Australian Government

Australian Quarantine and Inspection Service

CATERPILLAR & KOMATSU
DUMP TRUCKS

DISCLAIMER

The following information is to be used as a guide for accredited officers inspecting Dump Trucks (both CAT & Komatsu) and is by no means a holistic account of all that needs to be inspected. This guide merely aims to identify the areas that can potentially harbour or have been found to contain Quarantine Risk Material and the dismantling required which will enable both cleaning and inspection staff access to all areas.

All CAT and Komatsu Dump Trucks have been grouped for the purpose of this guide, as they are similar in structure and design. Photos from both CAT & Komatsu Dump Trucks have been added to this guide to ensure both brands are covered.

Complied by:
Matt Howard
Brisbane

Even though these machines constitute some of the largest imports, inspection staff should not be overawed by the size of these machines. While we must acknowledge that they are enormous and take considerable time to inspect, they are relatively open machine, and this guide aims to highlight the minimum dismantling requirements and inspection.

The Dump Truck series cleaning/inspection guide have been segmented to facilitate the process and the segments are as follows:

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1. Front End and Radiator

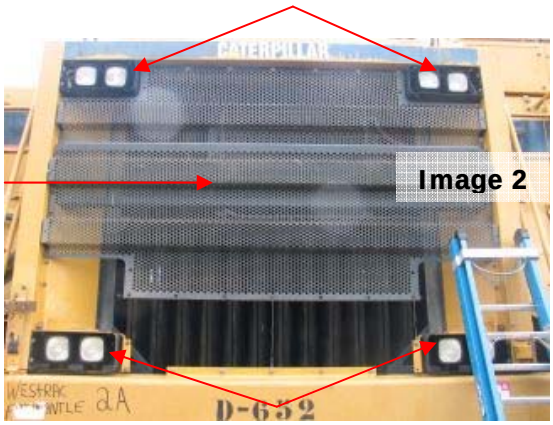
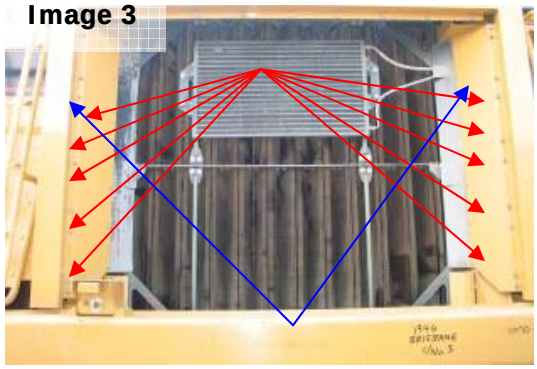


Image 2:
This photo shows the radiator grill still in place as well as the four lights.

The grill must be removed as well as the lights.

Image 3:
This photo shows how the grill and lights have been removed allowing proper access to the radiator and oil cooler fins. The red arrows indicate the areas either side of the radiator where a series of horizontal ledges can be found. These ledges can be accessed from either the front (pull back the vertical black rubber covers seen on either side of the radiator) or once inside the engine bay. These ledges are notorious for harbouring contamination. The blue arrows indicate the ledges that are located behind the area where the lights are positioned. Without removing the top lights, these areas cannot be accessed.



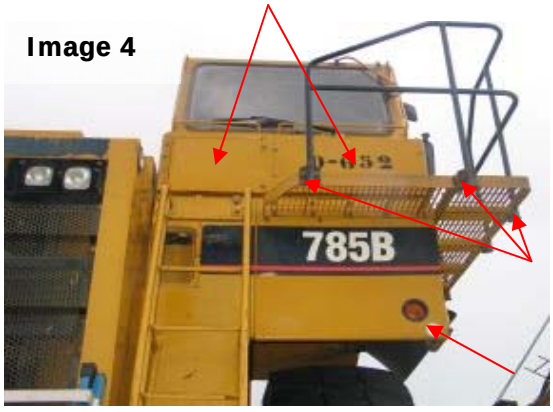
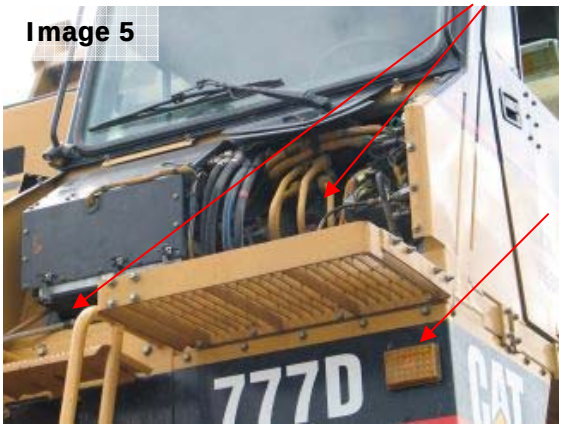
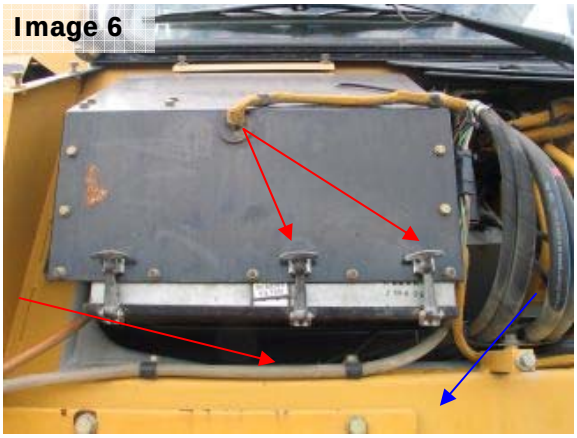
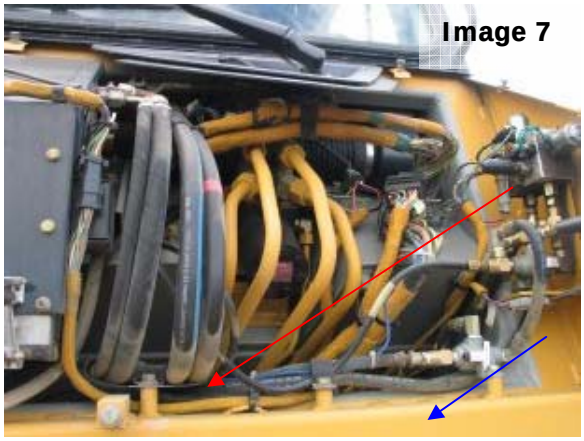


Image 4:
The panels in front of the cabin, which house the air-conditioning and electrics, must be removed. All hollow handrail tubing must be flushed in the presence of the inspecting officer. Check all light covers for damage – it is not unusual to find contamination inside light covers.

Image 5:
This photo shows the front cabin panels removed, allowing access to the air-conditioning and electrics. Best to use a telescopic or flexible mirror to inspect all areas inside. All light covers must be checked.







Images 6 & 7:
Close ups of the air-conditioning and electrical systems found behind the panels at the front of the cabin. On the left, these tie-down hooks must be loosened off to reveal inside the air-conditioning unit – check filters. The blue arrows in each photo indicate part of the box channel housing of the cabin air-con and electrics. It is difficult to inspect in behind this box channel, however contamination can generally be found in this area. The use of telescopic or flexible mirrors can facilitate the inspection. If zip-ties are used to hold several hoses together, several may need to be removed in order for each individual hose to be cleaned.

N.B. This area can also be accessed when the panel under the cabin floor has been removed – See page 7. Access from the underside of the cabin does not negate the need to remove these front panels.

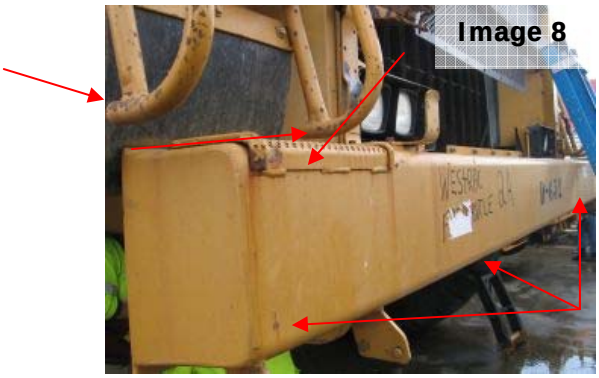


Image 8:
Main focus of this photo is the front drawbar. On some models these have drainage holes either near the ends or along the underside. This drawbar must be fully checked for any evidence of drainage holes, cracks, splits or evidence of repair. Check the access ladders as the one highlighted above is made of hollow tubing with no end caps. These must be flushed in the presence of the inspecting officer. Any checker-plate or non-slip flooring must also be thoroughly flushed.

Image 9:
On some models the air-filters are found in a variety of locations. This one is below the cabin and has several hollow channels as highlighted by the two arrows above. Filters must be removed and blown with air to verify cleanliness. Have any other non-affixed panels dismantled to allow full access.

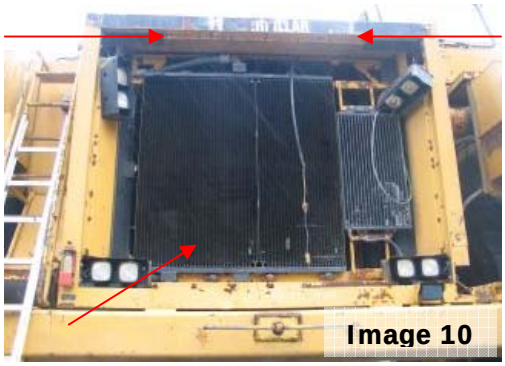


Image 10:
Another example of the front end of a Dump Truck. This one has an open-ended channel running along the topside of the radiator. The oil cooler on this model is nearly the same size as the radiator itself. To correctly verify if radiator/oil cooling fins are clean, the require flushing from both sides. In this instance, the oil cooling system will need to be removed. This does not require full removal – on some models only a few bolts on one side need to be removed and this front unit can be swung outwards.

Image 11:
The two arrows on the centre of the photo show the vertical section of the chassis. These sections are hollow, have drainage holes and require flushing in the presence of the inspecting officer. See next series of photos. If wheel chocks are present, please use.

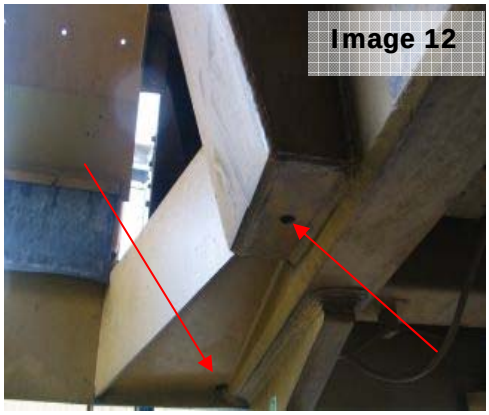
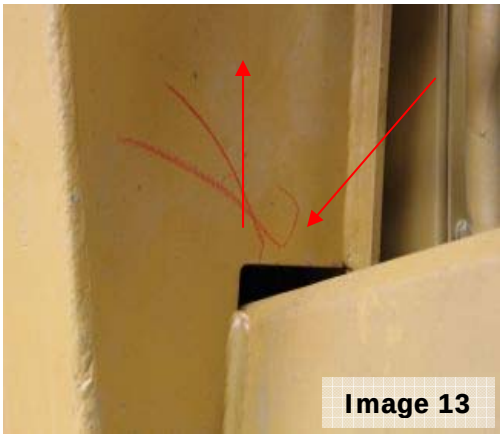
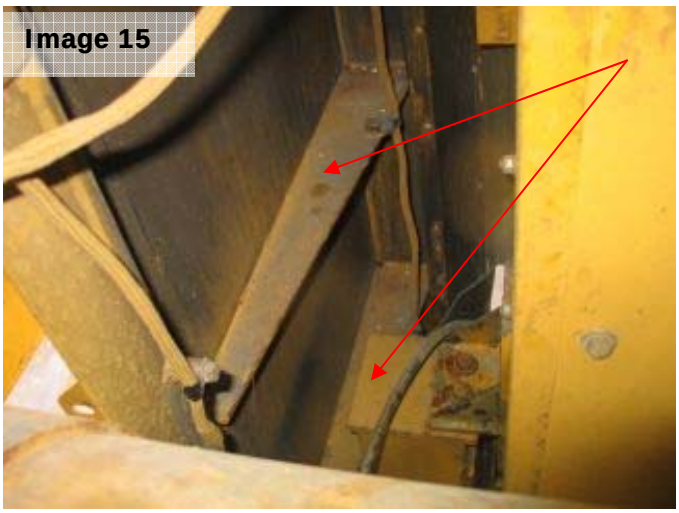


Image 12:
Vertical chassis support found either side of the radiator. Note the drainage hole on the underside – must be flushed in the presence of the inspecting officer. Note the small drainage hole seen towards the bottom of the photo – another box channel, which also requires flushing.

Image 13:
This picture also shows another entrance point to this vertical chassis support. In this instance the drainage hole is in a different area and will require flushing with a nozzle with a 90-degree tip. Water must be forced upwards to remove any contamination.



Images 14 & 15:
These pictures show both the external and internal view of the where the horizontal fins are located on each side of the radiator. These can be accessed from either the front (pull back black rubber sheets from either side of the radiator) or from in the engine bay, as seen in the view on the right.



2. Cabin

Image 16:
Landscape shot of a Dump Truck cabin. There are generally two doors to allow access to the cabin.

Image 17:
This photo shows the rear panel removed. This area can contain the computer chips so cleaning can be difficult and best to clean with a damp rag. This area is usually well sealed, however contamination has been found in these areas.

Image 18:
Depending on the configuration, the internal door void (red arrow) may harbour contamination and be of interest to AQIS.

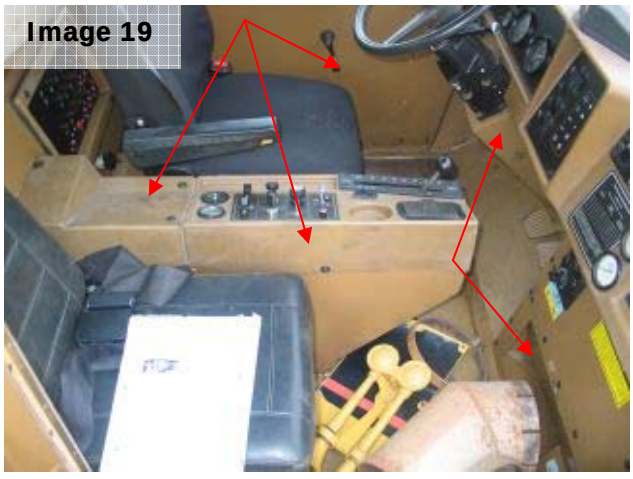


Image 19:
The internal of any cabin requires extensive cleaning and inspection. Contamination has previously been found in some air-conditioning vents and therefore an area of interest to AQIS. These areas may seem unlikely points where contamination may be found, but all have a proven history of harbouring a variety of risk material and therefore need to be accessed and inspected.

Image 20:
All seats need to be removed to allow proper inspection of the underside of the seat and the rubber shroud. Below the seat, like in the illustration above, there is a small hollow box section, which also needs to be inspected. Without removing the seat, access may not be possible.

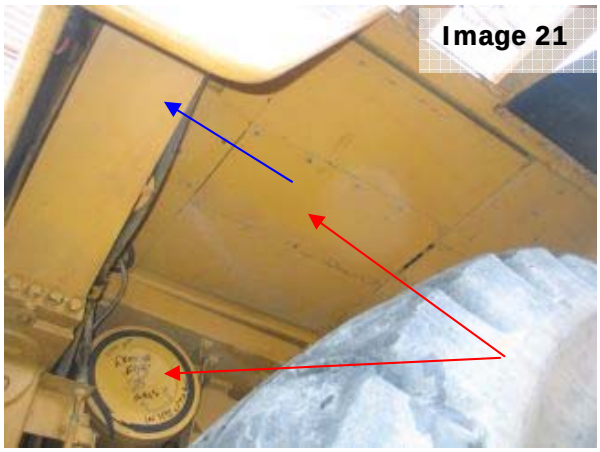


Image 21:
A view of the bottom of the cabin floor as seen from underneath. All non-affixed panels need to be removed to enable thorough cleaning and inspection. Once these panels are removed, this allows rear access to the cabin air-conditioning and electrics as see on page 3. All air-filters need to be removed and blown with air to verify cleanliness.

3. Engine Bay and Housing

The safest way to access this area is by ascending the front ladder and once on top of the engine housing, have the engine covers lifted. This area below the engine housing can be surrounded by numerous hollow channels, all which require flushing in the presence of the inspecting officer to verify clean.

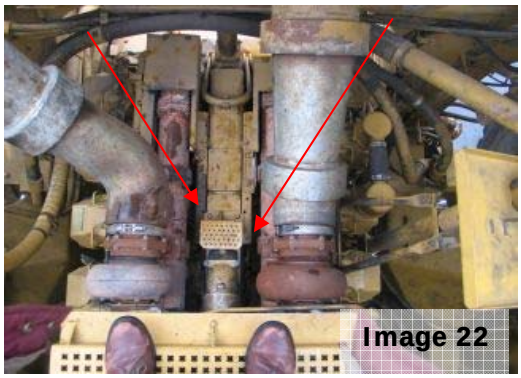


Image 22:
The sight confronting inspectors when the cabin housing is first lifted. The arrows in this photo show the channels that run along the top of the block. These must be inspected and flushed to verify cleanliness.

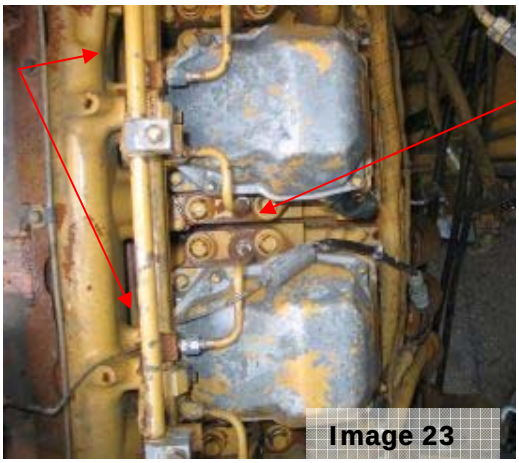
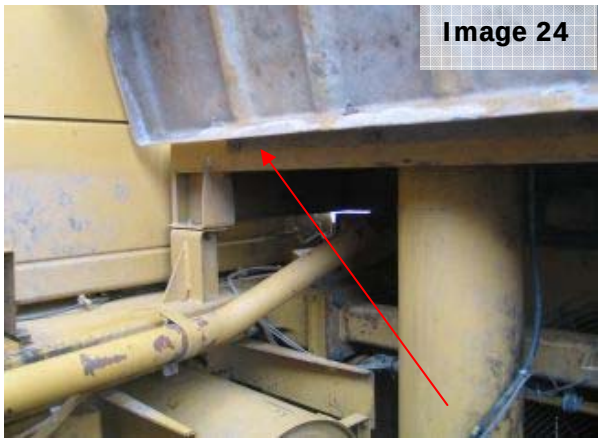


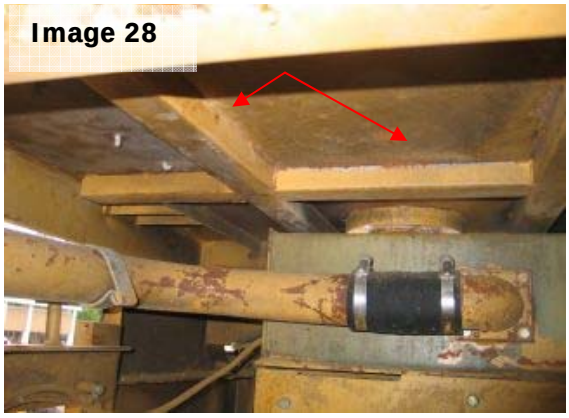
Image 23:
The small areas between each rocker/tappet cover must be thoroughly cleaned and inspected. Flushing will also be required to verify cleanliness in some areas.

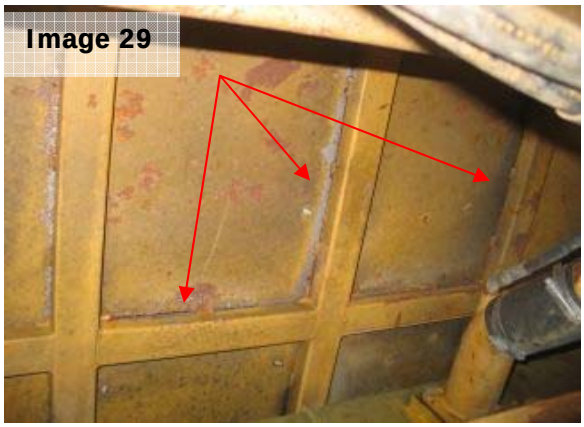


Images 24 & 25:
Where the engine cover hinges attach to the frame, this box section is hollow and has been known to harbour numerous kilograms of contamination. It appears to be solid, sealed section, however there are access points, which cannot be seen from this view. On the opposite side, on each end, there are small triangular openings, which allow access for flushing.

Image 26:
Opposite view of box channel where engine cover hinges attach. Note the small triangular access point, located at either end of this box section. This must be flushed in the presence of the inspecting officer.

Image 27:
The myriad of electric cables exiting the side of the cabin wall to various parts of the machine. All need to be checked for cleanliness. The two arrows on the right show the small gap under the cabin, which also requires flushing.





Images 28 & 29:
The housing above the radiator. These hollow box sections are only spot welded into place and therefore contamination may be present. All individual box sections require flushing – a needle jet is best for gaining access.

Image 30:
Side view of the RH side of the engine block. As well as checking all other areas, the gap between the tappet covers can harbour contamination. Some flushing in this area is required.

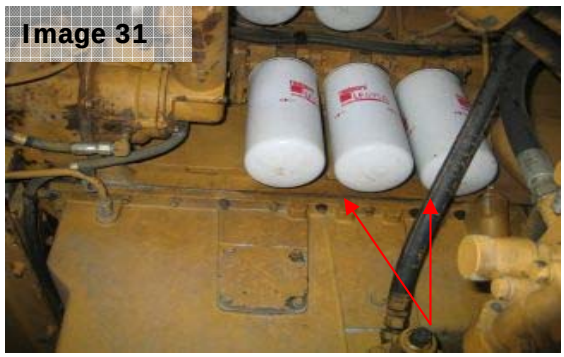
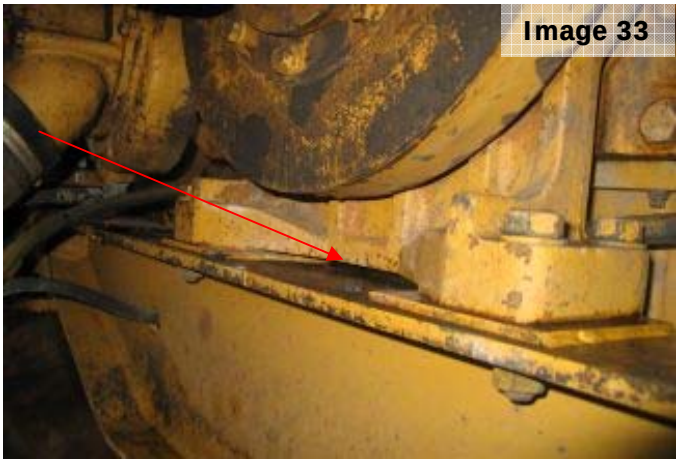


Image 31:
Ensure that the back surfaces of components such as the oil filters are clean.



Images 32 & 33:
The harmonic balancers must be cleaned as well as the small opening below the block as seen in the picture on the right.

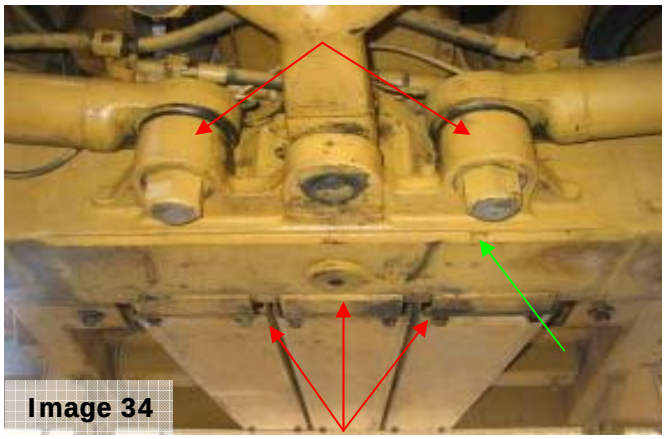
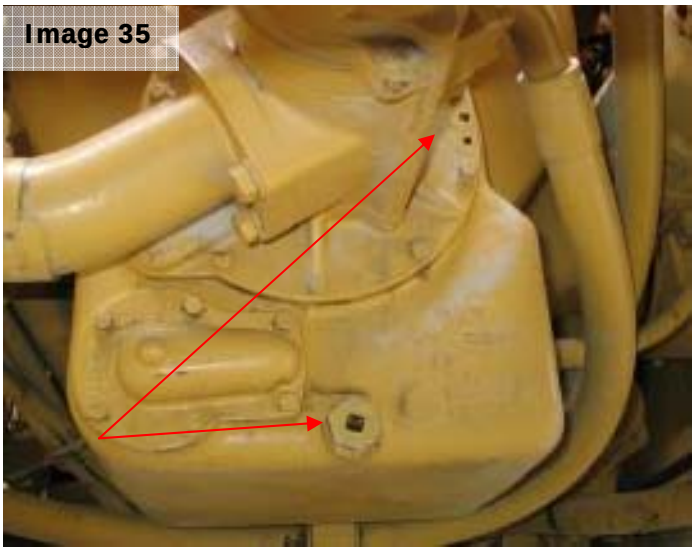


Image 34:
To facilitate access to the front on the block (harmonic balancers and radiator shroud), the belly plates need to be removed. Also ensure all pivot point joints are free of all contaminated grease. The green arrow shows a drainage hole in the front wishbone – this will be further highlighted

Image 35:
Large areas like these are easy to clean and inspect, however the small countersunk holes are often overlooked.



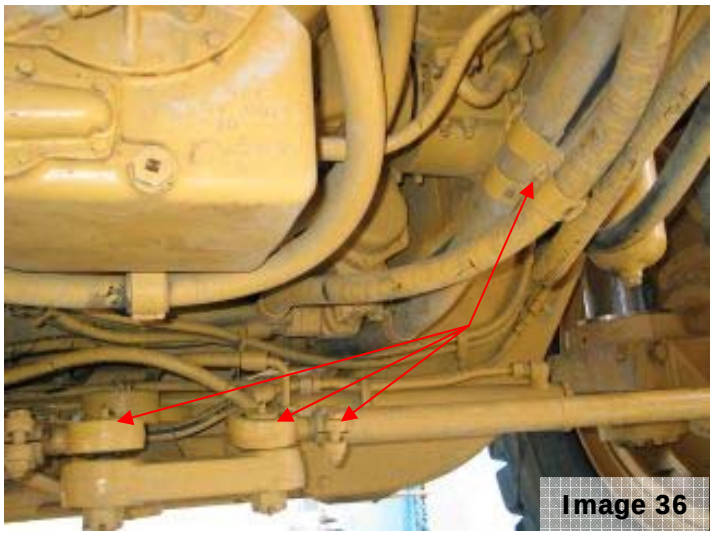
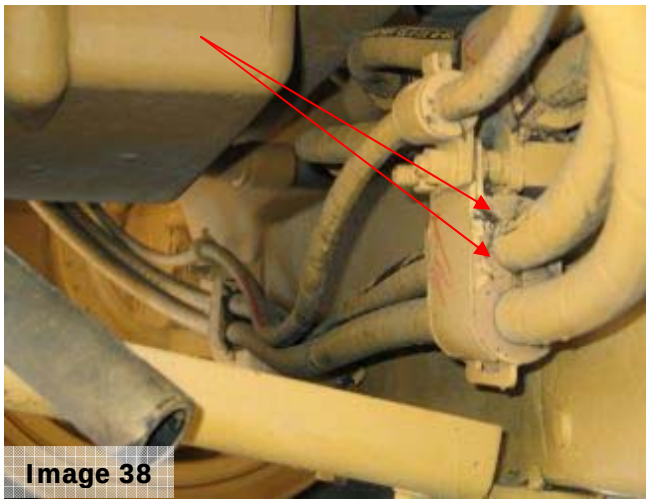
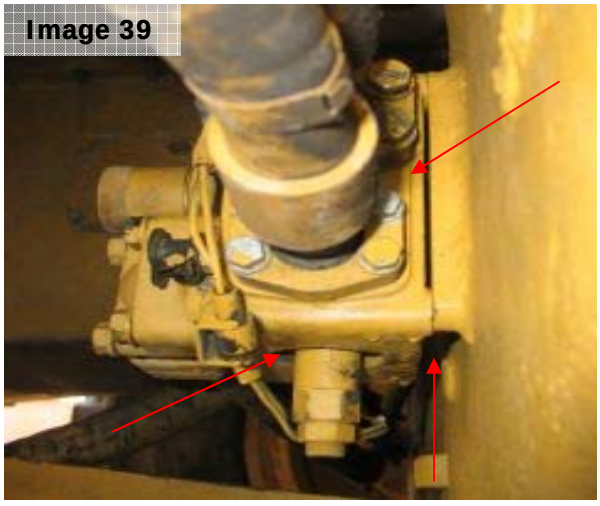


Image 36:
Pivot points and a myriad of hydraulic hoses – all require thorough cleaning and inspection. In some instances, zip-ties may need to be removed to facilitate the cleaning process.

Image 37:
The small openings at the end of the pivot points are often overlooked when cleaning. Above: Areas above belly plate (along front of wishbone) that requires thorough inspection.



Images 38 & 39:
Areas above belly plate (along front of wishbone) that requires thorough inspection.



4. Wheel Arches and Hollow segments

Image 40:
The RH wheel arch on most dump trucks is the most difficult to clean and inspect. These wheel arches consist of a myriad of box channels, most of which has small triangular openings at the ends. These opening are further demonstrated in this series of photographs. Check all open ended hand rail tubing (will require flushing) and circular tubing around the wheel arch for any drainage points (if present, they will also require flushing).

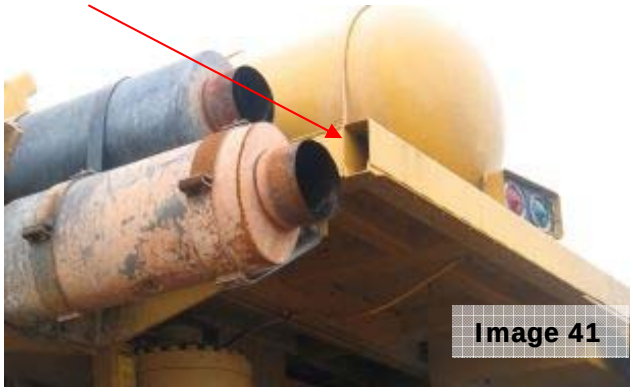


Image 41:
The outside channelling is sometimes open ended, as seen above. These areas require flushing to remove all contamination.

Image 42:
View of the underside of the RH wheel arch. All these highlighted channels are hollow and have small triangular openings on the ends. All require flushing with a 90-degree lance in the presence of the inspecting officer. If spot welded, they still require verification.

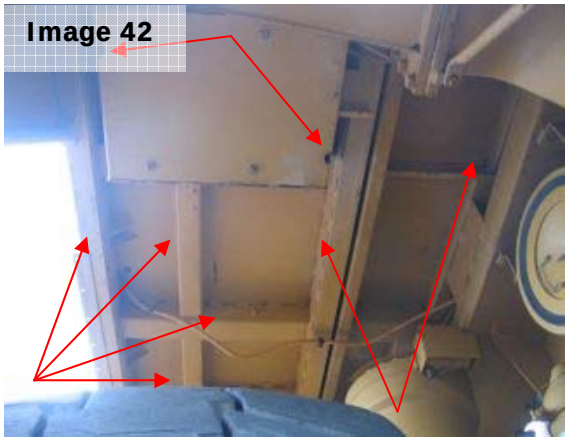
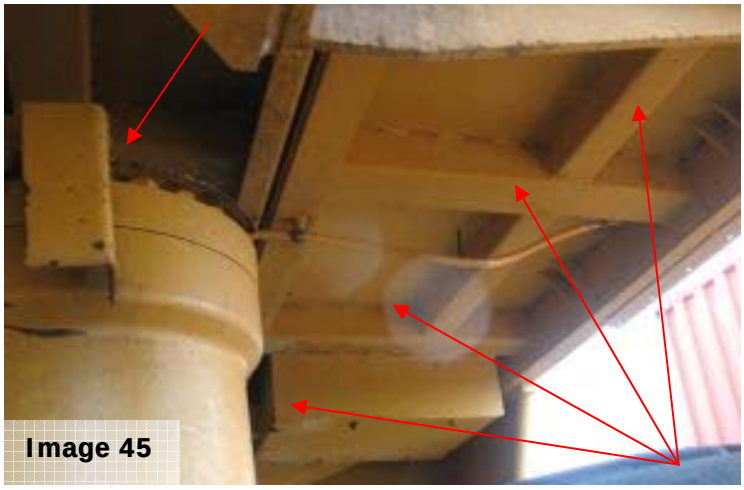


Image 43:
The LH wheel arch is not quite as complicated, but still requires that the panelling from under the cabin is removed. Check the ledges behind the tyre for contamination. On some Komatsu models, these ledges are covered but still have access and flushing points.

Image 44:
Arrow indicates the small triangular openings that are found at the ends of these box sections.

Image 45:
More box sections from another view. Remove all contaminated grease from the struts located on each side.



5. Chassis


Image 46

Images 46 & 47:
Located just inside each front tyre and rim are two vertical struts. These struts attach to the wishbone, which on the CAT series of Dump Trucks is a hollow and accessible area that needs thorough flushing to ensure it is clean.


Image 47

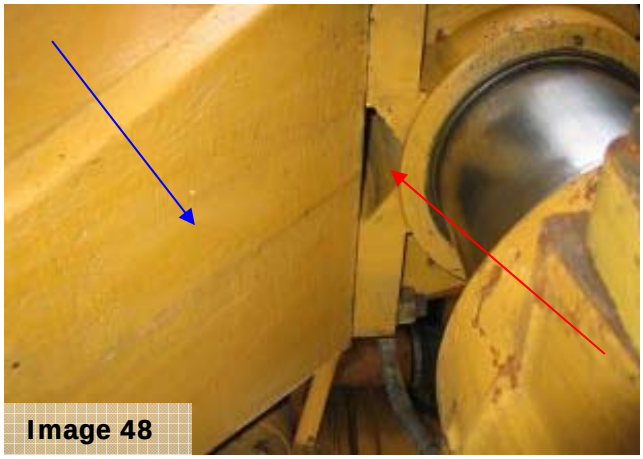


Image 48

Image 48:
Contamination can enter the wishbone via these holes, located just inside either strut. The wishbone (blue arrow) appears to be a solid mass, but inside is hollow and contains a series of ribs, which can make removing contamination difficult. To enable these areas to be properly flushed and cleaned, a long lance with a 90-degree tip is required and is inserted up the area indicated by the red arrow.

Image 49:
Just right of centre at the rear of the wishbone is a small drainage hole. Flushing via the two entrance holes located below either strut will result in water draining from this hole.

N.B. It can literally take hours to flush this wishbone clean.


Image 49

6. Rear End

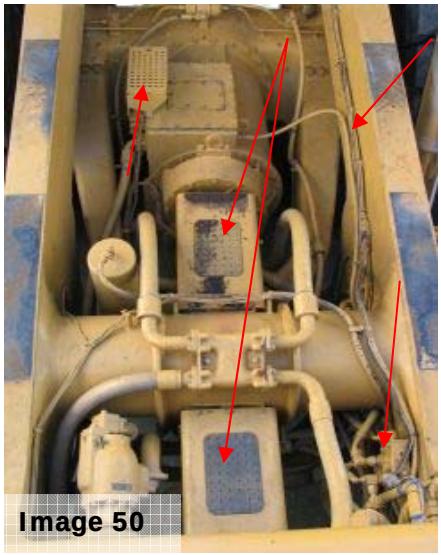


Image 50:
Ensure the Tray is lifted and locking pins put in place. Inspect all surfaces including all hydraulic and electrical hoses, horizontal plates and chassis frame.

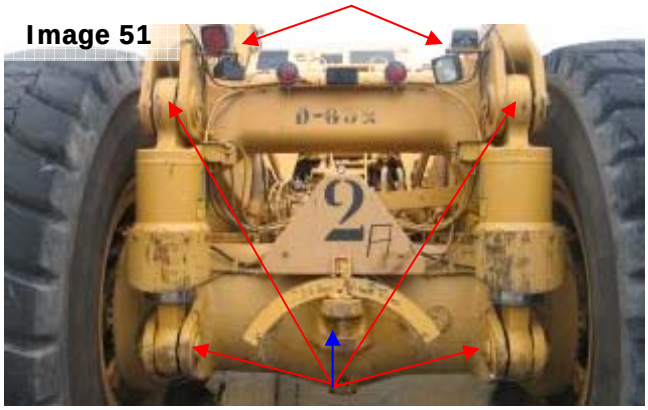
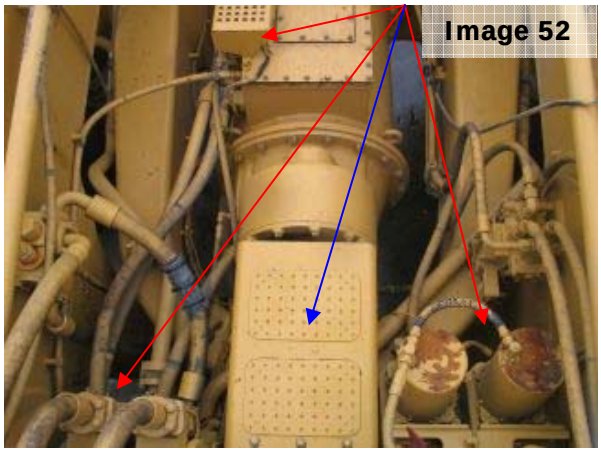
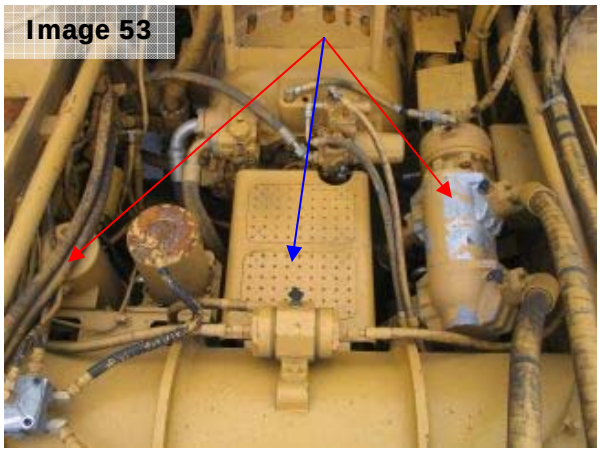


Image 51:
The rear end of the Dump Truck with the tray removed. Ensure all pivot points have all contaminated grease removed, all light covers checked (best to look inside) and the towing pin (blue arrow).



Images 52 & 53:
These photos are of the same area, just taken from different perspectives. The blue arrow indicates a non-affixed panel, which when removed, facilitates both cleaning and inspection. Each hydraulic and electrical hose needs individual attention.



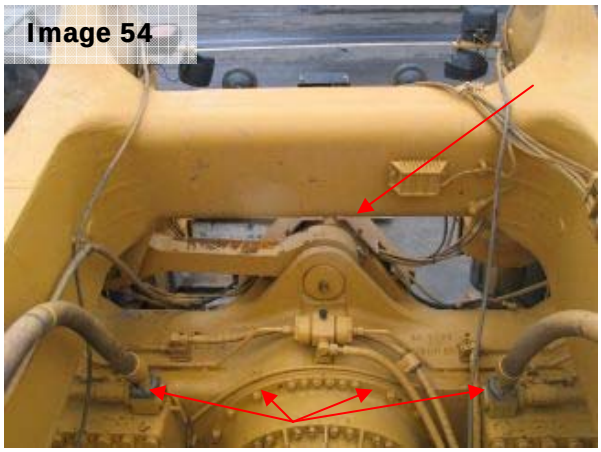
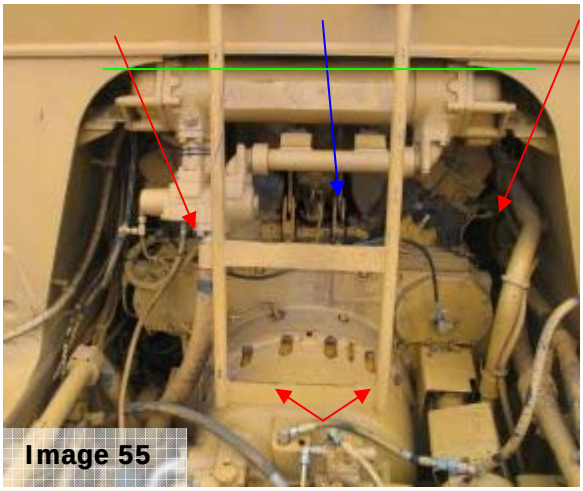


Image 54:
The rear chassis from above. Check pivot points to ensure all contaminated grease has been removed. Check all hydraulic couplings as well as any countersunk areas above the diff.

Image 55:
The back of the engine block and ladder (if present). As space is tight in the engine bay, the rear of the block can be inspected from behind. Check all hoses, hydraulic and electrical harnesses as well as the back of the engine block (blue arrow). On some models there is a U-shaped channel (indicated by the green line), which keeps hydraulic and electrical lines off the block as they pass over. This Ushaped channel is easily overlooked but can be accessed from either inside the engine bay, or from behind. All hoses need to be removed and the channel flushed to ensure clean.



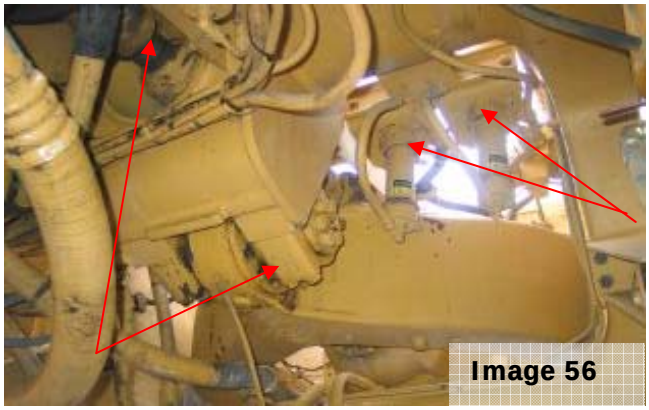
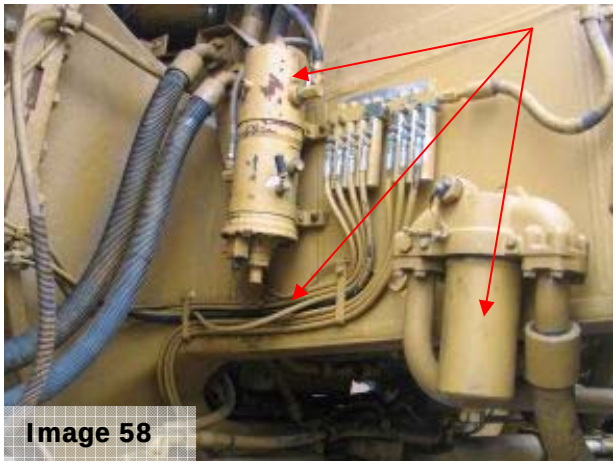


Image 56:
The rear of the Dump Truck from the underside. This area consists of chassis framework, pivot points and a universal joint. All require careful inspection and viewing from several angles.

Image 57:
A close up of the underside showing the universal joint and a conglomeration of hydraulic hoses. These hoses need to have the zip-ties or clamps removed to enable cleaning and inspection.

Image 58:
Area just forward of the fuel cell. Again this area consists of numerous hydraulic lines and cylinders, all requiring careful attention.



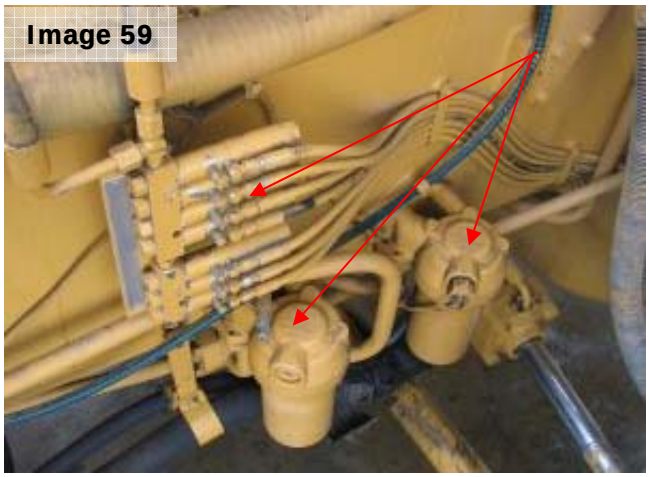


Image 59:
The opposite side and forward of the fuel cell. Several cylinders and hydraulic lines can be found here, also requiring inspection.

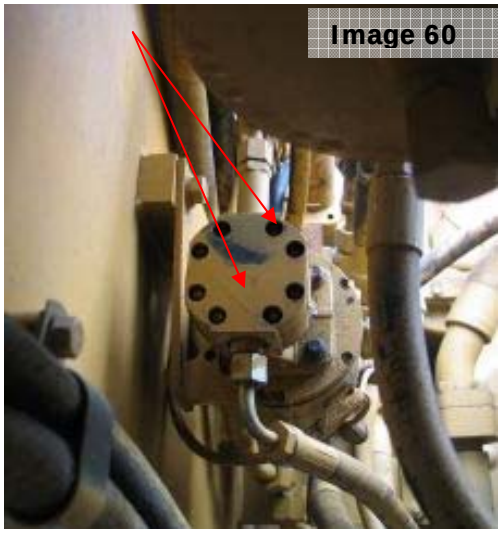


Image 60:
There are numerous structures such as the one highlighted above, all requiring inspection from various angles to ensure cleanliness.

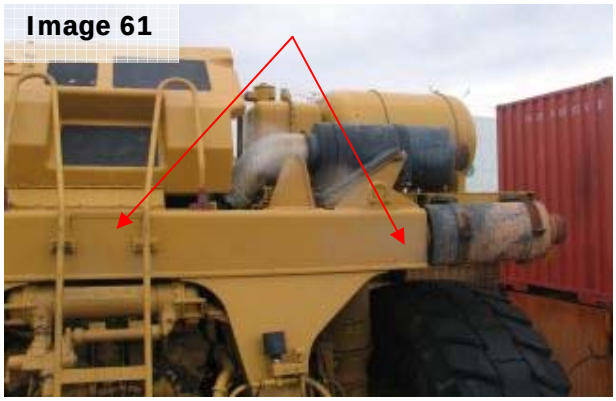


Image 61:
The arrows indicate the exhaust pipe housing. On some models a drainage hole can be found either halfway along, or at the end. This housing requires flushing to verify cleanliness. On this model, the area is fully sealed.

7. Tray

Image 62

Image 62:
Dump Truck trays such as the one illustrated above can be one of the major areas that harbour contamination and none may be visible. These trays possess an internal lining or 'skin', which hides a hollow area, capable of harbouring hundreds of litres of contamination.

The gussets or ribs along the sides and across the bottom also have the potential to harbour significant amounts of contamination. Dump Trays are prone to damage simply due to the size and weight of the cargo that they carry. If there is any evidence of hairline cracks, splits, new welding or evidence of repair, then all these areas need to be investigated. Trays with suspected contamination inside cannot be released until completely verified.

Image 63

Image 63:
This tray comprises of two segments that are bolted together. Once apart, the ribs along the underside are open and exposed to contamination.

Image 64:
This Tray shows evidence of repair and therefore requires investigation of the gussets and ribs.

Image 64

Image 65:
Arrows indicate where the tray has been bolted together. The black rubber pads on the underside of the tray require thorough flushing to ensure clean.

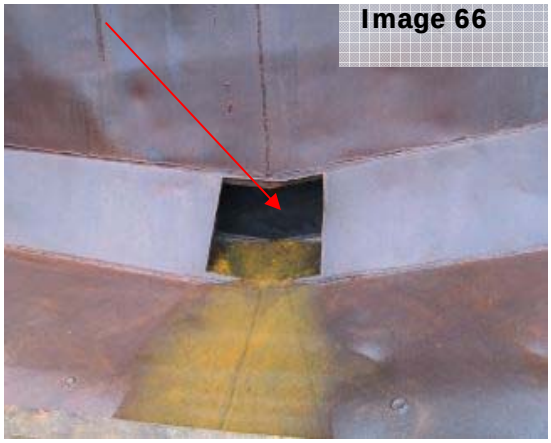


Image 66:
The front of this tray showed signs of damage and prior to import the contamination was removed. AQIS is not in a position to order the cutting of any part of any imported machine. If there is evidence of cracks, splits or repair, then it is the responsibility of the importer to prove that these areas are free of all contamination.

Images 67 & 68:
Tray cut prior to import, highlighting the hollow ribs/gussets on the underside of the tray.

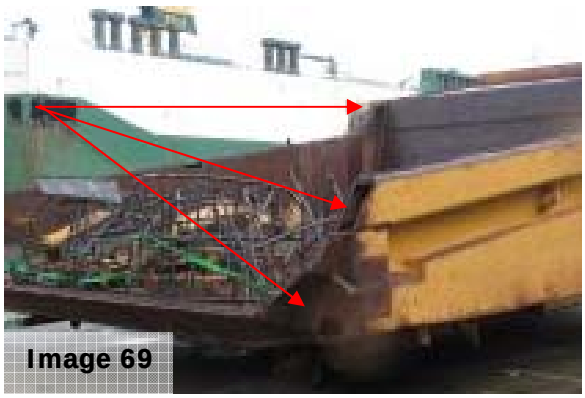


Image 69:
This tray showed signs of damage prior to import and as a result holes were placed at the rear of the ribs/gussets running along the sides.

Image 70:
Evidence of new welding on the side of this tray. Due to not being painted over, it appears rusty.

Image 71:
The outside front of the Tray. Note the vertical line indicating and opening. The right arrow shows evidence of new welding. Although not clear in this photo, the blue arrow indicates a crack in the rib/gusset, which requires further investigation.

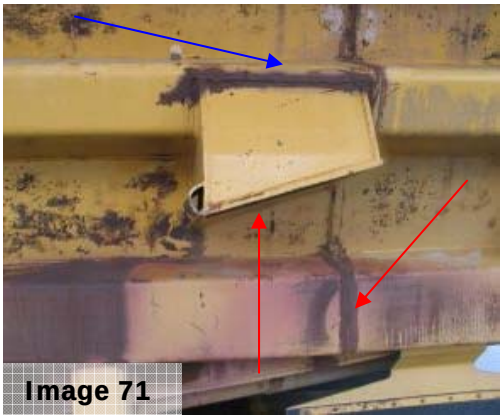


Image 71

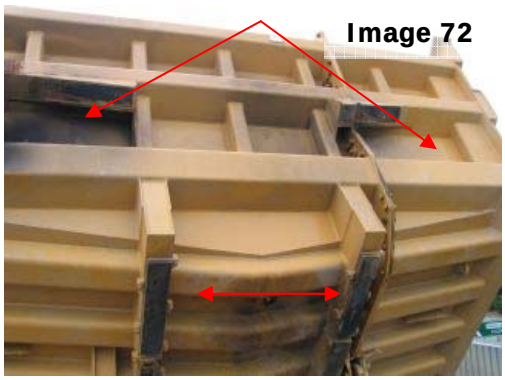


Image 72

Image 72:
Thoroughly clean the black rubber tray mounts. Check along all outside ribs/gussets for contamination, cracks and splits.

Images 73 & 74:
Crack in the 'Skin' and damage along the top of the side.


Image 73


Image 74

Image 75:
An example of a crack in the tray of a dump truck. If areas like this are found, then they need to be investigated.


Image 75


Image 76

Image 76:
Once this crack was investigated, it revealed an inch of contamination between the two 'skins'. AQIS does not direct any cutting, however if any cracks, splits or evidence of repair is evident, then that machine cannot be released until these areas are verified clean. It is the responsibility of the importer to demonstrate that these areas are free of all risk material.

8. Tyres and Rims

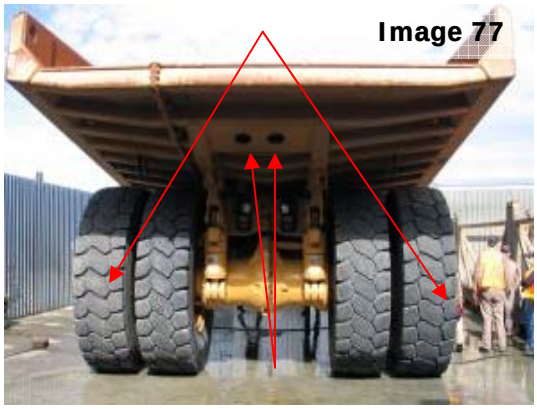


Image 77:
Rear end of a Dump Truck. In all instances, the outside dual wheels must be removed to allow a complete inspection. Please ensure that any exhaust channels that run the length of the tray are flushed as well. When not in use, these areas are favourites for vermin to build nests.

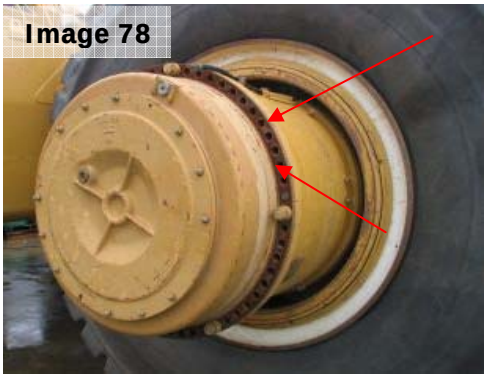


Image 78:
The outside dual wheel removed. On the topside of the rim is a protective plate, which cannot be accessed if the dual wheel is not removed. See below.

Image 79:
The protective cover on the rim has been removed, revealing contamination.

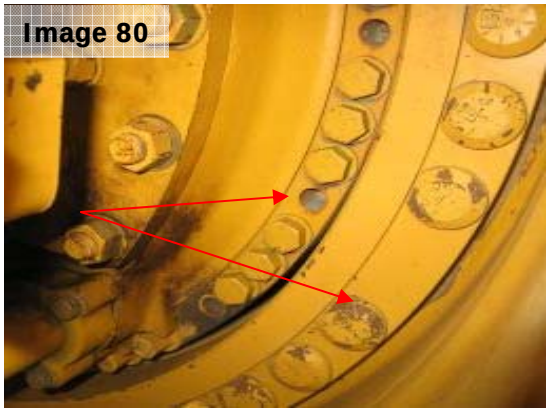


Image 80:
Inside of the wheel rim. Note the contamination still present inside the countersunk holes.

Images 81 & 82
Examples of crack in tyres that all need to be verified clean.

9. Accessories

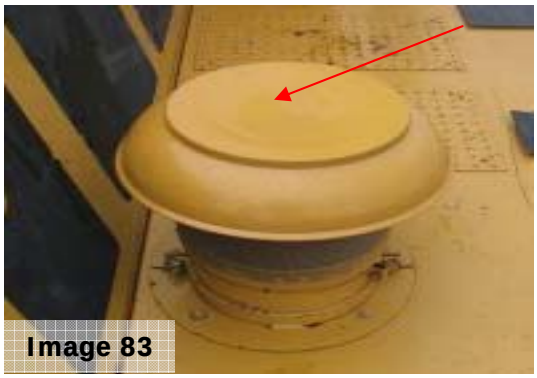


Image 83:
The air-filter pre-cleaner. Ensure this housing is removed to enable inspection.

Image 84:
The oil tank situated above the engine is easy to access, however the underside difficult to inspect and may require the use of a mirror. The coupling also requires inspection.

Image 85:
To enable a thorough inspection of the battery box, ensure that the batteries can be lifted and flushed underneath.

Image 86:
All non-slip checker plate needs to be verified by flushing with high pressure water (some importers have chosen to completely remove).

Image 87:
The RH wheel arch from behind. On some models the box channels are open ended such as the ones illustrated above. These require flushing in the presence of the inspecting officer to verify cleanliness.

Image 88:
Check all mirrors. If cracked or pieces missing, best to check behind.