Learning to live with the green future

How stricter emission standards may present a severe residual value risk
What is the third life of vehicles and equipment
Overview of emmission regulations
Summary of new engine technologies
Availability of low sulfur fuel in the developing world
Is the „third life“ of modern machines threatened?
Analysis of market data on export flows and resale prices – is this highlighting a severe risk?
Three lives of machines today

- **1st life** – first user, 3-7 years, up to 7,000 hrs
- **2nd life** – „developed“ new markets, new EU members, ...
- **3rd and last life** over 18‘000 hrs: Africa, and similar markets
And the direct impact on RVs

• „3rd life“ demand determines resale value at end of 2nd life

• Resale value at end of 2nd life directly drives demand and price after 1st life

• „End-of-1st-life“ resale value - obviously - determines FMV, OLV and your RVs!
Overview of Emission Regulations

For offroad vehicles

- Stage I (1999) / Stage II (01-04)
- Directive 2004/26/EC
- Stage III (IIIa and IIIb, 06-13)
- Stage IV (2014)

- Reduce CO, HC, NOx, PM (carbon monoxide, hydrocarbons, nitrogen oxides, particulate matter)
- Reduce NOx by 95.7%
- Reduce PM (soot) by 96.5%

- US EPA Tier 1 + 2 = EU Stage I + II
- US EPA Tier 3 = EU Stage IIIa
- US EPA Tier 4i = EU Stage IIIb
- US EPA Tier 4f = EU Stage IV
2013 and 2014 are key years

- **Stage IIIb**
  - $130 - 560$ kW = 01 / 2011
  - $56 - 130$ kW = 01 / 2012
  - $37 - 56$ kW = 01 / 2013

- **Stage IV**
  - $130 - 560$ kW = 01 / 2014
  - $56 - 130$ kW = 10 / 2014

- **The industrial diversity** of our buyers allows for cross-industry purchasing

- **The user-type diversity** of our buyers allows for stronger prices
Summary of new technologies

- In a nutshell: Stage I – IV = higher quality diesel fuel
- Dirt in = dirt out
- Even less dirt out – more technology, more cost
- DPF, DOC, EGR, SCR, DEF and OCV = got it ?????
Summary of new technologies

Abbreviations spelled out

Exhaust filter systems
- DPF = diesel particulate filter
- DOC = diesel oxidation catalyst

Exhaust recombustion
- EGR = exhaust gas recirculation

Chemical exhaust treatment
- SCR = selective catalytic reduction, using:
  - DEF = diesel exhaust fluid = AdBlue

Engine and turbo geometry, fuel filtration, new engine oils, etc ...
Have a look ...

Source: John Deere Press Release
But …

Who’s got the fuel?

= 

Who can buy these?
ULSD availability worldwide

United Nations Environment Programme

Diesel Fuel Sulphur Levels: Global Status
October 2011

* Information in parts per million (ppm)
Sulphur levels are maximum allowable as of October 2011. For additional details and comments per country, visit www.unep.org/transport/pcfv.
The “third life” of modern engines ...

Will it disappear?

„Export markets“ mostly have ...

no (ultra) low-sulfur fuel
no AdBlue
no high-tech engine oils
no appetite for intelligent engines
Export flows

From North America
Export flows

From Europe
540 mil of 3.7 bio USD sold in 2011

Direct purchases by export countries (without brokers)

Canada: US$ 998 mln (26.7%)
USA: US$ 1,5 bn (40.6%)
Mexico: US$ 145 mln (3.9%)
Central/South America: US$ 94 mln (2.5%)
Europe: US$ 438 mln (11.7%)
Middle East: US$ 214 mln (5.7%)
Africa: US$ 39 mln (1.1%)
Asia: US$ 37 mln (1%)
Central/South Asia: US$ 9 mln (0.2%)
Oceania: US$ 223 mln (6%)
Australia: US$ 5 mln (0.1%)

Total Gross Auction Proceeds 2011: US$ 3,7 bn
RBA – The Market Price Authority

Analysis of market prices = Analysis of RBA auction results

Analysis of over 1 Mio Ritchie Bros pricepoints representing the GLOBAL equipment market

Nobody sells more used trucks and equipment than Ritchie Bros Auctioneers.

We are the only truly global auction company, and transcend local market conditions by selling to the global market.
Caterpillar 966 Wheel Loader
Units sold at unreserved RBA auctions worldwide

1990 CAT 966F – auction price between 1995 and 2012
Cat 966 Wheel Loader – market values

Units sold at unreserved RBA auctions worldwide


Trendline
Conclusion

- 20 year old sells higher now than 10 year old
- Negative impact of high-tech on resale value
- Most clean engines can not easily be sold to Africa
- The “third life” may even disappear
Conclusion – just think about it

- Without a third life, how much shorter is the „useful lifespan“?
- What is the new OLV after the useful life here is exhausted?
- Should RVs for modern engine equipment be adjusted down by as much as 30% or more?
Call me anytime

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Thank you