# Gen 1 Operations Manual


**MONTAG MANUFACTURING, INC.**

**3816 461ST AVE**

**EMMETSBURG, IA 50536**

**www.montagmfg.com**

**PH 712-852-4574**

**P003167- Effective 1-1-2020 thru current**

**Read manual before operating Montag equipment**

## 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.

The Gen 1 was designed to accurately and consistently dispense dry granular product using fluid air to convey product to the drop point. The Gen 1 can meter one product with either one or two section configurations. Gen 1 can either be standard or high output used to run both flat rate or variable rate prescription.

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 HYDRAULIC REQUIREMENTS

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

| Model | Rows | Hydraulic Capacity | Hydraulic Pressure | Minimum Hydraulic Hose Size | | |
|---|---|---|---|---|---|---|
| | | | | Pressure | Return | Case Drain |
| GEN 1 | 8 OR 12 | 16 gpm (61 lpm) | 2500 psi (172 bar) | ½ inch | ¾ inch | ½ inch |
| GEN 1 | 16 | 18 gpm (68 lpm) | 2600 psi (179 bar) | ¾ inch | ¾ inch | ½ inch |
| GEN 1 | 18 OR 24 | 20 gpm (76 lpm) | 2850 psi (197 bar) | ¾ inch | 1 inch | ½ inch |

## 1.3 SPECIFICATIONS

### 1.3.1 DRY FERTILIZER METER - GEN 1

| Model | Maximum Rated Capacity | Minimum Rated Capacity | Hose Size |
|---|---|---|---|
| **Standard Meter** | | | |
| 8 Row Standard | 500 lbs. /Acre @ 5 mph* | 50 lbs. /Acre @ 5 mph* | 2 inch |
| 12 Row Standard | 500 lbs. /Acre @ 5 mph* | 50 lbs. /Acre @ 5 mph* | 2 inch |
| 16 Row Standard | 500 lbs. /Acre @ 5 mph* | 50 lbs. /Acre @ 5 mph* | 2 inch |
| 18 Row Standard | 400 lbs. /Acre @ 5 mph* | 50 lbs. /Acre @ 5 mph* | 2 inch |
| **High Output Meter** | | | |
| 8 Row High Output | 800 lbs. /Acre @ 5 mph* | 100 lbs. /Acre @ 5 mph* | 2½ inch |
| 12 Row High Output | 800 lbs. /Acre @ 5 mph* | 100 lbs. /Acre @ 5 mph* | 2½ inch |
| 16 Row High Output | 800 lbs. /Acre @ 5 mph* | 100 lbs. /Acre @ 5 mph* | 2½ inch |
| 18 Row High Output | 500 lbs. /Acre @ 5 mph* | 100 lbs. /Acre @ 5 mph* | 2½ inch |
| 24 Row High Output | 500 lbs. /Acre @ 5 mph* | 100 lbs. /Acre @ 5 mph* | 2½ inch |

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

## 1.4 MACHINE IDENTIFICATION

Effective for machines with serial #s ranging from **#21593, #21643** to **Current**

Gen 1 serial tag is located on the motor side of the fan.


My serial number is _____

# MONTAG GENERATION 1
## 6 TON DRY FERTILIZER SYSTEM

*185 CuFt (6 Ton) GEN 1 Base Unit with a white bin on a Montag Auto-Steer Cart shown above. Other color options include gray and yellow (see image below). Bins have two fill inlets. All units use the Montag GEN 1 particulate metering technology.*

## 6 Ton GEN 1 Specifications

Row Configurable: 8, 12, 16, 18, & 24 rows

2 Section Configurable for 16, 18, & 24 row meters

Product Capacity:
185 ft³ [5,239 L] / 5.92 ton [5,371 kg]*

Rate Capacity†:

| STD | | | H.O. | | |
|---|---|---|---|---|---|
| Rows | lb/ac | kg/ha | Rows | lb/ac | kg/ha |
| 8-16 | 50-500 | 56-560 | 8-16 | 100-800 | 112-897 |
| 18 | 50-400 | 56-448 | 18-24 | 100-500 | 112-560 |

Weight‡: 1,800 lb [817 kg]

Overall Height: 85.4 in [216.9 cm]

Overall Length: 107.9 in [274.1 cm]

Overall Width: 102.8 in [261.1 cm]

Product Fill Height: 77.8 in [197.6 cm]

Product Fill Inlet Size: 7.56 ft² [0.70m²]

Product Outlet Hose Size:
STD - 2.00 in [5.08 cm]
H.O. - 2.50 in [6.35 cm]

Req. Hydraulic Capacity§:
16-20 gpm [61-76 Lpm]

Req. Hydraulic Pressure§:
2,500-2,850 psi [172-197 bar]

Configurable with any Montag 6, 9, or 12 ton Auto-Steer Carts

*Calculated using 64 lb/ft³ product density [1.025 kg/L]
†Calculated using 64 lb/ft³ product density, 30 in row spacing, and 5 mph [1.025 kg/L, 76 cm row spacing, and 8 km/h]
‡Unloaded, dry weight
§Hydraulic capacity and pressure dependent on row configuration.

**MONTAG MANUFACTURING**
3816 461st Avenue, Emmetsburg, IA 50536
(712) 852-4572 | info@montagmfg.com | http://www.montagmfg.com

Published 02/04/2021

# MONTAG GENERATION 1
## 9 TON DRY FERTILIZER SYSTEM


*9 Ton GEN 1 Base Unit with a gray bin on a Montag Auto-Steer Cart shown above. Other color options include white and yellow (see image below). Bins have two fill inlets. All units use the Montag GEN 1 particulate metering technology.*


## 9 Ton GEN 1 Specifications

Row Configurable: 8, 12, 16, 18, & 24 rows

2 Section Configurable for 16, 18, & 24 row meters

Product Capacity:
280 ft³ [7,929 L] / 8.96 ton [8,128 kg]*

Rate Capacity†:

| STD | | | H.O. | | |
|---|---|---|---|---|---|
| Rows | lb/ac | kg/ha | Rows | lb/ac | kg/ha |
| 8-16 | 50-500 | 56-560 | 8-16 | 100-800 | 112-897 |
| 18 | 50-400 | 56-448 | 18-24 | 100-500 | 112-560 |

Weight‡: 2,200 lb [998 kg]

Overall Height: 108.8 in [276.4 cm]

Overall Length: 126.9 in [322.3 cm]

Overall Width: 103.3 in [262.4 cm]

Product Fill Height: 101.2 in [257.0 cm]

Product Fill Inlet Size: 7.56 ft² [0.70m²]

Product Outlet Hose Size:
STD - 2.00 in [5.08 cm]
H.O. - 2.50 in [6.35 cm]

Req. Hydraulic Capacity§:
16-20 gpm [61-76 Lpm]

Req. Hydraulic Pressure§:
2,500-2,850 psi [172-197 bar]

Configurable with Montag 9 or 12 ton Auto-Steer Carts

*Calculated using 64 lb/ft³ product density [1.025 kg/L]
†Calculated using 64 lb/ft³ product density, 30 in row spacing, and 5 mph [1.025 kg/L, 76 cm row spacing, and 8 km/h]
‡Unloaded, dry weight
§Hydraulic capacity and pressure dependent on row configuration.

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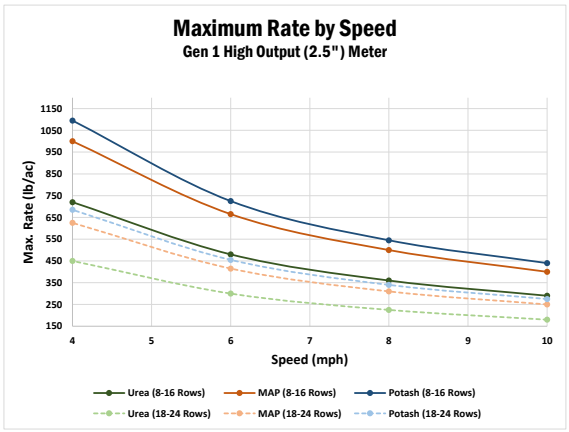
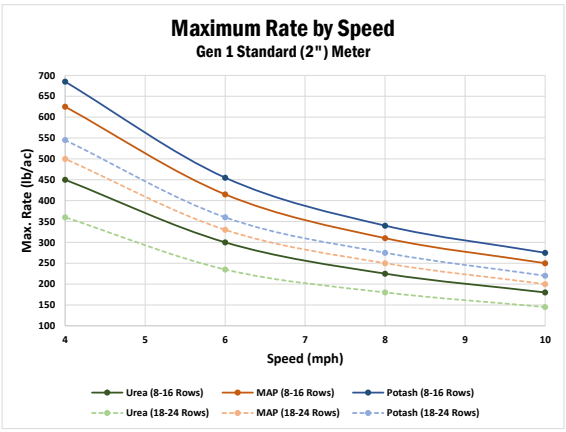
# 1.7 GEN 1 - RATE CAPACITY CHART

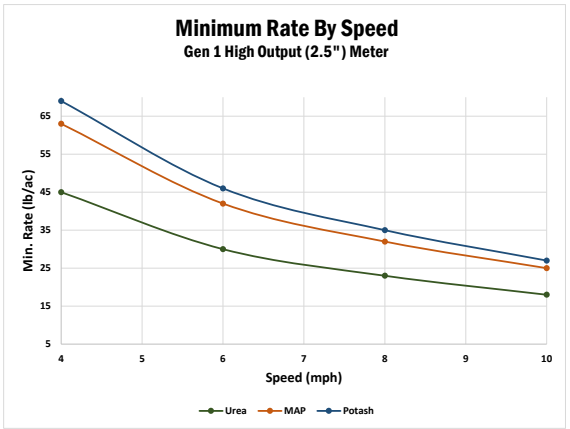
## Montag Gen 1 Rate Capacity Chart

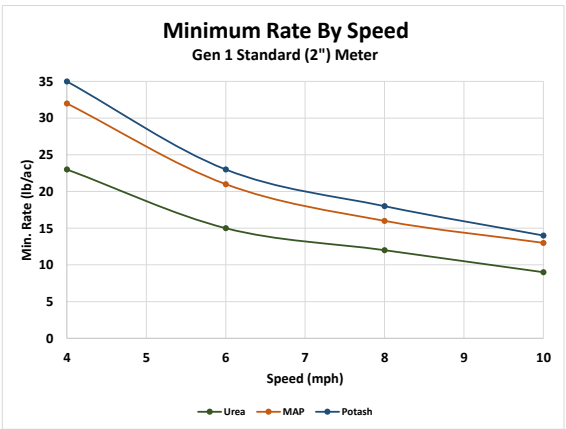
| Gen 1 **Maximum** Rate by Speed (30" Row) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gen 1 HO Meter (8-16 rows) | | | | | | Gen 1 STD Meter (8-16 rows) | | | | | |
| Urea (46 *lb/ft³*) | | MAP (64 *lb/ft³*) | | Potash (70 *lb/ft³*) | | Urea (46 *lb/ft³*) | | MAP (64 *lb/ft³*) | | Potash (70 *lb/ft³*) | |
| Speed | Max. Rate | Speed | Max. Rate | Speed | Max. Rate | Speed | Max. Rate | Speed | Max. Rate | Speed | Max. Rate |
| 10 | 290 | 10 | 400 | 10 | 440 | 10 | 180 | 10 | 250 | 10 | 275 |
| 8 | 360 | 8 | 500 | 8 | 545 | 8 | 225 | 8 | 310 | 8 | 340 |
| 6 | 480 | 6 | 665 | 6 | 725 | 6 | 300 | 6 | 415 | 6 | 455 |
| 4 | 720 | 4 | 1000 | 4 | 1095 | 4 | 450 | 4 | 625 | 4 | 685 |
| Gen 1 HO Meter (18 & 24 rows) | | | | | | Gen 1 STD Meter (18 & 24 rows) | | | | | |
| 10 | 180 | 10 | 250 | 10 | 275 | 10 | 145 | 10 | 200 | 10 | 220 |
| 8 | 225 | 8 | 310 | 8 | 340 | 8 | 180 | 8 | 250 | 8 | 275 |
| 6 | 300 | 6 | 415 | 6 | 455 | 6 | 235 | 6 | 330 | 6 | 360 |
| 4 | 450 | 4 | 625 | 4 | 685 | 4 | 360 | 4 | 500 | 4 | 545 |




| Gen 1 **Minimum** Rate by Speed (30" Row) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gen 1 HO Meter | | | | | | Gen 1 STD Meter | | | | | |
| Urea (46 *lb/ft³*) | | MAP (64 *lb/ft³*) | | Potash (70 *lb/ft³*) | | Urea (46 *lb/ft³*) | | MAP (64 *lb/ft³*) | | Potash (70 *lb/ft³*) | |
| Speed | Min. Rate | Speed | Min. Rate | Speed | Min. Rate | Speed | Min. Rate | Speed | Min. Rate | Speed | Min. Rate |
| 10 | 18 | 10 | 25 | 10 | 27 | 10 | 9 | 10 | 13 | 10 | 14 |
| 8 | 23 | 8 | 32 | 8 | 35 | 8 | 12 | 8 | 16 | 8 | 18 |
| 6 | 30 | 6 | 42 | 6 | 46 | 6 | 15 | 6 | 21 | 6 | 23 |
| 4 | 45 | 4 | 63 | 4 | 69 | 4 | 23 | 4 | 32 | 4 | 35 |



## 1.8 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 3816 461st Ave. Emmetsburg, Iowa 50536; by telephone at (712)-852-4572; by facsimile at (712)-852-4574; or by e-mail at support@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.

## 2.1 SECTION OVERVIEW

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

## 2.2 SAFETY

This Owner's Manual covers the particulate metering system 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. Montag Manufacturing urges the consumer to make safety the highest priority when using this machine. Do not attempt to operate this equipment under the influence of drugs or alcohol. Do not use the equipment if alertness or coordination is impaired.

This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible adult familiar with farm machinery and trained in this equipment's operations. **Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and of how it works.**

The safety information in this manual is denoted by the safety alert symbol:
This symbol means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**

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

**⚠DANGER**

**Indicates an imminently hazardous situation that, if not avoided, *will* result in death or serious injury. This signal word is to be limited to the most extreme situations typically for machine components which, for functional purposes, cannot be guarded.**

**⚠WARNING**

**Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.**

**⚠CAUTION**

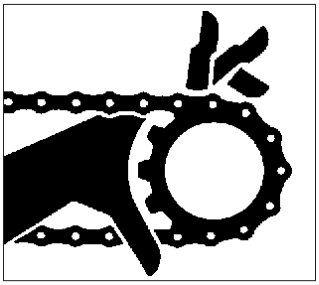
**Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.**

***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**

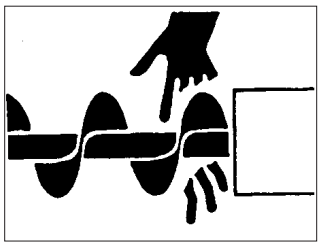
**Severing hazard.**

**Rotating fans and shafts 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.**

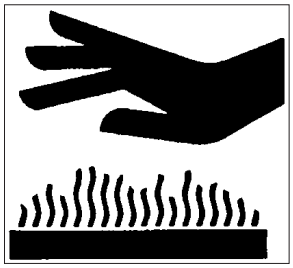
**Never allow riders on the equipment.**

**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.**

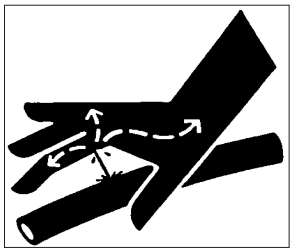
**Do not touch hot hydraulic surfaces.**

**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**



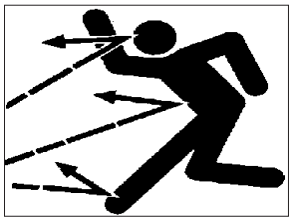
**Relieve pressure before disconnecting hydraulic lines.**

**Make sure hydraulic fluid connections are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system. Use a piece of paper or cardboard, NOT BODY PARTS, to check for suspected leaks. Wear protective gloves and safety glasses or goggles when working with hydraulic systems. DO NOT DELAY! If an accident occurs, see a doctor familiar with this type of injury immediately Any fluid injected into the skin or eyes must be treated within a few hours or gangrene may result.**

### 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 20 mph.**

### 2.2.8 AVOID TIPPING CART

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


**Crushing hazard.**

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

### 2.2.9 CLEARANCE


**Collision hazard.**

**Know the height, width and length of the equipment.**

**Always be aware of clearances.**

### 2.2.10 MAINTENANCE


**Crushing hazard.**

**Good maintenance is your responsibility. Poor Maintenance is an invitation to trouble. With careful inspection and routine maintenance, costly downtime and repairs can be avoided.**

**Some parts and assemblies can be quite heavy. Before attempting to unfasten any part or assembly, arrange to support it by means of a hoist, blocking, or by using an adequate arrangement to keep it from falling, tipping, swinging, or moving in any manner which may hurt somebody or damage the equipment.**

**Always use lifting equipment that is adequately rated to do the job. Never lift equipment over people.**

**Be certain all moving parts on attachments have come to a complete stop before attempting to perform maintenance.**

**Always use the proper tools or equipment for the job at hand.**

**After servicing, be sure all tools, parts, and service equipment are removed.**

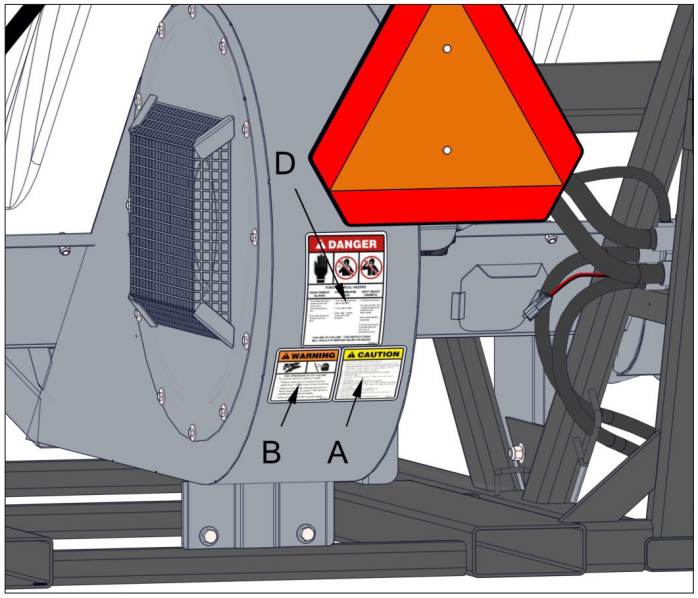
**Before performing inspections, service or maintenance:**

- **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.**

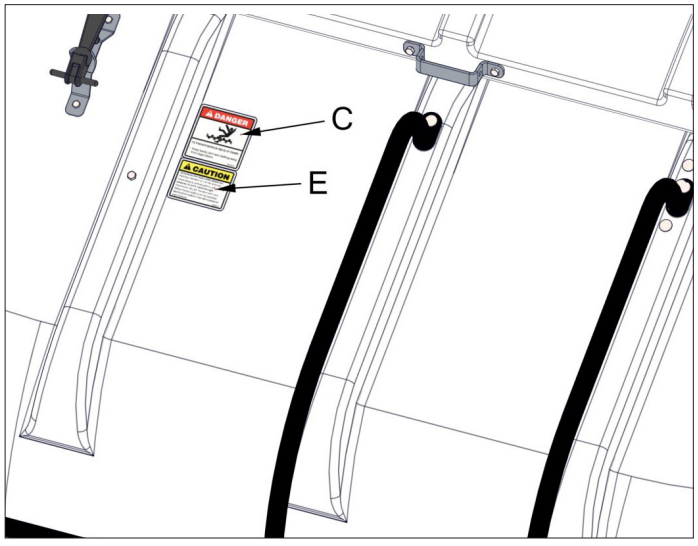
### 2.2.11 HAZARDS FROM MODIFYING YOUR PARTICULATE METERING SYSTEM

Before making any alteration, contact your dealer or Montag Manufacturing and describe the alteration you are contemplating. Altering may void the manufacturer's warranty. Montag Manufacturing does not accept any liability for injury or damage.

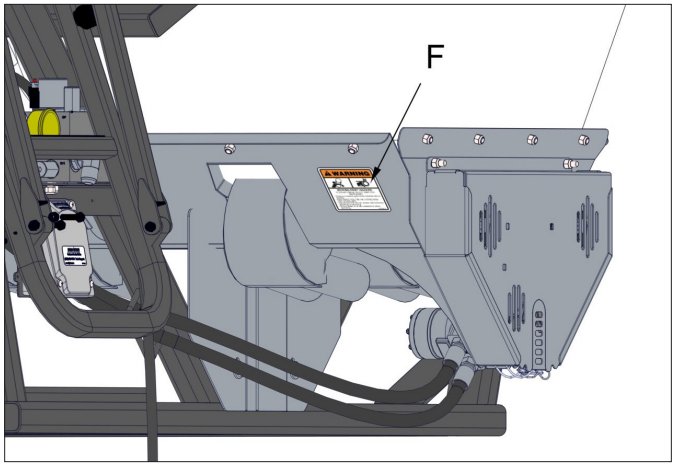
### 2.2.12 SAFETY WARNING LABEL LOCATIONS - GEN 1




Fan Housing




Top Of Tank




Auger Motor

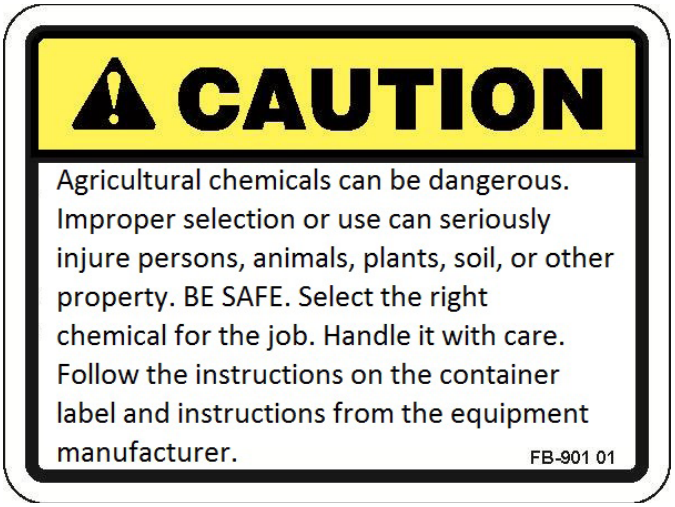
### 2.2.13 SAFETY WARNING LABELS


Label A


Label B


Label C


Label D




Label E


Label F

**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 1-712-852-4572, or e-mail support@montagmfg.com, for replacement labels.**

### 2.2.14 SAFETY DECAL CARE

- Keep safety signs clean and legible at all times.
- Replace safety signs that are missing or have become illegible.
- Replaced parts that displayed a safety sign should also display the current sign.
- Safety signs are available from your Distributor or Dealer Parts Department or the factory.

**How to Install Safety Signs:**

- Be sure that the installation area is clean and dry.
- Decide on the exact position before you remove the backing paper.
- Remove the smallest portion of the split backing paper.
- Align the decal over the specified area and carefully press the small portion with the exposed sticky backing in place.
- Slowly peel back the remaining paper and carefully smooth the remaining portion of the decal in place.
- Small air pockets can be pierced with a pin and smoothed out using the piece of decal backing paper.

### 2.2.15 TIRE SAFETY

- Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious injury or death.
- Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.
- Inflating or servicing tires can be dangerous. Whenever possible, trained personnel should be called to service and/or mount tires.
- Always order and install tires and wheels with appropriate capacity to meet or exceed the anticipated weight to be placed on the equipment.
- The rims and tires should be mounted on the cart with the valve stem to the outside. Be sure you have proper tire pressure and the lug nuts are properly tightened. Lug nuts should be re-torqued after first hour of operation and then after the first day of use

### 2.2.16 LIGHTING AND MARKING

- It is the responsibility of the customer to know the lighting and marking requirements of the local highway authorities and to install and maintain the equipment to provide compliance with the regulations. Add extra lights when transporting at night or during periods of limited visibility.
- Lighting kits are available from your dealer or from the manufacturer.

## 2.3 HIGHWAY AND TRANSPORT OPERATIONS

- Adopt safe driving practices:
  - Keep the brake pedals latched together at all times. NEVER USE INDEPENDENT BRAKING WITH MACHINE IN TOW AS LOSS OF CONTROL AND/OR UPSET OF UNIT CAN RESULT.
  - Always drive at a safe speed relative to local conditions and ensure that your speed is low enough for an emergency stop to be safe and secure. Keep speed to a minimum.
  - Reduce speed prior to turns to avoid the risk of overturning.
  - Avoid sudden uphill turns on steep slopes.
  - Always keep the tractor or towing vehicle in gear to provide engine braking when going downhill. Do not coast.
  - Do not drink and drive!
- Comply with state and local laws governing highway safety and movement of farm machinery on public roads.
- Use approved accessory lighting flags and necessary warning devices to protect operators of other vehicles on the highway during daylight and nighttime transport. Various safety lights and devices are available from your dealer.
- The use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use. Local laws should be checked for all highway lighting and marking requirements.
- When driving the tractor and equipment on the road or highway at night or during the day, use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem.
- Plan your route to avoid heavy traffic.
- Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc.
- Be observant of bridge loading ratings. Do not cross bridges rated lower than the gross weight at which you are operating.
- Watch for obstructions overhead and to the side while transporting.

- Always operate equipment in a position to provide maximum visibility at all times. Make allowances for increased length and weight of the equipment when making turns, stopping the unit, etc.
- Pick the most level possible route when transporting across fields. Avoid the edges of ditches or gullies and steep hillsides.
- Be extra careful when working on inclines.
- Maneuver the tractor or towing vehicle at safe speeds.
- Avoid overhead wires or other obstacles. Contact with overhead lines could cause serious injury or death.
- Avoid loose fill, rocks and holes; they can be dangerous for equipment operation or movement.
- Allow for unit length when making turns.
- Operate the towing vehicle from the operator's seat only.
- Never stand alongside of unit with engine running or attempt to start engine and/or operate machine while standing alongside of unit.
- Never leave running equipment attachments unattended.
- As a precaution, always recheck the hardware on equipment following every 100 hours of operation. Correct all problems. Follow the maintenance safety procedures.

## 3.1 GEN 1 SYSTEM ASSEMBLY

### 3.1.1 INSTALL GEN 1 ON CART (WITHOUT OPTIONAL WEIGH BARS)

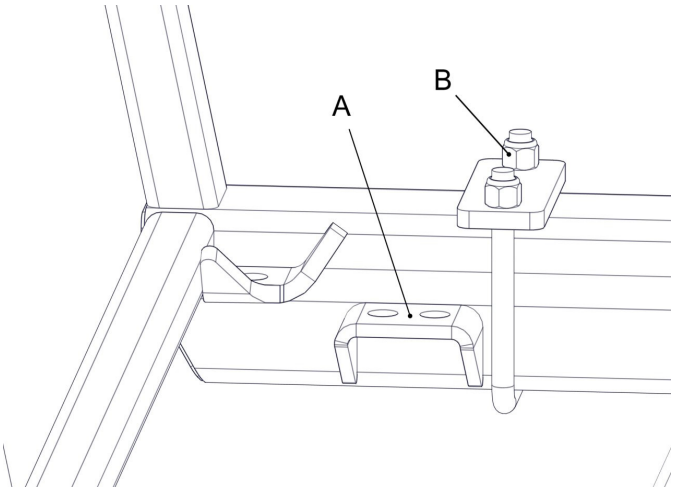
**⚠WARNING**

**Prevent death or serious injury.**

**Dry fertilizer metering unit weighs approximately 2200 lbs (998 kg).**

**Use adequate lifting and support devices.**

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



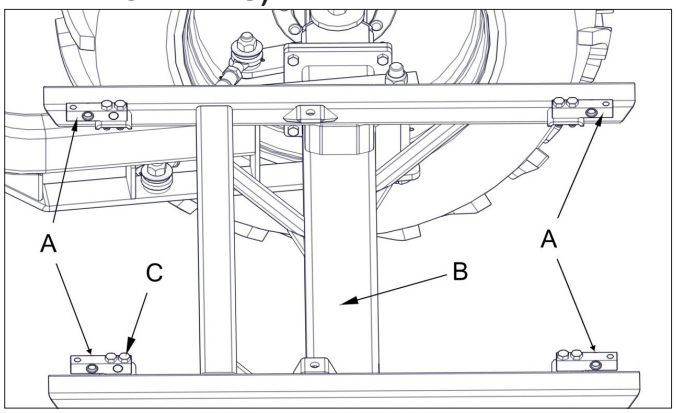

*Note: Install U-bolts facing up, with nuts on top. If U-bolts are installed facing down, and need to be removed for any reason, tank unit disassembly may be required.*

2. Install ⅝ x 4 wide x 6½ inch long U-bolts in each corner of metering unit between unit 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/ft (34 Nm) increments until each nut is tightened to 75 lb/ft (102 Nm) of torque. Then tighten each nut to 95 lb/ft (129 Nm) of torque. Avoid over tightening either side.

### 3.1.2 INSTALL GEN 1 UNIT ON CART (WITH OPTIONAL WEIGH BARS)

1. Position weigh bars (A) on cart brackets at each corner with arrows on ends of weigh bars pointing down. Ends of bars with arrows must be farthest from cart center frame (B).



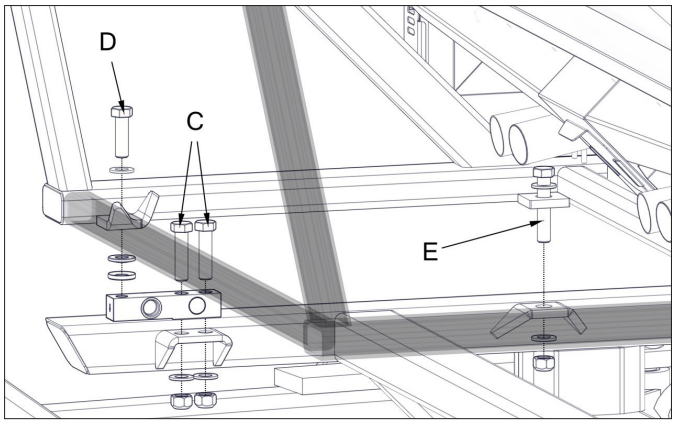

2. Install each weigh bar to bracket loosely with two ¾ x 3 inch bolts (C), through two bolt holes closest together, and ¾ inch lock nuts. Do not tighten at this time.

**⚠WARNING**

**Prevent death or serious injury.**

**Fertilizer metering unit weighs approximately 2200 lbs (998 kg).**

**Use adequate lifting and support devices.**




3. Position unit with fertilizer tank onto cart, with unit bolt holes aligned with bolt holes in four weigh bars.

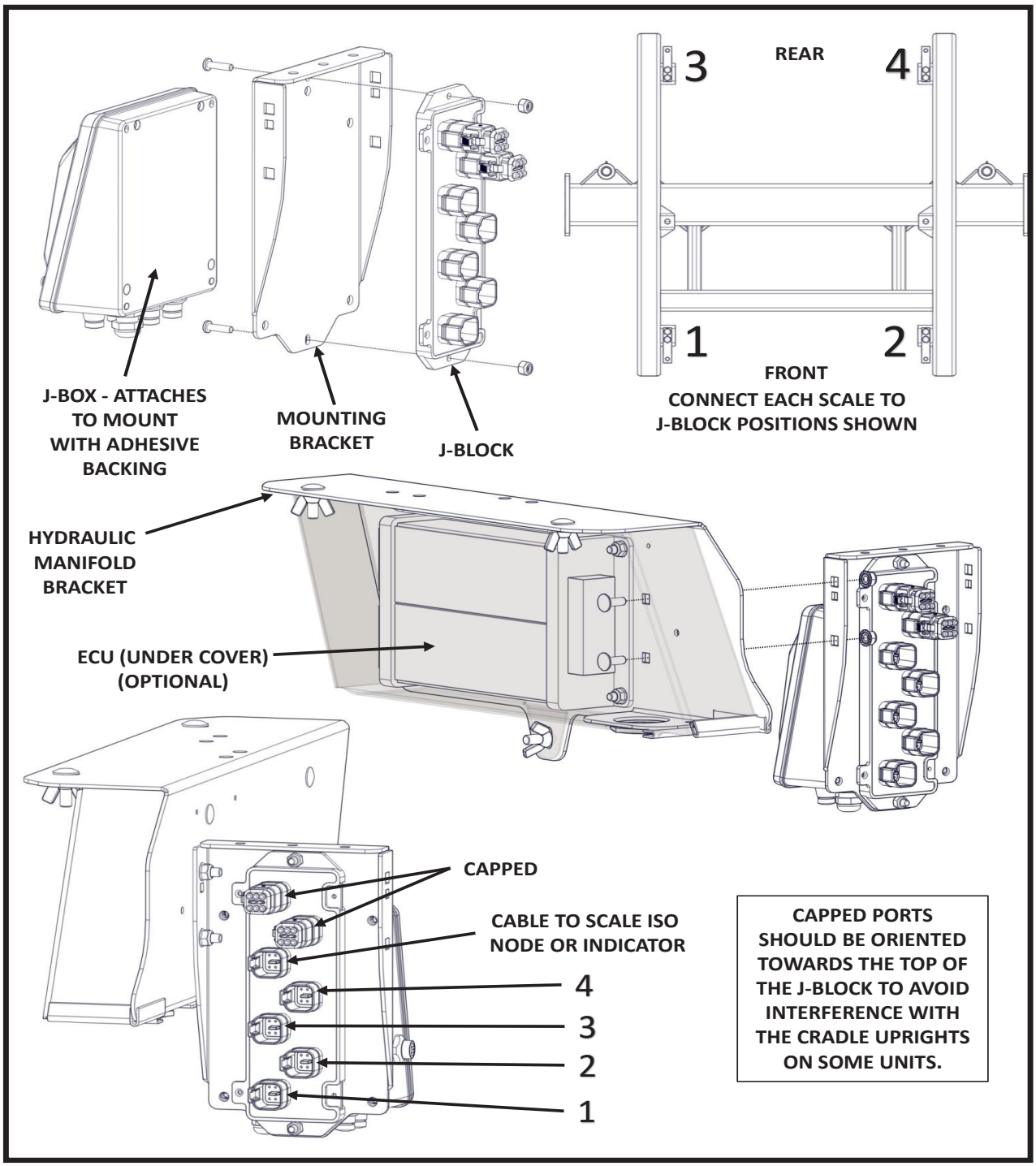
4. Install ¾ x 2½ inch bolts (D) with flat washers at each unit corner through frame brackets and weigh bars. Tighten bolts to 220 lb/ft (271 Nm) of torque.

5. Tighten bolts (C) to 220 lb/ft (271 Nm) of torque.

*Note: Back-up bolts (E) are installed as a safety measure in case any unit mounting bolts come loose or fail. Install both back-up bolts loosely. Fertilizer tank load readings will include any force applied by these bolts.*

6. Install back-up bolts (E) on each side of unit below meter with spacers under bolt and lock nut, but do not tighten bolts. Bolts must have approximately ⅛ inch of play after installation.

7. 7. Route lead from each load cell to J-box. Plug into block in order as shown for easier troubleshooting in future.



### 3.1.3 INSTALL STEP AND PLATFORM ASSEMBLY

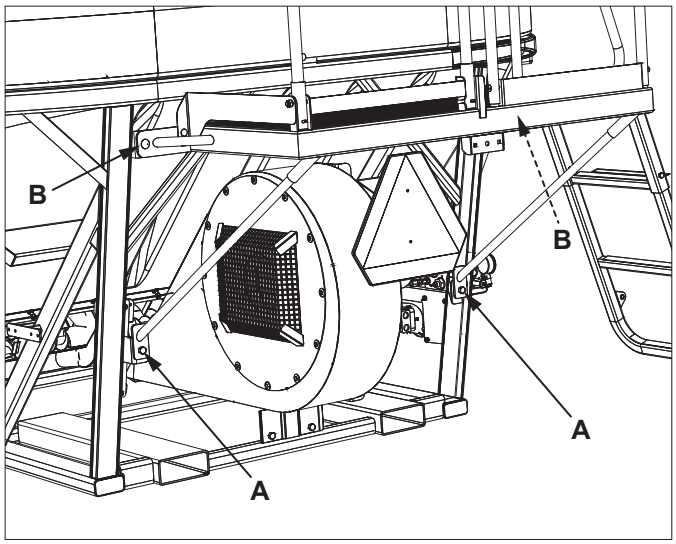
*Note: Stairs and platform assembly can be installed on either the front or the rear of the dry fertilizer tank. The installation procedures are the same for either location, but if installed in front of tank, the tank lid will need to be rotated to face the front. Assembly to the rear of the tank is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

**⚠WARNING**

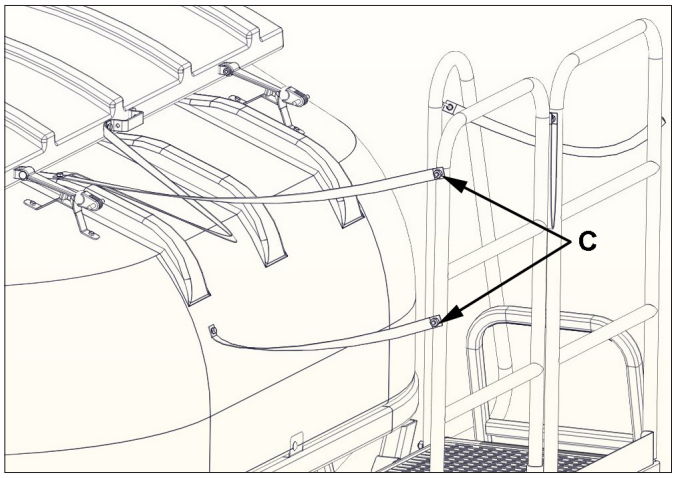
**Prevent death or serious injury.**

**Step/platform assembly weighs approximately 260 lbs (118 kg).**

**Use adequate lifting and support devices.**

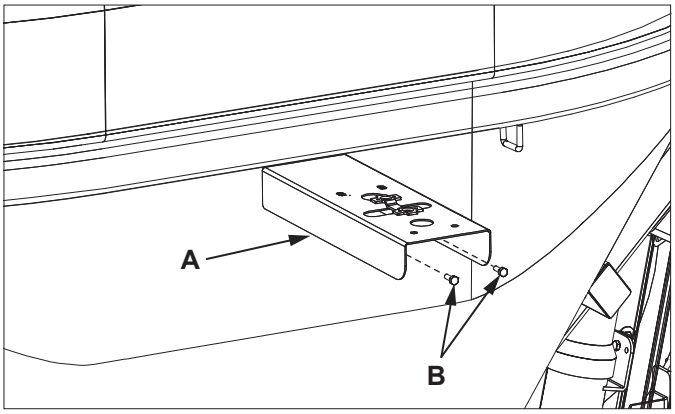



1. Position step/platform assembly on tank with an adequate lifting device.
2. Align bolt holes on platform with holes on tank assembly brackets.
3. Install ½ x 1½ inch hex head bolts (A) and ½ inch nuts.
4. Install ½ x 1¼ inch round head bolts (B) and ½ inch nuts.
5. Tighten mounting bolts to 57 lb/ft (77 Nm) of torque.
6. Install straps to handrail with ⅜ x ¾ inch bolts and ⅜ inch nuts (C).
7. Contact Montag Mfg. if pre deck assembly is required.



### 3.1.4 INSTALL LIGHTS

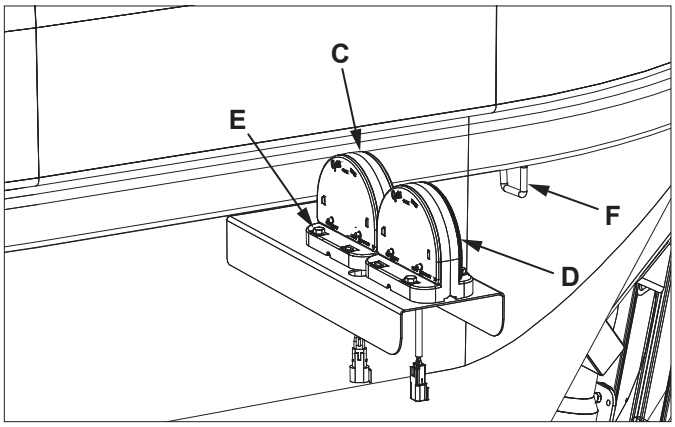
1. Install light bracket (A) to tank bracket with two ¼ x ¾ inch bolts (B).




2. Install red lamp (C) and amber lamp (D) to bracket with ¼ x ¾ inch bolts (E), ¼ inch washers and ¼ nuts. Tighten nuts to 4 lb/ft (5 Nm) of torque.

3. Repeat steps 1-2 for other side.

4. Route wires through loops (F) and follow steering arms to hitch.



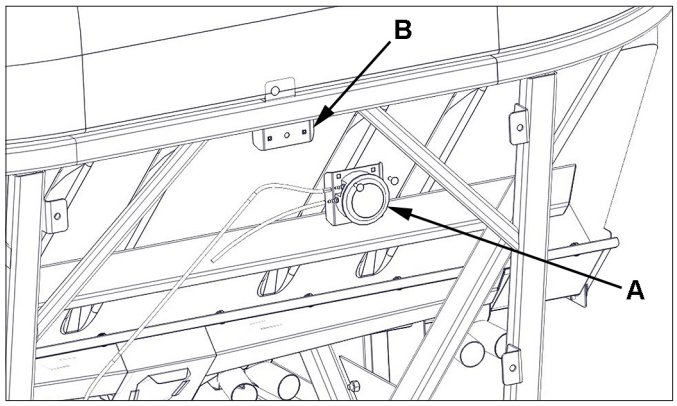

### 3.1.5 INSTALL AIR PRESSURE GAUGE

1. Install air pressure gauge (A) to tank bracket (B) or platform bracket depending orientation of the unit with the bolts provided in kit.

2. Attach long 5⁄16 O.D. x 3⁄16 I.D. hose to top hose barb and short hose to the bottom hose barb.

3. Attach hose to tank frame with provided zip ties with short hose end pointing down.

4. Route long hose to hose barb on fan housing while attaching to frame with zip ties.



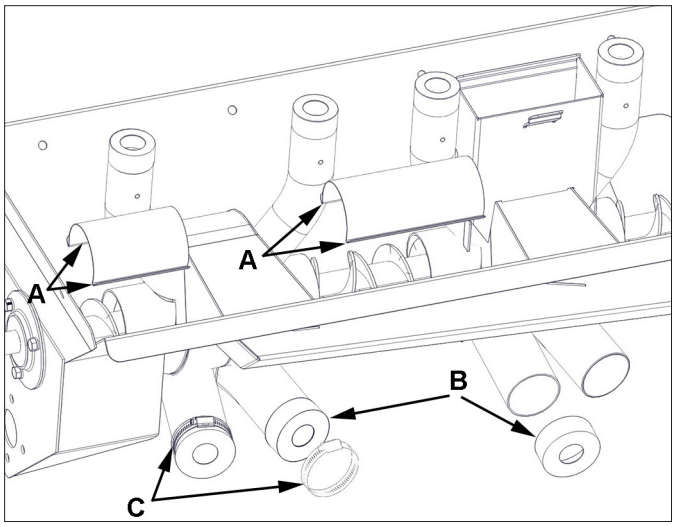

### 3.1.6 ROW REDUCER INSTALLATION (OPTIONAL)

1. Apply silicone sealant along bottom edge (A) of auger covers from end to end.

2. Place auger cover over auger and snap into place. Single row covers go on ends and double row covers go in the center. Do not place single row covers at double row locations.

3. Apply silicone around auger cover to seal any openings and let dry.

4. Place orange cap with hole (B) over outlet for auger you have covered and install hose clamp (C) to secure caps. Orange caps with hole must be in place to balance air system for proper operation.



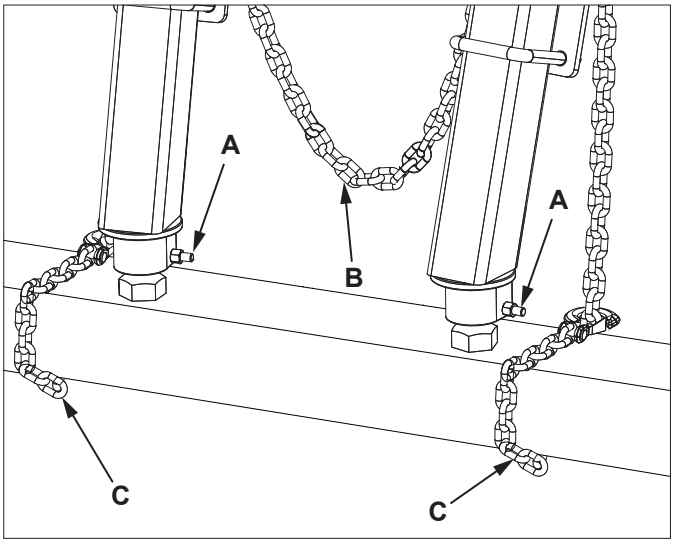
## 4.1 CONNECT CART TO IMPLEMENT

**⚠WARNING**

**Risk of loss of control when transporting cart.**

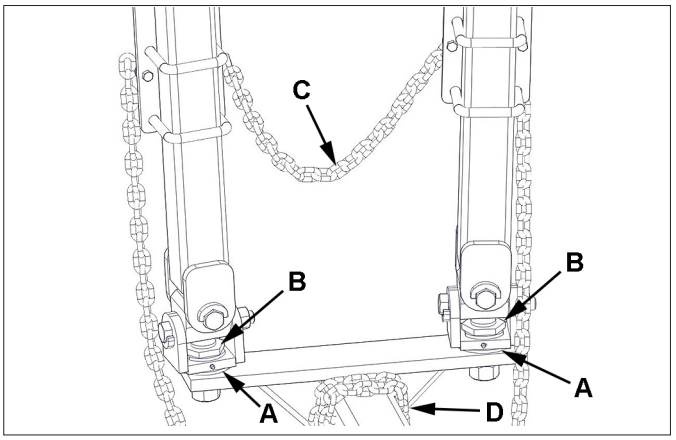
**Remove all product from tank before transporting on roads. With empty tanks, maximum speed for cart on roads is 20 mph.**

### 4.1.1 CONNECT CART (STANDARD CART WITH BALL HITCH)



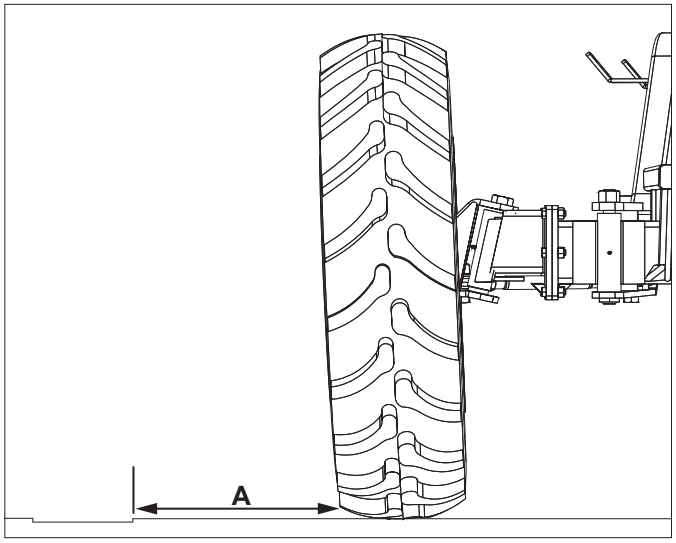

1. Install two 2$\frac{5}{16}$ inch (30K) hitch balls at 22" center spacing on implement. Tighten as recommended by manufacturer.
2. Back implement up to cart.
3. Lower adjustable hitch height as needed with jacks to engage ball hitches.
4. Install ½ x 4½ inch bolts (A) to fasten arms to ball hitches. Tighten bolts to 57 lb/ft (77 Nm) of torque.
5. Verify chain (B) is installed between two arms to keep arms together if they disconnect from hitch.
6. Wrap long chains (C) around frame as shown. Hook chain and engage hook safety lock.
7. Retract and remove jacks from cart.

### 4.1.2 CONNECT CART (STANDARD CART WITH KNUCKLE HITCH)




1. Back implement up to cart.
2. Place large bottom washers (A) over holes on hitch plate.
3. Lower adjustable hitch height as needed with jacks to engage 1⅜ inch knuckle bolts (B) through washers and hitch plate holes.
4. Install 1⅜ inch lock washers and nuts on bolts. Tighten to 559 lb/ft (758 Nm) of torque.
5. Verify chain (C) is installed between two arms to keep arms together if they disconnect from hitch.
6. Wrap long chains around frame as shown. Hook chain and engage hook safety lock.
7. Retract and remove jacks from cart.

### 4.1.3 ALIGN CART




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

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

3. Determine and make correction: If tire centerline measurement at front is not the same as measurement at rear , 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 (3099 mm), and the measurement at the front of tires is 118 inches (2997 mm), adjustment will be 2 inches (51 mm). If cart was determined to be tracking to left in step 1, extending right tie-rod to make centerline measurement of 120 inches (3048 mm) would correct tracking to the left as well as the toe-in problem.

4. Repeat step 1 to verify correct alignment.

5. See cart manual for more instruction on the cart.

## 4.2 GEN 1 SYSTEM

### 4.2.1 CONNECT HYDRAULIC HOSES

**⚠WARNING**

**Pressurized fluids can penetrate the skin.**

**Hydraulic hoses can fail.**

**Inspect hoses before operation.**

**Replace damaged hoses.**

***NOTICE***

***Prevent damage to Gen 1 fan motor.***

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

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

1. Connect a ½ inch hydraulic hose to CD port on hydraulic block and to case drain (zero pressure) return port on tractor. See tractor operator's manual or tractor dealer for location of this coupler on tractor.

2. Connect hose from P port on hydraulic block to pressure port on tractor hydraulic SCV. See Hydraulic Requirements in Section 1.2 for proper hose size.
3. See Hydraulic Schematics in Section 10 to determine return hose connections. Connect return oil from system to a

motor return port on tractor, not SCV stack. See tractor operator's manual or tractor dealer for location of this port on tractor. See Hydraulic Requirements in Section 1.2 for proper hose size.

4. Connect flow controller leads and 3-pin encoder connector to control console in tractor.

5. Connect case drain alarm to 12 volt DC power supply in tractor. Alarm will sound if case drain pressure is above 23 psi (30 kPa).

6. 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 fan opening. Pressure gauges should read as follows:

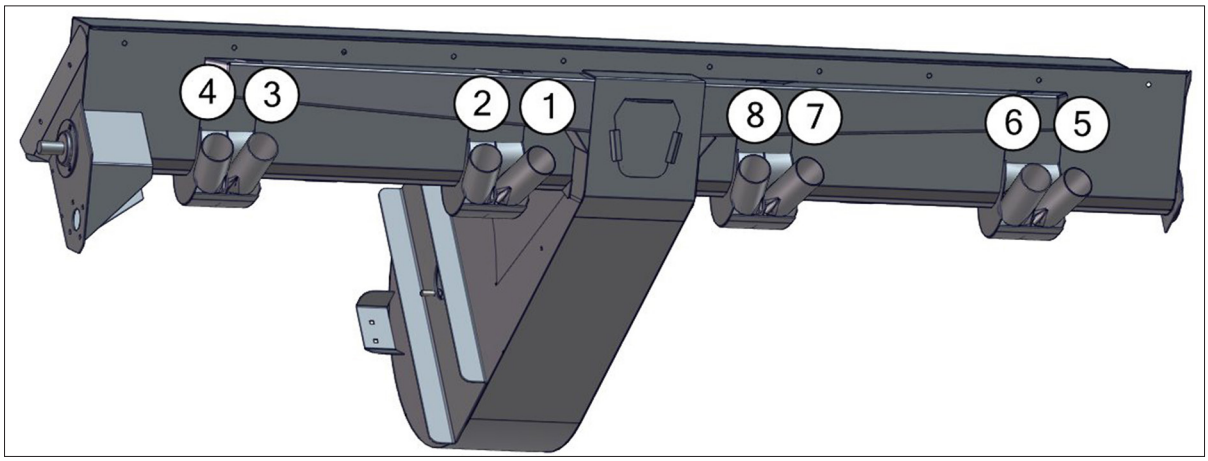
   - Inlet Pressure GP Port Gauge - 1500-2850 psi (103-197 bar).
   - Return Pressure GT Port Gauge - 0-200 psi (0-14 bar). If pressure is higher than specified, verify return hose is connected to motor return port on tractor. Look for restrictions at fittings, couplers and hoses.

### 4.2.2 CONNECT AIR HOSES

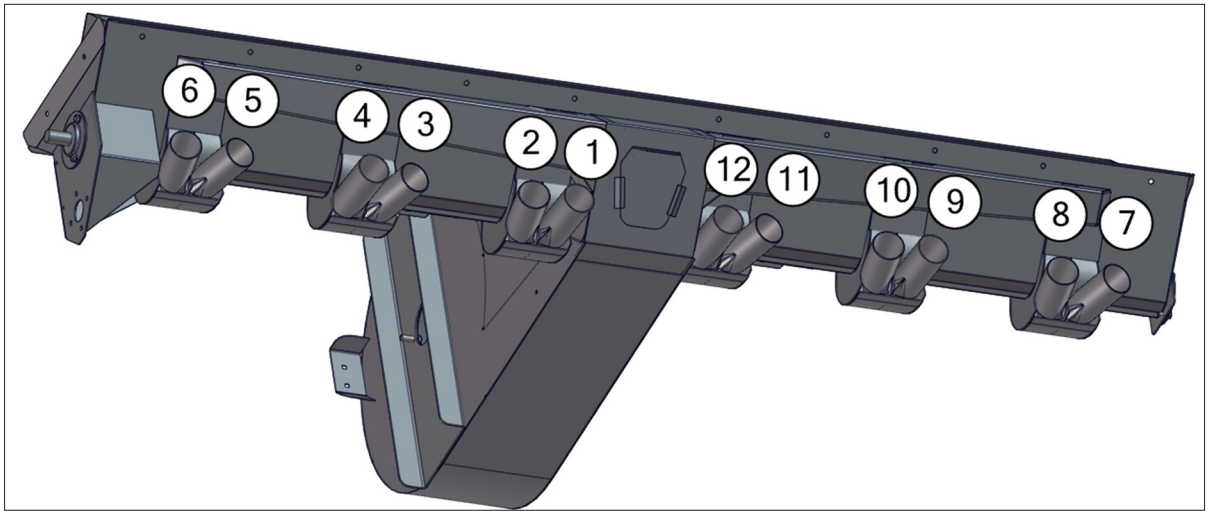
Air hoses should be routed to minimize peaks and valleys in order to keep air pressure to optimal pressure. It may be necessary if the implement folds, to fold and unfold several times to check for restrictions, kinks, pinches, and placement of cable ties (if used), or other means of securement.

Beware of bystanders, **particularly children!** Always look around to make sure that it is safe to start the engine of the towing vehicle or move the unit. This is particularly important with higher noise levels and quiet cabs, as you may not hear people shouting.

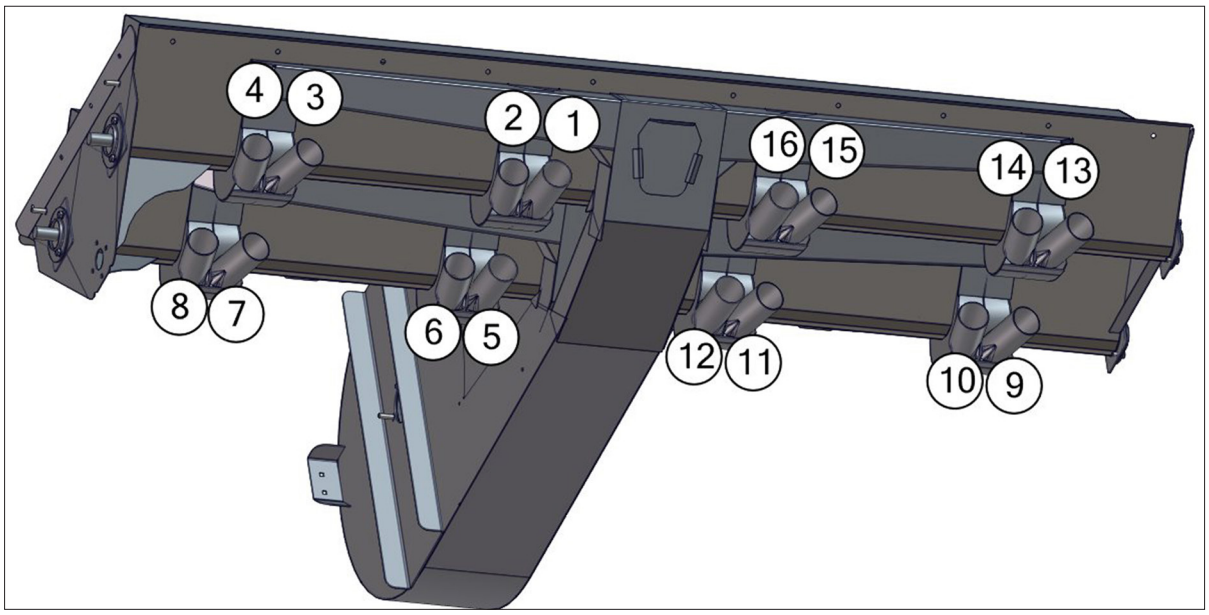
Diagrams below show the Row connection numbers for the auger air chamber outlet tubes on the 8, 12, 16 and 24 row configurations dry fertilizer systems are shown below. Connect air hoses from outlet tube number shown for your row configuration to the corresponding toolbar row.



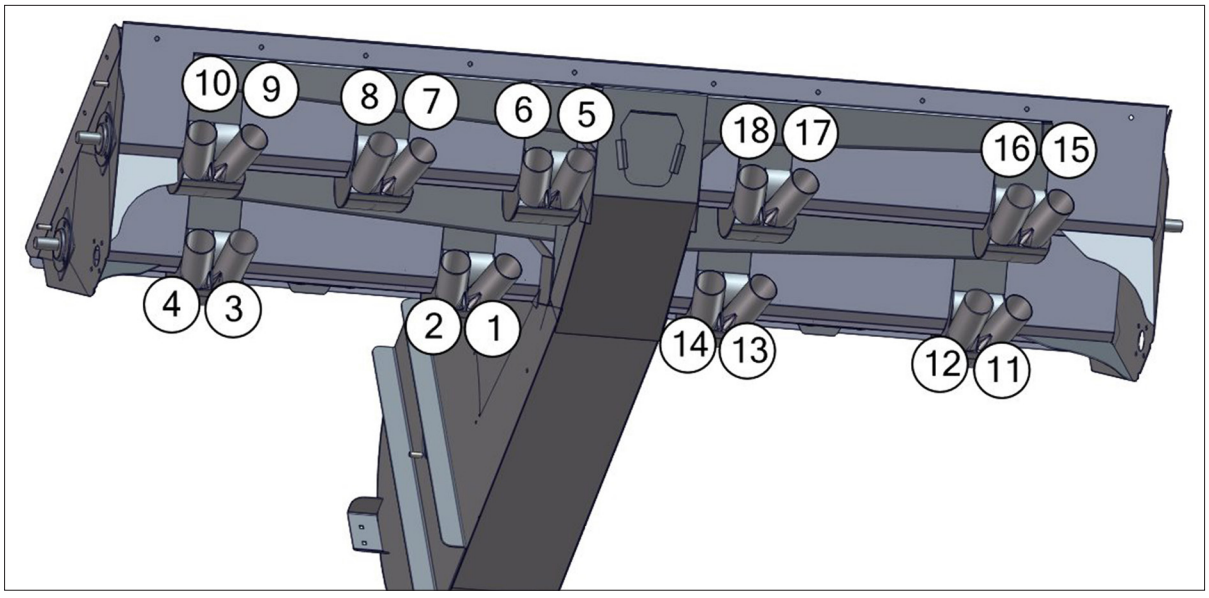

8-Row Single Bin Hose Connections



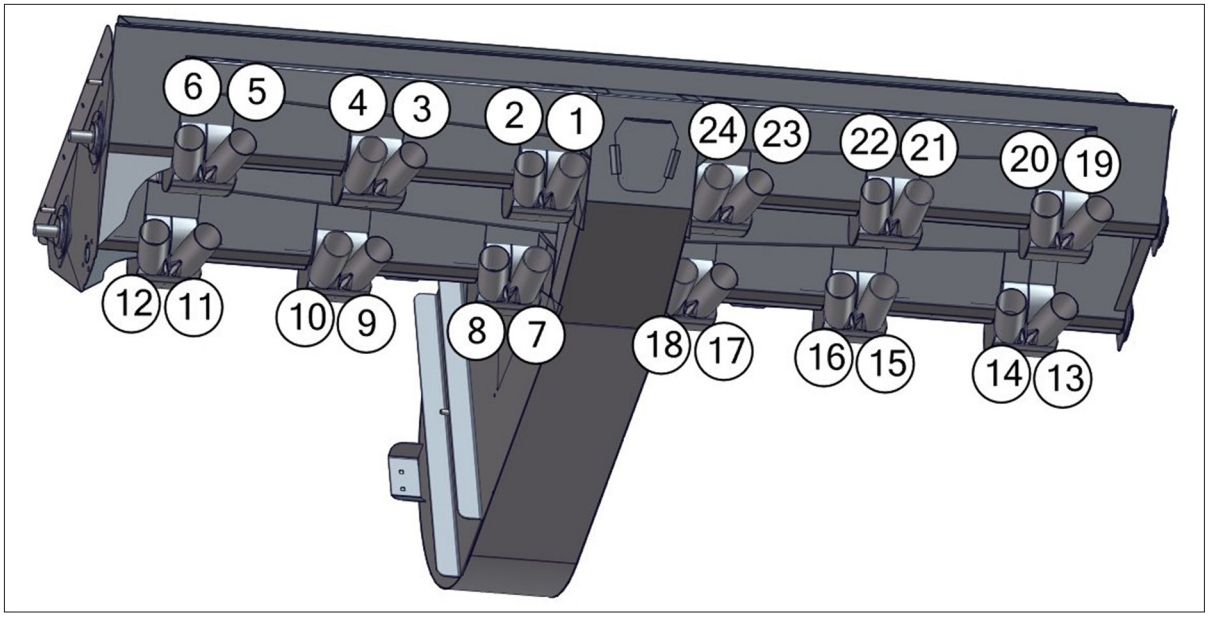

12-Row Single Bin Hose Connections




16-Row Hose Connections




18-Row Hose Connections




24-Row Hose Connections

### 4.2.3 CONNECT CUSTOMER SUPPLIED CONTROLLER

1. Follow controller manufacturers instructions and calibration information in section 10. Skip this step if using Montag Dry Rate Controller.

2. Run meter and check operation before filling tank. It is suggested to make a dry run to validate all functions are set up correctly and working together.

### 4.2.4 OPERATIONS

It is recommended to become familiar with the rate controller before adding product and going to the field. If using a Montag Dry Rate Controller, read and understand the Dry Rate Controller Operation Manual, the Quick Start Reference Guide, and the Set-up Guide. Use these manuals to set up the controller for your specific application. Any updated information can also be found at MontagMfg.com. Consult your specific monitor manual for task controller functions of section control and prescription application. It is good at this time to verify that GPS speed is broadcast on the ISOBUS and is being picked up by the Montag controller. It is suggested to make a dry run to validate all functions are set-up correctly and working together.

### 4.2.5 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.**

**⚠WARNING**

**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**

**Fertilizer can be dangerous to people, animals, and the environment.**

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

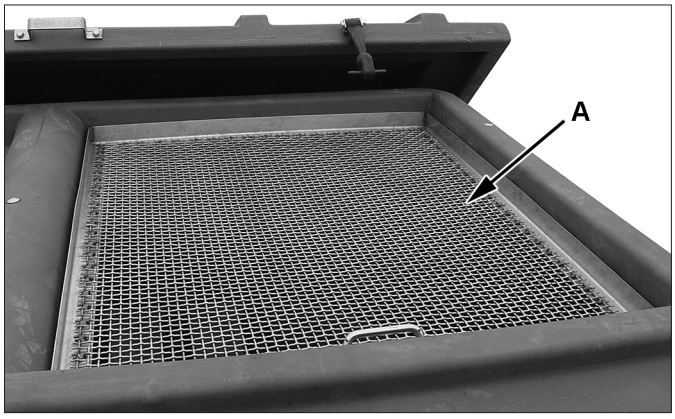
**NOTICE**

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

Install two screens (A) on top of tank.

Stand on platform and fill tank with dry fertilizer.

For low volumes, product may need to be manually levelled across the entire meter for consistent application.




**NOTICE**

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

Close and latch fertilizer tank cover.

## 5.1 DISCONNECT FROM IMPLEMENT - GEN 1

**⚠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**

**Fertilizer 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 GEN 1 SYSTEM

**⚠WARNING**

**Pressurized fluids can penetrate the skin.**

**Relieve all hydraulic pressure before disconnecting hydraulic hoses.**

1. Disconnect controller harness from tractor connector.
2. Relieve hydraulic pressure and disconnect pressure hose,return hose, case drain hose, alarm cable and light connector from tractor.

### 5.1.2 DISCONNECT CART FROM IMPLEMENT

1. Install jacks on cart and remove weight from implement hitch.
2. Disconnect and remove chains (B) from implement.
3. Label and disconnect all air hoses.
4. Remove bolts (A) from ball hitches or remove 1⅜ inch nut on knuckle hitches.
5. Lift cart from hitch with jacks.

## 6.1 TROUBLESHOOTING GEN 1

### 6.1.1 GEN 1 TROUBLESHOOTING CHART

| Symptom | Problem | Diagnostics | Solution |
|---|---|---|---|
| | | | |
| No Fertilizer being delivered - all rows | Fan and Auger not turning | Verify all couplers are fully engaged and compatible with tractor couplers | Re-install coupler/Install proper couplers compatible w/ tractor coupler |
| | | Hydraulic GP gage reads lower than limits stated in Hooking Up the Hydraulics on page 26. | Increase Hydraulic flow on SCV / Confirm proper SCV flow direction and correct SCV for priority flow are being used in tractor |
| | | | Verify proper hose sizing and no hose restriction in the line |
| | | | Verify tractor is outputting stated flow in manual @ stated pressure (simultaneously) |
| | | Hydraulic GT gage reads higher than limits stated in Hooking Up the Hydraulics on page 26. | Verify return line is installed in correct tractor motor return port (see tractor manual or implement dealer) |
| | | | Re-install coupler/Install proper couplers compatible w/ tractor coupler |
| | | | Verify proper hose sizing and no hose restriction in the line |
| | | Verify CDR port hose is not leaking oil | If case drain is leaking see “case drain Hose leaking” symptom |
| | | With hydraulics and tractor turned off verify fan rotates by hand | Verify fan inlet screen is not contacting fan wheel and preventing it from spinning |
| | | | |
| | Fan Air Gauge Pressure less than 16” H20 | If using electronic pressure sensor, verify it matches the mechanical gauge | If they don’t match, verify mechanical gauge is correct and then recalibrate electronic gauge (see controller manual for details) |
| | | Verify Fan Rotation | Fan rotation must be clockwise (CW) when viewed from the screen side of fan. If rotation is not CW, see hydraulic schematic’s on pages __ and plumb as shown for your machine. |
| | | Verify gap between fan and shroud is set to .25” or less but doesn’t rub | If not correct adjust fan spacing per manual instructions |
| | | Verify GP & GT gauges read within limits in the manual | Re-install coupler/Install proper couplers compatible w/ tractor coupler |
| | | | Increase Hydraulic flow on SCV / Confirm proper SCV flow direction and correct SCV for priority flow are being used in tractor |
| | | | Verify proper hose sizing and no hose restriction in the line |
| | | | Verify tractor is outputting stated flow in manual @ stated pressure (simultaneously) |
| | | Inspect check valve CV1 on valve manifold and verify nothing stuck in it | Clean and inspect removing any debris |
| | | | Verify spring is still operational, if not replace cartridge valve |
| | | | |
| | Auger turning wrong direction | Check to see if auger(s) and fan are both turning clockwise when viewed from fan screen side or counter clockwise when viewed from fan motor side | See hydraulic schematics in manual for your machine and verify it is plumbed as shown. |

| | | | |
|---|---|---|---|
| | Fan Running, Auger not turning | Check to verify there are no plugged rows and air is coming out of ALL the hoses | Clean out any plugged rows and check for auger obstructions |
| | | Run diagnostics from controller manually opening PWM valve and verify augers do not physically turn (Fan must be running) | If augers turn but no speed is registered, troubleshoot encoder and cabling |
| | | Check condition and routing of auger motor chain. | Replace auger chain if needed |
| | | Check for auger obstructions (with chain off auger should turn with pliers and minimal force) | Clean out any plugged rows and see paragraph 6.1.2 Eliminating Auger Obstructions. |
| | | Check controller calibration settings | Verify settings match Montag calibration numbers found in operators manual or on website |
| | | Check controller cabling and connections for damage, corrosion, and proper seating | Clean connections, verify good connection |
| | | Disconnect auger drive chain, turn on fan, apply 12 VDC to PWM coil plug | If auger runs wide open troubleshoot wiring or controller |
| | | Ohm out PWM coil and/or check for magnetic field by inserting a screwdriver into coil center | The resistance of the PWM coil should be approximately 7.1 0hms on the valve block and 15 0hms on the black Brand PWM valve (on older machines) |
| | | Remove PWM valve cartridge and check for visual issues | Clean PWM valve if there are visible contaminants |
| | | | |
| | Fan Running, Auger turning | Check to see if auger(s) and fan are both turning clockwise when viewed from fan screen side or counter clockwise when viewed from fan motor side | See hydraulic schematics in manual for your machine and verify it is plumbed as shown. |
| | | Verify product is in the tank | If not filling tank full, may have to level product to have product at all rows when tank nears empty. |
| | | Check for build up on auger flights | Keep product dry to avoid caking not only in tank and on augers but also build up in hoses. |
| | | Verify tank is not bridging | If product has abnormal amount of fine this can cause bridging. Use the best quality of product to alleviate product flow problems. |
| | | | |
| Rate is inconsistent | Fan running auger turns then stops – no auger obstructions and/or controller is not registering rate | Check controller high and low limit PWM calibration settings. | Look in manual or online for recommended initial start up values. These numbers will have to be adjust slightly per machine and product type. |
| | | Verify CFR is in proper range | Look in manual or online for initial start up values. These numbers will have to be adjust slightly per machine and product type. |
| | | Run diagnostics from controller manually opening PWM valve and verify augers do not physically turn (Fan must be running) | If augers turn but no speed is registered, troubleshoot encoder and cabling |
| | | Check all PWM Valve and Encoder cables and connections. | Look for cuts or abrasions on harness. Check connectors for water or corrosion damage. |

| | | | |
|---|---|---|---|
| | | If two section or product machine, troubleshoot by swapping PWM and encoder to opposite side and manually opening PWM (Fan must be running) | If problem stays with section, check encoder on that section. If it switches side, troubleshoot harness. |
| | | **Raven encoder only:** | |
| | | Check set screw on Encoder shaft. | Set screw should be tight and encoder turning with motor. |
| | | Check for proper signal from controller to encoder. For Montag Supplied Raven 36 pulse encoders check for + 5 volts DC between the ground and power socket and the ground and signal socket. | See connector and harness pinouts for proper electrical troubleshooting. |
| | | | |
| | | If voltage is correct, auger is turning and no rate is being recorded. Replace encoder. | Follow installation instructions for proper encoder installation |
| | | | |
| | | For all other Encoders contact your supplier's technical service department for voltages and pinning. | |
| | | | |
| Actual rate applied is higher than desired rate. | Controller settings are not correct. | Check calibration settings and adjust as needed. (see page 44 also) | |
| | | Verify CFR is in proper range | To increase rate, decrease CFR, to decrease rate increase CFR |
| | | Verify encoder pulse settings | Verify with serial number what encoder pulse setting should be according to instructions in manual. |
| | | check low limit setting if set to high auger will not run slow enough. | Lower low limit according to set-up instructions. |
| | | | |
| Actual rate applied is lower than desired rate. | Controller settings are not correct. | Check calibration settings and adjust as needed. Verify CFR and encoder pulse settings see page ___ also check high limit settings. If it is set to low the auger will not run up to max speed. | |
| | | Verify CFR is in proper range | To increase rate, decrease CFR, to decrease rate increase CFR |
| | | Verify encoder pulse settings | Verify with serial number what encoder pulse setting should be according to instructions in manual. |
| | | check high limit setting if set to low auger will not run fast enough. | |
| | | | |
| | Loose or Bad connection. | Check all controller cable connections. | Look for any sign of corrosion or green film on contacts. |
| | | | |
| | Auger Chain drive. | Check condition and routing of auger motor chain. | Replace any sticking and damaged roller chain. |
| | | | |

| | | | |
|---|---|---|---|
| No Fertilizer being delivered – some rows or actual rate applied is lower than desired rate. | Air passages plugged / obstructed. | Clear air passages at air chamber outlet tubes (see paragraph 6.1.3 clearing air passages). | Determine what caused the plug. Some possible causes are field conditions, product quality, hoses or hose routing, and incorrect set-up. |
| | | | |
| | Build up on Augers or in hoses. | Clean augers or hoses (check quality of fertilizer as needed). | Clean as necessary. Change fertilizer or supplier if getting fertilizer that is bad because of moisture or excess fines. |
| | | | |
| | Fertilizer Bridged in tank. | Clear bridging and (check quality of fertilizer). | Excessive fines can cause bridging with some products depending on humidity and other environment factors. |
| | | | |
| | Kinked or worn hoses | Check condition of hoses for sharp bends and worn spots and replace as needed. | If toolbar moves or folds, observe how this affect hoses and routing. May have to allow more hose for toolbar movement. |
| | | | |
| Case drain alarm is buzzing | Case drain pressure exceeded 24 PSI | Check if Case drain Bypass Hose is leaking | If leaking, follow diagnostics below. |
| | | Case drain hose to tractor is sized incorrectly. | Minimum case drain hose size is 1/2”. |
| | | Case drain hose became disconnected from tractor. | Check hose connections at the tractor. |
| | | Case drain hose is not connected to zero pressure return oil port. | Check tractor manual to verify case drain is connected to zero pressure return line. |
| | | Look to see if fan motor is leaking oil by shaft seal. | Fan motor has failed, replace motor following instructions in the manual. |
| | | Case drain hose is plugged or quick coupler is restricted. | Take off case drain hose at hydraulic block and run Gen I catching the oil in a bucket. Correct flow should be max a drip to pencil lead width flow of oil. If flow is 1 to 1.5 gpm, then motor is about to fail. If flow looks correct, re connect and test at tractor by taking quick disconnect off. The flows should be the same. |
| | | Fan motor has failed. | Check oil flow as describe above. If more oil than acceptable, fan motor has failed. Replace fan motor following instructions in the manual. |
| | | | |
| Case drain Bypass Hose leaking | Case drain pressure exceeded 28 PSI | Case drain hose to tractor is sized incorrectly. | Minimum case drain hose size is 1/2”. |
| | | Case drain hose became disconnected from tractor. | Check hose connections at the tractor. |
| | | Case drain hose is not connected to zero pressure return oil port. | Check tractor manual to verify case drain is connected to zero pressure return line. |
| | | Look to see if fan motor is leaking oil by shaft seal. | Fan motor has failed, replace motor following instructions in the manual. |
| | | Case drain hose is plugged or quick coupler is restricted. | Take off case drain hose at hydraulic block and run Gen I catching the oil in a bucket. Correct flow should be max a drip to pencil lead width flow of oil. If flow is 1 to 1.5 gpm, then motor is about to fail. If flow looks correct, re connect and test at tractor by taking quick disconnect off. The flows should be the same. |
| | | Fan motor has failed. | Check oil flow as describe above. If more oil than acceptable, fan motor has failed. Replace fan motor following instructions in the manual. |

### 6.1.2 ELIMINATING AUGER OBSTRUCTIONS

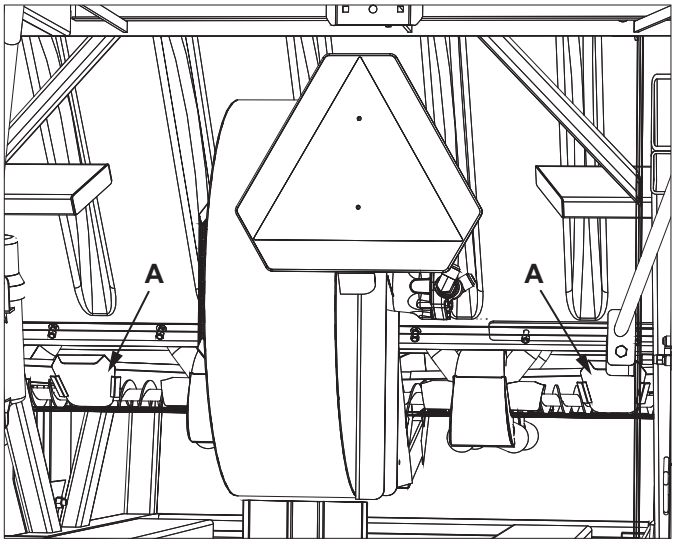
**⚠WARNING**

**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 two access doors (A).
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.**

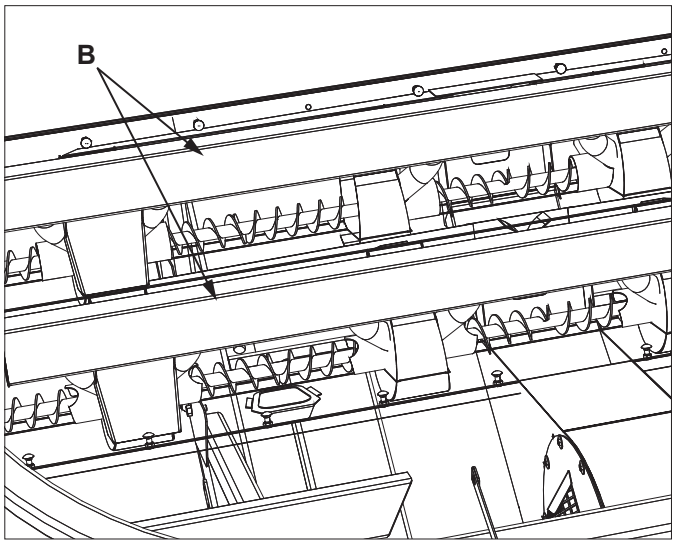
**Immediately after checking auger shaft:**

- **Park the equipment on firm, level surface.**
- **Place tractor transmission in park, turn tractor engine off and remove ignition key and place do not operate tag on ignition switch.**

**⚠WARNING**

**Fertilizer 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. Verify tractor transmission is in park, engine is switched off and ignition key is removed from switch and place do not operate tag on ignition switch.
8. Remove screen on top of tank. Enter tank.
9. Remove auger cover(s) (B) and clear any obstructions from auger area.

### 6.1.3 CLEARING AIR PASSAGES

**⚠WARNING**

**Crushing hazard.**

**Before entering cart/tank area:**

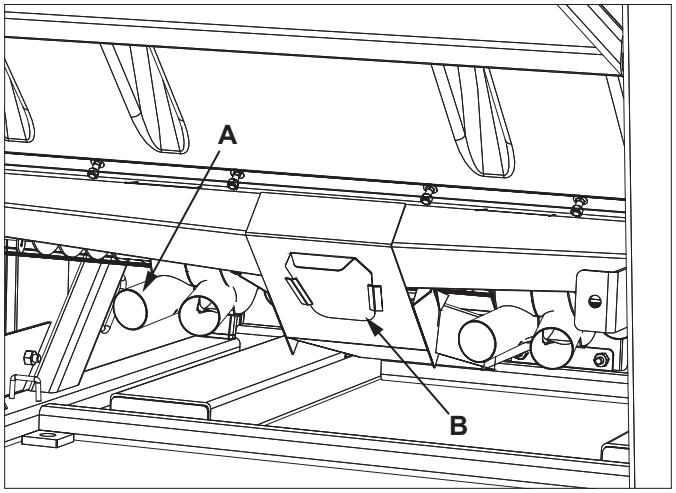
- **Park the equipment on firm, level surface.**
- **Place tractor transmission in park, turn tractor engine off and remove ignition key.**
- **Verify service locks are properly engaged or lower implement to the ground.**

**⚠WARNING**

**Fertilizer 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 hoses or performing maintenance.**

**⚠WARNING**

**Wear eye protection and proper clothing, including gloves for protection.**

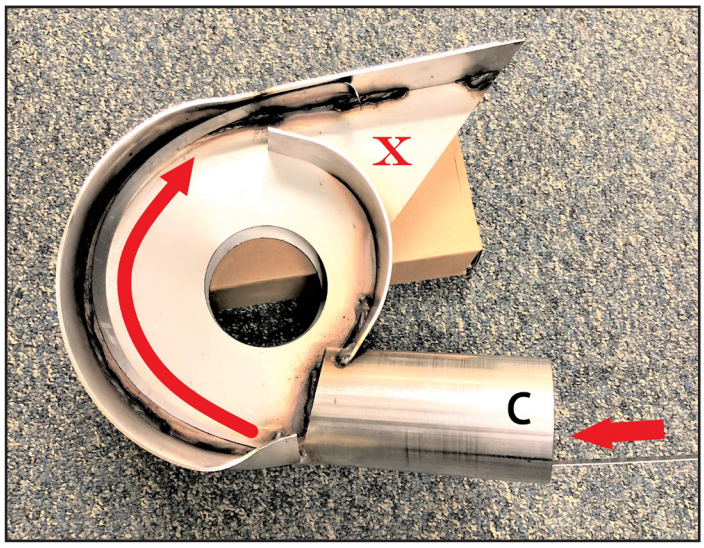



*Note: Rodents may build nest in recesses of air chamber.*

1. Remove air hoses from affected air chamber tubes (A).
2. Insert packing strap or heavy wire into air chamber tubes (C) as shown to break up obstructions (X).
3. Clear out any blockage in air hose. Clear debris with vacuum cleaner.

*Note: There is one plenum door on single auger meters and two on twin auger meters.*

4. Remove plenum door(s) (B). Inspect area and remove any obstructions.




**⚠WARNING**

**Crushing and severing hazard.**

**Serious injury or death may result from tractor or cart movement or from auger operation.**

**Do not enter area between or around tractor and cart.**

5. 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.**

6. 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, verify tractor transmission is in park, engine is switched off, and ignition key is removed from switch, and repeat Steps 2 through 6.*

## 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.*

**⚠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.**
- **Block the wheels.**
- **Lower all equipment to the ground or pavement.**

## 7.2 END OF SEASON INSPECTIONS

Perform the following inspections at the end of each season. Repair or replace worn and damaged parts.

- Inspect chains.
- Inspect sprockets.
- Inspect auger bushings.
- Inspect hoses.
- Inspect knuckle hitches.
- Inspect scales, controller, cables, and connections.

## 7.3 LUBRICATION

### 7.3.1 CHAINS

1. Place tractor transmission in park, stop engine and remove key.

2. Each day of use: Spray auger chain 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.

## 7.4 INSPECT CAULK SEAL BETWEEN METER AND TANK

*Note: Perform this service 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.

## 8.1 STORING THE GEN 1 SYSTEM

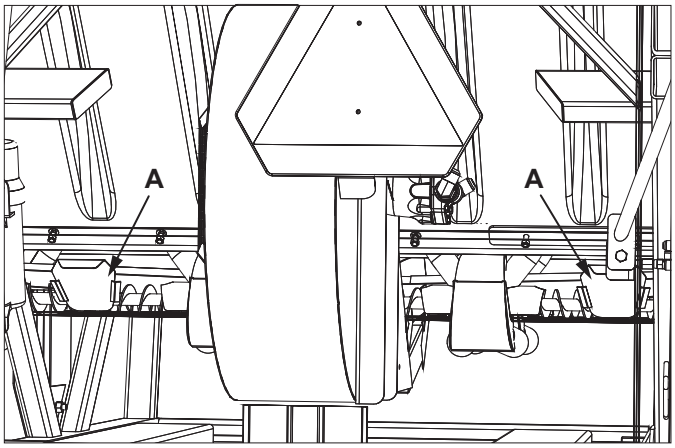
**⚠WARNING**

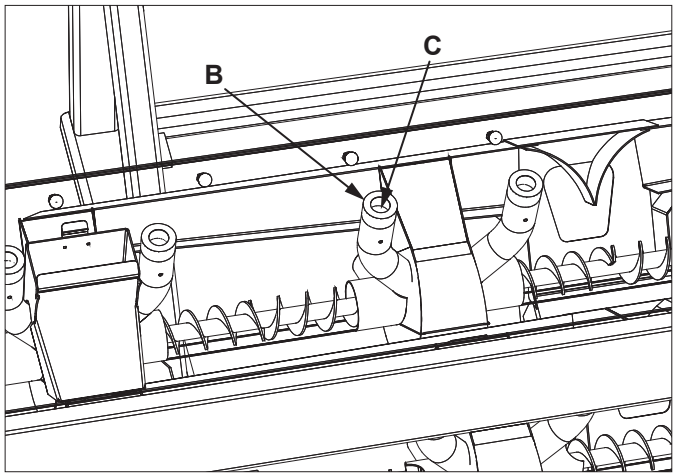
**Fertilizer can be dangerous to people, animals, and the environment.**

**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.**

Perform the following steps before storing your fertilizer application system.

1. Block cart wheels and remove metering unit and tank from cart.
2. Thoroughly power wash cart, unit, and fertilizer tank (inside and out). Care should be taken to avoid area where grease could be removed, decals could be damaged, or electrical connections.
3. Remove auger covers (A), plastic caps (B) and balls (C) inside air chambers.
4. Remove row reducers (if equipped),
5. Thoroughly power wash auger assembly and auger covers and clean air chamber covers and balls. Inspect and replace any damaged parts.
6. Run fan to blow water out of system.
7. Store tanks with top lids closed in place. Store in a location and manner where it is not subject to damage.



**⚠WARNING**

**Crushing hazard.**

**Before performing inspections, service or maintenance:**

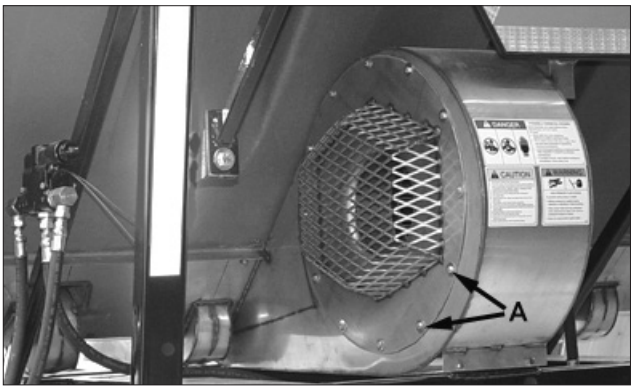
- **Park the equipment on firm, level surface.**
- **Place tractor transmission in park, turn tractor engine off and remove ignition key and place do not operate tag on ignition switch.**
- **Do not disconnect cart from implement for servicing.**
- **Block the wheels.**
- **Lower all equipment to the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

## 9.1 FAN

1. 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).*

2. 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.



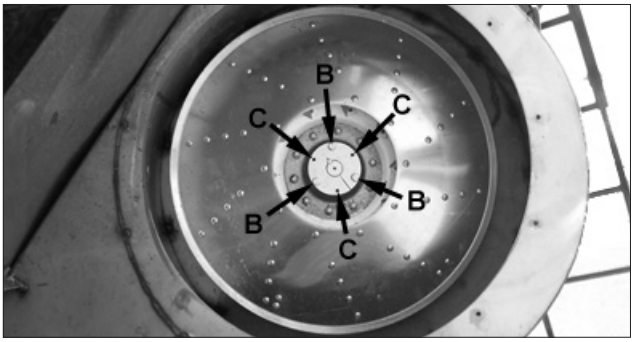

3. Install pulley puller (D) onto tapered hub and remove hub from shaft.

4. Remove fan from shaft.

5. Inspect and replace damaged parts.

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

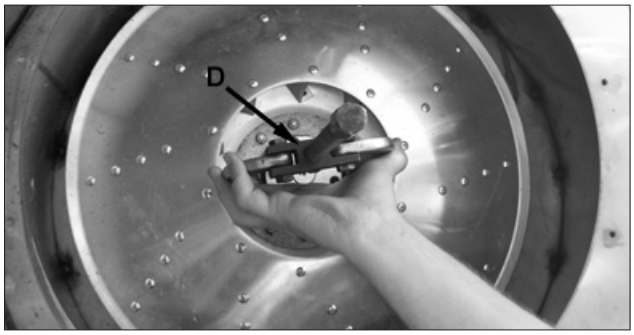
7. To install fan, position fan and taper lock hub on shaft, and install tapered hub with bolts (B) in original bolt holes. Fan should be nearly flush with end of shaft.




*Note: Fan may be damaged if bolts are overtightened.*

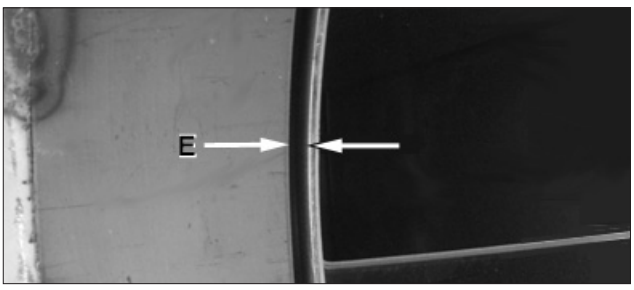
8. Tighten each bolt evenly in sequence to 25 lb/in (3 Nm). Then tighten each bolt two more times to 25 lb/in (3 Nm). to verify torque of each bolt is correct.

9. Apply anti-seize to guard assembly bolts.

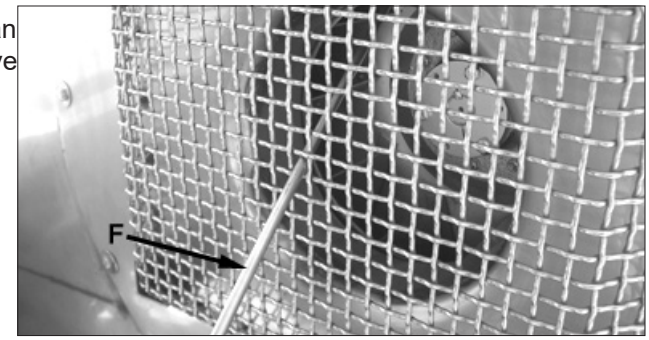



10. Install fan guard assembly with 12 bolts (A) on circumference of assembly. Tighten bolts to 25 lb/in (3 Nm).

11. Check gap (E) between fan and shield. Gap must be ¼ inch (6 mm) or less.



12. Carefully insert a rod (F) through screen and gently rotate fan difficult to rotate, or if you see or feel the wheel rubbing, remove fan and re-install it.




## 9.2 FAN DRIVE MOTOR

Relieve hydraulic system pressure before performing any work on hydraulic system. Use wood or cardboard to check for leaks.

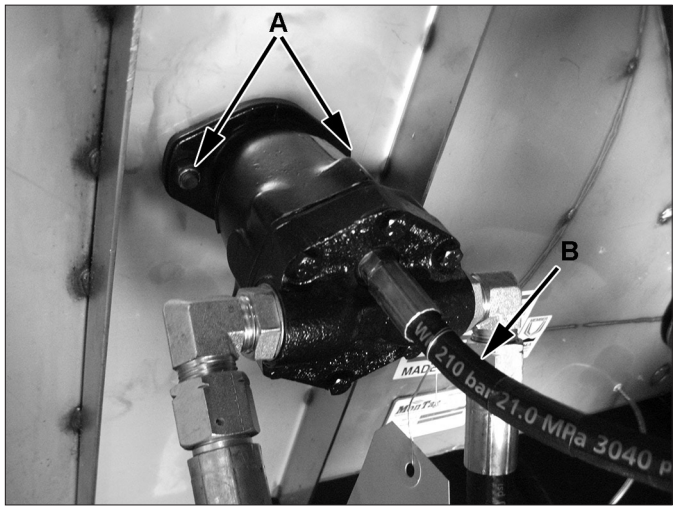
**⚠WARNING**

**Relieve pressure before disconnecting hydraulic lines.**

**Tighten all connections before applying pressure.**

**Seek medical attention immediately if fluid is injected into skin.**

1. Relieve hydraulic pressure. Identify and remove hoses from motor.
2. Remove fan. See section 9.4.
3. Remove nuts (A) and remove motor.




**NOTICE**

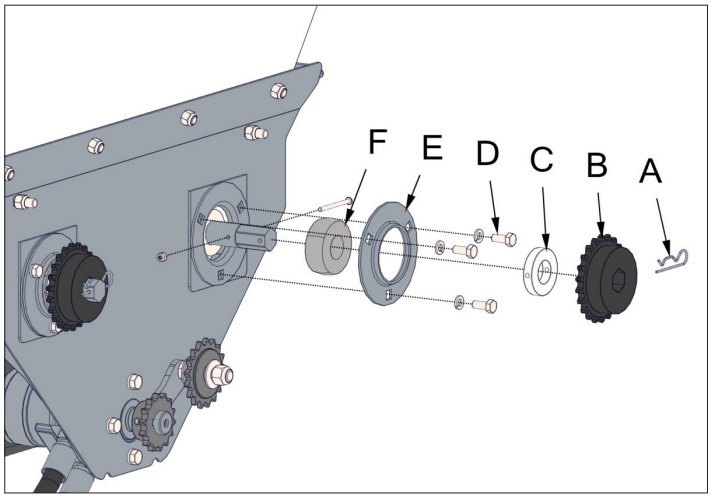
***Prevent fan drive motor damage.***

***Install motor with case drain port (B) located on top as shown.***

4. Position new motor with case drain port (B) located on top as shown.
5. Install and tighten nuts (A) to 16 lb/ft (22 Nm) of torque.
6. Install hoses. See Hydraulic Schematics in Section 10.

## 9.3 AUGER BEARINGS

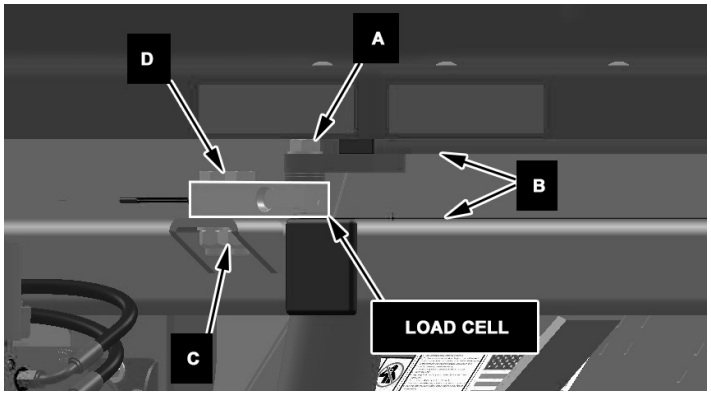
1. Remove all product from tank.
2. Remove auger drive chain cover and drive chain.
3. Remove pin (A), sprocket (B), collar and hardware (C), retainer bolts (D), lock washers, outer bearing flange (E) and bearing (F).
4. Clean and inspect shaft and removed parts. Replace worn or damaged parts.
5. Install bearing, flange, lock washers, bolts and sprocket.
6. Install chain and chain cover.




## 9.4 REPLACING LOAD CELLS ON GEN 1

**If multiple load cells need replaced do one at a time following steps 1-8**

1. Remove bolt A and raise tank frame just enough to relieve pressure on load cell. CAUTION over lifting or allowing the tank to lower to far may cause damage to delivery components on bottom of tank.
2. Place a spacer or block in opening B that will safely support the weight of the tank and material you may have in it.
3. Remove nuts C, bolts D and load cell.
4. Install new load cell with nuts C snug but allow the load cell to move.
5. Insert bolt A into the load cell threads a few turns but do not tighten at this time. Apply anti-seize.
6. Torque nuts C to 220 lb/ft.
7. Raise tank frame slightly off spacer and remove spacer.
8. Lower tank frame to load cell and torque bolt A to 220 lb/ft.



## 10.1 REPLACEMENT PARTS

1. Refer to the Gen 1 Parts Manual in the Support sections of our website at www.montagmfg.com.

## 11.1 GEN 1 - CONTROLLER CALIBRATION

| Row Spacing | Standard Rate | High Output Rate |
|---|---|---|
| 20 Inch Row Spacing | 375 lb/acre | 375 lb/acre |
| 22 Inch Row Spacing | 341 lb/acre | 341 lb/acre |
| 30 Inch Row Spacing | 250 lb/acre | 250 lb/acre |
| 34 Inch Row Spacing | 220 lb/acre | 220 lb/acre |
| 36 Inch Row Spacing | 208 lb/acre | 208 lb/acre |
| 38 Inch Row Spacing | 197 lb/acre | 197 lb/acre |
| 40 Inch Row Spacing | 187 lb/acre | 187 lb/acre |

| | Standard Meter 2 Inch Hose | High Output Meter 2½ Inch Hose |
|---|---|---|
| Auger Shaft Speed (RPM) | 60 | 31 |
| Product Density (lb/cu-ft) | 62 | 62 |
| Test Speed (MPH) | 5 | 5 |
| Displacement Per Row (cu-ft/rev) | 0.0016 | 0.0032 |

## CALIBRATION INFORMATION - GEN 1

Flow Control Valve =
PWM Closed
12 Volt
110 Hertz

Meter Control Valve Cal # = 1023 (See Controller manual for fine tuning)

Meter speed Sensor =
Option 1- Raven 5 Volt 36 Pulse (External Mount)
Option 2 - Eaton 12 Volt 60 Pulse (In Hydraulic Motor)
Option 3 - Parker 12 Volt 30 Pulse (In Hydraulic Motor) *

Auger Drive =
14 tooth #40 drive sprocket (encoder)
22 tooth #40 driven sprocket (auger)
1.57 to 1 Ratio

Meter Speed Sensor Cal # =
Option 1 Raven 36 x 1.57 = 56 (pulses per auger revolution)
Option 2 Eaton 60 x 1.57 = 94 (pulses per auger revolution)
Option 3 Parker 30 x 1.57 = 47 (pulses per auger revolution) *

Low limit/High limit =
(Use default setting see controller manual for instructions)
Auger RPM Standard meter 10 – 130 MAX
Auger RPM High Output meter 10 -165 MAX

Tank Capacity =
6 Ton 187 cubic ft. or 150 bushels
9 Ton 281 cubic ft. or 225 bushels

Displacement per Row =
Standard Meter (2” hoses) 0.0016 Cubic Ft.
High Output Meter (2 ½” hoses) 0.0032 Cubic Ft.

CFR (cubic ft / Revolution) = Displacement per Row X Number of Rows = CFR

Adjust CFR = $\frac{\text{Actual Rate or Scale weight}}{\text{Desired Rate or Weight displayed on controller}}$ X Current CFR = New CFR Cal#

Spreader Constant = $\frac{\text{Meter Speed Sensor Cal\#}}{\text{CFR}}$ = Spreader Constant

Adjust Spreader Constant = $\frac{\text{Spreader Constant}}{\text{Actual Rate}}$ X Desired Rate=New Spreader Constant

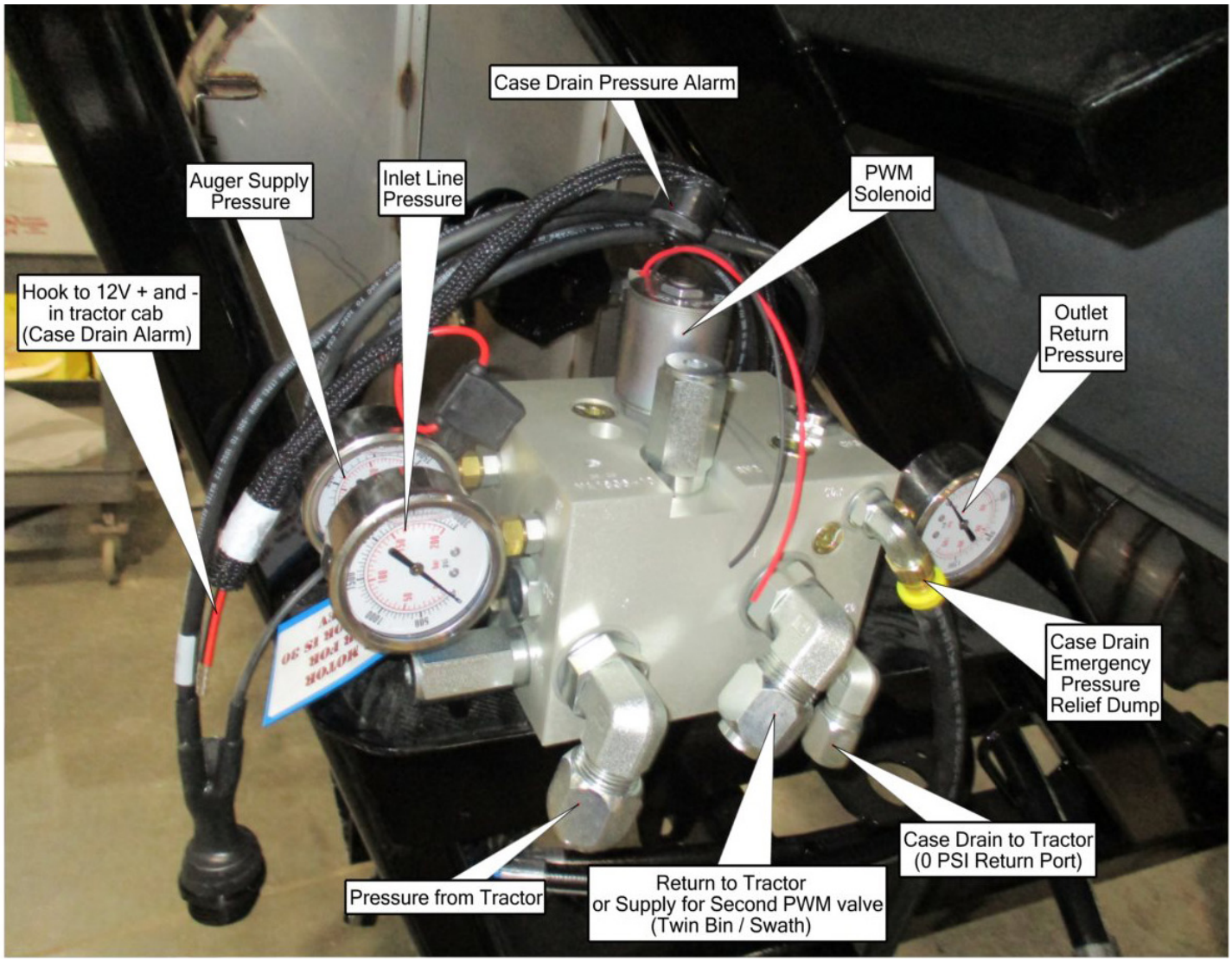
*** Serial number #21593, and all machines after #21643**

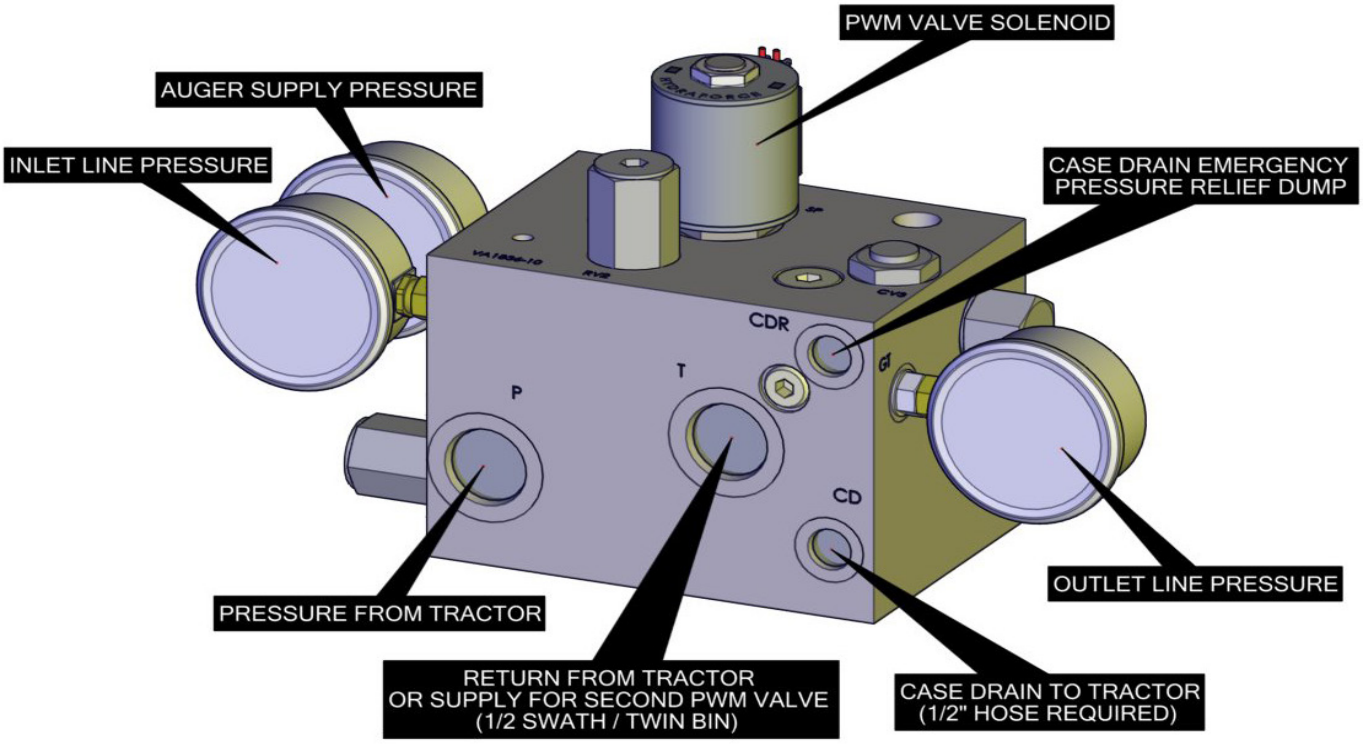
**Controllers with Automatic Calibration Functions:**
The Montag applicators fan must be running at normal operating pressure when performing automatic calibration functions on a controller such as PWM limits or performing catch tests.

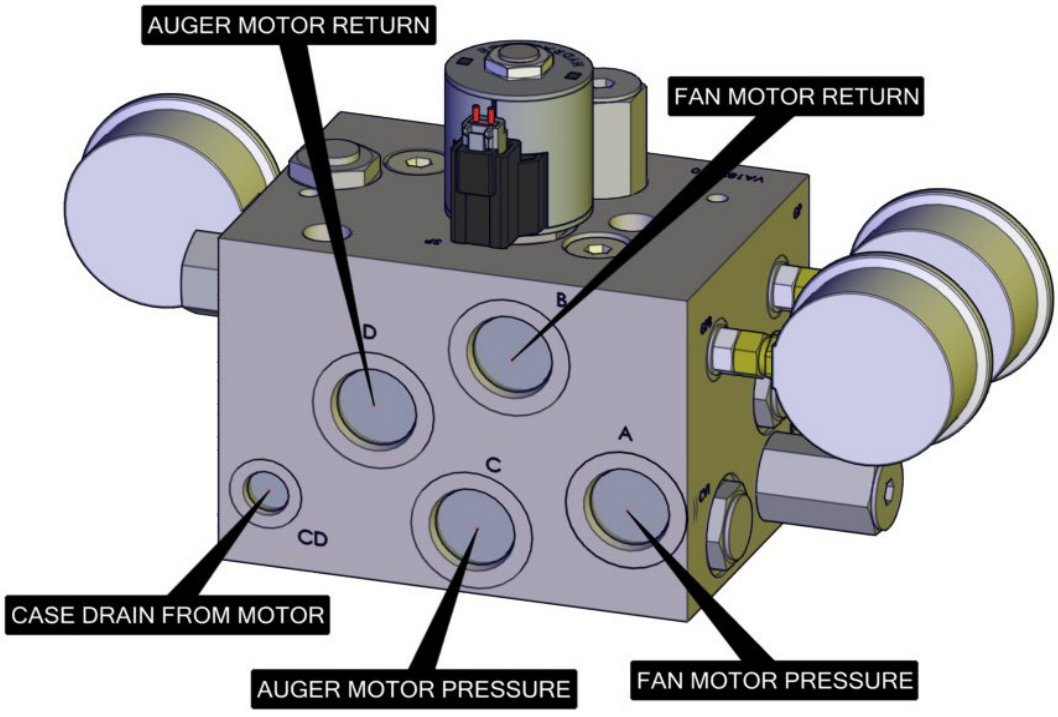
**Typical Controller Calibration for 30 inch Rows:**
Set your product density to 62, your application rate to 250 lbs. / acre, test speed at 5 MPH and run the controller in test mode. The auger shaft should turn 64 RPM for a standard machine and 32 RPM for a High Output machine. If it does not you can raise or lower your CFR # or Spreader Constant # to achieve the proper RPM.

Refer to www.montagmfg.com for harness info, pinouts, etc.

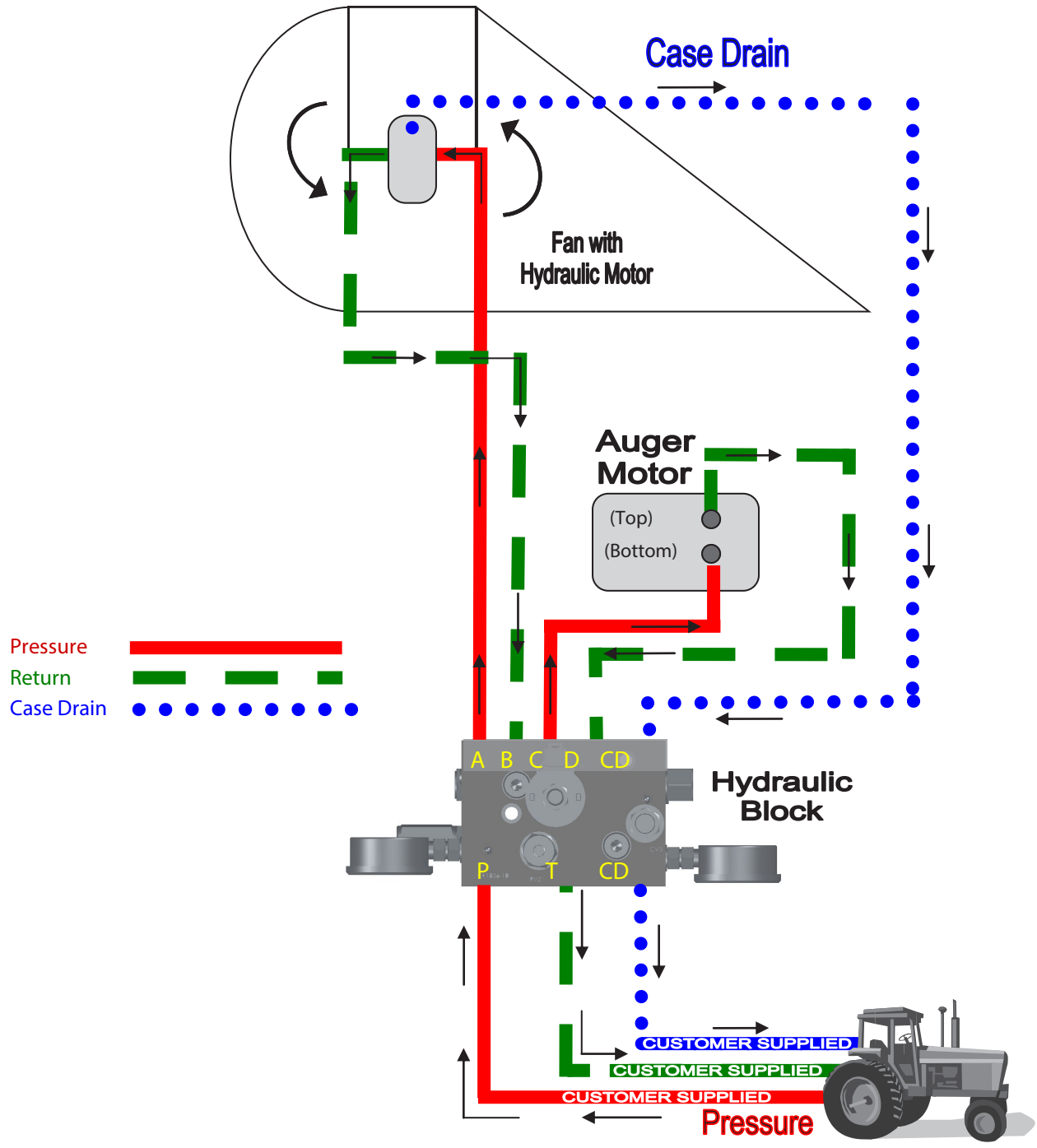
## 11.2 GEN 1 - PWM CLOSED VALVE AND PORT IDENTIFICATION




PWM VALVE SOLENOID
AUGER SUPPLY PRESSURE
INLET LINE PRESSURE
CASE DRAIN EMERGENCY
PRESSURE RELIEF DUMP
CDR
T
P
CD
OUTLET LINE PRESSURE
PRESSURE FROM TRACTOR
RETURN FROM TRACTOR
OR SUPPLY FOR SECOND PWM VALVE
(1/2 SWATH / TWIN BIN)
CASE DRAIN TO TRACTOR
(1/2" HOSE REQUIRED)

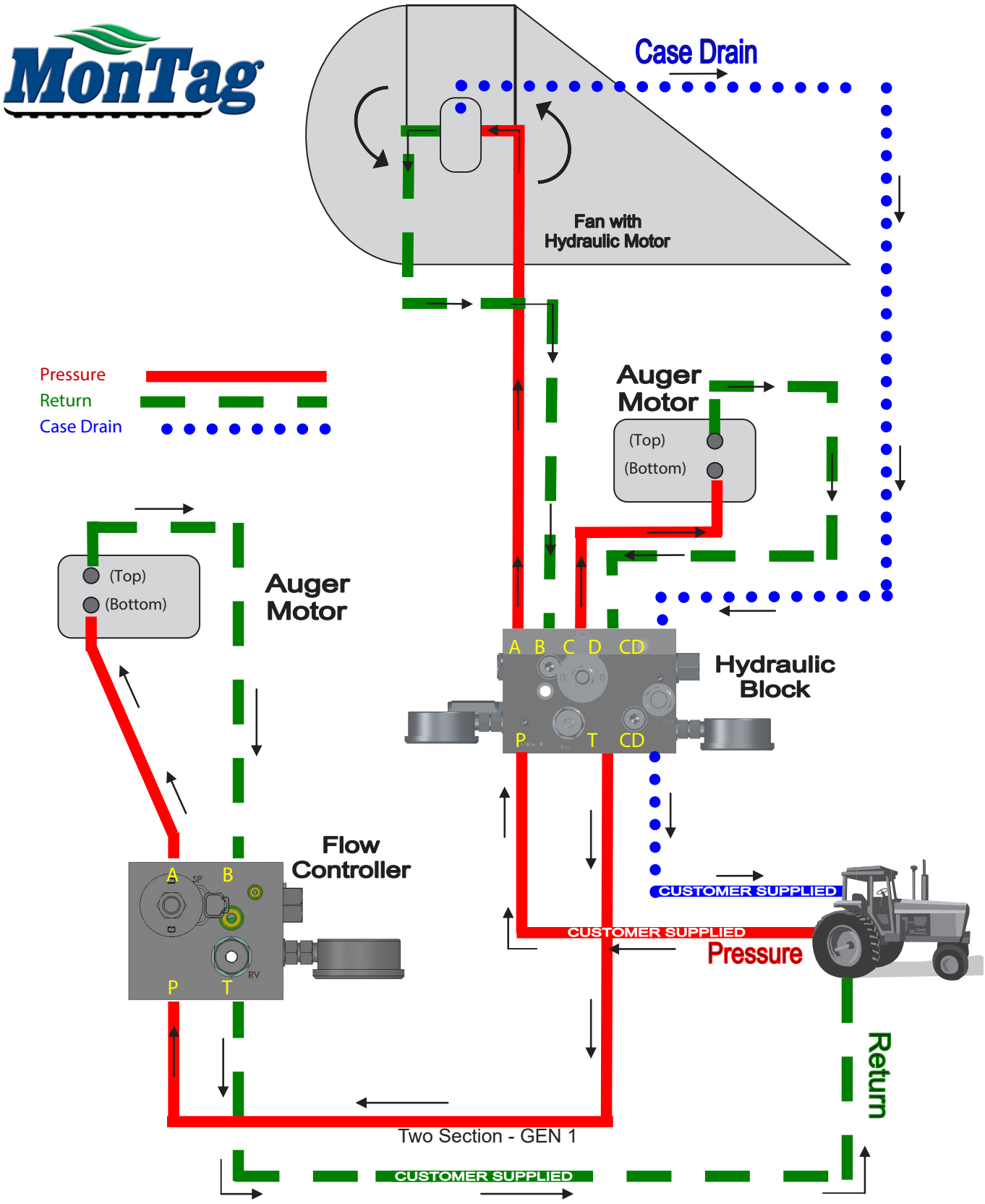

AUGER MOTOR RETURN
FAN MOTOR RETURN
B
D
A
C
CD
CASE DRAIN FROM MOTOR
AUGER MOTOR PRESSURE
FAN MOTOR PRESSURE

## 11.3 HYDRAULIC SCHEMATICS - GEN 1 ONE SECTION



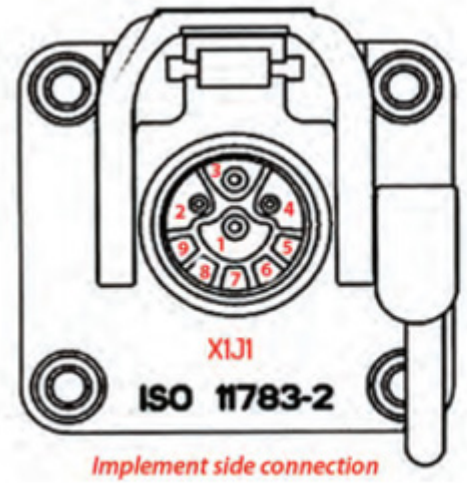

One Section - GEN 1

## 11.4 HYDRAULIC SCHEMATICS - GEN 1 TWO SECTION



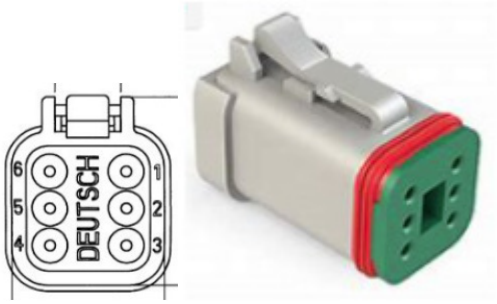
# Electrical Connector Pinouts

## *Tractor Iso Hook-up*




| Pin # | Signal |
|---|---|
| 1 | 0V HC |
| 2 | 0V Electronic |
| 3 | 12V HC |
| 4 | 12V Electronic |
| 5 | Pin |
| 6 | CAN Enable (TBC +) |
| 7 | CAN Ground |
| 8 | CAN H |
| 9 | CAN L |

## *6 Pin Deutsch*

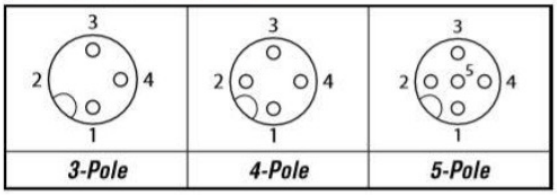



Wire side

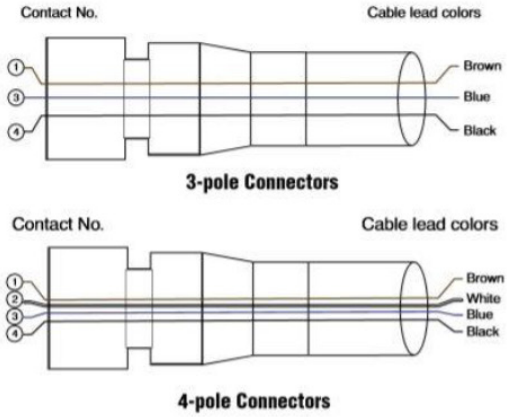
| 6 pin Deutsch | **Scale CAN** | **Scale Load Cell** |
|---|---|---|
| Pin 1 | 12 VDC | +EXC |
| Pin 2 | CAN-H | -EXC |
| Pin 3 | 0 VDC | +Sig |
| Pin 4 | CAN-L | -Sig |
| Pin 5 | Plug | Shield |
| Pin 6 | Plug | Plug |

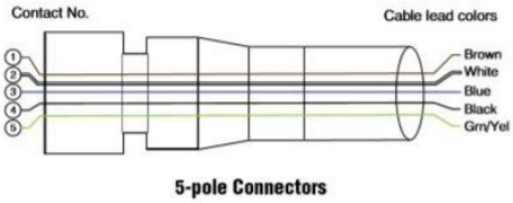
## *M12 Harness End Pinouts*

## Contact Diagrams




## Wiring Diagrams



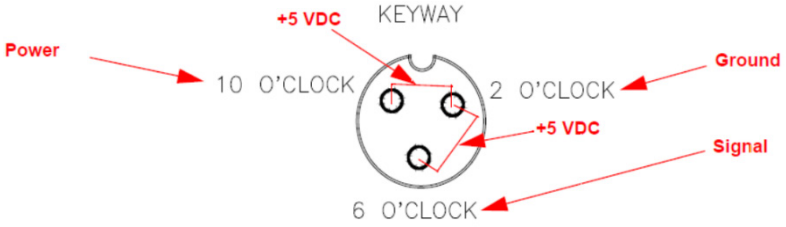

| *M12 HARNESS* | SPEED SENSOR | GATE SENSOR | SCALE |
|---|---|---|---|
| PIN 1 | 12 VDC | 12 VDC | +EXC |
| PIN 2 | | SIGNAL | -SIG |
| PIN 3 | 0 VDC | 0 VDC | +SIG |
| PIN 4 | SIGNAL | | -EXC |
| PIN 5 | | | SHIELD |

### *3 PIN DEUTSCH*

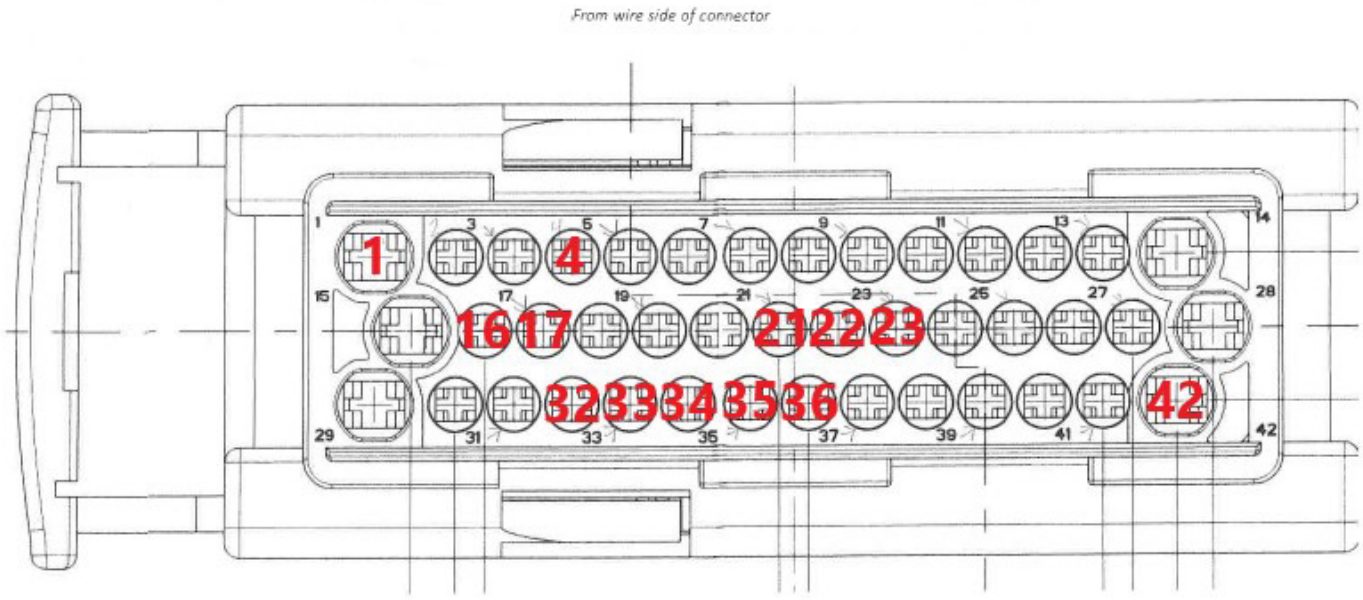
| 3 PIN | FAN PRESSURE |
|---|---|
| A | 12 VDC |
| B | SIGNAL |
| C | 0 VDC |

### *RAVEN 5 VOLT ENCODER*

***HARNESS END***



## *42 PIN TYCO*




| Gen I Pinout | |
|---|---|
| **Pin** | **Description** |
| 1 | 12 V DC |
| 4 | 5 VDC |
| 16 | Work Switch |
| 17 | Case Drain Alarm |
| 21 | PWM 1 |
| 22 | PWM 2 |
| 32 | Sensor 12 V |
| 33 | Sensor 0V |
| 34 | Encoder 1 |
| 35 | Encoder 2 |
| 36 | Machine Speed |
| 42 | 0 V |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