

35-023 New Final Drive Over Heat Diagnostic

TSB-35-023-WST

Creation Date:2024-01-31

Last Revision Date:2024-05-28

Engine or Vehicle Affected:

- ▶ 57X
- ▶ 49X
- ▶ 5700
- ▶ 4900
- ▶ 4700
- ▶ 47X

Description of Revisions: This bulletin replaces the version dated 02/16/2024. The service bulletin number has been added in the title and the warranty statement is modified.

This is an informational bulletin only. The described condition is a product improvement or is not warrantable.

Described Condition

Western Star trucks equipped with Detroit New Final Drive (NFD) axles have a high temperature warning parameter. The warning is set too low for some applications, and under certain conditions that are not harmful to the axle, the high temperature warning appears on the dash and indicates an error requiring service. Follow the procedure below to perform a diagnostic for NFD overheating.

High Temperature Warning, Tractor With Sensor Working Acceptably and Good Quality Lubricant

1. ☐ To verify the high temperature, check the dashboard indicator lamp. Is the digital temperature gauge displaying 298°F (148°C) or higher?

- a. ☐ Yes → NFD reached high temperature. Go to step 2.

- b. ☐ No → No action required.

2. ☐ Has the truck undergone the programming using service bulletin 54-345?

- a. ☐ Yes → Replace the carrier if there are no unaddressed major leaks, the oil level is normal, axle ratios match, and the quality of the lubricant is good. See **Axle Lubricant Quality Check for Excessive Water**.

- b. ☐ No → Program the vehicle using service bulletin 54-345. Before putting the vehicle back in service, verify that the high temperature warning lamp does not activate, the axle has the correct amount of oil, and the tires are properly inflated.

HIGH TEMP, TRACTOR, NO AXLE TEMP SENSORS, LUBE OKAY

1. ☐ Is the vehicle being driven at speeds exceeding 70 mph (113 km/h)?

- a. ☐ Yes → Check for the following: external leaks, any unusual gear noise, a loose or displaced pinion cover, and loose rollers/cage when removing the pinion cover. Additionally, inspect for pitting on bearing races if the pinion cover is removed for inspection. Look for external signs of heat on the carrier casting, such as rust in the pinion area while other areas appear normal, a purple color on the casting from heat, any cracks or a broken housing. If any of these issues are identified, the carrier should be replaced.

- b. ☐ No → Go to step 2

2. ☐ Verify that the carrier has the correct amount of oil, inspect for external leaks, ensure the tire sizes match, and verify that the front and rear ratios are consistent. Additionally, check the exhaust routing, as proximity to axle shielding or routing could potentially pose issues.

Repair leaks as necessary and verify that the carrier has the proper amount of oil before returning the vehicle to service. See **Axle Lubricant Quality Check for Excessive Water**.

Axle Lubricant Quality Check for Excessive Water

1. ☐ Take an oil sample to verify there is not excessive water in the oil.

2. ☐ Perform the field crackle test (heating on a hot plate) or look for a milky consistency in the oil.

3. ☐ Is the oil burnt or does it contain excessive metal flakes?

- a. ☐ Yes → Go to step 4.

- b. ☐ No → There is not an excessive amount of water in the axle oil.

4. ☐ A photo may be requested as documentation by the customer support center (CSC) or for a warranty claim.

Warranty

This is an informational bulletin only. The described condition is a product improvement or is not warrantable.

Note:

TROUBLESHOOT

W15,W12,W16,W05,W10,W01,W06,W04,W11,W14,W17

CONTACT INFORMATION

For questions, please create a Service Technical Request using the DTTS Application on the DTNA Portal.

Document Number:0000087669