

Volume 2

MonTag

Owner and Operators Manual



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1. INTRODUCTION /GENERAL INFORMATION

1.1 INTRODUCTION

Read and understand this manual before using your fertilizer applicator, and follow all of the safety instructions. Keep all manuals in a safe place inside your tractor at all times.

Some components on your fertilizer applicator may have separate instruction manuals. Where this manual indicates that you should read another manual, and you do not have that manual, contact your dealer or Montag Manufacturing for assistance.

Information provided in this manual was current as of the issue date. Montag Manufacturing reserves the right to make design changes without further notice or liability.

1.2 TRACTOR REQUIREMENTS

The following tractor hydraulic capacity requirements apply for any dry fertilizer application.

Rows	Hydraulic Capacity	Hydraulic Pressure
8 or 12	15 Gallons Per Minute (GPM)	2250 psi
12 (High Output)	16 Gallons Per Minute (GPM)	2500 psi
16	17 Gallons Per Minute (GPM)	2500 psi
16 (High Output) or 24	18 Gallons Per Minute (GPM)	2500 psi

1.3 SPECIFICATIONS

1.3.1 AUTO STEERING CART

Size	Load Capacity	Tire and Rim Size
5 Ton	850 Gallon Tank	16.9" x 26" 10 Ply
7 Ton	1200 Gallon Tank or 6 Ton Dry Fertilizer Meter	420/85R34 Radial
10 Ton	1700 Gallon Tank or 9 Ton Dry Fertilizer Meter	380/90R46 Radial
10 Ton Lift Assist	1200 Gallon Tank or 6 Ton Dry Fertilizer Meter	380/90R46 Radial
10 Ton High Capacity Lift Assist	1700 Gallon Tank or 9 Ton Dry Fertilizer Meter	380/90R46 Radial

1.3.2 DRY FERTILIZER METER

Model	Rated Capacity	Auger Size	Hose Size
8 Row Standard	500 lbs./Acre @ 6 mph*	2"	2"
12 Row Standard	500 lbs./Acre @ 6 mph*	2"	2"
16 Row Standard	500 lbs./Acre @ 6 mph*	2"	2"
24 Row Standard	500 lbs./Acre @ 5 mph*	2"	2" and 2-1/2"
8 Row High Output	1000 lbs./Acre @ 5 mph*	2-1/2"	2-1/2"
12 Row High Output	1000 lbs./Acre @ 5 mph*	2-1/2"	2-1/2"
16 Row High Output	1000 lbs./Acre @ 5 mph*	2-1/2"	2-1/2"

* Capacities are based on fertilizer weighing 64 lbs./cubic ft. and 30" row spacing with standard hose length equipped with cart.

1.3.3 LIQUID FERTILIZER CART

Model	Steering Cart	Tank Description
850 Gallon Cart	5 Ton	850 Gallon Elliptical
1200 Gallon Cart	7 Ton	1200 Gallon 15 degree cone bottom
1700 Gallon Cart	10 Ton	1700 Gallon 15 degree cone bottom

1.4 WARRANTY INFORMATION

MONTAG MANUFACTURING, INC.

LIMITED WARRANTY FOR NEW MONTAG EQUIPMENT

What this Limited Warranty Covers - Montag Manufacturing, Inc. ("Montag") warrants equipment manufactured by it to be free from defects in material and workmanship for the warranty period.

What this Limited Warranty Does Not Cover - Montag is not responsible for, and this limited warranty does not cover: (1) used parts, (2) any part that has been altered or modified in ways not approved by Montag, (3) depreciation or damage caused by normal wear and tear, (4) unauthorized repair or adjustments, (5) reimbursement for work completed by an unauthorized service center, (6) other equipment, crops, or property with which Montag equipment comes into contact, (7) components manufactured and warranted by other manufacturers such as tires and hydraulic equipment, (8) loss of time, loss of use, towing charges, or other incidental or consequential damages, or (9) to equipment which has been damaged as the result of, misuse, abuse, lack of proper protection during storage, accident, failure to follow the operating instructions and perform routine maintenance as provided in the operator's manual, fire, flood, "Acts of God" or other contingencies beyond Montag's control.

Warranty Term and Coverage - This limited warranty provides coverage for three years from the date the equipment is delivered to the first purchaser and extends to the original purchaser and any subsequent owner.

What Montag Will Do – (1) Montag will provide telephone consultation with a trained representative regardless of the location of the equipment. (2) For equipment located in the general geographic area served by a Montag dealer, Montag may, if Montag deems it necessary or expedient, send a trained technician to work on the equipment at the owner's place of business. (3) Equipment that requires service or repair at the Montag manufacturing facility or at an authorized Montag dealership must be transported or shipped to and from the Montag manufacturing facility or Montag authorized dealership at the owner's sole expense.

To Get Warranty Service – To get warranty service the owner must (1) report the defect to an authorized dealer and request repair within the warranty term, (2) present evidence of the warranty start date, and (3) make the product available to the dealer within a reasonable time. The owner can also contact Montag by U.S. Mail at 4335 560th Ave. West Bend, Iowa 50597; by telephone at (515)-887-6723; by facsimile at (515)-887-6725; or by e-mail at info@montagmfg.com

Limitation of Implied Warranties and Other Remedies – To the extent permitted by law, Montag makes no warranties, representations or promises as to the quality, performance or freedom from defect of its equipment covered by this limited warranty. IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE TO THE EXTENT APPLICABLE, SHALL BE LIMITED IN DURATION TO THE APPLICABLE PERIOD OF WARRANTY SET FORTH IN THIS LIMITED WARRANTY. THE OWNER'S ONLY REMEDIES IN CONNECTION WITH THE BREACH OR PERFORMANCE OF ANY WARRANTY ARE SET FORTH IN THIS LIMITED WARRANTY. IN NO EVENT WILL MONTAG OR ANY MONTAG DEALER BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. (Note: Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages so the above limitations may not apply to you.) This warranty gives you specific legal rights, and you have also have other rights which vary from state to state.

No Dealer Warranty – The selling dealer makes no warranty of its own and the dealer has no authority to make any representation on behalf of Montag, or to modify the terms or limitations of this warranty in any way.


2. SAFETY

2.1 SECTION OVERVIEW

This section explains the level of risk and potential hazards associated with operating and maintaining Montag Fertilizer Application Systems. The safety signs and their locations on the machine are also identified.

2.2 SAFETY

This Owner's Manual covers the fertilizer applicator produced by Montag Manufacturing. Before operating or servicing the fertilizer applicator, you must read, understand and follow the instructions and safety warnings in this manual. Your fertilizer applicator may not be equipped with some of the optional equipment shown in the illustrations in this manual.

The safety information in this manual is denoted by the safety alert symbol: 

The level of risk is indicated by the following signal words.

DANGER

DANGER – Indicates a hazardous situation, which, if not avoided, will result in death or serious injury.

WARNING

WARNING – Indicates a hazardous situation, which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION – Indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE – Indicates a situation that could result in damage to the machine or other property.

2.2.1 KEEP ALL GUARDS IN PLACE

Remove guards only for adjustment and maintenance, install immediately when task is completed. Do not operate meter or fan with covers removed. Do not wear loose fitting clothing that can catch in rotating equipment.

WARNING

Severing hazard.

Rotating fans and moving chains can sever digits.

Always keep all guards and shields in place.



2.2.2 STAY AWAY FROM ROTATING AUGERS

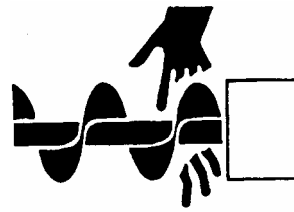
Keep hands and fingers away from metering augers unless chain has been removed from auger drive sprocket.

⚠ WARNING

Severing hazard.

Rotating augers can sever digits.

Remove chain from auger drive sprocket before touching metering augers.



2.2.3 KEEP RIDERS OFF EQUIPMENT

Never allow people on or near the equipment while it is moving. Riders can be thrown off or under the equipment, which may result in death or serious injury. Never climb on equipment while equipment is moving. Keep children away from equipment at all times.

Never climb onto cart when it is not attached to an implement. Cart could tip, which may result in death or serious injury.

⚠ WARNING

Crushing hazard.

Riders can fall from equipment, resulting in death or serious injury.

Never allow riders on the equipment.

Never climb on cart not attached to implement.



2.2.4 AVOID HOT PARTS

After several minutes of equipment operation, surfaces containing hydraulic fluid can become very hot.

⚠ WARNING

Burn hazard.

Do not touch hot hydraulic surfaces.

Do not work on hydraulic system when it is hot.



2.2.5 AVOID HIGH PRESSURE HYDRAULIC FLUID

Always relieve hydraulic system pressure before performing any work on the system. Use a piece of cardboard or paper, not your hand, to check for leaks.

⚠ WARNING

Relieve pressure before disconnecting hydraulic lines.

Tighten all connections before applying pressure.

Seek medical attention immediately if fluid is injected into skin.



2.2.6 AVOID FLYING OBJECT INJURIES

When fan is running, debris can be thrown from the air outlet, causing injury or possible loss of sight.

⚠ WARNING

Projectile hazard.

Do not stand in front of air outlet while fan is operating.



2.2.7 AVOID LOSS OF CONTROL

Transporting cart at excessive speed can result in loss of cart control, causing death or serious injury.

⚠ WARNING

Danger of loss of control when transporting cart.

Remove all product from tank before transporting on roads. With empty tanks, maximum speed for cart on roads is 30 mph.

Maximum speed for cart with full tank is 10 mph.

2.2.8 AVOID TIPPING CART

If stairs and platform are installed on rear of dry tank, tank can tip over if people climb on stairs with cart disconnected from implement, resulting in death or serious injury.

⚠ WARNING

Crushing hazard.

Do not climb on tank stairs or platform when cart is disconnected from implement.

2.2.9 CLEARANCE

⚠ WARNING

Collision hazard.

Know the height, width and length of the equipment.

Always be aware of clearances.

2.2.10 MAINTENANCE

WARNING

Crushing hazard.

Before performing inspections, service or maintenance:

- Park the equipment on firm, level surface.
- Place tractor transmission in park, turn tractor engine off and remove ignition key.
- Verify service locks are properly engaged or lower tool bar and lower row units to the ground or pavement.

2.2.11 HAZARDS FROM MODIFYING YOUR FERTILIZER APPLICATOR

Before making any alteration, contact your dealer or Montag Manufacturing and describe the alteration you are contemplating. Altering may void the manufacturer's warranty.

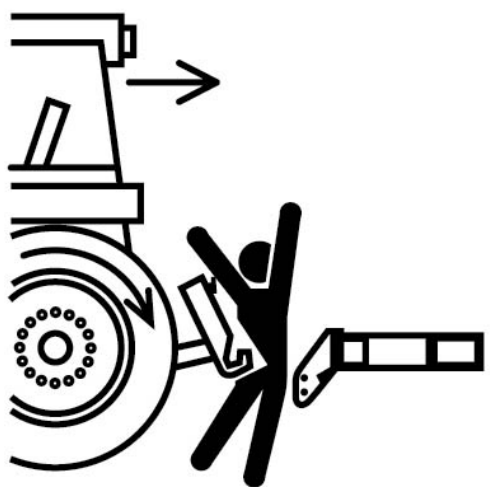

2.2.12 SAFETY WARNING LABELS


2.2.12.1. CART DECALS

Center Frame – Tie-Rod Area



Arms (Except 10 Ton with Self-Leveling)



 DANGER	
CRUSHING HAZARD	
To prevent serious injury or death:	
<ul style="list-style-type: none">• Do not stand between implement and moving tractor.• Stop tractor engine and set park brake before installing pins.	
T3	

Arms (10 Ton with Self-Leveling)





DANGER



To prevent serious injury or death from pinching:

- Keep all persons and objects clear while any part of this machine is in motion.

205



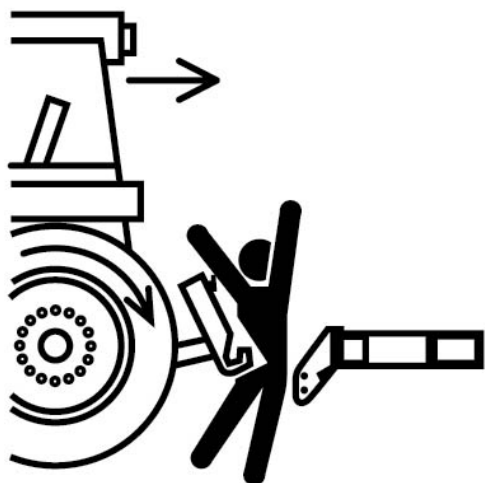
DANGER

CRUSHING HAZARD

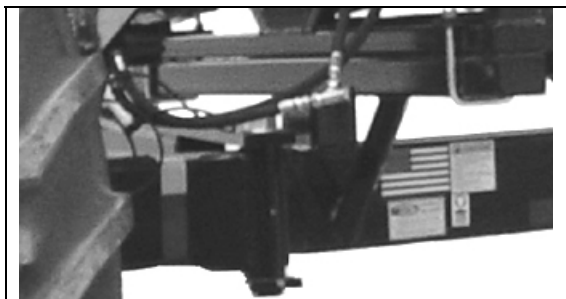
To prevent serious injury or death:

- Do not stand between implement and moving tractor.
- Stop tractor engine and set park brake before installing pins.

T3



Rear of Center Frame





CAUTION

1. Read Operator's Manual before using machine.
2. Stop tractor engine, lower machine to the ground, place all controls in neutral, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing, unplugging or fitting.
3. Install and secure all guards before starting.
4. Keep hands, feet, hair and clothing away from moving parts.
5. Do not allow riders.
6. Keep all hydraulic lines, fittings and couplers tight and free of leaks before using.
7. Clean reflectors, SMV and lights before transporting.
8. Install safety locks before transporting or working beneath components.
9. Add extra lights and use pilot vehicle when transporting during times of limited visibility.
10. Use hazard flashers in tractor when transporting.
11. Install safety chain when attaching to tractor.
12. Keep away from overhead electrical lines. Electrocution can occur without direct contact.
13. Review safety instructions with all operators annually.

4

2.2.12.2. DRY TANK DECALS

Fan Housing





DANGER



POSSIBLE CHEMICAL HAZARD

Some chemicals can cause serious burns, lung damage, and even death.

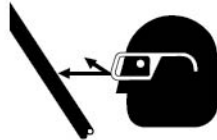
To avoid:

- READ AND FOLLOW CHEMICAL MANUFACTURER'S INSTRUCTIONS.
- Try to avoid contact with skin or eyes. Wear eye and hand protection if required by chemical manufacturer.
- Avoid prolonged breathing of chemical fumes. Wear respirator if required by chemical manufacturer.
- If accident occurs, seek medical assistance immediately. Know what to do.

T6



WARNING



HIGH-PRESSURE FLUID HAZARD

To prevent serious injury or death:

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

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CAUTION

1. Read Operator's Manual before using machine.
2. Stop tractor engine, lower machine to the ground, place all controls in neutral, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing, unplugging or fitting.
3. Install and secure all guards before starting.
4. Keep hands, feet, hair and clothing away from moving parts.
5. Do not allow riders.
6. Keep all hydraulic lines, fittings and couplers tight and free of leaks before using.
7. Clean reflectors, SMV and lights before transporting.
8. Install safety locks before transporting or working beneath components.
9. Add extra lights and use pilot vehicle when transporting during times of limited visibility.
10. Use hazard flashers in tractor when transporting.
11. Install safety chain when attaching to tractor.
12. Keep away from overhead electrical lines. Electrocution can occur without direct contact.
13. Review safety instructions with all operators annually.

4

Top of Tank



DANGER



To Prevent Serious Injury Or Death:

- Keep hands, feet and clothing away from auger intake.

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CAUTION

Agricultural chemicals can be dangerous. Improper selection of use can seriously injure persons, animals, plants, soil or other property. **BE SAFE.** Select the right chemical for the job. Handle it with care. Follow the instructions on the container label and instructions from the equipment manufacturer.

901

Auger Motor



WARNING



MOVING PART HAZARD

To prevent serious injury or death from moving parts:

- Close and secure guards and shields before starting.
- Keep hands, feet, hair and clothing away from moving parts.
- Disconnect and lockout power source before adjusting or servicing.
- Do not stand or climb on machine when operating.

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2.2.12.3. LIQUID TANK DECALS



POSSIBLE CHEMICAL HAZARD

Some chemicals can cause serious burns, lung damage, and even death.

To avoid:

- READ AND FOLLOW CHEMICAL MANUFACTURER'S INSTRUCTIONS.
- Try to avoid contact with skin or eyes. Wear eye and hand protection if required by chemical manufacturer.
- Avoid prolonged breathing of chemical fumes. Wear respirator if required by chemical manufacturer.
- If accident occurs, seek medical assistance immediately. Know what to do.

T6





CAUTION

Agricultural chemicals can be dangerous. Improper selection of use can seriously injure persons, animals, plants, soil or other property. **BE SAFE.** Select the right chemical for the job. Handle it with care. Follow the instructions on the container label and instructions from the equipment manufacturer.

901



WARNING

To protect against death or serious injury, all labels must be on the machine and must be legible.

If any of these labels are missing or cannot be read, call Montag Manufacturing at 1-515-887-6723, or visit the website at www.MontagMfg.com, for replacement labels.

3. ASSEMBLY

3.1 CART ASSEMBLY OVERVIEW

Cart assembly procedures are about the same regardless of cart size (5, 7 or 10 Ton). The exception is the 10 Ton cart with the self-leveling option, which has a different arm configuration. Photos in this assembly section are of the 7 Ton cart and the 10 Ton self-leveling cart with lift-assist.

3.2 CART - SHIPPING CONFIGURATION

All carts, except the 10 Ton Self-Leveling Cart, are shipped with the following components for assembly:

Center Frame
Spindle Assemblies (Left /Right)
Arms (2) - Left /Right)
Wheels (2)
Adjustable Hitches (2)
Hitch Balls (2-5/16") (2)
Floating Saddles (4) (Dry fertilizer use only)
Jacks (2)

10 Ton Self-Leveling Carts are shipped with the following components for assembly:

Center Frame
Spindle Assemblies (Left /Right)
Arms (4) (Top/Bottom, Left/Right)
Arm Support Brackets (Front/Rear, Left/Right)
Wheels (2)
Toolbar Mounted Hitch
Floating Saddles (2) (Dry fertilizer use only)
Hydraulic Cylinders (2) (Lift-Assist Only)
Jacks (5)

3.3 CART - ASSEMBLY (ALL EXCEPT 10 TON SELF-LEVELING)

3.3.1 ASSEMBLE SPINDLE ASSEMBLIES TO CENTER FRAME

1. Fully support center frame on devices (such as heavy duty sawhorses) rated to support the weight of the center frame.



Crushing hazard.

Be certain everyone is clear of assemblies.

Fully support frame and spindle assembly.



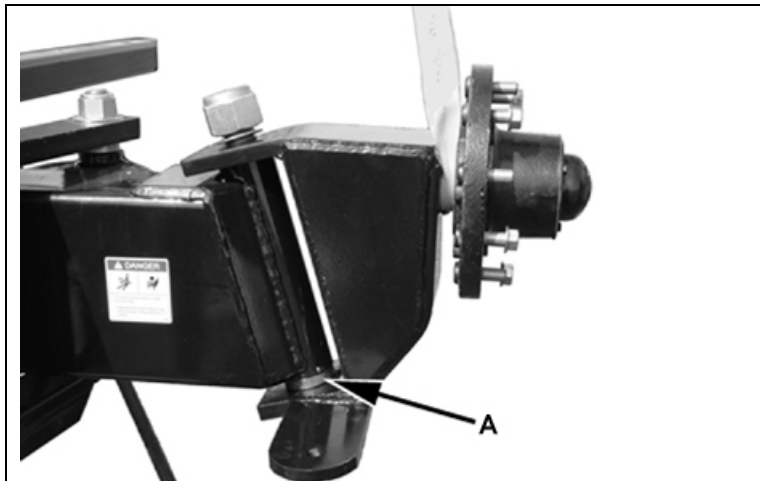
2. Position spindle assembly at center frame with appropriate lifting device.

Note: Ensure tie-rod mounting bracket faces forward.

Pins are inserted from bottom (nut on top) to permit pin removal without removal of fertilizer tank skid.

3. Insert spindle pin from bottom through lower spindle assembly bracket, then through the bearing (A), center frame, and upper spindle assembly bracket. Fasten with spacer and lock nut. Tighten as securely as possible without bending plates.

4. Repeat Steps 2 and 3 for other side.



3.3.2 ASSEMBLE ARMS TO CENTER FRAME

Note: See illustration to lift arm with lifting straps. One strap is positioned behind connector for jack.

1. Position arm at center frame with appropriate lifting device.

2. Insert arm pin (A) from bottom through lower arm bracket, then through center frame and upper arm bracket. Fasten with spacer and lock nut and tighten nut to eliminate any space at pinch points (B) between upper or lower arm support bracket and center frame. Arm should move freely after tightening arm pin.

3. Install jack and extend to firmly contact ground.

4. Rest free end of arm on a suitable support, and remove lifting strap.

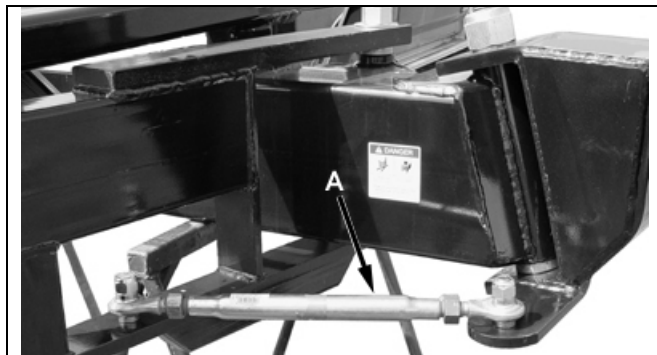
5. Repeat Steps 2-4 for other side.



3.3.3 INSTALL TIE-RODS

Note: Install bolts from bottom (nut on top) to take advantage of strength of bolt shaft through bracket.

1. Install tie-rod (A) on spindle assembly bracket and arm, with 1 – 8 x 4-1/2" bolts coming up from bottom.
2. Tighten bolts to 483 lb-ft.
3. Repeat for other side.



3.3.4 INSTALL WHEELS

Note: Hole (A) is provided in wheel for attaching lifting strap. Wheel shown installed on 10 Ton self-leveling cart. Procedure is the same for all carts.

1. Route lifting strap through wheel hole (A), and position wheel on spindle assembly with an appropriate lifting device.
2. Install lug nuts. Tighten lug nuts in a crisscross star pattern to following specifications:

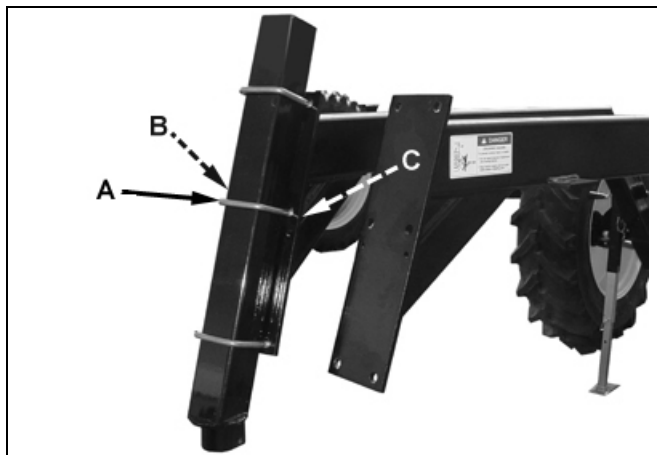
Cart Size	Thread Size	Recommended Torque	Maximum Torque
5 Ton	5/8 - 18	125 - 135 lb-ft	180 lb-ft
7 Ton	5/8 - 18	125 - 135 lb-ft	180 lb-ft
10 Ton	3/4 - 16	275 - 285 lb-ft	335 lb-ft

3. Check torque on lug nuts after first hour of use and again after first day of use.



3.3.5 INSTALL ADJUSTABLE HITCHES

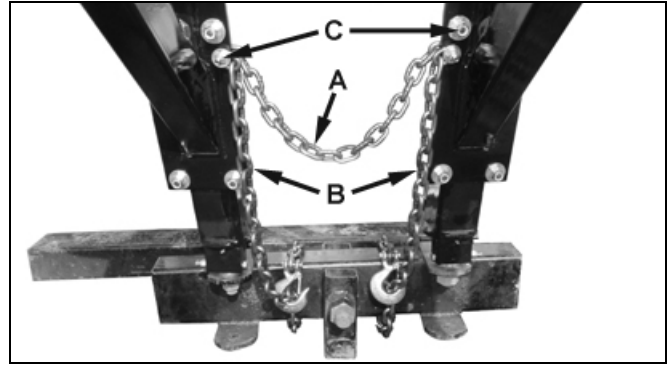
1. Install hitch on each arm as illustrated using three 3/4-10 x 4 wide x 5-1/2" long U-bolts with lock nuts. Tighten nuts until all six nuts are in contact with plate.
2. Starting with middle U-bolt (A), alternate tightening nut (B) and nut (C) in 25 lb increments until each nut is tightened to 150 lb-ft. Then torque each nut to an end torque of 160 lb-ft. Avoid over tightening either side.
3. Repeat torquing procedure for top and bottom U-bolts.



3.3.6 **INSTALL SAFETY CHAINS**

Note: Safety chain is installed between the two arms to keep arms together if they disconnect from hitch.

1. Position short chain (A) and long chains (B) as shown, and install each 1/2 -13 x 2-1/2" bolt (C) from front of cart through spacer, then short chain, plate, long chain, washer and lock nut.
2. Tighten bolts to 57 lb-ft.
3. Install clevis hook on end of each chain.



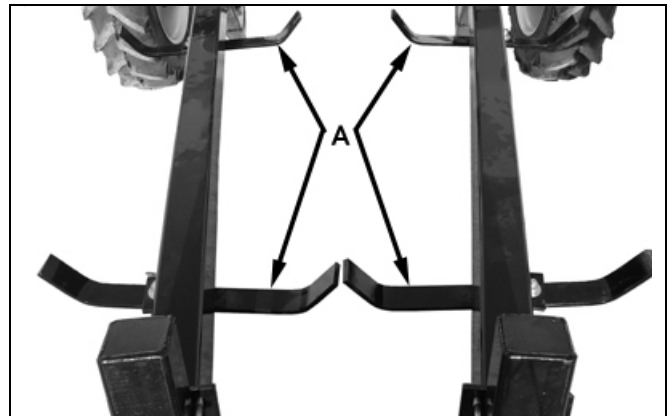
3.3.7 **INSTALL FLOATING SADDLES (DRY FERTILIZER USE ONLY)**

Note: Four floating saddles (A) are provided on all carts, except the 10 Ton Self-Leveling Cart, to support hoses used with dry fertilizer application. Two floating saddles are provided on 10 Ton Self-Leveling carts.

1. Position floating saddles (A) under brackets on cart arms with short sides of arms to outside of cart.

NOTICE: Floating saddles must move freely to accommodate movement of hoses. Do not fully tighten lock nuts.

2. Install bolts from bottom through spacer, saddle, spacer, bracket and a third spacer. Fasten with lock nut so it is snug, but saddle can still move freely.



3.3.8 **ALIGN CART**

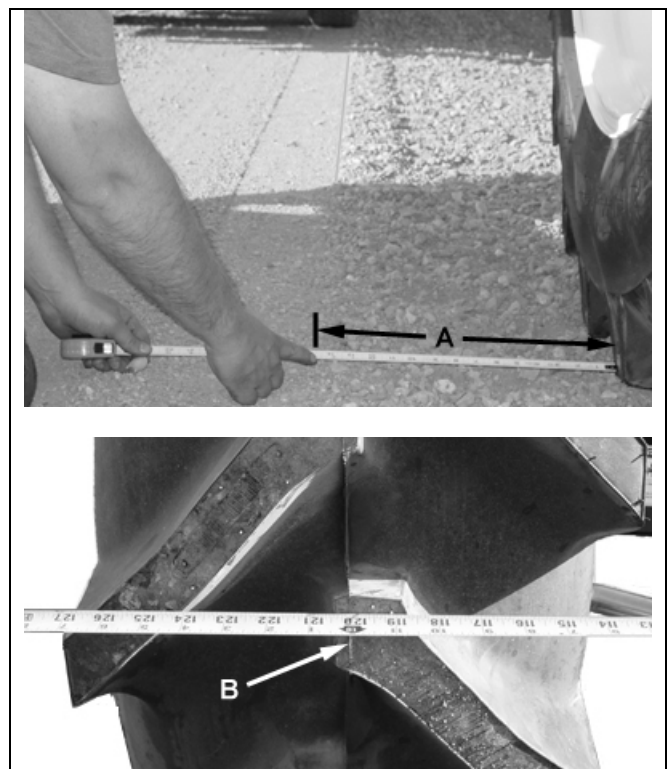
The following procedure addresses both alignment and toe-in problems.

1. Initial alignment check: Pull the cart a short distance on a dirt surface. Measure and note the distance (A) of each cart wheel track from the implement wheel track. (If the distance left tire is greater than the distance for the right wheel, the cart is tracking to the left.)

2. Toe-in check: Measure and note the distance between tire centerlines (B), at a point level with the wheel hub, on the front and on the rear of the tires.

3. Determine and make correction: If the tire centerline measurement at the front of the tires is not the same as at the rear of the tires, split the difference and apply it to a wheel based on which way cart is tracking. (For example, if centerline measurement at rear of tires is 122 inches, and the measurement at the front of tires is 118 inches, adjustment will be 2 inches. Since cart was determined to be tracking to left in Step 1, extending right tie-rod to make centerline measurement of 120 inches would correct the problem of tracking to the left as well as the toe-in problem.)

4. Repeat Step 1 to verify correct alignment.



3.4 CART - ASSEMBLY (10 TON SELF-LEVELING)

3.4.1 ASSEMBLE REAR ARM SUPPORT ONTO CENTER FRAME

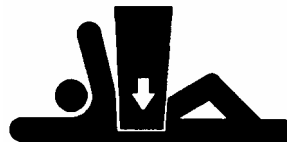
1. Fully support center frame on devices (such as sawhorses) rated to support the weight of the center frame.



Crushing hazard.

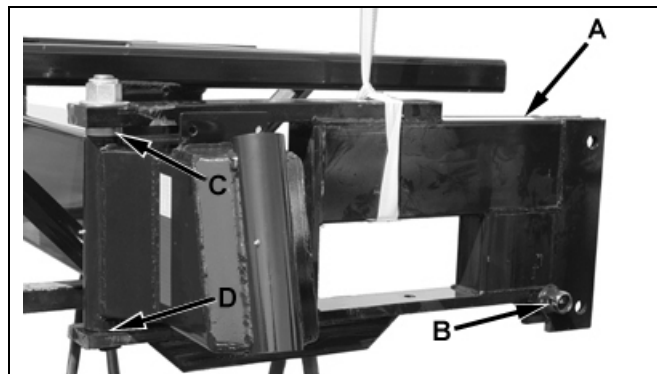
Be certain everyone is clear of assemblies.

Fully support frame and spindle assembly.



Note: Pins are inserted from bottom (nut on top) to permit pin removal without removal of fertilizer tank skid.

2. Position rear arm support (A) at center frame with appropriate lifting device. Jack mount (B) must face out as illustrated.



3. Install arm pin through lower arm support bracket, then through center frame, bearing (C), and upper arm support bracket.

4. Install spacer and lock nut, and tighten nut to eliminate any space at pinch point (D) between lower arm support bracket and center frame.

5. Install jack on jack mount and extend jack to seat it firmly on ground.

6. Repeat Steps 2-5 for rear arm support on other side.

3.4.2 INSTALL ARMS

Note: See following illustration. The four arms on the self-leveling cart are in three different configurations. The upper arms have bolt tabs (A) located near the middle of the arm. Tabs face in opposite directions. Arms must be installed with these tabs to the top of the arm and to the outside of the cart as shown in the illustration. Hydraulic cylinder brackets (B) must be positioned on the bottom of the upper arms and on the top of the lower arms.

1. Position tapered end of lower arm at lower holes of rear arm support, with hydraulic cylinder bracket (B) facing up as shown.

2. Install 1-1/4 – 7 x 6” bolt (C) through rear arm support bracket, four spacers, lower arm, four more spacers, and rear arm support bracket. Fasten with lock nut. (Total of 8 spacers used.) Tighten as securely as possible without bending plates.

3. Position U-bracket end of lower arm at lower holes of front arm support bracket (D). Jack mounts on front arm support bracket must face out.

4. Install 1-1/4 – 7 x 7” bolt (E) through U-bracket and front arm support bracket. Fasten with lock nut. (No spacers are required.) Tighten until gap between plate and arm is removed. Arm should still rotate freely.

5. Position U-bracket end of upper arm at rear arm support with bolt tab (A) to outside of cart and hydraulic cylinder bracket (B) facing down as shown.

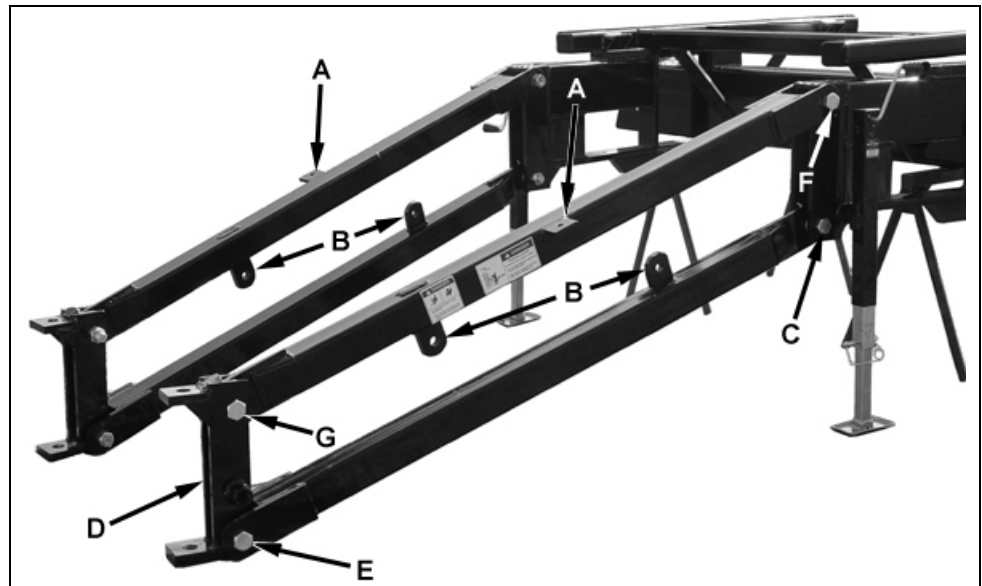
6. Install 1-1/4 – 7 x 7” bolt (F) through U-bracket and rear arm support. Fasten with lock nut. (No spacers are required.) Tighten until gap between plate and arm is removed. Arm should still rotate freely.

7. Position tapered end of upper arm at front arm support bracket.

8. Install 1-1/4 – 7 x 6” bolt (G) through front arm support bracket, two spacers, upper arm, two more spacers, and front arm support bracket. Fasten with lock nut. (Total of 4 spacers used.) Tighten as securely as possible without bending plates.

9. Repeat Steps 1-8 for arms on other side.

- A - Tabs (Upper Arms) (2)
- B - Hydraulic Cylinder Brackets
- C – Bolt (Use 8 Spacers)
- D – Front Arm Support Bracket
- E – Bolt (No Spacers Used)
- F – Bolt (No Spacers Used)
- G – Bolt (Use 4 Spacers)



3.4.3 INSTALL HYDRAULIC CYLINDERS (LIFT- ASSIST OPTION ONLY)

1. Position cylinders at cylinder brackets with decals to outside of cart as shown.
2. Install pins (A) through cylinder ends and brackets and fasten with spring pins.



3.4.4 INSTALL SPINDLE ASSEMBLIES, TIE-RODS AND WHEELS

Procedures for assembling spindle assemblies, tie-rods and wheels are identical to procedures for other carts. See the appropriate instructions in the preceding section “Cart - Assembly (All Except 10 Ton Self-Leveling)”.

3.5 DRY FERTILIZER APPLICATION SYSTEM - SHIPPING CONFIGURATION

Dry fertilizer application systems are shipped with the following components for assembly:

Platform and Ladder

Auger Motor and Hoses

Hydraulic Motor and Hoses

Correct Number of Air Releases for Model

Screens (Top of Tank) (2)

Required Hardware



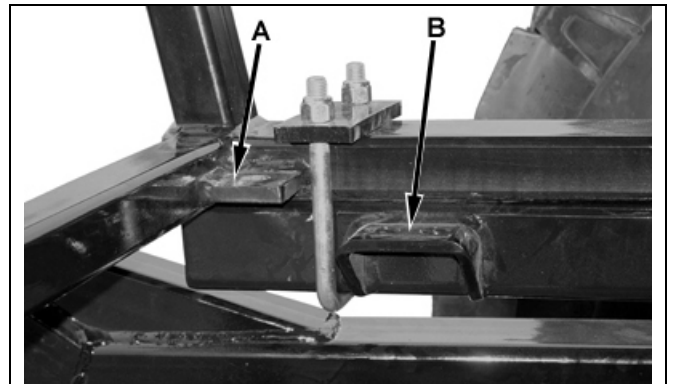
3.6 DRY FERTILIZER SYSTEM - ASSEMBLY

3.6.1 INSTALL DRY FERTILIZER SKID ONTO CART (WITHOUT OPTIONAL WEIGH BARS)

1. Carefully position skid onto cart, with skid frame fully aligned with cart frame and ends of frames flush with each other.

Note: Install U-bolts facing up, with nuts on top. If U-bolts are installed facing down, and need to be removed for any reason, tank skid disassembly may be required

2. Install 5/8 -11 x 4 wide x 6-1/2" long U-bolts in each corner of skid between skid bracket (A) and cart bracket (B) as shown, with lock nuts on top. Tighten lock nuts until they each contact the plate.



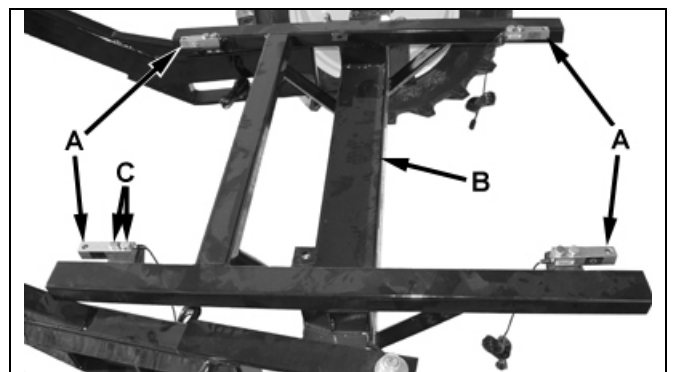
3. Alternate tightening nuts on each leg of U-bolt in 25 lb increments until each nut is tightened to 75 lb-ft. Then torque each nut to an end torque of 95 lb-ft. Avoid over tightening either side.

3.6.2 INSTALL DRY FERTILIZER SKID ONTO CART (WITH OPTIONAL WEIGH BARS)

1. Position weigh bars (A) on cart brackets at each corner as shown, with arrows on ends of weigh bars pointing down. Ends of bars with arrows (ends with single bolt holes) should be farthest from cart center frame (B).

2. Install each weigh bar to bracket LOOSELY with two 3/4 - 10 x 3" bolts (C), through the two bolt holes closest together, and lock nuts. Do NOT tighten at this time.

3. Position skid with fertilizer tank onto cart, with skid bolt holes aligned with bolt holes in four weigh bars. (Dry fertilizer tank illustrated.)



4. Install 3/4 -16 x 2-1/2" bolts (D) with flat washers at each skid corner through skid brackets and weigh bars. Tighten bolts to 220 lb-ft.

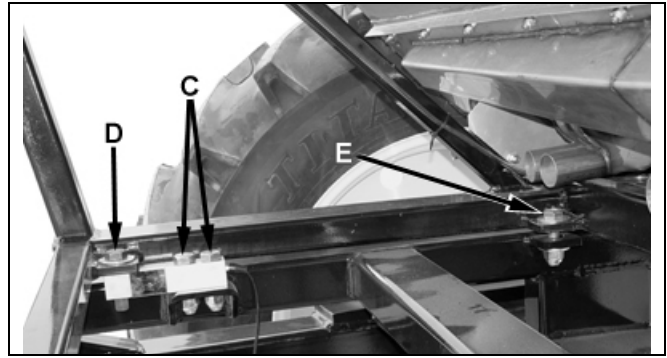
NOTICE: Skid with dry or liquid fertilizer tank is fastened to weigh bars. Tighten weigh bars to prevent skid from coming loose.

5. Tighten two bolts (C), installed loosely in Step 2, at this time to 200 lb-ft.

Note: Back-up bolts (E) are installed as a safety measure in case any skid mounting bolts come loose or fail. Install both back-up bolts loosely. Do NOT tighten back-up bolts in brackets. Fertilizer tank load readings will include any force applied by these bolts.

6. Install back-up bolts (E) on each side of skid below meter with spacers under bolt and lock nut, but do NOT tighten bolts. Bolts must have approximately 1/8 inch of play after installation.

7. Route lead from each weigh bar to relay (F) behind tank. Connect leads to relay.



3.6.3 INSTALL STAIRS AND PLATFORM ASSEMBLY

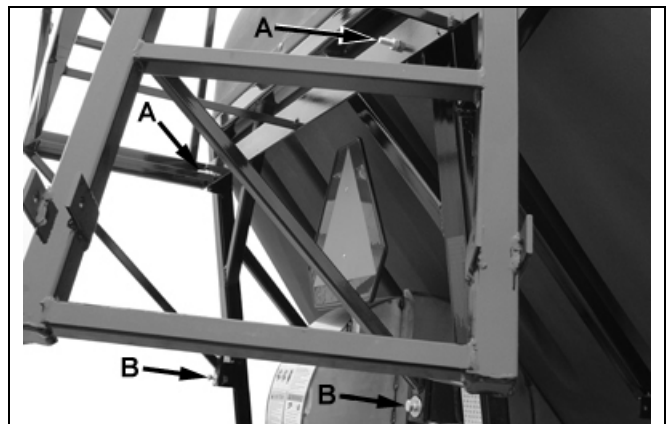
Note: Stairs can be installed on the side of the platform (as illustrated) or the rear of the platform. Stairs and platform assembly can be installed on either the front or the rear of the dry fertilizer tank. The installation procedures are the same for either location, but if installed in front of tank, the tank lid will need to be rotated to face the front. Assembly to the rear of the tank is illustrated.

1. Align bolt holes on platform with holes on tank assembly brackets.

2. Install 1/2 -13 x 2" top bolts (A) from tank side toward platform, through spacers, tank assembly brackets and platform. Fasten with standard nuts. Tighten to 57 lb-ft.

Note: Standard nuts on top bolts are dual purpose: they hold platform in place for remaining assembly, and they provide spacing to prevent accumulation of fertilizer between grate (which is installed next) and platform.

3. Install 1/2 -13 x 1-1/2" bottom bolts (B) toward tank assembly, through spacers and platform, then through tank assembly brackets and spacers. Fasten with lock nuts. Tighten to 57 lb-ft.

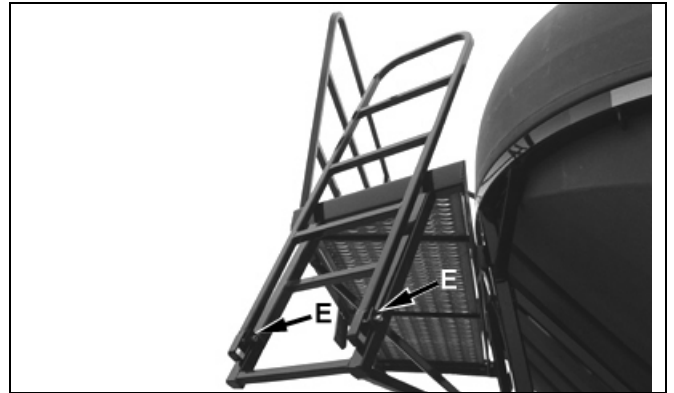
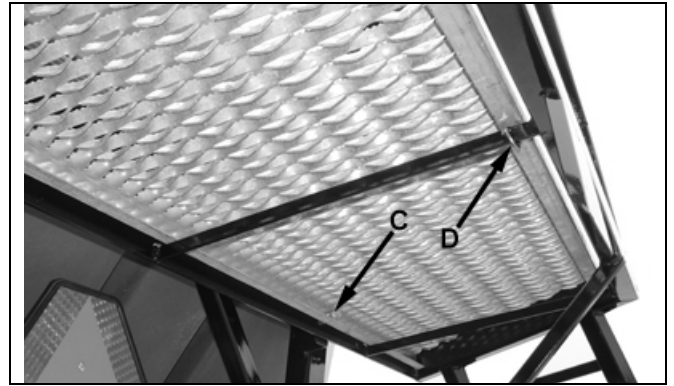


4. Install grate on platform, with top bolts (A) (previously installed) inserted through bolt holes in grate. Fasten with lock nuts (C). (One shown) Tighten to 57 lb-ft.

5. Fasten back side of grate to platform with “J”-shaped bolt (D), washer and lock nut. Tighten to 70 lb-in.

6. Place stairs in stair brackets (E) and install bolts through brackets. Fasten bolts with lock nuts. Tighten to 10 lb-ft.

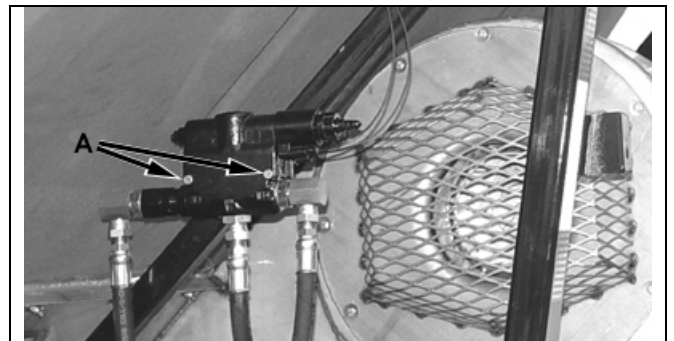
Note: Mounting system for stairs allows tank system to be stored with stairs installed in raised position as shown. To rotate stairs down from storage position shown, push stairs up along platform until bottom of stair connection opening contacts bolt, then rotate stairs to the lowered position for use.



3.6.4 INSTALL FLOW CONTROLLER

1. Install flow controller with two 1/4 – 20 x 2-1/2 “ bolts (A) and lock nuts to bracket. Tighten to 70 lb-in.

2. Install hydraulic hoses onto flow controller. (See “Hydraulic Schematic” diagram that follows.)



3.6.5 INSTALL AUGER MOTOR ASSEMBLY

1. Install auger motor (A) to meter bracket with four 3/8 -16 x 1” bolts as shown. Tighten to 20 lb-ft.

2. Install hydraulic hoses. (See “Hydraulic Schematic” diagram that follows.)

Note: Ensure set screws for sprockets are aligned with dimples in shafts.

3. Install sprockets onto auger motor and meter shafts with set screws positioned directly over shaft dimples (B). Tighten set screws.

4. Install chain on sprockets.



5. Remove front auger motor bolt (C) and washer.

6. Position bracket (D) with sprocket shaft as shown, and install bracket loosely with front auger motor bolt (C) and washer removed in Step 5. Do not tighten bolt at this time.

7. Install spacers (E) as required to align tensioning sprocket (F) with chain, and install sprocket.

8. Adjust tension on chain with sprocket, and tighten front auger motor bolt (C) to 20 lb-ft.

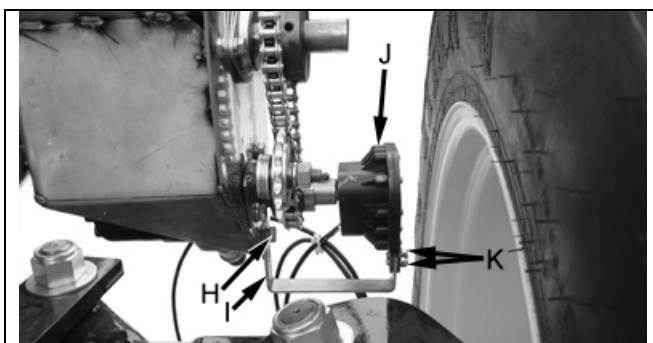
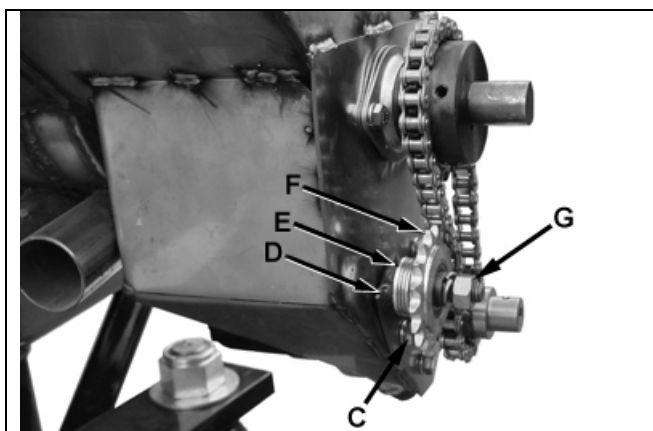
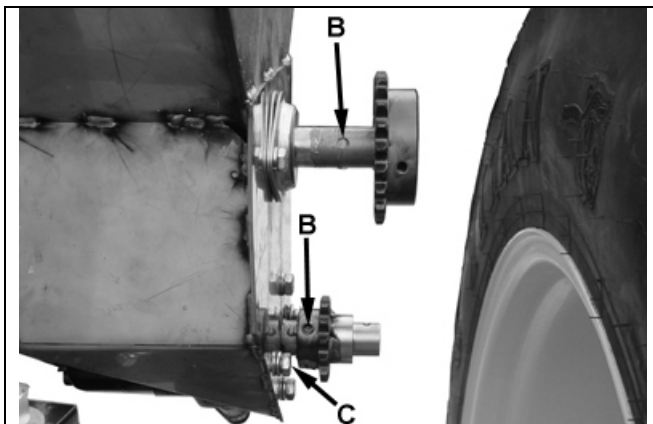
9. Fasten sprocket shaft with lock washer and 1/2 – 13 nut (G). Tighten nut to 40 lb-ft.

10. Remove bottom auger motor bolt (H) and washer.

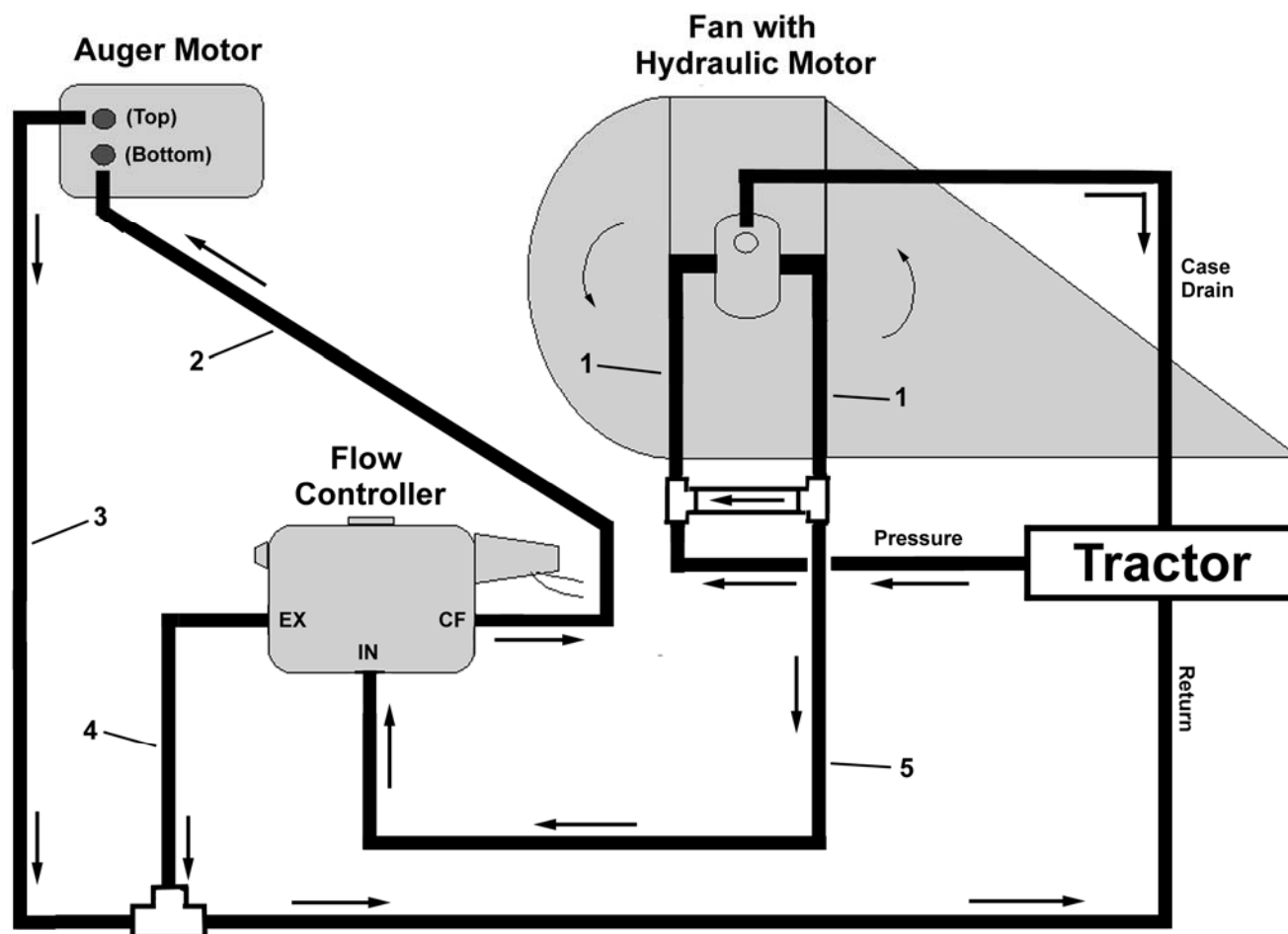
11. Position U-bracket (I) as shown, and install bracket with bottom auger motor bolt (H) and washer removed in Step 10. Tighten to 20 lb-ft.

12. Position encoder (J) on auger motor shaft, and install encoder on bracket with two bolts and lock nuts (K).

- A - Auger Motor**
- B - Shaft Dimples**
- C - Front Auger Motor Bolt**
- D - Sprocket Shaft Bracket**
- E - Spacers (As Required)**
- F - Tensioning Sprocket**
- G - Nut**
- H - Bottom Auger Motor Bolt**
- I - U-Bracket**
- J - Encoder**
- K - Lock Nuts**



3.6.6 HYDRAULIC SCHEMATIC



PART DESCRIPTION

- 1 - 12" x 1/2" Pipe to 1/2" Pipe
- 2 - 38" x 1/2" Pipe to 7/8" O-Ring
- 3 - 20" x 1/2" Pipe to 7/8" O-Ring
- 4 - 18" x 1/2" Pipe to 1/2" Pipe
- 5 - 48" x 1/2" Pipe to 1/2" Pipe

3.7 LIQUID FERTILIZER SYSTEM - SHIPPING CONFIGURATION

Liquid fertilizer application systems are shipped completely assembled except for the hoses, valves and their hardware.



3.8 LIQUID FERTILIZER SYSTEM - ASSEMBLY

3.8.1 INSTALL VALVES AND HOSES

⚠ WARNING

Crushing hazard.

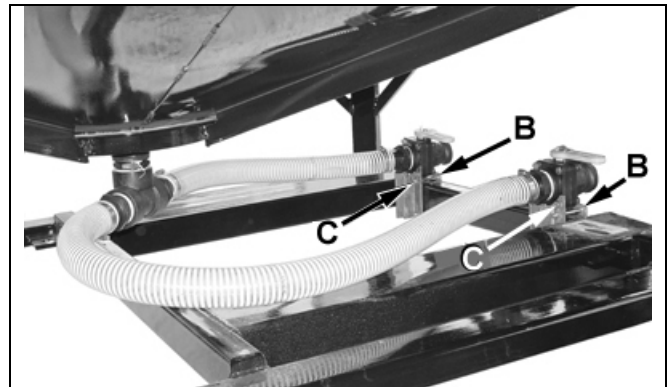
Be certain tie-down straps at opposite corners of tank are tight and routed correctly before doing any assembly work.



1. Ensure tie-down straps (A) at opposite corners of tank are tight and are routed correctly.

Note: Use pipe tape on all threaded pipe connections.

2. Install mounting brackets (B) to frame with 3/8 – 16 x 3” bolts as shown. Tighten to 20 lb-ft.
3. Mount valves to brackets using bottom bolts (C) on each valve. Tighten all bolts to 20 lb-ft.
4. Attach hoses between valves and tank connections and fasten with hose clamps.

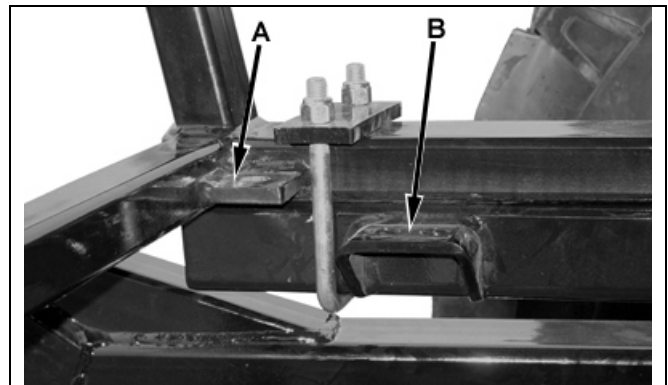


3.8.2 INSTALL LIQUID FERTILIZER SKID ONTO CART

1. Carefully position skid onto cart, with skid frame fully aligned with cart frame and ends of skid frame overlapping cart frame evenly.

Note: Install U-bolts facing up, with nuts on top. If U-bolts are installed facing down, disassembly may be required if bolts need to be removed.

2. Install 5/8 - 11 x 4 wide x 6-1/2” long U-bolts in each corner of skid between skid bracket (A) and cart bracket (B) as shown, with lock nuts on top. Tighten lock nuts until they each contact the plate.



3. Alternate tightening nuts on each leg of U-bolt in 25 lb increments until each nut is tightened to 75 lb-ft. Then torque each nut to an end torque of 95 lb-ft. Avoid over tightening either side.

4. OPERATION

4.1 CONNECT CART TO IMPLEMENT

⚠ WARNING

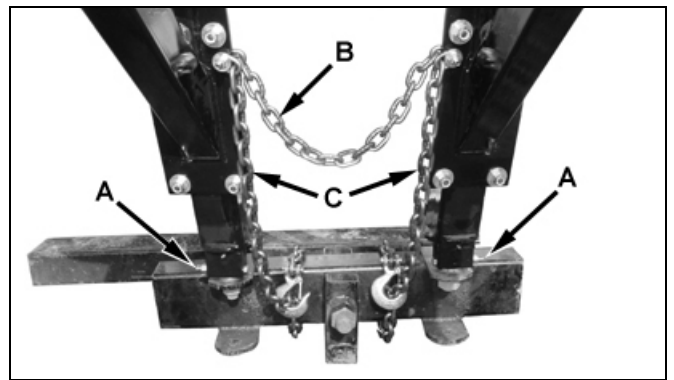
Risk of loss of control when transporting cart.

Remove all product from tank before transporting on roads. With empty tanks, maximum speed for cart on roads is 30 mph.

Maximum speed for cart with full tank is 10 mph.

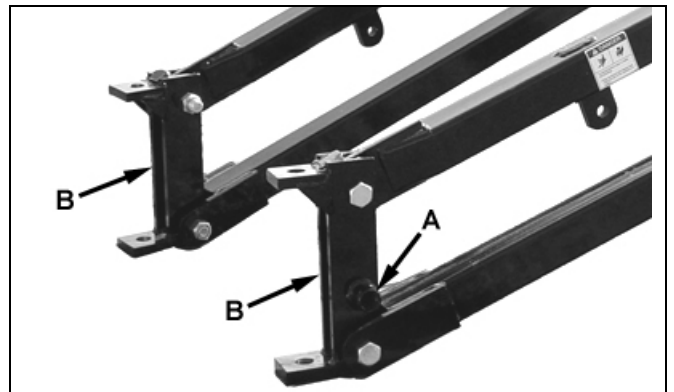
4.1.1 CONNECT CART (ALL EXCEPT 10 TON SELF-LEVELING)

1. Install two 2-5/16" hitch balls on implement. Tighten to 559 lb-ft.
2. Back implement up to the cart.
3. Lower adjustable hitch height as needed with the jacks to engage ball hitches.
4. Install 1/2 – 13 x 4-1/2" bolts (A) to fasten arms to ball hitches. Tighten bolts to 57 lb-ft.
5. Verify chain (B) is installed between two arms to keep arms together if they disconnect from hitch.
6. Wrap chains (C) around frame as shown. Hook chain and engage hook safety lock.
7. Retract jacks and remove jacks from cart.



4.1.2 CONNECT CART (10 TON SELF-LEVELING)

1. Back implement up to the cart.
2. Install toolbar mounted hitch.
3. Install jacks on jack mounts (A) and position front arm support brackets (B) at toolbar mounted hitch.
4. Install 1-1/2 – 6 x 19-3/4" bolt from top through top front arm support bracket, toolbar, bearing, bottom arm support bracket, spacer and lock nut.
5. Tighten as securely as possible without bending support bracket plates.
6. Retract jacks and remove jacks from cart.



4.2 DRY FERTILIZER SYSTEM

⚠ WARNING

Pressurized fluids can penetrate the skin.

Hydraulic hoses can fail.

Inspect hoses before operation.

Replace damaged hoses.



NOTICE

Risk of damage to fertilizer fan drive motor.

Fertilizer fan drive motor can be damaged if motor case drain hose is connected to an SCV coupler.

Connect fertilizer fan drive motor case drain hose to sump coupler on tractor.

4.2.1 CONNECT HYDRAULIC SYSTEM

1. Connect the fertilizer fan drive motor case drain hose to the tractor sump coupler. See tractor operator's manual for location of this coupler on your tractor.
2. Connect Pressure and Return hoses to tractor.
3. Connect flow controller leads and 3-pin encoder connector to control console in tractor.
4. First time use: Check operation of system to include direction of fan rotation and air flow from air chamber outlet tubes. (Fan rotation should be clockwise as viewed from left side of fan.).

4.2.2 FILL FERTILIZER TANK

⚠ WARNING

Crushing hazard.

Before climbing onto tank platform:

- Do not climb on cart unless cart is connected to implement.
- Park the equipment on firm, level surface.
- Place tractor transmission in park, turn tractor engine off and remove ignition key.
- Verify service locks are properly engaged or lower tool bar and lower row units to the ground or pavement.

Falling hazard.

Operator can fall off or into tank resulting in death or serious injury.

- Stand on platform only. Do not climb on tank or stand on screen.

- Keep screen cover on tank fill opening at all times.

⚠ WARNING

Fertilizers can be dangerous to people, animals, and the environment.

Read and follow the safety and handling instructions provided by the fertilizer manufacturer before filling the fertilizer tank.

NOTICE

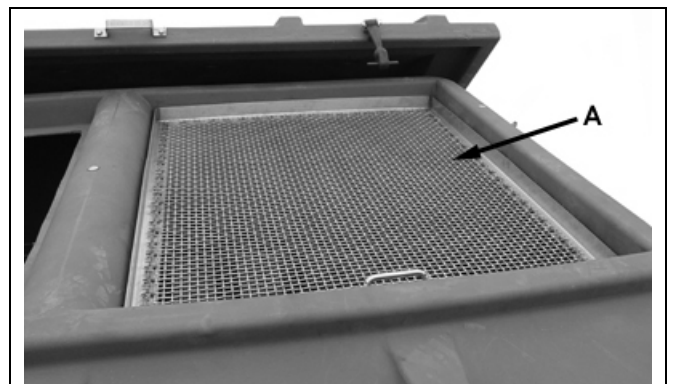
Fill tank only with amount of fertilizer planned for application that day. Tank should be emptied after daily use. Fertilizer left in tank for extended periods can absorb moisture or cause compaction resulting in system blockage.

1. Install two screens (A) on top of tank.
2. Stand on platform and fill tank with dry fertilizer.

NOTICE

Moist fertilizer can plug fertilizer application system. Close tank cover immediately after filling to prevent moisture from entering system.

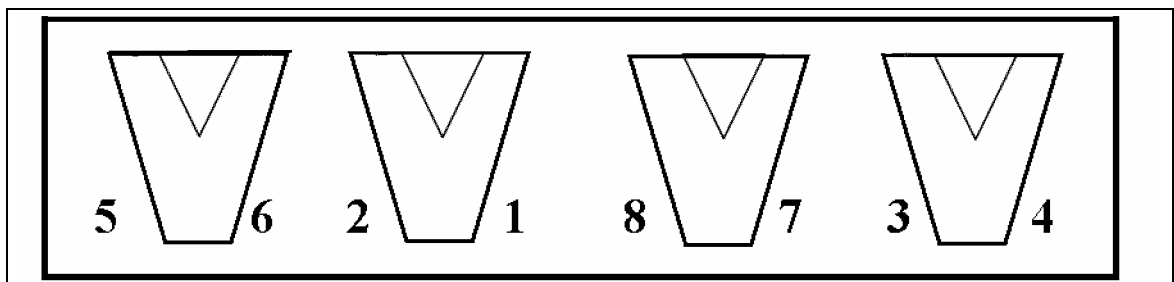
3. Close and latch fertilizer tank cover.



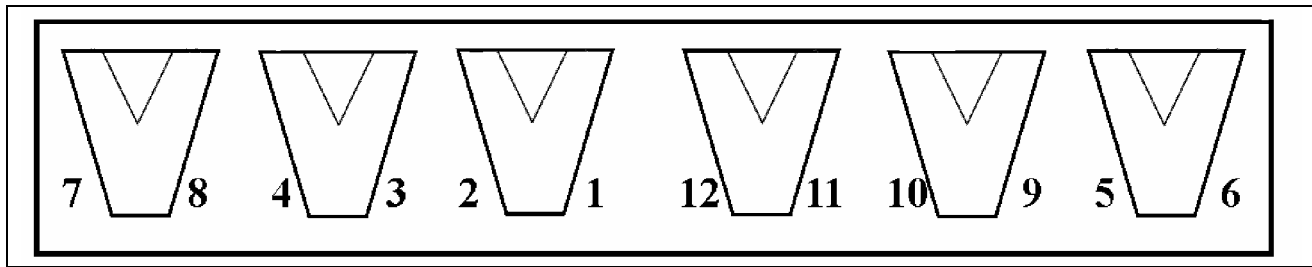
4.2.3 CONNECT AIR HOSES

Diagrams below show the Row connection numbers for the auger air chamber outlet tubes on the 8, 12, 16 and 24 row configurations dry fertilizer systems are shown below. Connect air hoses from outlet tube number shown for your row configuration to the corresponding toolbar row.

4.2.3.1. 8-ROW AIR HOSE DIAGRAM

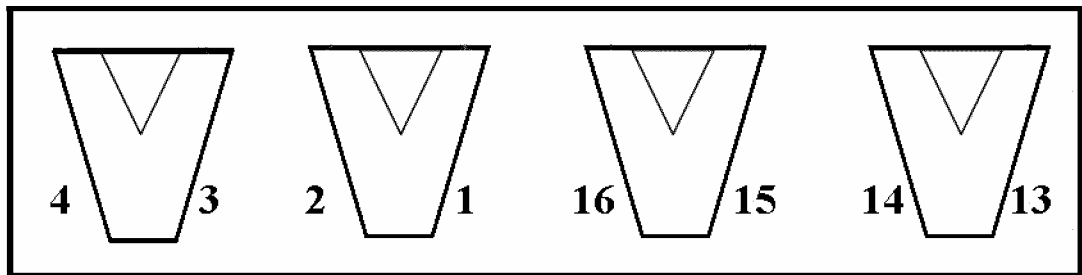


4.2.3.2. 12-ROW AIR HOSE DIAGRAM

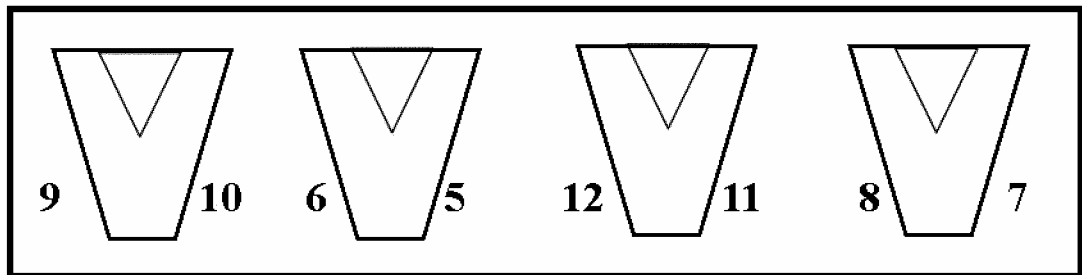


4.2.3.3. 16-ROW AIR HOSE DIAGRAM

Front Auger

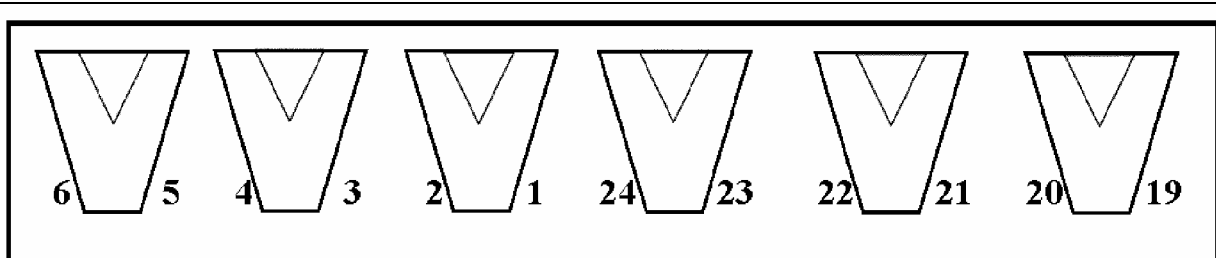


Rear Auger

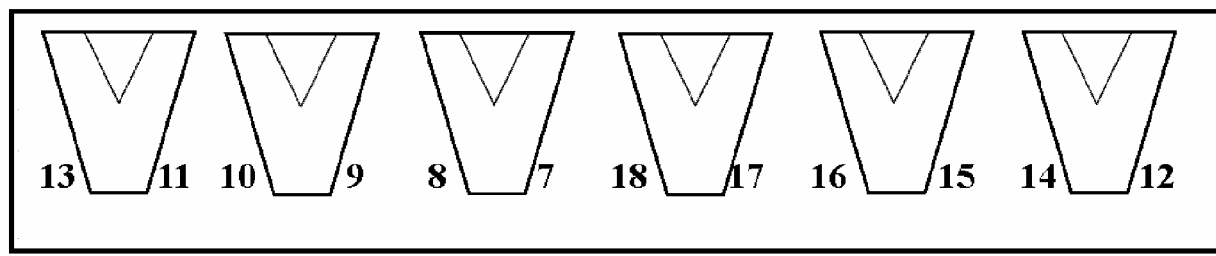


4.2.3.4. 24-ROW AIR HOSE DIAGRAM

Front Auger



Rear Auger



4.3 LIQUID FERTILIZER SYSTEM

4.3.1 CONNECT HOSES

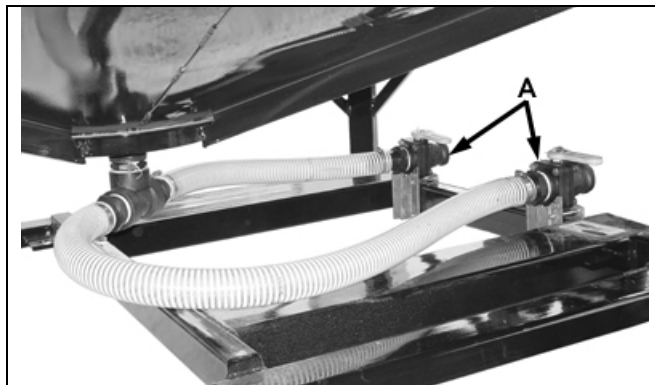
1. Close both valves (A).

Note: Either valve can be used for “Fill” or “Pump”.

2. Connect the “Fill” hose to either valve and the “Pump” hose to the other valve.

WARNING

Fertilizers can be dangerous to people, animals, and the environment.



Read and follow the safety and handling instructions provided by the fertilizer manufacturer before filling the fertilizer tank.

4.3.2 FILL FERTILIZER TANK

1. Open valve for “Fill” hose until fertilizer in tank reaches desired level.
2. Close “Fill” valve and disconnect “Fill” hose.

4.3.3 APPLY FERTILIZER

Open valve to “Pump” hose to provide fertilizer to sprayer or toolbar.

5. DISCONNECTING FROM IMPLEMENT

5.1 DISCONNECT FROM IMPLEMENT

WARNING

Crushing hazard.

The hitch may have a negative draft load (upward force).

Before disconnecting from tractor:

- Park the equipment on firm, level surface.
- Place tractor transmission in park, turn tractor engine off and remove ignition key.
- Block the wheels.
- Verify service locks are properly engaged or lower tool bar and lower row units to the ground or pavement.
- Remove all product from tank.

WARNING

Fertilizers can be dangerous to people, animals, and the environment.

Read and follow the safety and handling instructions provided by the fertilizer manufacturer before working around fertilizer system.

5.1.1 DISCONNECT LIQUID FERTILIZER SYSTEM

Close valves and disconnect “Fill” and “Pump” hoses.

5.1.2 DISCONNECT DRY FERTILIZER SYSTEM

WARNING

Pressurized fluids can penetrate the skin.

Relieve all hydraulic pressure before disconnecting hydraulic hoses.



1. Disconnect flow controller leads and 3-pin encoder connector to control console on tractor.
2. Disconnect Pressure and Return hoses from tractor.
3. Disconnect the fertilizer fan drive motor case drain hose from the tractor sump coupler.

5.1.3 DISCONNECT CART FROM IMPLEMENT

1. Install jacks on cart and remove weight from implement hitch.
2. Remove chains from implement.
3. Remove bolts to unfasten arms to ball hitches and lift cart from hitch with jacks.

6. TROUBLESHOOTING

6.1 TROUBLESHOOTING

6.1.1 TROUBLESHOOTING CHART

Symptom	Problem	Solution
Dry Fertilizer System: No fertilizer being delivered – all rows	Auger not turning	Ensure hydraulic hoses, especially tractor connections, are properly connected. (See “Hydraulic Schematic” in Dry Fertilizer System – Assembly Section.) Check condition and routing of auger motor chain. Check for auger obstructions. (See paragraph 6.1.2 below.)
	Auger turning wrong direction (Auger should turn same direction as fan.)	Reverse hoses on hydraulic motor. (See “Hydraulic Schematic” in Dry Fertilizer System – Assembly” Section.)
	Air gauge pressure less than 16“ H ₂ O	Fan rotation must be clockwise (CW) when viewed from left side of fan. If rotation is not CW, reverse hydraulic hose connections at fan motor. (See “Hydraulic Schematic” in Dry Fertilizer System – Assembly Section.)
Dry Fertilizer System: No fertilizer being delivered – some rows	Air Passages plugged/obstructed	Clear air passages at air chamber outlet tubes. (See paragraph 6.1.3 below.) Clear air passages at air release
Liquid Fertilizer System: No fertilizer being delivered	Valves or fittings not operating correctly	Repair or replace vales or fittings
	Leaks in system	Check all connections. Replace clamps as required. Check for leaks in hoses. Replace hoses as required.
	Air lock	Check hoses and remove air locks from system.

6.1.2 **ELIMINATING AUGER OBSTRUCTIONS (DRY FERTILIZER SYSTEM ONLY)**

⚠ WARNING

Crushing hazard.

Before entering cart/tank area:

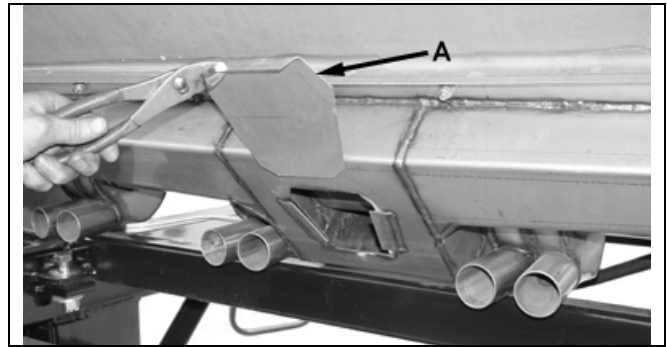
- **Park the equipment on firm, level surface.**
- **Place tractor transmission in park, turn tractor engine off and remove ignition key.**
- **Block the wheels.**
- **Verify service locks are properly engaged or lower implement to the ground or pavement.**

1. Position meter over large tarp or clean concrete and remove three access doors. (Center access door (A) shown.)

2. Empty all fertilizer from tank.

3. Insert piece of packing strap or heavy wire through each access door and clean around auger.

4. Remove or vacuum loosened materials out auger area.



⚠ WARNING

Crushing hazard and severing hazard

Danger of death or serious injury from tractor or cart movement, or from auger operation. Do not enter area between or around the tractor and the cart.

5. Position an observer away from cart/tank area.

6. Start tractor and attempt to operate system. Check the auger shaft for rotation.

Note: If auger is rotating, refill tank with fertilizer, and continue operation. If auger is not rotating, proceed as follows.

⚠ WARNING

Crushing hazard.

Immediately after checking auger shaft:

- **Park the equipment on firm, level surface.**
- **Place tractor transmission in park, turn tractor engine off and remove ignition key.**

⚠ WARNING

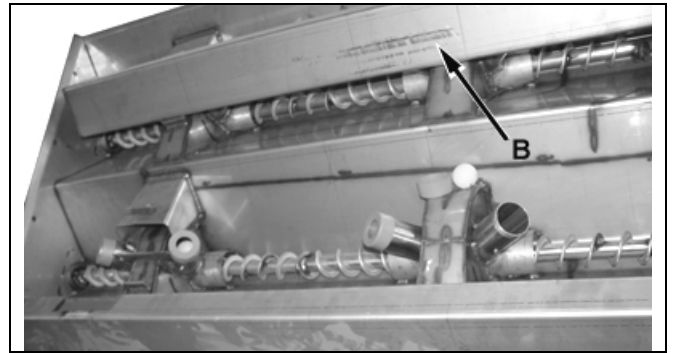
Fertilizers can be dangerous to people, animals, and the environment.

Read and follow the safety and handling instructions provided by the fertilizer manufacturer before removing the tank cover and entering tank.

7. Ensure tractor transmission is in park, engine is switched off, and ignition key is removed from switch.

8. Remove screen on top of tank and insert a small ladder into tank. Enter tank.

9. Remove auger cover(s) (B) and clear any obstructions from auger area.



6.1.3 **CLEARING AIR PASSAGES (DRY FERTILIZER SYSTEM ONLY)**

⚠ WARNING

Crushing hazard.

Before entering cart/tank area:

- Park the equipment on firm, level surface.
- Place tractor transmission in park, turn tractor engine off and remove ignition key.
- Verify service locks are properly engaged or lower implement to the ground or pavement.

⚠ WARNING

Fertilizers can be dangerous to people, animals, and the environment.

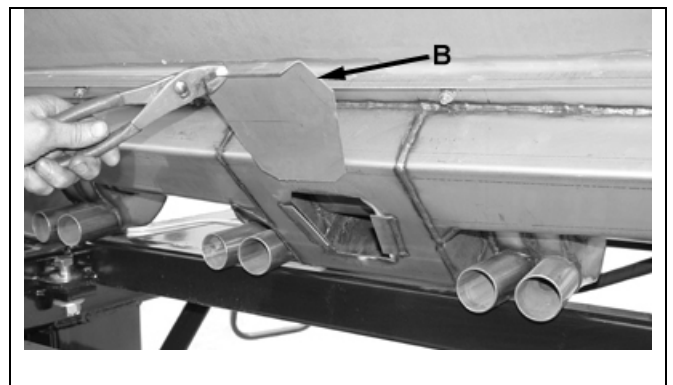
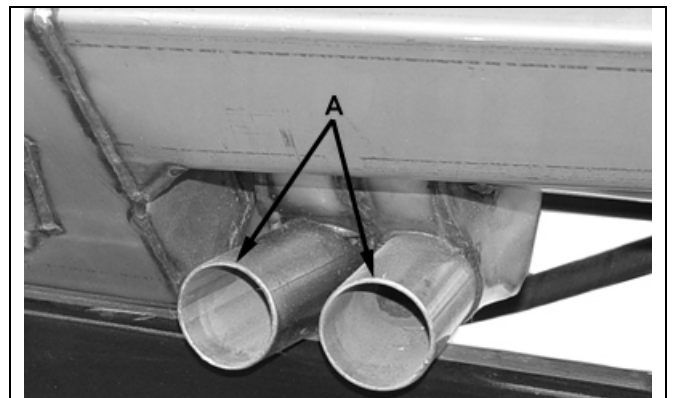
Wear eye protection and proper clothing. Read and follow the safety and handling instructions provided by the fertilizer manufacturer before removing the hoses or performing maintenance.

Note: Rodents may build nest in recesses of air chamber. Insert packing strap or wire well into chamber to break up obstructions.

1. Remove air hoses from affected air chamber tubes (A).
2. Insert packing strap or heavy wire into air chamber tubes, and work it back and forth to break up obstructions.
3. Clear out any blockage in air hose.
4. Clear debris with vacuum cleaner.

Note: There is one center access door on 8 and 12 row configurations, and two on 16 and 24 row configurations.

5. Remove center access door(s) (B). Inspect area and remove any obstructions.



⚠ WARNING

Crushing hazard and severing hazard

Danger of death or serious injury from tractor or cart movement, or from auger operation. Do not enter area between or around the tractor and the cart.

6. Position an observer away from cart/tank area.

⚠ WARNING

Crushing hazard.

Immediately after checking air chamber outlet tubes:

- **Park the equipment on firm, level surface.**
- **Place tractor transmission in park, turn tractor engine off and remove ignition key.**

7. Start tractor and attempt to operate system. Check for air and fertilizer blowing out of air chamber outlet tubes.

Note: If air chamber outlet tubes are still obstructed, ensure tractor transmission is in park, engine is switched off, and ignition key is removed from switch, and repeat Steps 2 through 7.

7. ROUTINE MAINTENANCE

7.1 SECTION OVERVIEW

Montag Manufacturing uses some components produced by other manufacturers. Refer to the OEM manufacturer's information for specific maintenance instructions. If you do not have the manufacturer's information, contact your dealer or Montag Manufacturing for assistance.

Routine inspections, maintenance and service must be performed on your machine on a regular basis to insure safe and reliable operation. Inspections can be performed by a person trained in spotting potential problems. Service and repairs must be performed by a trained, qualified technician.

Note: In addition to this manual, also check the relevant component manufacturer's manual.



Crushing hazard.

Before performing inspections, service or maintenance:

- **Park the equipment on firm, level surface.**
- **Place tractor transmission in park, turn tractor engine off and remove ignition key.**
- **Block the wheels.**
- **Lower all equipment to the ground or pavement.**

7.2 LUBRICATION

7.2.1 FITTING LUBRICATION

1. Place tractor transmission in park, stop engine and remove key.
2. Lubricate all grease fittings (except fan drive fitting) at the beginning of each season and after every 2000 acres of use.

Note: Fan drive fitting is lubricated at factory and does not require additional lubrication. Excessive lubrication can cause fan drive to overheat.

3. All carts except the 10 Ton Self-Leveling cart have six fittings: one at each pin for the spindle assembly to center frame, one at each pin for arm to center frame, and one at each hitch to ball connection. The 10 Ton Self-Leveling cart has four additional fittings at the arm connecting points at the arm supports and the hitch brackets.

7.2.2 CHAINS

1. Place tractor transmission in park, stop engine and remove key.
2. Each day of use: Spray auger chain (if equipped) with a quality chain lubricant. Do not use motor oil or other petroleum base lubricant that can cause a buildup of dirt in the chains and sprockets.

7.3 SERVICE HUB BEARINGS AND SEALS

Note: This service should be performed every three years or 5000 acres of use.

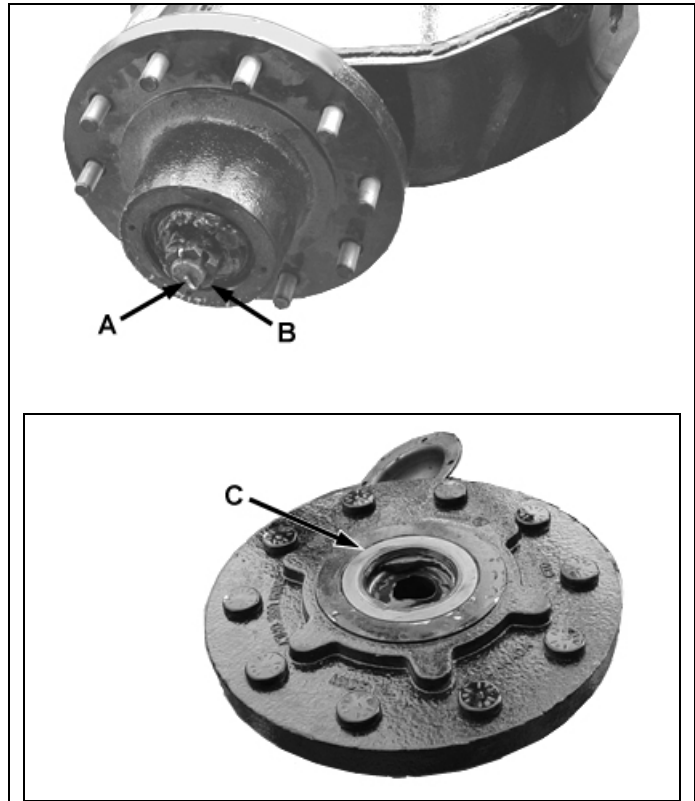
1. Remove spindle assembly from cart.
2. **5 and 7 Ton Carts:** Gently remove hub cap from hub with hammer and chisel.
2. **10 Ton Cart Only:** Remove 4 bolts, and remove hub cap from hub.
3. Remove cotter pin (A), slotted nut (B), washer, seal and outer bearing. Discard seal.
4. Remove hub from spindle.
5. Remove the seal (C) and inner bearing from hub. Discard the seal.
6. Clean and inspect bearings, bearing cups, hub and spindle.
7. Replace any parts that are damaged or worn.
8. If a bearing or bearing cup must be replaced, replace both bearings and bearing cups. Do not install a new bearing in a used bearing cup. Use a press and correct size drivers to remove and install bearing cups in hub.
9. Lubricate and install inner bearing.
10. Install new inner seal with flat side facing up, away from the hub with a press installation tool.
11. Install hub on spindle.
12. Install outer bearing, washer and shaft nut.

NOTICE

Risk of damage to hub seals.

Do not use air or electric power tools on slotted nut.

13. Tighten slotted nut.
14. Loosen slotted nut 1/2 turn, then tighten adequately to preload bearing.
15. Align hole in spindle and install new cotter pin. Bend open end of cotter pin.
16. **5 and 7 Ton Carts:** Install hub cap. Position hub cap on hub and install evenly with rubber mallet.
17. **10 Ton Cart Only:** Install hub cap. Apply gasket sealer to hub cap face and install with four bolts. Tighten bolts.



7.4 SERVICE CAULK SEAL BETWEEN METER AND TANK

Note: This service should be performed before each season of use.

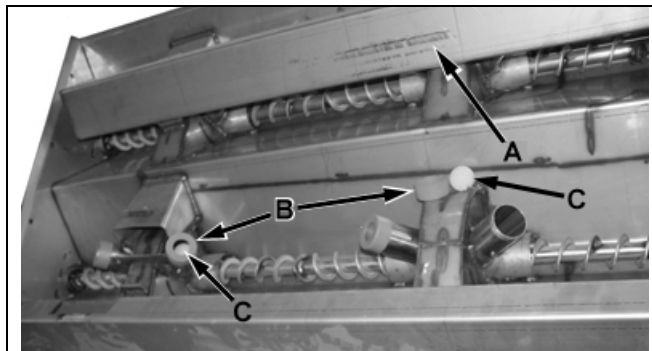
1. Inspect caulk seal between meter and tank, checking condition of caulk and adhesion.
2. If caulk is in poor condition or has separated from the joint, replace with a high grade silicon caulk.

8. STORAGE

8.1 STORING THE SYSTEM

Perform the following steps before storing to add life to your fertilizer application system:

1. Block the cart wheels and remove the skid and tank from the cart.
2. Thoroughly power wash the cart, skid and fertilizer tank (inside and out).
3. Remove the auger cover(s) (A), all air chamber covers (B), and the balls (C) inside the air chambers.
4. Thoroughly power wash the auger assembly and auger covers, and clean the air chamber covers and the balls. Replace any damaged parts.
5. Store tanks with top lids closed in place.
6. System may be stored outside.



9. SERVICE AND REPAIR

WARNING

Crushing hazard.

Before performing inspections, service or maintenance:

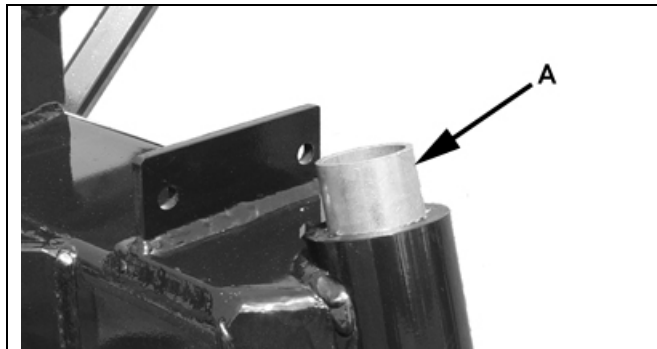
- Park the equipment on firm, level surface.
- Place tractor transmission in park, turn tractor engine off and remove ignition key.
- Do not disconnect cart from implement for servicing.
- Block the wheels.
- Lower all equipment to the ground or pavement.

9.1 CENTER FRAME BUSHINGS

Note: Arm assembly and spindle assembly each have bushings at top and bottom of pin sleeves. Bushings should be replaced in pairs (top and bottom of sleeve together). Bushing is illustrated on spindle assembly pin.

1. Remove all product from tank.
2. Raise cart as necessary with jack, and fully support cart.
3. **Spindle assembly only:** Remove wheel.
4. Remove spindle assembly (or arm assembly).
5. Remove bushing (A).

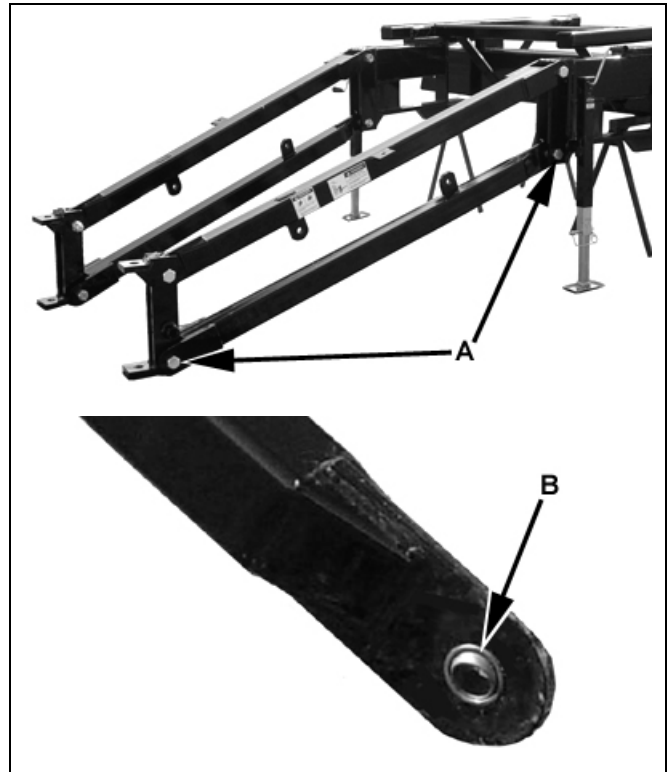
Note: To avoid damaging bushing, install with a non-marring implement, such as a rubber mallet, or with a block of wood to protect bushing during installation.



6. Install new bushing with a non-marring implement until top of bushing is flush with pin sleeve.
7. Install spindle assembly. (See Section 3.3.1.)
8. Install wheel. (See Section 3.3.4.)
9. Remove cart supports, lower cart and remove jacks.

9.2 LIFT ASSIST ARM

1. Raise center frame as necessary with jack, and fully support cart.
2. Remove hydraulic cylinder from lift assist arms. (Shown removed.)
3. Remove bolts (A) from arm support and hitch bracket, and remove arm.
4. Replace spherical bushing (B).
5. Install arm. (See Section 3.4.2.)
6. Install hydraulic cylinder. (See Section 3.4.3.)
7. Remove cart supports, lower cart and remove jacks.



9.3 FAN DRIVE MOTOR

Always relieve hydraulic system pressure before performing any work on the system. Use a piece of cardboard or paper, not your hand, to check for leaks.

⚠ WARNING

Relieve pressure before disconnecting hydraulic lines.

Tighten all connections before applying pressure.

Seek medical attention immediately if fluid is injected into skin.

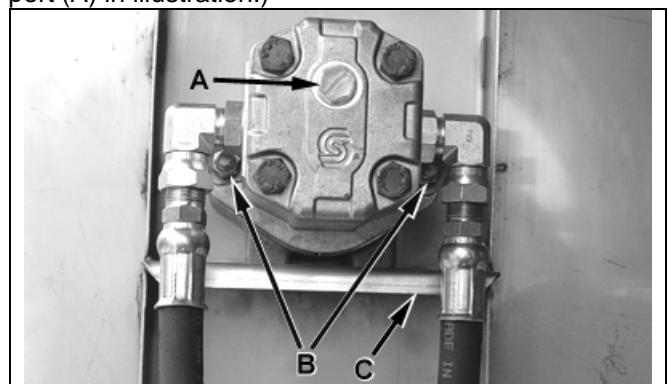


1. Remove hoses from motor. (Hose removed from case drain port (A) in illustration.)
2. Remove nuts (B) and remove motor.

NOTICE

Risk of damage to fertilizer fan drive motor.

Ensure motor is installed with case drain port (A) located at top and space between bottom of fan drive motor and bracket (C) as shown.

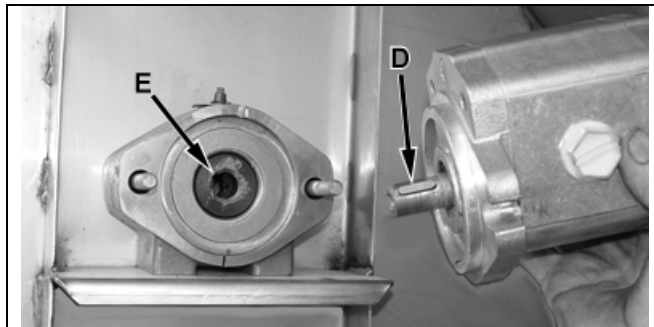


3. Position new motor with case drain port (A) located on top of motor, and shaft spline (D) is aligned with notch (E) in hub.

4. Slide shaft spline into notch and position motor over bolts. Ensure there is space between bottom of motor and bracket (C).

4. Install and tighten nuts (B) to 201 lb-in. (16-3/4 lb-ft).

5. Install hoses. (See Hydraulic Schematic in Section 3.6.6.)



9.4 FAN

1. Remove fan drive motor. (See preceding paragraph.)

2. Remove 12 bolts (A) from circumference of fan guard. Remove fan guard assembly.

Note: Clean empty bolt holes (C) with tap as necessary to remove rust build-up before installing bolts (B).

3. Remove bolts (B) from tapered hub and install in bolt holes (C). Tighten bolts evenly in sequence as necessary to loosen tapered hub from fan.

4. Install pulley puller (D) onto tapered hub and remove hub from shaft.

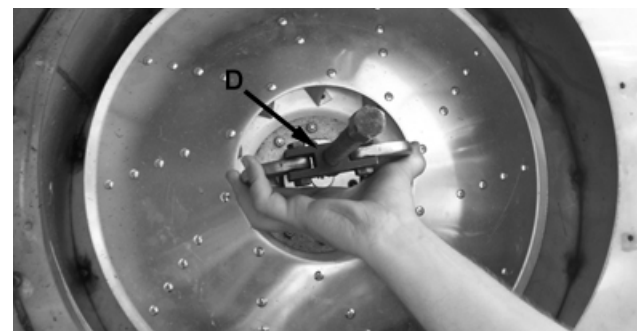
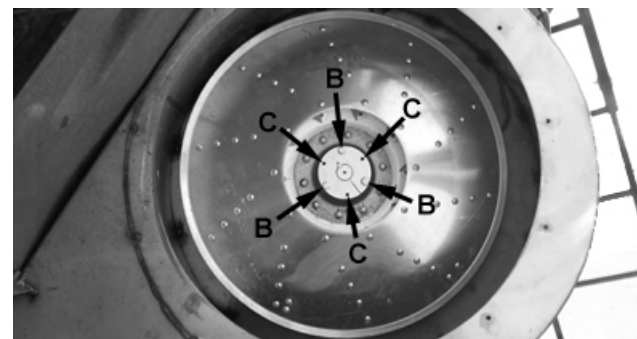
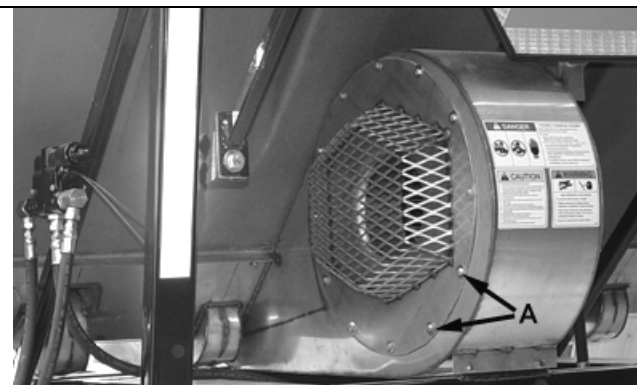
5. Remove fan from shaft.

6. Inspect and replace damaged parts.

7. Before installing fan, cover contact surfaces of fan, hub, shaft, and the three hub bolts with anti-seize.

8. To install fan, position fan and taper lock hub on shaft, and install tapered hub with bolts (B) in original bolt holes. Fan should be nearly flush with end of shaft.

9. Tighten each bolt in turn to 25 lb-in. Then tighten each bolt two more times to 25 lb-in. to ensure the torque of each bolt is correct.



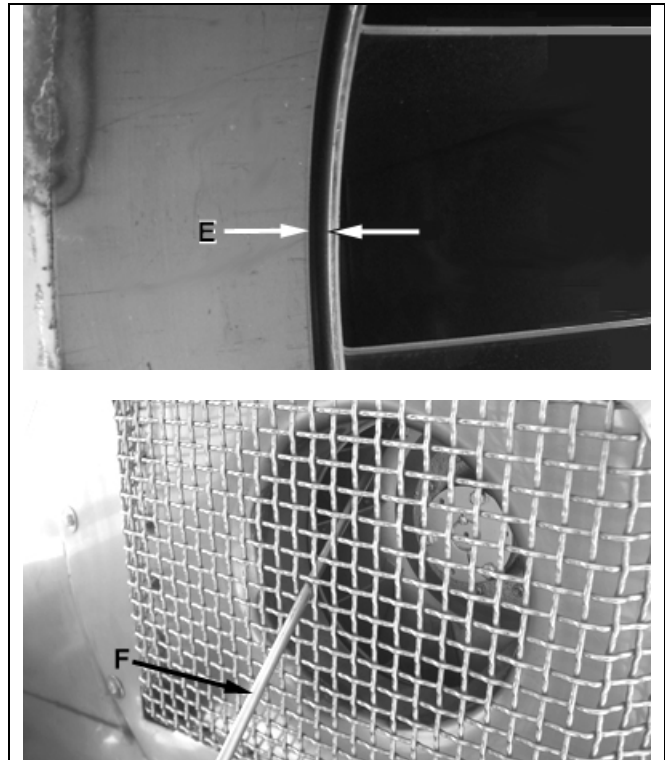
10. Apply anti-seize to guard assembly bolts.

11. Install fan guard assembly with 12 bolts (A) on circumference of assembly. Tighten bolts to 25 lb-in.

12. Check gap (E) between fan and shield. Gap should be 3/16 in. to 1/4 in. If gap is not in that range, remove fan and re-install it.

13. Carefully insert a rod (F) through screen and gently rotate fan. It should turn freely without rubbing. If the wheel is difficult to rotate, or if you see or feel the wheel rubbing, remove fan and re-install it.

14. Install fan drive motor. (See preceding paragraph.)



9.5 FAN DRIVE HOUSING

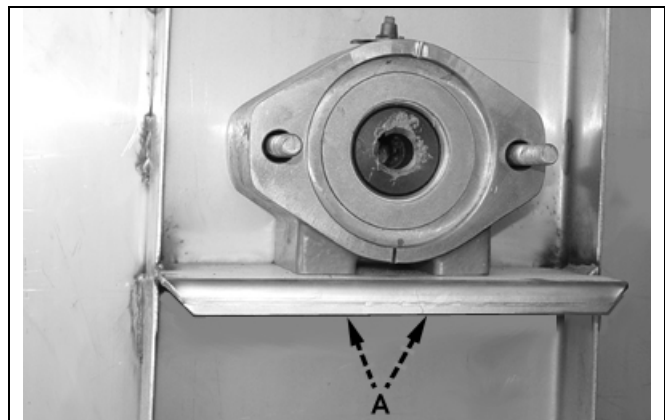
1. Remove fan drive motor. (See Paragraph 9.3 above.)

2. Remove fan. (See Paragraph 9.4 above.)

3. Remove four bolts (A) from under fan drive housing bracket, and remove fan drive housing.

Note: Fan drive housing is not repairable. Contact Montag Mfg. for a new housing

4. Reverse procedure to install new fan drive housing. Tighten 3/8 x 1" bolts (A) to 20 lb-ft.





Meter Calibration Settings

	Standard Meter (2" Hose)	High Output Meter (2-1/2" Hose)	
Auger Shaft Speed	60	31	RPM
Product Density	62	62	lb/cu-ft
Test Speed	5	5	mph
Displacement per Row	0.0016	0.0032	cu-ft/Rev

Row Spacing	STD Rate	HO Rate	Units
20" Row Spacing	375	375	lb/acre
22" Row Spacing	341	341	lb/acre
30" Row Spacing	250	250	lb/acre
34" Row Spacing	220	220	lb/acre
36" Row Spacing	208	208	lb/acre
38" Row Spacing	197	197	lb/acre
40" Row Spacing	187	187	lb/acre

Montag units come standard with a Raven Encoder and a PWM Closed flow control valve

*PWM Closed Valve Frequency = 110 hertz

The Raven encoder is a 36 pulse encoder

The encoder is a 5 volt encoder

Typical Controller Calibration:

Set your product density to 62 and your application rate to 250#/acre.

Then set the test speed to 5 mph and run the controller in the test mode. The auger shaft should turn 60 rpm. If it does not you can raise or lower your meter cal # or spreader constant # to achieve 60 rpm.

Meter Cal/ Spreader Constant # _____

Montag Mfg.

3816 461st Ave
Emmetsburg, IA 50536

Phone: 712-852-4572

Fax: 712-852-4574

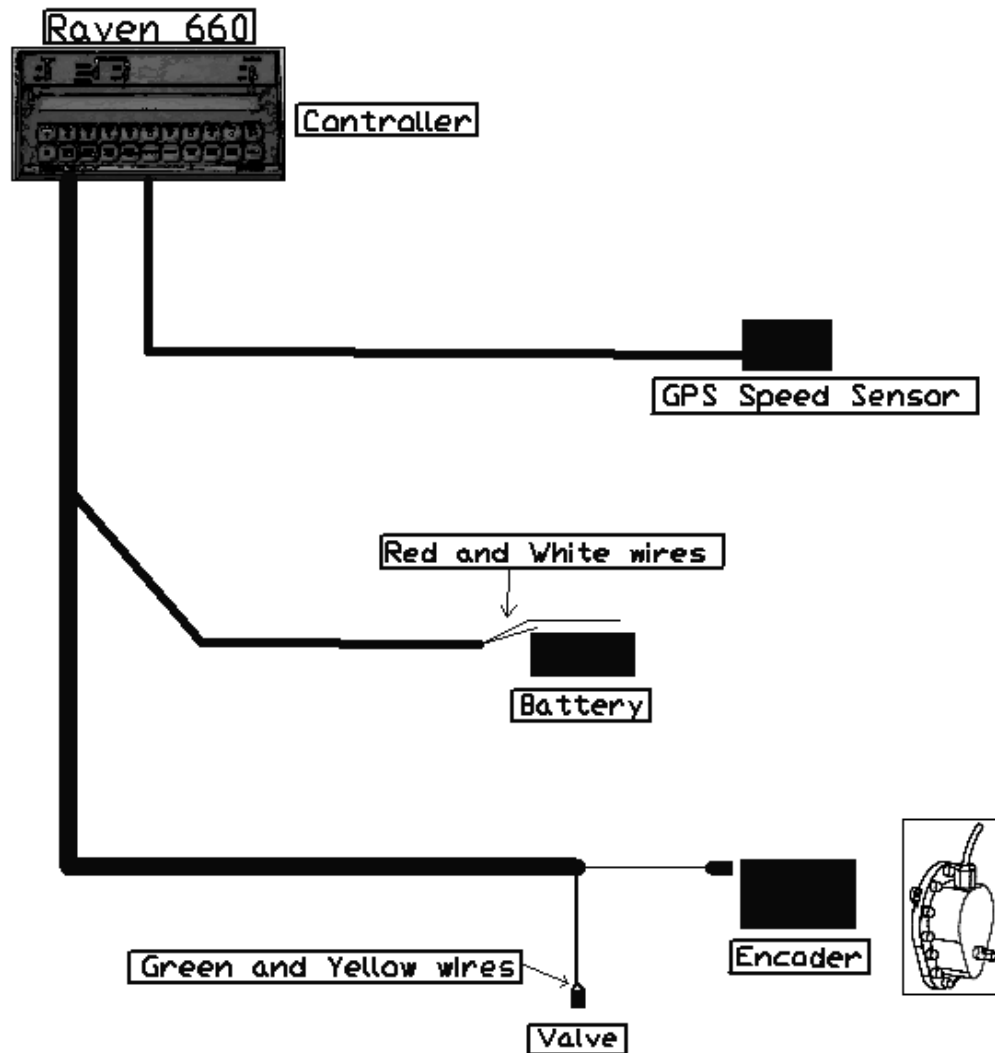
Website: www.montagmfg.com

E-mail: info@montagmfg.com

*PWM = Pulse Width Modulated

Raven 660 Setup

To wire in the Raven 660 controller follow the chart and instructions below:



1. Plug the round plug in the round port on the back of the Raven controller
2. The cable that splits out from the big cable is for the battery (Red is positive, White is negative)
3. Plug the end of this cable to the extension cable which has the same ports
4. At the end of this cable there is a round plug that needs to be hooked into the round plug of the encoder
5. There is a green and yellow plug off of this cable that needs to be plugged into the valve
6. You will notice that this plug does not fit into the valve so you need to use the plug that is in the valve
7. The plug on the valve has two wires coming from it that you will need to wire into with a pig tail that has a plug that matches the green and yellow plug from the cable

8. It does not matter which way you wire it as long as the wires from the plug in the valve are wired to a pig tail with a plug on it that fits the green and yellow plug
9. Place something over where you tied these together as the wires will be bare
10. The other plugs and cables can be tied up and placed out of harm's way

Initial Setup

When you first start your Raven controller the initial set up is important. To scroll through your options on these different calibrations and settings tap "CE". When you find the setting you want press "Enter." When you are initially setting up the Raven you need to select U. S. density. The next setting you will see is SP1 wheel drive and SP2 Radar. Some Raven controller's have more than these for options but you need to tell the Raven what you are using for speed sensing. After you have this done you will see options that say liquid sprayer, single belt, and double belt. The Montag cart setting is single belt for all their machines. The last part on the initial setup is setting up which valve you are running with. The Montag cart uses a PWM close valve so this is what you need to put in the Raven. If you put in the wrong valve setting the machine will not function correctly.

In some instances you may be using your Raven controller for some other farm practice. If so, write down all the settings and calibrations you have for this practice so you can save them. After you have written down the settings you need to clear out your controller. To do this you need to hold "CE" while turning the controller on and off. This will clear out any settings that you have in your Raven controller so you can recalibrate and set the settings where they need to be.

Calibrating Raven

To Calibrate:

1. Press buttons for desired category
2. Press "Enter" before entering your number information
3. When you have your number information you want press "Enter" again to lock it in

Boom Cal	Speed Cal	Meter Cal	Valve Cal	Rate 1	Rate 2	Vol/Tank	Time
3	4	5	6	7	8	9	0
Width of bar (inches)	565	Product Density	43	Lbs/Acre	Lbs/Acre		
		Spreader Constant					

Standard Machine

When calibrating a Standard machine you need to select the self test button and put in 5 MPH. Then you need to select "Rate 1" and enter in 250 pounds for a target rate. You will also have to press the "Meter Cal" button and enter in 62 pounds. These are the Montag Meter Calibration numbers. If your shaft is not spinning 60 times a minute you will need to adjust your spreader constant. To adjust your spreader constant you need to press and hold the "Meter Cal" button until it says "Spreader Constant". If your shaft is spinning below 60 times a minute you need to enter in a higher number. If it's spinning at a higher number than 60 times a minute you need to select a lower number. This test is done with your test speed set to 5 MPH. The spreader constants for these controllers are going to be different from each other. This one is the only one you need to press and hold for the second option. All the other ones don't need their second option changed.

High Output Machine

When calibrating a High Output machine you need to select the self test button and put in 5 MPH. Then you need to select “Rate 1” and enter in 250 pounds for a target rate. You will also have to press the “Meter Cal” button and enter in 62 pounds. These are the Montag Meter Calibration numbers. If your shaft is not spinning 31 times a minute you will need to adjust your spreader constant. To adjust your spreader constant you need to press and hold the “Meter Cal” button until it says “Spreader Constant”. If your shaft is spinning below 31 times a minute you need to enter in a higher number. If it’s spinning at a higher number than 31 times a minute you need to select a lower number. This test is done with your test speed set to 5 MPH. The spreader constants for these controllers are going to be different from each other. This one is the only one you need to press and hold for the second option. All the other ones don’t need their second option changed.

If your machine is not applying the rate you are wanting it to and you need to adjust it there is an equation that you can set up to find your spreader constant number. If you wanted to apply 250 lbs/acre but your machine was applying 300 lbs/acre with your spreader constant set to 2775. Take your spreader constant which in this case is 2775 divided by your actual rate which in this case is 300. You should get 9.25 in this case. Take 9.25 times your wanted rate which for this one would be 250. Your new spreader constant number should be 2313 and that should make your machine apply your wanted rate of 250 lbs/acre.

$$(\text{Spreader Constant} / \text{Actual Rate}) \times (\text{Desired Rate}) = \text{New Spreader Constant Number}$$

For both the High Output and the Standard machine it is best to do a few acres and check to make sure it is doing the rate you want it to do. If you calibrated the machine correctly the rate should be what you set the machine for. This is a good way to make sure you have calibrated the controller and the machine correctly.

The Raven 660 has capacity for two rates. This could be a convenience if you have places in your fields that need high rates and places in your fields where you need low rates. You can set “Rate 1” and “Rate 2” however you want, you could have “Rate 1” be a high rate and “Rate 2” be a low rate or the other way around. You just need to know which one is which and make sure you have the toggle switch on the correct rate.

When you are running the Raven 660 on our machine you will only need one boom. So when you are entering in the calibration for the boom you take your number of rows times your row width to get your “Boom Cal” number. So if you had a 12 row with 30 inch spacing your “Boom Cal” number would be 360.

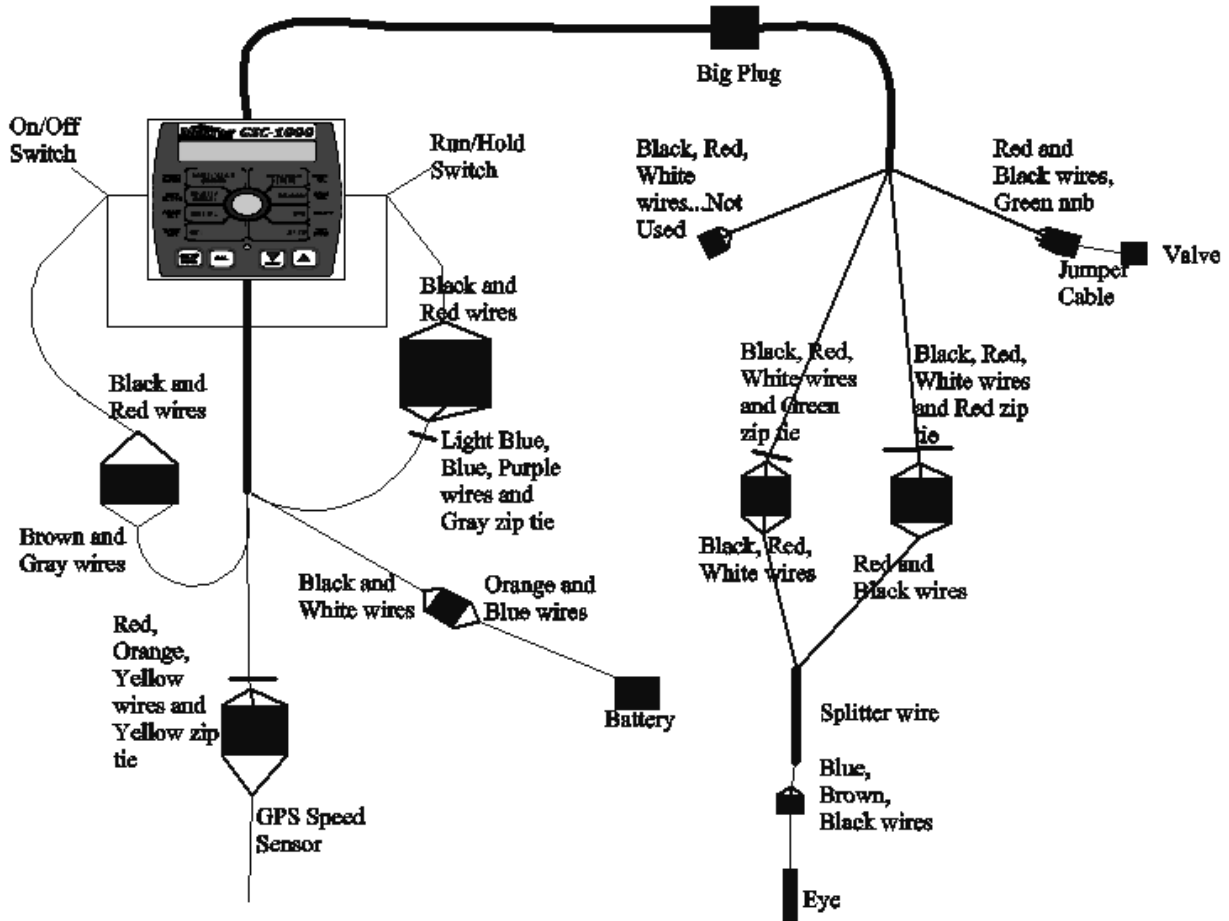
The Raven 660 will not tell you RPM when you are running in the field. It is up to you to count the RPM and get it as close as possible to spin 60 times a minute for the Standard machine and 31 times for the High Output at 5 MPH during your test run. The best way to see if it’s calibrated correctly is to do a couple acres and adjust the machine if it needs to be adjusted.

Also, you must have the Raven 660 controller with the master switch. If you do not have one with this switch you will not be able to control our system.

Micro Trak and Raven are a way of replacing the CAN BUS system from Ag Leader. If you have this system you will not have to purchase a Micro Trak or Raven controller. They are also for replacing the John Deere ISOBUS system. If you have the ISOBUS from John Deere you will not need either one of these controllers.

Micro-Trak GSC 1000 Setup

To wire in the Micro Trak controller follow the chart and instructions below:



1. There are two cables coming out of the back of the Micro Trak controller
2. The bottom one has a cable with 4 small plugs on it
3. The on/off switch is connected to the plug with gray and brown wires
4. The run/hold switch is connected to the plug with purple, blue, and light blue wires with a gray zip tie
5. The GPS speed sensor is connected to the plug with yellow, red, and orange wires with yellow zip tie
6. The power wire is connected to the plug with orange and blue wires (blue is negative, orange is positive)
7. The top cable coming out of the back of the Micro Trak controller has one big plug that is female
8. Plug the big plug female side from the controller into the big plug male side from the kit that has 4 cable plugs, there is also an extension cord that fits in between these plugs if needed
9. The 4 plugs from this cable all have different jobs to do and different places they need to be
10. The plug with the red, black, and white wires is not used so zip tie it out of harm's way

11. The plug with the red and black wires with the green nub is connected to a 6 inch jumper cable which is connected to the valve
12. The plug with the red, black, and white wires with the green zip tie is connected to a splitter wire which has a plug with black, red, and white wires
13. The plug with the red, black, and white wires with the red zip tie is connected to the other side of the splitter wire which has black and red wires
14. The splitter plug is connected to the speed sensor which is located above the sprocket
15. The speed sensor should be the thickness between a dime and a nickel away for the teeth of the sprocket
16. The speed sensor should be in the center over the sprocket facing the shaft
17. Make sure wires and plugs are clear of the drive chain and sprockets

Calibrating Micro Trak

For Special Calibration:

1. Turn controller off
2. Hold “Cal” and “Auto/Man” buttons while turning controller back on
3. You will see on the screen “Spec” which means you are in Special Cal
4. The red light should be on when you are in Special Cal
5. Turn dial to desired fields
6. To adjust fields use + or – buttons
7. To get to page 2 on the specified areas below tap the “Cal” button (You will only need to change the fields on page 2 that are marked on the graph below)
8. When you are done putting in your numbers press and hold “Cal” until the red light turns off to save your special calibration numbers
9. Your special cal numbers should be:

<u>Special Cal</u>	<u>Page 1</u>	<u>Page 2</u>
RPM	-1	20
Speed	22	
Rate	1	
Bin Level	On	
Weight/Minute	Off	
Weight Totals	Off	
Area Totals	Eng	110
Distance	Std	90

For Calibrating:

1. With the controller on, press and hold the “Cal” button for about 5 seconds
2. When you are calibrating the red light should be on
3. Turn dial to desired fields
4. To adjust fields use + or – buttons
5. When you are done putting your numbers in for calibrating press and hold “Cal” button until the red light turns off to save your calibration numbers
6. Your cal numbers should be:

<u>Cal</u>	<u>Standard Machine</u>	<u>High Output Machine</u>
Density	Density of Product	Density of Product
Test Speed	5 MPH	5 MPH
Target Rate	Number of lbs/acre	Number of lbs/acre
Adjustment Rate	10 lbs	10 lbs
Gate Setting	1	1
Spreader Constant	See Graph Below	See Graph Below
Width Cal	Width of bar (Inches)	Width of bar (Inches)
Speed Cal	.189	.189

Below are charts for your spreader constant. You need enter in your spreader constant according to your rows and spacing.

<u>Standard Machine</u>				
	<u>15 Inch Row Spacing</u>	<u>20 Inch Row Spacing</u>	<u>30 Inch Row Spacing</u>	<u>40 Inch Row Spacing</u>
<u>Number Of Rows</u>				
8	1620	1620	1620	1620
12	1080	1080	1080	1080
16	810	810	810	810
24	540	540	540	540

<u>High Output Machine</u>				
	<u>15 Inch Row Spacing</u>	<u>20 Inch Row Spacing</u>	<u>30 Inch Row Spacing</u>	<u>40 Inch Row Spacing</u>
<u>Number Of Rows</u>				
8	830	830	830	830
12	540	540	540	540
16	415	415	415	415
24	280	280	280	280

Standard Machine

When calibrating a Micro Trak on a Standard machine you will need to be in “Cal” mode. Following the numbers on the table above is important for calibrating our machine. If you enter other numbers in the controller your machine will not be calibrated correctly. When you get into “Cal” mode you will need to use the Montag Metering Calibration numbers. Meaning you use 62 pounds for the density, 250 pounds for your target rate, and 5 MPH for your test speed. If the machine is spinning 60 times a minute then the machine and controller are calibrated correctly. Once you have done this and it is correct you can switch

your product density and/or target rate. The Micro Trak will automatically adjust the RPM to your target rate and/or density. It will also tell you the number of RPM the machine is turning so you can make sure you have the correct RPM for your target rate and density.

High Output Machine

When calibrating a Micro Trak on a High Output machine you will need to be in “Cal” mode. Following the numbers on the table above is important for calibrating our machine. If you enter other numbers in the controller your machine will not be calibrated correctly. When you get into “Cal” mode you will need to use the Montag Metering Calibration numbers. Meaning you use 62 pounds for the density, 250 pounds for your target rate, and 5 MPH for your test speed. If the machine is spinning 31 times a minute then the machine and controller are calibrated correctly. Once you have done this and it is correct you can switch your product density and/or target rate. The Micro Trak will automatically adjust the RPM to your target rate and/or density. It will also tell you the number of RPM the machine is turning so you can make sure you have the correct RPM for your target rate and density.

If your machine is not applying the rate you are wanting it to and you need to adjust it there is an equation that you can set up to find your spreader constant number. Say that you have a 12 row Standard Machine and you wanted it to be applying 250 lbs/acre but your machine is putting on 300 lbs/acre. Take your spreader constant number which in this case is 1080 divided by 300 which is what your machine is actually applying. You should get 3.6. Take this 3.6 times your wanted rate which in this case is 250. When you do this you should get 900 which would be your new spreader constant number.

$$(\text{Spreader Constant/Actual Rate}) \times (\text{Desired Rate}) = \text{New Spreader Constant Number}$$

For both the High Output and the Standard machine it is best to do a few acres and check to make sure it is doing the rate you want it to do. If you calibrated the machine correctly the rate should be what you set the machine for. This is a good way to make sure you have calibrated the controller and the machine correctly.

If you need to switch rates using a Micro Trak you will need to press and hold “Cal”, turn the dial to target rate and adjust your rate. Then you need to press and hold “Cal” again until the red light goes off to save your change.

Micro Trak has 3 boom switches that are on top of the controller. You will only need to run off boom number one. The other two should be set to zero and turned off. Boom number one should be set to your row width times your number of rows. So if you have a 12 row 30 inch row bar you should enter in 360 for boom one and make sure it is in the “On” position otherwise it will not turn on when you hit the “Run/Hold” switch to “Run”.

Micro Trak can interface with Ag Leader and John Deere. However, it can only run with certain displays. For Ag Leader, Integra and Insight are the only ones that it can run with. It will not run with the Edge. The Micro Trak can only hook into the newer/newest 2600 John Deere display. It will not run with the 1800. There are cable kits that you will need to order from Ag Leader and John Deere to be able to integrate the Micro Trak with one of these displays.

When entering information in an Ag Leader on what you are running for a controller you need to enter Raven 460 because the Micro Trak is pretending to be a Raven controller.

When entering information in a John Deere 2600 display you need to tell the 2600 its running with a Raven 660 because it looks for ID and checks to see if it matches the rate controller you specified. If it doesn't match it will give you an error message and will not allow you to run.