

EG-05: Replace Crane/Hoist Cable (Wire Rope)

SAFETY FIRST

- Follow all Caterpillar facility safety standards when performing this task.
- Wear safety shoes, safety glasses, gloves, and hearing protection.
- Use a safety harness when working in a manlift.
- Lock out and tag power sources when the crane/hoist does not need to operate.
- Use care when working on ladders and scaffolds.
- If using welding equipment, be sure sparks and spatter cannot ignite combustibles.

EQUIPMENT

- correct replacement cable
- welding equipment (as necessary)
- wrenches for the winding drum clamps of a crane, and for separating the hoist block
- torch

RESOURCES

- crane/hoist manufacturer's documentation, prints, and instructions
- Electrician

Replace Top Running Crane/Hoist Cable (Wire Rope)

1. Identify the specified replacement cable from the manufacturer's specification and prints; obtain the cable.
2. Lower the crane block closer to the floor or a secure working table.
 - Use whatever resources you have to hold the weight of the block up if there is no table.
3. Lock and tag out power to the crane if you will be out of sight of the crane operating pendant. Take the remote with you, if applicable.



4. Disconnect one drum clamp and drop the end of the old cable that was clamped in it.
5. Inspect the old cable to make sure it is riding in the sheaves.
6. Temporarily splice the new and old cables.
 - Weld (using oxyacetylene or splice with cable socks) the free end of the old cable to one end of the new cable, or otherwise splice the cables securely.
 - The splice joint must not be significantly larger or stiffer than the cable itself.
7. Arrange the new cable supply reel so it can turn freely.
8. Restore power to the crane and operate the crane in raise mode.
 - Pull the new cable through the block sheaves and crane head sheaves as the old cable winds onto the drum.
 - Monitor and guide the old cable on the drum so it winds evenly and does not cover the remaining cable attachment clamp.
 - Ensure that the new cable passes correctly through all sheaves in the block and crane head.
 - Continue operating the crane in the raise mode until the splice between the old and new cable reaches the drum.

Note: Cable must be pulled through by hand.

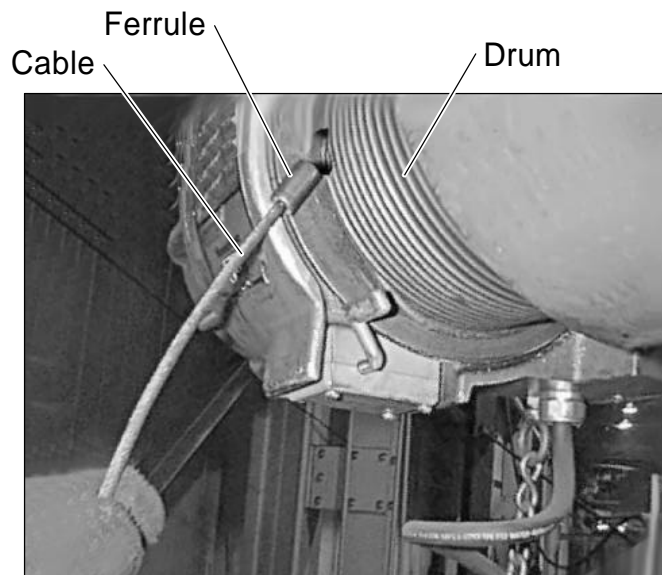
9. Operate the crane in the lower mode to let the old cable wind off the drum.
10. Hold the new cable so it will not drop, and cut the old and new cables apart at the splice with torch.
 - Attach the end of the old cable to the empty cable supply reel and wind the old cable on the reel as it winds off the crane drum.
11. When the old cable is all wound off the drum, disconnect the remaining drum-to-cable clamp to let the old cable drop.

12. Clamp the ends of the new cable to the drum.
 - The end of the new cable that was cut from the old cable must be clamped where the old cable was just released.
 - The other end of the new cable must be lifted and clamped to the drum, at the cable clamp initially disconnected.



Replace a Hoist Cable:

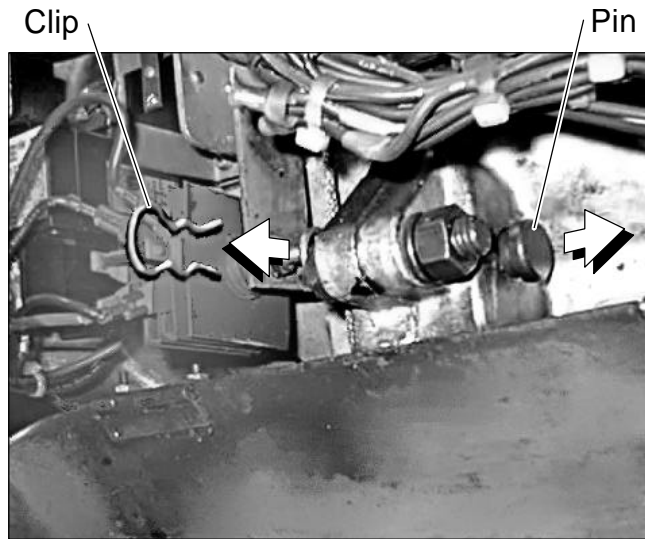
1. Identify the specified replacement cable from manufacturer's specification and prints; obtain the cable.
2. Lower the hoist block to the floor or a secure working table, and continue to operate the hoist in lower mode to the limit switch stop.
3. Lock and tag out power to the hoist if you will be out of sight of the hoist operating pendant.
4. Disconnect the drum end of the old cable from the drum, as shown below.



Disconnecting the Drum end of the Cable

5. Carefully drop the drum end of the old cable.

6. Disconnect the fixed end of the cable. See the figure below.



Cable Fixed End Attachment

- Withdraw the clip from the cable pin.
 - Hold the cable while withdrawing the cable pin from the cable end ring.
7. Carefully drop the fixed end of the old cable.
8. Remove the old cable from the hoist block.
- Separate the halves of the block as shown below.



Opening the Hoist Block

- Remove the cable from the sheave.

9. Lay out the new cable straight to eliminate all twist.
10. Install the new cable in the block and reassemble the block, as shown below.



Installing the New Cable in the Block

11. Attach the cable to the hoist.
 - Lift the ring end of the cable to the hoist head, and insert the ring in the fixed-end slot.
 - Insert the cable pin through the ring.
 - Insert the holding clip on the pin.
 - Ensure that the upper limit switch is connected to the lift end of the cable.
 - Lift the drum end of the cable to the hoist head, and insert the end in the drum.
12. Restore power to the hoist.
13. Raise the hoist fully while checking for any tendency of the block or cable to twist.
 - If twisting is evident, lower the block fully, remove the drum end of the cable from the drum, and relieve the twist before reinserting.