



# PRECISION MACHINE SPINDLE REBUILDING

## *Break-in Procedure Form*

For all the videos in this Educational Video Series, please visit:  
<http://www.activeatom.com/education-spindle-rebuilding-videos.php>

### MACHINE & SPINDLE INFORMATION

*Please fill in the following Machine, Spindle and Bearing details for record purposes.*

<b>DATE OF PROCEDURE</b>	
<b>MACHINE MANUFACTURE</b>	
<b>MACHINE TYPE &amp; MODEL</b>	
<b>FRONT BEARING BRAND &amp; PART #</b>	
<b>REAR BEARING BRAND &amp; PART #</b>	
<b>BEARING GREASE TYPE</b>	
<b>SPINDLE MAXIMUM RPM</b>	

### PRE-STEP 1: MANUAL SPINDLE ROTATION

*Rotate spindle by hand to confirm that the rotation feels smooth without any obstructions.*

<input type="checkbox"/>	Spindle rotates silky smooth (no contamination issues with bearings)
<input type="checkbox"/>	No binding felt during the spindle rotation (no seating issues with bearings or spindle parts)
<input type="checkbox"/>	Spindle feels tight with no axial play (no loose spindle nut or other spindle parts)

### PRE-STEP 2: MOTOR SPEED 5% - SPINDLE PREP FOR BREAK-IN

*Start at idle and slowly raise the RPM to 5% of maximum speed and run at this speed for 10 minutes. Record the bearing temperatures at the start of this procedure and then after every 5 minutes.*

COMPLETE	FRONT BEARING TEMPERATURE	REAR BEARING TEMPERATURE	RUN TIME
<input type="checkbox"/>			START
<input type="checkbox"/>			5 Minutes
<input type="checkbox"/>			10 Minutes

**STEP 1: MOTOR SPEED 25% - SHORT CYCLES**

*Start at idel and slowly raise the RPM to 25% of maxium speed. This Step consists of multiple short cycles with specified Rest (Idle) Times. Record the bearing temperatures at the start of this procedure and then at the end of each cycle Run Time.*

RPM			25% of Maximum Speed	
COMPLETE	FRONT BEARING TEMPERATURE	REAR BEARING TEMPERATURE	RUN TIME	REST TIME
<input type="checkbox"/>			START	
<input type="checkbox"/>			20 Seconds	1 Minute
<input type="checkbox"/>			20 Seconds	1 Minute
<input type="checkbox"/>			40 Seconds	1 Minute
<input type="checkbox"/>			40 Seconds	1 Minute
<input type="checkbox"/>			1 Minute	2 Minutes
<input type="checkbox"/>			1 Minute	2 Minutes

**STEP 2: MOTOR SPEED 50% - SHORT CYCLES**

*Start at idel and slowly raise the RPM to 50% of maxium speed. This Step consists of multiple short cycles with specified Rest (Idle) Times. Record the bearing temperatures at the start of this procedure and then at the end of each cycle Run Time.*

RPM			50% of Maximum Speed	
COMPLETE	FRONT BEARING TEMPERATURE	REAR BEARING TEMPERATURE	RUN TIME	REST TIME
<input type="checkbox"/>			START	
<input type="checkbox"/>			20 Seconds	1 Minute
<input type="checkbox"/>			20 Seconds	1 Minute
<input type="checkbox"/>			40 Seconds	1 Minute
<input type="checkbox"/>			40 Seconds	1 Minute
<input type="checkbox"/>			1 Minute	2 Minutes
<input type="checkbox"/>			1 Minute	2 Minutes

**STEP 3: MOTOR SPEED 50% - LONG CYCLE**

Start at idle and slowly raise the RPM to 50% of maximum speed and run at this speed for 15 minutes. Record the bearing temperatures at the start of this procedure and then after every 5 minutes.

RPM		50% of Maximum Speed	
COMPLETE	FRONT BEARING TEMPERATURE	REAR BEARING TEMPERATURE	RUN TIME
<input type="checkbox"/>			START
<input type="checkbox"/>			5 Minutes
<input type="checkbox"/>			10 Minutes
<input type="checkbox"/>			15 Minutes

**NOTE:** Before proceeding to Step 4, let the spindle Rest (Idle) for 5 Minutes.

**STEP 4: MOTOR SPEED 75% - SHORT CYCLES**

Start at idle and slowly raise the RPM to 75% of maximum speed. This Step consists of multiple short cycles with specified Rest (Idle) Times. Record the bearing temperatures at the start of this procedure and then at the end of each cycle Run Time.

RPM		75% of Maximum Speed		
COMPLETE	FRONT BEARING TEMPERATURE	REAR BEARING TEMPERATURE	RUN TIME	REST TIME
<input type="checkbox"/>			START	
<input type="checkbox"/>			20 Seconds	1 Minute
<input type="checkbox"/>			20 Seconds	1 Minute
<input type="checkbox"/>			40 Seconds	1 Minute
<input type="checkbox"/>			40 Seconds	1 Minute
<input type="checkbox"/>			1 Minute	2 Minutes
<input type="checkbox"/>			1 Minute	2 Minutes

**STEP 5: MOTOR SPEED 100% - SHORT CYCLES**

*Start at idel and slowly raise the RPM to 100% of maxium speed. This Step consists of multiple short cycles with specified Rest (Idle) Times. Record the bearing temperatures at the start of this procedure and then at the end of each cycle Run Time.*

RPM		100% of Maximum Speed		
COMPLETE	FRONT BEARING TEMPERATURE	REAR BEARING TEMPERATURE	RUN TIME	REST TIME
<input type="checkbox"/>			START	
<input type="checkbox"/>			20 Seconds	1 Minute
<input type="checkbox"/>			20 Seconds	1 Minute
<input type="checkbox"/>			40 Seconds	1 Minute
<input type="checkbox"/>			40 Seconds	1 Minute
<input type="checkbox"/>			40 Seconds	1 Minute
<input type="checkbox"/>			1 Minute	2 Minutes
<input type="checkbox"/>			1 Minute	2 Minutes
<input type="checkbox"/>			1 Minute	2 Minutes
<input type="checkbox"/>			1 Minute	2 Minutes
<input type="checkbox"/>			1 Minute	2 Minutes

**STEP 6: MOTOR SPEED 100% - LONG CYCLE**

*Start at idle and slowly raise the RPM to 100% of maximum speed and run at this speed for 1 hour. Record the bearing temperatures at the start of this procedure and then after every 5 minutes.*

RPM		100% of Maximum Speed	
COMPLETE	FRONT BEARING TEMPERATURE	REAR BEARING TEMPERATURE	RUN TIME
<input type="checkbox"/>			START
<input type="checkbox"/>			5 Minutes
<input type="checkbox"/>			10 Minutes
<input type="checkbox"/>			15 Minutes
<input type="checkbox"/>			20 Minutes
<input type="checkbox"/>			25 Minutes
<input type="checkbox"/>			30 Minutes
<input type="checkbox"/>			35 Minutes
<input type="checkbox"/>			40 Minutes
<input type="checkbox"/>			45 Minutes
<input type="checkbox"/>			50 Minutes
<input type="checkbox"/>			55 Minutes
<input type="checkbox"/>			1 Hour