



Hydraulic Oil Tractor Rear-axle Assembly, John Deere

CJC™ Application Study

CUSTOMER

Toms Maskinstation by Tom Foged Pedersen, Denmark.

THE SYSTEM

Rear-axle assembly on a John Deere 6100 tractor.

Oil volume: 60 L gear/hydraulic oil

Oil Type: Texaco TDH Premium

THE PROBLEM

On newer tractors, the oil in the rear-axle assembly should lubricate both gears and brake discs and at the same time function as hydraulic oil.

The oil has many sources of contamination: gears generate dirt; particles infiltrate the hydraulic couplings and thermal fluctuations accelerate the creation of more particles.

Wet brake discs are very sensitive and cannot stand high dirt contamination.

THE SOLUTION

A mobile CJC™ off-line Fine Filter unit 15/25 with a pump output of 45 L/h and 3 micron absolute CJC™ BG 15/25 Fine Filter insert.

Dirt holding capacity: approx. 1.1 kg

Water absorption capacity: approx. 400 mL

Connectors were installed on the tractor's rear-axle assembly so that the mobile filter's inlet- and outlet pipes could be quickly connected. When the filter is connected, it runs throughout the night when the tractor is not in use.

THE RESULT

An oil sample was taken before the installation of the filter and another after it had been operating for a given amount of time. The oil cleanliness was considerably improved, and in ISO code measurement it fell from 21/18/12 (dirty oil not suitable for sensitive gear assemblies or hydraulic systems) to 12/12/7 (clean oil suitable for all gear and hydraulic systems). Water content was also reduced from 0.22 % to 0.15 %. Experience of hydraulic systems shows that such a significant improvement in oil cleanliness may extend the life of the oil and the components by up to a factor of 4.

COMMENTS

Mr. Tom Foged Pedersen, Toms Maskinfabrik:
I have no problems with dirt in the valves. The hydraulic pump and the motor will undoubtedly last longer now that we are using the CJC Fine Filter. The results of the oil analysis are extremely good.



John Deere 6100 tractor

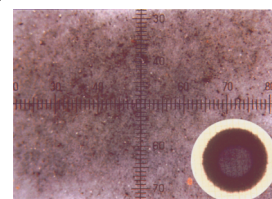


The filtered oil is returned to the top of the rear-axle assembly ...

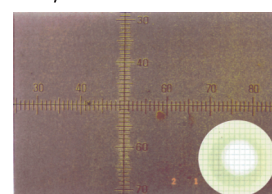


The mobile CJC™ Fine Filter unit 15/25 is connected to the tractor's rear-axle assembly. Note that the tool is still coupled.

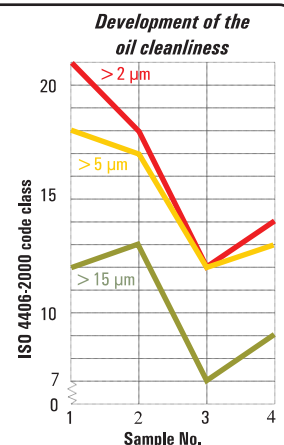
ANALYSIS RESULTS



Sample 1 - Before CJC filtration.



Sample 3 - After CJC filtration.



The increased contamination in sample No. 4 is due to the coupling of hydraulic tools whose oil has not been filtered. This emphasises the importance of frequent filtration of the oil in the rear-axle assembly.