EG-08: Repair Components (Retrieval Crane - Level Elevator)

SAFETY FIRST

- ☐ Follow all Caterpillar facility safety standards when performing this task.
- ☐ The crane must be powered down during the elevator leveling procedure.
- ☐ If the transfer car and crane need to be moved during leveling, notify personnel in the area when movement is expected.
- ☐ The area at the top of the crane is dimly lit, use a flashlight as needed.
- ☐ An overhead hazard exists due to building joists and frames - check the overhead clearance.
- ☐ A heat hazard exists during the summer months when working within 10-20 of the ceiling. Be sure to drink plenty of water before spending an extended amount of time in the area.
- ☐ A platform will be used to stand on when adjusting the bolt. Wear a safety belt when performing the adjustment. Attach the safety belt to the transfer car frame or to the shaft of the crane (a stationary position).

EQUIPMENT

- ☐ flashlight
- ☐ 4-foot long bubble level
- ☐ safety belt
- ☐ 1 1/16-inch wrench
- ☐ 15-inch crescent wrench (2) required
- ☐ shop towels
- ☐ cotton gloves
- ☐ platform

RESOURCES

- ☐ none required

Repair Components (Retrieval Crane - Level Elevator)

1. Position the transfer car.

- ☐ Turn the air compressor valve fully counterclockwise to the open position.

Note: Air pressure must be 50-100psi for transfer car operation.

- ☐ Turn the air compressor power switch to the ON position.
- ☐ Position the transfer car so that the crane can be moved into the North Bay.
  a. At the transfer car Control Panel, check to ensure that the RAM IN light is green.
  b. Using the foot switch, move the transfer car to the aisle where the crane is located. As you move the car, watch for the alignment light; slow the car movement as you approach the alignment light.
  c. When the TOP ALIGN light illuminates on the Control Panel, stop the car and press the RAM EXTEND pushbutton. The red RAM OUT light will illuminate. The top of the transfer car is now locked into position.

Note: The JOG ENABLE feature is now enabled. The JOG pushbutton will be used for positioning the transfer car rail with the crane aisle rail.

2. Move the crane into the transfer car.

- ☐ Using the Panel Mate touchpad, select MANUAL MODE, then press CONFIRM MODE. Look at the display to verify that MANUAL is displayed.
- ☐ Check to ensure that both shuttles are centered. Look at JOG SHUTTLE 1 and JOG SHUTTLE 2. If the North or South indicator is blinking, then the shuttle is off-center. Example: If Shuttle 2 is off-center to the south, you correct the off-center by pressing RECENTER SHUTTLE 2 FROM SOUTH. Shuttle 2 will center.
- ☐ Press JOG BRIDGE EAST SELECT to select the direction for crane movement.
- ☐ Press JOG BRIDGE CREEP SPEED EAST to select the speed of movement.
- ☐ After the crane cabinet passes the last aisle rack leg change the speed to SLOW.

- ☐ Continue crane movement in slow until the crane is positioned 1/3 the way into the transfer car.
- ☐ After the crane is 1/3 way into the transfer car, again place the crane into the CREEP mode.

Note: There is a risk of dislodging and/or damaging the collectors if the crane moves too fast.

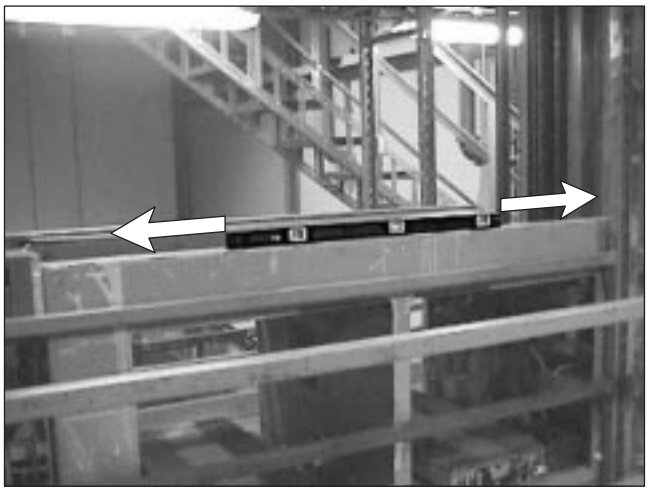
3. Put on the safety belt. You will be working between the transfer car framework, at the top of the transfer car.

4. Check the level to determine which side of the elevator (east or west) needs to be leveled.

Note: Check the level at three points on the mast: near the bottom (second level), midway up the mast, and at the top.

- ☐ SAFETY: The elevator will be moved several times during this procedure. The crane is powered up in order to move the elevator. When the elevator is in position the crane must be powered down. You will be asking the Electrician (or other personnel) to assist with moving the elevator during leveling. The crane must be powered down before you make any adjustments.
- ☐ Ask an Electrician to assist by moving the elevator when you need it raised or lowered.
- ☐ Ask the Electrician to position the elevator at the second level. Set the level on the frame, midway between the east and west sides of the elevator, as shown below.

East Side



West Side

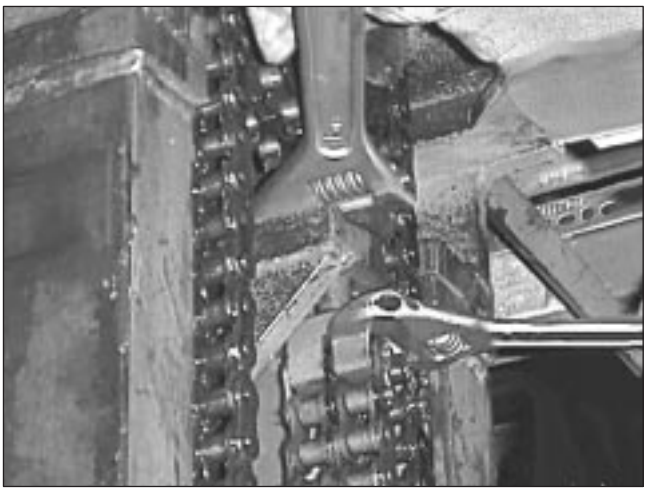
- ☐ Note the position of the bubble in the level.
- ☐ Ask the Electrician to raise the elevator to the midway position and check the level. Repeat these steps for a level reading at the top of the elevator.

5. Check to see if the chain nut (on the high side of the elevator) can be adjusted to lower the elevator to a level position.

- ☐ Run the elevator to the top position and stand on the elevator platform.
- ☐ Attach your safety belt to the frame of the transfer car or to the crane frame (select a stationary object).
- ☐ Look at the threaded area of the bolt to see if there is thread available for an adjustment. If the nut can not be adjusted, proceed to step 6; if the nut can be adjusted, proceed with this step.
- ☐ Turn the nut a few rotations. Turn the nut clockwise to raise the elevator; counterclockwise to lower the elevator.
- ☐ Move back onto the transfer car walkway, then ask the Electrician to move the car to the midway position. Recheck the level. If the elevator is not level, adjust the nut further until the elevator is level when checked with the 4-foot bubble level.

6. Adjust the elevator level by raising the elevator.

- ☐ Ask the Electrician to raise the elevator and to set the elevator up on blocks. This action removes the tension from the chains.
- ☐ Using two crescent wrenches, adjust the nut (on the low side) down to raise the bolt elevator up. See the figure below.



- ☐ Recheck the level at the midway point. If not level, readjust the nut until level. Adjust until the elevator is level in all three positions in the transfer car.

7. Check the shuttle operations to the North and South.

- ☐ Ask the Electrician to position the crane in the aisle. The Maintenance Mechanic needs to stand on the elevator platform and observe the shuttle operations to the North and South. Observe for the distance between the shuttles and the containers in the racks.

8. Position the crane in the transfer car after verifying that the distances appear equal at all three heights for both shuttles, in both directions.

9. Check the database to ensure that the database has not changed.

- ☐ Notify the Electrician to check and correct the database, as necessary. This process could have changed the database.

10. Clean up the work area.

11. Document the work history.