Equipment Safety Bulletin

Technical Support Department

Reference Number	Bulletin 04 – 2021
Affected Product	Certain Motor Graders fitted with Caterpillar 507-3868 Refrigerant Compressor
Risks Identified	Refrigerant compressor pulley bearing failure may result in a thermal event
Release Date	23 September 2021, Revised 28 September 2021

Problem Overview

Hastings Deering has become aware of an issue that may affect certain Caterpillar part number 507-3868 refrigerant compressors. Refer to list below for affected machine models in Hastings Deering service territory that may be fitted with the affected compressor from factory, or as a service replacement part for former part number 324-9711. There are no issues with the 324-9711 compressor.

Although the 507-3868 compressor is fitted to a range of other Caterpillar machine models, this bulletin is only applicable to machines listed below that are currently installed with a 507-3868 refrigerant compressor.

Motor Graders	16M3, 16, 18M3 and 18

Reports indicate that high dust applications may cause dust ingress into the drive pulley bearing. The compressor clutch and drive pulley bearing assembly can seize during operation, causing the serpentine drive belt to slip on the compressor pulley. Hastings Deering has become aware of circumstances where the resulting friction generated by the bearing seizure has resulted in a thermal event of the drive belt and belt guard. Caterpillar is aware of the issue and a solution is being investigated by Caterpillar.

Actions Required:

It is recommended that customers with the listed machines installed with a 507-3868 refrigerant compressor conduct regular visual inspections of the refrigerant compressor pulley and belt. Looking for signs of overheating, wear or damage to the belt and the refrigerant compressor clutch pulley. The Caterpillar Operation and Maintenance manuals recommend inspection of the drive belts at intervals of 500 hours.

This bulletin recommends the inspection interval for machines with the affected refrigerant compressor be shortened from 500 hours to weekly, commencing at the first opportunity after receipt of this bulletin, and until further notice is provided.

Recommendations:

1. Conduct recommended inspections by isolating the machine from starting per site procedures, remove the drive belt, and inspect the condition and wear of the serpentine belt ribs, and the belt guard.

2. Rotate the refrigerant compressor pulley by hand to detect any roughness, noise or free-play/runout in the pulley that may indicate a potential failure of the pulley bearing.
3. Remove and replace any 507-3868 refrigerant compressor where the inspection indicates deterioration that may result in bearing or clutch failure before the next inspection. Where this action is taken, users may save the removed compressor and contact a Hastings Deering customer support representative for further information regarding this issue.
4. Replace any drive belt where the belt is worn or frayed and replace the belt guard if damaged. Inspect for clearance if damage to the belt guard is found.
5. Between the visual inspections, the machine operator should be made aware of and alert for precursor signs of potential failure symptoms. Symptoms may include:
   - Drive belt squealing or unusual noise from the belt drive system
   - Charging system warning light illumination
   - Nil or reduced air conditioning system cooling performance

   Upon a machine operator making these observations, Hastings Deering recommend follow-up inspections to be conducted and any identified problems corrected.

If you have any questions about the contents of this bulletin please contact your Hastings Deering Mining or Product Support representative.