## Table of Contents

### Section 1:

**Safety** ........................................................................................................................................... 1-1
  - Signal Words ............................................................................................................................ 1-2
  - General Operation ..................................................................................................................... 1-3
  - Tractor Operation ...................................................................................................................... 1-3
  - Chemicals .................................................................................................................................... 1-4
  - Transporting ............................................................................................................................... 1-5
  - Hydraulics ................................................................................................................................... 1-5
  - Maintenance ............................................................................................................................... 1-6
  - Storage ........................................................................................................................................ 1-6
  - Safety Signs ................................................................................................................................ 1-7
    - Decals ...................................................................................................................................... 1-10
    - Front ........................................................................................................................................ 1-12
    - Rear ......................................................................................................................................... 1-13
    - Left Side - Tow Between ......................................................................................................... 1-14
    - Right Side - Tow Between ........................................................................................................ 1-15
    - Left Side - Tow Behind ........................................................................................................... 1-16
    - Right Side - Tow Behind ......................................................................................................... 1-17
    - Top ........................................................................................................................................... 1-18
    - ICT Meter Body ....................................................................................................................... 1-19
  - Lighting and Marking .................................................................................................................. 1-20
  - Conveyor Safety ......................................................................................................................... 1-22
    - General ..................................................................................................................................... 1-22
    - Safety Signs ............................................................................................................................. 1-23

### Section 2:

**Specifications** ................................................................................................................................. 2-1
  - 9365, 9450 and 9535 - Tow Behind ............................................................................................ 2-2
  - 9365 and 9450 - Tow Between ..................................................................................................... 2-3
  - 9445, 9550 and 9650 - Tow Behind ............................................................................................ 2-4
  - 9445, 9550 and 9650 - Tow Between ............................................................................................ 2-5
  - 9555, 9680 and 9800 - Tow Behind ............................................................................................ 2-6
  - 9555, 9680 and 9800 - Tow Between ............................................................................................ 2-7
  - 91000 - Tow Behind ................................................................................................................... 2-8

### Section 3:

**Checklist** .......................................................................................................................................... 3-1
  - Manuals ....................................................................................................................................... 3-2
    - Parts Manual ............................................................................................................................ 3-2
    - Assembly Manual ..................................................................................................................... 3-2
  - Checklist ..................................................................................................................................... 3-3

### Section 4:

**Introduction** ..................................................................................................................................... 4-1
  - Introduction ................................................................................................................................. 4-2
  - Standard Features ....................................................................................................................... 4-3
    - Hydraulic Auger ....................................................................................................................... 4-3
    - Full Bin Indicator ...................................................................................................................... 4-4
  - Options ....................................................................................................................................... 4-4
    - Hydraulic Conveyor .................................................................................................................. 4-4
    - Digi-Star Weigh Scale .............................................................................................................. 4-4
    - Dual Fan .................................................................................................................................... 4-5

### Section 5:

**Operation** ......................................................................................................................................... 5-1
  - Application ................................................................................................................................. 5-4
  - Tractor ....................................................................................................................................... 5-4
# Table of Contents

- Monitor Installation ................................................................. 5-5
- Monitor Harness ........................................................................ 5-6
- Hitching to Tractor (Seeding Tool or Tow Between Cart) ............ 5-7
- Tractor Drawbar Requirements .................................................. 5-7
- 9365 and 9450 - Tow Between .................................................. 5-8
- 9445, 9550 and 9650 - Tow Between ......................................... 5-9
- 9555, 9680 and 9800 - Tow Between ......................................... 5-9
- Hitching to Seeding Tool (Tow Between Cart) .......................... 5-10
- Hitching Front Castor (Tow Behind Cart) .................................. 5-10
- Hitching to Seeding Tool (Tow Behind Cart) ............................ 5-11
  - Hydraulic Connections ......................................................... 5-13
- Unhitching from Seeding Tool (Tow Between Cart) .................. 5-14
- Unhitching from Tractor (Seeding Tool or Tow Between Cart) .... 5-14
  - 9365 and 9450 - Tow Between .............................................. 5-14
  - 9445, 9550 and 9650 - Tow Between ..................................... 5-15
  - 9555, 9680 and 9800 - Tow Between ..................................... 5-15
- Unhitching from Seeding Tool (Tow Behind Cart) ..................... 5-16
- Quad Steer Operation ............................................................... 5-17
- Brakes ....................................................................................... 5-18
  - In-Cab Brake Controller .......................................................... 5-18
  - Operation ................................................................. 5-19
  - Installation .......................................................................... 5-20
- Transport .................................................................................. 5-22
  - Speed .................................................................................... 5-22
  - Lights .................................................................................... 5-22
  - Tow Hitch (Tow Behind Units) ................................................. 5-22
- Preparing VR System ............................................................... 5-23
  - Hydraulic Motor Solenoid ....................................................... 5-23
  - Verify VR Hydraulic Assembly ................................................ 5-23
  - Hydraulic Diagram ............................................................... 5-24
- Metering System .................................................................... 5-25
  - Secondary Hose Installation ................................................... 5-26
  - Seed Plate Setting ................................................................. 5-27
  - Seed Plate Adjustment ........................................................... 5-28
- Bin Level Adjustment ............................................................... 5-29
- Full Bin Indicator .................................................................... 5-29
- Digi-Star Weigh Scale ............................................................. 5-30
- Hydraulic Assist Conveyor/Auger ............................................. 5-31
  - Remote Controller Operation ................................................ 5-31
- Auger ....................................................................................... 5-32
  - Manual Arms ....................................................................... 5-32
  - Hydraulic Assisted Arms ....................................................... 5-33
  - Extension Hopper .................................................................. 5-34
- Conveyor .................................................................................. 5-35
  - Hydraulic Assisted Arms ....................................................... 5-35
  - Conveyor Storage Position .................................................... 5-36
  - Conveyor Belt Speed ............................................................ 5-36
  - Operation .............................................................................. 5-37
  - Startup and Break-In ............................................................ 5-37
  - Conveyor Adjustments and Maintenance ............................. 5-38
  - Cleaning/Inspecting the Conveyor - 8 hours or Daily ............ 5-39
  - Conveyor Belt/Tail End Care .................................................. 5-39
- Semi Trailer Filling Positions ................................................... 5-40
- Semi Trailer Dump Positions ................................................... 5-53
- Filling Tank .............................................................................. 5-57
# Table of Contents

- Unloading Tanks ................................................................. 5-61
- Rate Calibration ................................................................. 5-63
- Metering Rate Adjustment ................................................. 5-66
- Seeding Fine Seeds (Canola, Mustard, etc.) ................. 5-66
- Applying Inoculant ............................................................. 5-66
- Hydraulic Fan Drive .......................................................... 5-67
- Fan Speed Recommendations ....................................... 5-68
- Plenum Settings ................................................................. 5-71
- Double Shoot Settings ....................................................... 5-72
- Collector Valve Settings .................................................. 5-72
- Flapper Valve Run Test ..................................................... 5-72
- Operating Guidelines ....................................................... 5-73
- Check Tire Pressures ......................................................... 5-73
- Level Seeding Tool ............................................................ 5-73
- Worn Seeding Tool Parts ................................................ 5-73
- Packing .............................................................................. 5-73
- Turning .............................................................................. 5-74
- Seed Rate Settings ............................................................ 5-74
- Fertilizer Application ......................................................... 5-74
- Fan Setting ........................................................................ 5-74
- Product Application ......................................................... 5-74
- Adjustments and Operational Checks ....................... 5-75
- Checking Seed Flow .......................................................... 5-75
- Moisture Alert .................................................................... 5-75
- Air Leaks ............................................................................ 5-75
- Tank Low in Product ........................................................ 5-75
- Monitor .............................................................................. 5-76
- General Field Operation ................................................ 5-76

## Section 6: Maintenance

- General .............................................................................. 6-1
- Safety ................................................................................. 6-2
- Tighten Bolts ..................................................................... 6-2
- Tires .................................................................................. 6-3
- Daily Maintenance ............................................................ 6-4
- Lubrication ........................................................................... 6-5
- Air Delivery System .......................................................... 6-6
- General .............................................................................. 6-7
- Tank Lid Adjustment .......................................................... 6-7
- Inspection Door Adjustment ........................................ 6-8
- Clean Out Door Adjustment ............................................ 6-9
- Air Leak Check ................................................................. 6-10
- Fan ..................................................................................... 6-11
- Rotor Clearance .................................................................. 6-12
- Hoses .................................................................................. 6-13
- Equalizers .......................................................................... 6-13
- Hydraulic Orbit Motor ...................................................... 6-14
- Hydraulics .......................................................................... 6-15
- Wheel Bearings ................................................................. 6-16
- Quad Steer .......................................................................... 6-17
- Dual Wheels ....................................................................... 6-18
- Seed Plate Adjustment ...................................................... 6-18
- Conveyor ............................................................................ 6-19
- Tie Rod - Tow Between .................................................... 6-20

---

9 Series ICT Air Cart  
June 2018
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brakes</td>
<td>6-33</td>
</tr>
<tr>
<td>Fill Reservoir</td>
<td>6-33</td>
</tr>
<tr>
<td>Bleeding the Brakes</td>
<td>6-33</td>
</tr>
<tr>
<td>Brake Pads</td>
<td>6-34</td>
</tr>
<tr>
<td>Caliper Pistons and Seal Replacement</td>
<td>6-34</td>
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</tbody>
</table>

## Section 7: Storage

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparing for Storage</td>
<td>7-2</td>
</tr>
<tr>
<td>General</td>
<td>7-2</td>
</tr>
<tr>
<td>Metering Body Storage</td>
<td>7-3</td>
</tr>
<tr>
<td>Removing From Storage</td>
<td>7-4</td>
</tr>
<tr>
<td>General</td>
<td>7-4</td>
</tr>
<tr>
<td>Monitor</td>
<td>7-4</td>
</tr>
<tr>
<td>Auger</td>
<td>7-4</td>
</tr>
<tr>
<td>Conveyor</td>
<td>7-4</td>
</tr>
<tr>
<td>Brakes</td>
<td>7-4</td>
</tr>
</tbody>
</table>

## Section 8: Troubleshooting

<table>
<thead>
<tr>
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<th>Page</th>
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</thead>
<tbody>
<tr>
<td>General</td>
<td>8-1</td>
</tr>
<tr>
<td>Delivery hoses plugged</td>
<td>8-2</td>
</tr>
<tr>
<td>Hydraulic fan will not turn</td>
<td>8-2</td>
</tr>
<tr>
<td>Fan turning too slow</td>
<td>8-2</td>
</tr>
<tr>
<td>Material flowing thru system when unit is stationary and the fan running</td>
<td>8-2</td>
</tr>
<tr>
<td>Material not being divided in distribution head</td>
<td>8-2</td>
</tr>
<tr>
<td>Material not being metered out</td>
<td>8-3</td>
</tr>
<tr>
<td>Material not being accurately metered out of the metering body</td>
<td>8-4</td>
</tr>
<tr>
<td>Plugged seed boots</td>
<td>8-5</td>
</tr>
<tr>
<td>VRT System</td>
<td>8-6</td>
</tr>
<tr>
<td>Motors will not turn in Manual Mode (Controller OFF)</td>
<td>8-6</td>
</tr>
<tr>
<td>Motors will not turn in Operation Mode (Controller ON)</td>
<td>8-6</td>
</tr>
<tr>
<td>Motors turn continuously in Operation Mode</td>
<td>8-6</td>
</tr>
<tr>
<td>Motors turn continuously in Calibration Mode</td>
<td>8-6</td>
</tr>
<tr>
<td>Monitor</td>
<td>8-7</td>
</tr>
<tr>
<td>Monitor lights up but does not seem to work</td>
<td>8-7</td>
</tr>
<tr>
<td>No fan display</td>
<td>8-7</td>
</tr>
<tr>
<td>No ground speed display</td>
<td>8-7</td>
</tr>
<tr>
<td>No display, no back light</td>
<td>8-7</td>
</tr>
<tr>
<td>Bin indicates always empty</td>
<td>8-7</td>
</tr>
<tr>
<td>Bin indicates always full</td>
<td>8-7</td>
</tr>
<tr>
<td>Conveyor</td>
<td>8-8</td>
</tr>
<tr>
<td>The conveyor is vibrating</td>
<td>8-8</td>
</tr>
<tr>
<td>Capacity is too low</td>
<td>8-8</td>
</tr>
<tr>
<td>The conveyor plugs</td>
<td>8-8</td>
</tr>
<tr>
<td>Driveline shear bolt shears frequently</td>
<td>8-8</td>
</tr>
<tr>
<td>Cleated belt is slipping or loose</td>
<td>8-9</td>
</tr>
<tr>
<td>Cleated belt is rubbing side of housing or cleats are coming loose or wearing</td>
<td>8-9</td>
</tr>
<tr>
<td>Brakes</td>
<td>8-9</td>
</tr>
</tbody>
</table>
Section 1: Safety

Section Contents

Signal Words .................................................................................................................. 1-2
General Operation ......................................................................................................... 1-3
Tractor Operation ......................................................................................................... 1-3
Chemicals ...................................................................................................................... 1-4
Transporting ................................................................................................................ 1-5
Hydraulics .................................................................................................................... 1-5
Maintenance .................................................................................................................. 1-6
Storage .......................................................................................................................... 1-6
Safety Signs .................................................................................................................. 1-7
  Decals ......................................................................................................................... 1-10
  Front ............................................................................................................................ 1-12
  Rear ............................................................................................................................. 1-13
  Left Side - Tow Between ............................................................................................ 1-14
  Right Side - Tow Between ......................................................................................... 1-15
  Left Side - Tow Behind .............................................................................................. 1-16
  Right Side - Tow Behind ........................................................................................... 1-17
  Top ............................................................................................................................... 1-18
  ICT Meter Body ....................................................................................................... 1-19
Lighting and Marking .................................................................................................. 1-20
Conveyor Safety ........................................................................................................... 1-22
  General ...................................................................................................................... 1-22
  Safety Signs ............................................................................................................. 1-23
Watch for this symbol. It identifies potential hazards to health or personal safety. It means:

**ATTENTION - BE ALERT.**
Your Safety is involved.

Familiarize yourself with the location of all decals. Read them carefully to understand the safe operation of your machine.

### Signal Words

The words **DANGER**, **WARNING** or **CAUTION** are used with the safety alert symbol. Learn to recognize the safety alerts, and follow the recommended precautions and safe practices.

#### Three words are used in conjunction with the safety-alert symbol:

- **DANGER** Indicates an imminently hazardous situation that, if not avoided, will result in DEATH OR SERIOUS INJURY.

- **WARNING** Indicates a potentially hazardous situation that, if not avoided, could result in DEATH OR SERIOUS INJURY.

- **CAUTION** Indicates a potentially hazardous situation that, if not avoided, may result in MINOR OR MODERATE INJURY.

Replace any **DANGER**, **WARNING**, **CAUTION** or instructional decal that is not readable or is missing. The location and part number of these decals is identified later in this section of the manual.

The words **Important** and **Note** are not related to personal safety but are used to give additional information and tips for operating or servicing this equipment.

**IMPORTANT:** Identifies special instructions or procedures which, if not strictly observed could result in damage to, or destruction of the machine, process or its surroundings.

**NOTE:** Indicates points of particular interest for more efficient and convenient repair or operation.
General Operation

- **DO NOT RIDE!!** Do not allow riders on the implement when in motion.
- Do not allow extra riders in the tractor unless an instructor seat and seat belt are available.
- **Check behind** when backing up.
- **Reduce speed** when working in hilly terrain.
- Never allow anyone within the immediate area when operating machinery.
- **Keep all shields in place**, replace them if removed for service work.
- Always lock auger attachment in raised position.
- Keep hands clear of tank opening when closing lid. Keep lid seal clean to ensure proper sealing.
- **Do Not enter tank unless another person is present and the tractor engine has been shut off.**

Tractor Operation

- Be aware of the correct tractor operating procedures, when working with implements.
- Review tractor operator’s manual.
- Secure hitch pin with a retainer and lock drawbar in centre position.
Safety

Chemicals

• **Use extreme care** when cleaning, filling or making adjustments.

• **Always read** granular chemical or treated seed manufacturer’s warning labels carefully and follow them.

• Wear close fitting clothing and appropriate personal protective equipment for the job as specified by the chemical and/or seed manufacturer.

• **Always wear** safety goggles, breathing apparatus and gloves when handling granular chemical or treated seed.

• **Do not feed** any treated seed to livestock. Treated seed is poisonous and may cause harm to persons or livestock.

• **Wash exposed skin immediately** - do not leave chemicals on your skin.

• **Properly store** chemicals in original containers with labels intact per the manufacturer’s instructions.

• Always follow the manufacturer’s operating instructions and warning labels when operating an ammonia tank with the equipment.

• **Do Not enter tank unless another person is present and the tractor engine has been shut off.**

---

**Danger**

Failure to comply may result in serious injury or death.

Read Operator’s Manual and decals on Ammonia tank before operating air cart. Become familiar with all warnings, instructions, and controls.

**Always** wear gloves and goggles when transferring or handling ammonia.

**Always** stay clear of hose and valve openings.

**Always** be sure pressure is relieved before disconnecting hoses or parts.

**Always** secure connecting parts and safety chains before towing ammonia trailer.

**Always** have ample water available in case of exposure to ammonia liquid or gases.
Transporting

- **Be aware** of the height, length and width of implement. Make turns carefully and be aware of obstacles and overhead electrical lines.

- Empty tanks before transporting. Do Not Exceed 20 mph (32 kph) with an empty air cart.

- Use an agricultural tractor that is large enough with sufficient braking capacity so that the weight of the loaded equipment towed does not exceed 1.5 times the weight of the tractor.

- Use flashing amber warning lights, turn signals and SMV emblems when on public roads.

- Do not transport in poor visibility.

- The slow moving vehicle (SMV) emblem and reflectors must be secured and be visible on the machine for transport.

- Avoid soft surfaces, the additional wing weight on the centre wheels could cause the machine to sink.

- Ensure safety chain is attached correctly to the towing vehicle and the hitch of the air cart.

- Check that wings are firmly seated in transport wing stops, and lock pins installed.

- Secure transport locks on depth control cylinders.

- Be familiar with, and adhere to, local laws.

Hydraulics

- **Do not** search for high pressure hydraulic leaks without hand and face protection. A tiny, almost invisible leak can penetrate skin, thereby requiring immediate medical attention.

- Use cardboard or wood to detect hydraulic leaks - never your hands.

- Double check that all is clear before operating hydraulics.

- **Never** remove hydraulic hoses or ends with machine elevated. Relieve hydraulic pressure before disconnecting hydraulic hoses or ends.

- Maintain proper hydraulic fluid levels.

- Keep all connectors clean for positive connections.

- Ensure all fittings and hoses are in good condition.

- Do not stand under wings.
Safety

**Maintenance**

- **Shut tractor engine off** before making any adjustments or lubricating the machine.
- **Block** machine securely to prevent any movement during servicing.
- Wear close fitting clothing and appropriate personal protective equipment for the job.
- **Always wear** safety goggles, breathing apparatus and gloves when working on seeder filled with granular chemical or treated seed per the manufacture’s instructions.
- Do not modify the machine.

![Caution](image1)

Care should be taken when working near the air cart while the fan is running. Product blowing out of the system could cause personal injury.

![Caution](image2)

Keep service area clean and dry. Wet or oily floors are slippery. Wet spots can be dangerous when working with electrical equipment.

**Storage**

- Store implement away from areas of main activity.
- Level implement and block up securely to relieve pressure on jack.
- Do not allow children to play on or around stored implement.
- Refer to Storage Section for more details.
Familiarize yourself with the location of all decals. Read them carefully to understand the safe operation of your machine.
Familiarize yourself with the location of all decals. Read them carefully to understand the safe operation of your machine.
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- **Rotating Flighting Hazard**
  - Keep away from auger intake.
  - Keep intake shield in place and in good working order. Do not modify.
  - Failure to heed will result in serious injury or death.

- **Electrocution Hazard**
  - This equipment is not insulated.
  - Keep equipment away from overhead power lines and devices.
  - Electrocuton can occur without direct contact.
  - Fully lower equipment before moving.
  - Failure to keep away will result in serious injury or death.

---

*Made in Canada 17098*
## Safety Signs - Continued

### Decals

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<td>Decal - “MORRIS” (9” height)</td>
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<td>Decal - Morris Bullet (12” Diameter)</td>
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<td>N53155</td>
<td>Decal - Morris Bullet (47” Diameter)</td>
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<td>N53156</td>
<td>Decal - ARROW</td>
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<td>Decal - “9365” (2 tank Small Frame)</td>
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<td>Decal - “9450” (3 tank Small Frame)</td>
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<td>Decal - “9535” (4 tank Small Frame)</td>
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<td>Decal - “9445” (2 tank Large Frame)</td>
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<td>Decal - “91000” (4 tank)</td>
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<tr>
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<td>N56999</td>
<td>Decal - Warning - “Stand Clear”</td>
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## Decals - Continued

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<td>N36261</td>
<td>Decal - Warning - “Over Head Hazard”</td>
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<td>N36264</td>
<td>Decal - Important - “Cycle Collector Valve Daily”</td>
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<td>N36263</td>
<td>Decal - Warning - “Burn Hazard”</td>
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<td>N36255</td>
<td>Decal - Warning - “Crushing Hazard”</td>
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<td>N36259</td>
<td>Decal - “Open/Close”</td>
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<td>N36262</td>
<td>Decal - Danger - “Confined Space Hazard”</td>
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<td>N15094</td>
<td>Decal - Caution - “To Avoid Injury”</td>
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<td>N42356</td>
<td>Decal - Important - “Before Filling Tank”</td>
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<td>N21604</td>
<td>Decal - Important - “Prevent Corrosion”</td>
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<td>N45429</td>
<td>Decal - Patented</td>
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<td>N55496</td>
<td>Decal - Patented</td>
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<td>N58899</td>
<td>Decal - Patented - ICT</td>
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<td>N29355</td>
<td>Decal - Warning - “Moving Part Hazard” (VRT ONLY)</td>
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<td>N32799</td>
<td>Decal - Danger - “Guard Missing” (VRT ONLY)</td>
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<td>N56167</td>
<td>Decal - ICT Seed Plate Settings</td>
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<td>N45427</td>
<td>Decal - “Seed Plate Usage” (VRT ONLY)</td>
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<tr>
<td>N36254</td>
<td>Decal - “Calibrate/Fan” (VRT ONLY)</td>
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<td>N49783</td>
<td>Decal - “Calibrate/Fan” (VRT ONLY)</td>
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<tr>
<td>N19029</td>
<td>Decal - “Rotation” (VRT Drive)</td>
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<td>Decal - “Rotation” (Standard Drive)</td>
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<td>N60303</td>
<td>Decal - “Hair Pin Location”</td>
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<td>N36256</td>
<td>Decal - “Quick Change Sprocket”</td>
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<td>N36257</td>
<td>Decal - “Meter Shaft Sprocket”</td>
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<td>N42229</td>
<td>Decal - “Auger Position”</td>
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<td>N36453</td>
<td>Decal - “Fan/Auger”</td>
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<td>N50875</td>
<td>Decal - Conveyor - Lock/Unlock - Raise/Lower</td>
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<td>N36443</td>
<td>Decal - “Lever Position”</td>
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<td>N36258</td>
<td>Decal - Caution - “Secure Auger”</td>
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<td>N19033</td>
<td>Decal - Danger - “Electrocution Hazard”</td>
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<td>N19034</td>
<td>Decal - Danger - “Rotating Flighting Hazard”</td>
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<td>C25809</td>
<td>Decal - “Grease 50 Hours”</td>
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<td>C25810</td>
<td>Decal - “Grease 100 Hours”</td>
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<td>N37492</td>
<td>Decal - “Open/Closed” - Plenum</td>
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<td>N55695</td>
<td>Decal - Wheel Torque Chart</td>
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<td>N34476</td>
<td>Reflector - Red</td>
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<td>N34477</td>
<td>Reflector - Yellow</td>
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<tr>
<td>N34478</td>
<td>Reflector - Orange</td>
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<tr>
<td>N34475</td>
<td>SMV Sign</td>
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</tbody>
</table>

The following pages provide basic Decal Location information, for more details contact Morris' Customer Service.
Safety Signs - Continued

Front

9650 Front
Safety Signs - Continued

Rear

9650 Rear
Safety Signs - Continued

Left Side - Tow Between
Safety

Safety Signs - Continued

Left Side - Tow Behind

[Diagram of a tow cart with various safety signs and labels, including:
- N505210 ICT Tank Decal
- 9 Series Model Number
- Hitch Detail
- ICT Tank Details
- 9 Series ICT Air Cart

June 2018 9 Series ICT Air Cart
Safety Signs - Continued

Right Side - Tow Behind
Safety Signs - Continued

ICT Meter Body

ICT Meter Body

Manufactured Under One or More of the Following Patents.
US - 691,5200
Safety

Lighting and Marking

MORRIS recommends the use of the correct lighting and marking to meet the ASAE standard for roadway travel. Be familiar with, and adhere to, local laws.

Amber warning and red taillights secured on the machine promote correct transportation of this implement.

**Note:** Always replace missing or damaged lights and/or connectors.

Amber warning and red taillights must be mounted to the rear of the implement and be visible from front and rear. The lights must be within 16 inches (41 cm) of the extremities of the machine and at least 39 inches (99 cm) but not over 10 feet (3 m) above ground level.

**Note:** Always replace missing or damaged front, side, rear reflectors and SMV emblem.
Lighting and Marking - Continued

Seeding Unit - Tow Between with Packer Bar

Seeding Unit - Tow Behind with Packer Bar
Conveyor Safety

General

- As the owner and/or operator it is your responsibility to know what requirements, hazards and precautions exist, and to inform all personnel associated with the equipment or are in the area.
- Avoid any alteration to the equipment. Such alterations may produce a very dangerous situation, where serious injury or death may occur.
- Untrained operators subject themselves and other to serious injury or death. NEVER ALLOW untrained personnel to operate this equipment.
- Keep children and other unqualified personnel out of the working area at all times.
- NEVER start equipment until ALL persons are clear of the work area.
- Be sure ALL operators are adequately rested and prepared to perform all functions of operating this equipment.
- Keep hair, loose clothing, and shoestrings away from rotating and moving parts. Never wear loose fitting clothing when working around conveyors.
- NEVER allow anyone inside a bin, truck, or wagon which is being unloaded by a conveyor. Flowing grain can trap and suffocate in seconds.
- Keep hands and feet away from the conveyor intake and other moving parts.
- NEVER attempt to assist machinery operation or to remove trash from the equipment while in operation.
- Keep the area around intake free of obstacles that might trip workers.
- Components of this equipment have sharp edges which can scrape and/or cut an operator.
- A moving conveyor can sever an operator’s limb or even kill.
- Always keep all shields and guards in place during operation.

WARNING

OVERHEAD HAZARD
To prevent serious injury or death:
- Ensure lift cylinder is fully extended before unlatching Auger/Conveyor.
- Stay clear of cradle pad when locking and unlocking.
- Keep others away.
Safety Signs

The Safety Decals listed below are included with the conveyor, the following pages show the location of the decals on the conveyor. Inspect all decals and replace any that are worn, illegible, or missing. Contact your dealer or the factory to order replacement decals.

KS-0008

KS-0002

KS-0007
Safety Signs - Continued

**Danger**

**Falling Conveyor Can Crush or Kill!**

Always secure intake end so that the conveyor cannot fall.

Empty the conveyor before attempting to transport it.

Never push the undercarriage. Always use proper transporting methods.

Use caution when lifting the intake end. Never lift higher than the vehicle tow bar. Do not release until conveyor is securely attached to the tow bar or on the ground.

Lower the conveyor for transporting immediately after moving it away from the storage bin.

Failure to heed will result in serious injury or death!

**Caution**

1. Read and understand the installation & operation manual and all safety instructions before operating equipment.
2. Do not operate while under the influence of drugs or alcohol.
3. Do not operate unless all safety equipment, switches, guards and shields are securely in place and operational.
4. Be sure everyone is clear of the equipment before attempting to operate or moving the machine.
5. Allow only trained personnel in the operating area.
6. Keep hands, feet, hair and clothing away from moving parts.
7. Disconnect and lockout power before adjusting or servicing.
8. Electrical wiring or service work must be performed by a qualified electrician. It must meet all state and local electrical codes.
9. Empty conveyor and lower to transport position before transporting.
10. Make certain all electric motors are grounded.
12. Keep children away from the work area at all times.
Conveyor Safety - Continued

Safety Signs - Continued

**WARNING**

Hydraulic fluid leaking under pressure can penetrate skin. If this happens, seek medical attention immediately. Always release pressure from hydraulic lines before disconnecting. Always inspect the hydraulic lines before and after using this equipment and perform any necessary maintenance on the hydraulic system before operating. Failure to heed will result in serious injury or death!

![Safety Sign](image1)

---

**DANGER**

Shear point. Keep fingers, hands, hair and loose clothing away from moving parts. Failure to heed will result in serious injury or death!

![Safety Sign](image2)

---

**WARNING**

Moving belt can cut or entangle. Stay away. Disconnect & lockout power source before cleaning or servicing. Failure to heed will result in personal injury or death!

![Safety Sign](image3)
Conveyor Safety - Continued

Safety Signs - Continued

**DANGER**

DO NOT OPERATE WITH DOOR OPEN!

- STOP MACHINE AND LOCKOUT POWER TO ADJUST, SERVICE OR CLEAN.
- KEEP HANDS, FEET, HAIR AND CLOTHING AWAY FROM MOVING PARTS.

FAILURE TO HEED WILL RESULT IN SERIOUS INJURY OR DEATH!

KS-0006

**WARNING**

Moving parts can crush or dismember.

Do not operate without guards in place. Stay clear of moving parts.

Disconnect & lockout power source before adjusting or servicing.

Failure to heed may result in death or personal injury!

KS-0016
Section 2: Specifications

Section Contents

9365, 9450 and 9535 - Tow Behind ................................................................. 2-2
9365 and 9450 - Tow Between ................................................................. 2-3
9445, 9550 and 9650 - Tow Behind ................................................................. 2-4
9445, 9550 and 9650 - Tow Between ......................................................... 2-5
9555, 9680 and 9800 - Tow Behind ................................................................. 2-6
9555, 9680 and 9800 - Tow Between ................................................................. 2-7
91000 - Tow Behind ............................................................................. 2-8
## Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>9365</th>
<th>9450</th>
<th>9535</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Configuration</strong></td>
<td>Tow Behind</td>
<td>Tow Behind</td>
<td>Tow Behind</td>
</tr>
<tr>
<td>Length (Hitc h pin to end of Auger) (Hitch Removed)</td>
<td>34' 6&quot; (10.52 m)</td>
<td>34' 6&quot; (10.52 m)</td>
<td>36' 10&quot; (11.15 m)</td>
</tr>
<tr>
<td>Height - Rails up</td>
<td>15' 2&quot; (4.623 m)</td>
<td>15' 2&quot; (4.623 m)</td>
<td>15' 2&quot; (4.623 m)</td>
</tr>
<tr>
<td>Height - Rails Lowered</td>
<td>14' 2&quot; (4.318 m)</td>
<td>14' 2&quot; (4.318 m)</td>
<td>14' 2&quot; (4.318 m)</td>
</tr>
<tr>
<td>Width - Single Axle - 800/65 R32</td>
<td>3' 7&quot; (1.14 m)</td>
<td>3' 7&quot; (1.14 m)</td>
<td>3' 7&quot; (1.14 m)</td>
</tr>
<tr>
<td>- Single Axle - 900/65 R32</td>
<td>3' 10&quot; (1.17 m)</td>
<td>3' 10&quot; (1.17 m)</td>
<td>3' 10&quot; (1.17 m)</td>
</tr>
<tr>
<td>- Dual Axle - 520/85 R38</td>
<td>15' 11&quot; (4.81 m)</td>
<td>15' 11&quot; (4.81 m)</td>
<td>15' 11&quot; (4.81 m)</td>
</tr>
<tr>
<td>- Dual Axle - 800/65 R32</td>
<td>20' (6.0 m)</td>
<td>20' (6.0 m)</td>
<td>20' (6.0 m)</td>
</tr>
<tr>
<td><strong>Weight (Hydraulic Drive)</strong></td>
<td>10900 lbs (4944 kg)</td>
<td>11900 lbs (5398 kg)</td>
<td>13000 lbs (5897 kg)</td>
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<tr>
<td><strong>Safety Lights</strong></td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
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<tr>
<td><strong>Safety Chain</strong></td>
<td>Standard</td>
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<td>Standard</td>
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<tr>
<td><strong>Tank Capacity</strong></td>
<td>- Tank 1</td>
<td>N/A</td>
<td>182 bu (6414 l)</td>
</tr>
<tr>
<td></td>
<td>- Tank 2</td>
<td>N/A</td>
<td>182 bu (6414 l)</td>
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<td></td>
<td>- Tank 3</td>
<td>182 bu (6414 l)</td>
<td>86 bu (3030 l)</td>
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<tr>
<td></td>
<td>- Tank 4</td>
<td>182 bu (6414 l)</td>
<td>182 bu (6414 l)</td>
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<tr>
<td></td>
<td>- Total</td>
<td>364 bu (12828 l)</td>
<td>450 bu (15858 l)</td>
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<tr>
<td><strong>Fan Impeller Diameter</strong></td>
<td>17&quot; (43 cm)</td>
<td>- Up to 5,000 r.p.m.</td>
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<tr>
<td><strong>Hydraulic Drive</strong></td>
<td>- piston type orbit motor</td>
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<tr>
<td>(Closed Centre or Closed Centre Load Sensing systems required)</td>
<td>16cc - 21 U.S. gal./min. (80 l/min) at 2,750 p.s.i. (18,960 kpa)</td>
<td></td>
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<tr>
<td>Hydraulic requirements for Air Cart only at Rated Fan Speed.</td>
<td>Dual Fans require 42 U.S. gal./min. (160 l/min)</td>
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<td></td>
<td>VRT requires an additional 6 U.S. gal./min (23 l/min)</td>
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<tr>
<td><strong>Loading Auger</strong></td>
<td>Standard (10&quot; Dia) (25.4 cm Dia)</td>
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<tr>
<td></td>
<td>Optional - extended hopper on hydraulic assisted auger</td>
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<tr>
<td><strong>Loading Conveyor</strong></td>
<td>Optional (16&quot;) (40.6 cm) x 23 ft long</td>
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<tr>
<td><strong>Tires</strong></td>
<td>- Off-Set Dual Axle (Front) - Standard on 9365 and 9450</td>
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<td>- N/A for 9535</td>
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<td></td>
<td>- Quad Steer Axle (Front) - Standard on 9535</td>
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<td>- Optional on 9365 and 9450</td>
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<td></td>
<td>- Rear - Standard on 9365 and 9450</td>
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<td>- N/A for 9535</td>
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<td>- Rear - Standard on 9535</td>
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<td>- Optional on 9365 and 9450</td>
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<td>- Rear - Optional on 9365 and 9450</td>
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<td>- Rear - Optional on 9535</td>
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<td>- 2) 500/70 R24 Lug</td>
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<td>Distance Center-Center Inner 40&quot; (102 cm)</td>
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<td>(2) 28LR26 Lug</td>
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<td>Distance Center-Center Inner 138&quot; (351 cm)</td>
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<td></td>
<td>- 2) 800/65R32 - L1 172 Lug</td>
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<td>Distance Center-Center 128&quot; (325 cm)</td>
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<td>(2) 900/65R32 - L1 172 Lug</td>
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<td>Distance Center-Center 132&quot; (335 cm)</td>
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<td>- Duals - (4) 520/85R38 Lug</td>
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<td></td>
<td>Distance Center-Center Inner 119&quot; (302 cm)</td>
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<td>Distance Center-Center Outer 171&quot; (434 cm)</td>
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<td>- Duals - (4) 800/65R32 - L1 172 Lug</td>
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<td></td>
<td>Distance Center-Center Inner 132&quot; (335 cm)</td>
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<td></td>
<td>Distance Center-Center Outer 208&quot; (516 cm)</td>
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<td><strong>Metering</strong></td>
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<tr>
<td>- Ground Driven</td>
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<tr>
<td>- Variable Rate (VRT)</td>
<td>Optional</td>
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<tr>
<td>- GPS Compatible VRT</td>
<td>Optional with VRT</td>
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<tr>
<td>- ICT (Input Control Technology)</td>
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<tr>
<td><strong>Meter Shut Off</strong></td>
<td>Electric</td>
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<tr>
<td><strong>Number Secondary Runs - Single Shoot</strong></td>
<td>21 to 99 (ICT 21 - 90)</td>
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<tr>
<td><strong>Number Secondary Runs - Double Shoot</strong></td>
<td>42 to 198 (ICT 42 - 180)</td>
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<tr>
<td><strong>Primary Hose - Diameter</strong></td>
<td>2 1/2&quot; (6.4 cm)</td>
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<tr>
<td><strong>Secondary Hose - Diameter</strong></td>
<td>Standard - 15/16&quot; (2.4 cm) - Optional - 1 1/8&quot; (2.8 cm)</td>
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<tr>
<td><strong>Frame - Trussed</strong></td>
<td>4&quot; x 6&quot; (10 cm x 15.2cm) tubing by 4&quot; x 4&quot; (10 cm x 10 cm) tubing</td>
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<tr>
<td><strong>Easy Clean Out System</strong></td>
<td>Standard</td>
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<tr>
<td><strong>Meter Drive Options - Second Clutch (For spot fertilizing on the go)</strong></td>
<td>Standard</td>
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<tr>
<td><strong>Monitor</strong></td>
<td>Standard</td>
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<td></td>
</tr>
<tr>
<td>(Shaft Motion (3), Bin Level (3), Fan Speed, Acre Tally, Ground Speed)</td>
<td>Optional Seed Flow</td>
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<tr>
<td><strong>Work Switch (Mounted to Seeding Machine)</strong></td>
<td>Optional</td>
<td></td>
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<tr>
<td><strong>Rear Tow Hitch</strong></td>
<td>Optional (Max 15,000 lb Draft Load) (Max 6,818 kg Draft Load)</td>
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<tr>
<td><strong>Hitch Stand</strong></td>
<td>Optional - N/A for 9535</td>
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</table>
## Specifications

### 9365 and 9450 - Tow Between Specifications and Options

<table>
<thead>
<tr>
<th>Model</th>
<th>9365</th>
<th>9450</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration</td>
<td>Tow Between</td>
<td>Tow Between</td>
</tr>
<tr>
<td>Length (with auger)</td>
<td>31' 5&quot; (9.58 m)</td>
<td>31' 5&quot; (9.58 m)</td>
</tr>
<tr>
<td>Height - Rails up</td>
<td>15' 2&quot; (4.623 m)</td>
<td>15' 2&quot; (4.623 m)</td>
</tr>
<tr>
<td>Height - Rails Lowered</td>
<td>14' 2&quot; (4.318 m)</td>
<td>14' 2&quot; (4.318 m)</td>
</tr>
<tr>
<td>Width</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Single Axle - 800/65 R32</td>
<td>13' 7&quot; (4.14 m)</td>
<td>13' 7&quot; (4.14 m)</td>
</tr>
<tr>
<td>- Single Axle - 900/65 R32</td>
<td>13' 10&quot; (4.22 m)</td>
<td>13' 10&quot; (4.22 m)</td>
</tr>
<tr>
<td>- Dual Axle - 520/85 R38</td>
<td>15' 11&quot; (4.81 m)</td>
<td>15' 11&quot; (4.81 m)</td>
</tr>
<tr>
<td>- Dual Axle - 800/65 R32</td>
<td>20' (6.10 m)</td>
<td>20' (6.10 m)</td>
</tr>
<tr>
<td>Weight (Hydraulic Drive)</td>
<td>14100 lbs (6396 kg)</td>
<td>15100 lbs (6849 kg)</td>
</tr>
<tr>
<td>Safety Lights</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td>Safety Chain</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td>Tank Capacity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Tank 1</td>
<td>N/A</td>
<td>182 bu (6414 l)</td>
</tr>
<tr>
<td>- Tank 2</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>- Tank 3</td>
<td>182 bu (6414 l)</td>
<td>86 bu (3030 l)</td>
</tr>
<tr>
<td>- Tank 4</td>
<td>182 bu (6414 l)</td>
<td>182 bu (6414 l)</td>
</tr>
<tr>
<td>- Total</td>
<td>364 bu (12828 l)</td>
<td>450 bu (15858 l)</td>
</tr>
<tr>
<td>Tank Screens</td>
<td>Standard</td>
<td></td>
</tr>
<tr>
<td>Fan Impeller Diameter</td>
<td>17&quot; (43 cm) - Up to 5,000 r.p.m.</td>
<td></td>
</tr>
<tr>
<td>Hydraulic Drive - piston type orbit motor</td>
<td>16cc - 21 U.S. gal./min. (80 l/min) at 2,750 p.s.i. (18,960 kpa)</td>
<td>Dual Fans require 42 U.S. gal./min. (160 l/min)</td>
</tr>
<tr>
<td>- Hydraulic requirements for Air Cart only at Rated Fan Speed.</td>
<td>VRT requires an additional 6 U.S. gal/min (23 l/min)</td>
<td></td>
</tr>
<tr>
<td>Loading Auger</td>
<td>Optional - extended hopper on hydraulic assisted auger</td>
<td>Optional - extended hopper on hydraulic assisted auger</td>
</tr>
<tr>
<td>Loading Conveyor</td>
<td>Optional (16&quot;) (40.6 cm) x 23 ft long</td>
<td>Optional (16&quot;) (40.6 cm) x 23 ft long</td>
</tr>
<tr>
<td>Tires</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Standard (Rear)</td>
<td>(2) 800/65R32 - LI 172 Lug</td>
<td>Distance Center-Center 128&quot; (325 cm)</td>
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<tr>
<td>- Optional (Rear)</td>
<td>(2) 900/65R32 - LI 172 Lug</td>
<td>Distance Center-Center 132&quot; (335 cm)</td>
</tr>
<tr>
<td>- Optional (Rear)</td>
<td>Dauls - (4) 800/65R32 - LI 172 Lug</td>
<td>Distance Center-Center Outer 208&quot; (516 cm)</td>
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<tr>
<td>Metering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Ground Driven</td>
<td>Standard</td>
<td>Optional</td>
</tr>
<tr>
<td>- Variable Rate (VRT)</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td>- GPS Compatible VRT</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td>- ICT (Input Control Technology)</td>
<td>Optional with VRT</td>
<td>Optional with VRT</td>
</tr>
<tr>
<td>Meter Shut Off</td>
<td>Electric</td>
<td></td>
</tr>
<tr>
<td>Number Secondary Runs - Single Shoot</td>
<td>21 to 99 (ICT 21 - 90)</td>
<td></td>
</tr>
<tr>
<td>Number Secondary Runs - Double Shoot</td>
<td>42 to 198 (ICT 42 - 180)</td>
<td></td>
</tr>
<tr>
<td>Primary Hose - Diameter</td>
<td>2 1/2&quot; (6.4 cm)</td>
<td></td>
</tr>
<tr>
<td>Secondary Hose - Diameter</td>
<td>Standard - 15/16&quot; (2.4 cm)</td>
<td>Optional - 1 1/8&quot; (2.8 cm)</td>
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<tr>
<td>Frame - Trussed</td>
<td>4&quot; x 6&quot; (10 cm x 15.2cm) tubing by 4&quot; x 4&quot; (10 cm x 10 cm) tubing</td>
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<tr>
<td>Easy Clean Out System</td>
<td>Standard</td>
<td></td>
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<tr>
<td>Meter Drive Options</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Second Clutch (For spot fertilizing on the go)</td>
<td>Standard</td>
<td></td>
</tr>
<tr>
<td>Monitor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Shaft Motion (3), Bin Level (3), Fan Speed, Acre Tally, Ground Speed)</td>
<td>Standard</td>
<td>Optional Seed Flow</td>
</tr>
<tr>
<td>Work Switch (Mounted to Seeding Machine)</td>
<td>Optional</td>
<td></td>
</tr>
<tr>
<td>Rear Tow Hitch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Max 26,000 lb Draft Load)</td>
<td>Standard</td>
<td>(Max 11,818 kg Draft Load)</td>
</tr>
<tr>
<td>Hitch Jack - Hydraulic</td>
<td>Optional</td>
<td></td>
</tr>
<tr>
<td>Work Lights - LED</td>
<td>Optional</td>
<td></td>
</tr>
<tr>
<td>Hitch Clevis</td>
<td>Standard - Category 4</td>
<td>Optional - Category 5</td>
</tr>
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</table>
## 9445, 9550 and 9650 - Tow Behind Specifications and Options

<table>
<thead>
<tr>
<th>Model</th>
<th>9445</th>
<th>9550</th>
<th>9650</th>
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</thead>
<tbody>
<tr>
<td><strong>Configuration</strong></td>
<td>Tow Behind</td>
<td>Tow Behind</td>
<td>Tow Behind</td>
</tr>
<tr>
<td>Length (Hitcl pin to Dual Fan) (Hitcl Removed)</td>
<td>39’ 3” (11.96 m)</td>
<td>39’ 3” (11.96 m)</td>
<td>39’ 3” (11.96 m)</td>
</tr>
<tr>
<td>Height - Rails up</td>
<td>15’ 2” (4.623 m)</td>
<td>15’ 2” (4.623 m)</td>
<td>15’ 2” (4.623 m)</td>
</tr>
<tr>
<td>Height - Rails Lowered</td>
<td>14’ 2” (4.318 m)</td>
<td>14’ 2” (4.318 m)</td>
<td>14’ 2” (4.318 m)</td>
</tr>
<tr>
<td>Width - Single Axle - 900/65 R32</td>
<td>13’ 10” (4.22 m)</td>
<td>13’ 10” (4.22 m)</td>
<td>13’ 10” (4.22 m)</td>
</tr>
<tr>
<td>Width - Dual Axle - 800/65 R32</td>
<td>20’ (6.10 m)</td>
<td>20’ (6.10 m)</td>
<td>20’ (6.10 m)</td>
</tr>
<tr>
<td><strong>Weight (Hydraulic Drive)</strong></td>
<td>17,300 lbs (7,847 kg)</td>
<td>18,000 lbs (8,165 kg)</td>
<td>18,700 lbs (8,482 kg)</td>
</tr>
<tr>
<td><strong>Safety Lights</strong></td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Safety Chain</strong></td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Tank Capacity</strong></td>
<td>- Tank 1: N/A</td>
<td>221 bu (7788 l)</td>
<td>221 bu (7788 l)</td>
</tr>
<tr>
<td></td>
<td>- Tank 2: N/A</td>
<td>N/A</td>
<td>107 bu (3772 l)</td>
</tr>
<tr>
<td></td>
<td>- Tank 3: 221 bu (7788 l)</td>
<td>107 bu (3772 l)</td>
<td>107 bu (3772 l)</td>
</tr>
<tr>
<td></td>
<td>- Tank 4: 221 bu (7788 l)</td>
<td>221 bu (7788 l)</td>
<td>221 bu (7788 l)</td>
</tr>
<tr>
<td></td>
<td>- Total: 442 bu (15,576 l)</td>
<td>549 bu (19348 l)</td>
<td>656 bu (23,120 l)</td>
</tr>
<tr>
<td><strong>Tank Screens</strong></td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Fan Impeller Diameter</strong></td>
<td>17” (43 cm) - Up to 5,000 r.p.m.</td>
<td>16cc</td>
<td></td>
</tr>
<tr>
<td><strong>Hydraulic Drive</strong> - piston type orbit motor (Closed Centre or Closed Centre Load Sensing systems required)</td>
<td>21 U.S. gal./min. (80 l/min) at 2,750 p.s.i. (18,960 kpa)</td>
<td>Dual Fans require 42 U.S. gal./min. (160 l/min)</td>
<td>VRT requires an additional 6 U.S. gal/min (23 l/min)</td>
</tr>
<tr>
<td><strong>Loading Auger</strong></td>
<td>Optional - extended hopper on hydraulic assisted auger</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Loading Conveyor</strong></td>
<td>Optional (16”) (40.6 cm) x 23 ft long</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tires</strong> - Quad Steer (Front)</td>
<td>(2) 28L-26 Lug Distance Center-Center Inner 138” (351 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Standard (Rear) Single - (2) 900/65R32 - LI 172 Lug Distance Center-Center Inner 140” (356 cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Optional (Rear) Duals - (4) 800/65R32 - LI 172 Lug Distance Center-Center Inner 140” (356 cm)</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>- Optional (Rear) Single - (2) 710/70R38 - DT - 824 TL Lug Distance Center-Center 118” (300 cm)</td>
<td></td>
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</tr>
<tr>
<td><strong>Metering</strong> - Ground Driven</td>
<td>Standard</td>
<td>Optional</td>
<td>Optional with VRT</td>
</tr>
<tr>
<td></td>
<td>- Variable Rate (VRT)</td>
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</tr>
<tr>
<td></td>
<td>- GPS Compatible VRT</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>- ICT (Input Control Technology)</td>
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<td></td>
</tr>
<tr>
<td><strong>Meter Shut Off</strong></td>
<td>Electric</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Number Secondary Runs - Single Shoot</strong></td>
<td>21 to 99 (ICT 21 - 90)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Number Secondary Runs - Double Shoot</strong></td>
<td>42 to 198 (ICT 42 - 180)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Primary Hose - Diameter</strong></td>
<td>2 1/2” (6.4 cm)</td>
<td>Standard - 15/16” (2.4 cm)</td>
<td>Optional - 1 1/8” (2.8 cm)</td>
</tr>
<tr>
<td><strong>Secondary Hose - Diameter</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Frame - Trussed</strong></td>
<td>4” x 6” (10 cm x 15.2cm) tubing by 4” x 4” (10 cm x 10 cm) tubing</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Easy Clean Out System</strong></td>
<td>Standard</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Meter Drive Options</strong> - Second Clutch (For spot fertilizing on the go)</td>
<td>Standard</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Monitor</strong> (Shaft Motion (3), Bin Level (3), Fan Speed, Acre Tally, Ground Speed)</td>
<td></td>
<td>Standard Optional Seed Flow</td>
<td></td>
</tr>
<tr>
<td><strong>Work Switch (Mounted to Seeding Machine)</strong></td>
<td>Optional</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rear Tow Hitch</strong></td>
<td>Standard (Max 26,000 lb Draft Load) (Max 11,818 kg Draft Load)</td>
<td></td>
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</tr>
</tbody>
</table>
## Specifications

### 9445, 9550 and 9650 - Tow Between Specifications and Options

<table>
<thead>
<tr>
<th>Model</th>
<th>9445</th>
<th>9550</th>
<th>9650</th>
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</thead>
<tbody>
<tr>
<td><strong>Configuration</strong></td>
<td>Tow Between</td>
<td>Tow Between</td>
<td>Tow Between</td>
</tr>
<tr>
<td><strong>Length (with auger)</strong></td>
<td>34' 6&quot; (10.52 m)</td>
<td>34' 6&quot; (10.52 m)</td>
<td>34' 6&quot; (10.52 m)</td>
</tr>
<tr>
<td><strong>Height - Rails up</strong></td>
<td>15' 2&quot; (4.623 m)</td>
<td>15' 2&quot; (4.623 m)</td>
<td>15' 2&quot; (4.623 m)</td>
</tr>
<tr>
<td><strong>Height - Rails Lowered</strong></td>
<td>14' 2&quot; (4.318 m)</td>
<td>14' 2&quot; (4.318 m)</td>
<td>14' 2&quot; (4.318 m)</td>
</tr>
<tr>
<td><strong>Width - Dual Axle</strong></td>
<td>20' (6.10 m)</td>
<td>20' (6.10 m)</td>
<td>20' (6.10 m)</td>
</tr>
<tr>
<td><strong>Weight (Hydraulic Drive)</strong></td>
<td>20,000 lbs (9072 kg)</td>
<td>20700 lbs (9389 kg)</td>
<td>21400 lbs (9707 kg)</td>
</tr>
<tr>
<td><strong>Safety Lights</strong></td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Safety Chain</strong></td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Tank Capacity</strong></td>
<td>N/A</td>
<td>221 bu (7788 l)</td>
<td>221 bu (7788 l)</td>
</tr>
<tr>
<td><strong>- Tank 1</strong></td>
<td>N/A</td>
<td>221 bu (7788 l)</td>
<td>221 bu (7788 l)</td>
</tr>
<tr>
<td><strong>- Tank 2</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>107 bu (3772 l)</td>
</tr>
<tr>
<td><strong>- Tank 3</strong></td>
<td>221 bu (7788 l)</td>
<td>107 bu (3772 l)</td>
<td>107 bu (3772 l)</td>
</tr>
<tr>
<td><strong>- Tank 4</strong></td>
<td>221 bu (7788 l)</td>
<td>221 bu (7788 l)</td>
<td>221 bu (7788 l)</td>
</tr>
<tr>
<td><strong>- Total</strong></td>
<td>442 bu (15,576 l)</td>
<td>549 bu (19348 l)</td>
<td>656 bu (23,120 l)</td>
</tr>
<tr>
<td><strong>Tank Screens</strong></td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Fan Impeller Diameter</strong></td>
<td>17&quot; (43 cm) - Up to 5,000 r.p.m.</td>
<td>16cc</td>
<td>21 U.S. gal./min. (80 l/min) at 2,750 p.s.i. (18,960 kpa)</td>
</tr>
<tr>
<td><strong>Hydraulic Drive</strong></td>
<td>- piston type orbit motor</td>
<td>(Closed Centre or Closed Centre Load Sensing systems required)</td>
<td>Hydraulic requirements for Air Cart only at Rated Fan Speed.</td>
</tr>
<tr>
<td><strong>Loading Auger</strong></td>
<td>Standard (10&quot; Dia) (25.4 cm Dia)</td>
<td>Optional - extended hopper on hydraulic assisted auger</td>
<td></td>
</tr>
<tr>
<td><strong>Loading Conveyor</strong></td>
<td>Optional (16&quot;) (40.6 cm) x 23 ft long</td>
<td>Optional - extended hopper on hydraulic assisted auger</td>
<td></td>
</tr>
<tr>
<td><strong>Tires</strong></td>
<td>Standard (Rear)</td>
<td>Duals - (4) 800/65R32 - LI 172 Lug</td>
<td>Distance Center-Center Inner 132&quot; (335 cm)</td>
</tr>
<tr>
<td><strong>- Standard (Rear)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>- Optional</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Frame - Trussed</strong></td>
<td>4&quot; x 6&quot; (10 cm x 15.2cm) tubing by 4&quot; x 4&quot; (10 cm x 10 cm) tubing</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Easy Clean Out System</strong></td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Meter Drive Options</strong></td>
<td>Second Clutch (For spot fertilizing on the go)</td>
<td>Standard</td>
<td></td>
</tr>
<tr>
<td><strong>Monitor</strong></td>
<td>(Shaft Motion (3), Bin Level (3), Fan Speed, Acre Tally, Ground Speed)</td>
<td>Standard</td>
<td>Optional Seed Flow</td>
</tr>
<tr>
<td><strong>Work Switch (Mounted to Seeding Machine)</strong></td>
<td>Optional</td>
<td>Optional</td>
<td></td>
</tr>
<tr>
<td><strong>Rear Tow Hitch</strong></td>
<td>Standard</td>
<td>(Max 26,000 lb Draft Load)</td>
<td>(Max 11,818 kg Draft Load)</td>
</tr>
<tr>
<td><strong>Hitch Jack - Hydraulic</strong></td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Work Lights - LED</strong></td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td><strong>Hitch Clevis</strong></td>
<td>Standard - Category 4</td>
<td>Optional - Category 5</td>
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</table>
## Specifications

### 9555, 9680 and 9800 - Tow Behind Specifications and Options

<table>
<thead>
<tr>
<th>Model</th>
<th>9555</th>
<th>9680</th>
<th>9800</th>
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<tbody>
<tr>
<td><strong>Configuration</strong></td>
<td>Tow Behind</td>
<td>Tow Behind</td>
<td>Tow Behind</td>
</tr>
<tr>
<td><strong>Length (Hitch pin to Dual Fan)</strong>&lt;br&gt;(Hitch Removed)</td>
<td>43' 6&quot; (13.28 m)</td>
<td>43' 6&quot; (13.28 m)</td>
<td>43' 6&quot; (13.28 m)</td>
</tr>
<tr>
<td><strong>Height - Rails up</strong></td>
<td>15' 8&quot; (4.77 m)</td>
<td>15' 8&quot; (4.77 m)</td>
<td>15' 8&quot; (4.77 m)</td>
</tr>
<tr>
<td><strong>Height - Rails Lowered</strong></td>
<td>14' 8&quot; (4.47 m)</td>
<td>14' 8&quot; (4.47 m)</td>
<td>14' 8&quot; (4.47 m)</td>
</tr>
<tr>
<td><strong>Width - Dual Axle - 800/65 R32 - Prior to 2016</strong>&lt;br&gt;- Dual Axle - 800/70R38</td>
<td>20' 10&quot; (6.35 m)</td>
<td>20' 10&quot; (6.35 m)</td>
<td>20' 10&quot; (6.35 m)</td>
</tr>
<tr>
<td><strong>Weight (Hydraulic Drive)</strong></td>
<td>27652 (12543 kg)</td>
<td>28946 (13130 kg)</td>
<td>30240 lbs (13720 kg)</td>
</tr>
<tr>
<td><strong>Safety Lights</strong></td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Safety Chain</strong></td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Tank Capacity</strong>&lt;br&gt;- Tank 1</td>
<td>265 bu (9339 l)</td>
<td>265 bu (9339 l)</td>
<td>265 bu (9339 l)</td>
</tr>
<tr>
<td><strong>- Tank 2</strong>&lt;br&gt;N/A</td>
<td>N/A</td>
<td>133 bu (4700 l)</td>
<td>133 bu (4700 l)</td>
</tr>
<tr>
<td><strong>- Tank 3</strong>&lt;br&gt;N/A</td>
<td>133 bu (4700 l)</td>
<td>133 bu (4700 l)</td>
<td>133 bu (4700 l)</td>
</tr>
<tr>
<td><strong>- Tank 4</strong>&lt;br&gt;284 bu (10008 l)</td>
<td>284 bu (10008 l)</td>
<td>284 bu (10008 l)</td>
<td>284 bu (10008 l)</td>
</tr>
<tr>
<td><strong>- Total</strong></td>
<td>549 bu (19347 l)</td>
<td>682 bu (24047 l)</td>
<td>815 bu (28747 l)</td>
</tr>
<tr>
<td><strong>Tank Screens</strong></td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Fan Impeller Diameter</strong></td>
<td>17&quot; (43 cm) - Up to 5,000 r.p.m.</td>
<td>16&quot;</td>
<td>16&quot;</td>
</tr>
<tr>
<td><strong>Hydraulic Drive</strong> - piston type orbit motor</td>
<td>21 U.S. gal./min. (80 l/min) at 2,750 p.s.i. (18,960 kpa)</td>
<td>VRT requires an additional 6 U.S. gal/min (23 l/min)</td>
<td>VRT requires an additional 6 U.S. gal/min (23 l/min)</td>
</tr>
<tr>
<td><strong>Loading Auger</strong></td>
<td>Standard (10&quot; Dia) (25.4 cm Dia)</td>
<td>Optional - extended hopper on hydraulic assisted auger</td>
<td>Optional - extended hopper on hydraulic assisted auger</td>
</tr>
<tr>
<td><strong>Loading Conveyor</strong></td>
<td>Optional (16&quot;) (40.6 cm)</td>
<td>Optional (16&quot;) (40.6 cm)</td>
<td>Optional (16&quot;) (40.6 cm)</td>
</tr>
<tr>
<td><strong>Brakes - Rear</strong></td>
<td>Standard - 22&quot; (55.9 cm) Diameter Disc - 4 piston caliper</td>
<td>Standard - 22&quot; (55.9 cm) Diameter Disc - 4 piston caliper</td>
<td>Standard - 22&quot; (55.9 cm) Diameter Disc - 4 piston caliper</td>
</tr>
<tr>
<td><strong>Tires</strong>&lt;br&gt;- Standard Quad Steer (Front) (Tow Behind only)</td>
<td>(2) 800/65 R32 - LI 172 Lug</td>
<td>(2) 800/65 R32 - LI 172 Lug</td>
<td>(2) 800/65 R32 - LI 172 Lug</td>
</tr>
<tr>
<td><strong>- Optional Quad Steer (Front) (Tow Behind only)</strong></td>
<td>Distance Center-Center Inner 155&quot; (393 cm)</td>
<td>Distance Center-Center Inner 155&quot; (393 cm)</td>
<td>Distance Center-Center Inner 155&quot; (393 cm)</td>
</tr>
<tr>
<td><strong>- Standard (Rear)</strong>&lt;br&gt;Duals - (4) 800/70R38 - LI 172 Lug</td>
<td>Distance Center-Center Inner 154&quot; (391.2 cm)</td>
<td>Distance Center-Center Outer 234&quot; (594.4 cm)</td>
<td>Distance Center-Center Outer 234&quot; (594.4 cm)</td>
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<tr>
<td><strong>- Optional (Rear)</strong>&lt;br&gt;Duals - (4) 850/80R38 - LI 172 Lug</td>
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<td>Distance Center-Center Outer 234&quot; (594.4 cm)</td>
<td>Distance Center-Center Outer 234&quot; (594.4 cm)</td>
</tr>
<tr>
<td><strong>Metering</strong>&lt;br&gt;- Ground Driven</td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>- Variable Rate (VRT)</strong></td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td><strong>- GPS Compatible VRT</strong></td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td><strong>- ICT (Input Control Technology)</strong></td>
<td>Optional with VRT</td>
<td>Optional with VRT</td>
<td>Optional with VRT</td>
</tr>
<tr>
<td><strong>Meter Shut Off</strong></td>
<td>Electric</td>
<td>Electric</td>
<td>Electric</td>
</tr>
<tr>
<td><strong>Number Secondary Runs - Single Shoot</strong></td>
<td>21 to 110 (ICT 21-100)</td>
<td>21 to 110 (ICT 21-100)</td>
<td>21 to 110 (ICT 21-100)</td>
</tr>
<tr>
<td><strong>Number Secondary Runs - Double Shoot</strong></td>
<td>42 to 220 (ICT 42-200)</td>
<td>42 to 220 (ICT 42-200)</td>
<td>42 to 220 (ICT 42-200)</td>
</tr>
<tr>
<td><strong>Primary Hose - Diameter</strong></td>
<td>2 1/2&quot; (6.4 cm)</td>
<td>2 1/2&quot; (6.4 cm)</td>
<td>2 1/2&quot; (6.4 cm)</td>
</tr>
<tr>
<td><strong>Secondary Hose - Diameter</strong>&lt;br&gt;Standard - 15/16&quot; (2.4 cm)</td>
<td>Optional - 1 1/8&quot; (2.8 cm)</td>
<td>Optional - 1 1/8&quot; (2.8 cm)</td>
<td>Optional - 1 1/8&quot; (2.8 cm)</td>
</tr>
<tr>
<td><strong>Frame - Trussed</strong>&lt;br&gt;4&quot; x 10&quot; (10 cm x 25.4cm) tubing by 4&quot; x 4&quot; (10 cm x 10 cm) tubing</td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Easy Clean Out System</strong></td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Meter Drive Options</strong>&lt;br&gt;- Second Clutch (For spot fertilizing on the go)</td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Monitor</strong>&lt;br&gt;(Shaft Motion (3), Bin Level (3), Fan Speed, Acre Tally, Ground Speed)</td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Work Switch (Mounted to Seeding Machine)</strong></td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td><strong>Rear Tow Hitch</strong>&lt;br&gt;(Max 26,000 lb Draft Load)&lt;br&gt;(Max 11,818 kg Draft Load)</td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Mechanical Acre Meter</strong></td>
<td>Optional (Ground Drive Only)</td>
<td>Optional (Ground Drive Only)</td>
<td>Optional (Ground Drive Only)</td>
</tr>
</tbody>
</table>
## Specifications

### 9555, 9680 and 9800 - Tow Between Specifications and Options

<table>
<thead>
<tr>
<th>Model</th>
<th>9555</th>
<th>9680</th>
<th>9800</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Configuration</strong></td>
<td><strong>Tow Between</strong></td>
<td><strong>Tow Between</strong></td>
<td><strong>Tow Between</strong></td>
</tr>
<tr>
<td>Length (Hitch pin to Dual Fan) (Hitch Removed)</td>
<td>43’ 6” (13.28 m)</td>
<td>43’ 6” (13.28 m)</td>
<td>43’ 6” (13.28 m)</td>
</tr>
<tr>
<td>Height - Rails up</td>
<td>15’ 8” (4.77 m)</td>
<td>15’ 8” (4.77 m)</td>
<td>15’ 8” (4.77 m)</td>
</tr>
<tr>
<td>Height - Rails Lowered</td>
<td>14’ 8” (4.47 m)</td>
<td>14’ 8” (4.47 m)</td>
<td>14’ 8” (4.47 m)</td>
</tr>
<tr>
<td><strong>Width - Dual Axle - 800/65 R32 - Prior to 2016</strong></td>
<td>20’ 10” (6.35 m)</td>
<td>20’ 10” (6.35 m)</td>
<td>20’ 10” (6.35 m)</td>
</tr>
<tr>
<td><strong>- Dual Axle - 800/70R38</strong></td>
<td>22’ 4” (6.81 m)</td>
<td>22’ 4” (6.81 m)</td>
<td>22’ 4” (6.81 m)</td>
</tr>
<tr>
<td>Weight (Hydraulic Drive)</td>
<td>27152 lbs (12316 kg)</td>
<td>28446 (12903 kg)</td>
<td>29740 lbs (13490 kg)</td>
</tr>
<tr>
<td><strong>Safety Lights</strong></td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Safety Chain</strong></td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Tank Capacity</strong></td>
<td>265 bu (9339 l)</td>
<td>265 bu (9339 l)</td>
<td>265 bu (9339 l)</td>
</tr>
<tr>
<td><strong>- Tank 2</strong></td>
<td>N/A</td>
<td>N/A</td>
<td>133 bu (4700 l)</td>
</tr>
<tr>
<td><strong>- Tank 3</strong></td>
<td>N/A</td>
<td>133 bu (4700 l)</td>
<td>133 bu (4700 l)</td>
</tr>
<tr>
<td><strong>- Tank 4</strong></td>
<td>284 bu (10008 l)</td>
<td>284 bu (10008 l)</td>
<td>284 bu (10008 l)</td>
</tr>
<tr>
<td><strong>- Total</strong></td>
<td>549 bu (19347 l)</td>
<td>682 bu (24047 l)</td>
<td>815 bu (28747 l)</td>
</tr>
<tr>
<td><strong>Tank Screens</strong></td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Fan Impeller Diameter</strong></td>
<td>17” (43 cm) - Up to 5,000 r.p.m.</td>
<td>16cc</td>
<td>21 U.S. gal./min. (80 l/min) at 2,750 p.s.i. (18,960 kpa) VRT requires an additional 6 U.S. gal/min (23 l/min)</td>
</tr>
<tr>
<td><strong>Hydraulic Drive - piston type orbit motor</strong></td>
<td><strong>Hydraulic requirements for Air Cart only at Rated Fan Speed.</strong></td>
<td>16cc</td>
<td>21 U.S. gal./min. (80 l/min) at 2,750 p.s.i. (18,960 kpa) VRT requires an additional 6 U.S. gal/min (23 l/min)</td>
</tr>
<tr>
<td><strong>Loading Auger</strong></td>
<td>Standard (10” Dia) (25.4 cm Dia)</td>
<td>Optional - extended hopper on hydraulic assisted auger</td>
<td>Optional (16”) (40.6 cm)</td>
</tr>
<tr>
<td><strong>Loading Conveyor</strong></td>
<td>Optional (16”) (40.6 cm)</td>
<td>Optional (16”) (40.6 cm)</td>
<td>Optional (16”) (40.6 cm)</td>
</tr>
<tr>
<td><strong>Brakes - Rear</strong></td>
<td><strong>Standard - 22” (55.9 cm) Diameter Disc - 4 piston caliper</strong></td>
<td><strong>Standard - 22” (55.9 cm) Diameter Disc - 4 piston caliper</strong></td>
<td><strong>Standard - 22” (55.9 cm) Diameter Disc - 4 piston caliper</strong></td>
</tr>
<tr>
<td><strong>Tires</strong></td>
<td><strong>Standard (Rear)</strong></td>
<td>800/70R38 - LI 172 Lug</td>
<td>Distance Center-Center Inner 154” (391.2 cm)</td>
</tr>
<tr>
<td><strong>- Optional (Rear)</strong></td>
<td>Distance Center-Center Outer 234” (594.4 cm)</td>
<td>Distance Center-Center Inner 154” (391.2 cm)</td>
<td>Distance Center-Center Outer 234” (594.4 cm)</td>
</tr>
<tr>
<td><strong>Metering</strong></td>
<td>Standard</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td><strong>- Variable Rate (VRT)</strong></td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td><strong>- GPS Compatible VRT</strong></td>
<td>Optional with VRT</td>
<td>Optional with VRT</td>
<td>Optional with VRT</td>
</tr>
<tr>
<td><strong>- ICT (Input Control Technology)</strong></td>
<td>Optional with VRT</td>
<td>Optional with VRT</td>
<td>Optional with VRT</td>
</tr>
<tr>
<td><strong>Meter Shut Off</strong></td>
<td>Electric</td>
<td>Electric</td>
<td>Electric</td>
</tr>
<tr>
<td><strong>Number Secondary Runs - Single Shoot</strong></td>
<td>21 to 110 (ICT 21-100)</td>
<td>21 to 110 (ICT 21-100)</td>
<td>21 to 110 (ICT 21-100)</td>
</tr>
<tr>
<td><strong>Number Secondary Runs - Double Shoot</strong></td>
<td>42 to 220 (ICT 42-200)</td>
<td>42 to 220 (ICT 42-200)</td>
<td>42 to 220 (ICT 42-200)</td>
</tr>
<tr>
<td><strong>Primary Hose - Diameter</strong></td>
<td>2 1/2” (6.4 cm)</td>
<td>2 1/2” (6.4 cm)</td>
<td>2 1/2” (6.4 cm)</td>
</tr>
<tr>
<td><strong>Secondary Hose - Diameter</strong></td>
<td>Standard - 15/16” (2.4 cm)</td>
<td>Standard - 15/16” (2.4 cm)</td>
<td>Standard - 15/16” (2.4 cm)</td>
</tr>
<tr>
<td><strong>Frame - Trussed</strong></td>
<td>4” x 10” (10 cm x 25.4 cm) tubing by 4” x 4” (10 cm x 10 cm) tubing</td>
<td>4” x 10” (10 cm x 25.4 cm) tubing by 4” x 4” (10 cm x 10 cm) tubing</td>
<td>4” x 10” (10 cm x 25.4 cm) tubing by 4” x 4” (10 cm x 10 cm) tubing</td>
</tr>
<tr>
<td><strong>Easy Clean Out System</strong></td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td><strong>Meter Drive Options</strong></td>
<td><strong>Standard</strong></td>
<td><strong>Standard</strong></td>
<td><strong>Standard</strong></td>
</tr>
<tr>
<td><strong>- Second Clutch (For spot fertilizing on the go)</strong></td>
<td><strong>Standard</strong></td>
<td><strong>Optional Seed Flow</strong></td>
<td><strong>Standard</strong></td>
</tr>
<tr>
<td><strong>Monitor</strong></td>
<td><strong>Standard</strong></td>
<td><strong>Optional Seed Flow</strong></td>
<td><strong>Optional Seed Flow</strong></td>
</tr>
<tr>
<td><strong>(Shaft Motion (3), Bin Level (3), Fan Speed, Acre Tally, Ground Speed)</strong></td>
<td><strong>Standard</strong></td>
<td><strong>Optional Seed Flow</strong></td>
<td><strong>Optional Seed Flow</strong></td>
</tr>
<tr>
<td><strong>Work Switch (Mounted to Seeding Machine)</strong></td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td><strong>Rear Tow Hitch</strong></td>
<td>Standard (Max 26,000 lb Draft Load)</td>
<td>Standard (Max 26,000 lb Draft Load)</td>
<td>Standard (Max 26,000 lb Draft Load)</td>
</tr>
<tr>
<td><strong>Mechanical Acre Meter</strong></td>
<td>Optional (Ground Drive Only)</td>
<td>Optional (Ground Drive Only)</td>
<td>Optional (Ground Drive Only)</td>
</tr>
</tbody>
</table>
## Specifications

### Model: 91000 - Tow Behind

<table>
<thead>
<tr>
<th>Specifications and Options</th>
<th>91000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td><strong>Configuration</strong></td>
</tr>
<tr>
<td></td>
<td>Tow Behind</td>
</tr>
<tr>
<td>Length (Hitch pin to Dual Fan)</td>
<td>43’ 6” (13.28 m)</td>
</tr>
<tr>
<td>(Hitch Removed)</td>
<td>34’ 6” (10.52 m)</td>
</tr>
<tr>
<td>Height - Rails up</td>
<td>16’ 6” (5.03 m)</td>
</tr>
<tr>
<td>Height - Rails Lowered</td>
<td>15’ 6” (4.73 m)</td>
</tr>
<tr>
<td>Width - Dual Axle - 800/70R38</td>
<td>22’ 4” (6.81 m)</td>
</tr>
<tr>
<td>- Dual Axle - 850/80R38</td>
<td></td>
</tr>
<tr>
<td>Weight (Hydraulic Drive)</td>
<td>31240 lbs (14170 kg)</td>
</tr>
<tr>
<td>Safety Lights</td>
<td>Standard</td>
</tr>
<tr>
<td>Safety Chain</td>
<td>Standard</td>
</tr>
<tr>
<td>Tank Capacity - Tank 1</td>
<td>331 bu (11664 l)</td>
</tr>
<tr>
<td>- Tank 2</td>
<td>162 bu (5709 l)</td>
</tr>
<tr>
<td>- Tank 3</td>
<td>162 bu (5709 l)</td>
</tr>
<tr>
<td>- Tank 4</td>
<td>349 bu (12298 l)</td>
</tr>
<tr>
<td>- Total</td>
<td>1004 bu (35380 l)</td>
</tr>
<tr>
<td>Tank Screens</td>
<td>Standard</td>
</tr>
<tr>
<td>Fan Impeller Diameter</td>
<td>17” (43 cm) - Up to 5,000 r.p.m.</td>
</tr>
<tr>
<td>Hydraulic Drive - piston type orbit motor</td>
<td>16cc</td>
</tr>
<tr>
<td>(Closed Centre or Closed Centre Load Sensing systems required)</td>
<td>21 U.S. gal./min. (.80 l/min) at 2,750 p.s.i. (18,960 kpa)</td>
</tr>
<tr>
<td>Hydraulic requirements for Air Cart only at Rated Fan Speed.</td>
<td>VRT requires an additional 6 U.S. gal/min (23 l/min)</td>
</tr>
<tr>
<td>Loading Auger</td>
<td>Standard (12” Dia) (30.5 cm Dia)</td>
</tr>
<tr>
<td>Optional - extended hopper on hydraulic assisted auger</td>
<td></td>
</tr>
<tr>
<td>Loading Conveyor</td>
<td>Optional (16”) (40.6 cm) x 25 ft long</td>
</tr>
<tr>
<td>Tires - Standard Quad Steer (Front) (Tow Behind only)</td>
<td>(2) 800/65R32 - LI 172 Lug</td>
</tr>
<tr>
<td>Distance Center-Center Inner 155” (393 cm)</td>
<td></td>
</tr>
<tr>
<td>Optional Quad Steer (Front) (Tow Behind only)</td>
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<td>Distance Center-Center Inner 155” (393 cm)</td>
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<td>Duals - (4) 800/70R38 - LI 172 Lug</td>
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<td>Optional - 1 1/8” (2.8 cm)</td>
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<td>Standard</td>
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<td>Meter Drive Options - Second Clutch (For spot fertilizing on the go)</td>
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<tr>
<td>Monitor (Shaft Motion (3), Bin Level (3), Fan Speed, Acre Tally, Ground Speed)</td>
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<td>Optional Seed Flow</td>
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</tr>
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<tr>
<td>(Max 26,000 lb Draft Load)</td>
<td>(Max 11,818 kg Draft Load)</td>
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</table>
Section 3:
Checklist

Section Contents
Manuals...........................................................................................................................................3-2
Parts Manual....................................................................................................................................3-2
Assembly Manual..........................................................................................................................3-2
Checklist........................................................................................................................................3-3
SAFETY-ALERT SYMBOL

Watch for this symbol. It identifies potential hazards to health or personal safety. It points out safety precautions. It means:

ATTENTION - BE ALERT.
Your safety is involved.

Manuals

Note: Pre-Delivery Inspection Form must be completed and submitted to Morris Industries within 30 days of delivery date.

Warranty Void if Not Registered

Parts Manual  Order Part Number N53349
Assembly Manual Order Part Number N56601
Checklist

Please read the Operator’s Manual carefully and become a “SAFE” operator.

Adopt a good lubrication and maintenance program.

---

General

- Check if assembled correctly.
- Proper chain tension.
- Check hose connections.
  Ensure cleanout door and tank lid are connected correctly.

Lubrication - Grease

- Metering Drive
- Axle Pivots
- Auger Pivots

Lubrication - Oil

- Drive chains

Tire Pressure

- See Maintenance, Section 7.

Transport

- Lock-up pins must be in place.
- Tighten wheel bolts.
- Check hose connections.

---

OWNER REFERENCE

Model: ____________________________
Serial No: _________________________
Dealer: ___________________________
Town: ____________________________ State: _______
Phone: ____________________________
OWNER/OPERATOR _______________________
Date: ______________________________

TAKE SAFETY SERIOUSLY.
DO NOT TAKE NEEDLESS CHANCES!!
Section 4: Introduction

Section Contents
Introduction................................................................. 4-2
Standard Features.......................................................... 4-3
  Hydraulic Auger......................................................... 4-3
  Full Bin Indicator....................................................... 4-4
Options ........................................................................ 4-4
  Hydraulic Conveyor.................................................... 4-4
  Digi-Star Weigh Scale............................................... 4-4
  Dual Fan.................................................................. 4-5
This Operator’s Manual has been carefully prepared to provide the necessary information regarding the operation and adjustments, so that you may obtain maximum service and satisfaction from your new MORRIS 9 Series Air Cart.

To protect your investment, study your manual before starting or operating in the field. Learn how to operate and service your 9 Series Air Cart correctly, failure to do so could result in personal injury or equipment damage.

If you should find that you require information not covered in this manual, contact your local MORRIS Dealer. The Dealer will be glad to answer any questions that may arise regarding the operation of your MORRIS 9 Series Air Cart.

MORRIS Dealers are kept informed on the best methods of servicing and are equipped to provide prompt efficient service if needed.

Occasionally, your 9 Series Air Cart may require replacement parts. Your Dealer will be able to supply you with the necessary replacement parts required. If the Dealer does not have the necessary part, the MORRIS Factory will supply the Dealer with it promptly.

Your MORRIS 9 Series Air Cart is designed to give satisfaction even under difficult conditions. A small amount of time and effort spent in protecting it against rust, wear and replacing worn parts will increase the life and trade-in value.

Keep this book handy for ready reference at all times. It is the policy of Morris Industries Ltd. to improve its products whenever it is possible to do so. The Company reserves the right to make changes or add improvements at any time without incurring any obligation to make such changes on machines sold previously.
Introduction - Continued

The MORRIS 9 Series Air Cart represents the latest in Air Cart design technology. Each cart incorporates a four wheel, wide-stance high clearance frame. The high clearance frame gives easy access to the metering wheels and the easiest cleanout in the industry. The tank lids are easily accessed by the convenient stairs and tank walkway.

Each tank has its own metering system and metering drive. Included with the unit is a sample collector box that an operator can use to confirm seeding rates.

The metering system incorporates spiral fluted wheels. The size of the metering wheel is matched to the number of outlets on the flat fan divider giving the best in accuracy. The spiral fluted metering wheels combined with the multi-range transmission allows a full range of products such as canola and peas to be seeded without having to change the metering wheels.

The VRT system enables the operator the ability to increase or decrease application rates from the tractor seat by pressing a button. Application rates can be changed on the go in pre-set increments from the operator set application rate. This gives the producer the ability to match application rates to varying soil requirements. With the addition of GPS prescription maps and Auto-Steer can be incorporated.

Standard Features

Hydraulic Auger

The hydraulic auger is designed to make loading and unloading product from the Air Cart tank very simple and easy. Shown here with optional extended hopper.
Introduction

Standard Features - Continued

**Full Bin Indicator**

The Morris 9 Series Air Cart can be equipped with an optional full bin indicator to alert when bins are full during loading.

![Fill Indicator - Optional](image)

**Options**

**Hydraulic Conveyor**

The 16” wide conveyor is designed to make loading and unloading product from the Air Cart tank very simple and easy.

![Hydraulic Conveyor](image)

**Digi-Star Weigh Scale**

The Morris 9 Series Air Cart can be equipped with an optional Digi-Star Weigh Scale to track product usage.

![Digi-Star Weigh Scale](image)
Dual Fan

The dual fan system allows for higher application rates on larger five frame seed units.
Introduction
Section Contents

Application ........................................................................................................................ 5-4
Tractor ............................................................................................................................ 5-4
Monitor Installation ...................................................................................................... 5-5
  Monitor Harness ........................................................................................................ 5-6
Hitching to Tractor (Seeding Tool or Tow Between Cart) ............................................... 5-7
  Tractor Drawbar Requirements ............................................................................... 5-7
  9365 and 9450 - Tow Between ................................................................................. 5-8
  9445, 9550 and 9650 - Tow Between ......................................................................... 5-9
  9555, 9680 and 9800 - Tow Between ......................................................................... 5-9
Hitching to Seeding Tool (Tow Between Cart) ............................................................. 5-10
Hitching Front Castor (Tow Behind Cart) ................................................................... 5-10
Hitching to Seeding Tool (Tow Behind Cart) .............................................................. 5-11
  Hydraulic Connections ............................................................................................ 5-13
Unhitching from Seeding Tool (Tow Between Cart) .................................................... 5-14
Unhitching from Tractor (Seeding Tool or Tow Between Cart) .................................. 5-14
  9365 and 9450 - Tow Between ................................................................................. 5-14
  9445, 9550 and 9650 - Tow Between ......................................................................... 5-15
  9555, 9680 and 9800 - Tow Between ......................................................................... 5-15
Unhitching from Seeding Tool (Tow Behind Cart) ....................................................... 5-16
Quad Steer Operation .................................................................................................. 5-17
Brakes ......................................................................................................................... 5-18
  In-Cab Brake Controller ......................................................................................... 5-18
Operation ..................................................................................................................... 5-19
  Installation ................................................................................................................ 5-20
Transport ..................................................................................................................... 5-22
  Speed ......................................................................................................................... 5-22
  Lights ......................................................................................................................... 5-22
  Tow Hitch (Tow Behind Units) ................................................................................ 5-22

Section 5:
Operation

Topcon Calibration

Touch the Cal. 1 button.
This screen should appear.
Check the Gear Ratio is what you have selected on the seeder. 2 is Direct Drive and 16 is slow speed. This can be changed by touching the calculator.
Once you have your tub under the metering unit hit the On/Off Button.
The Revs will start counting up as this turns on the metering unit. The Check lbs will also start counting up.
Once you have product in the tank you can do a calibration on the tank.
Once you have metered out enough product press the On/Off button to stop the metering unit. Weigh the product and enter the weight into the Enter Weight calculator.
Note: Entered weight is different to check weight
Hit Enter.
This screen should appear.
This will show you the Old and New Calibration Factor.
The Percentage difference between the 2 cal factors.
And the Sample weight at which the calibration was done.
Repeat Process several times till you are happy with the calibration readouts.
You then have the following choices:
1. Reject the calibration and the old factor will be used
2. Accept the new calibration factor and it will be saved for that tank but will not be saved to the file for that product.
3. Accept and Save to File will save the calibration setting to file for that product.
Repeat this process for all Tanks.

Transport

Speed

Lights

Tow Hitch (Tow Behind Units)
Section Contents - Continued

Preparring VR System .................................................................................................................. 5-23
   Hydraulic Motor Solenoid ........................................................................................................ 5-23
   Verify VR Hydraulic Assembly ............................................................................................ 5-23
   Hydraulic Diagram ............................................................................................................... 5-24

Metering System ........................................................................................................... 5-25
   Secondary Hose Installation ................................................................................................. 5-26
   Seed Plate Setting ............................................................................................................... 5-27
   Seed Plate Adjustment ........................................................................................................ 5-28

Bin Level Adjustment ........................................................................................................ 5-29

Full Bin Indicator .................................................................................................................. 5-29

Digi-Star Weigh Scale ........................................................................................................... 5-30

Hydraulic Assist Conveyor/Auger ...................................................................................... 5-31
   Remote Controller Operation ............................................................................................. 5-31

Auger .................................................................................................................................... 5-32
   Manual Arms ...................................................................................................................... 5-32
   Hydraulic Assisted Arms ................................................................................................... 5-33
   Extension Hopper ............................................................................................................. 5-34

Conveyor ................................................................................................................................ 5-35
   Hydraulic Assisted Arms ...................................................................................................... 5-35
   Conveyor Storage Position ................................................................................................. 5-36
   Conveyor Belt Speed ........................................................................................................ 5-36
   Operation .......................................................................................................................... 5-37
   Startup and Break-In .......................................................................................................... 5-37
   Conveyor Adjustments and Maintenance ........................................................................... 5-38
   Cleaning/Inspeacting the Conveyor - 8 hours or Daily ....................................................... 5-39
   Conveyor Belt/Tail End Care .............................................................................................. 5-39

Semi Trailer Filling Positions ............................................................................................... 5-40

Semi Trailer Dump Positions ............................................................................................... 5-53

Filling Tank ........................................................................................................................... 5-57

Unloading Tanks .................................................................................................................. 5-61

Rate Calibration .................................................................................................................. 5-63

Metering Rate Adjustment ................................................................................................... 5-66

Seeding Fine Seeds (Canola, Mustard, etc.) ........................................................................ 5-66

Applying Inoculant ............................................................................................................. 5-66

Hydraulic Fan Drive .............................................................................................................. 5-67

Fan Speed Recommendations ............................................................................................... 5-68

Plenum Settings .................................................................................................................. 5-71

Double Shoot Settings .......................................................................................................... 5-72
   Collector Valve Settings ..................................................................................................... 5-72
   Flapper Valve Run Test .................................................................................................... 5-72

Operating Guidelines ......................................................................................................... 5-73

Check Tire Pressures ........................................................................................................... 5-73

Level Seeding Tool .............................................................................................................. 5-73

Worn Seeding Tool Parts .................................................................................................... 5-73

Packing ................................................................................................................................ 5-73

Turning .................................................................................................................................. 5-74

Seed Rate Settings ............................................................................................................... 5-74

Fertilizer Application ............................................................................................................ 5-74

Fan Setting ............................................................................................................................ 5-74

Product Application ............................................................................................................. 5-74

Adjustments and Operational Checks .................................................................................. 5-75

Checking Seed Flow ............................................................................................................. 5-75
Section Contents - Continued

Moisture Alert ........................................................................................................... 5-75
Air Leaks .................................................................................................................. 5-75
Tank Low in Product ................................................................................................. 5-75
Monitor ...................................................................................................................... 5-76
General Field Operation ............................................................................................ 5-76
Operation

Application
The Morris 9 Series Air Cart applies a wide range of seed and granular fertilizer products. It has the capacity to single shoot and double shoot. See “Double” for more details.

Tractor

Tires
- Proper ballast and tire pressure are required when pulling heavy implements.
- Consult your tractor operator’s manual and follow all recommended procedures.

Hydraulics
- Wipe all hydraulic fittings and couplers with a clean cloth to avoid contaminating the system.
- Check that hydraulic reservoir is filled to the proper level.

Drawbar
- Centre and pin in a fixed position for easier hitching and greater stability.

Safety First
Refer to Section 1 and review all safety recommendations.
Monitor Installation

**X35 Monitor**

1. Install **1019154-01 Power/Comms Harness** on tractor. Plug directly into the Tractor’s power bar with AGA5246 Power Cable. If Tractor does not have power bar and requires direct connection to battery use optional 1006970-01 Power Cable.

**Important:** Battery leads from the Harness must be connected directly to the battery. Do not connect directly to starter switch.


3. Connect **1019154-01 Power/Comms Harness** to X35.

4. Refer to Monitor manuals for more details:
   - For X30 monitor manual N55777 and X30 ICT manual N55799.


**Important**

Ensure harness extensions, when routed over the seeding tool and air cart, are clear of moving parts and protruding objects that may cut wires.
Monitor Installation - Continued

Monitor Harness

TOW BEHIND
X35 Apollo - 2019

Pressure Transducer
K62977

Tractor

Front Trunk Harness
N67030
1020151-01

Work Switch Harness
N60323 / 1015894-01

Harness
1024229-01
N64670

Rear Trunk Harness
N67031
1004998-01

Plug into
FAN 2 PRES / IMP. PRES.

CM-40

Bin 1
Bin 2
Bin 3
Bin 4

TOW BETWEEN
X35 Apollo - 2019

Front Trunk Harness
N67030
1020151-01

Tractor

CM-40

Plug into
FAN 2 PRES / IMP. PRES.

Harness
1024229-01
N64670

Pressure Transducer
K62977

Harness
AGA4468
N59010

Work Switch Harness - N60323
1015894-01
**Caution**

A safety chain will help control towed machines should it accidentally separate from the drawbar while transporting. A runaway machine could cause severe injury or death. Use a safety chain with a strength rating equal to or greater than the gross weight of the towed machines.

Attach safety chain to the tractor drawbar support or other specified anchor location with the appropriate parts.

---

**Hitching to Tractor (Seeding Tool or Tow Between Cart)**

**Tractor Drawbar Requirements**

Tractor drawbar vertical load requirements for loaded Tow Between Air Carts are as follows:

- 9365 .................. 8,500 lbs (3,864 kg) minimum
- 9450 .................. 11,000 lbs (5,000 kg) minimum
- 9445, 9550 & 9650 ... 8,900 lbs (4,050 kg) minimum
- 9555, 9680 & 9800 ... 12,000 lbs (5,443 kg) minimum
Hitching to Tractor (Tow Between Cart) - Continued

9365 and 9450 - Tow Between

- Ensure swinging drawbar is locked in the centre position.
- Ensure hitch pin is in good condition.
- Level clevis with tractor drawbar using hitch jack.
- Back tractor into position and attach hitch clevis to drawbar, using an adequate hitch pin.
- Lock hitch pin in place with a hairpin or other proper locking device.
- After tractor to implement connection is made, relieve pressure off the hitch jack.
- Place hitch jack in raised position.
- Route Safety Chain through chain support and drawbar support.
- Lock safety hook onto chain.

**Note:** Provide only enough slack in chain to permit turning.

- Ensure hydraulic hose quick couplers are dirt free.
- Inspect all fittings and hoses for leaks and kinks. Repair as necessary
- Connect the hydraulic hoses to the tractor quick couplers.

⚠️ **Caution**

Dirt in the hydraulic system could damage O-rings, causing leakage, pressure loss and total system failure.

**Important**

Raise Stairs before moving Cart.

Stair damage will occur in lowered position.
Hitching to Tractor (Tow Between Cart) - Continued

9445, 9550 and 9650 - Tow Between
9555, 9680 and 9800 - Tow Between

(Optional for 9365 and 9450)

- Ensure swinging drawbar is locked in the centre position.
- Ensure hitch pin is in good condition.
- Back tractor into position with drawbar a couple of feet in front of cart hitch clevis.
- Ensure hydraulic hose quick couplers are dirt free.
- Inspect all fittings and hoses for leaks and kinks. Repair as necessary
- Connect the hydraulic hoses to the tractor quick couplers.
- Unlock hydraulic hitch jack line lock valve.
- Operate tractor hydraulics to extend hydraulic hitch jack.
- Disengage hydraulic hitch jack lock.
- Operate tractor hydraulics to level clevis with tractor drawbar using hydraulic hitch jack.
- Back tractor into position and attach hitch clevis to drawbar, using an adequate hitch pin.
- Lock hitch pin in place with a hairpin or other proper locking device.
- After tractor to cart connection is made, raise hydraulic hitch jack fully.
- Lock hydraulic hitch jack line lock valve.
- Route Safety Chain through chain support and drawbar support.
- Lock safety hook onto chain.

**Note:** Provide only enough slack in chain to permit turning.

**Caution**

Dirt in the hydraulic system could damage O-rings, causing leakage, pressure loss and total system failure.
Operation

Hitching to Seeding Tool (Tow Between Cart)

- Connect air cart to tractor.
- Back air cart into position, aligning seeding tool hitch with air cart.
- Attach hitch to air cart with 1 1/2” x 6 1/2” pin and retain with a 1/4” hair pin.
- Attach safety chain to air cart.

Note: Provide only enough slack in chain to permit turning.

- Connect hydraulic hose quick couplers.
- Connect the primary hose couplers.
- Loop retaining chain around the primary hoses with the secondary hose over the bottom half of the chain.

Hitching Front Castor (Tow Behind Cart)

- Assemble hitch components to the front castor axle as shown in the accompanying diagram. Item (7) is 1 1/2” x 5 1/8” lg pin. Item (8) is 1 1/2” x 6 7/16” lg pin and Item (9) is 1 1/2” x 8 3/8” lg pin.

Note: Pin item (9) holding item (4) cannot be installed or removed with the wheel assembly mounted.

- Assemble safety chain to item (1) using 1” Unitorque nut and 1 1/16” ID flatwasher.
**Hitching to Seeding Tool (Tow Behind Cart)**

- Connect seeding tool to tractor.
- Attach hitch to air cart with 1 1/4” x 5” pin.
- Back seeding tool into position with air cart.
- Extend the telescopic hitch arms and connect the air cart to seeding tool using 1 1/8” x 3 11/16” pins.
- Block the tires of the air cart and insert the 1” x 5 13/32” pins into their bushings.
- Slowly back seeding tool toward air cart until the telescopic arms are fully retracted and the pins drop through the hitch tube locking the hitch poles.
- Retain the pins with click pins.
- Attach safety chain to air cart.

**Note:** Provide only enough slack in chain to permit turning.

---

**PIN SIZE**

<table>
<thead>
<tr>
<th>PIN</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1 1/8” x 3 11/16”</td>
</tr>
<tr>
<td>B</td>
<td>1 1/2” x 5 5/8”</td>
</tr>
<tr>
<td>C</td>
<td>1” x 5 13/32”</td>
</tr>
<tr>
<td>D</td>
<td>1” x 3 3/4”</td>
</tr>
</tbody>
</table>

---

**ROUTE CHAIN THROUGH LUG ON EACH HITCH POLE**
Hitching to Seeding Tool (Tow Behind Cart) - Continued

- Route monitor wires and hydraulic lines through rear retaining chain with the secondary hose over the bottom half of the chain.
- Route monitor wires through the loops on the left hand hitch pole.
- Route the hydraulic lines (if any) through the loops on the left hand hitch pole.
- Connect the primary hose couplers.
- Loop retaining chain around the primary hoses with the secondary hose over the bottom half of the chain.
- Connect the monitor quick connectors at both the tractor/seeding tool and the seeding tool/air cart connections.

Important
Extreme care is required when backing up unit.
Hitch damage will occur if castor jackknifes.

Important
Raise Stairs before moving Cart.
Stair damage will occur in lowered position.
Hydraulic Connections

- Connect the monitor quick connectors at both the tractor/seeding tool and the seeding tool/air cart connections.

- **Hydraulic fan drive**, connect the fan hydraulic quick couplers at both the tractor/seeding tool and the seeding tool/air cart connections. Ensure couplers are clean and dirt free.

---

**CAUTION**

Hydraulic oil under pressure can penetrate the skin causing serious injury. Avoid personal injury by relieving all pressure, before disconnecting hydraulic hoses.

---

**Note:** The case drain 3/8” diameter hose must be run directly into the hydraulic tank otherwise damage will occur to the seal in the motor. If the hose is run through the filler cap then ensure the cap is **VENTED**. A quick coupler can still be used between the tractor and the seeding tool.
Unhitching from Seeding Tool (Tow Between Cart)

- Lower hitch jack taking the weight off the seeding tool hitch poles.
- Relieve pressure in the hydraulic hoses by positioning tractor hydraulic lever in “float” position or turn tractor engine off and cycle lever back and forth several times.
- Disconnect the primary hose couplers.
- Disconnect the hydraulic hoses.
- Remove the hitch pin.
- Slowly move air cart away from seeding tool.

Unhitching from Tractor (Seeding Tool or Tow Between Cart)

9365 and 9450 - Tow Between

- Pin hitch jack in working position.
- Lower hitch jack taking the weight off the air cart clevis.

Note: For added safety it is recommended to unload any material that may be in the tanks.

- Ensure all transport locks are properly secured. Refer to seeding tool manual for more details.
- Relieve pressure in the hydraulic hoses by positioning tractor hydraulic lever in “float” position or turn tractor engine off and cycle lever back and forth several times.
- Disconnect the hydraulic hoses.
- Disconnect the clutch and monitor cables.
- Remove the safety chain.
- Remove the drawbar pin.
- Slowly move tractor away from seeding tool or tow between cart.
Unhitching from Tractor (Seeding Tool or Tow Between Cart) - Continued

9445, 9550 and 9650 - Tow Between

9555, 9680 and 9800 - Tow Between

(Optional for 9365 and 9450)

- Unlock hydraulic hitch jack line lock valve.
- Operate tractor hydraulics to lower hydraulic hitch jack taking the weight off the air cart clevis.

**Note:** For added safety it is recommended to unload any material that may be in the tanks.

- Disconnect the clutch and monitor cables.
- Remove the safety chain and drawbar pin.
- Slowly move tractor one foot (30 cm) away from cart.
- Operate tractor hydraulics raising cart hitch to fully extend hydraulic hitch jack.
- Engage hydraulic hitch jack lock.
- Ensure all transport locks are properly secured. Refer to seeding tool manual for more details.
- Relieve pressure in the hydraulic hoses by positioning tractor hydraulic lever in “float” position or turn tractor engine off and cycle lever back and forth several times.
- Lock hydraulic hitch jack line lock valve.
- Disconnect the hydraulic hoses.
- Slowly move tractor away from seeding tool or tow between cart.
Unhitching from Seeding Tool (Tow Behind Cart)

- Lower hitch stands, if so equipped, taking the weight off the hitch poles.
- Relieve pressure in the hydraulic hoses by positioning tractor hydraulic lever in “float” position or turn tractor engine off and cycle lever back and forth several times.
- Disconnect the primary hose couplers.
- Disconnect the hydraulic hoses.
- Disconnect the clutch and monitor cables.
- Remove the hitch pins.
- Move hitch poles to the side of air cart, if not equipped with hitch stands.
- Slowly move seeding tool away from air cart.
Quad Steer Operation

- Ensure safety chains are used at hitch pole connection to seeding tool.
- Retorque axle pivot bolts after first 2 hours and periodically afterwards. See “Quad Steer” in Maintenance Section for details.
- Retorque wheel nuts to 400 ft-lbs after first fifteen minutes of operation and every fifteen minutes for the next 2 hours. Check periodically afterwards.
- Avoid sharp turns which cause the steering to reach its limits and drag the front tires of the cart.
- Do not tow any implements behind cart.
- Do not tow cart in excess of 20 mph.
- Do not transport fully loaded cart on roadways.
- Use manufacturer's rims and tires only.

Important

Extreme care is required when backing up unit.
Hitch damage will occur if axle jackknifes.
Morris is using Titan’s BrakeRite II brake actuation system located on back of frame near rear tires. The Titan BrakeRite II is an electric over Hydraulic brake system. The BrakeRite system is actuated when the brake pedal of the tractor is depressed. The Air Cart brakes can also be applied independently by applying the manual over-ride on the In-Cab Brake Controller.

**In-Cab Brake Controller**

The In-Cab Brake Control is equipped with a gain control to adjust the braking of the Cart to match operating conditions. The Controller is also equipped with a manual override button to apply the brakes on the Air Cart without applying the brakes on the tractor.

**Toggle Switch Functions**

- Switch Up (Towards the Operator) brake signal in is turned OFF (RED light flashes). Towing brake signal is used elsewhere. Control will operate in the manual mode only (PUSH button).
- Switch Down (Away from Operator) control responds normally to external brake signal.

**Turn Power ON**

GREEN LED is ON, indicates control is powered up.

RED LED Light Bar turns on for 3/5 seconds and displays last gain setting. Also, power out to brakes is on for this period.

**Set Gain**

Press the + symbol to increase braking if inadequate Cart braking is being experienced.

Press the - symbol to decrease braking if excessive Cart braking is being experienced.

**Note:** These Buttons must be pressed repeatedly to change setting. Holding the buttons pressed only moves 1 step. Gain settings can be changed only when there is no external brake signal present.

**Manual Operation**

Press “PUSH” button with variable force to apply brakes manually. This button is pressure sensitive.

**Higher Pressure on button = Higher brake pressure**

GREEN LED is ON when 12v power is in control.

RED LED flashes when brake switch is in the OFF position.

RED 10 positions LED Bar displays gain and level of braking.
Operation

Before using the Air Cart always check:

1) Proper Brake Fluid Level:
   Must be between 3/8 & 3/4 inch of filler opening.

2) Prior to Moving the Coupled Unit:
   a. Verify the brake system is working properly.
      To assure proper connections have been made, check In-Cab Controller green LED should light when switch is in ON position. Before moving the Cart depress the Tractor brake pedal, the BrakeRite unit should start (you can hear the unit running). Release the Tractor brake pedal and activate the BrakeRite unit by operating the “manual override” on the In-Cab Controller, again you will hear the unit turn on. With the manual override you are able to tell by the change in tone that the system is building pressure relative to the amount of “activation” initiated on the override switch. Do Not attempt to move the unit until the brake system performs in the tests described above.

3) When Operating/Transporting the Air Cart:
   a. Do not rely on the Air Cart brakes for deceleration of the entire combined unit braking. The Air Cart Brakes are designed for braking of the Air Cart only and not the entire combined unit.
   b. Always operate the combined unit within the specified parameters outlined in the Tractor Owner Manuals and OBEY ALL LAWS.

PROPER ELECTRICAL WIRING is CRITICAL for the performance of any of these systems. Improper wiring can result in damage to the actuation system or system failure after initial use. A “pure ground” and direct power (+12 VDC) with fuse or circuit breaker (30 amp) are necessary to ensure good performance.

**Important:**

Use only DOT III brake fluid.
Maintain fluid level within 3/8 to 1/2 inch below the filler opening.
Use caution when removing the filler cap to prevent contaminants entering into the fluid reservoir.
Brakes - Continued

Operation - Continued

Getting the feel of the system and setting the In-Cab controller:

After the system responds to the tests previously described proceed with moving the unit to establish a feel for the brake system and set the desired brake response by setting the gain on the In-Cab Brake Controller.

Do Not attempt to operate this unit in traffic until totally familiarized with the “feel” and performance of the system. Every operator must be familiarized with the feel of the unit, the performance of the brake system, and the proper operation and setting selections of the In-Cab Brake Controller.

Operation:

Air Cart brakes are meant to assist the Tractor in the stopping of the combined units, they are not intended to stop the entire combined unit.

Thoroughly know the In-Cab Controllers performance and “feel” before any extensive travel is considered.

Manual override should be fully understood for safe operation. When operating on wet/slippery surfaces or going down a steep incline it is desirable to brake only with the Air Cart brakes to maintain alignment of the implements and help prevent a jack-knife condition. By maintaining adequate braking on the Cart, sway or the tendency of the Cart to “push” the Tractor is greatly reduced.

Installation
<table>
<thead>
<tr>
<th>Item</th>
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<tr>
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<td>D-4951</td>
<td>Nylon Tie Strap - 7 3/8 Lg</td>
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<td>Brass Adaptor - Brake Fitting</td>
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<td>W-471</td>
<td>Bolt - 5/16 x 1 Lg</td>
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<td>2</td>
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<tr>
<td>27</td>
<td>N53579</td>
<td>Clamp Strap - Battery</td>
<td>1</td>
</tr>
<tr>
<td>28</td>
<td>N19723</td>
<td>U-Bolt- 3/8 Dia x 4.063 x 6.938 UL</td>
<td>2</td>
</tr>
<tr>
<td>29</td>
<td>N15716</td>
<td>Seal Strip - 1/4 x 1/foot</td>
<td>3 FT</td>
</tr>
<tr>
<td>30</td>
<td>D-5488</td>
<td>Washer - .344 x .688 x 16 Gauge</td>
<td>2</td>
</tr>
<tr>
<td>31</td>
<td>D-5579</td>
<td>Washer - .406 ID x 1 OD x 16 Gauge</td>
<td>4</td>
</tr>
<tr>
<td>32</td>
<td>D-5279</td>
<td>Locknut - 3/8 Serrated</td>
<td>8</td>
</tr>
<tr>
<td>33</td>
<td>C32925</td>
<td>Locknut - 5/16 Center</td>
<td>3</td>
</tr>
<tr>
<td>34</td>
<td>W-475</td>
<td>Bolt - 3/8 x 1 Lg</td>
<td>4</td>
</tr>
</tbody>
</table>

N52683 Brake Hose Kit - (Contains Items 5, 6, 11, 13, 14 &15)
N53391 Brakerite SD Kit - (Contains Items 9 & 10)
Transport

Observe all of the safety precautions under transport heading in Safety, Section 1.

- Refer to Specifications, Section 2, for weight, transport height, and width.
- Transport with tractor only!
- Use Tow Hitch when transporting without seeding tool (Tow Behind Units).
- Always connect safety chain provided to the towing vehicle and the hitch of the air cart.
- Do not transport with the fan running.
- Ensure all transport pins are secured.

Speed

- Always travel at a safe speed. Do Not Exceed 20 mph (32 kph) with an empty air cart.
- The combined weight of the implements being towed, including material in tank, must not exceed 1.5 times the weight of the towing tractor.
- Use additional caution when towing loads under adverse surface conditions, when turning, and on inclines.

Lights

- Ensure proper reflectors are in place, refer to Safety, Section 1.
- Be familiar with, and adhere to, local laws.

Tow Hitch (Tow Behind Units)

- Disconnect main hitch and remove the two pins connecting the hitch tube to the yard hitch tube.
- Attach hitch clevis to the yard hitch tube with two 1 1/2" x 5 1/8" and 1 1/2" x 6 7/16" pins.
- Retain the pins with klik-pins.
- Use tow hitch when towing without seeding tool.
- Do not use transport hitch with material in tank.

Important

Raise Stairs before moving Cart.
Stair damage will occur in lowered position.

MORRIS INDUSTRIES LTD. WILL NOT BE RESPONSIBLE FOR ANY DAMAGES OR OPERATOR INJURY RESULTING FROM NON-USE OR IMPROPER USE OF TRANSPORT LOCKS.
Preparing VR System

Hydraulic Motor Solenoid

The proportional valves are factory set with the valve adjusted all the way out. No further adjustment of the valve is required.

Verify VR Hydraulic Assembly

VR system should be run to confirm correct rotation of meter shafts.

The Rotation of the Meter Wheels should be the same as the forward travel of the Air Cart tires.

The diagram illustrates the correct rotation of the ICT meter body viewed from the right side of Cart.

Note: The pressure line from the tractor is the P1 port of the valve body.

The Hydraulic Diagrams on next page illustrates the correct hose orientations for the VR valve bodies.
Preparation VRT - Continued

Hydraulic Diagram
**Metering System**

The 9 Series Air Cart uses a combination of metering wheels and spacers shown below. The metering wheel is individually sized to correspond to the number of outlets at the connected secondary head and the spacers make up the space between the wheel and the body. Some openings may be blanked off depending on the number of secondary divider heads used on the seeding tool.

The 9 Series Air Cart can meter all types of seeds and fertilizers by simply installing the correct seed plate. See “Seed Plate Settings” for more details.

Different rates are easily obtained using the selection of quick change sprockets that attach to either of the two meter transmissions.

---

**Note:** Before putting product into the tanks check the following:

1. The correct Seed Plates are installed for the product being applied.
2. The clean-out doors are fully closed and sealed.
3. The plastic bag covering the fan is removed.

---

**Important**

Ensure distribution system is balanced. It is very important that head outlets only vary by one. (i.e. use only 7 and 8 together, 8 and 9 together, 9 and 10 together)

---

**Note:** The number of outlets on the divider head must match the metering wheel size.

---

**Diagram of Metering Wheels and Spacers:**

- **10 Outlet Head**
- **9 Outlet Head**
- **8 Outlet Head**
- **7 Outlet Head**

- **10 Outlet Metering Wheel with no spacer.**
- **9 Outlet Metering Wheel with a single spacer.**
- **8 Outlet Metering Wheel with two single spacers.**
- **7 Outlet Metering Wheel with a single and one double spacer.**
Secondary Hose Installation

The lengths of the 15/16" (24 mm) diameter hoses are very important.

For accurate distribution the secondary hoses have to be arranged by length symmetrically around the centre line.

The longest hoses have to be in the centre of the divider head. These hoses would normally feed the openers furthest away from the head.

- Ensure that the secondary hoses 15/16" (24 mm) diameter do not run higher than 3" (76 mm) above the height of the flat fan divider head.
- Allow an extra 3" (76 mm) of hose before cutting secondary hose for fitting in the seed boot.
- Always ensure that the secondary hoses are sufficiently long to accommodate tripping of trips.
- Avoid sharp bends in any of the hoses.
- Check for pinch points and clearances when folding in and out of transport.

Important

Hot water is the only acceptable lubricant for the installation of the secondary hose.

The supplier advised MORRIS that WD-40 or any other lubricant (i.e. liquid detergent) will have a negative effect on the chemical stability of the hose, resulting in the degradation and failure of the hose due to Environmental Stress Cracking.

Important

Distribution uniformity will be adversely affected if hoses are incorrectly installed.
Seed Plate Setting

Each meter wheel has an adjustable seed plate. The seed plates are adjusted by a single lever adjustment on the metering body assembly.

**Important**

Do not try and close the seed plates with the product in the metering body as damage can occur from the product being squeezed between the wheels and seed plates.

<table>
<thead>
<tr>
<th>Seed Plate Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product</strong></td>
</tr>
<tr>
<td>Canola</td>
</tr>
<tr>
<td>Canary Seed</td>
</tr>
<tr>
<td>Clover/Alfalfa</td>
</tr>
<tr>
<td>Flax</td>
</tr>
<tr>
<td>Mustard</td>
</tr>
<tr>
<td>Nitragin</td>
</tr>
<tr>
<td>Edge</td>
</tr>
<tr>
<td>Fortress</td>
</tr>
<tr>
<td>Rival</td>
</tr>
<tr>
<td>Barley</td>
</tr>
<tr>
<td>Lentils</td>
</tr>
<tr>
<td>Milo</td>
</tr>
<tr>
<td>Oats</td>
</tr>
<tr>
<td>Rice</td>
</tr>
<tr>
<td>Wheat</td>
</tr>
<tr>
<td>Safflower</td>
</tr>
<tr>
<td>Nodulator</td>
</tr>
<tr>
<td>Tag Team</td>
</tr>
<tr>
<td>Fine Fertilizer (no Sulphur or Potash)</td>
</tr>
<tr>
<td>28-0-0 Fertilizer</td>
</tr>
<tr>
<td>46-0-0 Fertilizer</td>
</tr>
<tr>
<td>34-17-0 Fertilizer</td>
</tr>
<tr>
<td>20.5-0-0-24 Fertilizer</td>
</tr>
<tr>
<td>Beans</td>
</tr>
<tr>
<td>Peas</td>
</tr>
<tr>
<td>Soybeans</td>
</tr>
<tr>
<td>Sunflowers</td>
</tr>
<tr>
<td>0-0-60 Fertilizer</td>
</tr>
<tr>
<td>0-45-0 Fertilizer</td>
</tr>
<tr>
<td>10-46-0-0 Fertilizer</td>
</tr>
<tr>
<td>11-51-0 Fertilizer</td>
</tr>
<tr>
<td>Fertilizers containing Sulphur and/or Potash</td>
</tr>
</tbody>
</table>
Seed Plate Setting - Continued

- Ensure Tank Shut-Offs are closed if there is product in the tanks.

**Note:** Tank Shut-Offs are only for use when inspecting/servicing meter body with product in tank.

- Open inspection door and rotate seed plate fully open.
- Inspect Seed Plates and meter wheels to ensure they are free of debris.
- Set seed plate lever to appropriate notch per Seed Plate Usage chart.
- Close inspection door ensuring that the seals are free from debris and leaks.
- Ensure Tank Shut-Offs are opened.

---

**Important**

**Seed Plate Adjustment**

Ensure that when the adjustment handle is in the Fine position notch that the seed plates are tight up against the metering wheels spacers.

If this does not occur adjust the adjustment plate by loosening the bolts that attach the plate to the metering body and slide the plate accordingly.

This adjustment must be done without product in the tank or with the slide gates closed and the metering body cleaned out.
Bin Level Adjustment

- Adjust bin level sensor to desired alarm point.
  - Top position for large seeds, high rates of fertilizer.
  - Middle position for cereal grains.
  - Lower position for fine seeds.

Full Bin Indicator

The Morris 9 Series Air Cart is equipped with an optional fill indicator to alert when bins are full.

Sensor position in tank can be adjusted by loosening U-Bolts and moving up or down on ladder.

- On some tractor models the tractor working lights need to be on in order to have power at the auger switch box - check by turning auger lights on.
- Turn fill switch to on position during filling.
- The appropriate light will illuminate when bin is full.
- Turn off while seeding.
The Morris 9 Series Air Cart can be equipped with an optional Digi-Star Weigh Scale to track product usage. Refer to the Digi-Star manual for setting and operating the scale.

The Digi-Star system requires the following numbers listed below to get the best feedback from the system - for the load cell setups utilized.

**Calibration Number**
- All Tow Between units - 46584
- 9650 Tow Behind - 62107
- 9800 / 91000 Tow Behind units - 62111

**Setup Number**
- 9650 Tow Behind / Tow Between - 147060
- 9800 Tow Behind / Tow Between - 147080
- 91000 Tow Behind - 147090

**Note:** The last three numbers represent the maximum weight that the system is measuring. Therefore for 147060 - it is weighing a max of 60,000 lbs.

This can be changed to whatever maximum the operator wants - but as the total capacity increases sensitivity increments decrease.
Hydraulic Assist Conveyor/Auger

Remote Controller Operation

- Familiarize yourself with the remote functions.
- On initial startup of the system the remote needs to learn the transmitter signal of the solenoid by:
  1. Power up the solenoids Receiver located on Air Cart frame by turning on Tractor or unplugging and plugging in the receiver. This opens a 20 second registration window in the Receiver processor. If looking at the Receiver the Fault LED will be flashing.
  2. Immediately PRESS and HOLD the Controller’s Reset Button then within 2 seconds PRESS and HOLD the F1 Button, continue to hold BOTH BUTTONS for a MINIMUM of 5 seconds during this 20 second window. When the Transmitter is Registered the Receiver Fault LED will be illuminated for 3 seconds.

Note: Red light will flash on control box located on Cart frame when any arrow button is pressed indicating it is communicating with the remote controller.

Note: The remote will need to learn the transmitter signal each season of use and when batteries are replaced.

Operation

- Familiarize yourself with the remote functions.
- Ensure selector valve is in correct position for auger operation and engage tractor hydraulics.
- Press round green button to turn controller On.
- Press round red button to turn controller Off.
- Green arrows control inner arm.
- Blue arrows control outer arm.
- Red arrows control lift and lower.
- Store remote controller in tractor cab.

Note: The valve block has a restrictor valve to prevent excessively quick movement of the arms. If arms move rapidly hydraulic flow from tractor is reversed.
Auger

**Manual Arms**

Available only with standard hopper.

- Ensure lock pin is unlocked to allow free movement of the inner arm.
- Unlatch front cradle lock.
- Lift auger out of front cradle and pull away from cart.
- Refer to decal on frame for inner arm positions.
- Move inner arm to desired slot position by either pulling on auger or pushing on inner arm itself.
- Engage inner arm lock pin into slot for the tank to be loaded/unloaded.
- Complete auger positioning by swinging outer arm and auger into place as required.
- To place auger into storage position. Disengage lock pin, swing inner arm back to slot #1 and relock pin.
- Swing outer arm back fully toward cart.
- Lift auger until it contacts rear rest and swing front end into cradle.
- Latch front cradle lock before transporting.
Hydraulic Assisted Arms

- Ensure Fan/Auger selector valve is in correct position for auger operation and engage tractor hydraulics.

- Unlatch front cradle lock. Keep head and upper body clear of pad and cradle handle movement.

- Swing out the auger using controller to extend/retract cylinders as required. See “Remote Controller Operation” for details.

Note: The valve block has a restrictor valve to prevent excessively quick movement of the arms. If arms move rapidly hydraulic flow from tractor is reversed.

- Whether filling or dumping tanks, start by positioning inner arm then move outer arm as required. Refer to “Semi Trailer Filling Positions” for approximate auger arm positions (Conveyor shown).

- All tanks can be filled from a central hopper location. Keeping hopper anchored move both arms in small increments from one tank to the next.

Auger Storage Position

- Swing auger into storage position using remote control to extend/retract cylinders as required.

- Refer to “Semi Trailer Filling Positions” (Conveyor shown).

Note: Auger system does not have Lock/Unlock selector valve.

- Manually lock front cradle before transporting.

WARNING

OVERHEAD HAZARD

To prevent serious injury or death:
- Ensure lift cylinder is fully extended before unlatching Auger/Conveyor.
- Stay clear of cradle pad when locking and unlocking.
- Keep others away.
Extension Hopper

- Hopper flying speed is controlled by a flow control valve shown. Flow control range is from 0-2 gpm.
- Recommended initial setting is 1 gpm or # 5 on the range scale.
- With auger running, adjust flying speed as required for smooth feeding of material into main flying.

**Note:** Excessive hopper flying speed may reduce main flying speed noticeably. Keep hopper flying speed at the minimum required for proper feeding.

- Hopper is supplied with a bottom cleanout door for easy removal of material.
Conveyor

Hydraulic Assisted Arms

- Ensure Fan/Auger selector valve is in correct position for conveyor operation and engage tractor hydraulics.
- Switch conveyor valve to the “Lock/Unlock” position.
- Unlock cradle pads on the conveyor by operating red arrow buttons on remote control.
- Check to ensure both locks are fully released.
- Swing out the conveyor using controller to extend/retract cylinders as required. See “Remote Controller Operation” for details.

Note: The valve block has a restrictor valve to prevent excessively quick movement of the arms. If arms move rapidly hydraulic flow from tractor is reversed.
Conveyor - Continued

- Whether filling or dumping tanks, start by positioning inner arm as indicated then move outer arm as required. Refer to “Semi Trailer Filling Postions” for approximate arm positions.
- All tanks can be filled from a central hopper location. Keeping hopper anchored move both arms in small increments from one tank to the next.

Conveyor Storage Position

- Swing conveyor into Storage position using remote control to extend/retract cylinders as required. Refer to “Semi Trailer Filling Postions” for approximate arm positions.
- Check to ensure both locks are fully engaged before transporting.

Conveyor Belt Speed

The conveyor only requires a flow of 10-15 gpm for optimum feed rate. To ensure the belt does not exceed the maximum speed, a Flow Control Valve is incorporated into the hydraulic circuit maintaining 15 gpm of flow to the conveyor when fan speeds are greater than 3500 rpm.

The recommended conveyor belt speed range for optimum feed rate is as follows:

<table>
<thead>
<tr>
<th>Cleated Belt Speed</th>
<th>Cleated Belt - Time / Rev</th>
<th>Corresponding Fan Speed</th>
<th>Hydraulic Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum 400 FT/MIN</td>
<td>7 SEC, 8 SEC</td>
<td>2400 RPM</td>
<td>10 GPM</td>
</tr>
<tr>
<td>Maximum 600 FT/MIN</td>
<td>4.5 SEC, 5.5 SEC</td>
<td>3500 RPM</td>
<td>15 GPM</td>
</tr>
</tbody>
</table>

Note: Exceeding the recommended belt speed will reduce product capacity and increase seed damage and may cause hydraulic motor seal failure. Motor Seal Kit Number is N55718.
Conveyor - Continued

Operation

• Set Conveyor Belt Speed before operating. Refer to “Conveyor Belt Speed” for details.
• One person must be in a position to monitor the operation of the conveyor at ALL times. The operator should be alert to any unusual vibrations or noises that might indicate the need for service or repair during the initial startup and break-in period.
• For smoother startups, keep the conveyor from starting totally full. This will also ensure efficient operation.
• In cold weather, run empty conveyor for five minutes to warm up belt. Otherwise, do not operate the conveyor empty for long periods of time.
• You must “break-in” the conveyor when it is new and at the beginning of each season. Refer to “Startup and Break-In” below.
• Make sure the drive end is empty before shutting down the conveyor.

Be certain to close ALL clean-out and inspection doors in the main conveyor hopper before operating. The operator should not add power before viewing the entire work area and checking that ALL personnel are clear of the designated work area.

The operator should regulate the grain flow to the main conveyor by controlling the amount of grain fed into the hopper. Avoid plugging the main conveyor by overfeeding the hopper.

Be certain that all safety shields and devices remain in place during operation.
Ensure that hands, feet, and clothing are kept away from moving parts.

Stop the engine and lockout the power source whenever the equipment must be serviced or adjusted.

Startup and Break-In

A. Any conveyor that is new or has set idle for a season needs to go through a “break-in” period.
B. Engage the Conveyor at a slow RPM to minimize shock loads.
C. Do not allow the conveyor belt to “load up” at a low speed. If this occurs, high torque must be used to turn the belt and this can damage the conveyor.
D. Run the conveyor at partial capacity until several hundred bushels of grain have been conveyed and the belt and tube are polished.
E. Retighten belt to restore original belt tension.
F. When the belt and tube are polished and smooth, slowly work up to the recommended speed and run the conveyor at full speed.

⚠️ Warning

NEVER perform maintenance on the conveyor unless all safety shields are in place. Replace any that are damaged or lost. Do not clean, adjust, or lubricate any part of the machine.
Conveyor Adjustments and Maintenance

Belt Tension/Tracking - Inspect Daily when cleaning out seed/fertilizer

*Damage to the belt caused by improper tracking is not covered under warranty.*

Adjust tension of 2” cleated belt in conveyor tube to 23 ft-lbs torque on idler roller adjustment bolts. Adjust both sides evenly.

Adjust tension of crescent belt in hopper to 50 inch-lbs torque on idler roller adjustment bolts or until center of belt rises off the support underneath it. Adjust both sides evenly.

Check/adjust belt tracking alignment on idler rollers.

1. **Rollers must be square with the housing and parallel to each other to insure proper belt tracking.**

2. Belt Tension must be great enough to prevent slippage. Check tension of the belts before running the conveyor.

3. Run the conveyor. Check to see that the belt runs centered on the drive roller. Turn off the conveyor. Adjust drive roller to be square with the housing if necessary. **Normally, once the drive roller is tracked at the factory it rarely needs adjustment.**

4. To adjust drive roller, loosen the four nuts on the bearing holder plate, and the jam nut on the threaded adjuster. Retighten after adjusting is complete.

5. Run the conveyor for two minutes.

6. Turn the conveyor off and open the Tail End Cleanout Door to view the idler roller. Check to see that the belt is running centered on the idler roller. **There should be approximately 1/2” gap between the housing and the belt on both sides.** Rubbing on the side of the housing can cause severe damage to the belt and/or affect filling capacity.

7. If adjustment is necessary, **TIGHTEN** the roller on the side of the housing that the belt is closest to, or rubbing on. Adjust bolt in 2-3 turn increments. Run the conveyor after each adjustment to see the result.

8. Once the belt is centered, run the conveyor for at least two more minutes to insure the belt remains in position.

9. Lock adjustment bolt jam-nuts and reinstall the clean out door.

**NOTE: Adjust the tracking on the hopper crescent belt in a similar fashion.**
Conveyor - Continued

Cleaning/Inspecting the Conveyor - 8 hours or Daily

- The conveyor tail areas must be inspected and cleaned out before use each day or preferably at the end of the day. This will help prevent material residue from building up, freezing and causing belt damage and/or difficulty driving the belt.

- The conveyor drive end should be inspected and cleaned every 40 hours or weekly for the same reasons.

Conveyor Belt/Tail End Care

- It is highly recommended that both conveyor belts be washed off and the entire tail end be cleaned out at the end of the season.

- This will help prevent material residue from building up and causing rust/paint and/or belt damage.

- In order for water to drain from the lower crescent belt, position the splice on the top side by running and then stopping the conveyor when the splice appears in the hopper.

- WHEN CLEANING, INSURE ALL HARDENED OR STUCK-ON MATERIAL IS REMOVED.
Semi Trailer Filling Positions

Below is a typical filling sequence from a semi trailer. Due to variations in trailers this procedure may vary.

FILLING SEQUENCE

1. POSITION TRAILER APPROX 13-14FT FROM AIR CART FRAME RAIL (May vary)
2. CHUTE APPROX IN LINE WITH CENTER OF TANK OPENINGS
3. SET SELECTOR VALVE TO RELEASE LOCK/UNLOCK RAILS
4. OPERATE RAILS TO UNLOCK CHUTE
5. RETRACT CHUTE RAILS (May vary)

NOTE: RECOMMENDED MOVEMENT IS SHOWN ON THE TOLED ARROWS. MINIMUM ARM MOVEMENT WILL SIMPLIFY THE OPERATION. ANGLE DIMENSIONS ARE SHOWN FOR RELATIVE MOVEMENT ONLY. VALUES MAY VARY.
Semi Trailer Filling Positions - Continued

Step 2

Filling Sequence

- Switch Selector Valve
- Lift Conveyor Fully
- Clear Conveyor Pads
- Guide Conveyors From
- Hoist Conveyors Apparatus
- Parallel to Air Cart
- Lower Conveyors to the
- Ground with Lift
- Cylindrical by Moving Outer
- Frame from
- 13-14 ft
- 27°
- 65°
- 38°

Front Trailer
Front ON TANK OPENINGS
Cylinders Centred
Front Trailer
ON TANK OPENINGS
Semi Trailer Filling Positions - Continued

**FILLING SEQUENCE**

**STEP 3**

- Lift weight of conveyor just off the ground with lift cylinder.
- Manually swing conveyor under trailer and toward front chute as close as possible. (Arms remain unmoved.)

13-14 ft from frame rail.

Front trailer chute centered on tank openings.
Semi Trailer Filling Positions - Continued

FILLING SEQUENCE

STEP 4

- Move both inner and outer arms as shown and guide
  conveyor hopper to chute opening until lined up with
  required tank opening.

- Lower conveyor to the ground completely with
  lift cylinder.

BEGIN FILLING

12'-14' FT FROM FRAME RAIL

CENTEROF TANK OPENINGS

TRAILER FRONT

CHUTE CENTERED ON TANK OPENINGS

67°

62°
Semi Trailer Filling Positions - Continued

- When moving from 2nd to 3rd tank extend inner arm first then extend outer arm as required.

- Fill 3rd tank.
FILL 4TH TANK

RENEW EXTED. OUTER ARM AS
TANK EXTEND INNER ARM FIRST
WHEN MOVING FROM 3RD TO 4TH
Semi Trailer Filling Positions - Continued

FROM FRONT CHUTE

EXTRACTING CONVEYOR

AIR CART IF DESIRED
MOVE TRAILER AWAY FROM TRAILER
AND SWING CONVEYOR CLEAR
FULLY RETRACT INNER ARM
GROUND WITH LIFT CYLINDER
LIFT CONVEYOR JUST OFF THE
FRONT TRAILER
Transport Position

Step 1:
- Fully retract inner arm.
- Outer arm should be slightly extended as shown.
- Swing conveyor from parallel to air cart and cranes.
- Lift conveyor fully with lift cylinder.

13-1/4 ft (4-m) from frame rail.

Center of tank openings.

Front trailer chute centered on tank openings.

Trailers front.

38° and 65° angles.
Semi Trailer Filling Positions - Continued

STEP 2
TRANSPORT POSITION

- Guide conveyor into
- Lower arm fully as shown
- Cradle as retrofitting
- Front pad while
- GROUND IT INTO THE
- Rear Pad
- Switch selector valve
- Close locks with
- Lift/lower buttons
- On remote

9 Series ICT Air Cart   June 2018 5-49
TO REAR CHUTE MOVING FROM FRONT

STEP 1:

- Lift conveyor just off the ground with lift cylinder.
- Lift conveyor slightly as shown.
- Adjust to retract the frame from the tank openings.
- To insure clearance between conveyor frame and chute, etc.

ON TANK OPENINGS
CHUTE CENTRED
FRONT TRAILER
CENTER OF TANK OPENINGS
FRONT TRAILER
Semi Trailer Filling Positions - Continued

PREVIOUSLY SHOWN
TRANSPORT POSITION AS
OUTER ARMS AND RETURN TO
RETRACT BOTH INNER AND
SWING CONVEYOR AROUND
AIR CART
MOVE TRAILER AWAY FROM
FRAME FRONT CHUTE AND UNTIL CLEAR
FROM FRAME AND OUTER ARMS WHILE
FULLY EXTEND BOTH INNER
GROUND WITH LIFT CYLINDER
LIFT CONVEYOR JUST OFF THE
FRAME REAR CHUTE
EXTRACTING CONVEYOR
Semi Trailer Dump Positions

DUMP REAR TANK

TO DUMP REAR TANK ON TOW BETWEEN MODELS.

CONVOYOR MUST BE SWUNG AROUND BEHIND WHEELS AND IN FRONT OF LIGHT RACKET.

CONVOYOR MUST BE MOVED UNDER AIR CART BEFORE TRAILER IS POSITIONED.

13-14 FT FROM FRAME RAIL.

CENTER OF TANK OPENINGS.

TRAILER FRONT.
Semi Trailer Dump Positions - Continued

Diagram and textual annotations indicating specific positions and measurements.
Filling Tank
The Morris 9 Series Air Cart is equipped with 2, 3 or 4 tanks. Typically the front tank is for seed and the middle and rear tank is for fertilizer. However, ALL tanks can be used for the same product.

The capacity of the air cart tanks are listed in the tank capacity chart.

- Open lid fully on tank being filled.
- Check and remove any debris inside tank.
- Open inspection door.
- Rotate seed plate fully open.
- Check for debris inside metering body.
- Ensure Tank Shut-Offs work freely.

Note: Tank Shut-Offs are only for use when inspecting/servicing meter body with product in tank.

- Check that the seed plate is set to correct position for the product being applied.
- Fully close and seal the inspection door.
- Ensure the auger screen is in place.
- Always use screen to filter debris when filling.
- Adjust bin level sensor to desired alarm point.

Note: Even small fertilizer lumps can cause problems with plugging. All possible precautions should be taken to prevent lumpy fertilizer from entering the tank.

Important
Before putting product into the tanks check the following:
1. The seed plate is set to correct position for product being applied.
2. The inspection doors are fully closed and sealed.
3. The plastic bag covering the fan is removed.
4. Inspect all augers used in handling the products for seeding. Run augers to clean out any debris inside auger so it does not get transferred to air cart tanks.
**Operation**

### Filling Tank - Continued

- Unlatch auger/conveyor lock.
- Swing out the auger/conveyor.
- Open lid on tank to be filled and place auger spout in tank.
- Position truck with the hopper and engage the hydraulic motor on the auger.
- Ensure selector valve is in correct position for auger operation and engage tractor hydraulics.

---

**DANGER**

**ROTATING FLIGHTING HAZARD**

Keep away from auger intake.
Keep intake shield in place and in good working order. Do not modify.

FAILURE TO HEED WILL RESULT IN SERIOUS INJURY OR DEATH.

---

**Selector Valves - Tow Behind shown**

**Cradle Lock - Auger shown**

**Conveyor Shown**
**Filling Tank - Continued**

- Auger product into tank until desired level in tank is reached. (If equipped with the optional fill indicator fill until indicator light turns on. See “Full Bin Indicator”)
- Stop the flow of product into the auger/conveyor and allow auger/conveyor to empty.
- Auger operation can be controlled from either the top or bottom of the auger/conveyor.
- Clean lid seal and ensure lid seal is positioned correctly before closing tank lid.
- AUGER ONLY - Reverse auger flow to clean out the hopper.
- Place auger/conveyor in transport position.
- Secure auger/conveyor cradle locks.
- Remove the plastic bag covering fan.
- Check lid for air leaks with your hands once air cart fan is operational.  See Maintenance Section 7.
- Check metering body for air leaks.  See Maintenance Section 7.

**Note:** Before seeding it is recommended that after a rain or dew that fan be run for a few minutes to eliminate moisture in the system.

**Important**

Do not exceed 10 mph (16 kph) in field operation.
Filling Tank - Continued

- Raise stairs into storage position.
- Engage stair lock to secure stairs in storage position.

Note: Stairway down indicator will flash when stairs are in lowered position.

Important

Raise Stairs before moving Cart.
Stair damage will occur in lowered position.
**Unloading Tanks**

Emptying tanks is quick and easy to do.

- Move flapper valves to “Clean-Out” position on the collector body. (Double Shoot Only)
- Open collector bottom.
- Install Clean-Out Chute to collector bottom, if so equipped.
- Position auger under the tank to be emptied.
- Start auger.
- Open Seed Plate Lever to the “Open” position, this will allow material to flow through the metering body into the auger.

**Note:** With Inspection Door closed the Seed Plate can be opened until it contacts door.

- Once all material stops flowing, move “Shut-off” levers in and out a few times to dislodge any product and ensure free movement.

continued on next page.

Optional - Clean Out Chute
Unloading Tanks - Continued

- Open Inspection Door and rotate seed plate to fully open position.

- Open Pressure Chamber Covers and blow air around chamber to ensure it is free of debris.

- Brush out remaining material in the corners and on top of the back plate.

- Rotate meter shaft using Run-Rest box to empty meter wheel flutes.

- Reset flapper valves to correct position for product delivery. Ensure that the flapper settings are correct. This can be done by visually checking that the flappers are fully over and touching the side walls, sealing off the individual airstreams. The flappers can be adjusted by loosening the individual adjusting setscrews and applying pressure to the flapper forcing it against the side wall while tightening the setscrew.

- Set seed plate to correct position for product being metered.

- Install Pressure Chamber Covers ensuring that the seals are free from debris and leaks.

- Close inspection door and collector bottom ensuring that the seals are free from debris and leaks.

⚠️ Danger

Keep all shields in place. Keep hands, feet and clothing away from auger intake, failure to do so will result in serious injury or death.
Rate Calibration

The practice of doing a rate calibration is strongly recommended, as it will confirm the **actual** amounts of product dispensed per motor revolution (**Weight/Rev**).

**Weight/Rev** (Calibration Factor) is used by the monitor to determine the shaft motor rpm required to deliver the correct application rate.

The following procedure should be followed for every change of product.

- Engage hydraulic lever to run air cart.
- **Turn off fan** by switching selector valve (located in the fan supply line) to calibration position.
- Open collector bottom.
- Set Flapper Valves to “**Calibration**” as per the decal located on the front of the Collector.

---

**Selector Valves - Tow Behind shown**

**Decal on Collector**

**Bottom Pipe Calibration Clean-Out**

**Top Pipe**

**Calibration**

**AUGER/FAN**

**FLAPPER VALVE LEVER**

**Collector Bottom**

**Rate Check Box**

**Double Shoot Shown**
Rate Calibration - Continued

- Hook the Rate Calibration Insert on collector bottom and rotate up into position. Secure in place with slide lock.
- Slide the rate check box onto the collector body.
- **Prime metering wheels first** by using the Start/Stop button on the keypad to start and stop the meter drive. Allow the drive to run until material begins to fall through the collector body. Press the rest button for 5 seconds to zero monitor count before collecting sample.

**Note:** The Topcon monitor must be turned ON in order for the primer switch to work.

**Note:** Ensure the fan is not running.

- Empty material from rate check box and reinstall it on the same collector.
Rate Calibration - Continued

- Perform calibration as outlined in the Topcon manual.
- Remove the rate check box from the collector body.

  Weigh the sample by using tarp straps to hook rate check box to spring scale.

Note: Remember to subtract the weight of the rate check box from the total sample weight.

- Enter “Weight” of product collected as outlined in the Topcon manual.

Note: The Calibration Factor (Weight/Rev) is automatically calculated for the value being entered.

- Remove rate calibration insert and close collector bottom ensuring that the seals are free from debris and leaks.
- Place rate check box into storage bracket.

Follow the above procedure to check the rate of the other tanks.

Important

Proper measurement of sample weight is critical for application rate accuracy.
Prime metering wheels before taking actual sample.
Remember to subtract the weight of the rate check box from the total sample weight.

Important

Raise Stairs before moving Cart.
Stair damage will occur in lowered position.
**Operation**

**Metering Rate Adjustment**

The metering rate adjustment for all tanks is done in the same manner. A new rate is achieved by changing the APPLICATION RATE and or the Calibration Factor as outlined in the Topcon manual.

**Note:** It is recommended to set “Calibration Factor” by doing a “Rate Calibration”.

**Seeding Fine Seeds (Canola, Mustard, etc.)**

When seeding fine seeds such as canola or mustard, the slow speed transmission has to be engaged to ensure the low rates required for these products.

The slow speed transmission is incorporated in All the Posi-Drive Transmissions.

- To engage the slow speed, remove the large hairpin from the front shaft and install through the sleeve and shaft located at the rear of the transmission.

**Note:** Shaft will have to be rotated to align holes for pin insertion.

- To disengage the slow speed, reverse the above procedure.
- Rate checks can be performed the same way as for other seeds.
- Usually it is necessary to reduce the fan rpm when seeding fine seeds. See “Fan Speed” for specific fan speeds.

**Applying Inoculant**

When inoculant is applied at the time of seeding, once the air cart has been filled, the fill-lids should be left open and the fan run for 5-10 minutes at full rpm to dry the seed.

Calibration must be done after the seed is dried, otherwise the calibration will be incorrect.

**Note:** If the seed is not dried then the seed will have a tendency to bridge and not meter into the air stream.
**Hydraulic Fan Drive**

The piston type orbit motor on the fan requires tractor to have either a load sensing hydraulic system or a closed center hydraulic system with flow control.

The flow required is 21 U.S. gpm (80 liters) for the 16 cc motor at a pressure of 2,750 p.s.i. (18,960 kPa)

However, smaller flows can be used depending on the product being metered.

**Note:** An additional 6 gpm (23 liters/min) is required for the VRT system.

For correct operation of the fan the hydraulic motor must be coupled to the priority valve (if tractor is so equipped) in the hydraulic valve bank.

Check with the tractor manual or manufacturer to determine if or which spool is a “priority valve”.

Speed fluctuations will result if the fan is not connected to the priority valve if hydraulic system is equipped with a priority valve.

Ensure couplers are free of dirt and are clean when connecting the fan hydraulics to the tractor.

Fan speed is adjusted by increasing the amount of oil being delivered to the motor by adjusting the respective flow control valve until the desired rpm is displayed on the monitor.

**Note:** There is a one-way check valve installed in the hydraulic circuit. If the fan does not rotate, then move hydraulic lever in the opposite direction; this will engage the fan. This valve prevents damage to the hydraulic systems when the fan is shut OFF, by allowing the fan to freewheel.

A piston motor creates leakage past the internal components for lubrication. This oil needs to go back to the oil reservoir at the lowest pressure possible. The motor has a 3/8” diameter case drain line. This line must be connected directly into the tractor hydraulic reservoir to ensure that there is zero back pressure in the drain line; otherwise damage will result to the motor.

**IMPORTANT**

Run hydraulic fan drive at lowest rpm possible (1,000-2,000) for 5-10 minutes before operating at set rpm. This is required to warm up the hydraulic fluid. Cold hydraulic fluid will cause pressure spikes in the system that will damage the case drain seal in the orbit motor.
Fan Speed Recommendations

Adequate air volume is necessary at all times to carry the product in the air stream. Air volume can be controlled by adjusting hydraulic oil flow on hydraulic fan drives.

Air volume; hence fan speed requirements will vary with:
1. Ground speed
2. Metering rate
3. Number of primary runs
4. Secondary hose size
5. Width of machine
6. Density and size of material

Excessive fan speed can cause seed damage, seed bouncing and premature wear of the system.

Generally fan speed is adequate if product flows through the hoses without surging and the hoses empty quickly and evenly when the system shuts down.

Morris recommends the following operating guidelines for fan speed:
1. Do not operate the fan below 3000 rpm with 1 inch diameter secondary hose.
2. Do not operate the fan below 3500 rpm with 1 1/8 inch diameter secondary hose. Add an additional 500 rpm to speeds shown on the charts.
3. If equipped with a dual fans, keep the speed difference between the two fans within 1000 rpm.
4. Units equipped with VR drives the recommended minimum fan speed is 3500 rpm to ensure sufficient hydraulic flow to the VRT hydraulic valve block.

The charts on the next page list suggested fan speeds for various application rates.

Note: The charts should be used only as a guide. If plugging or surging occurs increase the fan speed to eliminate the problem.

Important

Keep fan impeller blades clean at all times.

Note: It is recommended that after a rain or dew the fan be run two to three minutes to expel any moisture in the system.

Note: Once fan speed is properly set, be sure to adjust the monitor fan alarm setting accordingly. Refer to X30 manual N5577 and X30 ICT manual N55799 for more details. For X35 monitor manual N65100 and X35 ICT manual N65101.

Dual Fans

Use application rate of individual air stream to determine fan speed for that air stream.
Fan Speed Recommendations - Continued

Charts are based on a 41 foot machine traveling at 5 mph (8 kph).

17 inch Diameter Impeller
Suggested Fan RPM @ 5 mph (8 kph) on a 41 ft unit
1 inch (25 mm) Secondary Hose

***For 1 1/8 inch (28.6 mm) Secondary Hose add an additional 500 rpm to values below.***

<table>
<thead>
<tr>
<th>Combined Application Rate</th>
<th>Fan Speed Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Single Shoot</td>
</tr>
<tr>
<td>3 - 50 lbs/acre</td>
<td>3000 - 3250 RPM</td>
</tr>
<tr>
<td>3 - 56 kg/ha</td>
<td></td>
</tr>
<tr>
<td>50 - 100 lbs/acre</td>
<td>3250 - 3500 RPM</td>
</tr>
<tr>
<td>56 112 kg/ha</td>
<td></td>
</tr>
<tr>
<td>100 - 150 lbs/acre</td>
<td>3500 - 3750 RPM</td>
</tr>
<tr>
<td>112 - 168 kg/ha</td>
<td></td>
</tr>
<tr>
<td>150 - 200 lbs/acre</td>
<td>3750 - 4000 RPM</td>
</tr>
<tr>
<td>168 - 224 kg/ha</td>
<td></td>
</tr>
<tr>
<td>200 - 250 lbs/acre</td>
<td>4000 - 4250 RPM</td>
</tr>
<tr>
<td>224 - 280 kg/ha</td>
<td></td>
</tr>
<tr>
<td>250 - 300 lbs/acre</td>
<td>4250 - 4500 RPM</td>
</tr>
<tr>
<td>280 - 336 kg/ha</td>
<td></td>
</tr>
<tr>
<td>300 - 350 lbs/acre</td>
<td>4500 - 4750 RPM</td>
</tr>
<tr>
<td>336 - 392 kg/ha</td>
<td></td>
</tr>
<tr>
<td>&gt; 350 lbs/acre</td>
<td>4750 - 5000 RPM</td>
</tr>
<tr>
<td>&gt; 392 kg/ha</td>
<td></td>
</tr>
</tbody>
</table>

Note: Fan Speeds given are when applying product. It is normal for fan speed to drop when not applying product.

Note: In a variable rate application set fan speed to match maximum product rate being applied.

Dual Fans
Use application rate of individual air stream to determine fan speed for that air stream.

Important:
Morris recommends not to operate the fan below 3000 rpm and if equipped with a dual fan setup to keep the speed difference within 1000 rpm. Units equipped with VR drives the recommended minimum fan speed is 3500 rpm to ensure sufficient hydraulic flow to the VRT hydraulic valve block.
Fan Speed Recommendations - Continued
Charts are based on a 71 foot machine traveling at 4.5 mph (7.2 kph).

17 inch Diameter Impeller
Suggested Fan RPM 4.5 mph (7.2 kph) on a 71 ft unit
for 1 inch (25 mm) Secondary Hose

***For 1 1/8 inch (28.6 mm) Secondary Hose add an additional 500 rpm to values below.***

<table>
<thead>
<tr>
<th>Combined Application Rate</th>
<th>Fan Speed Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>3 - 50 lbs/acre 3 - 56 kg/ha</td>
<td>3250 - 3500 RPM</td>
</tr>
<tr>
<td>50 - 100 lbs/acre 56 112 kg/ha</td>
<td>3500 - 3750 RPM</td>
</tr>
<tr>
<td>100 - 150 lbs/acre 112 - 168 kg/ha</td>
<td>3750 - 4000 RPM</td>
</tr>
<tr>
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</tr>
<tr>
<td>250 - 300 lbs/acre 280 - 336 kg/ha</td>
<td>4500 - 4750 RPM</td>
</tr>
<tr>
<td>300 - 350 lbs/acre 336 - 392 kg/ha</td>
<td>4750 - 5000 RPM</td>
</tr>
<tr>
<td>&gt; 350 lbs/acre &gt; 392 kg/ha</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: Fan Speeds given are when applying product.
It is normal for fan speed to drop when not applying product.

Note: In a variable rate application set fan speed to match maximum product rate being applied.

Important:
Morris recommends not to operate the fan below 3000 rpm and if equipped with a dual fan setup to keep the speed difference within 1000 rpm. Units equipped with VR drives the recommended minimum fan speed is 3500 rpm to ensure sufficient hydraulic flow to the VRT hydraulic valve block.

Dual Fans
Use application rate of individual air stream to determine fan speed for that air stream.
Plenum Settings

Plenum Damper Settings

18 Outlet Plenum

Adequate air volume is necessary at all times to carry the product in the air stream. Air volume can be controlled by adjusting the plenum damper settings.

The table below lists initial plenum damper settings for certain products.

Note: The settings in the table should be used only as a guide.

- If fertilizer plugging or surging occurs decrease the seed damper setting to eliminate the problem.
- If seed plugging or surging occurs increase the seed damper setting to eliminate the problem.

<table>
<thead>
<tr>
<th>Product</th>
<th>Seed</th>
<th>Fertilizer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rate lb/acre</td>
<td>Damper Setting</td>
</tr>
<tr>
<td>Fine Seeds</td>
<td>All Rates</td>
<td>1</td>
</tr>
<tr>
<td>Coarse Grains</td>
<td>90 lb (100 kg/ha)</td>
<td>Open</td>
</tr>
<tr>
<td></td>
<td>90 lb (100 kg/ha)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>90 lb (100 kg/ha)</td>
<td>3</td>
</tr>
<tr>
<td>Large Seeds</td>
<td>180 lb (200 kg/ha)</td>
<td>Open</td>
</tr>
<tr>
<td>Single Shoot</td>
<td>Lower Pipes</td>
<td>- Top Damper Closed</td>
</tr>
<tr>
<td></td>
<td>Upper Pipes</td>
<td>- Top Damper Open</td>
</tr>
</tbody>
</table>

Note: See “Fan Speeds” for Fan RPM.
Double Shoot Settings

Collector Valve Settings

Located in each upper collector body are flapper valves for machines equipped with Double Shoot. The flapper valve must be properly set in order for product to flow correctly.

See illustrations on following pages for specific settings for various combinations for Double and Single Shoot set ups.

Flapper valves must be cycled daily to free valves of any fertilizer and grain dust accumulations.

Whenever valves are cycled or reset to a new position the position should be visually inspected as follows:

- Set flapper valves to correct position for product delivery.
- Remove the inspection door and visually check that the flappers are fully over and touching the side walls, sealing off the individual air streams.
- The flappers can be adjusted by loosening the individual adjusting setscrews and applying pressure to the flapper forcing it against the side wall while tightening the setscrew.

Note: The bottom air stream should be used to carry the higher rate of product.

Flapper Valve Run Test

Use the following procedure to check that the flapper valves do not move when air pressure is applied to under side of flappers.

- Check flapper valves in both directions with air running.
  - If valve is set to direct product into the bottom pipe, have the plenum damper open for the top pipes and closed to the bottom pipes.
  - If valve is set to direct product into the top pipe, have the plenum damper open for the bottom pipes and closed to the top pipes.
- Always wear safety goggles, breathing apparatus and gloves when working with granular chemical or treated seed per the manufacture's instructions.
- With fan running check flapper valve position.
- The flappers can be adjusted by loosening the individual adjusting setscrews and applying pressure to the flapper forcing it against the side wall while tightening the setscrew.

Caution

Care should be taken when working near the air cart while the fan is running. Product blowing out of the system could cause personal injury.
Operating Guidelines

There are a number of areas that can cause problems when seeding. Listed below are specific points that should be addressed at all times. Following these guidelines will ensure better crop emergence and consequently the potential for better yields.

An improperly leveled seeding tool cause uneven depth, which could result in poor emergence.

It is important that the seeding tool is leveled both side to side and front to back.

Check Tire Pressures

- Ensure all tires are inflated to their specified pressure. Incorrect tire pressure can cause depth variations.

Level Seeding Tool

Side to Side

- Check the depth of each shovel on the back row.
- Adjust side to side level as necessary. See seeding tool manual for more details.

Front to Rear

- Poor front to rear leveling causes ridging as shown.
- Check the depth of two adjacent shanks, normally one on the front row and one on the rear row.
- Adjust level as necessary. See seeding tool manual for more details.

Worn Seeding Tool Parts

- Shanks that are bent cause uneven depth and they should be repaired or replaced.
- Trip mechanisms that are worn can also cause poor depth control and any worn parts should be repaired or replaced.

Packing

- Packing behind the seeding unit is strongly recommended. This improves germination and helps reduce moisture loss and erosion.
- In wet conditions the head land should be done last to prevent over packing.
Operation

Operating Guidelines - Continued

Turning

• Avoid sharp turns. Backing up of the outer wings with the seeding tool in the ground has a tendency to plug the seed boot with soil.

• Raise seed boots fully before making sharp turns or backing machine.

Seed Rate Settings

• Remove any caked-on material from seed plate and metering wheels.

• Ensure correct seed plate is installed and metershaft turns freely.

• Check product rates carefully by performing a calibration check.

Fertilizer Application

• Avoid using fertilizers that absorb moisture readily, especially during periods of high humidity.

• Also avoid fertilizers that contain a high percentage of fine dust, as these materials can plug metering wheels and coat the inside of seed distribution system.

Fan Setting

• Run fan at recommended speed. If plugging or surging occurs increase the fan speed to eliminate the problem. If plugging or surging continues reduce ground speed to eliminate the problem.

• Allow tractor hydraulic oil to warm-up thoroughly prior to seeding. Cold oil will cause slower fan speeds (Hydraulic driven fan).

Product Application

• Control product application with the clutch switch in tractor.

• Have machine moving forward before lowering seed boots to avoid plugging.

• To prevent skipping, allow a minimum of 15 feet (5 m) of forward travel to ensure air system has delivered product to seed boots.

  Forward travel should be equal to half the width of the seeding tool. [i.e. for a 40 ft (14 m) wide seeding tool the forward travel should be a minimum of 20 feet (7 m).]

Note: It is strongly recommended to consult local agricultural extension offices for allowable product rates, which are dependent on soil moisture and type.

Important

Raise Stairs before moving Cart.

Stair damage will occur in lowered position.

Note: Do not attempt to meter product when fan is not running. Damage to the metering wheels may occur.
Operating Guidelines - Continued

Adjustments and Operational Checks

- When changing fields and periodically throughout the day, the seeding tool should be checked for level and depth and the seed boots for blockage.

Checking Seed Flow

The following procedure should be implemented throughout the day typically at each fill of the air cart:

- Raise the seeding tool out of the ground.
- With the fan running and monitor on, engage meter drives with the Start/Stop button on the keypad, rotating meter drives 4 to 5 times.
- Seed and/or fertilizer should appear at each outlet on the ground.
- If no seed or fertilizer appears on the ground at any of the openers check for hose blockage in both the 15/16” (24 mm) diameter secondary and the 2 1/2” (64 mm) diameter primary hose, as well as in the flat fan divider.
- See Trouble Shooting Section for possible causes of the blockage.

Moisture Alert

- Whenever air cart has been standing for an hour or more during period of high humidity or damp, rainy days, or after sitting overnight, run fan at recommended rpm, with machine stationary for 5 minutes.

Air Leaks

It is imperative that no air leaks occur in the air cart tank as even the smallest air leak from the lid will lead to material bridging in the tank thereby causing misses in the field.

Check the following areas for air leaks:
- Tank clean-out door
- Metering body assembly seals
- Collector assembly seals
- Tank lid

Tank Low in Product

- Refill tank before metering wheels are exposed.
- The metering wheels must be completely covered to avoid unseeded strips.
Monitor

- Familiarize yourself with all monitor functions as outlined in the Topcon manual.
- Ensure all monitor “settings” are correctly set for the air cart/seeding tool combination.
- Recognize and correct alarm conditions as indicated on the monitor.
- Check all wire harness connections for corrosion and use a dielectric spray to clean. Inspect all sensors for proper gap.

General Field Operation

- Follow guidelines outlined in “Operating Guidelines”.
- Switch monitor on as outlined in the Topcon manual.
- Start fan.

Note: Load sensing hydraulic systems require “warming up” before they function smoothly. See “Hydraulic Fan Drive” for more details.

- Move forward with seeding tool.
- Engage metering systems as outlined in the Topcon manual.
- Lower seeding tool into ground.
- Product rates can be varied as desired by using the INCREASE and DECREASE buttons for the appropriate product as outlined in the Topcon manual.
- Turning at headland: Switch metering systems off with the Master Switch, immediately raise seeding tool, fully rephasing hydraulics (see seeding tool manual).
- Once turn is complete engage metering systems with the Master Switch and lower seeding tool into ground.

Note: Do not attempt to meter product when fan is not running. Damage to the metering wheels may occur.

Note: Engage console master switch early enough to avoid misses. Forward travel should be equal to half the width of the seeding tool. [i.e. for a 40 ft (14 m) wide seeding tool the forward travel should be a minimum of 20 feet (7 m).]
Section 6: Maintenance

Section Contents
General .............................................................................................................................. 6-2
Safety ............................................................................................................................... 6-2
Tighten Bolts ................................................................................................................. 6-3
Tires ................................................................................................................................. 6-4
Daily Maintenance ......................................................................................................... 6-5
Lubrication ....................................................................................................................... 6-6
Air Delivery System ....................................................................................................... 6-7
  General ......................................................................................................................... 6-7
  Tank Lid Adjustment .................................................................................................... 6-8
  Inspection Door Adjustment ....................................................................................... 6-9
  Clean Out Door Adjustment ...................................................................................... 6-10
  Air Leak Check .......................................................................................................... 6-11
  Fan ................................................................................................................................. 6-12
  Rotor Clearance ......................................................................................................... 6-13
  Hoses ........................................................................................................................... 6-13
  Equalizers ................................................................................................................... 6-14
Hydraulic Orbit Motor .................................................................................................. 6-15
Hydraulics ...................................................................................................................... 6-16
Wheel Bearings ............................................................................................................ 6-17
Quad Steer ..................................................................................................................... 6-18
Dual Wheels .................................................................................................................. 6-18
Seed Plate Adjustment ................................................................................................. 6-19
Conveyor ......................................................................................................................... 6-20
Tie Rod - Tow Between ................................................................................................. 6-32
Brakes ............................................................................................................................ 6-33
  Fill Reservoir ............................................................................................................. 6-33
  Bleeding the Brakes ................................................................................................. 6-33
  Brake Pads .................................................................................................................. 6-34
  Caliper Pistons and Seal Replacement ...................................................................... 6-34
General
This section deals with two goals, maximum life and dependable operation. Adopt a regular maintenance and lubrication program. Care and sufficient lubrication is the best insurance against delays.

Safety
- Always shut off the tractor and remove key before dismounting.
- Guard against hydraulic high pressure leaks with hand and face protection.
- Never work under the implement unless it is in the down position or transport lock pins are in place and secured with hair pins. Do not depend on the hydraulic system to support the frame.
- Always wear safety goggles, breathing apparatus and gloves when working on seeder filled with chemical. Follow manufactures recommended safety procedures when working with chemicals or treated seeds.
- Do not feed left over treated seed to livestock, treated seed is poisonous and may cause harm to persons or livestock.

Warning
Securely support any machine elements that must be raised for service work.

Caution
Keep service area clean and dry. Wet or oily floors are slippery.
Tighten Bolts

• Before operating the air cart.
• After the first two hours of operation.
• Check tightness periodically thereafter.
• Use Bolt Torque Chart for correct values on various bolts.
• Note dashes on hex heads to determine correct grade.

Note: DO NOT use the values in the Bolt Torque Chart if a different torque value or tightening procedure is given for a specific application.

• Fasteners should be replaced with the same or higher grade. If higher grade is used, only tighten to the strength of the original.

Bolt Torque Chart

<table>
<thead>
<tr>
<th>Grade 5 Bolt Marking</th>
<th>Bolt Size</th>
<th>Grade 8 Bolt Marking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nm</td>
<td>lb. ft.</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>8</td>
<td>1/4</td>
</tr>
<tr>
<td>23</td>
<td>17</td>
<td>5/16</td>
</tr>
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<td>30</td>
<td>3/8</td>
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<td>5/8</td>
</tr>
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<td>366</td>
<td>270</td>
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<td>536</td>
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<td>7/8</td>
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<tr>
<td>1150</td>
<td>850</td>
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<tr>
<td>1650</td>
<td>1200</td>
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</tr>
<tr>
<td>2850</td>
<td>2100</td>
<td>1-1/2</td>
</tr>
</tbody>
</table>

Important

Retorque wheel nuts after first fifteen minutes of operation and every fifteen minutes for the next 2 hours. Check periodically afterwards.

<table>
<thead>
<tr>
<th>SIZE</th>
<th>Torque</th>
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<tbody>
<tr>
<td>9/16</td>
<td>110 lb. ft. (149 Nm)</td>
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<tr>
<td>5/8</td>
<td>150 lb. ft. (203 Nm)</td>
</tr>
<tr>
<td>3/4 Grade 8</td>
<td>450 lb. ft. (610 Nm)</td>
</tr>
<tr>
<td>7/8 Grade 8</td>
<td>525 lb. ft. (711 Nm)</td>
</tr>
<tr>
<td>22 mm</td>
<td>500 lb. ft. (677 Nm)</td>
</tr>
</tbody>
</table>
## Tires

- Inspect tires and wheels daily for tread wear, side wall abrasions, damaged rims or missing lug bolts and nuts. Replace if necessary.
- Tighten wheel bolts - refer to Bolt Torque Chart.
- Check tire pressure daily, when tires are cold.
- Correct tire pressure is important.
- Do not inflate tire above the recommended pressure.

### Caution

Tire replacement should be done by trained personnel using the proper equipment.

<table>
<thead>
<tr>
<th>Tire Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tire</strong></td>
</tr>
<tr>
<td>28LR26 Quad Steer</td>
</tr>
<tr>
<td>500/70 R24 Front Castor</td>
</tr>
<tr>
<td>520/85R38 Dual Wheels</td>
</tr>
<tr>
<td>710/70R38</td>
</tr>
<tr>
<td>800/65R32</td>
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<tr>
<td>800/65R32 Dual Wheels</td>
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</tr>
<tr>
<td>850/80R38 Dual Wheels</td>
</tr>
<tr>
<td>900/60R32</td>
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</tbody>
</table>

*BH - Tow-Behind only  
*BT - Tow-Between only  
STD - Standard
Daily Maintenance

- Check for and remove any water in primary collectors and pressure lines after rainy weather. Remove all inspection doors and collector bottoms to drain water from the tanks and collectors.
- Reinstall collector bottoms and inspection doors.
- Ensure fan screen is clear of debris.

**Note:** Start fan and run for 3 - 5 minutes prior to loading machine to get rid of accumulated moisture.

- Check lid seals for damage, and that they are sitting properly on steel ring.
- Check the pressure chamber and inspection door chamber for dust build up. Clean out and remove any excess buildup of dust between the seed plate and the inspection door.
- Check tank pressure hoses for leaks, cracks or plugging.
- Check the following areas for air leaks:
  - Tank inspection door
  - Metering body assembly seals
  - Collector assembly seals
  - Tank lid
Refer to “Air Leak Check” under Air System Maintenance.
- Check monitor wiring that all sensor wires are properly routed and retained.
- Check for plugged hoses.
- Cycle Collector Valve five times to ensure parts are free to move.
- Ensure drive chains are cleared of debris.
- Check torque on wheel bolts.
**Lubrication**

Greasing pivot points prevents wear and helps restrict dirt from entering. However, once dirt does enter a bearing, it combines with the lubricant and becomes an abrasive grinding paste, more destructive than grit alone.

- Apply new lubricant frequently during operation to flush out old contaminated lubricant.
- Use a good grade of **lithium based grease**.
- Use a good grade of machine oil.
- Clean grease fittings and lubricator gun before applying lubricant.

Refer to the following photos for grease fitting locations.

1. **Drive Chains**
   - Oil every 50 hours.

2. **Slow Speed Drive**
   - Grease every 50 hours.

3. **Auger Pivot**
   - Grease every 100 hours.

4. **Fan Bearing (17” Diameter Fan only)**
   - Apply 2 pumps of grease every 100 hours.

5. **Quad Steer linkage**
   - Grease every 100 hours.
Air Delivery System

General

The air delivery system of all air carts is extremely important for the proper metering of product to the openers. The metering system on all pressurized air carts is sensitive to air leaks. **Loss of tank air pressure could affect feed rates, which could become erratic or even stop.**

- Regularly check that all hoses are free from kinks or blockages throughout the day. To check for blockages raise seeding tool out of the ground and with the fan running engage meter drives with the Start/Stop button, rotating meter drives 4 to 5 times. Equal amounts of material should be deposited under each boot. If not, check the following for blockage:
  1. Seed openers and secondary hoses.
  2. Divider heads by removing access doors.
  3. Primary hoses and collectors.
  4. Metering wheels for damage to the flutes of the wheel.
- Keep fan inlet screen clear and free from debris.
- Place a plastic bag over the fan when the unit is not in use. This helps prevent moisture from entering the system.
- Check periodically and at the end of each season for air leaks at hose connections.
- Check periodically and at the end of each season for air leaks in the following areas:
  1. Tank lid seals.
  2. Metering body shaft seals.
  3. Metering body to tank seals.
  4. Collector to metering body seals.
  5. Fan to plenum.
  6. Plenum to collector.
  7. Inspection doors, for leaks and loss of seal memory.
  8. Collector door seals.
  9. Couplers between air cart and seeding tool.
  10. Access doors on divider heads.

**Note:** There must not be any air leaks from the tank. This air leakage causes air turbulence in the tank which can result in inaccurate metering rates.

- Once a year check for wear of primary and secondary hoses.

**Caution**

Care should be taken when working near the air cart while the fan is running. Product blowing out of the system could cause personal injury.

**ACCESS DOOR**

**START/STOP BUTTON**

Note: Extended life can be obtained if the hoses are rotated 1/4 turn once a year.
Tank Lids
The lid seal is probably the area that sees the most abuse due to the activity associated with filling the tanks.
With each fill the lid seals should be inspected for cuts, abrasions, debris in the seal and ensure the seal is positioned properly on the steel rim around the tank opening.

Tank Lid Adjustment
Check Tank Lid tension on all tanks at beginning of each season and periodically during season for air leaks. The following checks and adjustments must be made to prevent air leaks from occurring:

- Check for any foreign material embedded into seal. Clean out foreign material from seal surface.
- Check seal for cuts and abrasions. If seal is cut or severely worn, then replace seal.
- Ensure seal is positioned properly on steel rim around tank opening.
- Use a 0-100 lb. (0-45 kg) spring scale to check the tank lid closing force. With the lid near the closed position, place one end of the scale on the tank lid handle. Pull down on the scale and note the maximum force it takes to hold the lid. The force needed to close the lid must be 30 lbs (14 kg).
- Adjust the lid latch adjusting bolts as necessary. This will ensure that the lid is sufficiently tight and prevent any leaks.
- Re-check for leaks. If Lids still leak re-adjust latch bolts. Re-check for leaks.

Important
It is imperative that no air leaks occur in the air cart tank as even the smallest air leak from the lid will lead to material bridging in the tank thereby causing misses in the field.

Note: When air cart is not in use, leave lid latches loose to help maintain resilience of the seals.
Inspection Door Adjustment

Check Inspection Door on all metering bodies at beginning of each season and periodically during season for air leaks. The following checks and adjustments must be made to prevent air leaks from occurring:

- Check for any foreign material embedded into seal. Clean out foreign material from seal surface.
- Check seal for cuts and abrasions. If seal is cut or severely worn, then replace seal.
- Ensure seal is positioned properly on steel rim around tank opening.
- Use a 0-100 lb. (0-45 kg) spring scale to check the door closing force. With the Door near the closed position, place one end of the scale on the Door handle. Pull down on the scale and note the maximum force it takes to latch handle lock. The force needed to latch handle lock must be 30 lbs (14 kg).
- Adjust the door latch adjusting bolts as necessary. This will ensure that the lid is sufficiently tight and prevent any leaks.
- Re-check for leaks. If Doors still leak adjust latch bolts one or two more turns. Re-check for leaks.

Adjust the latch bolts to obtain a force of 30 lbs (14 kg) to close the Door.
Clean Out Door Adjustment

Check Clean Out Door on all metering bodies at beginning of each season and periodically during season for air leaks. The following checks and adjustments must be made to prevent air leaks from occurring:

- Check for any foreign material embedded into seal. Clean out foreign material from seal surface.
- Check seal for cuts and abrasions. If seal is cut or severely worn, then replace seal.
- Ensure seal is positioned properly on steel rim around tank opening.
- Use a 0-100 lb. (0-45 kg) spring scale to check the Door closing force. With the Door near the closed position, place one end of the scale on the Door handle. Pull down on the scale and note the maximum force it takes to latch handle lock. The force needed to latch handle lock must be 30 lbs (14 kg).
- Adjust the door latch adjusting bolts as necessary. This will ensure that the lid is sufficiently tight and prevent any leaks.
- Re-check for leaks. If Doors still leak adjust latch bolts one or two more turns. Re-check for leaks.
- In the open position, adjust the adjusting bolts as necessary to hold collector door away from the collector bottom.
Air Delivery System - Continued

Air Leak Check

It is *imperative that no air leaks occur* in the air cart tank. Any air leaks could cause loss of tank air pressure affecting feed rates, which could become erratic or stop.

To prevent this from occurring, it is strongly recommended that a pressure test be conducted prior to seeding time. This can be performed very easily and simply by completing the following steps:

- Clean fan impeller and adjust tank lids.
- Disconnect the 2 1/2" diameter primary hoses from the rear of the cultivator at the primary hose coupler(s) by loosening the four 3/8" bolts.
- Install the blank off plate that is supplied with the air cart at each coupler and re-tighten the 3/8" bolts. If the blank off plates are not readily at hand a piece of cardboard can be used in its place.
- Once the blank off plates have been installed, start the fan and run at 4,500 rpm.

Check the following areas for air leaks:

1. Tank lid seals.
2. Metering body shaft seals.
3. Metering body to tank seals.
4. Collector to metering body seals.
5. Fan to plenum and plenum to collector.
6. Inspection doors, for leaks and loss of seal memory.
7. Collector door seals.
8. Tanks union plate.

Air leaks can be detected by spraying a soapy water solution onto the seal area. If bubbling of soap occurs, the seal has a leak. Another method is to use your hand to feel for any air movement around the seal. This method requires a calm day, as the wind can make it difficult to detect a small leak.

- If any of the above areas leak, remove the parts and replace the seal. Ensure upon reassembly that the parts are tightened sufficiently to prevent air leakage.
- Remove the blank off plates before using the air cart.

Once the pressure test is complete, check the following areas for air leaks:

9. Couplers between air cart and seeding tool.
10. Access doors on divider heads.

**Important**

It is imperative that no air leaks occur in the air cart tank, as even the smallest air leak will lead to material bridging in the tank, thereby causing misses in the field.

**Note:** When air cart is not in use leave lid latches and inspection doors loose to help maintain resilience of the seals.
Maintenance

Air Delivery System - Continued

Fan
Debris can build up on the fan screen and blades causing reduced output of the fan. The lack of air flow even at higher fan speeds will cause material plugging of the air system.

The build up of material during operation can cause the following:

1. Fan rpm will increase without increasing oil flow to orbit motor.
2. Air cart distribution system plugging from a lack of air flow (Increasing fan rpm has little or no effect).

Fan Screen
- Ensure fan screen is clear of debris. Check periodically through the day.

Fan Impeller
The fan blades may become plugged under high humidity/dusty conditions/high insect counts.

Under severe conditions the fan blades should be inspected daily and cleaned as required.

Under normal conditions the fan should be inspected and cleaned at least once a season.
- Care should be taken in cleaning all fan blades thoroughly to restore the fans peak performance.
- Ensure that the balance clips located on the fan blades are not removed, as this will put the fan out of balance.

Storage
To prevent water entering the air system, cover the fan intake with a plastic bag, whenever the seeder is not in use.

Note: Be sure to remove fan cover prior to starting fan or serious damage could result to the fan.

Note: Material build up on the fan blades could cause the fan to be out of balance. The added vibration of the out of balance impeller will reduce the life of the fan components.
Air Delivery System - Continued

Rotor Clearance

- Position rotor 1/8" (3 mm) from inlet.
- Check rotor alignment if tipped at an angle to the inlet, adjust inner bearing on blower housing to achieve proper rotor to inlet concentricity.
- If rotor is square to inlet but not concentric to inlet, raise or lower the inlet on the mounting bolts.
- Spin rotor by hand to check for interferences, adjust as required.

Hoses

Inspect air delivery hoses for wear and replace as required. Check areas where hoses may be exposed to moving parts such as hitch hinge area.

Also, inspect hoses for blockage as rodents/birds may nest in hoses that have not been properly capped during storage.

To optimize the 9 Series Air Cart air system the pressure across the inlets of the quick couplers should be balanced. To achieve this all primary hoses must be equal in length or use equalizers to achieve a balanced air system.

Consult with your MORRIS Dealer for assistance on hose lengths and location of equalizers.

Important

ALL primary hoses must be the same length or use equalizers to achieve a balanced air system.
Equalizers

The equalizers reduce the amount of primary hose required to balance the air system of the air cart.

- Equalizers are installed on the shorter primary hoses of the seeding tool. Consult with your MORRIS Dealer for assistance on hose lengths and location of equalizers.
- Check equalizers seasonally for wear. If flat section is gone replace equalizer.

Insert Equalizers on Coupler Seeding Tool side
Hydraulic Orbit Motor

The motor requires no maintenance itself. It does, however, require clean oil so the tractor hydraulic filters must be replaced regularly.

Repair/Replacement

- Remove orbit motor from the fan.

Note: The shaft should never be hammered on or forced in as this will result in motor damage upon startup.

- Remove the snap ring.
- Clean away paint then remove front cover.
- Push out the old shaft seal and press in the new one.

Note: The bearings should never be removed from the shaft as they are pretensioned to the shaft with the motor spinning.

- Replace the O-ring.
- Both the O-ring and shaft seal should be greased with “clean” grease.
- Care must be taken when the front cover is installed so the shaft seal is not damaged.
- Reinstall the snap ring.
- Fill the motor case with “clean” oil before running.

Note: Any time a motor is replaced the case must be filled with oil before it is started, if not, a bearing failure could occur.

Orbit Motor Coupler (17” Diameter Fan only)

- Urethane insert should be inspected every 100 hours or when greasing bearings.
- Inspect that there are no urethane filings or niks or cracks in urethane insert.
- Ensure set screws in each half of the coupler are tight.

Ensure coupler set screws fully engage the motor shaft.
Hydraulics

Refer to Section 1 regarding hydraulic safety. In addition:

- Inspect hydraulic system for leaks, damaged hoses and loose fittings.
- Damaged hoses and hydraulic tubing can only be repaired by replacement. **DO NOT ATTEMPT REPAIRS WITH TAPE OR CEMENTS.** High pressure will burst such repairs and cause system failure and possible injury.
- Leaking cylinders - install a new seal kit.
- Fittings - use liquid Teflon on all NPT hydraulic joints. **Do not use liquid Teflon or Teflon tape on JIC or ORB ends.**
- Hydraulic Hose Connections - when connecting the hoses to the cylinders, tubing, etc. always use one wrench to keep the hose from twisting and another wrench to tighten the union. Excessive twisting will shorten hose life.
- Keep fittings and couplers clean.
- Check the Tractor Manual for proper filter replacement schedule.

**Caution**

Dirt in the hydraulic system could damage O-rings, causing leakage, pressure loss and total system failure.

**Warning**

**HIGH-PRESSURE FLUID HAZARD**

To prevent serious injury or death:

- Relieve pressure on hydraulic system before servicing or disconnecting hoses.
- Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
- Keep all components in good repair.

Note: Extreme care must be taken to maintain a clean hydraulic system. Use only new hydraulic fluid when filling reservoir.

Contact your nearest Dealer for genuine repair parts. Dealers carry ample stocks and are backed by the manufacturer and regional associations.
Wheel Bearings

- Shut tractor off and remove key.
- Block wheel on tractor.
- Raise the air cart wheels enough to clear the surface.
- Securely block air cart frame.
- Remove wheel from hub.
- Remove the dust cap, cotter pin, and the slotted nut and washer.
- Be careful when pulling the hub off as not to drop the outer bearing.
- Clean spindle and bearing components with solvent.
- Inspect for wear on bearings, spindle and cups. Replace parts as required.
- Do not reuse old seals. Use only new seals when assembling.
- Pack inner hub with bearing grease.
- Be sure bearing and cup are dry and clean.
- Work grease into the bearing rollers, until each part of the bearing is completely full of grease.
- Install inner bearing and cup first, then press new seals in place.
- Place hub on spindle.
- Install outer bearing, washer and slotted nut.
- Tighten nut while turning the wheel until a slight drag is felt.
- Back nut off one slot and install a cotter pin. Bend cotter pin up around nut.
- Pack grease inside the dust cap and tap into position.

Important
Check wheel bearings for play every 5,000 acres (2,000 hectares) or yearly, which ever occurs first. Tighten as required.
Quad Steer

- Periodically check the 1 x 3 bolts, flatwashers and locknuts attaching the axle and pivot assembly. Torque Grade 5 bolts to 590 ft-lbs.
- Periodically check the 3/4 x 3 bolts, flatwashers and locknuts attaching the axle and pivot assembly. Torque the 3/4 Grade 5 bolts to 270 ft-lbs. Torque the 3/4 Grade 8 bolts to 375 ft-lbs.
- Toe-in adjustment should be 1/16” to 1/8” maximum.
- Grease all fittings every 100 hours.

Important

Retorque wheel nuts to 450 ft-lbs (610 Nm) after first fifteen minutes of operation and every fifteen minutes for the next 2 hours. Check periodically afterwards.

Dual Wheels

- Torque wheel nuts as follows:
  - 3/4 wheel bolts to 450 ft. lbs. (610 Nm)
  - 7/8 wheel bolts to 525 ft. lbs. (711 Nm)
  - 22 mm wheel bolts to 500 ft. lbs. (677 Nm)

Important

Retorque wheel nuts after first fifteen minutes of operation and every fifteen minutes for the next 2 hours. Check periodically afterwards.
**Seed Plate Adjustment**

Ensure that when the adjustment handle is in the Fine position notch that the seed plates are tight up against the metering wheels spacers.

If this does not occur adjust the adjustment plate by loosening the bolts that attach the plate to the metering body and slide the plate accordingly.

This adjustment must be done without product in the tank or with the slide gates closed and the metering body cleaned out.

---

**Important**

Do not try and close the seed plates with the product in the metering body as damage can occur from the product being squeezed between the wheels and seed plates.
Squaring One End of Belt

Lay a framing square along a straight edge of the belt to make a cut line on the back side of the belt. Cut belt along this line using a utility knife. If the belt has uneven edges, create an average centerline, and square off of this line. A clean, straight, square cut is required for the belt to run true on the pulleys.

Installing Belt Splice

1. Center and press the fastener strip on the belt.
2. Press the Application Tool on the center of fastener strip with the cam lever in the “up” position.
3. Lower cam lever. Strike staple driver on each staple until staple clinches on Application Tool anvil.
4. Raise cam lever and move tool to outer edge of belt.
5. Clinch staples. Repeat until all staples are complete.

Continued on next page . . .
Conveyor - Continued

Installing Belt Splice - Continued

6. Place the splice over a piece of flat steel and clinch each staple with a hammer. Turn belt over and peen staple ends flush with surface of fastener strip.

7. Bend fastener strips until they break apart.

8. Follow the procedure above for installing the second belt splice.

9. Insert the hinge pin. Crimp the pin washers on the ends of the pin using pliers.

10. Tighten the belt tensioning bolts to 20-23 FT-LBS. so that each side is adjusted equally.

11. Re-assemble the tail end Door Assembly.
Conveyor - Continued

Installing Belt into the Conveyor

1. Remove the Tail End Door Assembly.

2. Slide a fish tape from the discharge end to the tail end of the conveyor. Pull a rope with a belt splice back through the conveyor. Fasten the conveyor belt to the rope splice, and pull the belt into the top of the conveyor with the rope.

3. Using the fish tape, pull the bottom side of the belt through the conveyor. Make sure the belt is free of extra twists before pulling it in.

4. Check to see that the idler is all the way forward (toward the drive end).

5. Pull the belt up tight at the discharge end and cut off the excess length so that there is 1/2" of overlap after the end is squared.
Conveyor - Continued

Tracking the Belt

1. Basic rule: the belt moves toward the end of the roller that it contacts first.
2. Rollers must be square with the housing and parallel to each other.
3. Belt tension must be great enough to prevent slippage. Tension to 20-23 ft-lbs on adjustment bolts.

⚠️ CAUTION: Make sure everyone is clear of machine before running.
4. Run the conveyor. Check to see that the belt runs centered on the drive roller. Turn off the machine. Adjust drive roller if necessary.

⚠️ WARNING: Do not run the machine while adjusting. Failure to heed may result in personal injury or death.
5. To adjust drive roller, loosen the four nuts on the bearing holder plate, and the jam nut on the threaded adjuster. Retighten after adjusting is complete.

⚠️ CAUTION: Make sure everyone is clear of machine before running.
6. Run the machine for two minutes. Make sure belt runs centered on drive pulley.
7. Open the Tail End Door to view the idler.
8. Run the machine. Check to see that the belt is running centered on the idler roller. Turn the machine off.

⚠️ WARNING: Do not run the machine while adjusting. Failure to heed may result in personal injury or death.
9. If adjustment is necessary, adjust the tensioning bolts on the idler housing to 20-23 ft-lbs torque.
10. Check adjustment by running the machine. Make sure belt runs centered on idler pulley. The clearance between the belt and the housing should be the same on both sides.
11. Close the Tail End Door when complete.
Conveyor Belt Adjustment

Belt tension and tracking will need periodic adjustment. Follow the guidelines under “Tracking the Belt” to make adjustments.

Important

Belt Alignment and Belt Tension should be checked periodically.
Belt damage will occur if alignment or tension has not been maintained.
Belt tension should be 23 ft. lbs. of torque on adjustment bolts.
Belt should be tracked to be centered on the idle and drive roller.

Bearings

All drive shafts are supported by self-aligning, sealed ball bearings which have been packed at the factory and require no further lubrication. There is no adjustment to be made to the bearings, but check that the retainers are firmly fastened to the bearing stand. Also check that the setscrews in the lock collars are tight against the drive shaft.

Conveyor Belt Care

It is recommended that the conveyor belt be washed off and the tail end be cleaned out at the end of the season. This will help prevent material residue from building up and causing damage to the belt.
## Conveyor Assembly

25 foot Conveyor shown

<table>
<thead>
<tr>
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<th>Part No.</th>
<th>Description</th>
<th>Qty</th>
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<td>Carrying Rack</td>
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<tr>
<td>2</td>
<td>81080-00-MR</td>
<td>Tube Assembly - 25’</td>
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<td>3</td>
<td>81081-00</td>
<td>Lower End Group</td>
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<td>81082-00</td>
<td>Upper End Group</td>
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<td>N65065</td>
<td>Plate - Connector - 81091-01-MR</td>
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<td>6</td>
<td>N65066</td>
<td>Plate - Spacer - 81092-01-MR</td>
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</table>

### Items Not Shown

- N62349 Belt, Rubber Cleated - 16 x 51 ft 4 inches - for 25’ conveyor - 24550-30
- N53224 Belt Splice Kit - 16 Cleated Belt - 24387-15
- N58827 Splice Pin - 16 Belts - 24121-75
- 81011-02 Canvas
Maintenance

Conveyor - Continued

Lower End Group
23 foot Conveyor

For 23 Serial Number 16188 and Higher
### Lower End Group - 23 foot - Continued

<table>
<thead>
<tr>
<th>Item</th>
<th>Part No.</th>
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<td>3</td>
<td>N58842</td>
<td>Cover - 1&quot; Bearing - 23150-04</td>
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<td>Tap Bolt - 3/8 x 5 Lg</td>
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<td>Drum Assembly - 5&quot; - 24440-01</td>
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**Items Not Shown**

- N56105 Belt-Crescent Cup - 16 x 112 Lg - 24121-92 (for 23' SN 16188 and above) | 1
- N49469 Belt Splice Kit - 24387-16 (Kit can be used with either belt as it only includes lacing parts) | 1
- N64090 Belt Splice Tool - 24387-01 | 1
- N53224 Cleated Belt Splice Kit - Includes 24" cleated belt, splices, wire cable, crimp washers | 1
- 24398-03 Link Connecting #50 Heavy | 1
- 24356-01 Key - 1" Shaft | 1
- 24492-03 Hitch Pin - 1/2 x 4 Lg | 1
- N49477 Cleated Belt Seal Flap - Left Low - 46105-01 | 1
- N49478 Cleated Belt Seal Flap - Right Low - 46105-02 | 1
- N49476 Rear Hopper Belt Seal - 47640-01 | 1
- 81027-01 Flowguard | 1
- 81029-01 Flap | 1
- N60938 Collapsible Hopper Cover - Fits Collapsible Hopper serial #16188 and Higher | 1
- N62290 Collapsible Hopper Cover Kit - Fits Collapsible Hopper serial #16188 and Higher | 1
Lower End Group
25 foot Conveyor
## Conveyor - Continued

### Lower End Group - 25 foot - Continued

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Items Not Shown:
- N60642 Canvas - Hopper W/3 Hole Side Rails - 81011-04
- N62290 Hopper Cover Kit
- N49477 Flap - 10" Left Side - 46105-01
- N49478 Flap - 10" Right Side - 46105-02
- 24356-01 Key - 1/4"
- N56105 Belt, 16 Rub Cresct, Skd 9' 4" - 24121-92
- N49469 Belt Splice Kit - Lacing Parts Only - 24387-16
- N64090 Belt Splice Tool - 24387-01
- N58827 Splice Pin 16" Belts - 24121-75
- 24492-03 Hitch Pin
- 24398-01 Heavy Roller Chain - #50
- 24253-01 Hinge
- 24254-01 Rubber Handled Draw Latch
- 82024-01 Backer Hinge Plate
## Maintenance

### Conveyor - Continued

#### Upper End Group
23 foot Conveyor

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## Conveyor - Continued

### Upper End Group

25 foot Conveyor

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Maintenance

**Tie Rod - Tow Between**
On the 9365 and 9450 Tow Between Carts the Tie Rod torque procedure as follows:

1. Tighten the nut up to the frame plate.
2. Record the torque just before contacting the plate. (Initial Torque)
3. Add 100 ft-lbs (136 Nm) to the recorded torque and tighten the nut against the plate at this torque.

Check at 10 and 50 hours and periodically afterwards.
**Brakes**

**Periodic Inspection** should be made of the electrical connector, wiring, brake lines and hose for the entire brake system to insure there are no abraded or bare wires, damaged steel lines, or cracked and damaged hoses. During inspection assure there are no loose or “hanging” lines or wire that might drag or catch on objects/debris while being towed.

**Fill Reservoir**

There are two filler caps on the reservoir, either may be used for filling and checking fluid level as they both enter a common reservoir. Use caution when removing a filler cap to prevent the admission of dirt and/or contaminants into the fluid reservoir.

Check the fluid level in the reservoir. The fluid level must be maintained within 3/8 to 1/2 inch below the filler opening. If brake fluid is needed add only **NEW, CLEAN, DOT III BRAKE FLUID**.

Never reuse brake fluid that has been salvaged or removed from another system. Contaminated or dirty brake fluid may cause damage to the system resulting in system failure.

**Bleeding the Brakes**

It is essential to remove all air from the brakes and brake-lines prior to operation of the Air Cart. Operate unit with tractor brakes or manual override on Controller. Each Caliper has two (2) bleeder screws, each one should be bleed until fluid is free of air bubbles. Starting with the right brake open bleeder screw #1 and allow it to remain open until seeing brake fluid free of air bubbles coming out of the bleeder screw. Close the bleeder screw and move to the second bleeder screw repeating process. Repeat process for left brake.

While performing the bleeding process monitor the fluid level in the reservoir so that more air is not pumped into the brake lines because of low fluid level.

To prevent spilling brake fluid on the ground one end of a length of plastic tubing should be placed over the end of the bleeder screw and the other end should be placed into a container so that the fluid flow can be monitored for bubbles.

**Note:** Final stage of brake bleeding must be performed with tractor running to achieve full voltage/amps at BrakeRite pump. Unit will not generate maximum pressure otherwise.

---

**Important:**

Use only DOT III brake fluid.

Maintain fluid level within 3/8 to 1/2 inch below the filler opening.

Use caution when removing the filler cap to prevent contaminants entering into the fluid reservoir.
Brakes - Continued

Brake Pads

- Check brake pads for wear. If the thickness of the brake pad is 1/8" or less it is recommended to replace the brake pads.

To replace the brake pads use procedure below:
- Remove the wheels to gain adequate access to the calipers.
- Remove the bolt from each retaining pin.
- Slide the brake pad retaining pins out of the caliper and remove the brake pads.
- Install new brake pads and install retaining pins.
- Secure each retaining pins with bolt.

Caliper Pistons and Seal Replacement

- Remove the wheels to gain access to the calipers.
- Remove brake line and mounting bolts.
- Remove worn brake pads.
- Follow instructions in seal kit for piston removal and seal installation.
- Install new brake pads.
- Mount caliper to mounting plate and attach brake line.
- Bleed brakes.
Section 7: Storage

Section Contents
Preparation for Storage........................................................................................................7-2
  General................................................................................................................................7-2
  Metering Body Storage........................................................................................................7-3
Removing from Storage........................................................................................................7-4
  General................................................................................................................................7-4
  Monitor................................................................................................................................7-4
  Auger....................................................................................................................................7-4
  Conveyor...............................................................................................................................7-4
  Brakes.................................................................................................................................7-4
Preparing for Storage

General

- To insure longer life and satisfactory operation, store the 9 Series Air Cart in a shed.
- If building storage is impossible, store away from areas of main activity on firm, dry ground.
- Clean machine thoroughly.
- Inspect all parts for wear or damage.
- Avoid delays - if parts are required, order at the end of the season.
- Lubricate grease fittings (Refer to Lubricating Section).
- Tighten all bolts to proper specifications (Refer to Bolt Torque Chart).
- To prevent corrosion and damage by rodents, clean the hopper boxes and metering systems thoroughly and wash with mild soapy water solution. Rinse with water and dry thoroughly (Refer to Metering Body Storage).
- A light coating of silicone lubricant or WD-40 or penetrating oil should be applied to all metal metering system components before storage.
- Avoid lubricant contact with seals.
- Avoid lubricant contact with grain and fertilizer hoses and tubes.
- Relieve tension on tank lids.
- Loosen clean-out doors.
- Remove all chains and store in clean oil.
- Relieve pressure from hydraulic system.
- Raise frame, block up and relieve weight from the tires.
- Cover tires with canvass to protect them from the elements when stored outside.
- Paint any surfaces that have become worn.

Warning

Do not allow children to play on or around the machine.

MORRIS PAINT

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<td>Red MORRIS Touch-Up Pen</td>
</tr>
<tr>
<td>N53714</td>
<td>Silver MORRIS Touch Up Pen</td>
</tr>
<tr>
<td>N53715</td>
<td>Red MORRIS Aerosol Can</td>
</tr>
<tr>
<td>N53716</td>
<td>Silver MORRIS Aerosol Can</td>
</tr>
<tr>
<td>N31087</td>
<td>Sky White MORRIS Aerosol Can</td>
</tr>
</tbody>
</table>
Preparing for Storage - Continued

Metering Body Storage

It is extremely important that the metering system is thoroughly cleaned before storing for any length of time.

The following procedure should be followed for both tanks:

• Empty tanks (Refer to Unloading Tanks).
• Open Inspection Door and rotate seed plate to fully open position.
• Open Pressure Chamber Covers and blow air around chamber to ensure it is free of debris.
• Brush out remaining material in the corners and on top of the back plate.
• Rotate meter shaft using Run-Rest box to empty meter wheel flutes.
• Run fan.
• Wash the interior of both tanks and metering system with soapy water. Wash the collector.
• Rinse with cold water and let the unit air dry.
• Coat metal parts with silicone lubricant or WD-40.

Note: Diesel fuel will harm seals.

• Set seed plate to correct position for product being metered.
• Install Pressure Chamber Covers ensuring that the seals are free from debris and leaks.
• Close inspection door and collector bottom ensuring that the seals are free from debris and leaks.
• Start the fan and operate for 5 minutes to dry out any remaining moisture in the system.
• Leave inspection doors loose to help prevent condensation building up inside the tank.
• Leave lid latches loose to help maintain resilience of the seals.

Important

At no time should corrosive fertilizer or similar materials be allowed to remain in the tank or metering body cavity.
## Removing From Storage

### General
- Check tire pressure (Refer to Tire Pressure List).
- Clean machine thoroughly.
- Tighten lid latches.
- Lubricate and install chains.
- Spray internal parts of the metering body with silicone lubricant or WD-40 or penetrating oil to loosen any corrosion buildup.
- Check for leaks (Refer to Maintenance Section).
- Lubricate grease fittings (Refer to Lubricating Section).
- Tighten all bolts to proper specifications (Refer to Bolt Torque Chart).

### Monitor
Familiarize yourself with all monitor functions. Ensure all monitor “settings” are correctly set for the air cart/seeding tool combination. Recognize and correct alarm conditions as indicated on the machine. See Monitor Section for more details.

Check all wire harness connections for corrosion and use a dielectric spray to clean. Inspect all sensors for proper gap. See Monitor Section for more details.

### Auger
Inspect all augers used in handling the products for seeding. Run augers to clean out any debris inside auger so it does not get transferred to the tank.

### Conveyor
Any conveyor that has sat idle for a season needs to go through a “break-in” period. See “Startup and Break-In” under the Operation Section.

### Brakes
Check the fluid level in the reservoir. Verify the brake system is working properly. See Operation Section.
Section 8: Troubleshooting

Section Contents

General........................................................................................................................................8-2
Delivery hoses plugged...............................................................................................................8-2
Hydraulic fan will not turn .........................................................................................................8-2
Fan turning too slow ....................................................................................................................8-2
Material flowing thru system when unit is stationary and the fan running.........................8-2
Material not being divided in distribution head .......................................................................8-2
Material not being metered out .................................................................................................8-3
Material not being accurately metered out of the metering body .........................................8-4
Plugged seed boots.....................................................................................................................8-5
VRT System................................................................................................................................8-6
Motors will not turn in Manual Mode (Controller OFF).............................................................8-6
Motors will not turn in Operation Mode (Controller ON).........................................................8-6
Motors turn continuously in Operation Mode ..........................................................................8-6
Motors turn continuously in Calibration Mode ........................................................................8-6
Monitor.....................................................................................................................................8-7
Monitor lights up but does not seem to work ...........................................................................8-7
No fan display.............................................................................................................................8-7
No ground speed display ..........................................................................................................8-7
No display, no back light............................................................................................................8-7
Bin indicates always empty .......................................................................................................8-7
Bin indicates always full..............................................................................................................8-7
Conveyor ..................................................................................................................................8-8
The conveyor is vibrating ...........................................................................................................8-8
Capacity is too low .....................................................................................................................8-8
The conveyor plugs.....................................................................................................................8-8
Driveline shear bolt shears frequently .......................................................................................8-8
Cleated belt is slipping or loose .................................................................................................8-9
Cleated belt is rubbing side of housing or cleats are coming loose or wearing ....................8-9
Brakes.........................................................................................................................................8-9
## Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Delivery hoses plugged | Insufficient air flow. | Clean fan impeller blades.  
Clean fan intake screen.  
Increase fan rpm. |
| | Hose sag. | Shorten hoses or add additional supports. |
| | Seed boots plugged with dirt. | Clean seed boots.  
See “Seed Boot Plugging” below. |
<p>| | Hose obstruction. | Remove obstruction from hose. |
| | Air delivery hose partly off manifold. | Reinstall hose properly on manifold. |
| | Kinked hoses. | Straighten hoses and properly secure them to framework. |
| | Obstruction in divider head. | Remove access door and clear obstruction from appropriate outlets - be sure to use appropriate screens when filling. |
| | Exceeding machine’s delivery capabilities. | Reduce ground speed and speed up fan. |
| | Poorly mounted hoses. | Reroute hoses. |
| <strong>Hydraulic fan will not turn</strong> | Selector valve in wrong position. | Switch the selector to fan position. |
| | Hydraulic hoses not connected properly to tractor. | Reverse hydraulic hoses. |
| | Insufficient oil flow. | Perform flow test. |
| <strong>Fan turning too slow</strong> | Flow to hydraulic motor. | Increase flow control setting. |
| | Low hydraulic pressure. | Check hydraulic pressure minimum 2100 psi. |
| <strong>Material flowing thru system when unit is stationary and the fan running</strong> | Damaged metering wheel. | Replace metering wheel. |
| | Incorrect Seed Plate Setting. | Adjust as required. See “Seed Plate Settings” |
| <strong>Material not being divided in distribution head</strong> | Head partially blocked. | Remove blockage and reinstall hose. |
| | Kinked hose running to shank. | Straighten or replace hose. |</p>
<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
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</tr>
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<tbody>
<tr>
<td>Material not being divided in distribution head</td>
<td>Head partially blocked.</td>
<td>Remove blockage and reinstall hose.</td>
</tr>
<tr>
<td></td>
<td>Kinked hose running to shank.</td>
<td>Straighten or replace hose.</td>
</tr>
<tr>
<td></td>
<td>Damaged distribution section on head.</td>
<td>Replace head with new one.</td>
</tr>
<tr>
<td></td>
<td>Bent or damaged diffuser pipe.</td>
<td>Straighten or replace diffuser pipe.</td>
</tr>
<tr>
<td></td>
<td>Secondary hose length.</td>
<td>See “Secondary Hose” in Operation Section.</td>
</tr>
<tr>
<td></td>
<td>Tanks not pressurized.</td>
<td>Inspect lid seals. Clean pressurization hoses.</td>
</tr>
<tr>
<td>Material not being metered out</td>
<td>Main drive chain not installed.</td>
<td>Install drive chain properly on Drive Sprocket.</td>
</tr>
<tr>
<td></td>
<td>Drive chain or chains broken.</td>
<td>Install new chain. Ensure connecting link is installed correctly. Curved part of spring clip should face the direction of chain travel.</td>
</tr>
<tr>
<td></td>
<td>Massive air leak in tank, resulting in material being blown up out of the metering cup.</td>
<td>Repair the air leak. See “Air Leaks” in Maintenance Section. See “Tank Lid Adjustment” in Maintenance Section.</td>
</tr>
<tr>
<td></td>
<td>Material caked up in tank.</td>
<td>Remove material and completely clean out the tank.</td>
</tr>
<tr>
<td></td>
<td>Excessively wet material in tank.</td>
<td>Remove wet material and use reasonably dry material.</td>
</tr>
<tr>
<td></td>
<td>Coupler bolt sheared.</td>
<td>Replace with Grade 8 bolt.</td>
</tr>
</tbody>
</table>
# Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material not being accurately metered out of the metering body</td>
<td>Air delivery hoses loose, cracked or pulled off.</td>
<td>Tighten the hoses, replace cracked hoses or install hoses pulled off their respective locations.</td>
</tr>
<tr>
<td></td>
<td>Inlet screen to fan blocked off.</td>
<td>Clean off material that is blocking the fan screen.</td>
</tr>
<tr>
<td></td>
<td>Incorrect Seed Plate Setting.</td>
<td>Adjust Seed Plate - See Operation Section.</td>
</tr>
<tr>
<td></td>
<td>Seed Plate lock not adjusted correctly.</td>
<td>Adjust Seed Plate lock - See Operation Section.</td>
</tr>
<tr>
<td></td>
<td>Material caked up above one or more of the metering cups.</td>
<td>Clean out caked up material.</td>
</tr>
<tr>
<td></td>
<td>Excessively damp material in tank.</td>
<td>Use reasonably dry, fresh material only.</td>
</tr>
<tr>
<td></td>
<td>Foreign obstruction in tank above metering wheels.</td>
<td>Remove obstruction, and always fill tanks through the screen.</td>
</tr>
<tr>
<td></td>
<td>Caked up metering wheels on some or all of the metering cups.</td>
<td>Clean out the metering cups and wheels.</td>
</tr>
<tr>
<td></td>
<td>Damaged metering wheels.</td>
<td>Replace damaged metering wheels.</td>
</tr>
<tr>
<td></td>
<td>Metering wheels mismatched to secondary outlet.</td>
<td>Install correct wheels to head.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 3/4&quot; wide wheel for 7 outlet head.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2&quot; wide wheel for 8 outlet head.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 1/4&quot; wide wheel for 9 outlet head.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 1/2&quot; wide wheel for 10 outlet head.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Be sure appropriate spacers are also used.</td>
</tr>
<tr>
<td></td>
<td>Collector Valves set incorrectly on Double Shoot machines.</td>
<td>See Operation Section.</td>
</tr>
<tr>
<td></td>
<td>Air Leak in System.</td>
<td>Adjust lids and doors as necessary. Replace damaged seals. See Maintenance Section.</td>
</tr>
<tr>
<td></td>
<td>Meterbody pressurization hose disconnected.</td>
<td>Reconnect hose to meterbody/plenum.</td>
</tr>
<tr>
<td>Problem</td>
<td>Cause</td>
<td>Correction</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------------------------------------</td>
<td>----------------------------------------------------</td>
</tr>
<tr>
<td>Plugged seed boots</td>
<td>Backing up with openers near or in the ground.</td>
<td>Lift machine all the way up before backing up.</td>
</tr>
<tr>
<td></td>
<td>Turning very sharp with openers near or in the ground.</td>
<td>Lift machine all the way up when making sharp turns.</td>
</tr>
<tr>
<td></td>
<td>Lowering machine without any forward motion.</td>
<td>Always have forward motion when lowering machine.</td>
</tr>
<tr>
<td>Worn openers or sweeps.</td>
<td></td>
<td>Replace openers.</td>
</tr>
<tr>
<td>Severely bent or damaged boots.</td>
<td></td>
<td>Straighten or replace as required.</td>
</tr>
<tr>
<td>Excessively wet conditions.</td>
<td></td>
<td>Change openers, operate when drier.</td>
</tr>
<tr>
<td>Opener Adjustment.</td>
<td></td>
<td>See “Opener Adjustment” in Operation Section.</td>
</tr>
<tr>
<td>Problem</td>
<td>Cause</td>
<td>Correction</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------------------------------------</td>
<td>------------------------------------------------</td>
</tr>
<tr>
<td><strong>VRT System</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motors will not turn in Manual Mode (Controller OFF)</td>
<td>Selector valve (Fan/Auger).</td>
<td>Switch selector valve to fan position.</td>
</tr>
<tr>
<td></td>
<td>Hydraulic oil flow.</td>
<td>Ensure hydraulic lever is properly engaged.</td>
</tr>
<tr>
<td>Motors will not turn in Operation Mode (Controller ON)</td>
<td>Selector valve.</td>
<td>Switch selector valve to fan position.</td>
</tr>
<tr>
<td></td>
<td>Hydraulic oil flow.</td>
<td>Ensure hydraulic lever is properly engaged.</td>
</tr>
<tr>
<td></td>
<td>VRT Sensor Gap.</td>
<td>Gap should be 0.030” (0.76 mm).</td>
</tr>
<tr>
<td>Motors turn continuously in Operation Mode</td>
<td>Shaft Motor Solenoids.</td>
<td>Zero Shaft Motors. See “Preparing VR System”.</td>
</tr>
<tr>
<td></td>
<td>VRT Sensor Gap.</td>
<td>Gap should be 0.030” (0.76 mm).</td>
</tr>
<tr>
<td>Motors turn continuously in Calibration Mode</td>
<td>VRT Sensor Gap.</td>
<td>Gap should be 0.030” (0.76 mm).</td>
</tr>
</tbody>
</table>
## Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Monitor</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitor lights up but does not seem to work</td>
<td>Faulty monitor.</td>
<td>Replace monitor.</td>
</tr>
<tr>
<td></td>
<td>Completely disconnected harness.</td>
<td>Connect harness.</td>
</tr>
<tr>
<td>No fan display</td>
<td>Incorrect gap between sensor and target.</td>
<td>Gap should be 0.030&quot; (0.76 mm).</td>
</tr>
<tr>
<td></td>
<td>Faulty sensor.</td>
<td>Replace sensor.</td>
</tr>
<tr>
<td></td>
<td>Broken or shorted wire.</td>
<td>Replace or repair harness.</td>
</tr>
<tr>
<td>No ground speed display</td>
<td>Sensor to magnet gap too large.</td>
<td>Gap should be 0.030&quot; (0.76 mm).</td>
</tr>
<tr>
<td></td>
<td>Faulty sensor.</td>
<td>Replace sensor.</td>
</tr>
<tr>
<td></td>
<td>Broken or shorted wire.</td>
<td>Replace or repair harness.</td>
</tr>
<tr>
<td>No display, no back light</td>
<td>Switched off.</td>
<td>Switch unit on.</td>
</tr>
<tr>
<td></td>
<td>Poor power connections at the battery.</td>
<td>Ensure good connections. Replace monitor.</td>
</tr>
<tr>
<td></td>
<td>Battery below 10.8 volts.</td>
<td>Check battery voltage.</td>
</tr>
<tr>
<td></td>
<td>Temperature below -10C or above +40C.</td>
<td>Operate between -10C and +40C.</td>
</tr>
<tr>
<td>Bin indicates always empty</td>
<td>Broken wire.</td>
<td>Repair wire.</td>
</tr>
<tr>
<td></td>
<td>Faulty sensor.</td>
<td>Replace sensor.</td>
</tr>
<tr>
<td></td>
<td>Wires not hooked to sensor.</td>
<td>Hook up correctly.</td>
</tr>
<tr>
<td>Bin indicates always full</td>
<td>Blocked light beam on photoelectric sensor.</td>
<td>Remove object blocking the beam.</td>
</tr>
<tr>
<td></td>
<td>Wire shorted to ground.</td>
<td>Repair or replace wire.</td>
</tr>
<tr>
<td></td>
<td>Faulty sensor.</td>
<td>Replace Sensor.</td>
</tr>
</tbody>
</table>
## Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conveyor</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The conveyor is vibrating</td>
<td>Damage can occur to the belting, causing a noise. Damage usually is caused from foreign material being run through the conveyor.</td>
<td>It may be necessary to remove the belting for inspection.</td>
</tr>
<tr>
<td></td>
<td>The belt is not tracking in the center of the conveyor.</td>
<td>Track the belt.</td>
</tr>
<tr>
<td>Capacity is too low</td>
<td>There may not be enough grain reaching the conveyor.</td>
<td>Make sure the intake has not bridged over, restricting flow. The belt needs to be covered to achieve maximum capacity.</td>
</tr>
<tr>
<td></td>
<td>Conveyor belt is moving too slow.</td>
<td>Check the belt speed. Low capacity will result from speeds slower than recommended.</td>
</tr>
<tr>
<td>The conveyor plugs</td>
<td>The conveyor may be “jamming” because too much grain is reaching the conveyor.</td>
<td>Decrease the amount of grain the conveyor is gathering.</td>
</tr>
<tr>
<td></td>
<td>The grain may be wet.</td>
<td>If wet grain or other hard to move materials is being conveyed, reduce the amount of grain being fed into hopper.</td>
</tr>
<tr>
<td></td>
<td>The conveyor may be jammed with foreign material.</td>
<td>Remove any foreign material in the conveyor.</td>
</tr>
<tr>
<td></td>
<td>The discharge end may be plugged.</td>
<td>Unplug any plugs at the discharge end of the conveyor.</td>
</tr>
<tr>
<td></td>
<td>Pulley has spun out and burned the belt in two.</td>
<td>Cut and ressplice the belt. An additional piece of belting may be required.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tighten and retrack the belt.</td>
</tr>
<tr>
<td>Driveline shear bolt shears</td>
<td>Grain may be flowing too quickly into the hopper.</td>
<td>Reduce the flow rate of grain into hopper.</td>
</tr>
<tr>
<td>frequently.</td>
<td>The discharge of grain from the conveyor may be restricted.</td>
<td>Inspect conveyor intake and discharge for damage.</td>
</tr>
</tbody>
</table>
## Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
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<th>Correction</th>
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</thead>
<tbody>
<tr>
<td>Cleated belt is slipping or loose.</td>
<td>Belt tension too low.</td>
<td>Tension belt to 23 ft. lbs. on the adjustment bolts. Tension hopper belt to 80 in. lbs. or until center of the belt rises off the support pan underneath.</td>
</tr>
<tr>
<td></td>
<td>Belt is extremely dirty.</td>
<td>Clean traction side of belt.</td>
</tr>
<tr>
<td>Cleated belt is rubbing side of housing or cleats are coming loose or wearing.</td>
<td>Belt misaligned.</td>
<td>Align belt so its tracks center of idle and drive rollers. Tighten the side of the belt that is tracked off the roller.</td>
</tr>
</tbody>
</table>

**Brakes**

Indicator on “In Cab Controller”
Shows no connection between towed and towing-vehicle.

Check and add brake fluid as required (figure 5.4.2A-pg.22)
Bleed brake lines and devices
Check input for adequate “charge” (12 VDC)

Inadequate or excessive Cart braking.

Adjust “gain” control on In-Cab Controller.

BrakeRite unit runs but does not build pressure.

Assure proper brake fluid level, add fluid and bleed the system as required.

BrakeRite unit does not run when the Tractor brake pedal is depressed

Verify and connect wire connections in the entire electrical circuit.

BrakeRite unit does not run when the in-cab manual override is activated.

Verify and connect wire connections in the entire electrical circuit.

---

Experience has shown that virtually all problems with BrakeRite units are the result of INCORRECT OR FAILED WIRING. If problems arise consult the applicable wiring diagram (Section 9.0) and inspect all wiring and terminations.
It is the policy of Morris Industries Ltd. to improve its products whenever it is possible to do so. Morris Industries reserves the right to make changes or add improvements at any time without incurring any obligation to make such changes on machines sold previously.