Bell Haulage Tractors

Built for the job - developed in the harsh conditions of Africa for maximum availability and utilisation.

Bell Equipment is proud of the fact that most of the tractors built over the last 40 years are still going strong and in daily use. The philosophy of Strong Reliable Machines, has been the cornerstone of this product and is reinforced by the after sales support teams throughout the world.

Bell Haulage Tractors were originally born out of a need for a tractor capable of withstanding the relentless duty cycles of both off-road and road haulage applications.

The world’s first tractor to have an automatic transmission, the Bell Haulage Tractor has proved to be operator proof over the years.
Alloy steel fabricated axles and chassis form the backbone of these units, designed to absorb and transfer loads imposed by the trailer - thereby protecting the engine and drivetrain.

- Custom designed transfer case.
- Robust axle set.
- 24 Volt electrical system.
- Full set of simple, functional instruments and onboard diagnostics.
- Improved hydraulic flow. Increased compressor capacity.
- Excellent cab visibility.
- Easy entry to cab.
- Full set of working lights and interior lights in cab and bonnet.
Built for the long haul

A combination of high strength alloy steels, lightweight material and efficient design make Bell Haulage Tractors, with their fully automatic 6 speed transmission, highly cost effective.

Bell Haulage Tractors are purpose designed for the haulage application.

Every element of these machines is selected with this in mind, from the power source to the transmission and running gear - performance, efficiency and longevity are key. This focus on purpose design means the Bell Haulers last longer than alternates on the market. Many customers report a lifespan in excess of three to four times that of non-purpose built tractors.

Load Transfer

The Haulage Tractor is designed to transfer up to 5 tonnes of load from the trailer - thus improving carrying capacity of the tractor-trailer combination and ensuring traction on the rear wheels of the tractor.

With the hitch position some 65 mm foward of the rear axle centre line, some of the load is transferred to the front axle - thus improving steerability and traction in the 4WD units.

Sprung front axle suspension on the 2WD means a smoother ride, better control on bumpy roads and lower operator fatigue - hence better productivity.

Customisable hydraulic capacity

• Optimise the setup for the application.

• Most tipping and other auxiliary functions can be accomodated with the standard flow.

Integrated air compressor

• As standard issue an integrated pneumatic system designed to provide world class trailer braking capability.

• Extended service intervals.

Superb Serviceability

• Engineered into every tractor - Daily service points directly accessible, space to work and reliable component selection.

• Excellent engine air filtration with Powercore™.
Built to Perform

- Bell Equipment has remained with the Allison transmission over the journey through Series I, II, III & IV Tractors, for good reason. The Haulage Tractor drive train has proven itself since the first load was delivered.

- Ground clearance - superb and high enough to clear most unfriendly stumps and obstacles.

- Exhaust valve braking minimises wear on service brakes.

- Proven water-cooled Mercedes Benz Engine provides significant advantages in terms of:
  - Power, torque and tractive effort
  - Reduced fuel burn

- Designed specifically for the Haulage Tractor, the transfer case has a robust design, built from the ground up for simple operation.
Technical Data

ENGINE
Model
MTU OM904LA (Mercedes Benz)
Configuration
Four-cylinder, in-line
Emission Certification
Tier II
Aspiration
Turbo charged & A/A intercooled
Displacement
4 250 cc
Gross Power
90 kW
Torque Rise
16 %
Governed Engine Speed
2 200 rpm
Maximum torque
\( (\text{Net, Nm} \times \text{RPM}) \)
470 Nm @ 1 200 rpm
Compression ratio
18:01
Engine/transmission Cooling
Fin type cooler in a side by side configuration for the radiator and transmission coolers with the charge air cooler sandwiched in front of the radiator.
Engine Exhaust/Retardation
Rectangular canister silencer. Integrated in line in the exhaust system. Engine valve brake.
Engine Air Cleaner
Under bonnet intake, Power Core type with integrated scavenged pre-cleaner.

TRANSMISSION
Model
Allison #2500, TC 210
Torque Converter Layout
Hydrodynamic with lock-out in 2-6 gears and converter mode in gears 1 & 2.
Torque Convert Model
Allison TC 210
Allowable Maximum GCM
36 000 kg

REAR AXLE
Bell, Steel Fabricated
Dynamic Load Rating
11 500 kg

FRONT AXLE
Bell Steel fabricated steering axle, with radius arm and coil spring suspension.
Static Load Rating
9 000 kg
Dynamic Load Rating
3 600 kg
Steering
Single steering cylinder with through-rod and adjustable tie-rod ends.

BRAKING SYSTEM AND BRAKING TORQUE
Rear axle braking only
Service Brake Type
Type 24 pneumatic boosters, heavy duty drum type, air activated "S" cam and automatic slack adjusters on drive wheels.
specification Compliance
SANS 1447-1:2007 Ed.2
Pneumatic System Charge Pressure
8.2 bar
Service Brake Wheel Torque
19.20 kNm
Park Brake Type
Type 30 Spring/pneumatic boosters, spring-activated on drive wheels.
Park brake wheel torque
19.24 kNm

REAR WHEELS
Tyre Size and Type (STD)
18.00 x 25

FRONT WHEELS
Tyre Size and Type (STD)
10.5 x 16

UNLADEN MACHINE SPEEDS
From Allison Scaans km/h
1st
5.2
2nd
8.5
3rd
16.1
4th
23.1
5th
31.1
6th
38.5

SUSPENSION
Front
Bell radius arms with coil springs

HYDRAULIC SYSTEM
Pump Application
Pump supplying steering (with priority flow valve) and hitch lift and trailer auxiliary (2 function direct lever control valve).
Rated Flow @ Engine Governed RPM
61.2 l/min
Control Valve Relief Pressure
210 bar

STEERING SYSTEM
Fully Hydraulic - steering orbital for auxiliary functions.
Lock-to-lock Turns
4.3
Max. Working Pressure
57 bar
Relief Pressure
117 bar

PNEUMATIC SYSTEM
Compressor
MTU - gear driven, 352 cc
System Pressure
800 kPa
Compressor Rating
774.4 l/min
Air Reservoir Capacity
30 l

Electrical System
Battery Position
Inside side mounted (RHS of the chassis) battery box.
Voltage
24 V
Battery Type
Maintenance free, sealed type
Starter Motor Rating
3 kW
Alternator Rating
24V / 80A
Battery Rating
100 x 2 Ah

CAB
Fully enclosed with HVAC, ROPS certified to SANS 1468:2006, FOPS certified to SANS 1468:2006.
Certified ROPS/FOPS Mass
6 320 kg
Mounting Rubber
Operator Seat
Mechanical suspension. Lap strap restraining belt.
Operator Trainer Seat
Optional side mounted rigid seat with lap strap restraining belt.
Dashboard
Molded Acrylonitrile butadiene styrene plastic dash housing the Display and Switches.
Ventilation
Heater Ventilation & Airconditioning (HVAC).
Guarding
Full-size expanded mesh rear window cab guard.
Ventilation
Full HVAC

FRONT BODYWORK
Chassis
Vertical Z-section chassis
Bonnet
Multi Piece heavy duty steel, fixed to chassis gull wing service access covers.
Removable for major engine maintenance.
Grill
Easy Removable for Air Cleaner access.
Guarding
Front bar guard, underside belly plates, Centre plates hinged for transmission service access.
Fluid Tanks
Side-side diesel / hyd tank, behind cab. Optional long range spill over tank mounted to LHS of Chassis rail.
Rear Mudguards
Steel with Integral tail lights, and front indicator lights.
Cab Roof
Polyethylene roto mould plastic with provision for front/rear work lights.

INSTRUMENTATION
Gauges
Digital electronic Multi Display Unit (MDU).
Includes: Audible warning buzzer and colour change to red as warning of undesirable conditions.
Indicators of Gauges
• Air pressure
• Engine Speed
• Machine Speed
• Engine coolant temp
• Fuel level
• Hourmeter

Switches/Levers
Hooter button, High/low beam and indicator on steering column stalk. Head Lights, Front & Rear Worklights, Hazard, Key start/ stop, Beacon light on with ignition, Park brake pneumatic lever, Wiper Washer, Shift tower transmission controller, Remote mounted direct acting hydraulic control levers (Hitch and Auxiliary).

Auxiliaries
Allowance will be made in the electrical system to allow for the fitment of a FM radio and a 2 way communication radio with DC to DC converter to step the power down to 12 volts (Option).
Full interaction of Fleetmatic® as an option.

Diagnostis
Full on board diagnostics via the digital display unit fitted as standard.

DRIVE-BY NOISE EMISSION
SANS 10205:2007
88 dBA

OPERATING MASS
Standard configuration (see Line drawings) with Full fuel loading and no operator.

UNLADEN* LADEN*
Front
2 103 kg
2 194 kg
Rear
3 584 kg
7 745 kg
Total
6 687 kg
9 937 kg
* Standard machine with full fluids and no operator.

Rated rear Axle Load
8 000 kg
Hitch Loading @ Rated
4 250 kg

HITCH
Certified Capacity
5 097 kg
Hitch Forward of Rear Axle
65 mm

FLUID CAPACITIES
Hyd. Oil- HDZ68
Standard
125 l
Diesel Fuel Capacity
150 l
Front Axle-80W90 LS
8.5 l
Rear Axle-80W90 LS
32 l
Engine-10W40
16 l
Transmission-Transaxle Z
27 l
Transfer Case-80W-90 LS
N/A
**Dimensions**  The dimensions and exterior picture of the truck can differ depending on specification.

Note

- All dimensions are based on options and specifications at the time of printing.
- These dimensions should be verified if critical.

**Machine Dimensions**

- **A** Length - Transport Position
- **B** Height-Cab
- **B1** Height-Exhaust Stack
- **B2** Height - Rotating Beacon
- **B3** Height - Bonnet Front
- **C** Height-Front Axle Centre (Rolling Radius)
- **D** Height-Rear Axle Centre (Rolling Radius)
- **E** Width over Tyres-Front-900x16 (Std Wheelset)
- **E1** Width over Tyres-Front-340/65 R18 xp27 (Option 1 Wheelset)
- **F** Inside Tyre Width-Front-Std Wheelset
- **F1** Inside Tyre Width-Front-Option 1 Wheelset
- **G** Width over Tyres-Rear-18x25, 12ply,L3 (Std Wheelset)
- **G1** Width over Tyres-Rear-600/65 R38 (Option 1 Wheelset)
- **H** Inside Tyre Width-Std Wheelset
- **H1** Inside Tyre Width-Option 1 Wheelset
- **I** Tyre Track Width-Front
- **J** Tyre Track Width-Rear
- **K** Height-Mudguard
- **L** Width over Mudguards Front
- **M** Width over Mudguards Rear
- **N** Width over Cab
- **O** Width over Mirrors-Operating Position
- **P** Ground Clearance-Hitch-Std Wheelset
- **P1** Ground Clearance-Hitch-Option 1 Wheelset
- **Q** Ground Clearance-Front Axle
- **R** Ground Clearance-Max
- **S** Height-Hitch Ball Centre
- **T** Rear Axle Centre to Ball Hitch Centre
- **U** Front Axle Centre to Rear Axle Centre
- **V** Front Tie Down Height
- **W** Maximum Steering Angle-Std Wheelset
- **W1** Maximum Steering Angle-Option 1 Wheelset
- **X** Inner Turning Circle Radius-Std Wheelset
- **X1** Inner Turning Circle Radius-Option 1 Wheelset
- **Y** Outer Turning Circle Radius-Std Wheelset
- **Y1** Outer Turning Circle Radius-Option 1 Wheelset

**Gradeability/Rimpull**

1. Determine the GCM (mass) of the Rig.
2. Estimate grade and find the corresponding (Red) line.
3. Where vertical (mass) line and Red (Grade) line cross.
4. Draw a horizontal line to intersect Tractive chart on the right.
5. Drop a vertical line at that point and read off max. speed at a given grade and mass.

**Tractor, 1214A - Tractive Effort**

![Tractive Effort Chart](chart.png)

**NVM**
- 5 640 kg
- 12 434 lb

**GVM**
- 36 000 kg
- 79 336 lb
<table>
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<tr>
<th>Technical Data</th>
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<td>Model</td>
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<td>Configuration</td>
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<td>Emission Certification</td>
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<td>Aspiration</td>
</tr>
<tr>
<td>Displacement</td>
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<tr>
<td>Gross Power</td>
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<tr>
<td>Torque Rise</td>
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<tr>
<td>Governed Engine Speed</td>
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<tr>
<td>Maximum torque</td>
</tr>
<tr>
<td>Compression ratio</td>
</tr>
<tr>
<td>Engine/transmission Cooling</td>
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<td><strong>TRANSMISSION</strong></td>
</tr>
<tr>
<td>Model</td>
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<tr>
<td>Torque Converter Layout</td>
</tr>
<tr>
<td>Torque Convert Model</td>
</tr>
<tr>
<td>Allowable Maximum GCM</td>
</tr>
<tr>
<td><strong>TRANSFER CASE</strong></td>
</tr>
<tr>
<td>Model</td>
</tr>
<tr>
<td>Layout</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>REAR AXLE</strong></td>
</tr>
<tr>
<td>Bell, Steel Fabricated Dynamic Load Rating</td>
</tr>
<tr>
<td><strong>FRONT AXLE</strong></td>
</tr>
<tr>
<td>Carraro #26, cast iron, steering axle, centre pivot, side input. Static Load Rating</td>
</tr>
<tr>
<td>Dynamic Load Rating</td>
</tr>
<tr>
<td>Steering</td>
</tr>
<tr>
<td><strong>HYDRAULIC SYSTEM</strong></td>
</tr>
<tr>
<td>Pump Application</td>
</tr>
<tr>
<td>Rated Flow @ Engine Governed RPM</td>
</tr>
<tr>
<td>Control Valve Relief Pressure</td>
</tr>
<tr>
<td><strong>STEERING SYSTEM</strong></td>
</tr>
<tr>
<td>Fully Hydraulic - steering orbital for auxiliary functions. Lock-to-lock Turns 3.5 Max. Working Pressure 172 bar Relief Pressure 234 bar</td>
</tr>
<tr>
<td><strong>FRONT BODYWORK</strong></td>
</tr>
<tr>
<td>Chassis</td>
</tr>
<tr>
<td><strong>SUSPENSION</strong></td>
</tr>
<tr>
<td>Front</td>
</tr>
<tr>
<td><strong>AIR RESERVOIR CAPACITY</strong></td>
</tr>
<tr>
<td>Air Reservoir Capacity</td>
</tr>
<tr>
<td><strong>ENGINE AIR CLEANER</strong></td>
</tr>
<tr>
<td><strong>REAR AXLES</strong></td>
</tr>
<tr>
<td>Tyre Size and Type (STD)</td>
</tr>
<tr>
<td><strong>PNEUMATIC SYSTEM</strong></td>
</tr>
<tr>
<td>Compressor</td>
</tr>
<tr>
<td><strong>ELECTRICAL SYSTEM</strong></td>
</tr>
<tr>
<td>Battery Position</td>
</tr>
<tr>
<td><strong>CAB</strong></td>
</tr>
<tr>
<td><strong>DASHBOARD</strong></td>
</tr>
<tr>
<td>Display and Switches. Optional side mounted rigid seat with lap strap restraining belt. Dashboard Molded Acrylonitrile butadiene styrene plastic dash housing the Display and Switches.</td>
</tr>
<tr>
<td><strong>INDICATORS</strong></td>
</tr>
<tr>
<td>Warning of undesirable conditions. Includes: Audible warning buzzer and colour change to red as warning of undesirable conditions. Indicators of Gauges</td>
</tr>
<tr>
<td><strong>DRIVE-BY NOISE EMISSION</strong></td>
</tr>
<tr>
<td>SANS 10205:2007 85 dBA</td>
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<tr>
<td><strong>OPERATING MASS</strong></td>
</tr>
<tr>
<td>UNLADEN LADEN*</td>
</tr>
<tr>
<td>*Standard machine with full fluids and no operator. Rated rear Axle Load 8 000 kg Hitch Loading @ Rated Axle Load 4 250 kg</td>
</tr>
<tr>
<td><strong>HITCH</strong></td>
</tr>
<tr>
<td>Certified Capacity 5 097 kg Hitch Forward of Rear Axle 65 mm</td>
</tr>
<tr>
<td><strong>FLUID CAPACITIES</strong></td>
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<tr>
<td>Hyd. oil HDZ88 Standard</td>
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<tr>
<td>Diesel Fuel Capacity</td>
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<tr>
<td>Front Axle-80W90 LS 8.5 l</td>
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<tr>
<td>Rear Axle-80W-90 LS 32 l</td>
</tr>
<tr>
<td>Engine-10W40 16 l</td>
</tr>
<tr>
<td>Transmission-Transmax Z 72 l</td>
</tr>
<tr>
<td>Transfer Case-80W-90 LS 4 l</td>
</tr>
</tbody>
</table>
**Dimensions** The dimensions and exterior picture of the truck can differ depending on specification.

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**Machine Dimensions**

<table>
<thead>
<tr>
<th>Dimension Description</th>
<th>Value</th>
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<tbody>
<tr>
<td>A Length - Transport Position</td>
<td>4844 mm</td>
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<tr>
<td>B Height-Cab</td>
<td>3099 mm</td>
</tr>
<tr>
<td>B1 Height-Exhaust Stack</td>
<td>3190 mm</td>
</tr>
<tr>
<td>B2 Height - Rotating Beacon</td>
<td>3200 mm</td>
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<tr>
<td>B3 Height - Bonnet Front</td>
<td>1824 mm</td>
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<tr>
<td>C Height-Rear Axle Centre(Rolling Radius)</td>
<td>636 mm</td>
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<tr>
<td>D Height-Rear Axle Centre (Rolling Stack)</td>
<td>822 mm</td>
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<td>E Width over Tyres-Front-480/70 R28 (Std Wheelset)</td>
<td>2370 mm</td>
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<td>E1 Width over Tyres-Front-480/65 R28 (Option 1 Wheelset)</td>
<td>2378 mm</td>
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<td>E2 Width over Tyres-Front-14.9x24 Forestry (Option 2 Wheelset)</td>
<td>2280 mm</td>
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<tr>
<td>F Inside Tyre Width-Front-Option 1 Wheelset</td>
<td>1434 mm</td>
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<tr>
<td>F1 Inside Tyre Width-Front-Option 1 Wheelset</td>
<td>1426 mm</td>
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<tr>
<td>F2 Inside Tyre Width-Front-Option 2 Wheelset</td>
<td>1524 mm</td>
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<tr>
<td>G Width over Tyres-Rear-580/70 R38 (Std Wheelset)</td>
<td>2493 mm</td>
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<tr>
<td>G1 Width over Tyres-Rear-600/65 R38 (Option 1 Wheelset)</td>
<td>2504 mm</td>
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<td>G2 Width over Tyres-Rear-18.4x34 Forestry (Option 2 Wheelset)</td>
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<td>H Inside Tyre Width-Rear-Std Wheelset</td>
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<td>H2 Inside Tyre Width-Rear-Option 2 Wheelset</td>
<td>1442 mm</td>
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<td>I Tyre Track Width-Front</td>
<td>1902 mm</td>
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<tr>
<td>J Tyre Track Width-Rear</td>
<td>1909 mm</td>
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<tr>
<td>K Height-Mudguard</td>
<td>1864 mm</td>
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<td>M Width over Mudguards Rear</td>
<td>2162 mm</td>
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<td>N Width over Cab</td>
<td>1585 mm</td>
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<td>D Width over Mirrors-Operating Position</td>
<td>2393 mm</td>
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<td>P Ground Clearance-Hitch-Std Wheelset</td>
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<td>328 mm</td>
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<td>P2 Ground Clearance-Hitch-Option 2 Wheelset</td>
<td>323 mm</td>
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<td>Q Ground Clearance-Front Axle</td>
<td>667 mm</td>
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<tr>
<td>R Ground Clearance-Max</td>
<td>690 mm</td>
</tr>
<tr>
<td>S Height-Hitch Ball Centre</td>
<td>461 mm</td>
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<tr>
<td>T Rear Axle Centre to Ball Hitch Centre</td>
<td>66 mm</td>
</tr>
<tr>
<td>U Front Axle Centre to Rear Axle Centre</td>
<td>3145 mm</td>
</tr>
<tr>
<td>V Front Tie Down Height</td>
<td>1043 mm</td>
</tr>
<tr>
<td>W Maximum Steering Angle-Std Wheelset</td>
<td>25 °</td>
</tr>
<tr>
<td>W1 Maximum Steering Angle-Option 1 Wheelset</td>
<td>25 °</td>
</tr>
<tr>
<td>W2 Maximum Steering Angle-Option 2 Wheelset</td>
<td>30 °</td>
</tr>
<tr>
<td>X Inner Turning Circle Radius-Std Wheelset</td>
<td>6200 mm</td>
</tr>
<tr>
<td>X1 Inner Turning Circle Radius-Option 1 Wheelset</td>
<td>6290 mm</td>
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<tr>
<td>X2 Inner Turning Circle Radius-Option 2 Wheelset</td>
<td>4520 mm</td>
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<tr>
<td>Y Outer Turning Circle Radius-Std Wheelset</td>
<td>9300 mm</td>
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<tr>
<td>Y1 Outer Turning Circle Radius-Option 1 Wheelset</td>
<td>9310 mm</td>
</tr>
<tr>
<td>Y2 Outer Turning Circle Radius-Option 2 Wheelset</td>
<td>7680 mm</td>
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</tbody>
</table>

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**Gradeability/Rimpull**

1. Determine the GCM (mass) of the rig.
2. Estimate grade and find the corresponding (Red) line.
3. Where vertical (mass) line and Red (Grade) line cross.
4. Draw a horizontal line to intersect Tractive chart on the right.
5. Drop a vertical line at that point and read off max. speed at a given grade and mass.
**Technical Data**

**ENGINE**
- **Model**: MTU OM904LA (Mercedes Benz)
- **Configuration**: Four-cylinder, in-line
- **Emission Certification**: Tier II
- **Aspiration**: Turbo charged & A/A intercooled
- **Displacement**: 4 250 cc
- **Gross Power**: 110 kW
- **Torque Rise**: 17 %
- **Governed Engine Speed**: 2 200 rpm
- **Maximum torque**: (Net, Nm @ RPM)
  - Front axle braking only
  - Rear axle braking only
- **Pneumatic System Charge**: 800 kPa
- **RPM**: 1 200 rpm
- **Compression ratio**: 17 %
- **RPM**: 1 200 rpm
- **Compression ratio**: 17 %
- **SUSPENSION**
  - **Front**: Bell radius arms with coil springs
  - **Rear**: Bell Steel fabricated steering axle, with radius arm and coil spring suspension.
- **Static Load Rating**: 9 000 kg
- **Dynamic Load Rating**: 3 600 kg
- **Steering**: Single steering cylinder with through-rod and adjustable tie-rod ends.

**TRANSMISSION**
- **Model**: Allison #2500, TC 210
- **Converter Layout**: Hydrometric with lock-up in 2-6 gears and converter mode in gears 1 to 16.
- **Torque Convert Model**: Allison TC 210
- **Allowable Maximum GCM**: 44 000 kg
- **REAR AXLE**
  - **Bell, Steel Fabricated**
  - **Dynamic Load Rating**: 11 500 kg
- **FRONT AXLE**
  - **Bell Steel fabricated steering axle, with radius arm and coil spring suspension.**
  - **Static Load Rating**: 9 000 kg
  - **Dynamic Load Rating**: 3 600 kg
  - **Steering**: Single steering cylinder with through-rod and adjustable tie-rod ends.

**HYDRAULIC SYSTEM**
- **Pump Application**: Pump supplying steering (with priority flow valve) and lift and trailer auxiliary (2 function direct lever control valve).
- **Rated Flow**: Engine Governed RPM
  - 61,2 l/min
  - 210 bar
- **Control Valve Relief Pressure**: 61,2 l/min
- **Components**:
  - Bell Steel fabricated steering axle, with radius arm and coil spring suspension.
  - Single steering cylinder with through-rod and adjustable tie-rod ends.

**ELECTRICAL SYSTEM**
- **Battery Position**: Inside side mounted (RHS of the chassis) battery box.
- **Voltage**: 24 V
- **Battery Type**: Maintenance free, sealed type
- **Starter Motor Rating**: 3 kW
- **Alternator Rating**: 24V / 80A
- **Battery Rating**: 100 x 2 Ah

**CAB**
- **Fully enclosed with HVAC, ROPS certified to SANS 1468:2006, FOPS certified to SANS 1447-1:2007 Ed.2**
- **Certified ROPS/FOPS Mass Loading**: 6 320 kg
- **Mounting**: Rubber
- **Operator Seat**: Mechanical suspension. Lap strap restraint belt.
- **Operator Trainer Seat**: Optional side mounted rigid seat with lap strap restraining belt.
- **Dashboard**: Molded Acrylonitrile butadiene styrene plastic dash housing the Display and Switches.
- **Ventilation**: Full-size expanded mesh rear window cab guard.
- **GUARDING**: Full HVAC

**FRONT BODYWORK**
- **Chassis**: Vertical Z-section chassis
- **Bonnet**: Multi Piece heavy duty steel, fixed to chassis gull wing service access covers.
- **Removable for major engine maintenance.**
- **Grill’ Easily Removable for Air Cleaner access.**
- **Guarding**: Front bar guard, underside belly plates. Centre plates hinged for transmission service access.
- **Fluid Tanks**: Side-side diesel / hyd tank, behind cab. Optional long range spill over tank mounted to LHS of chassis rail.
- **Rear Mudguards**: Steel with integral tail lights, and front indicator lights.
- **Cap Roof**: Polycarbonate rotomould plastic with provision for front/rear work lights.

**FLUID CAPACITIES**
- **Hyd. oil**: HDZ68
  - Standard: 125 l
  - Diesel Fuel Capacity: 150 l
  - Front Axle-80W90 LS: 8.5 l
  - Rear axle-80W-90 LS: 32 l
  - Engine-10W40: 16 l
  - Transmission-Transmax Z: 27 l
  - Transfer Case-80W-90 LS: N/A

**OPERATING MASS**
- **Standard configuration (see Line drawings) with Full fuel loading and no operator.**
  - UNLADEN: 6 320 kg
  - LADEN: 3 600 kg

**INSTRUMENTATION**
- **Gauges**
  - Digital electronic Multi Display Unit (MDU).
- **Indicators of Gauges**
  - Air pressure
  - Engine speed
  - Machine speed
  - Engine coolant temp
  - Fuel level
  - Hourmeter

**DRIVE-BY NOISE EMISSION**
- **SANS 10205:2007 88 dBA**

**INFORMATIONAL**
- **Electronic Multi Display Unit (MDU)**
  - Includes: Audible warning buzzer and colour change to red as warning of undesirable conditions.

**DIAGNOSTICS**
- Full on board diagnostics via the digital display unit fitted as standard.

**HITCH**
- **Certified Capacity**: 5 097 kg
- **Hitch Forward of Anchor**: 5 097 kg
- **Hitch Loading @ Rated Rear Axle Load**: 4 250 kg
- **Hitch Loading @ Rated Rear Axle Load**: 8 000 kg
- **Hitch Forward of Anchor**: 65 mm

**FLUID CAPACITIES**
- **烃油**: HDZ68
  - Standard: 125 l
  - Diesel Fuel Capacity: 150 l
  - Front Axle-80W90 LS: 8.5 l
  - Rear axle-80W-90 LS: 32 l
  - Engine-10W40: 16 l
  - Transmission-Transmax Z: 27 l
  - Transfer Case-80W-90 LS: N/A

**INFORMATIONAL**
- **Electronic Multi Display Unit (MDU)**
  - Includes: Audible warning buzzer and colour change to red as warning of undesirable conditions.

**DIAGNOSTICS**
- Full on board diagnostics via the digital display unit fitted as standard.
**Dimensions**  The dimensions and exterior picture of the truck can differ depending on specification.

**Machine Dimensions**

- **A** Length - Transport Position: 4544 mm
- **B** Height-Cab: 3016 mm
- **B1** Height-Exhaust Stack: 3150 mm
- **B2** Height - Rotating Beacon: 3126 mm
- **B3** Height - Bonnet Front: 1784 mm
- **C** Height-Front Axle Centre (Rolling Radius): 476 mm
- **D** Height-Rear Axle Centre (Rolling Radius): 739 mm
- **E** Width over Tyres-Front-900x16 (Std Wheelset): 2180 mm
- **E1** Width over Tyres-Front-340/65 R18 xp27 (Option 1 Wheelset): 2255 mm
- **F** Inside Tyre Width-Front-Std Wheelset: 1645 mm
- **F1** Inside Tyre Width-Front-Option 1 Wheelset: 1560 mm
- **G** Width over Tyres-Rear-18x25, 12plyL3 (Std Wheelset): 2426 mm
- **G1** Width over Tyres-Rear-600/65 R38 (Option 1 Wheelset): 2580 mm
- **H** Inside Tyre Width-Rear-Std Wheelset: 1412 mm
- **H1** Inside Tyre Width-Rear-Option 1 Wheelset: 1318 mm
- **I** Tyre Track Width-Front: 1926 mm
- **J** Tyre Track Width-Rear: 1920 mm
- **K** Height-Mudguard: 1776 mm
- **L** Width over Mudguards Front: 2242 mm
- **M** Width over Mudguards Rear: 2162 mm
- **N** Width over Cab: 1585 mm
- **O** Width over Mirrors-Operating Position: 2393 mm
- **P** Ground Clearance-Hitch-Std Wheelset: 288 mm
- **P1** Ground Clearance-Hitch-Option 1 Wheelset: 328 mm
- **Q** Ground Clearance-Front Axle: 462 mm
- **R** Ground Clearance-Max: 408 mm
- **S** Height-Hitch Ball Centre: 378 mm
- **T** Rear Axle Centre to Ball Hitch Centre: 66 mm
- **U** Front Axle Centre to Rear Axle Centre: 3044 mm
- **V** Front Tie Down Height: 1008 mm
- **W** Maximum Steering Angle-Std Wheelset: 35 °
- **W1** Maximum Steering Angle-Option 1 Wheelset: 35 °
- **X** Inner Turning Circle Radius-Std Wheelset: 3530 mm
- **X1** Inner Turning Circle Radius-Option 1 Wheelset: 3491 mm
- **Y** Outer Turning Circle Radius-Std Wheelset: 6677 mm
- **Y1** Outer Turning Circle Radius-Option 1 Wheelset: 6714 mm

**Note**

- All dimensions are based on options and specifications at the time of printing.
- These dimensions should be verified if critical.

---

**Gradeability/Rimpull**

1. Determine the GCM (mass) of the Rig.
2. Estimate grade and find the corresponding (Red) line.
3. Where vertical (mass) line and Red (Grade) line cross.
4. Draw a horizontal line to intersect Tractive chart on the right.
5. Drop a vertical line at that point and read off max. speed at a given grade and mass.

---

**Tractor, 1464A - Tractive Effort**

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**www.bellequipment.com**
## Technical Data

### ENGINE
Model  
MTU OM904LA (Mercedes Benz)  
Configuration  
Four-cylinder, in-line  
Emission Certification  
Tier II  
Aspiration  
Turbo charged & A/A intercooled  
Displacement  
4 250 cc  
Gross Power  
110 kW  
Torque Rise  
17 %  
Governed Engine Speed  
2 200 rpm  
Maximum torque (Net, Nm @ RPM)  
580 Nm @ 1 200 rpm  
Compression ratio  
18:01  
Engine/Transmission Cooling  
Fin type cooler in a side by side configuration for the radiator and transmission coolers with the charge air cooler sandwiched in front of the radiator.  
Engine Exhaust/Retardation  
Rectangular canister silencer. Integrated in line in the exhaust system. Engine valve brake.  
Engine Air Cleaner  
Under bonnet intake, Power Core type with integrated scavenged pre-cleaner.

### TRANSMISSION
Model  
Allison #2500, TC 210  
Torque converter layout  
MTU - gear driven, 352 cc  
Aspiration  
Tier II  
Four-cylinder, in-line  
Model  
MTU OM904LA (Mercedes Benz)  
Engine-10W40  
Rear axle-80W-90 LS  
Axle  
MTU #110  
Specifications  
Rated Flow @ Engine Governed RPM  
61.2 l/min  
Control Valve Relief Pressure  
210 bar  
STEERING SYSTEM  
Fully Hydraulic - steering orbital for auxiliary functions.  
Lock-to-lock Turns  
3.5  
Max. Working Pressure  
172 bar  
Relief Pressure  
234 bar  
PNEUMATIC SYSTEM  
Compressor  
MTU - gear driven, 352 cc  
System Pressure  
820 kPa  
Cooling  
Rectangular canister silencer.  
Engine Exhaust/Retardation  
Engine/Transmission Cooling  
Engine Air Cleaner  
Under bonnet intake, Power Core type with integrated scavenged pre-cleaner.

### HYDRAULIC SYSTEM
Pump Application  
Pump supplying steering (with priority flow valve) and hitch lift and trailer auxiliary (2 function direct lever control valve).  
Rated Flow @ Engine Governed RPM  
61.2 l/min  
Control Valve Relief Pressure  
210 bar  
STEERING SYSTEM  
Fully Hydraulic - steering orbital for auxiliary functions.  
Lock-to-lock Turns  
3.5  
Max. Working Pressure  
172 bar  
Relief Pressure  
234 bar  
PNEUMATIC SYSTEM  
Compressor  
MTU - gear driven, 352 cc  
System Pressure  
820 kPa  
Cooling  
Rectangular canister silencer.  
Engine Exhaust/Retardation  
Engine/Transmission Cooling  
Engine Air Cleaner  
Under bonnet intake, Power Core type with integrated scavenged pre-cleaner.

### SUSPENSION
Front  
Above-centre pivot  
UNLADEN MACHINE SPEEDS  
From Allison Scaans km/h  
1st  
6,0  
2nd  
14,2  
3rd  
18,7  
4th  
26,8  
5th  
36,1  
6th  
46,5  
5th  
36,1  
4th  
26,8  
3rd  
18,7  
2nd  
14,2  
1st  
6,0  

### FRONT WHEELS
Tyre Size and Type (STD)  
580/70 R38  
Tyre Size and Type (STD)  
480/70 R28  

### UNLADEN MACHINE SPEEDS
From Allison Scaans km/h  
1st  
6,0  
2nd  
14,2  
3rd  
18,7  
4th  
26,8  
5th  
36,1  
6th  
46,5  
5th  
36,1  
4th  
26,8  
3rd  
18,7  
2nd  
14,2  
1st  
6,0  

### REAR AXLE
Bell, Steel Fabricated  
Dynamic Load Rating  
11 500 kg  

### FRONT AXLE
Carraro #26, cast iron, steering axle, centre pivot, side input.  
Static Load Rating  
24 210 kg  
Dynamic Load Rating  
9 683 kg  

### FLUID CAPACITIES
Hyd. oil- HDZ68  
Standard  
125 l  
Diesel Fuel Capacity  
150 l  
Front Axle-80W90 LS  
8.5 l  
Rear axle-80W-90 LS  
32 l  
Engine-10W40  
16 l  
Transmission-Transmax Z  
27 l  
Transfer Case-80W-90 LS  
4 l
## Gradeability/Rimpull

1. Determine the GCM (mass) of the Rig.
2. Estimate grade and find the corresponding (Red) line.
3. Where vertical (mass) line and Red (Grade) line cross.
4. Draw a horizontal line to intersect Tractive chart on the right.
5. Drop a vertical line at that point and read off max. speed at a given grade and mass.

### Machine Dimensions

<table>
<thead>
<tr>
<th></th>
<th>Length - Transport Position</th>
<th>4844 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Height-Cab</td>
<td>3099 mm</td>
</tr>
<tr>
<td>B1</td>
<td>Height-Exhaust Stack</td>
<td>3190 mm</td>
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<tr>
<td>B2</td>
<td>Height - Rotating Beacon</td>
<td>3200 mm</td>
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<tr>
<td>B3</td>
<td>Height - Bonnet Front</td>
<td>1824 mm</td>
</tr>
<tr>
<td>C</td>
<td>Height - Front Axle Centre (Rolling Radius)</td>
<td>636 mm</td>
</tr>
<tr>
<td>D</td>
<td>Height - Rear Axle Centre (Rolling Radius)</td>
<td>822 mm</td>
</tr>
<tr>
<td>E</td>
<td>Width over Tyres - Front 480/70 R28 (Std Wheelset)</td>
<td>2370 mm</td>
</tr>
<tr>
<td>E1</td>
<td>Width over Tyres - Front 480/65 R28 (Option 1 Wheelset)</td>
<td>2378 mm</td>
</tr>
<tr>
<td>E2</td>
<td>Width over Tyres - Front 14.9x24 Forestry (Option 2 Wheelset)</td>
<td>2280 mm</td>
</tr>
<tr>
<td>F</td>
<td>Inside Tyre Width - Front - Std Wheelset</td>
<td>1434 mm</td>
</tr>
<tr>
<td>F1</td>
<td>Inside Tyre Width - Front - Option 1 Wheelset</td>
<td>1426 mm</td>
</tr>
<tr>
<td>F2</td>
<td>Inside Tyre Width - Front - Option 2 Wheelset</td>
<td>1524 mm</td>
</tr>
<tr>
<td>G</td>
<td>Width over Tyres - Rear 080/70 R28 (Std Wheelset)</td>
<td>2493 mm</td>
</tr>
<tr>
<td>G1</td>
<td>Width over Tyres - Rear 060/65 R38 (Option 1 Wheelset)</td>
<td>2504 mm</td>
</tr>
<tr>
<td>G2</td>
<td>Width over Tyres - Rear 18.4x34 Forestry (Option 2 Wheelset)</td>
<td>2376 mm</td>
</tr>
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<td>H</td>
<td>Inside Tyre Width - Rear - Std Wheelset</td>
<td>1325 mm</td>
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<tr>
<td>H1</td>
<td>Inside Tyre Width - Rear - Option 1 Wheelset</td>
<td>1314 mm</td>
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<tr>
<td>H2</td>
<td>Inside Tyre Width - Rear - Option 2 Wheelset</td>
<td>1442 mm</td>
</tr>
<tr>
<td>I</td>
<td>Tyre Track Width - Front</td>
<td>1902 mm</td>
</tr>
<tr>
<td>J</td>
<td>Tyre Track Width - Rear</td>
<td>1909 mm</td>
</tr>
<tr>
<td>K</td>
<td>Height - Mudguard</td>
<td>1864 mm</td>
</tr>
<tr>
<td>M</td>
<td>Width over Mudguards - Rear</td>
<td>2162 mm</td>
</tr>
<tr>
<td>N</td>
<td>Width over Cab</td>
<td>1585 mm</td>
</tr>
<tr>
<td>O</td>
<td>Width over Mirrors - Operating Position</td>
<td>2393 mm</td>
</tr>
<tr>
<td>P</td>
<td>Ground Clearance - Hitch - Std Wheelset</td>
<td>371 mm</td>
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<td>P1</td>
<td>Ground Clearance - Hitch - Option 1 Wheelset</td>
<td>328 mm</td>
</tr>
<tr>
<td>P2</td>
<td>Ground Clearance - Hitch - Option 2 Wheelset</td>
<td>323 mm</td>
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<tr>
<td>Q</td>
<td>Ground Clearance - Front Axle</td>
<td>507 mm</td>
</tr>
<tr>
<td>R</td>
<td>Ground Clearance - Max</td>
<td>680 mm</td>
</tr>
<tr>
<td>S</td>
<td>Height - Hitch Ball Centre</td>
<td>461 mm</td>
</tr>
<tr>
<td>T</td>
<td>Rear Axle Centre to Ball Hitch Centre</td>
<td>66 mm</td>
</tr>
<tr>
<td>U</td>
<td>Front Axle Centre to Rear Axle Centre</td>
<td>3145 mm</td>
</tr>
<tr>
<td>V</td>
<td>Front Tie Down Height</td>
<td>1043 mm</td>
</tr>
<tr>
<td>W</td>
<td>Maximum Steering Angle - Std Wheelset</td>
<td>25 °</td>
</tr>
<tr>
<td>W1</td>
<td>Maximum Steering Angle - Option 1 Wheelset</td>
<td>25 °</td>
</tr>
<tr>
<td>W2</td>
<td>Maximum Steering Angle - Option 2 Wheelset</td>
<td>30 °</td>
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<tr>
<td>X</td>
<td>Inner Turning Circle Radius - Std Wheelset</td>
<td>6300 mm</td>
</tr>
<tr>
<td>X1</td>
<td>Inner Turning Circle Radius - Option 1 Wheelset</td>
<td>6290 mm</td>
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<tr>
<td>X2</td>
<td>Inner Turning Circle Radius - Option 2 Wheelset</td>
<td>4520 mm</td>
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<tr>
<td>Y</td>
<td>Outer Turning Circle Radius - Std Wheelset</td>
<td>9300 mm</td>
</tr>
<tr>
<td>Y1</td>
<td>Outer Turning Circle Radius - Option 1 Wheelset</td>
<td>9310 mm</td>
</tr>
<tr>
<td>Y2</td>
<td>Outer Turning Circle Radius - Option 2 Wheelset</td>
<td>7680 mm</td>
</tr>
</tbody>
</table>

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**Note**
- All dimensions are based on options and specifications at the time of printing.
- These dimensions should be verified if critical.
**Technical Data**

**ENGINE**
- **Model**: MTU OM904LA (Mercedes Benz)
- **Configuration**: Four-cylinder, in-line
- **Emission Certification**: Tier II
- **Aspiration**: Turbo charged & A/A intercooled
- **Displacement**: 4 250 cc
- **Gross Power**: 130 kW
- **Torque Rise**: 16 %

**STEERING**
- **Dynamic Load Rating**: 9 000 kg
- **Static Load Rating**: 3 600 kg
- **Lock-to-lock Turns**: 4.3
- **Max. Working Pressure**: 57 bar

**HYDRAULIC SYSTEM**
- **Pump Application**: Pump supplying steering (with priority flow valve) and hitch lift and trailer auxiliary (2 function direct lever control valve).
- **Rated Flow @ Engine governed RPM**: 61.2 l/min
- **Control Valve Relief Pressure**: 210 bar
- **Fully Hydraulic - steering orbitrol for auxiliary functions.**

**FRONT AXLE**
- **Bell Steel Fabricated steering axle**, with radius arm and coil spring suspension.
- **Static Load Rating**: 9 000 kg
- **Dynamic Load Rating**: 3 600 kg

**STEERING SYSTEM**
- **Fully Hydraulic - steering orbitrol for auxiliary functions.**
- **Lock-to-lock Turns**: 4.3
- **Max. Working Pressure**: 57 bar
- **Relief Pressure**: 117 bar

**SUSPENSION**
- **Front**: Bell radius arms with coil springs
- **Suspension**: Mechanical suspension. Lap strap restraining belt.

**INSTRUMENTATION**
- **Gauges**
  - Digital electronic Multi Display Unit (MDU).
  - Includes: Audible warning buzzer and colour change to red as warning of undesirable conditions.
- **Indicators of Gauges**
  - Air pressure
  - Engine Speed
  - Machine Speed
  - Engine coolant temp
  - Fuel level
  - Hourmeter

**PNEUMATIC SYSTEM**
- **Air Reservoir Capacity**: 30 l
- **Compressor Rating**: 774.4 l/min
- **Air Compressor Type**: Polyethylene roto mould plastic with provision for front/rear work lights.

**ELECTRICAL SYSTEM**
- **Battery Position**: Inside side mounted (RHS of the chassis) battery box.
- **Voltage**: 24 V
- **Battery Type**: Maintenance free, sealed type
- **Starter Motor Rating**: 3 kW
- **Alternator Rating**: 24 V / 80A
- **Battery Rating**: 100 x 2 Ah
- **Battery Capacity**: 10.5 x 16

**TRANSMISSION**
- **Model**: Allison #3000, TC 413
- **Torque Converter Layout**: Hydrodynamic with lock-up in 2-6 gears and converter mode in gears 1 & 2.
- **Engine Exhaust/Retardation**: Rectangular canister silencer. Integrated in line in the exhaust system. Engine valve brake.
- **Engine Air Cleaner**: Under bonnet intake, Power Core type with integrated scavenged pre-cleaner.

**FLUID CAPACITIES**
- **Transmission-Transmax Z**: 16 l
- **Transfer Case-80W-90 LS**: 150 l
- **Front Axle-80W90 LS**: 150 l

**HITCH**
- **Certified Capacity**: 5 097 kg
- **Operating Mass**: Standard configuration (see Line drawings) with Full fuel loading and no operator.
- **Front UNLADEN**: 2 143 kg
- **Front LADEN**: 2 234 kg
- **Rear UNLADEN**: 3 664 kg
- **Rear LADEN**: 7 823 kg
- **Total**: 5 087 kg
- **Battery Position**: Inside side mounted (RHS of the chassis) battery box.

**REAR AXLE**
- **Bell, Steel Fabricated**
- **Dynamic Load Rating**: 11 500 kg

**HYDRAULIC SYSTEM**
- **Pump Application**: Pump supplying steering (with priority flow valve) and hitch lift and trailer auxiliary (2 function direct lever control valve).
- **Rated Flow @ Engine governed RPM**: 61.2 l/min
- **Control Valve Relief Pressure**: 210 bar
- **Fully Hydraulic - steering orbitrol for auxiliary functions.**

**STEERING SYSTEM**
- **Fully Hydraulic - steering orbitrol for auxiliary functions.**
- **Lock-to-lock Turns**: 4.3
- **Max. Working Pressure**: 57 bar
- **Relief Pressure**: 117 bar

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  - Machine Speed
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**ELECTRICAL SYSTEM**
- **Battery Position**: Inside side mounted (RHS of the chassis) battery box.
- **Voltage**: 24 V
- **Battery Type**: Maintenance free, sealed type
- **Starter Motor Rating**: 3 kW
- **Alternator Rating**: 24 V / 80A
- **Batter...
Dimensions

The dimensions and exterior picture of the truck can differ depending on specification.

Machine Dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Length - Transport Position</td>
<td>4544 mm</td>
</tr>
<tr>
<td>B Height - Cab</td>
<td>3016 mm</td>
</tr>
<tr>
<td>B1 Height - Exhaust Stack</td>
<td>3150 mm</td>
</tr>
<tr>
<td>B2 Height - Rotating Beacon</td>
<td>3126 mm</td>
</tr>
<tr>
<td>B3 Height - Bonnet Front</td>
<td>1784 mm</td>
</tr>
<tr>
<td>C Height - Front Axle Centre (Rolling Radius)</td>
<td>476 mm</td>
</tr>
<tr>
<td>D Height - Rear Axle Centre (Rolling Radius)</td>
<td>739 mm</td>
</tr>
<tr>
<td>E Width over Tyres - Front 900x16 (Std Wheelset)</td>
<td>2180 mm</td>
</tr>
<tr>
<td>E1 Width over Tyres - Front 340/65 R18 xp27 (Option 1 Wheelset)</td>
<td>2255 mm</td>
</tr>
<tr>
<td>F Inside Tyre Width - Front - Std Wheelset</td>
<td>1645 mm</td>
</tr>
<tr>
<td>F1 Inside Tyre Width - Front - Option 1 Wheelset</td>
<td>1569 mm</td>
</tr>
<tr>
<td>G Width over Tyres - Rear 18x25, 12ply L3 (Std Wheelset)</td>
<td>2426 mm</td>
</tr>
<tr>
<td>G1 Width over Tyres - Rear 600/65 R38 (Option 1 Wheelset)</td>
<td>2508 mm</td>
</tr>
<tr>
<td>H Inside Tyre Width - Rear - Std Wheelset</td>
<td>1412 mm</td>
</tr>
<tr>
<td>H1 Inside Tyre Width - Rear - Option 1 Wheelset</td>
<td>1318 mm</td>
</tr>
<tr>
<td>I Tyre Track Width - Front</td>
<td>1926 mm</td>
</tr>
<tr>
<td>J Tyre Track Width - Rear</td>
<td>1920 mm</td>
</tr>
<tr>
<td>K Height - Mudguard</td>
<td>1776 mm</td>
</tr>
<tr>
<td>L Width over Mudguards Front</td>
<td>2242 mm</td>
</tr>
<tr>
<td>M Width over Mudguards Rear</td>
<td>2162 mm</td>
</tr>
<tr>
<td>N Width over Cab</td>
<td>1585 mm</td>
</tr>
<tr>
<td>O Width over Mirrors - Operating Position</td>
<td>2393 mm</td>
</tr>
<tr>
<td>P Ground Clearance - Hitch - Std Wheelset</td>
<td>288 mm</td>
</tr>
<tr>
<td>P1 Ground Clearance - Hitch - Option 1 Wheelset</td>
<td>328 mm</td>
</tr>
<tr>
<td>Q Ground Clearance - Front Axle</td>
<td>462 mm</td>
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<tr>
<td>R Ground Clearance - Max</td>
<td>408 mm</td>
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<td>S Height - Hitch Ball Centre</td>
<td>378 mm</td>
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<tr>
<td>T Rear Axle Centre to Ball Hitch Centre</td>
<td>66 mm</td>
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<tr>
<td>U1 Front Axle Centre to Rear Axle Centre</td>
<td>3094 mm</td>
</tr>
<tr>
<td>V Front Tie Down Height</td>
<td>1008 mm</td>
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<tr>
<td>W Maximum Steering Angle - Std Wheelset</td>
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</tr>
<tr>
<td>W1 Maximum Steering Angle - Option 1 Wheelset</td>
<td>35 °</td>
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<tr>
<td>X Inner Turning Circle Radius - Std Wheelset</td>
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<tr>
<td>X1 Inner Turning Circle Radius - Option 1 Wheelset</td>
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<tr>
<td>Y Outer Turning Circle Radius - Std Wheelset</td>
<td>6677 mm</td>
</tr>
<tr>
<td>Y1 Outer Turning Circle Radius - Option 1 Wheelset</td>
<td>6714 mm</td>
</tr>
</tbody>
</table>

Note

- All dimensions are based on options and specifications at the time of printing.
- These dimensions should be verified if critical.

Gradeability/Rimpull

1. Determine the GCM (mass) of the Rig.
2. Estimate grade and find the corresponding (Red) line.
3. Where vertical (mass) line and Red (Grade) line cross.
4. Draw a horizontal line to intersect Tractive chart on the right.
5. Drop a vertical line at that point and read off max. speed at a given grade and mass.
# Technical Data

## ENGINE

**Model**
MTU OM904LA (Mercedes Benz)

**Configuration**
Four-cylinder, in-line

**Emission Certification**
Tier II

**Displacement**
4 250 cc

**Gross Power**
130 kW

**Torque Rise**
17 %

**Goverened Engine Speed**
2 200 rpm

**Maximum torque**
(Net, Nm @ RPM) 675 Nm @ 1 200 rpm

**Compression ratio**
18:01

**Engine/Transmission Cooling**
Fin type cooler in a side by side configuration for the radiator and transmission coolers with the charge air cooler sandwiched in front of the radiator.

**Engine Exhaust/Retardation**
Rectangular canister silencer. Integrated in line in the exhaust system. Engine valve brake.

**Engine Air Cleaner**
Under bonnet intake, Power Core type with integrated scavenged pre-cleaner.

## TRANSMISSION

**Model**
Allison #3000, TC 413

**Torque Converter Layout**
Hydrodynamic with lock-up in 2-6 gears and converter mode in gears 1 & 2.

**Torque Convert Model**
Allison TC 413

**Allowable Maximum GCM**
48 000 kg

## TRANSFER CASE

**Model**
Bell

**Layout**
Direct coupled to rear diff. Constant mesh (helical gears) with pneumatic engage & spring disengage. Single speed with idler gear.

## REAR AXLE

**Bell, Steel Fabricated**

**Dynamic Load Rating**
11 500 kg

## FRONT AXLE

**Carraro #26, cast iron, steering axle, centre pivot, side input**

**Static Load Rating**
24 210 kg

**Dynamic Load Rating**
9 683 kg

**Steering**
Single steering cylinder with through-rod and adjustable tie rod ends.

## HYDRAULIC SYSTEM

**Pump Application**
Pump supplying steering (with priority flow valve) and hitch lift and trailer auxiliary (2 function direct lever control valve).

**Rated Flow @ Engine Governed RPM**
61.2 l/min

**Control Valve Relief Pressure**
210 bar

## SUSPENSION

**Front**
Above-centre pivot

## BRAKING SYSTEM AND BRAKING TORQUE

**Rear axle braking only**

**Service Brake Type**
Type 24 pneumatic boosters, heavy duty drum type, air activated “S” cans and automatic slack adjusters on drive wheels.

**Specification Compliance**
SANS 1447:1-2007 Ed.2

**Pneumatic System Charge Pressure**
8.2 bar

**Service Brake Wheel Torque**
30.46 kNm

**Park Brake Type**
Type 30 Spring/pneumatic boosters, spring-activated on drive wheels

**Park Brake Wheel Torque**
19.24 Nm

## REAR WHEELS

**Tyre Size and Type (STD)**
580/70 R38

## FRONT WHEELS

**Tyre Size and Type (STD)**
480/70 R28

## UNLADEN MACHINE

**SPEEDS**

<table>
<thead>
<tr>
<th>Unladen Machine</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>5th</th>
<th>6th</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated rear Axle Load</td>
<td>8 000 kg</td>
<td>8 000 kg</td>
<td>6 803 kg</td>
<td>11 022 kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front 3 870 kg</td>
<td>6 320 kg</td>
<td>5 883 kg</td>
<td>5 580 kg</td>
<td>5 300 kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rear 2 933 kg</td>
<td>4 250 kg</td>
<td>3 900 kg</td>
<td>3 500 kg</td>
<td>3 222 kg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## CAB

**Fully enclosed with HVAC, ROPS certified to SANS 1469:2006, FOPS certified to 8063:2006.**

**Certified ROPS/FOPS Mass Loading**
6 320 kg

**Mounted Rubber**
Operator Seat
Operator Trainer Seat

**Mechanical suspension. Lap strap restraining belt.**

**Auxiliaries**

- **AIR CONDITIONING**
  - Full-size expanded mesh rear window cab guard.
  - Full HVAC

**INSTRUMENTATION**

**Gauges**
- **Digital electronic Multi Display Unit (MDU).**
- **Includes:** Audible warning buzzer and colour change to red as warning of undesirable conditions.

**Indicators of Gauges**
- **Air pressure**
- **Engine Speed**
- **Machine Speed**
- **Engine coolant temp**
- **Fuel level**
- **Hourmeter**

**Switches/Levers**
- Hooter button, High/low beam and indicator on steering column stalk.
- Head Lights, Front & Rear Worklights, Hazard, Key start/stop, Beacon light on with ignition, Park brake pneumatic lever, Wiper Washer, Shift tower transmission controller, Remoted mounted direct acting hydraulic control levers (Hitch and Auxiliary).

**Auxiliaries**

- Allowance will be made in the electrical system to allow for the fitment of a FM radio and a 2 way communication radio with DC to DC converter to step the power down to 12 volts (Option).

- Full interaction of Fleetm@tic® as a option.

- Diagnostics
  - Full on board diagnostics via the digital display unit fitted as standard.

## DRIVE-BY NOISE EMISSION

SANS 10205:2007

85 dBA

## OPERATING MASS

**UNLADEN LADEN**

<table>
<thead>
<tr>
<th>Component</th>
<th>Unladen</th>
<th>Laden</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front Axle Load</td>
<td>2 933 kg</td>
<td>3 022 kg</td>
</tr>
<tr>
<td>Rear Axle Load</td>
<td>3 870 kg</td>
<td>4 250 kg</td>
</tr>
<tr>
<td>Total</td>
<td>6 803 kg</td>
<td>11 022 kg</td>
</tr>
</tbody>
</table>

**Standard configuration (see Line drawings) with Full fuel loading and no operator.**

**HITCH**

**Certified Capacity**
5 097 kg

**Hitch Forward of Rear Axle**
65 mm

## FLUID CAPACITIES

**Hyd. oil**
HDZ68

- **Standard**
  - 125 l
- **Diesel Fuel Capacity**
  - 150 l
- **Front Axle-80W90 LS**
  - 8.5 l
- **Rear axle-80W-90 LS**
  - 32 l
- **Engine-10W40**
  - 16 l
- **Transmission-Transmax Z**
  - 27 l
- **Transfer Case-80W-90 LS**
  - 4 l

**Battery Rating**
24V / 80A

**Alternator Rating**
3 kW

**Starter Motor Rating**
Maintenance free, sealed type

**Battery Position**
Electrical System

**Park Brake Type**
Type 24 pneumatic boosters, heavy duty drum type, air activated “S” cans and automatic slack adjusters on drive wheels.

## FRONT BODYWORK

**Chassis**
Vertical Z-section chassis

**Bonnet**
Multi Piece heavy duty steel, fixed to chassis gull wing service access covers.

**Removable for major engine maintenance.**

**Grill**
Easily Removable for Air Cleaner access.

**Guarding**
Front bar guard, underside belly plates. Centre plates hinged for transmission service access.

**Fluid Tanks**
Side-side diesel / hyd tank, behind cab. Optional long range spill over tank mounted to LHS of Chassis rail.

**Rear Mudguards**
Steel with integral tail lights, and front indicator lights.
The dimensions and exterior picture of the truck can differ depending on specification.

### Gradeability/Rimpull

1. Determine the GCM (mass) of the Rig.
2. Estimate grade and find the corresponding (Red) line.
3. Where vertical (mass) line and Red (Grade) line cross.
4. Draw a horizontal line to intersect Tractive chart on the right.
5. Drop a vertical line at that point and read off max. speed at a given grade and mass.

### Machine Dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length - Transport Position</td>
<td>4844</td>
</tr>
<tr>
<td>Height-Cab</td>
<td>3099</td>
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<tr>
<td>Height-Exhaust Stack</td>
<td>3190</td>
</tr>
<tr>
<td>Height - Rotating Beacon</td>
<td>3200</td>
</tr>
<tr>
<td>Height - Bonnet Front</td>
<td>1824</td>
</tr>
<tr>
<td>Height-Front Axle Centre (Rolling Radius)</td>
<td>636</td>
</tr>
<tr>
<td>Height-Rear Axle Centre (Rolling Radius)</td>
<td>822</td>
</tr>
<tr>
<td>Width over Tyres-Front</td>
<td>2370</td>
</tr>
<tr>
<td>Width over Tyres-Front-480/70 R28 (Std Wheelset)</td>
<td>2378</td>
</tr>
<tr>
<td>Width over Tyres-Front-14.9x24 Forestry (Option 2 Wheelset)</td>
<td>2280</td>
</tr>
<tr>
<td>Inside Tyre Width-Front-Std Wheelset</td>
<td>1434</td>
</tr>
<tr>
<td>Inside Tyre Width-Front-Option 1 Wheelset</td>
<td>1426</td>
</tr>
<tr>
<td>Inside Tyre Width-Front-Option 2 Wheelset</td>
<td>1524</td>
</tr>
<tr>
<td>Width over Tyres-Rear-580/70 R38 (Std Wheelset)</td>
<td>2493</td>
</tr>
<tr>
<td>Width over Tyres-Rear-480/65 R38 (Option 1 Wheelset)</td>
<td>2004</td>
</tr>
<tr>
<td>Width over Tyres-Rear-18.4x34 Forestry (Option 2 Wheelset)</td>
<td>2376</td>
</tr>
<tr>
<td>Inside Tyre Width-Rear-Std Wheelset</td>
<td>1325</td>
</tr>
<tr>
<td>Inside Tyre Width-Rear-Option 1 Wheelset</td>
<td>1314</td>
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<tr>
<td>Inside Tyre Width-Rear-Option 2 Wheelset</td>
<td>1442</td>
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<td>Tyre Track Width-Front</td>
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<td>Tyre Track Width-Rear</td>
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<tr>
<td>Height-Mudguard</td>
<td>1864</td>
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<tr>
<td>Width over Tyres-Front-Std Wheelset</td>
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<tr>
<td>Width over Cab</td>
<td>1585</td>
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<tr>
<td>Width over Mirrors-Operating Position</td>
<td>2393</td>
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<tr>
<td>Ground Clearance-Hitch-Std Wheelset</td>
<td>371</td>
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<tr>
<td>Ground Clearance-Hitch-Option 1 Wheelset</td>
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<td>Ground Clearance-Hitch-Option 2 Wheelset</td>
<td>323</td>
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<tr>
<td>Ground Clearance-Front Axle</td>
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<tr>
<td>Ground Clearance-Max</td>
<td>690</td>
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<tr>
<td>Height-Hitch Ball Centre</td>
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<tr>
<td>Rear Axle Centre to Rear Axle Centre</td>
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<tr>
<td>Front Axle Centre to Rear Axle Centre</td>
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<tr>
<td>Front Tie Down Height</td>
<td>1043</td>
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<tr>
<td>Maximum Steering Angle-Std Wheelset</td>
<td>25 °</td>
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<tr>
<td>Maximum Steering Angle-Option 1 Wheelset</td>
<td>25 °</td>
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<tr>
<td>Maximum Steering Angle-Option 2 Wheelset</td>
<td>30 °</td>
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<td>Inner Turning Circle Radius-Std Wheelset</td>
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<tr>
<td>Inner Turning Circle Radius-Option 1 Wheelset</td>
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<td>Inner Turning Circle Radius-Option 2 Wheelset</td>
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<tr>
<td>Outer Turning Circle Radius-Std Wheelset</td>
<td>9300</td>
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<tr>
<td>Outer Turning Circle Radius-Option 1 Wheelset</td>
<td>9310</td>
</tr>
<tr>
<td>Outer Turning Circle Radius-Option 2 Wheelset</td>
<td>7680</td>
</tr>
</tbody>
</table>

### Tractor, 1734AF - Tractive Effort

1. Determine the GCM (mass) of the Rig.
2. Estimate grade and find the corresponding (Red) line.
3. Where vertical (mass) line and Red (Grade) line cross.
4. Draw a horizontal line to intersect Tractive chart on the right.
5. Drop a vertical line at that point and read off max. speed at a given grade and mass.

**Note**

- All dimensions are based on options and specifications at the time of printing.
- These dimensions should be verified if critical.
### ENGINE
- **Model**: OM924LA (Mercedes Benz)
- **Configuration**: Four-cylinder, in-line
- **Emission Certification**: Tier II
- **Aspiration**: Turbo charged & A/A intercooled
- **Displacement**: 8.5 l
- **Gross Power**: 396 kW
- **Rated Flow @ Engine Governed RPM**: 24.2 l/min
- **Control Valve Relief Pressure**: 24,2 l/min
- **Rating Flow at Engine Speed 2,200 rpm**: 117 bar
- **Max. Working Pressure**: 210 bar
- **Pressure**: 8.2 bar
- **Battery Rating**: 24V / 80A
- **Alternator Rating**: 3 kW
- **Starter Motor Rating**: 4800 cc
- **Displacement**: 150 l
- **Rated Engine Speed**: 2000 rpm
- **Governing Engine Speed**: 15 %
- **Governed Engine Speed**: 15 %
- **Park brake pneumatic lever, Wiper Washer, Shift tower transmission controller, Remoted mounted direct acting hydraulic control levers (hitch and Auxiliary).**

### SUSPENSION
- Front: Bell radius arms with coil springs
- Rear: Multi Piece heavy duty steel, fixed and no operator.

### HYDRAULIC SYSTEM
- Pump Application: Pump supplying steering (with priority flow valve) and hitch lift and auxiliary functions.
- Rated Flow @ Engine Governed RPM: 24.2 l/min
- Control Valve Relief Pressure: 210 bar
- Pressure: 8.2 bar
- Battery Rating: 24V / 80A
- Alternator Rating: 3 kW
- Starter Motor Rating: 4800 cc
- Displacement: 150 l
- Rated Engine Speed: 2000 rpm
- Governing Engine Speed: 15 %
- Governed Engine Speed: 15 %
- Park brake pneumatic lever, Wiper Washer, Shift tower transmission controller, Remoted mounted direct acting hydraulic control levers (hitch and Auxiliary).**

### ELECTRICAL SYSTEM
- Battery Position: Inside side mounted (RHS of the chassis) battery box.
- Voltage: 24 V
- Battery Type: Maintenance free, sealed type
- Starter Motor Rating: 3 kW
- Alternator Rating: 24V / 80A
- Battery Rating: 100 x 2 Ah

### CAB
- Fully enclosed with HVAC, ROPS certified to SANS 1468:2006, FOPS certified to 8063:2006.
- Certified ROPS/FOPS Mass Loading: 6 320 kg
- Mounting: Rubber
- Operator Seat: Mechanical suspension. Lap strap restraining belt.
- Operator Trainer Seat: Optional side mounted rigid seat with lap strap restraining belt.
- Dashboard: Molded Acrylonitrile butadiene styrene plastic dash housing the Display and Switches.
- Ventilation: Heater Ventillation & Airconditioning (HVAC).
- Guarding: Full-size expanded mesh rear window cab guard.
- Ventilation: Ventilator
- Hooter button, High/low beam and indicator on steering column stalk. Head Lights, Front & Rear Worklights, Hazard, Key start/stop, Beacon light on with ignition, Park brake pneumatic lever, Wiper Washer, Shift tower transmission controller, Remoted mounted direct acting hydraulic control levers (hitch and Auxiliary).
- Auxiliaries: Allowance will be made in the electrical system to allow for the fitment of a FM radio and a 2 way communication radio with DC to DC converter to step the power down to 12 volts (Option).
- Full interaction of Fleetm@tic® as an option.
- Diagnostics: Full on board diagnostics via the digital display unit fitted as standard.
- DRIVE-BY NOISE EMISSION
- SANS 10205:2007 88 dBA

### OPERATING MASS
- Standard configuration (see Line drawings) with full fuel loading and no operator.
- UNLADEN: 40 000 kg
- LADEN*: 40 204 kg
- Rear: 3 968 kg
- Total: 6 084 kg

### FLUID CAPACITIES
- Hyd. oil- HDZ68
- Standard: 125 l
- Diesel Fuel Capacity: 150 l
- Front Axle-80W-90 LS
- Rear axle-80W-90 LS
- Engine-10W40
- Transmission-Transmax Z
- Transfer Case-80W-90 LS
### Gradeability/Rimpull

1. Determine the GCM (mass) of the Rig.
2. Estimate grade and find the corresponding (Red) line.
3. Where vertical (mass) line and Red (Grade) line cross.
4. Draw a horizontal line to intersect Tractive chart on the right.
5. Drop a vertical line at that point and read off max. speed at a given grade and mass.

### Machine Dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Length - Transport Position</td>
<td>4544 mm</td>
</tr>
<tr>
<td>B Height-Cab</td>
<td>3016 mm</td>
</tr>
<tr>
<td>B1 Height-Exhaust Stack</td>
<td>3150 mm</td>
</tr>
<tr>
<td>B2 Height - Rotating Beacon</td>
<td>3126 mm</td>
</tr>
<tr>
<td>B3 Height - Bonnet Front</td>
<td>1784 mm</td>
</tr>
<tr>
<td>C Height-Front Axle Centre(Rolling Radius)</td>
<td>476 mm</td>
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<tr>
<td>D Height-Rear Axle Centre (Rolling Radius)</td>
<td>739 mm</td>
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<td>E Width over Tyres-Front-900x16 (Std Wheelset)</td>
<td>2180 mm</td>
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<tr>
<td>E1 Width over Tyres-Front-340/65 R18 xp27 (Option 1 Wheelset)</td>
<td>2255 mm</td>
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<td>F Inside Tyre Width-Front-Std Wheelset</td>
<td>1645 mm</td>
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<td>F1 Inside Tyre Width-Front-Option 1 Wheelset</td>
<td>1569 mm</td>
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<td>G Width over Tyres-Rear-18x25, 12ply,L1 (Std Wheelset)</td>
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<td>G1 Width over Tyres-Rear-600/65 R38 (Option 1 Wheelset)</td>
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<td>H Inside Tyre Width-Rear-Std Wheelset</td>
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<td>H1 Inside Tyre Width-Rear-Option 1 Wheelset</td>
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<td>I Tyre Track Width-Front</td>
<td>1926 mm</td>
</tr>
<tr>
<td>J Tyre Track Width-Rear</td>
<td>1920 mm</td>
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<tr>
<td>K Height-Mudguard</td>
<td>1776 mm</td>
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<tr>
<td>L Width over Mudguards Front</td>
<td>2242 mm</td>
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<tr>
<td>M Width over Mudguards Rear</td>
<td>2162 mm</td>
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<tr>
<td>N Width over Cab</td>
<td>1585 mm</td>
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<tr>
<td>O Width over Mirrors-Operating Position</td>
<td>2393 mm</td>
</tr>
<tr>
<td>P Ground Clearance-Hitch-Std Wheelset</td>
<td>288 mm</td>
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<tr>
<td>P1 Ground Clearance-Hitch-Option 1 Wheelset</td>
<td>328 mm</td>
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<tr>
<td>Q Ground Clearance-Front Axle</td>
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<td>R Ground Clearance-Max</td>
<td>408 mm</td>
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<tr>
<td>S Height-Hitch Ball Centre</td>
<td>378 mm</td>
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<td>T Rear Axle Centre to Ball Hitch Centre</td>
<td>66 mm</td>
</tr>
<tr>
<td>U Front Axle Centre to Rear Axle Centre</td>
<td>2004 mm</td>
</tr>
<tr>
<td>V Front Tie Down Height</td>
<td>1008 mm</td>
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<tr>
<td>W Maximum Steering Angle-Std Wheelset</td>
<td>35 °</td>
</tr>
<tr>
<td>W1 Maximum Steering Angle-Option 1 Wheelset</td>
<td>35 °</td>
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<tr>
<td>X Inner Turning Circle Radius-Std Wheelset</td>
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<td>X1 Inner Turning Circle Radius-Option 1 Wheelset</td>
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<tr>
<td>Y Outer Turning Circle Radius-Std Wheelset</td>
<td>6677 mm</td>
</tr>
<tr>
<td>Y1 Outer Turning Circle Radius-Option 1 Wheelset</td>
<td>6714 mm</td>
</tr>
</tbody>
</table>

### Grade Chart

- Total Resistance = Grade + Rolling resistance

### Tractor, 2134A - Ttractive Effort

- Gross Tractive Effort [kN]
- Mass (kg)
- Speed (km/h)
Features and Options

2WHEEL DRIVE - 1214A, 1464A, 1734A, 2134A
4WHEEL DRIVE - 1214AF, 1464AF, 1734AF

<table>
<thead>
<tr>
<th>STANDARDS</th>
<th>OPTION</th>
<th>NOT AVAILABLE</th>
</tr>
</thead>
</table>

### FRONT WHEELSETS

- 9.00x16
- 10.5x16
- 385/70R22.5
- 340/65R18

### REAR WHEELSETS

- 600/65R38
- 580/70R38
- 18.00x25

### WHEELSETS

- Trelleborg - 570/70R38 & 480/70R28
- Michelin - 600/65R38 & 480/65R28
- Firestone (FS) - 18.4x38 & 14.9x24

### BONNET DOORS

- No door - fan guard only
- Doors

### AUXILIARY HYDRAULIC OPT.

- 66 LPM, 1 Aux func. Ball Hitch
- 66 LPM, 2 Aux func. Ball Hitch
- 66 LPM, 2 Aux func. Clevis Hitch
- 66 LPM, No aux func. Clevis Hitch
- 100 LPM, 1 Aux func. Ball Hitch
- 100 LPM, 2 Aux func. Ball Hitch
- 100 LPM, 2 Aux func. Clevis Hitch

### 12V DC CONVERTER

### TRAINER SEAT

### CAB GUARDING

- Rear Side Window Guards
- Rear Window Guard

### BELLY PLATES

### FUEL TANK

- 150 Litre capacity
- 270 Litre capacity (long range)

### FLEETM@TIC®

All dimensions are shown in millimetres, unless otherwise stated between brackets. Under our policy of continuous improvement, we reserve the right to change technical data and design without prior notice. Photographs featured in this brochure may include optional equipment.

Strong Reliable Machines
Strong Reliable Support