



**Art's-Way Manufacturing Co., Inc.**

Forage Box

Operator's Manual  
MP16.21265

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**O P E R A T O R ' S M A N U A L**



*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:**

1. GIVE INSTRUCTIONS TO THE OPERATOR ABOUT SAFE AND CORRECT USE OF THE MACHINE.
2. 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.

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 the 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, (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 modification 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 Mfg. Co. 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., 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., be liable for any such act. In addition, Art's-Way Manufacturing Co. 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 4 of this manual. In order to establish proper warranty registration, the Warranty Registration must be completed and returned to the factory within 30 days. Failure to comply with this requirement may result in reduced warranty allowances.

### **LIMITATIONS OF THIS MANUAL**

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

Owner's Name: \_\_\_\_\_

Owner's Address: \_\_\_\_\_

Purchase Date: \_\_\_\_\_

Dealership Name: \_\_\_\_\_

Dealership Address: \_\_\_\_\_

Dealership Phone No.: \_\_\_\_\_



Figure 2 - Location of Serial & Model Number Placard on Forage Box

### Machine Serial Number Location

The placard containing the serial and model number is located on the front left-hand side of the Forage Box. Enter the serial number and model of your Forage Box within the space provided.

SERIAL NO.	<input type="text"/>
MODEL NO.	<input type="text"/>
<p>Manufactured By  <i>Art's-Way Manufacturing Co., Inc.</i>          Armstrong, IA</p>	

Figure 1 - Serial and Model Number Placard

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## LIMITED WARRANTY

Art's-Way Manufacturing Co., Inc. warrants the products it sells to be free from defects in material and workmanship for a period of one (1) year after the date of delivery to the first (original) purchaser, subject to the following conditions:

- Art's-Way Manufacturing Co., Inc. obligation and liability under this warranty is to repair or replace (at the company's option) any parts that upon manufacture were defective in material or workmanship.
- All parts and repairs under this warranty shall be supplied at Art's-Way Manufacturing Co., Inc. or an authorized Art's-Way Manufacturing Co., Inc. dealer, at the option of Art's-Way Manufacturing Co., Inc.
- Art's-Way Manufacturing Co., Inc. warranty does not extend to parts and elements not manufactured by Art's-Way Manufacturing Co., Inc. and which carry the warranty of other manufacturers.
- Transportation or shipping to an authorized dealer for necessary repairs is at the expense of the purchaser.
- Art's-Way Manufacturing Co., Inc. 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 Manufacturing Co., Inc. 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 the Company's liability is limited to repair or replacement of defective parts as set forth herein.
- Any improper use and/or maintenance, including operation after discovery of defective or worn parts, operation beyond the rated capacity, substitution of parts not approved by Art's-Way Manufacturing Co., Inc., or any alternation or repair by other than an authorized Art's-Way Manufacturing Co., Inc. dealer which affects 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 Manufacturing Co., Inc.
- Some states do not allow limitations on how long an implied warranty lasts or exclusions of, or limitations on relief such as 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.

## PRE-DELIVERY CHECKLIST (CUSTOMER)

### PRE-DELIVERY CHECK LIST

After the Forage Box has been completely set-up, check to be certain it is in correct running order before delivering it to the customer. The following is a list of points to inspect. Check off each item as you have made the proper adjustments and found the item operating satisfactorily. Any adjustment must be made according to specifications defined in this manual.

- All shields and guards are in place and fastened.
- Safety bar and cable operate properly.
- Position and fasten the rear saddle to main stringers, per instructions on page 22.
- All grease fittings have been lubricated and gear box filled to proper level and all chains are oiled. See "Lubrication" section in this manual.
- All mechanisms are operating trouble free.
- All roller chains are at proper tension. See "Adjustments" section in this manual.
- All bolts and other fasteners are tight.
- PTO shields turn freely, if equipped.
- Apron chains are adjusted properly. See "Adjustments" section in this manual.
- Rear door opens, closes and latches properly, if applicable.

### DELIVERY CHECK LIST

The following check list is an important reminder of valuable information that **MUST** be passed on to the customer at the time the unit is delivered. Check off each item as you explain it to the customer.

- Give the customer his Operator's Manual and PTO Manual. Instruct them to be sure to read and completely understand their contents **BEFORE** attempting to operate the unit.
- Explain the warranty.
- Explain and review with the customer the Safety Precautions section of this manual.
- Explain and review with the customer the Operating and Safety Equipment section of this manual.
- Explain that regular lubrication and proper adjustments are required for continued proper operation and long life. Review with the customer the Maintenance and Adjustments sections of this manual.
- Demonstrate the Safety/Cross Conveyor Clutch operation and activation. Also demonstrate the PTO Shaft Locking Device, Main Clutch and Shift Lever mechanisms, if equipped.
- Advise the customer to check for proper Apron and Roller Chain tension after the second load has been unloaded and to continue to check the tension until the initial give or slack in the apron disappears.
- Complete the Delivery Registration Card and have customer sign it and return it to Art's-Way Mfg. Co.
- Demonstrate the proper way to switch from front unload to rear unload and back. I acknowledge that above points were reviewed with me at the time of delivery, if applicable.

Dealer's Name			
Pre-Delivery Inspector Name		Date of Inspection	
Customer's Signature			
Model No.		Serial No	
Date Delivered			



## PRE-DELIVERY CHECKLIST (DEALER)

### PRE-DELIVERY CHECK LIST

After the Forage Box has been completely set-up, check to be certain it is in correct running order before delivering it to the customer. The following is a list of points to inspect. Check off each item as you have made the proper adjustments and found the item operating satisfactorily. Any adjustment must be made according to specifications defined in this manual.

- All shields and guards are in place and fastened.
- Safety bar and cable operate properly.
- Position and fasten the rear saddle to main stringers, per instructions on page 22.
- All grease fittings have been lubricated and gear box filled to proper level and all chains are oiled. See "Lubrication" section in this manual.
- All mechanisms are operating trouble free.
- All roller chains are at proper tension. See "Adjustments" section in this manual.
- All bolts and other fasteners are tight.
- PTO shields turn freely, if equipped.
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- Complete the Delivery Registration Card and have customer sign it and return it to Art's-Way Mfg. Co.
- Demonstrate the proper way to switch from front unload to rear unload and back. I acknowledge that above points were reviewed with me at the time of delivery, if applicable.

Dealer's Name			
Pre-Delivery Inspector Name		Date of Inspection	
Customer's Signature			
Model No.		Serial No	
Date Delivered			



## SAFETY FIRST

***“A careful operator is the best insurance against an accident”***

(National Safety Council)

Most accidents can be prevented if the operator:

- Fully understands how the machine functions
- Can anticipate situations which may produce problems
- Can make necessary corrections before problems develop



**Figure 3 - Universal Safety Alert Symbol**

**THIS SYMBOL MEANS  
ATTENTION!  
BECOME ALERT!  
YOUR SAFETY IS INVOLVED!**

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 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: IMMEDIATE AND SPECIFIC HAZARD WHICH *WILL* RESULT IN SEVERE PERSONAL INJURY OR DEATH IF PROPER PRECAUTIONS ARE NOT TAKEN.**



**WARNING: SPECIFIC HAZARD OR UNSAFE PRACTICE *COULD* RESULT IN SEVERE PERSONAL INJURY OR DEATH IF PROPER PRECAUTIONS ARE NOT TAKEN.**



**CAUTION: A REMINDER OF GOOD SAFETY PRACTICES. PERSONAL INJURY *COULD* RESULT IF PROPER PROCEDURES ARE NOT FOLLOWED.**



## SAFETY GUIDELINES



**Remember:**

***"The Best Operator is a Safe Operator"***



**CAUTION: 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 MFG. CO. 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.**

**CAUTION: 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.**

### **POWER SOURCE SHUTDOWN PROCEDURE**

Before cleaning, unclogging, adjusting, lubricating or servicing this machine perform the following:

- Disengage the tractor PTO. (Mechanical Unload)
- Shut off the tractor engine, remove the starter key and take it with you.
- Wait for all machine motion to stop.
- Remove the telescoping PTO driveline and ALL power connections from the tractor.
- Move the tractor remote hydraulic lever to neutral (Hydraulic unload)



**WARNING: FAILURE TO FOLLOW THESE PRECAUTIONS COULD RESULT IN DEATH OR SERIOUS INJURY.**

### **BEFORE OPERATING**

- Clear the area of bystanders, especially children, when making repairs, adjustments or performing maintenance on the forage box.
- Do not wear loose fitting clothing as it may catch in moving parts.
- Do not allow riders.
- KNOW how to stop the unloading unit of the forage box before starting it.
- Do not enter the forage box unless you follow instructions on page 27.
- See special instructions for operating right-hand unload forage boxes on page 14.
- Make sure to install and/or secure all guards and shields, including the tractor power take-off (PTO) master shield, before starting or operating the forage box.
- Do not use PTO or PTO guard as a step.
- Do not connect a 1000 RPM tractor PTO shaft onto this unit.
- Do not use a PTO adapter.
- Be sure that the correct implement driveline parts are used and that they are properly secured.
- Put all tractor and machine controls in "neutral" and disengage the PTO before starting. Follow the starting instructions according to your tractor manual.
- Make sure the locking device on the telescoping PTO drive shaft is engaged onto the tractor PTO shaft groove before starting the tractor engine.
- Make sure the rotating shields that are on the telescoping PTO drive shaft turns freely before starting the tractor engine.
- Install the safety chain when attaching the forage box to the tractor.
- Make sure the unit is adequately supported with safety blocks or safety stands when changing tires or performing maintenance.
- 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, augers and PTO 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.

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



**CAUTION: KEEP WELL CLEAR OF MOVING PARTS. BE SURE TO SHUT OFF THE TRACTOR, SET THE PARKING BRAKE, PUT THE MACHINE IN NEUTRAL, AND REMOVE THE TRACTOR KEY WHILE MAKING ADJUSTMENTS. WAIT FOR ALL MOVEMENT TO STOP BEFORE APPROACHING THE MACHINE.**

### DURING OPERATION

- Keep hands, feet, hair, and clothing away from moving parts.
- 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.
- Do not unclog, adjust, lubricate or service the forage box unless the "Power Source Shut Down Procedure" has been performed (Page 8).
- ALWAYS engage the tractor parking brake before proceeding to unload the forage box.
- 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

- 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, 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

- On a hydraulic drive, refer to the tractor operators' manual for proper operation of hydraulic controls.
- 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

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

### **STORAGE SAFETY**

- 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**

- USE ONLY properly rated running gear and 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.
- Follow proper procedures when installing a tire on a wheel or rim to prevent an explosion that could result in serious injury.
- Do not substitute tires with a lesser road rating and/or capacity for the original equipment tires.



**CAUTION: FAILURE TO FOLLOW PROPER PROCEDURES WHEN INSTALLING A TIRE ON A WHEEL OR RIM CAN PRODUCE AN EXPLOSION THAT MAY RESULT IN SERIOUS INJURY OR DEATH. DO NOT ATTEMPT TO INSTALL A TIRE UNLESS YOU HAVE THE PROPER EQUIPMENT AND EXPERIENCE TO PERFORM THE JOB. REPLACEMENT, REPAIR, AND/OR MAINTENANCE SHOULD BE DONE BY A QUALIFIED TIRE DEALER OR QUALIFIED REPAIR SERVICE.**

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### **ASSEMBLY SAFETY**

- 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.

***Remember:***

***"The Best Operator is a Safe Operator"***

## GENERAL INFORMATION

The purpose of this manual is to assist the operator in maintaining and operating the Forage Box. Read it carefully: it furnishes information and instructions that will help you achieve years of dependable service.

Each section of this manual is clearly identified and is divided into smaller sections.

All replacement parts should be obtained from or ordered through your Art's-Way Mfg. Co. dealer. Give complete information when ordering service parts including the model number and serial numbers. Record numbers in the space provided as a handy record for quick reference.

Model No.	
Serial No.	
Date Purchased	

Numbers for this unit are stamped on a plate located on the left-hand frame of the unit. Art's-Way Mfg. Co. reserves the right to make improvements in design, or changes in specifications at any time, without incurring any obligation to owners of units previously sold.

### IDENTIFYING TERMS

"LEFT" and "RIGHT" are determined from a position standing at the rear of the unit looking toward the direction of travel. From this position if the cross conveyor on the front of the unloading unit discharges from the "Right" side, you have a Right Hand machine and conversely, if it discharges on the "Left" side, you have a Left Hand machine. "FRONT" is the leading end and "REAR" is the trailing end when the tractor is traveling forward.

### TRACTORS

This Operator's Manual uses the term "Tractor" when identifying the power source for the forage box and the blower. However, the same safety and operating practices apply to other power sources such as hydraulic and electric motors.

### WARRANTY REGISTRATION

The DELIVERY AND WARRANTY REGISTRATION CARD found on page 4 of this manual must be completed and signed to validate your warranty protection. You must read and understand the places where you attest to having received instructions as to care, adjustments, safe operation and applicable warranty policy. The terms and conditions of the warranty are specified on the rear cover of this manual.



**WARNING: SOME PHOTOGRAPHS USED HEREIN MAY SHOW DOORS, GUARDS AND SHIELDS OPENED OR REMOVED. BE SURE THAT ALL DOORS, GUARDS AND SHIELDS ARE FASTENED IN THEIR PROPER POSITION BEFORE MACHINE IS OPERATED.**

## OPERATING AND SAFETY EQUIPMENT



**CAUTION: 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



**CAUTION: DO NOT OPERATE THIS EQUIPMENT UNLESS ALL SHIELDS ARE PROPERLY SECURED IN PLACE.**

**CAUTION: DO NOT UNCLOG, ADJUST, LUBRICATE OR SERVICE THE FORAGE BOX UNLESS THE "POWER SOURCE SHUT DOWN PROCEDURE" (PAGE 8) 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 (page 15).

### *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. (See Figure 4, Item 1 or Figure 5, Item 1 and 2.)

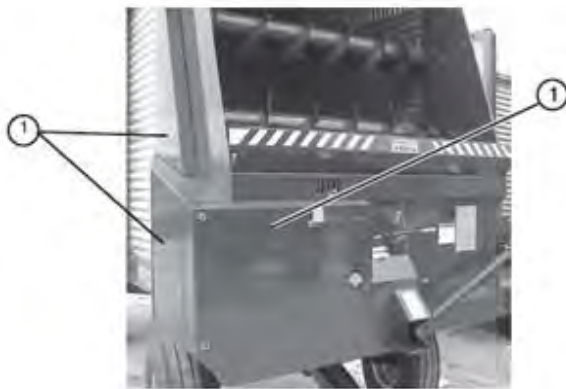


Figure 4 - Hinged Shield (Front/Combo Unload)



Figure 5 - Hinged Shields (Rear Unload)

### *Front Access Shield*

The front apron shafts and idler sprockets are between the slant panel and front access shield (See Figure 4, Item 1 or Figure 5, Item 1.). For lubrication and adjustment see the corresponding sections in the manual.

### EMERGENCY CLUTCH BAR AND CABLE



**CAUTION: IN AN EMERGENCY, PUSH THE SAFETY BAR OR PULL THE SAFETY CABLE TO TRIP THE SAFETY/CROSS CONVEYOR CLUTCH AND STOP THE CROSS CONVEYOR, AUGERS AND MAIN APRONS.**

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

NOTE: Emergency clutch bar and cable are applicable to the front and combo only.

To trip the safety/cross conveyor clutch, either push the safety bar (Figure 6, Item 2) which spans across the front of the unloading unit or pull the safety cable (Figure 6, Item 3) which runs over the outfeed. To reset, rotate safety/cross conveyor clutch lever into "RUN" position.

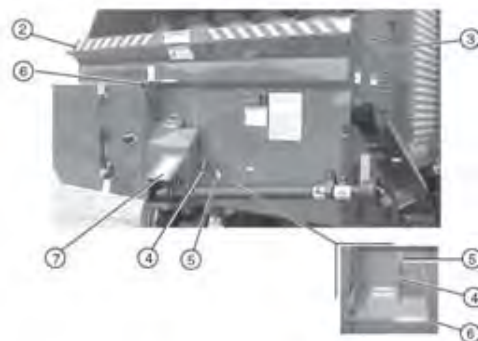


Figure 6 - Emergency Clutch Bar And Cable (Front/Combo Unload Only)



### SAFETY/CROSS CONVEYOR CLUTCH

NOTE: Safety/Cross Conveyor Clutch is applicable to the front and combo only.

The safety/cross conveyor clutch (Figure 6, Item 4) allows clearing of the cross conveyor without operation of the augers or main aprons. This clutch also functions as a safety reset and is disengaged by pushing the safety push bar or pulling the safety cable on the side of the box. (Figure 6, Item 2 and Item 3)

To reset, return the safety/cross conveyor clutch handle to the "run" position.

### MAIN CLUTCH

NOTE: Main Clutch is applicable to the front and combo only.

The main clutch lever (Figure 6, Item 5) is provided for stopping and starting the augers and main aprons.

The main clutch is engaged when the lever is in the "run" position. To disengage the clutch, move the lever to the "stop" position.

Use of the main clutch lever during unloading is further explained in the Operating Instructions section of this manual (page 26).



**CAUTION: DISENGAGING THE MAIN CLUTCH DOES NOT STOP THE CROSS CONVEYOR. TO STOP THE CROSS CONVEYOR, THE EMERGENCY PUSH BAR OR CABLE MUST BE TRIPPED OR SAFETY/CROSS CONVEYOR CLUTCH TURNED TO THE STOP POSITION.**

### MAIN APRON SHIFT LEVER

NOTE: Main Apron Shift Lever is applicable to the front and combo only.

The shift lever (Figure 6, Item 6) is used only to adjust the feeding rate of the main aprons. It is marked with seven positions:

1, Neutral (N); 2, Neutral (N); 3, Neutral (N); and 4 (Sweep).



**CAUTION: THE FOURTH OR SWEEP SPEED SHOULD ONLY BE USED AT THE END OF THE LOAD FOR CLEAN-OUT AND NOT FOR NORMAL UNLOADING OPERATION.**

### FRONT PTO GUARD

NOTE: The Front PTO Guard is applicable to the front and combo as well as the mechanical drive version of the rear unload.

A guard is provided over the input drive universal joint on the front of the unloading unit. (See Figure 5, Item 1 or Figure 6, Item 7.)



**CAUTION: DO NOT USE THE PTO GUARD AS A STEP.**

### ROTATING PTO GUARD

NOTE: The Front PTO Guard is applicable to the front and combo as well as the mechanical drive version of the rear unload.

The telescoping PTO shaft, between the forage box and the tractor, is equipped with a rotating shield. (See Figure 5, Item 3 or Figure 7, Item 8.)



**Figure 7 - Rotating PTO Guard And PTO Transport Bracket Emergency Clutch Bar And Cable (Front/Combo Unload Only)**



**CAUTION: BE SURE THE ROTATING PTO SHIELD TURNS FREELY BEFORE STARTING THE TRACTOR ENGINE.**

### PTO TRANSPORT BRACKET

NOTE: The Front PTO Guard is applicable to the front and combo as well as the mechanical drive version of the rear unload.

A bracket is provided on the front of the unloading unit to conveniently hold the telescoping PTO drive shaft during transport.

To safeguard the telescoping PTO drive shaft, be sure to shut off the tractor engine and disconnect the drive shaft from the PTO shaft and place it into the bracket when transporting or filling the forage box. (See Figure 4 5, Item 5 or Figure 7, Item 9.)

### HINGED SHIELDS

NOTE: The Hinged Shields are applicable to the front and combo only.

Hinged shields have been provided over the apron takeup and rear 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. The rear shield should be raised and pinned in the open position for servicing, (Figure 8, Item A). Return the pins to the storage position when finished, (Figure 8, Item B).



**CAUTION: DO NOT LUBRICATE, ADJUST AND /OR SERVICE UNLESS TRACTOR PTO IS DISENGAGED AND TRACTOR ENGINE IS SHUT OFF.**



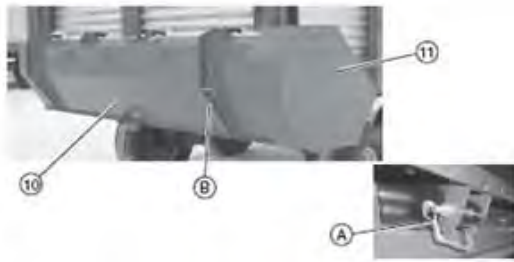


Figure 8 - Hinged Shields (Front/Combo Unload)

### 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 Figure 9).

However, because of building and silo arrangements on some farms, some customers desire right-hand unload forage boxes. A right-hand box may be convenient for positioning the forage box to the blower, but it limits easy access of the forage box operator to the controls on the blower and the blower tractor. Accordingly, a right-hand unload forage box will be stationed so that the control on the blower and blower tractor can safely be reached only by the operator leaving the Operator's position and walking around the forage box tractor and the forage box itself, or if accessible, by walking between the blower and the silo. (See Figure 10)

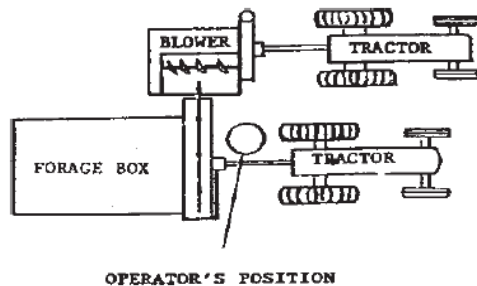


Figure 9 - Left-hand Unload

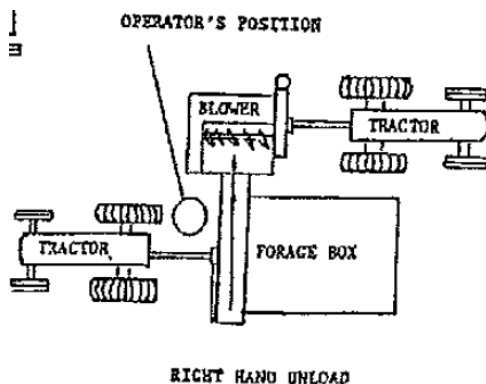


Figure 10 - Right-Hand Unload

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**WARNING: DO NOT STEP OVER PTO SHAFT.**

**WARNING: DO NOT WALK OR CLIMB BETWEEN FORAGE BOX OUTFEED AREA AND BLOWER WHEN EITHER FORAGE BOX OR BLOWER IS OPERATING.**

**WARNING: DO NOT TAKE A SHORT CUT.**

### REAR SHIELD

NOTE: The Hinged Shields are applicable to the front and combo only.

The rear apron shaft and idler sprockets are between the slant panel and rear access shield. For lubrication and adjustment see the applicable sections in this manual. (See Figure 11)



Figure 11 - Rear Shield (Front Unload)

## 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.



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

**CAUTION: 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 MFG. CO. IF ANY LABELS ARE NOT UNDERSTOOD.**

**CAUTION: THE FORAGE BOX WAS DESIGNED AS A FORAGE BOX. DO NOT USE FOR OTHER PURPOSES.**

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

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

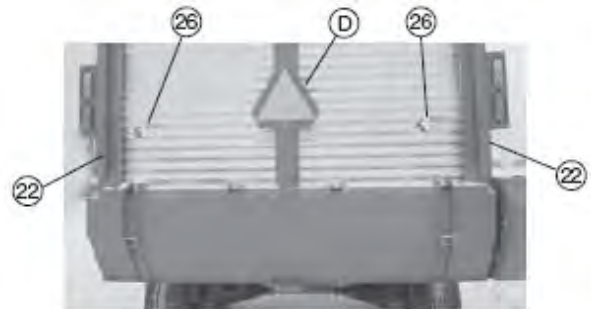
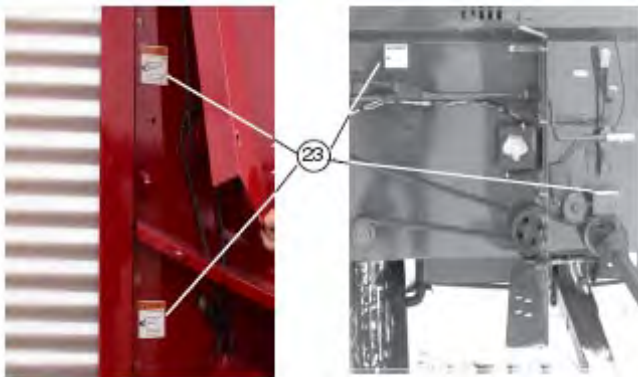
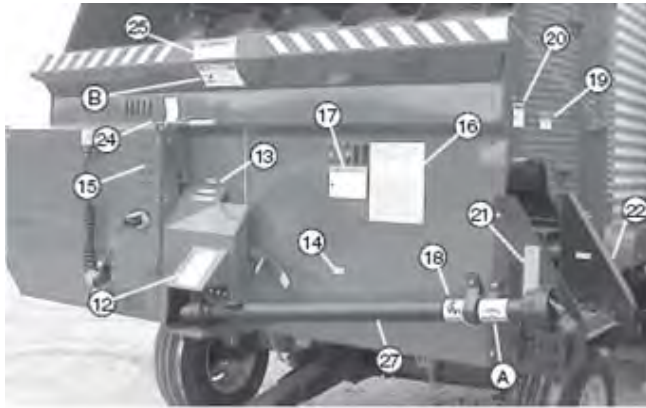
**FRONT/COMBO UNLOADING SAFETY DECALS**

Table 1 - FRONT/COMBO UNLOAD SAFETY DECALS

Ref No.	Part No.	Description
12	MP16.20177	Warning – Rotating PTO Keep Your Body And Clothing Away
13	MP 01.77770	Stop
14	MP 01.77760	Run
15	MP 16.20195	Shift Quadrant (Left-Hand)
16	MP 16.20210	Operating Instructions
17	MP 16.20178	Caution – Before You Operate This Equipment
18	MP 329594B2	Danger – Rotating Driveline
19	MP 01.77810	Emergency Stop Pull
20	MP 16.20181	Warning – Rotating Parts Inside – Keep Your Body And Clothing Away
21	MP 907220	Amber Reflector (Qty 2 Per Side – Not Shown)
22	MP 907219	Red Reflector
23	MP 16.20179	Warning – Replace All Shields Before Operating
24	MP 16.20196	Decal, 4th Gear (Left-Hand)
25	MP 01.77740	Emergency Stop – Push
26	MP 16.10552	Decal, Danger Door
27	MP 17.00165	Decal, Danger (Inside Implement Input Driveline)
A	MP 16.20980	Decal, 540 RPM, Danger
B	MP 16.21200	Decal, Entanglement Danger
C	MP 21.09024	Decal, Hydraulic Fluid Pressure Warning
D	MP 907224	SMV With Steel Backing
	MP 907228	PTO Manual



#12 – MP 16.20177  
Warning – Rotating PTO  
Keep Your Body And  
Clothing Away



#17 - MP 16.20178  
Caution – Before You Operate This Equipment



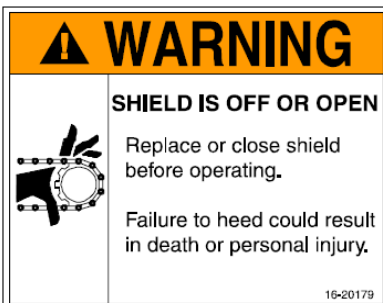
#18 – MP 329594B2  
Danger – Rotating Driveline



#19 – MP 01.77810  
Emergency Stop Pull



#20 – MP 16.20181  
Warning – Rotating Parts Inside – Keep Your Body And Clothing  
Away



#23 - MP 16.20179  
Warning – Replace All Shields  
Before Operating



#25 - MP 01.77740  
Emergency Stop – Push



#26 - MP 16.10552  
Decal, Danger Door



#27 - MP 17.00165  
Decal, Danger  
(Inside Implement Input Driveline)



#A - MP 16.20980  
Decal, 540 RPM, Danger

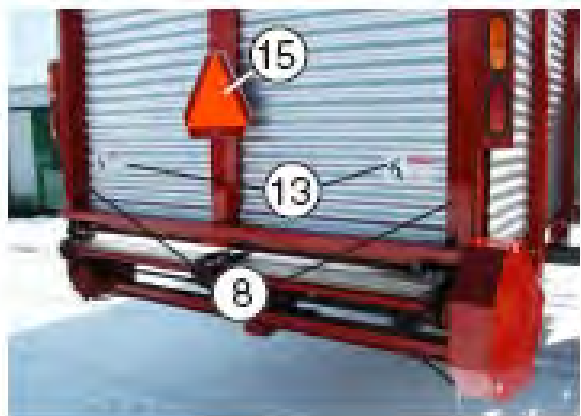
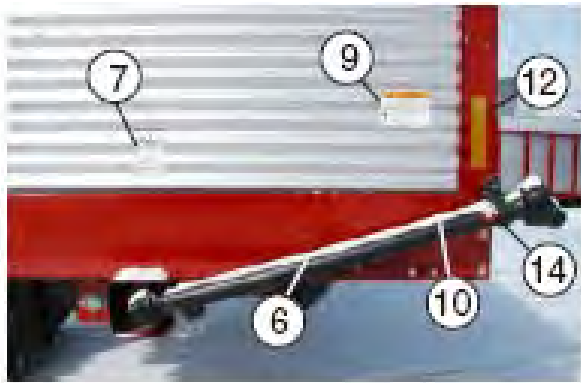


#B - MP 16.21200  
Decal, Entanglement Danger



#C - MP 21.09024  
Decal, Hydraulic Fluid Pressure  
Warning



**REAR UNLOADING SAFETY DECALS****Table 2 - REAR UNLOAD SAFETY DECALS**

Ref No.	Part No.	Description
6	MP 17.00165	Decal, Danger (Inside Implement Input Driveline) (Only On PTO-Driven Units)
7	MP 16.20177	Warning – Rotating PTO Keep Your Body And Clothing Away (Only On PTO-Driven Units)
8	MP 907219	Reflector, Red (2 inches x 9 inches)
9	MP 16.20178	Warning – Before You Operate This Equipment
10	MP 329594B2	Danger – Rotating Driveline (Only On PTO-Drive Units)
11	MP 16.20179	Warning – Replace All Shields Before Operating
12	MP 907220	Reflector, Amber (2 inches x 9 inches) (Qty 2 Per Side – Not Shown)
13	MP 16.10552	Decal, Danger Door
14	MP 16.20980	Decal, 540 RPM Danger (Only On PTO-Driven Units)
15	MP 907224	SMV With Steel Backing
A	MP 21.09024	Decal, Hydraulic Oil Pressure (Only On Hydraulic Drive Units)





#6 - MP 17.00165  
Decal, Danger  
(Inside Implement  
Input Driveline) (Only  
On PTO-Driven  
Units)



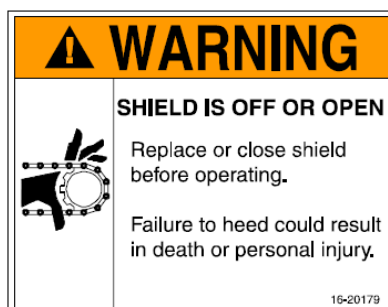
#7 - MP 16.20177  
Warning - Rotating PTO  
Keep Your Body And  
Clothing Away



#9 - MP 16.20178  
Caution - Before You Operate This Equipment



#10 - MP 329594B2  
Danger - Rotating Driveline  
(Only On PTO-Drive Units)



#11 - MP 16.20179  
Warning - Replace All Shields  
Before Operating



#13 - MP 16.10552  
Decal, Danger Door



#14 - MP 16.20980  
Decal, 540 RPM, Danger



#A - MP 21.09024  
Decal, Hydraulic Oil Pressure  
(Only On Hydraulic Drive Units)

## SET-UP INSTRUCTIONS

### SMV EMBLEM

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

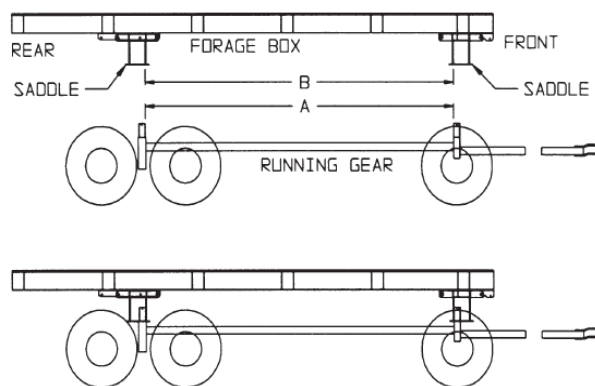
### MOUNTING FORAGE BOX TO RUNNING GEAR

**Table 3 - Combo Boxes And Front Unload**

Box Length	Running Gear	A Dimension	B Dimension
16'	6 - Wheel	117.00	116.50
16'	4 - Wheel	124.50	124.00
18'	6 - Wheel	139.50	139.00
18'	4 - Wheel	147.00	146.50
20'	6 - Wheel	162.00	161.50
20'	4 - Wheel	169.50	169.00

**Table 4 - Rear Unload**

Box Length	Running Gear	A Dimension	B Dimension
18'	6 - Wheel	132.00	131.50
18'	4 - Wheel	139.50	139.00
20'	6 - Wheel	147.00	146.50
20'	4 - Wheel	154.50	154.00



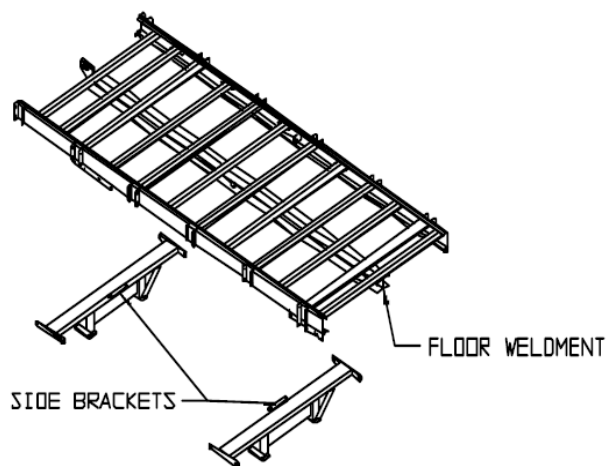
**Figure 12 - Running Gear Illustration**

NOTE: Be sure the forage box is assembled to a running gear per included setup instructions or warranty may not apply.

NOTE: B Dimension DOES NOT center forage box saddles on running gear bolster but are biased to prevent movement.

### SADDLE MOUNTING

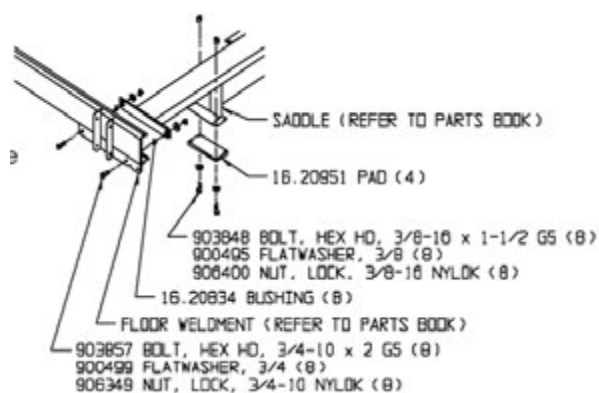
Saddle must be mounted with the side brackets facing inward. (See Figure 13.)



**Figure 13 - Saddle Mounting (All Units)**

Saddles must be mounted with bushings provided. Bushings must be bolted tight to the floor allowing the saddle to flex. (See Figure 14 or Figure 15.)

Pads must be mounted to saddles with hardware provided.



**Figure 14 - Pads Installation (Front/Combo Unload)**

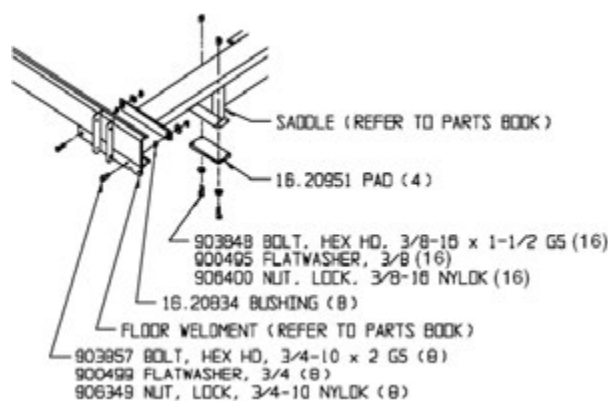


Figure 15 - Pad Installation (Rear Unload)

## TANDEM TIRE BRACKET

If you mount the box on a running gear equipped with tandems, you must bolt the tandem tire bracket into place (1 per side). (See Figure 16.)



Figure 16 - Tandem Tire Bracket (All Units)

## MOUNTING FORAGE BOX TO RUNNING GEAR

The forage box may require a riser kit when mounted to a running gear with larger tires. Check the chart to determine if it is necessary to order a kit.

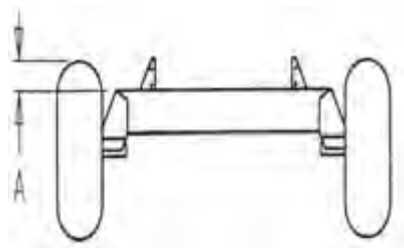


Figure 17 - Riser Kit "A" Dimension

Table 5 - Riser Kit Vs. "A" Dimension

A DIMENSION	Block Height	Kit Number
0 to 6.5 Inches	0 Inches	N/A
6.5 to 8.5 Inches	2 Inches	MP16.09984
8.5 to 10 Inches	3 Inches	MP16.09985
10 to 11.5 Inches	5 Inches	MP16.09984 And MP16.09985

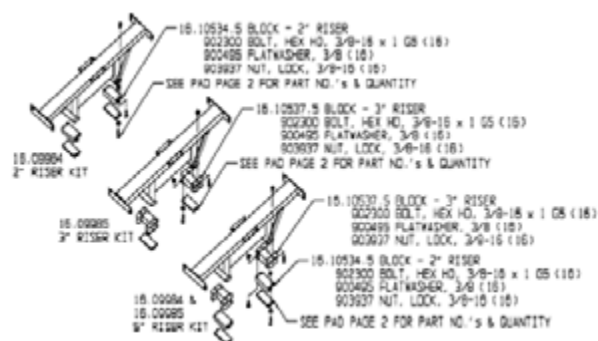


Figure 18 - Front/Combo Riser Kit Parts

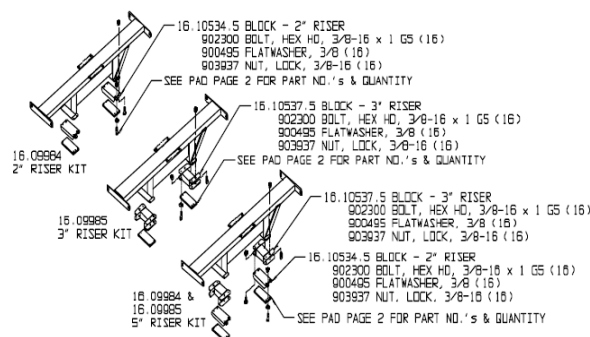


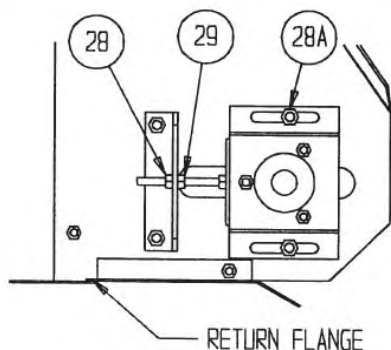
Figure 19 - Rear Unload Riser Kit Parts

## CROSS CONVEYOR APRON

NOTE: The Cross Conveyor Apron is applicable to the front and combo only.

On some units the outfeed extension is shipped loose. Proper setup requires this be attached with the existing 6-3/8" bolts, lock washers & 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 (Figure 20, Item 28A), and then loosen the outer jam nut (Figure 20, Item 28) on the adjusting stud and turn the inner adjusting nut (Figure 20, Item 29) until the proper tension is achieved, then retighten the jam nuts and 3/8" nuts (Figure 20, Item 28A).





**Figure 20 - Cross Conveyor Apron (Front/Combo Unload Only)**

Assembly routing of tie down chains between front saddle of forage box and front bolster of running gear. (See Figure 21 and Figure 22.)

1. Install two chains as shown, being sure to slide chains over small brackets on the saddle, and leaving a 2"-3" gap between the bottom bolster of the running gear and chain.
2. Connect each chain together, using 7/16" x 2" Hex head bolt and 7/16" lock nut.



**Figure 21 - Front Saddle Tie Down Chains (LH)**



**Figure 22 - Front Saddle Tie Down Chains (RH)**

Assembly routing of tie down chains between rear saddle of forage box and rear bolster of running gear. (See Figure 21 thru Figure 24.)



**Figure 23 - Rear Saddle Tie Down Chains (LH)**



**Figure 24 - Rear Saddle Tie Down Chains (RH)**

1. Install two chains as shown, being sure to slide chains over small brackets on the saddle, and leaving a 2"-3" gap between the bottom bolster of the running gear and chain.

NOTE: If mounting the forage box onto a trailer the chains should be tight.

2. Connect each chain together, using 7/16" x 2" Hex head bolt and 7/16" lock nut.

## OPERATION INSTRUCTIONS

### LOADING

The forage box load should be filled evenly so as to provide for even feeding into the unloading unit.

Do not fill the cross feed unloading area with crop to get extra capacity. Although overloading devices are provided as a protection, overloading puts unnecessary pressure and strains on the cross conveyor and auger drive.

Place the telescoping PTO drive shaft in the transport bracket during loading and transporting the forage box.

### 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.



**CAUTION: NEVER EXCEED A MAXIMUM TOWING SPEED OF 20 MPH (32 KPH) WHEN TRANSPORTING THE FORAGE BOX.**

The telescoping PTO connection MUST be disconnected from the tractor when the forage box is being towed. Use the transport bracket provided for convenient storage of the drive shaft during transporting.

### CAPACITY

The capacity of your forage box depends on the size of the box, the strength of the main apron chain, and the rating of the wagon gear and tires. The recommended maximum loads below are assuming running gear and tires are adequately rated for both the crop load and the weight of the forage box.

**Table 6 - Recommended Forage Box Maximum Loads**

MODEL	CHAIN	MAXIMUM CROP LOAD	WEIGHT (APPROX)
16'	667H Pintle (Std)	7.5 ton	2.00 ton
18'	667H Pintle (Std)	9.0 ton	2.25 ton
18'	667X Pintle (Opt)	9.5 ton	2.25 ton

20'	667H Pintle (Std)	10.0 ton	2.50 ton
20'	667X Pintle (Opt)	10.5 ton	2.50 ton

\* Weight includes three augers and roof.

### TRACTOR CONNECTIONS



**WARNING: USE ONLY A 540 RPM TRACTOR PTO SHAFT.**

**WARNING: DO NOT CONNECT TO 1000 RPM PTO OR USE AN ADAPTER. PTO DAMAGE AND RISK OF ENTANGLEMENT MAY RESULT.**

NOTE: This section is applicable to the front and combo as well as the mechanical drive version of the rear unload.

The following tractor hookup provisions should be made: (See Figure 25.)

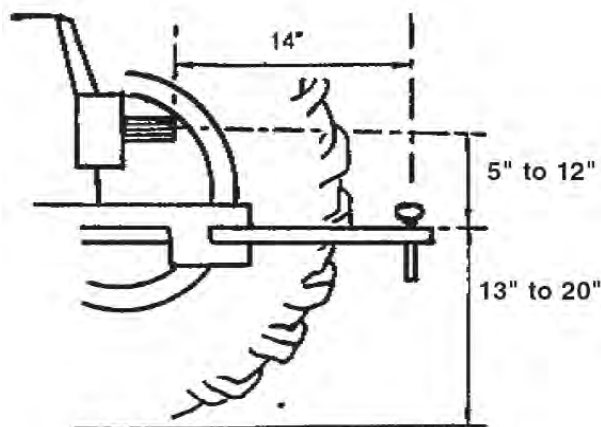
The hitch point of the tractor drawbar should be set at least 14" behind the end of the PTO shaft.

The hitch point of the tractor drawbar should be set at least 5" but not more than 12" below the tractor PTO shaft.

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

The hitch point of the tractor drawbar and PTO should be on the same vertical plane.

After the proper tractor drawbar/PTO shaft alignments are established, make the telescoping PTO drive shaft connection.



**Figure 25 - Tractor Connections (Mechanical Drive Only)**

## PTO ATTACHMENT PROCEDURE

On units with plastic (two piece) locking ring, moving the ring (Figure 26, Item 30) back (away from the tractor) releases the retaining balls. Check to be sure the locking ring is forward and locking the retaining balls in place. Pull back on the PTO to check for correct locking.



**WARNING: THE ROTATING PTO FRONT HALF PTO JOINT MUST BE GUARDED BY THE TRACTOR MASTER PTO SHIELD PROVIDED BY THE TRACTOR MANUFACTURER. TO AVOID INJURY BE SURE TO HAVE IT INSTALLED BEFORE OPERATION.**

**WARNING: BE SURE THE TELESCOPING PTO DRIVE SHAFT LOCKING DEVICE IS POSITIVELY ENGAGED INTO THE TRACTOR PTO SHAFT BEFORE STARTING TRACTOR ENGINE.**

**WARNING: DO NOT ALLOW ANYONE TO OPERATE THIS EQUIPMENT WHO HAS NOT BEEN TRAINED IN ITS SAFE OPERATION.**

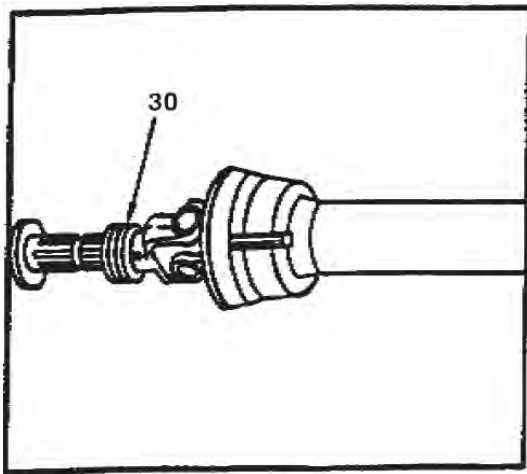


Figure 26 - PTO ATTACHMENT LOCKING RING

## FRONT UNLOADING

1. Before unloading the forage box, park the box on level ground for unloading, if possible. Engage the tractor parking brake and shut off the tractor engine.
2. Be sure safety/cross conveyor clutch is in the "stop" position and the shift lever in the "neutral" position. To avoid undue strain on drive mechanism never start unloading with shift lever in gear or safety/cross conveyor clutch in "run".
3. Connect telescoping PTO drive shaft to tractor. Engage locking device in groove on tractor PTO shaft.

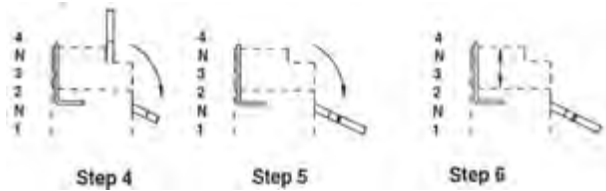


Figure 27 - Front/Combo Unloading Operating Instructions

4. Start tractor engine. Set throttle at low idle and engage the PTO. Engage the safety/cross conveyor clutch to clean out crop on the cross conveyor.
5. Place the main clutch in the "run" position to start the augers. If the cross conveyor chamber becomes full, switch the main clutch to "stop" until area clears. Return clutch to "run" and repeat procedure until augers are clear of crop.
6. Move the shift lever from neutral to unload (1, 2, or 3) to start the main unloading aprons. Do not force shift lever from neutral into gear. To shift from neutral to unload (1, 2, or 3) the unit should be running and the drive clutch engaged (run). It is recommended that under heavy loads that you use the main clutch when shifting.
7. Proceed to unload the forage box. Unloading speed can be varied by using the tractor throttle or selecting an alternate unloading speed. It may be necessary to disengage the main clutch to allow shifting. It may also be necessary to re-engage the main clutch to complete the shift. Do not use sweep speed (4) for unloading. Do not exceed a PTO speed of 400 RPM.
8. After the crop falls back move the shift lever into sweep (4) for faster cleanout. It may be necessary to disengage the main clutch to allow shifting from an unload speed (1, 2, or 3) to sweep (4).
9. After unloading return the shift lever to neutral before stopping the PTO.
10. Disengage tractor PTO and shut off tractor engine. Disconnect telescoping PTO drive shaft from the tractor and place in PTO transport bracket.



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

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

## REAR UNLOADING- MECHANICAL

1. Before unloading the Forage Box, park the box on level ground, if possible. Engage the tractor parking brake, and turn off the tractor engine.
2. Connect telescoping PTO drive shaft to tractor. Engage the locking device in the groove on the tractor PTO shaft.



3. Start the tractor engine. Set throttle at low idle and engage the PTO. Once load has started moving and the door is open, increase your throttle to desired speed. Never exceed 540 RPM.
4. You may have to drive ahead to allow full cleanout & door closure.
5. Engage the parking brake, disengage the tractor PTO and shut off the tractor engine. Disconnect the telescoping PTO driveshaft from the tractor and place it in the transport bracket.
6. Check the door to be sure the latches are engaged.



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

**WARNING: HYDRAULIC FLUID UNDER PRESSURE CAN CAUSE SERIOUS INJURY OR DEATH. WHEN CONNECTING OR DISCONNECTING THE HYDRAULIC COUPLERS TO THE TRACTOR BE SURE HYDRAULIC PRESSURE IS RELIEVED. REFER TO THE TRACTOR OPERATOR MANUAL.**

### REAR UNLOADING- HYDRAULIC

1. Before unloading the forage box, park the box on level ground, if possible, Engage the tractor parking brake, and turn off the tractor engine.
2. Connect the hydraulic lines to the hydraulic output couplers on the tractor.
3. Start the tractor engine and engage the hydraulics. If the load does not move, reverse the hydraulic flow with the tractor lever. The forage box has been equipped with a check valve to ensure proper motor rotation.
4. Once load has started moving, you may have to drive ahead to allow full cleanout and door closure.
5. Engage the parking brake and disengage the hydraulics and shut off the tractor engine. Disconnect the hydraulic lines from the hydraulic output couplers on the tractor and place them in the storage position.
6. Check the door to be sure the latches are engaged.
7. Minimum recommended tractor requirements are 2500 PSI and 15 GPM.

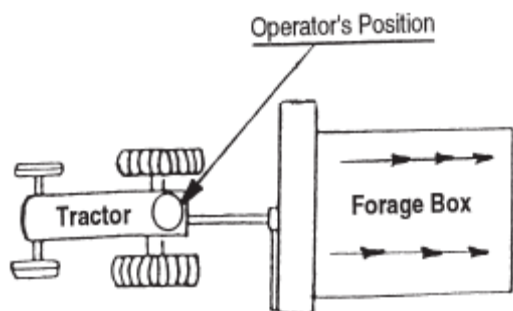


Figure 28 - Operator Position

### SHIFTING THE DRIVE COUPLER FROM REAR UNLOAD TO FRONT UNLOAD

NOTE: This section is applicable to the combo unload only.

See Figure 29.

1. Set parking brake and shut off the tractor engine.
2. Remove the lynch pin & washer from the shaft with coupler in the rear of the box.
3. Slide the coupler off the shaft and go to the front.
4. Remove the lynch pin and washer from the front shaft.
5. Slide the coupler onto the front shaft and replace the lynch pin and washer.
6. Replace washer and lynch pin onto the rear shaft.
7. To shift from front unload to rear unload just reverse the above procedure.

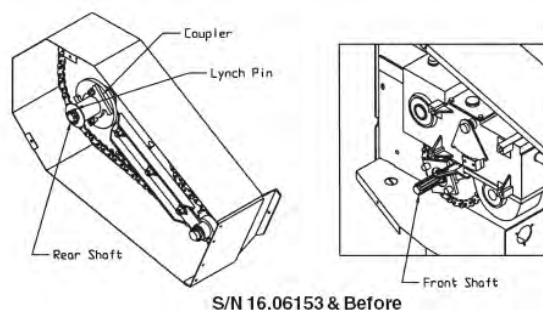


Figure 29 - Drive Coupler - Rear To Front Unload (For Combo Unload Only)

### ENTERING BOX FOR MANUAL UNLOAD



**WARNING: DO NOT ATTEMPT TO ENTER THE FORAGE BOX, UNLESS THE "POWER SOURCE SHUT DOWN PROCEDURE" (PAGE 8) HAS BEEN PERFORMED.**

**WARNING: NEVER ENTER FORAGE BOX WHEN AUGERS AND MAIN UNLOADING APRONS ARE OPERATIONAL. DO NOT ATTEMPT PROCEDURE ALONE.**

If it is necessary to enter the forage box to unload contents manual, the following procedures must be followed before entry.

1. Never attempt this procedure alone, two people are required.
2. Move safety/cross conveyor clutch to the STOP position.



3. Disengage the tractor PTO and shut off the tractor engine.
4. Remove the belt from the gearbox input shaft belt drive. (See Figure 30).

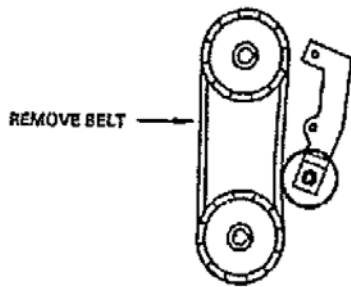


Figure 30 - Belt Removal



**WARNING: AUGERS ARE FREE TO ROTATE AND EXTREME CAUTION SHOULD BE TAKEN IN THE NEXT THREE STEPS.**

5. With the tractor still off, have one person carefully climb over the unloading augers into the unit.



**WARNING: DO NOT ATTEMPT TO ENTER THE FORAGE BOX, UNLESS THE "POWER SOURCE SHUT DOWN PROCEDURE" (PAGE 8) HAS BEEN PERFORMED.**

6. Have the second person start the tractor and engage the PTO to operate the cross conveyor
7. Before attempting to leave the box, the second person must disengage the PTO and stop the tractor engine.
8. Climb out over the unloading augers carefully.
9. Install the gearbox input shaft drive belt.

## LUBRICATION



**CAUTION: DO NOT UNCLOG, ADJUST, LUBRICATE OR SERVICE THE FORAGE BOX UNLESS THE "POWER SOURCE SHUT DOWN PROCEDURE" (PAGE 8) HAS BEEN PERFORMED.**

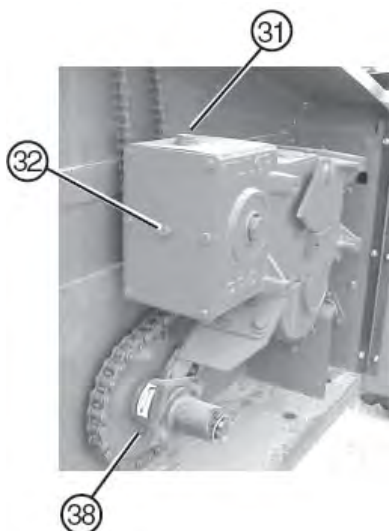
Sufficient oil and grease will prevent excessive part wear and early failure. Lubricate according to instructions.

### MAIN APRON AND BEATER DRIVE GEARBOX

NOTE: This section is applicable to the front and combo unload only.

The gearbox oil level should be checked every 50 loads. Use No. 85W140 or No. 90 gear lube if oil is needed, add through plug in top cover (Figure 31, Item 31).

The gearbox oil level should be up to the check level plug in the gearbox rear cover. (Figure 31, Item 32). Change the gear box oil after the first 50 hours of use (or first year). Thereafter change the oil every 500 hours or annually. Gearbox capacity is approximately 1.75 gallons. Use No. 85W140 or No. 90 gear lube and fill gear box to the check level plug hole.



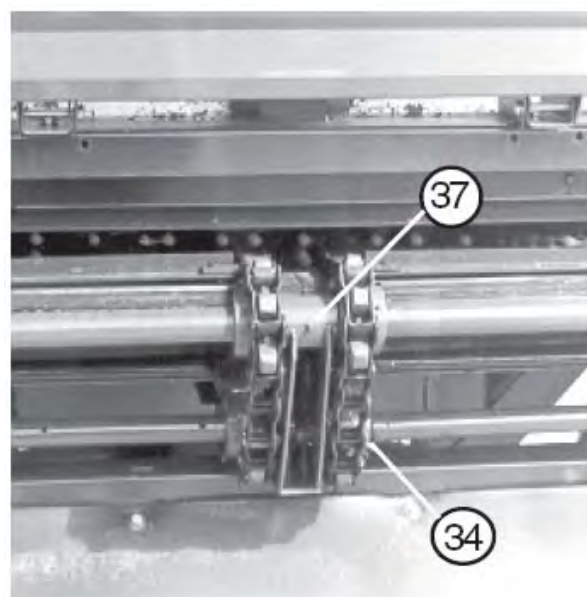
**Figure 31 - Main Apron And Beater Drive Gearbox (Front/Combo Units Only)**

### 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. (See Figure 31 – Item 38, Figure 32, Figure 33, Figure 34, Figure 35, and Figure 36 for Front/Combo Unload Units) (See Figure 37, Figure 38, and Figure 39 for Rear Unload Units).



**Figure 32 - Driveline Joints (Front/Combo Unload - 2 Locations)**



**Figure 33 - Rear Idler (#34 - 8 Locations) And Rear Main Apron Bearings (#37 - 3 Locations) (Front/Combo Unload)**



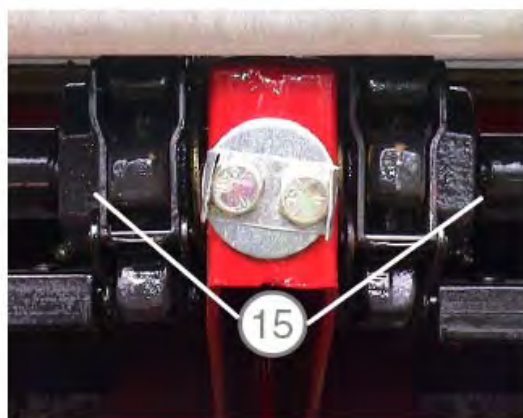
**Figure 34 - Front Main Apron Bearings (Front/Combo Unload - 3 Locations)**



**Figure 35 - Center Shaft Bearing (Front/Combo Unload - 1 Location)**



**Figure 36 - Rear Drive Outer Bearing (#39 - 2 Locations), Sprocket Bearing (#40 - 1 Location), And Sprocket Cluster Bearings (#42 - 1 Location) (Front/Combo Unload)**



**Figure 37 - Front Idler Sprocket Points (Rear Unload Only – 4 Locations)**



**Figure 38 - Rear Main Apron Bearing Points (Rear Unload Only – 3 Locations)**



**Figure 39 - Rear Drive Outer Bearing Points (Rear Unload Only – 2 Locations)**

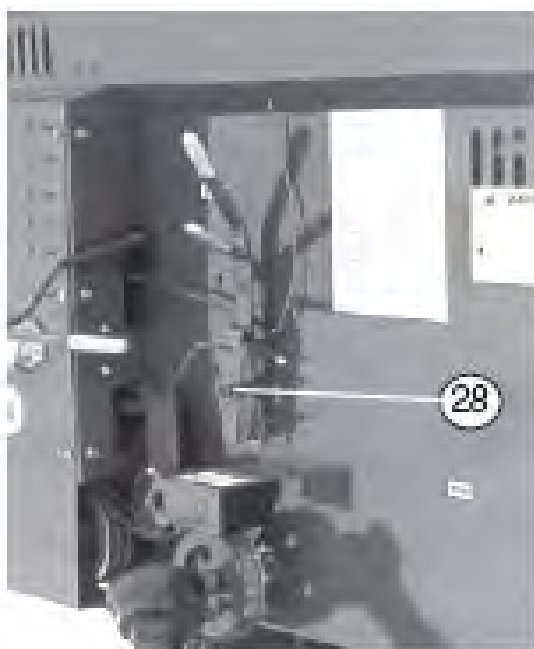
**SAFETY/CROSS AND MAIN CLUTCH HANDLES**

If handle movement becomes hard, remove nuts (Figure 40, Item 28) and coat pivot bolt with grease and reinstall.

REF NO	QTY	DESCRIPTION
34	8	Rear Idler Sprockets (Figure 33)
35	2	Driveline Joints (Figure 32)
36	3	Front Main Apron Bearings (Figure 34)
37	3	Rear Main Apron Bearings (Figure 33)
38	1	Outer Apron Shaft Support (Figure 31)
39	2	Rear Drive Outer Bearings (Figure 36)
40	1	Sprocket Bearing (Figure 36)
41	1	Center Shaft Bearing (Figure 35)
42	1	Sprocket Cluster Bearings (Figure 36) (Hydraulic Drive Only)

Periodic oiling of all drive chains and conveyor chains will assure longer life.

The main apron chains do not require lubrication.



**Figure 40 – Safety/Cross And Main Clutch Handles**

**RIGHT ANGLE GEARBOX*****Mechanical Drive***

NOTE: This section is applicable to the front and combo as well as the mechanical drive version of the rear unload.

The gearbox oil levels should be checked every 50 loads. Use No. 85W140 or No. 90 gear lube if oil is needed, add through plug (Figure 41, Item 43) in the gearbox side cover. The gearbox oil level should be up to the check level plug in the gearbox side cover.



**Figure 41 - Right Angle Gearbox (Front/Combo And Rear Unload)**



**Figure 42 - Driveline Joints (Rear Unload Mechanical Drive Only - 2 Locations)**





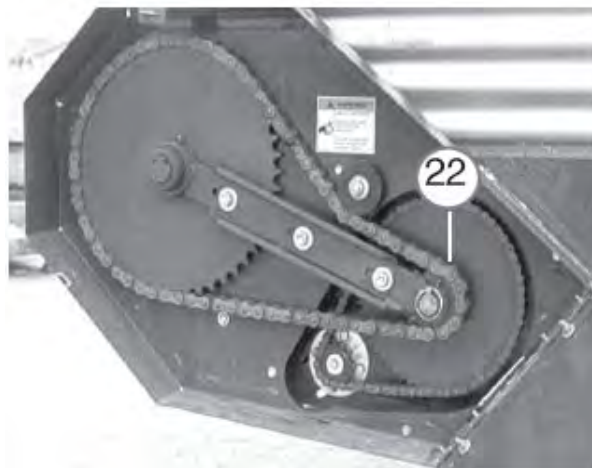
**Figure 43 - Center Shaft Bearing (Rear Unload Mechanical Drive Only - 1 Location)**



**Figure 44 - Sprocket Bearing (Rear Unload Mechanical Drive Only - 1 Location)**

### ***Hydraulic Drive***

NOTE: This section is applicable to the hydraulic drive version of the rear unload.



**Figure 45 - Sprocket Cluster Bearing (Rear Unload Hydraulic Drive Only - 1 Location)**

## ADJUSTMENTS



**CAUTION: DO NOT UNCLOG, ADJUST, LUBRICATE OR SERVICE THE FORAGE BOX UNLESS THE "POWER SOURCE SHUT DOWN PROCEDURE" (PAGE 8) 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.

To obtain proper tension adjustments open rear access shield. Pin the rear shield in the raised position when adjusting the main apron. Return the pins to the storage positions when finished. Take up any excess slack evenly with the (4) tightener bolts (Figure 47, Item 44 or Figure 48, Item 24) (2 outside bolts not shown) provided until the slats lift 1/2" off the return flanges 5 feet from the back of the forage box, (Figure 46).



Figure 46 – Main Apron

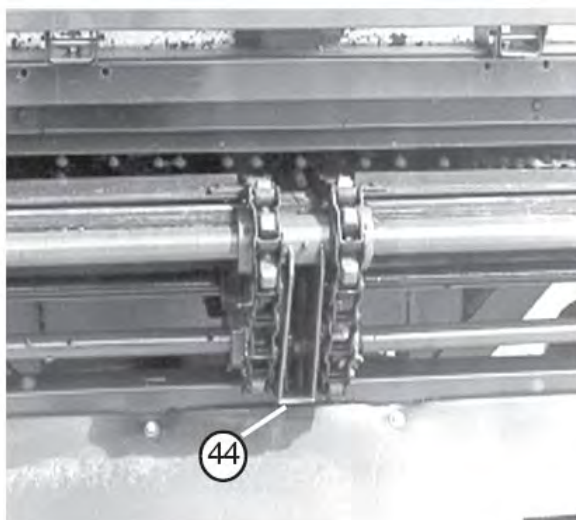


Figure 47 - Main Apron (Rear/Combo Unload)



Figure 48 - Main Apron (Front Unload)



**CAUTION: CLOSE THE REAR SHIELD BEFORE STARTING THE UNLOADING MECHANISM.**

### CROSS CONVEYOR APRON

NOTE: This section is applicable to the front and combo unload only.

The cross conveyor apron should be kept at proper tension at all times. 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 (Figure 49, Item 45), and then loosen the outer jam nut (Figure 49, Item 46) on the adjusting stud and turn the inner adjusting nut (Figure 49, Item 47) until the proper tension is achieved, then retighten the jam nuts and 3/8" nuts (Figure 49, Item 45).

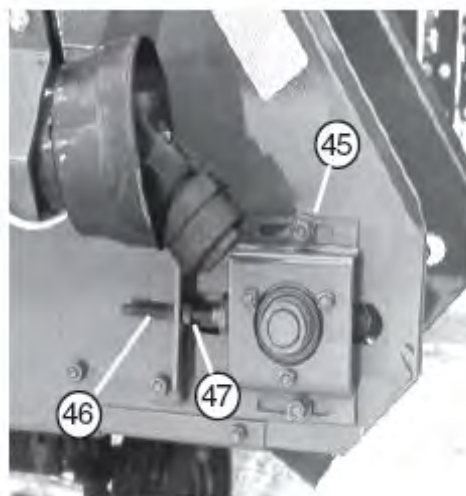


Figure 49 - Cross Conveyor Apron (Front/Combo Unload Only)

## FRONT DRIVE CHAIN

NOTE: This section is applicable to the front and combo unload only.

Open front shield for access. The front chain is tensioned by a spring loaded idler.

To adjust tension, tighten the hex nut (Figure 50, Item 48) on the rod to compress the spring to 6 inches.



**Figure 50 - Front Drive Chain (Front/Combo Unload Only)**



**CAUTION: CLOSE THE FRONT COVER BEFORE STARTING THE UNLOADING MECHANISM.**

## SAFETY/CROSS CONVEYOR AND MAIN DRIVE CLUTCH

The safety/cross conveyor clutch and main drive clutch rod linkage is factory adjusted and should not require regular adjustment. Should the belt on either one not drive, additional tension can be applied by tightening the nuts (Figure 50, Item 49 and Item 50) to increase spring tension.

IMPORTANT: MAXIMUM BELT LIFE IS ASSURED BY APPLYING ONLY THE MINIMUM AMOUNT OF TENSION NECESSARY TO DRIVE!



**CAUTION: CLOSE THE FRONT COVER BEFORE STARTING THE UNLOADING MECHANISM.**

## 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 (Figure 51, Item 51 or Figure 52, Item 23) and move the tightener in until proper tension is obtained and then retighten the nut.



**Figure 51 - Apron Drive Chain (Front/Combo Unload Only)**



**Figure 52 - Apron Drive Chain (Rear Unload)**

## BEATER DRIVE CHAINS

NOTE: This section is applicable to the front and combo unload only.

The beater drive chain is properly adjusted when all slack has been removed. To adjust the tension, loosen the nut holding the plastic tightener assembly (Figure 51, Item 52) and move the tightener in until proper tension is obtained and then retighten the nut.



**CAUTION: PERIODIC CLEANING OF INSIDE OF TRANSMISSION SIDE DOOR MAY BE REQUIRED.**

**CAUTION: CLOSE THE TRANSMISSION SIDE DOOR BEFORE STARTING THE UNLOADING MECHANISM.**

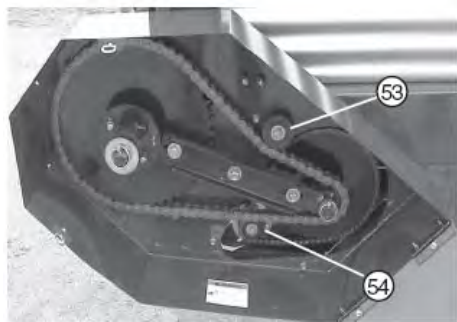
**CAUTION: DO NOT UNCLOG, ADJUST, LUBRICATE, OR SERVICE THE FORAGE BOX UNLESS THE "POWER SOURCE SHUT DOWN PROCEDURE" (PAGE 8) HAS BEEN PERFORMED.**

## REAR APRON DRIVE CHAIN

NOTE: This section is applicable to the rear and combo unload only.

The apron drive chain is properly adjusted when all slack has been removed. To adjust the tension, loosen the nut holding the tightener assembly (Figure 53, Item 53) and move the tightener in until proper tension is obtained and then retighten the nut.





**Figure 53 - Rear Apron Drive Chain (Rear/Combo Unload Only)**

### 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 (Figure 53, Item 54 or Figure 54, Item 25) holding the motor in position. Slide the motor, in the slots, in the direction to tighten to the chain. Torque the 4-bolts (Figure 53, Item 54 or Figure 54, Item 25) to proper torque.



**Figure 54 - Hydraulic Drive Chain (Rear Unload)**

### SHEAR BOLTS

NOTE: This section is applicable to the front and combo as well as the mechanical drive version of the rear unload.

A spare set of shear bolts have been supplied with the forage box. They are located inside the rear drive shield. Shear bolts may be purchased at your local Art's-Way Parts Dealer. The proper bolts to use are:

#### Front/Combo Units

3/8"-16 x 1-3/8" Grade 9, Part # MP16.20659 (S/N 16.06153 & Before)

3/8"-16 x 2" Grade 9, Part # MP09.71303 (S/N 16.06154 & After)

#### Rear Unload (Mechanical Drive Only) Units

3/8"-16 x 2" Grade 9, Part # MP09.71303 (S/N 16.06154 & After)

### FASTENERS

Retighten all fasteners every 50 loads or as required.

### 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.



**CAUTION: 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.







## OPTIONS AND ACCESSORIES

MILLER ITEM NO.	DESCRIPTION
	<b><u>Hydraulic Motor</u></b>
MP16.09970	Adaptor coupler and drive mounting weldment (One required per forage box)
MP 16.09984	2 inch riser kit (qty 4)
MP 16.09985	3 inch riser kit (qty 4)
MP 16.09990	Hydraulic motor and control unit with mounting place and lock pin.
MP 16.10454	Seal kit, cross conveyor
MP 16.20770	18 ft. Rear unload side extension kit (Field Installed).
MP 16.20771	20 ft. Rear unload side extension kit (Field Installed).
MP 16.20772	18 ft. Front/Rear unload side extension kit (Field Installed).
MP 16.20773	20 ft. Front/Rear unload side extension kit (Field Installed).
MP 16.20925	18 inch fold-up outfeed extension, complete with chain and attaching hardware
MP 16.21019	Fourth beater option Front or Front/Rear unload boxes – side extension kit required (Field Installed) left-hand side unload only.
MP 16.21027	16 ft. Unload side extension kit (Field Installed).
MP 16.21031	20 ft. Front unload side extension kit (Field Installed).
MP 16.21031	20 ft. Front unload side extension kit (Field Installed).
MP 16.21049	Seal kit, slant panel
MP 16.21191	Hydraulic drive kit for use with Miller trailers. Kit includes: Drive mounting weldment (16.09970), Motor with mounting plate, and hydraulic hoses with ISO tips.
	<b><u>Roof Options</u></b>
MP 16.20823	Rafter Kit (Qty 1)
MP 16.20823	Rafters to utilize complete roof removable feature (qty 3) IMPORTANT – If roof is removed a side stiffener kit or side extension kit must be added.

## TORQUE SPECIFICATIONS

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

All torque values are in lb-ft except those marked with an asterisk (\*) which are lb-in. For metric torque value Nm, multiply the lb-ft or lb-in value by 0.113.

Unified National Thread	Grade 2 		Grade 5 		Grade 8 	
	Dry	Lubed	Dry	Lubed	Dry	Lubed
8-32 8-36	19* 20*	14* 15*	30* 31*	22* 23*	41* 43*	31* 32*
10-24 10-32	27* 31*	21* 23*	43* 49*	32* 36*	60* 68*	45* 51*
1/4-20 1/4-28	66* 76*	50* 56*	9 10	75* 86*	12 14	9 10
5/16-18 5/16-24	11 12	9	17 19	13 14	25	18 20
3/8-16 3/8-24	20 23	15 17	30 35	23 25	45 50	35
7/16-14 7/16-20	32 36	24 27	50 55	35 40	70 80	55 60
1/2-13 1/2-20	50 55	35 40	75 90	55 65	110 120	80 90
9/16-12 9/16-18	70 80	55 60	110 120	80 90	150 170	110 130
5/8-11 5/8-18	100 110	75 85	150 180	110 130	220 240	170 180
3/4-10 3/4-16	175 200	130 150	260 300	200 220	380 420	280 320
7/8-9 7/8-14	170 180	125 140	430 470	320 360	600 660	460 500
1-8 1-14	250 270	190 210	640 710	480 530	900 1000	680 740
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.

Tube Size OD	Nut Size Across Flats	Torque Value*		Recommended Turns To Tighten (After Finger Tightening)	
		(Nm)	(lb-ft)	(Flats)	(Turns)
(in.)	(in.)				
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

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

### 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.

Tube Size OD	Nut Size Across Flats	Torque Value*		Recommended Turns To Tighten (After Finger Tightening)	
		(Nm)	(lb-ft)	(Flats)	(Turns)
(in.)	(in.)				
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

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

## SPECIFICATIONS

### GENERAL

#### *Model*

- Front Unload – 16, 18, and 20 ft.
- Combo Unload – 18 and 20 ft.
- Rear Unload – 18 and 20 ft.

#### *Height*

- With Standard Roof
  - 115 inches
- With Side Extensions
  - 112.5 inches

#### *Width*

- Front Unload
  - 16 ft – 109 inches
  - 18 ft – 109 inches
  - 20 ft – 109 inches
- Combo Unload
  - 18 ft – 109 inches
  - 20 ft – 109 inches
- Rear Unload
  - 18 ft – 104 inches
  - 20 ft – 104 inches

#### *Length*

- Front Unload
  - 16 ft – 232 inches
  - 18 ft – 256 inches
  - 20 ft – 280 inches
- Combo Unload
  - 18 ft – 271 inches
  - 20 ft – 295 inches
- Rear Unload
  - 18 ft – 243 inches
  - 20 ft – 264 inches

#### *Weight (With Roof)*

- Front Unload
  - 16 ft – 4100 lbs.
  - 18 ft – 4310 lbs
  - 20 ft – 4720 lbs
- Combo Unload
  - 18 ft – 5050 lbs
  - 20 ft – 5460 lbs
- Rear Unload
  - 18 ft – 3690 lbs
  - 20 ft – 4070 lbs

#### *Power Source*

- Front and Combo Unload
  - 540 RPM PTO drive (Opt hyd. motor drive)
- Rear Unload
  - 540 RPM PTO drive or hyd. Motor drive

#### *Capacity*

- Front Unload
  - 16 ft – 713 to 866 cu. ft.
  - 18 ft – 805 to 977 cu. ft.
  - 20 ft – 894 to 1085 cu. ft.
- Combo Unload
  - 18 ft – 810 to 981 cu. ft.
  - 20 ft – 900 to 1090 cu. ft.
- Rear Unload
  - 18 ft – 822 to 1002 cu. ft.
  - 20 ft – 913 to 1113 cu. ft.

#### *SAE Bolt Identification*

Identification of SAE Bolt Grades; Head Markings

Grades 0, 1, and 2 - No markings



Grades 5: 3 radial dashes 120° apart



Grades 8: 6 radial dashes 60° apart





# NOTES



## **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.

Art's-Way Manufacturing Co., Inc. 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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