



Technical Bulletin / Safety Alert

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Rev: 0

(This document supersedes all previous versions of the above TBSA – N/A)

Subject: Mine Loader Front Driveshaft Centre Bearing Failure (Fire)

Date: 18/02/10

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:

At a coal mine in NSW a JUG-A-0 UL/UV had a premature failure with the front driveshaft centre bearing.

The machine that the bearing and housing assembly failed on had only travelled approximately 800 to 1000 metres after this bearing assembly had been recently replaced as part of a routine 1000hr service.

The bearing generated sufficient heat to ignite the grease as described in an extract from the site investigation report following.

Investigation & Cause:

Initial investigation found that there was no clearance between the spline yoke & the bearing inner race.

Further investigation shown the root cause of the fire was determined to be the installation of the incorrect bearing housing. The housing has different dimensions placing the centre bearing closer to the spline yoke on the transmission end causing interference and pre-loading on the bearing.

The bearing was sent for independent assessment this also confirmed thrust loading of the bearing caused by the housing.

Recommendations:

Extensive investigations of a number of bearing & housing combinations revealed that bearing offset in the housings may vary considerably. It also revealed in some configurations that lubrication was affected.

Though the current OEM configuration with the bearing inner race protrusion facing the front axle end of the shaft is serviceable, it is possible for confusion to arise if only replacing bearings & housings to the point that a bearing can be inadvertently installed in reverse. ***Due to this it is recommended that all current centre bearing assemblies be checked for clearance as shown below in the "Immediate Action" section & that at code D mechanical intervals that all bearing & shaft assy's be modified to the new arrangement as shown in SWMS mentioned below.***

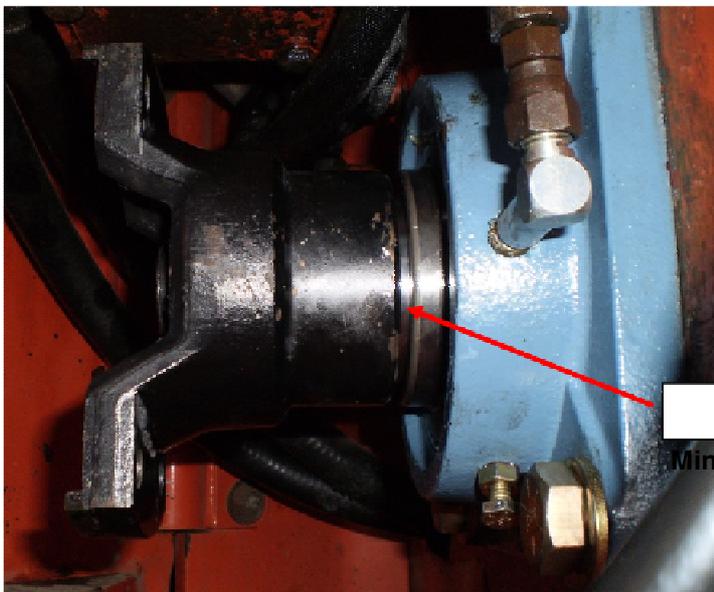
From this investigation Standard Work Method Statements have been compiled which eliminate the potential for incorrect fitting and installation of an OEM bearing. These include the following:

SWMS-5019 remove & replace complete shaft assembly.

SWMS-5020 replace centre bearing & housing assy in machine. (n.b. modified uni flange required)

Immediate Action:

All JUG-A-O machines (V1, V2, and V3) need to have the following yoke to centre bearing clearance check.



Min 1mm clearance between flange & inner race

Note: - this applies to all current original version centre bearing driveshaft assy's, should there not be clearance here the bearing & shaft assy must be replaced.

Future Action:

Modify the driveline assembly to allow the bearing to be fitted with the inner race grub screws in view – refer SWMS-5018.

In future all driveshaft's complete with centre bearing will be supplied as per the revised specification - part no's. **0204-50032** (new bearing & shaft assy) & **SX0204-50032** (service exchange bearing & shaft assy) from all branches.

In future all centre bearing/housing assy's will be supplied as per the revised specification (part no. **0204-50033**) from all branches.

All drive shaft assemblies or separate components will be packaged with the Standard Work Method Statement showing the correct fitting procedure - SWMS-5019 & SWMS-5020.

Supporting Documentation:

Refer to SWMS attached.

Conclusion:

There is potential for various bearing/housing assy's to be fitted in this installation. Care must be taken to select & purchase the correct bearing/housing assy's as per the above part no's to ensure the correct alignment, lubrication & clearances are achieved.

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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