

G-12: Repair/Replace Conveyor (Auger)

SAFETY FIRST

- Follow all Caterpillar facility safety standards when performing this task.
- Perform a lockout/tagout on all the power disconnects for conveyors on both sides of the defective conveyor.
- Wear gloves to protect your hands from sharp auger blades and conveyor covers.
- Wear a respirator to protect your lungs from the dust in the work area.

EQUIPMENT

- Maintenance Mechanic hand tools
- fork truck with boom
- lifting straps

RESOURCES

- none

Repair/Replace Conveyor (Auger)

Replace Conveyor (Auger)

1. Disconnect the electrical power.

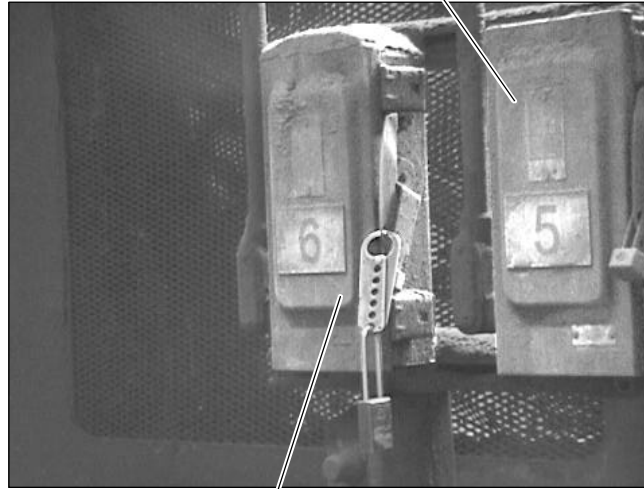
Note: When working on a conveyor, open all power disconnects for the conveyors at both ends of the defective conveyor.

- Open the auger power disconnect and perform a lock and tag.



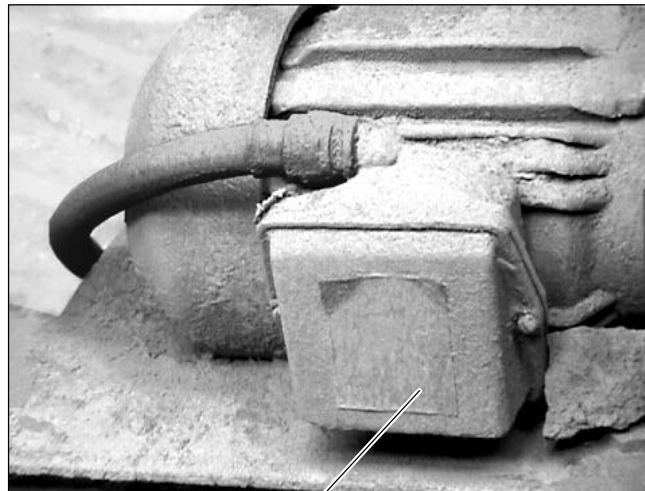
- Open the rotary air lock power disconnect and perform a lock and tag.

Rotary Air Disconnect



Auger Power Disconnect

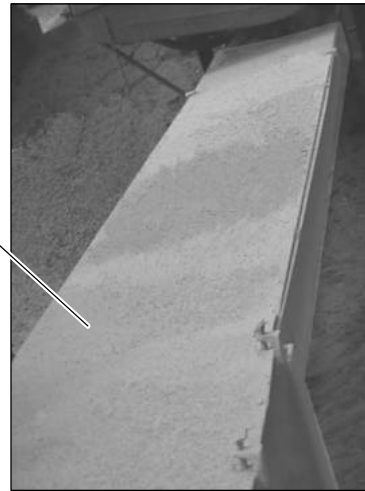
- Ask an Electrician to disconnect the electrical motor from its power source.



Electrical Motor Junction Box

2. Remove all auger covers.

Auger Cover



3. Remove the drive end.

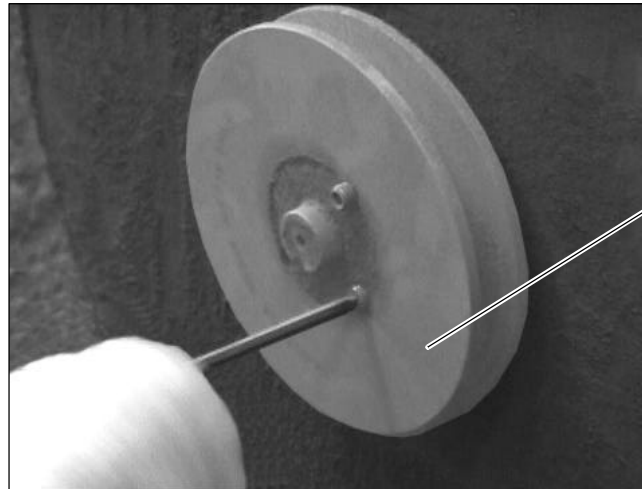
- Remove the drive belt cover.

Drive Belt Cover



- Remove the drive belt or belts.

- Remove the lower pulley.

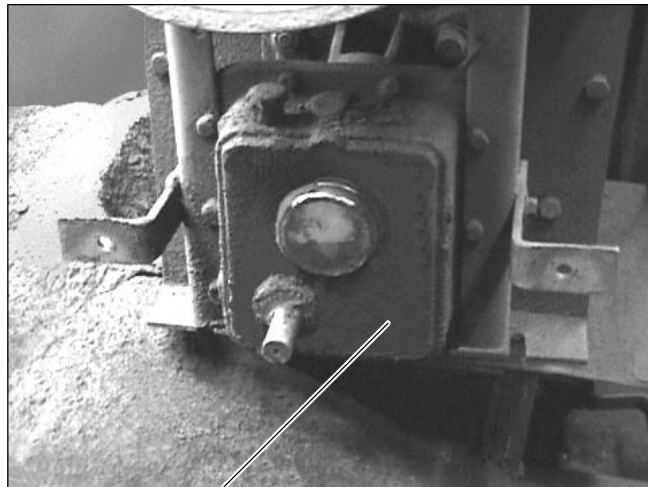


Lower Pulley

- Disconnect the back cover from the gear reduction assembly.
- Lift the drive end with a fork truck and boom.
- Set the drive end out of the way.
- Unbolt the stub shaft from the front end of the auger.

Note: The stub shafts can be removed after the auger is out of the trough.

- Remove the gear reduction assembly and stub shaft from the front of the auger.



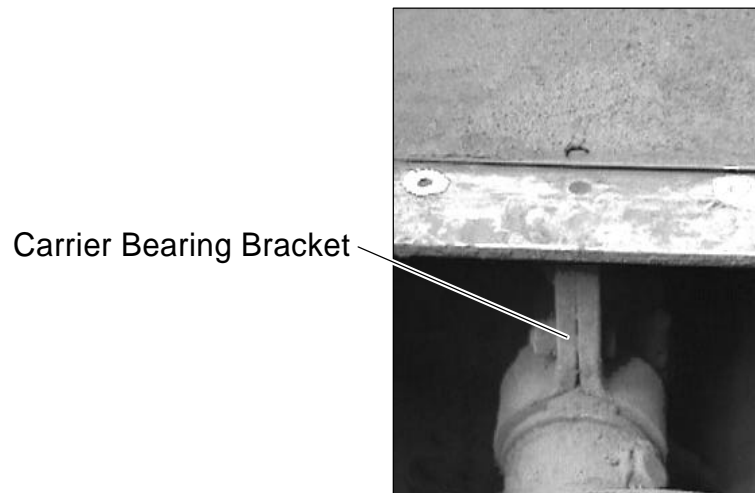
Gear Reduction Assembly

4. Disassemble the carrier bearing and bracket.

- Remove the bolts on both sides of the trough holding the brace.



- Remove the bolts holding the carrier-bearing bracket to the brace.



- Remove the bolts connecting the auger to the stub shaft.



Remove Bolts



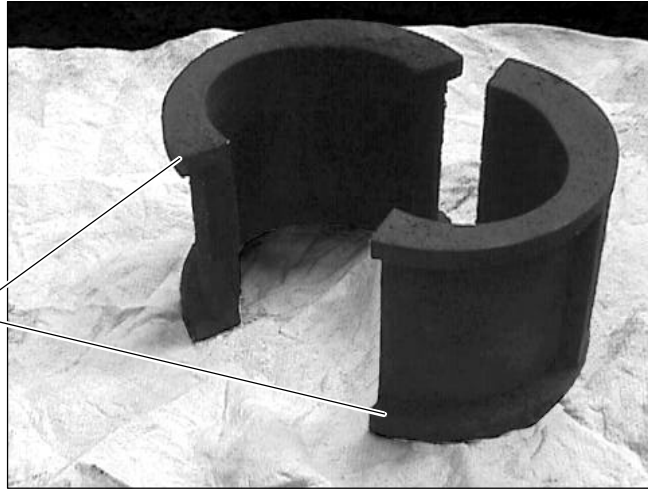
- Unbolt the carrier-bearing bracket, and separate the two halves.



Carrier Bearing Bracket

Carrier Bearing

- Remove the two halves of the carrier bearing.

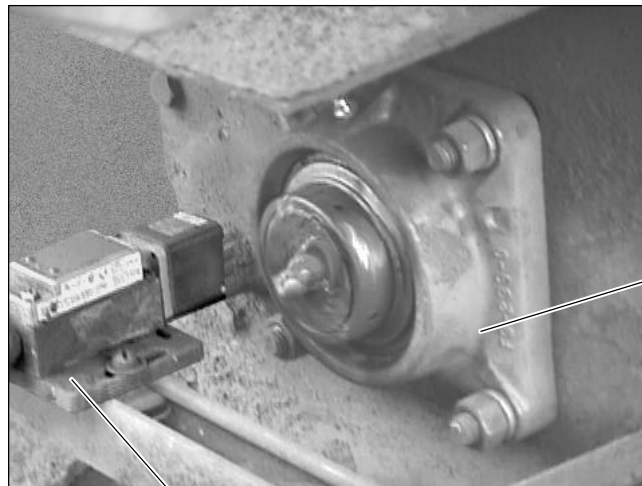


Carrier Bearing

5. Remove the front auger.
 - Pull the front half of the auger out of the trough.
 - Lay the auger out of the way.
6. Disassemble the rear bearing.
 - Remove the zero speed switch.
 - Remove the bolts connecting the auger to the stub shaft.

Note: The bolts may be removed after the auger is out of the trough.

- Remove the rear bearing.



Rear Bearing Assembly

Zero Speed Switch

7. Remove the aft auger.
 - Slide the auger out of the trough.
8. Reassemble the conveyor in reverse order.

Note: For ease of assembly, install the stub shafts before placing the augers in the trough.

- Install the new aft auger.
- Reassemble the rear bearing.
- Install the front auger.
- Reassemble the carrier bearing and bracket.
- Install the drive end.
- Install all removed covers.
- Restore electrical power.

Repair the Conveyor (Auger); Replace the Gear Reduction Assembly

1. Disconnect the electrical power as described in step 1, Replace Conveyor (Auger).
2. Remove the drive end.
 - Remove the drive belt cover.
 - Remove the drive belt.
 - Remove the lower pulley.
 - Disconnect the back cover from the gear reduction assembly.
 - Lift the drive end with a fork truck and boom.
 - Set the drive end out of the way.
 - Remove the gear reduction assembly from the front of the auger.
3. Install the drive end.
 - Install the new gear reduction assembly.
 - Place the drive end in position.
 - Secure the back cover to the gear reduction assembly.
 - Install the lower pulley.





- Install the belt.
 - Install the belt cover.
4. Restore power to the conveyor.
- Ask the Electrician to reconnect the motor.
 - Remove all lock and tags.
 - Close all power disconnects.

Repair the Conveyor (Auger); Replace the Front Stub Shaft

1. Disconnect the electrical power as described in step 1, Replace Conveyor (Auger).
2. Remove the drive end.
 - Remove the drive belt cover.
 - Remove the drive belt.
 - Remove the lower pulley.
 - Disconnect the back cover from the gear reduction assembly.
 - Lift the drive end with a fork truck and boom.
 - Set the drive end out of the way.
 - Remove the gear reduction assembly the front of the auger.
3. Replace the front stub shaft.
 - Remove the covers that cover the front portion of the auger.
 - Unbolt the stub shaft.
 - Pull the stub shaft from the auger.
 - Install the new stub shaft in the auger.
 - Bolt the stub shaft to the auger wrench tight.
 - Install all removed covers.
4. Install the drive end.
 - Install the gear reduction assembly.
 - Place the drive end in position.
 - Secure the back cover to the gear reduction assembly.



- Install the lower pulley.
 - Install the belt.
 - Install the belt cover.
5. Restore power to the conveyor.
- Ask the Electrician to reconnect the motor.
 - Remove all lock and tags.
 - Close all power disconnects.

Repair the Conveyor (Auger); Replace the Mid Stub Shaft

1. Disconnect the electrical power as described in step 1, Replace Conveyor (Auger).
2. Remove the drive end.

Note: The front auger may slide out far enough to replace the stub shaft without disassembly of the drive from the auger. If not, following procedures listed below.

- Remove the drive belt cover.
 - Remove the drive belt.
 - Remove the lower pulley.
 - Disconnect the back cover from the gear reduction assembly.
 - Lift the drive end with a fork truck and boom.
 - Set the drive end out of the way.
 - Remove the gear reduction assembly the front of the auger.
3. Remove the mid stub shaft.
- Remove the covers that cover mid portion of the auger.
 - Unbolt the stub shaft on both sides of the carrier bearing.
 - Unbolt the carrier bearing bracket from the brace.
 - Unbolt and separate the carrier bearing bracket.
 - Remove the carrier bearing.
 - Pull the front auger out just enough to remove the mid stub shaft.
 - Remove the stub shaft from the auger.



4. Install the mid stub shaft.
 - Install the new stub shaft in the auger.
 - Bolt the stub shaft to both the front and aft augers.
 - Tighten the bolts and nuts wrench tight.
 - Install the carrier bearing around the stub shaft. One half of the carrier bearing is under the shaft and the other half is over the shaft.
 - Install the carrier bearing bracket.
 - Secure the carrier bearing bracket to the brace.
 - Connect the brace to both sides of the trough.
 - Install the all removed covers that.
5. Install the drive end.
 - Install the gear reduction assembly.
 - Place the drive end in position.
 - Secure the back cover to the gear reduction assembly.
 - Install the lower pulley.
 - Install the belt.
 - Install the belt cover.
6. Restore power to the conveyor.
 - Ask the Electrician to reconnect the motor.
 - Remove all lock and tags.
 - Close all power disconnects.

Repair the Conveyor (Auger); Replace the Aft Stub Shaft

1. Disconnect the electrical power as described in step 1, Replace Conveyor (Auger).
2. Replace the aft stub shaft.
 - Remove the cover over of the aft part of the auger.
 - Remove the aft bearing.
 - Unbolt the stub shaft from the auger.
 - Pull the stub shaft from the auger.



- Install the new stub shaft in the auger.
 - Bolt the stub shaft to the auger wrench tight.
 - Install the aft bearing.
 - Install all removed covers.
3. Restore power to the conveyor.
- Ask the Electrician to reconnect the motor.
 - Remove all lock and tags.
 - Close all power disconnects.

Repair the Conveyor (Auger); Replace the Carrier Bearing

1. Disconnect the electrical power.
- Open the auger power disconnect and perform a lock and tag.
 - Open the rotary air lock power disconnect and perform a lock and tag.
2. Remove the carrier bearing.
- Remove the covers that cover mid portion of the auger.
 - Unbolt the brace from both sides of the trough.
 - Unbolt the carrier bearing bracket from the brace.
 - Unbolt and separate the carrier bearing bracket.
 - Remove the carrier bearing.
3. Install the carrier bearing.
- Install the carrier bearing around the stub shaft. Ensure that the carrier bearing one half is under the shaft and the other half is over the shaft.
 - Install the carrier bearing bracket.
 - Secure the carrier bearing bracket to the brace wrench tight.
 - Connect the brace to both sides of the trough wrench tight.
 - Install the all removed covers that.
4. Restore power to the conveyor.
- Remove all lock and tags.
 - Close all power disconnects.

Repair the Conveyor (Auger); Replace the Front Bearing

1. Disconnect the electrical power as described in step 1, Replace Conveyor (Auger).
 - Remove the drive belt cover.
 - Remove the drive belt.
 - Remove the lower pulley.
 - Disconnect the back cover from the gear reduction assembly.
 - Lift the drive end with a fork truck and boom.
 - Set the drive end out of the way.
 - Remove the gear reduction assembly the front of the auger.
2. Remove the front bearing.
 - Remove the covers that cover the front portion of the auger.
 - Unbolt the bearing from the front plate of the conveyor.
 - Pull the bearing from the stub shaft.
3. Install the new bearing.
 - Slide the new bearing on the stub shaft.
 - Bolt the bearing housing to the front plate.
 - Install all removed covers.
4. Install the drive end.
 - Install the gear reduction assembly.
 - Place the drive end in position.
 - Secure the back cover to the gear reduction assembly.
 - Install the lower pulley.
 - Install the belt.
 - Install the belt cover.
5. Restore power to the conveyor.
 - Ask the Electrician to reconnect the motor.



- Remove all lock and tags.
- Close all power disconnects.

Repair the Conveyor (Auger); Replace the Rear Bearing

1. Disconnect the electrical power as described in step 1, Replace Conveyor (Auger).
2. Remove the aft bearing.
 - Remove the covers that cover the aft portion of the auger.
 - Unbolt the bearing housing from the aft plate of the conveyor.
 - Unbolt the stub shaft from the auger if necessary.
 - Pull the bearing from the stub shaft.
3. Install the new bearing.
 - Slide the new bearing on the stub shaft.
 - Bolt the stub shaft to the auger if removed.
 - Bolt the bearing housing to the aft plate.
 - Install all removed covers.
4. Restore power to the conveyor.
 - Ask the Electrician to reconnect the motor.
 - Remove all lock and tags.
 - Close all power disconnects.

