

# OPERATOR'S MANUAL

Read carefully before starting the machine

7N018KUS\_A

## Box Spreader Trailer Type

**PROPUSH 2000 SERIES**

2044 ---A1042-00L00001 >  
2054 ---A1042-10M00001 >







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# 1. Dear Owner

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In buying a Kuhn machine you have chosen wisely. Into it have gone years of thought, research and improvement. You will find, as have thousands of owners all over the world, that you have the best that engineering skill and actual field testing can produce. You have purchased a dependable machine, but only through proper care and operation can you expect to receive the performance and long service built into it.

This manual contains all the necessary information for you to receive full efficiency from your machine. The performance you get from this machine is largely dependent on how well you read and understand this manual and apply this knowledge. Please **DO NOT ASSUME YOU KNOW HOW TO OPERATE AND MAINTAIN YOUR MACHINE** before reading this manual carefully. **KEEP THIS MANUAL AVAILABLE FOR REFERENCE.** Pass it on to the next owner if you re-sell the machine.

Your KUHN dealer can offer a complete line of genuine KUHN service parts. These parts are manufactured and carefully inspected in the same factory that builds the machine to assure high quality and accurate fitting of any necessary replacements.

## ■ **About improvements**

We are continually striving to improve our products. We therefore reserve the right to make improvements or changes when it becomes practical to do so, without incurring any obligations to make changes or additions to the equipment sold previously.

## ■ **Wearing parts**

Wearing parts fitted on our machines have been tested in very different situations to optimize their service life. Nevertheless, the service life depends highly on the conditions of use (products to handle, soil, weather conditions, etc...).

## ■ **Designated use of the machine**

The 2044 and 2054 ProPush Box Spreaders must only be used for the work for which they have been designed: hauling and spreading solid and semisolid materials.

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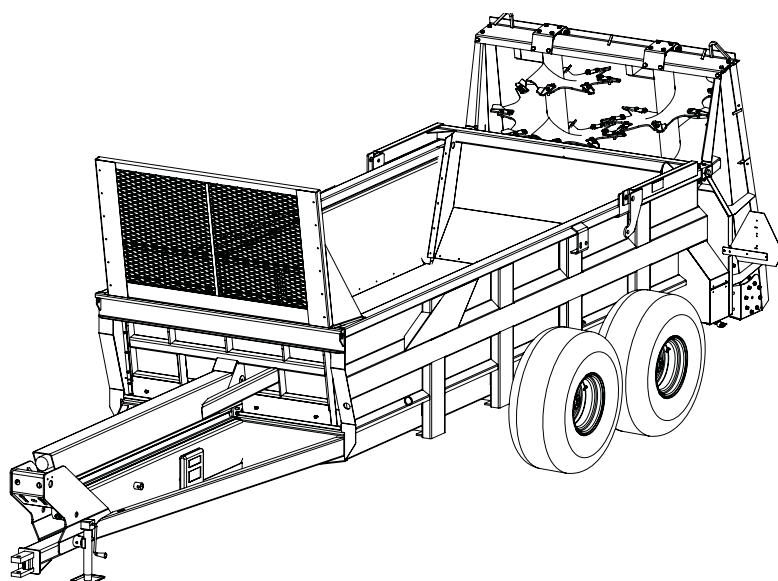
## 3. Identification of the machine

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### 3.1 Front view

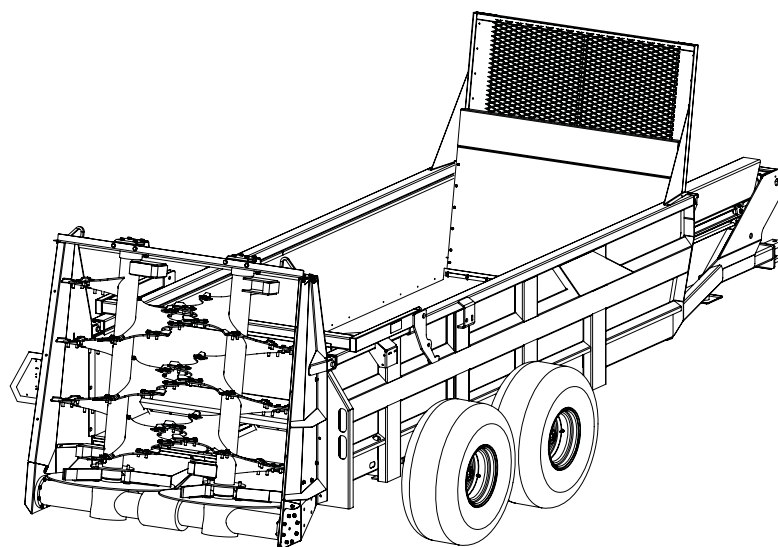
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### 3.2 Rear view

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### 3.3 Identification of the machine



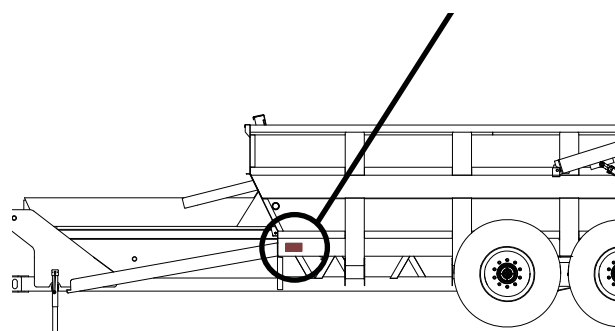
Do not remove the manufacturer, homologation and marking plates attached to the machine.

#### 3.3.1 Location of the plates

Note the serial number of your machine:

- Serial Number:

This information is to be given to the Kuhn authorized dealer for any spare parts order or warranty claim.



#### 3.3.2 Description

##### ■ Model identification plate

1: Manufacturer name and address

3: Brand

4: KUHN logo

5: Description of the machine

7: Model

9a: Machine serial number

9b: Barcode (Machine serial number)

12: Weight empty (Minimum/Maximum)

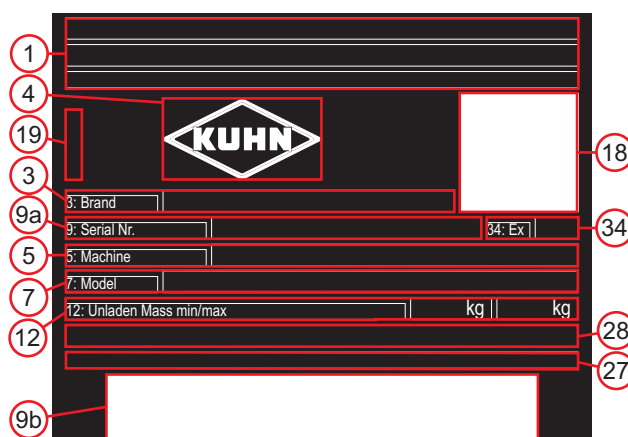
18: Data matrix

19: Plate reference

27: Place of manufacture

28: Manufactured by... for...

34: Special operation



### 3.4 Optional equipment

Check the boxes corresponding to the equipment fitted on your machine. See the Optional Equipment section for more details.

- ☐ Kit no. 18964973: 1000 drive kit 1.38-21 torque disconnect - All models except 2044 horizontal
- ☐ Kit no. 18964974: 1000 drive kit 1.75-20 torque disconnect - All models except 2044 horizontal
- ☐ Kit no. 18967453: 1000 drive kit 1.38-21 torque disconnect - 2044 horizontal only
- ☐ Kit no. 18967454: 1000 drive kit 1.75-20 torque disconnect - 2044 horizontal only
- ☐ Kit no. 18964762: 1000 drive kit 1.38-21 - 2044 horizontal only
- ☐ Kit no. 18964814: 1000 drive kit 1.75-20 - 2044 horizontal only
- ☐ Kit no. 18964796: 1000 drive kit 1.38-21 - 2054 horizontal only
- ☐ Kit no. 18964798: 1000 drive kit 1.75-20 - 2054 horizontal only
- ☐ Kit no. 18964763: 540 drive kit 1.38-6 - 2044 horizontal only
- ☐ Kit no. 18967457: Tandem axle, standard - 2044 Only
- ☐ Kit no. 18967456: Tandem axle, high float - 2044 Only
- ☐ Kit no. 18967500: Bogie, standard - 2054 Only
- ☐ Kit no. 18967501: Bogie, high float - 2054 Only
- ☐ Kit no. 18964760: Lower spinner beater - 2044 horizontal only
- ☐ Kit no. 18964797: Lower spinner beater - 2054 horizontal only
- ☐ Kit no. 18964761: Upper beater - 2044 horizontal only
- ☐ Kit no. 18967443: Hardened tips - 2044/2054 vertical only
- ☐ Kit no. 18964810: Manual flow control - All models
- ☐ Kit no. 18964811: Electric flow control - All models
- ☐ Kit no. 18967444: Sequence valve - 2044 Only
- ☐ Kit no. 18967446: Sequence valve - 2054 Only
- ☐ Kit no. 18964816: Rear slop pan - 2044 horizontal only
- ☐ Kit no. 18964812: Rear slop pan - 2054 horizontal only
- ☐ Kit no. 18967691: Pintle hitch - 2044 Only
- ☐ Kit no. 18967692: Pintle hitch - 2054 Only
- ☐ Kit no. 18967455: Stone guard side extension - 2044/2054 vertical only
- ☐ Kit no. 18964073: Safety chain - 2044 Only



- ☐ Kit no. 18964953: Safety chain - 2054 Only
  - ☐ Kit no. 18968413: Transport light kit - All models
  - ☐ Kit no. 18968422: Transport light kit - Export - All models
  - ☐ Kit no. 18968668: Heavy duty vertical beaters - 2044 Only
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## 4. Safety

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### 4.1 Description of symbols used in this document

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This symbol indicates a potentially hazardous situation that if not avoided, could result in serious bodily injury.



This symbol is used to identify special instructions or procedures which, if not followed strictly, could result in machinery damage.



This symbol is used to communicate technical information of particular interest.



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## 4.2 Safety instructions

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### ■ Introduction

The machine must only be operated, maintained and repaired by qualified persons who are familiar with the machines' operation and understand safety regulations and procedures for preventing accidents.

The operator must follow the safety instructions in this manual and in the warnings posted on the machine. The operator is also obliged to respect current legislation concerning accident prevention, work safety and public traffic circulation.

The intended use of the machine includes following all operation, maintenance and repair recommendations given by the manufacturer, and using only genuine spare parts, equipment and accessories, as recommended by the manufacturer.

The manufacturer is not held liable for any damage resulting from machine applications other than those specified by the manufacturer. Any use other than the designated operation is at the risk and responsibility of the operator.

The manufacturer is not held liable for any damage or accident resulting from machine modifications carried out by the operator himself or by a third party without previous written agreement from the manufacturer.

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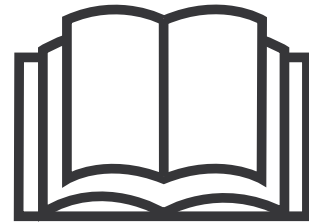
### ■ Read and follow the safety instructions

Before using the machine, carefully read all the safety instructions in this manual and the warnings placed on the machine. Failure to follow the instructions contained in this manual could result in product or property damage, severe personal injury, or death. All applicable safety procedures, codes and requirements of any federal, provincial, state and local agencies, as well as safe working practices and good judgment, must be used by personnel when assembling, servicing, adjusting or operating this equipment.

Before starting work, the operator must be familiar with all machine controls, handling devices and their functions. It is too late to learn once work has been started!

Never let anyone operate the machine who is not trained to do so.

Should you have any difficulties in understanding any parts of this manual, please contact your KUHN dealer.



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### ■ Safety shutdown procedure

Before adjusting, maintaining or repairing the machine, depressurize hydraulics, turn off the engine, remove ignition key and wait until all moving parts have come to a complete stop.

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### ■ Precautions to take before using the machine



**Be sure the inside of the spreader is clear of any obstructions before operating.**

Do not wear loose clothing which could become caught up in moving parts.

Wear appropriate protective clothing (gloves, shoes, goggles, hearing protection, etc.).

Ensure that all operating controls (ropes, cables, rods, etc) are placed so as they cannot be operated unintentionally and cause damage or injury.

Before operating the machine, check tightness of nuts and bolts, particularly on components that the machine uses to process material (tines, forks, blades, knives, hammers, etc). Retighten if necessary.

Before operating the machine, ensure that all the safety guards are firmly in place and in good condition. Immediately replace any worn or damaged guard.



### ■ Precautions when driving

Tractor handling, stability, performance and braking efficiency are all affected by weight distribution, trailed or mounted implements, additional ballast and driving conditions. It is therefore of great importance that the operator exercises caution in every given situation.

Drive speed must be adapted to ground conditions as well as to roads and paths. Always avoid abrupt changes of direction. Avoid operating the machine when making sharp turns or crossing gullies or ditches.

When working on slopes or inclines, travel uphill or downhill. Keep the tractor/truck transmission in gear when going downhill.

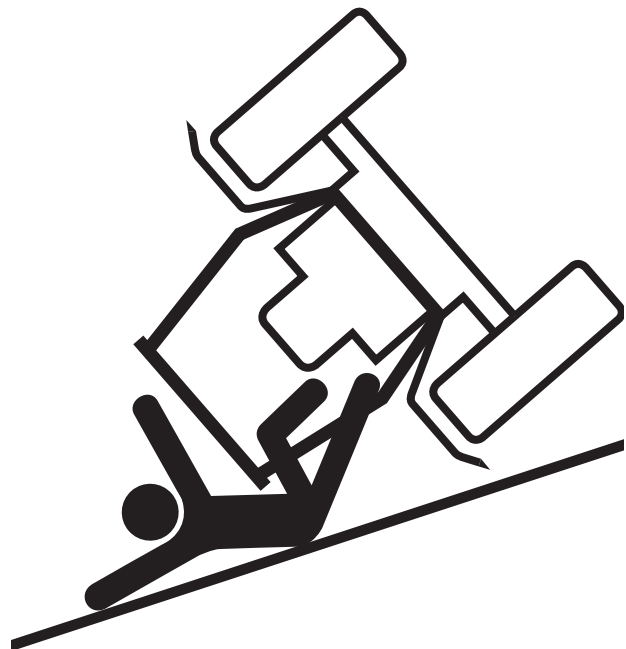
Be particularly cautious when turning corners, paying attention to machine overhang, length, height and weight.

Avoid driving on loose fill, rocks, inclines, ditches, and holes.

Never use a narrow track tractor on very uneven or steeply sloping ground.

Never leave the tractor seat while the machine is operating.

Carrying people or animals on the machine when working or in transport is strictly forbidden.



### ■ Precautions when driving on public roads

#### Dimensions

Depending on the dimensions of the machine, contact the relevant authorities to ensure that it can be legally transported on public roads.

If the machine is over the maximum legal size, follow the applicable regulations for special transportation of oversize equipment.

#### Gross weight and weight per axle

Check that the tractor's authorized gross weight as well as its lift capacity and maximum weight per axle are not exceeded.

The front axle load (1) must never, under any circumstances, be less than 20% of the tractor's unladen weight. If necessary, add ballast weights to the front or to the rear to preserve the steering and braking efficiency.

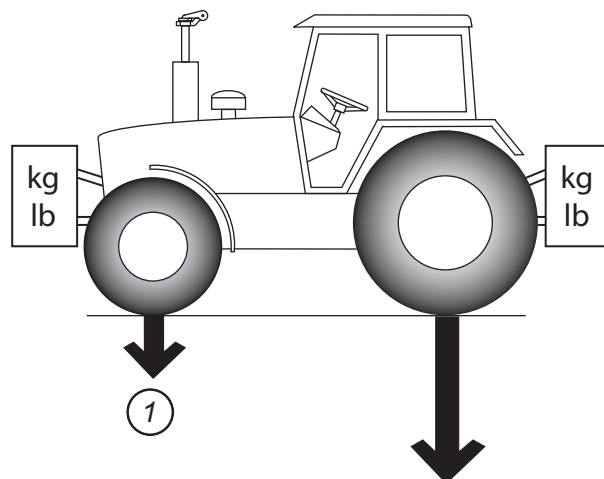
#### Transport position

Before transporting the machine on public roads, place the machine into its transport position, according to the instructions in this manual.

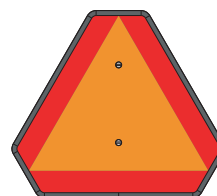
#### Lights and indicators

Before transporting the machine on public roads, ensure that all legally required lights and indicators are in place.

Ensure that lights and indicators are clean and in good working order. Replace any missing or broken equipment.



**Always obey current regulations for driving on roads.**



### ■ Maximum speed

Always keep to the legal speed limit for driving a tractor-machine assembly on public roads.



**The maximum speed for transport of this machine is 20 mph (32 kmh).**



### ■ Precautions when coupling

Before attaching the machine, make sure that it cannot accidentally start moving (chock the wheels) and that the parking stand is in the right position.

The machine must only be attached to the hitch points provided for this purpose.

Do not stand between the machine and the tractor or on the machine without having first applied the tractor parking brake and placed the gearbox in the neutral position.



### ■ Hydraulic circuit

Caution! The hydraulic circuit is under high pressure. Maximum pressure at work: 3000 PSI/200 bar.

Before adjusting, maintaining or repairing the machine, perform the safety shutdown procedure.



**WARNING! When connecting hydraulic hoses, functions can easily be reversed and cause accidents (for example: lift/lower). To avoid making incorrect connections, mark hydraulic couplers and corresponding hoses with colors.**



Regularly make visual inspection to check if hydraulic hoses are damaged or worn. In case of normal wear, the hydraulic hoses must be replaced every 5 years. Damaged or worn hoses must immediately be replaced. When replacing the hydraulic hoses, only use hoses with the specification recommended by the manufacturer of the machine.

To locate a leak, use appropriate means. Protect body and hands from liquid under pressure.

Any liquid under pressure (particularly oil from hydraulics) can penetrate the skin and cause severe injury. If injured, see a doctor immediately to prevent danger of infection.

### ■ Remote controlled components

Danger of crushing and shearing can exist when components are operated by hydraulic or pneumatic controls. Keep away from these danger zones.

### ■ PTO shaft

Before attaching or removing a PTO shaft, perform the safety shutdown procedure.

Use only PTO shafts supplied with the machine or recommended by the machine manufacturer.

The protective shield of the tractor PTO stub, the PTO shaft guards and the protective shield of the machine input shaft must always be in place and in good condition.

Make sure that the PTO shaft guards are secured with the safety chains provided, if so equipped.

Immediately replace any worn or damaged guard. A worn guard or an unprotected PTO shaft can cause a serious or even a lethal accident.

Do not wear loose clothing that could be caught in the rotating PTO shaft..

If the primary PTO shaft is equipped with a torque limiter or a free wheel, these must be fitted on the machine side.

Ensure that the PTO shaft is always correctly fitted and locked into place.

Before connecting the PTO shaft, ensure that the PTO speed (rotational frequency) and direction of rotation are in line with the machine manufacturer's recommendations.

Before engaging the PTO drive, make sure that there are no people or animals near the machine. Never engage the PTO drive when the tractor engine is stopped.

When uncoupling the machine, rest the PTO shaft on the support specially provided, and replace protective shield on the PTO stub of the tractor.

Read and follow the instructions in the operator's manual provided with the PTO shaft.



### ■ Tires

Regularly check the tire pressure. Refer to "Inspections and adjustments" section for proper wheel nut torque and tire pressure information. Assembly, disassembly and repair of wheels and tires must only be carried out by competent persons who are equipped with the appropriate tools. Before any work is performed on the wheels or tires, ensure that the machine rests on the ground and is perfectly stable so that it cannot move accidentally. Always chock the tires before working on the machine.



### ■ Precautions for machine use

Stay a safe distance from the machine when it is in use.

Never work in reverse.

If an obstacle is hit, stop the machine and perform the safety shutdown procedure. Check the entire machine for any damage before resuming work.

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### ■ Safety decals

Safety warnings are placed in safety decal form on various parts of the machine. They are there to warn you of potential dangers and to tell you how to avoid accidents.

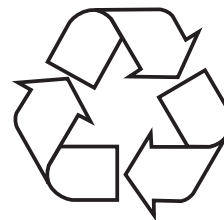
Always keep the safety decals clean and readable, and replace them when they are worn, damaged, missing or illegible.

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### ■ Waste disposal

Respect the environment! Never spill pollutants (oil, grease, filters, etc.) on the ground, never pour them down the drain and never discard them in any other place where they could pollute the environment. Never throw away or burn a tire. Always take waste to specialized recycling or waste disposal centers.

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### ■ Precautions for maintenance and repair work

Before adjusting, maintaining or repairing the machine, perform the safety shutdown procedure.

Repairs on elements under pressure or tension (springs, pressure accumulators, etc.) must only be carried out by competent persons with regulation equipment.

Wear appropriate protective clothing (gloves, shoes, goggles, hearing protection, etc.).

For your own safety and for correct machine operation, only use original manufacturer parts.

Do not solder, weld or use a blow torch near fluids under pressure or flammable components.

Make sure at least one tire on each side of the machine is chocked properly before performing any maintenance or repairs.

Rest the machine on the ground, release the pressure from the hydraulic circuit and leave the machine to cool down.

Make sure that the parts of the machine that need to be lifted for maintenance or repair work are firmly propped up.

When welding on this unit: DO NOT allow the current to flow through the bearings, roller chains, or scale weigh bars. Before any work is done on the electrical circuit or before any electric welding is carried out on the attached machine, disconnect the machine from the tractor/truck electrical circuit. Also disconnect alternator and battery terminals.



### ■ Projection of stones and foreign objects

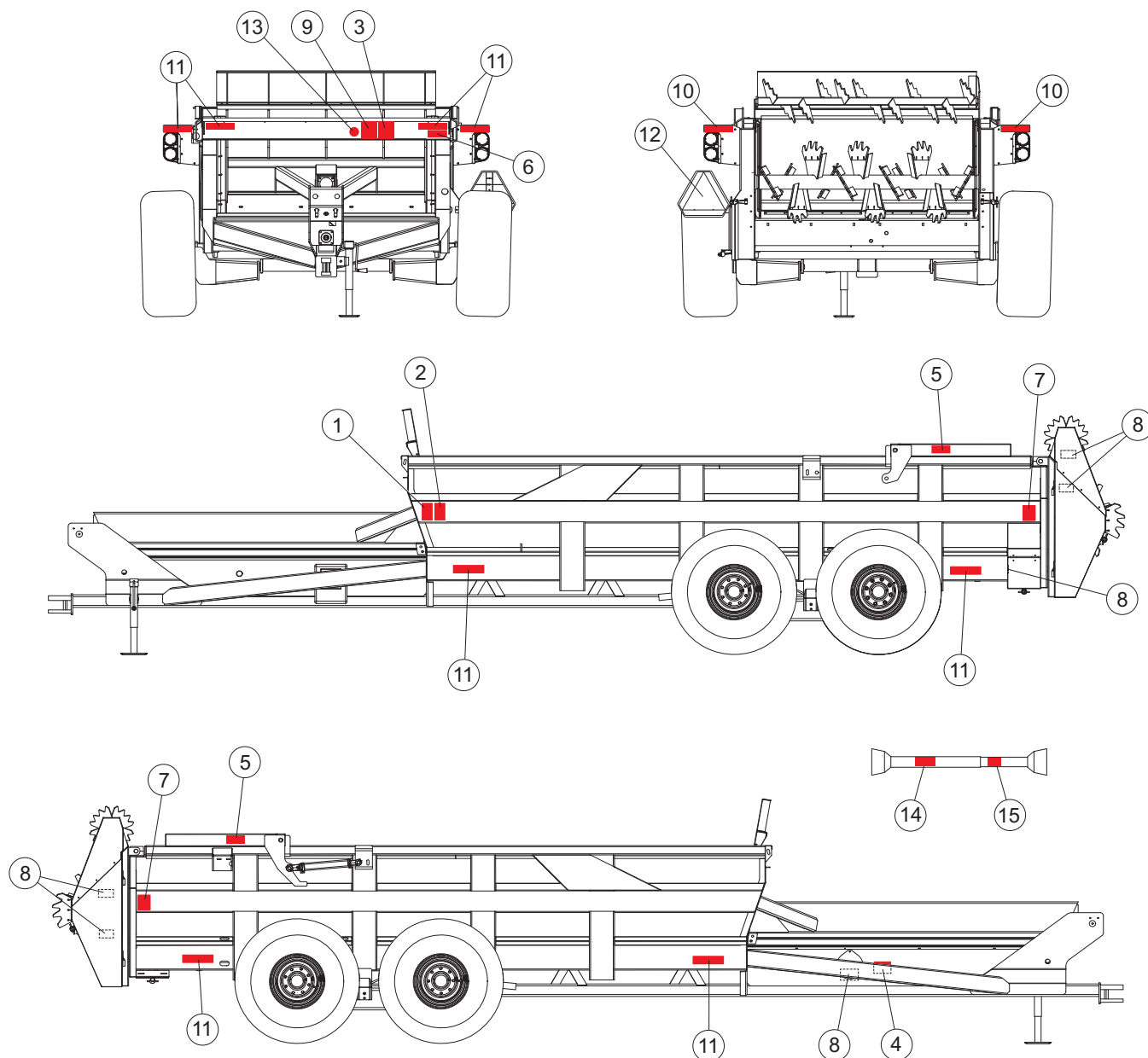
For driver safety, always use a tractor equipped with a cab.

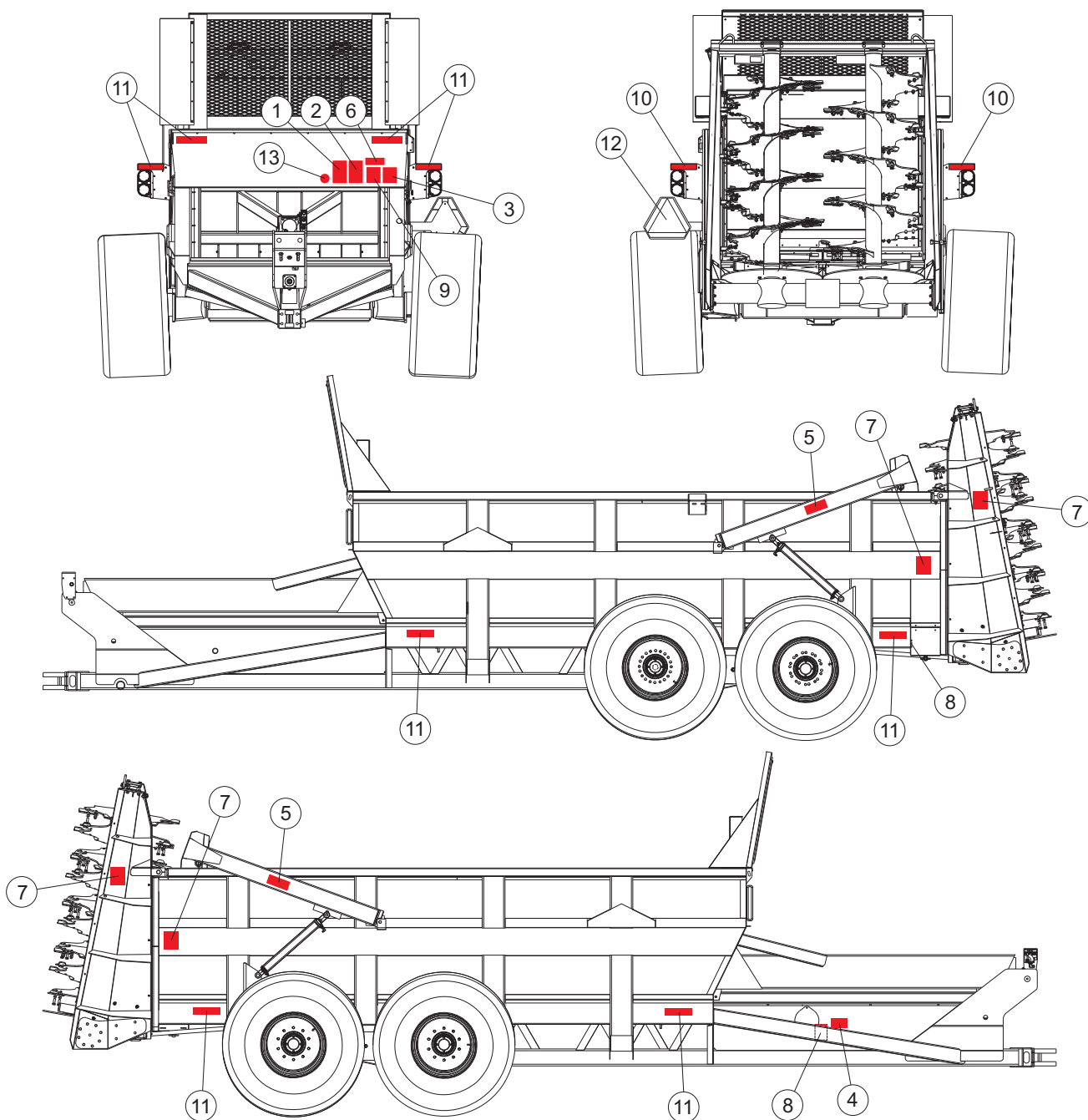
Even when the machine is used properly, objects may be thrown. Stones and other foreign objects thrown by the moving parts can travel a considerable distance. Keep all persons and animals away from the danger zone.



### 4.3 Location and description of safety decals on the machine

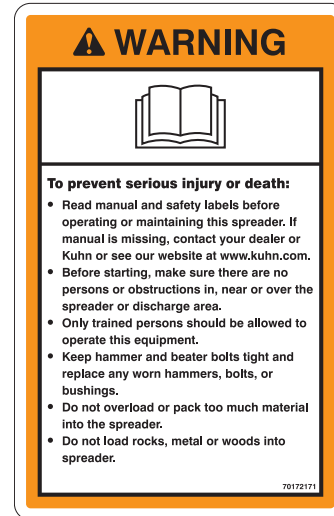
#### ■ Location of safety decals



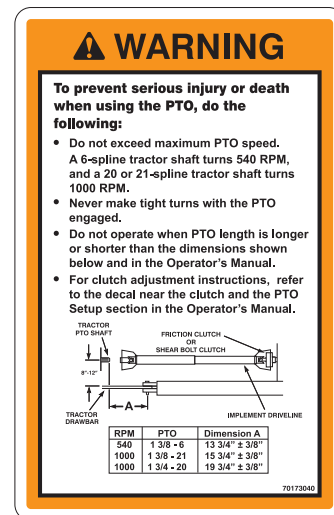


### ■ Description of safety decals

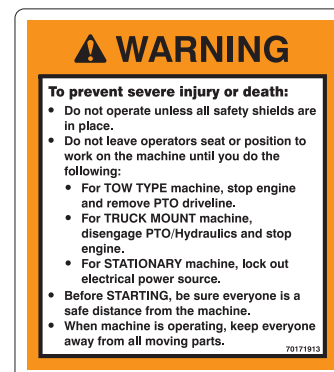
#### Operating instructions (1)



#### Rotating parts hazard (2)



#### Safety shields (3)



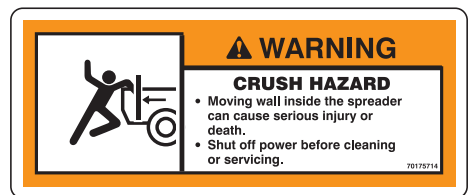
### Rotating parts hazard (4)



### Crush hazard (5)



### Crush hazard (6)



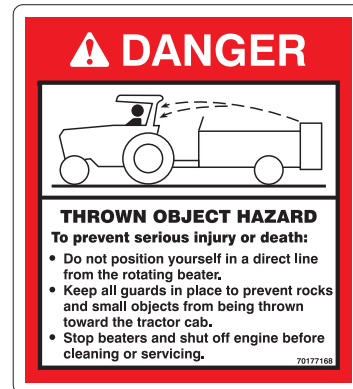
### Entanglement and thrown object hazard (7)



### Rotating parts hazard (8)



### Danger, thrown object hazard (9)



### Red reflector (10)



### Amber reflector (11)



### Slow moving vehicle sign (12)



### Speed identification symbol (13)



### DANGER Shield missing, do not operate (14)



### DANGER Rotating driveline (15)



**Safety decals are placed on this unit for the protection of the operator and any person working on or standing by the unit.**

If any safety decals are removed, obstructed, or otherwise illegible, they should be replaced immediately. It is the owner's responsibility to provide information to all operators for safe operation of this machine.

The part numbers for the decals are located in the lower right corner of the decal. Replacement decals may be ordered through your dealer or Kuhn.

#### Replacing decals:

When replacing decals, be sure the surface is clean and dry. Peel the backing off the decal and apply to the machine. Be sure to wipe with a clean cloth to rub out all air bubbles which will assure a good seal. For best adhesion, decals should be applied when the temperature is above 50°F (10°C).

### 4.4 Road safety equipment and recommendations

The road safety equipment is mounted at the factory or by your authorized Kuhn dealer according to current safety regulations. Always keep to the legal speed limit for driving a tractor-machine assembly on public roads.

#### The rear safety device comprises:

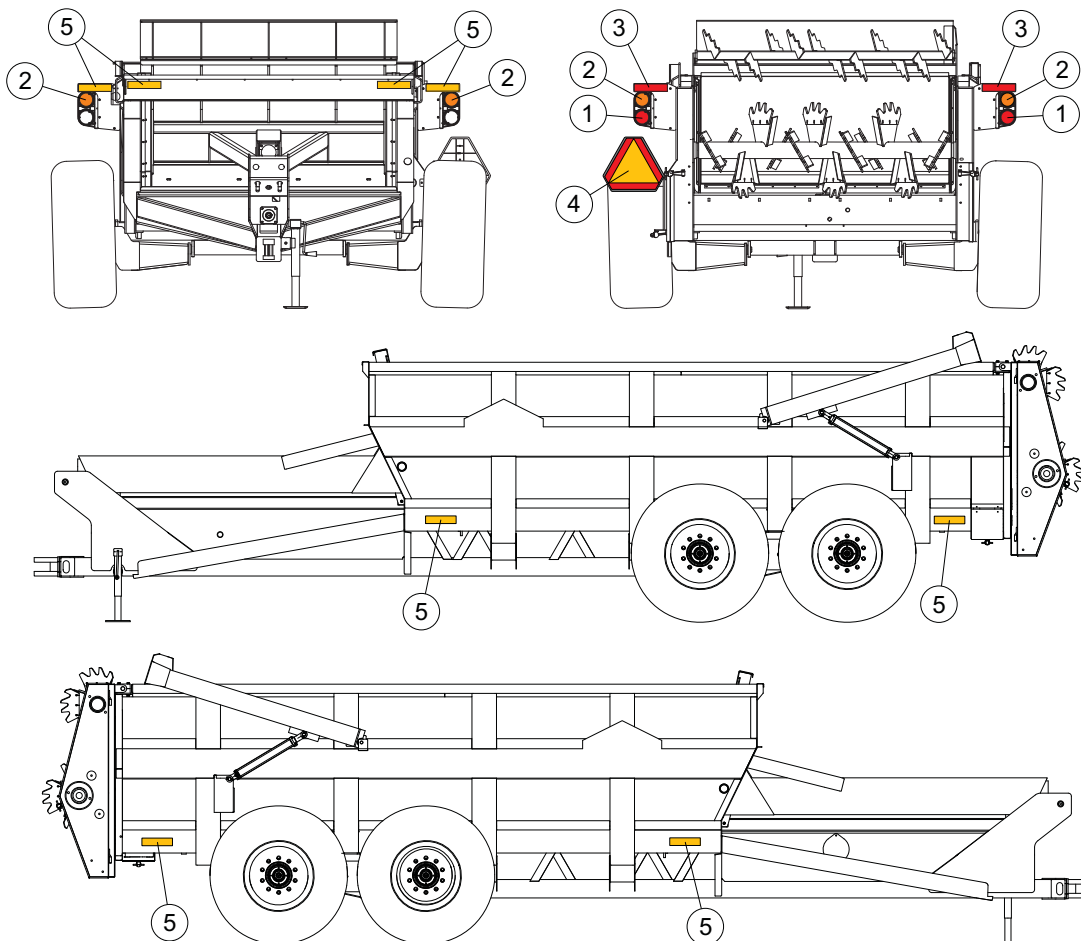
- 2 red lights (1)
- 2 amber lights (2)
- 2 red reflectors (3)
- 1 reflective SMV sign (4)

#### The front safety device comprises:

- 2 amber lights (2)
- 4 amber reflectors (5)

#### The side safety device comprises:

- 2 amber reflectors (5) on each machine side



### 4.4.1 Lights

| Colors | Function             | SAE Terminal # | ISO Terminal # |
|--------|----------------------|----------------|----------------|
| White  | Ground               | 1 - See note 1 | 3              |
| Black  | Left running lights  | 1 - See note 1 | 7              |
| Yellow | Left turn & hazard   | 3              | 1              |
| Red    | Stop lights          | 4 - See note 2 | 6              |
| Green  | Right turn & hazard  | 5              | 4              |
| Brown  | Right running lights | 6              | 5              |
| Blue   | Not used             | 7              | 2              |

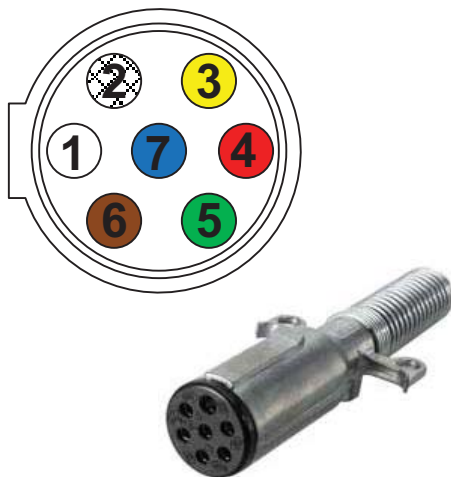
**Note 1:**

Black and white wires must be connected together on SAE type connectors for proper light operation.

**Note 2:**

The red wire should only be attached to the #4 terminal if the #4 terminal on the tractor is confirmed to be a brake light terminal. If the tractor has no brake terminal, the red wire of the implement should be sealed off and not connected to any terminal.

#### SAE



#### ISO



### 4.4.2 Towing

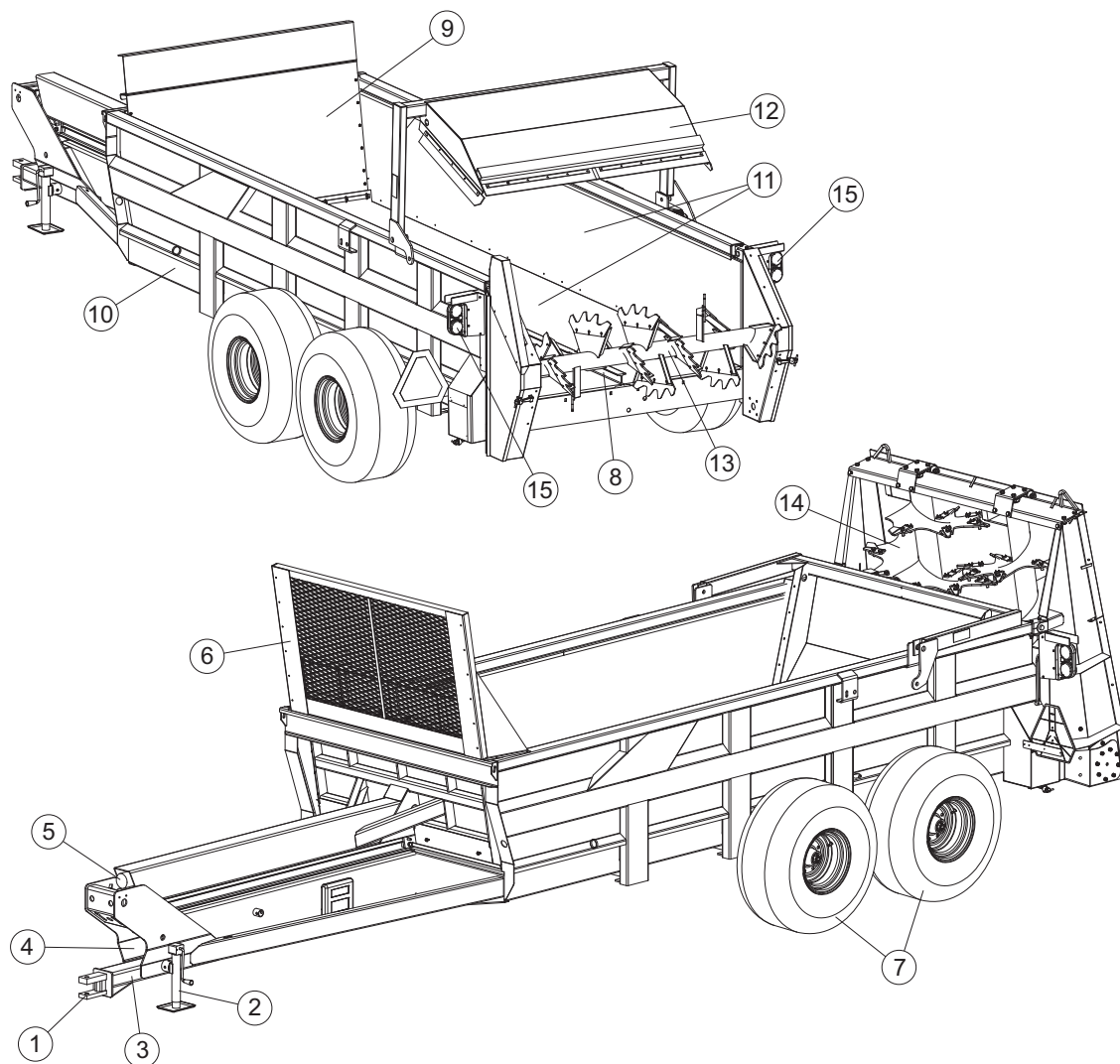
Whenever towing the spreader on a public road, always use the tractor and machine's lights as required by local regulations.

### 4.4.3 Place the machine in parking position

Always park the spreader on level ground and chock the tires.

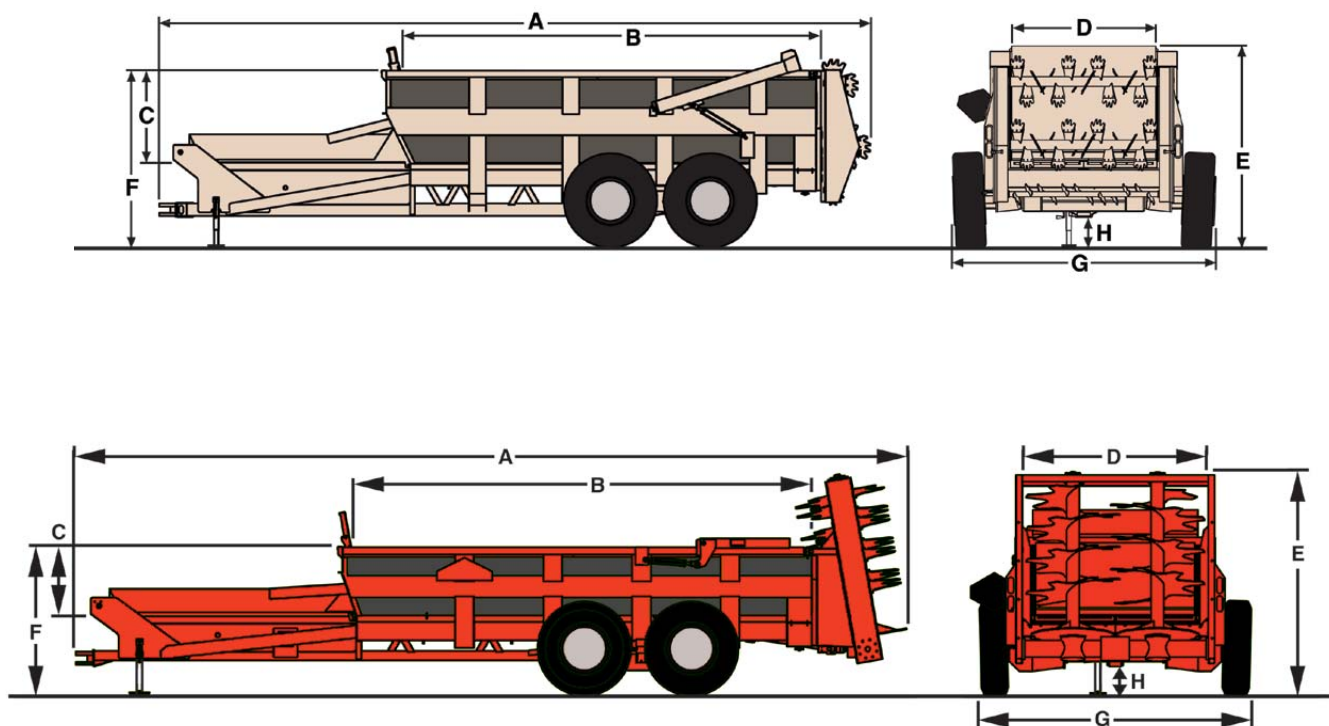
## 5. Machine specifications

### 5.1 Description and glossary



- |   |           |    |                      |    |                      |
|---|-----------|----|----------------------|----|----------------------|
| 1 | Hitch     | 6  | Thrown object shield | 11 | Poly floor and sides |
| 2 | Jack      | 7  | Tires                | 12 | Endgate              |
| 3 | Tongue    | 8  | Pusher guide         | 13 | Horizontal beaters   |
| 4 | PTO cover | 9  | Pusher               | 14 | Vertical beaters     |
| 5 | Cylinder  | 10 | Body                 | 15 | Transport lights     |

## 5.2 Technical specifications



| Model                        | 2044           |                | 2054           |                |
|------------------------------|----------------|----------------|----------------|----------------|
| Specifications               | Horizontal     | Vertical       | Horizontal     | Vertical       |
| A - Overall length           | 343" (871 cm)  | 356" (904 cm)  | 343" (871 cm)  | 357" (907 cm)  |
| B - Inside box length        | 194" (493 cm)  | 194" (493 cm)  | 198" (503 cm)  | 198" (503 cm)  |
| C - Inside box depth         | 32" (81 cm)    | 32" (81 cm)    | 47" (119 cm)   | 47" (119 cm)   |
| D - Inside box width         | 71" (180 cm)   | 71" (180 cm)   | 71" (180 cm)   | 71" (180 cm)   |
| E - Overall height           |                |                |                |                |
| Tire option used             | 275-80R x 22.5 | 275-80R x 22.5 | 425-65R x 22.5 | 425-65R x 22.5 |
| Top of beaters               | 76" (193 cm)   | 93" (236 cm)   | 91" (231 cm)   | 116" (295 cm)  |
| Pusher extension or bulkhead | 79" (201 cm)   | 93" (236 cm)   | 103" (262 cm)  | 114" (290 cm)  |
| F - Loading height           | 63" (160 cm)   | 63" (160 cm)   | 85" (216 cm)   | 85" (216 cm)   |
| G - Overall tread width      | 115" (292 cm)  | 115" (292 cm)  | 121" (307 cm)  | 121" (307 cm)  |
| H - Ground clearance         | 18" (46 cm)    | 18" (46 cm)    | 18" (46 cm)    | 18" (46 cm)    |



## Box Spreader Trailer Type

### PROPUSH 2000 SERIES

| Model                              | 2044                       |                            | 2054                       |                            |
|------------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Specifications                     | Horizontal                 | Vertical                   | Horizontal                 | Vertical                   |
| Unit weight - pounds               | 7620 (3456 Kg)             | 9440 (4282 Kg)             | 10,900 (4944 Kg)           | 12,520 (5679 Kg)           |
| Maximum net load - pounds          | 28,500 (12927 Kg)          | 28,500 (12927 Kg)          | 35,000 (15876 Kg)          | 35,000 (15876 Kg)          |
| Capacity                           |                            |                            |                            |                            |
| Cubic feet - struck level          | 270 (7.6 m <sup>3</sup> )  | 270 (7.6 m <sup>3</sup> )  | 400 (11.3 m <sup>3</sup> ) | 400 (11.3 m <sup>3</sup> ) |
| Cubic feet - heaped                | 440 (12.5 m <sup>3</sup> ) | 440 (12.5 m <sup>3</sup> ) | 540 (15.3 m <sup>3</sup> ) | 540 (15.3 m <sup>3</sup> ) |
| Beaters                            |                            |                            |                            |                            |
| Replaceable paddles or teeth       | 14 paddles ea.             | 24 teeth ea.               | 14 paddles ea.             | 32 teeth ea.               |
| Diameter - lower/upper             | 26"/optional 14"           | 35 1/2"                    | 24"/24"                    | 35 1/2"                    |
| Lower spinner                      | optional                   | na                         | optional                   | na                         |
| RPM - lower/upper/spinner          | 365/525/430                | 420                        | 410/410/410                | 420                        |
| Paddle/flighting thickness         | 3/8" (1 cm)                | 3/8" (1 cm)                | 1/2" (1.3 cm)              | 3/8" (1 cm)                |
| Removable beater assembly          | Yes                        | Yes                        | Yes                        | Yes                        |
| Overload protection                | Yes                        | Yes                        | Yes                        | Yes                        |
| Box and trailer construction       |                            |                            |                            |                            |
| Framework sides                    | structural tubing          | structural tubing          | structural tubing          | structural tubing          |
| Floor and sides                    | 5/8" (1.6 cm) poly         | 5/8" (1.6 cm) poly         | 5/8" (1.6 cm) poly         | 5/8" (1.6 cm) poly         |
| Trailer axle                       | Tandem                     | Tandem                     | Tandem                     | Tandem                     |
| Tandem axle - Spindle diameter     | 2 1/2" (6.4 cm)            | 2 1/2" (6.4 cm)            | 3 3/8" (8.6 cm)            | 3 3/8" (8.6 cm)            |
| Hubs                               | 8-bolt                     | 8-bolt                     | 10-bolt                    | 10-bolt                    |
| Endgate                            | Standard                   | Standard                   | Standard                   | Standard                   |
| Diaper pan                         | optional                   | na                         | optional                   | na                         |
| Pusher                             |                            |                            |                            |                            |
| Cylinder diameter                  | 3 1/2" (8.9 cm)            | 3 1/2" (8.9 cm)            | 4 1/2" (11.4 cm)           | 4 1/2" (11.4 cm)           |
| Pusher unload rate at 15 GPM       | 35 seconds                 | 35 seconds                 | 55 seconds                 | 55 seconds                 |
| Push panel thickness               | 3/16" (0.5 cm)             | 3/16" (0.5 cm)             | 3/16" (0.5 cm)             | 3/16" (0.5 cm)             |
| Tongue weight - % of gross weight  | 14%                        | 13%                        | 15%                        | 14%                        |
| Tractor PTO HP requirement         | 120                        | 140                        | 140                        | 160                        |
| PTO - RPM                          | 540/1000                   | 1000                       | 1000                       | 1000                       |
| Roller chain - upper/lower/spinner | 80/60/50                   | enclosed gearbox           | 80/80/60                   | enclosed gearbox           |

## 6. Putting into service

### 6.1 Preparing the tractor

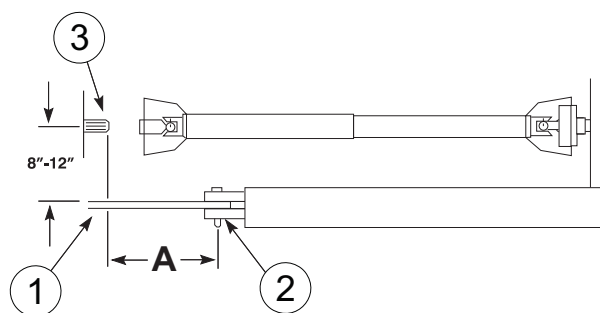


The minimum tractor weight should be no less than 2/3 of spreader gross weight.

#### 6.1.1 Drawbar attachment system

Adjust tractor drawbar (1) and/or the spreader clevis hitch (2) so that the spreader is approximately level. The top of the drawbar should be 8"-12" below the tractor PTO shaft (3). Adjust the drawbar horizontally so that the hitch pin hole is behind the tractor PTO as specified and the drawbar is centered and locked in place.

Kuhn does not recommend or authorize PTO adapters.



| RPM  | PTO        | Dimension A    |
|------|------------|----------------|
| 540  | 1 3/8 - 6  | 13 3/4" ± 3/8" |
| 1000 | 1 3/8 - 21 | 15 3/4" ± 3/8" |
| 1000 | 1 3/4 - 20 | 19 3/4" ± 3/8" |

#### 6.1.2 Hitch pin

A 1" diameter hitch pin with a retainer pin is recommended for 2044 spreaders.

A 1 5/16" diameter hitch pin with a retainer pin is recommended for 2054 spreaders.

#### 6.1.3 Hydraulic requirements

The hydraulic endgate and the pusher each require one tractor selective control valve. The tractor hydraulic system should be capable of producing 2000 PSI at 15 gallons per minute (GPM) for all models.



#### 6.1.4 Machine requirements

Gross weight:

| Model           | Empty unit weight + Load weight = Gross weight | Tractor weight up to 20 mph (32km/h)    |
|-----------------|------------------------------------------------|-----------------------------------------|
| 2044 Horizontal | 7620 lbs/<br>(3455 kg) + _____ = _____         | 2/3 of Gross weight =<br>Tractor weight |
| 2044 Vertical   | 9440/<br>(4280 kg) + _____ = _____             | 2/3 of Gross weight =<br>Tractor weight |
| 2054 Horizontal | 10,900/<br>(4945 kg) + _____ = _____           | 2/3 of Gross weight =<br>Tractor weight |
| 2054 Vertical   | 12,520/<br>(5680 kg) + _____ = _____           | 2/3 of Gross weight =<br>Tractor weight |

A tractor with the above recommended weight for your unit is normally adequate for towing the loaded machine under average conditions.



**When transporting a loaded spreader, use reduced speed and be sure the tractor has adequate weight and brakes.**

#### 6.1.5 Light setup

Make sure to connect wiring for rear lights to tractor before transporting machine. The lighting system provided is intended for being transported by an agricultural tractor. Ensure that lights and indicators are clean and in good working order. When attaching to a towing vehicle other than a tractor always check lighting for proper operation as wiring may vary.

#### 6.1.6 Safety shields

Be sure all shielding is in place and functioning properly. Replace all damaged or missing shielding immediately. Refer to your parts manual and contact your Kuhn dealer for replacement part ordering.

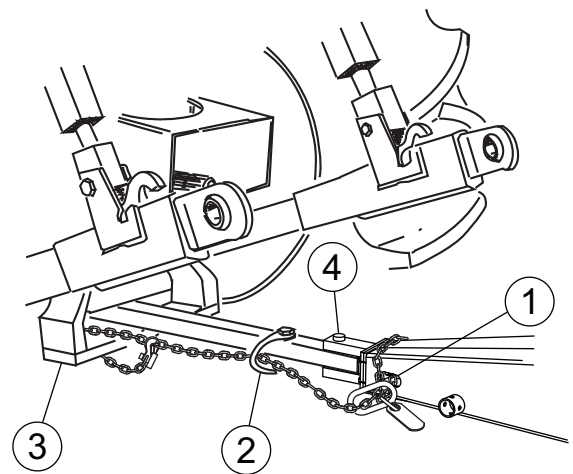
### 6.2 Attaching the safety tow chain



The safety chain is intended to keep the machine under control in the event of a loss or failure of the hitch pin.

Pass the end link through the holes on the tongue (1), then pass the hook through the end link. The hook end should then be pulled forward through the intermediate support (2) (if required) on the towing machine's drawbar, and around the towing machine's attaching point (3), hooking back to the safety tow chain itself.

If the towing machine's attaching point is more than 9" (23 cm) from the draw pin (4), an intermediate support (2) capable of withstanding one half the required chain capacity is required. When in use the safety tow chain should have no more slack than necessary to permit proper articulation of the implement.



**Do not use the intermediate support as the attaching point.**

The safety tow chain should be stored to prevent damage from weather or improper use when not in use with the machine. Check chain condition and replace it with a new one if necessary.



**The safety tow chain must be replaced if any one link is broken, stretched, or otherwise damaged or deformed.**



*Safety chains are sold separately. Contact your Kuhn dealer to purchase a safety chain for your specific machine.*

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## 6.3 PTO setup

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### 6.3.1 Torque disconnect information

(Standard with vertical beaters only)

#### ■ Torque disconnect operation

The 2044/2054 is equipped with a torque disconnect type PTO in place of a clutch type PTO. The purpose of the torque disconnect is to limit the maximum torque to the machine, the same as a clutch. The other feature of the torque disconnect is the ability to automatically re-engage once the speed of the PTO has been reduced.

The torque disconnect will drop out or disengage under overloaded conditions which can be caused by the beaters requiring an excessive amount of power. The overload can come from foreign objects in the spreader.

The torque disconnect will eliminate 95% of the torque to the machine during an overload and will have a loud clicking sound to indicate that it is not driving. The PTO should be shut off and allowed to stop. The PTO can then be slowly reengaged to restart the machine. The torque disconnect will automatically re-engage either as the PTO decelerates or upon the re-engagement of the PTO.

There is no field adjustment or maintenance on the torque disconnect. The PTO driveline must be greased as outlined in the lubrication section of this operators manual.

### 6.3.2 Shear bolt

#### ■ For use with horizontal beaters only:

The PTO driveline has a shear bolt assembly for overload protection. If the PTO spins free during operation, the bolt has sheared. Replace the sheared bolt with a new one of the same diameter, length, and grade. The bolt should shear on non-threaded portion. Using a bolt of different specifications than recommended may cause damage to the machine.



*Shearbolt assembly must always be installed on spreader input shaft. It is important to have the PTO shaft completely secure on the tractor PTO with the lock collar fully engaged.*

Kuhn North America, Inc. does not recommend or authorize PTO adapters.

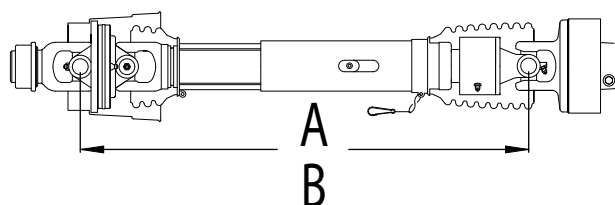
#### Shear bolt size:

2044 - 5/16" x 2" Grade 5 (540 RPM)

2044 - 5/16" x 2" Grade 5 (1000 RPM)

2054 - 5/16" x 2" Grade 5 (1000 RPM)

#### BOLT GRADE IDENTIFICATION



### 6.3.3 PTO minimum and maximum operating dimensions

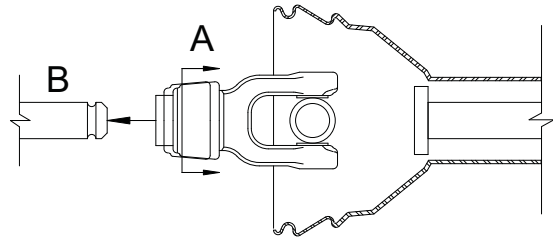
| Model Number                                             | PTO description   | A = Compressed | B = Extended   |
|----------------------------------------------------------|-------------------|----------------|----------------|
| 2044 - Horizontal                                        | 1 3/8"-6 splines  | 23.38" (594mm) | 35.50" (902mm) |
| 2044 - Vertical/Horizontal<br>2054 - Vertical/Horizontal | 1 3/8"-21 splines | 22.05" (560mm) | 29.88" (759mm) |
| 2044 - Vertical/Horizontal<br>2054 - Vertical/Horizontal | 1 3/4"-20 splines | 25.98" (660mm) | 35.79" (909mm) |
| 2044/2054 - Horizontal                                   | 1 3/8"-21 splines | 23.38" (594mm) | 35.50" (902mm) |
| 2044/2054 - Horizontal                                   | 1 3/4"-20 splines | 23.38" (594mm) | 35.50" (902mm) |

### 6.3.4 Driveline attachment



**Before adjusting, maintaining or repairing the machine, perform the safety shutdown procedure.**

To attach tractor end of the driveline, pull the locking collar (A) back and simultaneously push the driveline onto the spline shaft (B) until the locking device engages. The tractor PTO master shield should be in place, and the driveline shields should rotate freely. If the driveline has a shield restraint chain, attach it to the implement shield. Units with horizontal beaters have a slide lock PTO with shear bolt protection.



**Try to move driveline forward and backward to ensure that it has locked onto the shaft.**

The torque disconnect PTO is standard equipment on units with vertical beaters. Remove the cross bolt, slide the PTO over the input shaft, and align the cross bolt hole and the groove. Reinstall the cross bolt and torque to the value specified on the shaft. The driveline shields should rotate freely.



**Try to move driveline forward and backward to ensure that it has locked onto the shaft.**



**Before adjusting, maintaining or repairing the machine, perform the safety shutdown procedure.**

### 6.3.5 Driveline maintenance

The universal joints on the driveline should be kept free of dirt and well lubricated. Inner and outer tubes should also be lubricated to reduce end pressure on PTO. Refer to lubrication section.

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## 6.4 Spreader setup

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### 6.4.1 Vertical beater teeth

- Vertical beater tooth bolt torque: 135 ft lbs dry



*Vertical beater tooth bolts should be checked after the first few loads and re-torqued if necessary. Torque should be checked on a monthly basis.*

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## 6.5 Operation checklist

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**Always perform the safety shutdown procedure before servicing, repairing, or cleaning the machine.**

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- **Check for proper assembly, adjustment, and lubrication**

Check that all nuts and bolts are sufficiently tightened. Oil all roller chains. Review all operating safety precautions and lubrication instructions before operating the machine.

- **Do not operate until shields are in place**



**Be sure all safety shields are in place before operating, including tractor PTO and driveline shields. Exposed machinery, due to missing shielding, can cause severe injury or death.**

Repair or replace any damaged or missing shielding.

- **Check for obstructions**

Before loading the spreader, be sure the hydraulic endgate is closed and there are no obstructions in the beaters.



**Be sure the inside of the spreader is clear of any obstructions before operating.**

- **Be sure no one is on, inside, or near the spreader**



**NEVER** allow anyone to position themselves over or near the top, or near the discharge area of the spreader while it is running. Doing so can cause serious injury or death.



Never put arms or feet inside unit, or discharge opening, nor climb on or in the spreader while it is running. Doing so can cause serious injury or death.

## 6.6 Test run the spreader

1. Raise and lower the hydraulic endgate several times.
2. With the spreader empty and the hydraulic endgate raised, start the apron and beaters.
3. Operate the pusher from the front to the back of the spreader several times.
4. Run for at least five minutes. Operate at the rated 540 or 1000 RPM spreader input shaft speed.
5. Disengage the PTO, turn off the tractor engine, and remove the driveline.
6. Check the drive components to be sure they are not abnormally hot.



**If any of these items are not running as indicated, immediately repair or contact your service representative. Always refer to the safety instructions before operating or servicing the machine.**

## 7. Instructions for work



Always refer to operating safety instructions and precautions before operating the spreader. Be sure no one is on, inside, or near the spreader. Be sure that the discharge path is clear of all objects or persons that could be harmed by discharged material.

### ■ General:

This spreader is designed primarily for hauling and spreading solid and semisolid materials.

### 7.1 Spreader operation

Before loading the spreader, be sure the hydraulic endgate is closed and there are no obstructions in the beaters. Inspect the spreader to see that it is in good mechanical condition and that all shields are in place and functional.

#### 7.1.1 Jack storage

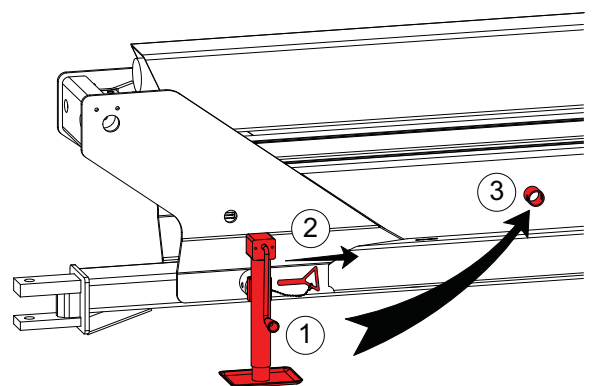
After coupling the unit to the tractor, remove jack and store on the side of the machine.



Keeping jack stored in the proper position will keep it from getting damaged during transportation.

Raise jack (1) using crank handle.

Remove pin (2) and relocate the jack to the side of the machine (3). Replace pin.



### 7.1.2 Operation

1. With the tractor stopped and the engine throttled down, place the tractor transmission in a gear that will provide the proper ground speed to achieve the desired coverage.

NOTE: For best results, steps 2-5 should be done as smoothly and quickly as possible.

2. Adjust pusher to desired speed selection. This can be done either with the flow control on the tractor, if equipped, or with the optional flow control kit. If the unit is equipped with the optional sequence valve the hydraulic endgate must be raised completely before the pusher will move.
3. Slowly engage the tractor PTO, then accelerate the throttle to PTO speed. Always operate at the rated PTO speed but **DO NOT EXCEED THE RATED PTO SPEED**.
4. Raise the hydraulic endgate completely. The gate must always be raised completely before moving pusher or damage will result.
5. Start tractor in motion and engage the tractor's remote valve which controls the pusher. (If a sequence valve is installed, the pusher will initiate only when the endgate is in the fully raised position.)
6. The spread rate is controlled by the tractor RPM, ground speed, and pusher speed. The type of material being spread affects the rate at which the material is discharged from the spreader. By coordinating the ground speed with the pusher, the coverage can be varied from a light to a heavy spread.
7. When the spreader is empty, disengage the tractor PTO, retract pusher, then lower the endgate. During freezing conditions, be sure that the spreader is cleaned out to prevent the material from freezing to the side walls and floor which could prevent the pusher from moving.
8. After the spreader has been sitting for an extended period of time, it may be useful to scrape the excess debris from the sides of the push gate guide beam. Spraying oil onto the beam sides will make the pusher operate more smoothly.



**When turning, especially through gates and doorways, make wide turns to accommodate the long tongue length of the spreader.**



**NEVER operate pusher without the endgate in the fully raised position. NEVER lower the endgate without the pusher retracted to the front of the spreader.**



**Avoid operating the machine when making sharp turns or crossing gullies or ditches.**



**When working on slopes or inclines, travel uphill or downhill. Keep the tractor transmission in gear when going downhill.**

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## **7.2 Cold weather precautions**

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**Never check or clean the spreader while it is operating.**



**Before adjusting, maintaining or repairing the machine, perform the safety shutdown procedure.**

In freezing weather, make sure the pusher, beaters and the hydraulic endgate are not frozen with manure. If this appears likely, disengage PTO, turn off the tractor engine, remove driveline, and loosen the frozen area before loading. Immediately clean the pusher, beaters, and hydraulic endgate after spreading.

Check the discharge area. Be sure the hydraulic endgate is clear of frozen material and the discharge area is clean. Run the endgate up and down several times and the pusher through its entire travel before loading and after spreading to help keep the sides clear. It is best to leave the hydraulic endgate partially open during storage to help avoid freezing down.



*In extremely cold weather allow spreader hydraulic system to warm up before loading by slowly operating the pusher and endgate.*

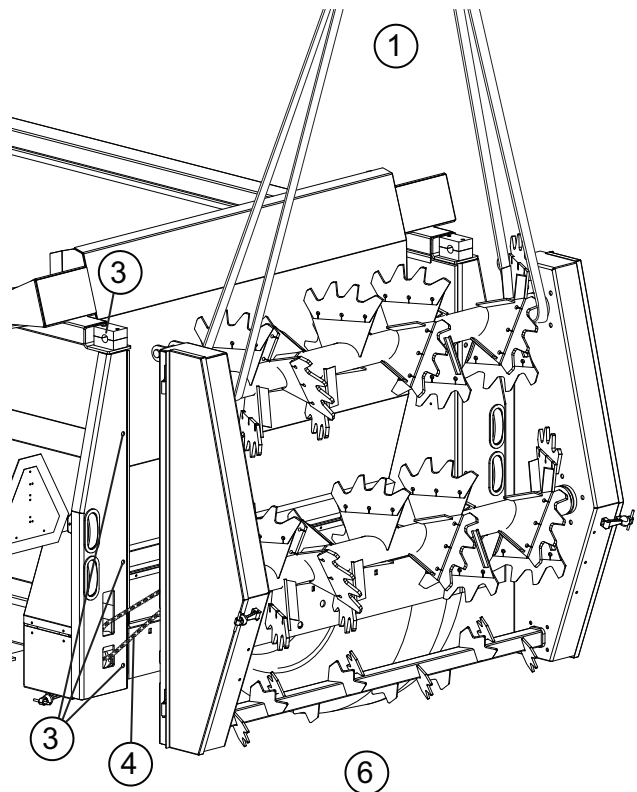
### 7.3 Horizontal beater removal



Always perform the safety shutdown procedure before servicing, repairing, cleaning, or removing beater assembly.

Use a lifting device that can support the weight of the beater assembly. Make sure the chains or lifting straps are secure and can support the weight of the beater assembly when it is being removed and transported to storage. **STAND CLEAR WHEN BEATER IS BEING MOVED.**

1. Support beater assembly with a lifting strap or chains around upper most beater tube, left and right sides.
2. Lift beater assembly so the lifting device is supporting the weight of the assembly. This will ensure that the mounting bolts can be removed without the beaters suddenly dropping.
3. Remove 2 bolts each side on 2044 panels and 3 on each side on 2054 panels. Loosen, but do not remove, 2 bolts each side on top.
4. Remove drive chain from gearbox to lower beater drive sprocket.
5. Remove top hardware previously loosened and caps.
6. Remove beater assembly.
7. Replace mounting hardware on beater assembly and spreader for storage.
8. Remove PTO from unit and store with beaters.
9. Clean all decals on the back of machine.



To prevent the spreader drive system from turning with the beater assembly removed, always remove the beater driveline from the spreader and store with the beater assembly.

#### ■ Beater installation

Installation is opposite of removal. Beaters may need to be rotated to help engage drive.



Check gearbox lubricant level and grease all bearings.

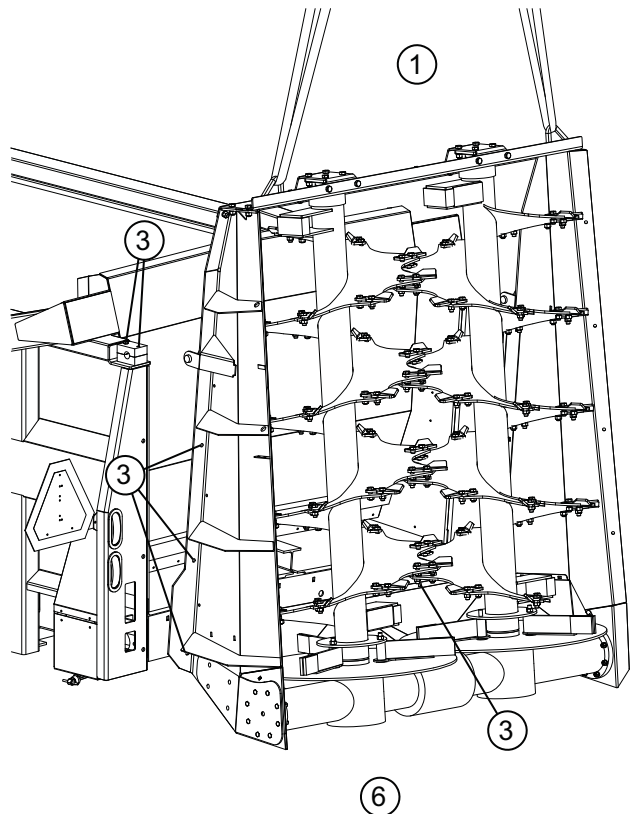
### 7.4 Vertical beater removal



Always perform the safety shutdown procedure before servicing, repairing, cleaning, or removing beater assembly.

Use a lifting device that can support the weight of the beater assembly. Make sure the chains or lifting straps are secure and can support the weight of the beater assembly when it is being removed and transported to storage. **STAND CLEAR WHEN BEATER IS BEING MOVED.**

1. Support beater assembly with a lifting strap or chains around lift loops, left and right sides.
2. Disconnect the u-joint from beater gearbox input shaft.
3. Remove beater panel attaching hardware:
  - (2) bolts each side on 2044, (3) bolts each side on 2054.
  - Loosen, but do not remove, 2 bolts each side on top.
  - (6) bolts on spinner pan.
4. Swing bottom of beater assembly away from unit far enough to completely disengage u-joint from gearbox. Block beater assembly away from unit by placing suitable wood block between beater assembly and rear of spreader.
5. Remove top hardware previously loosened and caps.
6. Remove beater assembly by slowly lifting until shafts are clear of saddles.
7. Replace mounting hardware on beater assembly and spreader for storage.
8. Remove PTO from unit and store with beaters.
9. Clean all decals on the back of machine.



To prevent the spreader drive system from turning with the beater assembly removed, always remove the beater driveline from the spreader and store with the beater assembly.

#### ■ Beater installation

Installation is opposite of removal. Beaters may need to be rotated to help engage drive.



Check gearbox lubricant level and grease all bearings.

## 7.5 Rear slop pan

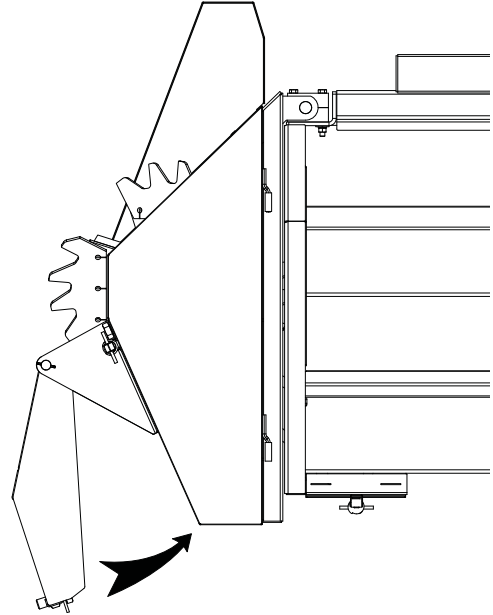
### **For use with horizontal beaters only:**

The rear slop pan is designed to catch loose material that may fall from the beater area while the machine is in transit.

To empty the pan, pull the release cable at the front of the unit, swinging the pan down. The pan must be manually moved to the raised, or locked, position. This can be accomplished by raising the bottom of the pan rearward and upward and releasing it. If the pan does not swing up into the raised position, raise the pan higher rearward and retry.



*A rope can be attached to the cable to allow activation from the tractor.*



**Always shut off beaters, spreader, tractor and disconnect power source before manually resetting the slop pan in the locked position. Personal contact with moving beaters can cause serious injury or death.**

Take care to avoid getting struck by the swinging pan, either when being released from the raised position or when being returned to the raised position.

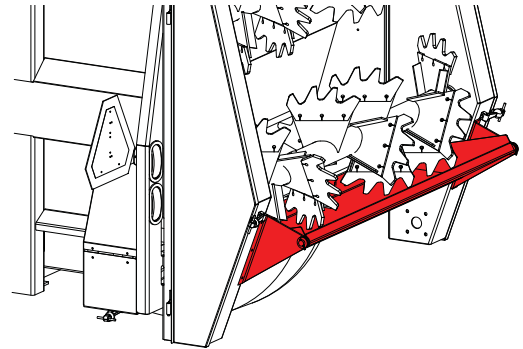
## 8. Optional equipment

### 8.1 Rear slop pan

**Kit no. 18964816 - 2044 horizontal only**

**Kit no. 18964812 - 2054 horizontal only**

The rear slop pan is designed to catch loose material that may fall from the beater area while the machine is in transit.

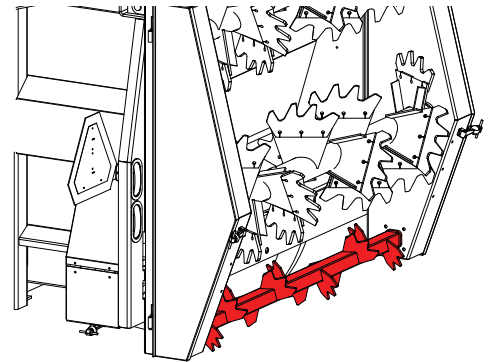


### 8.2 Lower spinner beater

**Kit no. 18964760 - 2044 horizontal only**

**Kit no. 18964797 - 2054 horizontal only**

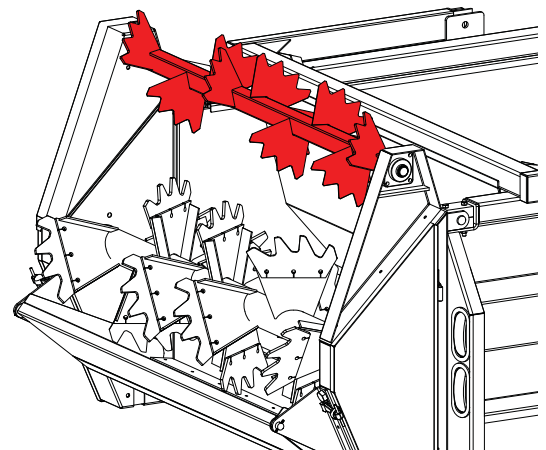
The lower spinner beater assures that material missed by the lower beater is broken up and spread evenly. This option is normally factory installed but can be easily installed in the field.



### 8.3 Upper beater - 2044 horizontal only

**Kit no. 18964761**

The upper beater helps maintain a consistent spread pattern when the load is heaped.

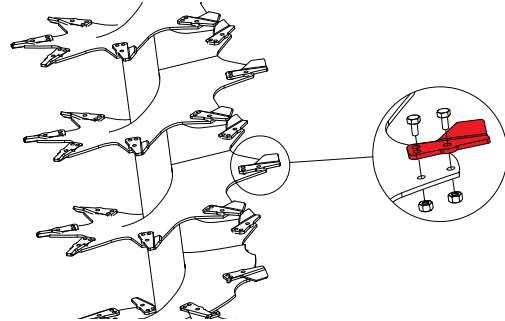


### 8.4 Hardened tips

**Kit no. 18967743**

Units with vertical beaters have the option of hardened steel beater tips for better durability and use with more abrasive materials.

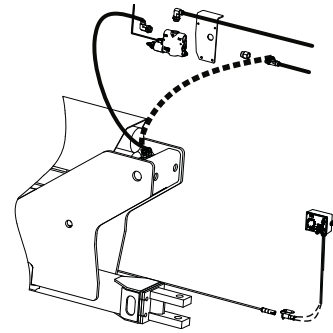
Vertical beater tooth bolt torque should be 135 ft lbs dry. Vertical beater tooth bolts should be checked after the first few loads and re-torqued if necessary. Torque should be checked on a monthly basis.



### 8.5 Electric flow control

**Kit no. 18964811**

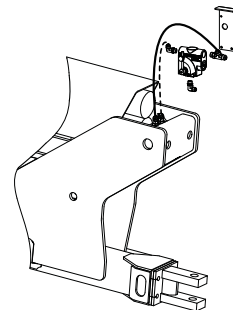
The electric flow control allows control of the pusher speed from the tractor. This is used when the tractor does not have flow controls built in.



### 8.6 Manual flow control

**Kit no. 18964810**

The manual flow control that is mounted on the unit allows control of the pusher speed. This is used when the tractor does not have flow controls built in.

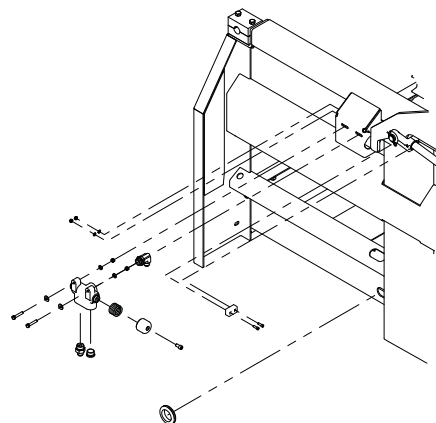


### 8.7 Sequence valve

**Kit no. 18967444 - 2044 Only**

**Kit no. 18967446 - 2054 Only**

The sequence valve package affects the operation of the endgate and pusher. When the sequence valve is installed, the endgate must be completely raised before the pusher will begin operating. Without the sequence valve, the operator must follow this sequence manually.

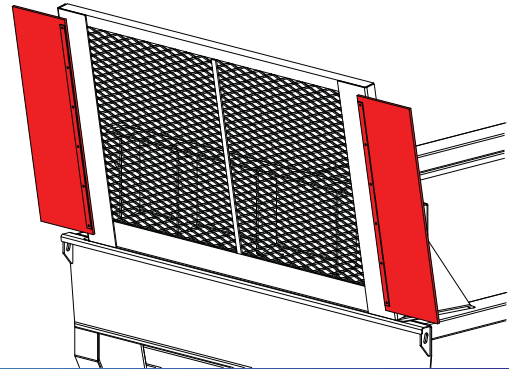


## 8.8 Thrown object shield extensions

**Kit no. 18967455**

For use with vertical beaters only -

The stone guard side extensions can be added to the sides of the front stone guard to offer further protection to the tractor against thrown debris from the spreader's beater panel.



## 8.9 Hitches

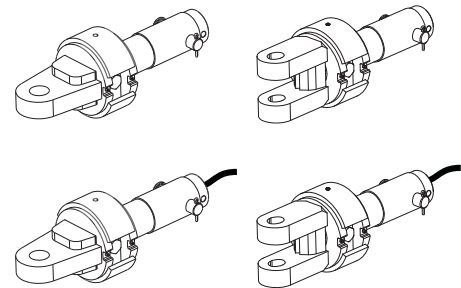
**Kit no. 18968676**

**Kit no. 18968677**

**Kit no. 18969983**

**Kit no. 18969984**

There are 4 hitches available for this series of spreaders. The clevis and spade hitches are available with or without scales.



## 8.10 Safety chain

**Kit no. 18964073 - 2044 Only**

**Kit no. 18964953 - 2054 Only**

The safety chain is intended to keep the machine under control in the event of a loss or failure of the hitch pin. A safety chain must be used when transporting the machine on public roadways.



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## 9. Inspections and adjustments

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### 9.1 General inspection information

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Always refer to the safety instructions before operating or servicing the machine.

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#### ■ **Inspect safety shielding:**

Be sure all shielding is in place and functioning properly. Replace all damaged or missing shielding immediately.

#### ■ **Inspect safety decals:**

If any safety decals are removed, obstructed, or otherwise illegible, they should be replaced immediately. Keep all decals clean.

#### ■ **Tighten bolts and nuts:**

Check that all nuts and bolts are sufficiently tightened.

#### ■ **Inspect tires and lug nuts:**

Keep tires inflated to proper pressure as indicated in the spreader setup section. Keep lug nuts properly torqued. Check lug nuts after the first few loads and retorque if necessary.

#### ■ **Pusher wipers:**

Check pusher wipers for wear. If wipers are worn or bent back, adjust so they touch the side walls and floor to clean the surfaces as material is unloaded.

#### ■ **Slop pan cable:**

Check slop pan cable for wear. If cable is worn, replace cable and crimped sleeves. (Horizontal beaters)

■ **Endgate swinging debris guard:**

Check the endgate swinging debris guard for mobility. The rubber curtain of deflectors installed on the inside of the endgate should hang vertically when the endgate is in the raised position. Free the deflectors if they become trapped.

■ **Inspect roller chains:**

Check for wear, proper alignment, and tension. Adjust or replace if necessary. When reassembling, the roller chain connector links must have the legs of the cotter pins or the legs of the retaining clip trailing the direction of chain travel.

■ **Inspect and adjust roller chain tighteners:**

Apply sufficient tension to keep roller chains running smoothly. The chain will form grooves in the tightener blocks. These grooves help to keep the chains in proper alignment. The blocks should not be turned unless the roller portion of the chain has worn into the block.

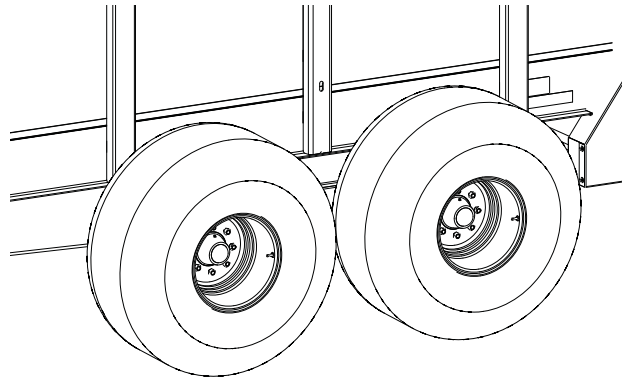


**If welding is required on this unit, do not allow the electrical current to flow through the bearings. Ground the welder directly to the part being welded.**

### 9.1.1 Wheels and tires

#### Wheel nut torque:

- 8 bolt hub with 5/8" grade 5 hex lug nut, torque to 170 ft lbs (23 daNm).
- 10 bolt hub with 3/4" grade 5 hex lug nut, torque to 300 ft lbs (41 daNm).



*Wheel lug nuts should be checked after the first few loads and re-torqued if necessary. Torque should be checked on a monthly basis.*

#### Inflation pressure:

| Tire size      | Maximum pressure  |
|----------------|-------------------|
| 21.5 X 16.1    | 36 PSI (2.48 bar) |
| 16.5 X 16.1    | 36 PSI (2.48 bar) |
| 275-80R X 22.5 | 80 PSI (5.52 bar) |
| 385-65R X 22.5 | 80 PSI (5.52 bar) |
| 425-65R X 22.5 | 80 PSI (5.52 bar) |
| 600-55 X 22.5  | 39 PSI (2.69 bar) |



**Damage to rim may occur if lug nuts are not kept tight.**

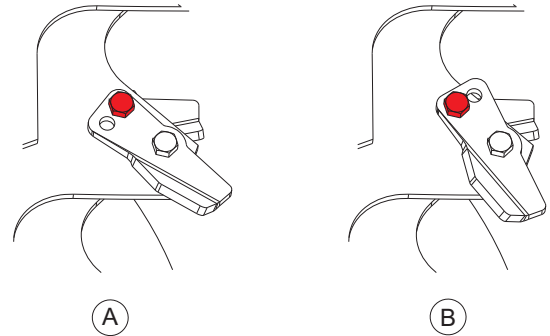
### 9.1.2 Beater inspection

**Check horizontal beater teeth for wear.** If beater teeth are worn, they can be turned over to use the other side. If both sides are worn, the beater teeth must be replaced.

**Check vertical beater teeth for wear.** Beaters are balanced and all teeth must remain in place. Position all teeth in either the forward position (A) or in the laid back position (B) to affect the spread pattern. Do not mix the two positions and do not remove any of the teeth. Replace worn, damaged, or missing teeth immediately.

Vertical beater tooth bolt torque should be 135 ft lbs (18 daNm) dry. Vertical beater tooth bolts should be checked after the first few loads and re-torqued if necessary. Torque should be checked on a monthly basis.

**Check vertical beater paddles for mobility.** The three paddles at the base of each vertical beater should swing freely. Clear any material that may prevent the paddles from moving. Replace bolts and bushings as necessary.



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## 10. Maintenance and storage

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### 10.1 Lubrication

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Always perform the safety shutdown procedure before servicing, repairing, or cleaning the machine.



It is important that the lubricating guide be carefully followed to avoid damage to the unit.

Use a good quality multipurpose grease for lubricating bearings. Replace all damaged or missing zerks immediately. Always clean zerks before using grease gun. Once a month check lines and connections on grease banks for leaks.



*Pump the grease in slowly until a slight bead forms around the bearing seals.*

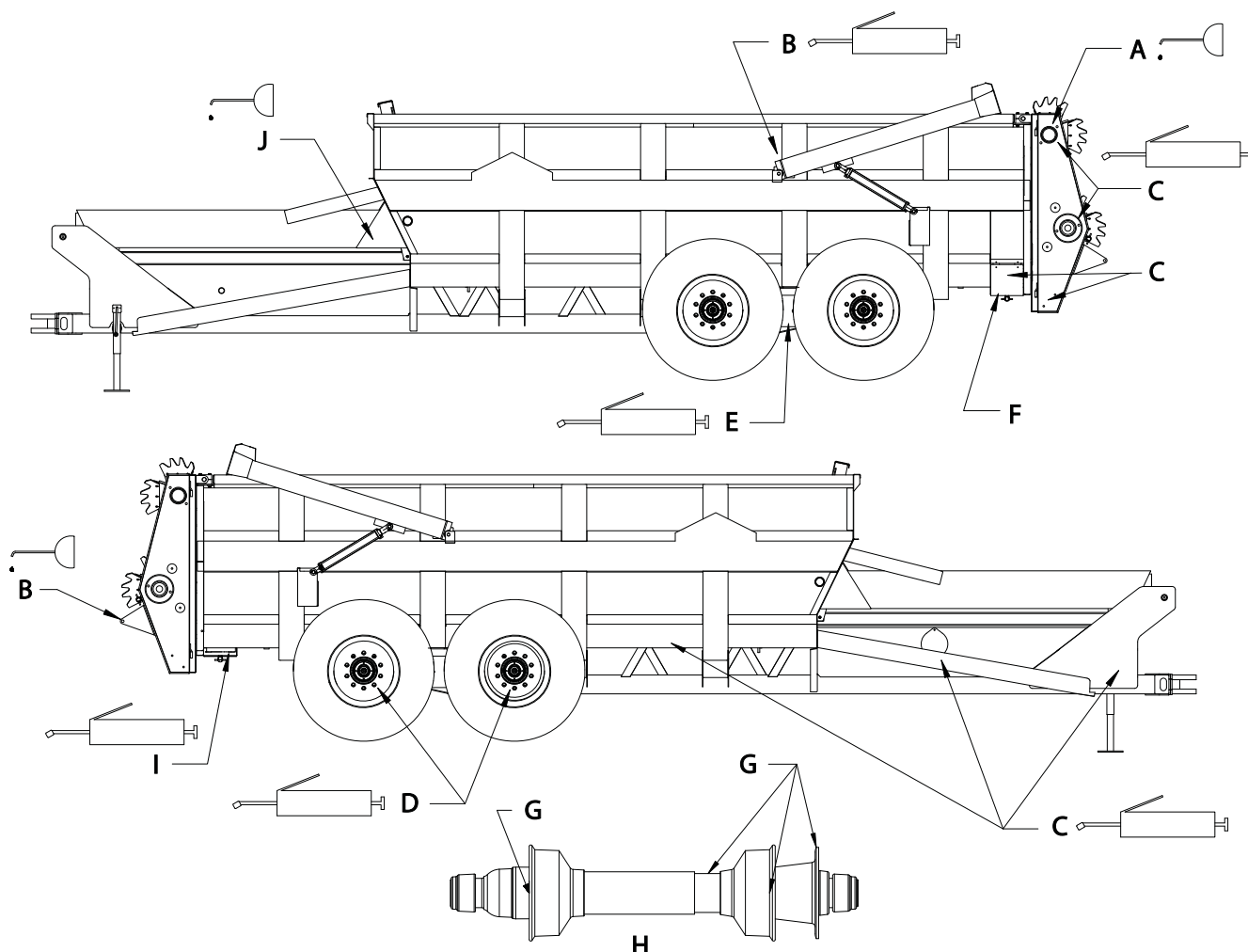
#### **Roller chains**

Roller chains should be lubricated with engine oil or a spray-on chain lubricant. Operate under a no-load condition after lubrication. This will allow the roller chains to be thoroughly lubricated and thus minimize heat-up during operation.

#### **Vertical beater gearbox**

When filling the beater gearbox with oil, it may take up to 30 minutes for the oil to pass through and around internal bearings and to level itself inside the gearbox. Add oil through the fill hole then wait for it to recede. Repeat this step until the oil in the sight glass is at the proper level.

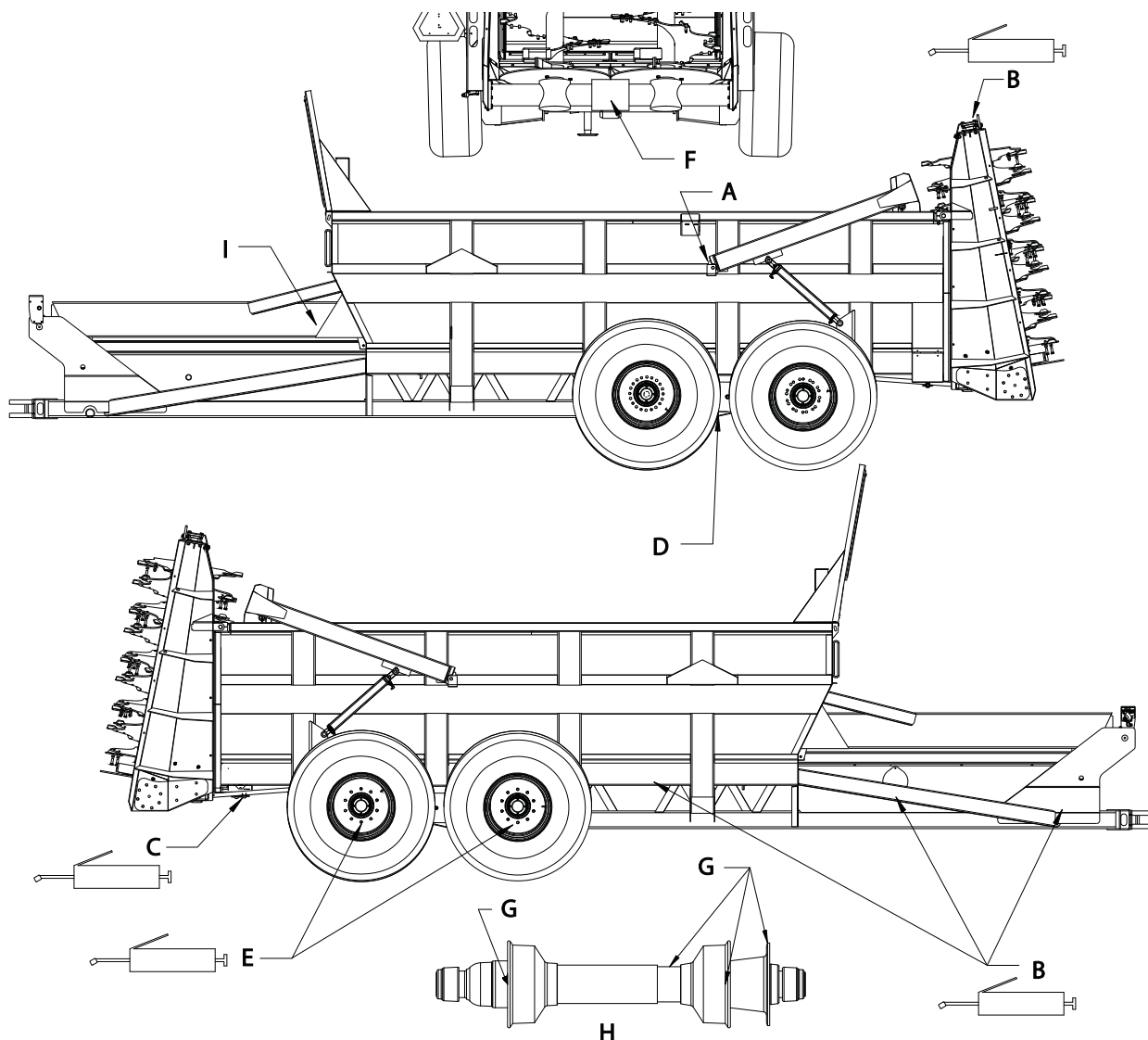
### ■ Lubrication - Horizontal beaters



(Shields removed for illustration purposes only)

|   |                                                                       |                                              |
|---|-----------------------------------------------------------------------|----------------------------------------------|
| A | Oil chain every 8 hours                                               | Roller chains                                |
| B | Lubricate every 8 hours                                               | Endgate and slop pan pivots                  |
| C | Lubricate every 8 hours                                               | Bearings                                     |
| D | Lubricate every 8 hours, Repack yearly                                | Wheel bearings                               |
| E | Lubricate every 20 hours                                              | Bogie pivot                                  |
| F | Check level every 40 hours<br>Change annually using EP80W90 gear lube | Beater gearcase, 1 qt                        |
| G | Lubricate every 8 hours                                               | PTO implement driveline/<br>Joints and slide |
| H | Lubricate every 3 months                                              | PTO implement driveline shield               |
| I | Lubricate every 8 hours                                               | Overrunning clutch/Slop pan lock             |
| J | Oil before storing unit for an extended period of time                | Pusher I-beam rail and guides                |

### ■ Lubrication - Vertical beaters



(Shields removed for illustration purposes only)

|   |                                                                       |                                             |
|---|-----------------------------------------------------------------------|---------------------------------------------|
| A | Lubricate every 8 hours                                               | Endgate pivots                              |
| B | Lubricate every 8 hours                                               | Flange bearings                             |
| C | Lubricate every 8 hours                                               | Overrunning clutch                          |
| D | Lubricate every 20 hours                                              | Bogie pivot                                 |
| E | Lubricate every 8 hours, Repack yearly                                | Wheel bearings                              |
| F | Check level every 40 hours<br>Change annually using EP80W90 gear lube | Beater gearcase, 17 qt                      |
| G | Lubricate every 8 hours                                               | PTO implement driveline<br>Joints and slide |
| H | Lubricate every 3 months                                              | PTO implement driveline shield              |
| I | Oil before storing unit for an extended period of time                | Pusher I-beam rail and guides               |



## 11. Limited Warranty

### LIMITED WARRANTY FOR KUHN NORTH AMERICA AGRICULTURAL EQUIPMENT

The limited warranty described below is provided by Kuhn North America, Inc. ("KUHN") to the original retail purchaser ("Purchaser") of new Agricultural Equipment manufactured by KUHN and purchased from authorized KUHN dealers ("Equipment").

**LIMITED WARRANTY:** KUHN warrants that Equipment will be free from defect in material or workmanship under normal use and service during the warranty period. KUHN's sole obligation under this limited warranty, and Purchaser's exclusive remedy, is to repair or replace, at KUHN's election, without charge and at the place of business of a dealer authorized to handle KUHN Equipment, any Equipment or portion of the Equipment which KUHN determines to be defective.

**LIMITED WARRANTY PERIOD:** For the Equipment, the warranty period is twelve (12) months beginning on the date of delivery by an authorized KUHN dealer to Purchaser.

**REPLACEMENT SERVICE PARTS:** Replacement service parts are subject to the following special warranty terms (but are otherwise subject to all limitations, exclusions and restrictions in this limited warranty):

| Service Part                                                                                                                                                                                                                                     | Special Warranty Terms                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Replacement Service Parts                                                                                                                                                                                                                        | 90 days from date of sale or balance of Equipment warranty period if longer <sup>1</sup> |
| Rake / Tedder rotor gearboxes<br>GMD / FC replacement cutterbars                                                                                                                                                                                 | 12 months from date of sale <sup>1</sup>                                                 |
| <sup>1</sup> For all service parts sold after the applicable Equipment warranty period, KUHN will not reimburse Purchaser for expenses incurred in repairing or replacing defective service parts including, without limitation, labor expenses. |                                                                                          |

**EXTENDED WARRANTY CONDITIONS:** In addition to the limited warranty period, the following extended warranty terms are offered on certain components (but are otherwise subject to all limitations, exclusions and restrictions in this limited warranty):

| Equipment                                                                                                                                                                                                                      | Extended Warranty Terms of Equipment Components                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Scales (when purchased as part of original unit)                                                                                                                                                                               | Balance of scale manufacturer's warranty (36 mo. from date of scale manufacturer's date of manufacture)                                                                         |
| ProSpread (excluding PSC,PXL models <sup>1</sup> ) and EasySpread Box Spreaders                                                                                                                                                | 10 years – Side and front panel rust-through and floor breakage <sup>2</sup>                                                                                                    |
| ProPush Spreaders                                                                                                                                                                                                              | 10 years – Side and floor panel breakage <sup>2</sup>                                                                                                                           |
| ProTwin Slinger Spreaders                                                                                                                                                                                                      | 7 years – tank rust-through <sup>2</sup>                                                                                                                                        |
| Vertical Maxx Mixer                                                                                                                                                                                                            | Planetary gear box <sup>2</sup> , two-speed splitter gear box <sup>2</sup> , and CVT gearbox <sup>2</sup> 1st year 100%, 2nd year 75%, 3rd year 50%, 4th year 25%, 5th year 10% |
| 1. ProSpread Commercial Spreaders (PSC, PXL) have only the standard 12-month limited warranty on side and front panel rust-through and floor breakage.<br>2. Parts only after the conclusion of the 12-month limited warranty. |                                                                                                                                                                                 |

**PURCHASER'S RESPONSIBILITY:** It is Purchaser's responsibility to perform the recommended maintenance at the intervals outlined in KUHN's Equipment's Operator's Manual (the "Operator's Manual"). Purchaser will be responsible for any service call and/or transportation of Equipment to and from an authorized dealer's place of business. Prior to using or permitting use of the Equipment, Purchaser shall determine the suitability of the Equipment for the intended use, and Purchaser assumes all risk and liability whatsoever in connection therewith.

**SECURING WARRANTY SERVICE:** To secure warranty service, Purchaser must (1) report the Equipment defect to an authorized KUHN dealer and request warranty service within the applicable warranty period; (2) present evidence of the warranty start date with valid proof of purchase; and (3) make the Equipment available to the authorized KUHN dealer within a reasonable time for repair.

**SOLE WARRANTY/LIMITATIONS OF LIABILITY:** THIS LIMITED WARRANTY IS KUHN'S SOLE WARRANTY FOR THE EQUIPMENT AND IS MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. KUHN DISCLAIMS AND EXCLUDES ALL OTHER EXPRESS WARRANTIES, AND DISCLAIMS AND EXCLUDES ALL WARRANTIES IMPLIED BY LAW INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY, NONINFRINGEMENT AND FITNESS FOR PARTICULAR PURPOSE. KUHN SHALL NOT BE LIABLE FOR ANY OTHER OBLIGATIONS OR LIABILITIES. KUHN SHALL NOT BE LIABLE FOR INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES. IN NO EVENT SHALL KUHN'S LIABILITY EXCEED THE PURCHASE PRICE PAID BY PURCHASER FOR THE EQUIPMENT. NO PERSON IS AUTHORIZED TO MAKE ANY WARRANTY OR ASSUME FOR KUHN ANY LIABILITY NOT STRICTLY IN ACCORDANCE WITH THIS LIMITED WARRANTY. THE REMEDY DESCRIBED IN THIS LIMITED WARRANTY IS PURCHASER'S EXCLUSIVE REMEDY AND IS IN LIEU OF ANY OTHER REMEDY OTHERWISE AVAILABLE AT LAW OR BY CONTRACT.



**WHAT IS NOT WARRANTED OR COVERED:** This limited warranty does not apply to, and KUHN offers NO WARRANTY and is not responsible for: (1) component parts not manufactured by KUHN including, but not limited to, wheels, tires, tubes, PTO shafts, clutches or hydraulic cylinders; (2) any Equipment or Equipment part which, in the judgment of KUHN, has been altered or tampered with in any way, has been subjected to misuse, abuse, abnormal use, neglect, accident, environmental or natural elements, improper storage, has been used for an application not designed for or pre-authorized by KUHN in writing, has had the serial numbers altered, effaced or removed, or has been scrapped, junked or totaled; (3) depreciation or normal wear and tear; (4) lack of reasonable and proper maintenance and failure to follow the Operator's Manual's recommendations and instructions; (5) normal maintenance parts (including, but not limited to, shear pins, friction clutches, hammers, lubricants, belts, blades, knives, tines, shares and filters) and maintenance servicing (including, but not limited to, maintenance checks, adjustments, shimming); (6) rental of replacement equipment during warranty repairs, damage to a power unit (including, but not limited to, a tractor or truck), loss of earnings due to Equipment down time, or damage to Equipment while in transit to or from a KUHN facility or authorized KUHN dealer; (7) defects due in part or in whole from specifications, instructions, designs or drawings provided by or for Purchaser; (8) any expenses incurred by Purchasers in repairing or replacing defective parts on their own or through parties not authorized by KUHN, except for those incurred with KUHN's prior written permission.

**WARRANTY PERIOD FOR CERTAIN USES/OTHER MANUFACTURERS' WARRANTIES:** (1) All warranty periods identified herein, including any twelve (12) month warranty, are reduced by one half (1/2) of the duration if Equipment is used in a non-agricultural commercial use or used as a rental unit. (2) KUHN will pass on any third-party manufacturer's warranties to Purchaser if reasonably practicable, but KUHN does not guarantee a third-party manufacturer will comply with the terms of its warranty.

**EQUIPMENT CHANGES AND IMPROVEMENTS:** KUHN is continually striving to improve its products, and therefore reserves the right to make improvements or changes without incurring any obligations to make improvements or changes to the Equipment previously manufactured or sold.

**GENERAL PROVISIONS:** (1) Any assistance KUHN provides to or procures for Purchaser outside the terms, limitations or exclusions of this warranty will not constitute a waiver of such terms, limitations or exclusions, or extend or revive the warranty. (2) Any action by Purchaser for breach of this limited warranty must be commenced within one year after the breach occurs. (3) Any oral or written description of the Equipment is for the purpose of identifying Equipment and shall not be construed as an express or implied warranty. (4) Whenever possible, each provision of this limited warranty shall be interpreted in such manner as to be effective and valid under applicable law, but if any portion is deemed invalid or unenforceable, the remaining portions shall still be enforceable.





[www.kuhn.com](http://www.kuhn.com)

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**KUHN KRAUSE, INC. - PO. Box 2707 - Hutchinson, KS 67504 (USA)**

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**KUHN MONTANA SÃO JOSÉ DOS PINHAIS - PR - 83025-410 (BRASIL)**