



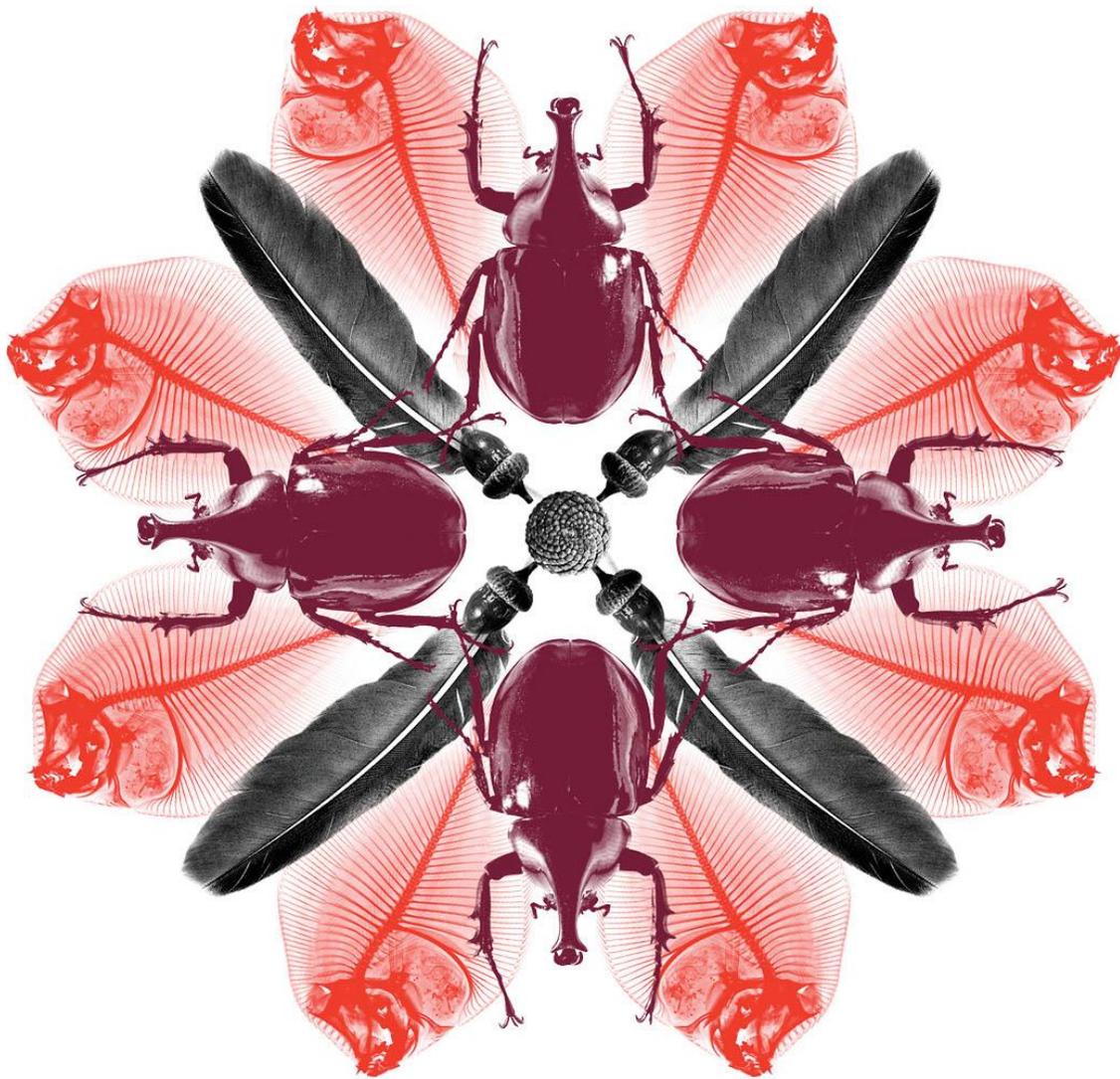
Australian Government  
Department of Agriculture  
and Water Resources

# Machinery Cleaning Guide - Medium Sized Dozers

**Biosecurity**

Publication series

April 2016



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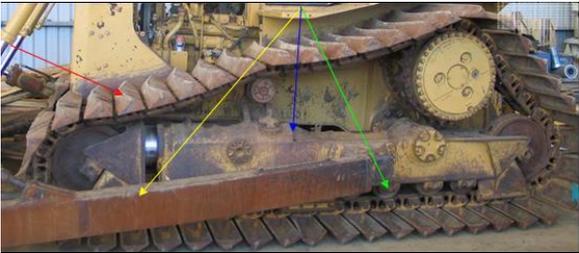
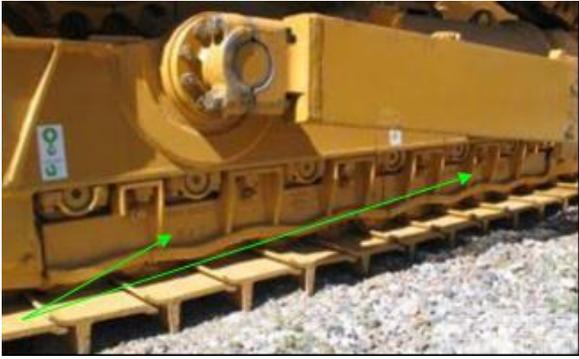
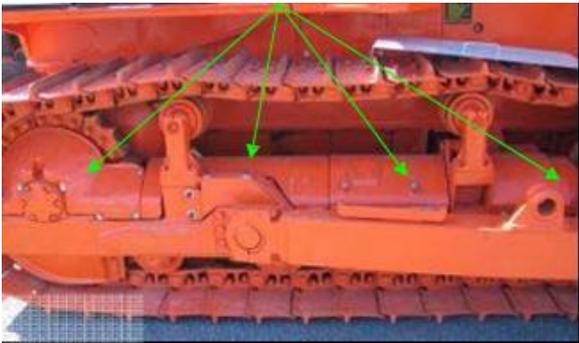
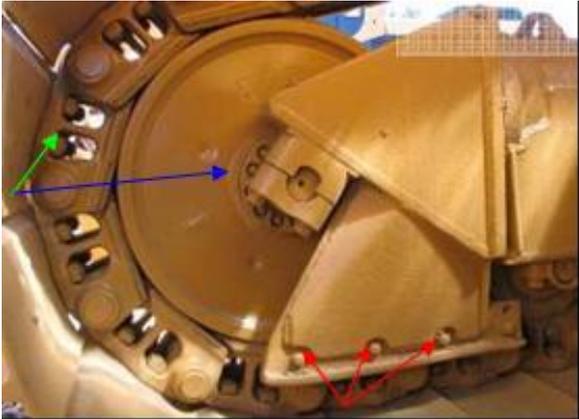
# Table of Contents

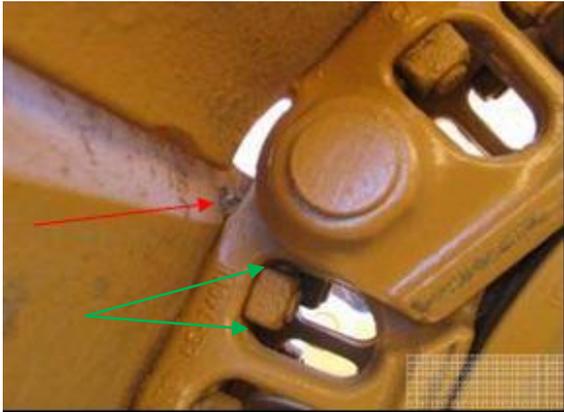
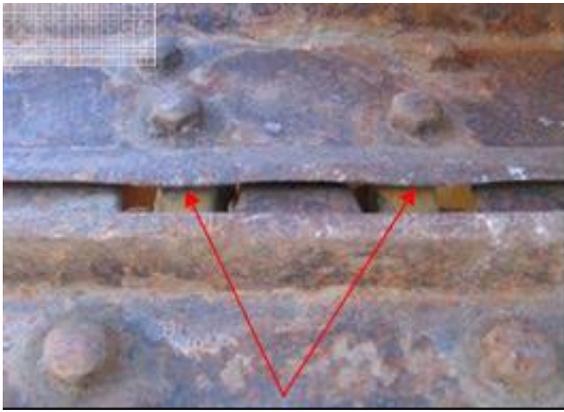
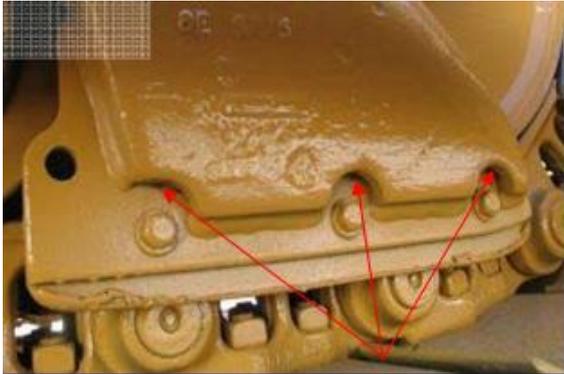
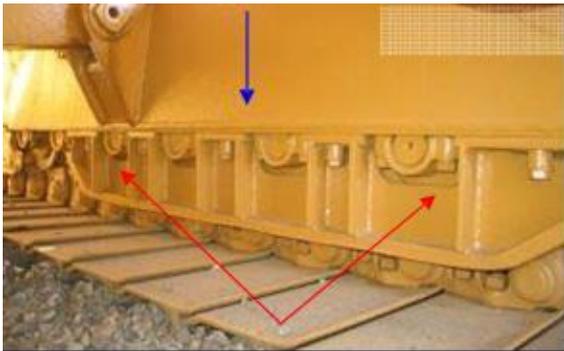
<b>Cleaning guidelines .....</b>	<b>3</b>
Tracks, rock guards, track pads and rollers.....	3
Engine bay, belly plates, radiator and housing.....	14
Rear end and fuel cell .....	22
Ripper cradle and tynes.....	26
General .....	28

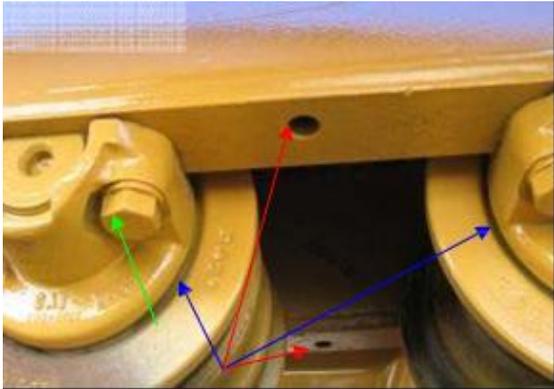
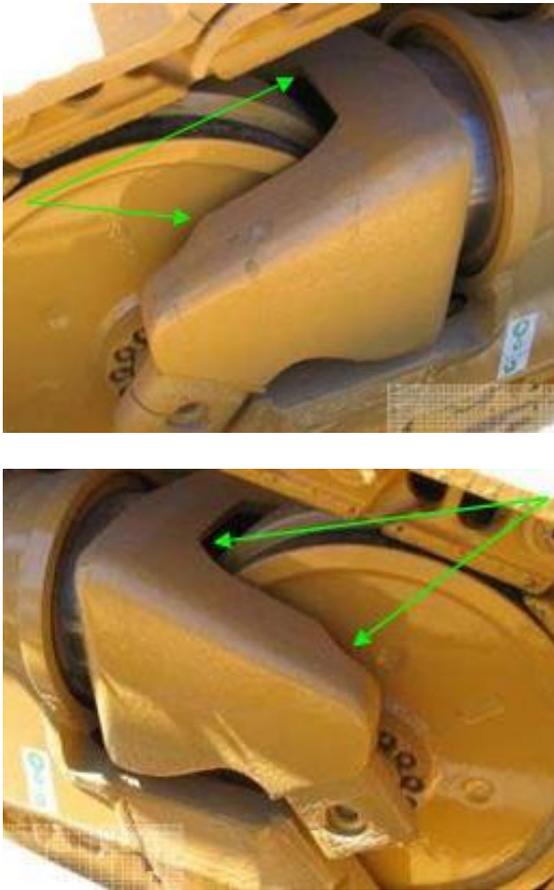


# Cleaning guidelines

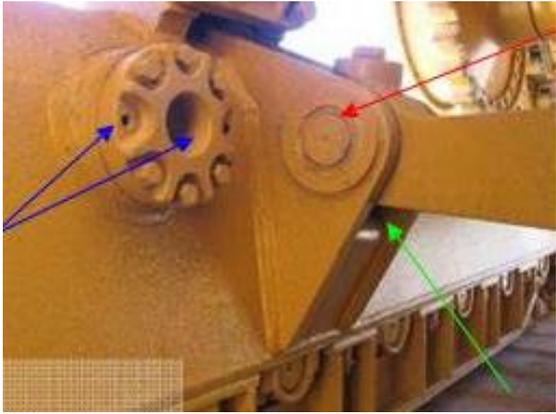
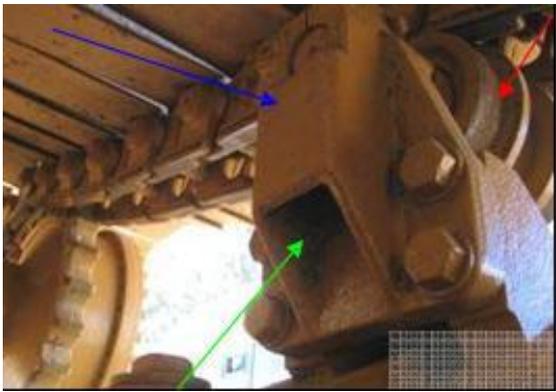
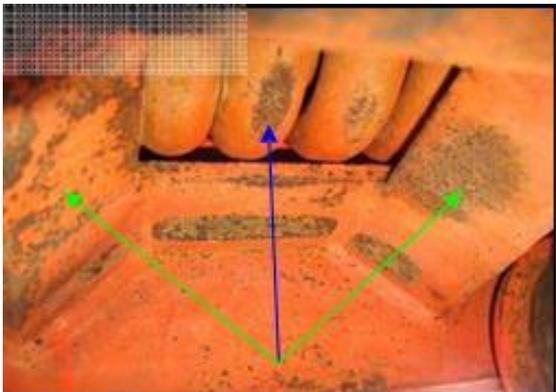
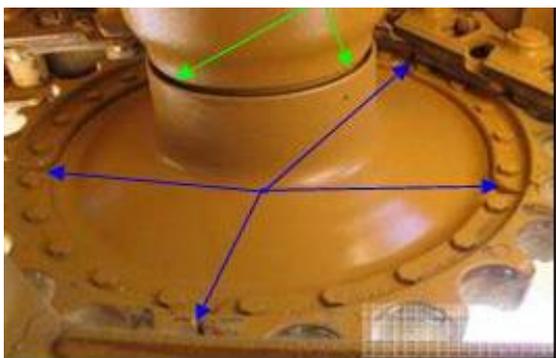
## Tracks, rock guards, track pads and rollers

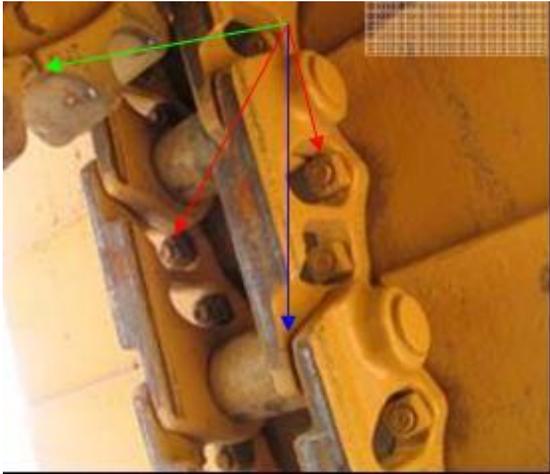
Description	Images
<p>The track pads (swamp tracks – red arrow) on a small model dozer. The track frame (blue arrow), push arms (yellow arrow) and rollers (green arrow) will all be highlighted in the following illustrations. To allow a complete inspection, all tracked machinery must undergo one full revolution to verify all track pads and countersunk holes in the rollers and idler wheels.</p>	
<p>To enable thorough cleaning and inspection, all rock or stone guards (green arrows) which are commonly found on smaller model dozers, must be removed.</p>	
<p>On other small models the topside of the track frame may have numerous non-affixed panels (green arrows) which all must be removed for cleaning and inspection.</p>	
<p>The idler wheel on the track frame. The protective plate on the bottom of the track is hollow and will require flushing via the openings (red arrows) to verify cleanliness. All countersunk bolts (blue arrow) on the idler wheel require verification. Each nut (green arrow) holding the trackpads must be verified.</p>	

Description	Images
<p>The green arrows highlight the small gap either side of the nut, while the red arrow highlights the rear of the outside nuts. The red arrow highlights where the track pads attach to the chain. See next illustration.</p>	
<p>When the tracks are rolled, the track pads will open when they pass around the idler wheel, opening the pads so the area highlighted by the red arrows can be cleaned and inspected.</p>	
<p>The protective cover at the end of the track frame, which is hollow. Flushing via the access points (red arrows) will verify internal cleanliness.</p>	
<p>The rock or stone guards (red arrows) in place on a small dozer. These must be removed to allow cleaning and inspection access to the inside of the track frame, but also to allow the hollow track frame (blue arrow) to be flushed, once the bolts have been removed. See next illustration.</p>	

Description	Images
<p>Once the rock or stone guards have been removed, the hole (red arrows) vacated by the bolts allows an access point to the hollow frame for flushing. The rock guards from both sides of the track frame must be removed. Check around each roller nut (green arrow) and flush around the small recess around each individual roller (blue arrows).</p>	
<p>These illustrations highlight the adjuster ram and the rear idler wheel. There are usually ledges inside the frame (green arrows) that must be thoroughly cleaned and inspected.</p>	

Biosecurity

Description	Images
<p>The sway bar pivot point (red arrow) must be free of all contaminated grease. The green arrow highlights the bottom access point for cleaning and inspection, while the blue arrows highlight a number of countersunk holes that must be clean and free of all biosecurity risk material.</p>	
<p>The carrier roller (red arrow) support arm. In this illustration the support arm is open ended (green arrow) and on other models the opening may be topside or at the rear (blue arrow).</p>	
<p>Inside some small dozer track frames, small v-shaped gussets may be found. These v-shaped gussets may be sealed units, however verification if open or spot-welded is required. The blue arrow highlights the track adjuster spring that, due to limited access requires flushing to verify cleanliness.</p>	
<p>The inside of the drive wheel on the dozer. Flush small recess highlighted by the green arrows to verify. The cogs have several small recesses around the perimeter where they join (blue arrows).</p>	

Description	Images
<p>Another view of the track chain, highlighting the track pad nuts (red arrows), the small recess in the drive wheel (green arrow) and the gaps between the track chains (blue arrow). All must be thoroughly cleaned and inspected. In some cases flushing will be required.</p>	

## Cabin and below floorpan

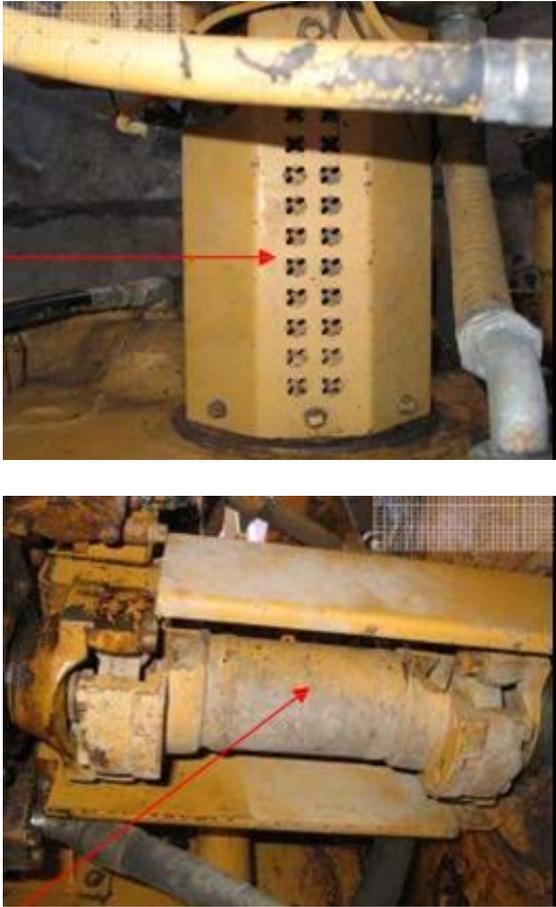
Description	Images
<p>A typical dozer cabin as seen on the D6 model. All cabins require dismantling and thorough cleaning and inspection.</p>	
<p>The floorpan immediately below the foot pedals has been removed, allowing access to the top of the transmission, bell housing, rear of the engine block and the base of the roll over protection system (ROPS). All will be highlighted in the following illustrations.</p>	

Description	Images
<p>The seat and floor panel below have also been removed allowing access to the topside of the differential and steering box (red arrow). The non-affixed panel on the side of the joystick control (blue arrow) has been removed for internal cleaning and inspection.</p>	
<p>Under the floorpan of most Cat dozers, a box channel (red arrow) will be found directly below the instrument panel. On the larger dozers, these are open-ended, however on the smaller models, these have a drainage hole on the underside, in the middle (green arrow). See next illustration.</p>	
<p>The underside of the box channel below the instrument panel. This area must be flushed via the small drainage hole (green arrow) in the presence of the inspecting officer to verify internal cleanliness.</p>	

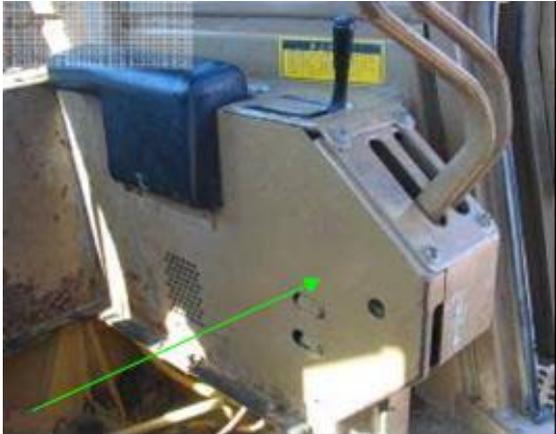
## Biosecurity

Description	Images
<p>The red arrows highlight the base of the roll over protection systems (ROPS). These ROPS do not sit flush against the sidewall of the dozer and the small recess must be flushed to verify cleanliness. The bolt heads (blue arrows) at the rear of the ROPS also require cleaning and inspection. The green arrow highlights where contamination lodges behind the hydraulic hoses.</p>	
<p>Some ROPS have large recesses underneath and can be full of biosecurity risk material as highlighted by the red arrow.</p>	

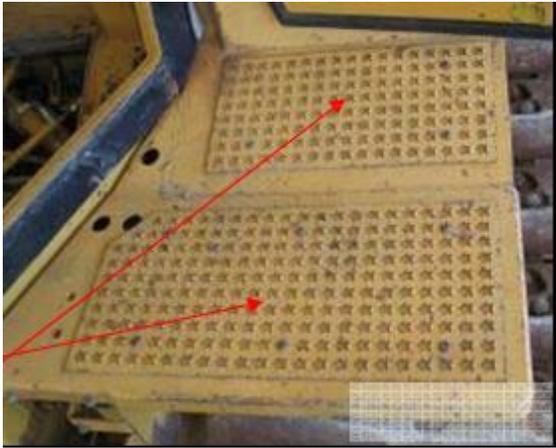
Description	Images
<p>The topside of the steering box (blue arrow) as seen under the seat. This requires careful cleaning and inspection due to the undulating surface, both topside and bottom. Also see next illustration.</p>	
<p>A rear view of the steering box. This steering box (blue arrow) has an undulating surface and must be thoroughly cleaned and inspected. There is a recess behind steering box (green arrow)</p>	
<p>Check all framework under the cabin floor. On some models this has open ends (green arrow), which will require flushing to verify cleanliness.</p>	

Description	Images
<p>The air-conditioning vent under the instrument panel has been removed for cleaning and inspection.</p>	
<p>The protective plate around the universal joint under the floorpan must be removed to facilitate the cleaning and inspection process. The second illustration shows the bottom half of the protective cover removed, allowing access to the universal joint.</p>	

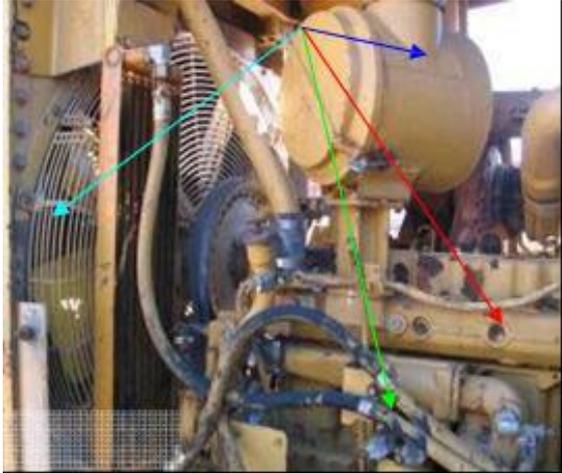
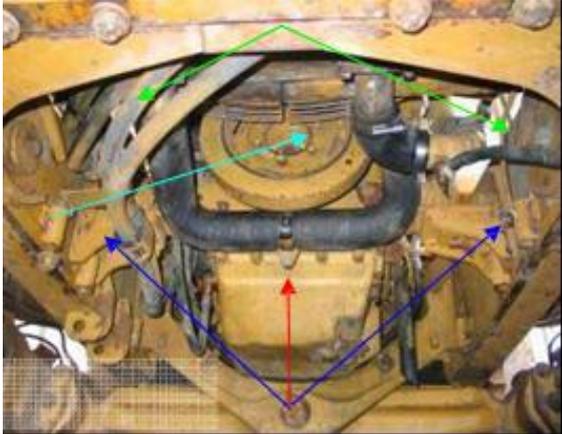
Biosecurity

Description	Images
<p>The internal view of the right hand joystick control panel. Removing this panel allows cleaning and inspection access to the ledges and hydraulic hoses found inside and requires verification.</p>	 A photograph showing the internal view of the right-hand joystick control panel. The panel is removed, revealing a complex arrangement of hydraulic hoses and mechanical components. A green arrow points to a specific area within the internal structure, likely indicating a point of interest for cleaning or inspection.
<p>The left hand joystick control panel. Like the right hand panel, internal cleaning and verification will be required.</p>	 A photograph of the left-hand joystick control panel. The panel is shown in its external view, with a blue joystick and various control buttons. A green arrow points to a specific component on the panel, likely indicating a point of interest for cleaning or inspection.

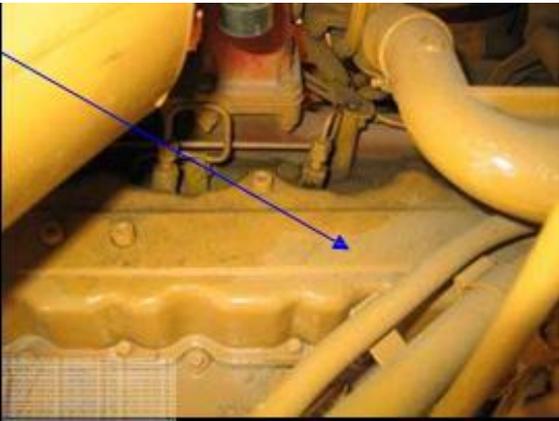
Biosecurity

Description	Images
<p>Check all internal cabin framework for small holes like the one illustrated. If present, flush to verify cleanliness.</p>	
<p>The checker plate (red arrow) outside the cabin door which requires flushing to verify cleanliness.</p>	

## Engine bay, belly plates, radiator and housing

Description	Images
<p>The left hand side of the engine block. This illustration highlights the air-filter (blue arrow), the block (red arrow), hydraulic hoses (green arrow) and the radiator (aqua arrow). All must be thoroughly cleaned and inspected. The internal radiator grill (aqua arrow) must be removed for internal access to the radiator shroud.</p>	
<p>The right hand side of the block also highlighting the side of the block (red arrow), hydraulic hoses (green arrow) and part of the engine housing (blue arrow) which must be checked for hollow or open-ended channels.</p>	
<p>The underside of the block of a medium sized dozer. The belly plates have been removed, allowing cleaning access to the sump (red arrow), engine mounts (blue arrows), hydraulic hoses (green arrows) and harmonic balancer (aqua arrow).</p>	

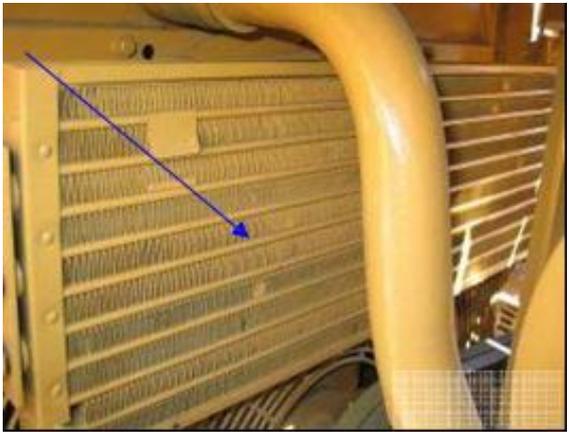
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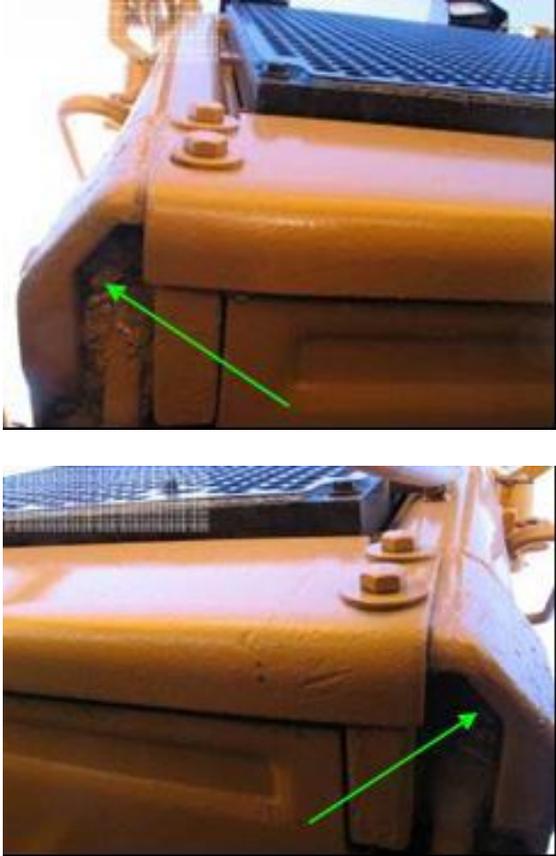
Description	Images
<p>The rear of the engine block and bell housing. All surfaces, including rear engine mounts (red arrows) require thorough cleaning and inspection.</p>	 A photograph showing the rear of the engine block and bell housing. Two red arrows point to the rear engine mounts, indicating they require thorough cleaning and inspection.
<p>The topside of the block as seen from below the floorpan. From this angle, the rear end of the block can be accessed for cleaning and inspection.</p>	 A photograph showing the topside of the engine block as seen from below the floorpan. A blue arrow points to the rear end of the block, indicating it can be accessed for cleaning and inspection.
<p>Another view of the topside of the block. All contaminated grease must be removed from this area.</p>	 A photograph showing another view of the topside of the engine block. A blue arrow points to a contaminated area, indicating that all contaminated grease must be removed from this area.

## Biosecurity

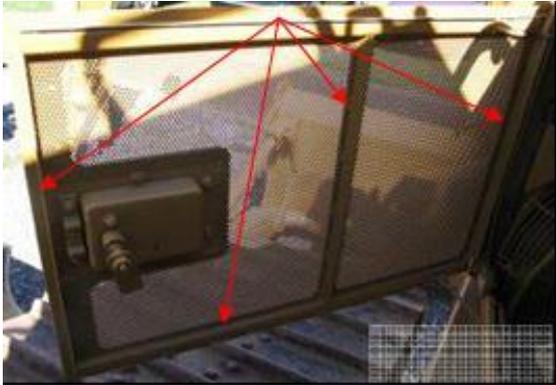
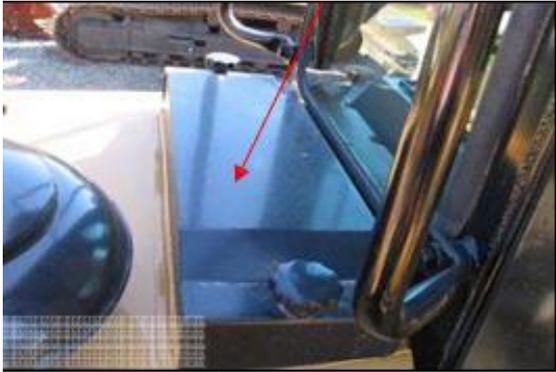
Description	Images
<p>The right hand side of the block, highlighting the lip around the sump (red arrow), and the oil filter (green arrow). All areas must be thoroughly cleaned.</p>	
<p>The left hand side of the block, highlighting the topside of the sway bar (green arrow), the lip around the sump (red arrow) and the underside of the engine mount (blue arrow).</p>	

Description	Images
<p>Once the belly plate bolts (red arrows) have been removed, these may provide access holes to the hollow chassis rails (These chassis rails are sealed on all small models).</p>	 <p>The images show the underside of a dozer chassis. The top image shows a row of bolts along a metal rail, with two red arrows pointing to specific bolts. The bottom image shows a similar view from a different angle, also with two red arrows pointing to bolts. The bolts are located on a metal plate (belly plate) that covers hollow chassis rails.</p>

Description	Images
<p>The internal radiator grill (blue arrow) which must be removed to allow cleaning and inspection access to the radiator shroud.</p>	
<p>The oil cooler (blue arrow) located behind the radiator. To verify cleanliness, this and the radiator core must be flushed in the presence of the inspecting officer.</p>	
<p>Check the vertical frame either side of the radiator (red arrow) for drainage holes at the top or bottom. On some models these have small openings on the inside rear (green arrow) and if present, these channels will require flushing to verify cleanliness.</p>	

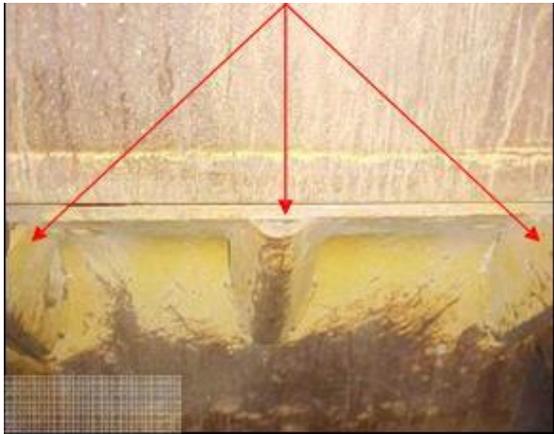
Description	Images
<p>Check along the topside of the radiator for any ledges or channels that will require cleaning and inspection. Flush the radiator fins to verify cleanliness.</p>	 A close-up photograph of the top of a Caterpillar radiator. The word "CATERPILLAR" is printed in white on a blue background. A green arrow points to a ledge or channel on the metal surface below the radiator fins.
<p>On some models there may be an open-ended cavity (green arrow) below the radiator grill that may require flushing to verify cleanliness.</p>	 Two close-up photographs of a radiator. The top image shows a green arrow pointing to an open-ended cavity below the radiator grill. The bottom image shows a similar view from a different angle, also with a green arrow pointing to an open-ended cavity.

## Biosecurity

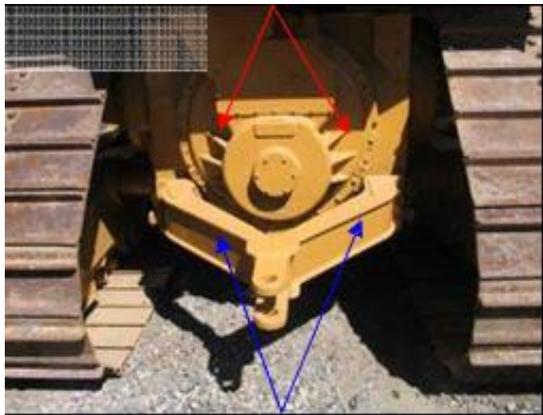
Description	Images
<p>Check all internal engine housing support framework (red arrow) for hollow, open-ended or spot welded channels. Flush to verify internal cleanliness if present.</p> <p>Remove the air-filter (blue arrow) and verify clean.</p>	 A photograph showing the internal engine housing support framework of a dozer. Red arrows point to various structural components, including a large cylindrical support and surrounding beams. A blue arrow points to a circular opening, likely the air filter location.
<p>Check all engine cover doors for hollow, open-ended or spot welded channels (red arrows). Flush to verify internal cleanliness if present.</p>	 A photograph of the engine cover doors on a dozer. Red arrows point to the edges and joints of the doors, highlighting areas where hollow or open-ended channels might be present.
<p>The air filter located just in front of the cabin windscreen (red arrow), must be removed to verify the cleanliness of the filter and the housing.</p>	 A photograph showing the air filter housing located just in front of the cabin windscreen. A red arrow points to the air filter housing, indicating the location for inspection and removal.

Description	Images
<p>Remove the dust collector cover (red arrow) and verify internal cleanliness.</p>	
<p>The sway bar joints attachment point to the track frame. Check all recesses (red arrow) and ensure all contaminated grease is removed.</p>	
<p>The front view of the harmonic balancer (red arrow) at the front of the engine block. Like many harmonic balancers, they are concave and can harbour significant amounts of biosecurity risk material and must be verified clean inside.</p>	

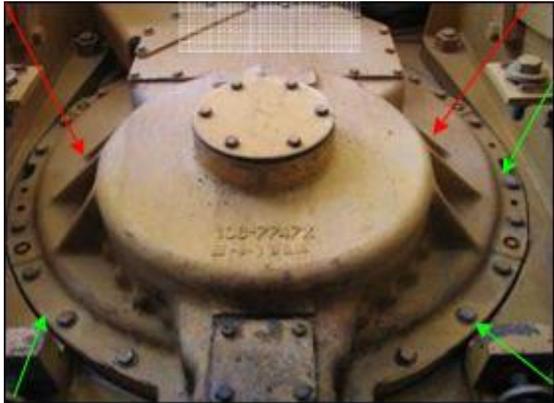
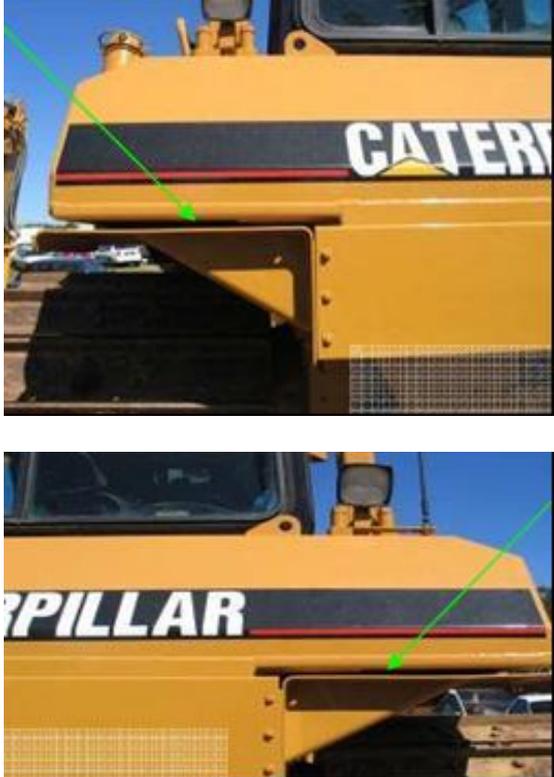
## Biosecurity

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>	

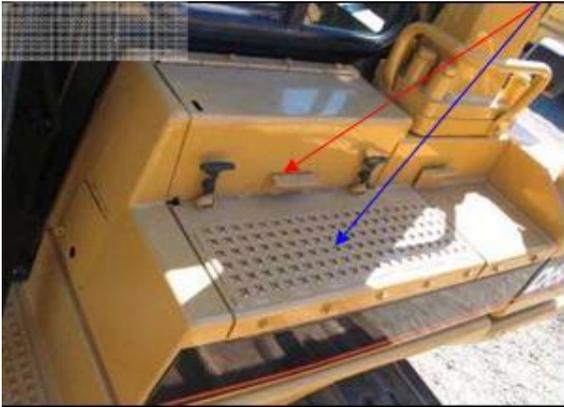
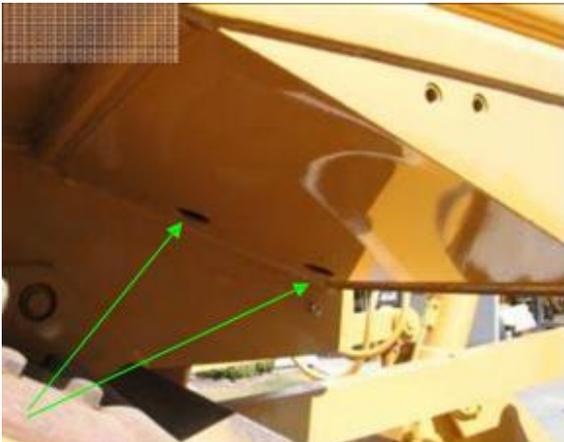
## Rear end and fuel cell

Description	Images
<p>The rear of the small dozer (red arrows) and drawbar (blue arrows). Check all surfaces of the drawbar for drainage holes, for cracks, splits or evidence of repair.</p>	

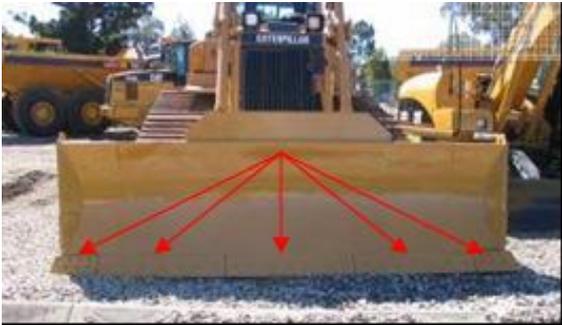
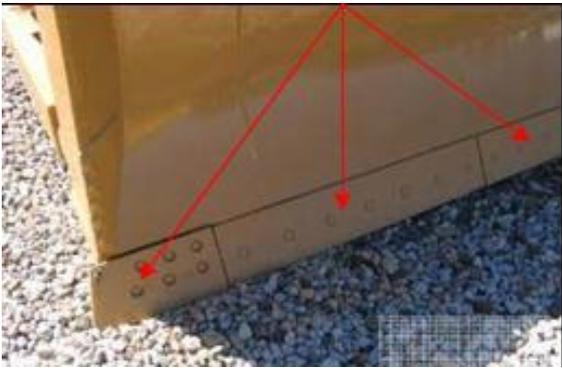
## Biosecurity

Description	Images
<p>All ledges (red arrows) and recesses (green arrows) around the rear of the dozer must be clean and free of all biosecurity risk material.</p>	 A close-up photograph of the rear of a dozer's engine compartment. The engine housing is yellow and has the number '10577472' stamped on it. Red arrows point to the upper ledges of the engine housing, and green arrows point to the recessed areas between the housing and the surrounding structure.
<p>All surfaces of the fuel cell need to be carefully cleaned and inspected, particularly the back and underside (green arrows).</p>	 Two photographs showing the fuel cell area of a dozer. The top photograph shows the back of the fuel cell with the word 'CATERPILLAR' partially visible. A green arrow points to the back surface. The bottom photograph shows the underside of the fuel cell with the word 'PILLAR' visible. A green arrow points to the underside surface.
<p>The oil tank outside the right door of the cabin. All surfaces must be thoroughly cleaned and inspected.</p>	 A photograph of the oil tank located outside the right door of the dozer's cabin. The tank is yellow and has a black horizontal stripe. A green arrow points to the top surface of the tank.

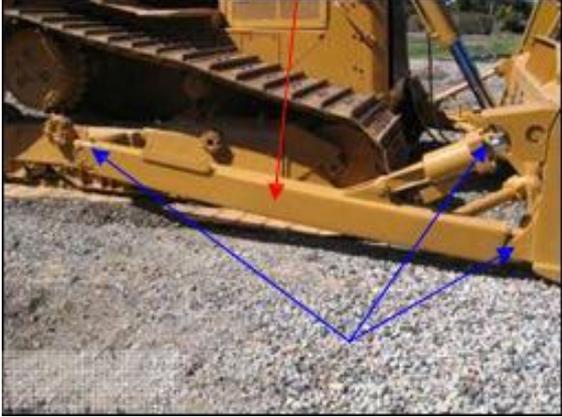
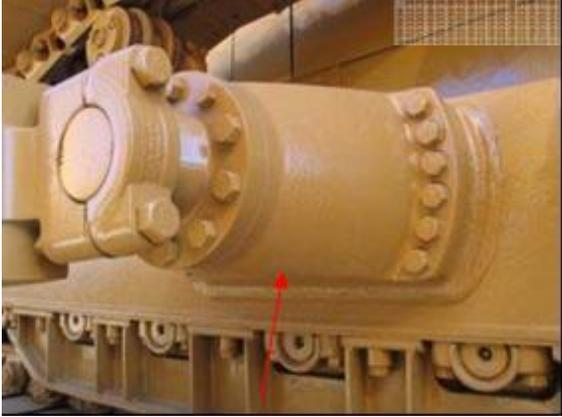
Biosecurity

Description	Images
<p>The batteries may be housed outside the left door of the cabin. The batteries must be loosened from the tie-down points and the underside cleaned and inspected. Flush all checker plates (blue arrow) to verify cleanliness.</p>	
<p>The area highlighted by the green arrow is hollow and can be accessed by removing the non-affixed panel (red arrow) for cleaning and inspection.</p>	
<p>The area illustrated in the previous picture may also have drainage holes on the underside as highlighted by the green arrows.</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 all surfaces for cracks, splits or evidence of repair to any surfaces. If detected, these will require investigation to verify internal cleanliness.</p>	
<p>A close up of the cutting teeth on a blade that needs to be loosened and flushed to verify cleanliness.</p>	
<p>On the rear of some blades, gussets or protective plates may cover hydraulic hoses. These must be removed for cleaning and verification.</p>	

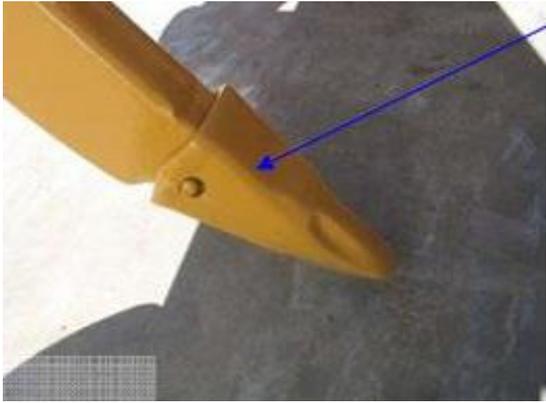
## Biosecurity

Description	Images
<p>The push arms (red arrow) on a dozer. These are generally sealed units, but need to be checked for any cracks, splits or evidence of repair. Ensure all contaminated grease is removed from pivot points (blue arrows).</p>	
<p>Illustrates where the push arms attach to the track frames. These units are hollow and may have drainage holes on the underside (red arrow), which will require flushing, if present to verify internal cleanliness.</p>	

## Ripper cradle and tynes

Description	Images
<p>The underside of a typical ripper cradle. On this illustration, there are no drainage holes, but if present, these must be flushed to verify internal cleanliness. Check all surfaces for any cracks, splits or evidence of repair.</p>	

Biosecurity

Description	Images
All cutting teeth must be removed for internal cleaning and inspection.	 A close-up photograph of a yellow dozer blade. A blue arrow points to a cutting tooth on the blade's edge.
The cutting teeth have been removed from the tynes for cleaning and inspection.	 A close-up photograph of two rusty metal tynes. Green arrows point to the cutting teeth on the tynes.
In addition to the cutting teeth being removed, all wear plates (blue arrows) must also be removed and the recess (red arrows) between the cradle and tynes must be flushed to verify cleanliness.	 A photograph of a dozer blade assembly. Red arrows point to recesses between the cradle and tynes. Blue arrows point to wear plates on the tynes.

## General

Description	Images
<p>All batteries must be loosened from the tie down points for cleaning and underside inspection.</p>	
<p>All wiring harnesses are to be carefully cleaned and inspected.</p>	
<p>All looming around hydraulic hoses is to be carefully cleaned and inspected.</p>	