

G-33: Replace/Adjust Drive Chain (Power & Free)

SAFETY FIRST

- Follow all Caterpillar facility safety standards when performing this task.
- The conveyor must be locked and tagged during drive chain replacement.
- An overhead hazard exists due to the rails and track components of the overhead conveyor system; be careful when working around the system.
- A manlift will be required to access the system. Look for possible obstruction in the area where the manlift will be operated.
- The area may be dimly lit; use a flashlight as necessary.
- A heat hazard exists when working within 10-20 feet of the ceiling during the warm months. Drink plenty of water.
- Watch for pinch points when threading the chain over the sprockets.

EQUIPMENT

- shop towels
- replacement chain
- hammer
- punch
- needle nose pliers
- 15-inch adjustable wrench with 1-inch box end
- 1 1/8-inch open box end wrench
- manlift
- lock and tag
- gloves and protective clothing

RESOURCES

- none required

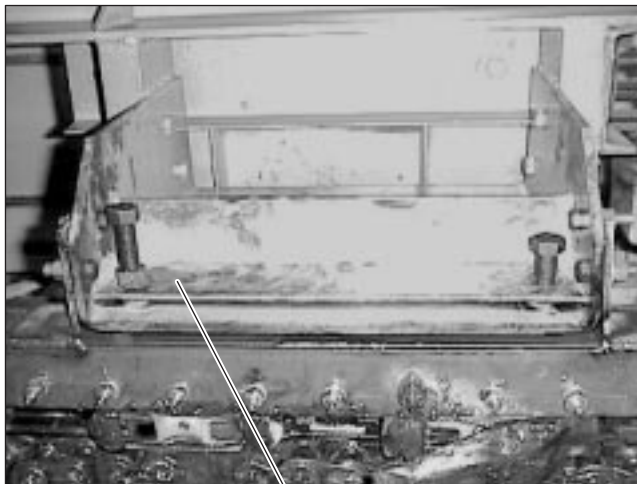


Replace/Adjust Drive Chain (Power & Free)

1. **Lock out and tag the conveyor at the disconnect switch.**
2. **Position the manlift under the section that requires chain replacement.**

Caution: Watch for overhead obstructions when moving the manlift into position.

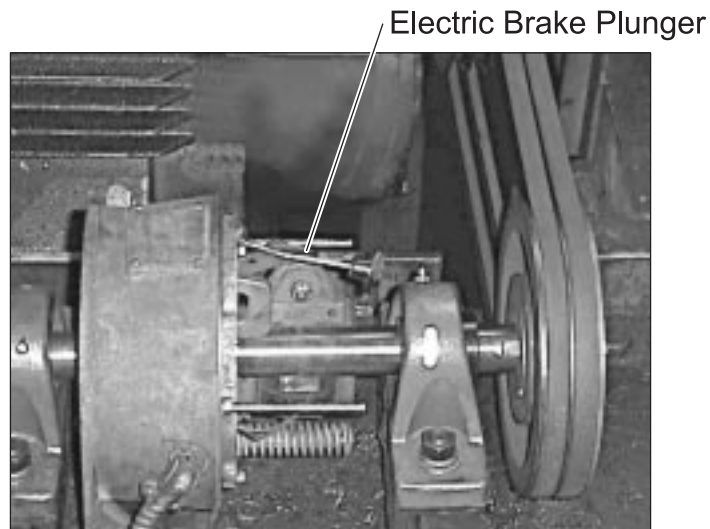
3. **Remove the defective chain.**
 - Using needle nose pliers, a hammer, and punch, remove the cotter pin to break the chain at the master link (half link).
4. **Back off the side adjuster and pressure rollers.**
 - Using a 15-inch adjustable wrench with a 1-inch box end, loosen the two bolts securing the side adjuster. Loosen the bolts until the rollers are not touching the chain. See the figure below.



Side Adjuster

5. Release the brake.

- Pull the plunger on the electric brake to disengage the brake. See the figure below.

**6. Remove the chain.**

Note: You will need two assistants to remove the chain. Ask one person to locate on top of the drive; ask the other to locate on the manlift, underneath the chain drive. The person on the manlift will assist you with handling the weight of the chain.

- Ask the assistant at the drive to pull the drive belts (from the gearbox to the motor) forcing the sprockets to rotate. As the sprockets turn, guide the chain off the sprockets. The chain is heavy; practice safe lifting techniques when lowering the chain.
- Set the chain aside.

7. Obtain and assemble the replacement chain.

- Count the chain lengths on the defective chain to determine the length of chain needed for replacement.
- Go to the crib and get the same amount of chain links. The new chain must have the same amount of links as the defective chain.
- Assemble a new chain with the same amount of links (as the section of chain you removed). Do not determine the length of the replacement chain by measuring the defective chain.

8. Install the chain.

- Use the same technique for threading the chain over the sprockets as you applied when removing the chain. Ask an assistant to pull on the drive belt to force the sprockets to turn. As the sprockets turn, feed the chain around the sprockets until the chain is threaded around both sprockets.
- Install the master link.

9. Tension the chain.

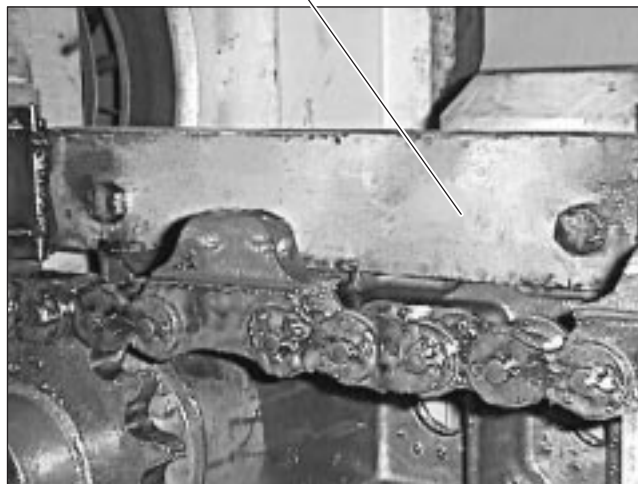
Note: The chain can be tensioned in either of two ways:

- A. by moving the gearbox**
- B. by adjusting the driven sprocket bolts.**

A: Move the gearbox:

- Using an adjustable or 7/8-inch socket wrench, loosen the gearbox bolts and slide the gearbox out until the chain is tensioned (has no slack). See the figure below.

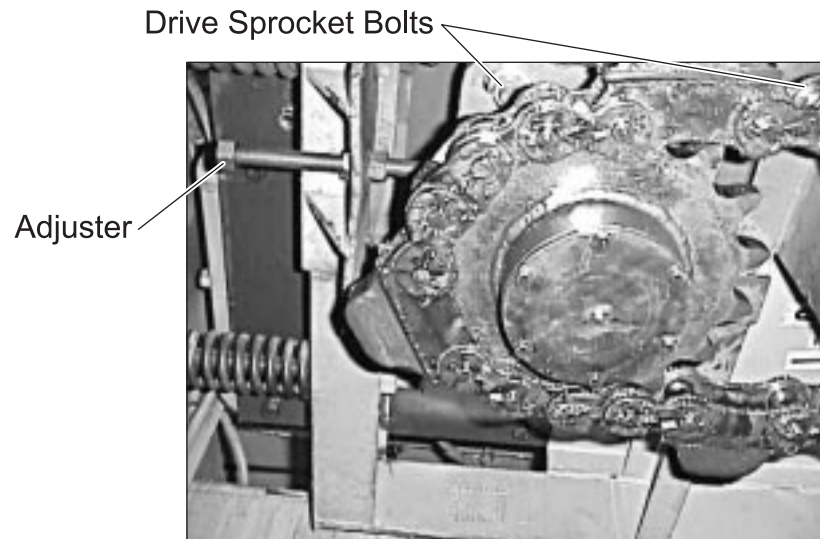
Gearbox

**Chain Tensioning**

Note: When moving the gearbox, the drive belts tension will be affected. Ensure that the drive belts are adjusted to the proper tension.

B: Sprocket Bolt Adjustment:

- Driven sprocket bolt adjustment: Using a 1 1/8-inch open end box wrench, loosen the driven sprocket bolts and slide the sprocket out until the chain is tensioned. See the figure below.

**10. Position the side adjuster rollers.**

- Slide the side adjusters against the chain.
- Using a 15-inch crescent wrench with a 1-inch open box end, tighten the bolts wrench-tight.
- Release the brake.

11. Clean up the work area.**12. Lower the manlift.****13. Remove the lock and tag.****14. Test the conveyor system.**

- Check to ensure chain is operating smoothly, without binding or slack.

15. Dispose of the chain in the scrap metal container.**16. Document the work history.**