FCE/Roadex Seminar

Perth

Dan Lamb – Technical Manager

Michelin Tyre PLC

June 2010
Truck Tyre Management

- **Best tyre for the Job**
- **Correct Pressure for the load**
- **Remix**
- **Regrooving**
Best tyre for the job

- **Bigger the better**
  - Use 315/80 rather than 295/80 R 22.5
  - Run at lower pressure
  - Bigger contact patch
  - Reduced ground contact pressure
Best tyre for the job

- XDY3 – Off road Drive Axle
  - Traction
  - Damage Resistance
  - Self Clearing Tread Pattern
315/80 R 22.5 XDY3
Best tyre for the job

- **XOne MaxiTrailer – Wide Trailer Tyre**
  - Mileage potential
  - Damage resistance
  - Stability
  - Fuel saving (vs. Twins)
455/45 R 22.5 MaxiTrailer
455/45 R 22.5 MaxiTrailer

New Architecture
Stability

- Recent stability trials using a tilt table compared a trailer fitted with 385/65 R 22.5 with the same trailer fitted with 455/45 R 22.5 MaxiTrailer.
Parsons Tilt Test
Parsons Tilt Test
## Parsons Tilt Test

<table>
<thead>
<tr>
<th></th>
<th>385/65 R 22.5</th>
<th>455/45 R 22.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platform angle</td>
<td>24.6</td>
<td>26.2</td>
</tr>
<tr>
<td>Front body angle</td>
<td>27.2</td>
<td>29.2</td>
</tr>
<tr>
<td>Rear body angle</td>
<td>27.7</td>
<td>29.3</td>
</tr>
</tbody>
</table>

‘Vehicle overturn’ angle improved by 6.5%
455/45 R 22.5 MaxiTrailer

- **Operators:**
  - James Jones x 5
  - Fergusons Tpt x 1
  - A F Grant x 2
  - Tommy Gill x 2
Axle arrangement of timber vehicle used in A897 trials
Total vehicle weight – 42.875t
Syre – Inverness CTI Vehicle Haul Cycle

- **Fully inflated tyres**
- **Variable inflation tyres**

- **Unloaded**
- **Loaded**

**Tyre Pressure (psi)**

**Journey Time**
# Michelin Tyre Pressure Suggestions

<table>
<thead>
<tr>
<th>Axle</th>
<th>Size</th>
<th>Axle Load</th>
<th>‘A’ road, unladen (56mph) to Syre</th>
<th>Fully Laden in forest - gravel (25 km/h)</th>
<th>Minor public road - sealed (50 km/h)</th>
<th>‘A’ road, narrow &amp; bendy (70 km/h)</th>
<th>A9 Laden 56 mph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axle 1</td>
<td>295/80</td>
<td>5860</td>
<td>115</td>
<td>115</td>
<td>115</td>
<td>115</td>
<td>115</td>
</tr>
<tr>
<td>Axle 2</td>
<td>295/80</td>
<td>9100</td>
<td>50</td>
<td>35</td>
<td>75</td>
<td>75</td>
<td>80</td>
</tr>
<tr>
<td>Axle 3</td>
<td>385/65</td>
<td>5100</td>
<td>50</td>
<td>35</td>
<td>75</td>
<td>75</td>
<td>80</td>
</tr>
<tr>
<td>Trailer</td>
<td>11 R 22.5</td>
<td>7600</td>
<td>60</td>
<td>35</td>
<td>54</td>
<td>80</td>
<td>80</td>
</tr>
</tbody>
</table>
Remix

- Michelin Brand name for our Hot Cure Retread
  - Same Tread Patterns
  - Same Mileage
  - Same Rolling Resistance
  - 55%-60% cost of New
Remix

86% Casing acceptance

All Gordon Mackenzie 1st life tyres inspected at Michelin Stoke after use with CTI system were accepted for the Remix process
Regrooving

- The process of re-cutting the tread pattern once the tread depth of the New/Remix tyre has worn down to 3mm
  - Costs £25-30
  - Increases mileage by up to 30%
  - Increases Grip & Traction
  - Reduces Rolling Resistance & Fuel Consumption
Regrooving

- Wear indicator
- Regroove depth indicator
- Original tread pattern
- Base of tread groove
- Regrooved tread
- Tread at wear limit
- Thickness of rubber to be regrooved
- Thickness of rubber to be retained
How Regrooving can help Fuel Efficiency

Example: Michelin XDE2+

Regrooving ensures that approx. 40% of tyre life is spent at the high MPG level!

<table>
<thead>
<tr>
<th>Tyre Condition</th>
<th>New Tyre Tread Depth (mm)</th>
<th>Low MPG</th>
<th>Med MPG</th>
<th>Hi MPG</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEW</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NEW + Regroove</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **NEW**
  - Low MPG: 0 kms
  - Med MPG: 75,000 kms
  - Hi MPG: 225,000 kms

- **NEW + Regroove**
  - Low MPG: 0 kms
  - Med MPG: 75,000 kms
  - Hi MPG: 300,000 kms
  - Regroove: Tyre + 4 mm

- **375,000 kms**
Regrooving

Rigid (New vs. Regroove Combined)

<table>
<thead>
<tr>
<th>TEST MPG</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>XZE2+/XDE2 REMIX</td>
<td>10.43</td>
<td>100.00%</td>
</tr>
<tr>
<td>XZE2+RG/XDE2 RG</td>
<td>11.74</td>
<td>112.58%</td>
</tr>
</tbody>
</table>

IMPROVEMENT IN MPG OF REGROOVE ALL ROUND OVER NEW & REMIX 12.58%

Michelin XZE2+/XDE2 Remix = 100%
Summary - The 4 Rs

- Right tyre
- Right pressure
- Remix
- Regroove
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Any questions?

June 2010