



Art's-Way Manufacturing Co., Inc.

Model 8200
Forage Box

Operator's Manual
636200

Issued May 2017



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 Co., Inc. dealer or Art's-Way Manufacturing Co., Inc. for additional operator's manuals, illustrated parts catalogs, and service manuals.

TO THE OWNER

Congratulations on the purchase of your new Art's-Way Forage Box. 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 Forage Box. 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 Forage Box.

Even if you are an experienced operator of this or similar equipment, we ask that you read this manual before operating this Forage Box. 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 Co., Inc., Armstrong, Iowa, 50514, (712) 864-3131.

SPECIFICATIONS AND DESIGN ARE SUBJECT TO CHANGE WITHOUT NOTICE

Art's-Way Manufacturing Co., Inc. 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 Forage Box 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 Co., Inc. Any modification made without the written permission of Art's-Way Manufacturing Co., Inc. shall void the warranty of this product.

In the interest of continued safe operation of this Forage Box, pay particular attention to the safety alert symbol(s) throughout this manual.

Art's-Way Manufacturing Co., Inc. STATEMENT OF PRODUCT LIABILITY

Art's-Way Manufacturing Co., Inc. recognizes its responsibility to provide customers with a safe and efficient product. Art's-Way Manufacturing Co., Inc., 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 Co., Inc., be liable for any such act. In addition, Art's-Way Manufacturing Co., Inc., assumes no liability for any altered product or any modified product by users or anyone other than an authorized dealer.

IMPORTANT WARRANTY INFORMATION

The warranty for this Forage Box appears on page 6 of this manual. In order to establish proper warranty registration, the Warranty Registration must be completed and returned to the factory. Failure to comply with this requirement will result in invalidating the warranty!

LIMITATIONS OF THIS MANUAL

This manual contains operating instructions for your 8200 Forage Box only. Any mention of other machinery in this manual other than the 8200 Forage Box 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 8200 Forage Box.

PARTS & SERVICE

As the purchaser of your new forage box, 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 Co., Inc. has an excellent dealership network ready to answer any questions you may have about your forage box. 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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LIMITED WARRANTY FOR NEW ART'S WAY MANUFACTURING CO. FARM MACHINERY (U.S. ONLY)

- A. **GENERAL PROVISIONS:** Art's Way Manufacturing Co., Inc. (Art's Way Mfg.) warrants the products it sells to be free from defects in material and workmanship for the periods of time set forth in the Warranty Table below. Art's Way Mfg. obligation and liability under this limited warranty, is to repair or replace (at Art's Way Mfg. option) any part(s) that upon manufacture were defective in material or workmanship. Warranty service shall be performed by an authorized Art's Way Mfg. dealer or authorized service center and will be completed using Art's Way Mfg. supplied parts. Parts supplied by Art's Way Mfg. are shipped F.O.B. Art's Way. The original purchaser shall be responsible for service calls and transportation of the farm machinery to and from their dealer or service center. The original purchaser is also responsible for any expedited repair charges (i.e., overtime and "next day air" deliveries) requested by the original purchaser. The original purchaser is also responsible for any repair service, parts, and labor on repairs made to the farm machinery at the time the warranty service was being performed.
- B. **SECURING WARRANTY SERVICE:** The original purchaser must (1) contact their authorized dealer and report the break-down. (2) The authorized dealer shall provide objective evidence of the farm machinery's warranty status to Art's Way Mfg. (3) The authorized dealer shall provide all documentation to Art's Way Mfg. which supports that the farm machinery was thoroughly inspected prior to set-up and delivery to the original purchaser. (4) The original purchaser shall make the farm machinery available to their Art's Way Mfg. authorized dealer and/or Art's Way Mfg. authorized service center within 30 days of the reported break-down. All parts or assemblies replaced under the limited warranty must be held for inspection for ninety (90) days, or until credit has been issued, or a claim has been returned to a dealer. When a claim is returned to a dealer with instructions to return and/or hold the part(s) for inspection, parts must be handled as instructed or the claim may be denied.
- C. **SPARE PARTS WARRANTY:** Art's Way Mfg. warrants that it will replace or repair (excluding labor) as Art's Way Mfg. elects, without charge, any genuine spare part purchased from Art's Way Mfg. which is defective in material or workmanship within ninety (90) days of the date of installation. This warranty applies to parts that, in Art's Way Mfg. judgement, prove to be defective in either material or workmanship. All parts to be shipped F.O.B. Art's Way Mfg. All spare parts replaced under the spare parts warranty must be held for inspection for ninety (90) days or until credit has been issued, or a claim has been returned to a dealer. When a claim is returned to a dealer with instructions to return and/or hold the part(s) for inspection, parts must be handled as instructed or the claim may be denied.
- D. **LIMITATIONS:** Art's Way Mfg. Limited Warranty does not extend coverage to product being used in a commercial application (i.e. rented equipment). Art's Way Mfg. Limited Warranty does not extend to parts and elements not manufactured by Art's Way Mfg., and which carry the warranty of another manufacturer. Art's Way Mfg. makes no other warranty expressed or implied and makes no warranty of merchantability or fitness for any particular purpose beyond that expressly stated in this warranty. Art's Way Mfg. liability is limited to the terms set forth in this warranty and does not include any liability for direct, indirect, incidental or consequential damages or expenses of delay and Art's Way Mfg. liability is limited to the repair and replacement of defective parts as set forth herein. Any improper use and/or maintenance, including operation after the discovery of defective or worn parts, operation beyond the rated capacity, substitution of parts not approved by Art's Way Mfg. or any alteration or repair by others than the authorized Art's Way Mfg. dealer or authorized service center which affect the product materially and adversely, shall void the warranty. No dealer, employee or representative is authorized to change this warranty in any way or grant any other warranty unless such change is made in writing and signed by an officer of Art's Way Mfg. Some states do not allow limitations on how long an implied warranty lasts or exclusions or limitations of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you the specific legal rights, and you may have other rights that vary from state to state.

NOTE: As of April 1, 2015, all previously distributed information concerning the limited warranty coverage of any Art's Way Manufacturing Company, Inc. manufactured product is to be considered null and void and replaced by this document.

Art's Way Mfg. Farm Machinery	Warranty Coverage
Grinder / Mixer – Model 6520, 6530, 6140, 6105, and Portable and Stationary equipment	1 (one) Year from Date of Delivery to Original Purchaser
Manure Spreader	1 (one) Year from Date of Delivery to Original Purchaser
Graders and Land Planes	1 (one) Year from Date of Delivery to Original Purchaser
Beet Harvesting Machinery	1 (one) Harvest Season from Date of Delivery to Original Purchaser
Shredders – Model 180C and 240C	1 (one) Year from Date of Delivery to Original Purchaser
Plows	1 (one) Year from Date of Delivery to Original Purchaser
Forage Blowers – Model 1060 and 2060	1 (one) Year from Date of Delivery to Original Purchaser
Forage Boxes/Receivers – Model 5300 and 1250	1 (one) Year from Date of Delivery to Original Purchaser
Rakes	1 (one) Year from Date of Delivery to Original Purchaser
Dump Boxes	1 (one) Year from Date of Delivery to Original Purchaser
Augers	1 (one) Year from Date of Delivery to Original Purchaser
Running Gear	1 (one) Year from Date of Delivery to Original Purchaser
Snow Blowers	1 (one) Year from Date of Delivery to Original Purchaser
Harvester Reel	1 (one) Year from Date of Delivery to Original Purchaser

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 forage box.

Art's-Way Manufacturing Co., Inc. strives to make our equipment as safe as possible. The Art's-Way 8200 Forage Box 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 forage box 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 Forage Box. (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 forage box 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 Forage Box 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 Co., Inc. 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



death.

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

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 forage box. 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 forage box.



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

Lower the lifter wheels when the forage box is not in use.

Install safety chain when attaching the forage box to the tractor.



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



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 forage box 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 forage box while in operation.



Do not allow riders while the forage box is in operation.



Do not attempt to unclog, clean, or adjust the forage box 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 forage box. 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 forage box 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 forage box is securely attached to the tractor and install a safety chain to the forage box.

Make sure the tractor brake pedals are latched together.

Do not exceed 20 mph (32 km/h) when transporting the forage box. 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.

Lower the elevator into the transport position before transporting the forage box on the highway.



Stay away from overhead obstructions and power lines during transport. Electrocutation 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 forage box 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 forage box 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 forage box 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: OPERATOR'S MANUAL

SAFETY PRECAUTIONS

SAFETY PRECAUTIONS

This symbol is used to call your attention to instructions concerning your personal safety. Be sure to observe and follow these instructions. Take time to be careful!

DANGER

“DANGER” indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

WARNING

“WARNING” indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

CAUTION

“CAUTION” indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also alert against unsafe practices.

BEFORE you attempt to operate this forage box, read and study the following safety information. In addition, **MAKE SURE** that every individual who operates or works with this equipment, whether family member or employee, is familiar with these safety precautions. Art's Way provides guards for exposed moving parts for the operator's protection; however, some areas cannot be guarded or shielded in order to assure proper operation. The **OPERATOR'S MANUAL AND DECALS** on the machine itself warn you of dangers and **SHOULD BE READ AND OBSERVED CLOSELY**.

POWER SOURCE SHUTDOWN PROCEDURE

Before cleaning, unclogging, adjusting, lubricating or servicing this machine:

1. Shut off the tractor engine, remove the starter key and take it with you.
2. Wait for the all machine motion to stop.
3. Remove **ALL** power connections from the tractor.
the tractor.

Failure to follow these precautions could result in death or serious injury.

Some photographs used herein may show doors, guards and shields opened and removed. **BE SURE** that all doors, guards and shields are fastened in their proper position before machine is operated.



Do not unclog, adjust, lubricate or service the forage box unless the "Power Source Shut Down Procedure" has been performed.

KNOW how to stop the unloading unit of the forage box before starting it!

BE SURE all guards, doors and shields are in place and properly secured before starting the tractor engine!

KEEP hands, feet and clothing away from chains, and augers when they are moving!

DO NOT allow minors to be near the machine unless properly supervised!

KEEP the forage box away from power lines. Contact with electrical lines may result in serious injury or death by electrocution!

USE ONLY properly rated running gear and tires!

ALWAYS engage the tractor parking brake before proceeding to unload the forage box!

CHECK operation of the emergency clutch and of the activating mechanisms, safety bar and safety cable frequently, to insure that they are functioning properly!

DO NOT wear loose or baggy clothing when operating this unit!

DO NOT allow people other than a qualified operator near the unit!

DO NOT exceed a maximum towing speed of 20 MPH (32 KPH) while transporting the forage box!

OPERATING EQUIPMENT

OPERATING AND SAFETY EQUIPMENT



Become familiar with and know how to use all **SAFETY DEVICES** and controls **BEFORE** attempting to operate this equipment. Know how to stop the unit **BEFORE** starting it!

Shields



DO NOT operate this equipment unless **ALL** shields are properly secured in place!



Do not unclog, adjust, lubricate or service the forage box unless the "Power Source Shut Down Procedure" has been performed.

Wherever possible and without affecting machine operation, shields have been used on this forage box to protect potentially hazardous areas. In many places, decals are also provided to warn of potential dangers as well as to display special operating procedures. Refer to Safety Label Location section.

Hinged Shields

Hinged Shields have been provided over the transmission, beater drive chains and front roller chain drive. These can be opened for lubrication, adjustment and/or service access when required. Shields should be inspected and cleaned periodically to avoid material build up.



Emergency Cable



IN AN EMERGENCY, ENGAGE THE SAFETY CABLE TO TRIP THE SAFETY/CROSS CONVEYOR CLUTCH AND STOP THE CROSS CONVEYOR, AUGERS AND MAIN APRONS.



EMERGENCY STOP DOES NOT STOP THE FORAGE BOX DRIVE SYSTEM WHEN BEING OPERATED AS A REAR UNLOAD.

To trip the safety shutoff valve, pull on the safety cable which runs over the outfeed extension. To reset the system push down on the safety valve top plate.



DO NOT LUBRICATE, ADJUST AND/OR SERVICE UNLESS TRACTOR ENGINE IS SHUT OFF!

Unloading Operation - Left Hand Unload

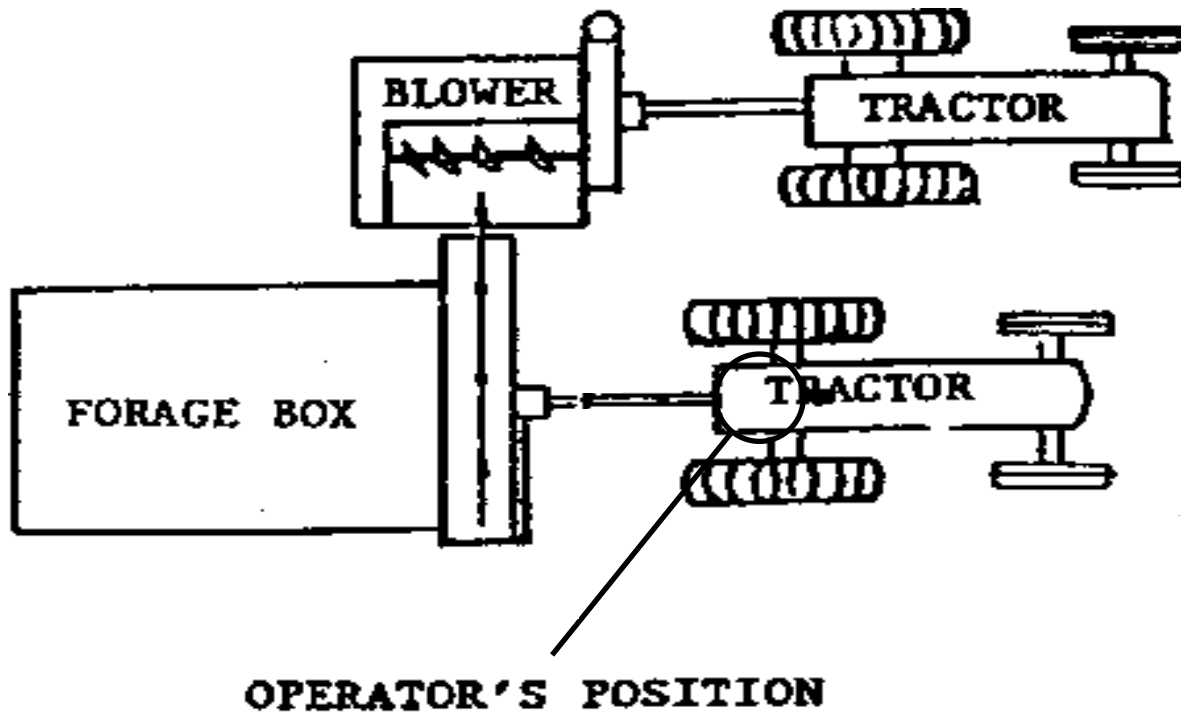
Because forage blowers load from the right side (as viewed from behind), a left hand forage box will be stationed next to the forage blower so that the controls on the forage box as well as those on the blower and the blower tractor easily can be reached from the Operator's Position. See the line drawing



WARNING

DO NOT WALK OR CLIMB BETWEEN FORAGE BOX OUTFEED AREA AND BLOWER WHEN EITHER FORAGE BOX OR BLOWER IS OPERATING!

DO NOT TAKE A SHORT CUT!



LEFT HAND UNLOAD

SAFETY LABELS

SAFETY LABEL LOCATION

Each Forage Box has been produced and assembled with the operator's safety in mind. As a reminder to the operator of proper operation of the machine, several labels of warning and instruction have been attached. Information on labels is, by necessity less than in the operator's manual. Do not depend solely on the labels for safe and proper operation. Use your operator's manual.

DO NOT REMOVE ANY OF THESE LABELS. THEY ARE FOR YOUR PROTECTION! TAKE NOTE OF THEIR MESSAGES AND OBSERVE!

PERIODICALLY CHECK ALL LABELS AND REPLACE ANY THAT ARE MISSING, WORN, OR ILLEGIBLE. WHEN REPLACING, CLEAN MACHINE SURFACE THOROUGHLY USING SOAP AND WATER OR CLEANING SOLVENT TO REMOVE DIRT AND GREASE. CONTACT YOUR DEALER OR Art's Way IF ANY LABELS ARE NOT UNDERSTOOD!

THE Art's Way FORAGE BOX WAS DESIGNED AS A FORAGE BOX. DO NOT USE FOR OTHER PURPOSES!

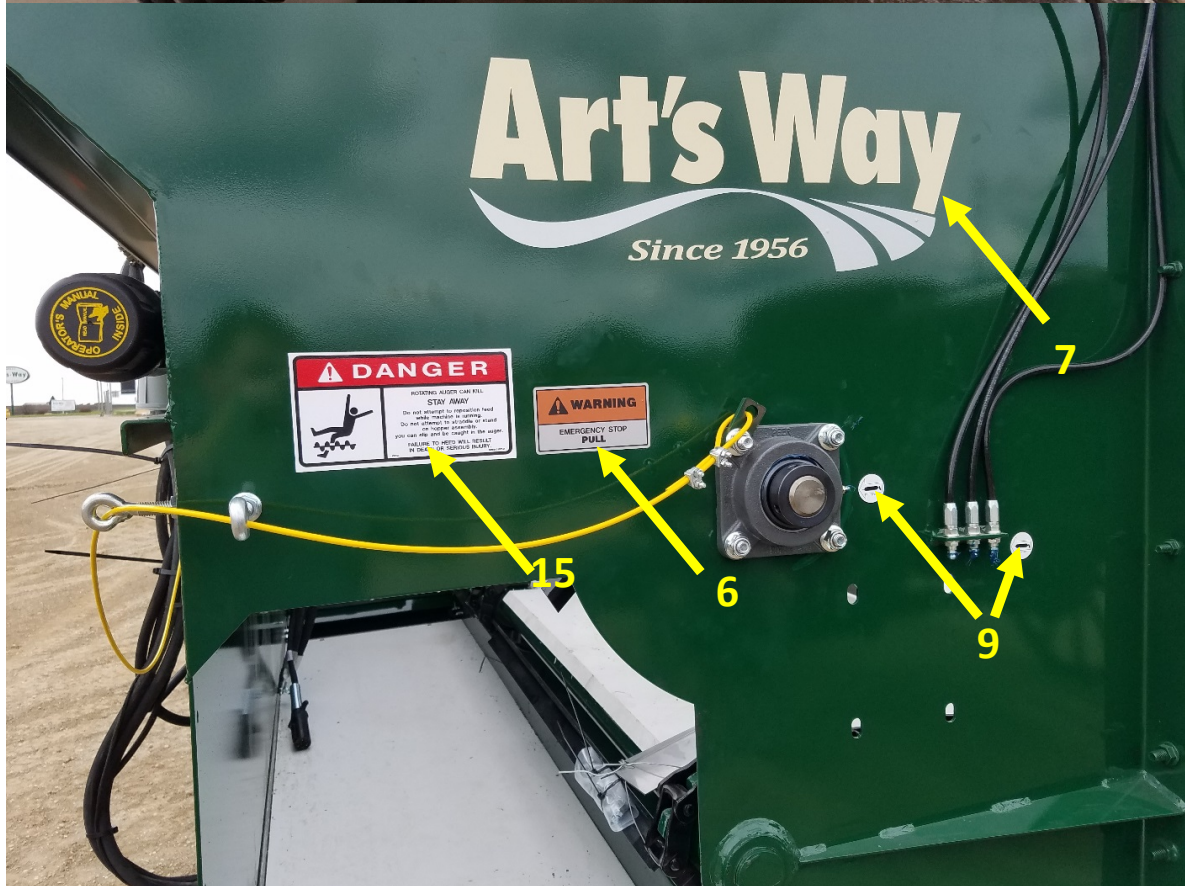
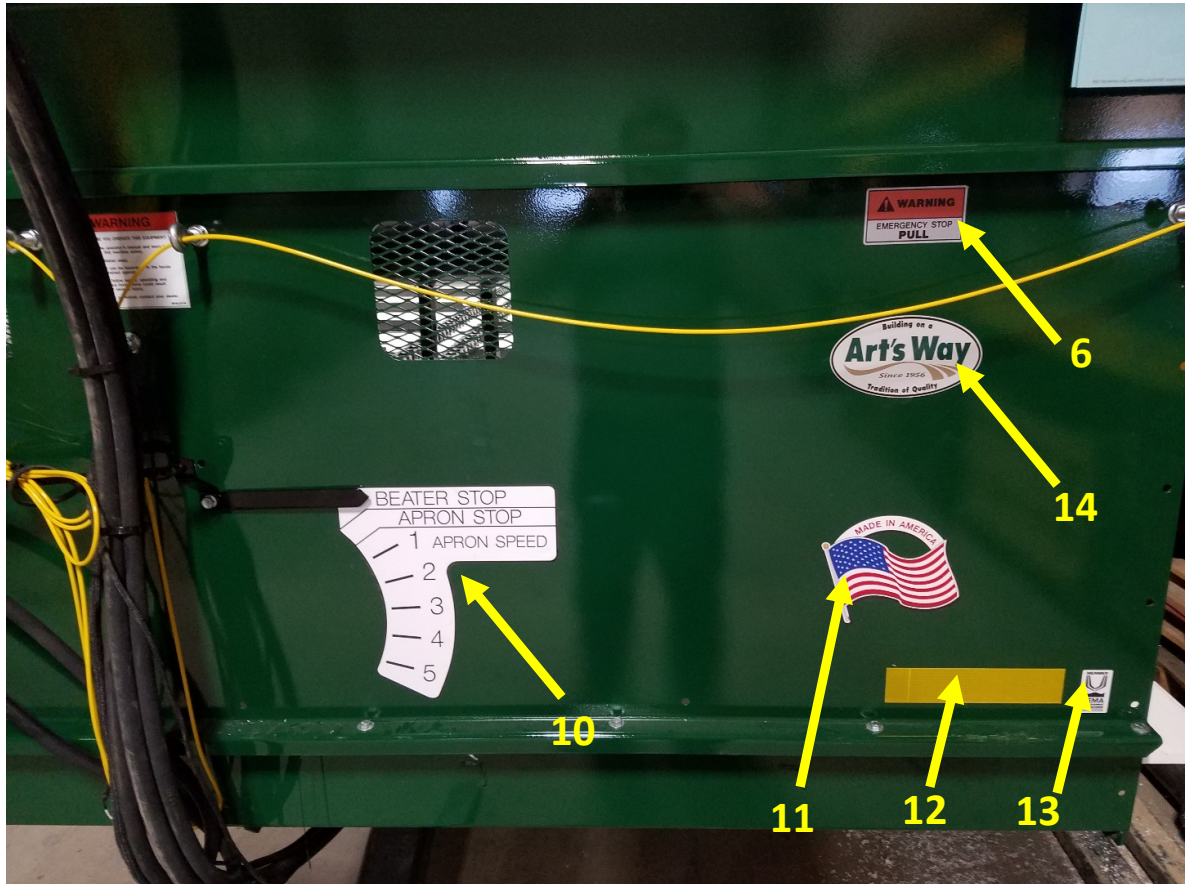
REPLACE ALL WORN, DAMAGED, UNUSABLE OR MISSING SAFETY SHIELDS AND GUARDS. CONTACT YOUR DEALER!



CLOSE OR REPLACE ALL COVERS, DOORS OR SHIELDS BEFORE STARTING THE UNLOADING MECHANISM!

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	618010	35" CREAM AND SILVER AW LOGO	1
2	MP16.20181	ROTATING PARTS WARNING	3
3	NH9611750	DO NOT OPERATE W/O SHIELD WARNING	3
4	467450	MOVING PARTS HAZARD WARNING	3
5	632070	8200 COMMERCIAL FB DECAL	1
6	MP01.77810	EMERGENCY STOP PULL DECAL	3
7	582430	CREAM AND SILVER AW LOGO	2
8	MP16.20178	BEFORE OPERATING WARNING DECAL	1
9	146670	GREASE DECAL	7
10	632075	INDICATOR DECAL	1
11	608080	FLAG DECAL	2
12	476460	YELLOW REFLECTOR	1
13	K18534203	FEMA DECAL	1
14	605550	4 X 7 AW LOGO	1
15	NH86502503	ROTATING PARTS DANGER	1
16	355500	FINISHED SERIAL TAG	1
17	MP21.09024	HIGH PRESSURE OIL WARNING	1
18	MP16.10552	DANGER DOOR OPENING WARNING	1
19	476450	RED REFLECTOR	5
20	NH9612653	SHIELD REMOVED WARNING DECAL	3

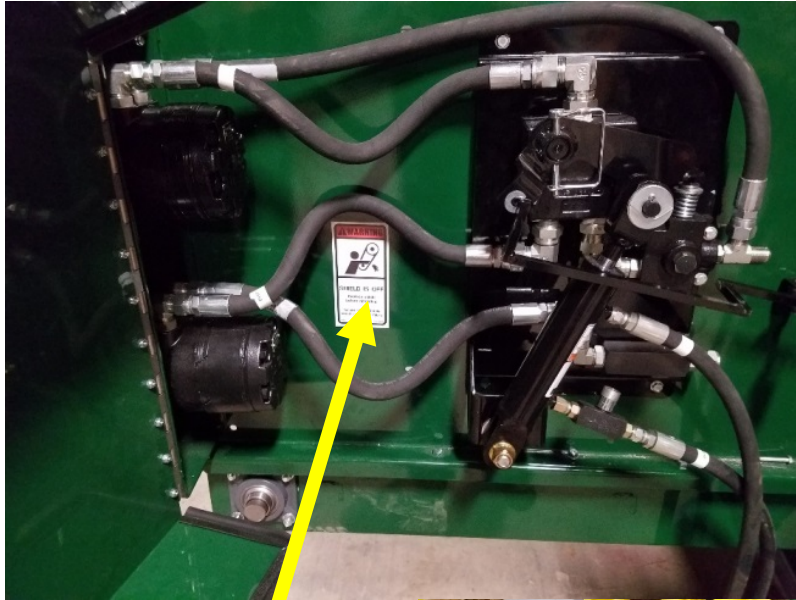




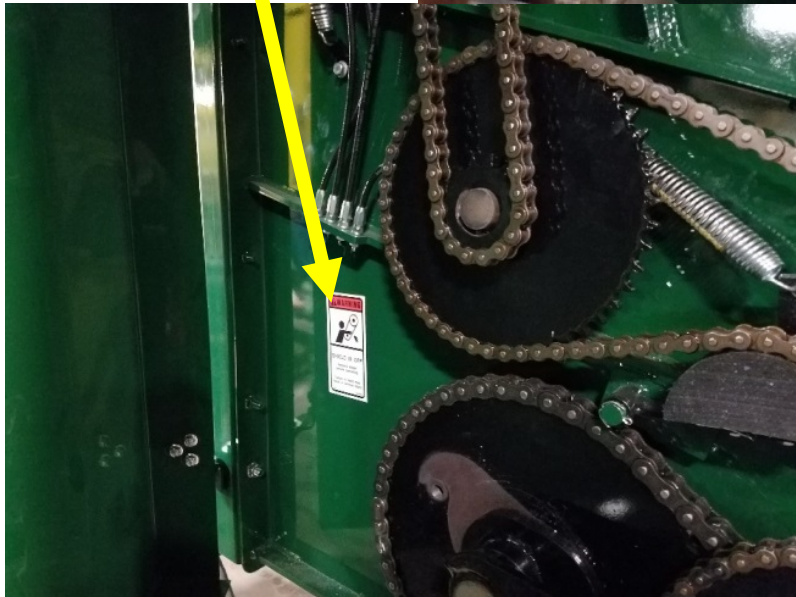








20





2

⚠ WARNING	
	<p>ROTATING PARTS INSIDE. KEEP YOUR BODY AND CLOTHING AWAY.</p> <p>FAILURE TO HEED COULD RESULT IN DEATH OR SERIOUS INJURY.</p> <p style="text-align: right;"><small>16.20181</small></p>

⚠ WARNING	
	
<p>MOVING PART HAZARD To prevent serious injury or death from moving parts:</p> <ul style="list-style-type: none"> • Close and secure all guards and shields before starting equipment • Keep hands, feet, hair, and clothing away from moving parts • Disconnect and lockout power source before adjusting or servicing <p style="text-align: right;"><small>467450</small></p>	

4

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8200


3

⚠ WARNING	
	
<p>Moving parts can crush or dismember.</p> <p>DO NOT OPERATE WITHOUT SHIELD IN PLACE.</p> <p>Disconnect PTO before adjusting or servicing drives.</p> <p>Failure to heed may result in serious injury.</p> <p style="font-size: small;">CODE 9611750 - B</p>	

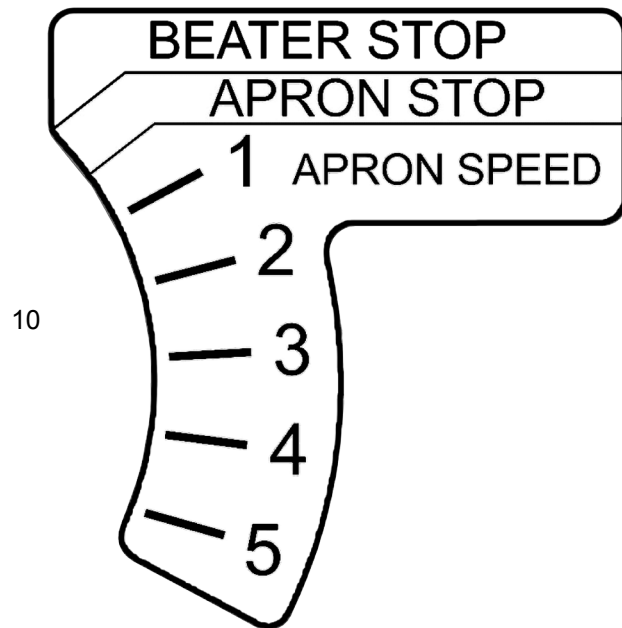
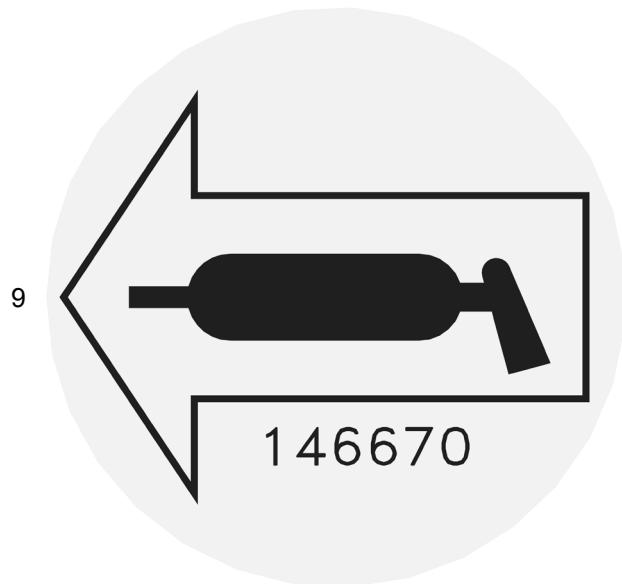
⚠ WARNING
<p>EMERGENCY STOP PULL</p>

6



⚠ WARNING	
	<p>BEFORE YOU OPERATE THIS EQUIPMENT: Read the operator's manual and learn to operate this machine safely.</p> <p>Keep children away.</p> <p>Machines can be hazardous in the hands of an untrained operator.</p> <p>Failure to follow safety, operating and maintenance instructions could result in death or serious injury.</p> <p>If you have questions: contact your dealer.</p> <p style="text-align: right;"><small>16.20178</small></p>

8



16

Art's Way
Since 1956

SERIAL NO.

MODEL NO.

Manufactured by
Art's Way Manufacturing Co., Inc.
 Armstrong IA USA



! DANGER

DO NOT STAND CLOSE TO THE DOOR.

IT WILL OPEN SUDDENLY WITHOUT WARNING!

18



19

17

! WARNING



AVOID HIGH-PRESSURE FLUIDS

AVOID THE HAZARD BY RELIEVING PRESSURE BEFORE DISCONNECTING HYDRAULIC OR OTHER LINES. TIGHTEN ALL CONNECTIONS BEFORE APPLYING PRESSURE.

SEARCH FOR LEAKS WITH A PIECE OF CARDBOARD. PROTECT HANDS AND BODY FROM HIGH PRESSURE FLUIDS.

! WARNING



SHIELD IS OFF

Replace shield before operating.

Failure to heed could result in serious injury.

CODE 9612653 - B

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SET-UP INSTRUCTIONS

SET-UP INSTRUCTIONS

SMV Emblem

A Slow Moving Vehicle (SMV) Emblem is supplied with the forage box.

1. Hydraulic brake line connection:

The return line must be connected to a no pressure return, case drain return, or a remote in the float position at all times.

The first two options are strongly recommended.

The purpose for the return line is to make the adjusting needle valve functional and relieve pressure to the brake cylinders for minimal lag time on brake release. The pressure line may be connected to an integrated brake valve or a hydraulic remote on the tractor. An integrated brake valve is recommended when available.

2. Drum brake setup:

Step 1:

With brake cylinders fully retracted, adjust brake pads to within 1/32" of the brake drum using the manual slack adjusters. (1/2" Wrench Required)

Step 2:

Open the needle valve completely by rotating knob counterclockwise.

Step 3:

Drive forward and engage brake hydraulics. When using an integrated brake valve, while the forage trailer is empty, tires should not skid on paved surfaces.

Step 4:

Rotate needle valve knob clockwise 1/2 turn to increase braking.

Step 5:

Repeat steps 3 and 4 until desired braking aggressiveness is reached.

Step 6:

Tighten small retaining screw on needle valve knob to lock position.

Note: If one tire consistently skids before the others, back the slack adjuster for that tire off slightly. Brake response time is directly influenced by the proximity of the brake pads to the drums, and setting pads closer will activate the brakes faster. Setting the pads further apart will activate the brakes slower.

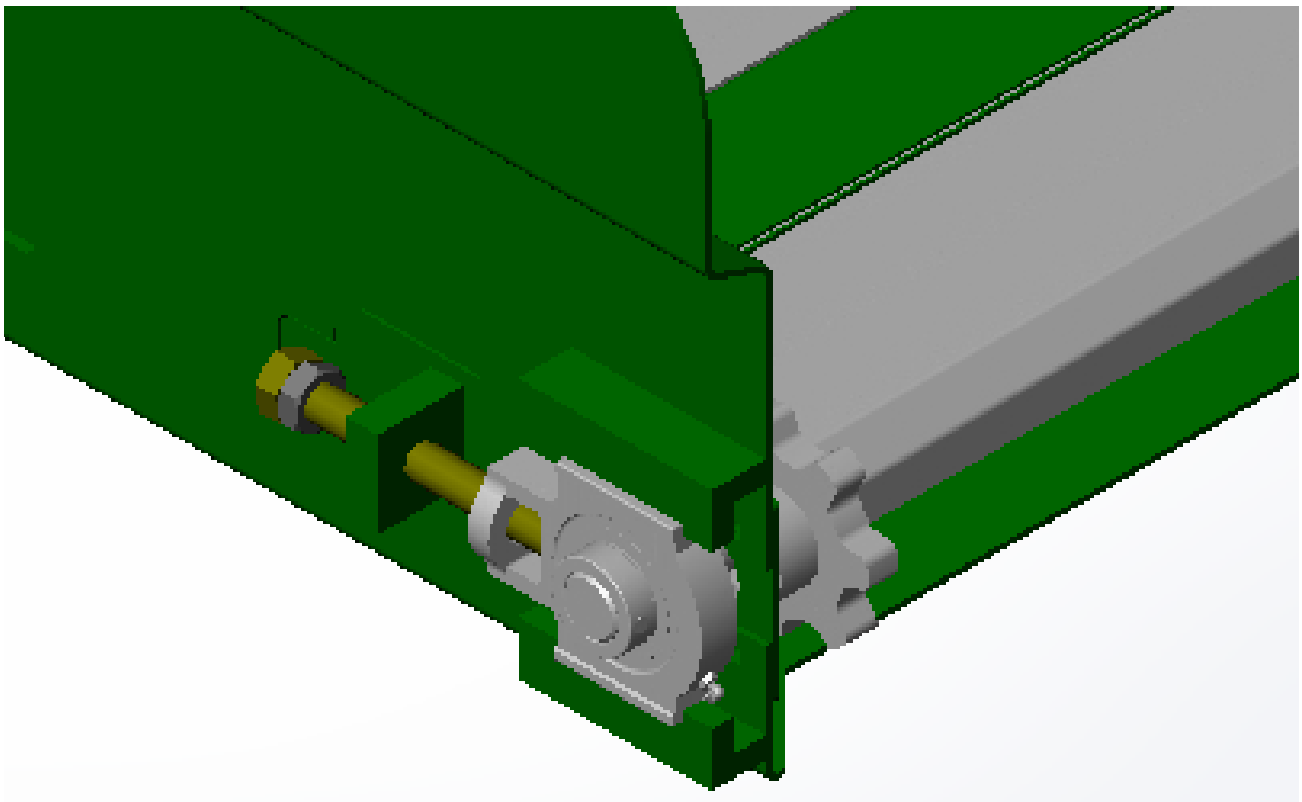
3. Cross conveyor sequence valve:

The speed of drop on the cross conveyor extension can be decreased by turning the black knob located on the top of the sequence valve block clockwise and increased by turning it counterclockwise.

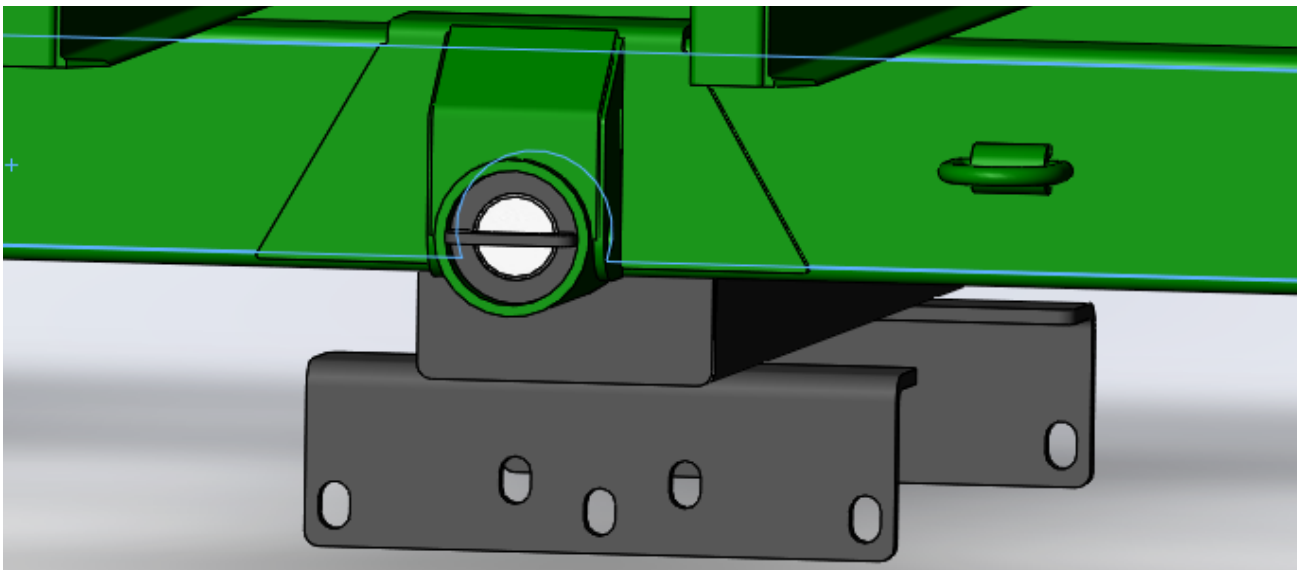
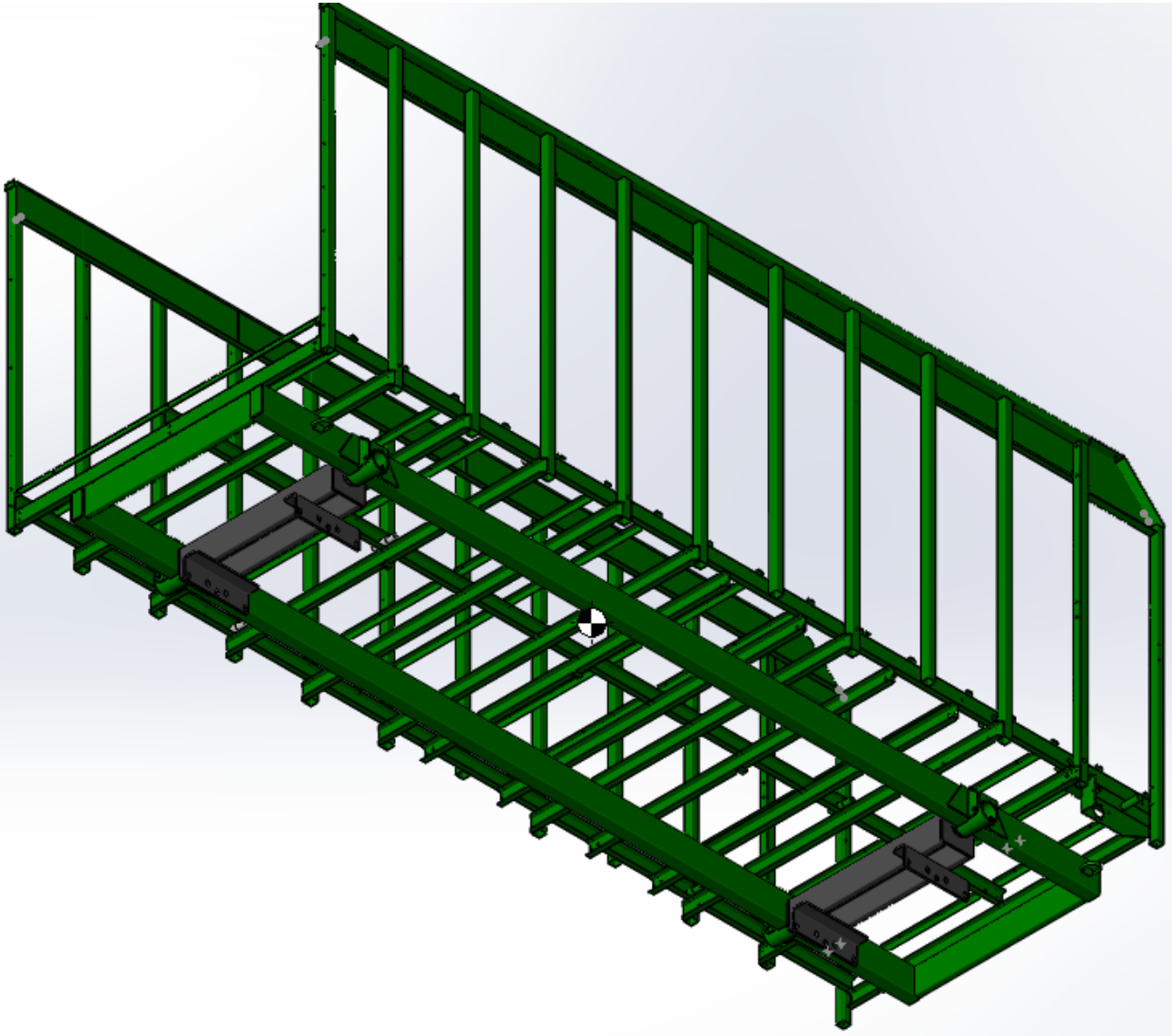
Cross Conveyor Apron

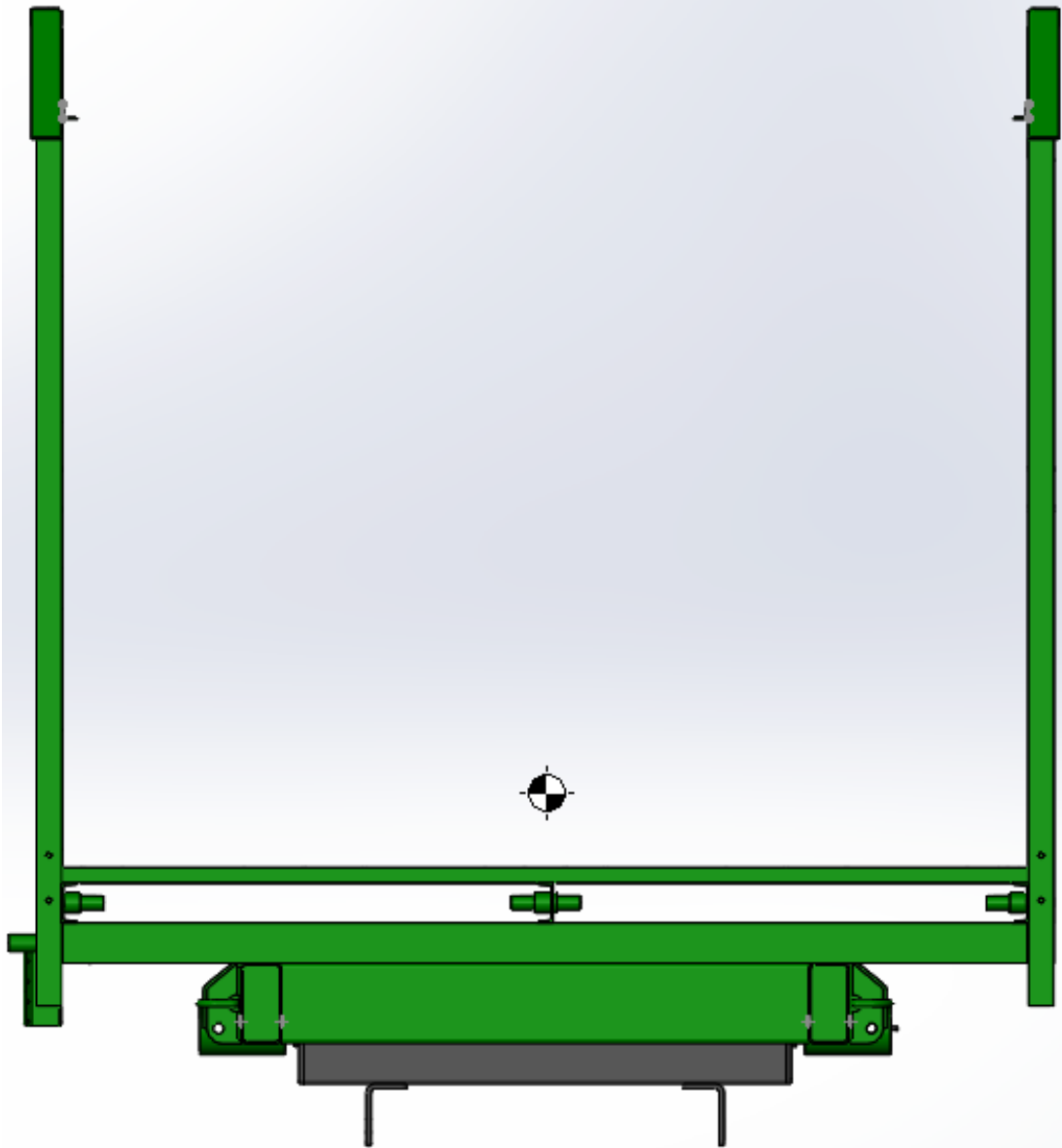
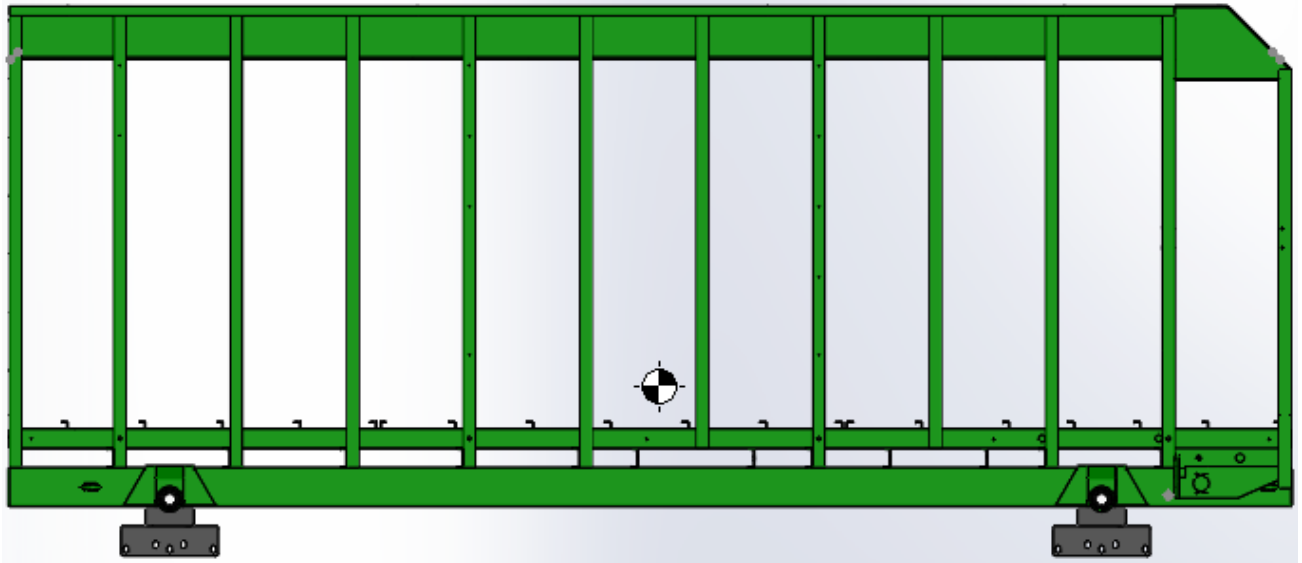
On some units the outfeed extension is shipped loose. Proper setup requires this be attached with the existing 6-3/8" bolts, lockwashers & nuts. The PTO bracket is located on the middle 3/8" bolt in front. The flange on the return pan must be inside the unit as shown.

Proper tension on the cross conveyor apron is obtained when apron slats are first touching the return pan about 3' inside the outfeed opening. Adjust the right and left tighteners so both side chains are tightened equally. To adjust the apron, loosen the 3/8" nuts, and then loosen the outer jam nut on the adjusting stud and turn the inner adjusting nut until the proper tension is achieved, then retighten the jam nuts and 3/8" nuts.



TRUCK MOUNT LOCATIONS





OPERATION INSTRUCTIONS

OPERATION INSTRUCTIONS**Loading**

Position the unit beside the harvesting unit in order to fill the rear of the box first. Fill the box 2/3 full starting at the rear and working forward to the top beater. Then start at the rear of the box and top off as desired working forward. This allows the forage trailer operator to see the loading point at all times. In wet conditions start filling above the trailer axles and work forward in order to create better traction for the tractor.

Transporting

The outfeed apron extension has been equipped with an amber reflector on front and a red reflector to the rear. There are 2 amber reflectors on each side of the forage box. Red reflectors also are attached to the rear of the forage box.

There are also red and amber transport lights at the rear on each side of the box. The plug for the light cord is mounted in the front shield. For your safety, and the safety of others, it is recommended that the transport lights are used when traveling public roadways.



NEVER EXCEED A MAXIMUM TOWING SPEED OF 20 MPH (32 KPH) WHEN TRANSPORTING THE FORAGE BOX!



DO NOT ALLOW ANYONE TO OPERATE THIS EQUIPMENT WHO HAS NOT BEEN TRAINED IN ITS SAFE OPERATION!



EMERGENCY STOP DOES NOT STOP THE FORAGE BOX DRIVE SYSTEM WHEN BEING OPERATED AS A REAR UNLOAD.

Tractor Connections**WARNING**

The hitch point of the tractor drawbar should be at least 13" but not more than 20" above the ground.



DO NOT ALLOW ANYONE TO OPERATE THIS EQUIPMENT WHO HAS NOT BEEN TRAINED IN ITS SAFE OPERATION!

FRONT UNLOADING

Step 1: Position loaded forage trailer approximately 2 feet away from blower or bagger.

Step 2: Move speed indicator to “Beater Stop” Position

Step 3: Be sure area around front discharge is clear of bystanders and obstacles. The cross conveyor will automatically fold down when front unload hydraulics are engaged.

Step 4: Engage front unload hydraulics. The cross conveyor extension will fold down completely and then cross conveyor will start.

Step 5: When cross conveyor is empty, move speed indicator to “Web Stop” position. Beaters will start. Allow cross conveyor to clear dislodged material.

Step 6: Move speed indicator to “Web Speed 1”. Increase or decrease accordingly.

Step 7: When forage box is completely empty, stop front unload hydraulics and engage remote in the opposite position until cross conveyor extension is folded up completely.

Note: Tractor engine speed should not exceed 1,000 RPM while unloading and no more than 1,500 RPM when cleaning out. Exceeding this parameter will over pressure hydraulic components and lead to premature failure of seals and fittings. Maximum oil pressure is 2,500 PSI.



EMERGENCY STOP DOES NOT STOP THE FORAGE BOX DRIVE SYSTEM WHEN BEING OPERATED AS A REAR UNLOAD.

Rear Unloading-Hydraulic

Step 1: Position forage trailer where material is to be discharged.

Step 2: Check for overhead electrical wires. Tailgate will raise approximately 4 feet above the trailer during unload.

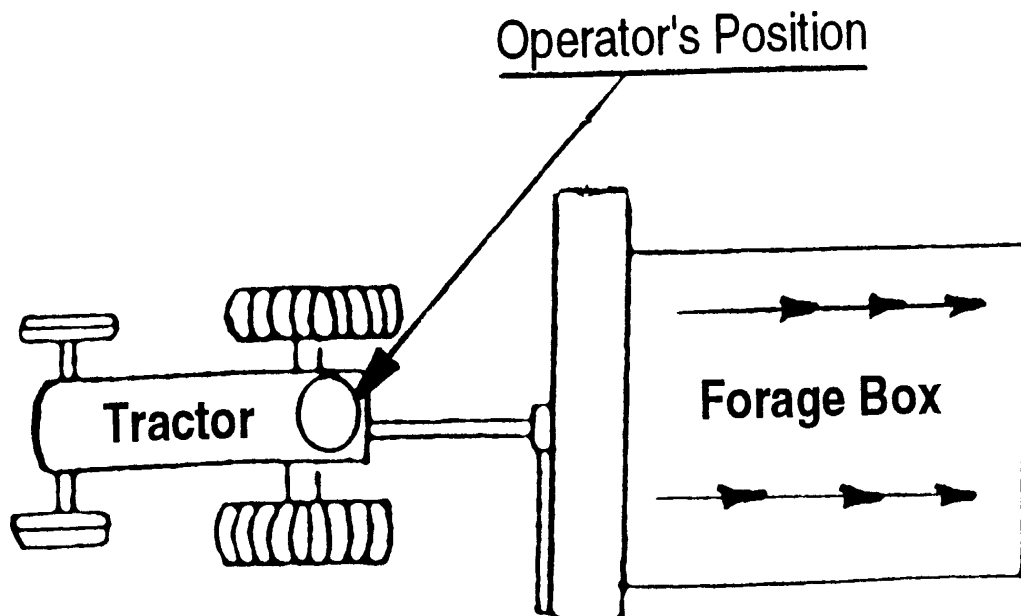
Step 3: Engage rear unload hydraulics. Tailgate will raise as floor apron runs slowly. Floor apron will reach full speed when tailgate is fully raised.

Step 4: Move forward slowly as load discharges to prevent forage from returning under the forage box.

Step 5: When load is completely discharged, stop rear unload hydraulics and engage remote in the opposite position to close tailgate.

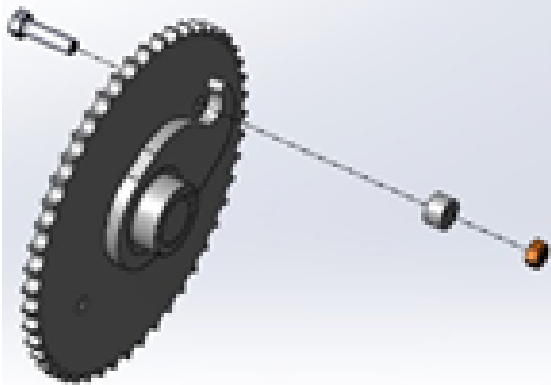
Note: Tractor engine speed should not exceed 1,500 RPM while rear unloading.

Operator's Position - Rear Unloading

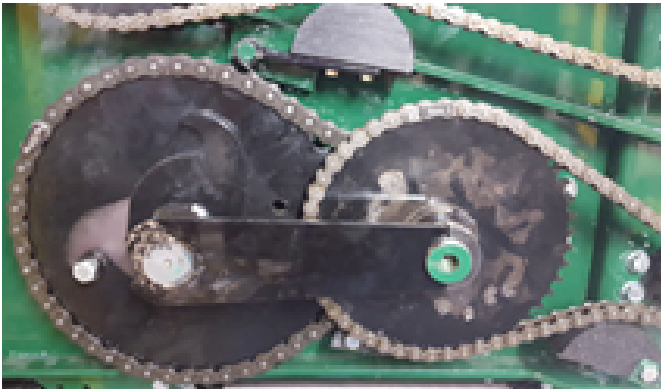


SHIFTING THE DRIVE LUG FROM REAR UNLOAD TO FRONT UNLOAD

- 1.) SET THE PARKING BRAKE AND SHUT OFF THE TRACTOR ENGINE.
- 2.) REMOVE THE NUT, DRIVE LUG, AND BOLT FROM THE REAR DRIVE SPROCKET.



- 3.) TAKE THE NUT, BOLT, AND DRIVE LUG TO THE FRONT, AND INSTALL THEM IN EITHER OF THE 2 BOLT LOCATIONS ON THE DRIVE SPROCKET. SEE IMAGE FOR THE INSTALLED BOLT.



FRONT SPROCKET SHOWN WITH NUT, LUG, AND BOLT INSTALLED.

- 4.) CLOSE AND LATCH ALL DOOR PANELS WHEN COMPLETE
- 5.) TO SHIFT FROM FRONT TO REAR UNLOAD REVERSE THE ABOVE PROCEDURE.



REAR SPROCKET SHOWN WITH NUT, LUG, AND BOLT REMOVED.

LUBRICATION



Do not unclog, adjust, lubricate or service the forage box unless the "Power Source Shut Down Procedure" has been performed.

Sufficient oil and grease will prevent excessive part wear and early failure. Lubricate according to instructions.

Main Apron and Beater Drive Gear-box

Grease and Oil

Most grease fittings are a standard style 1/4" - 28 commonly found on farm implements and automotive equipment. A good grade of lithium base grease should be used.







ADJUSTMENTS



Do not unclog, adjust, lubricate or service the forage box unless the "Power Source Shut Down Procedure" has been performed.

Main Apron

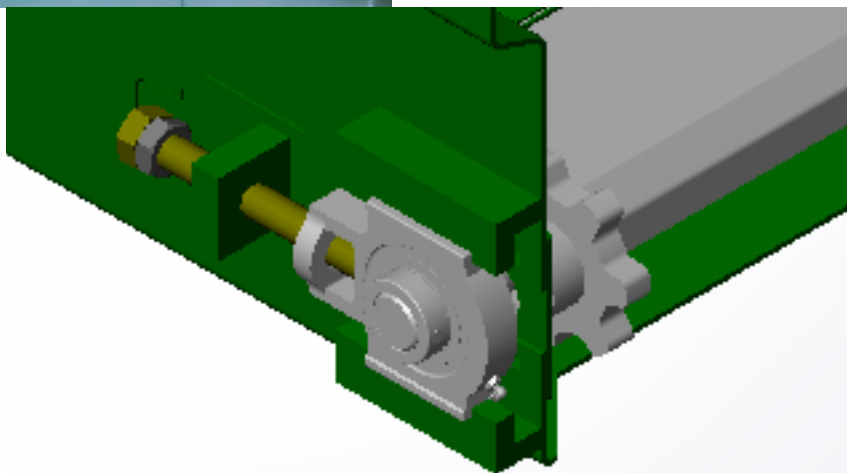
The main unloading aprons should be kept at proper tension at all times. On a new forage box tension should be checked every 5 loads until any excess slack has been taken up and during normal lubrication thereafter.

Cross Conveyor Apron

The cross conveyor apron should be kept at proper tension at all times.

To obtain proper tension adjustments set the spring seen in the image to 2 ½" long.

The tension system pivots as the spring is tightened down. 2.5" sets the tension, and allows for adjustment later as the chain stretches over time.



Apron Drive Chain

The apron drive chain is properly adjusted when all slack has been removed. To adjust the tension, loosen the nut holding the steel tightener assembly and move the tightener in until proper tension is obtained and then retighten the nut.



CLOSE the front cover before starting the unloading mechanism!



Beater Drive Chains

The beater drive chain is properly adjusted when all slack has been removed.

CAUTION: Periodic cleaning of inside of Transmission Side Door may be required.



CLOSE THE TRANSMISSION SIDE DOOR BEFORE STARTING THE UNLOADING MECHANISM!





Do not unclog, adjust, lubricate or service the forage box unless the "Power Source Shut Down Procedure" has been performed.

Rear Apron Drive Chain

The apron drive chain is properly adjusted when all slack has been removed. To adjust the tension, loosen the nut holding the tightener assembly and move the tightener in until proper tension is obtained and then retighten the nut.

Hydraulic Drive Chain

The hydraulic drive chain is properly adjusted when all the slack has been removed. To adjust the tension, loosen the 4-bolts holding the motor in position. Slide the motor, in the slots, in the direction to tighten to the chain. Torque the 4-bolts to proper torque.



HYDRAULIC REAR UNLOAD SHOWN

Storage

For off- season storage the following procedures are recommended:

1. Remove all crop material from the floor, cross conveyor, front door, emergency clutch housing and transmission side door.
2. Remove cleanout pan provided in the non-outfeed side of the forage box. Remove debris and buildup. Be sure to replace this pan before resuming operation.



Clean out pan must be replaced before operation.

3. Lubricate all grease points and check gearbox oil level.
4. Oil all chains - outfeed apron, front drive chain, main apron drive chains and metering auger drive chains.
5. Run the forage box for several minutes to distribute lubrication.
6. Store inside.







Fasteners

Retighten all fasteners every 50 loads or as required.

TORQUE SPECIFICATIONS

NOTE: Use these torque values when tightening hardware (excluding: locknuts and self-tapping, thread forming and sheet metal screw) unless specified otherwise.

All torque values are in lb-ft except those marked with an * which are lb-in (for metric torque value nm, multiply lb-ft value by 1.355 or lb-in value by 0.113).

Unified National Thread	Grade 2 		Grade 5 		Grade 8 	
	Dry	Lubed	Dry	Lubed	Dry	Lubed
8-32	19*	14*	30*	22*	41*	31*
8-36	20*	15*	31*	23*	43*	32*
10-24	27*	21*	43*	32*	60*	45*
10-32	31*	23*	49*	36*	68*	51*
1/4-20	66*	50*	9	75*	12	9
1/4-28	76*	56*	10	86*	14	10
5/16-18	11	9	17	13	25	18
5/16-24	12		19	14		20
3/8-16	20	15	30	23	45	35
3/8-24	23	17	35	25	50	
7/16-14	32	24	50	35	70	55
7/16-20	36	27	55	40	80	60
1/2-13	50	35	75	55	110	80
1/2-20	55	40	90	65	120	90
9/16-12	70	55	110	80	150	110
9/16-18	80	60	120	90	170	130
5/8-11	100	75	150	110	220	170
5/8-18	110	85	180	130	240	180
3/4-10	175	130	260	200	380	280
3/4-16	200	150	300	220	420	320
7/8-9	170	125	430	320	600	460
7/8-14	180	140	470	360	660	500
1-8	250	190	640	480	900	680
1-14	270	210	710	530	1000	740
Metric Course Thread	Grade 8.8 		Grade 10.9 		Grade 12.9 	
	Dry	Lubed	Dry	Lubed	Dry	Lubed
M6-1	8	6	11	8	13.5	10
M8-1.25	19	14	27	20	32.5	24
M10-1.5	37.5	28	53	39	64	47
* M12-1.75	65	48	91.5	67.5	111.5	82
M14-2	103.5	76.5	145.5	108	176.5	131
M16-2	158.5	117.5	223.5	165.5	271	200

TIGHTEN HYDRAULIC FITTINGS



CAUTION:

Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pin holes and nozzles which eject fluids under high pressure. Use a piece of cardboard or paper to search for leaks. Do not use your hand.

Tightening Flare Type Fittings*

1. Check flare and flare seat for defects that might cause leakage.
2. Align hose end with fitting before tightening.
3. Lubricate connection and hand tighten swivel nut until snug.
4. To prevent twisting the hose, use two wrenches. Place one wrench on the hose end body and with the second wrench, tighten the swivel nut to the torque shown in this chart.

* Torque values shown are based on lubricated connections as in reassembly.

Tube Size OD	Nut Size Across Flats	Torque Value*		Recommended Turns To Tighten (After Finger Tightening)	
		(Nm)	(lb-ft)	(Flats)	(Turns)
3/16	7/16	8	6	1	1/6
1/4	9/16	12	9	1	1/6
5/16	5/8	16	12	1	1/6
3/8	11/16	24	18	1	1/6
1/2	7/8	46	34	1	1/6
5/8	1	62	46	1	1/6
3/4	1-1/4	102	75	3/4	1/8
7/8	1-3/8	122	90	3/4	1/8

TIGHTEN HYDRAULIC FITTINGS continued

Tightening O-Ring Fittings*

1. Inspect O-ring and seat for dirt or obvious defects.
2. On angle fittings, back the locknut off until washer bottoms out at top of groove.
3. Hand tighten fitting until backup washer or washer face (if straight fitting) bottoms on face and O-ring is seated.
4. Position angle fittings by unscrewing no more than one turn.
5. Tighten straight fittings to torque shown.

* Torque values shown are based on lubricated connections as in reassembly.

Thread Size	Nut Size Across Flats	Torque Value*		Recommended Turns To Tighten (After Finger Tightening)	
		(Nm)	(lb-ft)	(Flats)	(Turns)
3/8	1/2	8	6	2	1/3
7/16	9/16	12	9	2	1/3
1/2	5/8	16	12	2	1/3
9/16	11/16	24	18	2	1/3
3/4	7/8	46	34	2	1/3
7/8	1	62	46	1-1/2	1/4
1-1/16	1-1/4	102	75	1	1/6
1-3/16	1-3/8	122	90	1	1/6
1-5/16	1-1/2	142	105	3/4	1/8
1-5/8	1-7/8	190	140	3/4	1/8
1-7/8	2-1/8	217	160	1/2	1/12

RUNNING GEAR INSTRUCTIONS

Important Safety Notice

Appropriate service methods and repair procedures are essential for the safe, reliable operation of all running gear as well as the personal safety of the individual doing the work. This manual provides general directions for performing service and repair work with tested, effective techniques. Following these guidelines will help assure reliability.

There are numerous variations in procedures, techniques, tools, parts for servicing axles, as well as in the skill of the individual doing the work. This manual cannot possibly anticipate all such variations and provide advice or cautions as to each. Anyone who departs from the instructions provided in this manual must first establish that they neither compromise their personal safety nor the vehicle integrity by their choice of methods, tools, or parts.

Refer to your vehicle manufacturer's owners manual for additional procedures, techniques, and warnings prior to performing any maintenance or repairs.



CAUTION

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

Axle Identification

In the unlikely event that you should require service assistance from Dexter Axle, please have the lot (serial) number of the axle available when you call.

On all axles produced after April 2001, this nine digit number can be found near the center on the rear side of the axle beam. Look for the words DEXTER AXLE and the lot number will be located directly under the name. For easier identification, rubbing a piece of chalk over the number may help bring out the engraving.



Suggested Preventative Maintenance

Every 1,000 Miles

Check oil level in wheel hub and inspect wheel for leaks.

Every 12,000 Miles

Check brake adjustment. Repack wheel bearings (grease application).

Every 25,000 to 30,000 Miles

Check lining wear and estimate reline time. Inspect camshaft, camshaft spider bushing, and camshaft support bracket bushing for any signs of wear.

Lubricate brake actuating components.

Every 100,000 Miles, Once a Year, or at Brake Reline

Replace wheel bearing lubricating oil (if applicable).

Check brake air chambers and slack adjusters. Inspect brake rollers, roller shafts, anchor pins and bushings, and replace if necessary.

Fastener Specifications

Part Name	Model	Size & Thread	Grade	Torque
Spindle Nut Inner (lg)	D2L__ D2M__	2 ⁵ / ₈ -16	5	Refer to Bearing Adj. Section 250-300 Ft. Lbs.
Outer (sm)	D2H__	2 ⁵ / ₈ -16	5	
Grease Zerk	Cam Bushing Spider	1/4-28 UNF 1/8-27 NPT	2 2	5-15 In. Lbs. 5-8 Ft. Lbs.
Cam Brackets	All Models	1/4-20	2	3-4 Ft. Lbs.
Air Chamber Mounting Nuts	All Models	5/8-11	5	Hex Nut 85-95 Ft. Lbs. Locknut 120-140 Ft. Lbs.
Anchor Pin Clamp Bolt	12 ¹ / ₄ " Dia. Air Brakes	7/16-20	5	60-70 Ft. Lbs.
Dust Shield Mounting	16 ¹ / ₂ " Dia. Air Brakes w/Tapped Spiders	5/16-18	5	10-15 Ft. Lbs.
Hub Cap	All Models	5/16-18	5	10-15 Ft. Lbs.
Drum Mounting Screw Backnut	12 ¹ / ₄ " Dia. 16 ¹ / ₂ " Dia.	5/8-18 3/4-16	5 5	160-180 Ft. Lbs. 175-200 Ft. Lbs.
Wheel Nut Inner	10 on 11 ¹ / ₄ or	3/4-16	5 or 8 (steel) 8 (aluminum)	450-500 Ft. Lbs.
Outer	10 on 8 ³ / ₄	1 ¹ / ₈ -16	5	450-500 Ft. Lbs.
Flange Nuts	10 on 285.75 or 8 on 275mm	22mm x 1.5	10.9	450-500 Ft. Lbs.
Rim Mounting	Demountable Rim Type	3/4-10	5	Refer to Manf. Recommend.

Recommended Brake Adjustment Procedure

1. Grease cam bracket and spider fittings.

CAUTION

Care must be exercised to prevent grease from coming in contact with brake linings which could result in reduced braking performance.

2. Adjust the slack adjuster until the brake lining comes into contact with the brake drum.
 - A. For green brakes*, there should be a slight amount of wheel drag at initial adjustment to compensate for any lining irregularities (high spot, etc.)
 - B. For burnished or broken-in brakes, back off the slack adjuster to achieve .030" clearance between drum and shoes.
3. Apply brakes using normal truck operating pressure (average line pressure should be 90 psi.).

CAUTION

USE OF AIR PRESSURE IN EXCESS OF 130 PSI COULD RESULT IN FAILURE OF THE AIR CHAMBER OR SPRING BRAKE CHAMBER AND RESULT IN INJURY.

- A. Check the amount of push rod travel. Maximum should not exceed 2" for Type 30 chambers and 1¾" for Type 24 chambers.
 - 1) Optimum push rod travel on a green brake* should be under 2".
 - 2) Optimum push rod travel on a burnished or broken-in brake should be under 1¾".

- B. With air pressure applied to brakes, check for lining to drum contact. The contact should approach 100%. Use a .010" feeler gauge if in doubt. It should not fit between the lining and drum during brake application.
 - C. Check to ensure the lining is inside the drum during application. More than .06" hanging out of the drum is not recommended.
4. Release air pressure from the brakes and confirm that all brakes release to the normal relaxed position.

***Note:** A “green brake” is an unground, unburnished brake. Normal manufacturing tolerances dictate that there is a break-in period required after which the lining will seat into a perfect concentric situation. During this break-in period, the user must be aware that additional brake adjustments will be mandatory to achieve optimum braking performance.

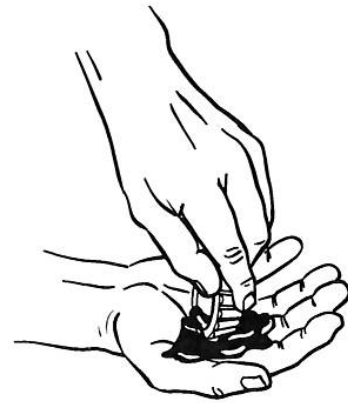
Wheel Bearings

Periodic inspection and regular replacement of lubricant is important to obtain maximum bearing life. Always inspect bearings for damage prior to installation. When installing wheel bearings, it is important to ensure both the inside of the wheel hub cavity, bearings and grease cap are clean. It is also recommended that seals be replaced when wheel hubs have been removed for service. **EXTREME CARE SHOULD BE TAKEN WHEN REINSTALLING WHEEL HUBS TO PREVENT DAMAGE TO THE SEALS. DO NOT CONTACT RUBBER SEALING LIP WITH THE SPINDLE THREADS.**

Grease Lubrication

Grease should be replaced every 12,000 miles or 12 months. Prior to repacking bearings, all old grease should be removed from the wheel hub cavity and bearings. Bearings should be packed by machine. If machine is unavailable, packing by hand method is acceptable. The method to pack bearing cones is as follows:

1. Place a quantity of grease onto the palm of your hand.
2. Press a section of the widest end of bearing into the outer edge of the grease pile closest to the thumb, forcing grease into the interior of the bearing between two adjacent rollers.
3. Repeat this while rotating the bearing from roller to roller.
4. Continue this process until you have the entire bearing completely filled with grease.
5. Before reinstalling, apply a light coat of grease onto the bearing cup mating surface.



Oil Lubrication

Oil should be changed at least once a year, or 100,000 miles, or whenever the seals or brakes are replaced. Oil level should be inspected every 1,000 miles. Always allow a few minutes, after adding oil or after vehicle operation, for the oil to settle when establishing the required oil level.

Adjustment

1. After properly installing the bearings and seals according to the manufacturer's recommendations, tighten the inner spindle nut to **100 Ft. Lbs.** while rotating the hub to ensure proper seating of the bearings, cups and seal in the wheel hub.

CAUTION

You must follow the maintenance procedures to prevent damage to important structural components. Damage to certain structural components such as wheel bearings can cause the wheel end to come off of the axle. Loss of a wheel end while the trailer is moving can cause you to lose control and lead to an accident, which can result in serious injury or death.

2. Loosen the inner spindle nut to remove pre-load torque.
3. Hand tighten the inner adjustment nut, then back off $\frac{1}{4}$ turn, $\frac{3}{8}$ turn maximum.
4. Install lock ring (lock ring must engage pin on inner spindle nut. Nut to engage nearest pin hole).
5. Install tab washer and outer locknut. Torque outer spindle nut to **250-300 Ft. Lbs.** Bend 3 tabs over outer nut flats to secure.
6. This procedure should assure an end-play of .001" to .010" which must be present in the adjusted wheel bearing assembly.

Recommended Wheel Bearing Lubrication Specifications

Grease

Thickener Type	Lithium Complex
Dropping Point	215°C (419°F) Minimum
Consistency	NLGI No. 2
Additives	EP, Corrosion & Oxidation Inhibitors
Viscosity Index	80 Minimum

Approved Grease Sources

Chem Arrow	Arrow 2282
Chevron Texaco	Chevron Ulti-Plex Grease EP #2 Texaco Starplex Moly MPGM #2
Citgo	Lithoplex MP #2 Lithoplex CM #2 Mystik JT-6 Hi-Temp Grease #2
ConocoPhillips/ 76 Lubricants/Kendall	Multiplex RED #2 L427 Super Blu Grease
Dexter Axle Company	Lithoplex Red MP #2
Exxon/Mobil Company	Ronex, MP Mobilith AW 2 Mobil I Synthetic Grease
Fuchs	Renolit Uniwrl 2
Great Plains Lubricants	Lithium Complex EP #2
Oil Center Research of Oklahoma	Liquid-O-Ring No, 167L
Pennzoil-Quaker State Company	Synthetic Red Grease
Royal Mfg. Company	Royal 98 Lithium Complex EP #2
Shell	Gadus S3 V220C Gadus S5 V220 Rotella Heavy Duty Lithium Complex #2
Valvoline	Valvoline Multi-Purpose GM Valvoline Durablend

Oil

SAE 90, SAE 80W-90, SAE 75W-90

Approved Oil Sources

Ashland Oil	Valvoline Dura Blend Valvoline Power Lube
CITGO Petroleum Co.	CITGO Premium Gear Oil MP Mystik JT-7 Mystik Power Lube
Conoco	Universal Gear Lubricant 80W-90
Exxon Company USA	Gear Oil GX 80W-90
Industrial Oils Unlimited	Super MP Gear Oil 80W-90
Kendall Refining Co.	Kendall NS-MP Hypoid Gear Lube
Lubriplate Division/ Fiske Brothers Refining	Lubriplate APG 90
MFA Oil Company	Multi-Purpose Gear Oil 80W-90
Mobil Oil Corporation	Mobilube SHC Mobil 1 Synthetic Gear Lube
Phillips 66 Petroleum	Superior Multi-Purpose Gear Oil Philguard Gear Oil Philsyn Gear Oil
Pennzoil Products Co.	Gear Plus 80W-90 GL-5 Gear Plus Super 75W-90 Gear Plus Super EW 80W-90 Multi-Purpose 4092 Gear Lube
Oil Center Research	Liquid-O-Ring 750 GX
Sun Refining and Marketing Company	Sonoco Ultra Sonoco Dura Gear
Shell Oil Company	Spirax A Spirax G Spirax HD Spirax S
Texaco Oil Company	Multigear EP Multigear SS
Troco Division/ Royal Manufacturing	Multigear Select Gear Oil
Union Oil Company	Unocal MP Gear Lube 76 Triton Syn Lube EP

Replacement Parts/Kits

Brake Shoe Hardware Kits

Brake Size	Air (one brake)
12¼" x 7½" P Style	K71-098-00
12¼" x 7½" PQ Style	K71-460-00
16½" x 7" Q Style	K71-136-00

Brake Block Kits

Brake Size	Air (one brake)
12¼" x 7½" P and PQ Style	K71-133-00
16½" x 7" Q Style	K71-138-00

Camshaft Repair Kits

Brake Size	Air (one brake)
12¼" x 7½" P and PQ Style	K71-101-00
16½" x 7" Q Style	K71-135-00

Shoe & Block Assemblies

Brake Size	Part Number
12¼" x 7½" P Style	040-175-01
12¼" x 7½" PQ Style	040-320-01
16½" x 7" Q Style	040-180-00

Recommended Brake Assembly/Disassembly Procedure

Although Dexter Axle supplies non-asbestos brake linings as standard equipment, asbestos linings may still be found on axles in service.

CAUTION

POTENTIAL ASBESTOS DUST HAZARD!

Some older brake linings may contain asbestos dust, which has been linked to serious or fatal illnesses. Certain precautions need to be taken when servicing brakes:

- 1. Avoid creating or breathing dust.**
- 2. Avoid machining, filing or grinding the brake linings.**
- 3. Do not use compressed air or dry brushing for cleaning (dust can be removed with a damp brush).**

Assembly/Disassembly Procedure ***16½" x 7" Brakes***

Disassembly

1. Block and secure trailer on adequate capacity jack stands. Follow trailer manufacturers recommendations for lifting and supporting the unit. Check that the wheel and drum rotate freely.
2. Release brake and back off slack adjuster.
3. Remove wheel equipment.
4. Remove slack adjuster lock ring and slack adjuster.
5. Remove brake drum (if outboard mount). Remove hub and drum assembly (if inboard mount).
6. Disengage the roller retainers from the rollers.
7. Press down on the bottom brake shoe and remove the lower cam roller. Lift the top shoe and take out the top cam roller.

8. Lift out the shoe retractor spring, which is now free of tension.
9. Swing the lower shoe back approximately 180° to relieve the tension on the shoe keeper springs. Remove the springs and slip the shoes off the anchor pins.
10. Remove camshaft lock ring, spacer washer(s) and camshaft.
11. After removing the shoes, completely inspect all brake components, servicing as necessary.

Reassembly

1. Install new anchor pin bushings, camshaft bushing and camshaft seals into the spider.
2. Install cam roller, retainer clip and retractor spring retainers onto the brake shoes.
3. Install 1/8" thick camshaft washer onto the camshaft.
4. Install the cam shaft into the spider. Install spacer washer and lock ring retainer on camshaft before sliding the camshaft through the camshaft support bracket. Install the slack adjuster, washer and lock ring retainer.
5. Install the brake keeper springs onto the shoes. Install shoes onto the spider by placing shoes in place on the anchor pins, then "wrap" the two shoes into place about the spider.
6. Install the shoe retractor spring onto the shoes.
7. Connect slack adjuster to brake chamber pushrod.
8. Reinstall wheel equipment per manufacturers instructions.
9. Adjust brakes as outlined in brake adjustment procedures.

Note: Always use new springs when servicing brakes.
Always use Dexter shoes when replacing shoes.

Assembly/Disassembly Procedure ***12¼" x 7½" Brakes - P Style***

Disassembly

1. Block and secure trailer on adequate capacity jack stands. Follow trailer manufacturers recommendations for lifting and supporting the unit. Check that the wheel and drum rotate freely.
2. Release brake and back off slack adjuster.
3. Remove wheel equipment.
4. Remove slack adjuster lock ring and slack adjuster.
5. Remove hub and drum assembly.
6. Remove anchor pin anti-rotation bolt (if applicable).
7. Remove anchor pin retainers and washers.
8. Remove anchor pins and brake shoes.
9. Remove brake return springs.
10. Remove camshaft lock ring, spacer washers(s) and cam shaft.
11. Remove roller pin retainers.
12. Remove roller pins, rollers from shoes.
13. Remove camshaft bushings and seals from spider.
14. After removing the shoes, completely inspect all brake components, servicing as necessary.

Reassembly

1. Install new camshaft bushing and camshaft seals into the spider.
2. Install cam roller assemblies onto the brake shoes.
3. Install "D" shaped camshaft washer onto the camshaft.
4. Install the camshaft into the spider. Install spacer washer and lock ring retainer on camshaft before sliding the camshaft through the camshaft support bracket. Install the slack adjuster, washer and lock ring retainer.

5. Install shoes, anchor pins and spacers onto spider. Install anchor lock rings.
6. Install retractor spring.
7. Tighten anchor pin anti-rotation screw (if applicable).
8. Connect slack adjuster to brake chamber pushrod.
9. Reinstall wheel equipment per manufacturers instructions.
10. Adjust brakes as outlined in brake adjustment procedures.

Note: Always use new springs when servicing brakes.
Always use Dexter shoes when replacing shoes.

Assembly/Disassembly Procedure ***12¼" x 7½" Brakes - PQ Style***

Disassembly

1. Block and secure trailer on adequate capacity jack stands. Follow trailer manufacturers recommendations for lifting and supporting the unit. Check that the wheel and drum rotate freely.
2. Release brake and back off slack adjuster.
3. Remove wheel equipment.
4. Lift top shoe upward to disengage the shoe webs from the anchor pin. Remove anchor pin.
5. Repeat procedure 4 for the bottom shoe.
6. Remove brake keeper springs.
7. Unwrap bottom shoe by pivoting the shoe on the camshaft head and twisting the shoe 90° under the spindle. Remove shoe assemblies from spider.
8. Remove slack adjuster lock ring, disconnect slack clevis, and then remove slack adjuster.
9. Remove camshaft lock ring, spacer washer(s) and camshaft.
10. Completely inspect all brake components, servicing as necessary.

Reassembly

1. Install new camshaft bushing. Ream bushing to 1.505/1.515 if required. Install camshaft seals into the spider.
2. Lubricate roller bore with anti-seize and install new cam roller assemblies onto the brake shoes.
Note: The head of roller pin should face the camshaft "D" washer once shoes are installed on spider.
3. Install "D" shaped camshaft washer onto the camshaft.
4. Install the camshaft into the spider. Install 005-075-00 washer and lock ring retainer on the camshaft before sliding the camshaft through the camshaft support bracket.
5. Install the slack adjuster and 005-134-00 washer and 069-078-00 lock ring retainer for 28 spline camshafts or 005-075-00 washer and 069-020-00 lock ring retainer for 10 spline camshafts.
6. Lubricate anchor pin notches with anti-seize lubricant.
7. Install "W" shaped retractor spring retainer pin into the 0.50" diameter shoe web holes near the camshaft roller end of the shoe.
8. Install retractor spring between shoes. Place top shoe onto spider as in service. Pivot bottom shoe on the camshaft head and twist the shoe 90° under the spindle, properly placing shoe on the spider as in service.
9. Install two (2) keeper springs on the anchor end of the shoes.
10. Lubricate anchor pin bores and shoe anchor pins with anti-seize lubricant.
11. Repeat procedure 10 for the bottom shoe.
12. Lift top shoe upwards to clear anchor pin hole. Install anchor pin.
13. Connect slack adjuster to brake chamber pushrod.
14. Lubricate cam bushings and slack adjuster.
15. Reinstall wheel equipment per manufacturers instructions.
16. Adjust brakes as outlined in brake adjustment procedures.

Note: Always use new springs when servicing brakes. Always use Dexter shoes when replacing shoes.

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Art's-Way Manufacturing Co., Inc. TECHNICAL MANUALS

Manuals are available from your local dealer or Art's-Way Manufacturing Co., Inc. 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.

Your local dealer can expedite your order for operator manuals, illustrated parts catalogs, service manuals, and maintenance records.

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

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