LOGIC

GDS200/250

GROUND DRIVE MULTI-SPREADER

USER MANUAL

WM2-GDS200

INDEX

SERIAL NO: ----------

Date of purchase: ----------

IMPORTANT INFORMATION: Fill in immediately. Use when ordering replacement spare parts or additional optional extras

1 INTRODUCTION

With the purchase of your **LOGIC GROUND DRIVE MULTI – SPREADER** you have made an excellent choice.

This machine should give first class service for a long time, if used correctly and maintained as described in this manual.

The flexibility of ground drive allows a wide choice of towing vehicle and spreading width variation will suit many situations.

Design and construction is of high quality, with anti – corrosive components used throughout.

Various options such as wheels, mudguards, couplings, flashing beacon and road lights are available to complete whatever specification is required.

If after reading this manual there are any queries, please get in touch, we will be pleased to help.

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Safe use of all-terrain vehicles (ATVs) in agriculture and forestry

HSE information sheet

Agriculture Information Sheet No 33 (Revision 1)

Introduction

This information sheet gives advice on the safe use of ATVs. It covers the two main types used in off-road working in agriculture, forestry and the land-based industries, namely:

- **Sit-astride ATVs**: Any motorised vehicle designed to travel on four low-pressure tyres on unpaved surfaces, with a seat designed to be straddled by the operator and with handlebars for steering control (see Figure 1). These vehicles are intended to be used by a single operator without a passenger. They may also be referred to as quad bikes.
- **Side-by-side ATVs**: Small utility vehicles in which the driver and passenger sit alongside each other in conventional (ie sit-in) seats (see Figure 2). Most side-by-side vehicles are capable of carrying two occupants in this way; however, some vehicles are equipped with a second row of seating (and can therefore carry four occupants), while others have bench-style seats allowing up to three people to be seated in a row. The majority of side-by-side vehicles have four wheels, although six-wheel and full and partially tracked versions are also available. There is usually a cargo bed behind the seating area. Side-by-side ATVs are sometimes referred to as utility vehicles (UTVs) or rough terrain utility vehicles (RTVs).

ATVs are usually fitted with a tow hitch and are capable of towing a load such as a trailer, a trailed appliance or other equipment.

Hazards

Both types of ATV are designed to cope with a wide variety of terrain types, including steep slopes, but if used outside their safe operating parameters they can very rapidly become unstable. The main causes of serious or fatal injury associated with ATVs are from:

- being thrown off during vehicle overturns or after loss of control;
- collisions with structures, trees, other vehicles etc;
- being trapped/asphyxiated under an overturned machine;
- pedestrians being struck or run over by ATVs.

Contributory factors/underlying causes of accidents and injury with ATVs can include:

- lack of formal operator training and/or experience;
- incorrect/lack of appropriate head protection;
- excessive speed;
- age of the operator;
- carrying a passenger on a sit-astride ATV;
- unbalanced loads or overloading;
- tipping on a bank, ditch, rut or bump;
- loss of control on a steep slope combined with other factors, eg ground or load conditions;
- towing excessive loads with unbraked equipment;
- poor maintenance, eg faulty brakes, incorrect tyre pressures etc.

Control measures for sit-astride ATVs

Training

It is a legal requirement for employers to provide adequate training for employees who use work equipment such as ATVs, and to make sure that only employees who have received appropriate training in their safe use, including the use of any towed equipment or attachments, are permitted to ride them. The same requirements apply to the self-employed.

You can get details of suitable training courses from franchised ATV dealers, manufacturers' websites, EASI (European ATV Safety Institute), the British Off Road Driving Association (BORDA) and through colleges and training providers.

When purchasing a new or used machine from a franchised dealer an industry-led scheme offers customers free training – see 'Useful contacts'.

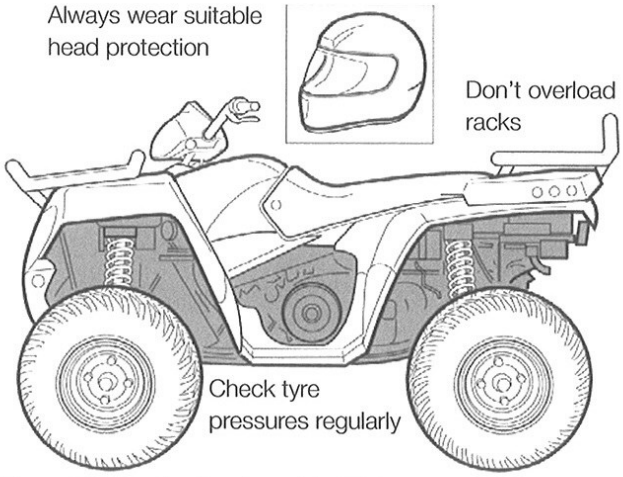


Figure 1 Example of a sit-astride ATV

Personal protective equipment – the importance of head protection

Sit-astride ATVs are not fitted with either a cab or roll bar, so your only protection is what you wear. Head protection is vital. Many ATV fatalities in the UK have been caused by head injuries. Helmets would certainly have prevented most of, if not all, these deaths. You should always wear a helmet when riding an ATV.

Helmet types suitable for ATV operations, depending on the circumstances, are motorcycle helmets, equestrian helmets, specialist ATV helmets, cycle helmets and mountaineering helmets. All helmets should be manufactured and tested in accordance with the current relevant EN/BS standard, have a chinstrap and be capable of being used with suitable eye protection. The type of helmet chosen should be based on an assessment of the circumstances in which the ATV will be used, eg the types of surface travelled over and anticipated speeds. The harder the surface and higher the speed the greater the degree of protection needed. NB: Forestry helmets and industrial hard hats are not acceptable for any ATV operations.

Wear clothing that is strong and covers your arms and legs. Gloves are useful for protection and handlebar muffs can help to keep hands warm in cold weather for good control of the ATV. Wear sturdy, ankle-covering footwear, eg boots or wellingtons that are strong, supportive and have good wet grip.

Protect your eyes from insects and branches with either a visor or goggles.

Passengers

The long seat on a conventional sit-astride ATV is to allow operators to shift their body weight backwards and forwards for different slope conditions, a technique known as 'active' riding. It is **not** for carrying passengers. Manufacturers often display a sign on machines prohibiting passengers and this message is also repeated in operator manuals.

Do not carry a passenger in a trailer behind an ATV as any movement can make the machine unstable, particularly with independent rear suspension and trailers with axles wider than the ATV.

Some machines have received European Community Whole Vehicle Type Approval, allowing them to be ridden on the public highway. Some of these machines are designed to carry passengers. Such machines may not be suitable for carrying a passenger when used in off-road situations, eg on sloping ground, as the operator may not be able to use active riding techniques to maintain machine stability. Such machines may not have a locking differential and may not provide an acceptable level of traction to ensure safety in certain off-road conditions.

Before using an ATV you should assess the suitability of the machine for the intended tasks and working environment.

Route planning and stability

Accidents can occur where ATVs are driven on new routes over steep ground for the first time, or are carrying or dragging destabilising loads. When travelling over rough terrain, get to know your own ground and stick to planned routes where possible. Walk new routes if necessary to check for hidden obstructions, hollows or other hazards. Allow for changes in ground conditions and for the destabilising effect of loads or attachments.

Safety checks and maintenance

Off-road use is especially harsh on equipment so it is essential to carry out safety checks and maintenance in accordance with the manufacturer's recommendations. In particular, pre-ride safety checks should always include:

- tyre pressures. These are low, eg typically around 2–7 psi, so even a 1 psi (0.07 kg/cm^2) difference in pressure can cause vehicle control problems. Use a gauge that is designed for measuring and displaying low pressures – usually supplied with the ATV;
- brakes and throttle. Check that the brakes give a safe straight stop and that the throttle operates smoothly in all steering positions. Brakes can have a relatively short life in farming or forestry environments and need frequent cleaning, regular adjustment and proper maintenance.

Safe riding methods

On sit-astride ATVs rider positioning is vital to operate them correctly. The position of the rider on the machine needs to be changed depending on the terrain and motion. Riders must have the ability to move and balance the momentum of the ATV with their own body weight. Plan routes (and review the plan if a route is used regularly) to assess risks.

The following advice is no substitute for formal training.

- Most ATVs have no differential and so do not handle in the same way as other machines. This means that when you turn, the ATV tries to keep going in a straight line.
- When cornering on an ATV with no differential, or with the differential lock engaged, where your body weight needs to be positioned depends on how sharp the corner is and on how fast you are going. Correct body position allows you to transfer weight to the outside of the turn through the footrests while maintaining balance with the torso. This lets the inside wheels skid slightly allowing the ATV to make the turn properly.
- You must understand how the transmission system of your machine will affect engine braking for both riding on slopes and recovery of stalled ATVs.
- When riding across a slope, keep your weight on the uphill side of the ATV.
- When going downhill, slide your weight backwards, select a low gear and use engine braking, reducing the need to use the brakes.
- When going uphill, it is important to review the route before starting the climb. Move your weight forwards and maintain a steady speed. It is important to shift your body weight forwards as much as possible. If necessary, stand up and lean forward, keeping both feet on the footrests at all times and always maintain momentum.
- Avoid sudden increases in speed. This is a common cause of rearward overturning accidents, even from a standing start on flat ground where there is good grip.
- Never put your foot onto the ground to stabilise an ATV when riding, but shift your weight across the ATV away from the imbalance.
- Always read the owner's manual.

Trailed equipment and loads

Ensure all riders know the manufacturer's recommended towing capacity and drawbar loading limit. Always operate within these requirements. Remember that your ability to control the ATV by your body movements will be considerably reduced when carrying a load or towing a trailer.

- When selecting trailed equipment look for:
  - over-run brakes;
  - a swivel hitch drawbar;
  - bead lock rims on wheels;
  - a low centre of gravity and a wide wheel track;
  - a long drawbar;
  - attachment points for securing a load.
- Check the weight ratio between your ATV and its trailed load. This needs to be assessed for each operation. As a general guide, on level ground braked trailed equipment can be a maximum of four times the unladen weight of the ATV. For unbraked trailed equipment the maximum should be twice the unladen weight. These loads should be reduced when working on slopes, uneven ground or poor surface conditions. Follow the manufacturer's advice for your particular machine.
- Weight transfer is also important. Stability and resistance to jackknifing is improved if some load is transferred onto the ATV's drawbar. Approximately 10% of the gross weight of the loaded trailer is recommended, but this should not exceed the manufacturer's drawbar loading limit. Remember that weight transfer can change dramatically when you start going up or down hill.
- When selecting mounted equipment, make sure it is within the manufacturer's approved weight limit, with a low centre of gravity and controls which are easy to operate but do not create a hazard. Where equipment is added to one end of the machine, add ballast at the other end to maintain stability.
- Loads carried on racks must be well secured, eg with ratchet straps, and be evenly balanced between the front and rear, except where they are deliberately altered to aid stability when going up or down a slope. Maximum weights that can be carried should be specified in the operator's manual and may be marked on the machine. These should not be exceeded.
- Only tow a load from the hitch point. Loads towed from other points, such as the rear rack, have caused sudden rear overturning even on slight slopes or with slight acceleration. Do not use ropes or chains to drag a load; they can become caught on a wheel. This may lead to entanglement with the brake cable, causing unexpected braking.

Using sprayers

- Sprayers should be fitted with an induction hopper unless the filling point is less than 1.5 m from the ground and within 0.3 m from the edge of the sprayer. A separate clean water tank for washing must be provided containing at least 15 litres of clean water and a tap that allows the water to run without being continuously pressed.
- When buying a sprayer look for a low centre of gravity and internal baffles to reduce liquid surge and improve stability when turning on slopes.

- ATVs should only be used with rear-mounted spray booms or other equipment that reduces the risk of pesticide exposure to the operator.

- Do not hold a spraying lance while riding your ATV as you need two hands for safe control.

Accessories

Beware of the potential dangers of accessories which are not approved by manufacturers, eg home-made gun racks and boxes. Either use accessories supplied/approved by manufacturers or seek their advice as to the suitability of those sourced elsewhere.

Any weight added above the centre of gravity will decrease the ATV's stability, eg feed hoppers/dispensers fixed above the rear rack.

Children

- Never carry a child as a passenger. It is illegal and will reduce your ability to control the ATV.
- Children under 13 years old are prohibited from using an ATV for work. Over-13s should only ride ATVs of an appropriate size and power after formal training on a low-power ATV.
- Children under 16 years old are prohibited from using most adult-sized machines. Check and adhere to the manufacturer's minimum age recommendations for your ATV; this information may be displayed on the machine and in operator manuals. Similar restrictions apply to side-by-side machines.
- The ratio of a child's weight to that of the ATV is significant, as weight transfer is the key to safe handling.
- In the event of an overturn, a child may be crushed by the weight of an adult-sized ATV. They may be unable to lift it off unaided.

Roll-over protective structures (ROPS)

- HSE's current advice is that roll-over protective structures (ROPS or crush protection devices) are not recommended for sit-astride ATVs. Research has shown that they may lead to an increased risk of injury in the event of an overturn by either preventing the operator from separating from the machine or striking the operator as the machine overturns.
- Lap straps/seat restraints should not be fitted. They prevent active riding and would be potentially lethal without a full cab or roll cage.
- Weather cabs on sit-astride ATVs restrict a rider's ability to jump clear in an overturn. The rider is likely to be crushed within the cab unless it is strong enough to withstand the forces involved. Carefully assess the risks for your particular conditions of use before fitting any such structure and consult the manufacturer for information.

Side-by-side ATVs

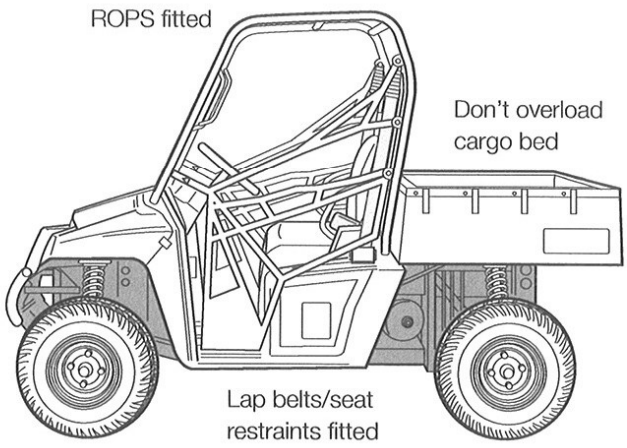


Figure 2 Example of a side-by-side ATV

Utility side-by-side ATVs are used for many of the same purposes as tractors and designed for similar work activities, ie off-road use on difficult terrain. They have conventional sit-in seats, and the main controls comprise a steering wheel and pedals. The driver does not need to use weight transfer to steer or to control stability. Nevertheless, the correct distribution of weight on-board the vehicle is important, particularly when carrying a load or on uneven surfaces. Loads carried on the cargo bed should not exceed the recommended weight and should be secured against movement.

Training

The legal requirements for training are the same as for the sit-astride ATVs.

ROPS and seat belts

The requirements for these machines are quite different to those of sit-astride ATVs:

- To reduce the risk of injury in the event of a roll-over or other incident, side-by-side vehicles require lap belts/seat restraints as well as ROPS that essentially form a protective structure around the seating area. The compartment is usually open, although some vehicles are fitted with a windscreen and/or side doors. The driver and all passengers should be protected by ROPS and wear lap belts.
- Where a machine is amphibious and used on deep water as opposed to marshland, then the seat restraints (and possibly ROPS) could increase the

overall risk rather than reduce it. In this case, do not use seat restraints while on the water. Assess the risk from the roll frame according to its design and the likelihood of trapping the occupants if the machine should sink.

Parking

If you have to park on a slope, always park across it unless it is too steep. Accidents have occurred when machines have run down slopes because of poor brake maintenance or application, particularly while they are being loaded and movement or the increase in weight has set the machine in motion.

Useful contacts

EASI®, the European All-Terrain Vehicle Safety Institute, is a not-for-profit organisation which provides safety training courses for ATV riders.

EASI's UK operation is sponsored by a number of ATV manufacturers and delivers a programme of specialist ATV training courses which are designed to improve rider skills, safety levels and awareness of the capabilities of ATV machines.

Buyers who purchase a new or used ATV from one of these manufacturers via an authorised UK dealer are eligible for **free** or highly subsidised training, subject to qualifying terms, conditions and availability. See www.quadsafety.org/ for details.

Training is also available from other organisations, such as the British Off Road Driving Association (BORDA). See www.borda.org.uk for details.

Further information

For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit www.hse.gov.uk/. You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance.

This leaflet is available at: www.hse.gov.uk/pubns/ais33.htm.

This symbol means **WARNING** or **CAUTION.** Personal safety or damage will be at risk if these instructions are ignored. Most accidents are caused by neglect or carelessness. Avoid needless accidents by following the safety precautions listed below.

2 IN THE INTEREST OF SAFETY: DO NOT

DO NOT – Operate the spreader unless you have read this entire manual.

DO NOT – Operate the spreader if any parts are defective, replace any defective parts before use.

DO NOT – Touch moving parts.

DO NOT – Exceed sensible towing speeds. (Max 30mph)

3 IN THE INTEREST OF SAFETY: DO

DO – Follow all manufacturer's guidelines.

DO – Attach the spreader to a suitable towing vehicle.

DO – Follow all manufacturer's service instructions.

DO – Be aware of travelling conditions – Do not exceed sensible speeds.

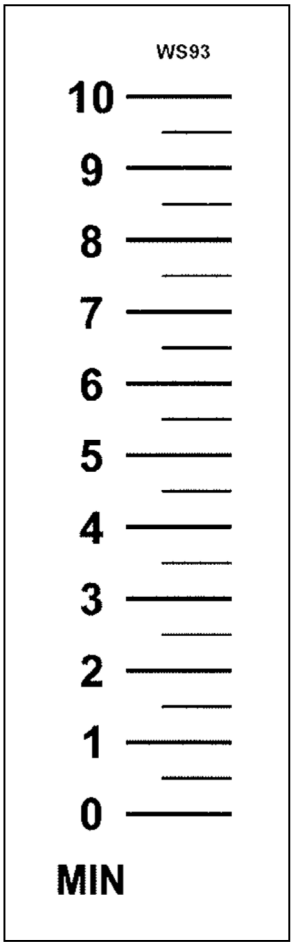
DO – Follow all safety instructions in this manual.

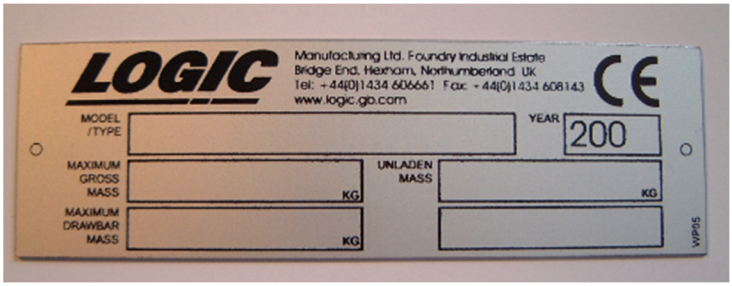
DO – Make sure all persons are a safe distance when operating the spreader, especially when operating in areas used by the public.

DO – Make sure all nuts bolts and fittings are secure before using and check at regular intervals during operation.

DO – Avoid excessively steep slopes or adverse ground conditions.

4 INSTRUCTIONS / WARNING DECALS





THIS PRODUCT IS PROTECTED BY **DESIGN RIGHT**

WS36

KEEP WHEEL NUTS TIGHT
CHECK DAILY
REFER TO THE OPERATORS MANUAL
FOR CORRECT TYRE INFLATION PRESSURE
OBSERVE TOWING VEHICLE MAX TOWING LIMITS OR TRAILER MAX WEIGHTS
WS103

The above decals should be located on your spreader. If any of the above decals are not located on your spreader or are damaged in any way contact Logic for some Replacements decals before use.

5 LIFTING POINTS

The GDS has three lifting point positions, always lift from the lifting points clearly marked on the GDS.

- Use lifting slings, never lifting chains.
- To ensure safe lifting always lift the spreader using lifting slings that comply with BS EN1492-1.
- Never lift the GDS200/250 when the hopper is loaded.
- Always check lifting load limits before lifting
- Lifting equipment manufacturers guidelines must be followed at all times.
- Position lifting slings where you see this symbol:
- Ensure pedestrians are clear from danger.
- Protect any paint work to prevent straps causing damage

NB: Refer to the manufactures weight plate located on the spreader for unladen lifting weight

6 OPERATING INSTRUCTIONS AND ADJUSTMENTS

The spreader is designed to give safe and dependable service if operated according to instructions and intended use.

Read and understand this manual before operating the unit, as failure to do so could result in personal injury or equipment damage.

INITIAL CHECK

Make sure that all nuts, bolts and fittings are securely fixed, and that all packaging materials e.g. wire bands, tape etc have been removed.

6.1 ATTACHING TO THE TOWING VEHICLE

The **Logic Multi – Spreader** can be towed by a wide range of suitable vehicles from the largest of ATVs to tractors, vans, pickups and 4 X 4s etc.

Standard coupling is by swivel ball hitch although options include clevis or ring for tractor type hitches.

The Multi-Spreader should be as level as possible during operation. The coupling housing can be positioned above or below the drawbar to achieve this. If other measures are required, please contact the Logic office for advice.

Attach the wire cable (secondary coupling, for statutory safeguard) to a point on the towing bracket, a suggested position would be over the ball, then attach the swivel coupling to the ball. Ensure the coupling is properly seated and check for any obstructions that may effect full movement.

6.2 OPERATING PRINCIPLES

The following procedures should enable operators to get the best results from this machine in most circumstances.

1. Before loading, check that the belt drive is disengaged and the feed gate is closed.
2. It is essential that the towing vehicle weight restrictions (if any) are taken into account. **(See** manufactures plate on GDS for loading limits)
3. Never overload the hopper and take particular note of the tyres for signs of wear or deflation.

   Check tyre pressure regularly, lug tread tyres should be **26 psi**.

   Road tyres should be **45 Psi**.
4. The hopper should be filled through the loading screen to prevent any foreign bodies entering the discharge mechanism causing damage or blockages. Filling by hand does not take long and should not cause any problems. Filling with a mechanical shovel requires more caution to prevent the agitator bar from being pushed sideways. Fill the hopper slowly and from a central position.
5. Check the drive is still disengaged, and then drive carefully to the operation area at the maximum speed of 30 mph.
6. Set the discharge feed gate to the required opening for the appropriate application rate. See calibration section. **NOTE** If the load has consolidated after a long journey from the store area, attach the hand lever to the agitator beam and shake vigorously, open the feed gate to maximum for the first 5-10 seconds then re-set the feed gate to the appropriate setting.
7. Check that the offset vanes on the drop chute are set correctly. See calibration guide.
8. Move the engagement lever to the 'drive' position. Variations of the engagement lever handle are available to improve the ease of use from the operator's position.
9. Move off with the towing vehicle to reach the operating speed as quickly and safely as possible.
10. Maintain the correct forward speed as far as possible; in the understanding that speeding up will create a wider spread width, slowing forward speed will reduce the spread width. In many cases a fluctuation in speed will be necessary to cope with road junctions, traffic lights and hazards of various kinds. The unit is small and manoeuvrable enough to go over the treatment area again to fill in any missed pieces.
11. When treating highways with a precautionary application of salt, it is advisable to travel on the nearside of the road with the offset adjustment set to cover the centre area of both carriageways, bearing in mind dry salt will bounce a further distance and an area of 1 metre on the margins of the road will not need treatment as traffic will soon disperse salt particles to the full width of the road.

    When spreading onto snow-covered roads, there will be no bounce effect so that a wider spreading width will be required. An appropriate increase in material feed to the spinner could be considered to increase the application rate per square metre.

WHEN SPREADING IS COMPLETE OR WHEN THE HOPPER IS EMPTY IT IS ESSENTIAL THAT THE ENGAGEMENT LEVER IS MOVED TO DISENGAGE. FAILURE TO DO THIS, ESPECIALLY WHEN TRAVELLING DISTANCES OR AT HIGHER SPEEDS CAN RESULT IN DAMAGE TO THE DISC AND AGITATOR DRIVE SYSTEM.

6.3 CALIBRATION

The **Logic Multi–Spreader** is capable of spreading a wide range of flow-able products, the most common being salt, sand and grit.

In most cases the operating principles and calibration are the same, with just one mechanical adjustment for application rate.

All materials will vary slightly, depending on density and moisture, etc, even in the same heap, a range of conditions will be found.

The following steps are intended as a guide only and it is highly recommended that simple test runs are carried out in the filling area before setting out, to check that the spreading quantity and pattern are satisfactory.

The main controlling factor is forward speed, which dictates the spreading width. The application rate will then be controlled by the feed gate setting.

The recommended **minimum** forward speed is **5** mph (8 kph). This would be used in confined spaces, or where a minimum spreading width is required e.g. a footpath. At this speed the spreading width will be approx. 5' (1.5 m). Recommended **maximum** speed is **15** mph (24 kph) which will result in a spreading width of approx. 32' (10 m) suitable for car parks and roads, etc.

The feed gate setting at the back of the hopper controls the material flow and therefore the application rate (grams per sq metre).

The slide opens from zero to 6.5 (65mm) which should give a wide range of application rates for any situation.

CALIBRATION STAGES

1. Decide what **spread width** is required in relation to a safe working speed.

   As a guide (standard g/box) 5 mph = 1.5m (fast g/box) 5mph = 3m
   10 mph = 6m = 10m
   15 mph = 10m = 14m

2. Select the **feed gate setting** to achieve the desired application rate.

   This will depend on trials carried out with materials to be spread at the time.

   As a guide (using salt)
   Setting 2 (cm) at 5 mph (s g/b)= 25 gr/sq m, (f g/b) = 12 gr/sq m
   Setting 2 (cm) at 10 mph (s g/b)= 5 gr/sq m, (f g/b) = 3 gr/sq m
   Setting 4 (cm) at 5 mph (s g/b)= 50 gr/sq m, (f g/b) = 25 gr/sq m
   Setting 4 (cm) at 10 mph (s g/b)= 10 gr/sq m, (f g/b) = 6 gr/sq m
   Setting 6 (cm) at 5 mph (s g/b)= 80 gr/sq m, (f g/b) = 40 gr/sq m
   Setting 6 (cm) at 10 mph (s g/b)= 20 gr/sq m, (f g/b) = 12 gr/sq m
   Setting 6 (cm) at 15 mph (s g/b)= 12 gr/sq m, (f g/b) = 7 gr/sq m

   (Note - s g/b = standard gearbox, f g/b = fast gearbox).

3. To check the accuracy of the settings, try a few trial runs over a clean area of concrete or road surface, at the correct forward speed. Check the spread width, which may vary due to bouncing material if it is very dry.

   Check the application rate by sweeping up 1 square metre and weighing the contents. Alternatively, use a 1m x 1m piece of paper to collect the material. Several passes over the area will provide a more accurate average result.

4. Write down results for future reference.

6.4 SPREADER PATTERN ADJUSTMENT

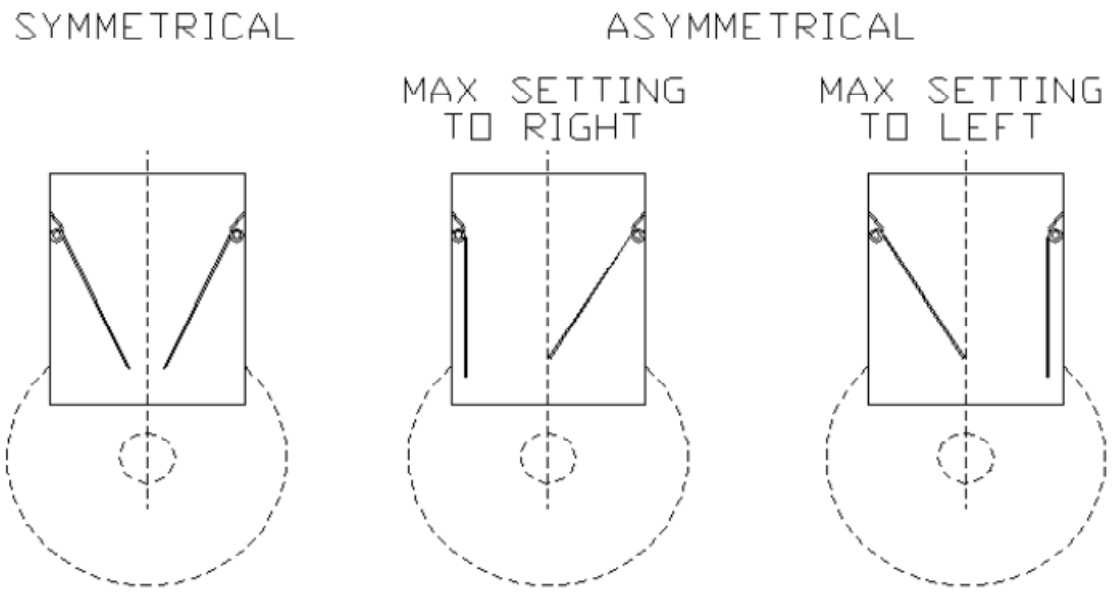
The drop chute of the multi – spreader is as wide as the feed supply to enable damp material to be directed onto the spinning disc with little resistance. If required (A).

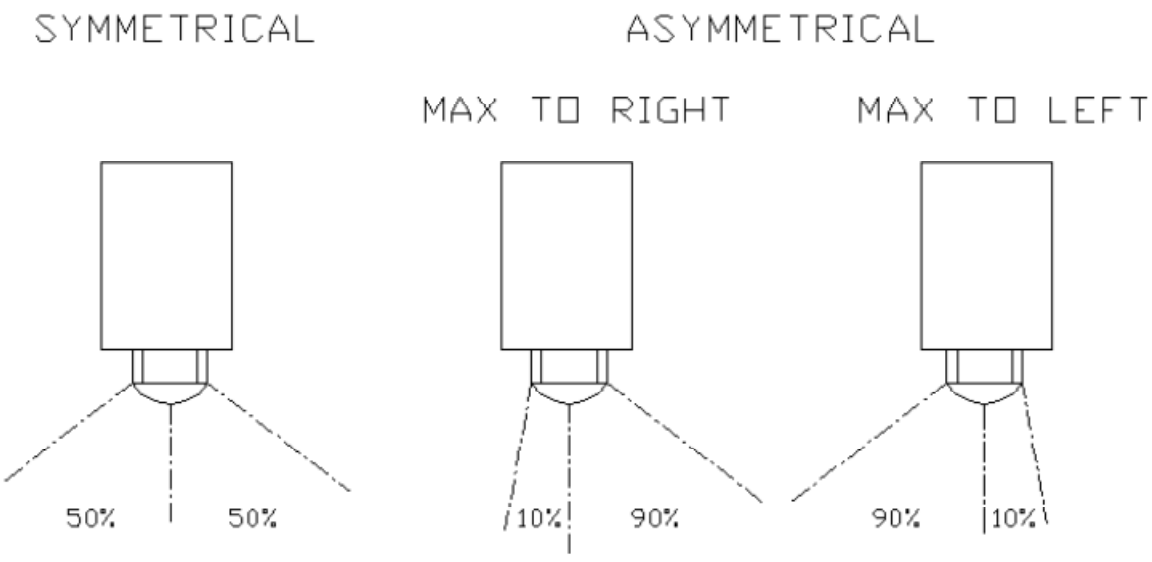
Using the two deflector vanes, one each side of the drop chute, material can be deflected to the centre of the disc for **symmetrical** spreading with an even spread

pattern, or to either side of the disc for **asymmetrical** use on pavements or roads etc.

The optimum gap between the vanes is between 60 – 100mm depending on the dryness of the material and resulting flow ability. Wet material will require a larger gap, to prevent spilling over the vanes. Again every situation will be different, so a trial will be beneficial.

VANE SETTINGS GUIDE





6.5 SPREADER SETTINGS CHART

MATERIAL	TOWING VEHICLE	OPERATING SPEED (mph)	SPREAD WIDTH (m)	FEED GATE SETTING	APPLICATION RATE (gms/sqm)
(EXAMPLE) SAND (wet)	Kubota Tractor	10	6	4	10

6.6 SPREADER TYRE PRESSURES

TYRE	SIZE/MAKE	RECOMMENDED PRESSURE
WT950L	7-14 Fieldmax	26 psi
WT950R	7-14 Fieldmax	26 psi
WT750	195/60R14 Camac	45 psi
WT750	195/60R14 Hankook	45 psi

7 MAINTENANCE / SERVICE

Always empty the hopper before any routine work

7.1 DAILY

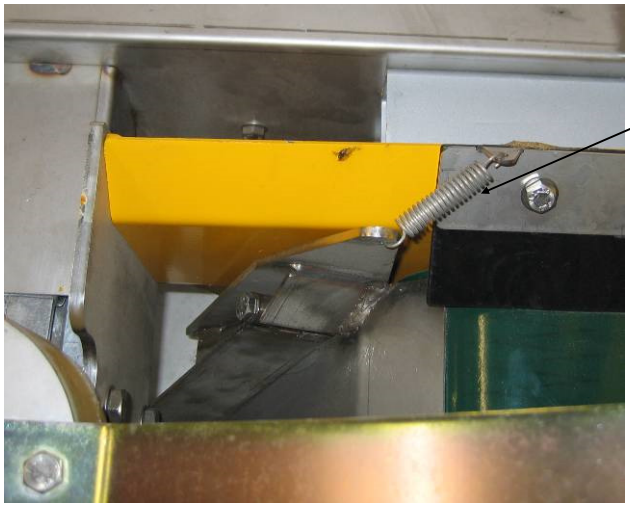
1. Check the condition of the tyres and tyre pressure – for lug-tread tyres – 26psi,

   road tyres – 45psi.

2. Check wheel nuts are tight – 65 lbs ft torque.

3. Check the belt cleaner is not worn and in contact with the belt, remove any build up of salt and debris. Check the pressure strip, below the belt cleaner, is operating properly, replace when worn.

4. Check the drop chute plate is operating correctly, if necessary remove the contact springs and clean under the plate to ensure good contact with floor belt, replace the springs after cleaning.



5. Check and clean the hopper mesh, check inside the hopper for debris which could cause problems on the next load e.g. stones etc.

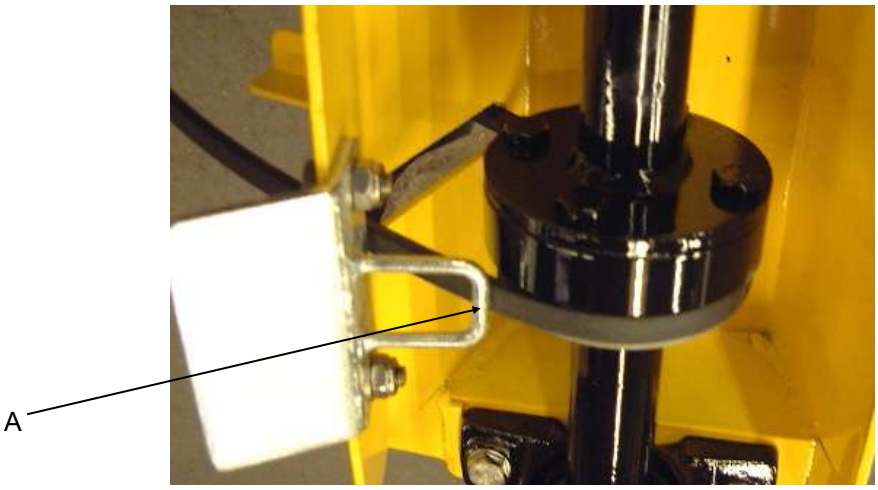
6. Empty any remaining salt products from the hopper if they are not going to be used within 24 hours.

7. If the spreader has been used for salt products and is going to stand idle for more than 24 hours, wash out the spreader with a pressure washer using preferably warm water.

7.2 WEEKLY

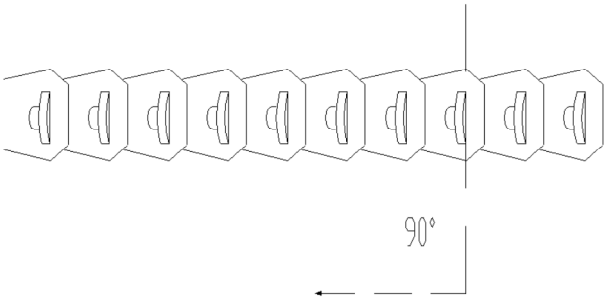
1. Remove the transmission cover and check the condition of all the belts.

2. Check the idling pulley on the main drive belt for dust build up and signs of wear. Check that the lower belt stop on the drive axle is not fouled by any foreign objects or dirt. The gap between the stop and the belt pulley should be approx 6mm (A). If this needs adjusting, remove the stop from the axle and hold in a vice to carefully bend the loop to the correct angle.



3. Check the belt trap at the gearbox end of the drive belt surrounding the outer part of the 3 belt pulley, for signs of miss-alignment or required cleaning, re-adjust if necessary. (For details of resetting, see page 16.)

4. Check the link belt stud heads are at 90° to the direction of travel.



5. Check the plygene flap on the disc deflector plate surrounding the spreading disc for signs of wear. Replace if necessary.

6. Grease the axle bearings, 2-3 pumps of a grease gun should be sufficient.

7. Check the feed gate adjustment knob for lubrication. Use a metal-free, anti-seize compound

8. Pressure wash the machine especially around the conveyor belt area. Use warm water if possible.

9. Check and lubricate the jack and drawbar coupling with an aerosol penetrating oil.

7.3 END OF SEASON

1. Check the cam housing on the gearbox drive of the agitator, remove the 4 bolts, dismantle and clean out, check for signs of wear. Replace the lubricating agent. Use Grease-Super lube part no MLU-020 from Logic. Check the other parts of the agitation system.

2. Thoroughly clean the inside of the transmission housing, including all the belts and belt trap on the main drive belt.

3. Release the tension on the floor belt, thoroughly check the condition of the belt top and bottom. Check the condition of the rollers for damage or wear. On the drive roller there is a nylon bearing at each side. The idling roller has no replacement bearing as it is made of bearing material, check for play on both rollers. When re-tensioning the floor belt at the beginning of a season as a guide 10-12mm of thread should be showing from the locknut on the tensioning bolts (factory setting). DO NOT OVER TIGHTEN. All that will happen if the floor belt is not tight will be slippage, over tight could cause belt damage and excessive wear on bearings. Tighten 1mm at a time to overcome any slippage.

4. Check the main drive axle and bearings for signs of wear and replace any suspect bearings.

5. Grease all sliding parts including feed gate, engagement levers and linkages.

6. Check the gearbox output shafts for signs of wear.

NOTE Both gearboxes are maintenance free. They should not be tampered with or taken apart for any reason, unless authorised by Logic.

7. Slacken the bolts securing the drop chute vanes to allow free movement during the lay-off period.

8. Check damage to paint work and repair.

9. Pressure wash thoroughly inside and out using warm water.

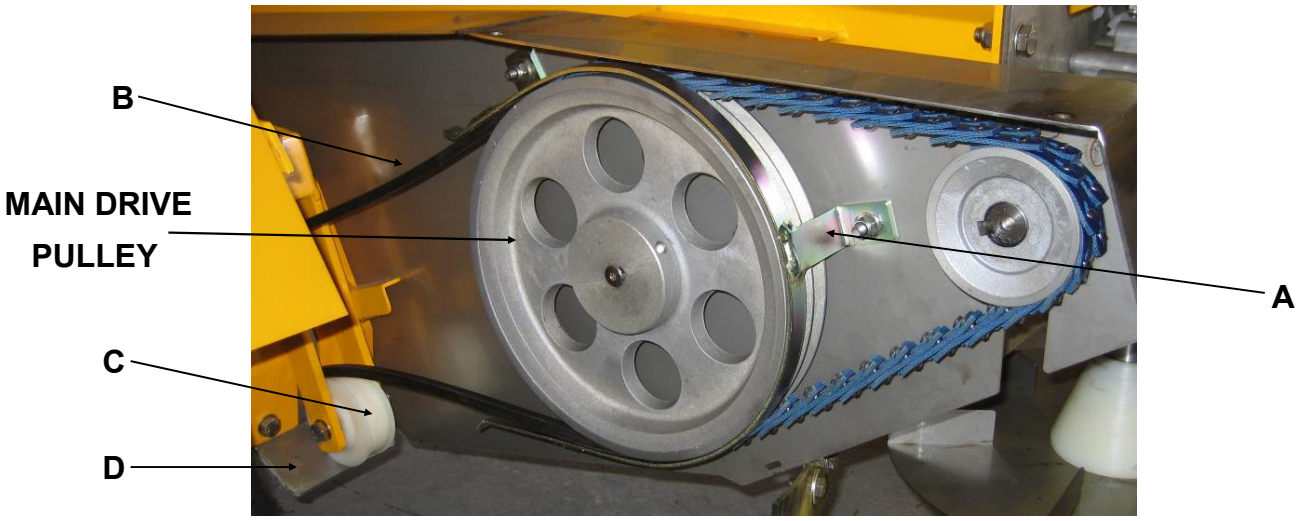
10. Store in a dry place if possible.

7.4 DRIVE BELT REPLACEMENT PROCEDURE

7.4.1 MAIN DRIVE 'V' BELT

1. Disengage the drive mechanism and remove the transmission cover.

2. Jack up the drive side (nearside) of the axle. NOTE place a sturdy piece of wood across the bottom of the chassis cross member for the jack to be positioned under. Support the rest of the spreader to ensure complete stability.



3. Remove the nearside drive wheel from the axle.

4. Remove the nylon idle pulley (C) from the drive engagement linkage.

5. Remove the drive belt stop bracket (D)

6. Remove the belt trap (A) from the transmission guard.

7. Remove the drive belt (B) from the main drive pulley and axle pulley.

8. Remove the two bolts securing the drive wheel axle bearing. Allow the axle to drop just enough to remove the drive belt.

9. Replace the old belt with a genuine replacement belt from Logic.

10. Re-assemble the drive belt system in reverse order of disassembly. NOTE When replacing the belt trap around the main drive pulley, adjust the securing bolts of the bracket to ensure it just clears the pulley and belt.

11. There is no further tensioning to be carried out as this is built into the engagement linkage.

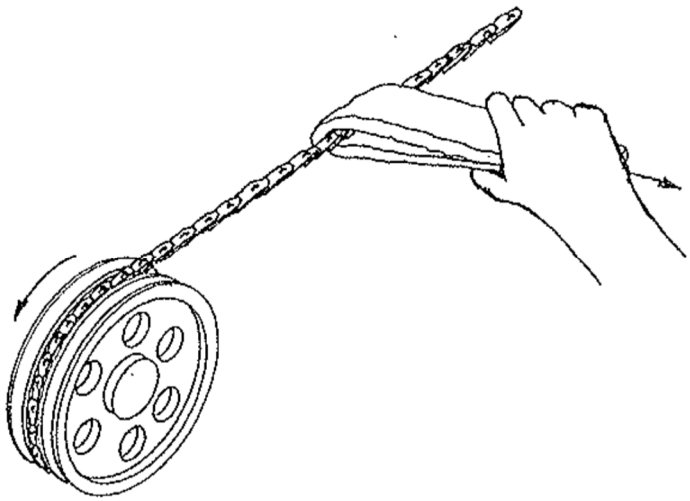
7.4.2 SPINNER DRIVE LINK BELT

1. Remove the transmission cover.

2. Remove the belt trap surrounding the outer groove of the main drive pulley.

3. Remove the main drive 'V' belt (D) from the pulley. (See previous page)

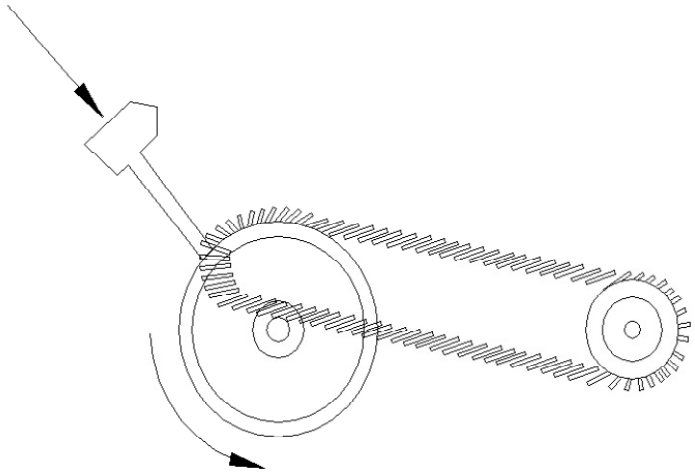
4. Place a suitable cloth around the link belt (E) to provide a safe means of pulling the belt sideways while rotating the main drive pulley. This method should enable movement of the belt from grooves on both pulleys until it is free.



5. Replace the link belt with a genuine pre-stretched Logic part. NOTE The direction of travel is important when fitting the new belt, ensure the tails are leading.

7.4.2 SPINNER DRIVE LINK BELT CONTINUED

Place the belt in the outer groove of the smaller pulley then push the belt into the outer groove of the larger pulley using a suitable implement e.g. a hammer shank, while turning the main drive pulley to wind on the belt. Revolve the spinning disc to turn the pulley, therefore pulling the belt into the groove.



6. Use this method to move the belt sideways from groove to groove on each pulley.

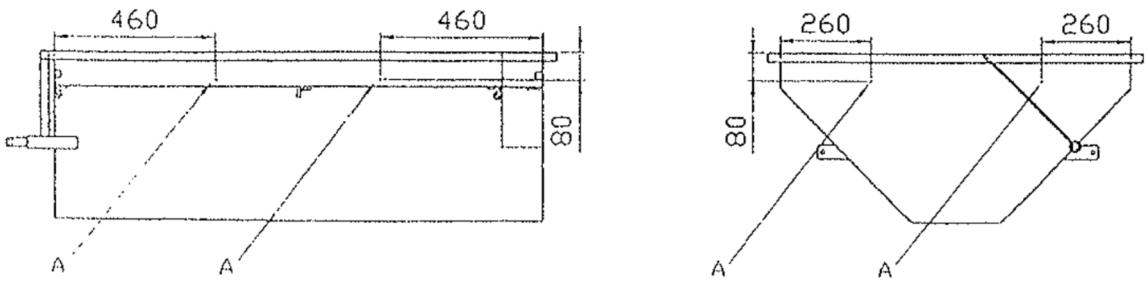
7. Replace the 'V' belt on the main drive pulley.

8. Replace the belt trap around the outer groove of the main drive pulley NOTE position the belt trap to ensure it just clears the pulley and belt, before fully tightening the mounting bolts.

9. Replace the transmission cover.

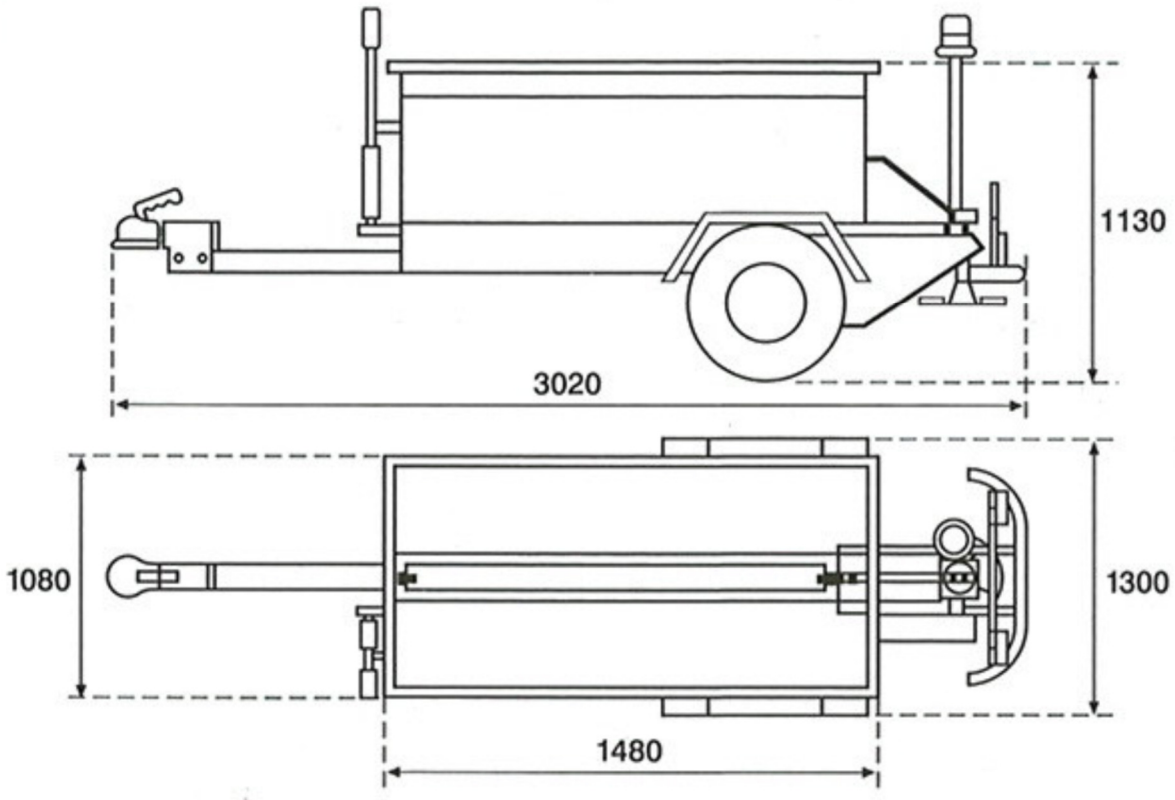
7.4.3 TONNEAU COVER KIT **Part No. GDS108**

The optional tonneau cover is fitted over a support stay which slots into the centre of the hopper mesh. It is secured in position using the elasticated rope secured on bobbins attached to the hopper sides. To attach the bobbins, drill 8 holes 5.5mm in diameter at the points shown A in the diagram below, then secure with M5 setscrew and on the inside, washer and M5 nyloc nut. **NOTE** smear the hole with grease before fitting the bobbin to prevent any corrosion.



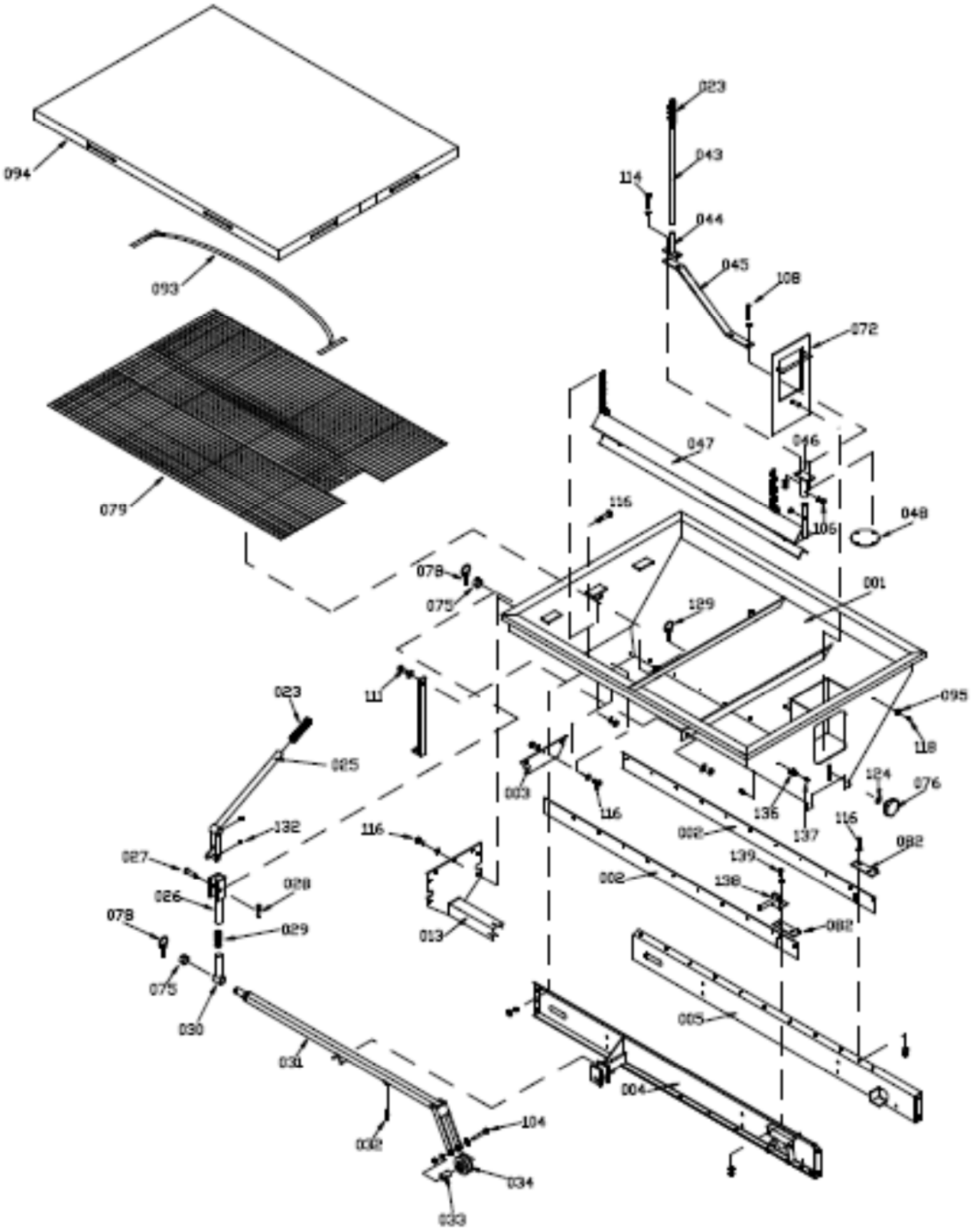
8 SPECIFICATIONS

	Road Specification	Off-Road Specification
Hopper Capacity	465 litres	465 litres
Carrying Capacity	Approx 500kg dry salt	Approx 500kg dry salt
Wheel Size	195/60 R14	27 x 7-14 Lug Tread
Offset Spreading	Yes - Left and Right	Yes - Left and Right
Hopper Metal Thickness	2mm	2mm
Drive Engagement	Hand Lever	Hand Lever
Towing Hitch	50mm Swivel Coupling	50mm Swivel Coupling
Mudguards	Standard	N/A
Lights	Standard	N/A
Unladen Weight (Stainless)	298kg	279kg
Unladen Weight(Painted)	306kg	287kg
OPTIONS		
Standard Gearbox	1.5 - 10m Spread width Based on dry rock salt	
High Speed Gearbox	3 - 14m Spread width Based on dry rock salt	
GDS106	Flashing Beacon	
GDS108	Tonneau Cover c/w Support	
WT811	25 x 10-12 Flotation Wheels	
Towing Clevis/ Jaw	45mm Clevis to take a 16mm pin	
Towing Ring	30, 40, 50mm ID Rings avialable	

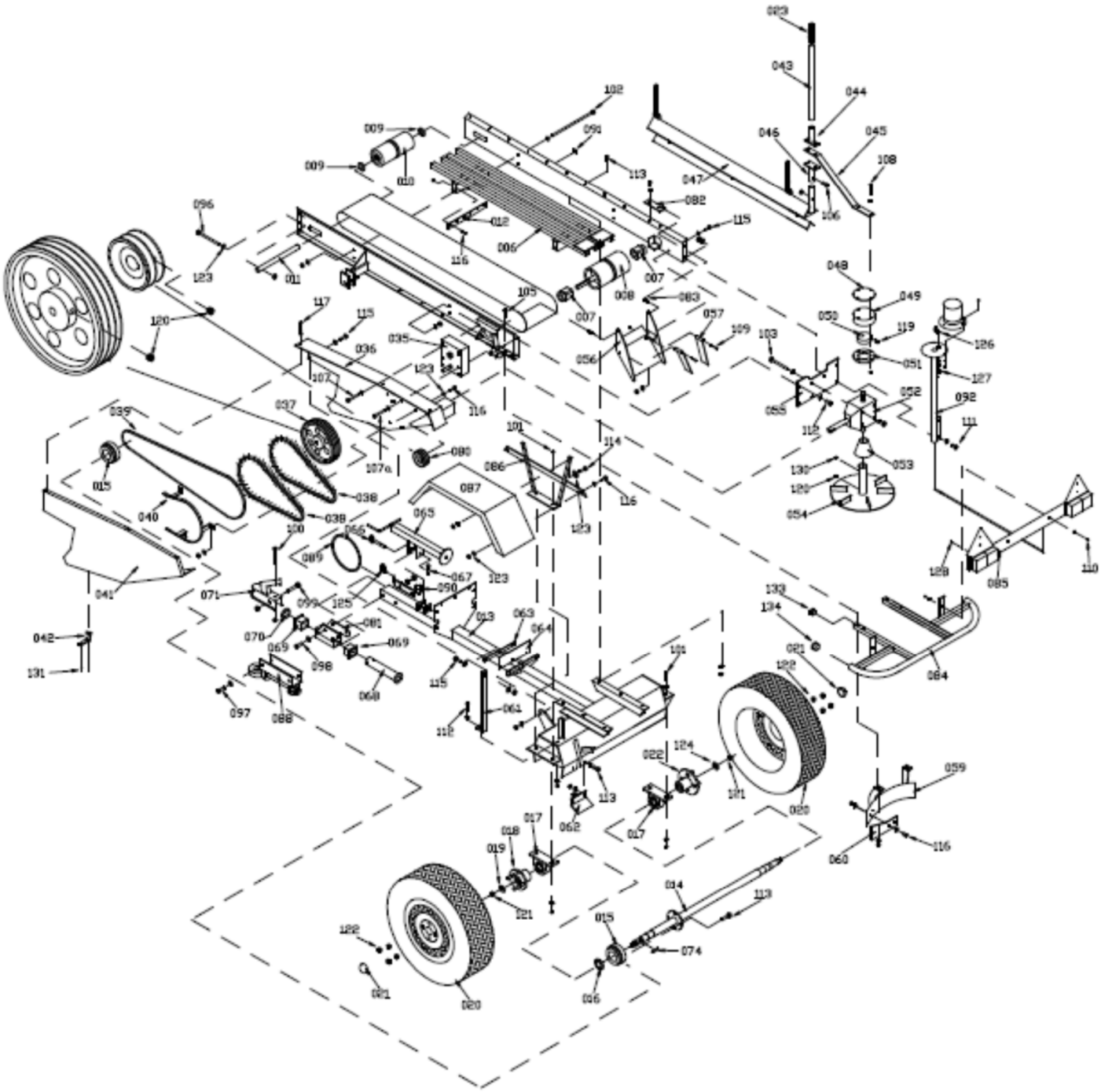


Dimensions based on road specification models.

9 PARTS DIAGRAM AND PARTS LIST



Item	*Part Number*	*Description*
001	GDS200-001A	Hopper
001	GDS250-001A	Hopper Stainless Steel
002	GDS200-179	Hopper Deflector strip
003	GDS200-118	Hopper Front Deflector Strip
004	GDS200-007LA	Conveyor Nearside Panel
005	GDS200-007RA	Conveyor Offside panel
006	GDS200-017A	Conveyor Bed
007	GDS200-109	Drive Roller Bearing
008	GDS200-108	Drive Roller
009	GDS200-126	Idle Pulley Seal
010	GDS200-110	Conveyor Belt Idle Roller
011	GDS200-049	Idle Roller Shaft
012	GDS200-119	Conveyor Belt Cleaner
013	GDS200-008A	Chassis
014	GDS200-163A	Axle
015	GDS200-105	Axle Drive Pulley
016	GDS200-125	Axle Pulley seal
017	GDS200-127	Bearing Pillow Block
018	GDS200-164	Wheel Drive-Hub
019	GDS200-038	Wheel Hub Washer
020	WT950 L/R / WT750	Wheel & Tyre Off Road/On Road
021	SA200-1010	End Cap 52 mm
022	SA900H	Hub Heavy Duty
023	S201-30	Handle Grip
025	GDS200-032A	Drive Engagement Handle
026	GDS200-030A	Handle Centre Link
027	GDS200-053	Handle Link Pivot Pin
028	FCG04074SS	Clip R 4 x 74
029	GDS200-114	Handle Linkage Spring
030	GDS200-046A	Handle Bottom Link
030	GDS250-046A	Handle Bottom Link Stainless Steel
031	GDS200-016A	Drive Engagement Lever
032	GDS200-115	Engagement Lever Return Spring
033	GDS200-099A	Idle Pulley Bush
034	GDS200-098	Idle Pulley
035	GDS200-103	Spur Reduction Gearbox
036	GDS200-009A	Transmission Guard
036	GDS250-009A	Transmission Guard Stainless Steel
037	GDS200-106	Spur Gearbox Pulley
038	GDS200-113	Rear Drive Belt
039	GDS200-112	Main Drive Belt



Item	*Part Number*	*Description*
040	GDS200-101A	Belt Trap
041	GDS200-235A	Transmission Guard Cover (Bolt on)
041	GDS250-235A	Transmission Guard Cover (Bolt on) Stainless Steel
042	GDS200-147	Transmission Guard Latch
043	GDS200-156	Agitator Handle
044	GDS200-070A	Agitator Handle Assembly
044	GDS250-070A	Agitator Handle Assembly Stainless Steel
045	GDS200-050	Agitator-Connecting Spring
046	GDS200-166A	Spring Top Mounting
046	GDS250-166A	Spring Top Mounting Stainless Steel
047	GDS200-021A	Agitator
048	GDS200-012	Cam Housing Top Clamp Plate
048	GDS250-012	Cam Housing Top Clamp Plate Stainless Steel
049	GDS200-096	Cam Housing
050	GDS200-034/GDS200-234	Agitator Cam Std / High Speed
051	GDS200-097	Cam Housing Bottom Clamp Plate
052	GDS200-104/GDS200-204	Disc Gearbox Std/High Speed
053	GDS200-131	Spreader Disc Cone
054	GDS200-182SS	Spreader Disc Assembly (Stainless steel)
055	GDS200-090	Rear Gearbox Mounting Profile
055	GDS250-090	Rear Gearbox Mounting Profile Stainless Steel
056	GDS200-132A	Drop Chute
056	GDS250-132A	Drop Chute Stainless Steel
057	GDS200-134A	Drop Chute Side Deflector
057	GDS250-134A	Drop Chute Side Deflector Stainless Steel
059	GDS200-044A	Disc Deflector
059	GDS250-044A	Disc Deflector Stainless Steel
060	GDS200-144	Disc Deflector Strip
061	GDS200-159SS	Chassis – Hopper Brace
062	GDS200-062A	Deflector Bracket
063	GDS200-085	Pressure Strip Clamp Plate
064	GDS200-120	Belt Cleaner Pressure Strip
065	GDS200-172A	Jack
066	SLB600-07	**Jack Pin**
066	SLB600-07SS	Jack Pin Stainless Steel
067	FCG03054SS	Clip R 3 x 54
068	CM100-04	Draw Tube
069	CM100-03A	Bush Nyloc
070	CM100-01A	Thrust Washer
071	C900	Coupling
072	GDS200-005A	Sluice Gate

Item	Part Number	Description
072	GDS250-005A	Sluice Gate Stainless Steel
073	GDS200-138A	Shovel Holder
073	GDS250-138A	Shovel Holder Stainless Steel
074	GDS200-141	Wheel Hub Key
075	GDS200-043	Handle Link Retaining Collar
076	FHW1675	Hand Wheel
078	FPL08	Pin Linch
079	GDS200-102	Mesh
080	GDS200-107	Disc Gearbox Pulley
081	CMA600-01A	Coupling Assembly
082	GDS200-178RSS	Deflector Strip Clamping Plate
083	GDS200-176	Drop Chute Spring
	OPTIONAL	
084	GDS101	Crash Bar Road Spec GDS200
085	GDS107	Light Kit GDS
086	GDS105	Mudguard Bracket
087	GDS103/GDS104	Mudguard RH/LH
088	CMA610/611/612/613	Coupling Assembly
089	CM901	Secondary Coupling Bracket/Cable
090	ME-P007	Plug Holder
091	PDS350-060	Cable Clip
092	GDS106	Beacon
093	GDS108-03A	Support Stay
094	GDS108-01	Tonneau Cover
095	OCT107-06	Bobbin Rope Hook
	FASTENERS	
096	FBH12150SS,FWF12SS,FNN12SS	Bolt M12 x 150 x 2 Flat Washers Nyloc Nut
097	FBH12100SS,FWF12SS,FNN12SS	Bolt M12 x 100 x 2 Flat Washers Nyloc Nut
098	FBH12090SS,FWF12SS,FNN12SS	Bolt M12 x 90 x 2 Flat Washers Nyloc Nut
099	FBH12070SS,FWF12SS,FNN12SS	Bolt M12 x 70 x 2 Flat Washes Nyloc Nut
100	FBH12065SS,FWF12SS,FNN12SS	Bolt M12 x 65 x 2 Flat Washers Nyloc Nut
101	FBH12045SS,FWF12SS,FNN12SS	Bolt M12 x 45 x 2 Flat Washers Nyloc Nut
102	FBH10270SS,FWF10SS,FNN10SS	Bolt M10 x 270 x 2 Flat Washers Nyloc Nut
103	FBH10120SS,FWF10SS,FNN10SS	Bolt M10 x 120 x 2 Flat Washers Nyloc Nut
104	FBH10075SS,FWF10SS,FNN10SS	Bolt M10 x 75 x 2 Flat Washers Nyloc Nut
105	FBH10050SS,FWF10SS,FNN10SS	Bolt M10 x 50 x 2 Flat Washers Nyloc Nut
106	FBH10045SS,FWF10SS,FNN10SS	Bolt M10 x 45 x 2 Flat Washers Nyloc Nut
107	FBH08080SS,FWF08SS,FNN08SS	Bolt M8 x 80 x 2 Flat Washers Nyloc Nut
108	FBH08070SS,FWF08SS,FNN08SS	Bolt M8 x 70 x 2 Flat Washers Nyloc Nut
109	FBH08065SS,FWF08SS,FNN08SS	Bolt M8 x 65 x 2 Flat Washers Nyloc Nut
110	FBH06040SS,FWF06SS,FNN06SS	Bolt M6 x 40 x 2 Flat Washers Nyloc Nut

Item	Part Number	Description
111	FSH10035SS,FWF10SS,FNN10SS	S/Screw M10 x 35 x 2 Flat washers Nyloc Nut
112	FSH10030SS,FWF10SS,FNN10SS	S/Screw M10 x 30 x 2 Flat Washers Nyloc Nut
113	FSH10025SS,FWF10SS,FNN10SS	S/Screw M10 x 25 x 2 Flat Washers Nyloc Nut
114	FSH08030SS,FWF08SS,FNN08SS	S/Screw M8 x 30 x 2 Flat Washers Nyloc Nut
115	FSH08025SS,FWF08SS,FNN08SS	S/Screw M8 x 25 x 2 Flat Washers Nyloc Nut
116	FSH08020SS,FWF08SS,FNN08SS	S/Screw M8 x 20 x 2 Flat Washers Nyloc Nut
117	FSH08016SS,FWF08SS,FNN08SS	S/Screw M8 x 16 x 2 Flat Washers Nyloc Nut
118	FSH05016SS,FWF05SS,FNN05SS	S/Screw M5 x 16 x 2 Flat Washers Nyloc Nut
119	FSG10020SS	G/Screw M10 x 20
120	FSG08008SS	G/Screw M8 x 8
121	FNN16150	Nyloc Nut M16 x 1.5MM Pitch
122	SA200-1006	Wheel Nut M12
123	FWR08025SS	Repair Washer M8 x 25
124	FWF16SS	Flat Washer M16
125	FXS06	Shackle Galv 6 MM
126	S216-044	On/Off Toggle Switch
127	S216-045	On/Off Switch Boot
128	FSS06012	Screw S/Tap Pan/H
129	FPL06	Pin Linch 06 MM
130	FSG08010SS	G/Screw M8 x10
131	FRP05010SS	P/Rivet 4.8 x 10
132	TA102-03	Grease Nipple
133	FSH06016SS	S/Screw Hex Head M6 x 16 SSA2
134	FIP025025	Insert Plastic 25 X 25 X 2-32 MM
135	FIP042026	Insert Plastic 42.4 OD X 2.6/4
136	MSU-C032	Clip Spring
137	FSD05016SS,FWF05SS,FNN05SS	S/Screw M5 x 16 x 2 Flat Washers, Nyloc Nut
138	GDS200-239A	Agitator Parking Mount
139	FSH08025SS,FWF08SS,FNN08SS	S/Screw M8 x 25 x 2 Flat Washers Nyloc Nut

10 LOGIC MANUFACTURING PRODUCTS OWNER

This Logic Manufacturing product is guaranteed against faulty workmanship and materials for a period of 6 months from the date of purchase.

On Engine-Powered equipment, the engine manufactures guarantee will apply, any claims being subject to their terms and conditions.

All claims must be made in writing within 28 days of the alleged failure.

All claims must be made through the dealer who originally supplied the machine.

Any defective parts must be kept for inspection and if requested, sent to the factory or dealer.

The customer must bring equipment for repair to the dealer.

This guarantee becomes void if unauthorised modifications have been made, or if parts not manufactured, supplied or approved by Logic Manufacturing have been fitted to the machine.

We accept no liability for normal wear and tear, misuse or abuse, or where recommended maintenance has not been carried out.

All guarantee work must be authorised by Logic manufacturing prior to any work being done. Work carried out without our consent may not be reimbursed.

DECLARATION OF CONFORMITY
93 / 44 EEC

LOGIC MANUFACTURING LTD
Foundry Industrial Estate
Bridge End
HEXHAM
Northumberland

Product Type: **GDS200/250—GROUND DRIVE SPREADER RANGE**

Covered By Technical File Number: **CE – GDS200**

Serial Number:

Standards and Regulations Used:

The Supply of Machinery (Safety) Regulations 1992
HSE Guide Lines on ATV Equipment (Agric Sheet No. 33)

Place of Issue: **United Kingdom**

Name of Authorised Representative: **S A WEIR**

Position of Authorised Representative: **PRODUCT DEVELOPMENT MANAGER**

Declaration,

I declare that as the authorised representative, the above information in relation to the supply / manufacture of this product, is in conformity with the stated standards and other related documents following the provisions of 93/68EEC directives

Signature of Authorised Representative 

Date: **05/07/2010**