

# Burnishing Procedure

BEFORE BEGINNING: Read completely, until you fully understand this procedure

The goal is **100%** rim face to block face contact. You want any ridges (high areas) on the rim surfaces to wear away opposing areas into the new flat blocks, until the valleys (low areas) on the brake rim surfaces are touching/contacting the blocks. As little as 1/2 mm or 0.020"+ of brake rim surface deviation is enough to keep the blocks from fully contacting the rim surface.

1. INSTALL DEAD LINE INTO DEADMAN ANCHOR & REMOVE FAST LINE FROM DRUM, SECURE FAST LINE TO DERRICK.
2. COMPLETE ALL THE NECESSARY AND REQUIRED BRAKE BAND, LINKAGE AND BRAKE HANDLE ADJUSTMENTS BEFORE STARTING A BURNISHING, JUST AS YOU NORMALLY WOULD AFTER CHANGING BLOCKS. IT IS IMPORTANT TO ADJUST THE BANDS PROPERLY IN ORDER TO GET THE BANDS TO FULLY LIFT OFF AT THE TOP OF THE RIMS (TOWARD THE SKY) WHEN THE BRAKE HANDLE IS FULLY LIFTED.
3. RUN RIG IN REVERSE WITH LIGHT TO MEDIUM PRESSURE APPLIED TO THE BRAKE HANDLE.  
**NOTE:** IT IS IMPORTANT AT THIS STAGE TO NOT LOCK DOWN THE BRAKE HANDLE FULLY! As the blocks and rims heat up, they will both swell. If the brake handle is locked down fully, it will be very difficult to "unchain" the brake handle because of the increased pressure on it caused by swelling.
4. BRING THE TEMPERATURE UP ON THE BRAKE RIMS AS DESCRIBED BELOW:  
**NOTE:** This cannot be done accurately (and potentially safely) if you are not using a quality infrared temp gun.  
  
**NOTE:** Splash Cooled Rims: Point your temp gun on the inside of the brake rims. This can be done by pointing the red infrared between the inside webs of the brake rims. Also, use the temp gun on the outside surface of the brake rims. This can normally be done between the live end and dead end of the bands.  
  
**NOTE:** Circulating Water Cooled Rims: Point the temp gun on the surface of the rims. This can normally be done between the live and dead end of the bands.

**NOTE:** Understand and remember, the “interface” of the block and rim (contact points between the block and the rim, aka: the braking area) can easily be several hundred degrees hotter than any area where you will be using your temp gun (the face of the rims and the inside of the rims).

5. 1<sup>st</sup> Burnishing:

End your 1<sup>st</sup> burnishing when you see the temp guns temps around 150F. After a cooldown period (allowing the rims to cool back down to 100-125F), you can begin a 2<sup>nd</sup> burnishing, if needed.

**NOTE:** Remember, brake rims are thick! The “interface” temperatures will be much hotter at the start of your 1<sup>st</sup> burnishing than the inside of the rims or the face of the rims. In the 1<sup>st</sup> burnishing, the rims will take time to heat up because of their thickness.

2<sup>nd</sup> Burnishing:

During this 2<sup>nd</sup> burnishing, the rims will heat up faster this time because they are now already hot. So, for the 2<sup>nd</sup> burnishing, you can lift the brake handle when the temp gun shows 200F.

3<sup>rd</sup> Burnishing: Repeat Step 3 above, if needed.

**NOTE:** Maximum Temp Gun Readings at ANY time: No more than 250-300F! That is the equivalent to the interface temps at 450-500F, or more!

6. ONCE THE MAX TEMPS DESCRIBED HAVE BEEN REACHED at Each Burnishing procedure: IMMEDIATELY LIFT THE BRAKE HANDLE ALL THE WAY UP TO LIFT THE BRAKE BLOCKS COMPLETELY OFF THE RIMS.

YOU CAN CONTINUE TO KEEP THE RIMS TURNING: This will decrease the cooldown time and will allow you to begin a 2<sup>nd</sup> or 3<sup>rd</sup> burnishing sooner, if needed.

**NOTE:** If the blocks continue to drag on the rims even with the brake handle ALL THE WAY UP (See Number 2 brake band adjustments), the BLOCKS and RIMS could continue to heat above the previously described MAX TEMPS. If this occurs, stop the rims from turning until they cool off, and then make any necessary brake band adjustments.

**NOTE:** AMERICAN FRICTION BLOCKS DO NOT ABSORB WATER.

**Always:** Use water to cool the rims during these procedures and at all times while operating your drawworks. Brake surfaces (rims, flanges, rotors, drums) and brake friction materials (blocks, pads, etc.) last longer when kept cool. When sufficient water is NOT used to keep brake systems cool, rig owners (operators, drillers, etc.,) should not be surprised when these parts wear out quickly.

**The process of braking is the conversion of kinetic energy into heat energy through friction.**

7. BETWEEN EACH BURNISHING, YOU NEED TO ONCE AGAIN CHECK ALL YOUR BAND LINKAGE ADJUSTMENTS and BRAKE HANDLE ADJUSTMENTS AS THEY MAY HAVE CHANGED.
8. IMPROVED RIM AND BLOCK CONTACT AREA: Visually check the rim faces before beginning any burnishing procedure AND AGAIN between each burnishing procedure. The goal here is to visually SEE the contact area gradually improve between block and rim face. This can also be done by using chalk to draw and line across the width of each rim before the first burnishing and again between each burnishing.
9. REPEAT ALL NECESSARY STEPS of Burnishing and Band Adjustments UNTIL DESIRED BRAKING IS ACQUIRED AND/OR RIM FACES SHOW IMPROVED CONTACT AREA. Again, the Goal is 100% Brake Rim and Block face contact area!
10. AFTER BURNISHING IS COMPLETE:  
Let everything cool down completely! Afterwards, CHECK ALL YOUR BAND, LINKAGE, AND BRAKE HANDLE ADJUSTMENTS AS THEY MAY HAVE CHANGED.

DISCLAIMER: The instructions above are an overall summation on how to burnish brake blocks. They may need to be tailored to your individual drawworks. Also, not every manufacturer's block can withstand the temperatures given. Some may glaze (complete loss of friction) at any of these temperature so please confirm with the brake block manufacturer's recommendations before performing any burnishing procedure.

*From Google search:*

*"Bedding" or "burnishing" new brake pads and rotors, also sometimes called "seating," refers to the process of conditioning them to work together optimally, improving braking performance and reducing wear.*

*Here's a more detailed explanation:*

*Why Bedding is Important:*

*Improved Performance:*

*Bedding creates a thin, even layer of brake pad material on the rotors, enhancing grip and stopping power.*

*Reduced Wear:*

*Properly bedded brakes can lead to a more even wear pattern on both pads and rotors, extending their lifespan.*

*Smooth Braking:*

*Bedding helps to eliminate uneven friction and "brake judder" (a vibration felt through the steering wheel) caused by uneven rotor surfaces.*

*What Happens During Bedding:*

*Controlled Heating:*

*Bedding involves gradually heating the brake pads and rotors through controlled braking, typically with a series of moderate to hard stops.*

*Material Transfer:*

*The heat causes a thin film of brake pad material to transfer to the rotor surface, creating a better contact area.*

*Even Surface Contact:*

*This transfer layer helps to ensure that the pads and rotors make even contact, leading to more consistent and effective braking.*