



# Service Bulletin

## INFORMATION

**Subject:** Brake Lathe Calibration Procedure

**Models:** 2014 and Prior GM Passenger Cars and Light Duty Trucks

**Attention:** This Bulletin also applies to any of the above models that may be Export vehicles.

*This Bulletin has been significantly revised to remove outdated policies and service procedures. Step 5 has also been updated under On-Car Type Lathe. Please refer to SI for the latest brake service procedures and to the Service Policies and Procedures Manual for documentation requirements. Please discard Corporate Bulletin Number 00-05-22-002N.*

Regular maintenance and calibration is essential to assure the use of equipment results in high quality and satisfactory repairs. Most manufacturers recommend weekly or monthly cleaning and inspection of equipment with repair or replacement of worn or damaged parts as needed. Annual or semi-annual calibration of equipment is also recommended, depending on frequency of use. The manufacturer of your equipment will have specific recommendations and, in many cases, can provide inspection and calibration services.

### BRAKE LATHE CALIBRATION PROCEDURE

**Calibration of the brake lathe should be performed and recorded monthly or whenever post-service brake rotor LRO measurements are consistently reading above specification.**

#### BENCH-TYPE LATHE

Use the following procedure to calibrate a Bench-type brake lathe:

1. After refinishing a rotor, loosen the arbor nut and while holding the inside bell clamp to keep it from rotating, rotate the rotor 180degrees.
2. Retighten the arbor nut and set the dial indicator on the rotor using the same instructions as checking the run out on the vehicle.
3. Rotate the arbor and read the runout.
4. Divide the reading by two and this will give you the amount of runout the lathe is cutting into the rotor.

**Important:** If there is any runout, you will need to machine the inside bell clamp in place on the lathe (this procedure is for a Bench type lathe ONLY, DO NOT machine inside the bell clamp on an On-Car type lathe).

#### Machining the Inside Bell Clamp (Bench Type Lathe Only)

Any nicks or burrs on the shoulder of the arbor must be removed. An 80-grit stone can be used to accomplish this. Spray WD-40® on the shoulder and with the lathe running, hold the stone flat against the shoulder surface using slight pressure. When the burrs are gone, clean the surface. Burrs must also be removed from the hub of the inside bell clamp. This can be accomplished with the stone and WD-40®. Keep the stone flat on the hub while removing the burrs. After removing the burrs, clean the hub.

Place the bell clamp on the arbor of the lathe and use the small radius adapters first and then spacers to allow you to tighten the arbor nut to secure the bell clamp to the lathe. Position the tool bit in the left hand of the rotor truer so you can machine the face of the bell clamp. Machine the face of the bell clamp taking just enough off of it to cut the full face of the clamp the full 360 degrees. Before you loosen the arbor nut, match mark the hub of the bell clamp to the arbor and line up these marks before machining a rotor. A magic marker can be used to make the match marks. Machine a rotor and recheck the calibration. Repeat this procedure on all Inside Bell Clamps used.

**Important:** If runout is still present, contact the brake lathe supplier.

#### ON-CAR TYPE LATHE

Use the following procedure to calibrate an On-Car brake lathe:

1. Connect the lathe to a vehicle using the appropriate adapter.
2. Attach a vise-grip dial indicator to a fixed point in the wheel well and bring the dial indicator to a flat surface on the cutting head.
3. Turn on the lathe and press the "start" button so the lathe begins to compensate.
4. Once compensation is complete, note the runout as measured by the dial indicator. Measured runout at this point is overstated given that it is outside the rotor diameter.
5. If runout is in excess of 0.1016 mm (0.004 in) (0.050 mm (0.002 in) as measured within the rotor diameter), calibration must be checked. Follow manufacturer's instructions for checking the calibration of the lathe. This information is found in the manual supplied with the lathe. If once calibration is corrected to factory specification for your lathe it is still not reducing run-out to less than 0.002" on the rotor face, then contact your Pro-Cut at 800-543-6618 ext 2 for further assistance.

**Important:** If the machine is taking a long time to compensate during normal use, prior to checking the lathe calibration, it is recommended that the machine be disconnected from the adapter and the adapter (still connected to the vehicle) is rotated 180 degrees and the machine reattached. This will accomplish two things:

- It will re-verify the machine is properly attached to the adapter.
- It will change the location of the runout (phase) relative to the machine and thus possibly allow for quick compensation as a result of the position change.

The following information has been added as a reference to ensure your Pro-Cut PFM lathe provides a consistent smooth surface finish over long term usage.

### **Cutting Tips / Depth of Cut / Tip Life**

The cutting tips must be right side up. Reference marks always face up. The cutting tips may not have chips or dings in the surface of the points. Cuts of 0.1016-0.381 mm (0.004-0.015 in) will provide the best surface finish and the optimal tip life. When cleaning or rotating the cutting bits, make sure that the seat area for the tip on the tool is free and clear of debris.

### **Cutting Head**

On each brake job, the technician must center the cutting head for that particular vehicle using one of the mounting bolt holes on the slide plate. Once the head is centered, it is vital that the technician use one hand to push the head firmly and squarely back into the dovetail on the slide plate while using the other hand to tighten the Allen-Hex bolt that secures the head. Failure to do this could result in chatter occurring during the cut.

### **Tool Holder Plate (Cutting Head)**

The tool holder plate is the plate that the cutting arms are attached to. It can bend or break if a technician accidentally runs the cutting arms into the hub of the rotor while the rotor is turning. (Cuts of more than 0.508 mm (0.020 in) can also bend this plate). Once bent, the lathe will most likely not cut properly until the tool holder plate is replaced. In order to verify the condition of the tool holder plate on a machine that will not cut right, remove the mounting bolt and remove the cutting head from the slide plate. With the cutting head tilted at an angle, lay the long edge of the tool holder plate down on the flat part of the slide plate. If any gap can be seen between the edge and the slide plate, the tool holder plate is bent and the source of vibration. Also check to ensure that the cutting arms are lying flat on the upper side of the tool holder plate. If the mounting arm post is bent, it will show itself by having the back of the cutting arm lifting off the surface of the tool holder.

### **Gib Adjustment / Loose Gib**

As wear occurs between the slide plate and the box it rides on, you must take up the slack. You do this by way of a moveable wedge, which we call the gib. Your lathe manual details adjustment process, which you should perform when required after monthly checks or whenever surface finish is inconsistent.

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GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



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