



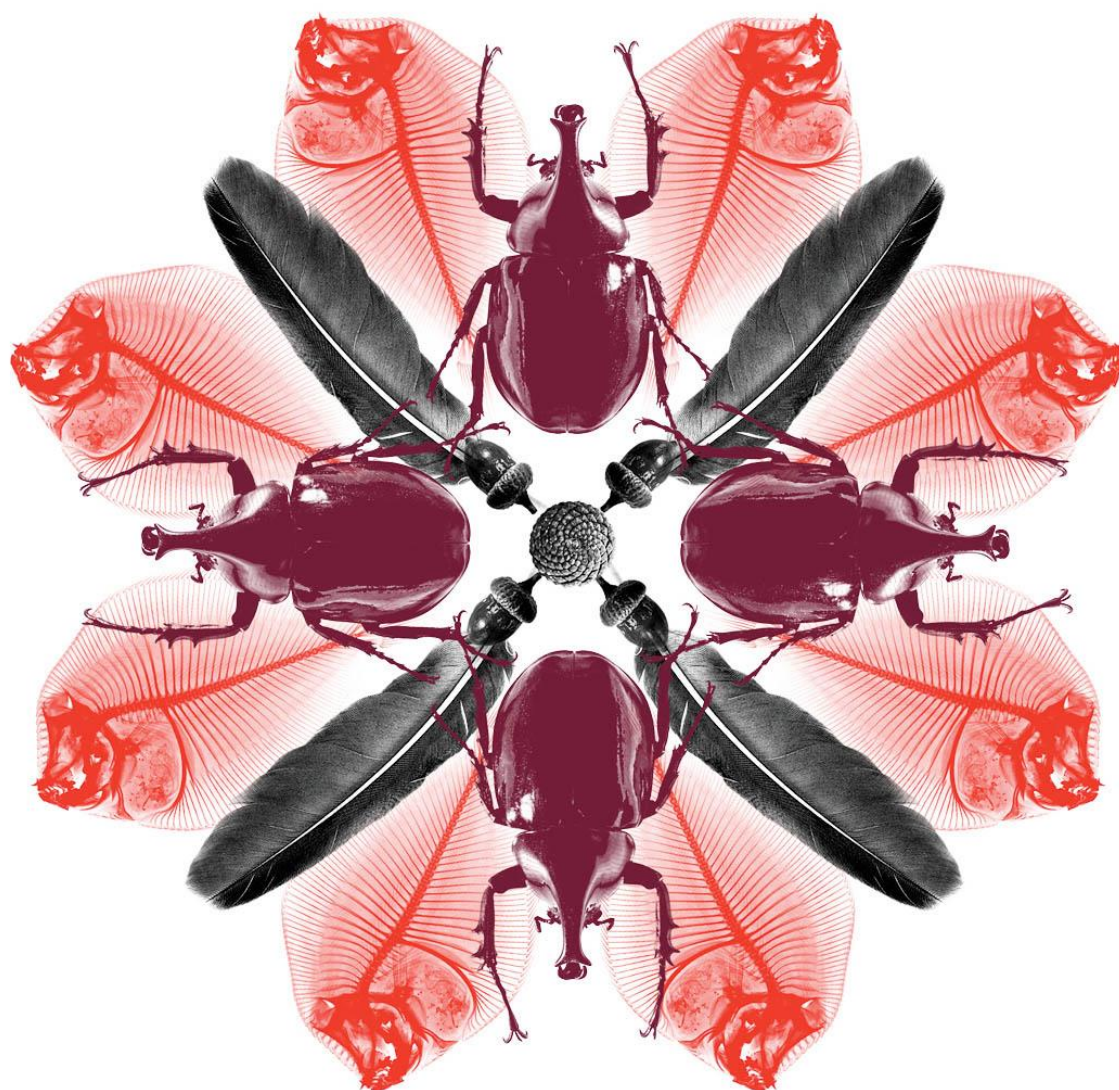
Australian Government
Department of Agriculture
and Water Resources

Machinery Cleaning Guide - Komatsu Dozers

Biosecurity

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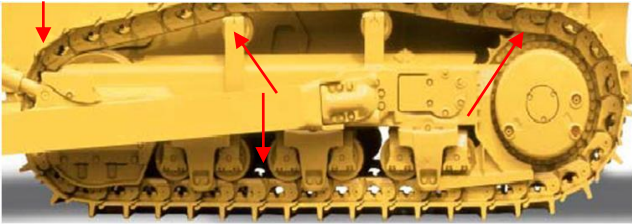
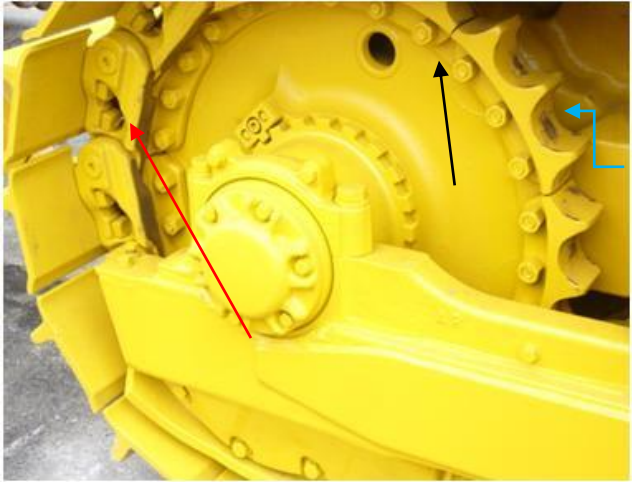
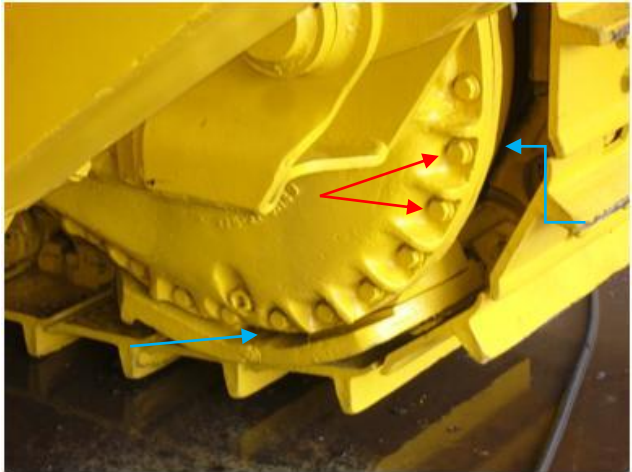
Cleaning guidelines

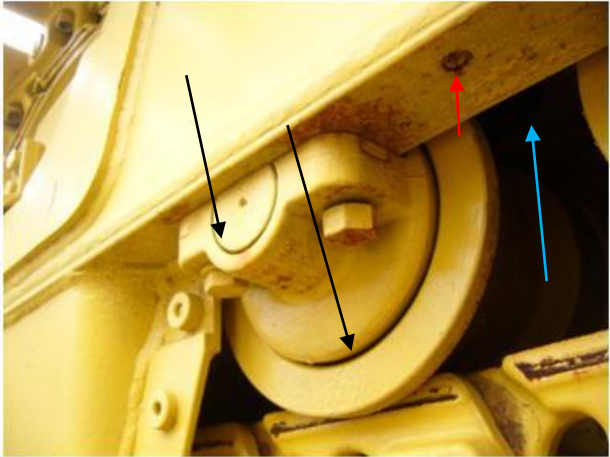
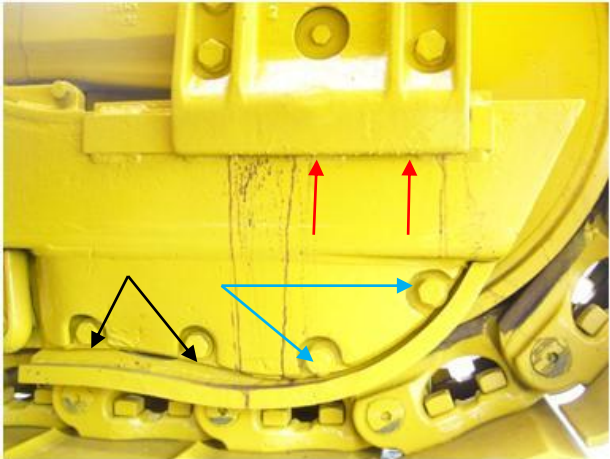


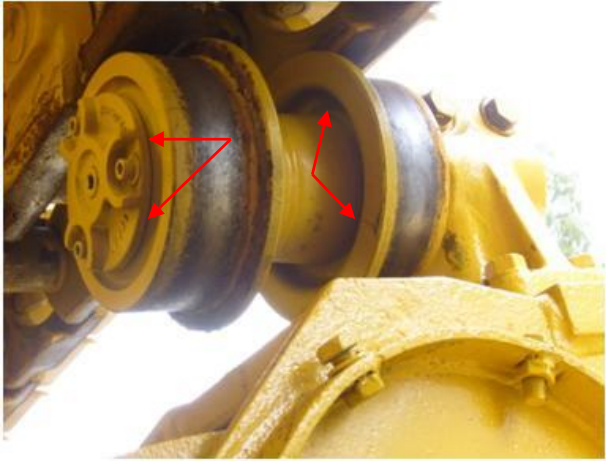
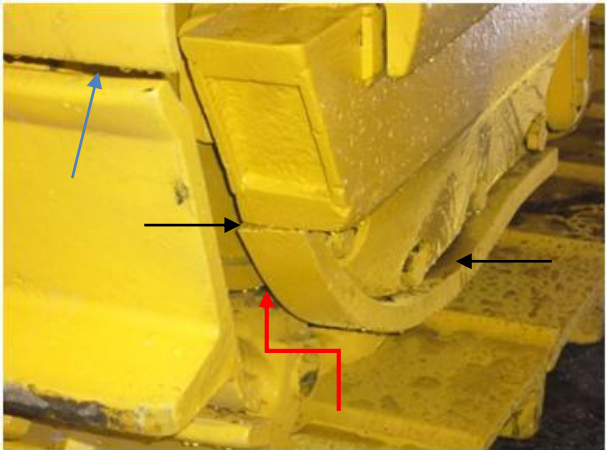
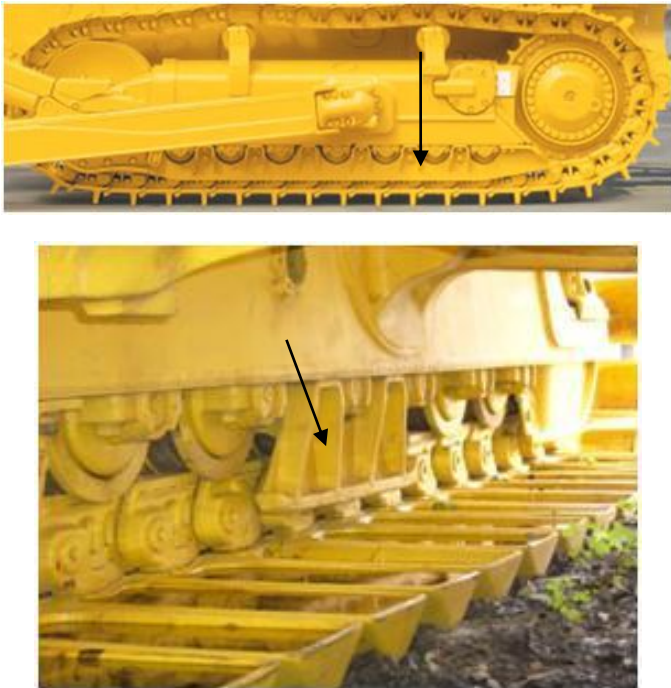
Landscape shot of a typical Komatsu Dozer. Structurally, the larger dozers (D51 to D375) are basically the same except for small variations and obviously size differences. The smaller Komatsu Dozers (D21 to D39) are a different style as shown below.



Tracks/track pads/bearing covers and rollers

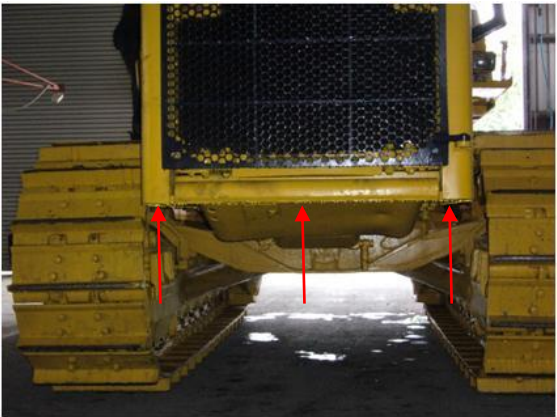
Description	Images
The tracks on the dozer need to be rotated to ensure no biosecurity risk material is located behind the cogs, wheels (red arrows) and track pads.	
Track links (red arrow) need to be inspected and flushed to ensure cleanliness on all sections through the track. The final drive sprocket end capping needs to be flushed (black arrow), visual inspection and flush if required behind the sprocket and bolt heads (blue arrow).	
A visual inspection must be carried out on bolt heads (red arrow) and also flushing will be required behind the final drive and sprocket (blue arrows).	

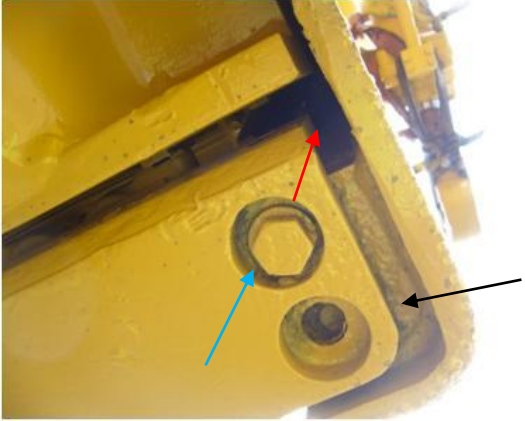
Description	Images
The underside of the track frame usually has drainage holes (red arrow) along the entire length of the frame, which need to be flushed. Each of the individual track rollers and mounting points need to be flushed and rotated (black arrows). Most track frames are concave; some may also have structural supports in the hollow section as well and will require thorough flushing along cavity to ensure cleanliness (blue arrow).	
The inside front track support plate needs to be flushed (red arrow) and the cover plate below needs a thorough inspection inside as well as outside and flush (black arrows). The hollow cavity below the track frame (blue arrows) will require flushing via the slight opening around the bolts.	
The individual track links (red arrows) need to be inspected and flushed if required. Easier to do when rotating the tracks when moving the machine off the pad. Also flush the inside track carrier rollers and supports (black arrows) on all sides.	

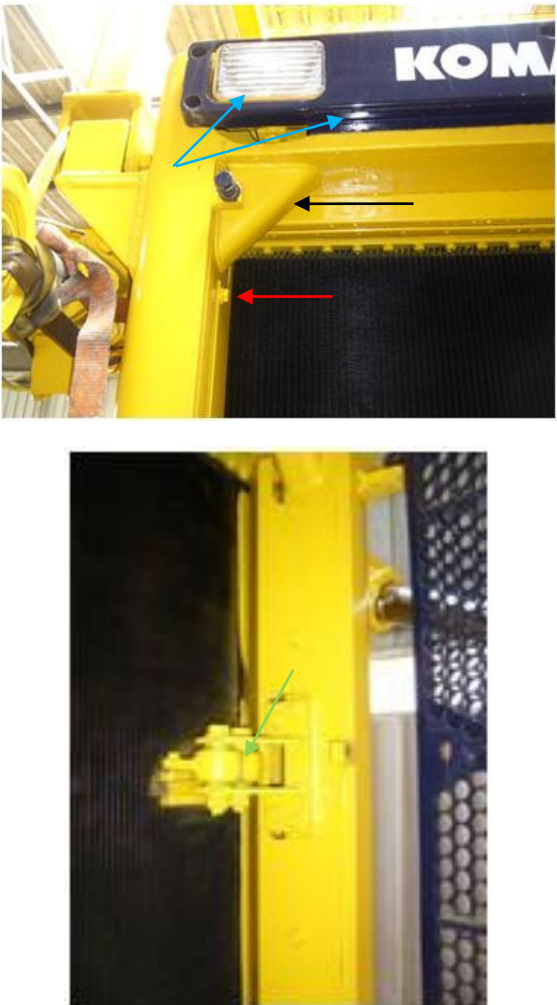
Description	Images
The track carrier rollers mounted on the track frame must be inspected and flushed (red arrows) on all sides.	
All track frame components with gap plates that have a seam (black arrows) must be flushed. Also a visual inspection followed up with flushing on all sides is required on the inside of the track rock guard/guide support (red arrow). Each individual track plate (blue arrow) must be inspected and cleaned if required during the rotation of the tracks.	
On some models the rock guards (black arrows) must be removed prior to re-inspection. You must ensure that the rock guards on the inside of the track are removed as well.	

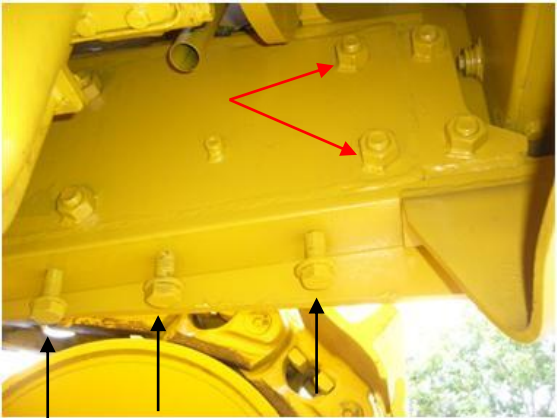
Description	Images
Some models e.g. D65, D85 have an access point (cover normally has 2 bolts) on the topside of the track frame. Once removed a thorough inspection and flush is required from both access points as this is a large hollow section.	
After flushing a visual inspection is required to ensure all biosecurity risk material has been removed.	

Front end and underside of engine bay

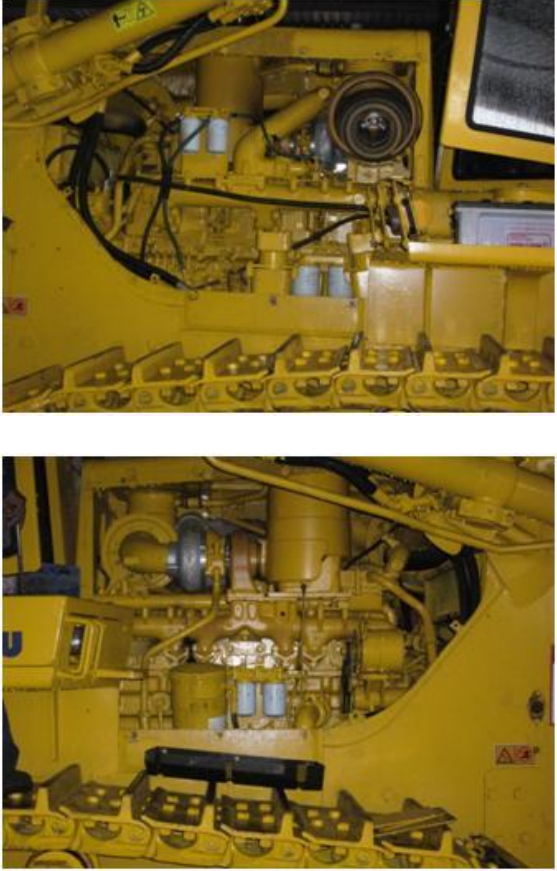
Description	Images
The radiator grill must be opened, allowing full access to the radiator and surrounds	 A photograph showing the front of a yellow Komatsu dozer. The radiator grill is open, revealing the internal radiator and surrounding components. The word 'KOMATSU' is visible on the top of the grill frame.
The structural frame for all front ends needs to be inspected for channels (red arrows), flush if required.	 A close-up photograph of the underside of the engine bay of a yellow Komatsu dozer. Three red arrows point to specific areas on the structural frame, indicating where channels should be inspected and flushed if required.

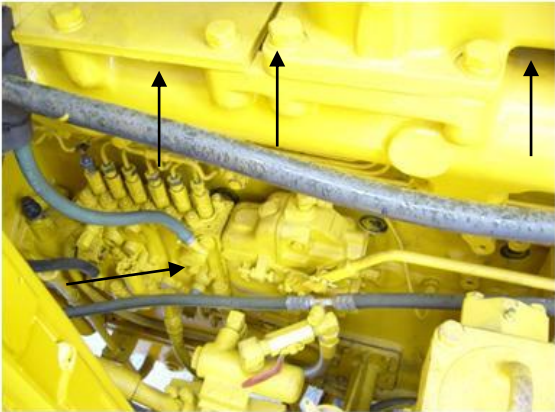
Description	Images
Make sure the belly pans are removed. A visual inspection of all accessible areas under the machine is required and flushing of all channels identified. Particular attention should be applied to any hydraulic hoses, bolts, electrical conduit, parts that are bolted to the frame, engine block, bolts and bolt holes and pivot points.	
Below the front nose structure frame is a noticable channel/hollow area (red arrow) running up the side of the frame. Flushing of the support brace (black arrow) is required as well as a visual inspection of any bolts (blue arrow).	

Description	Images
The frame side structure is hollow and requires flushing, some models may require bolts to be removed (red arrow). On this model there is a plate and lights across the top that requires flushing (blue arrow). Some models have support structures (black arrow) around the radiator that require a visual inspection. The hinge swing brackets will also require flushing (green arrow).	

Description	Images
Harmonic Balancers are found at the front of the engine block. These areas are generally hollow and can harbour contamination. Also check pulleys and all parts associated with the engine for biosecurity risk material.	
This picture shows that on some models there are bolts along the underside chassis rail. These have to be removed and flushed. On some machines there might be plugs, cork or silicon in place of the bolts, they still have to be removed and flushed. Visual inspection is required on all bolt heads and nuts (red arrows).	

Engine bay and housing

Description	Images
These pictures show a typical engine bay. All non-affixed panels must be removed and cleaned as required. Specific areas of concern are the engine block, between cylinder heads, air filter, hydraulics, bolts and inside the chassis rails.	

Description	Images
On some models there is a fibrous heat shield around the turbo or exhaust vents, they must be removed and cleaned. Air filter must be removed and if required cleaned with high pressure air.	
Always visually check all areas of the engine block including any attachments (black arrows). All hoses must be rotated to ensure all sides are clean. Seams between cover plates are common and must be flushed.	

Description	Images
Some models could have a radiator grill (red arrow), as shown below, and must be removed for access. The radiator shroud (green arrow) has to be flushed, specifically towards the corners top and bottom. Any oil coolers (black arrow) present must be flushed in the presence of the officer.	
The topside of a typical dozer block. Check between each tappet cover (red arrow) and along the centre of the block. Best to flush these areas after visual inspection to ensure all contamination has been removed. All ancillary items must be six sided inspected, specific attention must be made to all hoses, bolts and clamps.	

Cabins and below floor pans

Description	Images
Note the floor pans and seat are still attached and need to be removed for cleaning and access to the transmission area under the floor. All rubber boots, vents, clamps and box channels must be verified clean.	
As shown, all non affixed panels must be removed	

This picture shows the above panel removed. Once the panel is removed some models have hollow box channels that support the cabin floor area frames (red arrows) around the lip for strength. If the box channel is identified then flushing is required. The use of mirror and torch is a useful aid to ensure no biosecurity risk material is below and/or underneath the floor pans. All hoses, clamps, blocks and bolts must be inspected.



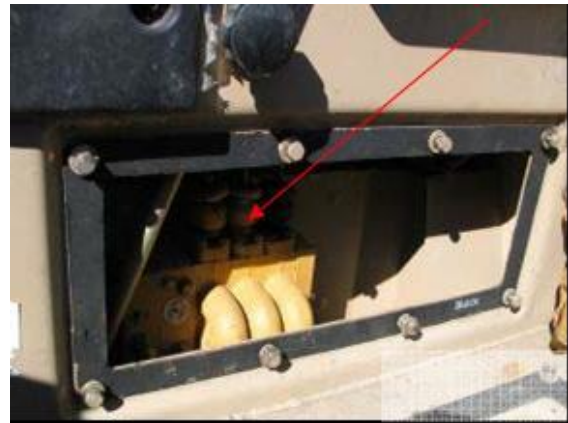
The seat has to be removed to allow access to the top of the transmission and to any compartments that are behind the seat. Once the seat has been removed, ensure the rubber seat shroud is clean inside.



These pictures are examples of compartments behind the seat that must be opened and inspected. Look and check for cabin air filters and hollow areas behind these filters.



These pictures illustrate the various compartments found under the seat and around the seat. All non-affixed panels have been removed, allowing access for cleaning and inspection. These areas sometimes have ledges inside which can harbor biosecurity risk material and need to be thoroughly inspected. Care must be taken when inspecting electronics in this area.



Some models have structural box channels below the floor pan, as shown below. All box channels must be identified and checked for openings/drainage holes and flushed to ensure there is no biosecurity risk material.



Biosecurity

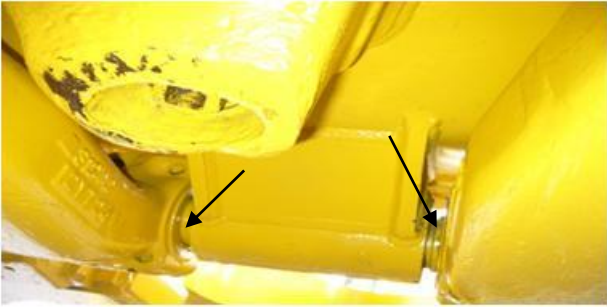
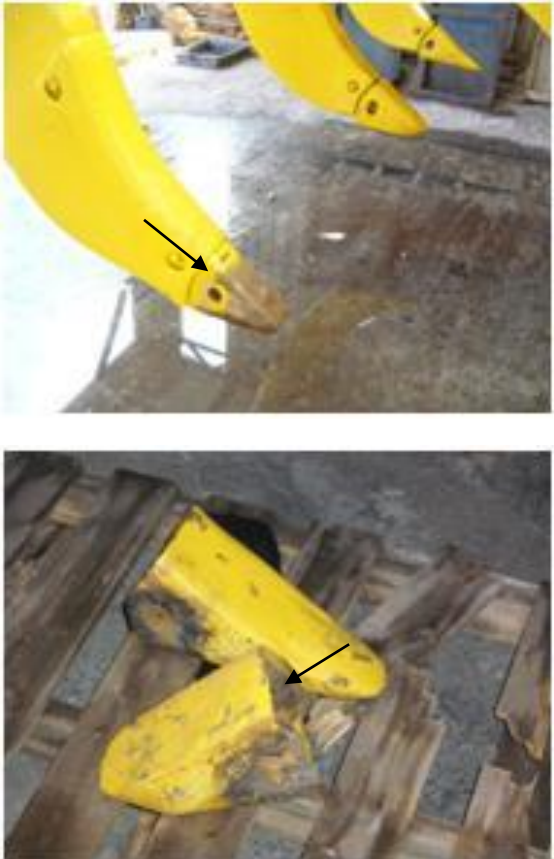
It is vital that all removable panels be removed and thoroughly inspected for biosecurity risk material. Particular attention must be paid to the air-conditioning vents and filter.



Rear end and ripper

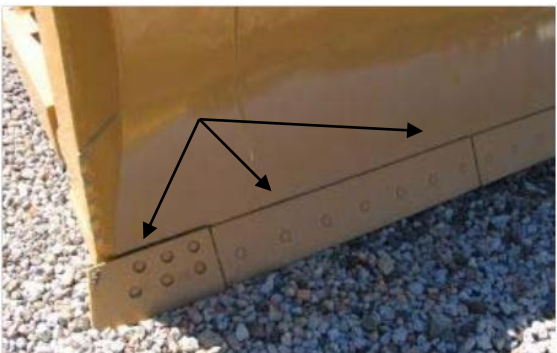
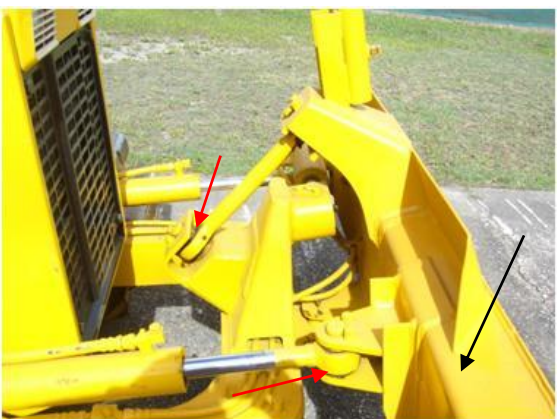
Description	Images
Images of two different ripper versions that are commonly imported. The inspection regime is virtually the same as detailed in the below pictures.	 The image shows two yellow Komatsu bulldozers equipped with rear-mounted rippers. The top photo shows a bulldozer from a side-rear perspective, highlighting the ripper attachment at the back. The bottom photo shows a bulldozer from a front-three-quarter view, also showing the ripper attachment. Both machines have 'KOMATSU' and '195A' visible on their sides.
The first part of the inspection of the rear end should include the fuel tanks, including cover plates (black arrows) and accompanying valves, hydraulic pipes and hoses and any lights.	 A close-up photograph of the rear end of a yellow bulldozer. A black arrow points to a circular cover plate on the fuel tank. The cover plate has a blue 'KOMATSU' logo. Below the cover plate, there are various hydraulic pipes and hoses.

Description	Images
	
The frame for the ripper cradle has a number of hydraulic cylinders that pivot off the frame that must be flushed. Also various amounts of structural pivot points which all need to be visually inspected and flushed.	
All the pivot points from the ripper cradle must be visually inspected and flushed to ensure cleanliness.	

Description	Images
	
The middle of the ripper cradle is hollow and may not have any drainage holes. If no holes are located check carefully for cracks, splits or evidence of repairs. If there are any cracks/ seams or signs of repair then access will need to be provided to verify cleanliness.	
All boots and wear plates must be removed for cleaning. It is not sufficient to just flush the boots; they must be physically inspected after removal.	

Description	Images
	

Blades and push arms

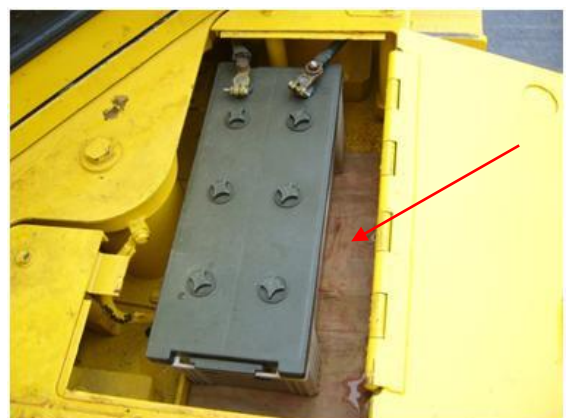
Description	Images
A typical dozer blade with a double skin. The entire blade including the underside must be thoroughly inspected for cracks, seam splits and signs of repair. If any are identified then access will be required to verify cleanliness.	
The cutting blade must be loosened and flushed thoroughly along the seams	
The rear of the blade (black arrow) must be thoroughly inspected for cracks, split seams and signs of repairs. Also pay particular attention, including flushing if required, to the pivot points (red arrows) and associated pipes/hoses for the hydraulics.	

Description	Images
The push arms on a dozer are generally a sealed unit, but check for any cracks, splits or signs of repairs. Ensure all contaminated grease from pivot points is removed.	
Blade pack as it's commonly imported. Ensure the parts that are welded to the blade are removed and individually inspected. If the blade pack is presented for inspection in this manner, request access to be provided for each individual piece and removed prior to re-inspection.	

General

Description	Images
Most belly pans have hollow structural framework that might have drainage holes that require flushing. Check for cracks, splits or signs of repair.	

These pictures identify compartments along the side of the machine that require opening and full inspection. Thoroughly inspect all pipes, clamps, brackets and any hidden support channels for biosecurity risk material. Battery must be loosened and flushed underneath.



Description	Images
All pre-cleaners and air filters must be dismantled and thoroughly inspected If the air filter can't be air cleaned then an ATT must be obtained for destruction.	 A photograph of a circular air filter assembly, likely from a Komatsu Dozer. It features a grid of small, circular individual filters. A red arrow points to one of these filters, indicating it should be inspected or dismantled.
This picture illustrates a different version of the tracks that may be presented. It highlights the need to rotate the tracks prior to completion.	 A photograph showing a close-up of yellow tracks on a machine. The tracks are composed of multiple segments, and the image highlights the need to rotate them for proper alignment or completion.

Description	Images
All hydraulic hose armour guard (protection for the hose against rubbing) and electrical wiring looming must be opened and carefully inspected and cleaned.	 The images show four different locations on a Komatsu Dozer where the hydraulic hose armour guard and electrical wiring looming have been damaged. The top photo shows a close-up of a hand peeling back the black rubber armour guard, revealing the underlying braided metal hose. The second photo shows a similar damage on a hose running vertically. The third photo shows a hose running horizontally under a metal plate, with the armour guard missing in several places. The bottom photo shows a close-up of the electrical wiring looming, which is a bundle of wires wrapped in a protective sheath, showing significant wear and damage to the outer layer.

Description	Images
All lights must be verified internally clean.	
The electrical areas must be inspected and any biosecurity risk material removed.	 