

Safe Work Instruction - Aerating Sporting Fields

DO NOT use this plant* unless you have been inducted in its safe use and operation by an Authorised Experienced Operator

This SWI may not cover all possible hazards and risks and should be referred to as a control measure in the risk assessment process.
Additional training may be required for high risk plant. Site and task may change required PPE.

PERSONAL PROTECTIVE EQUIPMENT



Eye protection must be worn



Long and loose hair must be contained or covered.



Hearing protection must be worn



Foot protection must be worn



Hand protection must be worn



Protective body clothing must be worn



High visibility clothing must be worn

POTENTIAL HAZARDS AND RISKS

- Entanglement**
Entanglement in moving parts
- Crushing**
Crushing due to being trapped between plant and fixed structure
- Shearing**
Body parts sheared between items of plant
- Cutting, Stabbing or Puncturing**
Injury from sharp or flying object
- Struck by Moving Object**
Struck by moving object due to unexpected movement of plant
- Other**
Injury due to kickback from sharp rotating parts
- Manual Task Injury**
Manual task injury from incorrect manual handling techniques

PRE-OPERATIONAL SAFETY CHECKS

- ✓ Complete site specific risk assessment
- ✓ Complete the appropriate pre-operational plant checklist if applicable
- ✓ Ensure you are familiar with plant operations and controls
- ✓ Ensure that guards are fitted, secured and functional in accordance with manufacturers guidelines
- ✓ Seat belt to be worn (use this when applicable)

OPERATING PROCEDURES

- ✓ Staff undertaking this process are to be appropriately trained including the following:
 - i. General Construction Induction Training
 - ii. First Aid Training
 - iii. Corporate Induction
 - iv. Manual Handling Refresher
 - v. Trailer Operations
- ✓ At least one crew member will have a current C, LR, MR or HR driver's licence depending on size of plant item.
- ✓ Conduct risk assessment.

- ✓ Induct staff, if necessary.
- ✓ Complete Pre- Operations Daily inspection checklist/log book.
- ✓ Wear appropriate PPE including the following:
 - i. Safety glasses or goggles
 - ii. Safety boots
 - iii. Gloves
 - iv. Hats
 - v. Long sleeves and trousers or if not, use sunscreen in accordance with manufacturer's instructions
 - vi. Ear muffs and/or ear plugs
- ✓ Machine set up /Identify area to be aerated.
- ✓ Identify underground services and clearly highlight irrigation heads, control box's and valve cocks at surface level.
- ✓ Work Commencement.

Vertidrain Aerator Tractor Operations

❖ Before you start

- Grease all grease nipples every day
- Check there are a couple of sets of replacement tines in stock. Order weeks before the job is to commence to ensure availability
- Check rams are returning to correct positions and bolts are **TIGHT. If rams come loose, major damage will occur**
- Fully fuel tractor
- Ensure PTO is set to 540
- Ensure all nuts and bolts on Vertidrain are secure
- Ensure Vertidrain toolkit, flags and marker paint on tractor
- With Vertidrain lifted – remove locking pins from rear roller so that roller floats when unit is down, but is above ground for transport
- With Vertidrain in ground
 - Check angle of unit – As close to vertical as possible, if not, **slightly** towards tractor at top 1-3 degrees. Use spirit level with degree angles.
 - Check angle of tines is 90 degrees on side gauge
 - Ensure lock nut on top link bar of 3-point linkage is tight. **If this bar lengthens, major damage to Vertidrain can occur.**
 - Check rollers and roller scrapers are free from dirt/ mud and are turning freely. Monitor rollers for build-up of mud.

❖ Once you get to the work site

- Before commencing work on nominated area
 - Mark all sprinklers
 - Mark all services (drains, grates, irrigation etc) – ensure tine depth does not hit shallow irrigation or drainage systems. If you are unsure where they are Ask supervisor
 - Set desired depth. Loosen the 2 lock nuts either side of the Vertidrain and change roller depth 25mm at a time for each side. Until depth setting is reached. For areas that have not been aerated before, or are very compacted, select a shallow depth eg 100mm and increase depth next season/time you aerate. This avoids damaging the machine by trying to ram holes into solid ground. Try to coordinate aerating when there is moisture in the ground. If aerating in very dry soils deep aerating will likely rip up the turf.

❖ Normal Operating Parameters

- Engine at normal operating temperature – do not work tractor hard when cold
- Engine RPM – 1900 PTO 540
- Gearbox range – low range- 1st gear- 1.4km/h for Case tractor. John Deere tractor range low A- 1st gear 1.3km/h
- Square hole pattern in ground, gear ratios differ on different makes of tractor so it is important to select a gear that provides a square pattern. Travelling too fast will not allow the tines to flick back to vertical before re-entering the ground
- Gearbox in the Vertidrain gear – 2
- Unit down – rear roller in float position on ground
- Use lever mounted throttle to control engine RPM

❖ To start work

- Lower Vertidrain so that tines penetrate ground
- Have engine REVs at 1900rpm
- Engage Vertidrain (PTO) drive
- Commence forward motion

❖ To stop work (at end point or obstacle)

- for example at end of run or at a sprinkler
- Observe end point – you will need to check behind tractor
- When end point (e.g. sprinkler) at front roller of Vertidrain
 - Stop forward motion
 - Disengage PTO. Never have the PTO running with the Vertidrain implement raised up. You can cause major damage to the PTO shaft, rams, tines, roller and housing. Lift Vertidrain completely
 - Proceed past obstacle – use rear roller as a guide
 - Follow 'To start work' section above

❖ Hints

- Never have Vertidrain running out of the ground or the tines will flick up.
- Never run the Vertidrain above 1900rpm or the tines will flick up causing major damage
- Listen to Vertidrain – any change of rhythm or sound usually means something has changed or broken – stop and check machine
- Check pattern in ground – if pattern changes
 - Check tines are straight, not too worn, missing or debris caught in tines
 - Check hole exits for torn grass
 - Check angles etc. on Vertidrain (see 'Before you start' section)
 - Check rams are springing back fully

- Check ram bolts are tight every 3 Hours

❖ Emergency stop

- Reduce RPM to minimum and simultaneously
- Depress clutch pedal
- Disengage Vertidrain drive PTO
- Engage neutral

❖ Transport between depots

- Wash down Vertidrain – avoid washing when bearings are hot to minimise chance of water getting into seals
- If tines are worn – replace with new set before sending to next depot.
- Grease machine
- Lock rear roller in down position
- Disconnect from tractor on level surface. Keep all pins and PTO shaft with Vertidrain
- Sling the Vertidrain onto truck using hi-ab or crane using marked attachment points
- When unloading, place the Vertidrain on level ground on wooden blocks or pallets for ease of reconnecting to the tractor

✓ Work Completion.

ENDING OPERATIONS

- ✓ Allow plant to cool before performing any maintenance, refuelling or cleaning
- ✓ Refuel plant at least 3 metres from combustibles
- ✓ Ensure plant is in good working order and stored in the appropriate location

DO NOT

- ✗ Do not use if plant is faulty. Attach a DO NOT OPERATE tag and report fault to your supervisor
- ✗ Do not leave plant running unattended
- ✗ Do not leave keys in machinery whilst unattended
- ✗ Do not wear loose jewellery
- ✗ Do not use mobile phone while operating plant

*Plant in this SWI refers to any machinery, equipment, appliance, container, implement and tool.