



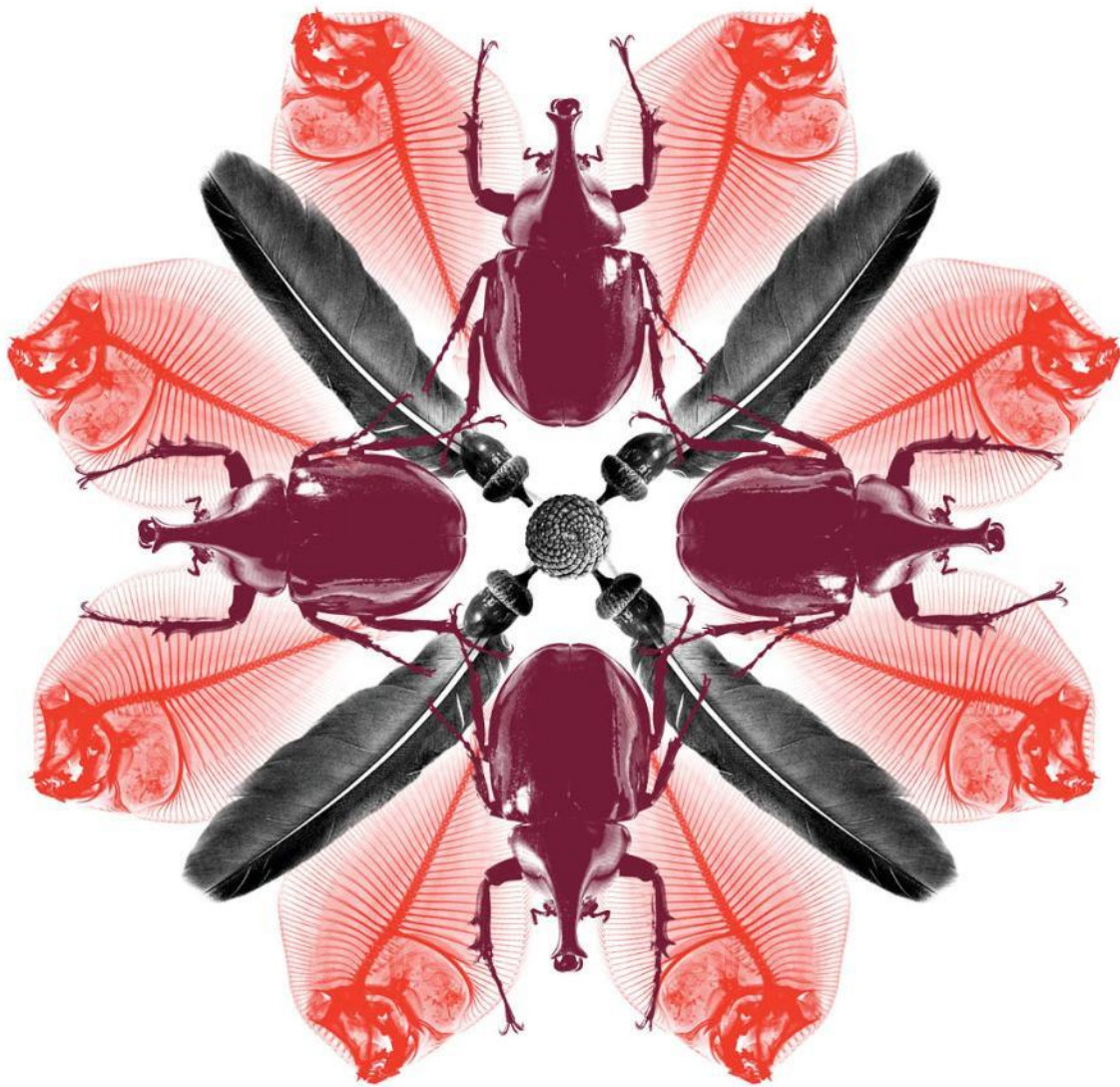
Australian Government
Department of Agriculture
and Water Resources

Machinery Cleaning Guide - Articulated Dump Trucks

Biosecurity

Publication series

April 2016



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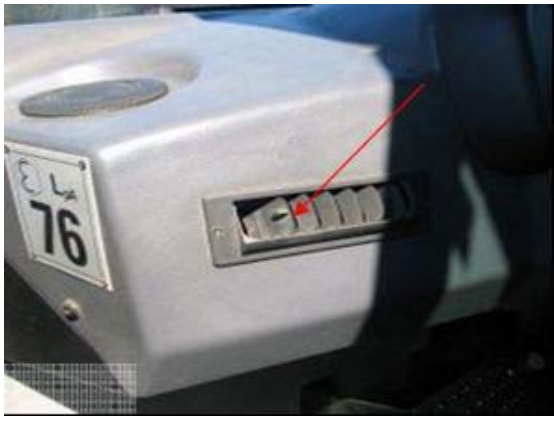
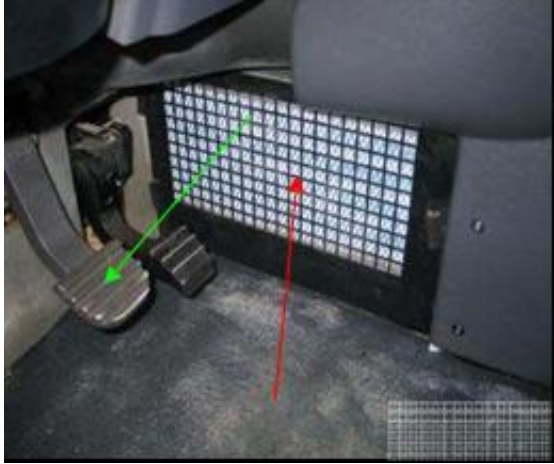






Cleaning guidelines

Cabin




Description	Images
<p>The new style of articulated dump truck Cabin. Cabin door rubbers can be contaminated and are therefore an area of concern to the department (green arrow). The engine cover is to be lifted, (red arrow), the rear radiator covers removed (blue arrow) and all handrails checked for open ends or drainage holes. On some models of articulated dump trucks, the cabin can be hydraulically tilted, allowing access to the top of the engine block.</p>	 <p>A photograph of a yellow articulated dump truck from the side. A red arrow points to the front engine cover, a blue arrow points to the rear radiator covers, and a green arrow points to the cabin door rubber seal.</p>
<p>The older style of articulated dump truck cabin. Again, all cabin door rubbers (red arrow) may be of concern, the air-filter pre-cleaner (blue arrow) removed for cleaning and inspection as well as cabin vents covers (aqua arrow). The rear non-affixed panels have already been removed in this illustration (green arrow).</p>	 <p>A photograph of an older yellow articulated dump truck with its cabin door open. A red arrow points to the door rubber seal, a blue arrow points to the air filter pre-cleaner, an aqua arrow points to a cabin vent cover, and a green arrow points to a rear non-affixed panel.</p>
<p>The inside of the articulated dump cabin. The rubber floor matting is to be removed (red arrow) as well as the non-affixed floor pan, allowing access to the engine (see later illustration). Remove air-filter cover (blue arrow) for cleaning and inspection.</p>	 <p>An interior photograph of the truck's cabin. A red arrow points to the rubber floor matting, and a blue arrow points to the air filter cover.</p>

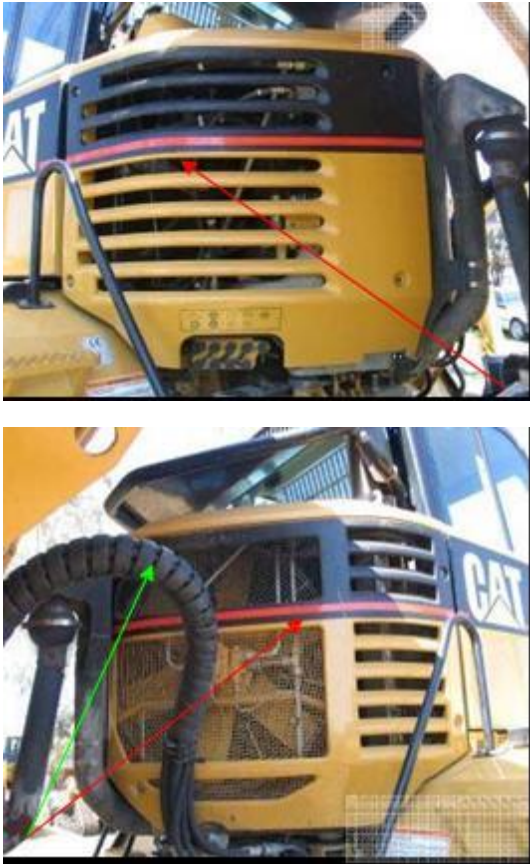

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Description	Images
<p>Depending on the configuration, the internal door void (red arrow) may harbour biosecurity risk material and be of interest to the department. Likewise door rubbers (blue arrow) and air-conditioning vents (green arrow) have previously been found to be contaminated and therefore will need to be inspected.</p>	 A photograph of the interior of an articulated dump truck cab. A red arrow points to a dark, recessed area in the door panel. A blue arrow points to a rubber seal at the bottom of the door. A green arrow points to a rectangular air-conditioning vent on the dashboard area.
<p>Biosecurity risk material has previously been found in some air-conditioning vents (red arrow) and therefore is an area of interest to the department.</p>	 A close-up photograph of an air-conditioning vent on the dashboard. A red arrow points to the vent's grille.
<p>A close up of the air-vent cover. Remove the grill (red arrow) and check the cleanliness of the internal filter (pressurised air). The rubber cabin pedals (green arrow) have been removed for cleaning and inspection.</p>	 A close-up photograph of the air-vent cover and rubber cabin pedals. A red arrow points to the vent cover, and a green arrow points to the rubber cabin pedals.


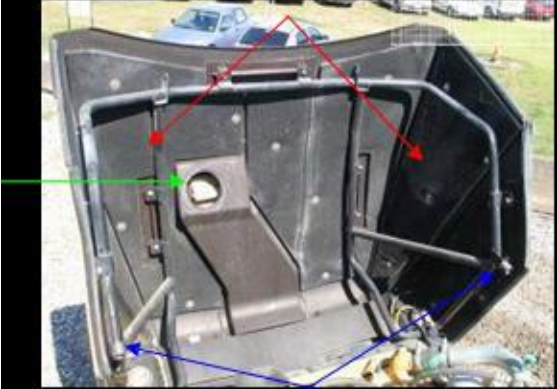
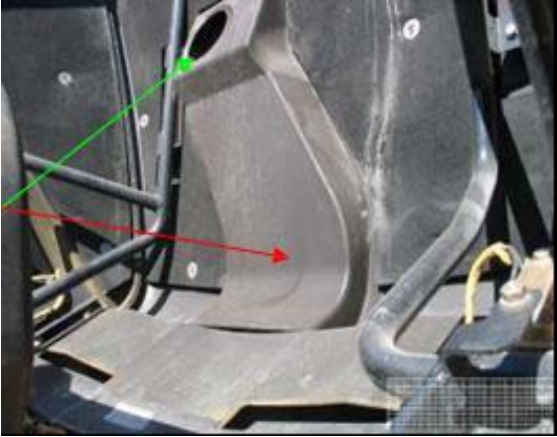
Description	Images
<p>Behind all internal wall linings (red arrows) is to be cleaned and accessible at the time of inspection.</p>	
<p>The internal housing of all joystick control panels (red arrows) is to be cleaned and accessible at the time of inspection. Air-conditioning vents (green arrow) are to be internally cleaned and accessible for inspection.</p>	
<p>All storage compartments (red arrow) are to be internally cleaned as well as behind any wall paneling (green arrow).</p>	
<p>Inside the cabin, the floor pan has been removed, allowing inspection access to the top of the engine block (red arrow). The blue arrow highlights where the rubber pedal covers have been removed for cleaning and inspection, while the green arrow highlights the rubber seat shroud, which must be cleaned both internally and externally. On some of the newer models the whole cabin can be hydraulically tilted sideways, allowing access to the topside of the engine block.</p>	

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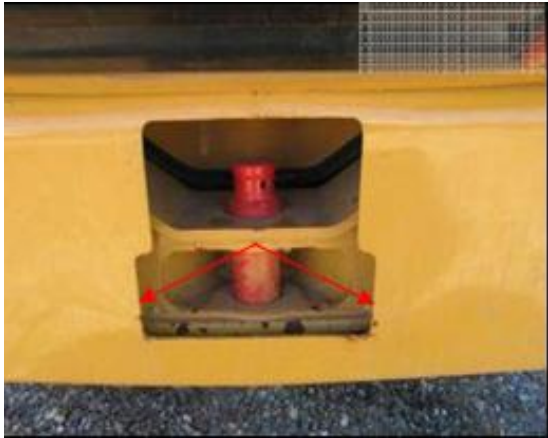



Description	Images
<p>The non-affixed floor pan behind the seat has been removed, allowing cleaning and inspection access (green arrow).</p>	
<p>The air-filter pre-cleaner (red arrow) and air-conditioning vent cover (blue arrow), require removal for cleaning and inspection.</p>	
<p>The ladder leading to the cabin may have open-ended channels as those highlighted by the green arrows. Each footstep must be thoroughly cleaned, including the underside (green arrow).</p>	

Description	Images
<p>The non-affixed radiator cover panels (red arrow), located behind the cabin. Both must be removed to allow access to the radiator and oil cooler fins, as well as the inside of the radiator shroud. All looming (green arrow) is to be checked for internal cleanliness.</p>	
<p>The radiator is not located behind the cabin on this older model, however the non-affixed covers have still been removed, allowing cleaning and inspection access (green arrow).</p>	

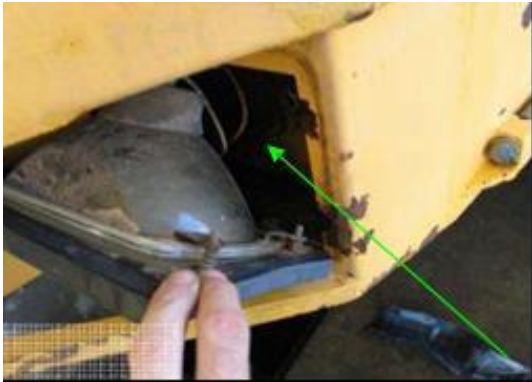


Engine housing and front end

Description	Images
<p>The sleek front end of the newer model articulated dump trucks.</p>	
<p>The fibreglass engine cover tilted up, allowing access to the top of the block. All insulation foam (red arrows) is to be verified clean and check all internal tubing (blue arrows) for open ends or drainage holes. If present these will require flushing to verify cleanliness. Also clean and inspect the air intake cover (green arrow).</p>	
<p>The air intake vent (red arrow) on the inside of the engine housing. The internal surfaces are to be cleaned and inspected.</p>	

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Description	Images
<p>On some models, along the front drawbar is a towing pin. Check this front drawbar for any hollow channels (red arrows).</p>	
<p>The older style engine cover with no internal insulation and numerous hollow, open-ended channels (red arrows). All require flushing to verify cleanliness.</p>	
<p>The front drawbar on the older models, as seen from the side. The red arrow highlights the access points to the hollow nose channels, which require flushing.</p>	
<p>Check for cavities behind all lights that will require access for inspection if not sealed units.</p>	

Biosecurity

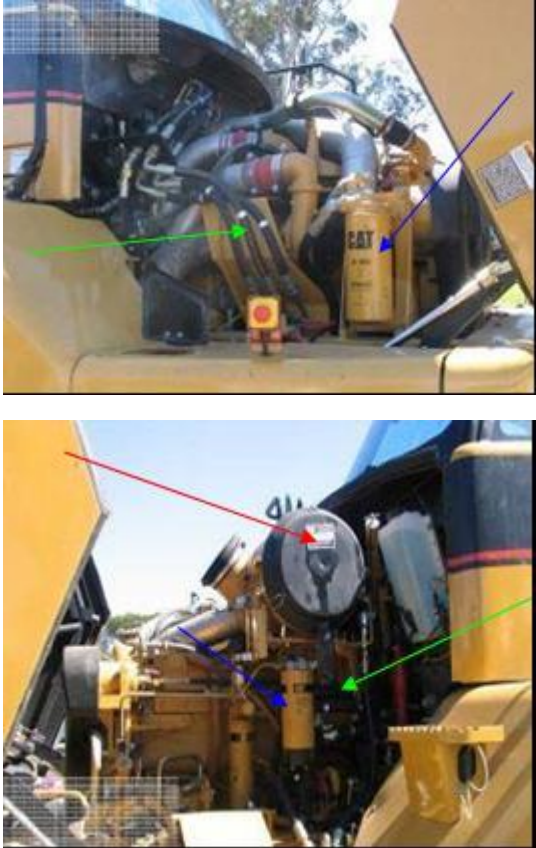
Description	Images
<p>Highlights the recess found behind the light covers (green arrow), which has been found to harbour significant amounts of biosecurity risk material.</p>	
<p>On some of the older models, drainage holes like the one highlighted by the red arrow above the headlight, require flushing to ensure cleanliness.</p>	
<p>All batteries are to be loosened from tie-down points for underside cleaning and inspection (red arrow).</p>	

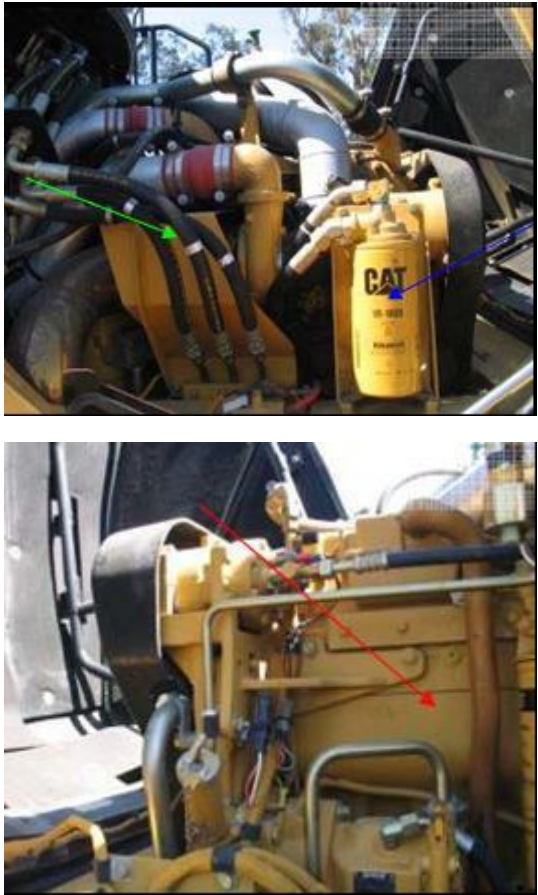

Description	Images
<p>The underside of the front drawbar. On this model the area has no hollow channels, but rather numerous nooks and ledges that all require thorough cleaning and inspection (red arrow).</p>	
<p>Check under the nose, just forward of the tyres, for hollow sections like those highlighted by the red arrows, some requires flushing to verify cleanliness.</p>	

Biosecurity



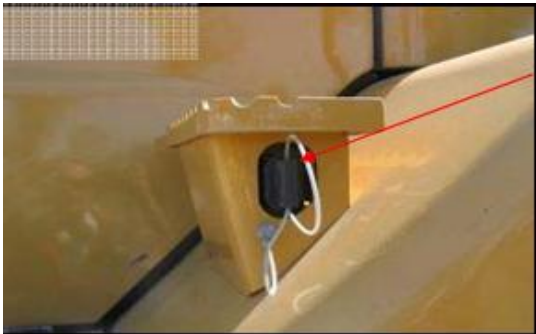
Description	Images
<p>On older models, the drainage holes (green arrows) under the nose may not be as obvious as on the newer models, however these areas also require flushing to verify cleanliness.</p>	



Engine block and belly plates

Description	Images
<p>Both sides of the dump truck engine block. All hydraulic hoses (green arrows), oil filters (blue arrows) need to be thoroughly cleaned, as well as the side and front of the block and the air-filter (red arrow).</p>	 <p>The images show two views of the engine block of a dump truck. The top image shows a side view with a green arrow pointing to a hydraulic hose, a blue arrow pointing to an oil filter, and a red arrow pointing to the air filter. The bottom image shows a front view with a red arrow pointing to the air filter, a blue arrow pointing to an oil filter, and a green arrow pointing to a hydraulic hose.</p>

Description	Images
<p>Both sides of the dump truck engine block. All hydraulic hoses (green arrow), oil and fuel filters (blue arrow) need to be thoroughly cleaned, as well as the side and front of the block (red arrow).</p>	 <p>The top photograph shows a close-up of the engine compartment with a green arrow pointing to a hydraulic hose and a blue arrow pointing to a yellow CAT fuel filter. The bottom photograph shows a wider view of the engine block with a red arrow pointing to the side and front area.</p>
<p>On the newer models a protective plastic shroud as highlighted by the red arrow covers the harmonic balancers. It must be removed for cleaning and inspection.</p>	 <p>The photograph shows a close-up of a yellow CAT engine component with a red arrow pointing to a black plastic shroud that covers the harmonic balancers.</p>





Biosecurity

Description	Images
<p>Check for recesses like the one highlighted by the green arrow, located at the side of the block in front of the cabin.</p>	 A close-up photograph of engine components, including blue and red hoses and a yellow block. A green arrow points to a recessed area on the side of the yellow block.
<p>The air-filter must be removed from the housing (red arrow) and cleaned. Check along the topside of the block between the tappet covers (blue arrow).</p>	 A close-up photograph of an air filter housing. A red arrow points to the top of the housing, and a blue arrow points to the top edge of the block between the tappet covers.
<p>This small step at the side of the engine housing must be internally cleaned and inspected (red arrow).</p>	 A close-up photograph of a small step on the side of the engine housing. A red arrow points to this step.

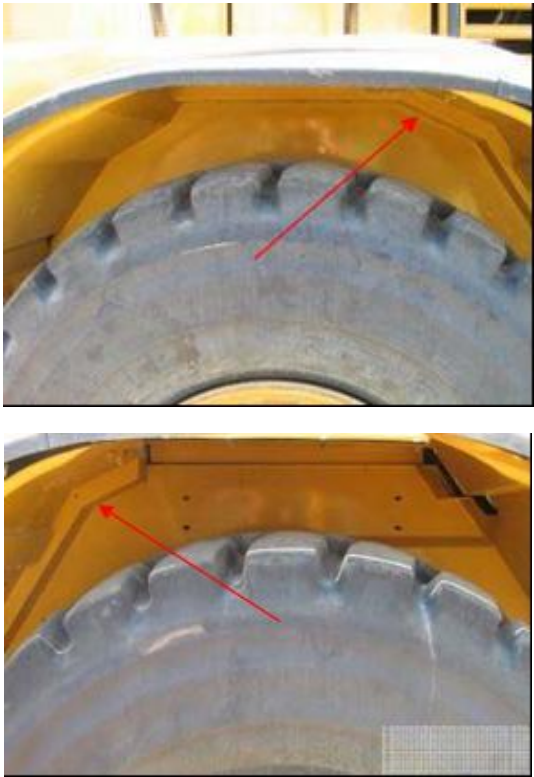
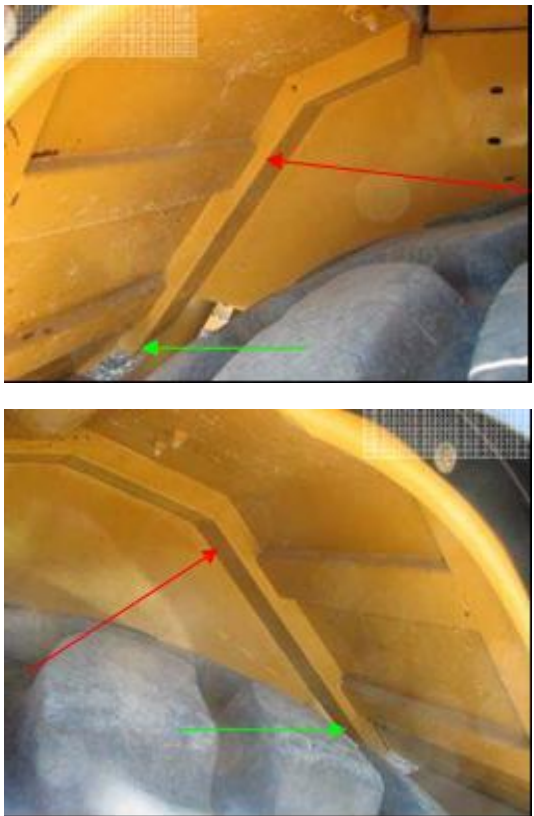
Description	Images
<p>On older models, the radiator is located in front of the cabin. For cleaning and inspection, several non-affixed radiator cover panels have been removed. The shroud grill (green arrow) is still in place, preventing access into the bottom of the shroud. Loosen bands around tanks (red arrows) and flush.</p>	
<p>The fins on both the radiator (red arrow) and oil cooler (blue arrow) must be flushed in the presence of the inspecting officer to verify cleanliness. On some models the oil cooler can be unbolted on one end and swung open on hinges to facilitate this access. The green arrow highlights the small recess between the radiator and oil cooler fins, which requires thorough inspection.</p>	

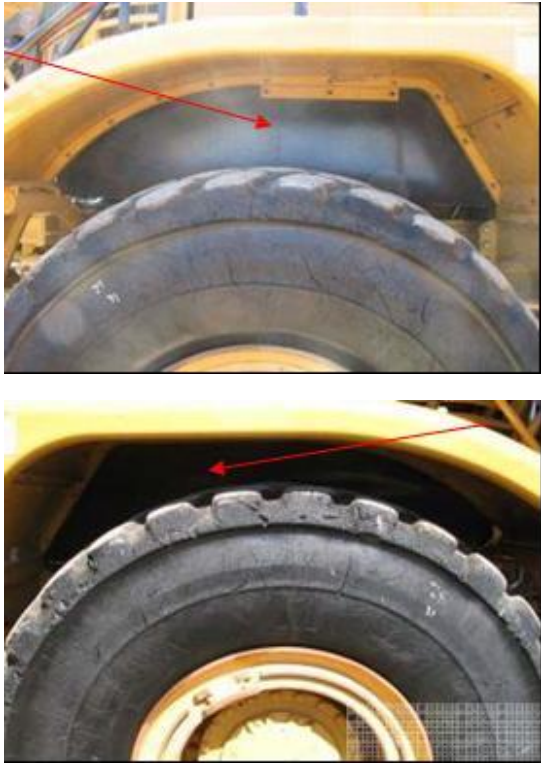


Description	Images
<p>The belly plates that are in place under the dump truck can be released on their hinges (red arrow).</p>	
<p>The underside cross-members, where the belly plates attach, can be hollow structures, (red arrow) which require flushing to verify cleanliness.</p>	

Biosecurity




Description	Images
The side of the engine block, highlighting the lip along the side (red arrow), which can harbour biosecurity risk material.	 A close-up photograph of a green engine block. A red arrow points to a horizontal lip or groove on the side of the engine, which is noted as a potential harbour for biosecurity risk material.
The belly plates, when removed, expose the underside of the engine block for cleaning and inspection. Check the topside of the engine mounts (red arrows) for cleanliness. The foam insulation (green arrow) is also highlighted.	 A photograph showing the underside of the engine block. Two red arrows point to the topside of the engine mounts, and a green arrow points to a piece of foam insulation. The surrounding area is yellow-painted metal.
On some older models, foam insulation (green arrows) can be found around some of the hydraulic hoses. This must be internally cleaned and inspected.	 A close-up photograph of hydraulic hoses. Two green arrows point to areas of foam insulation that have been applied around the hoses, which need to be inspected and cleaned.
The topside of the differential (red arrows) must be thoroughly cleaned and inspected.	 A photograph of the underside of the truck chassis. Two red arrows point to the topside of the differential, which requires thorough cleaning and inspection.

Wheel arches, rims & tyres

Description	Images
<p>The front wheel arches on the newer models. Check all underside channels (red arrows) for open ends, or drainage holes.</p>	 <p>The top image shows a close-up of the wheel arch's underside with a red arrow pointing to a channel. The bottom image shows a similar view from a slightly different angle, also with a red arrow pointing to a channel.</p>
<p>A closer view of the channels inside the front wheel arches. The channels (red arrows) have hollow openings at the bottom (green arrows) and require flushing to verify cleanliness.</p>	 <p>The top image shows a close-up of a channel with a red arrow pointing to it and a green arrow pointing to a hollow opening at the bottom. The bottom image shows another view of a channel with a red arrow pointing to it and a green arrow pointing to a hollow opening at the bottom.</p>



Description	Images
<p>The wheel arches on the earlier models may have black protective shrouds (red arrows) on the inside, which can be removed to facilitate the access to the side of the engine, located under the cabin.</p>	
<p>The wheel arches of the earlier models have a combination of hollow channels (red arrow) and ledges (green arrows).</p>	
<p>Highlighted by the red arrow is a small box section found inside the wheel arch. This requires checking for drainage holes underside. If spot welded, then the internal cleanliness will require verification.</p>	

Biosecurity


Description	Images
<p>All ledges inside the wheel arch (red arrows) are to be cleaned and verified.</p>	
<p>On earlier models, the cavity (green arrow) can be found inside the front wheel, just above the chassis rail. This area can harbour a significant amount of biosecurity risk material.</p>	
<p>Examples of open and hollow sections (red arrows) located just in front of the front tyre, below the wheel arch.</p>	

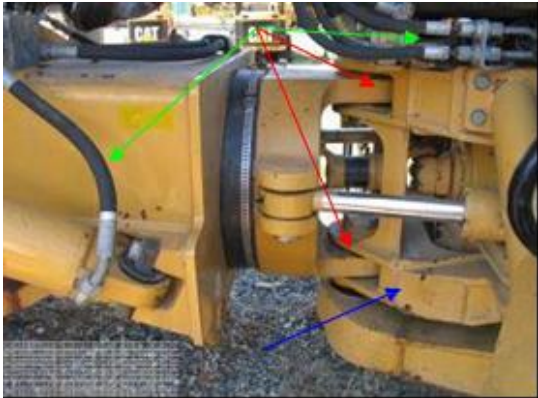

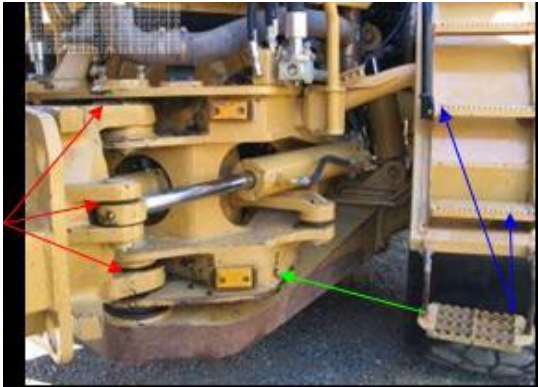
Description	Images
<p>Examples of drainage holes found in the surrounding framework, under the wheel arches. All require flushing in the presence of the inspecting officer to verify cleanliness.</p>	
<p>An example of an acceptable tyre, which can be easily cleaned and inspected.</p>	
<p>Imported tyres with cracks and splits harbour biosecurity risk material and each verified at the time of inspection.</p>	

Biosecurity


Description	Images
<p>All non-affixed wheel rim covers (red arrow) are to be removed to facilitate the cleaning and inspection process.</p>	 A close-up photograph of a yellow wheel rim. A red arrow points to a non-affixed, yellow, curved cover that is partially obscuring the rim's surface. The cover appears to be made of a different material or is a separate piece that can be removed.
<p>Congested rims like the one illustrated may require flushing as well as inspection to verify cleanliness.</p>	 A close-up photograph of a yellow wheel rim. The rim is heavily congested with dirt and debris, making it difficult to see the underlying surface. The overall appearance is very dirty and neglected.

Articulated pivot point


Description	Images
<p>The articulated pivot point behind the cabin. All contaminated grease is to be removed from all pivot points (red arrows), while the green arrows highlight the drainage holes at the rear to the chassis which will be discussed later.</p>	 A photograph of the articulated pivot point of a vehicle, located behind the cabin. The pivot point is a complex mechanical assembly with various components. Red arrows point to specific areas where grease is likely to accumulate. Green arrows point to drainage holes at the rear of the chassis, which are used for removing contaminants.

Description	Images
<p>Another view of the articulated pivot point. All contaminated grease is to be removed from the pivots (red arrows), as well as the hydraulic hoses (green arrows). The blue arrow highlights the drainage holes at the rear of the chassis rails.</p>	
<p>The universal joint leading back from the front of the dump truck to the rear chassis. All contaminated grease must be removed from this area and the universal joint (green arrow).</p>	
<p>In this illustration, the cabin has been turned slightly to the left, making access for cleaning and inspection of the pivot point a little easier. The red arrows highlights the pivot points, the blue arrows under the cabin footsteps and the green arrow highlights the chassis drainage holes.</p>	


Biosecurity

Description	Images
<p>The drainage holes (red arrows) at the rear of the chassis, near the pivot point. These hollow channels must be flushed in the presence of the inspecting officer in order to verify cleanliness.</p>	 <p>The images show two views of the rear chassis of a yellow articulated dump truck. In the top image, a red arrow points to a small circular drainage hole on a yellow metal component. In the bottom image, a red arrow points to a similar drainage hole on a different part of the chassis. Both images show the complex metal structure of the truck's rear end, including various beams and components.</p>

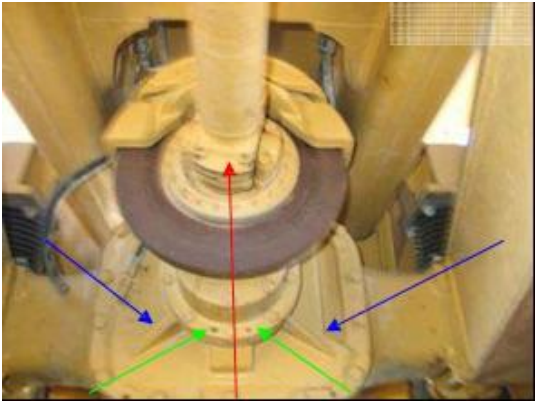
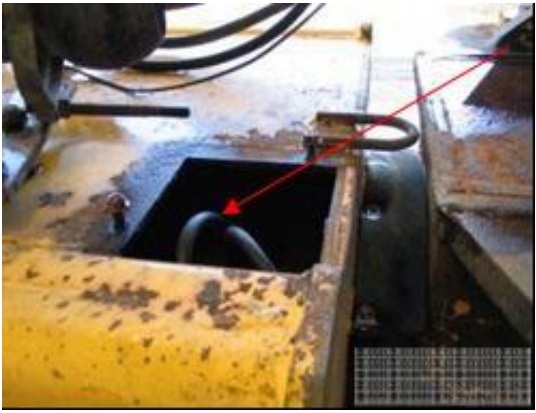
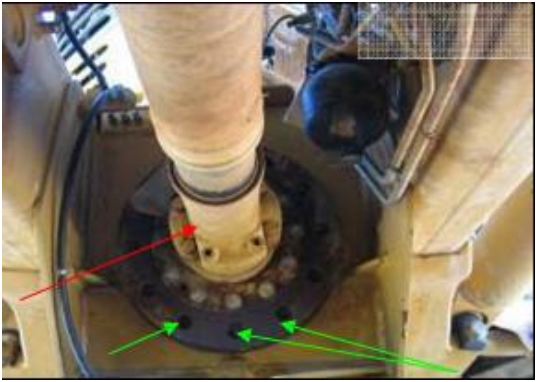

Biosecurity

Description	Images
<p>Just behind the pivot point is the start of the rear chassis. Check for drainage holes like those illustrated (red arrows) and flush to verify internal cleanliness.</p>	 <p>The first photograph shows a close-up of the rear chassis area, highlighting a small drainage hole indicated by a red arrow. The second photograph shows a similar view from a slightly different angle, also with a red arrow pointing to a drainage hole.</p>



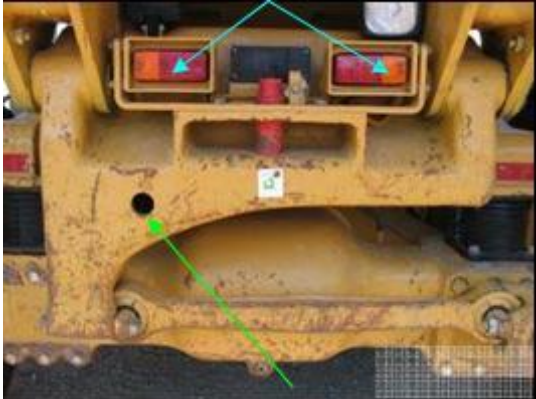
Rear chassis

Description	Images
<p>To enable cleaning and inspection of the rear chassis, the dump tray must be lifted (locking pins must be in place). All plastic conduit (red arrows) is to be flushed to verify internal cleanliness.</p>	 <p>The photograph shows the rear chassis of a yellow articulated dump truck with the dump tray lifted. Red arrows point to several plastic conduits that need to be flushed to verify internal cleanliness.</p>


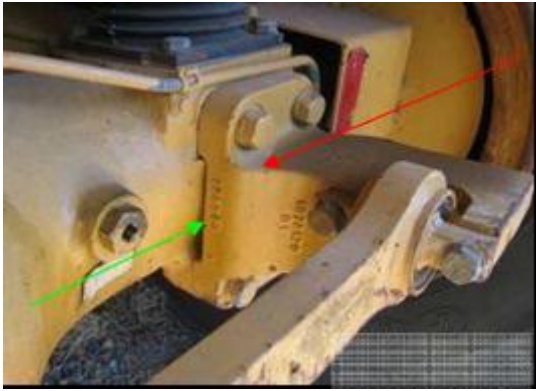

Biosecurity

Description	Images
<p>The first universal joint (red arrow) on the rear chassis. All contaminated grease must be removed. Check that all ledges (blue arrows) and countersunk holes (green arrows) are free of biosecurity risk material.</p>	
<p>Box sections like the one illustrated are found at the front of the rear chassis. This one has a non-affixed panel at the top, which allows access for cleaning and inspection (red arrow).</p>	
<p>The other end of the universal joint, directly behind the pivot point. All grease and biosecurity risk material must be removed from the universal joint (red arrow) and countersunk holes (green arrows).</p>	
<p>The rear universal joint and chassis rails (blue arrows).</p>	


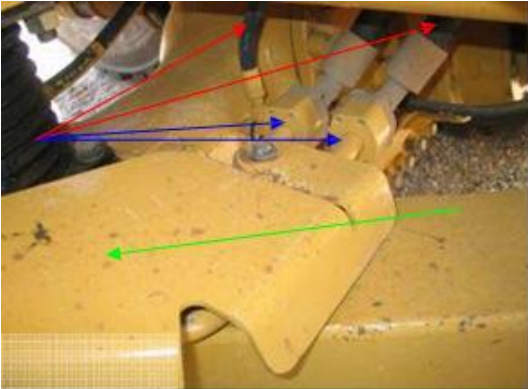
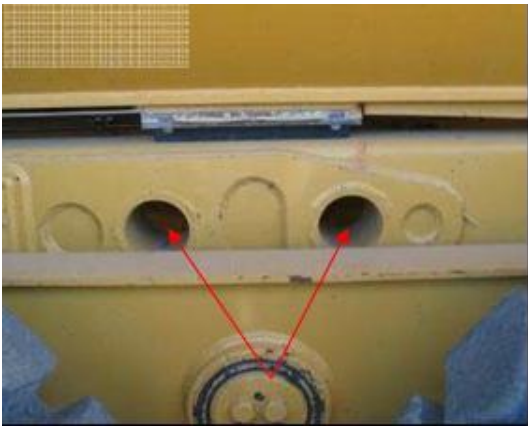
Biosecurity

Description	Images
<p>On some models, a cross-member between the two rear chassis rails may be present. The red arrows highlight the access points to this hollow area which must be verified free of biosecurity risk material.</p>	
<p>Some sections on the rear chassis may have hollow sections as highlighted by the red arrow and require flushing to verify cleanliness.</p>	
<p>The rear end of the chassis. All light covers (aqua arrows) are to be removed and internally cleaned and inspected. Note the holes in the chassis (green arrow). These hollow cavities must be verified clean.</p>	

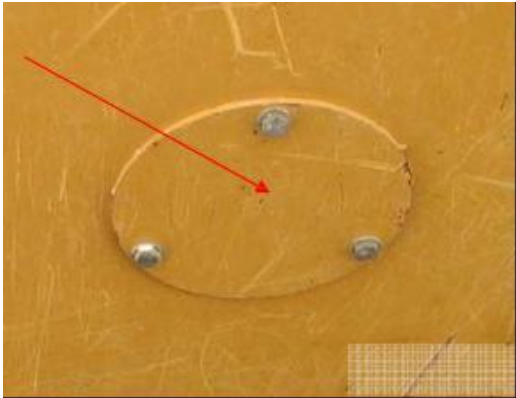
Biosecurity

Description	Images
<p>A closer view of the holes (green arrows) in the rear chassis. The internal of the chassis must be verified clean.</p>	 A close-up photograph of the rear chassis of a yellow articulated dump truck. Two rectangular headlights are mounted on a metal bracket. Below the headlights, there are two red cylindrical components. Two green arrows point to small holes in the metal structure: one points to a hole in the upper right, and the other points to a hole in the lower left.
<p>The bracket on the rear of the axel, highlighted by the red arrow is a hollow structure and can harbour a significant amount of biosecurity risk material. This area can be accessed via the small gap as highlighted by the green arrow and flushed to verify cleanliness.</p>	 A close-up photograph of the axle bracket on the rear of the truck. A red arrow points to a hollow metal bracket structure. A green arrow points to a small gap between the bracket and the axle housing. The metal is yellow and shows signs of wear and rust.
<p>Another view of the small bracket on the rear of the axel, highlighting the small opening (green arrow), where a 90 degree lance can be inserted to flush this area and verify cleanliness.</p>	 A close-up photograph of the axle bracket, showing a different angle. A green arrow points to a small, dark opening in the metal structure. The surrounding metal is yellow and heavily rusted.


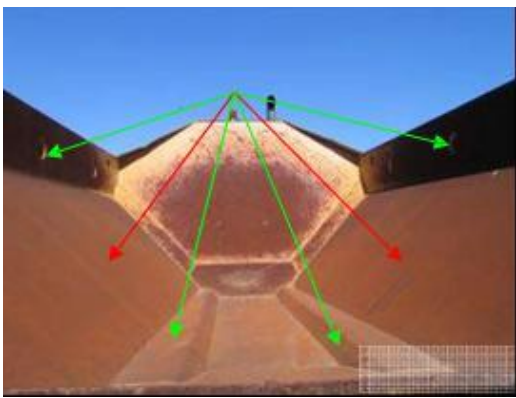
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Description	Images
<p>The underside of the axel on the rear chassis. Ensure all biosecurity risk material has been removed from this undulating surface (red arrows).</p>	
<p>All hydraulic hoses (red arrows) and couplings (blue arrows) are free of biosecurity risk material. Remove any non-affixed panels (green arrow) for cleaning and inspection.</p>	
<p>Openings in the chassis rails (red arrows) that require verification.</p>	

Biosecurity

Description	Images
<p>On some models, circular, non-affixed plates such as those highlighted (red arrow) may be found on the chassis rails. If present, these must be removed and the hollow channels verified clean.</p>	 A close-up photograph of a yellow metal chassis rail. A circular, non-affixed plate is mounted on the rail. A red arrow points to the center of this plate. The plate has three bolts around its perimeter. The background shows the textured surface of the chassis rail.

Dump tray

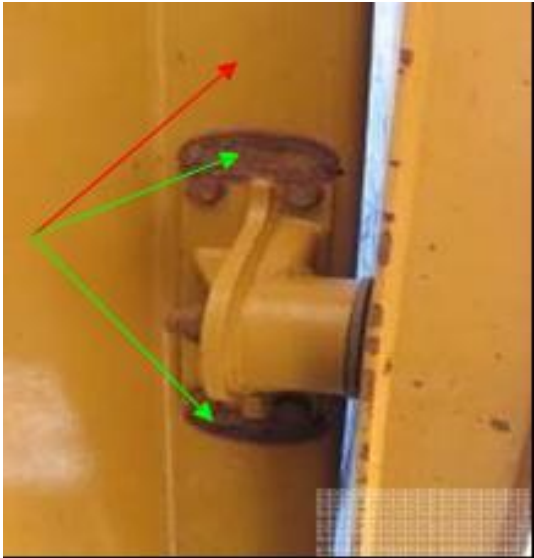
Description	Images
<p>After the rear chassis has been cleaned and inspected, the tray must be lowered for inspection. The exhaust openings (red arrows) must be flushed to verify internal cleanliness.</p>	 A photograph showing the rear view of a large, rusted dump truck. The truck's bed is raised. Two red arrows point to the exhaust openings located at the bottom center of the truck's rear chassis.
<p>The internal 'skin' of the tray must be thoroughly checked for any cracks, splits or evidence of repair. The sides (red arrows) are only single skinned however the green arrows highlight hollow areas that can harbour biosecurity risk material if breached.</p>	 An interior view of the dump truck's tray. The tray is made of rusted metal. Red arrows point to the side walls, and green arrows point to the bottom and side panels, highlighting hollow areas. The background shows a clear blue sky.

Description	Images
<p>The rear section of the tray also has hollow sections (red arrows) that can harbour biosecurity risk material if cracked, split or breached. Check along weld seams for any evidence of damage or breaches, allowing biosecurity risk material to enter these sections.</p>	
<p>On some models a rear tray door may be present (red arrow). These dump tray doors have hollow sections. Check both the internal and external surfaces as well as the welding seams for any cracks, splits or evidence of repair. If any cracks, splits or evidence of repair is found on any part of the dump tray, these must be investigated and it will be the responsibility of the importer to verify these areas are clean and free of biosecurity risk material.</p>	
<p>All welding seams (red arrows) must be thoroughly checked for any cracks, splits or evidence of repair.</p>	

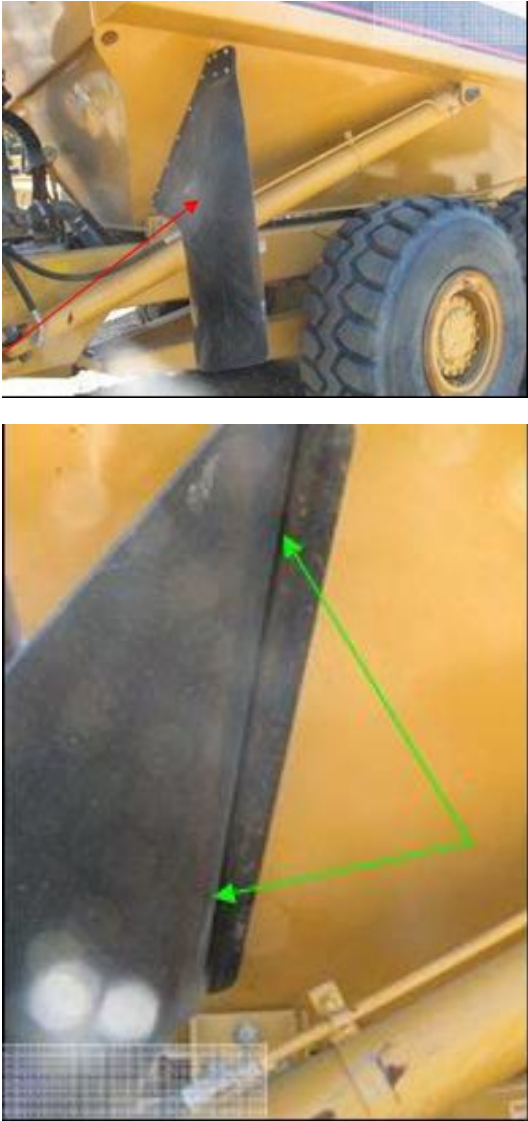

Biosecurity

Description	Images
The rubber mounts (green arrows) under the tray need to be flushed to verify cleanliness.	 A close-up photograph of the underside of a yellow metal tray. Two green arrows point to the rubber mounts where the tray is attached to the frame. A red pipe is visible in the background. A warning label is partially visible on the right side of the tray.
All contaminated grease must be removed from all pivot points (green arrows).	 A close-up photograph of a pivot point on a yellow machine. Two green arrows point to the pivot points where the machine's arm meets the frame. The area is greasy and shows signs of wear.
On some models, hollow channels under the tray must be cleaned and inspected (red arrow).	 A close-up photograph of a hollow channel under a yellow tray. A red arrow points to the channel, which is partially filled with dark, contaminated material. The surrounding metal is yellow and shows signs of rust and wear.

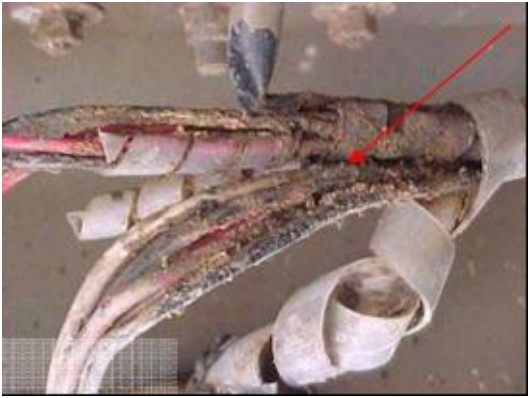


Biosecurity

Description	Images
<p>Evidence of repair (green arrows). This illustration was from under the tray, where the hinges for the rear door attach. The section it attaches to is hollow (red arrow) and will require further investigation.</p>	 A close-up photograph of a yellow metal hinge assembly. The hinge is mounted on a yellow metal surface. A red arrow points to a circular hole in the metal above the hinge, indicating a hollow section. Two green arrows point to the hinge mechanism, indicating evidence of repair. The background is a plain yellow metal surface.

General

Description	Images
<p>The rear mudguards and the small recess where it attaches to the tray. This area must be flushed to ensure cleanliness (red and green arrows).</p>	
<p>All wiring harnesses must be free of biosecurity risk material and thoroughly checked (red arrow).</p>	

Biosecurity

Description	Images
<p>All looming must be free of biosecurity risk material and thoroughly checked (red arrow).</p>	 A close-up photograph of the rear of a truck, showing the chassis and various components. A red arrow points to a piece of debris or material on the chassis, indicating a biosecurity risk.
<p>Verify that the internal light fittings are clean.</p>	 A close-up photograph of the rear light assembly of a truck, showing the orange and white light lenses.
<p>Flush all hollow tubing as highlighted by the red arrows.</p>	 A close-up photograph of the chassis of a truck, showing various components and hollow tubing. Red arrows point to specific areas of the tubing, indicating where they should be flushed.