



Technical Bulletin / Safety Alert

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(This document supersedes Jugonaut Industries TBSA0005)

Subject: Failed Door Latch Interlock Valve due to incorrect Interlock valve fitted

Date: 04/03/08

Applicable to: All JUG-A-0 UL/UV machines

Note: Minimum PPE required to carry out any inspections contained in this TBSA shall be protective clothing & footwear, safety glasses, hearing protection & any site specific requirements. A JSA or equivalent should be carried out prior to performing these tasks.

Occurance:

A customer was operating a JUG-A-0 UL/UV "V2" on the weekend of the 24th and 25th of February.

The Operator noticed that intermittently, a delay in Brake activation was being experienced when applying the Park Brake.

The machine was taken to the workshop where the fault was inspected by a Site fitter. The Site fitter returned the machine to service after he could not fault the operation of the Park Brake.

After the machine returned to service the Operator noticed that the fault was still prevalent.

The Operator returned the machine to the Workshop where it was then tagged out of service until further investigations were conducted by VLIDD as requested by the Site MME.

Investigation & Cause:

On Monday morning a fitter from VLIDD travelled to Site to conduct investigations into the Brake activation delay.

Firstly the operation of the Park Brake activation button was tested repeatedly and no fault could be found. The Park Brake would apply instantly every time that it was activated. This also proves that the Park Brake dump valves are operating correctly.

Next the 'Comp Air' door interlock (Door opening) was tested repeatedly and again no fault could be found. The Park Brake applied every time that the door opened.

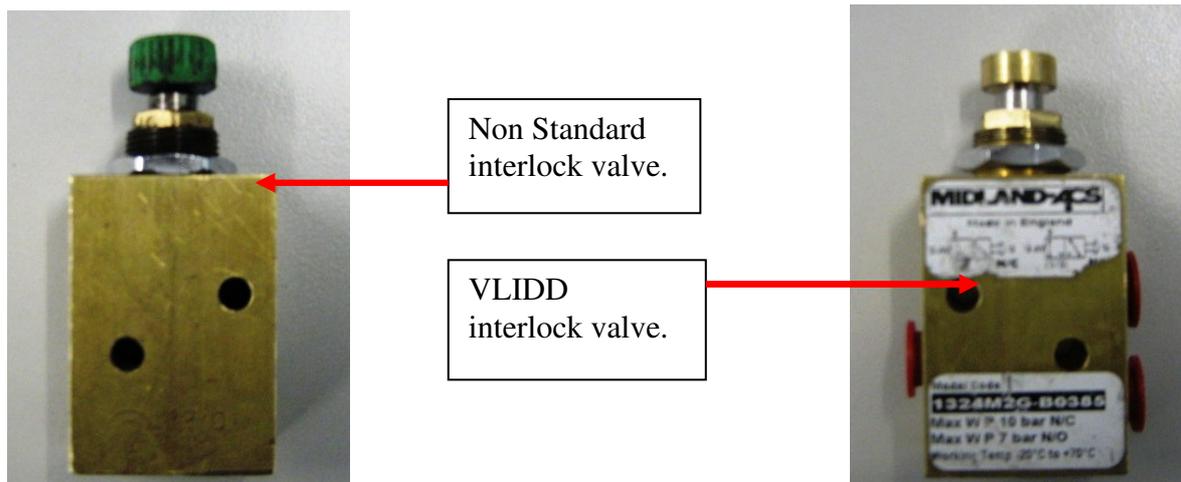
Finally the Door Latch interlock was tested and it was found that if the Latch was unlocked rapidly the air in the Park Brake would not exhaust properly from the exhaust port on the interlock valve. This inturn would cause the Park Brake to remain released.

The Door latch was then removed for inspection and disassembled to investigate what was preventing the interlock valve from exhausting.

For the Door interlocks to work the air to the Park Brake valve needs to be able to exhaust to the atmosphere. This is achieved by the door interlocks being plumbed into the circuit in series. When the door interlocks are depressed the air in the Park Brake circuit can flow through to the Park Brake valve.

When the Door Latch is unlocked (not opened) the plunger holding the interlock valve in the depressed state moves into a machined section of the Door latch pin which interrupts the air supply to the Park Brake valve. At the same time the air in the circuit from the interlock valve to the Park Brake valve is exhausted to the atmosphere.

The first notable item was that the incorrect door interlock valve was fitted to the Door latch. A Non Standard valve had been fitted at some time. The Non Standard valve has a different style plunger on the top compared to the correct VLIDD valve, which when fitted to the Door Latch makes the valve about 4 mm longer. The extra length of the plunger hinders the ability of the valve to exhaust the air from the Park Brake valve.



Also the door interlock valve plunger was riding up out of the heel of the machined recess in the Door Latch pin. This would happen when the plunger travelled through the radius section of the recess.

This would cause the plunger to move into the depressed state, simulating that the Door Latch was closed again. This was evident as a track mark was worn out of the recess on

the outer radius. This only happened when the Door Latch was rapidly moved to the unlatched position.

Although the Park Brake air could be trapped as the plunger rode up into the heel of the machined recess, the air will vent as soon as the Door Latch moved from the unlatched position to the open position.

To correct this fault a new Door Latch assembly and interlock valve was fitted to the machine.

Retesting of the Park Brake valve and Door interlock valves proved the system was working correctly and no faults could be detected.

From our investigations it would appear that the Door Latch is being used to apply the Park Brake instead of the proper Park/Emergency Brake activation button located on the Dash in front of the Operator.

The design criteria of the machine incorporates the Door Latch interlock to ensure that the Door is closed and latched before the Operator can start the machine.

The Park/Emergency Brake activation button **MUST** be used as the primary method to apply the Park Brake in normal operations, and this needs to be communicated to all operators.

Periodic cleaning/servicing of the Door Latch will also help to ensure that the Door interlock valve remains operational. Grease and Coal will bind up the Door Latch as well as fill the machined recess in the Door Latch pin.

When lubricating the Door Latch assembly **ONLY** use a CRC type lubricant.

Recommendations:

Immediate Action:

The following faulty or damaged components were replaced before the machine went back to into service:

- 1 x Door Latch assembly.
- 1 x Door Latch Plunger assembly.
- 1 x Door Latch Interlock valve.
- Correctly adjusted the valve to exhaust as soon as the plunger drops into the recess.

Two other JUG-A-0 UL/UV "V2" machines on site were checked for the same problem but no sign of this problem was found.

Future Action:

VLIDD make the following recommendations:

Only use the correct VLIDD parts when replacing faulty or worn parts.

Toolbox talks are to be held with operators explaining the importance of NOT using Grease or oil to lubricate the Door Latch assembly when servicing.

Only use a CRC type lubricant on the Door Latch assembly when lubricating. This is to be done as part of the machines weekly services.

Periodic cleaning/servicing of the Door Latch will also help to ensure that the Door interlock valve remains operational.

Toolbox talks are to be held with operators explaining that the Park/Emergency Brake activation button must be used as the primary method to apply the Park Brake in normal operations.

VLIDD has widened the machining tolerance for the door latch barrel and implement a component change out strategy.

Supporting Documentation:

None.

Conclusion:

Failure to implement these recommendations may increase the risk of future failures.

Please ensure this document is circulated to all relevant personnel within your organisation.

Should you have any further queries please contact your VLI Diesel Representative.

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