

BD-06: Align Drive (Ingersoll)

SAFETY FIRST

- Follow all Caterpillar facility safety standards when performing this task.
- There is a slipping hazard due to oil on and around the machine.

EQUIPMENT

- feeler gage
- two come-along

RESOURCES

- none

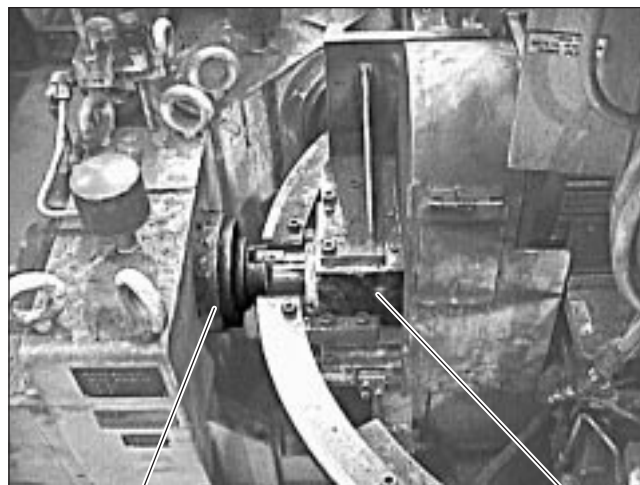
Align Drive (Ingersoll)

Note: This task is divided into three sections. The first section describes the process for checking the key gap. The second section describes the process for aligning the drive box. The last section describes the process for aligning drive box by rotating the spider.

Part A: Check the Key Gap

1. Position the drill head.

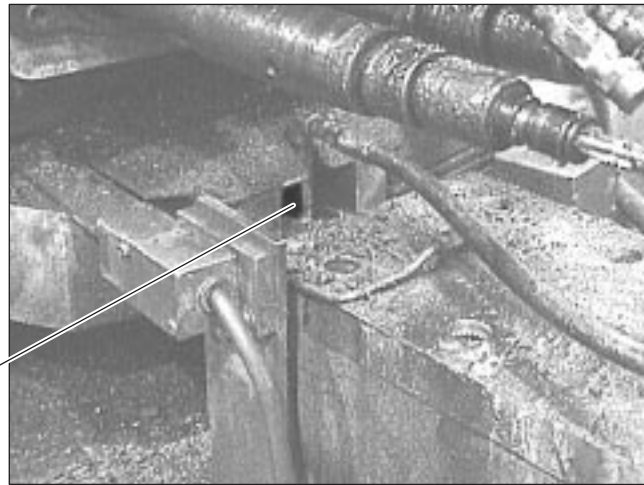
- Ensure that the drill head is position in front of the drive box.



Drill Head

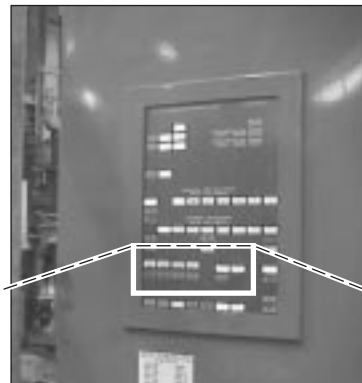
Drive Box

- Ensure that the shot pin is secured in the appropriate slot.



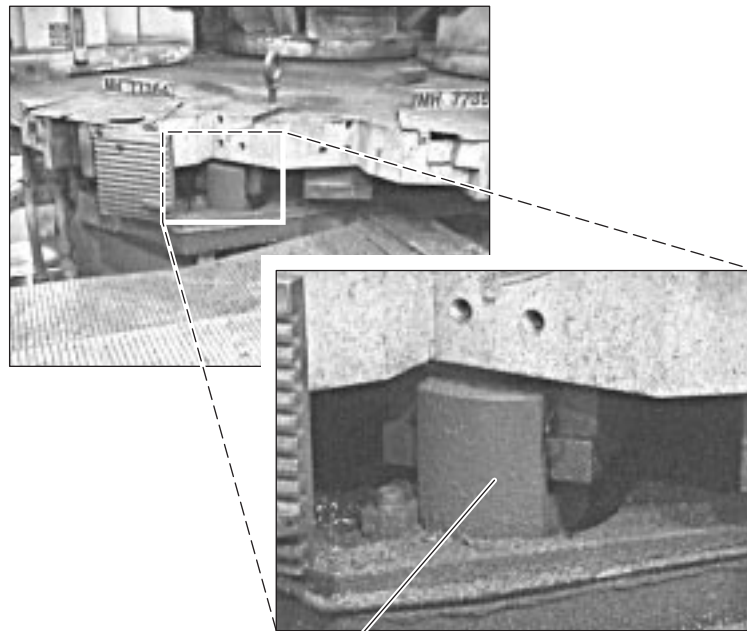
Shot Pin

- Check the monitor to confirm that the shot pins are extended.



- Close both gates to extend the indexer clamps.

- Visually check that the indexer clamps are extended.

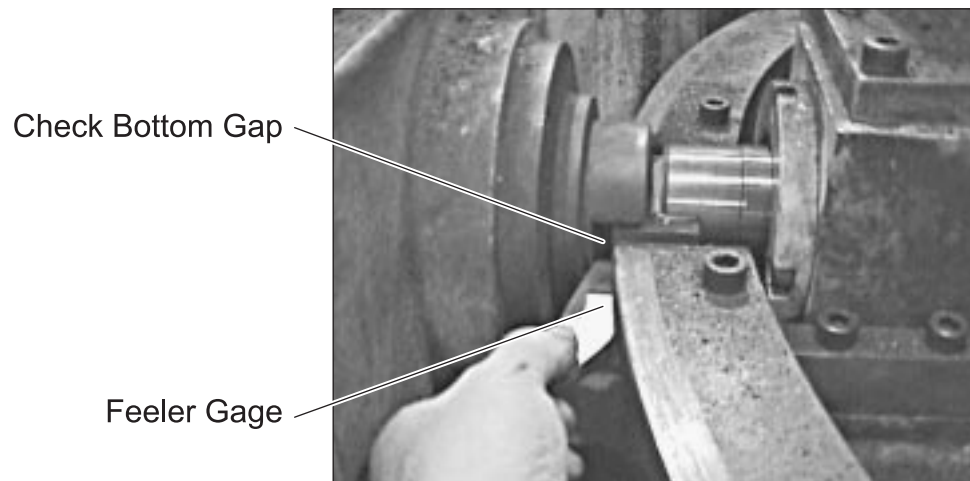


Indexer Clamps

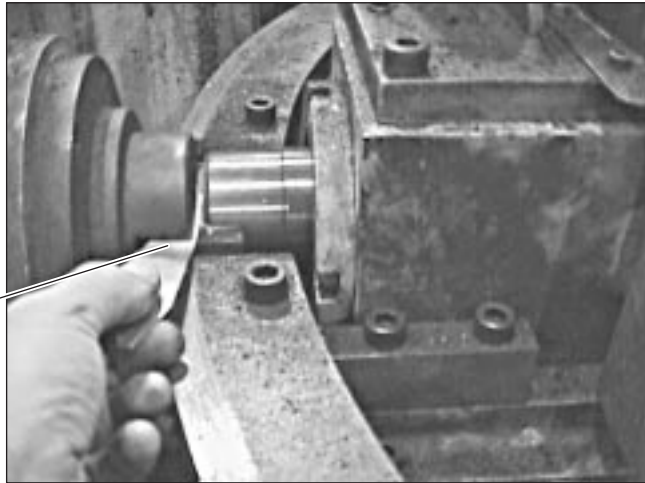
- Check the monitor to confirm that the four indexer clamps are extended.

2. Check the horizontal clearance.

- Slide the feeler gage between the key and the slot on the back of the drill head, to check the clearance of the bottom gap.

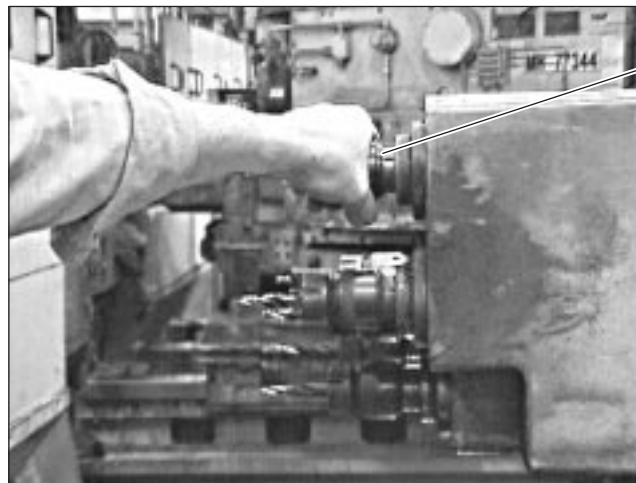


- Check the clearance of the top gap. The clearance for the top and bottom gaps must be equal.

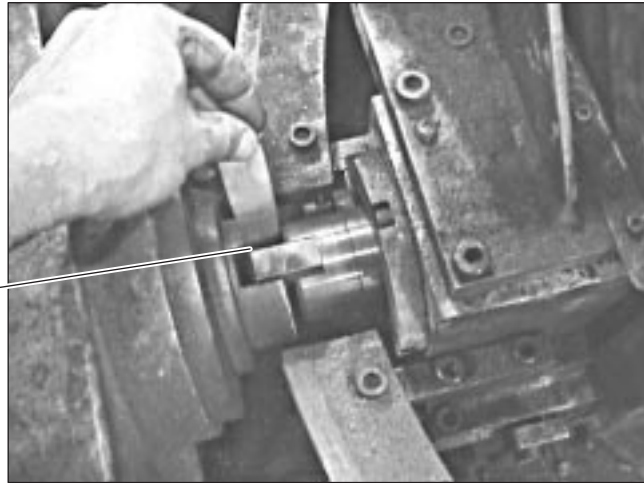


3. Check the vertical clearance.

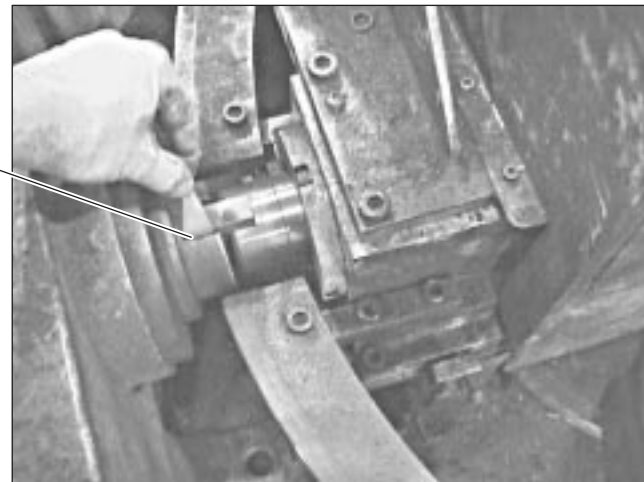
- Rotate the drill head with your hand until the key is in the vertical position.



- Check the clearance on the backside of the key.



- Check the clearance on the front gap. The clearances for the front and the back must be equal; if they are not then proceed to Part B: Align the Drive Box. If they are equal, the spindle and drive box should rotate freely without any binding and Parts B and C are not required.



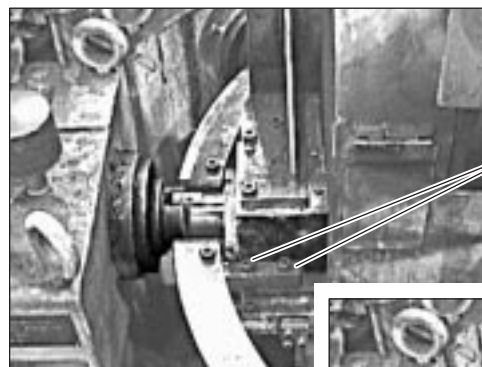
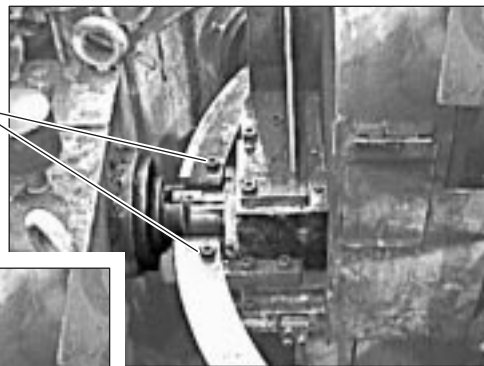
- 4. Ensure that the shot pins and indexer clamps are set to their normal position.**

Part B: Align the Drive Box**1. Prepare the drive box for alignment.**

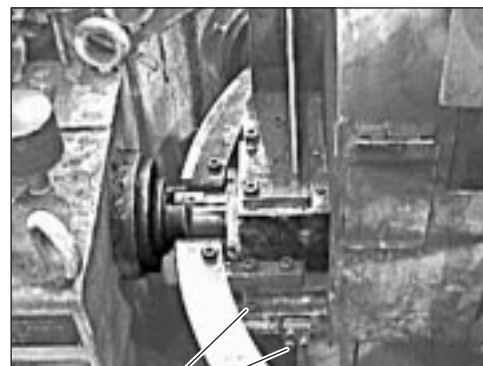
- Loosen the four Allen head screws at the base of the drive box.
- Loosen the Allen head screws on the locator blocks at the base of the drive box.
- Loosen the two Allen head screws on the rail.



Loosen Screws



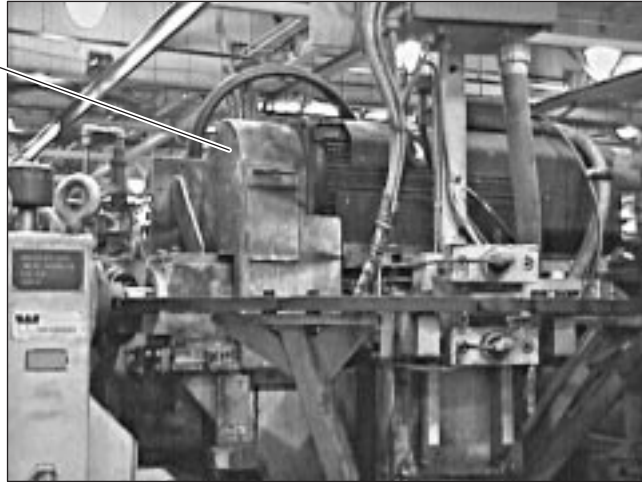
Loosen Screws



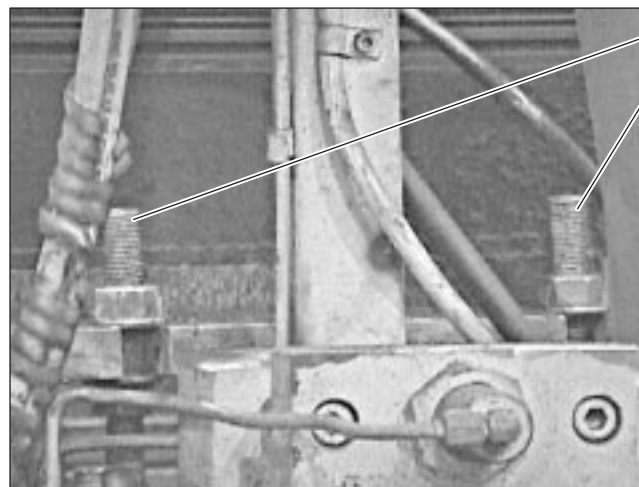
Loosen Screws

- Remove the belt covers.

Belt Cover



- Mark the belt and pulleys to maintain orientation between the two pulleys.
- Loosen the jack screws to lower the motor. This loosens the drive belt making the drive box easy to move.



Jack Screws

- Slide the drive box until the gaps on both sides of the key are equal.

2. Secure the drive box.

- Tighten the Allen head screws at the base of the drive box wrench-tight.
- Tighten the Allen head screws on the locator blocks wrench-tight.
- Tighten the two Allen head screws on the rail wrench-tight.

- Ensure that the belts and pulleys orientated according to the marks made previously.
- Tighten the jack screws to raise the motor that tightens the drive belts.
- Adjust the belts to the proper tension.
- Install the belt covers.

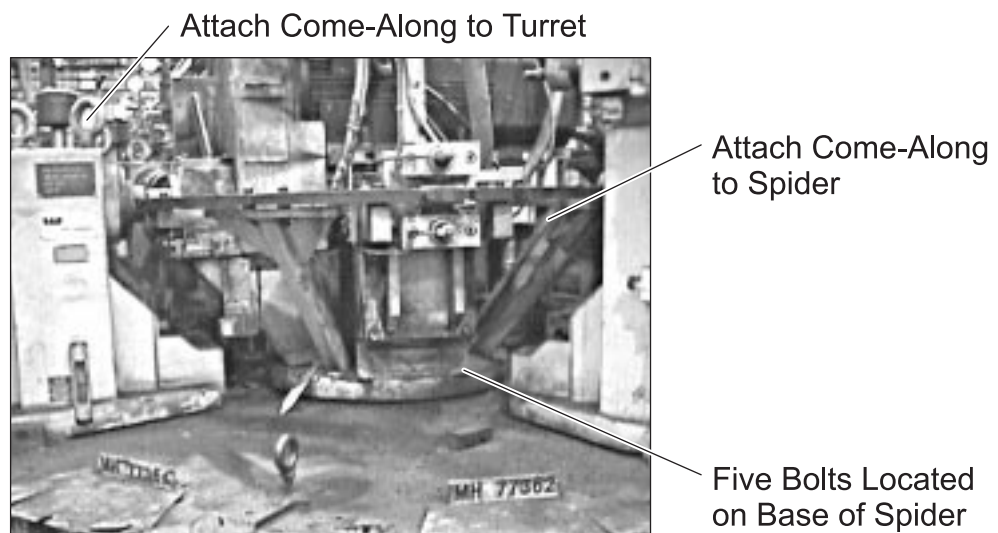
3. Ensure that the shot pins and indexer clamps are set to their normal position after aligning the drive box.

Part C: Align the Drive Box (by moving the spider)

Note: Sometimes the drive box may not move enough due to the clearing in the bolt holes. Rotating the spider is the only way to align the drive box.

1. Prepare to align the drive box.

- Loosen the five bolts at the base of the spider.
- Attach a come-along to the right side of the turret.
- Connect one end of a come-along to the eyebolt and the other end to one of the spider legs.



- Attach another come-along on the left side of the turret.
- Connect one end of the come-along to an eyebolt and the other end to a spider leg.



Attach Come-Along



2. Align the drive box.

- Tighten the come-along on one side, then on the other side.
- Continue this process until the gaps on both sides of the key are equal.

3. Secure the turret.

- Tighten the bolts.
- Remove the come-alongs.

4. Ensure that the shot pins and indexer clamps are set to their normal position after aligning the drive box.