Confidential

BUCHER
municipal

Mr Peter L Brunton
Senior Coroner for the County of Ceredigion
6, Upper Portland Street,
Aberystwyth,
Ceredigion.
SY23 2DU

Dorking, 26 April 2021

The Inquest touching the death of the late Mr Roy Charles Evans, Regulation 28 Report [redacted]

Dear Mr Brunton,

I write to you in response to your letter dated 16th April 2021 and report; Regulation 28: Report to Prevent Future Deaths.

Bucher Municipal are the original manufacturer of the machine that was involved in the accident. Our customer, Ceredigion County Council, purchased the machine in November 2014. In this case we were neither the user nor maintainer of the machine and as such were not responsible for the regular maintenance of the machine. During the period the machine was in service we carried out several repairs either under warranty or at the request of Ceredigion County Council. None of our interventions are likely to have had any bearing on the accident and the last intervention we made was in July 2017.

The model of machine involved in the accident has been developed over many years and continues to be manufactured today. In total we've sold more than 3000 similar machines in more than 40 countries over the last 15 years.

With regard to the section Matters of Concern, I offer the following responses.

a. The Vehicle Examination Report prepared by Vehicle Examiner [redacted] of the Driver and Vehicle Standard Agency noted that the offside rear tyre was worn with little tread depth visible.
    a. We supply a technical manual with each machine which includes an operator's guide. This guide specifies the maintenance required for the machine including daily checks, weekly checks and the ongoing service requirements which should be performed every 300 hours of operation.
    b. There are 23 separate checks that should be carried out daily and one of these is tyre pressure and condition. For reference, I've attached the maintenance section of the operator's guide to this letter. A copy of the complete document is available upon request.

[redacted] Quality Director
[redacted]
Bucher Municipal Ltd, Curtis Road
GB-RH4 1XF Dorking, Great Britain
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b. The offside rear trailing arm pivot had fractured resulting in excessive abnormal movement of the trailing arm which could cause stability control to the compromise. That defect should have rendered the vehicle not fit for service.
    a. We provide all customers with information necessary to service and maintain the machine for the whole of its life. We offer spare parts and technical training for all machines. Through our own service network, we also offer a maintenance and repair service either at the customer's premises or our own.
    b. As stated above, we were not responsible for the regular service or maintenance of the machine and in this case, we did not have the opportunity to identify or address the wear and tear reported.
c. Maintenance documentation indicated that indicator side repeater amps were missing. These are listed as immediate prohibitions within the categorised of the defects manual.
    a. Similarly, as we were not responsible for the regular service and maintenance, we did not have the opportunity to identify or address this issue.
d. The conclusion of the Dyfed Powys Collision Investigators Report indicated that these three faults would have been categorised as immediate prohibitions and due to this the sweeper should have been taken out of service following the inspection on the 9th July 2018 and should not have been in use until the faults had been rectified.
    a. Once again, as we were not responsible for the regular service and maintenance, we were not able to assess the roadworthiness of the machine and we had no opportunity to withdraw the machine from service.

If you require any additional information, please let me know.

Yours sincerely,
Bucher Municipal Ltd

[redacted]
Quality Director

CHAPTER 6

Routine Maintenance

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Safety Precautions

Safety Notice

DO NOT

- Work on or around the engine whilst it is running except to adjust idle settings.
- Remove coolant bottle cap when the engine is hot. Release the cap slowly, otherwise there is a risk of being scalded by escaping coolant.
- Touch any part of the engine exhaust system without first allowing it to cool sufficiently.
- Drain engine oil until it has cooled, to avoid scalding.
- Work under a vehicle supported by a jack before lowering the vehicle onto sturdy axle stands or similar.
- Disconnect hydraulic or water pipes whilst the engine is running.
- Approach fan inlet whilst the fan is running.
- Disconnect the battery within 15 seconds of operating the ignition key to the off position.
- Put fingers under the recirculation pump due to rotating blade.

ALWAYS

- Ensure the machine is standing on firm, level ground and there are no obstructions above or to the rear before raising the hopper.
- Ensure that the hopper is resting on the hopper prop, or extended maintenance prop, before working underneath the raised hopper - See Maintenance Section of the Technical Manual.
- Keep hands, loose clothing, hair etc. well clear of moving parts.
- Use approved safety platforms/gantries when working above ground level. Get a second person to check periodically when only one person is working on access equipment or inside the body.
- Disconnect the vehicle battery and all the CANbus nodes when working on the electrical system or when carrying out any welding on the vehicle. Failure to observe this can cause damage to the nodes.
- Remove ignition key when working on the vehicle. Ensure all personnel are clear of the vehicle before restarting engine.
- Ensure all guards and covers are refitted after servicing.

Regular Maintenance

It is impossible to over emphasise the importance of regular maintenance, inspections and running adjustments to maintain efficiency and obtain trouble free service from the machine. Always refer to maintenance guide.

Attention is also drawn to the initial first service and post delivery check over between the first 20-50 hours operation of the machine.

'Next service' will be indicated to the operator via the JVM. For A, B, C and D services a pre-warning will be given at startup.

20-50 Hour Initial Service

1a. Drain engine oil and renew oil filter, refill engine with oil to the correct level.
Overfilling the engine oil WILL cause damage to both the engine and CSF (Catalytic Soot Filter).

1b. Reset the Oil Dilution Flag in the engine ECU;
- Turn ignition key to 'ON' position to start the pre-heating phase of the glow plugs.
- Fully depress the GO Pedal five times within a 10 second period.
Carrying out the procedure outlined in 1b ensures that the condition of the CSF (which is a non-serviceable item) is maintained.

2. Renew high pressure hydraulic return line filter.

3. Check engine fan belt(s) for wear (standard and/or air con).

4. Check security of all external nuts, screws, mountings etc.

5. 4WS only torque gimbal bearing pre-load to 140Nm (103lb.ft) using tool 7012202. Check condition of the skid plates for wear, replace if needed.

6. Check battery terminal condition and clean if necessary.

7. Check engine coolant level, top up as required (50 hour & A service intervals only).

8. Renew transmission oil filter - 19/24 Bar pump (50 hour & A service intervals only).

Maintenance Schedules

Refer to engine user handbook for more detailed instructions on engine servicing.

Daily Maintenance - This can be carried out by a trained operative.

Check the following items and replenish as required;

1. Engine oil level.

2. Engine coolant level.

3. Hydraulic oil level in main reservoir.
4. Hydraulic oil level in transmission oil header tank.

Check the following items;

5. Air cleaner, only if service indicator is illuminated on JVM.
6. Radiator, charge air cooler and oil cooler are free from obstruction/build up.
7. Fan belt is in good condition.
8. Windcreen washer bottle has adequate fluid.
9. For any fluid leaks.
10. Driver's seat and steering coloumn are adjustable.
11. Tyre pressures and condition (Front = 6.2 bar / 90 psi, Rear = 5.75 bar / 83.5 psi).
12. Security of wheel nuts, 250Nm (180 lb.ft).
13. Mechanical damage to sweeping equipment.
14. Suction fan is clean and free of debris.
15. Brush and wear angles. Replace and adjust as required.
16. Water tanks have adequate water.
17. Front water jet sprays and filters, clean/unblock as required.
18. Correct operation of lighting equipment, wiper washers and horn.
19. Suction nozzle ground clearance is 5mm, adjust if necessary.
20. Suction filter screen and de-watering screens are clean and not blocked.
21. Hopper mesh, side screens, ducts and sludge drainage channels are clean and not blocked.
22. Check handbrake and footbrake for correct operation.
23. Water recirculation system and ensure tank top filter is clean. Clean out tank using the dump valve, ensuring that the pump is also cleaned.

Weekly Maintenance - Daily Maintenance plus the following;

Check the following items -

1. Check & grease all steering equipment. x8 points front axle, x14 on 4 wheel steer option including rear steer ram & pivots.
2. Front suspension strap pivots for freedom of movement and wear.
3. Hopper fan wear and build up of debris on blades.

4. Suction nozzle, flap tie, trunking and hopper inlet duct for wear and replace if necessary.
5. If engine fault lamps C3 or C4 are illuminated the engine requires workshop repair.
6. Routing of electrics, hydraulic services for chafing/leaks.
7. All rubber seals, replace if necessary.
8. Keep engine compartment clean.
9. Check brake master cylinder fluid level, replenish as required.
10. Ensure the air intake ducts on the front of the hopper are clear of debris.
11. Wheel nut torque settings, 250Nm (180 lb.ft).
12. Drain water from the fuel filter if indicated on the JVM.
13. Lubricate the JSL equipment; including suction nozzle castor wheels (if fitted).
14. Carry out full vehicle function road test.

Service A - Every 300 hours (plus 50 hour service items)

1. Drain out diesel fuel filter canister and renew fuel filter.
2. Lubricate door locks with special grease.
3. Replace main air filter.
4. Check the air intake circuit is clean and the intercooler pipe is sealed correctly.
5. Check the dust discharge circuit is clean.
6. Check the tightness of vacuum pump and related system.
7. Check the vacuum circuit pipes are sealed correctly.
8. 4WS only check gimbal bearing pre-load torque setting 140Nm (103lb.ft) using tool 7012202. Check condition of the skid plates for wear, replace if needed.
9. Replace EGR and TVA valve filter.

Service B - Every 600 hours (plus 50 hour & A service items)

1. Check engine coolant level and concentration gives -39°C frost protection (B Service Only).
2. Check steering system for correct operation; 2WS and/or 4WS.
3. Remove brake drums and inspect front and rear brakes, clean out drums as required. Inspect linings and replace if damaged or worn below 2mm. Refit drums and check brake adjustment.

Service C - 12 monthly maintenance or every 1500 hours (plus 50 hour, A & B service items)

1. Renew tranmission filter - 19/24 Bar pump.
2. Renew water tank filter.
3. Replace safety air filter.
4. Check brake fluid level and top up if required.
5. Renew hydraulic suction filter (x2 fitted to Winter/3rd Brush option).
6. Renew hydraulic oil (sweep circuit).
7. Renew engine coolant with a mixture of 50/50 antifreeze/water.
8. Check CSF using diagnostic equipment, perform forced regeneration or renew filter as required.
9. Check front wheel bearings and re-pack with grease.
10. Check all torque settings, see maintenance manual.
11. Carry out a decelerator test.
11. Carry out a 'road test' to check all relevant functions. Check and record pressures, see maintenance manual for procedures.

Service D - 24 monthly maintenance or every 3000 hours (plus 50 hour, A, B and C service items)

1. Replace brake fluid.
2. Renew clear hose to transmission header bottle, replace cable ties.
3. Renew engine fan belt(s) (standard and/or air con).

Used oils and filters should be disposed of in accordance with local waste disposal regulations.

These procedures should be carried out by qualified service personnel.