Operator's Manual

Model 1222HS & 822HS
High Speed Beet Defoliator

ART'S WAY

Art's Way Manufacturing

567565

Issued October 2025

This symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED. The message that follows the symbol contains important information about your safety. Carefully read the message. Make sure you fully understand the causes of possible injury or death.

IF THIS MACHINE IS USED BY AN EMPLOYEE, IS LOANED, OR IS RENTED, MAKE SURE THAT THE OPERATOR UNDERSTANDS THE TWO INSTRUCTIONS BELOW.

BEFORE THE OPERATOR STARTS THE ENGINE:

GIVE INSTRUCTIONS TO THE OPERATOR ON SAFE AND CORRECT USE OF THE MACHINE.
MAKE SURE THE OPERATOR READS AND UNDERSTANDS THE OPERATOR'S MANUAL FOR THIS MACHINE.

⚠ WARNING

IMPROPER OPERATION OF THIS MACHINE CAN CAUSE INJURY OR DEATH.

BEFORE STARTING THE ENGINE, DO THE FOLLOWING:

1. READ THE OPERATOR'S MANUAL.

2. READ ALL SAFETY DECALS ON THE MACHINE.

3. CLEAR THE AREA OF OTHER PERSONS.

4. LEARN AND PRACTICE SAFE USE OF MACHINE CONTROLS IN A SAFE AND CLEAR AREA BEFORE YOU OPERATE THIS MACHINE ON A JOB SITE.

It is your responsibility to observe pertinent laws and regulations and to follow manufacturer's instructions on machine operation and maintenance.

See your Authorized Art's Way Manufacturing dealer or Art's Way Manufacturing for additional operator's manuals, illustrated parts catalogs, and service manuals.

TO THE OWNER

Congratulations on the purchase of your new Art's Way High Speed Beet Defoliator. You have selected a top quality machine that is designed and built with pride to ensure you have many years of efficient and reliable service.

Many people have worked on the design, production, and delivery of this High Speed Beet Defoliator. The information in this manual is based on the knowledge, study, and experience through years of specializing in the manufacturing of farm machinery. This manual is designed to provide you with important information regarding safety, maintenance, and machine operation so you can and will get the best possible performance from your High Speed Beet Defoliator.

Even if you are an experienced operator of this or similar equipment, we ask that you read this manual before operating this High Speed Beet Defoliator. The way you operate, adjust, and maintain this unit will have much to do with its successful performance. Any further questions you may have about this product of Art's Way equipment should be directed to your local Art's Way dealer or to Art's Way Manufacturing Armstrong, Iowa, 50514, (712) 208-8467.

SPECIFICATIONS AND DESIGN ARE SUBJECT TO CHANGE WITHOUT NOTICE

Art's Way Manufacturing is continually making product improvements. In doing so, we reserve the right to make changes and/or add improvements to our products without obligation for the equipment previously sold.

Modifications to this High Speed Beet Defoliator may affect the performance, function, and safety of its operation. Therefore, no modifications are to be made without the written permission of Art's Way Manufacturing Any modification made without the written permission of Art's Way Manufacturing shall void the warranty of this product.

In the interest of continued safe operation of this High Speed Beet Defoliator, pay particular attention to the safety alert symbol(s) throughout this manual.

Art's Way Manufacturing STATEMENT OF PRODUCT LIABILITY

Art's Way Manufacturing recognizes its responsibility to provide customers with a safe and efficient product. Art's Way Manufacturing, attempts to design and manufacture its products in accordance with all accepted engineering practices effective at the date of design. This statement should not be interpreted to mean that our products will protect against the user's own carelessness or failure to follow common safety practices nor will Art's Way Manufacturing, be liable for any such act. In addition, Art's Way Manufacturing, assumes no liability for any altered product or any modified product by users or anyone other than an authorized dealer.

LIMITATIONS OF THIS MANUAL

This manual contains operating instructions for your 1222HS & 822HS High Speed Beet Defoliator only. Any mention of other machinery in this manual other than the 1222HS & 822HS High Speed Beet Defoliator is for reference only. This manual does not replace nor is it to be used for any machinery that may be attached to or used in conjunction with the 1222HS & 822HS High Speed Beet Defoliator.

PARTS & SERVICE

As the purchaser of your new defoliator, it is very important to consider the following factors:

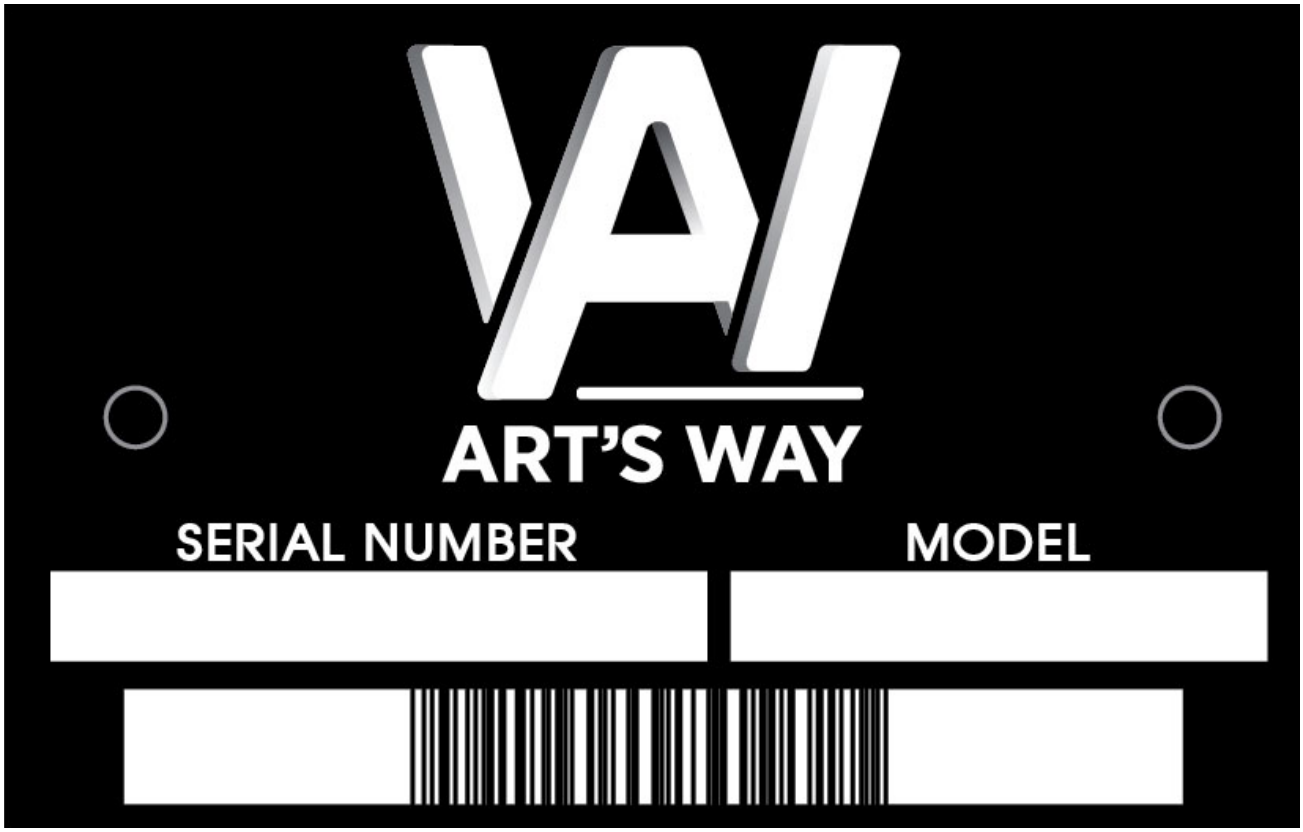
A. Original Quality

B. Availability of Service Parts

C. Availability of Adequate Service Facilities

Art's Way Manufacturing has an excellent dealership network ready to answer any questions you may have about your defoliator. Parts for your machine may be ordered through our dealers. When placing a parts order, please have the **model** and **serial number** ready. This will allow the dealer to fill your order as quickly as possible.

For your convenience, we have provided this space for you to record your model number, serial number, and the date of purchase, as well as your dealer's name and address.



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Warranty

For full warranty information please visit https://artsway.com/resources/warranty/ for the most up-to-date warranty policy and information on filing a claim.

To be eligible for warranty, each new product must be registered with Art's Way Mfg. within 30 days of delivery to the original purchaser.

Warranty claims must be submitted no later than 30 days from the date that the defect or improper workmanship was, or should have been, diagnosed/repaired. If defective date is less than 30 days away from end of warranty period, proof must be submitted with date of work completed.

SAFETY FIRST

SAFETY INSTRUCTIONS

"A careful operator is the best insurance against an accident." Quote from the National Safety Council.

Most accidents can be prevented if the operator:

1. Fully understands how the machine functions.
2. Can anticipate situations which may produce problems.
3. Can make necessary corrections before problems develop.

THIS SYMBOL MEANS ATTENTION!

BECOME ALERT!

YOUR SAFETY IS INVOLVED!

- Universal Safety Alert Symbol

The American Society of Agricultural Engineers has adopted the Universal Safety Alert Symbol as a way to identify areas of potential danger if the equipment is not operated correctly. Please be alert whenever you see this symbol in the manuals or on your defoliator.

Art's Way Manufacturing strives to make our equipment as safe as possible. The Art's Way 1222HS & 822HS High Speed Beet Defoliator conforms to applicable safety standards at the time of manufacturing. A safety conscious equipment operator makes an effective accident-prevention program complete.

Safety features and instructions for the defoliator are detailed in the Safety Guidelines section of this Operator's Manual. It is the responsibility of the owner to ensure that all operators read and understand the manual before they are allowed to operate the Beet Defoliator. (Occupational Safety and Health Administration (OSHA) regulations 1928.57).

NOTICES OF DANGER, WARNING, AND CAUTION

Signal Words: Note the use of signal words **DANGER**, **WARNING**, and **CAUTION** on the defoliator and in this manual. The appropriate signal word for each has been selected using the following guidelines:

⚠ DANGER

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

⚠ WARNING

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

⚠ CAUTION

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

NOTICE

NOTICE is used to address practices not related to physical injury.

SAFETY INSTRUCTIONS

Safety instructions (or equivalent) signs indicate specific safety-related instructions or procedures.

Note: Contains additional information important to a procedure and will be found within the regular text body of this manual.

SAFETY INSTRUCTIONS

GENERAL

Most work related accidents are caused by failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing potentially hazardous situations before an accident occurs. As you operate and maintain the Beet Defoliator you must be alert to potential hazards. You should also have the necessary training, skills, and tools to perform any assembly procedure.

Improper operation and/or maintenance of this unit could cause a dangerous situation that results in injury or death.

Do not use this unit until you read and understand the information contained in this manual. Do not use this equipment for anything other than its intended purpose.

Safety precautions and warnings are provided in this manual and on the unit. If these hazard warnings are not heeded, bodily injury or death could occur to you or to other persons.

Art's Way Manufacturing cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this manual and on the product are, therefore, not all-inclusive. If a method of operation not specifically recommended by us is used, you must satisfy yourself that it is safe for you and for others. You should also ensure that the unit will not be damaged or be made unsafe by the methods that you choose.

The information, specifications, and illustrations in this manual are based on the information that was available at the time this material was written and can change at any time.

Safety Alert Symbols

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

This manual contains DANGERS, WARNINGS, CAUTIONS, NOTICES, SAFETY INSTRUCTIONS, and NOTES which must be followed to prevent the possibility of improper service, damage to the equipment, personal injury, or death. The following key words call the readers attention to potential hazards.

Hazards are identified by the "Safety Alert Symbol" and followed by a signal word such as "DANGER", "WARNING", or "CAUTION".

SAFETY INSTRUCTIONS

Remember:
"The Best Operator is a Safe Operator"

⚠ CAUTION

Read and understand the operator's manual and all the safety decals before operating the defoliator. Review all safety instructions with all operators annually.

BEFORE OPERATING

SAFETY INSTRUCTIONS

Do not wear loose fitting clothing as it may catch in moving parts.

Make sure all guards and shields are installed, including the tractor power take-off (PTO) master shield, before starting or operating the defoliator.

Be sure that the correct implement driveline parts are used and that they are properly secured.

Lower the lifter wheels when the defoliator is not in use.

Install safety chain when attaching the defoliator to the tractor.

Clear the area of bystanders, especially children, when making repairs, adjustments, or performing maintenance on the defoliator.

Do not allow riders.

Put all tractor and machine controls in “neutral” and disengage the PTO before starting. Follow the starting instructions according to the OEM tractor manual.

Operate the defoliator only while seated on the tractor seat.

Make sure the unit is adequately supported with safety blocks or safety stands when changing tires or performing maintenance.

DURING OPERATION

⚠ CAUTION

Entanglement Hazard
Keep hands, feet, hair, and clothing away from moving parts. Wait for all movement to stop before approaching equipment.
Before making adjustments:

1. **Shut off the tractor,**
2. **Set parking brake,**
3. **Put machine in neutral, and**
4. **Remove key while making adjustments.**

Keep all shields and guards in place and in good working condition.

Keep all bystanders, especially children, away from the defoliator while in operation.

Do not allow riders while the defoliator is in operation.

Do not attempt to unclog, clean, or adjust the defoliator while it is running.

Stay away from overhead power lines. Electrocution can occur even without direct contact.

Keep all hydraulic lines, fittings, and couplers tight and free of leaks. (Refer to Safety Guidelines – Hydraulic Safety).

Use caution when ascending or descending on the defoliator. Wet shoes or boots are slippery.

MAINTENANCE SAFETY

SAFETY INSTRUCTIONS

Follow all operating, maintenance, and safety instructions found in this Manual.

Before servicing, adjusting, repairing, or unclogging the machine, always make sure the tractor engine is stopped, key in your pocket, the machine is lowered to the ground, all controls are placed in neutral, the parking brake is set, and all the moving parts have stopped.

Use sufficient tools, jacks, and hoists that have the capacity for the job.

Use support blocks or safety stands when changing tires or performing maintenance.

Follow good shop practices of keeping the service area clean and dry, and use adequate light for the job at hand.

Before applying pressure to the hydraulic system, make sure all lines, fittings, and couplers are tightly secured and in good condition.

Make sure all shields/guards are in place and properly secured when performing maintenance.

HYDRAULIC SAFETY

SAFETY INSTRUCTIONS

Follow all operating, maintenance, and safety instructions found in this Manual.

Make sure components in the hydraulic system are kept clean and in good working condition.

Relieve pressure from the hydraulic system before servicing or disconnecting from the tractor.

Keep all hydraulic lines, fittings, and couplers tightly secured and free of leaks.

Replace any worn, cut, abraded, flattened, or crimped hoses.

Do not make any temporary repairs to the hydraulic lines, fittings, or hoses using tape, clamps, or cement. The hydraulic system operates under extremely high pressure and temporary repairs may fail suddenly and create a hazardous/dangerous situation.

Wear proper hand and eye protection when searching for a high-pressure hydraulic leak. Use a piece of wood or cardboard as a backstop instead of hands to identify and isolate a leak. If injured by a concentrated high-pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection or toxic reaction can develop if hydraulic fluid penetrates the surface of the skin.

Before applying pressure to the system, make sure all components are tight and that the hydraulic lines, hoses, and couplings are not damaged.

TRANSPORTATION SAFETY

SAFETY INSTRUCTIONS

Follow all operating and safety instructions found in this manual when transporting this equipment.

Make sure the defoliator complies with all local regulations regarding transporting equipment on public roads and highways.

Make sure the Slow Moving Vehicle (SMV) emblem and all lights and reflectors required by local highway and transportation authorities are properly in place, clean, and clearly visible to traffic.

Do not allow riders on any machinery during transport.

Make sure the defoliator is securely attached to the tractor and install a safety chain to the defoliator.

Make sure the tractor brake pedals are latched together.

Do not exceed 20 mph (32 km/h) when transporting the defoliator. Always reduce speed on rough roads and surfaces, or when going down inclines.

Use caution when turning and always use the turn signals on the tractor to indicate your turning intentions to the other traffic.

The weight of the trailed machine should NEVER exceed the weight of the towing vehicle.

Check all clearances carefully whenever the machine is towed.

Set all features to transport position before transporting the defoliator on the roadway.

Stay away from overhead obstructions and power lines during transport. Electrocution can occur even without direct contact.

STORAGE SAFETY

SAFETY INSTRUCTIONS

Follow all operating and safety instructions found in this manual when storing this equipment.

Store the defoliator in an area away from human activity.

Do not permit children to play on or around the stored machine at any time.

Make sure that the defoliator is stored in an area with a firm and level base to prevent the machine from tipping or sinking into the ground.

Block the wheels to prevent the machine from rolling.

TIRE SAFETY

SAFETY INSTRUCTIONS

Follow all operating and safety instructions found in this manual when working around tires.

Have only a qualified tire dealer or tire repair service perform tire repairs.

Do not attempt to install a tire on a wheel or rim unless you have the proper equipment and experience to do the job.

Do not substitute tires with a lesser road rating and/or capacity for the original equipment tires.

⚠ WARNING

Explosive Force Hazard
Tire replacement, repair, and/or maintenance should be done by a qualified tire dealer or qualified repair service.

Failure to follow proper procedures when installing a tire on a wheel or rim can produce an explosive force that will result in serious injury or death.

Do not attempt to install a tire without proper equipment and experience to perform the job.

ASSEMBLY SAFETY

SAFETY INSTRUCTIONS

Follow all assembly, operating, and safety instructions found in this manual when assembly this equipment.

Use adequate manpower to perform assembly procedures safely.

Assemble the defoliator in an area with sufficient space to maneuver the largest components and allow easy access to all sides of the machine.

Use only forklifts, lift cranes, jacks, and tools with sufficient capacity for the loads.

Do not allow spectators, especially children, in the working area.

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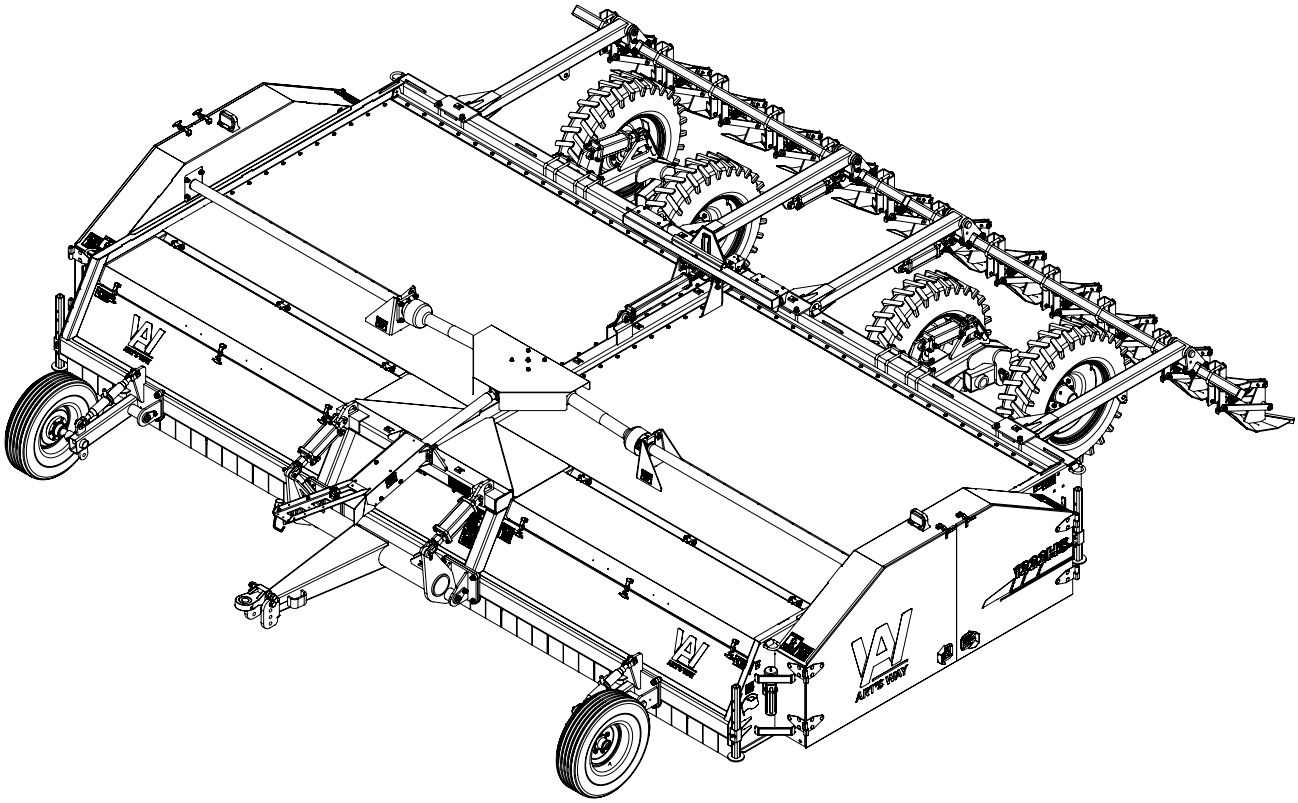
SECTION 1: DEFOLIATOR

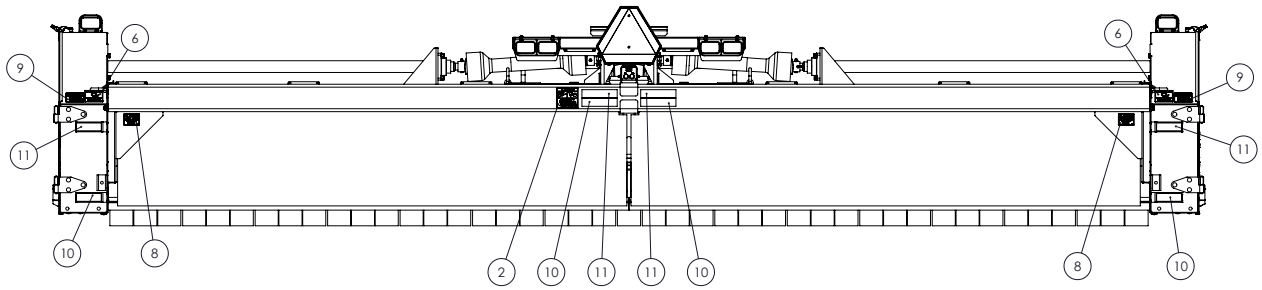


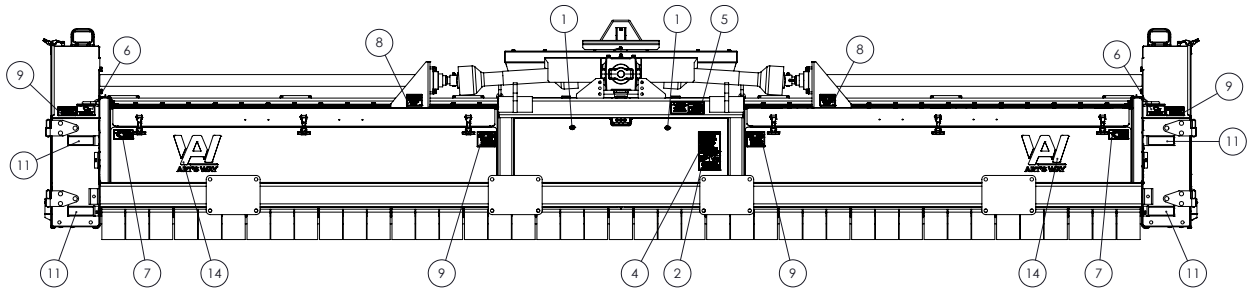
SAFETY DECALS

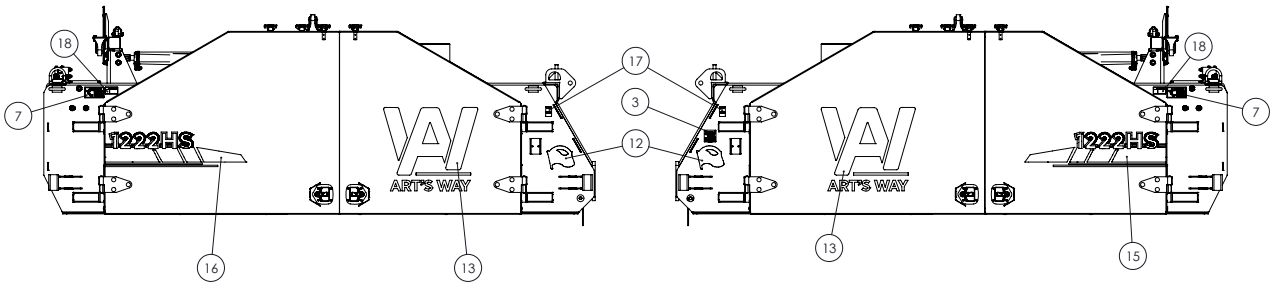
DECAL LOCATIONS

The different types of safety decals for you defoliator are illustrated on the following pages. Please familiarize yourself with the appearance of each decal, the warning it describes, and the area where it is located on the machine. Refer to the diagrams below for decal locations. The six digit number after the description, is the part number of that decal.

Safety awareness is the responsibility of each operator of the machine. Keep safety decals and signs clean and legible and verify any replacement parts display the current safety decals and signs as well. Remember: Always replace missing, damaged or illegible safety decals. New decals and signs are available from your dealer.

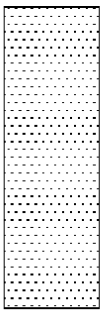






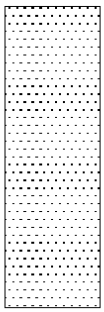
NOTE: Keep all decals clean and free of dirt for maximum visibility. Replace any and all decals that are no longer legible. Read and obey all safety decals.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY. (1222)	QTY. (822)
1	146670	DECAL, GREASE SYMBOL	3	
2	346310	DECAL, WARNING HIGH PRESSURE	2	
3	355600	TAG, SERIAL NUMBER	1	
4	368040	DECAL, WARNING MOVING PART	1	
5	383970	DECAL, CAUTION	1	
6	467400	DECAL, WARNING FLYING OBJECT	4	
7	467420	DECAL, WARNING NO RIDERS	4	
8	467430	DECAL, WARNING MOVING PART	6	
9	467450	DECAL, WARNING	6	
10	476450	TAPE, RED RETROREFLECTIVE	4	
11	476460	TAPE, YELLOW RETROREFLECTIVE	8	
12	608080	DECAL, MADE IN AMERICA	2	
13	720100	DECAL, NEW ARTS WAY LOGO	2	
14	720110	DECAL, NEW ARTS WAY LOGO	2	
15	720710	DECAL, 1222 36" LONG LH	1	-
		DECAL, 822 36” LONG LH	-	1
16	720715	DECAL, 1222 36" LONG RH	1	-
		DECAL, 822 36” LONG RH	-	1
17	K18534203	DECAL, FEMA	2	
18	MP40.00472	DECAL, WARNING HAND	2	



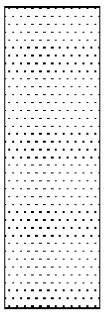
2

P/N: 476460
Tape, Yellow,
Retro–Reflective



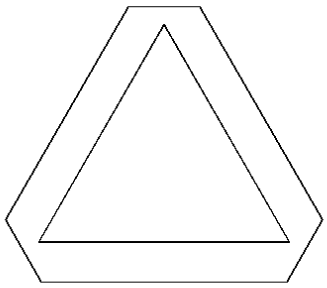
6

P/N: 476450
Tape, Red,
Retro–Reflective

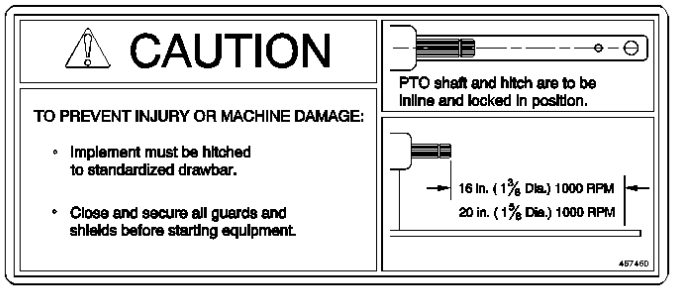


7

P/N: 476470
Tape, Red–Orange,
Retro–Reflective



P/N: 224133
Decal–Slow Moving Vehicle Emblem

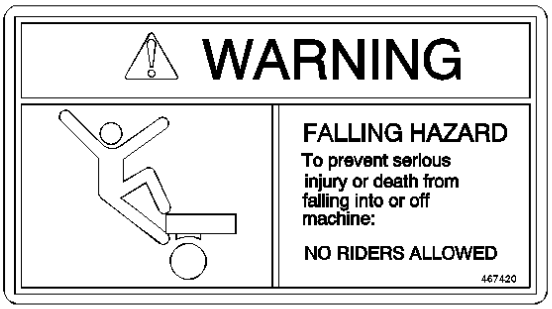


8

P/N: 467460
Decal, Caution, Hitch

10

P/N: 467450
Decal, Warning, Moving Part Hazard



9

P/N: 467420
Decal, Warning, No Riders/Falling Hazard

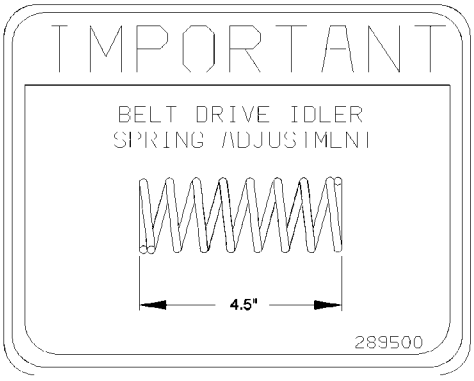
11 P/N: 467430
Decal, Danger, Shield Missing

13 P/N: 467400
Decal, Warning, Thrown Object Hazard

22 P/N: 487770
Danger, Crushing Hazard

12 P/N: 346310
Decal, Warning, High Pressure Fluid Hazard

16 P/N: 368040
Decal, Caution, Safety Instructions



14 P/N: 279550
Decal, Important Idler Spring

BASIC UNIT AND CARRIER WHEELS

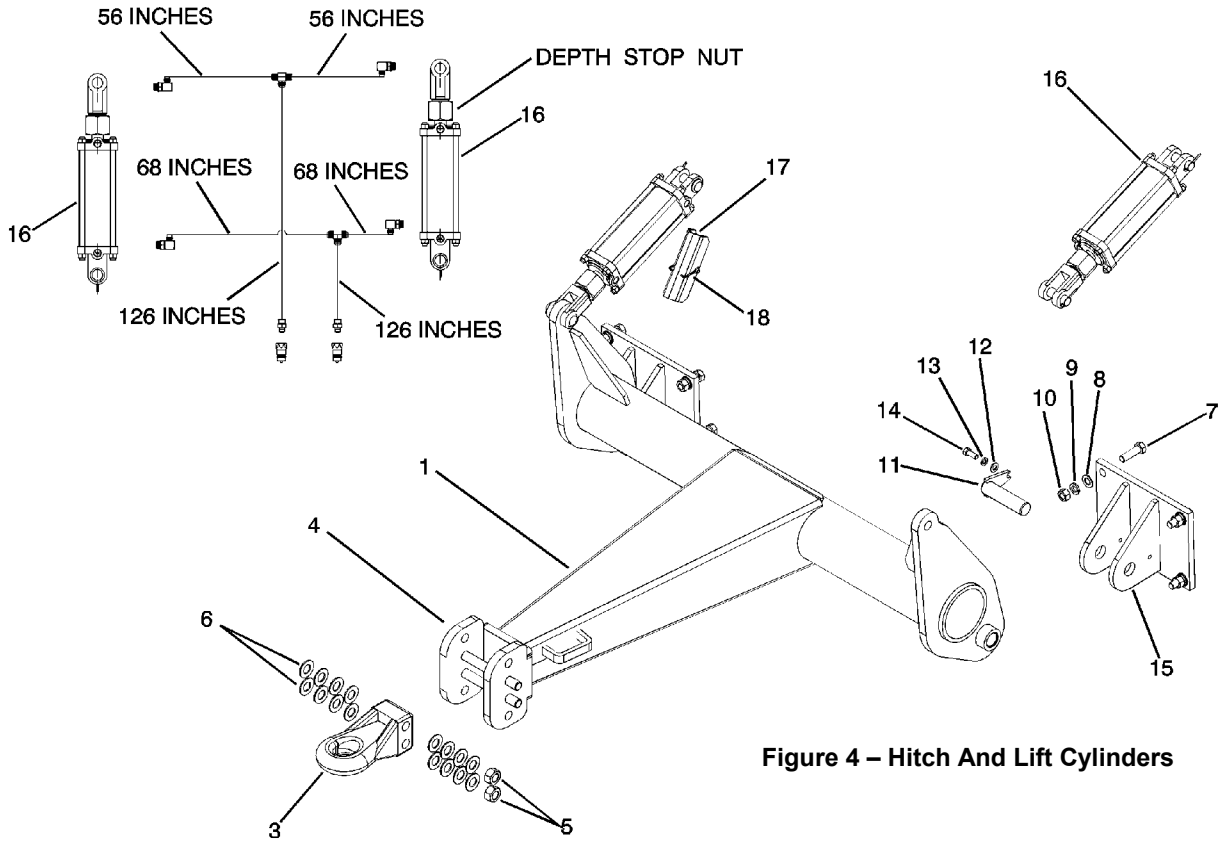


Figure 4 – Hitch And Lift Cylinders

HITCH AND LIFT CYLINDER ASSEMBLY

(See Figure 4).

1. Lift and block machine to a suitable height. Raise the front of the machine and lower the jack stands to hold the front of the machine up.

CAUTION: WHILE WORKING ON THE MACHINE, BE SURE TO WORK SAFELY. BE SURE TO USE ADEQUATE BLOCKING. USE ADEQUATELY RATED LIFTING DEVISES. MAKE SURE PARTS ARE SECURED BEFORE WORKING UNDER OR NEAR THEM.

2. Install each hitch lug weldment (15) on the front of the 1222AHS frame and secure with 3/4 X 2-1/2 HHCS, washers, lock-washers, and nuts (7, 8, 9, 10). Leave the attaching hardware loose until the hitch weldment has been installed.

3. Install the hitch weldment (1) to the hitch lug weldments (15) using a clevis pin assembly (11) and secure with 1/2 X 1-1/4 HHCS, flat-washers and lock-washers (12, 13, 14).

4. Tighten attaching hardware securing each hitch lug weldment (15) to the front of the 1222AHS frame.

5. Attach lift cylinders (16) to the hitch weldment (1) and the front of 1222AHS unit. Make sure the mechanical depth control nut is in the same position on both cylinders. The raised cylinder stops (17) and snapper pins (18) attach to the storage brackets below the cylinders.

6. Install the bolt-on hitch (3) to the hitch weldment (1) and secure with 1 X 9 inch HHCS, flat washers, and lock-nuts (4, 5, 6). Install in position to assure the adjustment will be as low as needed.

PTO INPUT ASSEMBLY

(See Figure 5).

1. Assemble the front jack shaft. Install the input shaft (18), spin shield (1), and U-joint (19) to the existing support and shaft assembly. Secure using 3/8 X 3-1/4 HHCS (9), lock-nut, 3/8 X 2-1/2 key, and setscrew (4, 6, 7, 8). Loosen the lock collars on the bearings.

2. Install the Step 1 build-up assembly to the gearbox shaft and secure using 3/8 X 3-1/4 HHCS, locknut, 3/8 X 1-1/2 key, and set-screw (4, 5, 6, 8).

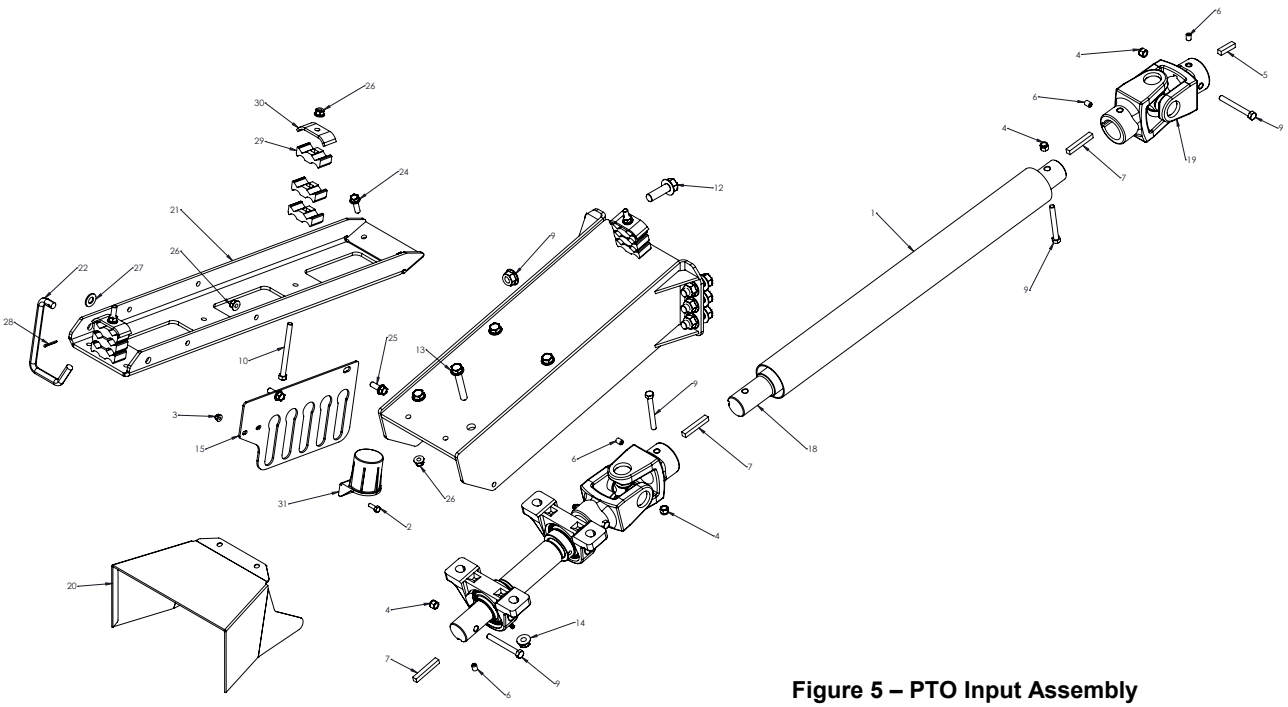


Figure 5 – PTO Input Assembly

3. Install the support assembly to the frame and secure using 5/8 X 2 HFH, flange-nyloc-nuts (9,12). Adjust the short lower shaft in bearings with no binding and lock collars on bearings.

   NOTE: The defoliator is shipped with the PTO loose. When attaching the PTO with the hardware supplied, attach the shield chain to the defoliator and to tractor. Ensure the PTO halves sliding tubes are free of dirt and foreign material. If the havles do not slide easily, premature failure of the universal joints could result.

4. Install the PTO to the jack shaft and secure using the 3/8 X 3-1/4 HHCS, lock-nut, 3/8 X 2-1/2 key, and set-screw (4, 6, 7, 9).

5. Install the PTO shield (20) and support (21) to the front of the jack shaft support and secure using 3/8 X 1-1/4 HFH and flange-nylock-nuts (24, 26).

6. Install PTO mount hook (22) and secure with 1/8 X 1 inch cotter pin and flat-washer (27, 28).

7. Install hose hanger (15) and storage holder (31) and secure with 3/8 X 1 HFH, 1/4 X 3/4 HHCS, and nyloc-nuts (2, 3, 25, 26)

8. Plumb to hydraulic cylinders as shown in Figure 4 and Figure 5. Secure with hose clamps (29), hose clamp bar (30), 3/8 X 3-1/4 HHCS, and flange-lock-nut.

   NOTE: Complete attachment of hoses with hoses from rear of machine (4, 10).

FIXED CARRIER WHEEL ASSEMBLY

(See Figure 6.)

1. Install the carrier struts so the tires will straddle the third row in on each side. This is 154 inches center-line to center-line. The forward tire should be toward the center. Secure to rear 5 X 7 tube using L-Bolts (3/4 dia X 6-7/8 X 8-3/4) with flatwashers, lock-washers, and nuts (7, 8, 9, 10).

2. Install wheel and tire assemblies in ground drive position making sure tires are 22 inches center-line to center-line.

3. Install hoses to cylinders using (qty 4) 90 degree elbows (3/4 ORM to 9/16 JICM) with 90 inch hose to base end and 95 inch hose rod end.

4. Install valve to center bracket on rear of frame using 5/16 X 3-3/4 HHCS, flat-washer, lockwasher, and nuts. Attach hoses to ports as shown using four straight fittings (9/16 ORM to 9/16 JICM). Install quick couplers to tractor end of hoses using four straight fittings (3/4 ORM to 9/16 JICM), two in valve and two for quick couplers.

5. Install hoses on center of frame and front support with carriage bolts (3/8 X 3 inch), brackets, and hardware as shown. Perform this at the same time as scalper hoses, if so equipped.

6. SMV assembly (32) fits in socket at rear center of door cylinder pivot frame.

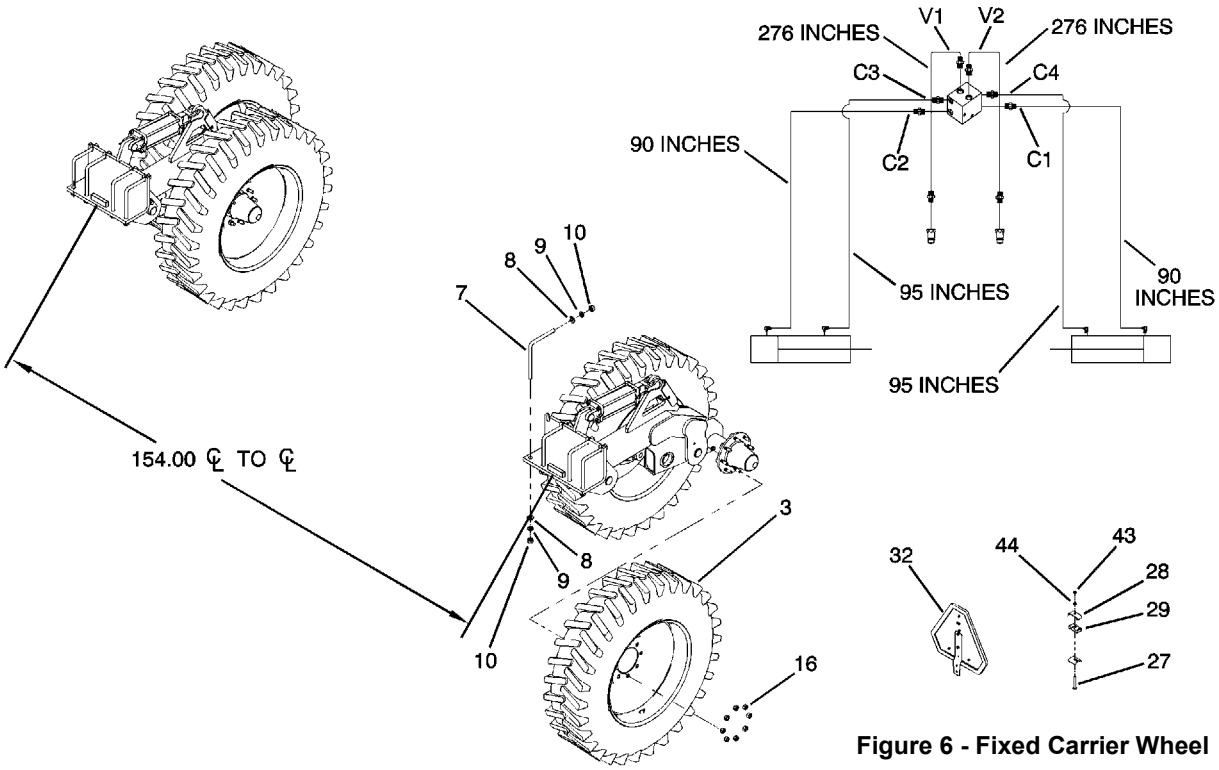


Figure 6 - Fixed Carrier Wheel

STEERABLE CARRIER WHEEL ASSEMBLY

(See Figure 7.)

1. Assemble the steerable struts as follows:

   NOTE: Assembly of the left- and right-hand steerable struts are identical.

   a. Install the strut weldment pivot (21) to the pivot weldment (20) and secure with ball bearing, thrust (18), kingpin (17), 1/2 X 6 HHCS (24), and 1/2 lock nuts (25).

      NOTE: Pre-pack the bearing with grease.

   b. Install 3-1/2 X 8 standard hydraulic cylinders (3) to provide turning for each strut.

      NOTE: The stop nuts on the cylinder rods must be removed and installed on the other cylinders to raise.

   c. Install the axle assembly (22) with spindles and hubs into upright tubes on each strut assembly.

   d. Install the 4 X 8 hydraulic cylinder (26) to provide height adjustment.

      NOTE: The stop nuts on rods of other cylinders are used on these cylinders. These cylinders must be plumbed as shown.

      NOTE: The cylinders re-phase when fully extended.

2. Install the steerable carrier struts so the tires will straddle the third row in on each side. This is 154 inches center-line to center-line. Secure using LBolts (3/4 dia. X 6-7/8 X 8-3/4), flat-washers, lockwashers, and nuts (4, 5, 6, 7).

3. Install wheel and tire assemblies in ground drive position making sure the tire spacing is 22 inches center-line to center-line.

4. Assemble the ball joints (LH – 28 and RH – 29) into the appropriate end of the short tie rod (34), use appropriate 1 inch nut (LH – 35 or RH – 36) prior to installing into short tie rod. Make sure each is equal distance to the nut.

5. Install these assemblies into center tie rod (30) using 1/2 X 3-1/4 HHCS and lock nut (33, 10).

6. Install this assembly onto the struts using 3/4 X 3-1/4 HHCS and lock-nut (32, 31). Adjust the tie rod so tires are parallel.

7. Install indicator rod (19) onto strut arm as shown using 3/4 X 2-1/2 HHCS, lock-washer, and nut (23, 6, 7)

8. Install hydraulic plumbing for the steering and lift circuits as shown in circuit diagrams.

9. Secure the hoses with the hose clamps (37) and bar holder (38) using 3/8 X 3 carriage bolt and lock-nut (50, 51). Route and clamp to tractor.

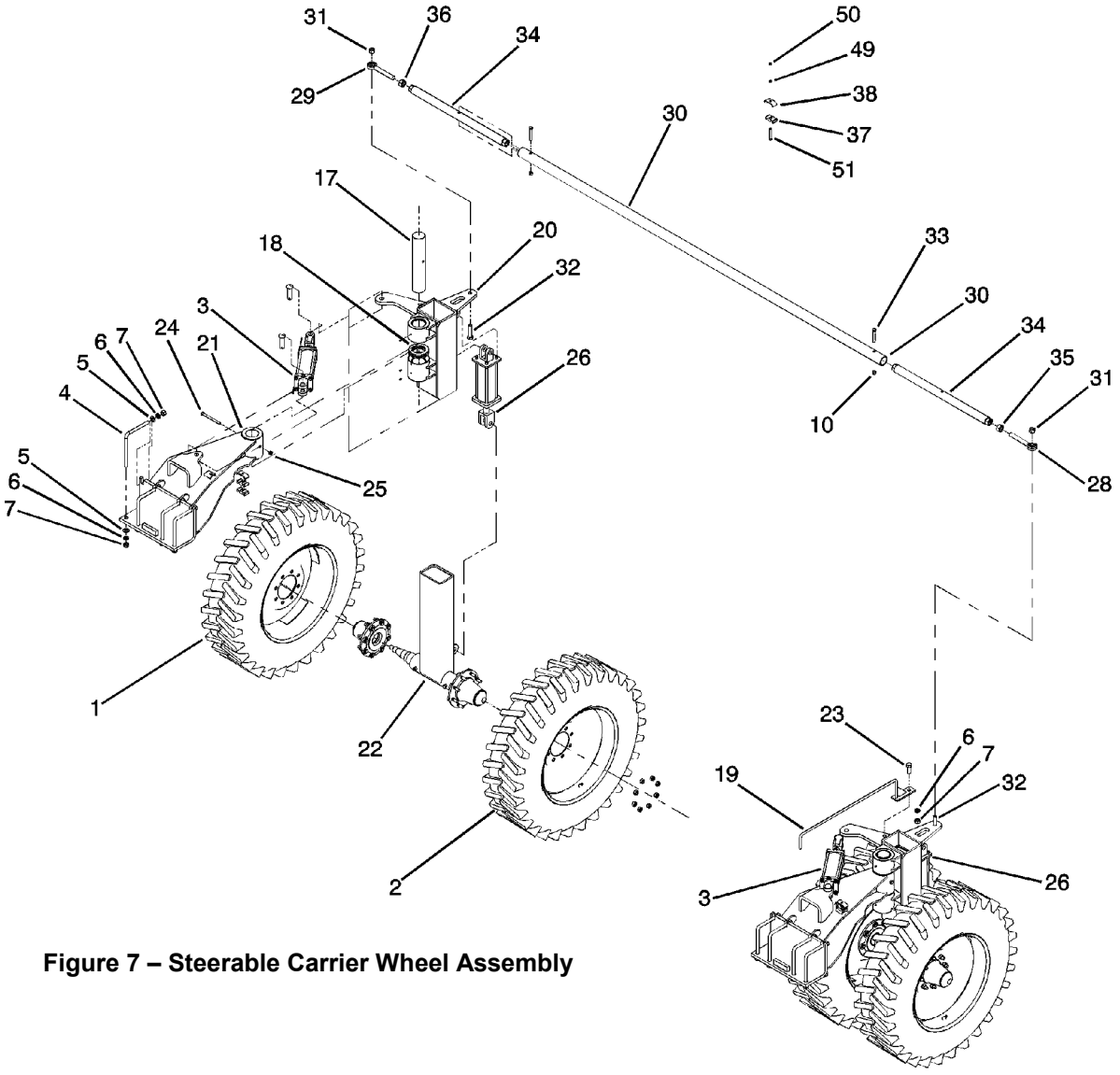
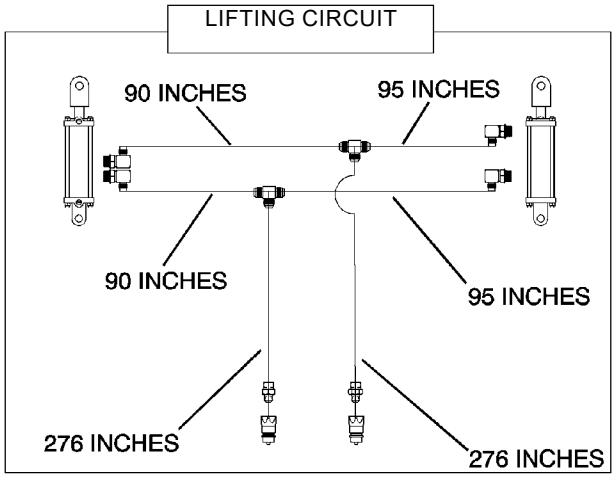
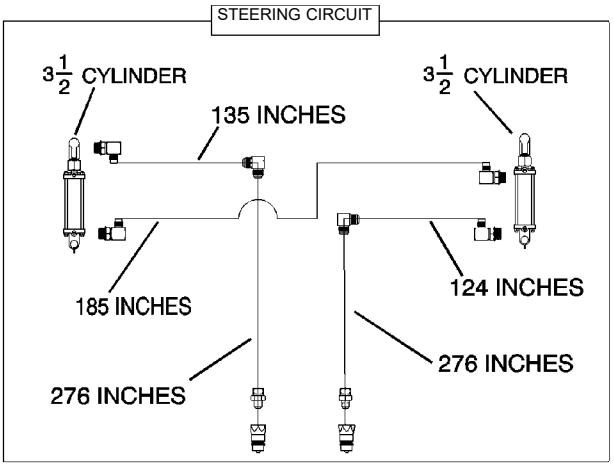


Figure 7 – Steerable Carrier Wheel Assembly





STABILIZER WHEELS (OPTIONAL)

1. Attach the two stabilizer wheel assemblies (J) to the brackets on the front of the frame using four each of the following: 3/4 X 2-1/2 HHCS, flat washers, lock washers and nuts. See Figure 8.

2. Install the stabilizer wheel screw jacks on the frame and the wheel frame.

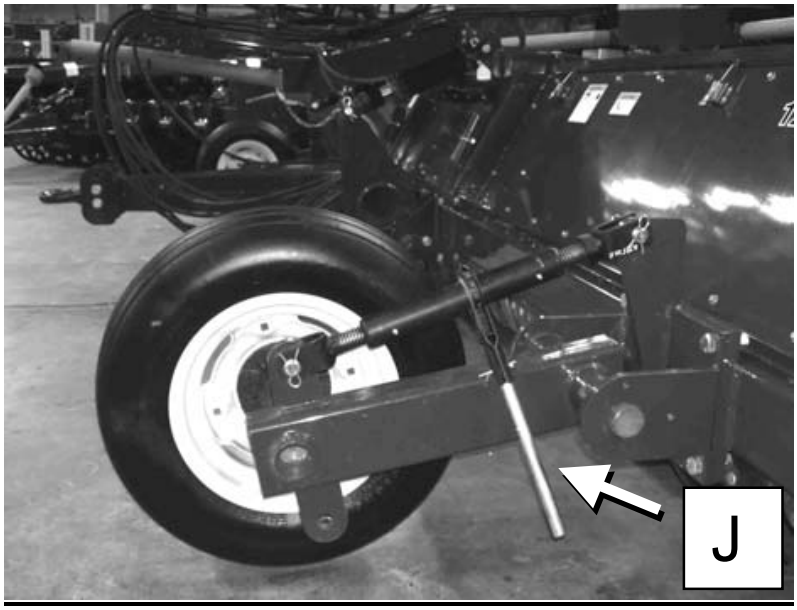


Figure 8 - Wheel and Tire Assembly Installation

3. Install the wheel and tire assembly as shown so it is centered between the rows. Adjust the tire so it will be off the ground slightly when the machine is lowered.

FLAILS

1. For shipping and handling the defoliator, the flails are tucked under adjacent pins. They must be pulled out so they are free swinging. Raise the top on the front and rear to gain access to this area.

NOTE: Steel flails are secured to the defoliator with wire for shipping. The wire must be removed before starting the defoliator.

RUN MACHINE

Hitch machine to tractor and run the machine as instructed. Refer to PREPARING FOR FIELD OPERATION on page 19.

PREPARING FOR FIELD OPERATION

CAUTION: MAKE SURE PTO IS DISENGAGED, TRACTOR IS SHUT OFF AND THE KEY IS IN YOUR POCKET BEFORE WORKING ON THE DEFOLIATOR.

REVIEWING THE MACHINE

Generally review the machine for:

- Any loose bolts or screws.
- Proper tensioning of drive belts.
- Proper PTO installation.
- Hydraulic cylinders and hoses being properly installed.
- Oil level in gearbox up to within 12mm (0.5 inch) from center of shafts.
- All shields and guards being in place.
- Proper installation of any options.

HITCHING TO THE TRACTOR

1. Adjust front and rear wheels of the tractor to fit desired row spacing.
2. Adjust the tractor drawbar as shown in Figure 10 for 1000 RPM operation of PTO.

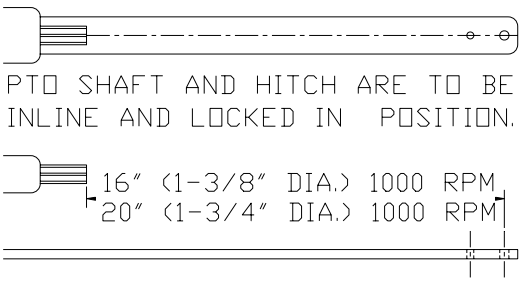


Figure 10 - Tractor Drawbar Illustration.

3. Position tractor near defoliator hitch, attach lift cylinder hoses to tractor outlets, activate cylinder and lift defoliator hitch above tractor hitch.
4. Attach the defoliator to the tractor into the yoke of the tractor using tractor hitch pin. Make sure the front bolt is positioned so the front of the defoliator can be lowered so steel flails are 1 inch or less from the ground.
5. Install the safety chain from loop on defoliator to tractor drawbar as shown in Figure 11.

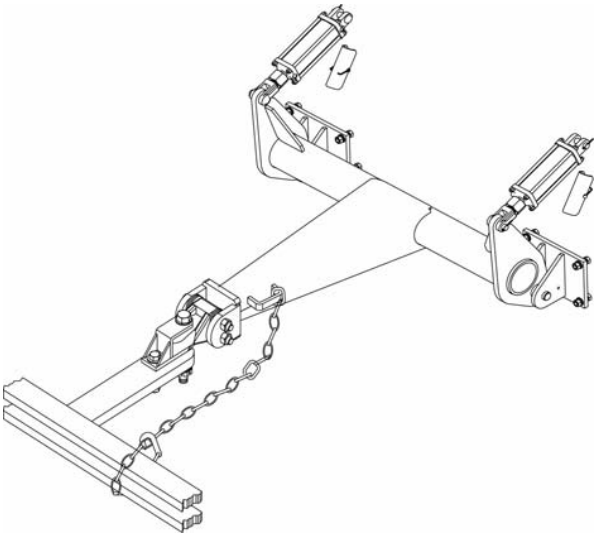


Figure 11 - Safety Chain Attachment.

6. Connect PTO driveline to 1000 RPM tractor PTO shaft. Length of PTO from centerline of bearing crosses must be 50 to 55 inches (127 to 140 cm) installed.
7. Connect hydraulic hoses for scalper lift to tractor (if installed). Raise scalper units. Raise front of machine with main lift cylinders. Remove pins and raise jack stands, replace pins and secure jack stands in the up position.
8. Check the rubber flails to make sure they are free swinging and not tucked under adjacent rows. See Rubber Flails on page 22 to check row spacing.

TEST RUN DEFOLIATOR

CAUTION: KEEP WELL CLEAR OF MOVING PARTS. BE SURE TO SHUT OFF TRACTOR AND PLACE KEY IN YOUR POCKET WHILE MAKING ADJUSTMENTS. WAIT FOR ALL MOVEMENT TO STOP BEFORE APPROACHING MACHINE.

1. With tractor at an idle, slowly engage PTO. Check operation of machine. Slowly increase engine speed up to the proper PTO operating speed of 1000 RPM. Carefully check the operation, alignment, and clearances of all moving parts.
2. Shut down the defoliator and shut off the tractor. Once all movement has stopped, make any necessary adjustments.

3. After all adjustments are made, run the defoliator at operating speed for 10 to 15 minutes. Shut down the machine and once all parts have stopped, open the top covers, see note (Figure 12 and Figure 13) and re-check entire machine for any loose hardware and re-check the drives for belt tension and alignment.

CAUTION: BE SURE TO INSTALL THE PROVIDED SAFETY CHANNEL ON THE HYDRAULIC CYLINDER AFTER RAISING THE REAR COVER.

NOTE: It is important that the defoliator be operated and adjusted correctly. The following section explains how to get the best service out of the machine.

CAUTION: KEEP CLEAR OF HYDRAULICALLY OPERATED DOORS WHEN ACTIVATING.

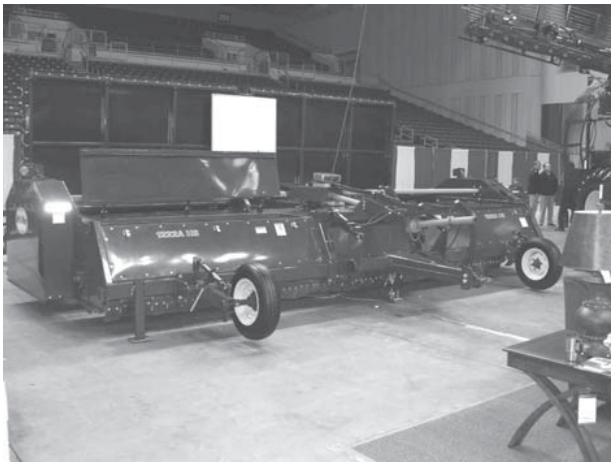


Figure 12 - Open Top Covers, Front.

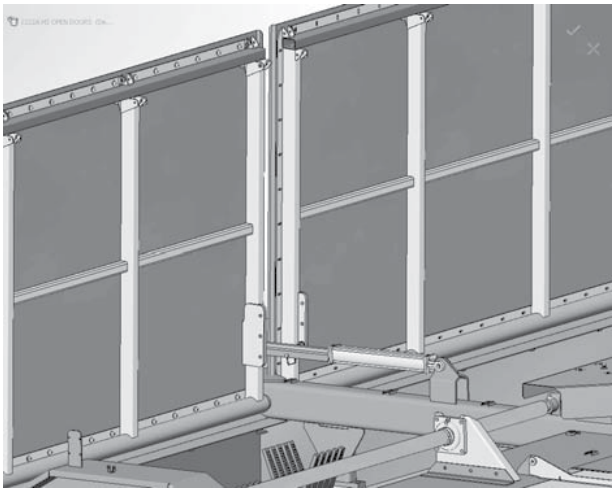


Figure 13 - Open Top Covers, Rear.

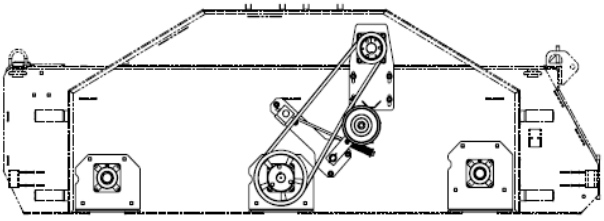


Figure 14 - Open Shield, RH Drive.

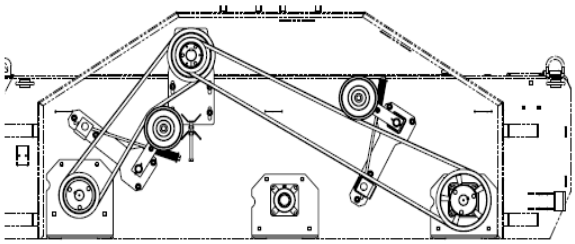


Figure 15 - Open Shield, LH Drive.

FLAIL CLUSTERS

To adjust rubber flail clusters to row spacing, see Figure 17 and Figure 18. Loosen the disc clamp plates (A); slide clusters so they are exactly centered on the row. Retighten the disc clamping plates, making sure the gap between the plates is equal and in line with the other clusters.

NOTE: For equal gap, tighten side with spacer washers then tighten other side so it is equal.

CAUTION: KEEP WELL CLEAR OF MOVING PARTS. BE SURE TO SHUT OFF THE TRACTOR AND PLACE KEY IN YOUR POCKET WHILE MAKING ADJUSTMENTS. WAIT FOR ALL MOVEMENT TO STOP BEFORE APPROACHING MACHINE.

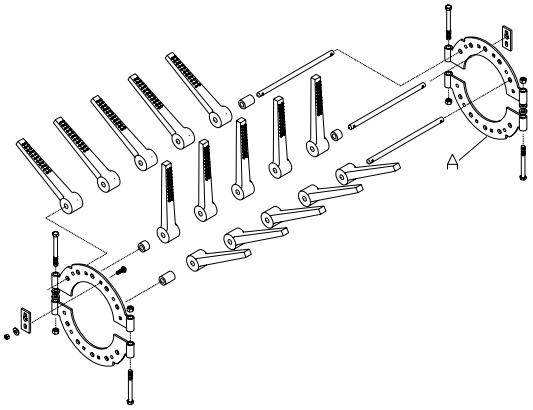


Figure 17 - Rubber Flail Cluster (6 Pin).

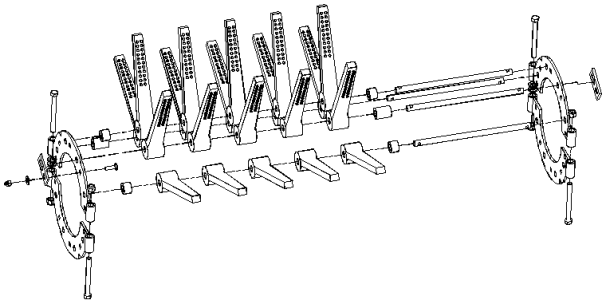


Figure 18 - Steel Flail Cluster (8 Pin).

REPLACING RUBBER FLAILS

Frequently check flails. If any vibration occurs, check for broken or damaged flails. Also check build-up that may cause an unbalanced condition or extreme flexing of rubber flails. For best service clean out mud build-up frequently.

To replace flails, see Figure 17 and Figure 18

1. Remove 3/8 inch carriage bolts and lock nuts that hold the pin clips. Loosen, drive off taper, and remove both clips. Slide pin to one side and remove spacers and flails as needed.

NOTE: Spacers and flails must be replaced in the same sequence as they were removed. If only single flails are exchanged, it is better to also replace the flail directly opposite to maintain balance.

2. After flails and spacers are replaced, install pin clip by driving firmly in place with a flat piece of steel and hammer into its position on the flail pin. Tighten the 3/8 inch carriage bolts and lock nuts securely on all pins.

REPLACING STEEL FLAILS

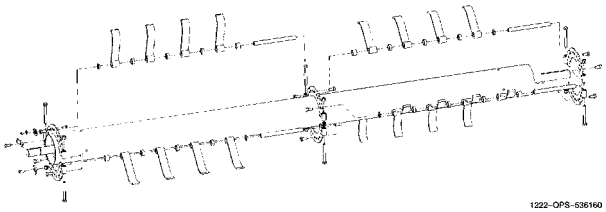


Figure 19 - Steel Flail Cluster

Frequently check flails. If any vibration occurs, check for broken or damaged flails, also check build-up that may cause an unbalanced condition.

The steel flail pins are held in place by 5/8 inch-11 x 1-1/4 inch grade 5 bolts on each end of the 1 inch diameter pin (see Figure 19). These bolts are held with a retaining plate that captures the bolt head to insure the retention of the bolt during operation. Remove this plate and then remove bolt. (An impact wrench works best)

1. Remove the entire pin, with the flails and spacers, from between the plates. Replace flails as needed.

2. Before reinstallation, clean the bolt and the pin. Use Locktite 271 or better when the bolts are reinstalled. Torque these 5/8 inch -11 x 1-1/4 inch bolts to 150 ft-lbs. Make sure the bolt retaining plate is reassembled after the bolts have been torqued.

NOTE: Spacers, flails and center mounting plate must be replaced in the same sequence as they were removed. If only single flails are exchanged, it is better to also exchange the flail directly opposite to maintain balance.

DRIVE BELT TENSION

Drive belts are tensioned by spring loaded idlers (see Figure 20 and Figure 21). The compression springs are compressed to 4.50 inches (see decal that is on the machine).

NOTE: These drives should be checked frequently and re-tensioned immediately if any belt slippage occurs. **Do not over-tighten.**

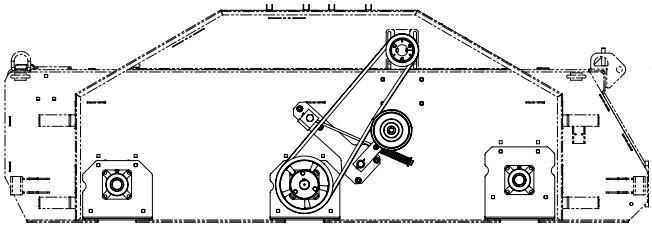


FIGURE 20 - RH DRIVES, STEEL FLAILS.

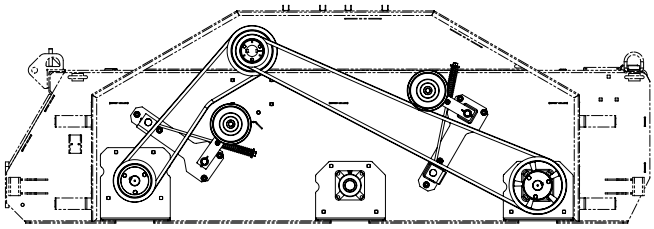


FIGURE 21 - LH DRIVES, STEEL FLAILS.

SCALPERS

Adjust the scalper shoe (Figure 22, Item 1) so it is parallel with the ground or tipped up slightly in front. To perform, install the stops on the lift cylinders.

NOTE: The cylinders extend to raise and retract to lower.

KNIFE SCALPERS

Make sure the tension spring is attached to the scalper assembly. The tensions spring should hold the scalper shoe firmly to the ground

The scalper knife (2) should be set so it is parallel and straight with the edge of the shoe. The recommended initial setting is 1/4 inch to 3/8 inch. Run the machine in the field and get one row adjusted to the desired setting. Once the first row is adjusted, set the other row settings to match.

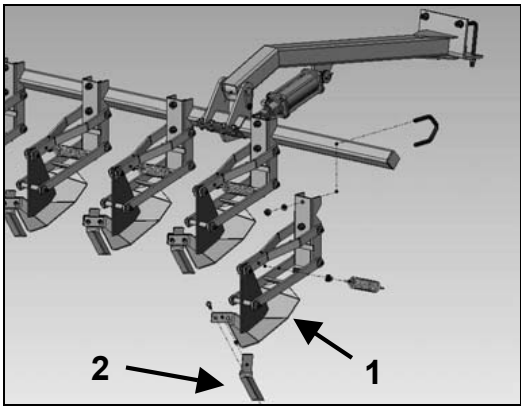


FIGURE 22 - KNIFE SCALPER ADJUSTMENT

MECHANICAL DISC SCALPER

Adjust the spring tension by either moving the spring up or down on the chain loops with the necessary down pressure needed to cut the sugar beet top properly. (Figure 23_1).

The depth of cut is adjusted by loosening the set screws on the lower bearing and moving the two jam nuts on the scalper shaft, sliding the shaft up or down to attain the desired depth of cut, and then re-tightening the jam nuts and set screws. The distance from the bottom of the shoe to the lowest point of the disc is generally between 3/4 to 1.0 inch. See Figure 23_2.

The side-to-side angle of the blade can be adjusted by loosening the two bolts on the top bearing and moving the bearing in the slots on the mounting plate. Re-tighten the bolts when finished. The top bearing is positioned at the factory in the center of the slots. See Figure 24

Run the machine in the field and get one row adjusted to the desired setting. Once the first row is adjusted, set the other row settings to match.

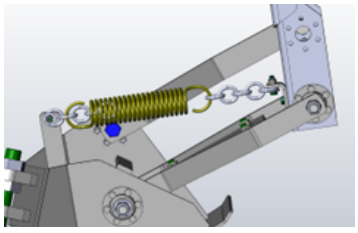


FIGURE 23_1 - DISC SCALPER SPRING.

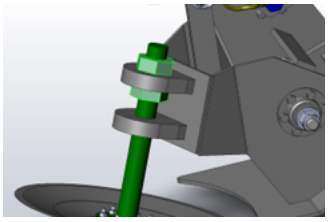


FIGURE 23_2 - DISC SCALPER NUTS.

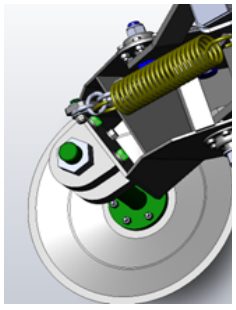


FIGURE 24 - DISC SCALPER ATTACHMENT.

LUBRICATION AND STORAGE

LUBRICATION

Economical and efficient operation of any machine depends upon regular and adequate lubrication of moving parts. Neglect leads to reduced efficiency, premature wear, breakdown, and needless and costly replacement of parts.

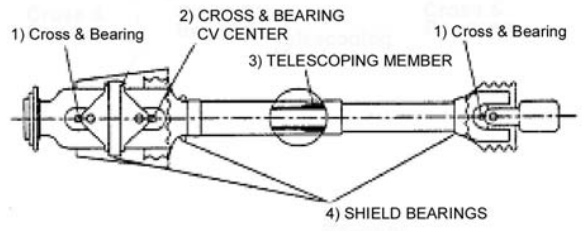
CAUTION: KEEP WELL CLEAR OF MOVING PARTS. BE SURE TO SHUT OFF THE TRACTOR AND PLACE KEY IN POCKET WHILE MAKING ADJUSTMENTS. WAIT FOR ALL MOVEMENT TO STOP BEFORE APPROACHING MACHINE.

Lubricate Every 10 Hours

- U-Joints at the gearbox.
- Belt drive idler pivot points.
- Belt drive spring bolt slide areas.
- Scalper lift support pivots, if so equipped.
- Steerable wheel pivots if so equipped.

CV PTO

A high quality general-purpose grease may be used; however, a lithium based grease is recommended. Lubricate every 8 hours of operation.



1. Cross & Bearings (2 places - 4 to 5 pumps).
2. CV, Cross & Bearings (1 place - 8 to 12 pumps).
3. Telescoping Members (1 place), fill until grease fills the telescoping area. Disassemble occasionally to ensure components are clean and adequately greased (4 to 8 pumps).
4. Shield Bearings (3 plastic zerks), 2 pumps.

IMPORTANT: *When making many sharp turns, grease the CV, Cross & Bearings at 4-hour intervals.*

IMPORTANT: *Failure to grease the CV,* Cross & Bearings, *and telescoping members will reduce the life of the CV.*

Lubricate Once Per Season Or Every 300 Hours

1. Wheel bearings – clean and repack with wheel bearing grease.

Figure 25 - Center Rotor Bearing

2. Center rotor coupler – See Figure 26

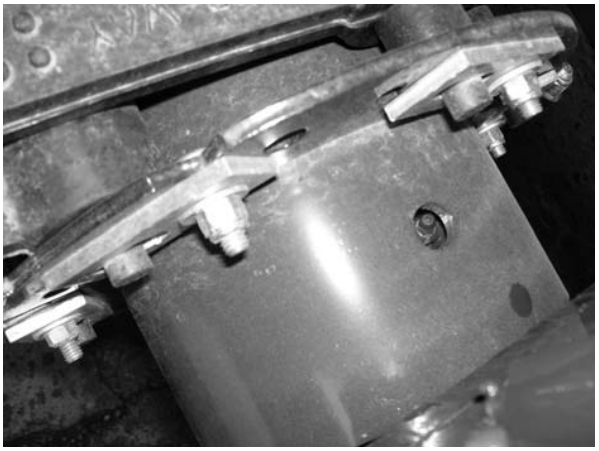


Figure 26 - Center Coupler Lube

Ball Bearings

See Figure 25 **for center rotor bearing.**

NOTE: The flanged bearings are sealed bearings. Lubricate sparingly, seal damage may result with over greasing. One or two pumps every 20 hours max. Diesel fuel squirted on the seals at the end of the season will help to keep seals soft and flexible.

GEARBOX

1. Drain and refill the gearbox with 85 oz (2.7 quarts) of 80W-90 conventional or 75W-90 full synthetic gear oil.

STORAGE

1. Clean the defoliator inside and out.
2. Lubricate the defoliator. Grease the threads of adjusting bolts. Run the machine briefly to distribute grease.
3. Paint all parts where paint is worn.
4. Remove tension from belts and make sure shields are in place.
5. If stored outside, remove top covers.
6. Block up the machines taking the load off the tires. Do not deflate the tires.

SPECIFICATIONS

MODEL

- 1222AHS 12 Row 22 inches (56cm) Row Spacing
- 822 8 Rows 22 inches (56cm) Row Spacing

CONSTANT VELOCITY PTO

- Standard Equipment

OPERATING PTO SPEED

- 1000 RPM

TRACTOR REQUIREMENTS

- 200 HP Minimum

DRIVES

- Gearbox
  - Heavy Duty 1.35:1 Ratio
- Belts
  - 5V-Section-Power Band
- Belt Tighteners
  - Spring Loaded

Rear Wheels

- Dual Tandem Walking

Steerable Wheels – Optional

Tires

- 12.4-24 Ground Drive (Qty 4)

Top Cover & Rear Drop

- Heavy Duty Belting

Row Spacing

- 12 Row 22 inches (1222)
- 8 Row 22 inches (822)

Operating Dimensions

- Height – 59 inches
- Width – 24 feet 4 inches (1222)
- Width – 17 feet 2 inches (822)

Weight (Approx.)

- Estimated 18,275 lbs (1222)
- Estimated 15,470 lbs (822)

Rotors Flails

- Steel Front, Rubber #2 and #3
- Increased Front Speed
- More Rubber Flails

Height Adjustment

- Lift cylinders in front
- Screw jack at wheels on front
- Hydraulic cylinders for rear height

Drive Shields

- Hinged

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Art's Way Manufacturing TECHNICAL MANUALS

Manuals are available from your local dealer or Art's Way Manufacturing for the operation, service, and repair of your machine. For prompt convenient service, contact your local dealer for assistance in obtaining the manuals for your machine.

Manuals are also available at WWW.ARTSWAY.COM free to download for your convenience.

Always give the Machine Name, Model, and Serial Number so your local dealer can provide the correct manuals for your machine.

Art's Way Manufacturing reserves the right to make improvements in design or changes in specifications at any time without incurring any obligation to install them on units previously sold.

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