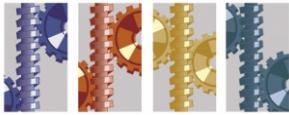




OIL FILTRATION SYSTEMS

# CJC™ Application Study

## Hydraulic Oil - Tractor Rear-axle Assembly, John Deere



### INDUSTRY

*Application Study  
written by:  
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Denmark*

2003

### CUSTOMER

Toms Maskinstation  
by Tom Foged Pedersen, Denmark.

### THE SYSTEM

Rear-axle assembly on a John Deere 6100 tractor.  
Oil: 60L gear/hydraulic oil, 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 FineFilter HDU 15/25 PV-EM with a pump output of 45 L/h and 3- micron absolute CJC™ BG 15/25 FilterInsert.

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™ FineFilter. 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 ....*

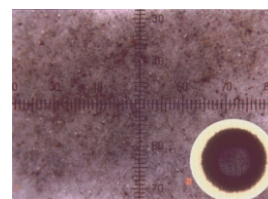


*The mobile CJC™ FineFilter HDU 15/25 PV is connected to the tractor's rear-axle assembly. Note that the tool is still coupled.*

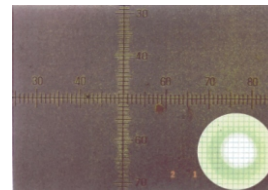
*... whilst the dirty oil is sucked from the bottom.*



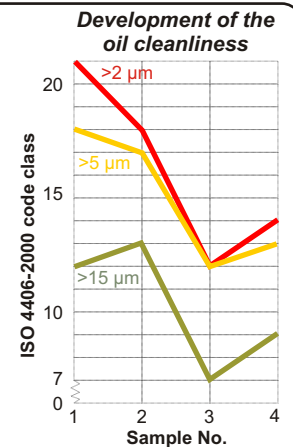
### ANALYSIS RESULTS



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.*

