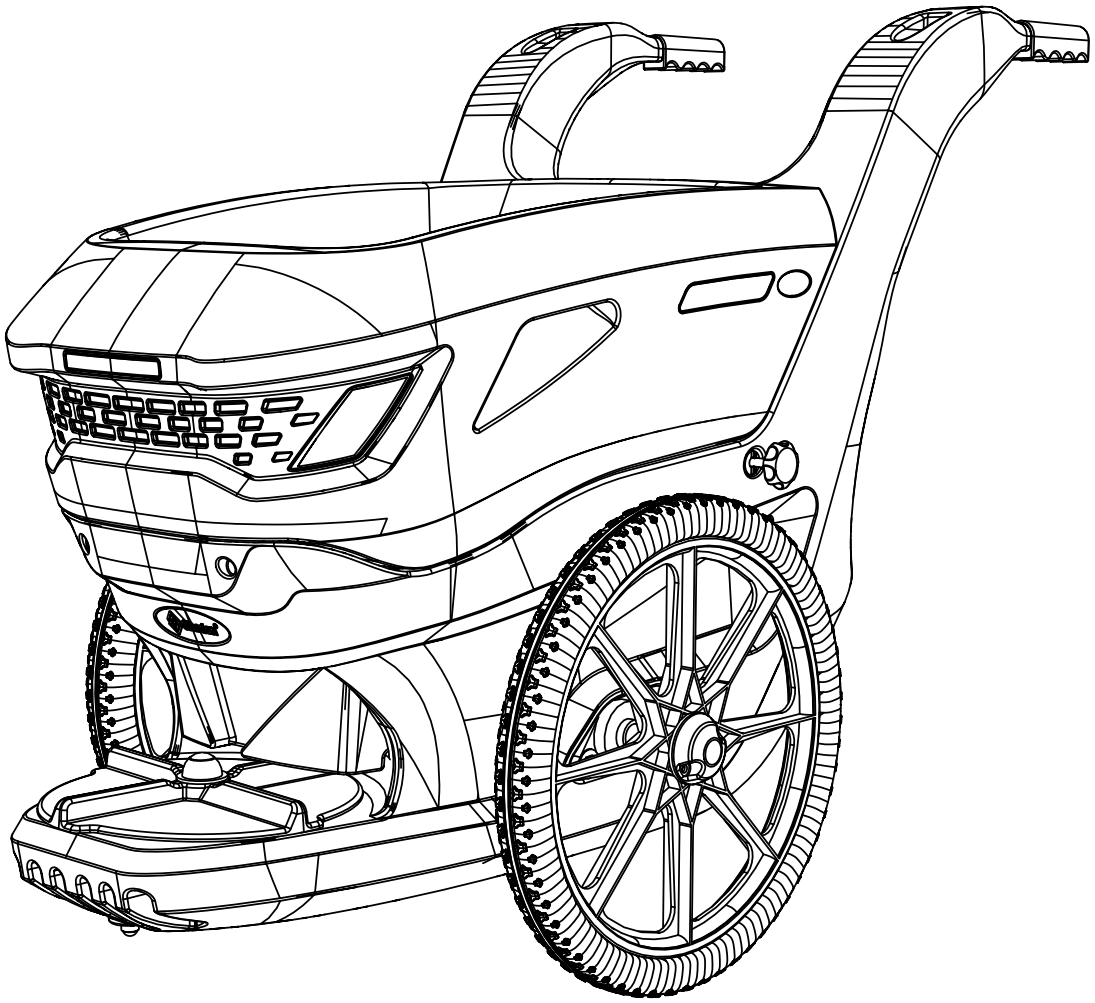
Glasdon

TURBOCAST 400™

OPERATING & MAINTENANCE MANUAL

A High Performance Manual Grit-Salt Spreader



TURBOCAST 400™

OPERATING & MAINTENANCE MANUAL

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1 INTRODUCTION

GENERAL DESCRIPTION
The new Turbocast 400™ is a high performance manual gritting machine capable of broadcast spreading dry, damp or wet grit/salt economically and quickly over large areas.

SPEED RESTRICTION
The tyres and the machine have been designed to operate at walking pace, i.e. approximately 3 to 6 kph (2 to 4 mph) with a full payload. Under no circumstances should the Turbocast 400 be towed.

BEFORE-USE CHECK LIST
- The wheels are securely attached and functional.
- The rubber agitation sheet is sealing against the hopper, with no stones or obstructions.
- All appropriate parts are lubricated and moving freely.
- All fastenings and guards are secure and intact.
- The drive belt is correctly tensioned and working, i.e. does the spinner plate and cam axle turn freely when the machine is pushed forward.
- The spread adjuster is in the '0' position.

Before Spreading
- The hopper is full of grit/salt and there is an adequate supply to complete the job.
- The manual grit release lever is in one of the spreading positions '1' to '6'.

IMPORTANT NOTICE

Do NOT leave grit salt in the hopper, even when the Turbocast 400 is covered or being stored internally. Being hygroscopic, salt will absorb moisture and then set hard like 'concrete'.

Trying to push the spreader with this 'concrete' in the hopper will result in:
- The red pulley belt coming off or snapping.
- The agitator bars bending resulting in the machine not spreading on the lower settings.

Salt in solution with water is incredibly corrosive and will attack metalwork and seize bearings. It is very important after each use to empty the hopper and apply maintenance spray to all bearings and metal surfaces as outlined in the instructions. Maintenance spray drives out saltwater and then protects and lubricates. Regular use will prolong the life of the gritter and also reduce the likelihood of expensive maintenance.

The Turbocast 400 is designed to spread a wide range of wet and dry gritting materials. It is quite normal for wet/sticky (e.g. brown rock salt) or lightweight materials (e.g. Glasdon Icemelt™) not to spread on the lower settings, which are used to spread dry granular materials, e.g. white salt.

2 SPREADING MECHANISM

When the gritter is pushed, both wheels turn, one of which drives the main axle and the spinner plate, via pulleys and belt. Mounted nylon cams on the main axle, successively strike the agitator bars to produce a ripple motion within the rubber agitation sheet. Each ripple causes some grit/salt to fall to the hopper bottom and be lifted in the dispensing trough. It then falls over a lip (via an open chute) on to the rotating spinner plate, which throws out the salt (by centrifugal force) aided by the ribs on the plate.

The spreading width is speed related: the faster you walk the faster the spinner plate rotates and the wider the spread.

The spreading rate (i.e. the heaviness of the spread) is easily adjusted by moving the manual grit release lever to one of the 6 spreading positions. Moving the lever also moves the agitator bars which reduces the contact with the agitator cams. This then:

- Changes the amount the agitator bars rise and fall.
- Determines the size and ripple motion.
- Determines the quantity of material dispensed to the spinner plate.

When the adjuster pin is placed into position '0' the agitator bars are moved so that they are no longer in contact with the cams, thus the ripple motion is stopped.

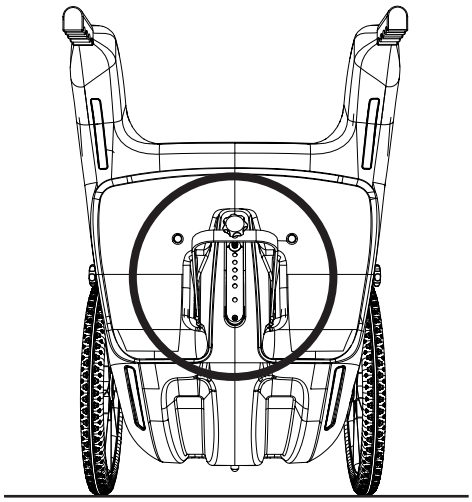
Note: The rubber agitation sheet will never fully close off the dispensing trough in the bottom of the hopper.

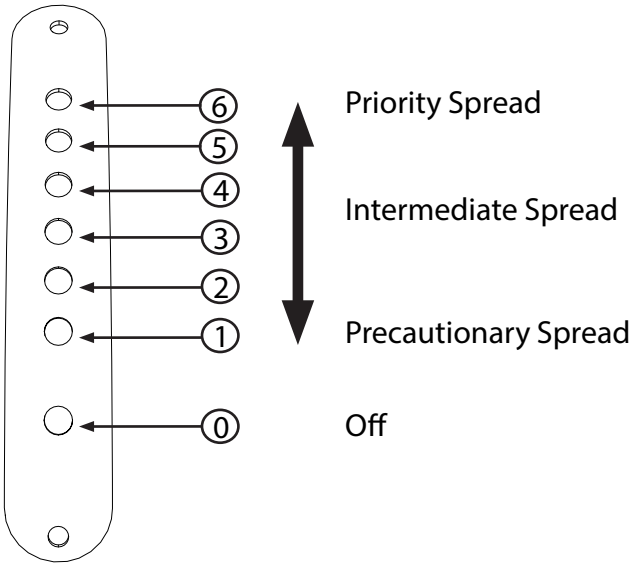
LOADING GRIT INTO THE HOPPER

- Standing at the rear of the machine, drop the handles down to rest the machine on its rear support (see page 6). Pour or shovel the gritting material into the hopper. Please see the weights/capacities for the recommended capacity of each grit type.

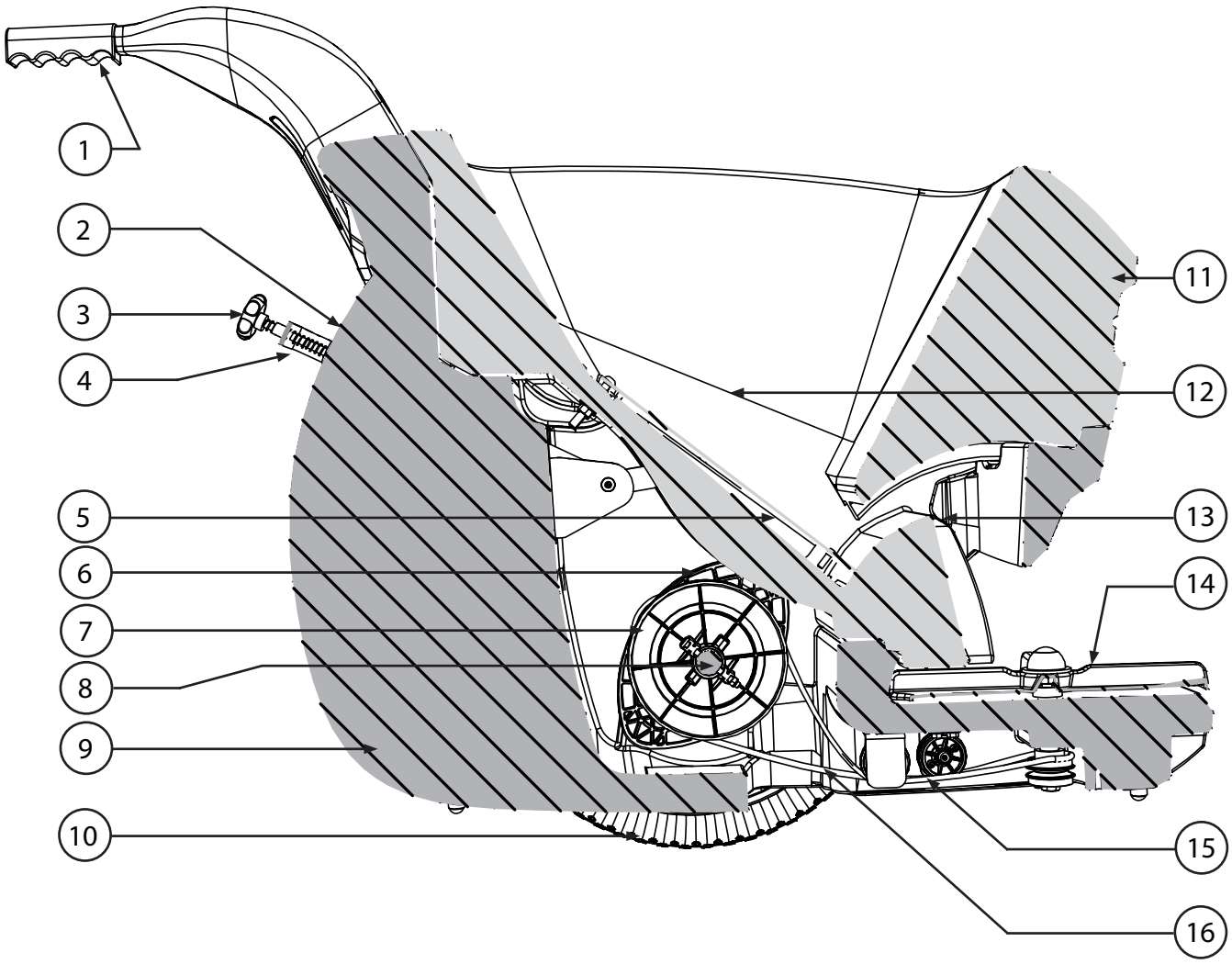
SPREADING ADJUSTMENTS

- Stand at the rear of the machine and hold the handles, let the machine rest on the front stand. Take particular care when the hopper is empty as it may tilt forward or back. A small amount of grit will overcome this tendency.
- Lift the adjuster pin until the pin is clear of the holes in the selector plate.
- Move the spread adjustment handle to select the appropriate spread rate from one of the six gritting settings.
  - For maximum spread push the adjuster frame upwards towards the top of the machine marked '6'.
  - To disengage the spreading mechanism (to move the machine without gritting), pull the spread adjustment handle down towards the rear of the machine marker '0'. Note there is a gap between '0' and '1'.
  - At first we suggest selecting a medium position and experiment from there (refer to the Spread Rate Chart on page 9) - different types of grit/salt spread at different rates.
- Release the adjuster pin so that the pin enters the hole in the selector plate.

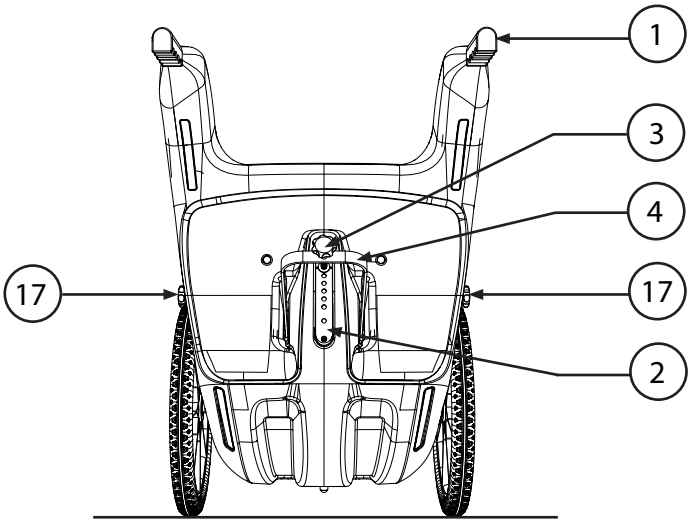




2 SPREADING MECHANISM



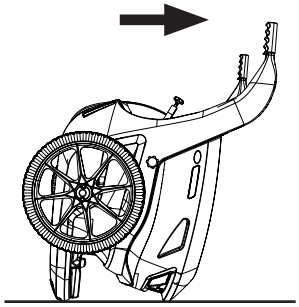
ITEM	DESCRIPTION
1.	Handle Grip
2.	Selector Plate
3.	Adjuster Pin
4.	Spread Adjustment Handle
5.	Agitator Bars
6.	Agitator Cams
7.	V-Pulley
8.	Main Axle
9.	Chassis
10.	Drive Wheel
11.	Hopper
12.	Rubber Agitation Sheet
13.	Dispensing Trough and Lip
14.	Spinner Plate
15.	Belt Pulley
16.	Polyurethane Belt
17.	Side Locking Pins



3 GENERAL USE

TO EMPTY THE HOPPER

Empty any residual salt from the hopper by spreading material by pushing the machine in the normal way. Tipping the machine forward slightly can help aid the release of any residual grit. To empty fully, tip the machine forwards using the handles, so that the front of the hopper rests on the ground and shaking the machine to release any trapped grit. Care should be taken to ensure you have adequate footing.



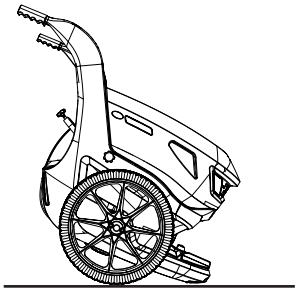
REAR AND FRONT SUPPORTS

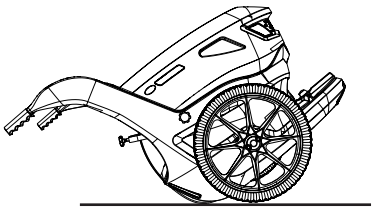
The machine is designed so that it may be tilted either:

- Forwards to rest on the front support, or
- Backwards to sit on the rear support.

It is envisaged that most operators will prefer to allow the machine to come to rest on the front stand, however when being filled the machine must be placed on the rear support to reduce the likelihood that grit is released from the dispensing trough.

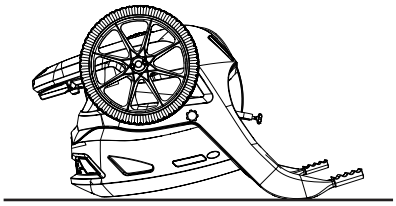
To set off, hold and gently push down the hand grips until the hopper becomes level with the ground.

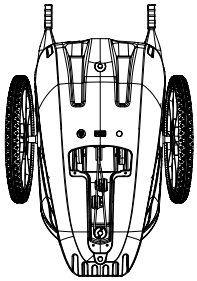


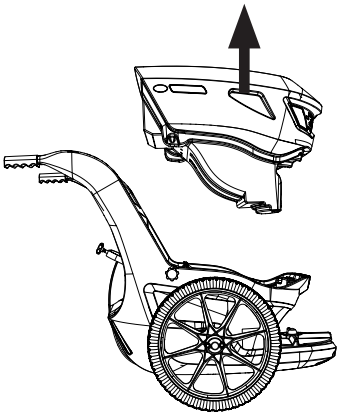


MAINTENANCE POSITION

When carrying out maintenance on the machine, hold the handles and carefully push the machine forwards tipping it upside down so that the top of the hopper and handles rest on the ground**.** This will allow access to the belt and pulleys that are located at the bottom of the unit. To carry out maintenance on the main axle, v-pulley and cams, the yellow hopper can be removed from the chassis by releasing the spring-loaded side locking pins and removing the two bolts on the front of the hopper that secure the hopper to the chassis. Use the two side moulded handles at either side of the hopper to lift up.







MOUNTING KERBS

It is recommended that the spreader is pulled backwards when mounting kerbs.

THE USE OF A SHOVEL

Whilst the spreader is highly manoeuvrable and able to gain access to relatively restricted areas, there are occasions when the operator may prefer to use a shovel.

4 MAINTENANCE

AFTER-USE MAINTENANCE

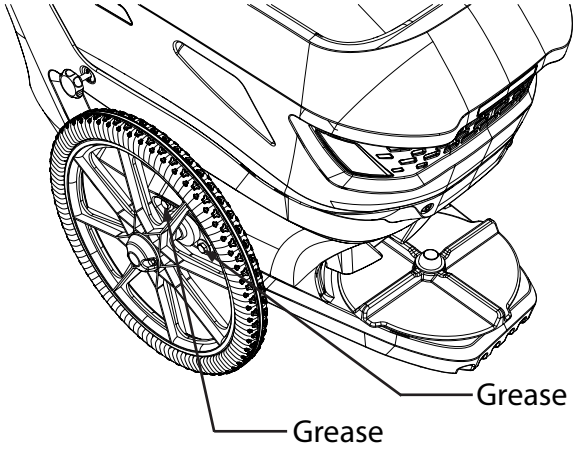
- The spreader should be thoroughly cleaned and any salt removed from the hopper.
- General lubrication of all lubrication points.
- Maintenance spray should be applied to all metal surfaces.
- The spreader should be covered if it is to be left outdoors.
- Never use oil or grease on rubber parts, e.g. tyres, rubber sheet etc.

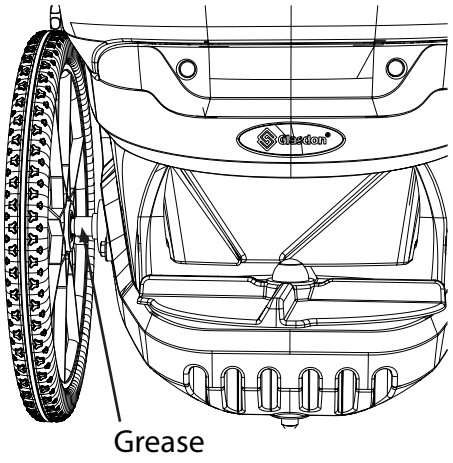
LUBRICATION

All moving parts shown in the diagram below should be lubricated after every week of operation. A grease gun is required for the 2 main axle bearings. Particular attention should be paid to the lubrication of the cam bearings and the pulley bearings. Maintenance spray should be used after each gritting operation to dispel any highly corrosive salt from metal parts and, specifically, the bearings shown below.

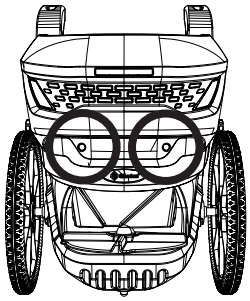
LUBRICATION POINTS

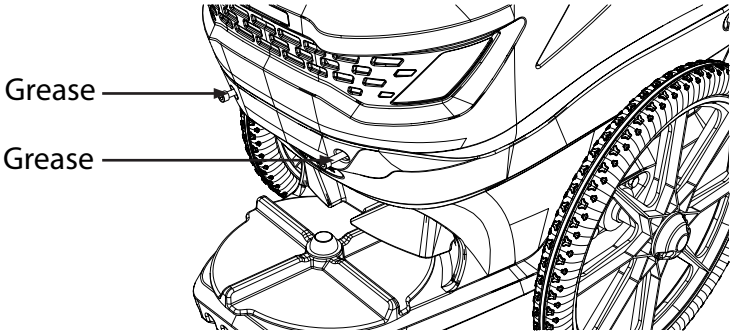
MAIN AXLE BEARINGS



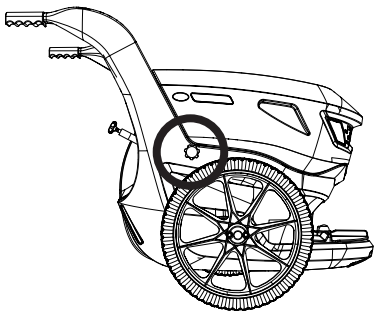


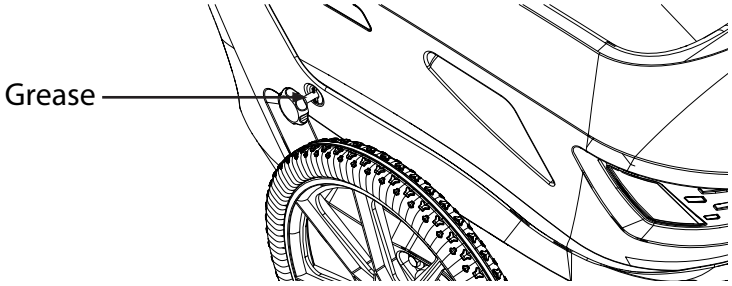
HOPPER BOLTS





SIDE LOCKING PINS





6 DRIVE AND BELTS

SPINNER PLATE DRIVE AND BELT

The spinner plate is belt driven by a 45mm diameter pulley (to which it is directly attached) from the large 160mm diameter pulley mounted in the middle of the main axle.

SPINNER PLATE DRIVE BELT SPECIFICATION

The belt is a Polyurethane round hollow section and has a welded end to allow for a closed loop. Diameter 6mm x length 990 (BLT 'Quik-Go 85A').

SPINNER PLATE DRIVE BELT

The flexible hollow section permits the belt to sit deeper in the pulley, giving improved drive through a greater range of tension.

Under no circumstances attempt to increase belt tension by making an extra twist in the belt, as this not only reverses the drive, which would adversely affect the spreading, but grossly increase the belt friction to an unacceptable level.

7 TECHNICAL SPECIFICATION

CAPACITY AND WEIGHTS

Capacity	50 litres (1.76 cubic ft)	
Unladen Weight	32kg (70.5 lbs)	
Payload of:		
Wet Brown Rock Salt	63kg (139 lbs)	@ Specific Gravity of 1.272
White Icemelt	50kg (110 lbs)	@ Specific Gravity of 1
(Holds approximately 2 x 25kg bags of rock salt)		
Laden Weight:		
Wet Brown Rock Salt	95kg (210 lbs)	
White Icemelt	82kg (181 lbs)	
(Will vary with different materials)		

SAFETY NOTE

Ensure that at least two people are available to lift a Turbocast 400 in or out of a vehicle.

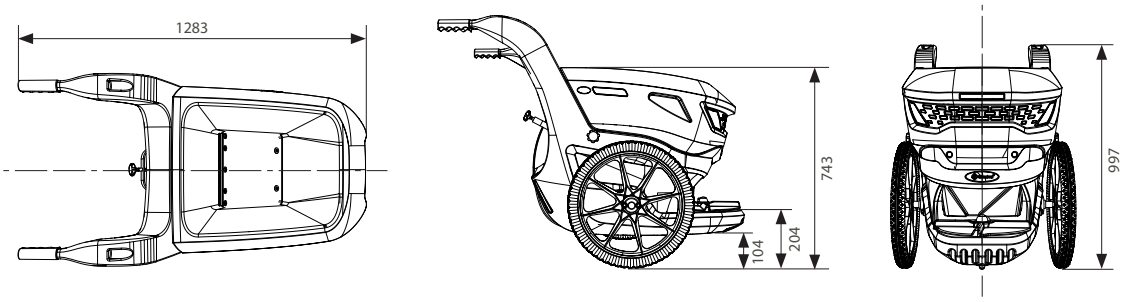
WHEELS

IMPORTANT: The tyres and machine have been designed to function at walking pace (Maximum 6.5kph (4mph) with a maximum load of 300kg per wheel/rim.

MATERIALS

Hopper Upper Housing	Durapol™ , Yellow
Hopper Lower Housing	Durapol, Black
Spinner Plate	Polypropylene, Black
Tyres	PU Foam Filled Rubber, Black
Wheel Rims	ABS, Black

OVERALL DIMENSIONS



APPROXIMATE SPREAD RATES

Figures are based on an average spread width of 3m (medium walking pace) with the machine filled level to the top of the hopper. Figures are for guidance only and will vary due to the hygroscopic nature of gritting materials.

DENSITY	MATERIAL & APPLICATION	RATE	DISTANCE	AREA
(kg/ltr) Payload		gms/m²	Metres	m²
1.272 63kg	Wet Brown Rock Salt Settings 3 - 6	13 - 40	1,615 - 525	4,846 - 1,575
1.208 50kg	White Icemelt Settings 1 - 4	10 - 41	1,667 - 406	5,000 - 1,220
1.272 50kg	Guidelines* 1. Precautionary (Frost) 2. Remedial (Snow) 3. Remedial (Ice)	 10 20 40	 1,320 660 330	 6,600 3,300 1,650

* The Highways Agency Network Management Manual (NMM), Part 5 - Winter Service (using damp brown rock salt).
Any snow or ice more than 30mm thick must be cleared before gritting can have any effect.

- A planned maintenance schedule or regular inspection is recommended, replacing components as necessary.
- Replacement components are available direct from GLASDON.
- GLASDON cannot be held responsible for claims arising from incorrect installation, unauthorised modifications or misuse of the product.

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