

# Grand Piano Action Bracket Replacement

## Problem:

Metal action rail connecting brackets expand over time. This was due to an improper mixture of aluminum alloys during manufacturing, from 1990-1994.

## Symptoms:

Blocking hammers, unstable regulation, excessive spread measurement, loose let-off dowels (over adjusted), checking problems, slow soft shift. A bracket may not show any sign of defect, but cracks in its finish are common.

## Parts:

4 to 5 replacement brackets. Two ends and two or three middle brackets, by model. Most common middle brackets have shorter 5 1/16" base measurement from toe to toe. Occasionally longer (6 5/8") middle brackets are used. Call Parts Dept. for new parts. Longer screws to attach action stack to keyframe may be needed, (#8 – 1 1/4" Round Head)~

## Tools needed:

Phillips and flat head screwdrivers.  
6" Metric ruler with millimeter graduations.  
Grand piano regulating tools.  
Drill with bit, wooden dowels and glue for plugs (if necessary).  
Service manual or specification sheet.

## Time needed:

About four to six hours, including regulation.

1. Remove action from piano and place on workbench or suitable area.
2. Remove action stack from keyframe.
3. Remove one end bracket, replace with new and set action spread to proper measurement. *Each bracket is connected with two screws through the hammer rail and one screw through the wippen rail. Adjust spread with wippen rail screw.*
4. *Action spread should be set to 112.5mm.  
(Models newer than 1992=113.5. Let-off buttons are at 90-degree angle to hammer rail)  
Measure spread from center pin of wippen flange to center pin of hammer flange*
5. Repeat process, in order, for each remaining bracket and double check spread measurements. *Replace all brackets! Do not judge by appearance. Immediately dispose of all old brackets.*
6. Replace stack onto keyframe:  
Check that original screw holes in the keyframe align properly with the screw holes in the brackets. It may be necessary to plug a hole in the keyframe with a wooden dowel and drill a new hole. (Pay close attention to the middle brackets with tile angled holes in front.)
  - *The action stack should attach firmly to the keyframe without twisting or deforming the keyframe.*
  - *The wippens and key capstans should be properly centered and aligned.*
7. Return the action to the piano and check strike point, alignment and bedding. Adjust keyblock adjusters, stop-block or dag screws and bedding screws as necessary.

8. Check the regulation and after-touch by:

White key dip, jack position, repetition lever height, hammer height and level, Let-off, black key dip, drop, back check height and repetition lever springs. (*Adjust for proper function. However, all adjustments may not be necessary.*)

## YOUNG CHANG ACTION BRACKETS

During the early to mid-90's Young Chang Korea manufactured grand pianos for Wurlitzer, Weber and Pianodisk, as well as a few other stencils for large dealers. They all have the possibility of "growing action brackets". The metal brackets that the action rails are connected to actually expand over time. Blocking hammers, wide action spread or unstable regulation are sure signs. Only Young Chang brand pianos or stencil pianos sold by Young Chang America are covered by our warranty.

The brackets are gray and die-cast from an aluminum alloy. The vendor mixed the alloys incorrectly so that the metal becomes unstable. To our customers, I compare it to putting too much yeast in a bread dough mix. It generally takes from 2 to 5 years to start showing up. Do not judge the bad parts by appearance, because they may not show any signs of a problem. Remove them all and throw them away... far away.

This is a far-reaching situation so we must monitor the cost, keeping in mind that the piano owners needs are important to us and we want them to be happy with the results. The job should take no more than a few hours, one to replace the brackets and two or three to regulate. The new brackets have thicker, taller feet; so longer keyframe screws may be needed. Accordingly, you may also need to spend some time positioning the action on the keyframe and drilling new screw holes to attach the stack to the keyframe. Young Chang does not pay for a complete "concert" regulation because these pianos are several years old, and they would need some adjustment, in the best of circumstances. Bed the keyframe and adjust the let-off. It may possibly need jack or drop adjustment, but keys and dampers are not affected. Be careful getting involved with hammer alignment as filing, voicing and normal wear are not covered by the warranty. You have to choose what is needed to get the piano playing well in just half a day.

The pianos that take the longest are usually the instruments that previous technicians misdiagnosed and tried to fix merely by regulation. They only recognized the symptoms, not the cause, so you will often find that the let-off dowels are adjusted too far down and are barely holding on to the screw stem by a thread.

The average billing for this job in the U.S.A. is less than \$250. Any invoice for more than \$300 US must be pre-approved. However, if you're in the home and you run into unexpected problems that will bring the cost over \$300 and you can't reach us, then finish the job. Please, carefully itemize your invoice so that we understand the reason for the extra time and there will be no delays in payment.

Thank you for your support. Sincerely,

Phil Glenn, RPT  
National Service Manager  
Young Chang Acoustic Pianos

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