Operators Manual

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1- Introduction

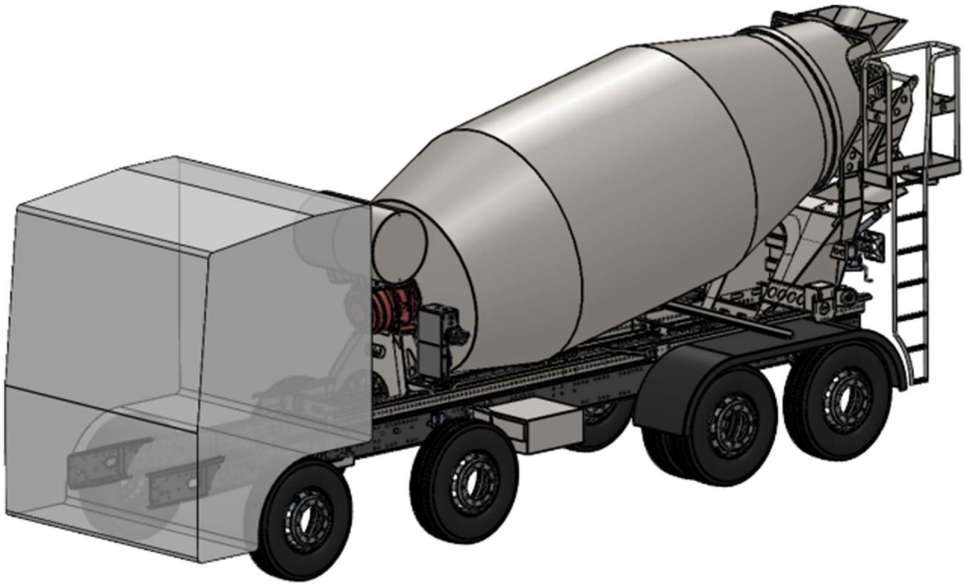


Fig 1 – M-Series 933 Pictorial View

Congratulations on your selection of a Nugent M- Series Concrete Mixer!

We are confident with our simplistic operator approach, quality manufacturing experience and extensive testing procedures, will ensure that your Mixer embodies the elevated levels of quality, reliability and longevity expected from a Nugent branded product.

The following document covers your M-Series Mixer, and as our M-Series range is as generic as possible to all sizes of barrel, all aspects will be as closely associated as possible to your personal mixer. This manual will reflect, as much as possible, the build of your vehicle however, specific sections may not be applicable.

This manual is intended to be used by; mixer driver, mixer owner, maintenance operator, as a guide to safe operating practices. Chassis OEM manuals and documentation should also be followed for base chassis work/maintenance/issues.

Full technical support for any operation or replacement part of the mixer can be found online at http://www.nugentcoachworks.com/contact/ or by speaking to your representative at Nugent Coachworks, directly

This product is provided with 2 years warranty. Starting from pick-up date of mixer. *Unless otherwise stated.*

Warning: Before operating mixer, read the below manual to ensure the correct and safe usage through understanding. After reading store in a safe place for future reference. Incorrect operating procedures of this mixer could potentially result in personal injury to operator.

Before operating the mixer unit, it is recommended the following manual is read and familiarised. This will ensure operators are aware of important safety guidelines, safe working practices, maintenance operations and information relating post purchase support. User manual or QR Code access must be kept with the chassis/mixer at all times and easily accessible for consultation. The following guidance should be followed whilst operating or working around the mixer truck.

This manual reflects the technical knowledge at the time of the machine's completion. Documentation cannot be considered inadequate of future developments within standards or industry understanding.

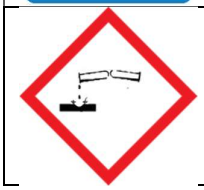
The manufacturer reserves the right to update this manual without the obligation to redraft previous versions. The user does have the right to all updated information. See contact section for technical support. Manufacturer also negates any responsibility for the non-observance of information provided within the following document.

Manual should be used in conjunction with OEM (original equipment manufacturer) user handbook.

Caution: Safety instructions included in the below document are intended to work in conjunction with standard operating procedures and should always be used alongside site/company specific regulations to provide a safe working environment.

Pay particular attention to safety instructions provided, these are to protect the operator. Level of seriousness to be applied to each section is detailed below:

Warning: *This statement appears where information must be followed exactly to avoid serious personal injury.*
Caution: *This statement appears where information must be followed to avoid injury or damage to equipment.*

	Safety Precautions are for the protection of the health and safety of the operator and other personnel in the machine vicinity. Failure to follow these guidelines may result in severe injury. Read the below and follow precautions to protect yourself and others.
	Danger rotating parts Rotating parts can cause injury do not put any part of body near rotating parts where there is risk of entanglement. **Risk areas** – Drum roller and roller path, PTO to pump driveshaft & loading cone to drum. *All substantial risk areas are covered with guards. Mixer should not be operated without guards or damaged guards.*
	Finger Trap Moving parts within the assembly may cause trapping of hands. Be aware when working around the mixer area. **Risk areas** – Hinged loading cone, chutes
	PPE Adequate personal protective equipment should be worn whilst operating the mixer. PPE should be kept in working order with no tears or rips. Consult employer handbook for required PPE
	Ear protection Adequate ear protection must be worn when operating mixer.
	**Warning:** Cementous material burns. Take appropriate precautions when working with corrosive materials.

	Warning: Faulty or poorly maintained equipment can cause injury or death. Maintenance is operators' responsibility. Make sure all equipment is maintained properly and serviced by a qualified professional. Do not misuse or abuse equipment.
	Working at Height When working at height (on the rear platform) always safety latch must be closed behind when entering the platform. Furthermore, ensure three points of contact are always maintained when using ladder. Platform should only be used for visual checks ***only; no work*** should be carried out on platform.
	Warning: Slips Trips and Falls Areas of chassis, platform and ladder may become slippery when wet or after delivery of concrete. Caution should be taken when attempting to work on or around the vehicle/mixer.
	Warning: High Voltage Chassis operates with 600V power lines. Periodically, visually check orange power cables. If any yellow covering can be seen through the orange guards, contact chassis dealer. Always have a trained competent operator carry out any maintenance of power cables etc. Refer to chassis handbook for further details of dangers and precautions.
	Caution: Mixer can only be controlled / used by trained and competent operator.
	Caution: Handbrake must always be applied before leaving the cab.
	Caution: During transit drum speed should be adapted to suit road conditions. Excessive drum seeds can increase the likelihood of mixer rolling over.
	Caution: Before driving , all auxiliary components should be stored and secured correctly.
	Caution: Operators shall switch off ignition of truck or and auxiliary engines and secure the ignition key against any unintended use

Applicable British Standards and UK Legislation
This section lists key British and international standards and UK legislation that are relevant to the design, manufacture, safe operation and maintenance of truck-mounted concrete mixers. It is not exhaustive — operators and purchasers should ensure conformity with the latest editions and any sector-specific regulations.

Supply of Machinery (Safety) Regulations 2008 (SI 2008/1597)
Implements the EU Machinery Directive (2006/42/EC) in Great Britain; applies to machinery safety, CE/UKCA marking and manufacturer obligations.

Directive 2006/42/EC – Machinery Directive
Essential health & safety requirements for machinery placed on the market in the EU/EEA (relevant to mixer components and safety devices).

BS EN 12609:2021 – Truck mixers. Safety requirements
Specifies safety requirements and conformity criteria specific to truck mixers.

BS ISO 19711-1:2018 – Truck mixers — Terminology and commercial specifications
Defines terminology and commercial specifications for truck mixers (terminology, capacity classes, etc.).

BS ISO 18650-1:2021 – Concrete mixers — Commercial specifications
Requirements for building construction machinery and equipment, including concrete mixers.

BS EN 206:2013 + A2:2021 and BS 8500:2023 – Concrete specification
Standards covering concrete specification, production and conformity (relevant to transported materials and handling).

Provision and Use of Work Equipment Regulations 1998 (PUWER)
Places duties on employers to ensure work equipment (including mixers) is suitable, maintained, inspected and that operators are trained.

Health and Safety at Work etc. Act 1974 (HSWA)
Primary UK health and safety legislation—employers must ensure the health and safety of employees and others affected by their work.

Control of Substances Hazardous to Health (COSHH)
Regulations controlling exposure to hazardous substances such as cement; employers must assess and control risks.

Control of Noise at Work Regulations 2005
Sets action and exposure limits for noise; employers must control exposure and provide hearing protection where required.

Suggested Manufacturer's Declaration of Conformity (sample)

Use the template below as a basis for your formal Declaration of Conformity. Replace bracketed fields with specific information.

EU/GB Declaration of Conformity

Manufacturer: [Manufacturer name and address]
Authorised representative (if applicable): [Name and address]
Product: [Nugent M-Series Truck Mixer] – Type/Model: [insert model designation]
Serial number(s): [range or list]
Year of construction: [YYYY]

This declaration is issued under the sole responsibility of the manufacturer. The product specified above is in conformity with the relevant Union/GB legislation and standards listed below:
• Supply of Machinery (Safety) Regulations 2008 (SI 2008/1597)
• BS EN 12609:2021 Truck mixers — Safety requirements
• BS ISO 19711-1:2018 — Truck mixers — Terminology and commercial specifications

The following harmonised standards and other technical specifications have been applied:
[List applied standards and parts]

Signed for and on behalf of: [Manufacturer]

Name: _____

Position: _____

Date: _____

Signature: _____

Safety Markings, Labels and Warnings

Required Marking
Manufacturer plate: Manufacturer name, model, serial number, year, Gross Vehicle Weight (GVW), UKCA/CE mark
Warning: Rotating parts — Keep clear. Do not operate with guards removed.
Warning: Risk of entrapment — Do not reach into drum. Follow lock-out procedures before maintenance.
Caution: Isolate power before opening. Follow maintenance manual.
Environmental: Do not discharge washout water to drains. Follow site/environmental guidance.

2 - Knowing Your Mixer

2.1 – Terminology

The below terms should be used when referring to components within the mixer assembly when servicing and/or ordering components:

Nugent M Series – Name given to the Nugent Ranges of builds on Internal Combustion Engine or ICE chassis.

Nearside (*N/S*) – Passengers' side of truck, nearest to the kerb.
Standard components found on this side; platform, ladder, slump meter, N/S water fill point, rear controls, oil cooler and water meter.

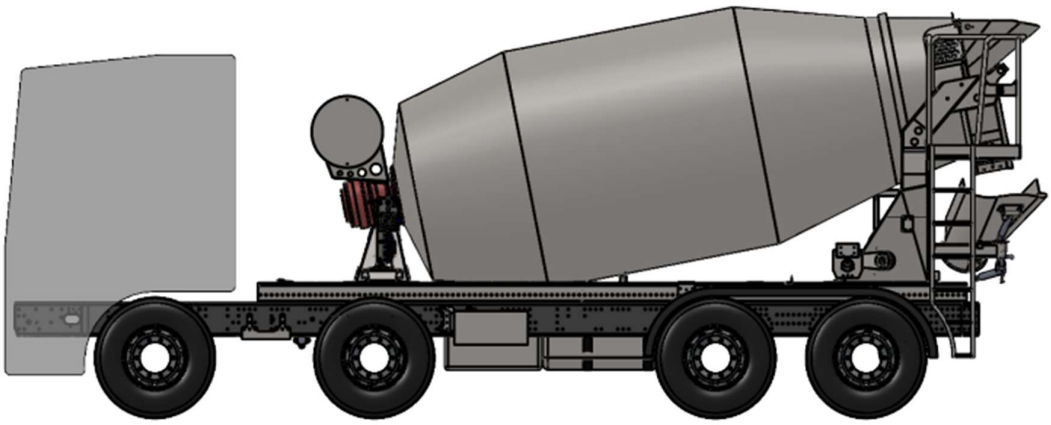


Fig 2 – N/S of Nugent M-Series Mixer

Offside (*O/S*) – Drivers' side of truck
Standard components found on this side; washbox, plastic extension chutes and O/S water infill point.

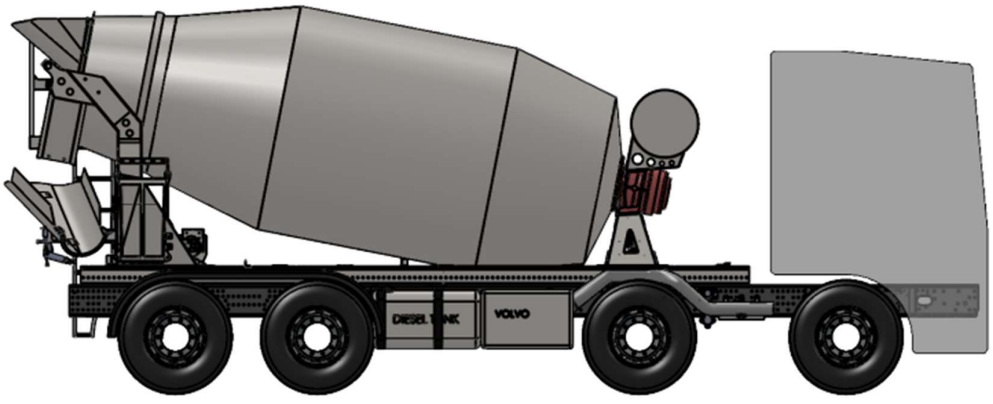


Fig 3 – O/S of Nugent M-Series Mixer

Charging – Rotation of the drum in a counter-clockwise (looking from rear of truck) which pushes the load towards the front of the unit therefore allowing material to be fed into the drum.

Discharging – Rotation of the drum in a clockwise (looking from the rear of the truck) which pushes the load towards the rear of the drum into the discharge chutes.

Slump – Refers to the consistency of concrete. High slump means the concrete mixer is more fluid than low slump concrete.

Auxiliary components - Refers to components that can be moved or removed from the assembly whilst delivering concrete i.e. plastic extension chutes, pan chute and loading cone.

Concrete Build-up – Name given to concrete that has been allowed to dry within the drum.

Danger Zone – Area around the machine where there is significant increased risk to the safety of the operator or persons entering the area.

Operator – Person(s) carrying any related tasks to the machine or around the machine, including the chassis itself.

Trained Person(s) – Qualified person(s) and/or those who are under supervision of qualified personnel.

2.2 – Part Identification

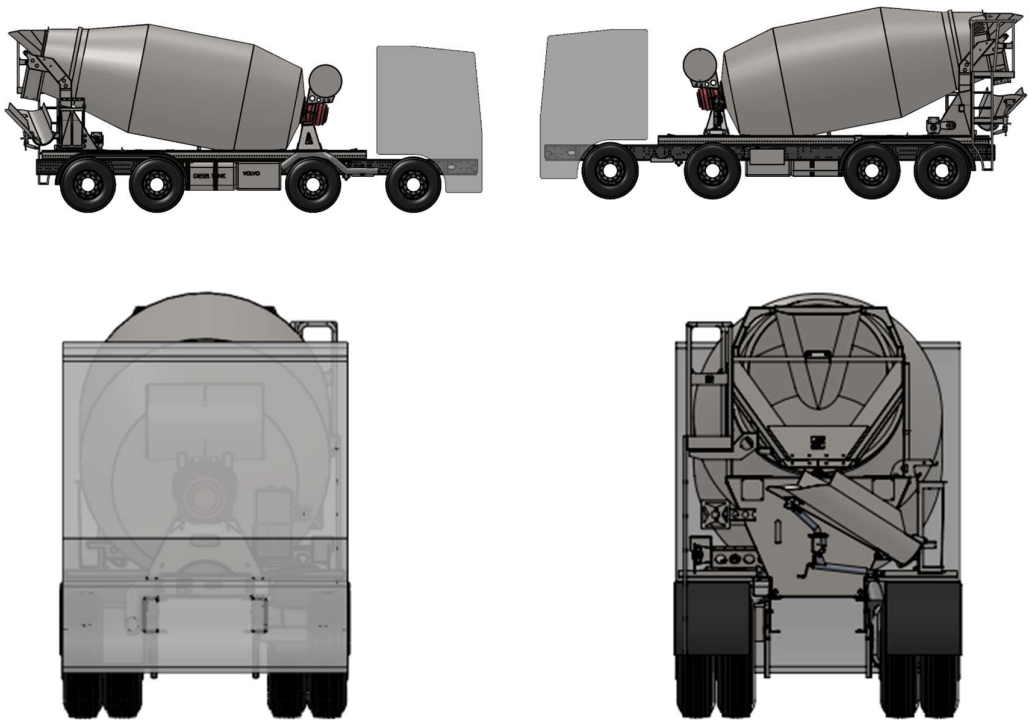


Fig 4 – Overall Mixer View

Description: List of Parts and Terminology
Drum
Manhole
Chassis plate
Mudwings
Back Stool Assembly
Rear Underrun
Ladder Assembly
Support Arm A
Support Arm B

Pan Chute
Platform
Loading Cone Assembly
Water Tank
Gearbox
Ear Chute Columns
Ear Chute Assembly
Washbox
Plastic Extension Chute
PTO / Pump Assembly
Front Stool
Subframe
Motor
Double Water Infill
Rear Control Station
Water Meter
Water Pump
Oil Cooler Fan
Rear Washdown Hose
Pan Chute Actuator
Greasing Points
N/S Caution Keep Clear Badge
O/S Caution Keep Clear Badge
Highway Maintenance Board
Cyclist Badge
Decibel Badge
Drum Lock (Back Stool)
Shackle
Grease Points

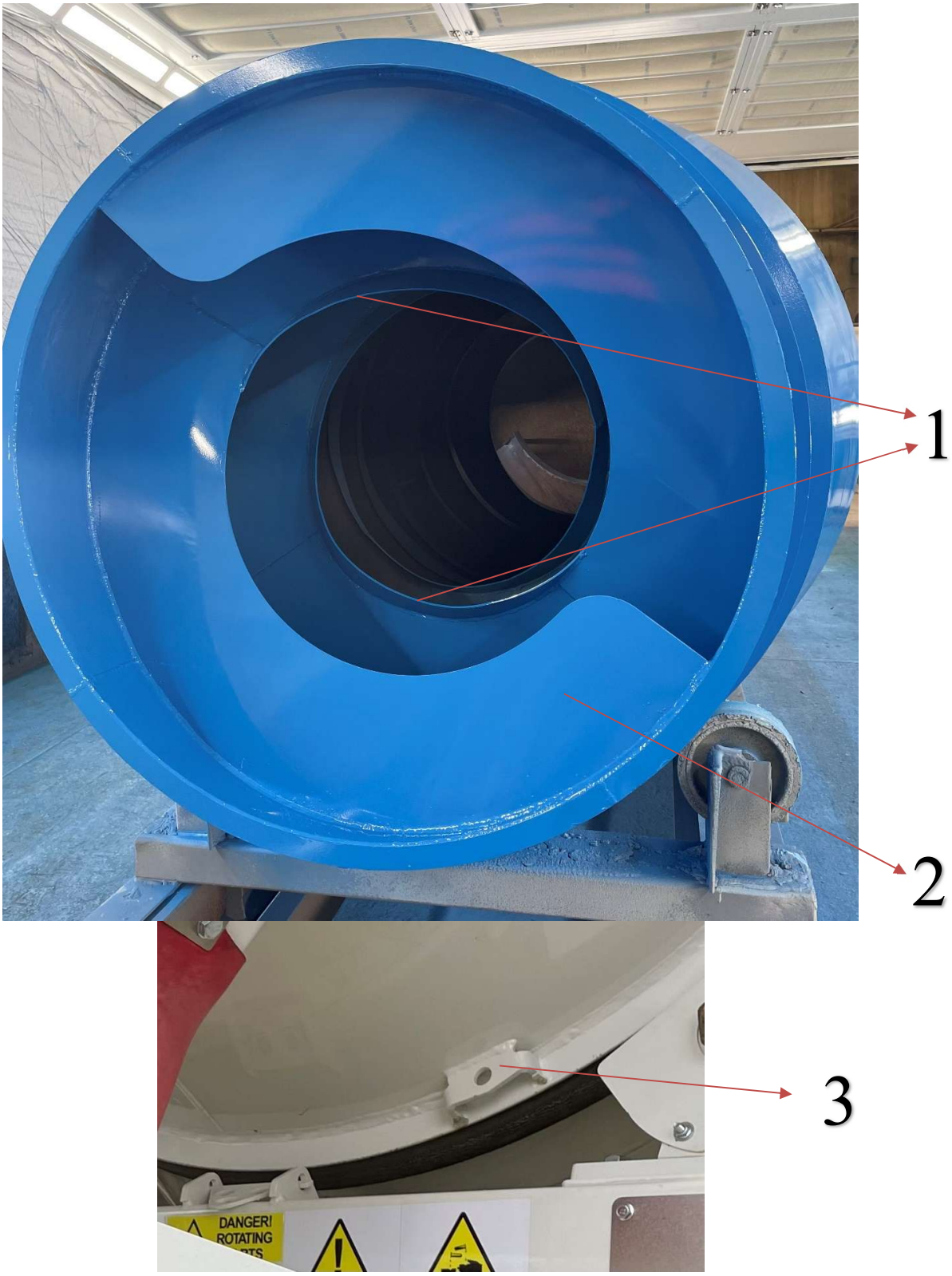


Fig 5 – Drum Terminology Identification

1	*Capping*
2	*Blade*

3	*Drum Lock*

2.3 – Unit Reference Number (I.D Badge)

Fig 6 – I.D Badge

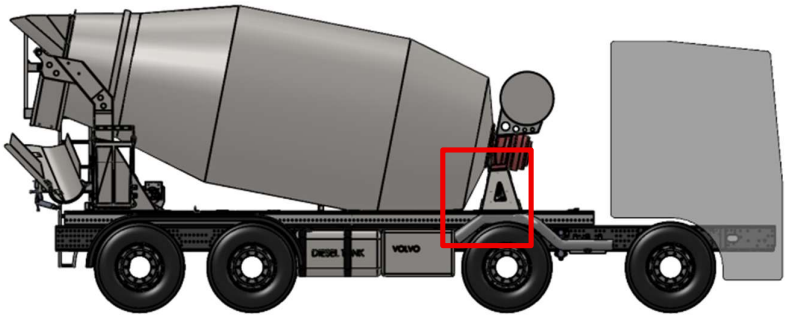


Fig 7 – I.D Badge Location

This badge details the unique identification number used by Nugent for after-care reference and origin of manufacture.

Note: Please reference unique identification number when contacting Nugent. This allows a detailed record of communication to be kept and will also speed any assistance provided from Nugent.

2.4 – Datasheet

2.4.1 – Mixer Weight Classification

Model	*Nominal Capacity*	*Drum Speed (RPM)*	*Mixer Weight*	*Air Volume*	*Water Volume*	*Chassis Config*	*GVW*
M-444	$4m^3$	0-12	2854KG	$8.4m^3$	$4.5m^3$	4X2	19T
M-455	$4m^3$	0-12	3029KG	$8.4m^3$	$4.5m^3$	4X2	19T
M-733	$7m^3$	0-12	3100KG	$12.5m^3$	$7.25m^3$	6X4	26T
M-744	$7m^3$	0-12	3255KG	$12.5m^3$	$7.25m^3$	6X4	26T

M-755	7m^3	0-12	3550KG	12.5m^3	7.25m^3	6X4	26T
M-833	8m^3	0-12	3310KG	14.35m^3	8.54m^3	8X4	32T
M-844	8m^3	0-12	3550KG	14.35m^3	8.54m^3	8X4	32T
M-855	8m^3	0-12	3850KG	14.35m^3	8.54m^3	8X4	32T
M-933	9m^3	0-12	3385KG	15.22m^3	8.9m^3	8X4	32T
M-944	9m^3	0-12	3700KG	15.22m^3	8.9m^3	8X4	32T
M-955	9m^3	0-12	3945KG	15.22m^3	8.9m^3	8X4	32T
M-1033	10m^3	0-12	3830KG	17.44m^3	10.53m^3	8X4	32T
M-1044	10m^3	0-12	3980KG	17.44m^3	10.53m^3	8X4	32T

The above table should be used in conjunction with the base chassis weight and the intended Gross Vehicle Weight (GVW) to calculate payload(kg).

For example:
M-933 Weight: ***3385kg***
Base Chassis Weight: ***9400kg***
GVW: ***32000kg***
Payload = **19215kg**

From the above the cubic capacity of any given mixer can be calculated, for Nugent calculation purposes density of material within the drum is calculated as 2400kg/m^3. This value is indicative within the industry, although the standard range being between 1800 – 2400kg/m^3. The average is said to be around 2300kg/m3 – it should be 2400kg

Meaning:
Payload as per above calculation = 8.01m^3 *(19215/2400)*

Payload calculations can be carried out for you by Nugent Engineers if requested, please refer to contact section below to be put in contact with the relevant engineering department.

Nominal capacity of the mixer is stated in m^3 and refers to the common weight calculated from 2400 kg/mm ^{3}. Should a need to transport a load with higher density than 2400 kg/mm ^{3} the capacity should be altered accordingly.

Caution: payload can very because of many factors, the below are several factors to consider when determining maximum payload:

- Mixer weight
- Base Chassis Weight
- GVW
- Load Density
- Driver Weight
- Water Tank Level (1L = 1kg)
- Fuel Level

Warning: GVW must not be exceeded at any time.

Note: Chassis technical weight may vary from road legal / plated weight. For off road cases, truck can be used over its intended GVW (Gross Vehicle Weight) and loaded to its GTW (Gross Technical Weight). Seek guidance before carrying out any work at this weight, from both Nugent and chassis manufacturer.

2.4.2 – Mixer General Dimensions

Model	*Nominal Capacity*	*Min. Length (L)*	*Max. height (H)*	*Loading Height (X)*
M444	4m^3	4921mm	2352mm	2268mm
M455	4m^3			
M733	7m^3	5688mm	2550mm	2475mm
M744	7m^3			

M755	7m^3			
M833	8m^3	6124mm	2640mm	2470mm
M844	8m^3			
M855	8m^3			
M933	9m^3	6675mm	2650mm	2450mm
M944	9m^3			
M955	9m^3			
M1033	10m^3	6737mm	2780mm	2599mm
M1044	10m^3			

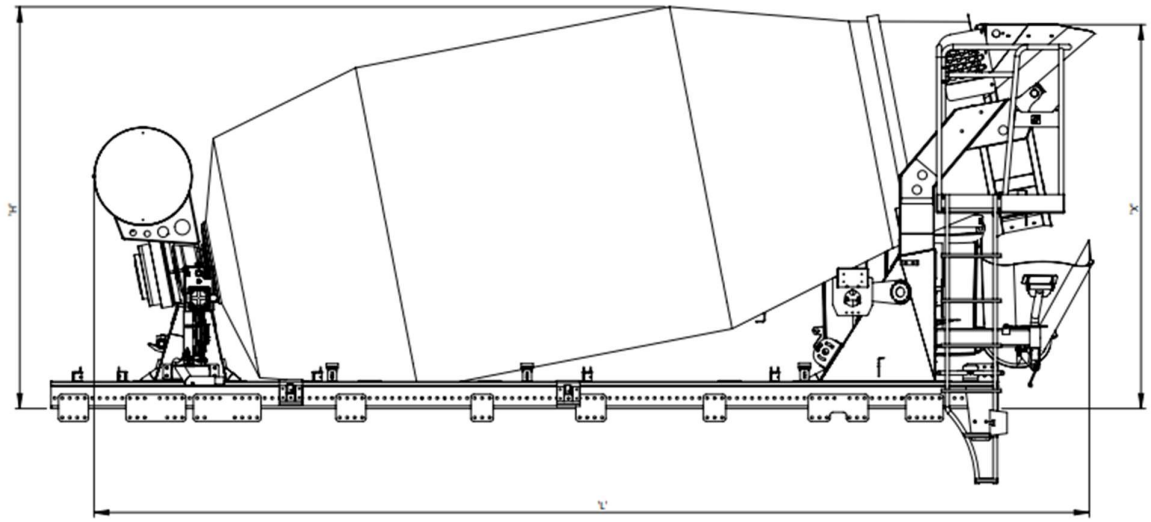


Fig 8 – Overall Dimensions

2.5 – Working Environment

Mixer is designed and manufactured to transport; concrete, mortar, sand, gravel or similar materials with specific density of no greater than 2400kg/mm^3

Mixer is intended to work within the below temperature limits - [-15 – +60(°C)]

The mixer may be used both on road and off road. However particular attention must be given to road conditions and mixers should not be driven unsafely or over speed.

During transit mixer should not rotate at any more than 1RPM in the charge direction (max 2RPM for wet concrete, screed or mortar). At no time, must the drum be put into discharge whilst driving on a public road.

If work is to be carried out in the proximity of a public place, ensure pedestrians do not enter any dangerous zones around the mixer area. Working area must have appropriate signage and safety devices to ensure a safe working area for the driver and pedestrians.

Caution: Driver must use their judgment to drive to the road conditions. Special care and attention should be taken during adverse weather conditions such as rain and wind. Furthermore, driver should consider such factors like road incline, camber and surface when driving.

2.6 – Noise Emissions

Sound emissions guaranteed by the truck mixer in compliance with machine directive (2000/14/CE), reach a maximum of 110dB for 4-12m^3 mixers

	Caution: Prolonged exposure to loud noises can cause loss of hearing. Ear protection should be worn when operating the vehicle.

3 - Safety Guidelines

Safety is paramount to Nugent.

Appropriate Personal Protective Equipment (PPE) ***must always*** be worn when operating around or within the mixer. PPE must always be kept in good usable condition with no tears, rips or loose hanging items. Employer handbook must be consulted for level of PPE required. PPE should take into account the risk of cement burns therefore PPE tops should be long sleeved, and trousers should be full length. PPE requirements should also include gloves to protect hands and safety glasses to protect eyes. Due to the noise level the mixer shall operate at, ear defenders should be worn.

Safety is paramount to Nugent and safety must be the operators primary concern when operating the mixer. Operators must take all appropriate actions to ensure all activities are carried out in the safest possible manner. Below are several key points all operators should follow whilst using the mixer.
Note, these are not the only aspects of safety to consider, employer handbook and site rules should also be followed.

Caution:

- Before use, ensure drum is free or foreign objects and mixer vicinity is clear of obstructions and personnel.
- Check, there are no objects obstructing drum movement or resting against any auxiliary assemblies of the mixer unit.
- Ensure the vehicle and mixer are in good working order before carrying out any work.
- Ensure that as the operator you are in a fit, alert, and healthy manner to operate the mixer unit.
- Ensure that all appropriate operating licenses required to transport and deliver concrete are obtained.
- **Never** allow untrained or unauthorised persons to operate in proximity of the mixer unit.
- Always keep a safe distance from any moving parts and avoid wearing loose clothing. Tie away hair and jewellery if necessary.
- Always wear correct PPE required for job, consult with site managers before entering site to ensure site rules are followed. Additionally ensure the PPE is fit for purpose and does not have any tears etc.
- When conducting maintenance or inspections ensure the mixer unit is fully powered down with keys in the position of the operator working on the unit.
- All safety devices must be kept in working order, safety devices that are not in working order should be reported to Nugent for correction.
- When using ladder platform ensure:
    - Ladders are secure and free from any debris/ice that may make the rungs slippery and unsafe.
    - Movements are confined to the platform area only; operators should not step/climb on handrails.
    - When using ladder 3 points of contact should always be achieved.
    - When inside platform, safety bar is closed and in the correct position.
    - Platform is to be used for inspection purposes only.
    - Platform should be kept free of clutter or debris.
- When using extension chutes keep hands away from chute mouth edge where chutes will lock together.
- When moving pan chute, respect crush zones and swing radius of the chute.
- When pan chute is in appropriate angle use swivel lock to lock in position, not using this may cause pan chute to move unexpectedly.
- Personnel accredited to carry out maintenance to the vehicle/mixer unit must have read the operators manual to understand requirements and safety precautions applicable to the assembly.

Caution: If in doubt ask! All work should be carried out by skilled and competent operators

Warning: Mixer should not be lifted by the lifting hooks present on the mixer. These are for internal use only when mounting mixer and are not intended to be used by customers/operators external to Nugent.

Warning: Truck mixer driver must follow strict safe driving behaviours and consider load security, changed in centre of gravity due to drum speed, topology of driving surface and any adverse weather conditions.

4 - Operating Instructions

Warning: Before operating mixer carry out daily inspections to check mixer is fit for purpose. Report any issues directly to employer and/or Nugent.

4.1 – Control System (Cable)

The following control systems are applicable for the **Nugent M-Series** variation.

Cable control system consists of two control boxes, one situated in cab, one situated at the rear of the chassis next to the ladder platform.
Each of these controls can be used independently of each other and are marked with discharge and charge direction.

Note: Do not grease cable control box, control box is sealed for life meaning any additional grease added to the system will increase pressure on gear system and result in reduced lifespan.

4.1.1 - In Cab Controls

In cab controls feature the control box only, this is usually mounted to the left of the driver between driver's seat and passengers' seat. For trucks with additional extras like fridges and storage. Controls will be positioned in such a way that they do not impede the use of these. Likewise for sleeper chassis, controls will be installed in a way that rear of cab is still accessible.

In cab controls are lockable so drum speed can be kept at a consistent rate for transport of material. As detailed previously, for safety, it is recommended that drum speed should not exceed 1 RPM whilst driving (max 2RPM for very wet concrete, screed and mortar). However, driver should take into account such things as terrain and weather conditions when selecting speed of drum.

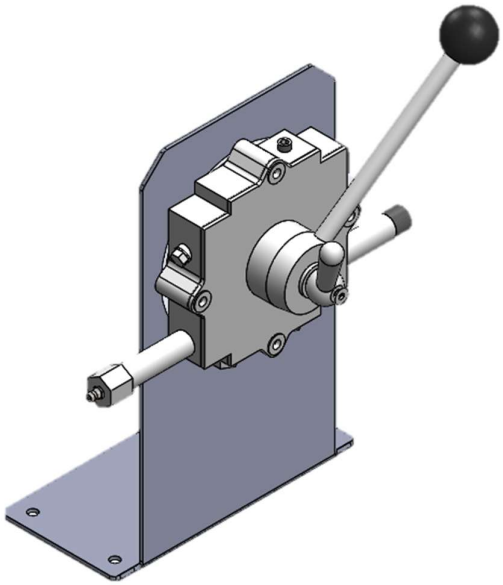


Fig 9 – In Cab Controls

Note: Emergency stop button is provided within the cab. If required, use that to stop the mixer, or use keys of the chassis should be used to turn off mixer.

4.1.2 - Rear Control Unit

Fig 10 – Rear Control Station

Rear control station consists of (*in most cases*):

- Control box:
  - Marked with charge and discharge (mirror image of in cab control box) however is not lockable in position like the in-cab control box.
- Button Box:
  - Including one toggle switch for work lights on and off
  - One rev up button
  - One rev down button
- Emergency Stop Button:
  - Toggling the emergency stop button will result in a full chassis shutdown including engine. To restart the emergency stop button will have to be reset. This can be done by twisting the red button until it clocks back into its original position.

Caution: Emergency stop buttons should not be used as a means to stop the truck during normal operation.

Caution: if emergency stop button is used, operator should determine the reason for using the button as well as making sure this reason has been mitigated and should repair any faults before proceeding to reset stops.

4.2 – Water and Oil System

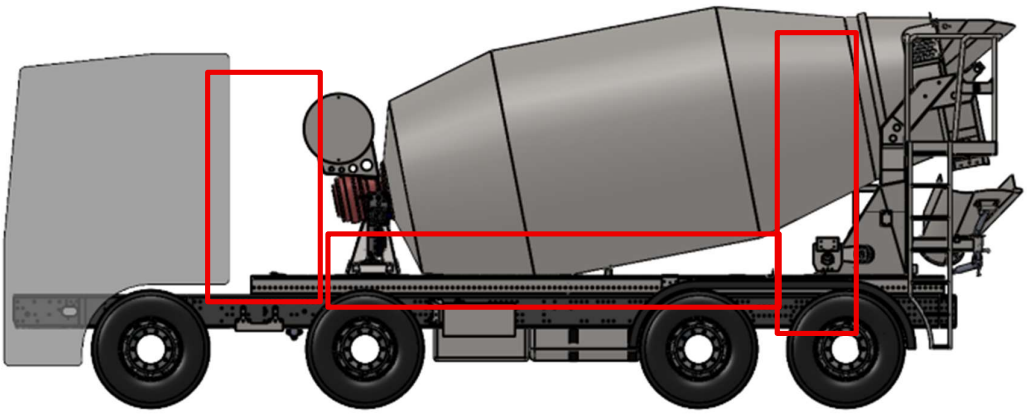


Fig 11 – Oil / Water System

Prior to working the mixer check the following hydraulic/water system specifics:

- All hoses are present and secure.
- All ball valves are closed.
- Water Level
    - This can be checked both on the control panel and using the sight level on the side of the tank (located O/S).
- Oil Level
    - This can be checked both on the control panel and using the sight level on the side of the tank (located O/S).

Caution: Truck is fitted with a constant drive PTO meaning hydraulic fluid is constantly moved around the system even when the mixer drum is not in motion. Causing the system to heat up, therefore cooler system will automatically be triggered to turn on. Do not disconnect or change temperature sensor.

4.2.1 – Filling Oil Tank

To fill the oil tank the following steps must be followed:

- Turn engine to idle.
- Make sure handbrake is on.
- Check current level of oil.
    - use sight gauge located at the top of the oil tank (located O/S)
- Remove top fitting at the side of the oil tank.
- Using a funnel to aid, fill tank until oil reaches between halfway and three quarters of the way up the oil sight gauge.
    - Grade 46 Hydraulic oil must be used, see following section on maintenance for further guidance.
- Once complete remove funnel.
- Refit fitting using appropriate tool.

Warning: During use mixer hydraulic oil will heat up and expand. Do not fill oil level past upper sight glass to allow room for expansion.

Warning: Risk of injection into body from pinholes within hydraulic system. DO NOT check for leaks by physically touching any hoses. If a leak is suspected visually check areas with unit both on

and off. Inspect areas around the chassis to see if any oil has come into contact with any surfaces. If there is a suspected leak or a confirmed leak. Power down the mixer unit and have the pipe fitted by a competent repair shop or Nugent service agent.

4.2.2 – Filling Water Tank

4.2.2.1 – Nugent M-Series Process

To fill the water tank the following steps must be followed:

- Turn engine to idle.
- Make sure handbrake is on.
- Check current level of water using the provided sight glass on side of tank.
- Connect hose to either side of double water infill.
- Open ball valve on infill.
- Turn on water supply and fill tank until full.
    - Use site gauge to check level of water.
- Turn off water supply.
- Close ball valve on infill
- Disconnect hose.

Caution: only use clean water for water system. Using contaminated or recycled water may contain particles that can damage components resulting in reduced mixer lifespan.

4.2.3 – Emptying Water Tank

Caution: At the end of each day, all remaining water left in system should be removed.

Caution: During the winter months, water must be drained at the end of the day as above, and ball valves should be left open to avoid frost damage.

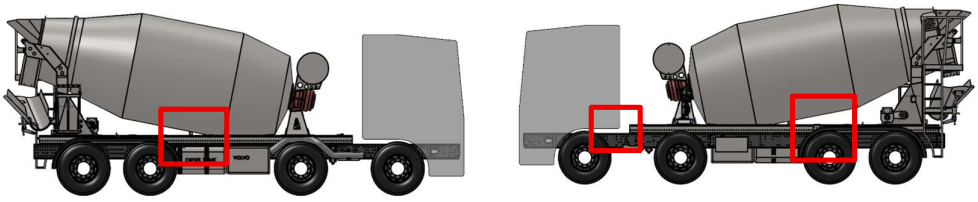


Fig 12 – Drain Points M Series

Water can also be drained by using the manual override on the ball valve next to the water pump. Drain locations are highlighted in the above picture. Nearside 2 locations Offside 1 location and an additional drain on the underside of the tank.

4.2.4 – Rear Water System

Water can be added to the back of the drum to washdown or change slump by means of the flow meter. Located to the rear of the chassis next to the control station. Manual ball valves can be opened, and water introduced to the drum. A record of how much water has entered the drum can be seen on the flow meter. A gauge is provided to set either starting point or required flow to help track water into drum. To then stop water entering the drum ball valve can then be closed.

Fig 13 – Water Meter

From the water meter, there are two additional hoses at the rear of the truck, one mounted on the rear of the back stool and one located on the platform. These both have manual ball valves located on the end and can be used to washdown the mixer after use.

Fig 14 – Washdown Hose & Chutes over wash box

When washing down extension chutes washbox should be used to collect all debris and contaminated water.
To washdown chutes the following steps should be followed:

- Drum placed in neutral.
- Plastic extension chutes to be mounted back in chute holder and locked in place with anti-loose fastener.
- Pan chute to be stored away over the washbox. Use provided hook and clasp to prevent pan chute moving.
- Ensure the washbox hose is connected to stop contaminated water leaking onto the ground.

- Connect rear washdown hose.
- Select washdown mode on controls.
- Using the hose rinse any debris from both plastic extension chutes and pan chutes into the washbox.

Once back to the batching plant use the allocated area to dump the contaminated water / debris and empty the washbox. This can be done by disconnecting the hose from the rear storage fitting located on the left-hand side of the washbox. After this, remove the sieve from the centre of the washbox and dispose of any clumps of concrete / aggregate.

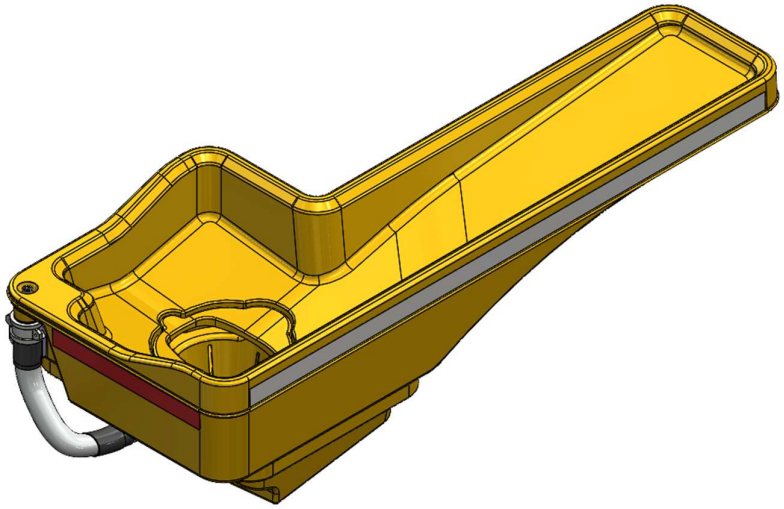


Fig 15 – Washbox

Caution: Once truck has been cleaned, all ball valves must be turned off to stop loss of water during transit.
Warning: Acid is **not permitted** to be used for any washdown. This can degrade electrical cables and cause catastrophic failure of mixer unit and chassis.

4.3 – Slump Meter

Slump meter is used to determine the 'slump'(thickness) of any given load. The meter itself provides a measurement of oil pressure within the system which can be related to slump of a mixture. This measurement is therefore truck specific and drivers should take time to estimate what hydraulic values attribute to what slump. The below is a general rule that can be used to work determine slump.

Therefore, high pressure equals low slump and low pressure equals high slump.

Caution: Oil pressure readings vary due to several factors such as drum speed, load size and working conditions. Therefore, slump readings will be estimations only and not fully accurate.

Slump meter is used to determine the slump of concrete at any given time through the mixing cycle. This is done by providing a measurement of hydraulic oil pressure. Readings can be taken from the slump gauge installed on the control system or the physical gauge near the rear control box.

Slump 'pressure readings' will vary by truck. When first purchasing the truck take time to gather pressures of known slump within the mixer to accurately determine what slump any given concrete is.

On the rear control screen slump readings can be stored for future use.

Note:

- *low water content = low slump.*
- *low slump = more effort to move load.*
- *more effort to move load = more hydraulic pressure registered within the system.*
- *meaning **low slump = high pressure reading** and **high slump = low pressure reading**.*

Slump gauge is located on the rear control system.

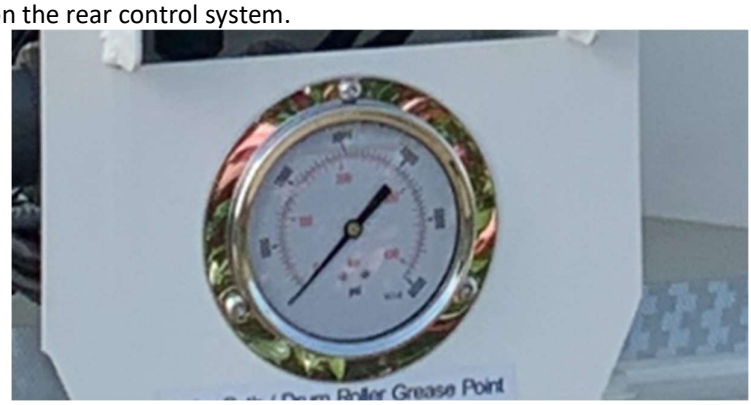


Fig 16 – Slump Gauge Position Rear Control System

4.4– Ladder

Fig 17 – One Piece Ladder

- Ladder is a one-piece ladder system, designed to need no sliding or folding. Therefore, maximising longevity
- Ladder is bolt on/bolt off to allow swapping if damaged

Caution: When using ladder always ensure there are three points of contact.

4.5 - Plastic Extension Chutes

Fig 18 – Stored Plastic Chutes

Fig 19 – Plastic Chutes in Use

To assist with concrete delivery each mixer is provided with two plastic chutes. These chutes can be used alone or in tandem to extend the range of the discharge chute. As shown above (Fig 80) chutes are stored on the O/S rear of the mixer using two top hooks and one bottom anti-loose fastener securing the chute in place when in transit. If required during concrete delivery, chutes can be lifted from housing. Grip, chute at either side keeping hands away from the mouth and the top mounting of the chute. Chute can then be caried safely to the pan chute where the top hooks can be used to mount onto the pan chute. Similarly, a second plastic chute could be mounted onto the bottom of the first chute.

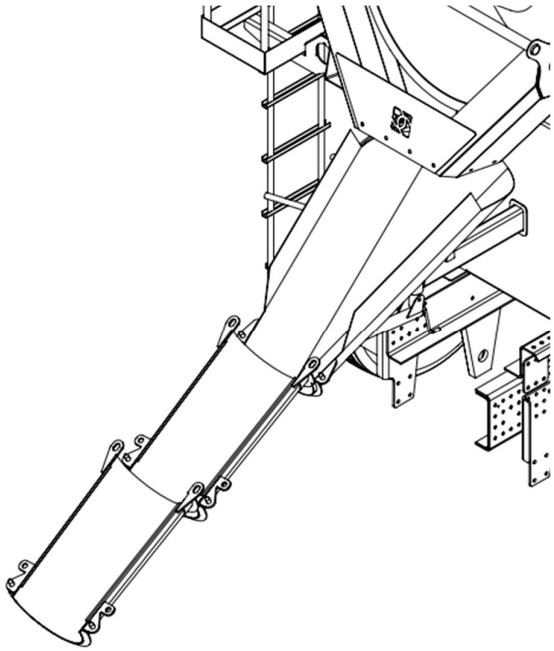


Fig 20 – Plastic Chute Mounting

4.6 - Swivel Lock

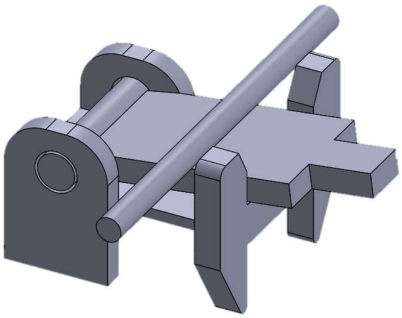


Fig 21 – Swivel Lock

Swivel lock assembly is to be used for setting the angle of swing required to deliver concrete. This can be used by moving the pan chute to the required position and lifting the lock around to nestle in between the appropriate rest. Swivel lock will allow concrete to safely be delivered without pan chute unexpectedly swinging away.

Caution: Failure to use swivel lock may result in Pan Chute moving unexpectedly. Potentially resulting in personal injury to operator.

4.7 - Pan Chute

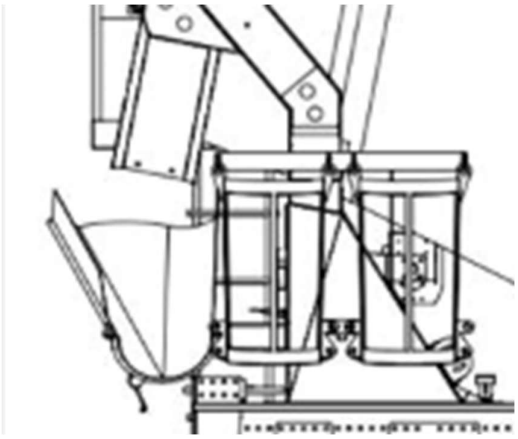


Fig 22 – Pan Chute Stored

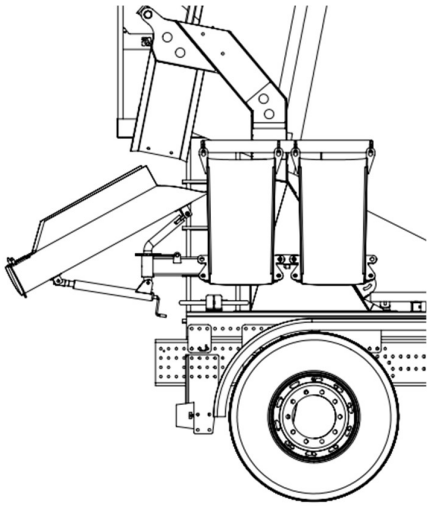


Fig 23 – Pan Chute in Use

Pan Chute assembly aids concrete delivery and as discussed above can be swivelled into position required. Vertical movement of the pan chute can be controlled by the electrical control system. There are options in both front, rear control screens and on the handheld wireless control.

To move the pan chute left to right, handle is provided on the side. Using this reduces the risk of any finger traps.

Fig 24 – Pan Chute

To store the pan chute there are locking pates provided mounted on the rear stool and on the side of the pan chute, storing the pan chute correctly will allow the spill stopper system (washbox) to catch any debris during transit. It will also secure the pan chute in place. **Do not** use swivel lock to store pan chute away.

Fig 25 – Pan Chute Locking Plates

4.9.1 – Pan Chute Movement

4.9.1.1 - Manual Control

Pan chute height can be altered manually by the 'screwjack assembly' this is done by moving the handle on the bottom of the assembly in a clockwise or anti-clockwise direction to extend and retract.

Fig 26 - Screwjack

5 - Maintenance

Maintenance should be carried out by a trained and competent technician. The below section will detail basic tools required as well as areas to maintain and check regularly. Daily start-up checks should be completed on a regular basis as well as the periodical routine maintenance as detailed below.

Warning: Before any maintenance is carried out truck must be parked in a safe workshop / site and isolated with handbrake on and keys with the operator carrying out any maintenance. Truck should then not be started without checking the immediate area for workers / operators.

5.1 Equipment

Below is a list of basic equipment required to complete routine maintenance:

	Grease Gun
	Grease Gun Needle Attachment
	Lubricant NLGI Grade 1 with EP additive and High Temperature Resistance
	Grade 46 Hydraulic Oil
	Gear Oil EPB 80W/90
	Appropriate PPE including coveralls, protective gloves, protective goggles, and steel toe safety shoes. If carrying out any maintenance on site consult appropriate health and Safety personnel for recommended PPE.

Caution: maintenance should be carried out in an appropriate area of a workshop or site where mixer can be safely isolated and cordoned off from public.

Before carrying out any maintenance trucks should be isolated through the following:

- Ignition key removed from truck cabin and with the truck operator/maintenance engineer.
- Truck battery shall be disconnected.
- If applicable, other power sources like donkey engine batteries disconnected.

5.2 – PTO Assembly Maintenance

5.2.1 – M Series Mixer

Driveshaft is located between the drivers cab and the drum assembly. Access can be gained to the driveshaft by lifting the removable cover away. Driveshafts are sealed for life and do not need to be routinely greased. However, should periodically be checked for signs of wear.

Particular areas to look out for include:

- Discoloration of universal joints due to excessive heat build-up.
- Excessive vibration.
- Audible noise whilst in use.
  Excessive movement within driveshaft joints.

Warning: Rotating shafts can be dangerous and there is a significant risk of entanglement. Do not work on driveshaft with engine running and chassis not isolated. Appropriate PPE must be worn, and operator / maintenance engineer should be free from any loose clothing or jewellery.

5.3 – Entering Drum

Warning: Entering the drum can be a highly dangerous activity. It is imperative that the below steps are followed to ensure a safe working practice. Please note further measures may be required to create a safe working environment. All measures to eliminate the need to enter the drum must be exhausted before attempting to enter drum.

Before entering the drum use the below guidelines as well as consulting your own company policies and safety procedures:

- Park on level ground.
- Turn engine off and apply handbrake.
- Lock cab and keep keys in your possession.
- If possible, use visual aids such as steering wheel covers to act as a visual aid showing workers in drum.
- Make third party aware of the work being carried out and duration of work.
  - Once work is complete check in with third party to confirm the work is complete and operators are no longer in the drum.
- Rotate drum to the correct position and use drum lock to hold drum in position.
- Safely remove manholes using appropriate tooling and use handles provided.

Whilst inside the drum be aware of the following risks:

- Concrete can fall from above.
- Concrete can wear metal, making edges sharp and ragged.
- Protective clothing must be worn at all times.
- Additional lighting may be required.

Warning: Drum must always be entered from the manhole. ***Never*** enter from loading cone

5.3.1 – Drum Lock

As per list above drum lock must be used if entering the drum.

Caution: Drum lock will only stop the drum from moving under the weight of an operator inside the drum and will not prevent drum form turning if hydraulics are engaged.

Guide to installing Drum Lock:

	Drum lock will be installed in the closed position by anti-loose fastener. Unlock fastener and rotate drum lock towards the drum

		Rotate the drum to the correct position align drum lock installed on back stool and drum lock installed on drum.
		Using provided bow shackle, locate through both ends of the drum lock assembly and tighten.

Fig 27 – Drum Lock

Note – After work has been carried out within the drum, drum lock must be removed before attempting to use mixer.

5.4 – Greasing Points

Drum Roller Drum Rollers should be lubricated at least 2 – 3 times per week. Whilst ensuring the inside of the roller housing remains free of dirt and excess grease.

Roler Path Roller Path Should be lubricated 2 – 3 times per week. A thin layer of lubricant should always be apparent within the roller path if this is not apparent the roller should be lubricated.

Support Arm A Support Arm A should be lubricated at least 1 time a week. this will allow the pan chute to swivel freely. If pan chute becomes hard to swivel, SAA should be greased.

5.4.1 – M Series Mixer Greasing Points

Fig 28 – Drum Greasing Point Location

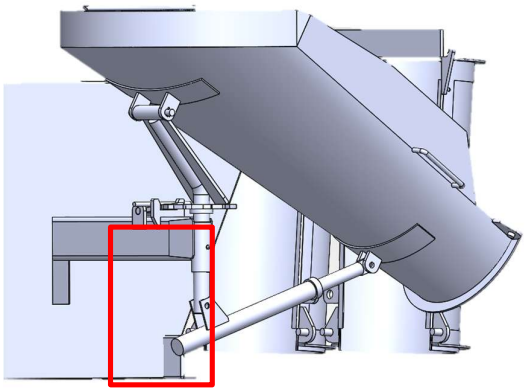


Fig 29 – SAA Greasing Point Location

5.5 – Oil Changing

Description	*Oil Type*	*Amount Required*	*Replacement Period*
Mixer Gearbox	Gear Oil 80X/90	18L	Initially change after 2 months then move to every 9-12 months.
Hydraulic Pump and Motor	Hydraulic Oil (ISO 46)	25L	Initially change oil after 2 months then every 9-12 months.

Warning: Allow both hydraulic oil and gear oil to cool before draining.

5.6 – Heat Exchanger

Description	*Replacement Period / Check*
Oil Filter	Initially change filter after 2 months then move to every 9-12 months.
Axial Motor Fan	During daily check, visually check for damage to cooling fins. *
Thermostat	During daily check, visually check cable for any splits in sheathing.*

** If damage is noticed report to Nugent service agent and replace.*

Caution: Not checking or changing oil filter can result in breakdown of filter which will in turn allow the oil system to draw in debris and potentially damage / reduce the lifespan of the mixer unit.

5.7 – Critical Inspection Areas

5.7.1 - Bi-Monthly Checks

At all times operators should be actively inspecting the mixer unit for any visual signs of wear or damage, such as loose connections, loose bolts, rust, cracks, faulty parts, and damaged electrics/wiring. Further to this the operator should fully inspect the below bolted connections to ensure the mixer is safe to operate.
The below checks should be done after 1 week of owning the mixer then again bi-monthly:

Area	*Description / Check*	*Torque (Nm)*
Chassis Plates	Chassis Plate Bolts	137
Chassis Plates	Bolt Down Vertical Bolts	137
Front Stool	Subframe Mounting Bolts	647
Front Stool	Gearbox Mounting Bolts	647
Gearbox	Sensor Mounting Bolts	647
Gearbox	Gearbox Flange to Drum Bolts	332
Back Stool	Subframe Mounting Bolts	647
Back Stool	Ear Chute Column Bolts	332
Back Stool	Ladder Mounting Bolt (Bottom)	244
Back Stool	Drum Retention Bolts	672
Back Stool	Support Arm A Bolts	76.2
Back Stool	Plastic Cover Plates	11.7
Ear Chute	Assembly Bolts	28.4
Ear Chute Column	Ear Chute Mounting Bolts	332
Ear Chute Column	Ladder Mounting Bracket	244
Ear Chute Column	Loading Cone Bolts	332
Drum Retention	Drum Roller Bolts	1119
Support Arm A	Support Arm Collar Bolt	17.8
Support Arm B	Pan Chute Mounting Bolts	28.4
Chassis	Washbox Mounting Bolt	332
Chassis	Mudwing Cranks Bolt	332
Chassis	Marker Light Brackets	28.4
Chassis	Rear Underrun	137
Loading Cone	Linak Mounting Bolts	134
Loading Cone	Alloy Loading Cone Cover	332
Water Tank	Water Tank Strap	244
Water Tank	Water Tanks Mounting Bolts	332
Water Tank	Control Box Mounting Bolts	28.4
PTO Assembly	Subframe Mounting Bolts	332
PTO Assembly	PTO Mounting Bolts	332
PTO Assembly	Pump Mounting Bolts	332
Drum	Drum Lifting Bolt	647

Note – it is recommended that bolts be marked when torques in position to aid visual checks.

On top of this visual checks should be complete of the following assemblies at least once a week:

- Front Stool
- Back Stool
- Drum Retention
- Drum
- Gearbox
- Ear Chute

During these visual checks operators should look for cracks or blemished in the surface of all assemblies. Any changes in geometry or cracking should be immediately reported to Nugent.

5.7.2 - Pre-Start Checks

The below checks are recommended to be carried out at the beginning of the working day before first delivery.

1. Visual Check – check the below areas for cracking or any loose/missing components.
    a. Front Stool
    b. Back Stool
    c. Subframe
    d. Chassis Plates (including bolts)
    e. Loading Cone
    f. Pan Chute
    g. Platform
    h. Ladder
    i. Ear Chute
    j. Plastic Chute(s)
    k. Drum Rollers
    l. Drum Retention (If applicable)
    m. Dashboard
    n. Drum
    o. Driveshaft cover (if applicable)
2. Visual Check – check the following components for any leaking, ripped/torn sheathing or missing components.
    a. Hydraulic pipework (around gearbox pump and motor)
    b. Pneumatic system (if applicable)
3. Visual Check – check the following safety systems are all connected to truck and in usable manor.
    a. Platform safety gate
    b. Drum guard
    c. Drum roller guard
    d. Drum retention Guard (if applicable)
    e. Platform guard (if applicable)
    f. Ladder Guard (if applicable)
4. Functional check – check the following components are present and in working order by simulating intended use.
    a. Ladder
    b. Plastic Chute(s)
    c. Screwjack
    d. Swivel lock
    e. Support Arm Swing
    f. Drum Rollers
5. Visual Check – with the chassis turned on and PTO turning. Check hydraulic system for any leaks.
6. Functional check – start the unit and (without load) check the following:
    a. Drum controls work in their intended manor by turning the drum in both charge and discharge, at both control locations
    b. Emergency stops are in working order, for this have the chassis turned on and simulate an emergency by pressing one emergency stop at a time. Check all are in working order. To check multiple, the previous emergency stop must be reset, and chassis turned back on.

Quick Start — Driver Safety Checklist (QR Code)

Print this page and keep a copy in the vehicle cab for quick pre-start and pre-shift checks.

1. **Pre-Shift (before starting vehicle):**
    • Visual check for damage/leaks
    • Check mirrors, lights, brakes and tyres
    • Check mixer drum rotation direction and control functions
    • Check emergency stop operation
    • Confirm required PPE (gloves, eye protection, hi-vis)

2. **Before Loading / Mixing:**
   - Ensure loading & discharge areas are clear
   - Ensure all guards, access panels and ladders are secure
   - Confirm concrete spec and maximum transport time/temperature
3. **During Operation / Transit:**
   - Monitor drum speed and avoid sudden stops/starts
   - Obey site rules, banksman instructions and exclusion zones
   - Report any abnormal noise/vibration immediately
4. **Cleaning & Washout (on-site):**
   - Follow environmental guidance for washout containment
   - Never enter the drum
   - Use appropriate PPE and avoid high-pressure jets aimed at operators' hands/body
5. **Post-Shift / Handover:**
   - Secure vehicle and mixer controls
   - Complete visual check
   - Report defects for maintenance and do not operate if critical safety items are compromised

5.8 – Cleaning of the Mixer

Nugent mixers are painted and finished to a high standard. To keep this high standard of finish Nugent expects the below to be followed.

Mixer mounting bolts are all Zinc plated and are rust resistant. Over a period, Zinc plating will discolour, this discolouration is normal and is the zinc plating acting to prevent rust and corrosion within the bolt.

Fig 30 – Zinc Plated Bolt in Use

Caution: Acid will wear protective film from bolts this will in turn allow bolts to rust and corrosion will occur. Reframe from using acid as much as possible

Interrior of the drum is not painted/coated therefore washing the drum will cause a small level of corrosion. From this it is common for water to seep through the joining faces of the manhole. Local, regular cleaning will prevent any long-term damage.

5.9 - Internal Drum Maintenance

Warning: Entering drum is a last resort. All steps to maintain and clean should be sought before entering. If entering, follow guidance on section 5.4.

Leaving concrete insidel to the drum can cause concrete build-up. This can become a large issue as it can cause several issues including:

- Reduction in payload
- Change in CoG
- Unsafe loads

Therefore, it is important to reduce build-up as much as possible.

5.9.1 - Prevention Measures

Regular Drum Washdown – Drums should be washed down at the end of each job; this will reduce the chance of concrete setting within the blades and capping.

Drum Lancing – Nugent M-Series are fitted with a fixed loading cone as a standard, but can be fitted with a removable one. This allows the loading cone to be moved away from the drum for it to be regularly cleaned by a drum blaster or drum lance. It is recommended the drum be lanced at least once every 2 weeks (if onsite facilities are available), by doing so build-up can be significantly reduced, or lanced every 6 months to remove larger deposits

5.9.2 - Drum Build-up Removal

Many operators / companies as part of maintenance remove build-up on the drum by chipping out set concrete. Although Nugent do not recommend this is done, they are aware it is standard industry practice. If work like this is being caries out, follow guidelines set out in section 5.3 as well as any other company specific rules and regulations.

Caution: removing build-up inside the drum, if necessary. Should only be carried out by a trained and competent operator.

Operators should refrain from making holes or dents in the skin of the drum. As holes or dents can reduce the lifespan and structural integrity of the drum. As well as its capacity to carry concrete.

5.10 - Table of Maintenance

Below table is an overview of maintenance areas:

Operation	Location	Timing
Greasing of Roller Path	Rear Control Panel	Weekly
Greasing of Drum Roller	Rear Control Panel	Bi-Weekly
Greasing of Support Arm A	Rear Pan Chute	Weekly
Hydraulic Oil Filter Replacement	Oil Cooler	Every 9 Months
Hydraulic Oil Replacement	Oil Cooler Filler	Every 9 Months
Gearbox Oil Replacement	Gearbox	Every 9 Months
Extension Chute Plastic Replacement	Extension Chute	Every 24 Months
Pan Chute Liner Replacement	Pan Chute	Every 24 Months
Ear Chute Liner Replacement	Ear Chute	Every 24 Months
Drum Cleaning	Drum	Daily
Drum Lancing	Drum	Every 6 Months
Extension Chute Cleaning	Chute Hanger O/S	Daily

5.11 – Disposal of Machine

5.11.1 – Truck Separation

This must only be carried out by a competent workshop authorised by Nugent Coachworks, please contact for details of local garage.

5.11.2 – Demolition of unit

Should mixing unit need to be dismantled, the unit must be made free of hydraulic oil, gear oil, water from water tank, filters, and any other residue from operating. Furthermore, any plastic and rubberised components should be dismantled from the assembly.

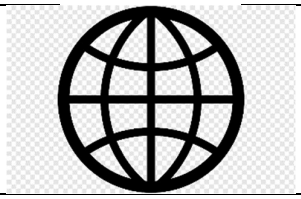
In respect of local environmental governance, material should be separated within compliance of local laws where disposal takes place. At this stage it is necessary to avoid any environmental contamination.

It is the customers responsibility to carry out demolition in compliance with the above and any local governance / regulations for the region the demolition will be carried out.

Where appropriate materials must be recycled (i.e. ferrous metals, aluminium's, copper), attempts must be made to find adequate disposal of all materials

6 - Contact Us

If in doubt, ask! Nugent Coachworks have a dedicated staff base with years of mixer knowledge who are willing to help with any task / query big or small. For any more information please contact the below:

	Telephone – 02887758583
	Email – sales@nugentcoachworks.com
	Website - https://nugentcoachworks.com

Please have unit reference number handy for any call or email conversations. This will aid Nugent in finding the correct documentation or information around your truck.