

Town of Port Hedland After Hours Sanitation Works Noise Management Plan 2019 (Street Sweeping)



Summary

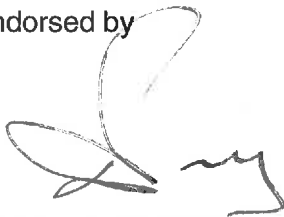
After Hours Sanitation Works Noise Management Plan

As the Town has now commenced after-hours road-sweeping works, it is important the process for delivery of this service demonstrates that clear steps have been taken to ensure the service does not adversely impact the community.

This Plan addresses the treatment of noise related to the after-hours service sweeping works.

The Plan details the steps the Town has and will continue to undertake to ensure that there are no adverse impacts to the community as a result the service delivery that occurs between the hours of 7pm and 7am.

Endorsed by



David Pentz
CEO of the Town of Port Hedland

18.02.2019

Date

Contents

Summary	2
Document Control	5
Document Distribution List.....	6
Part 1 – Introduction	7
1.1. Background.....	7
1.2. Title.....	7
1.3. Aim	7
1.4. Legislation	7
1.5. Guidance	7
1.6 Authority	8
1.7. Scope.....	8
1.8. Testing, Reviewing and Exercising	8
Part 2 – Vehicle Selection	8
2.1 McDonnell Johnston VT651 Truck Mounted Sweeper.....	8
2.1.1 McDonnell Johnston VT651 Noise Reduction System	9
2.2 HINO 500 Medium Duty Range Truck Specifications	9
2.2.1 Noise Reduction System.....	9
Part 3 – Noise Detection	9
3.1. Measurement of Background Noise.....	9
3.2. Measurement Details.....	9
3.3. Noise Detection Results.....	10
3.4. Noise Detection Results Analysis.....	10
3.5. Recommendations from Noise Detection Test.....	10
Part 4 – Noise Mitigation.....	10
4.1. Scope of After-hours Works	10
4.2. Prioritising Work Schedule	11
4.3. Afterhours Work Coverage Area Maps.....	11
4.3.1. Port Hedland	11
4.3.2. South Hedland	12
4.3.3. Wedgefield	13
Part 5 – Operator Selection, Training, and Sweeper Operating Procedures.....	14
5.1. Operator Selection and Training.....	14
5.2. Sweeper Operation.....	14
Part 6 – Community Engagement and Feedback Processes	14
6.1. Community Engagement	14
6.2. Issue Lodgement & Resolution Process	14

Appendix 1 – McDonnell Johnston VT651 Truck Mounted Sweeper Specifications..... 15
Appendix 2 – HINO 500 Medium Duty Range Truck Specifications..... 16

Document Control

The Manager Waste Operations – Christopher Adekunle, developed original document in January 2019.

Amendments to these arrangements will be issued periodically.

Suggestions for amendments can be forwarded to:

Manager Waste Operations
PO Box 41
Port Hedland WA 6721

Amendment List

After Hours Sanitation Works Noise Management Plan

Amendment Record

Proposals for amendments or additions to this plan should be forwarded to the Manager Waste Operations.

AMENDMENT		DETAILS OF AMENDMENT	AMENDED BY
VERSION	DATE		
1	15/01/2019	Document Created	

Document Distribution List

TITLE	ORGANISATION	COPIES
Chief Executive Officer	Town of Port Hedland	1
Director Infrastructure and Town Services	Town of Port Hedland	1
Manager Waste Operations	Town of Port Hedland	1
Manager Environmental Health	Town of Port Hedland	1
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Part 1 – Introduction

1.1. Background

The Town of Port Hedland has commenced afterhours sweeping works along the main roads of Port Hedland, South Hedland and the entirety of Wedgefield.

Afterhours works are being delivered in conjunction with our usual daytime works in order to provide a greater level of service and upkeep to the roads and thoroughfares within our community.

The afterhours sweeping operations will focus on main roads that are difficult to service during the daytime hours due to traffic, however, some of these main roads will be in proximity to residential premises. In order to minimise any nuisance noise to residents within the proximity of afterhours works a noise management plan is being developed.

1.2. Title

These arrangements are to be referred to as the “Town of Port Hedland Afterhours Sanitation Works Noise Management Plan, or the Plan”.

1.3. Aim

The aim of the Noise Management Plan is to identify and document strategies to be used to mitigate operational noise that is emitted during the street sweeping process resulting from afterhours street sweeping works.

1.4. Legislation

Section 14 A of the Environmental Protection (Noise) Regulations 1997 allows noise restrictions to not apply to ‘waste collection and other works’ if a noise management plan is in place and approved by the CEO of the local government authority.

Afterhours sweeping works fall under Class 2 works under these regulations. Class 2 works are works that take place outside of standard hours, 7 am to 7 pm.

Section 14A(3) states that regulation 7 of the Environment Protection Regulations (Prescribed standard for noise emissions) ‘does not apply to noise emitted in the course of carrying out class 2 works if the works are carried out in accordance with a noise management plan, excluding any ancillary measure, for Class 2 works approved in writing by the CEO’.

A noise management plan must be submitted to the CEO for approval and must include the following as per *section 14A (6) of the Environmental Protection (Noise) Regulations 1997*.

1.5. Guidance

A noise management plan for Class 2 works is to include, but is not limited to:

- Details of vehicle or equipment evaluation and purchase policies adopted to select, on a reasonable and practicable basis, the quietest vehicle or equipment available; and
- Measures to be adopted to minimise noise emissions resulting from carrying out the

works; and

- Justification for carrying out the works during the times of day to which the class relates; and
- A description of the specified works to be carried out during the times of day to which the class relates; and
- Operator training programmes; and
- Community information relating to the manner in which the specified works will be carried out; and
- A complaints response procedure.

Once completed and prior to the CEO approval the noise management plan must be publically advertised as per requirements of *Section 1.7 of the Local Government Act 1995*.

1.6 Authority

Town of Port Hedland Afterhours Sanitation Works Noise Management Plan has been prepared and produced under the authority of the CEO of the Town in line with relevant legislation and guidance.

1.7. Scope

The Plan covers the considerations that have been put in place to mitigate operational noise resulting from afterhours street sweeping works.

The scope of these arrangements includes:

- Vehicle selection and specifications – Providing details of the vehicle and demonstrating the basis for vehicle selection in support of the Plan
- Noise detection – Detailing measures taken to identify noise levels resulting from carrying out the works; including
- Scope of works and operations schedule – Justification for carrying out the works afterhours; and a description of the specified works and schedule and how this has been developed to minimise nuisance noise
- Operator selection and skills – Operator training programmes
- Community Engagement and Feedback Procedure – Schedule publication and complaints response procedure.

1.8. Testing, Reviewing and Exercising

This document will be reviewed annually from the date of endorsement. The Manager of Waste Operations will initiate and conduct the review to ensure the objectives within the Plan remain current.

Part 2 – Vehicle Selection

2.1 McDonnell Johnston VT651 Truck Mounted Sweeper

In selecting our road sweeping equipment, it was important that we obtained equipment that provided significant performance outcomes, whilst also delivering unparalleled environmental

outcomes. The McDonnell Johnston VT651 truck mounted sweeper provides the ideal balance that allows us to achieve this objective.

The manufacturer McDonnell Johnston manufactures the sweepers' factory accredited to ISO 14001 for sustainability.

Detailed equipment specifications can be found in Appendix 1 – **McDonnell Johnston VT651 Truck Mounted Sweeper Specifications**

2.1.1 McDonnell Johnston VT651 Noise Reduction System

The VT651 is equipped with a noise suppression hood, encapsulating the power pack and fan casing. In-vehicle noise is less than 75 dB (A) (A weighted decibels) whilst exterior noise is 112 dB (A) at maximum revs, in line with EC directive 2000/14/EC, creating a safer operating environment for both driver and people nearby. The fully variable fan can be set to lower revs for night sweeping which reduces noise levels by 50%. Full power is achieved at just 1100 RPM (Revolutions per minute), which reduces fuel consumption and noise whilst enabling sweeping speeds to be kept at an optimum.

2.2 HINO 500 Medium Duty Range Truck Specifications

The Hino 500 series truck has been selected as the mounting chassis for our VT651 sweeper because of its operational and fuel efficiency, paired with the McDonnell Johnston VT651 our afterhours sweeping operations can be delivered in line with the optimal efficiency and environmental considerations applied to all our vehicles and equipment.

Detailed equipment specifications can be found in Appendix 2 – **HINO 500 Medium Duty Range Truck Specifications**

2.2.1 Noise Reduction System

The performance engine 'A05C-TC' that powers the HINO 500 series produces peak power of 260 horse power at 2300 RPM and a torque rating of 882 Nm (Newton Metres) at 1400 RPM. The high torque rating and wider torque range allows the engine to be driven comfortably at lower RPMS reducing engine noise, which is further supported by a noise insulator around the engine to reduce any residual engine drumming from operating at low RPMS.

Part 3 – Noise Detection

3.1. Measurement of Background Noise

In order to understand the nature of the nuisance noise emitted during the afterhours sweeping operations a background noise detection test was conducted.

3.2. Measurement Details

The McDonnell Johnston VT651 mounted on to the HINO 500 was measured against the following parameters:

- Frequency weighting: A-weighting
- Time weighting: slow

- Position of measurement: outside (the assigned levels in the Environmental Protection (Noise) Regulations 1997 are quoted as outside levels)
- Measurement of background sound
- Measurement of background sound combined with the sweeper noise at a reference point 1.5 metres from the sweeper, and at a receptor 22 metres from the sweeper.
- Measurements were taken from the property fence at 18 Traine Crescent in South Hedland while the sweeper was operating and mobile. The maximum and minimum sound levels and distances were recorded from this location.

3.3. Noise Detection Results

Background sound level was measured at 49 dB(A). The combined background sound and the sweeper noise from a distance of 1.5 metres from the sweeper whilst idling was 69 dB(A). The combined background sound and the sweeper from a receptor 22 metres from the sweeper whilst idling was 67 dB(A).

The combined background sound and the sweeper noise from the second receptor on the property fence at 18 Traine Crescent in South Hedland with the sweeper operating and mobile provided the following:

- Maximum reading from 4 metres from source: 84 dB(A)
- Maximum reading from 70 metres from source: 65 dB(A)

These measurements of combined background and source sound levels exceed maximum assigned levels (Lmax) of noise-sensitive premises as prescribed under the *Environmental Protection (Noise) Regulations 1997*.

3.4. Noise Detection Results Analysis

The background sound level measured was 10 dB (or more) lower than the combined sweeper noise and background noise. This indicates the background sound did not significantly contribute to the measured levels.

The measurements taken with the sweeper operating and mobile indicate that the maximum sound level from the property boundary whilst the sweeper is operational is 84 dB(A), exceeding the operational maximum sound levels (Lmax) for noise-sensitive receptors.

3.5. Recommendations from Noise Detection Test

As a result of the operation, the sweeper exceeding the operational maximum sound levels (Lmax) for noise-sensitive receptors, it is recommended that a noise management plan (this plan) be concluded to detail efforts being undertaken to manage the noise emissions as well as avenues for community consultation.

Part 4 – Noise Mitigation

4.1. Scope of After-hours Works

The scope for afterhours works has been developed to mitigate the proximity of operations to residential property. In developing the scope, a decision to focus afterhours operations to high traffic areas that are not easily accessible during working hours. This has limited the proximity of the works to the majority of residential streets. The major high traffic areas are primarily main arteries connecting neighbourhoods with commercial areas and highways, the majority of which

are removed from high-density residential areas. The bulk of afterhours works will occur in high density commercial and industrial areas so that daytime scheduling can maximise time spent in residential areas.

4.2. Prioritising Work Schedule

In delivery of the afterhours works, the schedule has been developed to ensure streets that are closest to high-density residential areas are addressed early on in the work schedule. This ensures that works in high-density areas can be delivered towards the earlier part of the window for noise restrictions commencing 7pm, with all works in close proximity to high density areas scheduled for completion by 8:30 pm.

4.3. Afterhours Work Coverage Area Maps

4.3.1. Port Hedland

Streets identified in the map below are high traffic areas and cannot safely be serviced during working hours. These streets have been scheduled for afterhours works with the streets identified in red being prioritised for works occurring between 7pm and 8:30 pm in order to mitigate potential noise emissions to high-density residential areas.



	Not After 8:30pm
Cooke Point Dr	Edgar St
Richardson St	Parts of Styles Road
Styles Rd	Bell St
The Esplanade	
Wedge St	

4.3.2. South Hedland

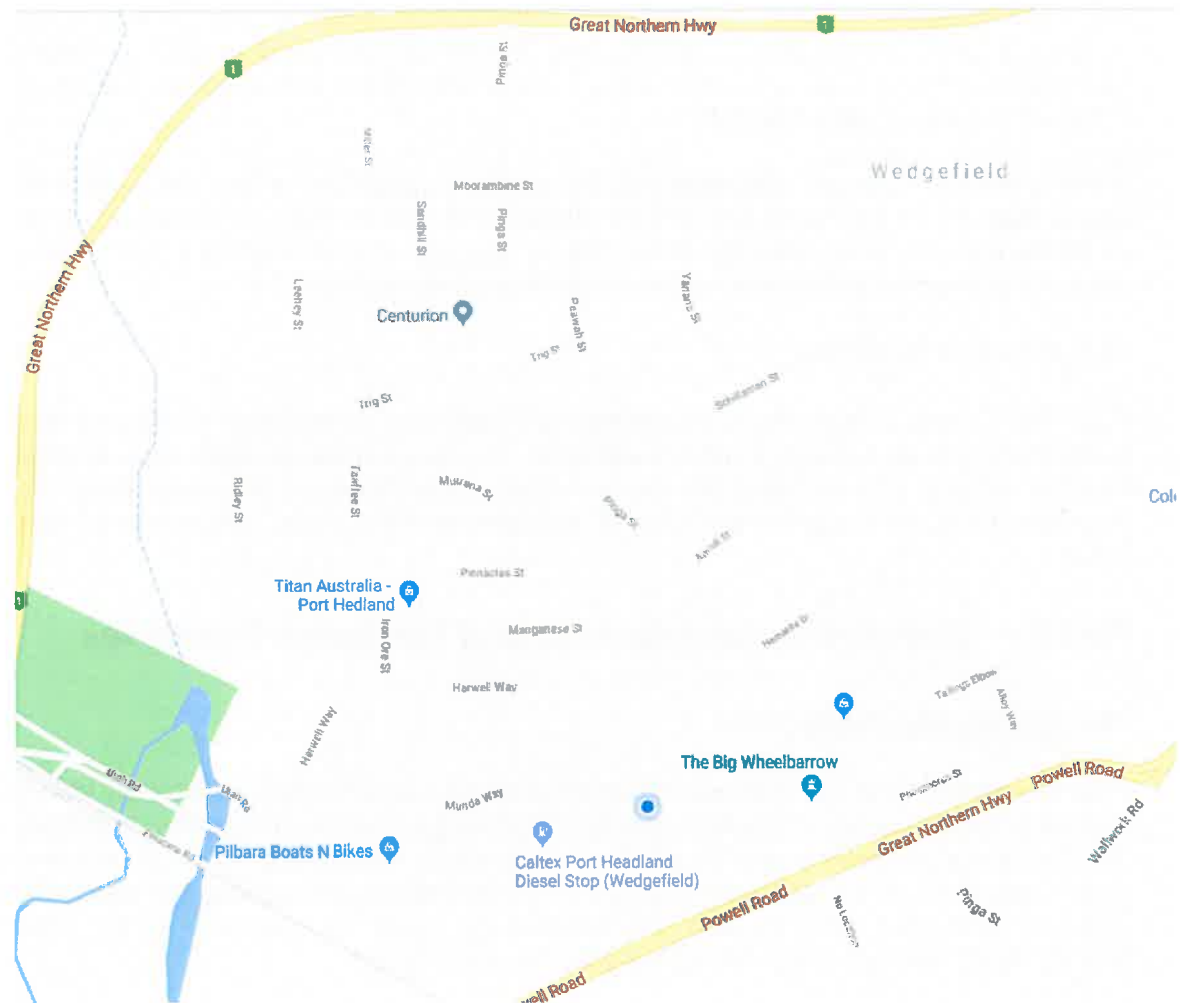
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	Not After 8:30pm
Brand St	Parts of Cottier Dr
Byass St	
Colebatch Wy	
Collier Dr	
Cottier Dr	
Court Pl	
Forrest Cir	
Hamilton Rd	
Hawke Pl	
Hunt St	
Leake St	
McLarty Blvd	
Murdoch Dr	
North Circular Rd	
Rason Ct	
Throssell Rd	
Tonkin St	

4.3.3. Wedgefield

All of the streets in Wedgefield will be serviced through afterhours works due to the high density of commercial and industrial properties in this area. This high density makes it unsafe to deliver any form of works during business hours.



Part 5 – Operator Selection, Training, and Sweeper Operating Procedures

5.1. Operator Selection and Training

Night-time street sweeping and utilisation of McDonnell Johnston VT651 requires a high degree of operator skill. In selecting, a suitable operator for delivering the service consideration was given to the amount of previous experience in municipal vehicle operations as well as appropriate experience working antisocial hours.

Once a suitable operator was selected, the operator undertook a two-week intensive training course specific to operating the VT651 sweeper. A further route optimisation schedule was developed, which is continually enhanced by the operator to minimise time spent in close proximity to residential areas during the night sweeping operations.

5.2. Sweeper Operation

The VT651 sweeper operates by sweeping and vacuuming bitumen by making a series of passes whilst moving at an average of 35 km per hour. To conclude the sweeper sprays water onto the bitumen, scrubs, and vacuums the residue. These operations are delivered whilst the sweeper is in eco-mode, allowing the sweeper to optimise its RPM whilst enhancing its noise control levels.

Part 6 – Community Engagement and Feedback Processes

6.1. Community Engagement

Prior to embarking on the night sweeping programme a communication strategy was developed to advise the community of the new operational strategy. This information was publicised through the Towns social media pages and through community notices. As the program commenced a profile was done on the sweeping operations explaining the programme and schedule of works. The communication strategy also emphasised the ability for members of the community to provide feedback on, or rate the night sweeping operations.

6.2. Issue Lodgement & Resolution Process

In order to address issues that result from night-sweeping operations in a timely manner and improve the impact to the community an issue resolution process has been developed. Our call centre team are available to address any complaints or issues that arise because of the works. Members of the public can access information on lodging a complaint on the Town of Port Hedland's Website and social media pages. Complaints are received and passed on to the waste operations team where they are considered and a response is provided. Where a complaint is in relation to noise and an operational change can be made to resolve it, this will be implemented and communicated back to the concerned party.

Appendix 1 – McDonnell Johnston VT651 Truck Mounted Sweeper Specifications

Specification Sheet

V651 SWEEPER

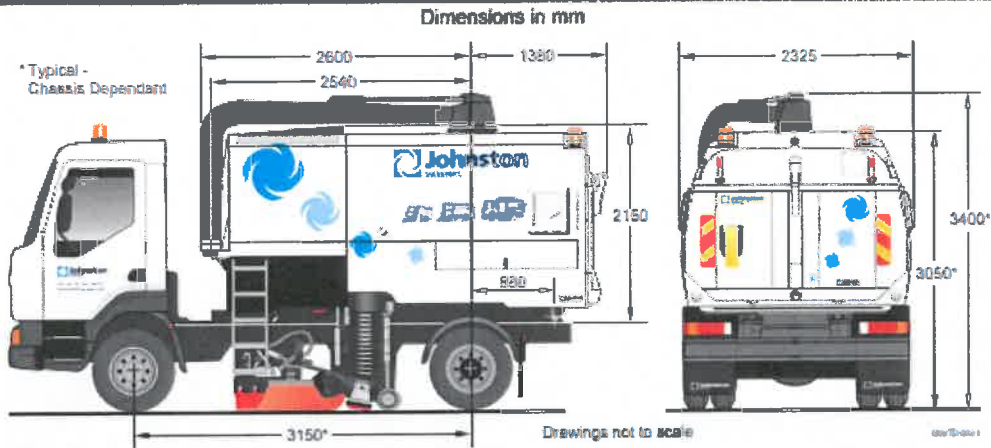
Series V651 (VT/VS/VM)

Sheet 1 of 1

Revision: A

Subject Technical Information and Data

Date: 18.05.2016



Data and Performance Information

VT - Engine Data		Capacities	
Model	JCB Ecoem: 444 Stage 3b	Hopper voided volume	6.6 m ³ nominal
Cubic capacity	4.4 litres	Payload voided volume	5.56 m ³ nominal
No. of cylinders	4	Payload capacity	6 Tonnes (chassis dependent)
Gross rated power	56kW @ 2200 rpm	Fuel tank	Up to 190 litres
Maximum torque	400Nm @ 1250 rpm	Water tank	1554 litres
Legislation compliance	NRMM Stage 3b EC directive 97/68EC	Hydraulic system	VT: 61 litres - VS/VM: 75 litres
VS - Gearbox Data		Sweeping Equipment	
Transmission pump	55 cc/rev, variable output	Channel brush (CB)	Ø 500 mm (Ø 650 - 710 mm Option)
Pump pressure	420 bar forward (350 bar reverse)	Wide sweep brush (WSB)	Ø 406 mm
Transmission motor	160 cc/rev variable	Nozzle trunking diameter	Ø 250 mm
Work input speed	Up to 1700 rpm	Nozzle width	750 mm
Fan pump	57 cc/rev variable output	General Data	
Fan pump input speed	Up to 2400 rpm @ 1600 rpm engine	Chassis requirement	13-15 Tonnes
Fan pump pressure	≤ 240 bar	Wheelbase	3150 mm nominal
Fan motor	40 cc/rev (bent axis)	Discharge height	890 mm (nom) chassis dependent
		Discharge angle	54° nominal
		Door opening angle	125° nominal
		Dust spray pump output	Up to 35l/min
		Dust spray water pressure	3-5 bar
		VS Hydrostatic Tranet	Ø – 40 km/h (chassis dependent)
		VS Hydrostatic Worktrac	Ø – 18 km/h
VM - Fan Blimp Data			
Fan pump	135 cc/rev variable output		
Fan pump input speed	Up to 2000 rpm (PTO dependent)		
Fan pump pressure	210 bar		
Fan motor	40 cc/rev (bent axis)		

HINO

500 Series

FM 2628



* Illustration may contain items not standard to the model

ADR 80/03 Model 6 x 4 Cab Chassis

KEY FEATURES

- Vehicle Stability Control (VSC) with ASR
- Polished Aluminium Wheels
- Cruise Control
- Hino Stop Start System (HSSS) (Manual models only)
- Reverse Camera
- Easy Start (ES) Take off assist (Manual models only)
- Drivers SRS Airbag
- Heated & Electrically Operated External Mirrors
- ISRI 6860/870 Drivers seat with integrated Safety Belt
- ECE R-29 Cab Strength Certified
- Differential Cross Locks

KEY SPECIFICATIONS

GVM	26,000kg
GCM33,000kg Automatic models
	.38,000kg Manual models
Power280hp/206kW
Torque883Nm
TransmissionsNine-speed Synchronesh Manual
	.Six-speed Allison Automatic
Nominal Wheelbases4.2m, 5.3m, 6.5m
Max. Nominal Body Length*5.8m, 7.5m, 9.3m



FM 2628

Engine & Driveline Specifications

ENGINE

Model	J08E-WA
Max. Output (ISO Net)	280hp/206kW @ 2,500 RPM
Max. Torque (ISO Net)	883Nm/646kgm @ 1,500 RPM
Max. Engine Speed	2,700 RPM
Engine Compliance	ADR 80/03 using Euro 5 STD
Type	Turbocharged & Intercooled, 6 cylinder in-line, overhead camshaft & fluid cooled
Combustion System	Direct Injection
Bore & Stroke	112 x 130mm
Piston Displacement	7.687L
Compression Ratio	18.0:1
Engine Oil Capacity	13.5L
Coolant Fluid Capacity	Auto: 25L Manual: 21.5L
Fuel Injection System	Electronic control common-rail type
Air Intake System	Stack-type
Air Cleaner	Dual paper elements
Air Compressor	Single cylinder, fluid cooled 85 x 60mm (except 30L Leaf) 85 x 40mm (00L Leaf)
Fan Clutch	Equipped
Exhaust	Horizontal
Emission Control System	Selective Catalytic Reduction (SCR)
Hino Stop Start System (iSSS)	Manual models only
Engine Immobilizer	Equipped

CLUTCH (Manual Models only)

Model	CS-380
Type	Dry single plate with damper springs
Facing material	Organic
Facing outside diameter	380mm
Control	Hydraulic with air booster

TRANSMISSION & GEAR RATIOS

Make & Description	Automatic		Manual	
	Allison 3500 series 6 speed with Electronic Control		Eaton ES11109 9 speed with Cable Control	
Type	Double Overdrive		Direct Drive	
	1	4.583	1	12.637
	2	2.257	2	8.806
	3	1.526	3	6.550
	4	1.000	4	4.768
	5	0.749	5	3.548
Gear Ratios	6	0.651	6	2.481
			7	1.845
			8	1.343
		9	1.000	
	Rev	4.868	Rev	13.210
Torque converter & Ratio	TC 415	2.35		

PERFORMANCE

Calculations based on 25,010 GVW with 11R22.5 drive tyres			
Transmission	Automatic		Manual
Wheelbase variants	Medium	L & XXL	Medium, Long & XXL
Rear Axle Ratio	6.142	6.426	4.625
Engine RPM @ 100 km/h	2,100	2,200	2,440
Max theoretical speed (km/h)	128	122	112
Gradeability tan θ (%) @ GVW	44.9	47.5	38.2
Speed limited to (km/h)	100		

BRAKES

Type	Full Air, dual circuit, "S" cam
Drum & Lining sizes	Front: 410 x 150mm
Diameter x Width	Rear: 410 x 220mm
Auto adjusters	Equipped
Vehicle Stability Control (VSC)	Equipped
Anti-lock Braking System (ABS)	Equipped
Anti-Slip Regulator (ASR)	Equipped
Air Dryer	Equipped
Easy Start (ES)	Manual models only
Park Brake	Spring Brake acting on FA & FH axes
Exhaust Brake	Equipped

AXLE, SUSPENSION & LOAD LIMITS

FRONT	Front Axle Model	MF 780R		
	Type	I-Beam, Reverse E-Link		
	Suspension	Taper leaf springs with shock absorbers & stabilizer		
	Spring Dimensions	1,700 x 90 x 28.8 mm x 1		
	Length x Width x Thickness x Number	1,700 x 70 x 30.3 mm x 1		
	Spring Rate	32.8 kgf/mm		
REAR	Axle Limit (including suspension)	6,500 kg		
	Tyre Limit	7,100 kg		
	Rear Axle Model	1HD17 & SH17		
	Differential Cross Lock	Equipped FR & RR		
	Inter-axle Differential Lock	Equipped		
	Type	Fully floating, single reduction, hypoid		
	Rear suspension types	Mino 6 Rod Leaf	Henricuson Air	
	Suspension	Semi-elliptic Multi Leaf	HAS 400 airbag with double acting shock absorbers and ECAS remote height control system	
		Medium	Long & XXL long	1,350 x 90 x 20 x 6
	Spring Dimensions	Length x Width x Thickness x Number	1,350 x 90 x 20 x 10	1,350 x 90 x 18 x 3
		Spring Rate	293.4 kgf/mm	234.0 kgf/mm
	Axle Limit (including suspension)	20,000 kg		
Tyre Limit	23,200 kg			

WHEELS & TYRES

Material	Polished Aluminium
Wheel type	10 stud disc (50) 335 PCD
Rim size (in)	22.5 x 8.25 - 165mm offset
Tyre size	Front: 285/80R22.5 152/148 Rear: 11R22.5 148/145
Number of Tyres	11
Spare Tyre Carrier	Equipped (except Medium Wheel Base)

FUEL TANK

Wheelbases	Medium	Long & XXL long
Material	Steel	Aluminium
Capacity	200L	300L
Lockable Cap	Equipped	
Pre-Filter & sediment	Equipped	
AdBlue® tank capacity	59L	

STEERING

Type	Telescopic & tilt steering column with locking device
Steering Angle	Recirculating ball with internal Power Steering Inner 49° Outer 34°