

# Install Perimeter Bolts



# Tools of the trade





# Plug the old bolt holes



# West System Epoxy solves a number of problems





# Use fluted dowel



WNG doesn't like counter sinks in plate bolt holes



# Counter sinks cause problems

1. WNG plate bolts are set up for a bolt and washer system that pulls straight down.
2. If we had made top bolts for counter sunk plates the bolts would have pulled the plates out of position when tightened.
3. The following procedure will allow you to use the WNG perimeter bolts on counter sunk plates.



# Fill countersinks with a hard epoxy





Use counter sink and electric drill to remove old paint and debris from the old counter sink

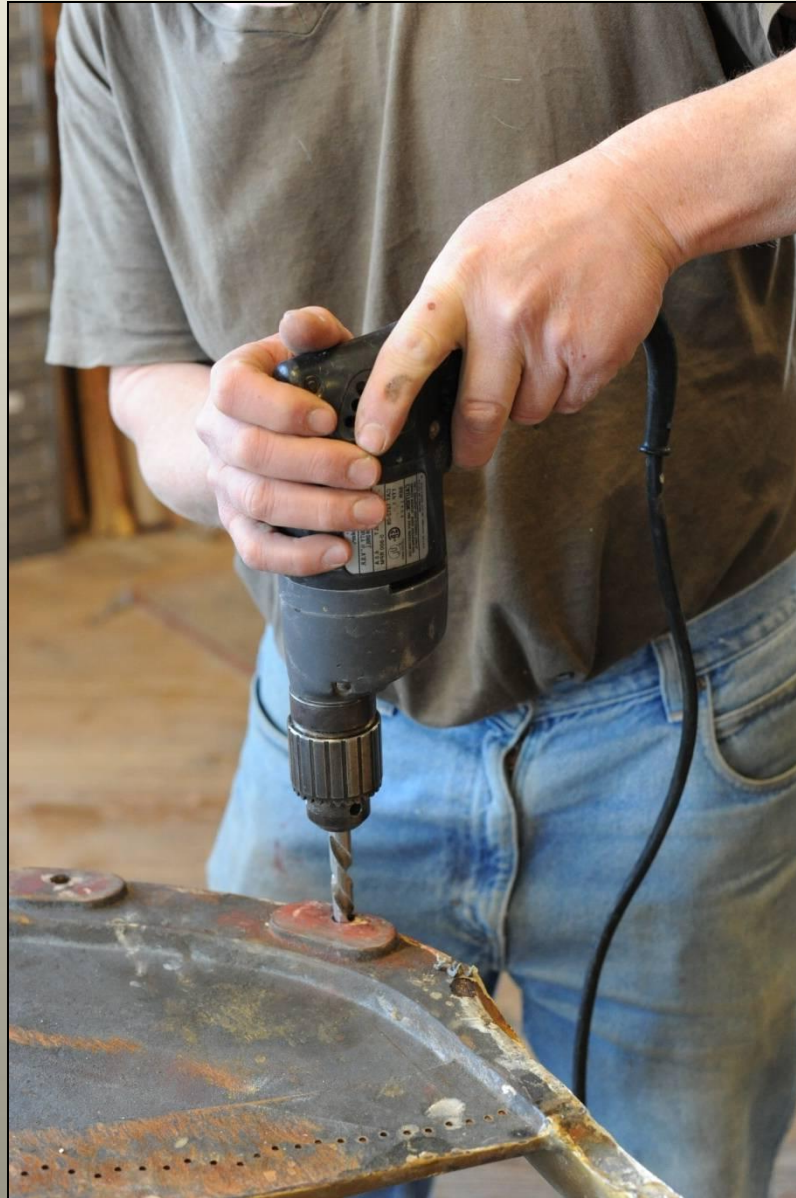


# Plug countersinks





# Drill out screw hole



# Use a machinist's counter bore





# To cut a flat bottom hole



# For a flat washer





Epoxy the flat washer into the counter bore



# Grind flat, fill, prime and spray plate





The purpose of this procedure is to provide a metal surface for the plate bolt to push against when tightened

# Another way to do the same thing

1. Use counter sink to remove paint and debris from the old counter sink.
2. Cut the counter bore first.
3. Clamp a dam onto the bottom of the plate.
4. Fill the counter sink with epoxy.
5. Push the flat washer down into the counter bore letting the epoxy push out in all directions.
6. Let epoxy set.
7. Remove dam from bottom.
8. Drill out hole.
9. Grind epoxy and counter sink flush with plate.
10. Fill, prime sand and spray plate.



Cut counter bore in plate counter sink first



Fill counter sink with epoxy and push the washer in down to the counter bore





# Transfer punches are very useful tools

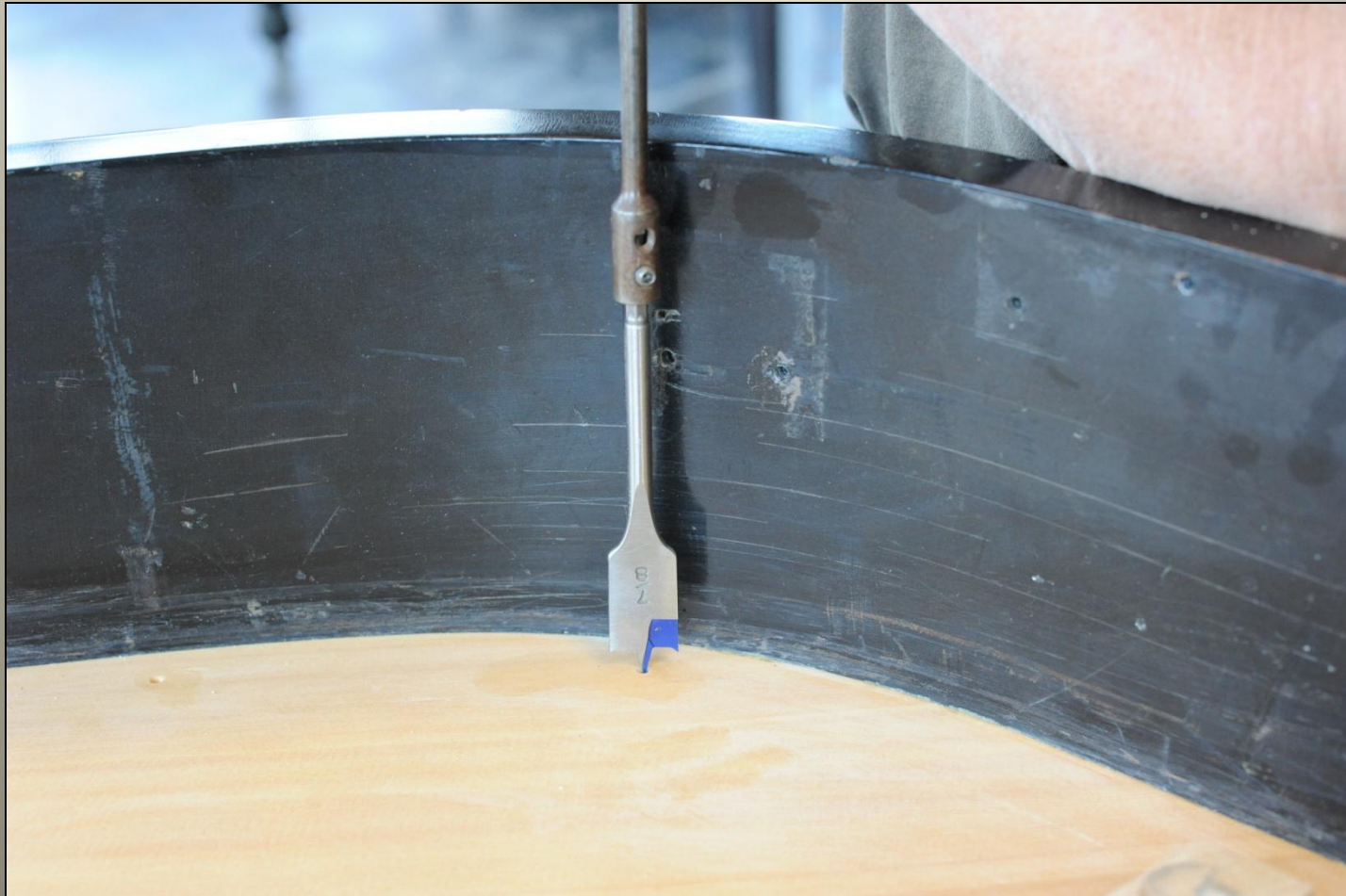


Use transfer punch to mark the soundboard for the plate holes





On some pianos you will need to create a counter bore so the top of the perimeter bolt can be flush to the soundboard





# Typical treble counter bore where needed

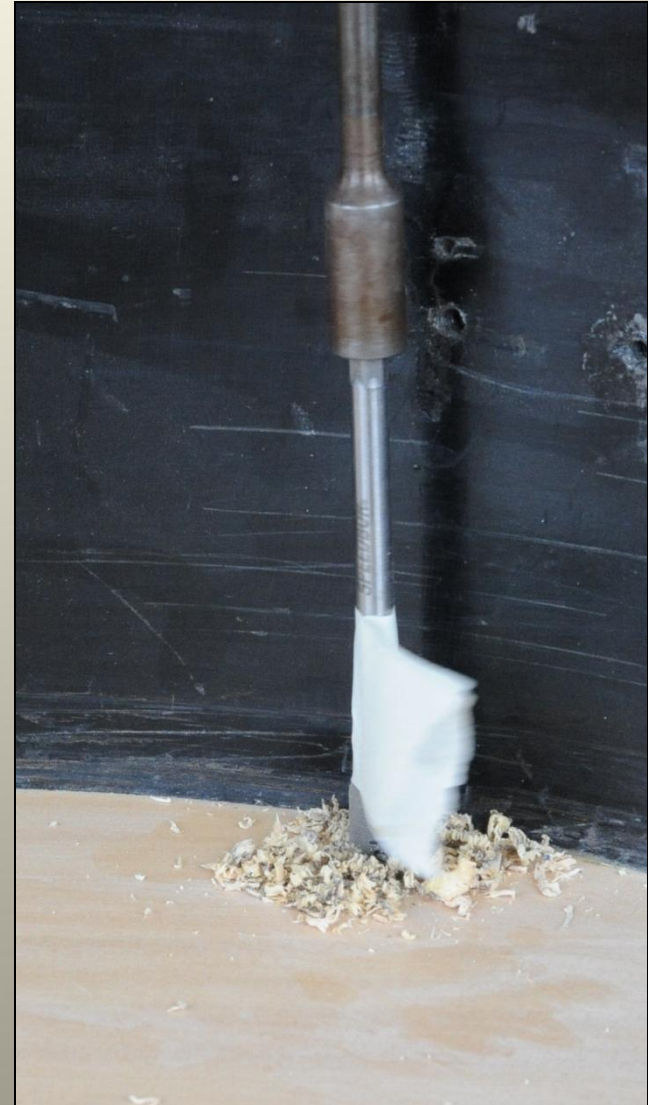


# Set masking tape flag for depth of shoulder cut





# Drill shoulder counter bore



Use 13/32" aircraft length drill for the pilot holes for the threads





# Set masking tape flag for depth of pilot holes



# Drill pilot holes for the threads





# Additional help to drill straight



# Remove all drilling debris from holes

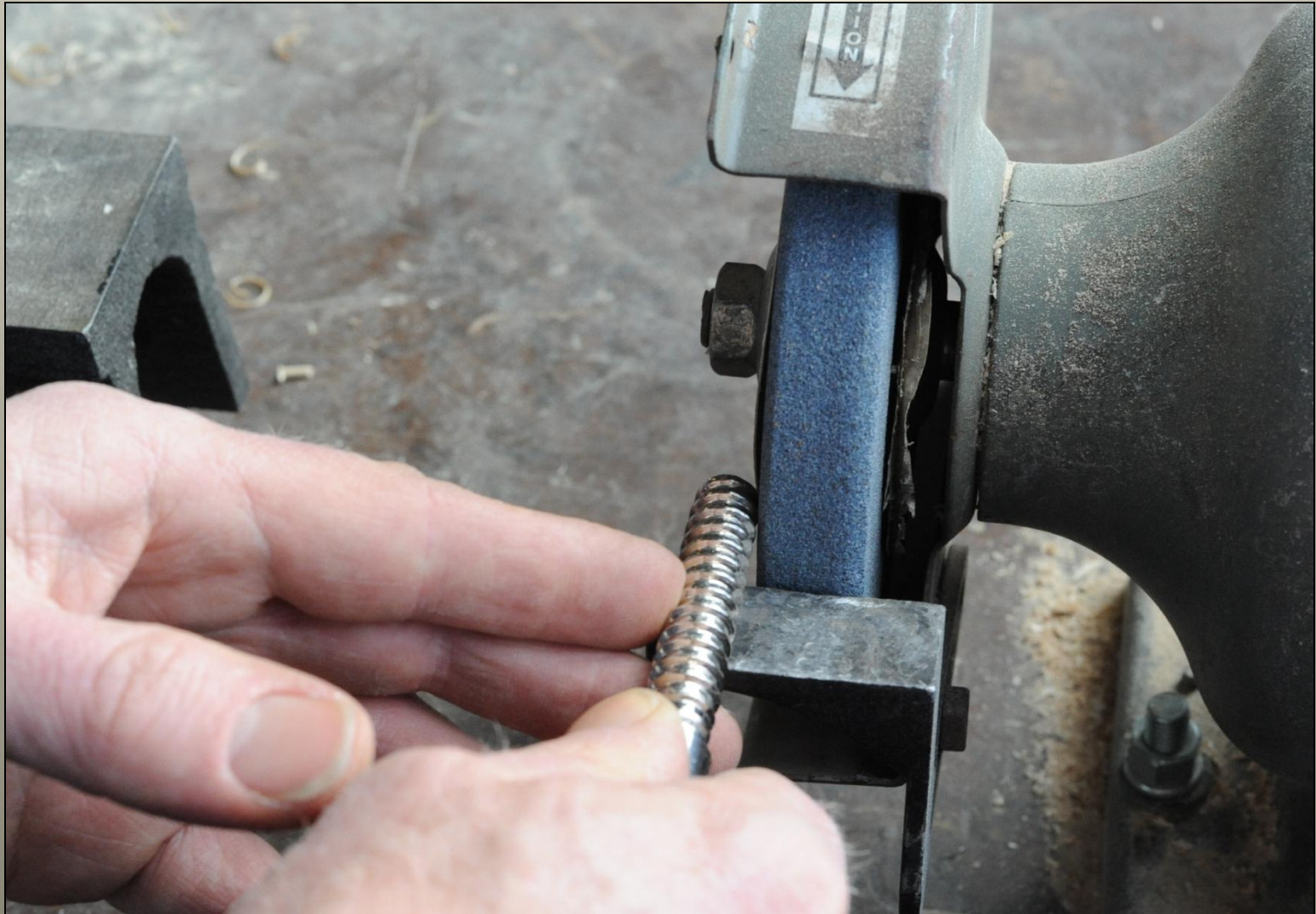




# A Neat Trick!

How to make a bolt cut threads like a tap.

Grind a flat in the bottom 2 or 3 threads of the bolt





Now the bolt will cut like a tap



While the bolt is still hot apply bees wax to the threads to lubricate





# A different thread lube from another rebuilder



# Prepare the socket for use





Turn the perimeter bolt down until it clears the plate



To make the top of the perimeter bolt flush with the soundboard use the long Allen wrench





Most perimeter bolts when installed  
look like this



Place plate in piano  
located properly





Adjust the WNG Perimeter Bolt up until it just touches the plate



These are the bolts that fasten the plate





Thread the top bolt into the bottom bolt through the hole in the plate



# Prepare the socket for use





# Tighten the top bolts

