

CUTTING DRILL STEELS FOR REMOVAL: SINGLE OR DUAL BOOM JUMBO

Description

A drill steel may become stuck or bent on a single or dual boom jumbo's feed assembly, and the only way to remove the drill steel may be to cut the drill steel into pieces.

If a drill steel becomes stuck and cannot be removed, the operator must contact maintenance personnel or his / her supervisor. Only maintenance personnel who have been properly task trained may be permitted to perform this task. In addition to being properly task trained as maintenance personnel, the person performing this task must be trained in the proper usage of an Oxy-acetylene Torch.

NOTICE

Some mines have operators perform maintenance tasks. As long as the operator has been properly trained to perform maintenance and has been properly trained on the usage of an Oxy-acetylene Torch, then the operator may perform this task. If the operator is not comfortable performing this task, then the operator should notify his / her supervisor.

PPE Required

- Hard hat
- Light, long sleeve shirt
- Leather gloves
- Steel toed boots
- Goggles designed for cutting

Tools Required

- Oxy-acetylene torch (Ask supervisor if hot work permit is required.)
- Ratchet straps (as needed)

Procedure

1. Assess the situation. Is the drill steel stuck in the face? Can the machine be trammed / relocated to a safer environment for maintenance? Is the drill steel bent? Does the drill steel appear to be fouled in a manner that once the drill steel is able to move it could move in an unpredictable or uncontrollable manner? Using drill feed, can the drill steel be extended all way out (drill steel is not stuck and can move freely within centralizers)? Perform a thorough assessment of the situation looking for any potential hazards.

WARNING

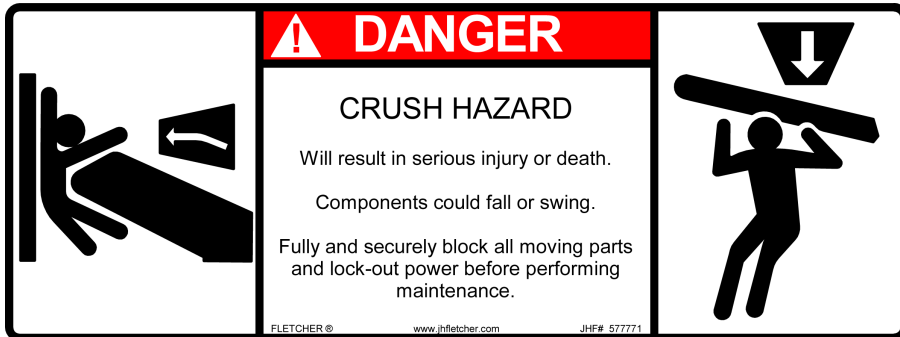
CRUSH HAZARD

Could result in serious injury or death.

If you are uncertain if the drill steel could move in an unpredictable or uncontrolled manner, never attempt to disengage the centralizers from around the drill steel. Disengaging the centralizers when potential energy exist in the drill steel, could cause the drill steel to move or rotate in an unpredictable manner.

2. If drill steel is not stuck in the face, and it is able to be fully extended (moves freely in the centralizers), feed the drill steel all they way out, disengage the centralizers, and remove the drill steel as you would normally. If the drill steel was able to move freely all the way out, the drill steel should not contain any potential energy that can act in a unpredictable and uncontrollable manner. Follow mine's procedures for properly removing and replacing drill steels.

3. If drill steel cannot be fully extended, locate the machine in a safe, level area, away from any other machines or obstacles. For this procedure, a safe area is a non-permissible (non-gassy) area where an oxy-acetylene torch may be used. If the machine cannot be located in a non-permissible (non-gassy) environment, this procedure cannot be followed, and you must contact your supervisor, and the mine must perform a risk assessment to determine the best way to remove the stuck or bent drill steel.
4. Ensure there is no debris or combustibles in the area.
5. Install cribbing or blocking beneath the boom to prevent any inadvertent movement from occurring while performing maintenance around the boom.



6. Shut down the machine, and perform any mine required LOTO (Lock-out, Tag-out) procedures.
7. Inform any personnel in the area of your intentions, and ensure all personnel are a safe distance away from the boom.
8. If during the assessment of the situation, it was determined that the drill steel could act in an unpredictable or uncontrollable manner, properly sized ratchet straps may be installed around the drill steel to prevent the potential energy from releasing. Ratchet straps are not required, but may be used as an added precaution.
9. Standing in the proper Go Zone area for the location in which you intend on cutting the drill steel, use the oxy-acetylene torch to cut through the drill steel. See Figure 1 on the next page for Go / No Go Zones for various cutting locations.

⚠ WARNING

CRUSH HAZARD

Could result in serious injury or death.

When cutting the drill steel, maintenance personnel should stand in a position away from where the drill steel is most likely to move. So, if cutting the drill steel on one side of a centralizer, maintenance personnel should stand on the opposite side of the centralizer where the drill steel is still being clamped in position. See Figure 1.

⚠ WARNING

BURN HAZARD

Could result in serious injury or death.

After cutting drill steel, do not handle drill steel. Let drill steel cool for several minutes before handling.

10. Repeat steps 8 and 9, cutting the drill steel on either side of each clamping device (centralizers and drillhead / hammer). Once this is complete, all potential energy within the drill steel is released.

⚠ WARNING

CRUSH HAZARD

Could result in serious injury or death.

As the drill steel is cut on either side of clamping devices, the drill steel will be in pieces and may fall to the ground. Keep body clear of any falling pieces of drill steel.

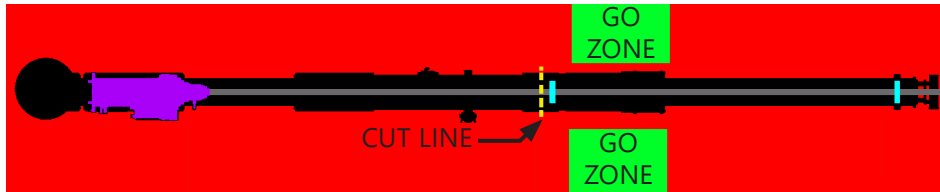
11. Once drill steel is loose (cut on both ends), remove drill steel pieces from ratchet strap(s).
12. Disengage the centralizers removing any pieces of drill steel left in centralizers.
13. Remove drill steel from drillhead / hammer.
14. Start machine and remove any cribbing or blocking beneath boom.



1) Maintenance personnel stands on side of drillhead / hammer and cuts drill steel beyond chuck.



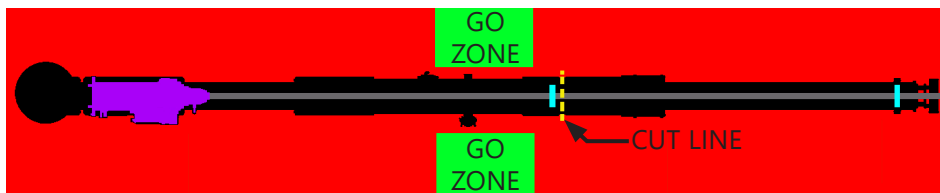
4) Maintenance personnel stands on side of feed assembly, in front of stationary centralizer, and cuts drill steel at rear of centralizer (towards chassis).



2) Maintenance personnel stands on side of feed assembly, in front of traveling centralizer, and cuts drill steel at rear of centralizer (towards chassis).



5) Maintenance personnel stands on side of feed assembly, at rear of stationary centralizer (towards chassis), and cuts drill steel in front of centralizer.



3) Maintenance personnel stands on side of feed assembly, at rear of traveling centralizer (towards chassis), and cuts drill steel in front of centralizer.

- KEY**
- DRILLHEAD / HAMMER**
 - CENTRALIZER**
 - DRILL STEEL**
 - GO ZONE**
 - NO GO ZONE**
 - CUT LINE**
 - FEED ASSEMBLY**

Figure 1 - Go / No Go Zones