



Technical Bulletin / Safety Alert

Unique ID No: TBS2013-TBSA-01

Rev: 1

(This document supersedes all previous versions of the above TBSA)

Subject: JUG-A-0 Unplanned Movement - Incident Notification

Date: 19th September 2013

Please note that this is a revision to the original TBSA sent on 24/1/13, revised information is contained within the "Further Actions & Conclusion" section at the end of this TBSA.

Applicable to: Design Registered Transport Braking System. (MDR089245TBS & MDR108880TBS-1)

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:

VLI Diesel Division (VLIDD) advises the recent occurrence of 3 separate but similar incidents in relation to the transport braking system (covered by design registration no. MDR089245TBS & MDR108880TBS - 1) at NSW Coal Mines.

Each incident involved the unplanned movement of a VLI JUG-A-O UL/UV machine due to the transmission de-clutch cylinder allowing the transmission to re-engage when the main air system pressure decayed below 50PSI.

Investigation & Cause:

At the time of the incidents 2 of the machines were reportedly being used to supply compressed air from the machine air receiver to pneumatic hand tools being used by personnel in a man basket attached to the machines. When the air pressure in the air receiver dropped to approximately 50PSI this allowed the transmission to re-engage and the machines moved forward a short distance.

Post incident testing completed on each of these machines identified that this occurrence could be replicated if the transmission direction control lever was in either the forward or

reverse position, 1st gear engaged, park brake applied and the engine being run at high idle.

When each machine was tested with the direction control lever in the neutral position the occurrence could not be replicated.

The 3rd machine was reportedly being used to power a roof bolting rig when the machine shut down. When the operator restarted the machine the main air pressure in the air receiver was below 50PSI and the machine was observed to move forward. Post incident testing completed on this machine by mine site personnel found that the neutral start valve was not operating correctly and allowed the machine to be started whilst in gear. Further testing completed by mine site personnel showed that when the direction control lever was in the neutral position the occurrence could not be replicated.

Recommendations:

VLI Diesel Division (VLIDD) recommends that end users and equipment owners utilising JUG-A-0 UL/UV machines as an auxiliary air supply review their procedures and processes to ensure that these operations will not affect the system, that the park brake is applied and that the direction control lever is in the neutral position for these operations.

VLIDD recommends that all equipment owners and end users test the function of the transmission de-clutch cylinder every shift (at low idle engine speed) as follows:

1. Start machine and release park brake. The pressure on the transmission pressure gauge should read 250-270PSI.
2. Apply the park brake. The pressure on the park brake pressure gauge should read 0PSI.
3. While sitting in the operator's compartment with the service brake applied and the park brake released, observe the drive shaft in the articulation area engage in forward or reverse direction and the drive shaft will attempt to rotate indicating clutch engagement. Apply the park brake and the drive shaft will start to rotate in the in the opposite direction, unloading the drivetrain and indicating declutch.

Further Actions & Conclusion:

VLI originally intended to engineer a transmission isolation valve as an alternative to the transmission de-clutch cylinder. This valve would be air piloted from the park brake circuit to prevent hydraulic oil supply to the transmission control valve on park brake activation, thus isolating the transmission from gear engagement whenever the park brake is applied.

After the transmission isolation valve was installed and functionally tested, a failure modes affects analysis (FMEA) was completed , which highlighted that simply replacing the de-clutch cylinder (and associated pilot valve) with an isolation valve did not provide a greater level of functional safety or allow for isolation valve redundancy.

VLI have concluded that the current de-clutch function should be retained and that a transmission isolation valve be included in the transmission hydraulic circuit as an additional means of transmission isolation. This arrangement also provides redundancy for both the de-clutch valve and the transmission isolation valve.

The addition of the transmission isolation valve to the transmission hydraulic circuit is an additional layer of protection to the existing equipment design.

There is no alteration to the design of the transport braking systems (covered by design registration no. MDR089245TBS & MDR108880TBS - 1).

VLI recommends all equipment owners and end users consider upgrading their JUG-A-0 UL/UV vehicles to include the transmission isolation valve at the next major service interval. Revised parts pages and circuit drawings will be supplied with upgrade components.

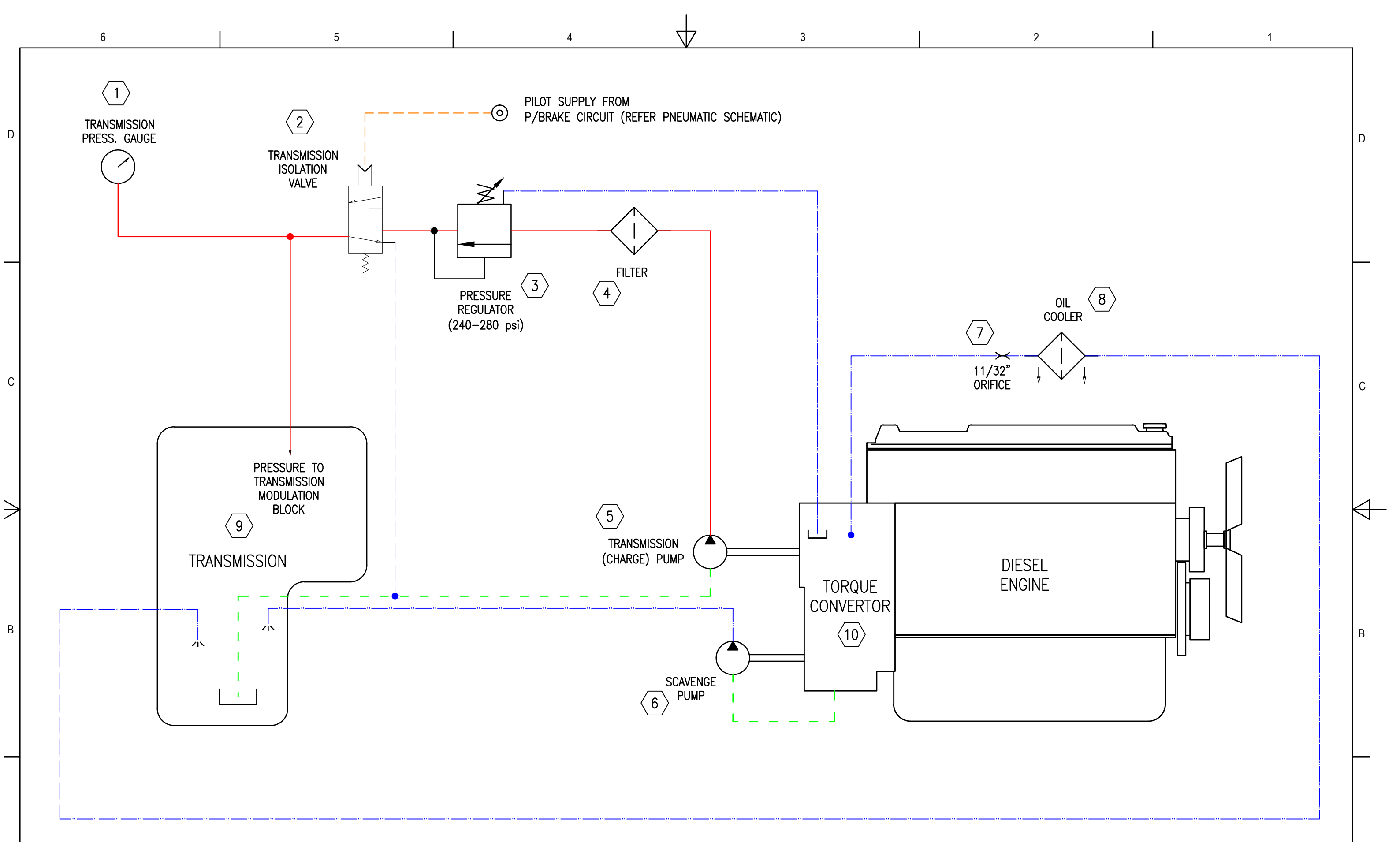
Please ensure this document is circulated to all relevant personnel within your organisation.

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

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SCHEMATIC LEGEND

- MAIN PRESSURE —
- PILOT PRESSURE - - -
- RETURN OIL —
- SUCTION OIL - - -
- AIR PRESSURE - - -
- DRAIN - - -

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Drawn WJO	Date 03.09.13	Checked D.C.	Approved L.M.	Date 27.09.13	Section 0314 HYDRAULIC SCHEMATICS
					Title JUG-A-0 UL/UV TRANSMISSION CIRCUIT
					Part No. 0314-005

REV	DATE	BY	DESCRIPTION



JUG-A-0 UL/UV PARTS BOOK

SECTION 0314-005 TRANSMISSION CIRCUIT

<u>ITEM#</u>	<u>DESCRIPTION</u>	<u>PART#</u>	<u>QTY</u>
1	Transmission pressure gauge	0401-10018	1
2	Transmission Isolation Valve	9-04205617	1
3	Regulator valve assembly	0202-10018	1
4	Transmission Filter	0202-10150	1
5	Transmission pump	0202-10082	1
6	Scavenge pump	0306-10005	1
7	Fitting 90deg with Restrictor	0306-10034	1
8	Transmission Oil Cooler Assembly	0306-50080	1
9	Transmission Assy 32000	0306-10000	1
10	Torque Converter assy	0306-10001	1