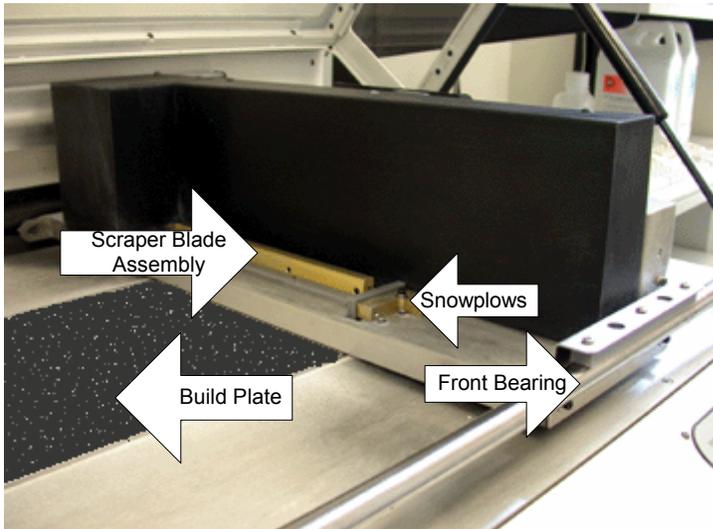
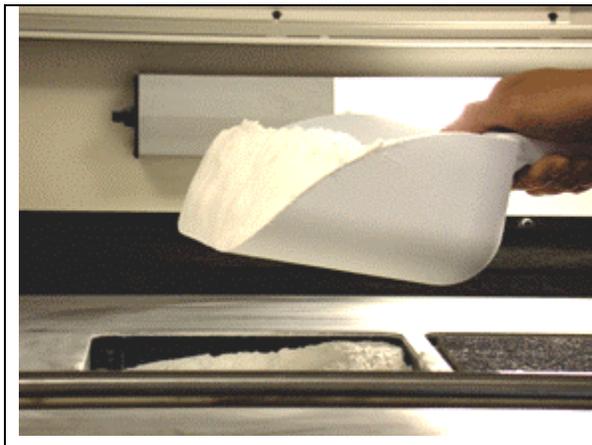


## Using ZCast™ Powder on the Z<sup>®</sup> 406 Printer



Before using ZCast powder, a hardware upgrade (Z406 ZCast Kit, part number 06105) is needed to prevent damage to your Printer. The three hardware changes are new snowplows, scraper blade assembly, and front bearing. A build plate is also included as an optional tool to help remove parts from the build envelope. Please ensure that these hardware changes have been made before proceeding.

To change the material system to ZCast powder on your Z406 3D Printer, use the following procedure:



1. Remove all plaster or starch based powder from the feed and build envelopes. Place powder in a sealed container to prevent absorption of moisture into the powder.



2. To prevent material contamination vacuum off any remaining powder from the feed and build plates, and the top deck.



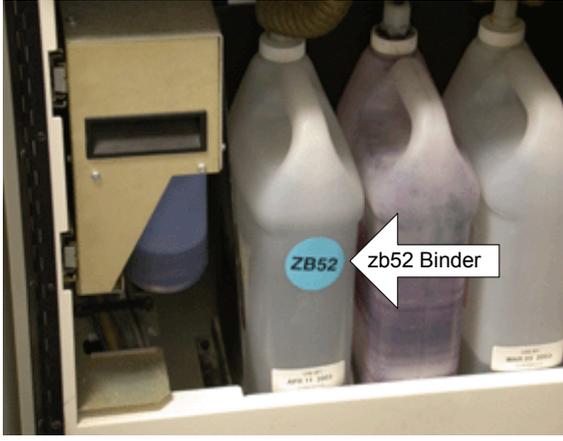
3. Remove the powder from the Overflow Bin and empty into a sealed container.



4. To prevent any material contamination, vacuum any remaining powder in the Overflow Bin.



5. Before replacing the Overflow Bin, vacuum the Overflow Bin track. Then replace the Overflow Bin.

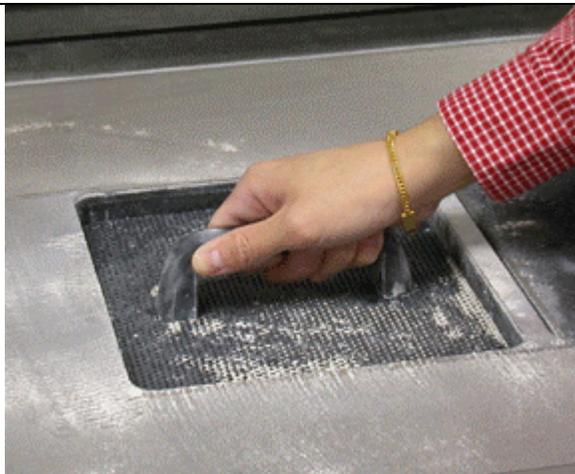
	<p>6. If you are using zb™51 binder, change to zb52 binder (part number 05906).</p>
	<p>7. If you are in color mode, change to monochrome mode by choosing the 'Change Binder Supply' option under 406Service menu.</p>
	<p>8. If you are in monochrome mode and have changed binder systems, flush binder for two minutes by choosing the 'Flush Binder' option under the Service menu.</p>
	<p>9. If scraper assembly is attached, remove by using the 3/32 hex key tool that accompanied the Z406 ZCast Kit.</p>



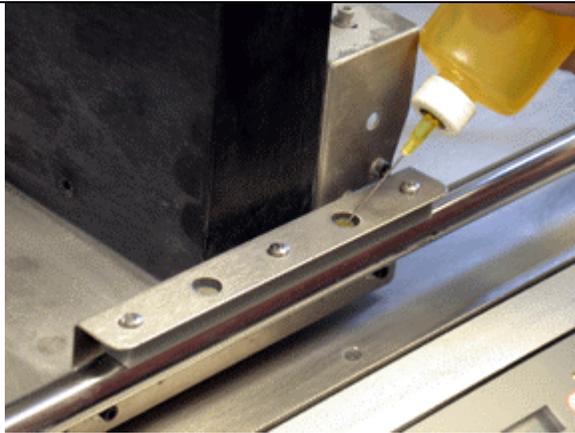
10. Lower the feed piston and fill the feed envelope with ZCast powder. You will need approximately 22 kg, or one and a half buckets of ZCast to fill the feed box.



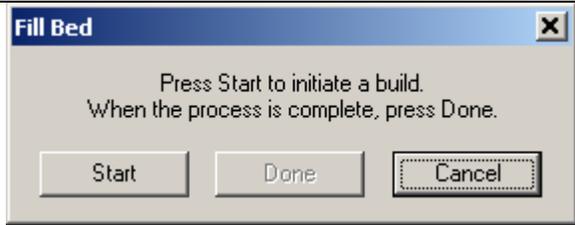
11. Use the scoop to remove any air pockets in the powder.



12. Use the tamper to even the powder.



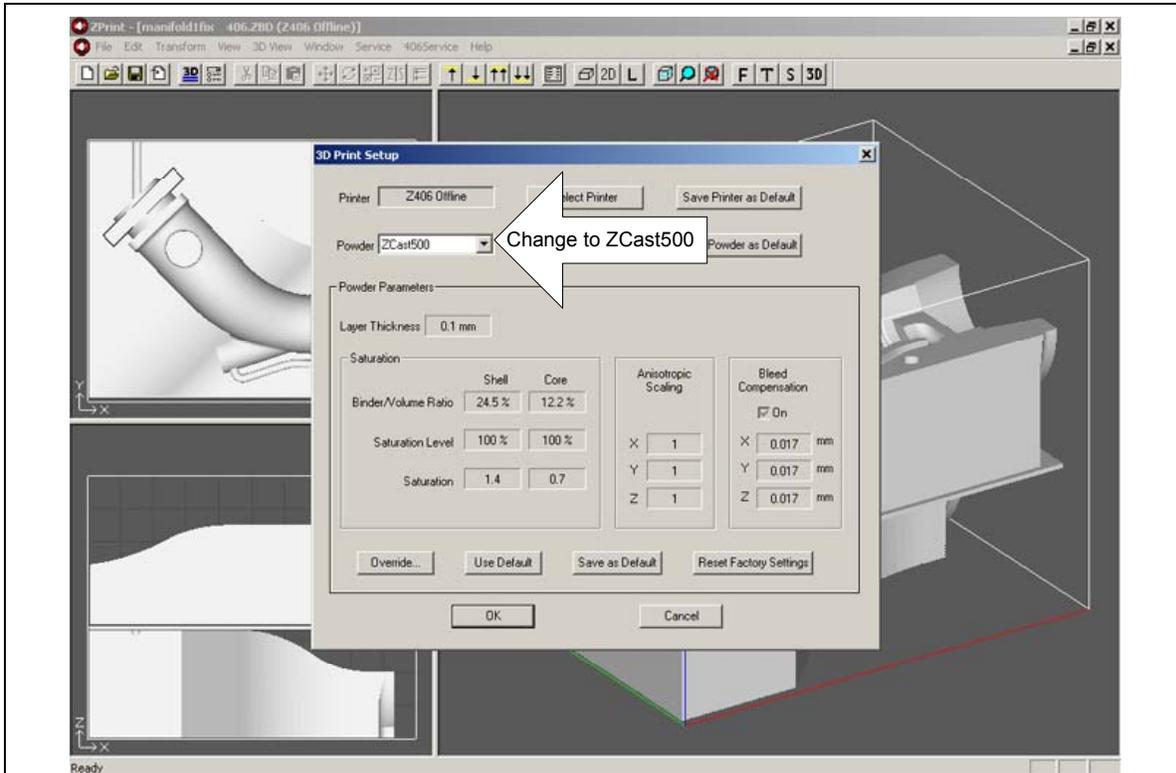
13. Place some oil on the wicks located on the top of the front bearing.



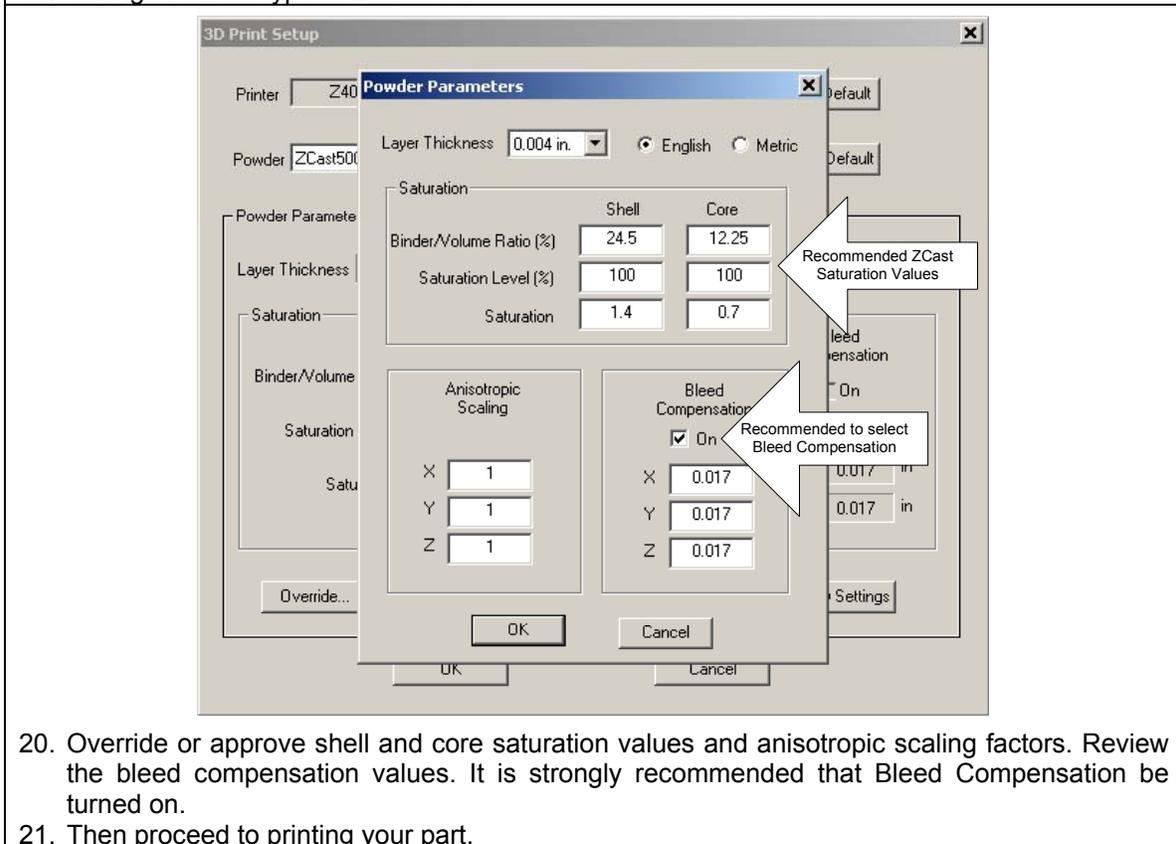
14. Raise the feed piston until the powder is level with the top deck. Press and hold the spread button to finish leveling the powder.

15. Use the 'Fill Bed' option under the 406Service menu to spread powder.

16. Vacuum up any powder on the top deck.

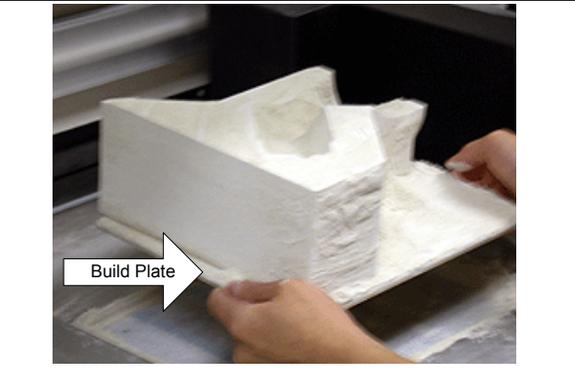


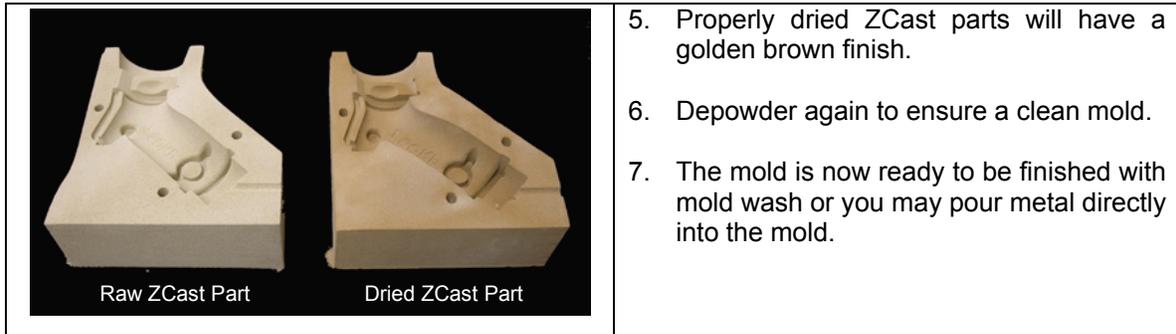
17. Open or import your file into the ZPrint Software version 6.0 or higher.
18. Open up the 3D Print Setup dialog box.
19. Change Powder type to ZCast500.



20. Override or approve shell and core saturation values and anisotropic scaling factors. Review the bleed compensation values. It is strongly recommended that Bleed Compensation be turned on.
21. Then proceed to printing your part.

Once the part has completed printing, remove and dry the part as follows:

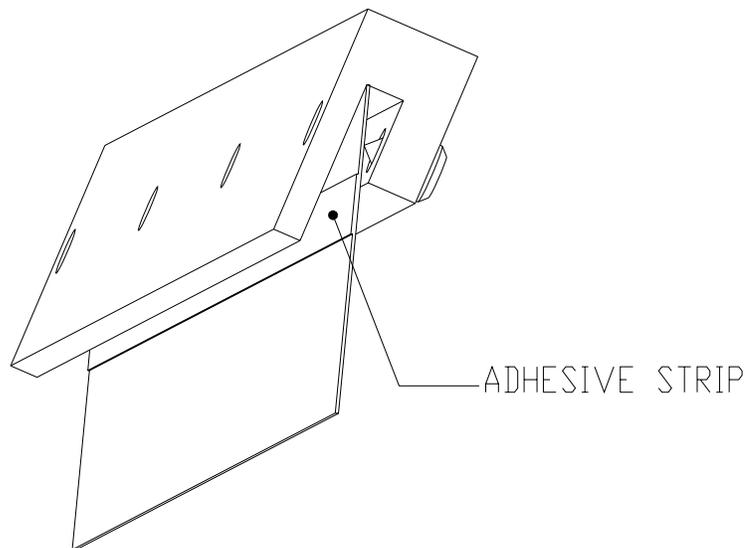
	<ol style="list-style-type: none"><li>1. Remove loose powder from the build by vacuuming.</li></ol>
	<ol style="list-style-type: none"><li>2. Remove part from build either by using the build plate provided or by picking up the part. At times the part may be difficult to remove due to air suction holding the bottom of the part to the powder base. To remove, twist the part with your hands and then remove.</li><li>3. Depowder the part.</li></ol>
	<ol style="list-style-type: none"><li>4. Remove build plate and place the part in the oven on a tray at 400°F (204°C) for 2-6 hours. Drying times will depend on the volume and surface area of the part(s) and oven temperature. The parts need to dry in an oven with an air temperature of 400°F (204°C). The more part(s) that is drying in the oven, the longer the oven will take to reach an air temperature of 400°F (204°C). If you would like to reduce drying time, hollow out certain sections of your part using your respective CAD software package to decrease volume.</li></ol>
<p>If you do not have an oven, check to see if your foundry has a vented oven that can dry the parts.</p>	
<p><b>WARNING:</b> Mold preparation and metal pouring requires adequate ventilation to ensure that exposures to dust, particulates, fumes and vapors are controlled below occupational exposure limits. Ventilation designs need to meet each customer's respective governmental health and safety requirements. A reference frequently used by U.S. firms to comply with OSHA regulations is the American Conference of Governmental Industrial Hygienists Industrial Ventilation Manual.</p>	



### REPLACING THE SCRAPER BLADE

The plastic scraper blade will eventually become worn and will need replacement. Five replacement blades are included in the kit. To replace the blade, peel off the old part, and stick on a new one.

**PLEASE NOTE:** Failure to remove scraper assembly when using ZCast powder will result in damage to the scraper blade.



### REPLACING MATERIAL SYSTEM TO STARCH OR PLASTER POWDER

To return material system to plaster or starch, replace powder and binder as described in this document (steps 1-8). Replace scraper assembly onto the gantry by placing the scraper assembly onto the slot and tighten the screws with the 3/32 hex key tool.

For additional information, please contact the Z Corporation Service Department at (781) 852-5050 or (877)88-ZCORP or via email at [service@zcorp.com](mailto:service@zcorp.com). You may also visit the User Website at [www.zcorp-users.com](http://www.zcorp-users.com).