2 Bullet Alloy (15 BHN) or Linotype (22 BHN) works well. To make #2 alloy (This is made up of 90% lead, 5% tin, and 5% antimony), mix 9 lbs of wheel weights with 1 lb of 50/50 tin/lead solder. After the metal has melted it will have a gray scum on the top. Don't remove this as it's the tin that has separated from the lead. Flux the metal. Do this by placing a pea size portion of bees wax or paraffin into the molten metal and stir from top to bottom with a ladle until there is nothing but dark grey powder floating on the metal. Remove the dross and impurities with a small ladle. Always flux the metal when adding new metal to the pot, or when it needs it.

The smoke caused by fluxing your metal can be ignited with a match. This will keep your work area smoke-free. Use strong ventilation.

**Caution:** Be extremely careful not to get any water into the molten lead, Even a small drop will explode into steam and violently spatter hot lead a surprising distance.

<b>TROUBLESHOOTING</b>	<b>PROBLEM</b>	<b>CAUSE</b>	<b>REMEDY</b>
	<b>Mold not filling out</b>	Mold too cold	Dip corner of mold in molten metal 10 sec.
		Oil in mold	Wash blocks in solvent, white gas mineral spirits, etc.
		Metal not hot enough	Increase Heat.
		Alloy no good	Sometimes an alloy just doesn't cast well. Try adding more tin which helps the alloy to flow.
Metal needs fluxing		Flux the metal as per instructions.	
<b>Takes long time for metal to solidify</b>	Mold too hot	Place mold in front of a fan or let sit to cool off. <b>Never</b> use water!	
<b>Mold does not line up or closes with difficulty</b>	Needs lubrication	Lubricate mold as in Step #3.	
<b>Mold does not release lead cylinder</b>	Burr at part line	Remove burr by scraping <b>very very lightly</b> with a sharp knife inside the cavity. Caution: damage may occur if done wrong.	