Mechanical Coker Buckets: Inspection, Repair, & Rebuilding

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Areas To Inspect

- Wear Parts – Pins & Bushings, Edges, Shafts, Sheaves
- Structure – High Stress Areas – Upper and Lower Blocks, Arms and Keepers, Gussets

Wear Parts

- Bumping out one of the lower arm pins to see the amount of wear it has is a good indicator of how much wear the center shaft has experienced. Around 50 thousands its time to rebuild. We recommend doing this quarterly.

Wear Parts

- Having lips out of alignment (around ½”) without any heavy impact is a good sign of wear in the arm pins and center shaft. This also will drastically reduce the performance of the bucket.

Wear Parts

- Always check to make sure your sheave is taking grease! If it is not, the bushing will wear out quickly and cause a lot of play and possible damage to your sheave. You can also check the sheave bushing wear by seeing how much they move when applying a load by hand from side to side and seeing if they rotate freely.

Wear Parts

- Checking your lips and/or edges will tell you when it's time to flip or replace them.

Wear Parts

- Replacing wear pads before they get too low will also prevent damage to the main structure of the bucket.

Wear Parts

- Checking the mainshaft hub alignment will also help you determine whether or not the shaft or bushings have worn.

Structural Stress Points

- If the center shafts have begun to wear a good bit, then flexure of the bowl arm hub can cause cracking.

Structural Stress Points

- The lower block section may also begin to flex because of this, and in turn can cause cracking along the top of the structure.

Structural Stress Points

- As the bucket begins to flex, another area that can begin to crack is the upper arm keepers welded to the arm deflectors. Checking this area can also be an indication of the wear and flexing.

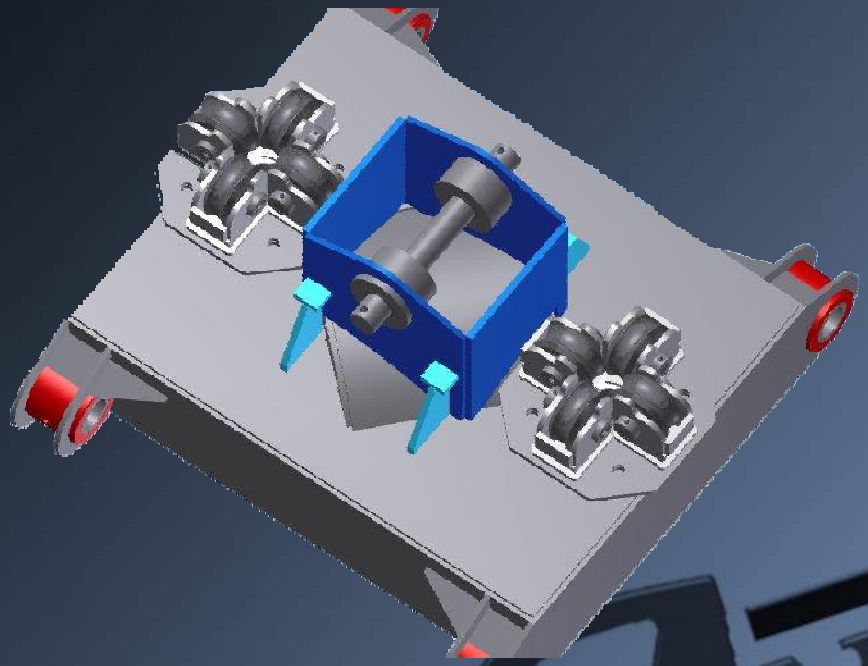
Structural Stress Points

- The last area that can prematurely wear due to flexing is the long bowl arm gussets, and should also be checked during an inspection.

Structural Stress Points

- Other outside effects, such as constantly rubbing along concrete walls, can increase the rate at which stress points show themselves.

Sheaves



- Inspect all sheaves and make sure they take grease. Sheaves should all be able to be rotated by hand.

Greasing

- Sheaves should be greased every 4 hours of use. All other grease points should be greased at least every 8 hours of use, more where bucket is used in extreme conditions. Grease should be applied until old grease and contaminants are flushed out.

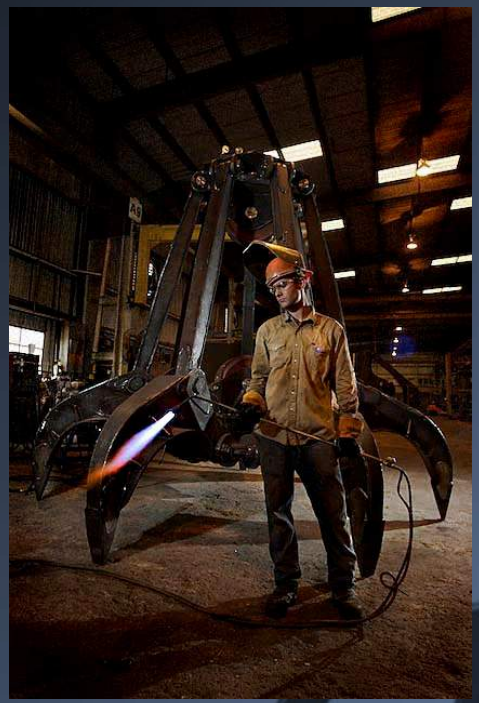
Welding - 514 T-1 STEEL

- **Cleaning:** Remove any rust, scale moisture or any foreign material that could negatively affect the weld in the area to be welded.
- **Preparation:** (After cleaning, preheat the weld area to approximately 350° F (177°C) through full plate thickness in an area of 6” around the weld area.) Be sure to maintain an interpass temperature of 150°F (66°C) while applying weld metal.

Welding - 514 T-1 STEEL

- Use a Low Hydrogen (E7018) Welding Electrode.
- If the area to be welded needs a repair due to cracking, the crack should be completely removed. Remove the crack by grinding or arc gouging prior to welding.
- Welding should be performed within the amperage and voltage range specified by the manufacturer of the welding electrode.
- If cracks are not completely removed before repairs are made, there is an excellent chance that the repair weld will also crack. After the crack has been removed, if the prepared area is deep and has a narrow opening, grinding may need to be performed to widen the opening. The bevel should be between 30 and 45 degrees. Too small a bevel causes cracking or lack of penetration. Too large a bevel will cause excessive welding and warpage of the base metal.
- Remove the weld slag on any interpass welds before applying additional weld metal.

Welding - 514 T-1 STEEL



- **After Welding:** If the ambient temperature is below 30°F (0°C), allow the weld to cool as gradually as possible. The weld should cool to a temperature you can touch with your hand. (Do not take a hot unit and immerse it in water).
- **NOTE:** In case of heavy repairs, cracking may occur up to 48 hours after welding is complete. Be sure to visually inspect the weld at least 48 hours after welding.

Questions?

Thank You