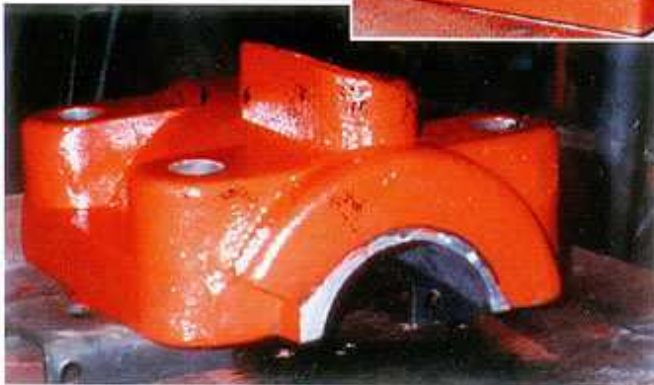




Crosshead after pouring new babbitt (above) and after a coat of primer (right). A freshly babbitted and primered bearing cap (below).



Looking at the exposed piston, I discovered why the engine quit running: The threaded end of the connecting rod (the rod shoulders up to the bottom of the piston and a large nut at the top locks the piston and rod together) was broken off even with the top of the piston. That meant nothing was holding the two parts together. I found signs of welding on both the piston and the connecting rod, probably a field-fix to keep the engine running after the rod end broke. Who knows how long that fix lasted.

When the weld eventually broke, the connecting rod came out of the piston, and on the next forward stroke the connecting rod pushed the piston up into the combustion chamber 3 inches farther than normal. This explained why the piston was stuck so close to the head. Thank God for a large combustion chamber, or who knows what other parts would have broken.

I set the combustion chamber with the stuck piston on my press, heated it all up and pressed the piston out. After cleaning the piston, I found it had three rings, and once I got the rings freed up I removed them from the piston. They were shot.

Now I had to decide whether to try and save the cylinder bore or have it

bored and then build up the piston. It really was a no-brainer. The removable cylinder sleeve had to be bored and the piston built back up to the proper clearance with the new bore. At that point in the restoration I didn't have the capability in my shop for cylinder boring, so I sent the cylinder sleeve and piston out to another shop.

Bedplate and Babbitting

Next, I worked on getting the rest of the engine dismantled. The crosshead top rails and the crosshead came off without a problem. After removing the crankshaft and flywheels, I decided to re-pour the main bearings. They might have been useable, but I went ahead and melted out the original babbitt, forcing me to pour new ones. This way I didn't have to think about it. In the time I spent thinking it over I could have had them poured. I cleaned up the crankshaft bearing surfaces and prepped everything for pouring new babbitt bearings.

To line up the crankshaft, I took measurements off the crosshead, and it was actually a lot easier to line up than an engine where you have to line up with the cylinder bore. To adjust the crankshaft position I used a little trick I learned years ago from two engine friends from Michigan: Tom and John McCubbin.

They taught me to drill and tap two, 1/4-20 holes in each bearing saddle and then install brass flathead screws located approximately 90 degrees apart forming an upside down "V" to locate the crankshaft. This allowed me to remove and re-set the crankshaft out as many times as I wanted and always get back to the same position. The screws stay right where they are during the babbitt pour, and because they are brass they won't hurt the crankshaft when the engine's running. This is really a great trick because it seems like I'm always



The Swan's bedplate after cleaning and receiving a coat of primer.