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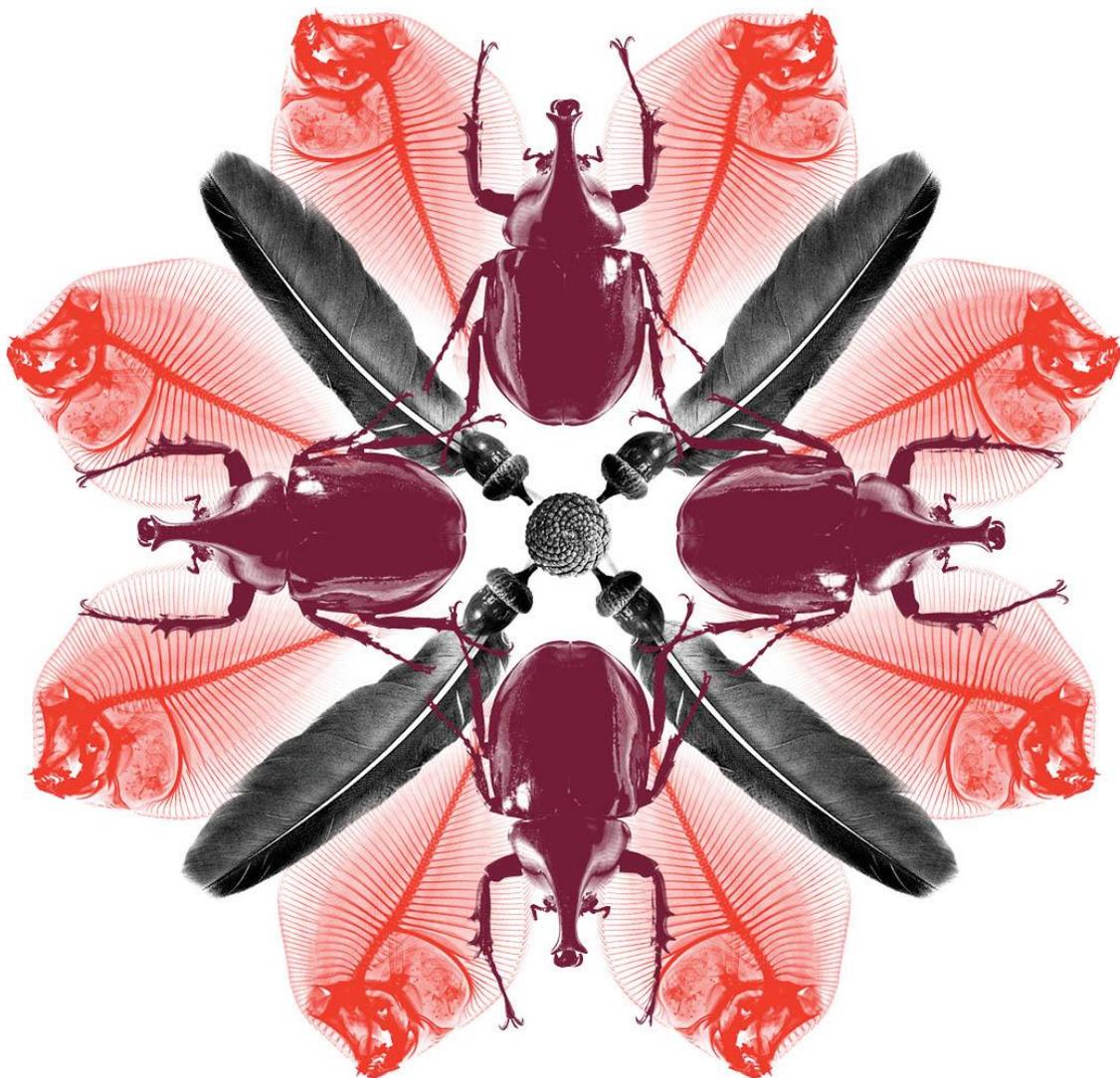
Machinery Cleaning Guide - Caterpillar Dozers

D8, D9, D10 and D11 Series

Biosecurity

Publication series

April 2016



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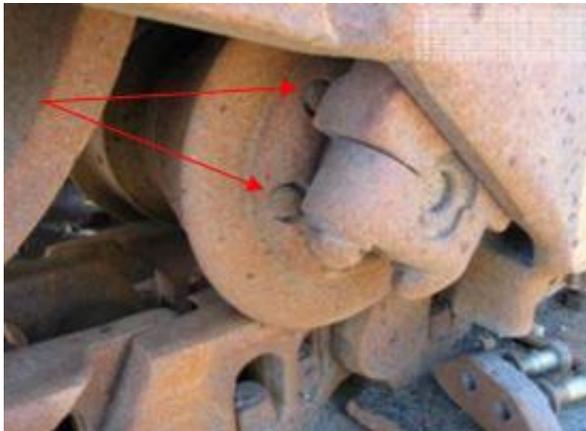
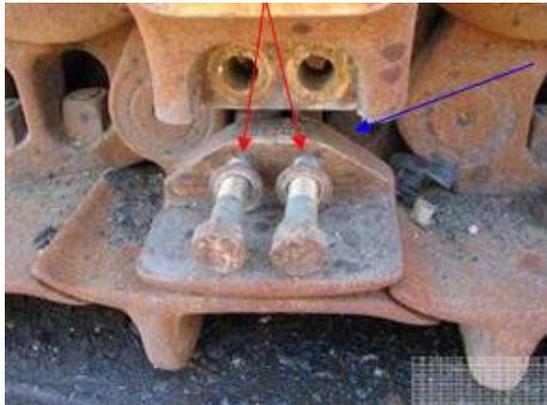


Cleaning guidelines

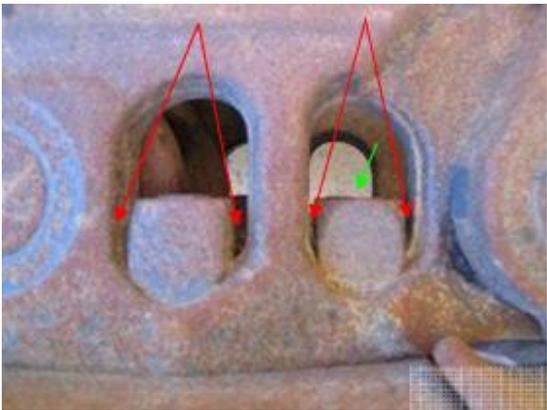
Dozer

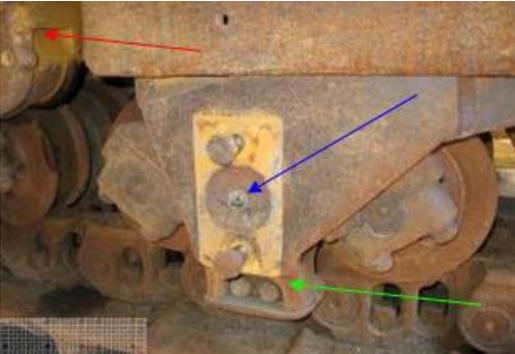
Description	Images
<p>Landscape shot of a typical Caterpillar Dozer. Structurally, the D8, D9, D10 and D11 series are basically the same except for small variations and obviously size differences.</p> <p>Note that the cabin has been removed for shipping purposes as well as the bearing covers (red arrows). There are 16 bearing covers in total. These bearing covers must be removed for cleaning and inspections purposes.</p>	

Tracks/track pads/bearing covers and rollers

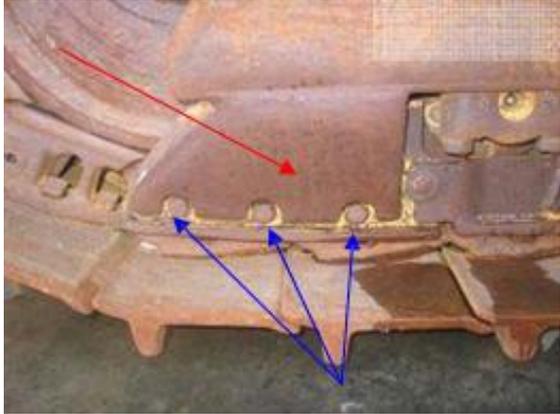
Description	Images
<p>The tracks on any dozer need to be rolled to allow the cleaning and inspection of the countersunk bolt heads (red arrows) on each of the rollers.</p>	
<p>The track guides have been removed for ease of cleaning and inspection. On some models the two bolt ends (red arrows) are countersunk at the rear of the track guide. Ensure that the rear of this guide is checked for any biosecurity risk material (BRM) in these areas (blue arrow).</p>	

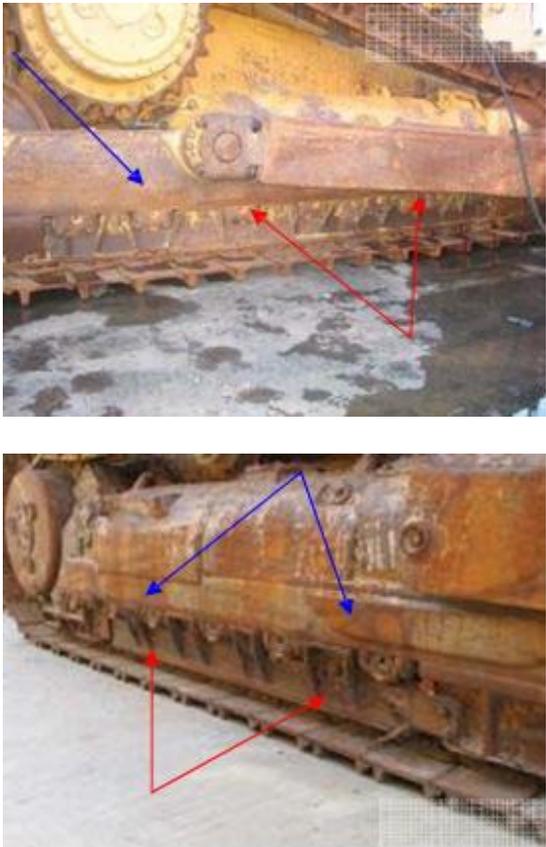
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Description	Images
<p>The bearing covers on all dozers need to be removed for cleaning as they are concave and can harbour BRM. Cleanliness of all will be required at the time of inspection.</p>	 A close-up photograph of a bearing cover on a dozer track. The cover is a circular, concave metal component, heavily rusted and discolored. It is mounted on a larger metal frame.
<p>Bearing cover on a D8 still attached (red arrow).</p>	 A photograph showing a bearing cover on a D8 dozer track. A red arrow points to the cover, which is still attached to the track. The cover is heavily rusted and discolored.
<p>This image shows the small gaps between the track pad nuts, which require careful cleaning and inspection (red arrows). To inspect the rear of these nuts, either use a small inspection mirror or inspect the backside of the outside nuts from the inside of the track frame and vice versa.</p>	 A close-up photograph of track pad nuts. Red arrows point to the small gaps between the nuts, which require careful cleaning and inspection. A green arrow points to the backside of one of the nuts.

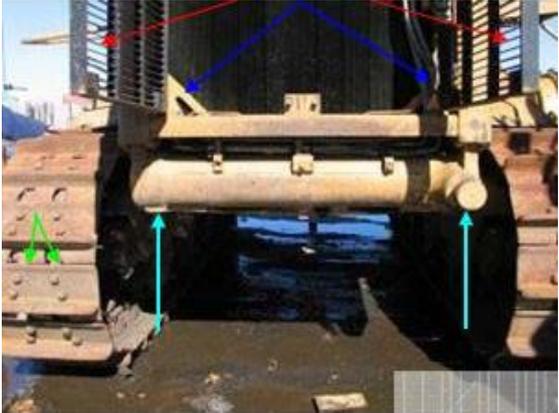
Description	Images
<p>When rolling the tracks during cleaning and inspection, ensure that when the pads open slightly, that these areas are carefully checked for BRM (red arrows).</p>	
<p>This image shows the cover above the front idler wheel. The tracks must be rolled for cleaning and inspection of the countersunk bolts (red arrows) and flush up inside the housing (blue arrow).</p>	
<p>This image shows the side of the track frame, rollers and a bearing cover (blue arrow) removed. The track guide (green arrow) is still in place, but needs to be removed for cleaning and inspection. Flush and carefully inspect all pivot points (red arrow).</p>	

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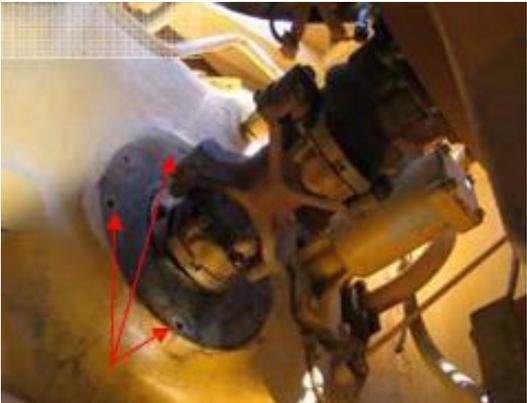
Description	Images
<p>The small plastic covers (red arrows) are open-ended and can harbor BRM. Most can be accessed from the inside of the track frame. Those that are not accessible must be removed for cleaning and inspection. Ensure where the sway bar joins the track frame (blue arrow), is clean and free of all contaminated grease.</p>	
<p>On the ends of some models will be protective plates (red arrow). The structures are generally hollow and need to be flushed via the small open gaps at the bottom (blue arrows) to ensure cleanliness.</p>	

Description	Images
<p>This image shows inside the track frame highlighting the rubber mounts and horizontal ledges that can be found inside many track frames (red arrows). The inside of all track frames needs to be thoroughly cleaned and inspected.</p>	
<p>Several images of rock guards (red arrows) attached to dozer tracks. If rock guards are present, these must be removed from both the outside and inside of the track frame to allow access for both cleaning and inspection. The channel above the rock guards (blue arrows) is hollow and must be flushed via the bolt holes once the rock guards have been removed. See general section for example of hollow from above rock guards.</p>	

Front end and underside of engine bay

Description	Images
<p>The radiator grill (red arrows) has been opened, allowing access to the radiator fins. If the grill cannot be opened as illustrated it must be removed at the time of inspection. The green arrows show the track pads slightly opened. The aqua arrows highlight where the bolts holding the belly plates in place have been removed. This chassis is hollow and will require the removal of the belly plates and flushing via the bolt holes to ensure cleanliness (in the presence of the inspecting officer). The blue arrows are to highlight the two vertical pillars either side of the radiator. These are hollow and can generally be accessed for flushing via small drainage holes, located in behind the radiator grill.</p>	
<p>The green arrow highlights the hollow vertical pillars either side of the radiator. Flush in the presence of the inspecting officer if these are not sealed. Check for any ledges or open-ended channels as above the radiator core (red arrow). In this instance, the circular nose bar is hollow and can be accessed for flushing via the belly plate bolt holes (see aqua arrow and the following image). All radiators must be flushed in the presence of the inspecting officer to verify cleanliness.</p>	
<p>This image shows the bolt holes where the belly plate has been removed, allowing access to the circular nose bar (red arrows). This area must be flushed in the presence of the inspecting officer to verify cleanliness.</p>	

Description	Images
<p>This image shows where the belly plate bolts have been removed, allowing access to the hollow side chassis rail (see red arrows in the image below). This area must be flushed in the presence of the inspecting officer to verify cleanliness.</p>	
<p>The aqua arrow highlights the hollow side chassis rail that can be accessed via the belly plate bolt holes. The red arrow highlights other belly plate bolts that must be removed from the sheath to verify cleanliness.</p>	
<p>The red arrows highlight the sway bar found under the front of the Dozer. Ensure that all contaminated grease is removed and flush this area to verify clean (blue arrows).</p>	

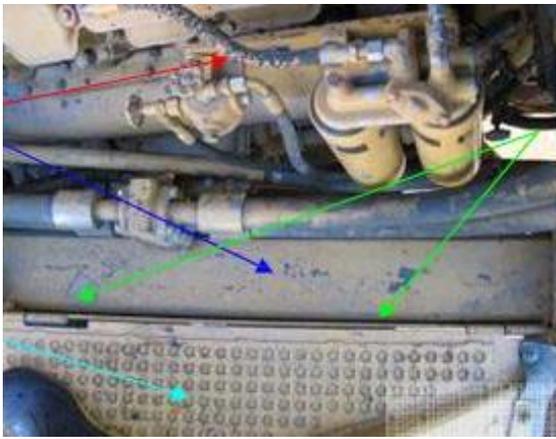
Description	Images
<p>The sump under the front end of the Dozer. Ensure that this area has had all contaminated grease removed. The blue arrow highlights a small hole at the front of the sway bar. The red arrows again highlight the gap above the sway bar, which requires flushing to verify cleanliness. Check all small openings for cleanliness.</p>	
<p>The red arrow highlights the universal joint and the blue the bell housing. A protective cover has been removed from around the universal joint to allow cleaning and inspection.</p>	
<p>Another view of the bell housing. Note the countersunk holes (red arrows) left once the protective cover has been removed.</p>	
<p>The protective plate that must be removed to allow cleaning of the universal joint (red arrow).</p>	

Harmonic Balancers

Description	Images
<p>Examples of harmonic balancers (red arrow) that are found at the front of the engine block. These areas are generally hollow and can harbour BRM.</p>	

Engine bay and housing

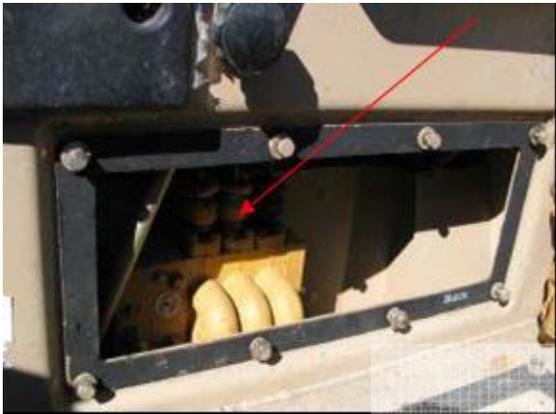
Description	Images
<p>The right-handed side of the dozer engine housing. All non-affixed engine covers have been removed for cleaning and inspection. The red arrow highlights the checker plate inside the engine cover, which will require flushing at the time of inspection. The air-filter (blue arrow) will need to be removed from the housing and verified clean (high pressure air). Remove all contaminated grease from pivot points (green arrow).</p>	

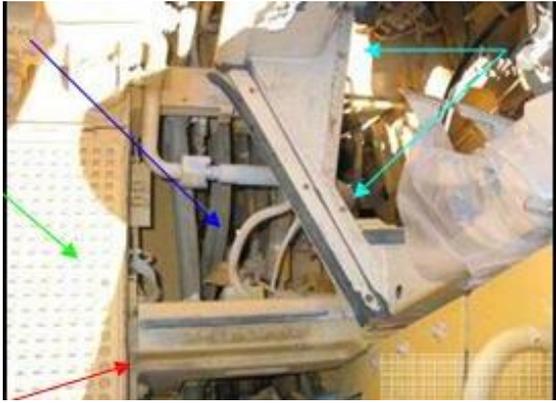
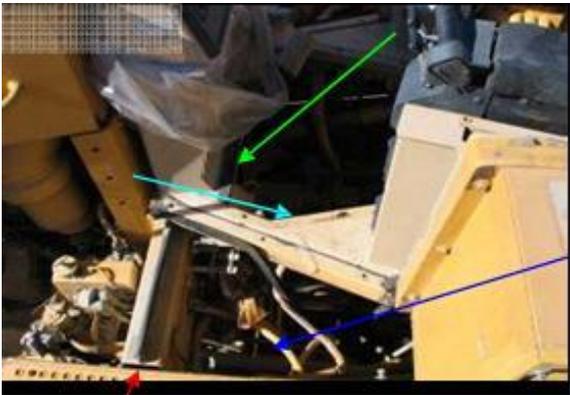
Description	Images
<p>This image shows the left hand side of the dozer engine housing. All non-affixed engine covers are to be removed for cleaning and inspection. The red arrow highlights the checker plate inside the engine cover, which will require flushing at the time of inspection. Check all framework inside the engine cover for hollow channels which will require flushing if not completely sealed (blue arrow).</p>	
<p>This image shows the side of the engine block (red arrow) and hollow chassis rail (blue arrow). The engine cover has been laid back on the hinge, exposing a small gap (green arrows) between the side cover and the chassis rail. Flush along this small opening to remove all BRM. Flush checker plate (aqua arrow).</p>	
<p>Check that all pivot points (red arrows) such as the one either side of the radiator have been thoroughly cleaned and all contaminated grease removed.</p>	

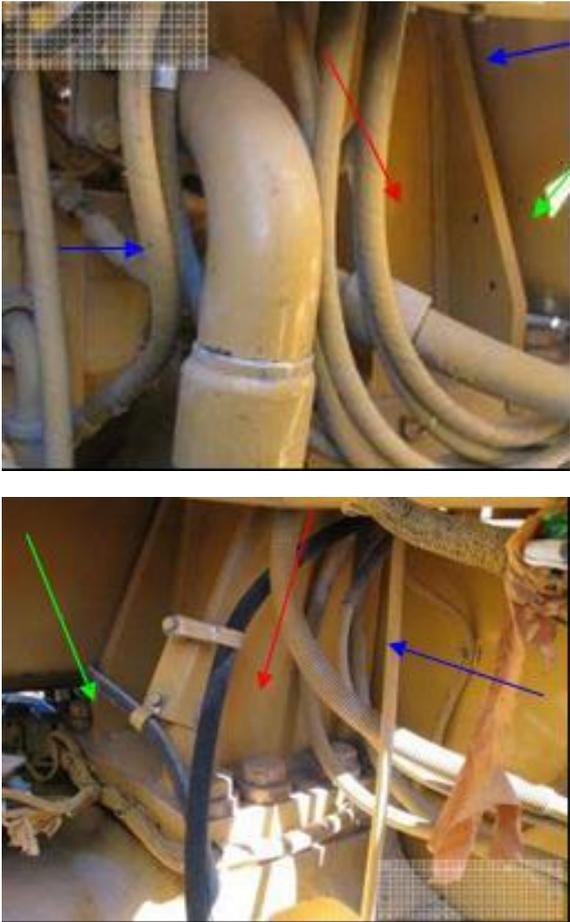
Description	Images
<p>This image shows the front end of the engine block, the oil cooler and the radiator grill. The radiator grill (red arrow) must be removed, allowing access to the inside of the radiator shroud. The oil cooler (blue arrow) needs to be flushed in the presence of the inspecting officer to verify cleanliness of the fins.</p>	
<p>The image shows the topside of a typical dozer block. Check between each tappet cover (red arrows) and along the centre of the block. It is best to flush these areas after visual inspection to ensure all BRM has been removed.</p>	

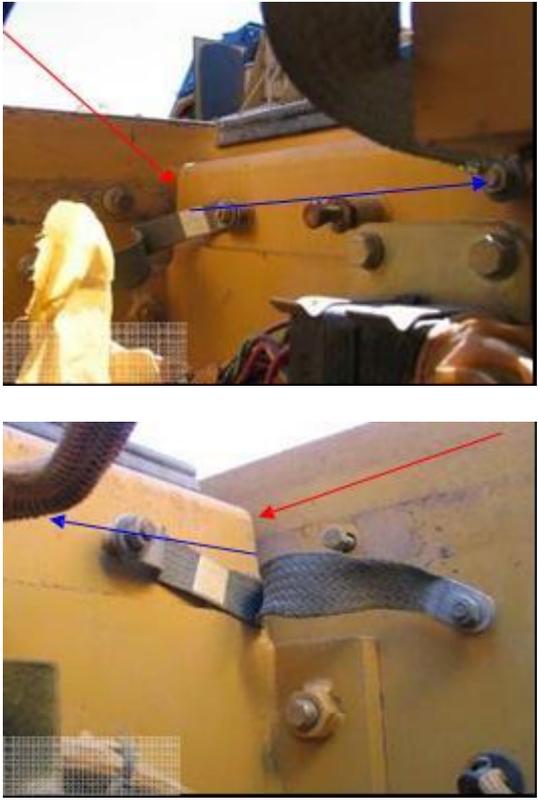
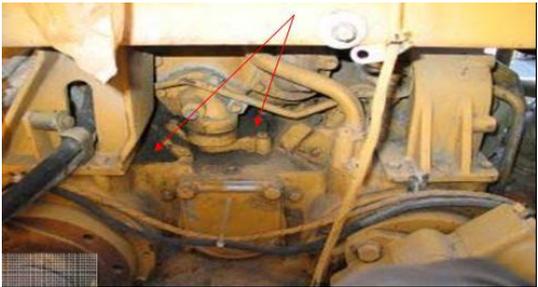
Cabin and below floor pans

Description	Images
<p>The floor pan (red arrow) and seat have been removed, allowing access to the hollow framework (blue arrows) below the floor pan and the top of the transmission.</p>	

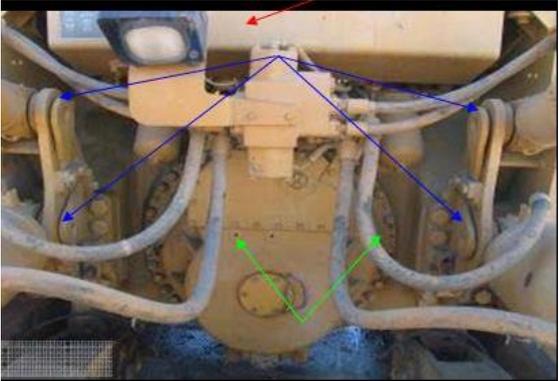
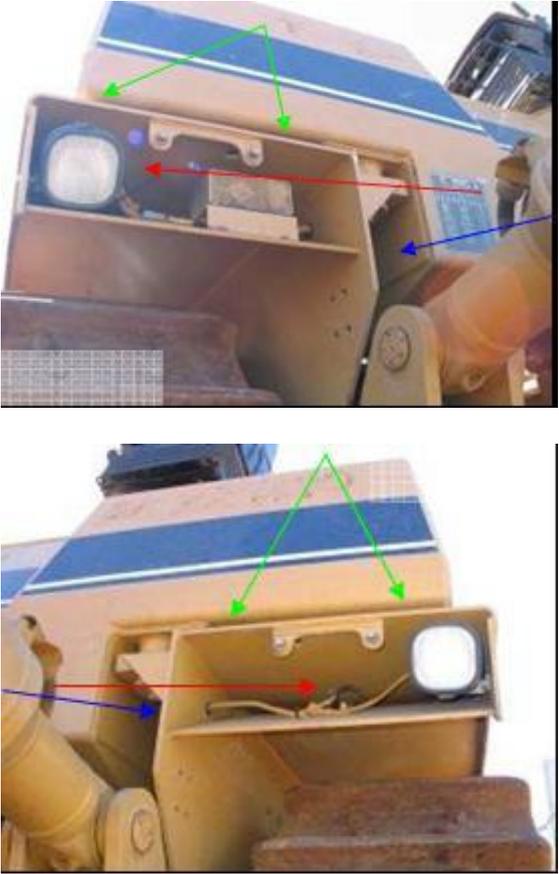
Description	Images
<p>The seat must be removed (red arrow) to allow the floor pan to be taken out, allowing access to the top of the transmission and inside the joystick control panels (see following images). Once the seat has been removed, ensure the rubber seat shroud is clean inside (blue arrow).</p>	
<p>These images illustrate the joystick control panels located either side of the seat. All non-affixed panels have been removed, allowing access for cleaning and inspection. These areas sometimes have ledges inside which harbour BRM and need to be thoroughly inspected. The joystick control on the right houses the electronics and care must be taken when inspecting this area (red arrows).</p>	 

Description	Images
<p>The red arrow indicates the open-ended box channel that runs along the front of the cabin, below the instrument panel. The floor panel just outside the door has been removed, allowing access to this hollow open-ended channel (blue arrow). All checker plate flooring (green arrow) and hollow channels must be flushed at the time of the inspection. The aqua arrows highlight where the floor pan attaches to the base. These channels are open-ended also and will be illustrated later.</p>	
<p>The opposite side of the cabin, again showing the open-ended hollow channel below the floor pan (red arrow). The blue arrow indicates where the floor panel has been removed from outside the cabin, exposing this channel. On smaller dozers this channel may not be open-ended, but rather have a small opening on the underside, in the centre, as indicated by the green arrow. The aqua arrows highlight where the floor pan attaches to the base. These channels are open-ended also and will be illustrated later.</p>	

Description	Images
<p>The base supports of the roll over protection system (ROPS) are below the floor pan and towards the rear (red arrows). These do not sit flush against the side wall of the dozer and will require flushing along these seams (blue arrows) to verify cleanliness. There are a series of bolts along the backside (out of view but highlighted by the green arrows), which require thorough inspection.</p>	
<p>This image shows the hollow channels located just below the floor pan. The red arrow indicates where the opening can be found. These channels require flushing to verify cleanliness.</p>	

Description	Images
<p>Another view of the hollow open-ended channels (red arrow) highlighting the opening located just below the floor pan. These channels require flushing to verify cleanliness.</p>	
<p>Another view of the open-ended box channel that runs along the front of the cabin, below the floor pan. The red arrows highlight the access points where these can be flushed.</p>	
<p>The back of the engine block as seen from below the floor pan. The firewall has been removed, allowing access. Note the red arrow highlighting the BRM at the rear of the block. The firewall must be either removed or loosened to allow inspection of the back of the engine block.</p>	

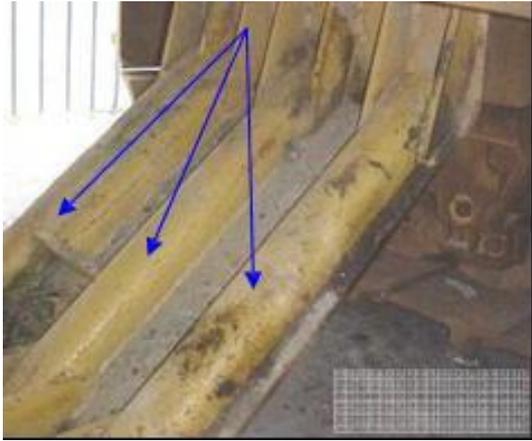
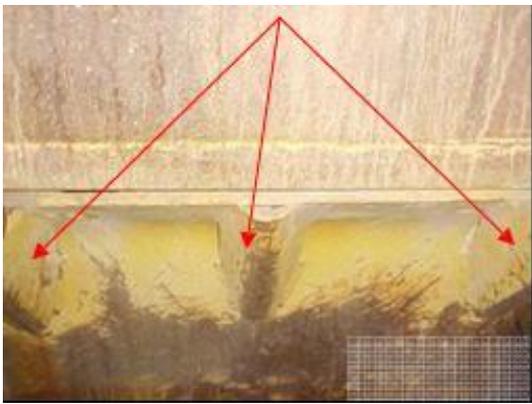
Rear end

Description	Images
<p>This image shows the rear end of a typical dozer. The panel below the fuel cell (red arrow) must be removed allowing access to the topside of the bell housing and the rear of the ROPS. Each of the ripper cradle pivot points must be totally free of contaminated grease (blue arrows). Check all countersunk holes to ensure all are free of BRM (green arrows).</p>	
<p>The rear tail lights and hollow cavities. The plates have been removed allowing access to these areas (red arrows). Check inside the small cavity highlighted by the blue arrows. Ensure that the small recess (green arrows) between the bottom of the fuel cell and the top of the arch is free of all BRM.</p>	

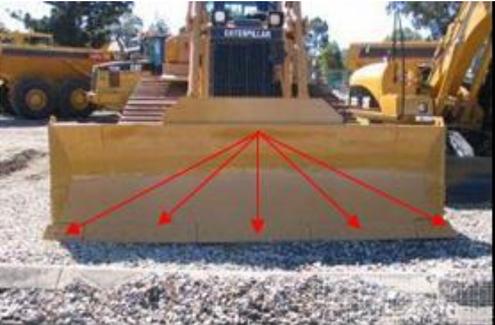
Ripper cradle/cutting teeth and belly plates

Description	Images
<p>A typical ripper cradle and cutting teeth. The cutting teeth (red arrows) and wear plates (blue arrow) must be removed from each blade to allow cleaning and inspection. Check the underside of the ripper cradle for the drainage holes (see green arrows and the following images). Ensure that the small gap between the blade and the cradle (aqua arrows) is flushed at the time of inspection.</p>	
<p>The underside of a typical ripper cradle with a drainage hole (red arrow). If the drainage hole is present, this hollow cavity will need to be flushed in the presence of the inspecting officer in order to verify cleanliness.</p>	
<p>The middle of the ripper cradle (red arrow) is also hollow and may not have any drainage holes. If no drainage holes are located, check carefully for cracks, splits or evidence of repair.</p>	

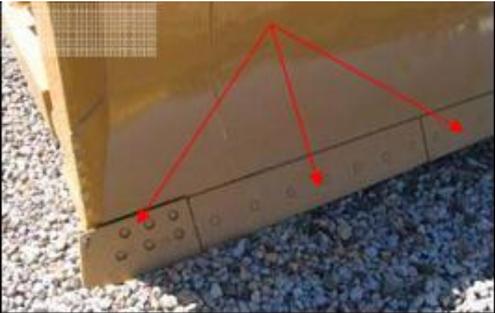
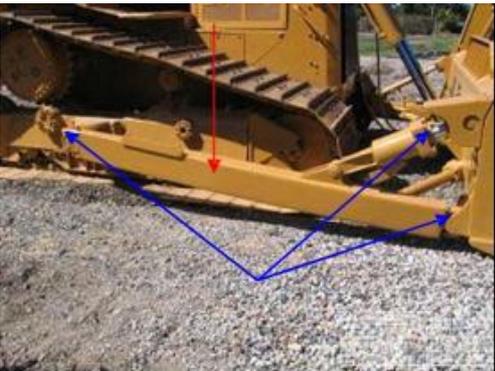
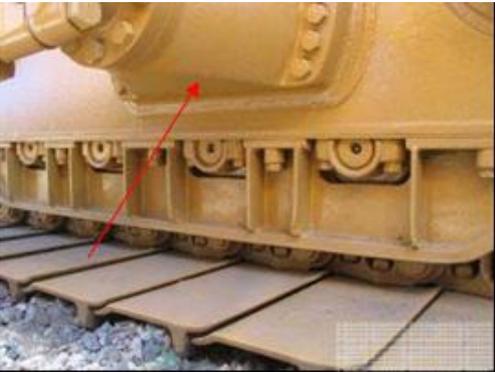
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Description	Images
<p>The inside of a typical belly plate. Check along each of the gussets (blue arrows) as on some models these are open ended and require flushing in the presence of the inspecting officer in order to verify cleanliness.</p>	
<p>On some belly plates, gussets can be found on the outside of the belly plate, as highlighted by the red arrows. These need to be flushed to verify clean.</p>	

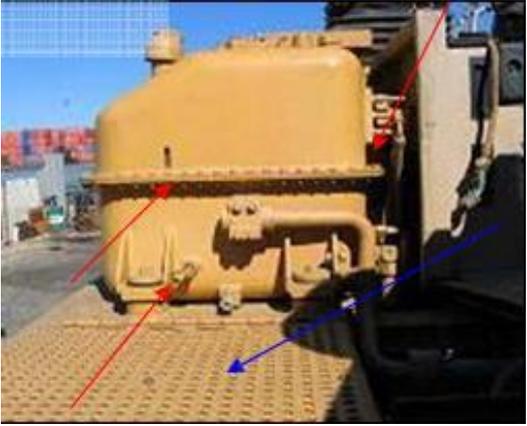
Blades and push arms

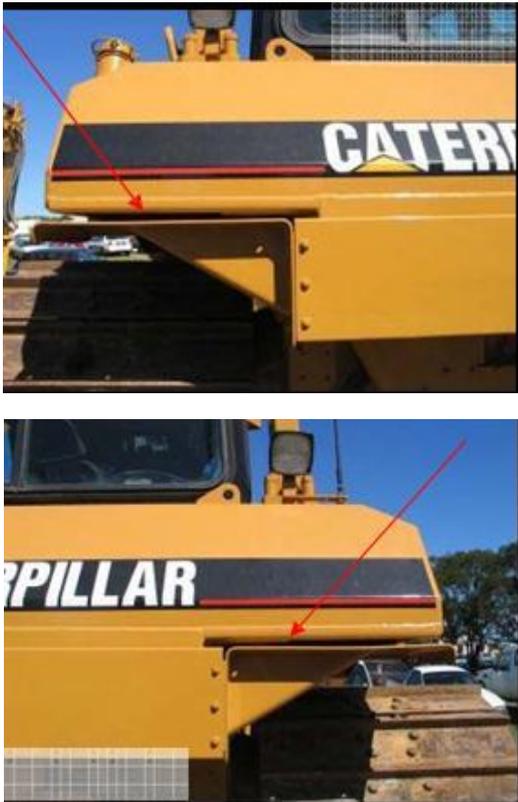
Description	Images
<p>A typical blade on a dozer. All cutting teeth (red arrows) must be loosened and flushed to verify cleanliness. Check for any cracks, splits or evidence of repair to all surfaces. If detected, the internal of the blade will have to be verified clean.</p>	

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Description	Images
A close up of the cutting teeth on a blade that needs to be loosened and flushed to verify cleanliness (red arrows).	 A close-up photograph of a yellow dozer blade. Three red arrows point to the cutting teeth on the blade, indicating areas that need to be loosened and flushed for cleanliness.
The push arms (red arrow) on a dozer. These are generally sealed units, but check for any cracks, splits or evidence of repair. Ensure all contaminated grease is removed from pivot points (blue arrows).	 A photograph of a dozer's push arms. A red arrow points to a push arm, and two blue arrows point to pivot points on the arms, indicating areas to check for damage and grease.
Illustrates where the push arms attach to the track frames. These units may have drainage holes underside (red arrow), which will require flushing if present.	 A close-up photograph of the attachment point between a dozer's push arm and the track frame. A red arrow points to a drainage hole on the underside of the attachment, indicating a point that may require flushing.

General

Description	Images
<p>The oil tank located outside the cabin. The rear and underside (red arrows) require thorough cleaning and inspection. All checker plates (blue arrow) require flushing in the presence of the inspecting officer.</p>	 <p>The image shows a yellow oil tank mounted on the side of a machine. Three red arrows point to the rear and underside of the tank, indicating areas for cleaning and inspection. A blue arrow points to a checker plate on the ground in front of the tank, indicating it requires flushing.</p>
<p>Air-filter pre cleaners or dust collectors must have the covers removed and be cleaned (red arrows).</p>	 <p>The image shows a circular air filter pre-cleaner with multiple small circular openings. A red arrow points to one of the covers on the top surface, indicating it should be removed and cleaned.</p>
<p>On some models the air-conditioning filter can be found on the topside of the engine cover, just below the windscreen. Remove filter, check for cleanliness. The filter housing will also require inspection (red arrow).</p>	 <p>The image shows the interior of a machine's cabin, specifically the area below the windscreen. A red arrow points to a blue rectangular air-conditioning filter housing, indicating it should be inspected and cleaned.</p>

Description	Images
<p>Check the air-filter housing for internal cleanliness (red arrow).</p>	
<p>All surfaces of the fuel cell need to be carefully cleaned and inspected, particularly the back and underside (red arrows).</p>	

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Description	Images
All wiring harnesses are to be carefully cleaned and inspected.	 A close-up photograph showing a person's hands holding a black, braided wiring harness. A significant hole has been made in the outer sheath of the cable, exposing the internal copper wires. The person's fingers are positioned to show the extent of the damage.
All looming around hydraulic hoses is to be carefully cleaned and inspected.	 A photograph showing a bundle of hydraulic hoses wrapped in white tape. The tape is peeling away, revealing a dark, greasy residue and some red markings on the underlying hoses, indicating contamination or damage.
Check all internal cabin framework for small holes. If present, flush to verify clean (red arrows).	 Two photographs of the interior of a vehicle cabin. The top photo shows a black speaker mounted on a tan-colored panel, with a red arrow pointing to a small hole in the panel above it. The bottom photo shows a similar speaker on a different part of the cabin wall, with a red arrow pointing to another small hole in the panel.

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Description	Images
<p>If rock guards are present they must be removed for cleaning and inspection. The red arrow highlights where the rock guard bolt has been removed, allowing access to the hollow section above. These must be flushed in the presence of the inspecting officer to verify cleanliness.</p>	 A close-up photograph of a yellow metal rock guard assembly on a Caterpillar dozer. A red arrow points to a specific location on the assembly where a bolt has been removed, providing access to a hollow section above.
<p>All batteries are to be loosened from the tie-down points for cleaning and inspection (red arrow).</p>	 A photograph showing the interior of a Caterpillar dozer's battery compartment. Several blue batteries are visible, secured by metal tie-downs. Red arrows point to the tie-down points, indicating where they should be loosened for cleaning and inspection. The batteries have "CATERPILLAR" and "CAT" branding.