

**SMCS - 3020****Telehandler**

TH255C (S/N: JK21-UP; JK31-UP)

TH306D (S/N: TD21-UP; TD31-UP)

TH314D (S/N: MYF1-UP; MYT1-UP)

TH3510D (S/N: TH21-UP; TH31-UP)

TH357D (S/N: TD61-UP; TD71-UP)

TH408D (S/N: TH41-UP; TH91-UP)

TH414C (S/N: KRF1-UP; LYN1-UP)

TH417C (S/N: NAB1-UP; NMM1-UP)

TH417D (S/N: MKY1-UP; MLZ1-UP)

TH514D (S/N: MWG1-UP)

TL1055 (S/N: T781-UP; T791-UP; TBM1-UP)

TL1055C (S/N: MDD1-UP; KDE1-UP)

TL1055D (S/N: ML51-UP; MNT1-UP)

TL1255 (S/N: T821-UP; T831-UP; TBN1-UP)

TL1255C (S/N: SXM1-UP; DHW1-UP)

TL1255D (S/N: ML71-UP; MYW1-UP)

TL642 (S/N: T731-UP; T691-UP; TBK1-UP)

TL642C (S/N: THG1-UP; THL1-UP)

TL642D (S/N: ML81-UP; MLG1-UP)

TL943 (S/N: T741-UP; T761-UP; TBL1-UP)

TL943C (S/N: SXH1-UP; THH1-UP)

TL943D (S/N: MLD1-UP; MLJ1-UP)

**Reference:** Service Magazine , [M0085373](#) , "Best Practices for Reassembly of the Limited Slip Differential in the Front Axle Are Now Available on Certain Telehandlers"

**Revision History:**

Revision	Summary of Changes
09	Added more oils to the list of authorized oils.
08	Added additional machine effectivity.
01	Added information regarding oil availability.

Table 1

Updated front axle group oil specifications for differentials and wheel ends are now available for the machines listed above. The updated oil will improve the axle performance, especially of the limited slip differentials in the telehandler front axles.

Axle oils now need to meet API specification GL-5 or MT-1. GL-4 specification oils that were previously authorized are not providing acceptable performance.

Additionally, for limited slip differentials in the front axle of Cat<sup>®</sup> Telehandlers, the oil is strongly recommended to have the limited slip viscosity modifier built in from the oil manufacturer. The modifiers provide superior limited slip performance than the previously specified **197-0017** Axle and Brake Oil Additive. Do **not** add the previously specified **197-0017** Axle and Brake Oil Additive if the oil already has the limited slip modifier built in.

If oils without the Limited Slip modifier are used, the concentration of **197-0017** Axle and Brake Oil Additive should not exceed 5% by volume, regardless of the instructions on the bottle. Shake the bottle of **197-0017** Axle and Brake Oil Additive well due to settling. Mix the oil and additive thoroughly before filling the axle or using the oil to soak the disks. Excessive **197-0017** Axle and Brake Oil Additive can decrease service and parking brake performance, and swell the front axle limited slip disks. Swollen limited slip disks can then cause limited slip disk noise as the disk engages prematurely during turns.

**Note:** There can be many causes of limited slip differential noise, this possibility is just one.

Viscosities and ambient temperatures are as follows:

Viscosity	Minimum Degree F	Maximum Degree F	Minimum Degree C	Maximum Degree C
API GL-5 and SAE 80W-90LS	-4	118	-20	48
API GL-5 and SAE 75W-90LS	-40	118	-40	48

Table 2

Mineral oils are preferred as they produce less brake noise than synthetic oils while also providing the needed differential performance. The following are examples of mineral oils that meet the API GL-5 Specification and have the limited slip viscosity modifier built in from the oil manufacturer:

- Mobil MOBILUBE HD LS 80W-90
- Fuchs Titan EG LS90 GL5 (Factory fill)
- Shell Spirax S2 ALS 80W-90

The following are examples of synthetic oils that meet the API GL-5 Specification and have the limited slip viscosity modifier built in from the oil manufacturer: In some applications these oils can cause brake noise.

Cat part number for API GL-5 SAE 75W-90LS is **482-5849** Gear Oil, 55 US gallon. (may not be available outside the USA)

As an example, the following Mobil oils meet the GL-5 SAE 75W-90LS specification:

- API GL-5 SAE 75W-90LS.
- 5 US Gallons - Mobil part number 105704
- 12 each 1 quart containers - Mobil part number 104361

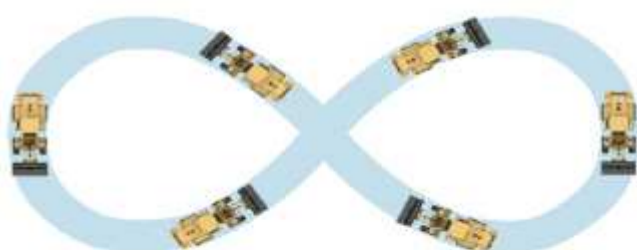
**! WARNING**

**Do not operate or work on this product unless you have read and understood the instructions and warnings in the relevant Operation and Maintenance Manuals and relevant service literature. Failure to follow the instructions or heed the warnings could result in injury or death. Proper care is your responsibility.**

**Note:** Flushing recommended previously is no longer required.

After filling with the new oil, perform the following break-in procedure is recommended:

1. After assembly, avoid driving the machine in continuous tight circles until the break-in is complete.  
Break in the differential disks using the following procedure:
2. Remove all load on the attachment.
3. Set the steering mode to 2 wheel steering, also known as roading mode. The rear axle does not steer in this mode. Only the front wheels steer.
4. Warm the axle oil in the front axle central housing to 30° C (86° F) using the service brakes.
5. Set the steering mode to 2 wheel steering, also known as roading mode. The rear axle does not steer in this mode. Only the front wheels steer.



6. Drive the machine in a wide figure 8 pattern 15 minutes. Do not turn the wheels to the stops or so that the front limited slip differential is engaging or making noise. This will circulate the oil between the disks. Refer to Illustration 1. Do not exceed 5 to 7 km/h (3 to 4 mph).
7. Drive the machine in a figure 8 pattern 3 times with the steering wheel at full turn. Refer to Illustration 1. Do not exceed 5 to 7 km/h (3 to 4 mph).
8. Change the steering mode to 4 wheel steer (circle steer).
9. Drive the machine in a figure 8 pattern 3 times with the steering wheel at full turn. Do not exceed 5 to 7 km/h (3 to 4 mph).
10. Drive the machine in a straight line for 100 m (328 ft) to allow the temperature of the limited slip disks and oil equalize.

Refer to M0085373 for the best practices for reassembly and for additional instructions if the axle or differential has been rebuilt.

Operation and Maintenance Manuals will be updated with this information and specifications at the next revision.

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