



Owner's Manual

Hay Accumulator



Table of Contents

1. Initial Setup.....	2
Accumulator Setup	2
Hooking Up the Baler.....	4
Baler Configuration	5
Chamber Settings	5
Older New Holland® Balers	5
Newer New Holland® Balers.....	5
John Deere® Balers	5
Inline Balers.....	5
2. 1036F Swing Arms.....	6
3. The Basics of the Accumulator.....	7
The “A-Frame”.....	7
The Accumulator Bed	8
The Linkage System	8
4. Detailed View Of The Linkage System.....	10
5. Maintenance	13
6. Troubleshooting	13
Cornering	13
Back Gate.....	13
Hillsides	13
Trip Box Linkage	14
High Moisture Hay	14
7. Safety.....	14
Lighting and Marking.....	14
Tire Safety	14
Before Operation.....	14
During Operation	15
Following Operation	16

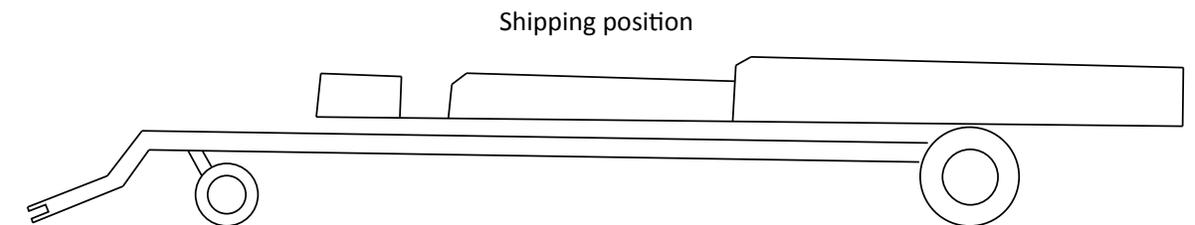
1. Initial Setup

Please read the manual carefully to become familiar with your new Kuhns Hay Accumulator. This manual has been developed through our experience with the Accumulator and feedback from our customers. Ultimately it is our desire that you will be operating your Accumulator as a seasoned professional in no time!

Accumulator Setup

The accumulator ships in the folded position as shown (figure A-1)

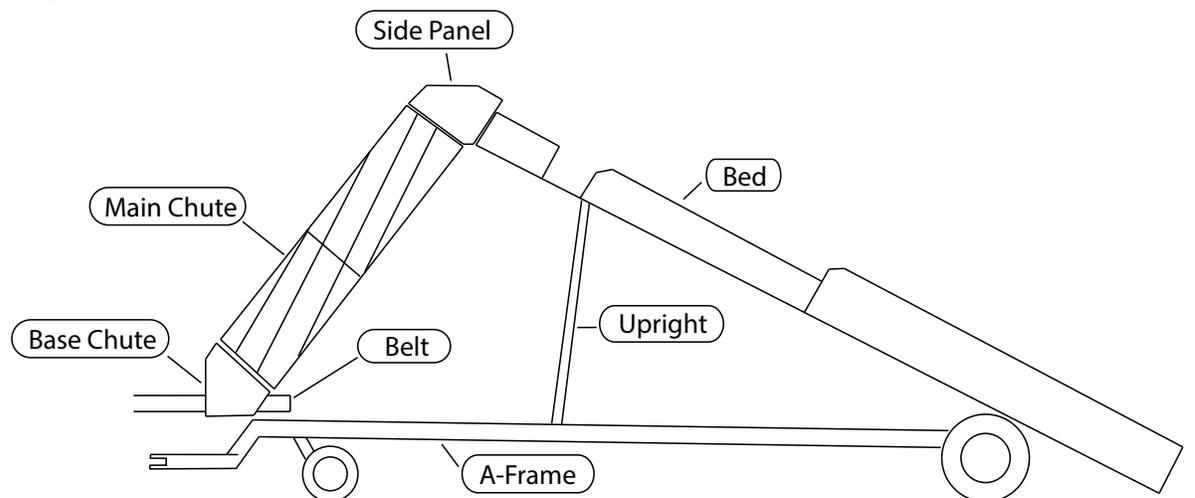
A-1



DANGER! Be sure to use extreme caution! This step is very dangerous!

1. Raise the front of the accumulator bed to install the two uprights.

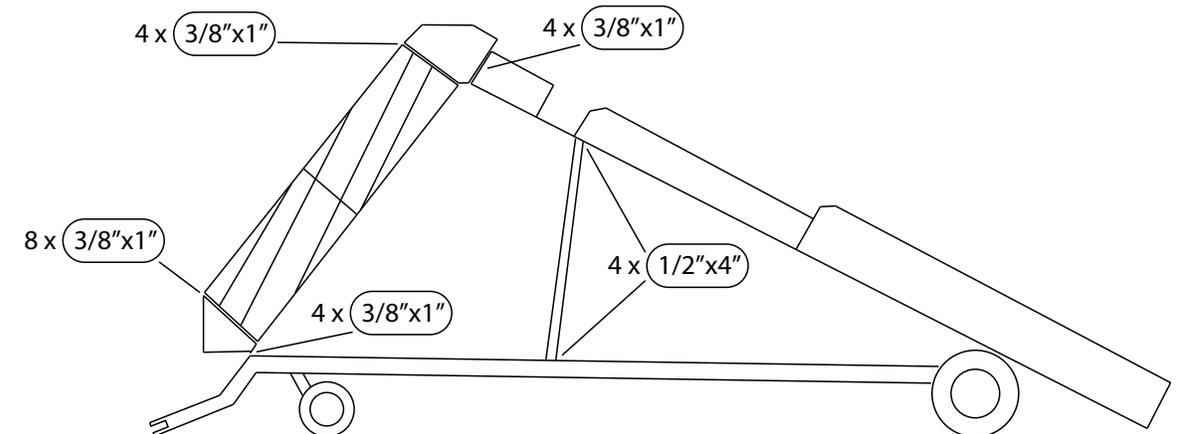
A-2



2. Bolt the two Uprights into position with the provided 1/2" x 4" bolts and tighten the four upright bolts (figure A-3).

3. The Base Chute has four holes underneath it that line up with the holes in the right angle piece welded on the front of the A-Frame. Loosely secure the Base Chute with four 3/8" x 1" bolts. Use the provided grade 8 (yellow) bolts from the bag labeled "Base Chute Hardware Kit." Leave these bolts **loose** until the rest of the pieces are in place.

A-3



4. Lift the Main Chute into position. The bent ears on the end of the Main Chute rest on the front of the Accumulator Bed. Loosely secure it to the Base Chute with only a few 3/8" x 1" bolts. **Wait** to tighten the bolts until Step 6.
5. Secure the top of the Main Chute to the Accumulator Bed with the two Side Panels. The **smooth** side of the Side Panel goes on the inside. Loosely secure the Side Panels to the Main Chute and the Bed using four 3/8" x 1" bolts for each panel. **Wait** to tighten the bolts until Step 6.
6. Install and tighten the rest of the bolts of the Main Chute and Side Panels and tighten the four bolts that secure the Base Chute to the A-frame.
7. Double check for any loose bolts you may have missed in the assembly process.

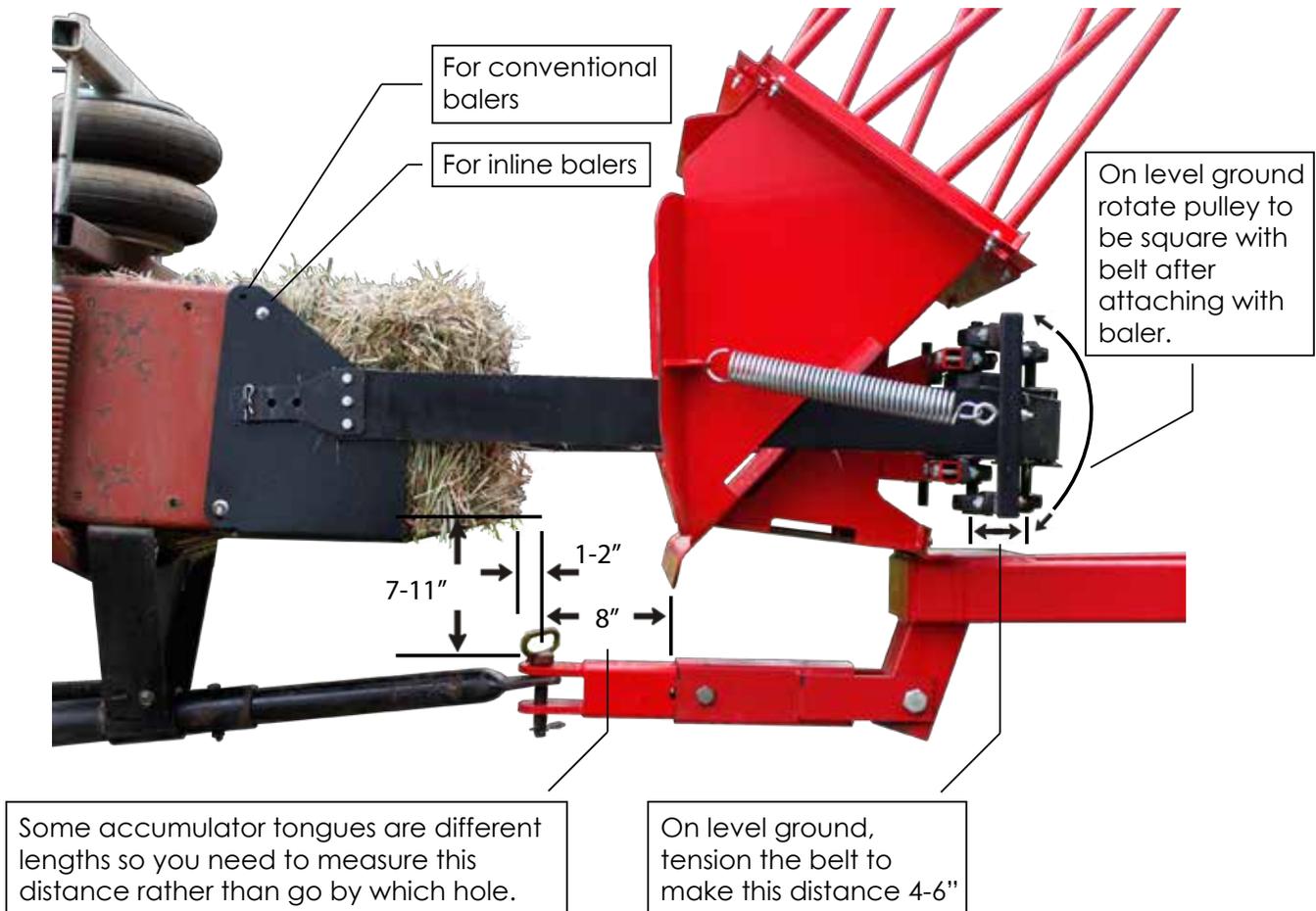
Accumulator assembly is complete.

TIP: To quickly and effectively "break in" the accumulator, it will work best if you apply silicone or cooking spray to the surface of the bed to make the bales slide easier. After a couple dozen bales have been through the Accumulator, the powder coated finish should be buffed enough to slide without spray.

Hooking Up the Baler

Proper baler hitch set up is essential to successful cornering with the accumulator.

1. Remove all chutes/mechanisms from the back end of the bale chamber.
2. Bolt the Chamber Extension onto the baler and set the length of the wagon hitch on the baler. The hitch pin needs to be centered below the chamber and 1"-2" past the tip of the Chamber Extension and 7"-11" below it (shown below). The baler front hitch affects the rear hitch height, so that may need to be adjusted.
3. If you are installing an upgraded Belted Base Chute, bolt the Base Chute into place. It should be a direct replacement for the one you have.
4. Set the length of the accumulator tongue to put the hitch pin 8" in front of the front edge of the Base Chute.
5. Finally, on level ground, fasten the belt plates to the pins on the side of the chute extension with enough tension on the belt to draw the center of the tensioner pulley to roughly 4-6" behind the centers of the other pulleys.
6. Ensure that the Belt Tension Assembly is square with the belt by adjusting the angle of the Belt Tension Assembly at its mounting point on the Base Chute.



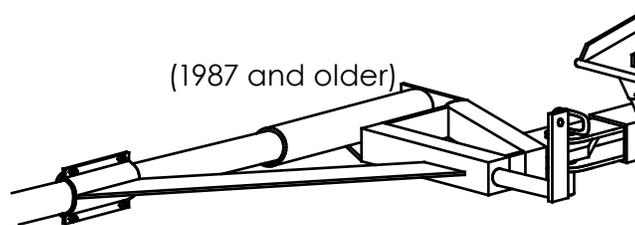
Baler Chamber Settings

This is dependent on your requirements for the size of bale that you want to make. First loosen the bale chamber nearly all the way to compensate for the backpressure caused by the chute. You can then **adjust** the chamber pressure to reach desired bale size.

You may need to remove all the wedges from the chamber.

Older New Holland® Balers

Older New Holland balers have the hitch on the right hand side of the chamber. Kuhns Mfg offers a center hitch adaptor to center the hitch.



Newer New Holland® Balers

Newer NH balers have a hitch centered underneath the chamber. The hitch may need to be modified to match the specifications.

The NH Hayliner models typically have a lower bale chamber than the other NH balers. If the baler hitch on the tractor end cannot be lowered, Kuhns Mfg does have a special chute extension for Hayliner balers.

John Deere® Balers (1988 and newer)

The hitch on the JD baler may need to be modified to match specifications. John Deere® balers typically have a very low chamber. If the baler hitch at tractor end of the baler is too high, it will lower the back end of the baler farther. This can cause a problem with too sharp a rise as the bale exits the baler and starts up the accumulator chute. If the baler hitch on the tractor end cannot be lowered, Kuhns Mfg does have a special chute extension for John Deere® balers.

Inline Balers

Inline balers should need very little to get working.

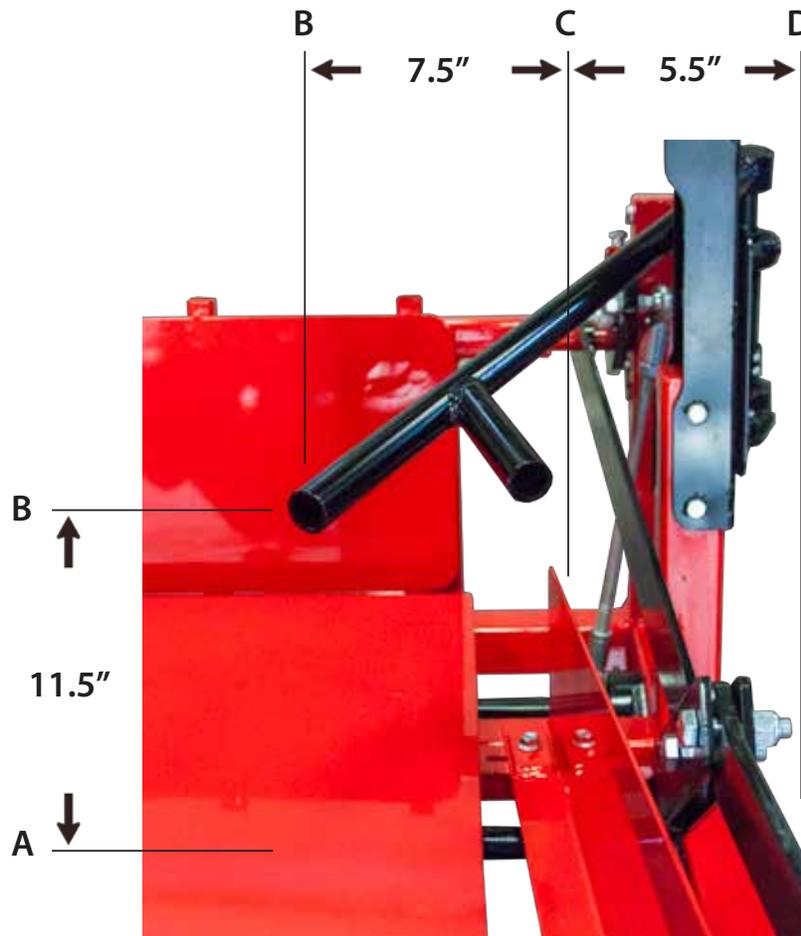
2. 1036F Swing Arms

The tie row on the 1036F makes it a unique model. With the tie row come some added parts that sometimes need adjustment.

The very end of the accumulator sides at the rear of the 1036F should be 5.5" from the outside of the 2x2 accumulator frame to the outside panel.

The tip of the main tube on the swing arm should be 7.5" on center from the adjusted outside panel. It should also be 11.5" on center off of the surface of the accumulator bed.

A	Accumulator Deck
B	Center of the Main Tube End
C	Outside Panel
D	Outside of the 2x2 Accumulator Frame



3. THE BASICS OF THE ACCUMULATOR

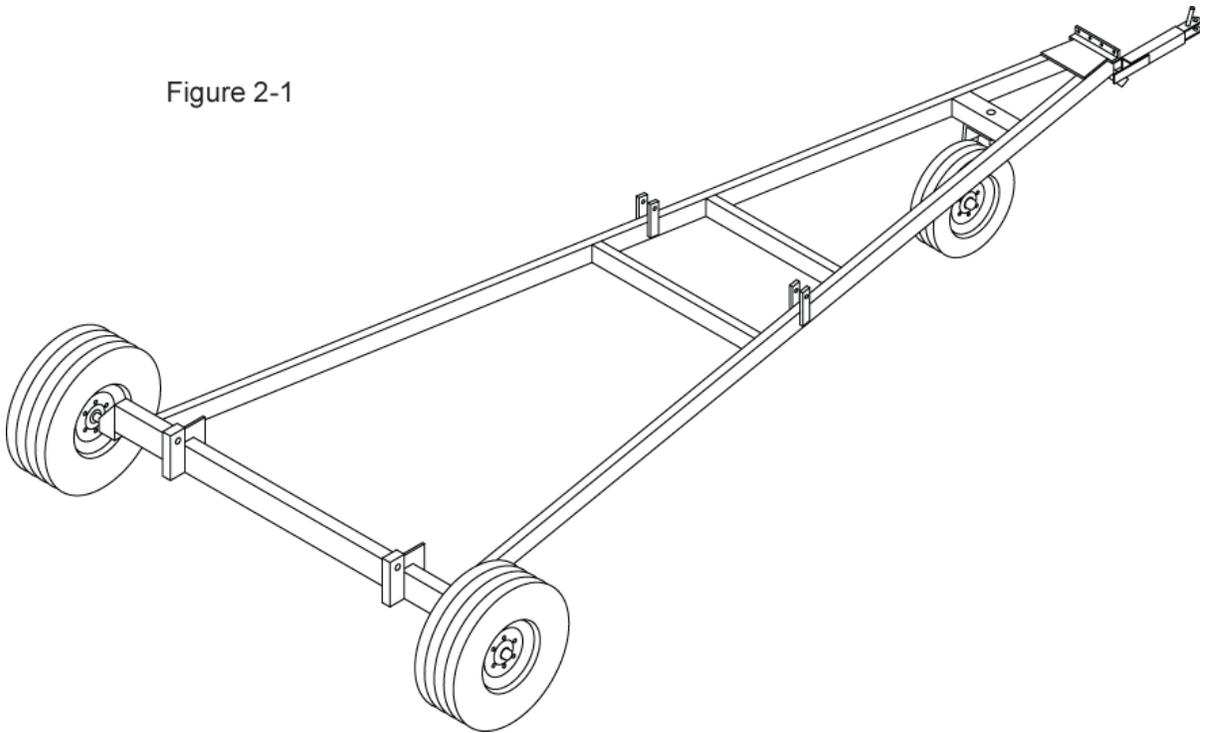
The Kuhns Hay Accumulator's design can be broken down into three basic elements: (1) the A-Frame (2) the Accumulator Bed and (3) the Linkage System. In the following figures, we are using the 15 bale accumulator as an example.

Your model may vary from what is shown but the basic concept is the same.

The A-Frame

The Accumulator's frame is the basic structure that supports the overall unit and includes the heavy-duty A-Frame, three wheels and wheel assemblies, the support posts, and the hitch (see Figure 2-1).

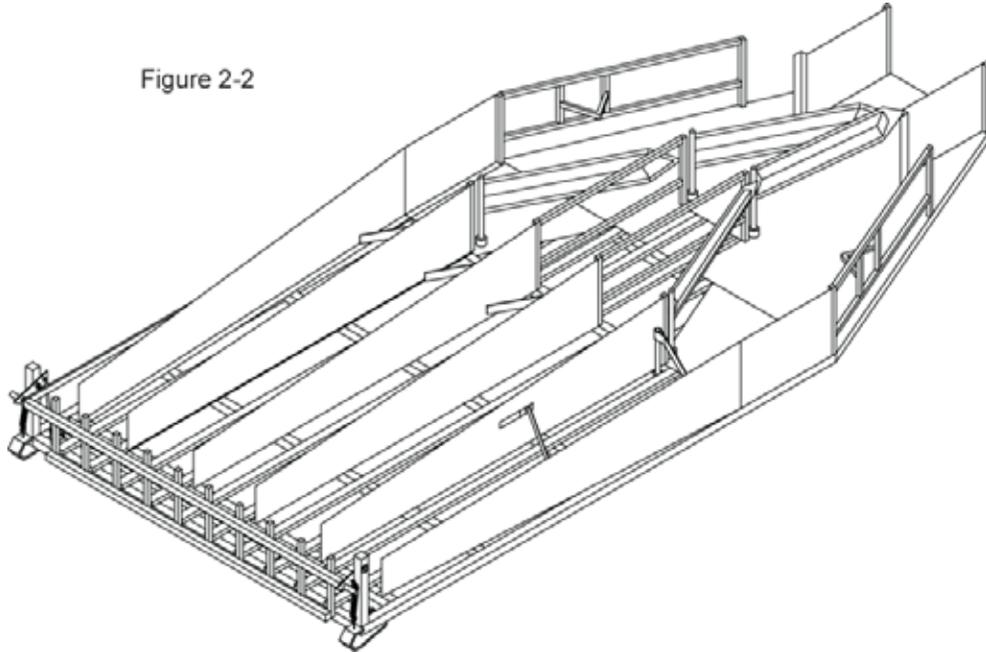
Figure 2-1



The Accumulator Bed

The Accumulator Bed rests on the A-Frame and is secured at the rear of the A-Frame with two heavy duty hinges (see Figure 2-2). Shipped in the resting position, the Bed is lifted upward and fastened for operation and left there.

Figure 2-2



The Linkage System

The Linkage System directs the bales through the Accumulator Bed (see Figure 2-3). The system shown consists of four gates, five paddles, a trip box, an end gate with counter balance, and a network of springs and cables.

Figure 2-3

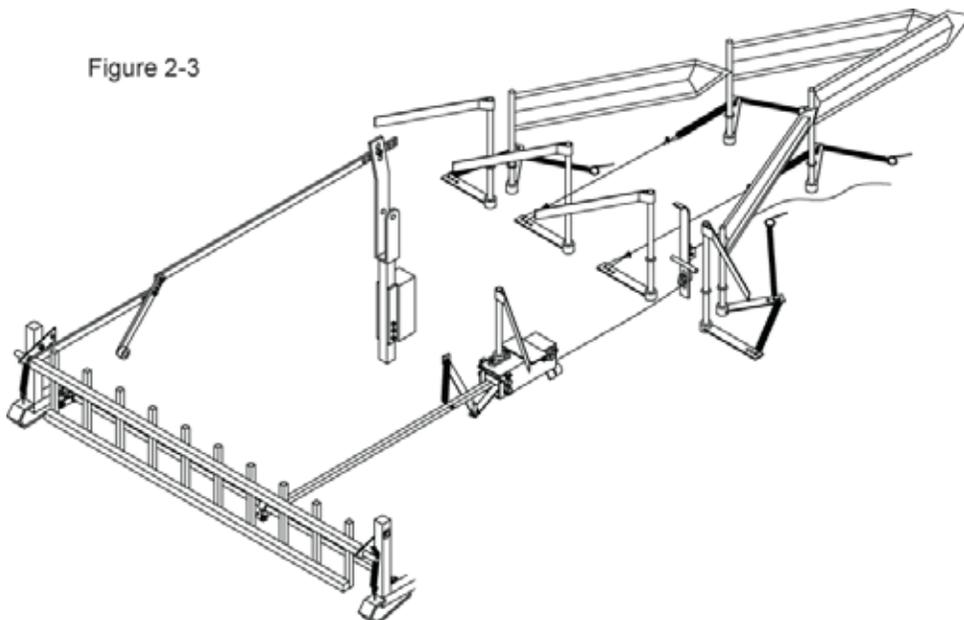
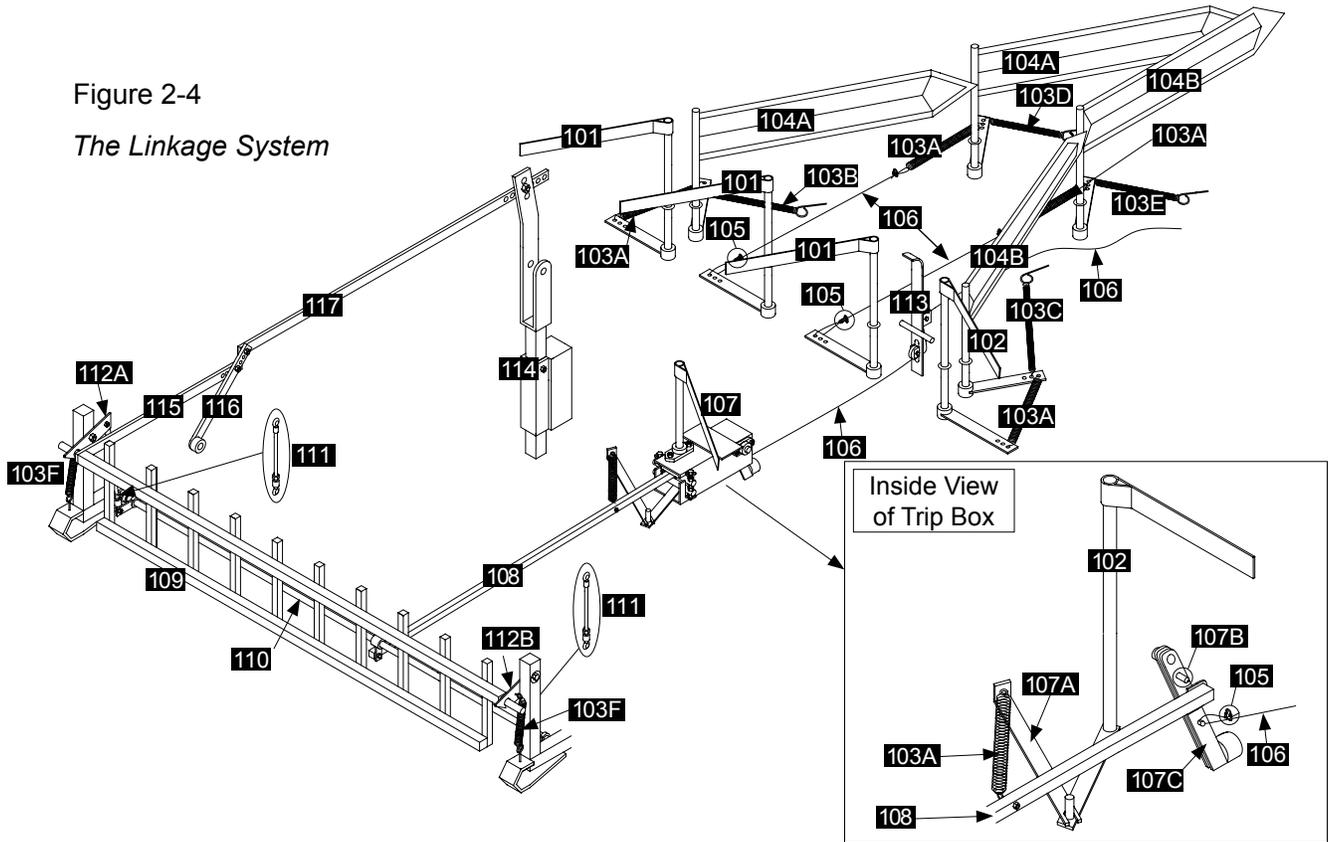
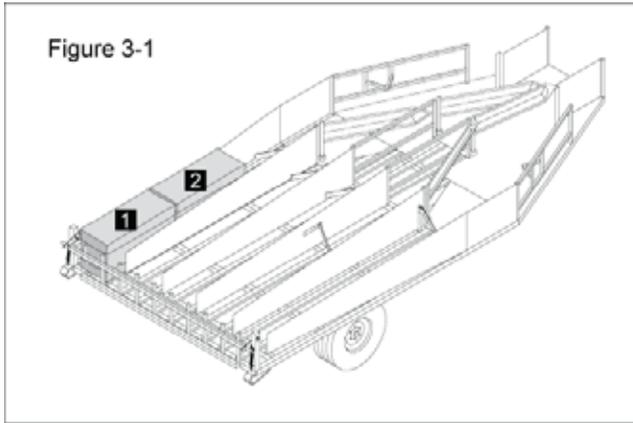


Figure 2-4
The Linkage System

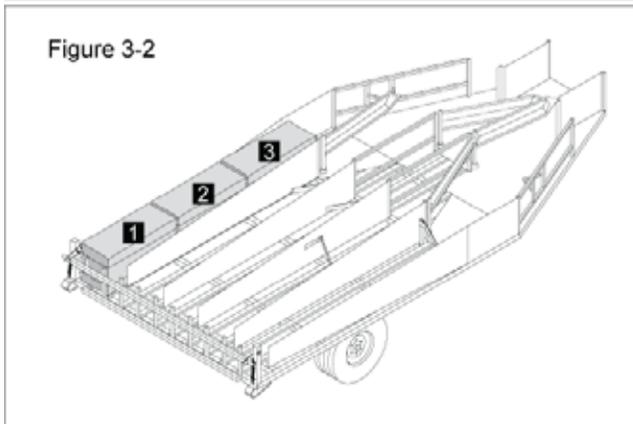


101	Bale Paddle left	107B	Release Actuator
102	Bale Paddle right	107C	Trip Box Counterweight
103A	Spring (Action Spring)	108	Trip Box Extension Rod
103B	Spring (Return Spring)	109	Rear Gate
103C	Spring (Return Spring)	110	Rear Gate Actuator Rod
103D	Spring (Return Spring)	111	Rear Gate Latch Rod w/ End Bearings
103E	Spring (Return Spring)	112A	Rear Gate Latch (left)
103F	Spring (Rear Gate)	112B	Rear Gate Latch (right)
104A	Gate (left)	113	Rear Gate Paddle
104B	Gate (right)	114	Counterweight
105	Cable clamp	115	CW Extension Rod #1
106	Cable	116	CW Extension Rod #2
107	Trip Box	117	CW Extension Rod #3
107A	Trip Box Extension Arm		

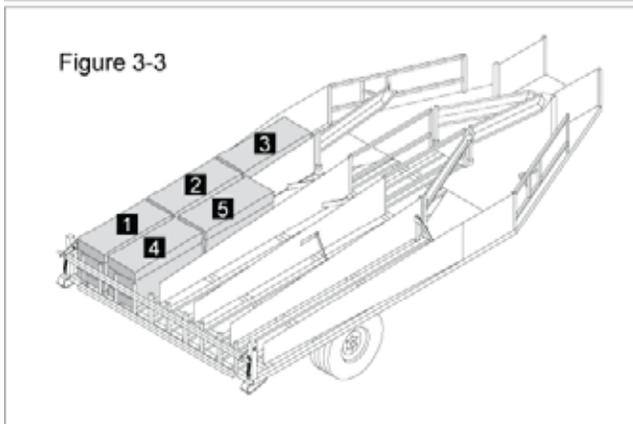
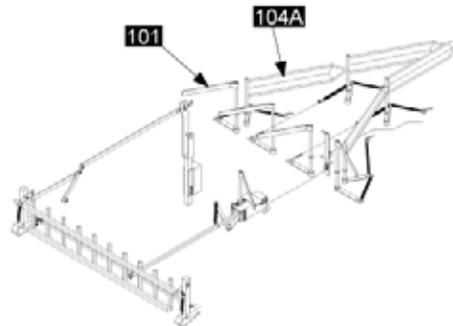
4. Detailed View Of The Linkage System



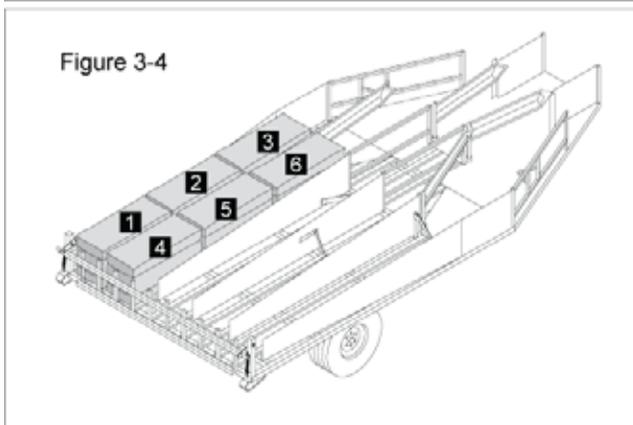
Bales #1 and #2 enter the Accumulator and slide downward and into position as illustrated in Figure 3-1.



As bale #3 slides into position, it rests on Paddle #1 in place and shifts Gate #1



Bales #4 and #5 enter the Accumulator and slide downward and into position as illustrated in Figure 3-3.



Bale #6 then slides into position, resting on Paddle #2 in place and shifting Gate #2 to open the center row (Figure 3-4).

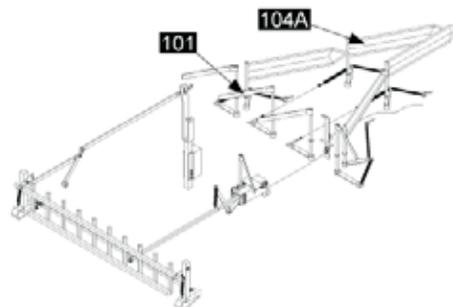
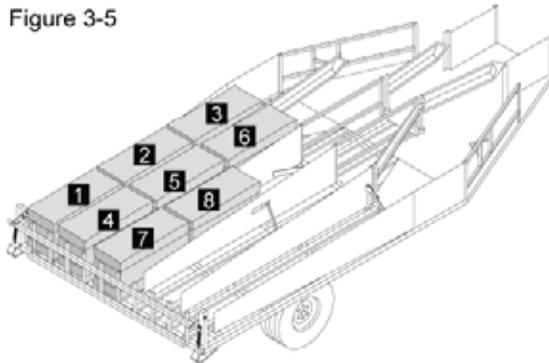
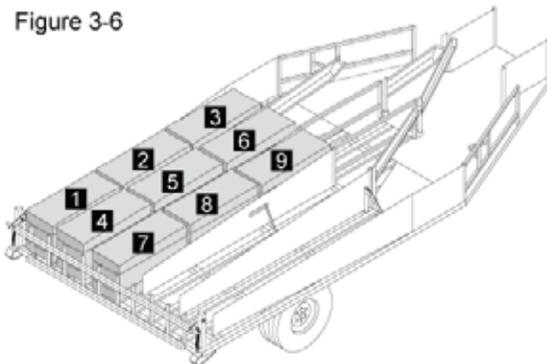


Figure 3-5



With Gate #2 open to the center row, bales #7 and #8 enter the Accumulator and slide downward as illustrated in Figure 3-5.

Figure 3-6



Bale #9 then slides into position, resting on Paddle #3 and shifting Gate #3 to close the center row (Figure 3-6).

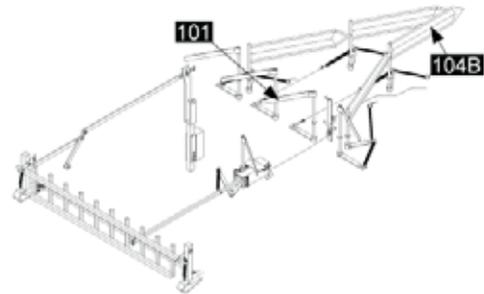
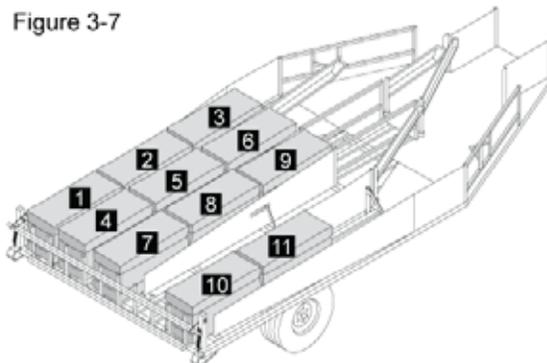
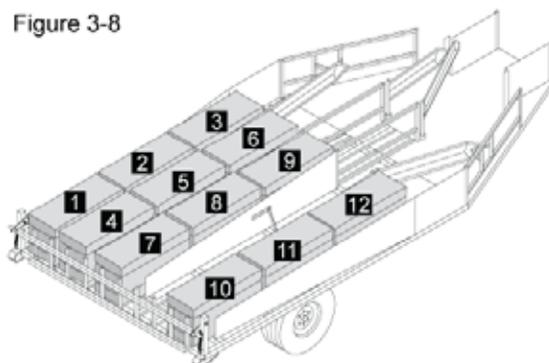


Figure 3-7

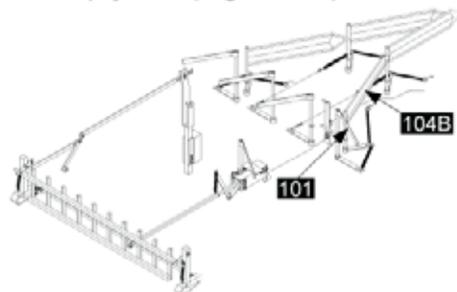


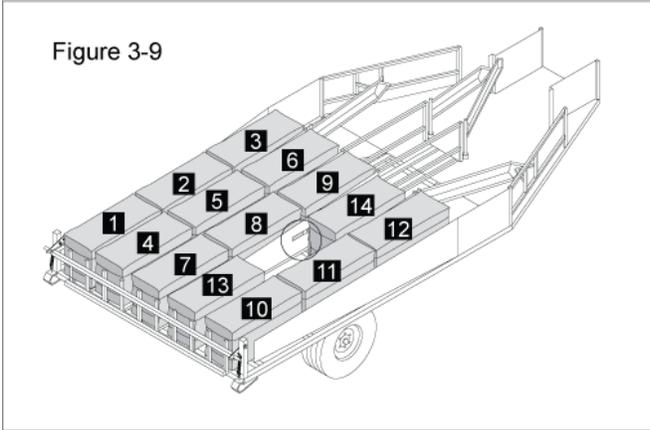
With Gate #3 open, bales #10 and #11 enter the Accumulator and slide downward and into position as illustrated in Figure 3-7.

Figure 3-8

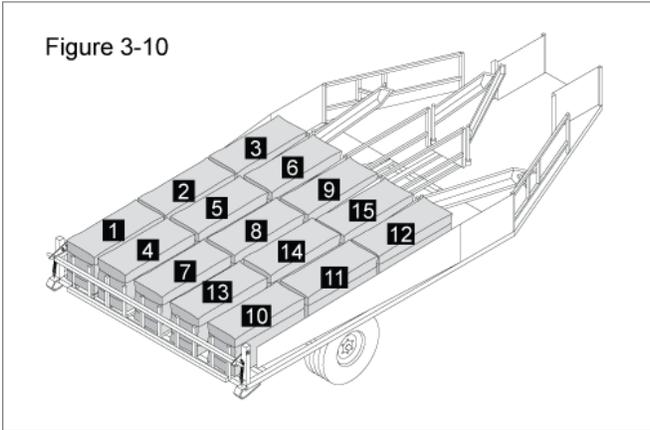
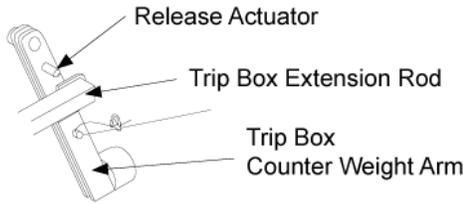


Bale #12 then slides downward to rest on Paddle #4, thereby shifting Gate #4 to open the last empty row (Figure 3-8).

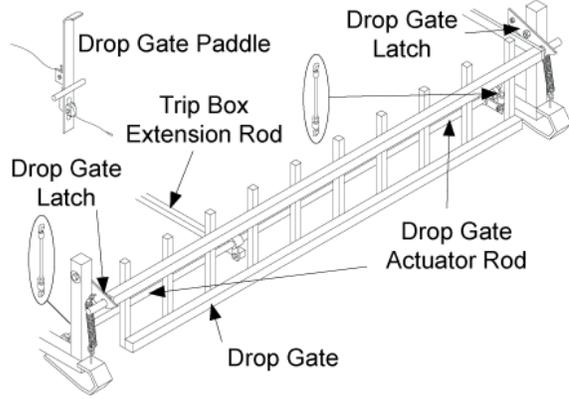




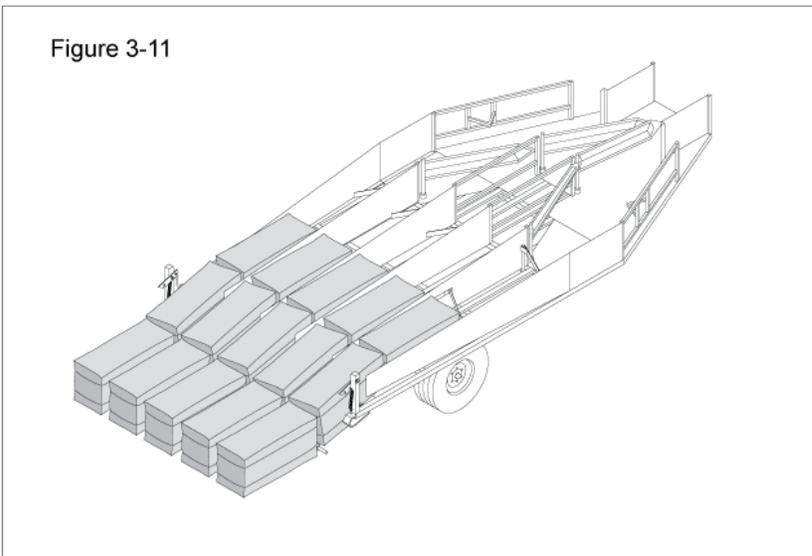
Bale #13 then slides into position followed by bale #14 (Figure 3-9). Note that as it slides into position, bale #14 rotates the Trip Box Paddle, thereby forcing the Trigger Box Extension Rod to press the Release Actuator inward.



With bale #14 in place and the Release Actuator depressed, the movement of bale #15 across the Drop Gate Paddle will force the Trip Box Extension Rod towards the Drop Gate, rotating the Drop Gate Actuator Rod clockwise (Figure 3-10). This movement then lifts both Drop Gate Latches upward, thereby releasing the Drop Gate.



Once the Drop Gate is released, bales begin to “drop” (Figure 3-11). Then, the Counter Weight pulls the Drop Gate back into its original position (and is again locked in place by the Drop Gate Latches). Likewise, all gates and paddles are in their original positions.



5. Maintenance

Good maintenance is your responsibility. Poor maintenance shortens equipment life and is an invitation for problems.

Bearings should be greased at least once a year.

Sleeves should be greased weekly.

Before working on this machine, stop the towing vehicle, set the brakes, disengage the PTO and all power drives, shut off the engine, and remove the ignition keys.

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

Never replace hex bolts with less than grade five bolts.

Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not claim responsibility for use of unapproved parts and/or accessories and other damages as a result of their use.

If equipment has been altered in any way from original design, the manufacturer does not accept any liability for injury or warranty.

6. Troubleshooting

Cornering

The first thing to do is to check your hitch configuration. If it is not according to our recommendations, you can expect difficulty. Once you have ensured that everything is properly configured and you are still experiencing trouble, contact Kuhns Mfg for additional help.

Back Gate

If the back gate does not close fast enough, move the counterweight down on the arm to give it more leverage. If too fast, move it up on the arm to make it close slower.

Hillsides

The Kuhns Accumulator works well on steep hillsides. If the gates are swinging out and catching bales when in the home position, the return springs need to be a little stronger. If the return springs are too strong, the gate can swing the other way when a row is full. If you still have problems, call Kuhns Mfg for service.

Trip Box Linkage

Changing one thing on the trip box linkage has an effect on all of the rest of the linkage so do one thing at a time. Slight changes can be made in the trip box to line up the release actuator and the trip box extension rod. If one of the clamps on the drop gate actuator rod moves or is changed, it needs to be returned to its original position as there is not enough adjustment in the trip box to correct it. When everything is lined up, the trip box counterweight arm needs to be back within 3/8" of the stop. The cable on the back gate paddle should be the last thing to be changed. When the back gate paddle is fully deflected, the back gate latches should clear by inch.

High Moisture Hay

If you are baling hay with a moisture content of 20% or over, you may need to cover the bed floor with low friction plastic to help the bales to slide.

7. Safety

Lighting and Marking

Please comply with all local laws on safety lighting and marking.

Tire Safety

Inflating or servicing tires can be dangerous. Whenever possible, trained personnel should be called to service and/or mount tires.

Before Operation

Carefully study and understand this manual.

Make sure that the tires are inflated properly.

Keep lug nuts tightened

Give the accumulator a visual inspection for any loose bolts, worn parts or cracked welds, and make necessary repairs.

Do not use the accumulator until you are sure that the area is clear, especially of children and animals.

Use a high strength, appropriately sized hitch pin with a mechanical retainer and attach a safety chain.

Do not allow anyone to stand between the tongue of the accumulator and the baler when backing up to the accumulator.

During Operation



Do not carry passengers anywhere on, or in, the tractor or equipment, except as required for operation.

SAFETY CHAIN – If the accumulator is going to be transported on a public highway a safety chain should be obtained and installed. Always follow state and local regulations regarding a safety chain and auxiliary lighting when towing farm equipment on a public highway. Be sure to check with local law enforcement agencies for your own particular regulations. Only a safety chain (not an elastic or nylon/plastic tow strap) should be used to retain the connection between the baler and the accumulator in the event of separation of the primary attaching system.

Install the safety chains by crossing the chains under the tongue and secure to the hitch.

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.

Keep hands and clothing clear of moving parts.

Do not clean, lubricate or adjust your equipment while it is moving.

When halting operation, even periodically, set the tractor or towing vehicle brakes, disengage the PTO, shut off the engine and remove the ignition key.

Be especially observant of the operating area and terrain – watch for holes, rocks or other hidden hazards. Always inspect the area prior to operation.

DO NOT operate near the edge of drop offs or banks

DO NOT operate on steep slopes as overturn may result

Operate **up and down** (not across) intermediate slopes. Avoid sudden starts and stops.

Pick the most level route when transporting across fields. Avoid the edges of ditches or gullies and steep hillsides.

Be extra careful when working on inclines.

Periodically clear the accumulator from loose hay to prevent buildup of dry combustible materials.

Maneuver the tractor or towing vehicle at safe speeds.

(continued)

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.

Do not walk or work under raised components or attachments unless securely positioned and blocked.

Keep all bystanders, pets and livestock clear of the work area.

Operate the towing vehicle from the operators 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 hardware on equipment following every 100 hours of operation.

Correct all problems. Follow the maintenance safety procedures.

Following Operation

Following operation, or when unhitching, stop the tractor or towing vehicle, set the brakes, disengage the PTO and all power drives, shut off the engine and remove the ignition keys.

Store the unit in an area away from human activity.

Do not park the equipment where it will be exposed to livestock for long periods of time. Damage and livestock injury could result.

Do not permit children to play on or around the stored unit.

Make sure that all units are parked on a hard, level surface.

Wheel chocks may be needed to prevent unit from rolling.

Highway and Transport Operations

Adopt safe driving practices.

Never use independent braking with the 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 your speed is low enough for an emergency stop to be safe and secure.

Reduce speed prior to turns to avoid risk of overturning.

Avoid sudden uphill turns on steep slopes.

Always keep the 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.

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 under 20 mph 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 incoming traffic in all situations, including narrow bridges, intersections, etc.

Be observant of bridge load 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.



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