

**Operator's Manual &  
Illustrated Parts List**

**Model 2100  
Forage and Receiver Box**

**PRELIMINARY**



Art's-Way Manufacturing Co., Inc.

710600

Issued May 2021



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 and Receiver 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 and Receiver 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 and Receiver Box.

Even if you are an experienced operator of this or similar equipment, we ask that you read this manual before operating this Forage and Receiver 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 and Receiver 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 Mfg. Co. Inc. shall void the warranty of this product.

In the interest of continued safe operation of this Forage and Receiver 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 information for this Forage and Receiver Box can be found on [www.artsway-ag.com](http://www.artsway-ag.com). There is also a separate warranty document that accompanies this manual.

### **LIMITATIONS OF THIS MANUAL**

This manual contains operating instructions for your 2100 Forage and Receiver Box only. Any mention of other machinery in this manual other than the 2100 Forage and Receiver 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 2100 Forage and Receiver 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.

**VAI**

**ART'S WAY**

**SERIAL NUMBER**

**MODEL**

Barcode area

**TABLE OF CONTENTS**

TO THE OWNER	1
SPECIFICATIONS AND DESIGN ARE SUBJECT TO CHANGE WITHOUT NOTICE	1
Art's-Way Manufacturing Co., Inc. STATEMENT OF PRODUCT LIABILITY	1
IMPORTANT WARRANTY INFORMATION	1
LIMITATIONS OF THIS MANUAL	1
PARTS & SERVICE	2
TABLE OF CONTENTS	3-5
LIMITED WARRANTY	6
SAFETY FIRST	7
NOTICES OF DANGER, WARNING, AND CAUTION	7
<u>Safety Instructions</u>	8
GENERAL	8
BEFORE OPERATING	9
DURING OPERATION	9
MAINTENANCE SAFETY	9
HYDRAULIC SAFETY	10
TRANSPORTATION SAFETY	10
STORAGE SAFETY	10
TIRE SAFETY	11
ASSEMBLY SAFETY	11

<b>TABLE OF CONTENTS</b>	
<b>NAME</b>	<b>PAGE</b>
~~~~~OPERATOR'S INSTRUCTIONS: FORAGE BOX~~~~~	13
SAFETY PRECAUTIONS	14
OPERATING AND SAFETY EQUIPMENT	16
PTO POWERED VERSION OPERATION	19
IN-CAB HYDRAULIC VERSION OPERATION	20
SAFETY LABEL LOCATIONS	41
SETUP INSTRUCTIONS	46
PRE-DELIVERY CHECKLIST	53
OPERATION INSTRUCTIONS	58
LUBRICATION	60
ADJUSTMENTS	61
~~~~~ILLUSTRATED PARTS LIST: FORAGE BOX~~~~~	69
505 RUNNING GEAR	70
325 RUNNING GEAR	72
285 RUNNING GEAR	74
265 RUNNING GEAR	76
205 RUNNING GEAR	78
WHEEL ASSEMBLY (660540)	80
WHEEL ASSEMBLY (660545)	82
WHEEL ASSEMBLY (660550)	84
WHEEL ASSEMBLY (660555)	86
FRAME-FLOOR ASSEMBLY (20')	88
FRAME-FLOOR ASSEMBLY (18')	90
FRAME-FLOOR ASSEMBLY (16')	92
STAKES-SIDES ASSEMBLY (20')	94
STAKES-SIDES ASSEMBLY (18')	96
STAKES-SIDES ASSEMBLY (16')	98
REAR DRIVE ASSEMBLY (COMBO/REAR UNLOAD)	100
REAR DRIVE ASSEMBLY (FRONT UNLOAD)	102
FRONT SHELL ASSEMBLY (COMBO/FRONT UNLOAD)	104
FRONT SHELL ASSEMBLY (COMBO/FRONT UNLOAD) (CONTINUED)	106
FRONT SHELL ASSEMBLY (REAR UNLOAD)	108
FRONT DRIVE ASSEMBLY (COMBO/FRONT UNLOAD)	110
FRONT DRIVE ASSEMBLY (REAR UNLOAD)	112
SHELL-FRAME ASSEMBLY (COMBO/FRONT UNLOAD)	114
SHELL-FRAME ASSEMBLY (REAR UNLOAD)	116
SILLS-RAFTERS ASSEMBLY (20')	118
SILLS-RAFTERS ASSEMBLY (18')	120
SILLS-RAFTERS ASSEMBLY (16')	122
APRON CHAINS ASSEMBLY (20')	124
APRON CHAINS ASSEMBLY (18')	126

<b>TABLE OF CONTENTS</b>	
APRON CHAINS ASSEMBLY (16')	128
REAR DOOR ASSEMBLY (COMBO/REAR UNLOAD)	130
REAR DOOR ASSEMBLY (FRONT UNLOAD)	132
SIDE EXTENSIONS ASSEMBLY (20')	134
SIDE EXTENSIONS ASSEMBLY (18')	136
SIDE EXTENSIONS ASSEMBLY (16')	138
ROOF ASSEMBLY (20')	140
ROOF ASSEMBLY (18')	142
ROOF ASSEMBLY (16')	144
DRIVE SYSTEM ASSEMBLY (HYD. IN CAB CONTROL)	146
DRIVE SYSTEM ASSEMBLY (HYD. MANUAL CONTROL)	148
OUTFEED ASSEMBLY (COMBO/FRONT UNLOAD)	150
HYDRAULICS ASSEMBLY (INCAB 20' COMBO UNLOAD)	152
HYDRAULICS ASSEMBLY (INCAB 18' COMBO UNLOAD)	154
HYDRAULICS ASSEMBLY (INCAB 16' COMBO UNLOAD)	156
HYDRAULICS ASSEMBLY (INCAB 20'/18'/16' FRONT UNLOAD)	158
HYDRAULICS ASSEMBLY (MANUAL 20' COMBO UNLOAD)	160
HYDRAULICS ASSEMBLY (MANUAL 18' COMBO UNLOAD)	162
HYDRAULICS ASSEMBLY (MANUAL 16' COMBO UNLOAD)	164
HYDRAULICS ASSEMBLY (MANUAL 20'/18'/16' FRONT UNLOAD)	166
HYDRAULICS ASSEMBLY (MANUAL 20' REAR UNLOAD)	168
HYDRAULICS ASSEMBLY (MANUAL 18' REAR UNLOAD)	170
HYDRAULICS ASSEMBLY (MANUAL 16' REAR UNLOAD)	172
HYDRAULICS DIAGRAM (INCAB 20' COMBO UNLOAD)	174
HYDRAULICS DIAGRAM (INCAB 18' COMBO UNLOAD)	176
HYDRAULICS DIAGRAM (INCAB 16' COMBO UNLOAD)	178
HYDRAULICS DIAGRAM (INCAB 20'/18'/16' FRONT UNLOAD)	180
HYDRAULICS DIAGRAM (MANUAL 20' COMBO UNLOAD)	182
HYDRAULICS DIAGRAM (MANUAL 18' COMBO UNLOAD)	184
HYDRAULICS DIAGRAM (MANUAL 16' COMBO UNLOAD)	186
HYDRAULICS DIAGRAM (MANUAL 20'/18'/16' FRONT UNLOAD)	188
HYDRAULICS DIAGRAM (MANUAL 20' REAR UNLOAD)	190
HYDRAULICS DIAGRAM (MANUAL 18' REAR UNLOAD)	192
HYDRAULICS DIAGRAM (MANUAL 16' REAR UNLOAD)	194
MANIFOLD ASSEMBLY (INCAB COMBO/FRONT UNLOAD)	196
MANIFOLD ASSEMBLY (MANUAL COMBO/FRONT UNLOAD)	198
ELECTRONICS ASSEMBLY	200
ELECTRONICS DIAGRAM (INCAB COMBO/FRONT UNLOAD)	202
CONTROLLER HARNESS KIT	203
ELECTRONICS DIAGRAM (REAR UNLOAD)	204
SHIELDS ASSEMBLY	206
DECALS	208

FOR WARRANTY INFORMATION  
REFER TO THE SEPARATE  
DOCUMENT INCLUDED WITH  
THIS MANUAL.

WARRANTY INFORMATION  
MAY ALSO BE OBTAINED FROM  
[WWW.ARTSWAY-AG.COM](http://WWW.ARTSWAY-AG.COM).



## 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 2100 Forage and Receiver 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.

**THIS PAGE  
LEFT  
INTENTIONALLY  
BLANK**

**SECTION 1: OPERATOR'S MANUAL**

**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. Miller- St. Nazianz 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. Disengage the tractor PTO and disable electric/hydraulic power/flow by disconnecting hydraulic hoses and unplugging 7 pin power.
2. Shut off the tractor engine, remove the starter key and take it with you.
3. Wait for the all machine motion to stop.
4. Remove the telescoping PTO driveline and ALL power connections from 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" (previous page) has been performed.**

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

**BE SURE** the locking device on the telescoping PTO drive shaft is engaged onto the tractor PTO shaft groove before starting the tractor engine!

**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** connect a 1000 RPM tractor PTO shaft onto this unit!

**DO NOT** use a PTO adapter!

**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!

**BE SURE** the rotating shields that are on the telescoping PTO drive shaft turns freely before starting the tractor engine!

**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!

**DO NOT** use PTO or PTO guard as a step!

## 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" (previous page) 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 10

**Hinged Shields** Figure 1-#1

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.



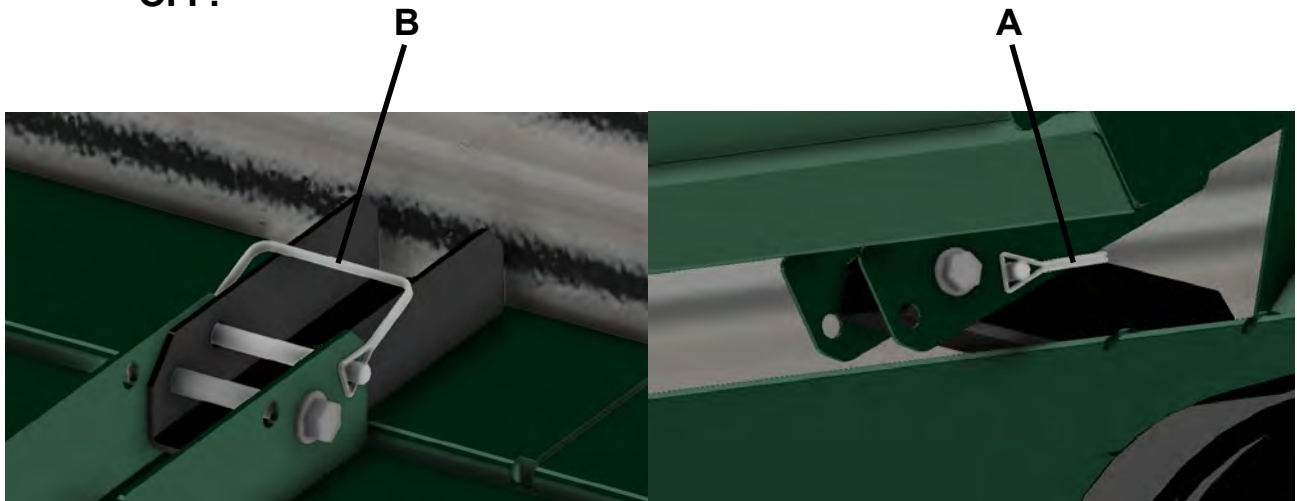
FIGURE 1

## **Hinged Shields** Figure 4

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 4 #A. Return the pins to the storage position when finished, Figure 4 #B.



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



**FIGURE 4**

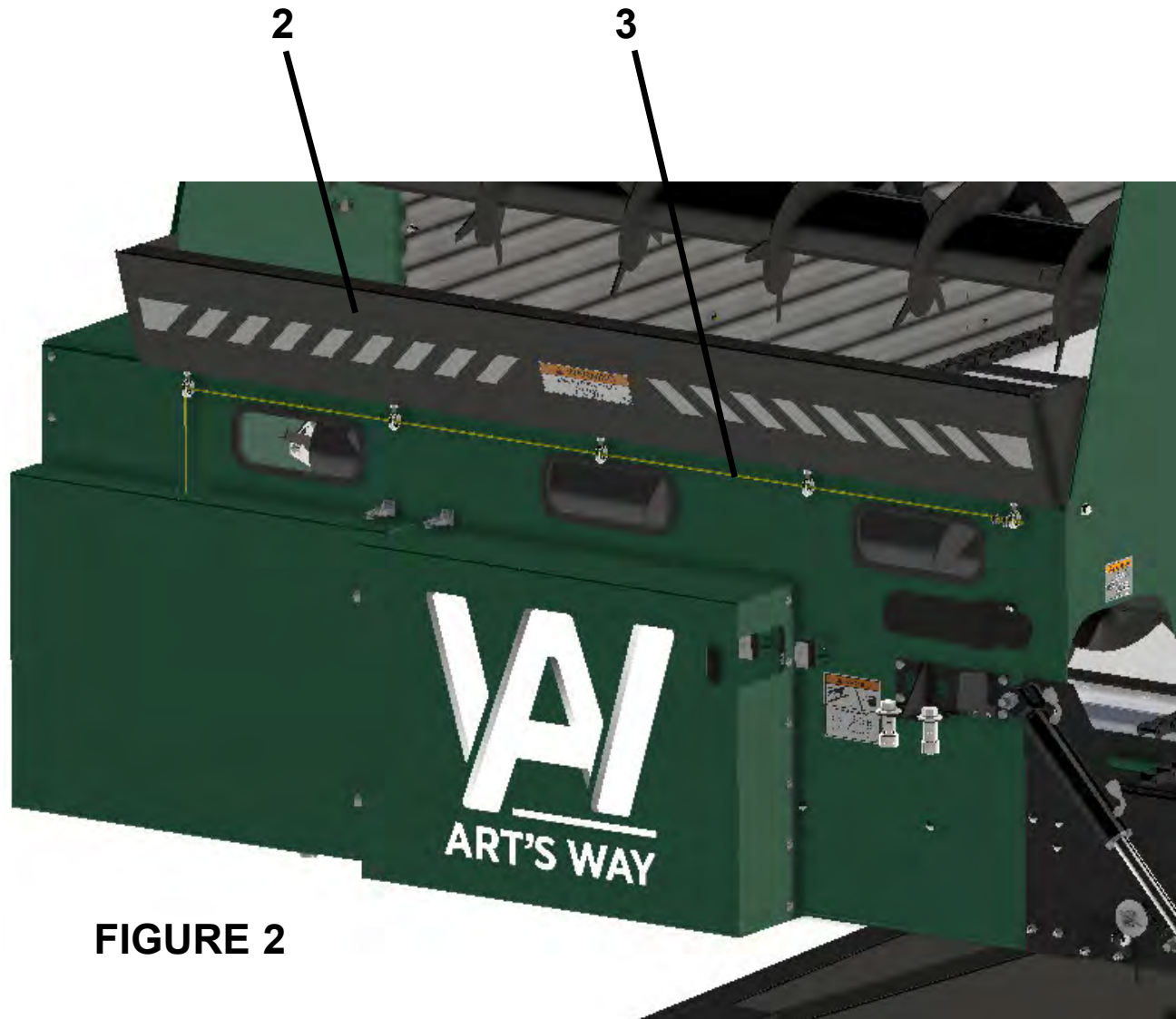


### Emergency Clutch Bar and Cable Figure 2- #2 & #3



**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.**

To trip the safety/cross conveyor clutch, either push the safety bar (Figure 2-#2) which spans across the front of the unloading unit or pull the safety cable (Figure 2-#3) To reset push the safety valve under the right shield down.



**FIGURE 2**

**PTO POWERED VERSION OPERATION****Main Clutch** Figure 2-#5

The main clutch lever 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 20.



**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** Figure 2-#6

The shift lever 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** Figure 2-#7

A guard is provided over the input drive universal joint on the front of the unloading unit.



**DO NOT USE THE PTO GUARD AS A STEP!**

**Rotating PTO Guard** Figure 3-#8

The telescoping PTO shaft, between the forage box and the tractor, is equipped with a rotating shield.

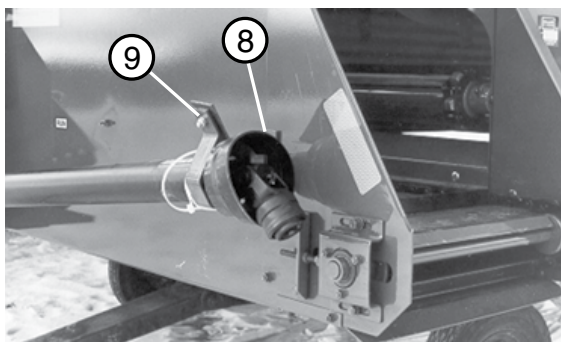


**BE SURE THE ROTATING PTO SHIELD TURNS FREELY BEFORE STARTING THE TRACTOR ENGINE!**

**PTO Transport Bracket** Figure 3-#9

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.



**FIGURE 3**

**IN-CAB HYDRAULIC VERSION OPERATION****INITIAL SETUP AND GETTING TO KNOW YOUR DEVICE**

To start in-cab controlled operation first ensure all power sources (hydraulic / pto / electric) are powered down and/or are in the “off” position including the tractor key.

Make sure hydraulic/electric connections are secure and in the correct positions/locations. Refer to the hydraulic and electric diagrams in this manual.

Hose grips and storage are labeled with symbols for pressure and return flows for your convenience. If still unsure which is which refer to the hydraulic diagram included in this manual.

Connect the main harness to the canbus display harness and then the canbus display harness to the canbus display.

Mount the canbus display to your tractor cab in an accessible area using the supplied ram mount or by other non-destructive means.

Connect the hydraulic hoses in the correct positions and then connect the main 7 pin power connection on the main wire harness to the tractor.

Turn the tractor key power to on, but do not start the engine. Ensure the canbus monitor turns on. You should see an Art's Way Logo fill the screen for a few seconds on startup. You should then be met with a screen that looks like the one below.





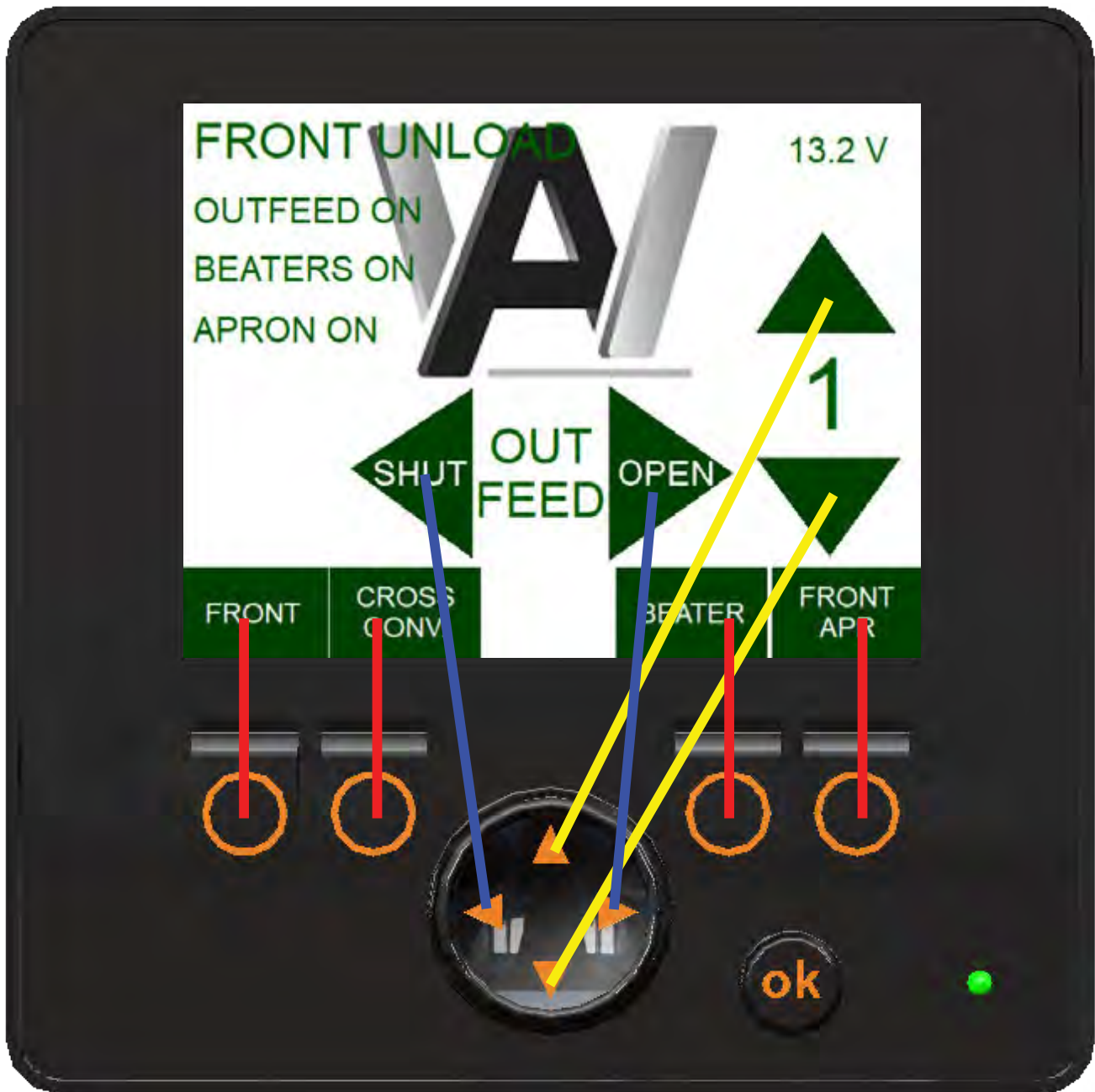
The canbus operational display is broken into 3 main sections noted above.

1. Current Status
2. Control Labels
3. Voltage

Current status gives a live display of what functions are currently enabled.

Control Labels are on screen equivalents that correspond to the physical buttons beneath them.

Voltage is a live updated heads up for the current voltage entering the canbus system. If this is out of an acceptable 12V range, functions may not perform correctly.



The above diagram illustrates what control labels correspond with each physical button. The “ok” button is used to access a settings menu. This menu can be accessed by pressing and holding the “ok” button for 5 seconds. Only access the settings menu when all operations are stopped and hydraulic power is turned off.





The settings menu can be navigated by use of the up/down directional buttons as well as the “ok” button. The menus screen also shows your current canbus display (PDM) and canbus controller (PLC) firmware versions. While firmware updates are not a necessity for the function of your machine Art’s Way reserves the right to make firmware updates which can be obtained by contacting your authorized dealer. You have access to the “SETTINGS” submenu which lets you adjust front unload apron speed settings. “FACTORY SETTINGS” is locked by default and may only be accessed by Art’s Way or an authorized dealer.



Since every tractor has different hydraulic capabilities (pressure/flow) your unit comes pre-loaded with default apron forward speed settings that meet the needs of a wide range of tractors. We recommend using the unit before making any adjustments to these settings to see how your specific tractor behaves.

The settings menu can be navigated by use of the up/down directional buttons as well as the “ok” button.

The apron forward speed is adjusted in operation on a scale from 1-10 which corresponds with the open % of the solenoid in the port labeled “PFR” on your hydraulic manifold. For most baggers 100% will be too fast so keep this in mind when adjusting/operating. To return to the default settings the “RES DEF” button may be pressed. Settings are stored in canbus memory even if power is disconnected.

## OPERATIONAL INSTRUCTIONS

Once you have familiarized yourself with the canbus unit it is now time to test unloading. It is recommended to run through the unloading steps before loading the unit with forage.

With the hydraulic hoses connected to the correct ports on your tractor start up your tractor with the hydraulic functions turned off.

The canbus display may power cycle when turning your tractor on via the ignition key depending on the previous ignition key position.



For combination (front/rear) unload units the first step couldn't be easier compared to other forage box systems. To select your unload method (front/rear) simply press the button noted above to switch between front and rear unload.

Note how your current status area updates with the new unload method.

For front unload only units this button will not function. You may skip past the next rear unload related page(s).

### REAR UNLOAD

To start the rear unload process first supply hydraulic flow to the unit. Nothing should happen initially as the current status area tells us that the rear apron is "OFF" like shown below. This unit is not equipped with its own hydraulic cooler. Please refer to your tractor's specifications on extended hydraulic function use. Under normal operation heat issues shouldn't occur. Avoid supplying hydraulic pressure for extended periods of time without engaging your forage box operations.



Once hydraulic flow is being supplied to the forage box simply press the button noted below. Note the color of the “REAR APR” control label changes to green and the current status area tells us that the rear apron is now “ON”.

Soft starts are built into the canbus system to ensure there are no sharp torque spikes in operation when engaging functions.

Inversely if the button is pressed before hydraulic flow is supplied to the system know that the soft start timer will have likely already expired and flow/pressure will be supplied based on your tractors hydraulic controls. This is not recommended.

To stop the rear unload function press the button noted below again and the screen will return to the state on the previous page and rear unload function will stop.

Alternatively pressing the button correlated with the control label “REAR” will also stop the rear unload function.



## FRONT UNLOAD

To start the front unload process first supply hydraulic flow to the unit. Nothing should happen initially as the current status area tells us that the front apron is "OFF" like shown below. This unit is not equipped with its own hydraulic cooler. Please refer to your tractor's specifications on extended hydraulic function use. Under normal operation heat issues shouldn't occur. Avoid supplying hydraulic pressure for extended periods of time without engaging your forage box operations.



Once hydraulic flow is being supplied to the forage box press the button noted below. The “OUTFEED” control label is used to shut and open the outfeed via the hydraulic cylinder connected to the outfeed.

Note the control label for “OPEN” changes to a bright green. This is a timed operation set to 5 seconds. After 5 seconds has passed to ensure the outfeed is fully open the next set of control labels will become available.

Also note that the current status area still tells us that the outfeed is “OFF” Since the outfeed is a two step function this will remain in “OFF” status until the cross conveyor is started later.

If needed you can interrupt the opening of the outfeed by pressing the left arrow button that corresponds with the “SHUT” control label. The outfeed shut operation is not timed but rather a momentary operation based on how long you press the button for this control label.

Alternatively press the button that corresponds with the “FRONT” control label to stop all current running functions.



After the 5 second timer is finished and the outfeed is now open the next control label "CROSS CONV." will become available.

Press the button noted below to start the cross conveyor.

Note the "CROSS CONV." control label changes to green and the current status area changes the outfeed to "ON".

Also note that the "BEATER" control label appears as well as a new line for beaters in the current status area.

Like before pressing the button noted below will turn off the cross conveyor if needed.

Alternatively you can choose to shut the outfeed which will stop the cross conveyor or you can press the button with the "FRONT" control label to stop all current running functions.





With the outfeed now running you can now turn on the beaters by pressing the button noted below.

Note the "BEATER" control label changes to green and the current status area changes the beaters to "ON"

Also note that the "FRONT APR" and speed control labels appear as well as a new line for apron in the current status area.

Like before pressing the button noted below will turn off the beaters if needed.

Alternatively you can choose to stop the cross conveyor which will also stop the beaters, or like before shut the outfeed which will stop the cross conveyor. You can also still press the button with the "FRONT" control label to switch to stop all current running functions.



With the outfeed and beaters now running you can start the apron chain operation by pressing the button noted below.

Note that the current status area changes the apron to "ON".

Apron speed can now be adjusted. The apron speed defaults to 1 when starting an unload cycle. Once again the % that the valve opens up for front apron speed is correlated with these numbers 1-10. The % that correlates with the numbers can be adjusted from the settings which is outlined in the initial setup section earlier in the manual.

To turn off the apron simply press the same button noted below or press any other button to turn off any number of functions like stated previously.

Remember for immediate shutdown of all operations the "FRONT" control label button may be pressed to stop all current running functions.



With the apron chain turned on you may now adjust the speed of the apron chain by pressing the buttons noted below.

Note the corresponding arrow turns bright green to confirm a button press and the number changes based on an up or down arrow press.

To turn off the apron simply press the same button noted below or press any other button to turn off any number of functions like stated previously.

Remember for immediate shutdown of all operations the "FRONT" control label button may be pressed to stop all current running functions.

Congratulations! You may now proceed with loading and using your new Art's Way 2100 Forage Box.



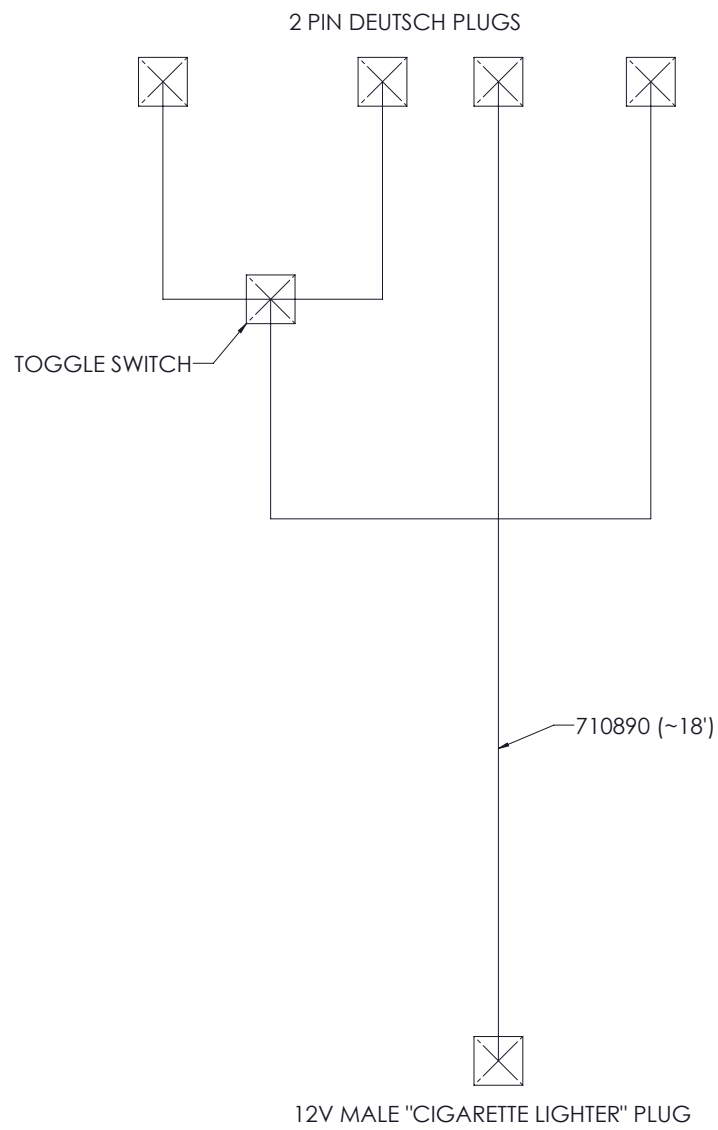
### EMERGENCY UNLOAD / CAN-BUS SYSTEM BYPASS

Your in-cab controlled forage box includes an emergency unload harness for use in the event of a canbus monitor or controller failure. This harness powers your manifold solenoids to open directly and must be used in conjunction with the following instructions.

Use of the emergency unload harness that does not apply the following directions can result in damage that Art's Way will not be liable for. Double and triple check all connections are accurate before applying power (electrical / hydraulic) and attempting to unload.

Version 1 of this emergency unload harness is shown below.

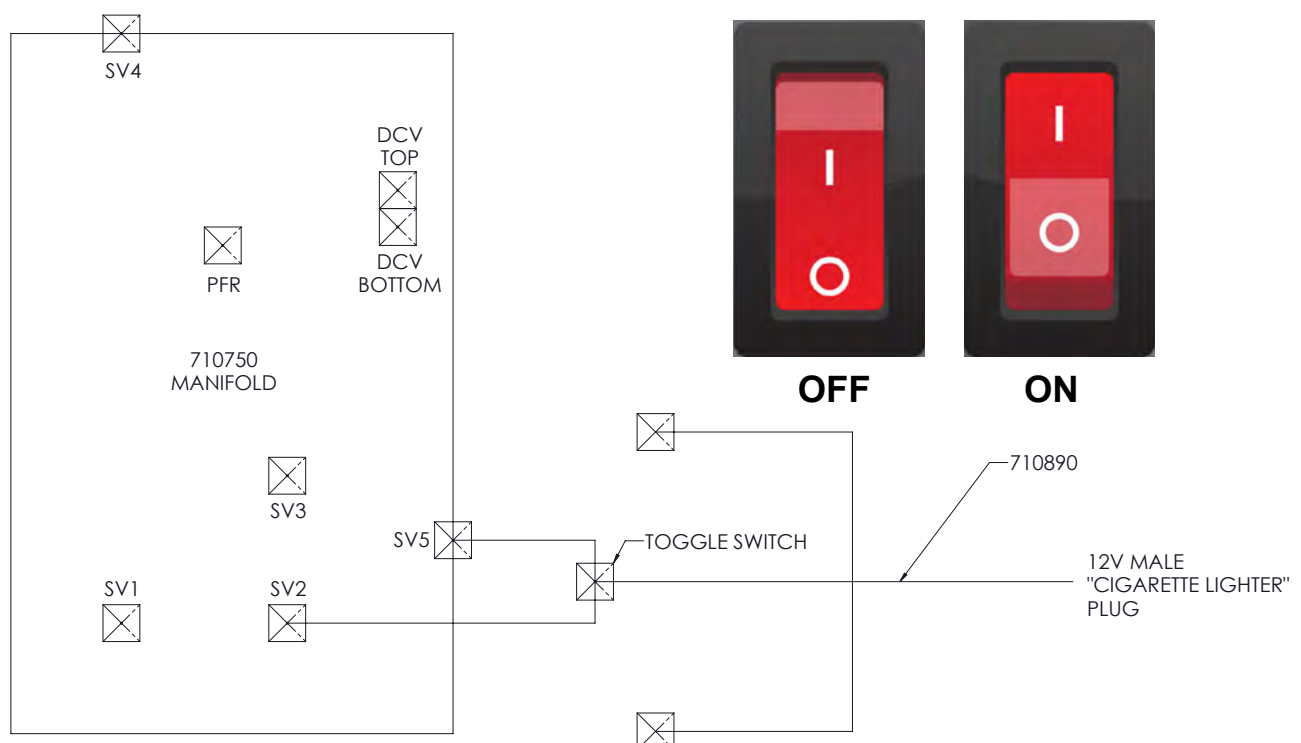
For front unload only units ignore "REAR UNLOAD" section and skip to "FRONT UNLOAD" section.



## EMERGENCY REAR UNLOAD

For rear unloading using the emergency unload harness take the following steps.

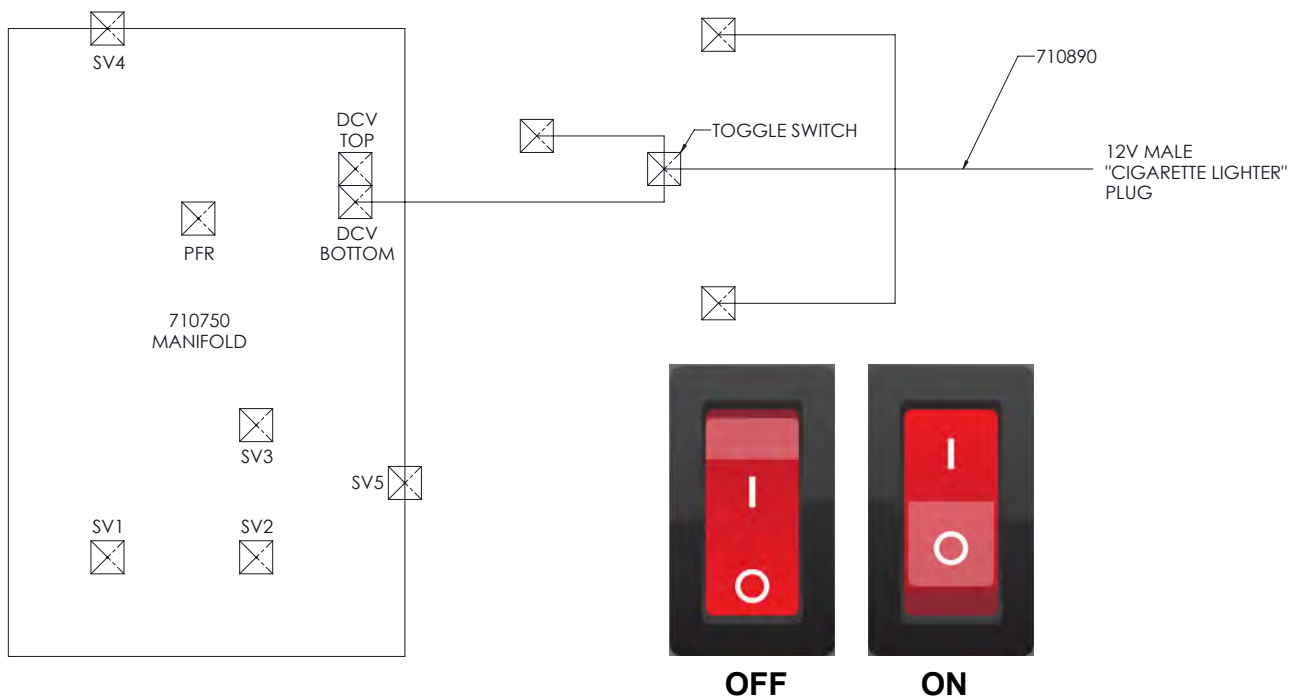
1. Power down tractor and all power sources (hydraulic / electric).
2. Unplug 7 pin power harness from tractor.
3. Unplug all cables connected to all solenoids on the hydraulic manifold. You can use the Electric Diagram near the end of this manual as reference.
4. Plug the emergency harness in to the manifold solenoids as shown below.
5. Ensure the toggle switch is set to off as shown below.
6. Plug in the 12V male end of the emergency unload harness to you tractors 12v cigarette receptacle.
7. Turn on tractor and supply 1/4 of available hydraulic power. Nothing should happen yet. If forage box functions start to move then turn off hydraulic power and repeat the above steps. This emergency unload method does not limit flow and full hydraulic power could damage equipment using this unload method.
8. Toggle the toggle switch on the emergency harness on and unloading should start. Use the toggle switch to control rear unloading on and off. Depending on your tractor you may need to gradually increase the amount of hydraulic power. Do not exceed 1/2 of available hydraulic power using this unload method.



## EMERGENCY FRONT UNLOAD (STAGE 1)

For front unloading using the emergency unload harness take the following steps.

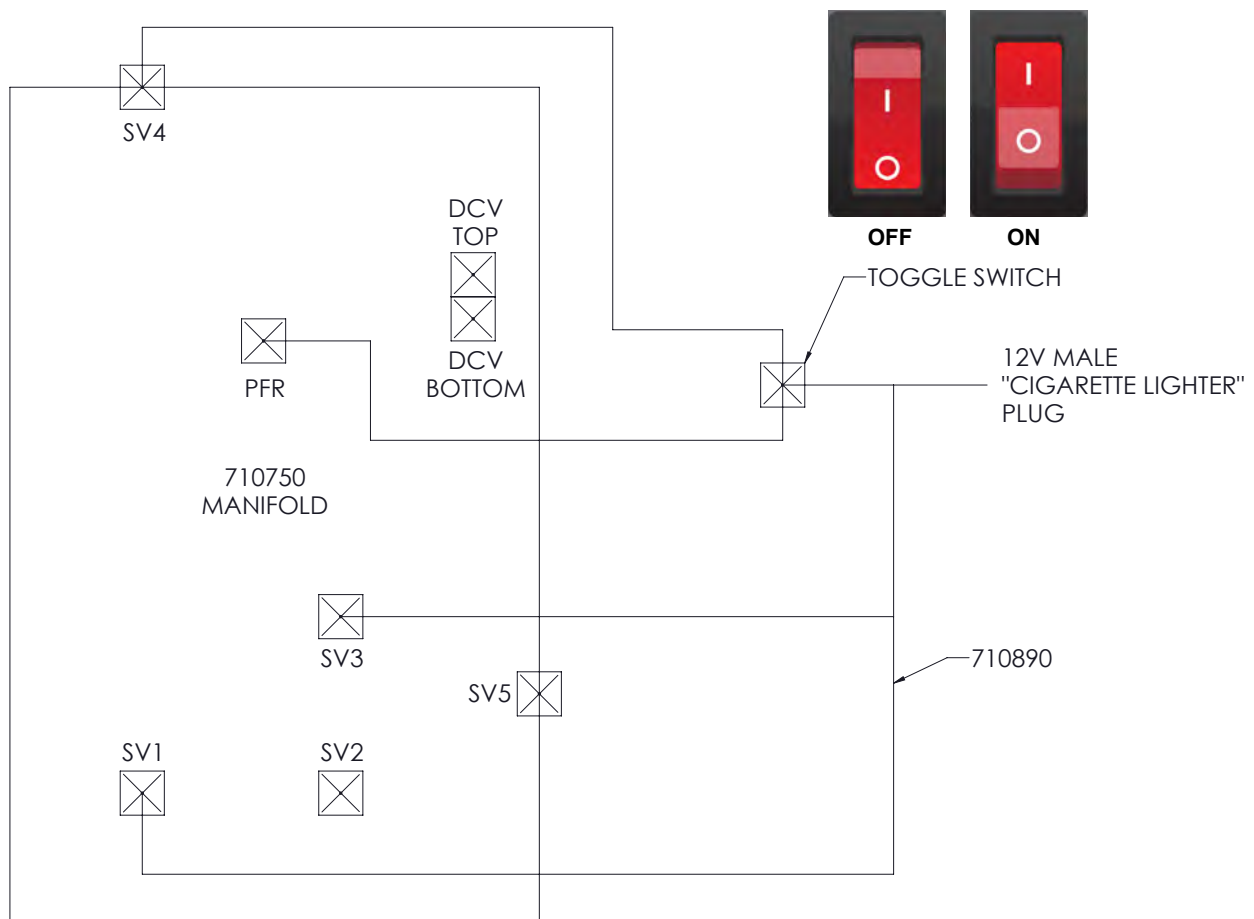
1. Power down tractor and all power sources (hydraulic / electric).
2. Unplug 7 pin power harness from tractor.
3. Unplug all cables connected to all solenoids on the hydraulic manifold. You can use the Electric Diagram near the end of this manual as reference.
4. Plug the emergency harness in to the manifold solenoids as shown below.
5. Ensure the toggle switch is set to off as shown below.
6. Plug in the 12V male end of the emergency unload harness to you tractors 12v cigarette receptacle.
7. Turn on tractor and supply 1/4 of available hydraulic power. Nothing should happen yet. If forage box functions start to move then turn off hydraulic power and repeat the above steps. This emergency unload method does not limit flow and full hydraulic power could damage equipment using this unload method.
8. Toggle the toggle switch on the emergency harness on and your outfeed cylinder should extend and open the outfeed. Make sure outfeed is fully open before continuing or damage could occur.



## EMERGENCY FRONT UNLOAD (STAGE 2)

For front unloading using the emergency unload harness take the following steps.

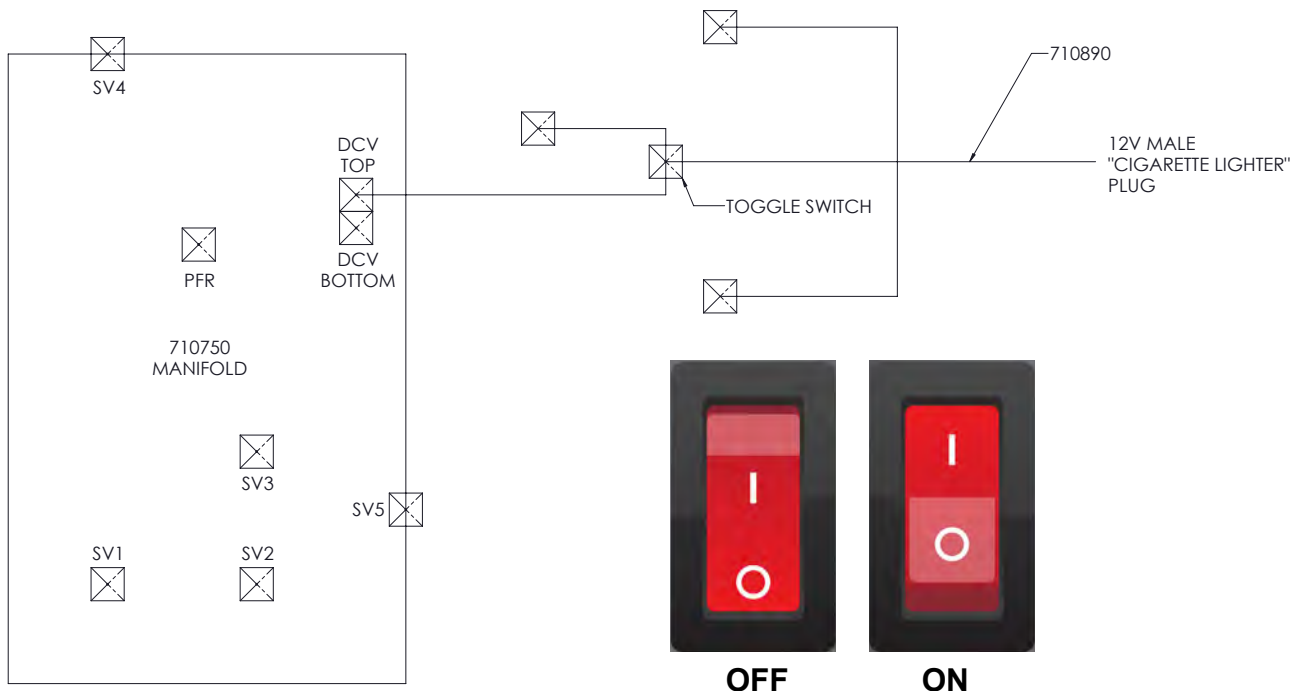
1. Power down tractor and all power sources (hydraulic / electric).
2. Unplug 7 pin power harness from tractor.
3. Unplug ALL cables connected to all solenoids on the hydraulic manifold. You can use the Electric Diagram near the end of this manual as reference.
4. Plug the emergency harness in to the manifold solenoids as shown below.
5. Ensure the toggle switch is set to off as shown below.
6. Plug in the 12V male end of the emergency unload harness to you tractors 12v cigarette receptacle.
7. Turn on tractor and supply 1/4 of available hydraulic power. Your cross conveyor and beaters should start functioning immediately.
8. Toggle the toggle switch on the emergency harness on and your main apron should start moving forward. There is no speed control using this method so use the toggle switch to start and stop the apron forward advancement as needed.



## EMERGENCY FRONT UNLOAD (STAGE 3)

For front unloading using the emergency unload harness take the following steps.

1. Power down tractor and all power sources (hydraulic / electric).
2. Unplug 7 pin power harness from tractor.
3. Unplug all cables connected to all solenoids on the hydraulic manifold. You can use the Electric Diagram near the end of this manual as reference.
4. Plug the emergency harness in to the manifold solenoids as shown below.
5. Ensure the toggle switch is set to off as shown below.
6. Plug in the 12V male end of the emergency unload harness to you tractors 12v cigarette receptacle.
7. Turn on tractor and supply 1/4 of available hydraulic power. Nothing should happen yet. If forage box functions start to move then turn off hydraulic power and repeat the above steps. This emergency unload method does not limit flow and full hydraulic power could damage equipment using this unload method.
8. Toggle the toggle switch on the emergency harness on and your outfeed cylinder should retract and close the outfeed. Make sure outfeed is fully closed then unplug the emergency harness and call your authorized dealer for help troubleshooting your canbus system.





**THIS PAGE  
LEFT  
INTENTIONALLY  
BLANK**

## 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 (Figure 5).

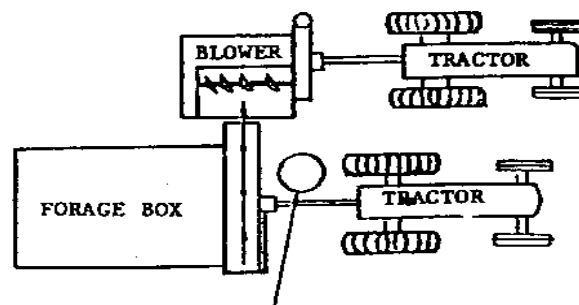


### **WARNING**

**DO NOT STEP OVER PTO SHAFT!**

**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!**



**OPERATOR'S POSITION**

**LEFT HAND UNLOAD**

Figure 5

---

**SAFETY LABEL LOCATIONS**

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 MFG. AT 712-864-3131 IF ANY LABELS ARE NOT UNDERSTOOD!**

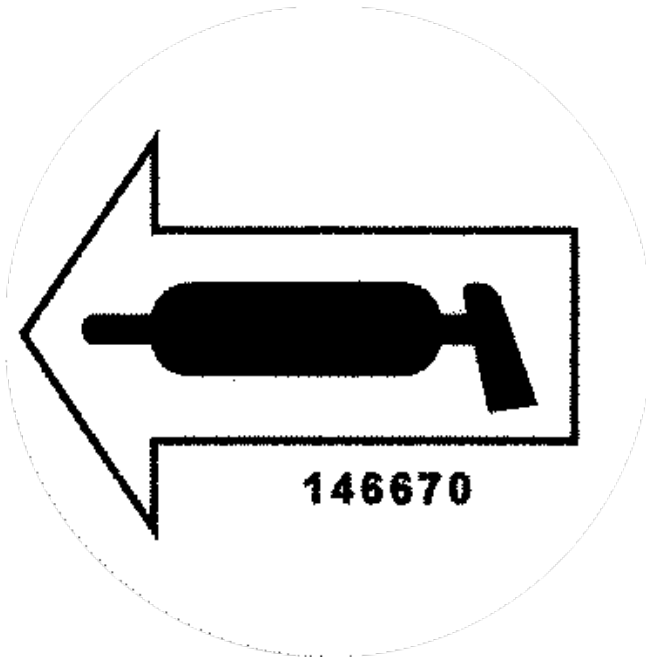
**THE ART'S WAY FORAGE BOX WAS DESIGNED AS A FORAGE BOX. DO NOT USE FOR OTHER PURPOSES!**

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

**SAFETY LABEL LOCATIONS CAN BE FOUND NEAR THE END OF THIS MANUAL ON THE PAGE TITLED "DECALS". REFER TO THE TABLE OF CONTENTS TO LOCATE THE PAGE NUMBER.**

**THE FOLLOWING PAGES SHOW DETAILED IMAGES OF THE CONTENT OF ALL THE INCLUDED SAFETY LABELS.**

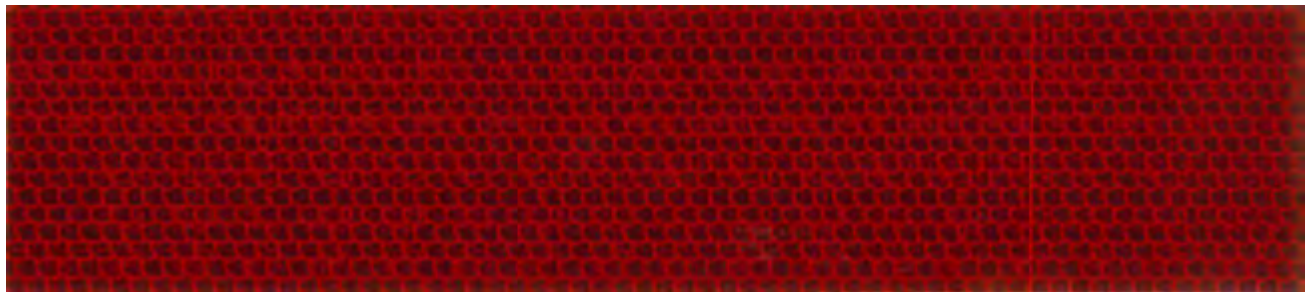
**IF YOU REPLACE A COMPONENT OF YOUR MACHINE THAT HAS A SAFETY LABEL ON IT YOU ARE RESPONSIBLE FOR OBTAINING AND REPLACING THE SAFETY LABEL FOR THAT COMPONENT.**



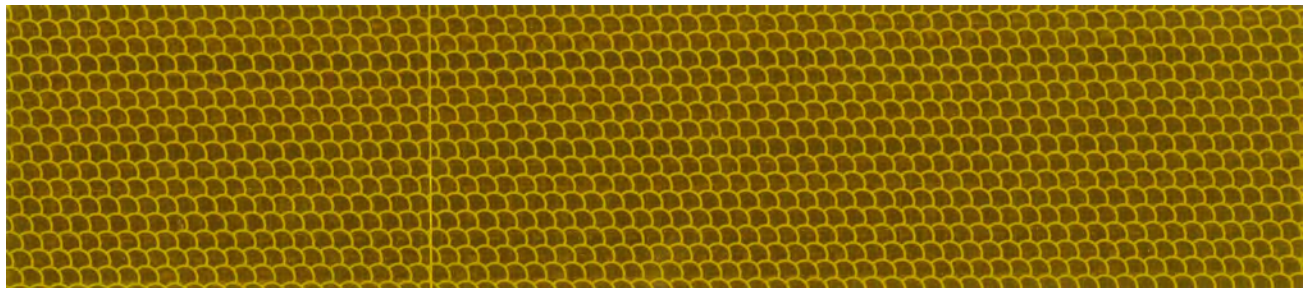
146670



346310



476450



476460



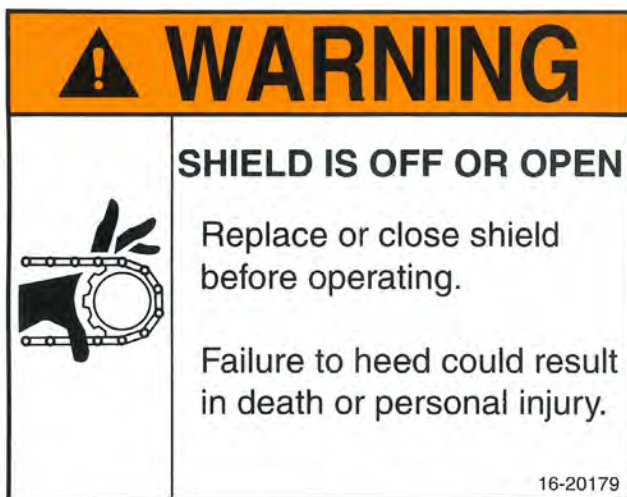
476470



MP01.77740



MP16.10552



MP16.20179



MP16.20181



**NH9611750**

# **WARNING**



## **BEFORE YOU OPERATE THIS EQUIPMENT:**

**Read the operator's manual and learn to operate this machine safely.**

**Keep Children away.**

**Machines can be hazardous in the hands of an untrained operator.**

**Failure to follow safety, operating and maintenance instructions could result in death or serious injury.**

**If you have questions: contact your dealer.**

MP16.20178

MP16.20178

**SETUP INSTRUCTIONS**

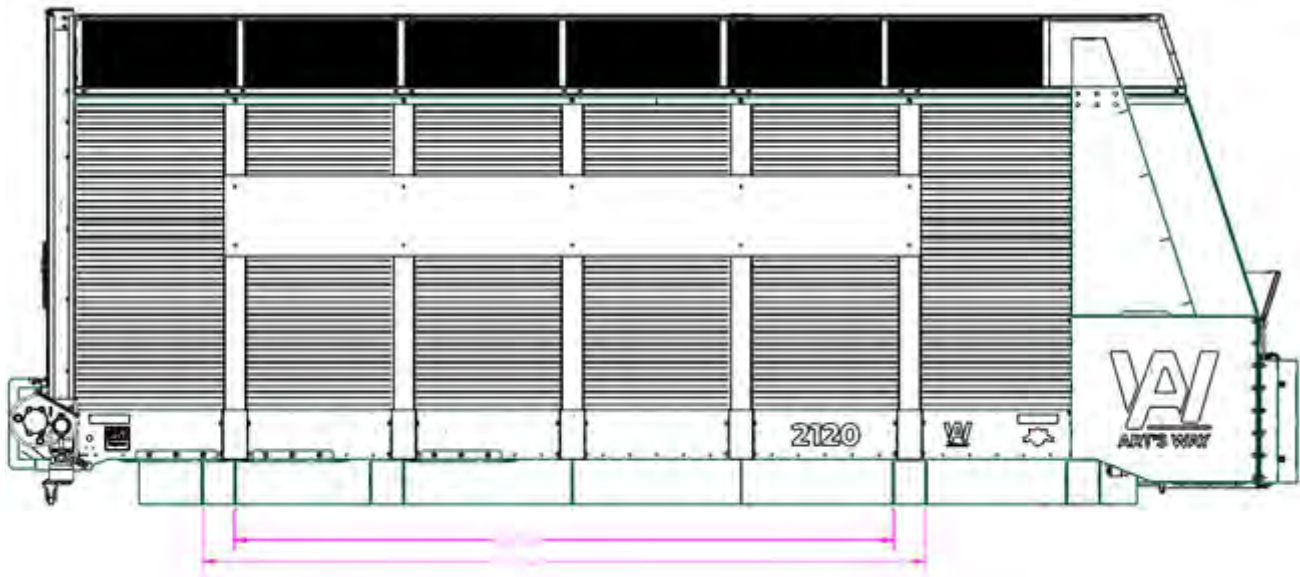
**SMV Emblem**

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

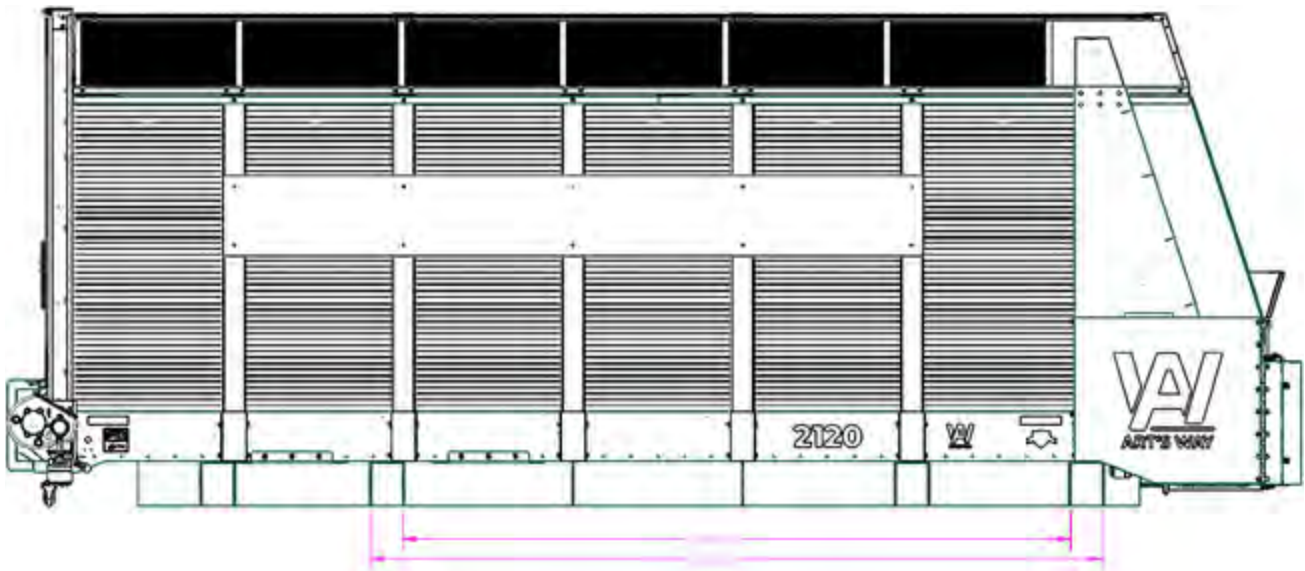
**Mounting Forage Box to Running Gear**

**NOTE:** This setup DOES NOT center forage box saddles on running gear bolster but are biased to prevent movement.

**NOTE:** Be sure the forage box is assembled to a running gear per included setup instructions or warranty may not apply.  
Use and maintain rubber pads between the forage box and running gear.

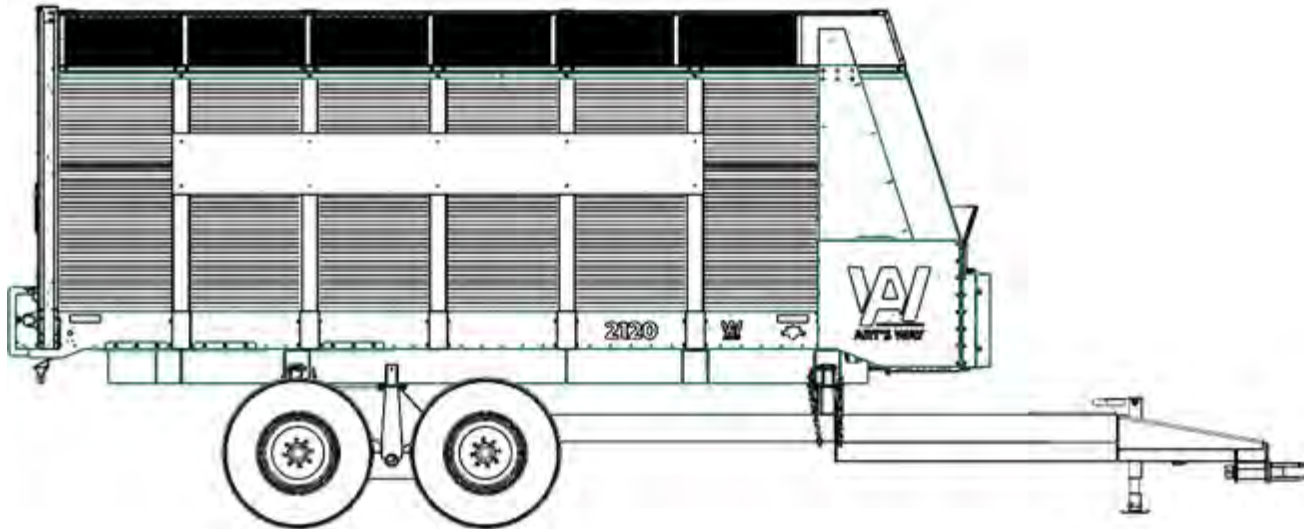


**20' BOX SPACING 1**

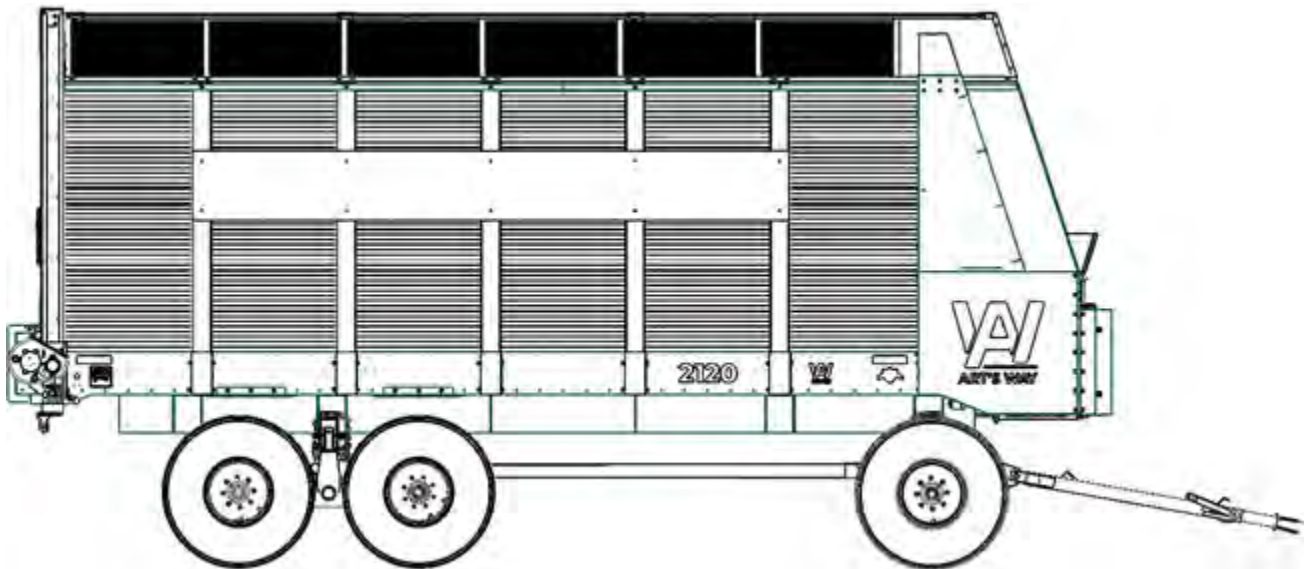


**20' BOX SPACING 2**





**505 GEAR ON 20' BOX**



**325 GEAR ON 20' BOX**

**18' BOX SPACING 1**

**18' BOX SPACING 2**

**18' BOX SPACING 3**

**505 GEAR ON 18' BOX**

**325 GEAR ON 18' BOX**

**285 GEAR ON 18' BOX**

**265 GEAR ON 18' BOX**

**16' BOX SPACING 1**

**16' BOX SPACING 2**

**16' BOX SPACING 3**

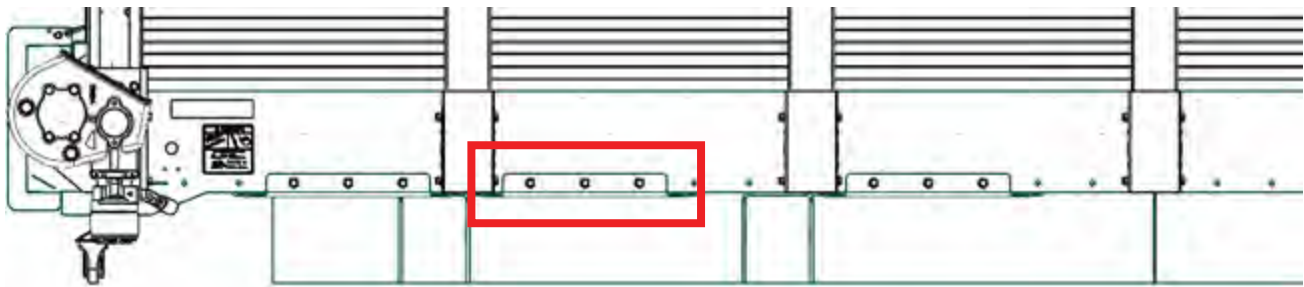
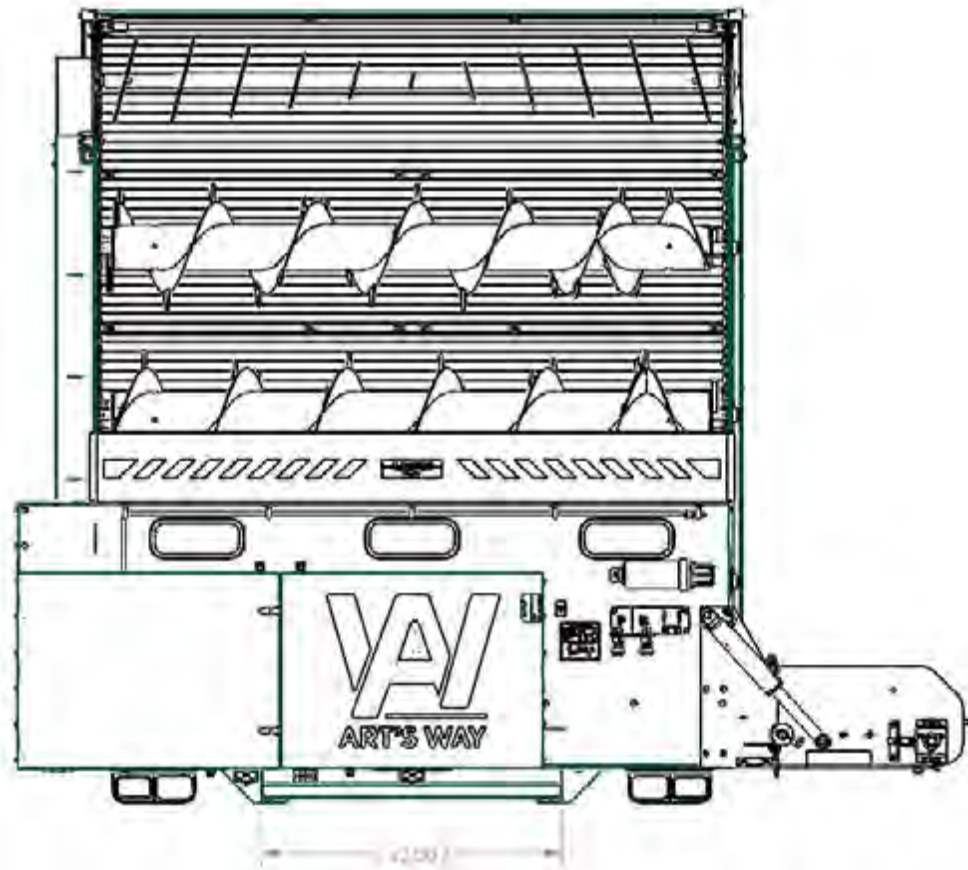
**505 GEAR ON 16' BOX**

**325 GEAR ON 16' BOX**

**285 GEAR ON 16' BOX**

**265 GEAR ON 16' BOX**

**205 GEAR ON 16' BOX**



Tire bump stops are included with every Art's Way Forage box. You are responsible for re-positioning them in locations above tires for tandem / rocking style running gear. When installing ensure the gussets on the insides of the bump stops make contact with the "C" channel main frame members.

Failure to do so may result in damage that Art's Way will not be liable for.

You may end up with more bump stops than necessary which can be removed and stored or remain bolted to the forage box.

**PRE-DELIVERY CHECKLIST**

After the Art's Way 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.
- 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 chains are at proper tension. See "Adjustments" section in this manual.
- All bolts and other fasteners are tight.
- PTO shields turn freely.
- Apron chains are adjusted properly. See "Adjustments" section in this manual.
- Rear door opens, closes and latches properly.

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 #28A, and then loosen the outer jam nut #28 on the adjusting stud and turn the inner adjusting nut #29 until the proper tension is achieved, then retighten the jam nuts and 3/8" nuts #28A.

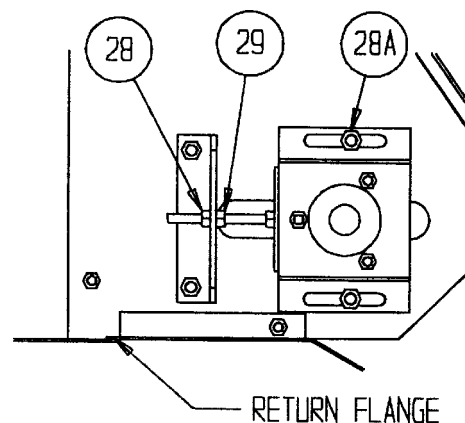


Figure 20

## LASHING RUNNING GEAR

Lashing and hardware is included with the purchase of every Horst running gear from Art's Way.

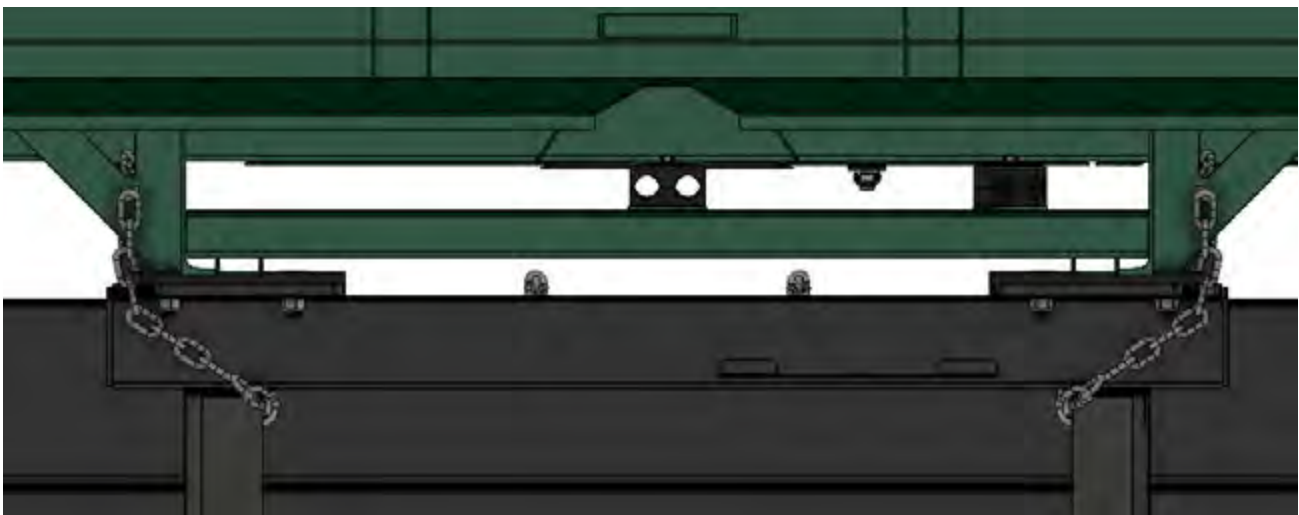
If lashing to a running gear not sold by Art's Way you are responsible for proper lashing. Art's Way is not liable for damages incurred due to improper lashing materials or technique.

Art's Way uses 1/4" Grade 30 Import Proof Coil Chain connected to itself using 1/2"-13 grade 5 flanged locking hardware.

Your materials must meet or exceed these standards depending on your running gear.



**Horst 505 rear lashing as seen from side of forage box.**

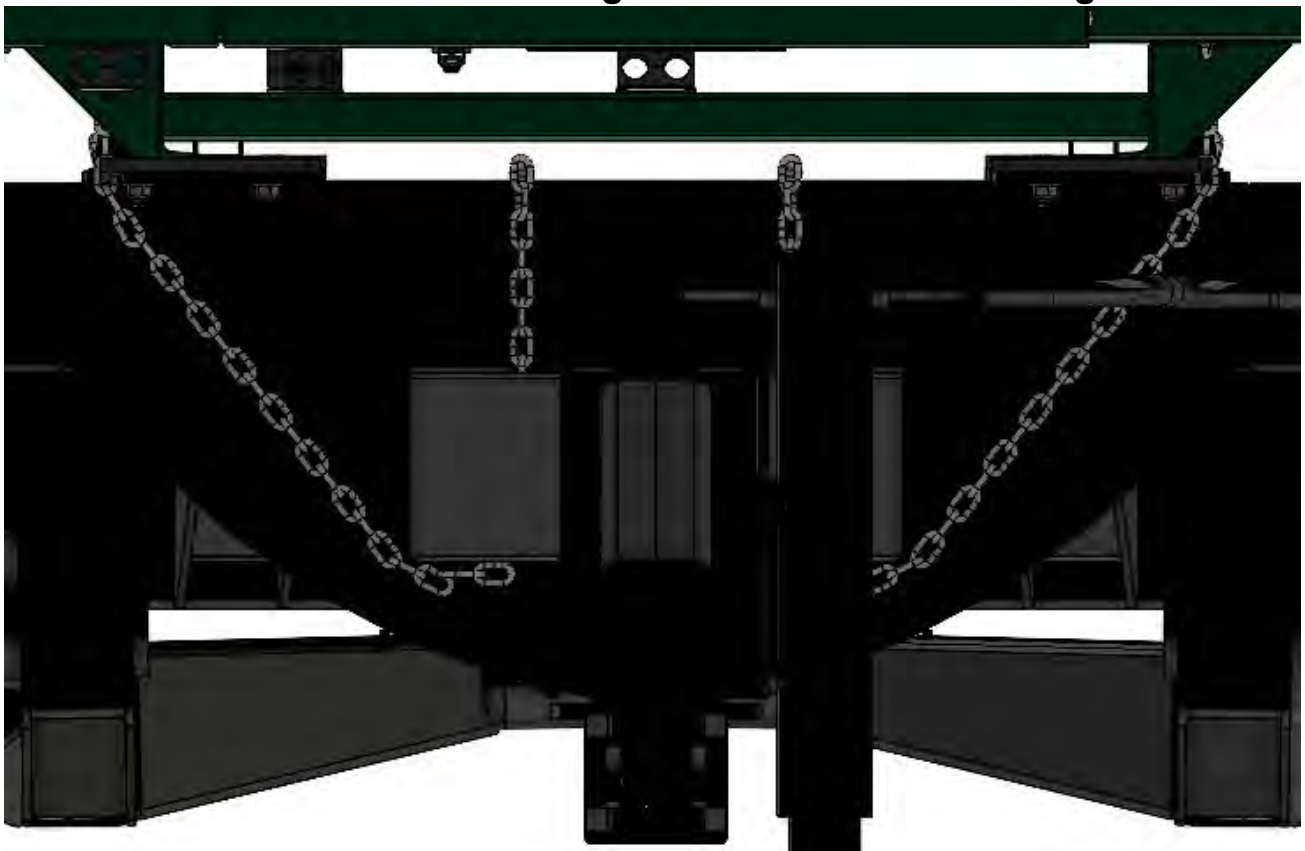


**Horst 505 rear lashing as seen from rear of forage box.**

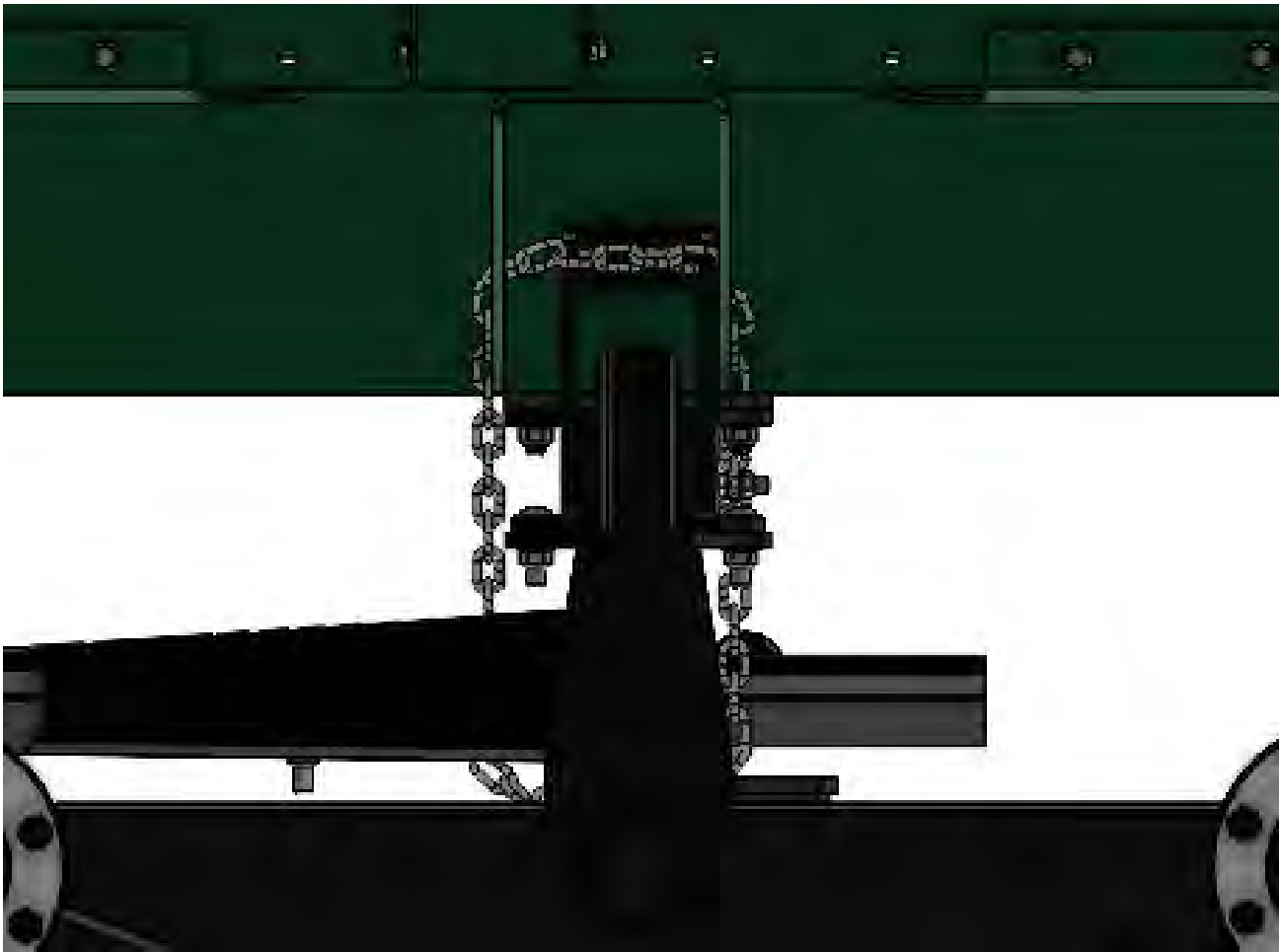




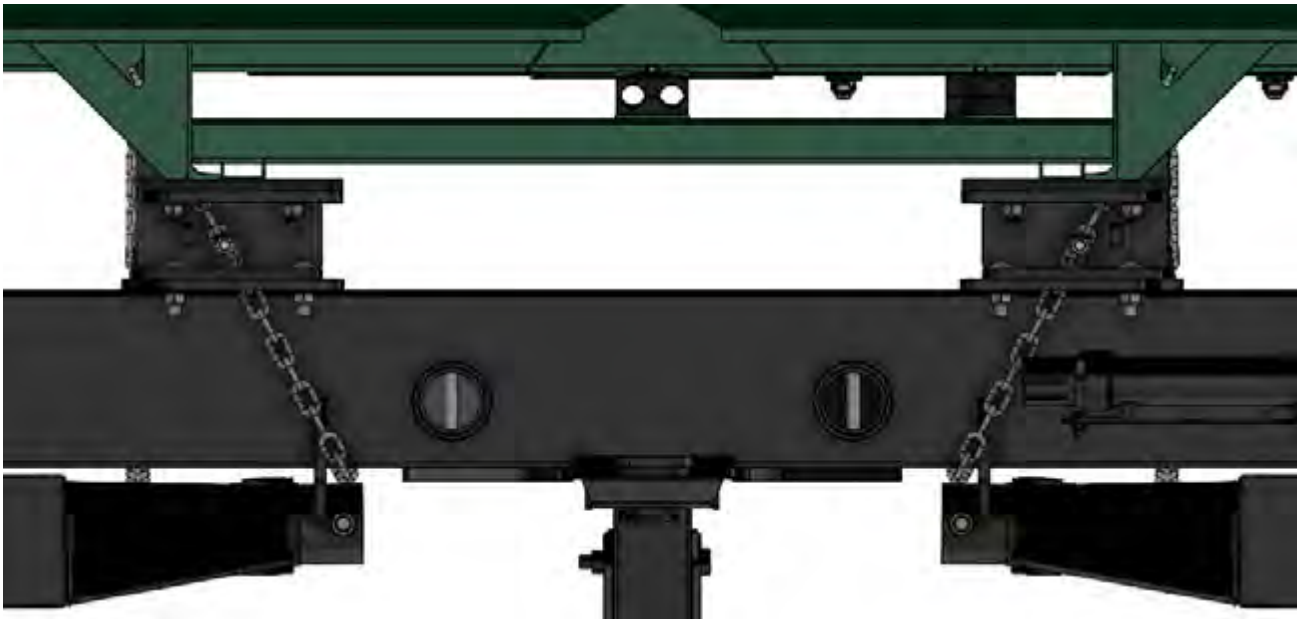
**Horst 505 front lashing as seen from side of forage box.**



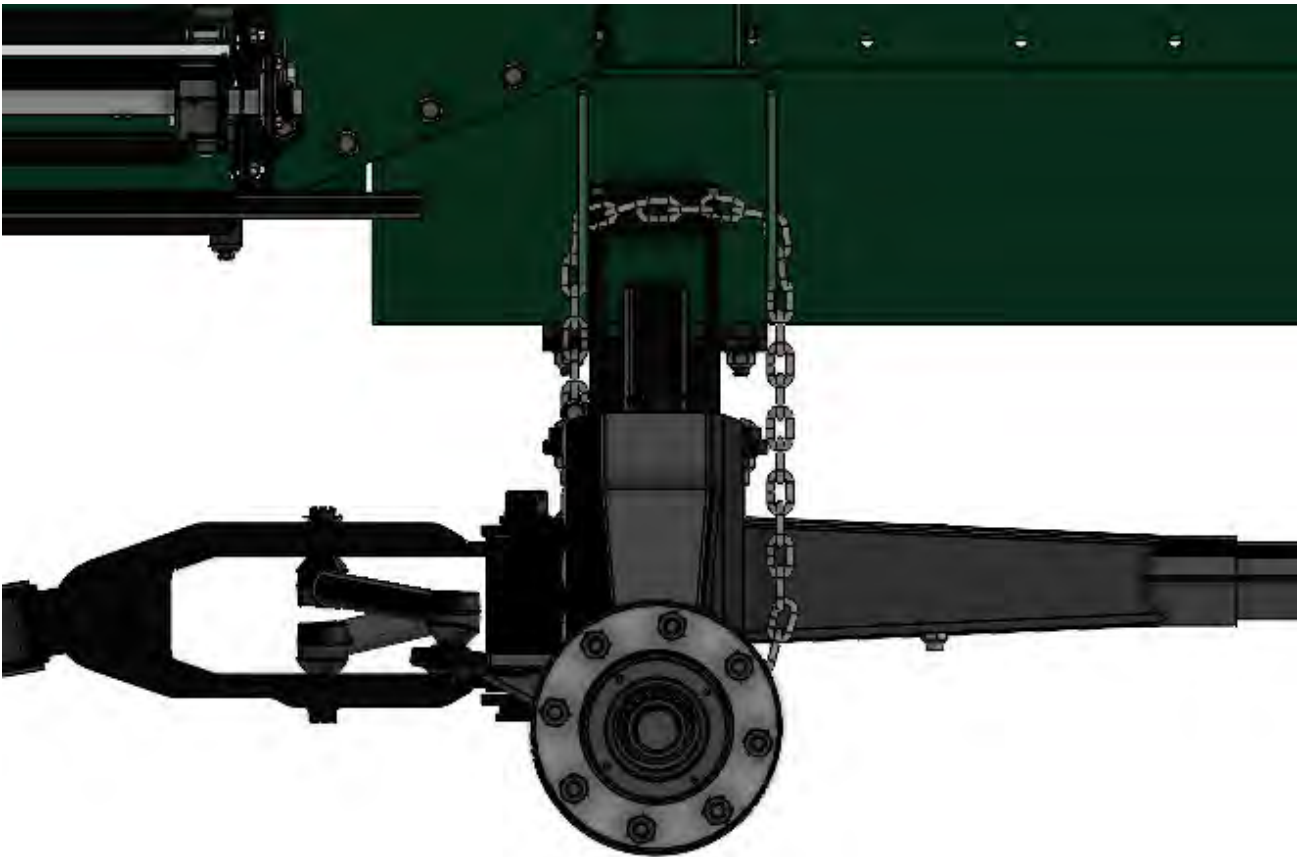
**Horst 505 front lashing as seen from front of forage box.**



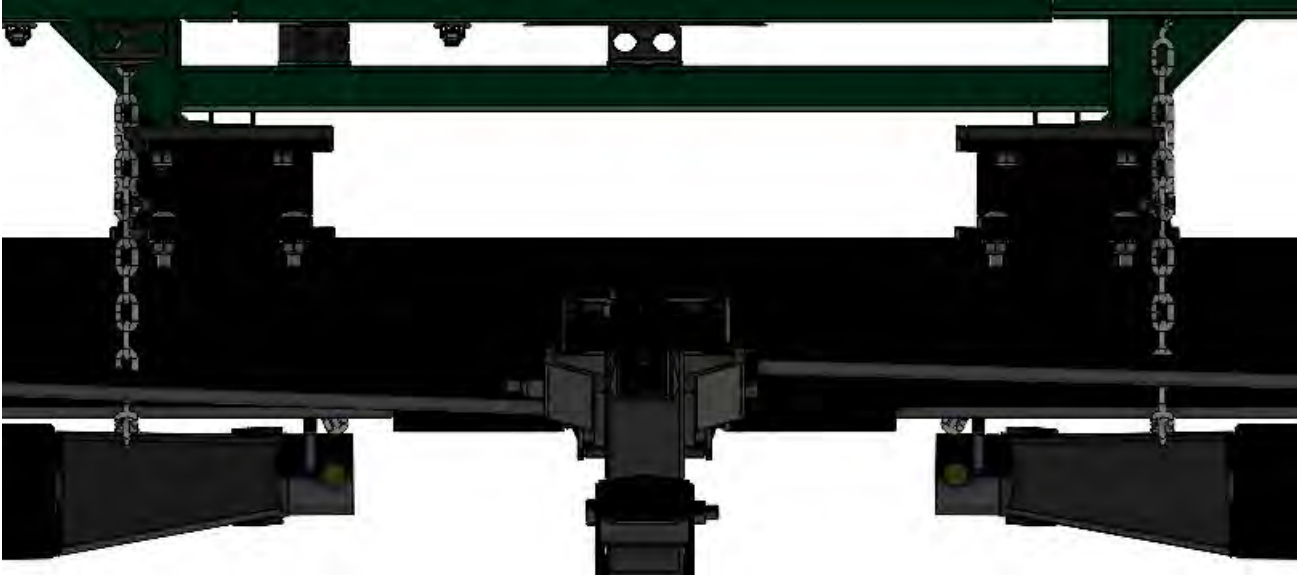
**Horst 325 rear lashing as seen from side of forage box.**



**Horst 325 rear lashing as seen from rear of forage box.**



**Horst 325 front lashing as seen from side of forage box.**



**Horst 325 front lashing as seen from front of forage box.**

**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.

**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.

**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. 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!**

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.

<b>Recommended Forage Box Maximum Loads</b>			
<b><u>Model</u></b>	<b><u>Chain</u></b>	<b><u>Maximum Crop Load</u></b>	<b><u>Weight (Approx.)*</u></b>
2120 - 20'	667X Pintle	10.5 ton	2.50 ton
* Weight includes three augers and roof.			

**Tractor Connections****WARNING**

- Use **ONLY** a 540 RPM tractor PTO shaft.
- Do not connect to 1000 RPM PTO or use an adapter. PTO damage and risk of entanglement may result.

The following tractor hookup provisions should be made: Figure 21

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.

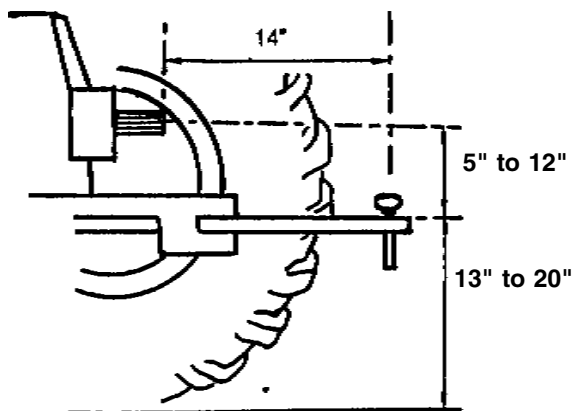


Figure 21

**PTO Attachment Procedure**

Figure 22

On units with plastic (two piece) locking ring, moving the ring, #30, back (away from the tractor) releases the retaining balls.

**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!**

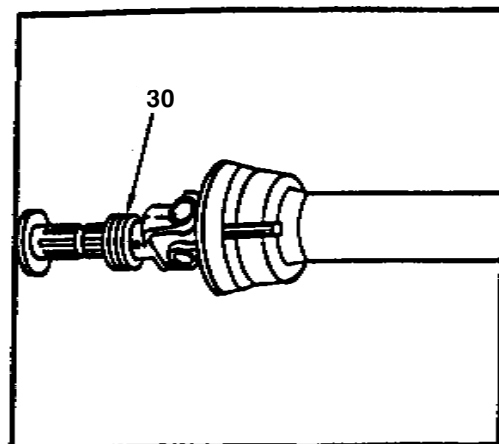


Figure 22

## 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 Gearbox**

The gearbox oil level should be checked every 50 loads. Use No. 85W140 or No. 90 gearlube if oil is needed, add through plug in top cover.

The gearbox oil level should be up to the check level plug in the gearbox rear cover.

### **Right Angle Gearbox**

The gearbox oil levels should be checked every 50 loads. Use No. 85W140 or No. 90 gearlube if oil is needed, add through plug in the gearbox side cover.

The gearbox oil level should be up to the check level plug in the gearbox side cover.

### **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.

### **Safety/Cross and Main Clutch Handles**

If handle movement becomes hard, remove nuts and coat pivot bolt with grease and reinstall.

<b><u>Qty</u></b>	<b><u>Description</u></b>
8	Rear Idler Sprockets
2	Driveline Joints
3	Front Main Apron Bearings
3	Rear Main Apron Bearings
1	Outer Apron Shaft Support
2	Rear Drive Outer Bearings
1	Sprocket Bearing
1	Center Shaft Bearing

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

The main apron chains do not require lubrication.

---

**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.

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 tightener bolts provided until the slats lift 1/2" off the return flanges 5 feet from the back of the forage box,

**Failure to maintain proper chain tension may lead to links jumping on sprockets which may result in apron chain damage.**

**Links may need to be removed as the chain naturally stretches during early lifespan.**



**CLOSE THE REAR SHIELD BEFORE STARTING THE UNLOADING MECHANISM!**

**Cross Conveyor Apron**

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, 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

### **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.

### **Beater Drive Chains**

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 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.**



**CLOSE THE TRANSMISSION SIDE DOOR BEFORE STARTING THE UNLOADING MECHANISM!**

### **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. Open 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.

**THIS PAGE  
LEFT  
INTENTIONALLY  
BLANK**

## 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)	
				(Flats)	(Turns)
(In.)	(In.)	(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.

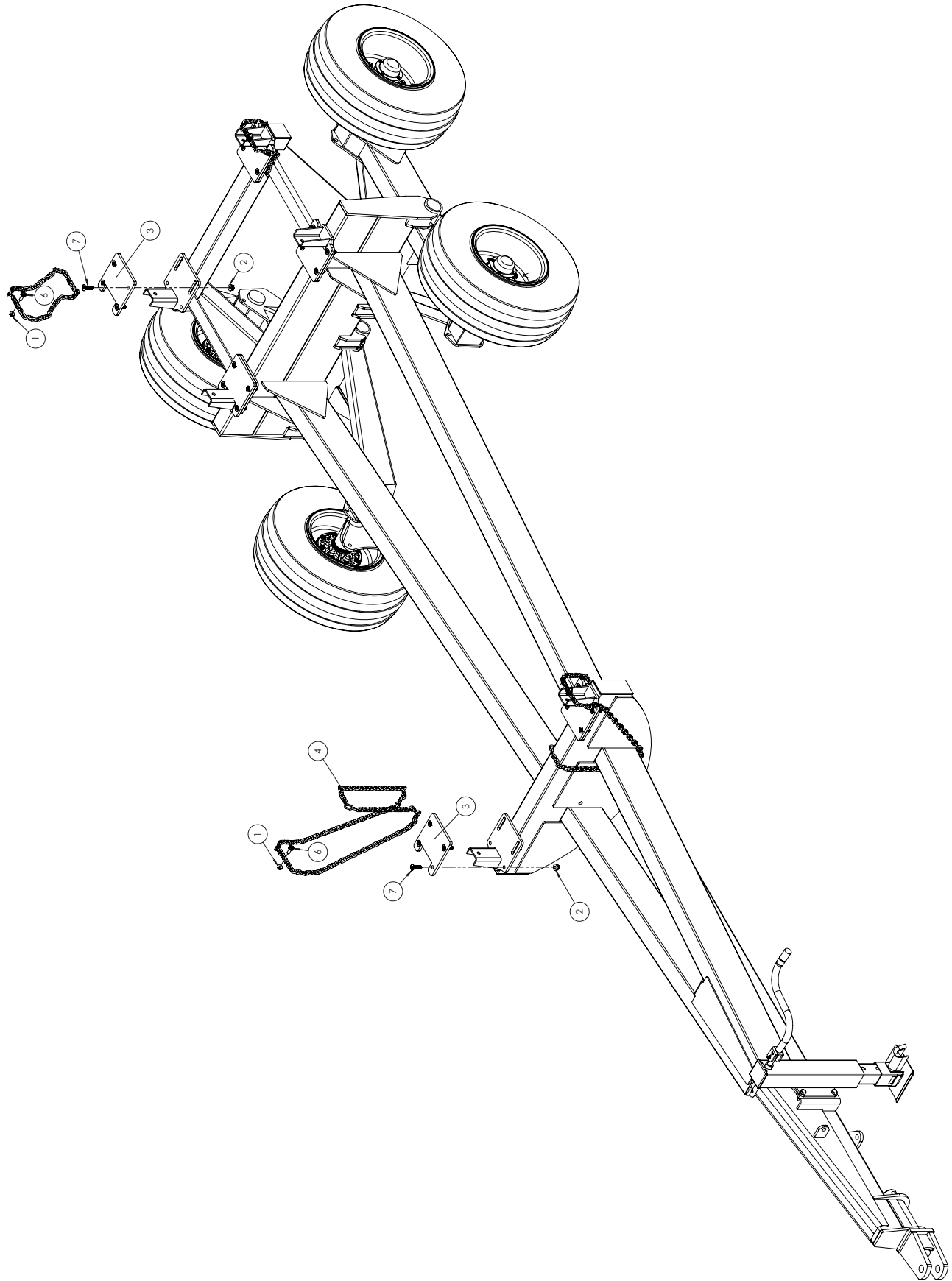
\* Torque values shown are based on lubricated connections as in reassembly.

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

**THIS PAGE  
LEFT  
INTENTIONALLY  
BLANK**

**SECTION 2: ILLUSTRATED PARTS LIST**

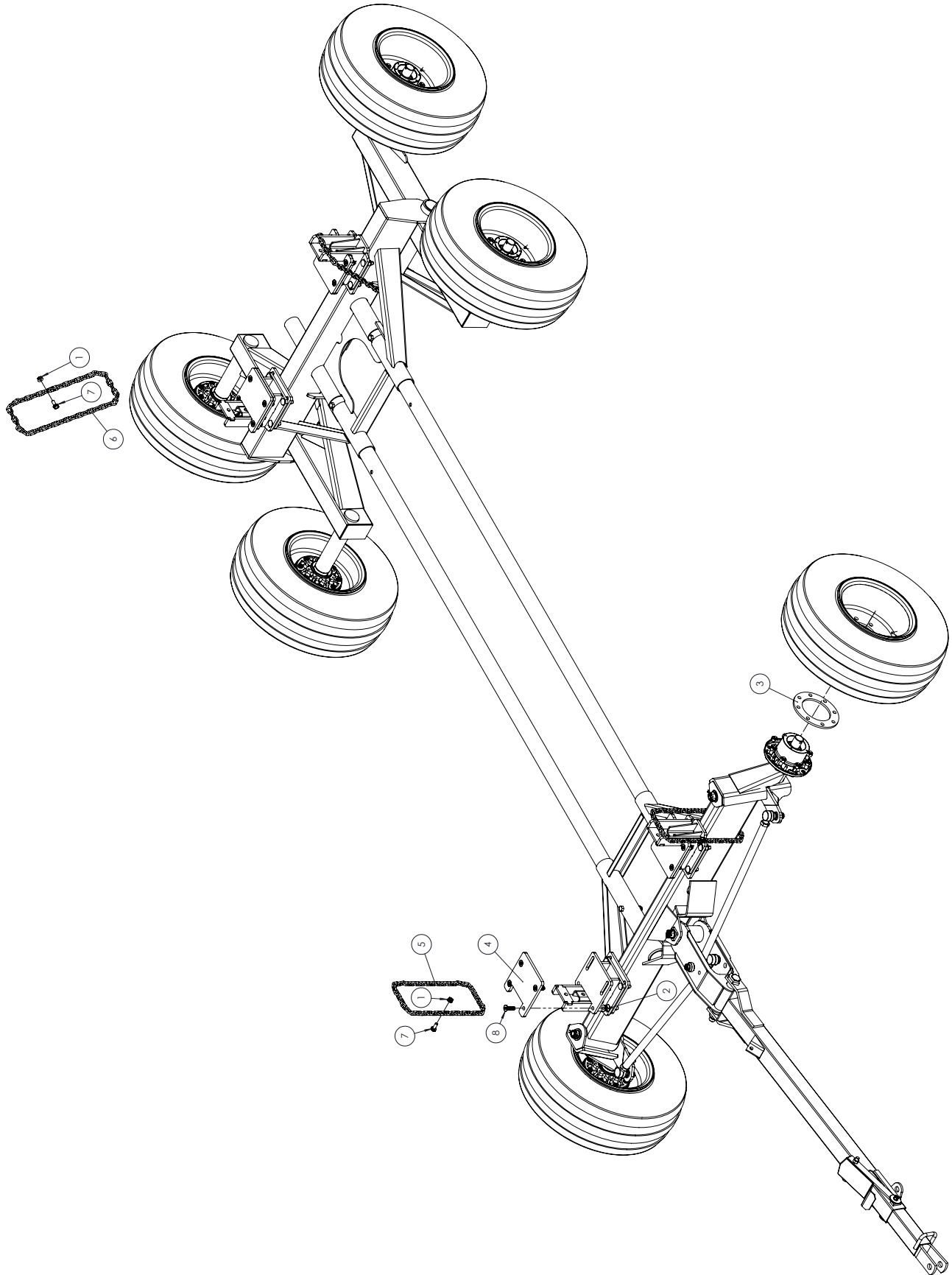
505 RUNNING GEAR





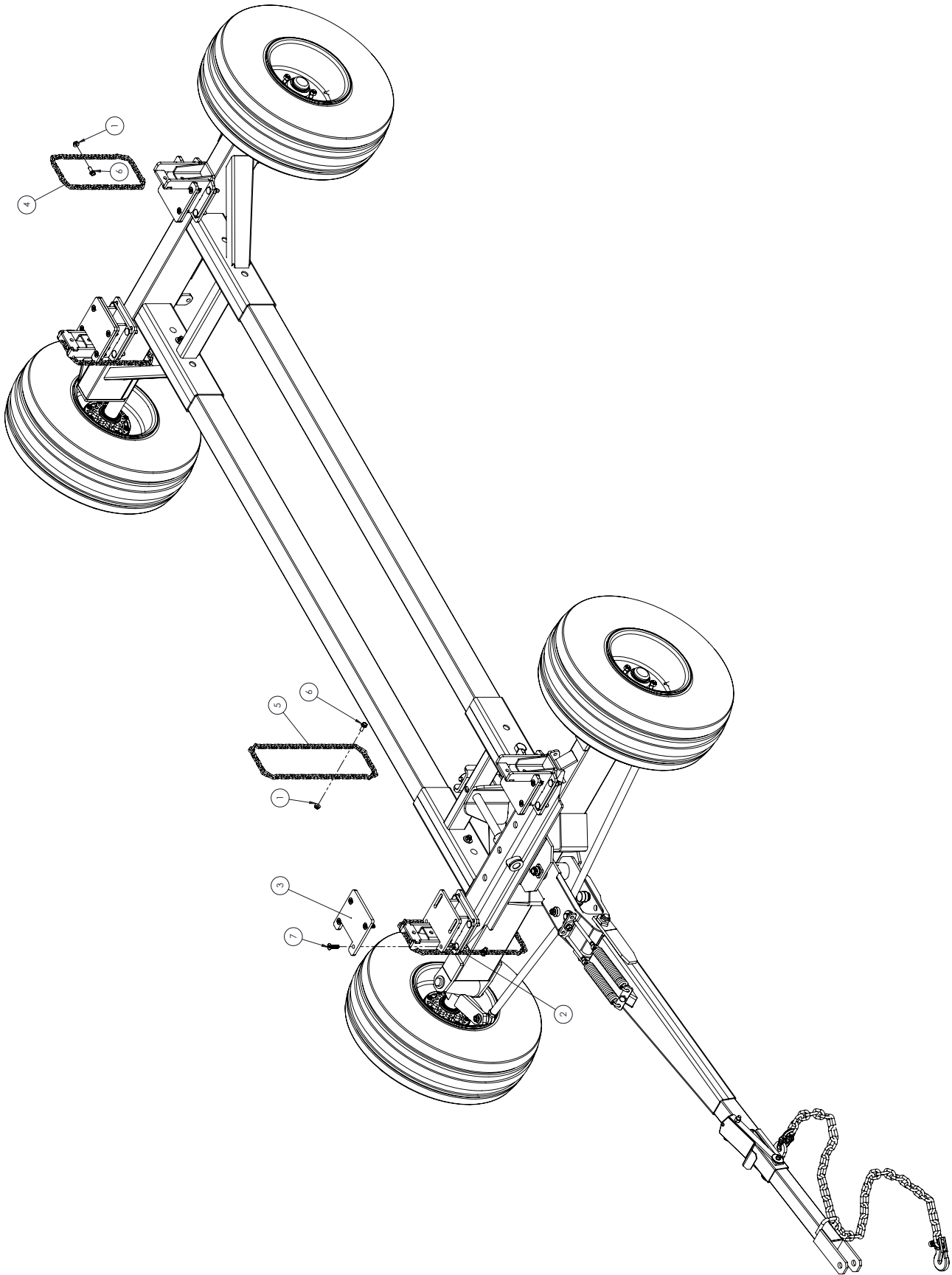
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	600140	NUT, HFH NYLOC 1/2-13	4
2	600150	NUT, HFH NYLOC 5/8-11	24
3	710702	BELTED RUBBER PAD	6
4	710882	CHAIN, TIE DOWN	2
5	710883	CHAIN, TIE DOWN	2
6	MP904557	HHDBLT - 1/2-13 X 1 WHZ	4
7	MP907620	SCREW, FHSCS 5/8-11 X 2"	24
FOR HORST SERVICE PARTS REFER TO THE MANUAL INCLUDED WITH THE HORST GEAR, OR VISIT WWW.HORSTWAGONS.COM			

325 RUNNING GEAR



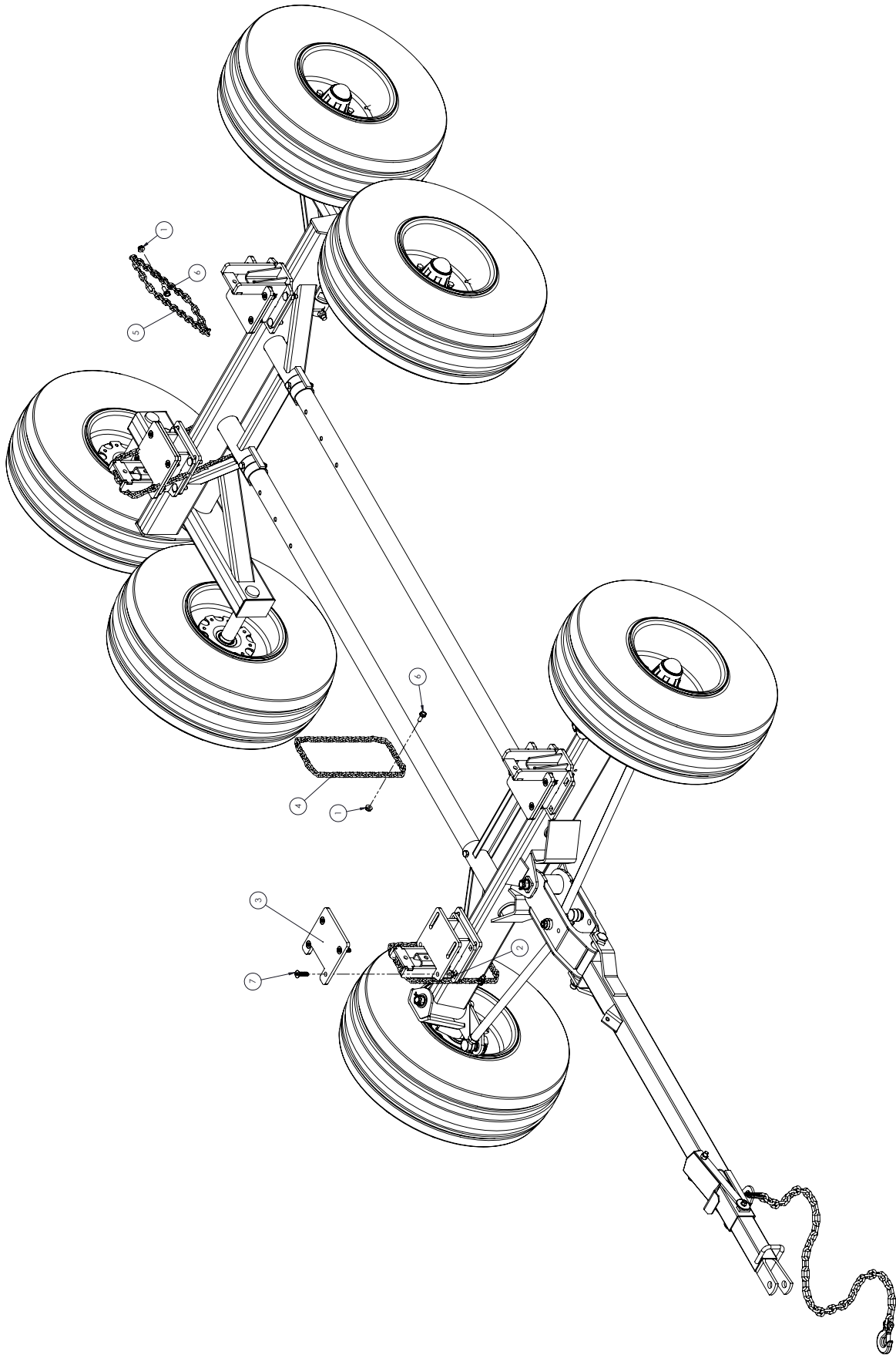
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	600140	NUT, HFH NYLOC 1/2-13	4
2	600150	NUT, HFH NYLOC 5/8-11	16
3	652470	3/8" 8 LUG	6
4	710702	BELTED RUBBER PAD	4
5	710880	CHAIN, TIE DOWN	2
6	710881	CHAIN, TIE DOWN	2
7	MP904557	HHDBLT - 1/2-13 X 1 WHZ	4
8	MP907620	SCREW, FHSCS 5/8-11 X 2"	16
FOR HORST SERVICE PARTS REFER TO THE MANUAL INCLUDED WITH THE HORST GEAR, OR VISIT WWW.HORSTWAGONS.COM			

285 RUNNING GEAR



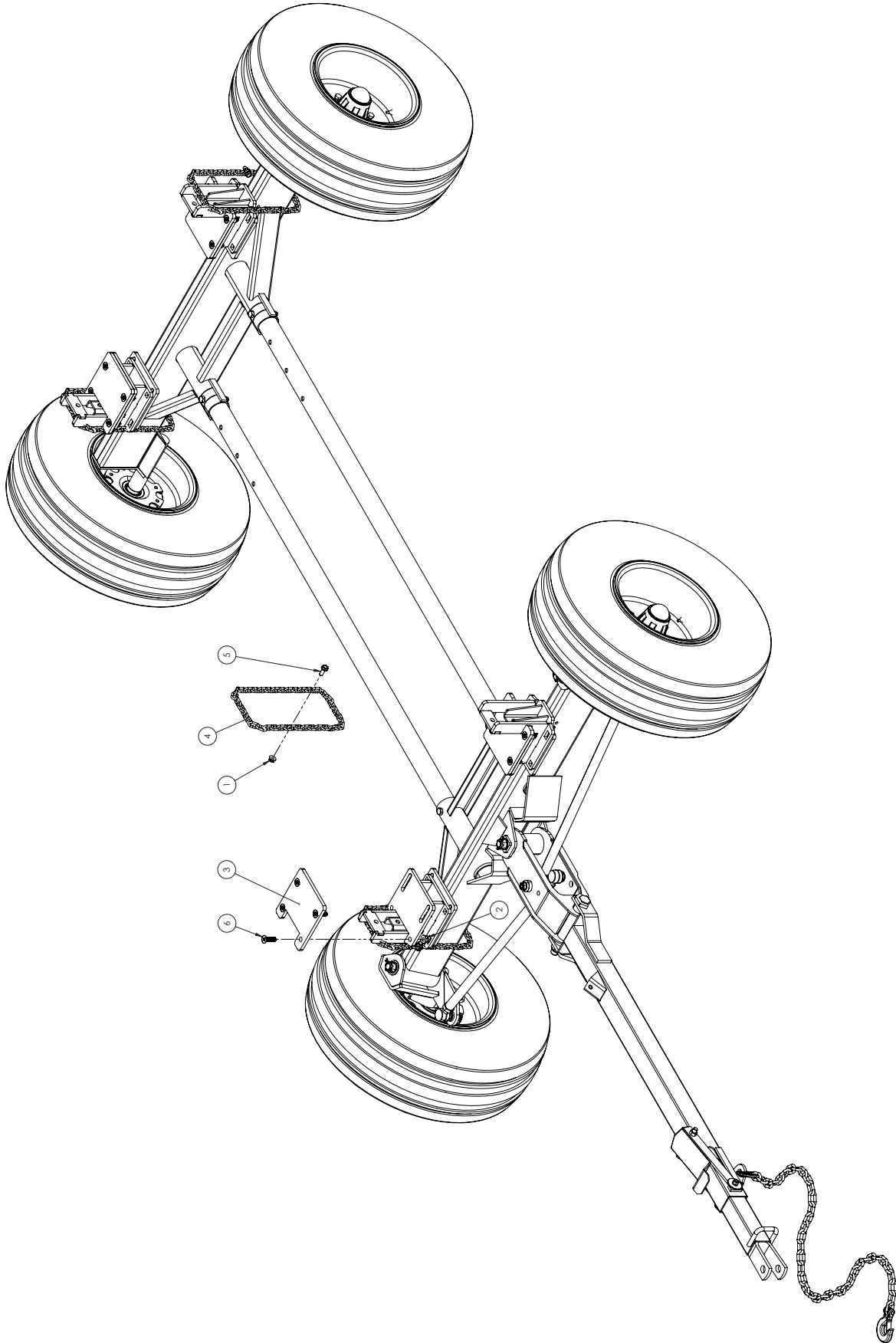
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	600140	NUT, HFH NYLOC 1/2-13	4
2	600150	NUT, HFH NYLOC 5/8-11	16
3	710702	BELTED RUBBER PAD	4
4	710880	CHAIN, TIE DOWN	2
5	710884	CHAIN, TIE DOWN	2
6	MP904557	HHDBLT - 1/2-13 X 1 WHZ	4
7	MP907620	SCREW, FHSCS 5/8-11 X 2"	16
FOR HORST SERVICE PARTS REFER TO THE MANUAL INCLUDED WITH THE HORST GEAR, OR VISIT WWW.HORSTWAGONS.COM			

265 RUNNING GEAR



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	600140	NUT, HFH NYLOC 1/2-13	4
2	600150	NUT, HFH NYLOC 5/8-11	16
3	710702	BELTED RUBBER PAD	4
4	710880	CHAIN, TIE DOWN	2
5	710881	CHAIN, TIE DOWN	2
6	MP904557	HHDBLT - 1/2-13 X 1 WHZ	4
7	MP907620	SCREW, FHSCS 5/8-11 X 2"	16
FOR HORST SERVICE PARTS REFER TO THE MANUAL INCLUDED WITH THE HORST GEAR, OR VISIT WWW.HORSTWAGONS.COM			

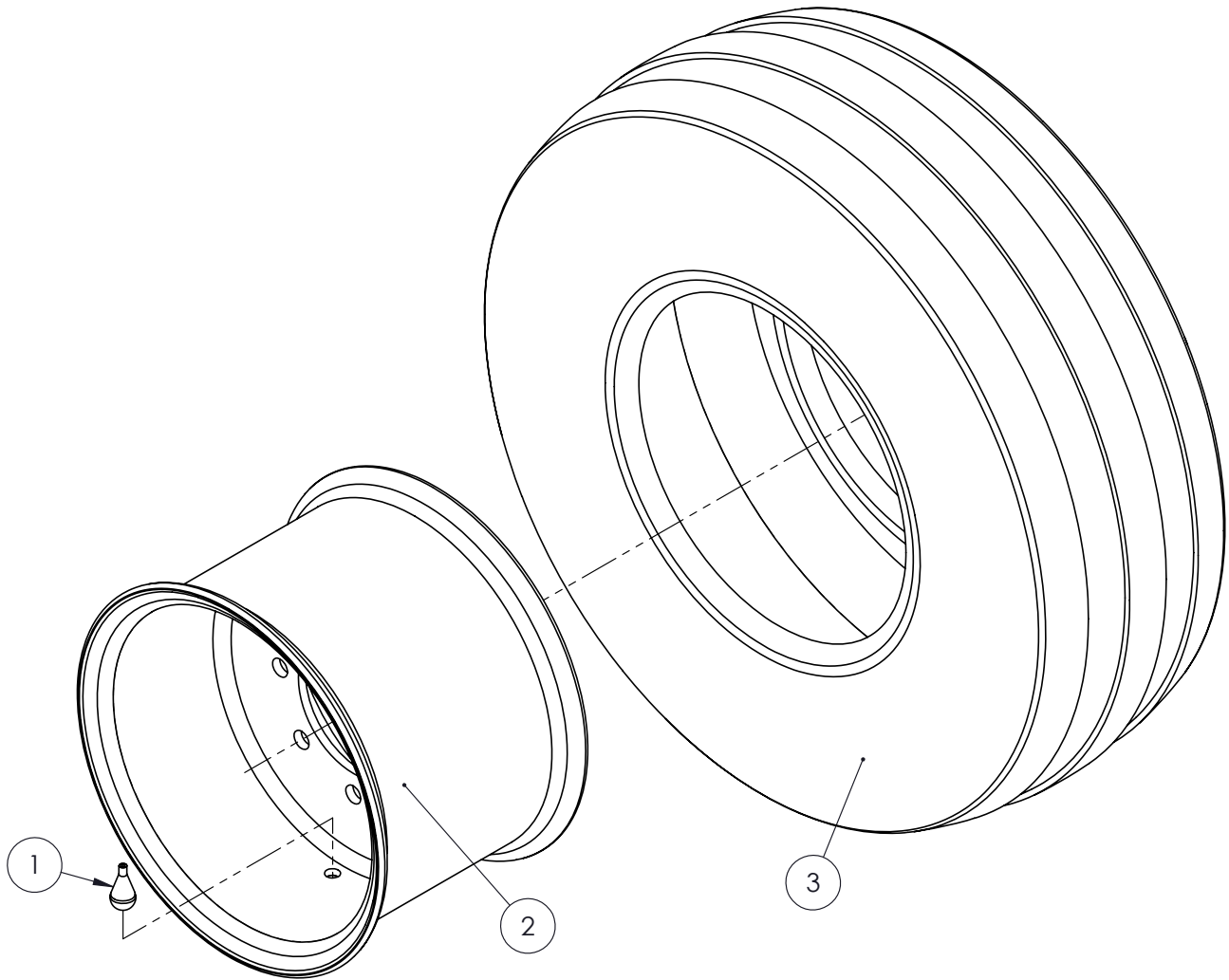
205 RUNNING GEAR





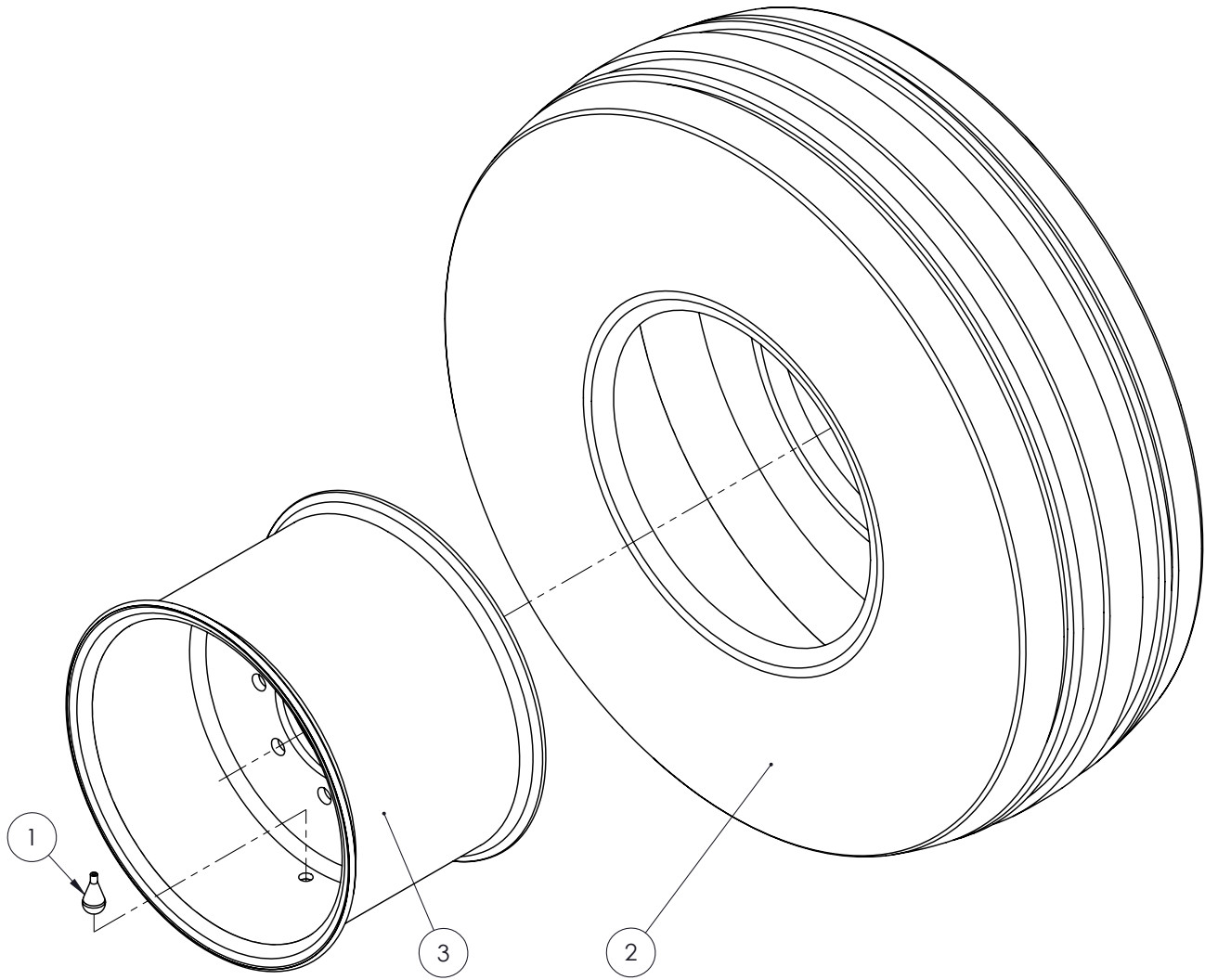
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	600140	NUT, HFH NYLOC 1/2-13	4
2	600150	NUT, HFH NYLOC 5/8-11	16
3	710702	BELTED RUBBER PAD	4
4	710885	CHAIN, TIE DOWN	4
5	MP904557	HHDBLT - 1/2-13 X 1 WHZ	4
6	MP907620	SCREW, FHSCS 5/8-11 X 2"	16
FOR HORST SERVICE PARTS REFER TO THE MANUAL INCLUDED WITH THE HORST GEAR, OR VISIT WWW.HORSTWAGONS.COM			

WHEEL ASSEMBLY (660540)



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	164420	VALVE STEM W/CAP	1
2	MP12.00090	RIM, 1.5" OFFSET	1
3	MP12.00100	TIRE, 425/65RX22.5	1

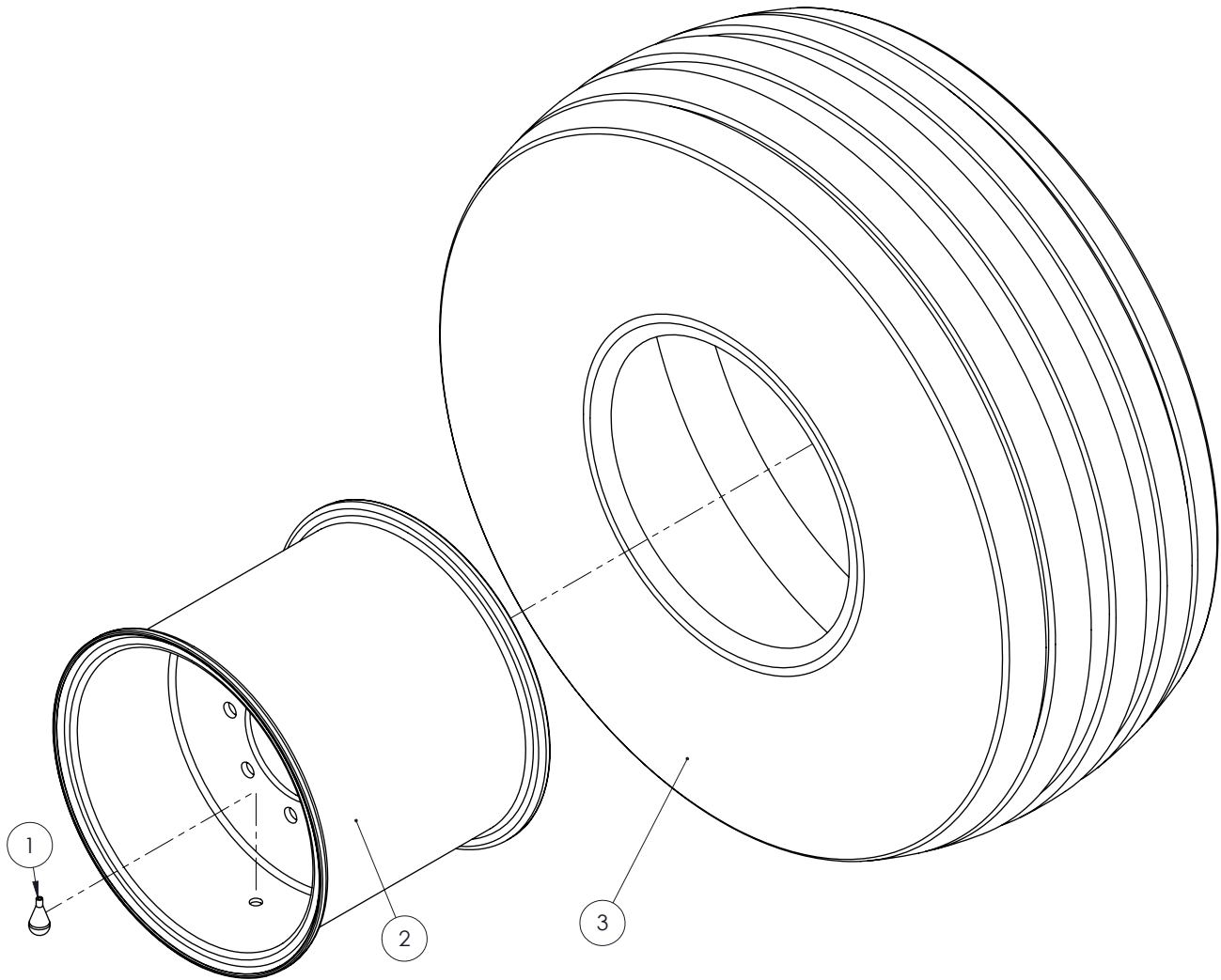
WHEEL ASSEMBLY (660545)



---

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	164420	VALVE STEM W/CAP	1
2	MP12.00097	TIRE, 425/65RX22.5	1
3	MP12.00103	RIM, 1.5" OFFSET	1

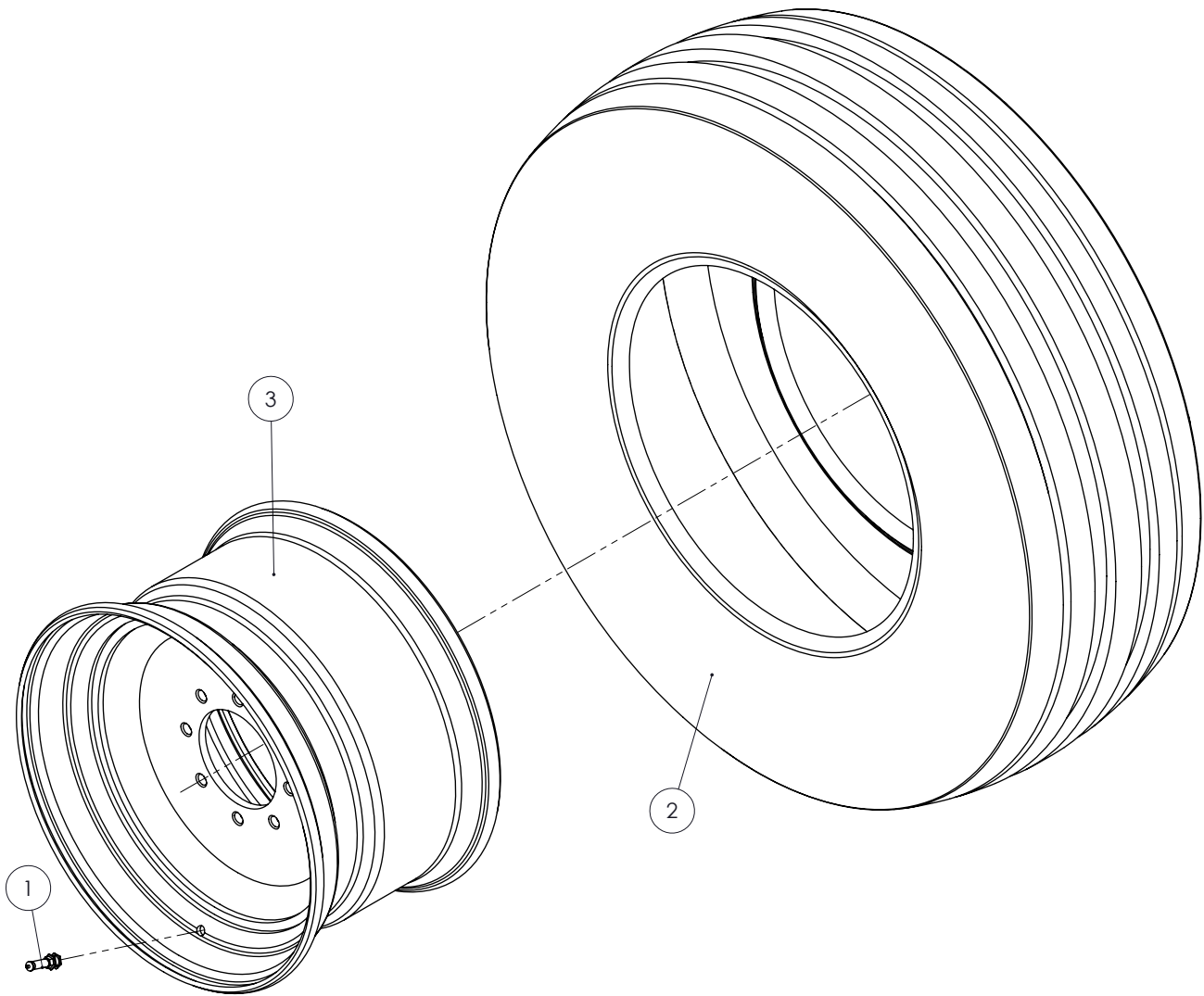
WHEEL ASSEMBLY (660550)



---

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	164420	VALVE STEM W/CAP	1
2	MP12.00114	RIM, 1.5" OFFSET	1
3	MP12.10740	TIRE, 425/65RX22.5	1

WHEEL ASSEMBLY (660555)

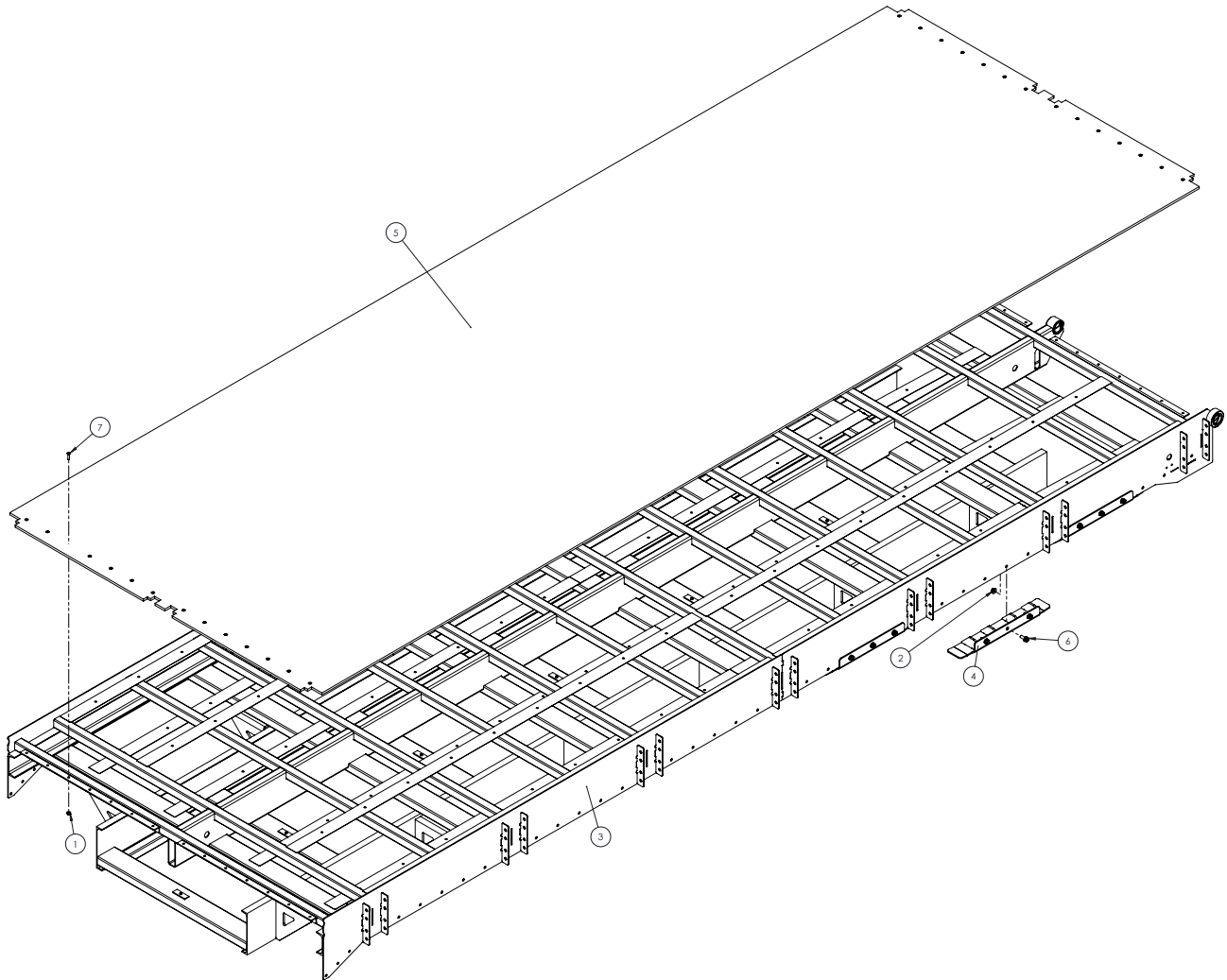




---

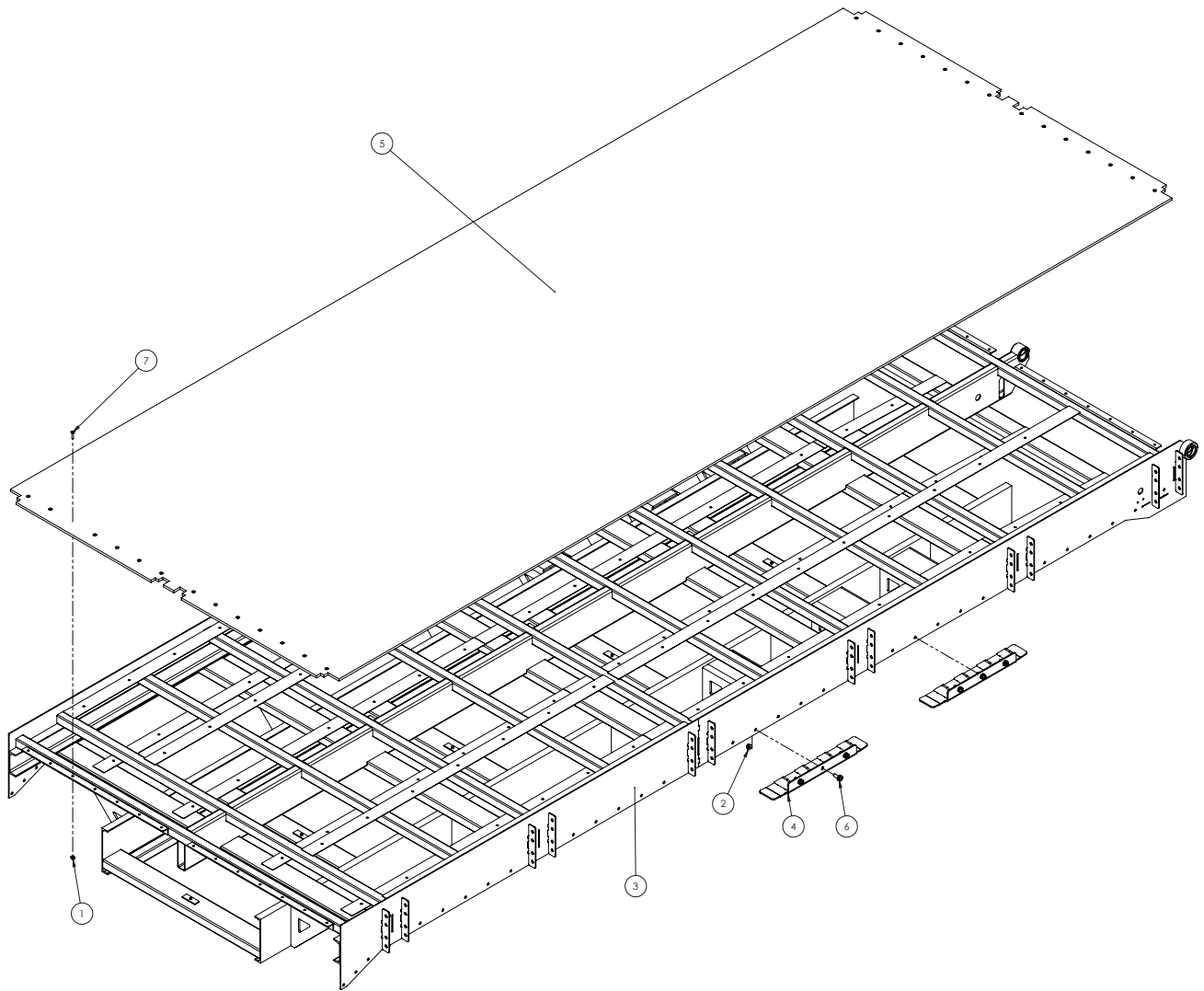
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	269490	STEEL VALVE STEM	1
2	MP12.09999	TIRE, 425/65RX22.5	1
3	MP12.10506	RIM, 22.5X13 8-BOLT	1

FRAME-FLOOR ASSEMBLY (20')



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	600110	NUT, HFH NYLOC 5/16-18	28
2	600140	NUT, HFH NYLOC 1/2-13	18
3	710100	MAIN-FRAME-20' COMBO	1
4	710400	BUMP STOP BRACE WELDMENT	6
5	710705	SINGLE PIECE FLOOR	1
6	MP904557	HHDBLT - 1/2-13 X 1 WHZ	18
7	MP907624	SCREW - FHSCS 5/16-18 X	28

FRAME-FLOOR ASSEMBLY (18')



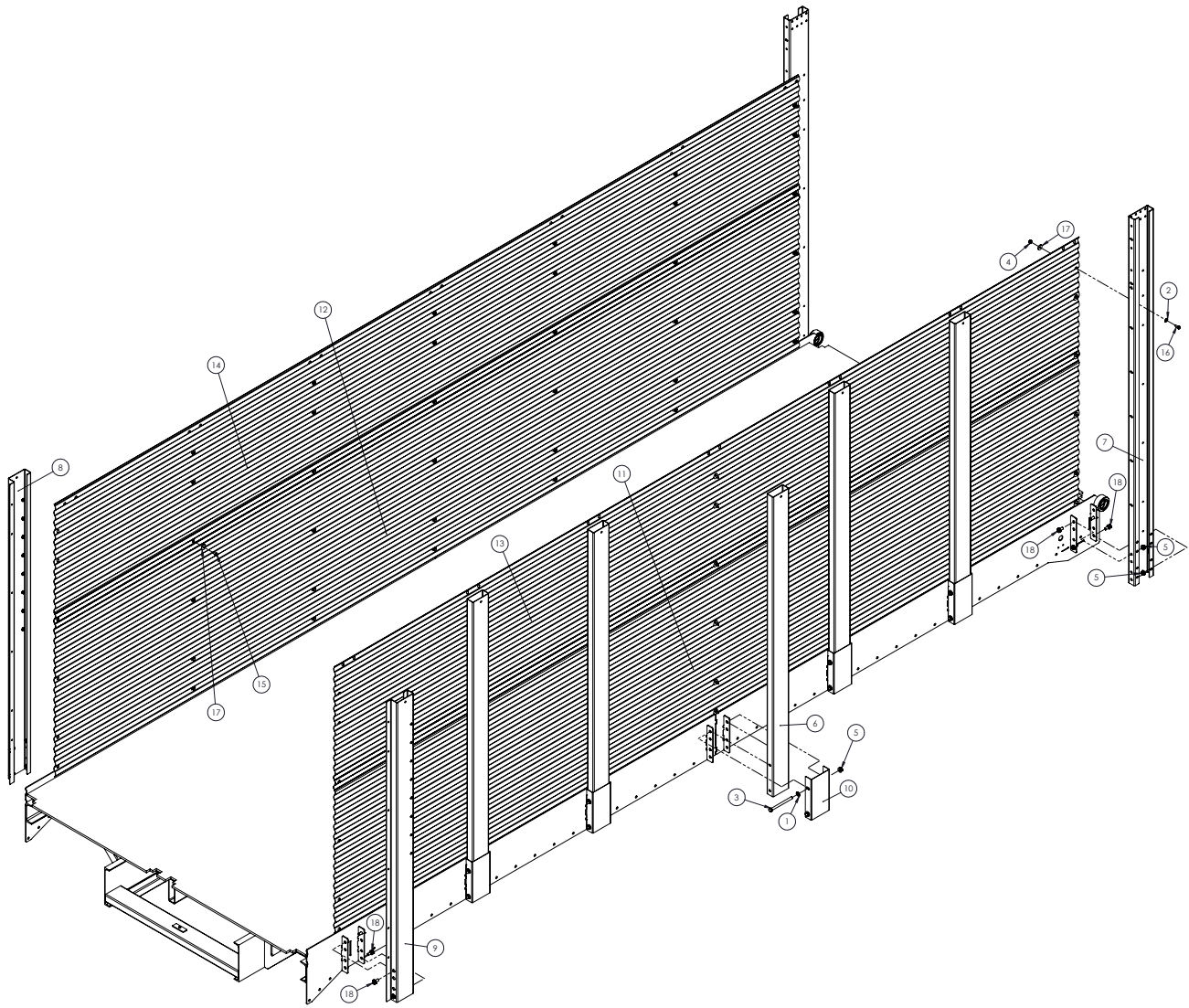
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	600110	NUT, HFH NYLOC 5/16-18	28
2	600140	NUT, HFH NYLOC 1/2-13	12
3	710200	MAIN-FRAME-18' COMBO	1
4	710400	BUMP STOP BRACE WELDMENT	4
5	710706	SINGLE PIECE FLOOR	1
6	MP904557	HHDBLT - 1/2-13 X 1 WHZ	12
7	MP907624	SCREW - FHSCS 5/16-18 X	28

**FRAME-FLOOR ASSEMBLY (16')**

---

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.

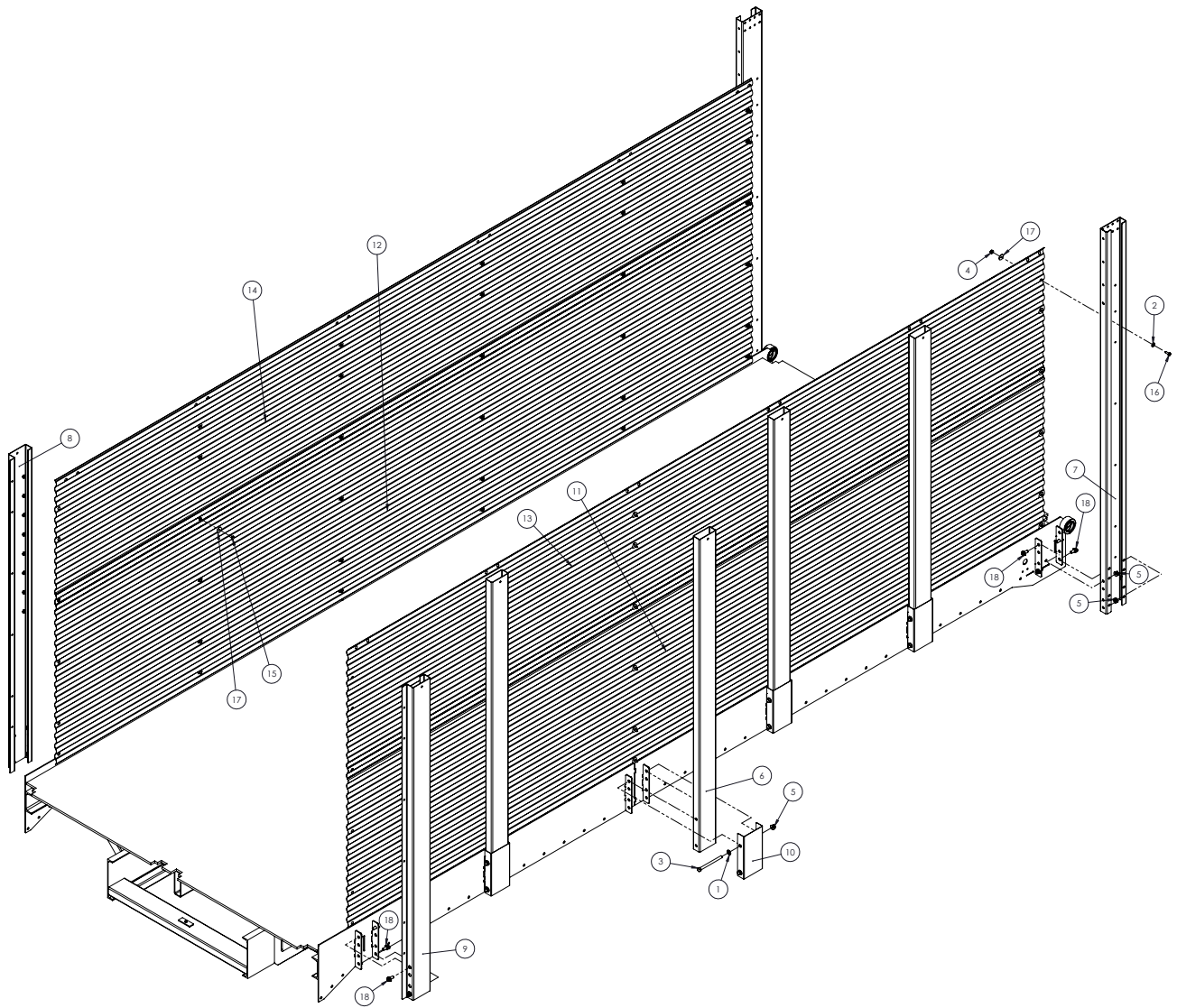
STAKES-SIDES ASSEMBLY (20')





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	005200	WASHER, FLAT 1/2 STD	20
2	022920	WASHER, FLAT 5/16 STD	12
3	1070015	BOLT, 1/2-13 X 6-1/2 GR5 ZN	20
4	600110	NUT, HFH NYLOC 5/16-18	12
5	600140	NUT, HFH NYLOC 1/2-13	26
6	710405	MIDDLE STAKE,	10
7	710406	REAR STAKE	2
8	710449	FRONT RIGHT STAKE WLDT	1
9	710459	FRONT LEFT STAKE WLDT	1
10	710469	STAKE CAP	10
11	710470	FB SIDE, LOWER LH	1
12	710471	FB SIDE, LOWER RH	1
13	710472	FB SIDE, UPPER LH	1
14	710473	FB SIDE, UPPER RH	1
15	MP09.71121	HHDBLT - G5 5/16 X 1	60
16	MP09.71122	HHDBLT - 5/16-18 X 1-1/4	12
17	MP300439B1	WASHER, FENDER 5/16	72
18	MP903952	HHDBLT - 1/2-13 X 1 WHZ	14

STAKES-SIDES ASSEMBLY (18')

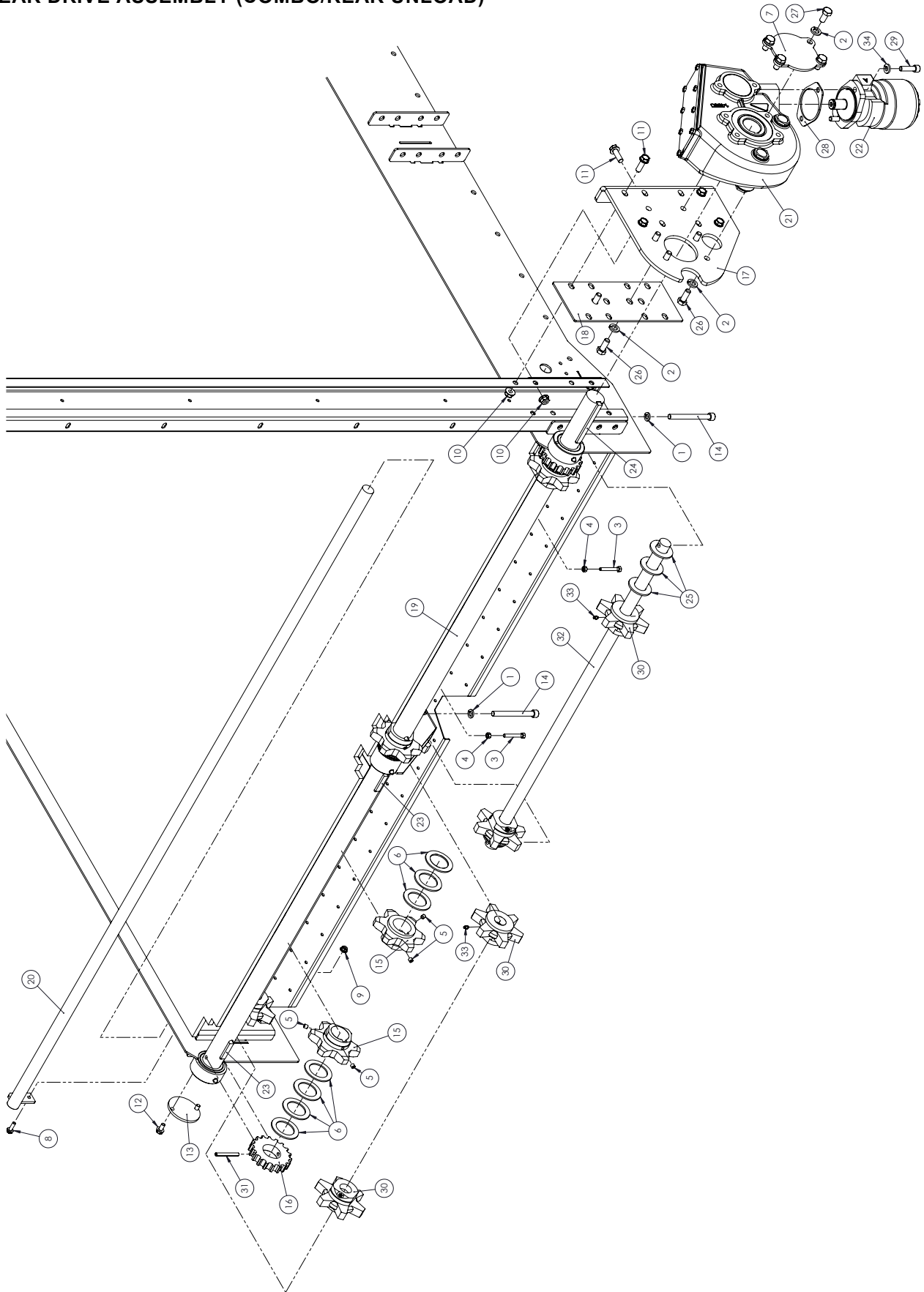


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	005200	WASHER, FLAT 1/2 STD	16
2	022920	WASHER, FLAT 5/16 STD	12
3	1070015	BOLT, 1/2-13 X 6-1/2 GR5 ZN	16
4	600110	NUT, HFH NYLOC 5/16-18	12
5	600140	NUT, HFH NYLOC 1/2-13	20
6	710405	MIDDLE STAKE,	8
7	710406	REAR STAKE	2
8	710449	FRONT RIGHT STAKE WLDT	1
9	710459	FRONT LEFT STAKE WLDT	1
10	710469	STAKE CAP	8
11	710485	FB SIDE, LOWER LH	1
12	710486	FB SIDE, LOWER RH	1
13	710487	FB SIDE, UPPER LH	1
14	710488	FB SIDE, UPPER RH	1
15	MP09.71121	HHDBLT - G5 5/16 X 1	48
16	MP09.71122	HHDBLT - 5/16-18 X 1-1/4	12
17	MP300439B1	WASHER, FENDER 5/16	60
18	MP903952	HHDBLT - 1/2-13 X 1 WHZ	12

**STAKES-SIDES ASSEMBLY (16')**

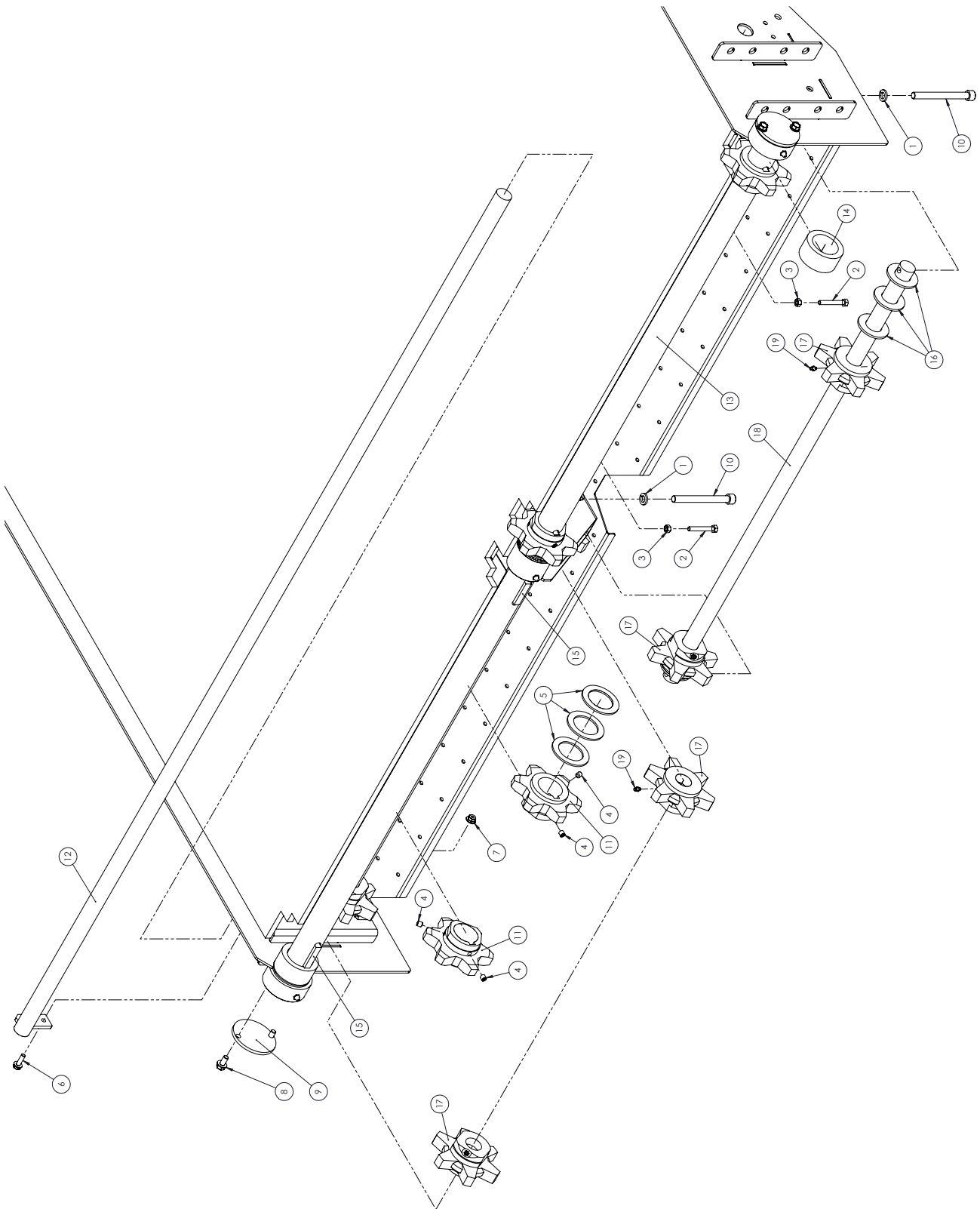
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.

REAR DRIVE ASSEMBLY (COMBO/REAR UNLOAD)



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	005370	WASHER, LOCK 1/2	4
2	020440	WASHER, LOCK 5/8	10
3	022910	HBOLT 0.3125-18X2.25--GR5-ZN	4
4	023630	NUT, HEX 5/16-18	4
5	218660	SCREW, HSSS 3/8-16 X 3/8	8
6	396120	BUSHING, MACH	14
7	598420	END PLATE, GEARBOX	1
8	600060	BOLT, HFH 5/16-18 X 1"	1
9	600110	NUT, HFH NYLOC 5/16-18	1
10	600140	NUT, HFH NYLOC 1/2-13	6
11	600580	BOLT, HFH 1/2-13 X 1-1/2"	6
12	600650	BOLT, HFH 3/8-16	2
13	690665	END CAP, APRON DRIVE	1
14	710407	BOLT, SHCS 1/2-13 X 5"	4
15	710416	APRON CHAIN SPROCKET	4
16	710427	DOOR LATCH GEAR	2
17	710428	REAR GEAR BOX PLATE	1
18	710429	REAR GEAR BOX SHIM	1
19	710432	REAR APRON DRIVE SHAFT	1
20	710433	IDLER SHAFT WLDT	1
21	710711	RT250 GEARBOX, BERMA	1
22	710720	MOTOR, HYD C-CONV & FR/RE APRON	1
23	710803	KEY, SQ. 1/2" X 2-3/16"	4
24	710804	KEY, SQ 1/2" X 5-7/16"	1
25	E829022	WASHER, FLAT 1-1/4" SAE	12
26	H3549	BOLT, HHCS M14-2 X 35 GR8.8 ZN	6
27	H4138	BOLT, HHCS M14-2 X 30 GR8.8 ZN	4
28	H610132	MOTOR SHIM PLATE	1
29	HZ86-11-1245	SHCS, M12-1.75 X 45	2
30	MP01.60120.5	SPROCKET - 667H 6T	8
31	MP01.74250	PIN, .375 X 2-3/4 SLT SPRING	2
32	MP16.20084.5	SHAFT, APRON IDLER	2
33	MP905081	FITTING, 1/4-28 STR ZN	8
34	MP907700	WASHER, LOCK M12	2

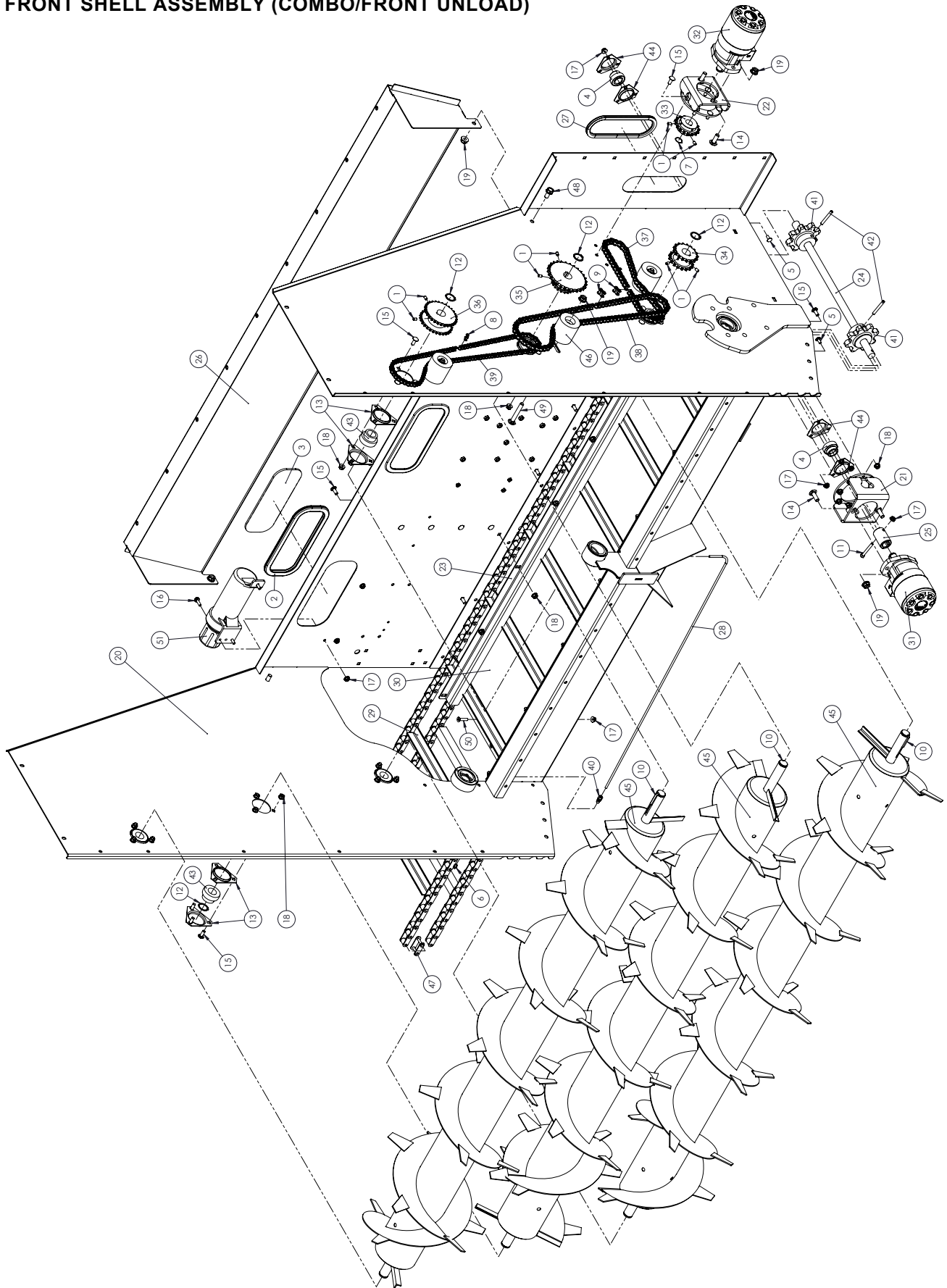
REAR DRIVE ASSEMBLY (FRONT UNLOAD)





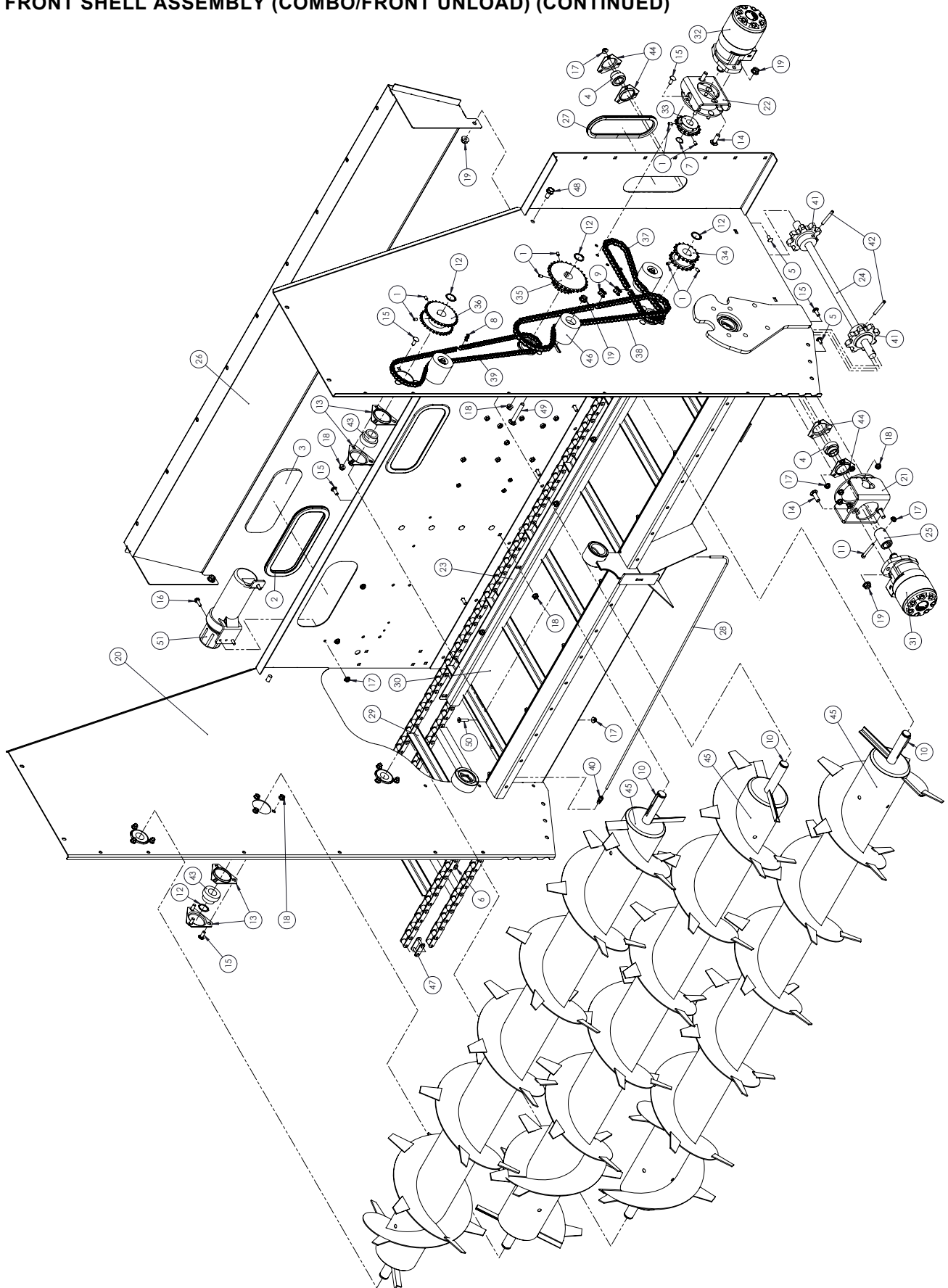
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	005370	WASHER, LOCK 1/2	4
2	022910	HBOLT 0.3125-18X2.25--GR5-ZN	4
3	023630	NUT, HEX 5/16-18	4
4	218660	SCREW, HSSS 3/8-16 X 3/8	8
5	396120	BUSHING, MACH	6
6	600060	BOLT, HFH 5/16-18 X 1"	1
7	600110	NUT, HFH NYLOC 5/16-18	1
8	600650	BOLT, HFH 3/8-16	4
9	690665	END CAP, APRON DRIVE	2
10	710407	BOLT, SHCS 1/2-13 X 5"	4
11	710416	APRON CHAIN SPROCKET	4
12	710433	IDLER SHAFT WLDT	1
13	710479	REAR APRON "DRIVE" SHAFT	1
14	710483	SPACER, REAR "DRIVE"	2
15	710803	KEY, SQ. 1/2" X 2-3/16"	4
16	E829022	WASHER, FLAT 1-1/4" SAE	12
17	MP01.60120.5	SPROCKET - 667H 6T	8
18	MP16.20084.5	SHAFT, APRON IDLER	2
19	MP905081	FITTING, 1/4-28 STR ZN	8

FRONT SHELL ASSEMBLY (COMBO/FRONT UNLOAD)



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	010990	SCREW, HSSS 5/16-18 X 5/16	10
2	012020	RUBBER, WINDOW	3
3	012050	GLASS, 4.5 X 12.0	3
4	012310	BEARING ADAP.,	2
5	012410	BOLT, CRG 5/16-18X3/4	6
6	013170	FITTING, GREASE STRAIGHT	1
7	013250	RING, RETAINING	1
8	013290	CONNECTING LINK, #40	1
9	013760	CONNECTING LINK, #50	2
10	020230	KEY, SQUARE 5/16 X 1-7/8	3
11	022910	HBOLT 0.3125-18X2.25--GR5-ZN	1
12	025710	RING, SNAP	6
13	132090	FLANGETTE	12
14	156850	BOLT, CRG 1/2-13 X 1-1/2"	4
15	170530	BOLT, CRG 3/8-16 X 1"	49
16	600060	BOLT, HFH 5/16-18 X 1"	3
17	600110	NUT, HFH NYLOC 5/16-18	20
18	600120	NUT, HFH NYLOC 3/8-16	48
19	600140	NUT, HFH NYLOC 1/2-13	9
20	710500	FRONT SHELL WLDT	1
21	710509	MOTOR MOUNT RING WLDT	1
22	710510	MOTOR MOUNT RING WLDT 2	1
23	710534	CONVEYOR CHAIN GUARD	2
24	710535	CONVEYOR DRIVE SHAFT	1
25	710536	CONVEYOR COUPLER	1
26	710550	SAFETY BAR	1

FRONT SHELL ASSEMBLY (COMBO/FRONT UNLOAD) (CONTINUED)

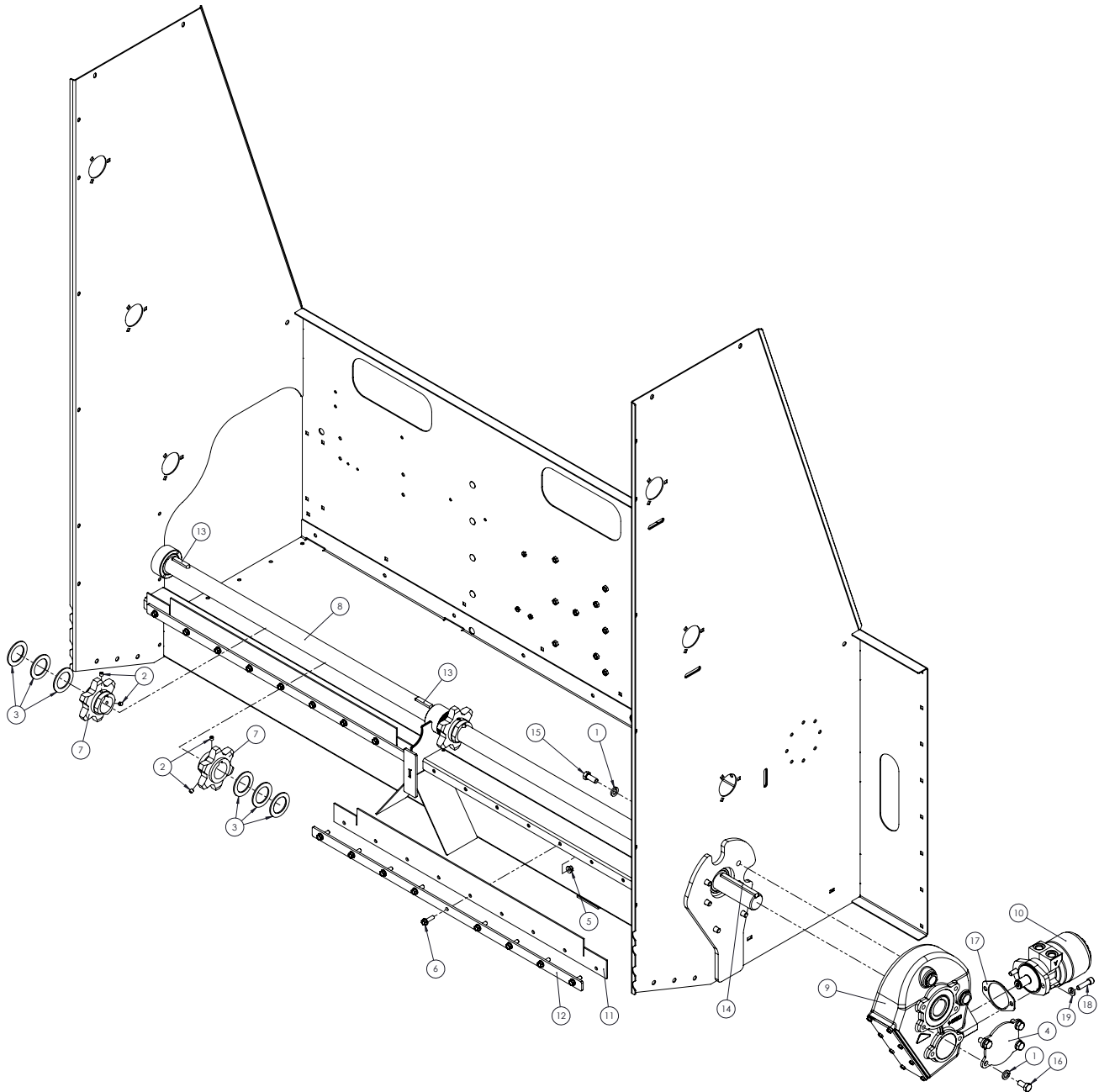


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
27	710585	SEAL, PORT	1
28	710595	GREASE LINE, FRONT SHELL	1
29	710700	CROSS CONVEYOR	1
30	710708	CONVEYOR FLOOR	1
31	710720	MOTOR, HYD C-CONV & FR/RE APRON	1
32	710730	MOTOR, HYD BEATERS	1
33	710731	SPROCKET, BEATER MOTOR	1
34	710732	SPROCKET, 1ST BEATER	1
35	710733	SPROCKET, 2ND BEATER	1
36	710734	SPROCKET, 3RD BEATER	1
37	710870	CHAIN ROLLER, #50	1
38	710871	CHAIN ROLLER, #50	1
39	710872	CHAIN ROLLER, #40	1
40	HT78-47-0204	STRAIGHT, BRASS, 1/8 M	1
41	MP01.60160.7	8 TOOTH DRIVE SPROCKET	2
42	MP01.74170	PIN, SPIROL 5/16 X 2-1/2	2
43	MP01.77560	BEARING - SPHERICAL 1.2	6
44	MP14.77107	FLANGETTE	4
45	MP16.20034.7	BEATER WLDT,	3
46	MP26.00021	TENSIONER - 3 X 3.125 UHMW	3
47	MP900703	LINK, CONNECTING	2
48	MP903952	HHDBLT - 1/2-13 X 1 WHZ	2
49	MP907054	BOLT, CRG 1/2-13 X 3-1/2 GR5 ZN	3
50	MP907624	SCREW - FHSCS 5/16-18 X	10
51	MP907739	TUBE - OP MAN HOLDER	1

**FRONT SHELL ASSEMBLY (REAR UNLOAD)**



FRONT DRIVE ASSEMBLY (COMBO/FRONT UNLOAD)



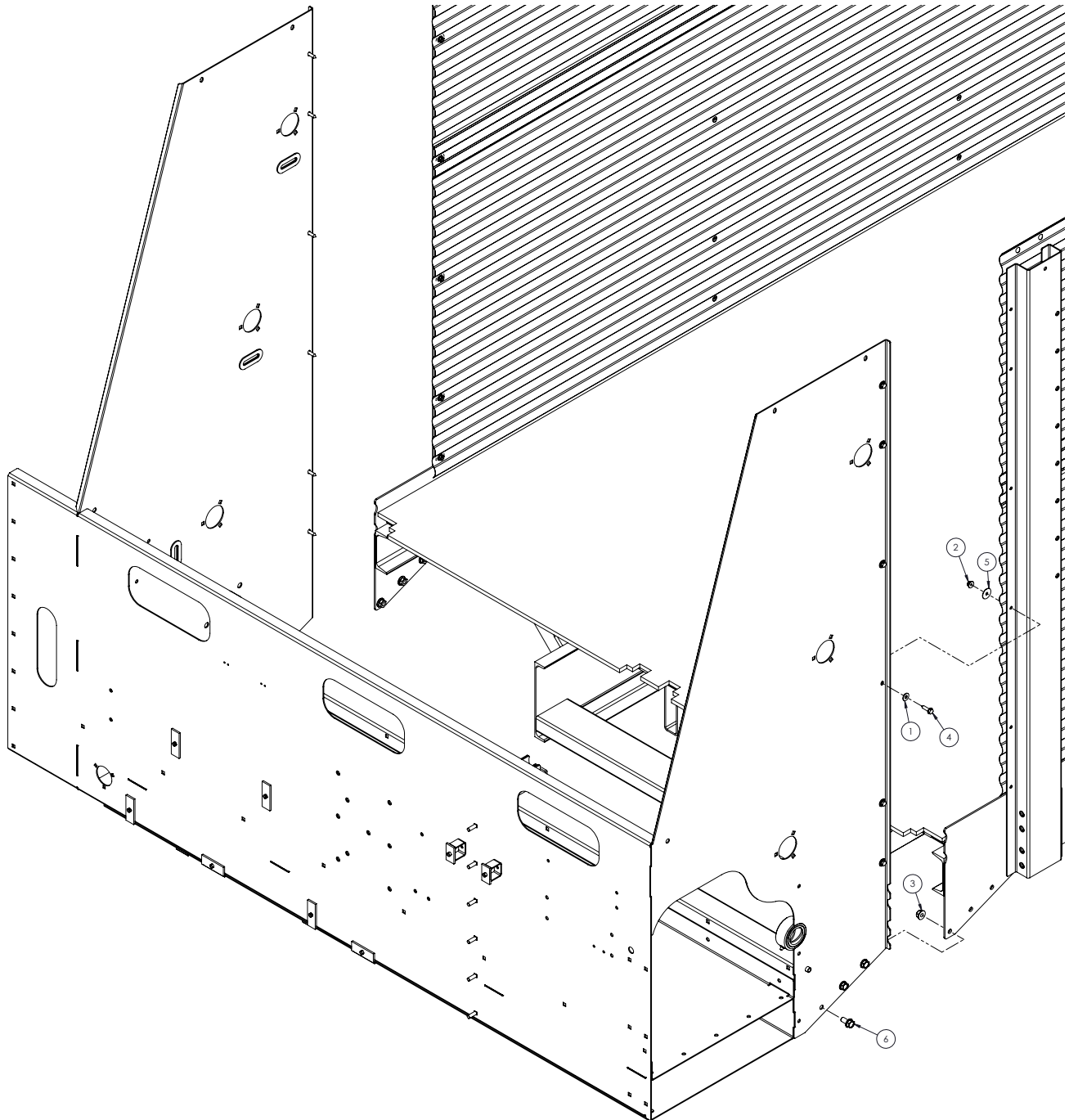


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	020440	WASHER, LOCK 5/8	10
2	218660	SCREW, HSSS 3/8-16 X 3/8	8
3	396120	BUSHING, MACH	14
4	598420	END PLATE, GEARBOX	1
5	600120	NUT, HFH NYLOC 3/8-16	18
6	600280	BOLT, HFH 3/8-16 X 1-1/4"	18
7	710416	APRON CHAIN SPROCKET	4
8	710431	FRONT APRON DRIVE SHAFT	1
9	710711	RT250 GEARBOX, BERMA	1
10	710720	MOTOR, HYD C-CONV & FR/RE APRON	1
11	710740	SEAL, CHAIN RETURN	2
12	710741	RUBBER FLAP RETAINER	2
13	710803	KEY, SQ. 1/2" X 2-3/16"	4
14	710804	KEY, SQ 1/2" X 5-7/16"	1
15	H3549	BOLT, HHCS M14-2 X 35 GR8.8 ZN	6
16	H4138	BOLT, HHCS M14-2 X 30 GR8.8 ZN	4
17	H610132	MOTOR SHIM PLATE	1
18	HZ86-11-1245	SHCS, M12-1.75 X 45	2
19	MP907700	WASHER, LOCK M12	2

**FRONT DRIVE ASSEMBLY (REAR UNLOAD)**

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.

SHELL-FRAME ASSEMBLY (COMBO/FRONT UNLOAD)



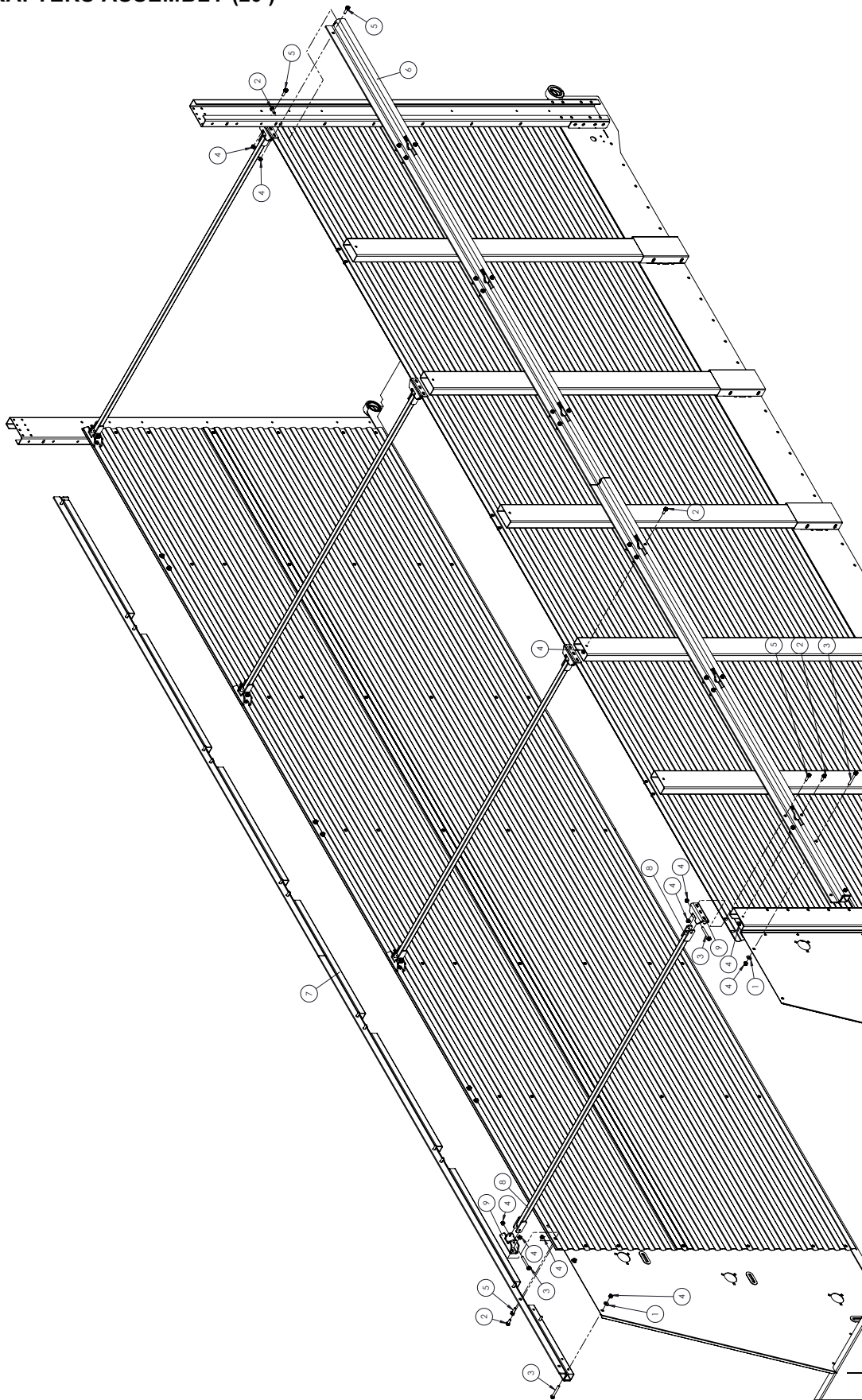
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	022920	WASHER, FLAT 5/16 STD	12
2	600110	NUT, HFH NYLOC 5/16-18	12
3	600140	NUT, HFH NYLOC 1/2-13	6
4	MP09.71122	HHDBLT - 5/16-18 X 1-1/4	12
5	MP300439B1	WASHER, FENDER 5/16	12
6	MP903952	HHDBLT - 1/2-13 X 1 WHZ	6

**SHELL-FRAME ASSEMBLY (REAR UNLOAD)**

---

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.

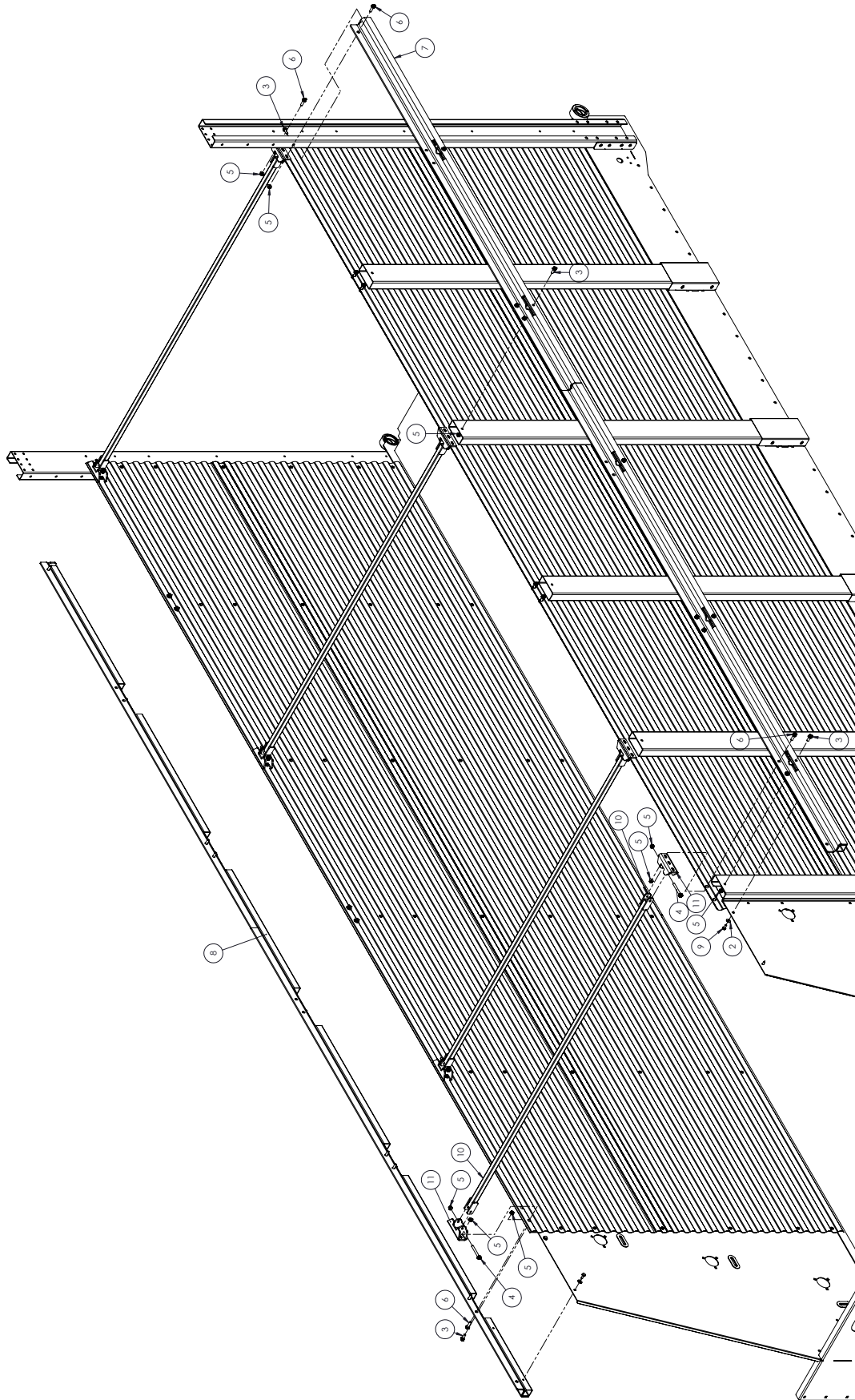
SILLS-RAFTERS ASSEMBLY (20')





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	021190	WASHER, FLAT 3/8 STD	16
2	600050	BOLT, HFH 3/8-16 X 1.00"	14
3	600080	BOLT, HFH 3/8-16	12
4	600120	NUT, HFH NYLOC 3/8-16	52
5	600280	BOLT, HFH 3/8-16 X 1-1/4"	28
6	710408	SILL WELDMENT LEFT	1
7	710413	SILL WELDMENT RIGHT	1
8	MP16.20824.7	RAFTER - (2002)	4
9	MP16.20827.7	MOUNT - RAFTER 2002	8

SILLS-RAFTERS ASSEMBLY (18')

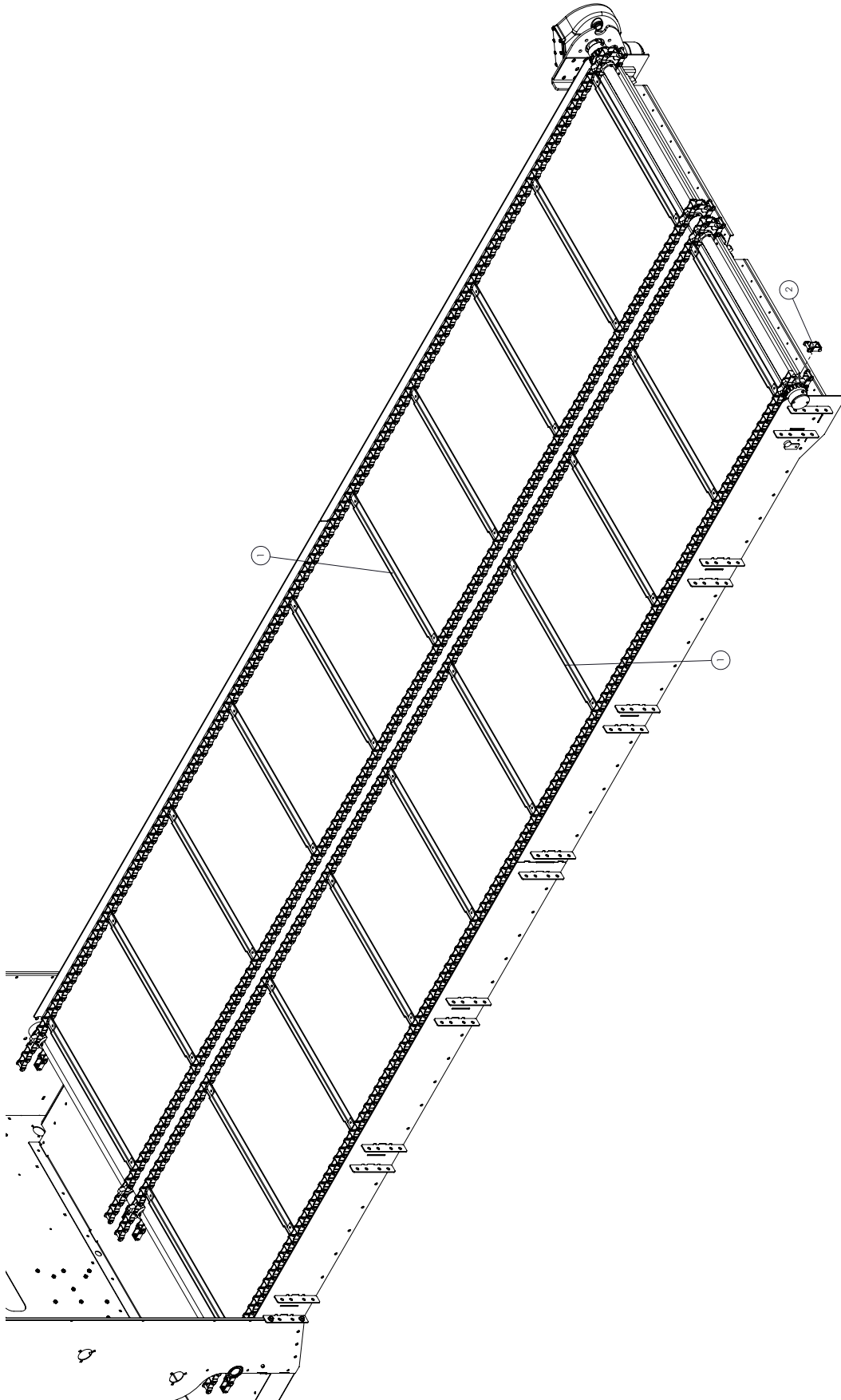


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	021190	WASHER, FLAT 3/8 STD	8
2	022920	WASHER, FLAT 5/16 STD	4
3	600050	BOLT, HFH 3/8-16 X 1.00"	12
4	600080	BOLT, HFH 3/8-16	8
5	600120	NUT, HFH NYLOC 3/8-16	42
6	600280	BOLT, HFH 3/8-16 X 1-1/4"	24
7	710435	SILL WELDMENT LEFT	1
8	710438	SILL WELDMENT RIGHT 18'	1
9	MP09.71121	HHDBLT - G5 5/16 X 1	4
10	MP16.20824.7	RAFTER - (2002)	4
11	MP16.20827.7	MOUNT - RAFTER 2002	8

**SILLS-RAFTERS ASSEMBLY (16')**

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.

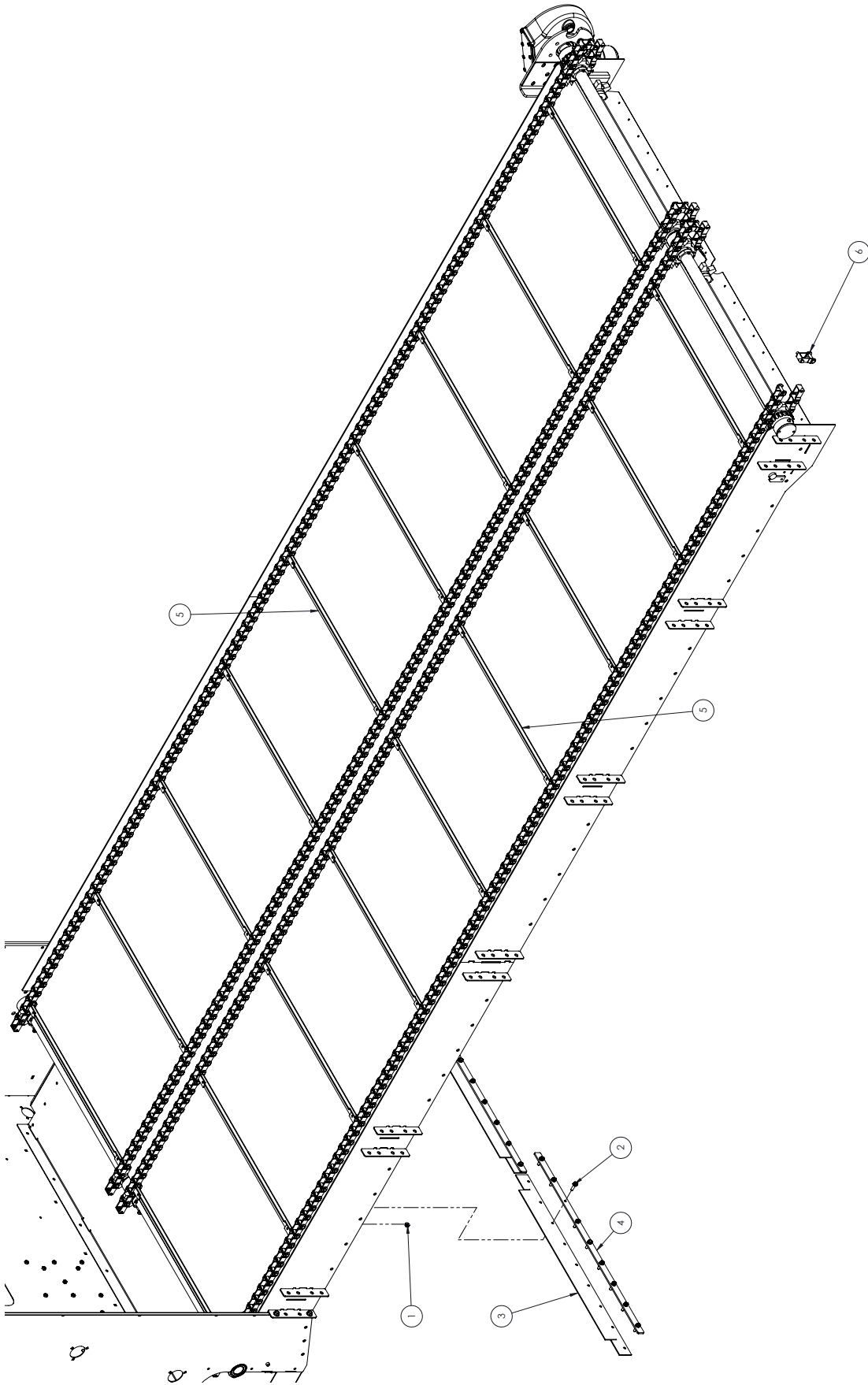
APRON CHAINS ASSEMBLY (20')



---

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	MP16.20803	667X APRON CHAIN	2
2	MP61.79340	CONNECTING LINK, 667X	4

APRON CHAINS ASSEMBLY (18')





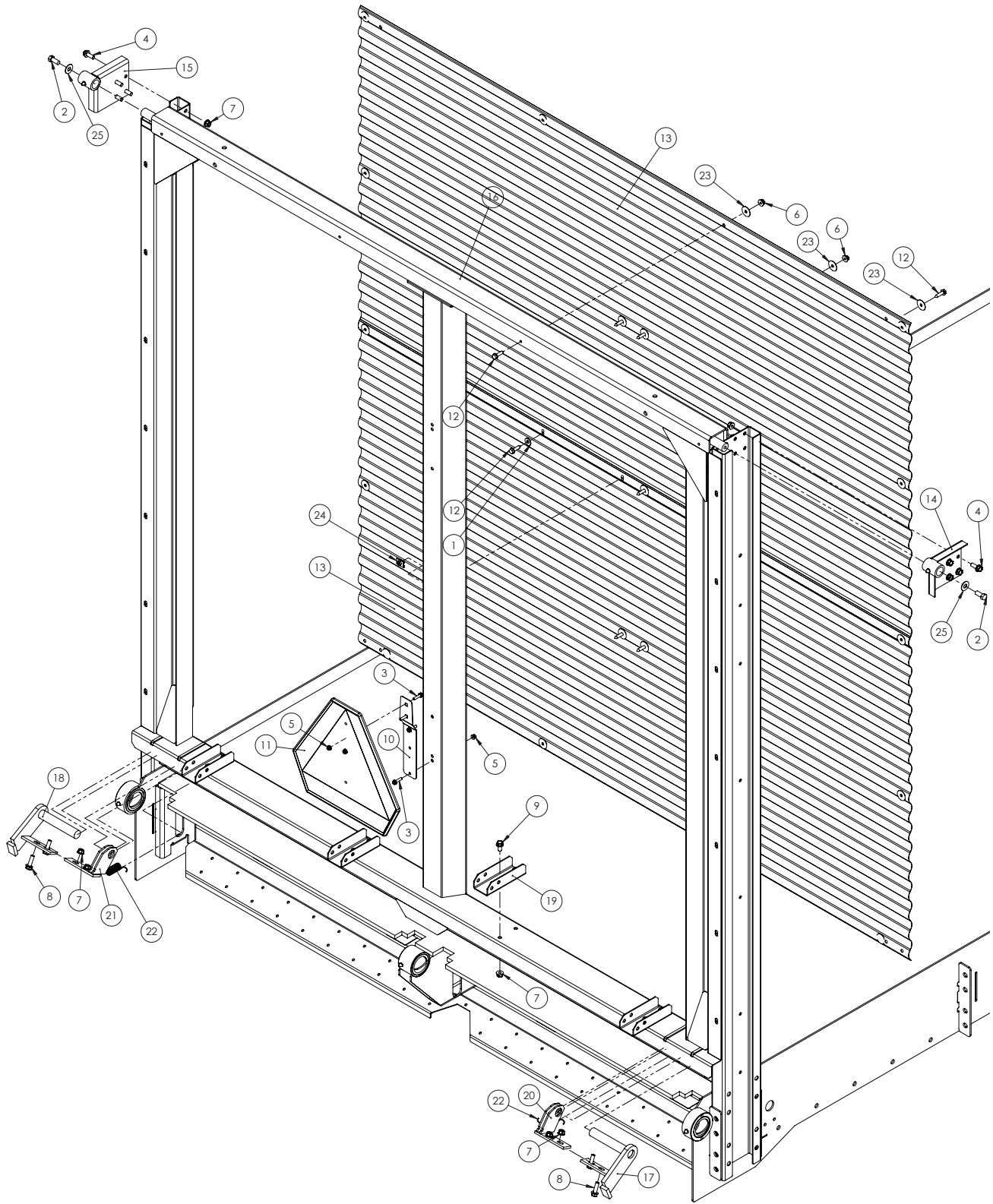
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	600120	NUT, HFH NYLOC 3/8-16	18
2	600280	BOLT, HFH 3/8-16 X 1-1/4"	18
3	710740	SEAL, CHAIN RETURN	2
4	710741	RUBBER FLAP RETAINER	2
5	MP16.20413	667X APRON CHAIN	2
6	MP61.79340	CONNECTING LINK, 667X	4

**APRON CHAINS ASSEMBLY (16')**

---

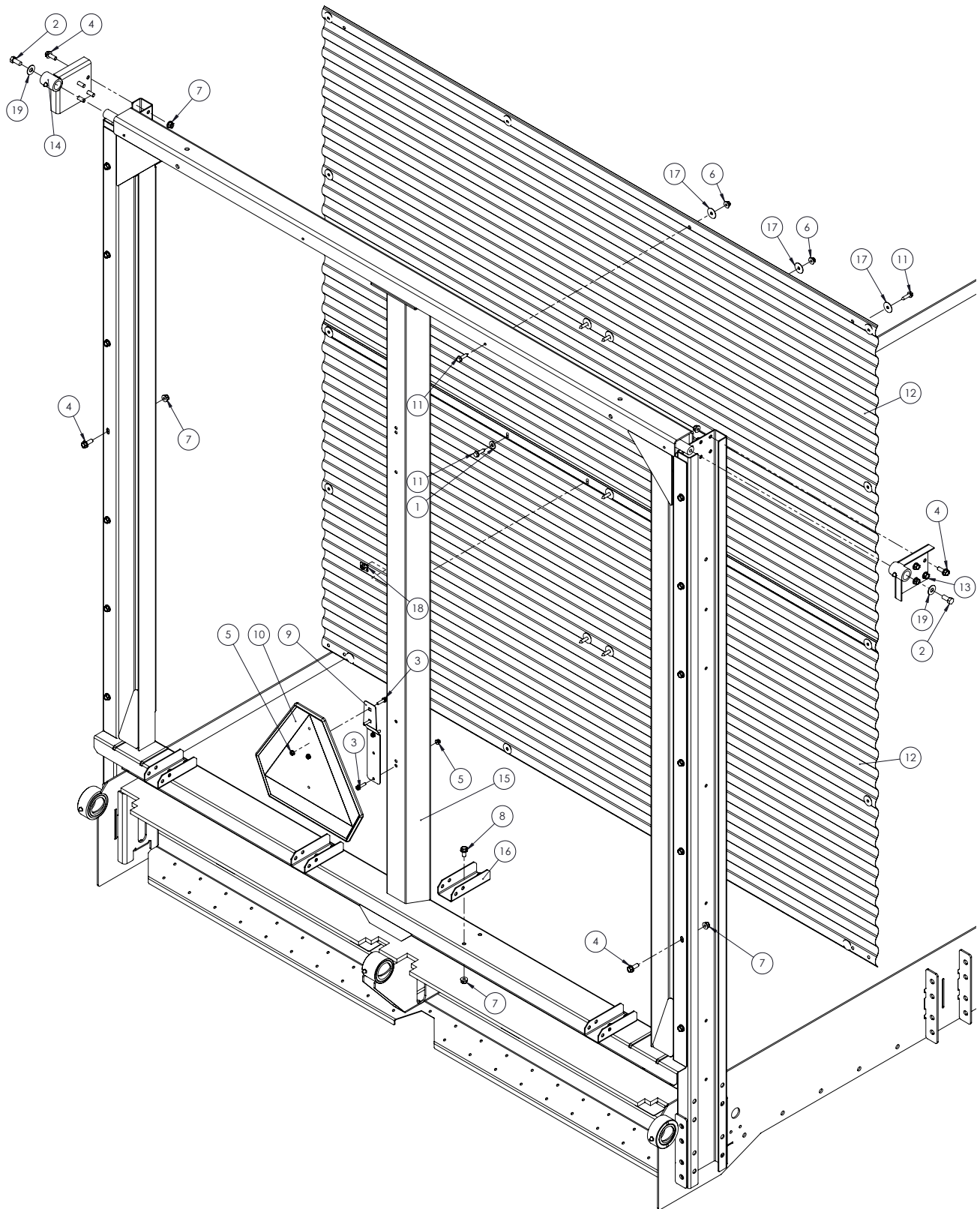
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.

REAR DOOR ASSEMBLY (COMBO/REAR UNLOAD)



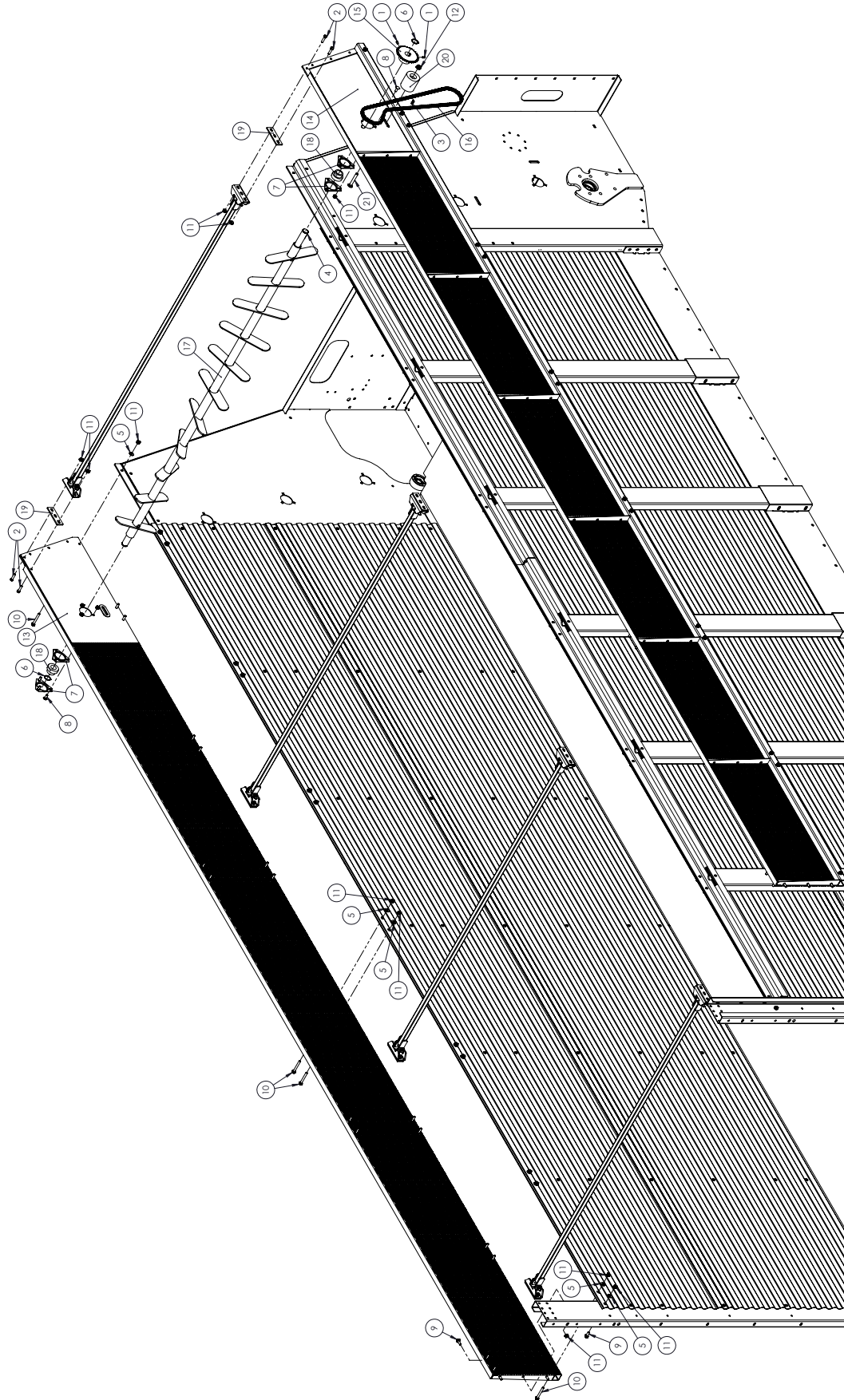
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	022920	WASHER, FLAT 5/16 STD	2
2	128000	BOLT, HHCS 7/16-14 X 1	2
3	600020	BOLT, HFH 1/4-20 X 1.00"	4
4	600050	BOLT, HFH 3/8-16 X 1.00"	8
5	600100	NUT, HFH NYLOC 1/4-20	4
6	600110	NUT, HFH NYLOC 5/16-18	16
7	600120	NUT, HFH NYLOC 3/8-16	20
8	600280	BOLT, HFH 3/8-16 X 1-1/4"	4
9	600650	BOLT, HFH 3/8-16	8
10	E104471	BRACKET	1
11	E224138	EMBLEM, CAUTION SMV	1
12	MP09.71122	HHDBLT - 5/16-18 X 1-1/4	22
13	MP16.10437	PANEL - REAR DOOR	2
14	MP16.20172.5	HINGE WELDMENT R/S	1
15	MP16.20173.5	HINGE WELDMENT L/S	1
16	MP16.20228.2	TAILGATE WELDMENT	1
17	MP16.20229.5	LATCH WELDMENT RH	1
18	MP16.20230.5	LATCH WELDMENT LH	1
19	MP16.20358.7	MOUNT, REAR DOOR	4
20	MP16.20359.5	STOP, LATCH RH	1
21	MP16.20360.5	STOP, LATCH LH	1
22	MP16.20390	SPRING - EXT .085 X .75	2
23	MP300439B1	WASHER, FENDER 5/16	22
24	MP900382	NUT - RETAINED 5/16 UNC	6
25	P99549	WASHER, FLAT 7/16 SA 15/	2

REAR DOOR ASSEMBLY (FRONT UNLOAD)



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	022920	WASHER, FLAT 5/16 STD	2
2	128000	BOLT, HHCS 7/16-14 X 1	2
3	600020	BOLT, HFH 1/4-20 X 1.00"	4
4	600050	BOLT, HFH 3/8-16 X 1.00"	22
5	600100	NUT, HFH NYLOC 1/4-20	4
6	600110	NUT, HFH NYLOC 5/16-18	16
7	600120	NUT, HFH NYLOC 3/8-16	30
8	600650	BOLT, HFH 3/8-16	8
9	E104471	BRACKET	1
10	E224138	EMBLEM, CAUTION SMV	1
11	MP09.71122	HHDBLT - 5/16-18 X 1-1/4	22
12	MP16.10437	PANEL - REAR DOOR	2
13	MP16.20172.5	HINGE WELDMENT R/S	1
14	MP16.20173.5	HINGE WELDMENT L/S	1
15	MP16.20228.2	TAILGATE WELDMENT	1
16	MP16.20358.7	MOUNT, REAR DOOR	4
17	MP300439B1	WASHER, FENDER 5/16	22
18	MP900382	NUT - RETAINED 5/16 UNC	6
19	P99549	WASHER, FLAT 7/16 SA 15/	2

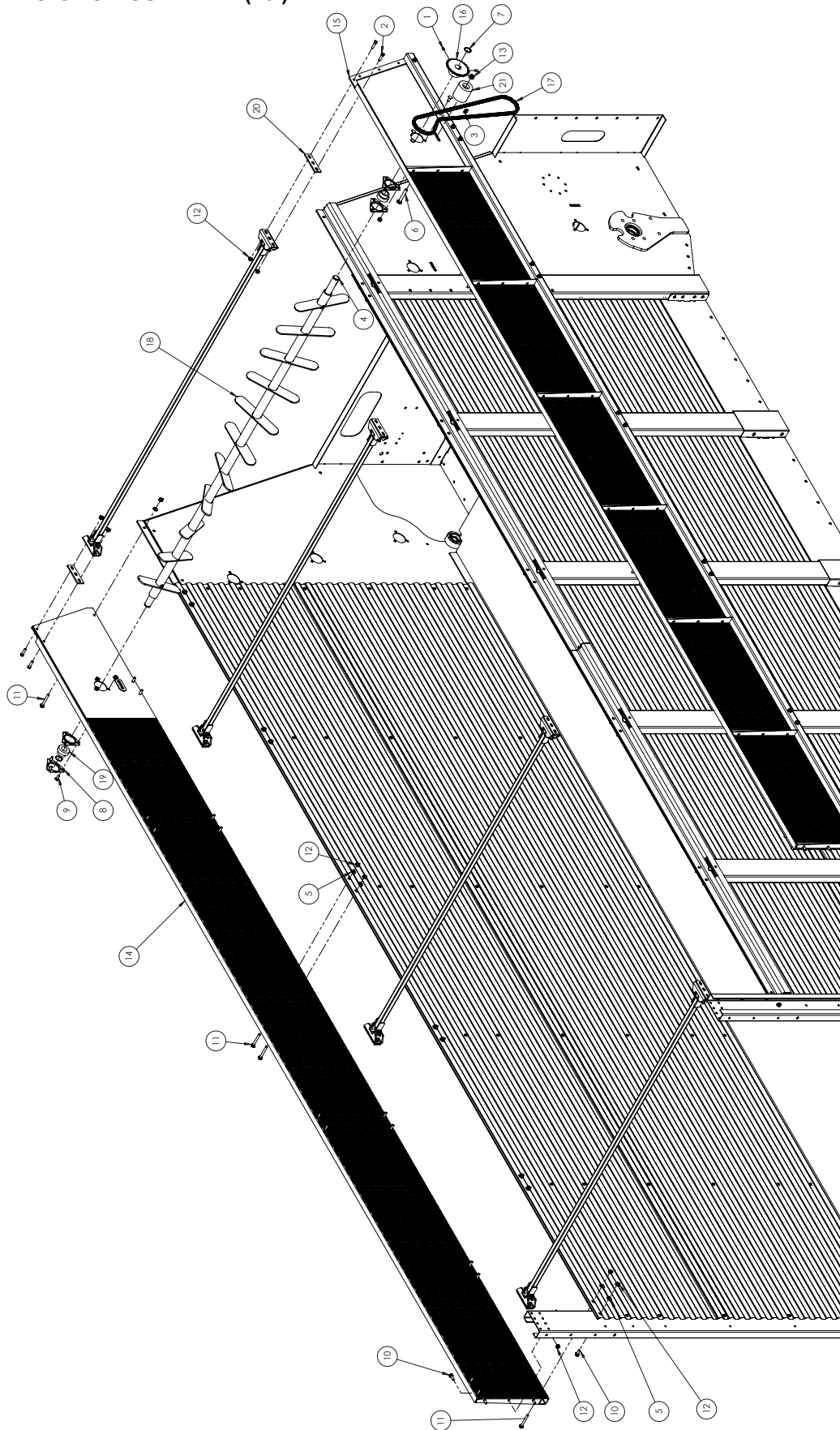
SIDE EXTENSIONS ASSEMBLY (20')





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	010990	SCREW, HSSS 5/16-18 X 5/16	2
2	011370	BOLT, HHCS 3/8-16 X 1-1/2	16
3	013290	CONNECTING LINK, #40	1
4	020230	KEY, SQUARE 5/16 X 1-7/8	1
5	021190	WASHER, FLAT 3/8 STD	30
6	025710	RING, SNAP	2
7	132090	FLANGETTE	4
8	170530	BOLT, CRG 3/8-16 X 1"	6
9	600050	BOLT, HFH 3/8-16 X 1.00"	8
10	600080	BOLT, HFH 3/8-16	28
11	600120	NUT, HFH NYLOC 3/8-16	58
12	600140	NUT, HFH NYLOC 1/2-13	1
13	710420	SIDE EXTENSION LH	1
14	710430	SIDE EXTENSION RH	1
15	710735	SPROCKET, 4TH BEATER	1
16	710873	CHAIN ROLLER, #40	1
17	710900	4TH BEATER WLDT	1
18	MP01.77560	BEARING - SPHERICAL 1.2	2
19	MP16.20830.7	SHIM - RAFTER MOUNT 1/4	8
20	MP26.00021	TENSIONER - 3 X 3.125 UHMW	1
21	MP907054	BOLT, CRG 1/2-13 X 3-1/2 GR5 ZN	1

SIDE EXTENSIONS ASSEMBLY (18')



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	010990	SCREW, HSSS 5/16-18 X 5/16	2
2	011370	BOLT, HHCS 3/8-16 X 1-1/2	16
3	013290	CONNECTING LINK, #40	1
4	020230	KEY, SQUARE 5/16 X 1-7/8	1
5	021190	WASHER, FLAT 3/8 STD	26
6	MP907054	BOLT, CRG 1/2-13 X 3-1/2"	1
7	025710	RING, SNAP	2
8	132090	FLANGETTE	4
9	170530	BOLT, CRG 3/8-16 X 1"	6
10	600050	BOLT, HFH 3/8-16 X 1.00"	8
11	600080	BOLT, HFH 3/8-16	24
12	600120	NUT, HFH NYLOC 3/8-16	54
13	600140	NUT, HFH NYLOC 1/2-13	1
14	710441	SIDE EXTENSION LH 18'	1
15	710445	SIDE EXTENSION RH 18'	1
16	710735	SPROCKET, 4TH BEATER	1
17	710873	CHAIN ROLLER, #40	1
18	710900	4TH BEATER WLDT	1
19	MP01.77560	BEARING - SPHERICAL 1.2	2
20	MP16.20830.7	SHIM - RAFTER MOUNT 1/4	8
21	MP26.00021	TENSIONER - 3 X 3.125 UHMW	1

**SIDE EXTENSIONS ASSEMBLY (16')**



**ROOF ASSEMBLY (20')**



**ROOF ASSEMBLY (18')**

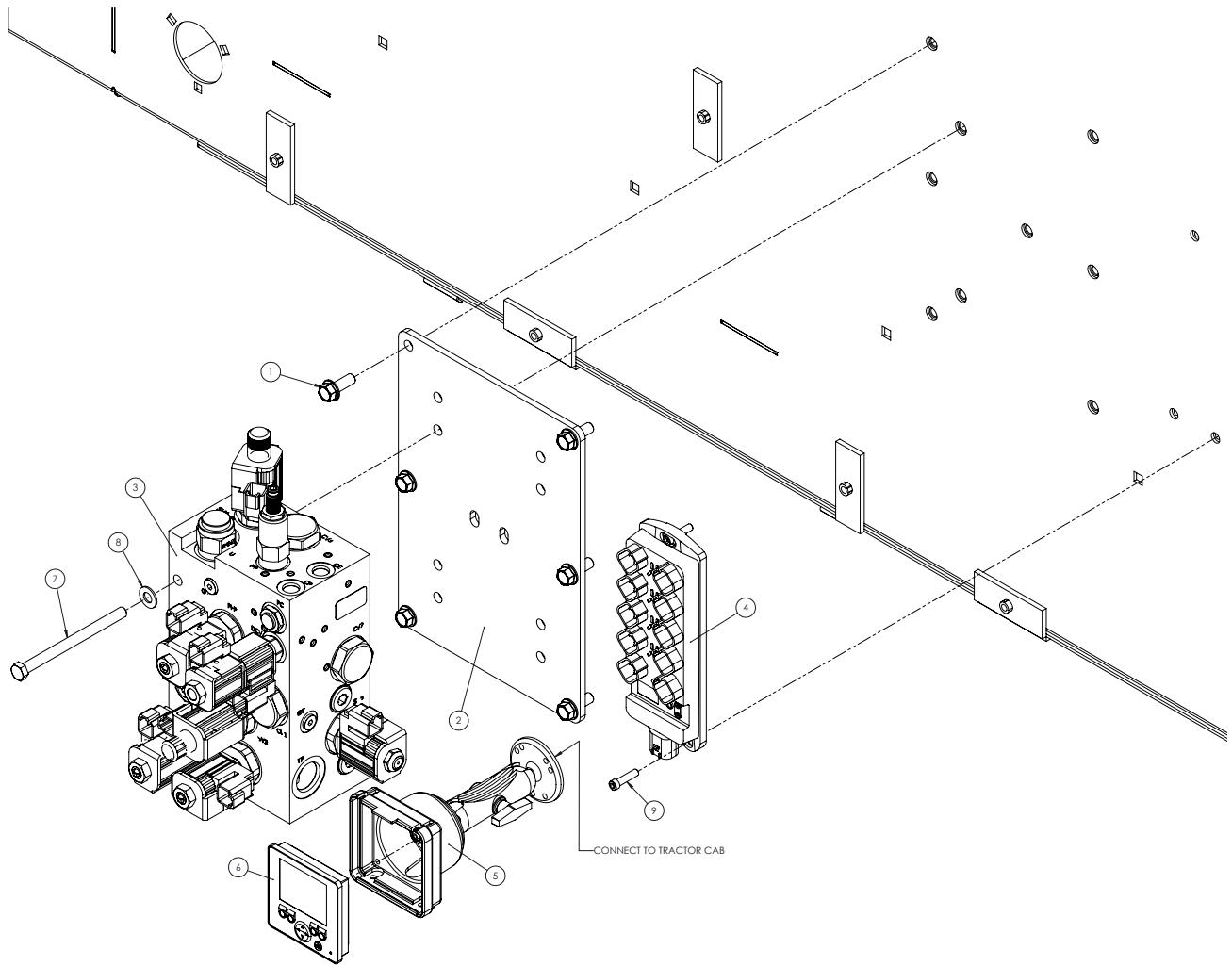




**ROOF ASSEMBLY (16')**



DRIVE SYSTEM ASSEMBLY (HYD. IN CAB CONTROL)

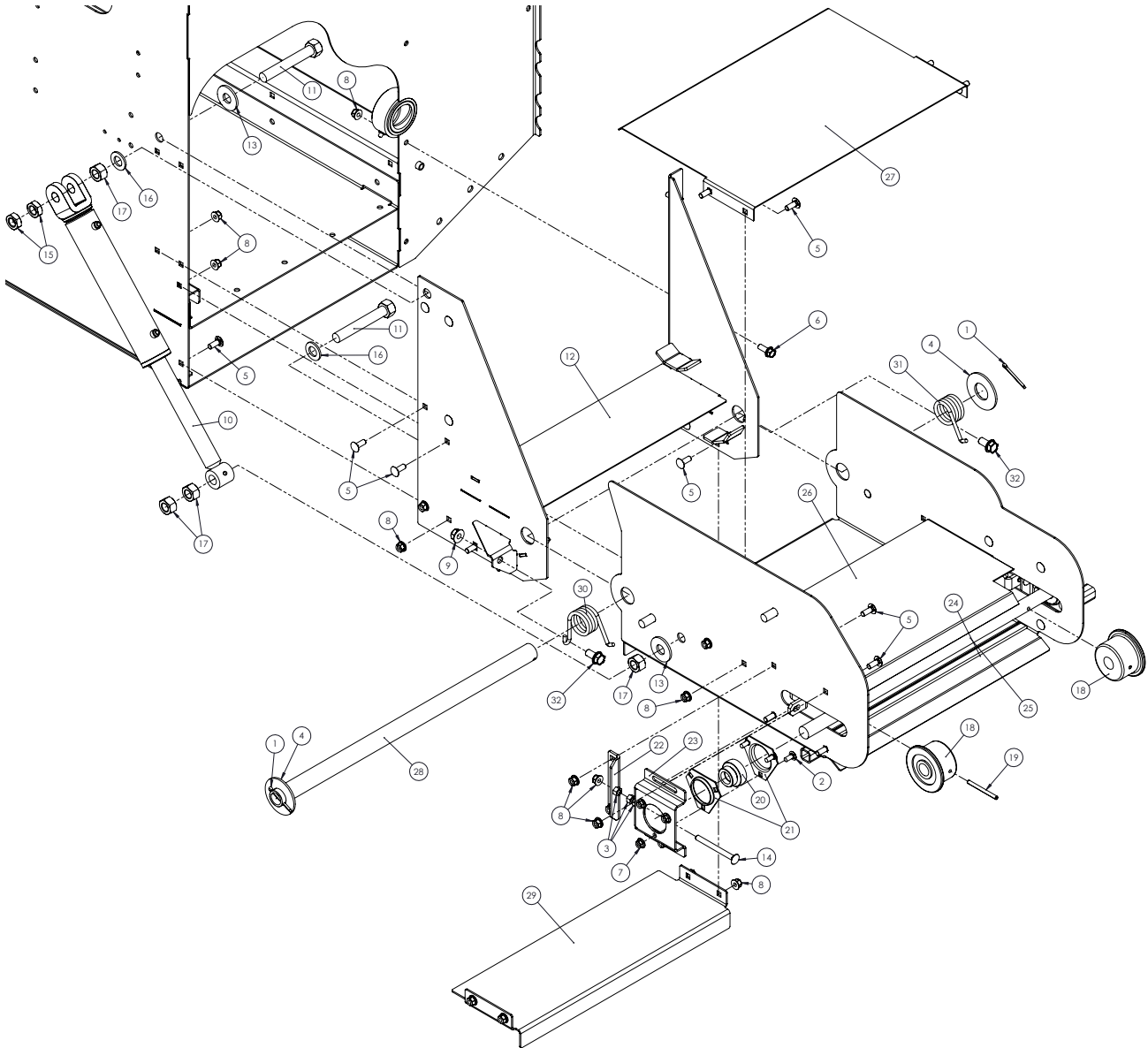


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	600050	BOLT, HFH 3/8-16 X 1.00"	6
2	710475	BLOCK STIFFNER PLATE	1
3	710750	MANIFOLD, HYD ELECTRIC	1
4	710761	CONTROLLER JUNCTION	1
5	710763	RAM MOUNT KIT,	1
6	710764	DISPLAY, CONTROL BOX,	1
7	991170	BOLT, HHCS 3/8-16 X 5	3
8	I120394	WASHER, FLAT 3/8 SAE	3
9	V067301	SCREW, SHCS 1/4-20 X 1	3

**DRIVE SYSTEM ASSEMBLY (HYD. MANUAL CONTROL)**

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.

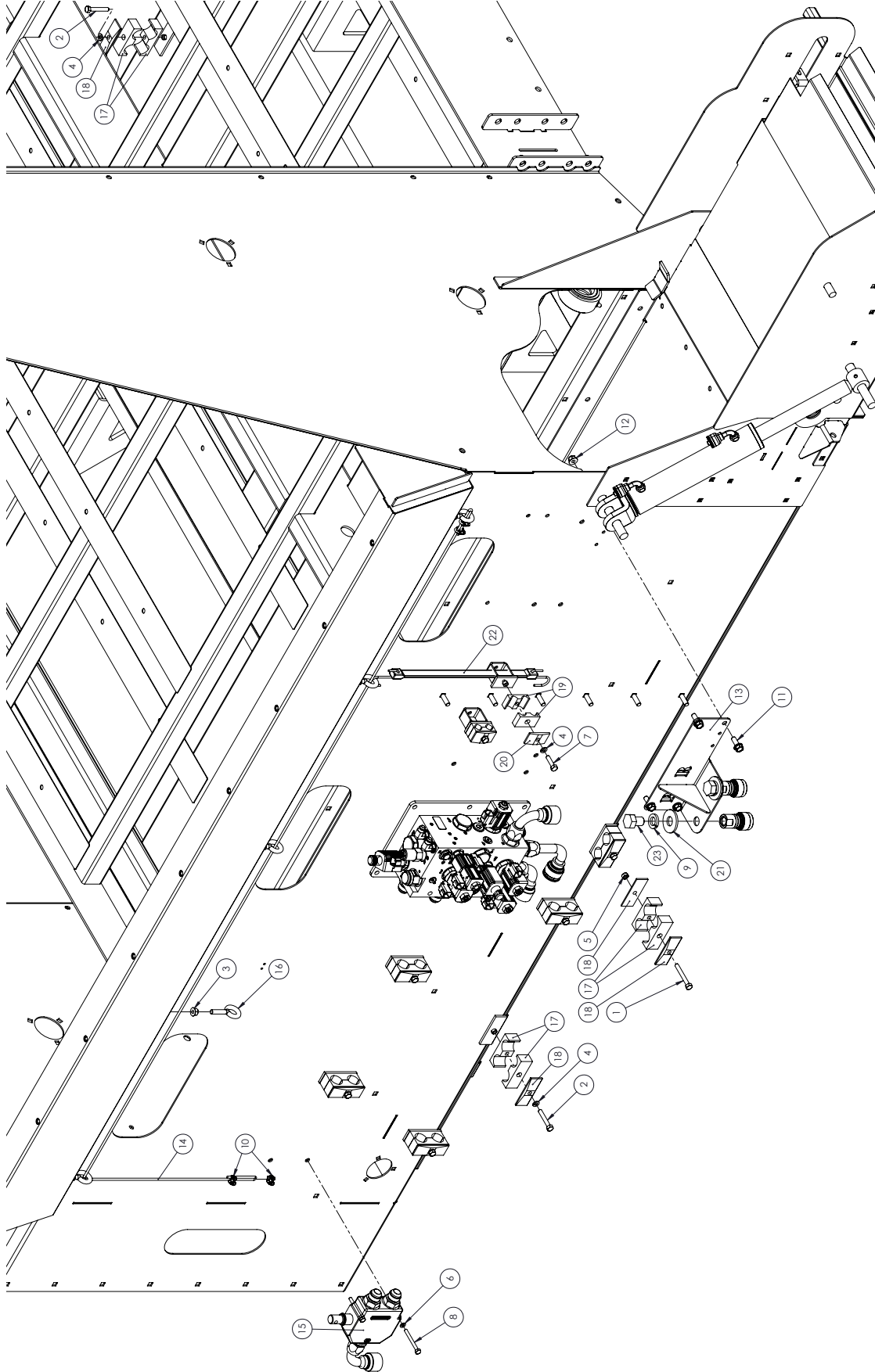
OUTFEED ASSEMBLY (COMBO/FRONT UNLOAD)





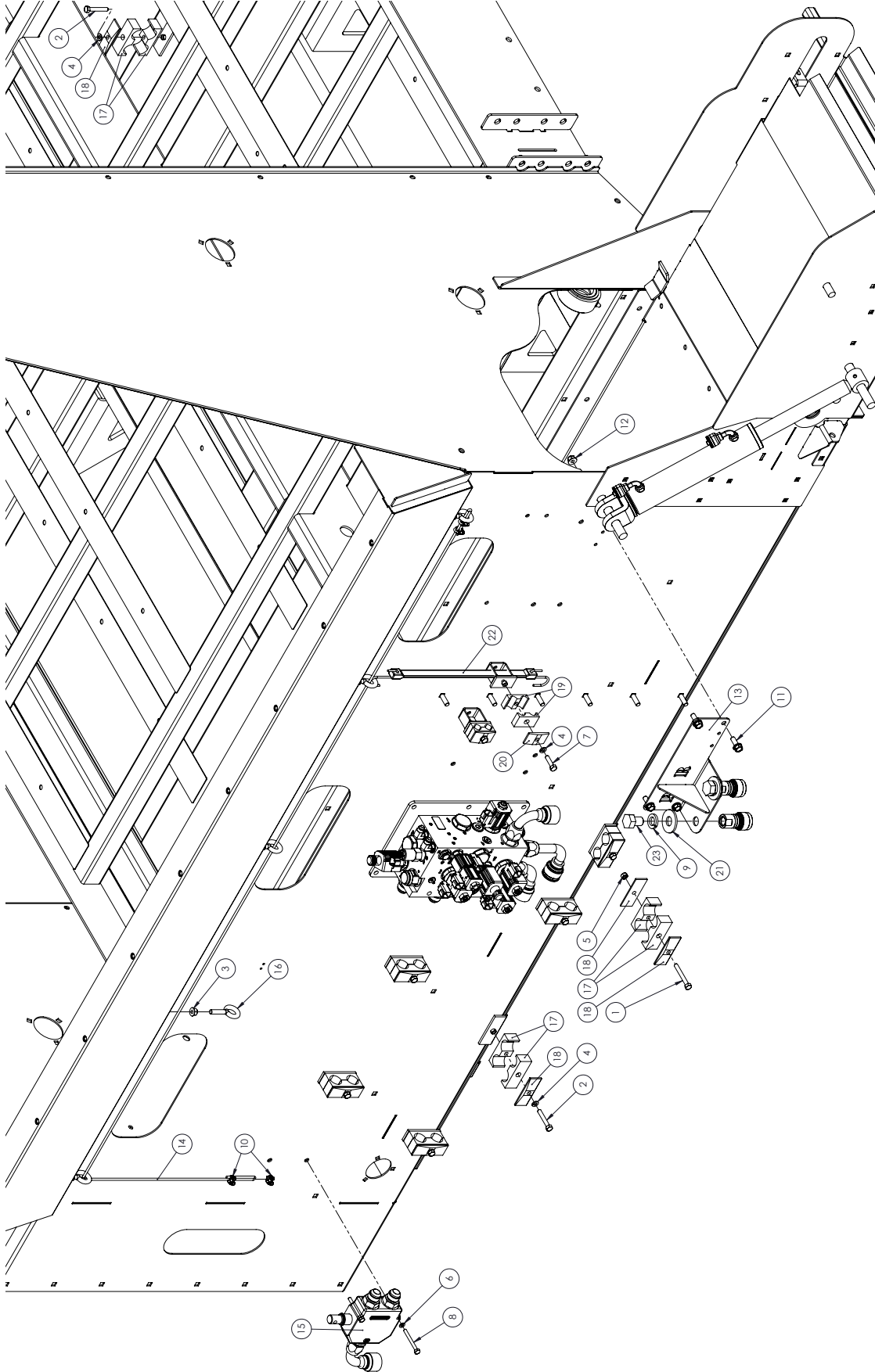
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	003950	PIN, COTTER 3/16 X 2	2
2	012410	BOLT, CRG 5/16-18X3/4	6
3	027260	NUT, HEX 3/8-16 GR5	6
4	1100925	WASHER, MACHINE, 1-1/4" 10 GA Z5	2
5	170530	BOLT, CRG 3/8-16 X 1"	23
6	600050	BOLT, HFH 3/8-16 X 1.00"	3
7	600110	NUT, HFH NYLOC 5/16-18	6
8	600120	NUT, HFH NYLOC 3/8-16	28
9	600140	NUT, HFH NYLOC 1/2-13	2
10	632600	2" X 8" PRINCE	1
11	710476	BOLT, CYLINDER MOUNT	2
12	710575	OUTFEED WLDT	1
13	990710	WASHER, FLAT 3/4 STD	2
14	991190	BOLT, CRG 3/8-16 X 3-1/2	2
15	E552038	NUT, JAM 3/4-10 HEX	2
16	I131017	WASHER, FLAT	2
17	J14H794	NUT, HEX 3/4-10 GR5 ZN	4
18	MP01.60500.5	ROLLER, OUTFEED	2
19	MP01.74140	PIN, ROLL .25 X 2	2
20	MP01.77500	BEARING - SPHERICAL 1	2
21	MP14.77107	FLANGETTE	4
22	MP16.20006.5	PLATE, TAKEUP	2
23	MP16.20007.5	BRACKET, BEARING	2
24	MP16.20853.7	FRAME-OUTFEED WLDMNT	1
25	MP16.20861	CENTER STRINGER	1
26	MP16.20863.7	PAN WELDMENT	1
27	MP16.20870.7	PAN - FOLDING OUTFEED EXT	1
28	MP16.20871.7	TUBE - PIVOT OUTFEED	1
29	MP16.20873.7	PAN, OUTFEED RETURN	1
30	MP32.00737	STRINGER TORSION - RH	1
31	MP32.00738	STRINGER TORSION - LH	1
32	MP903952	HHDBLT - 1/2-13 X 1 WHZ	2

HYDRAULICS ASSEMBLY (INCAB 20' COMBO UNLOAD)



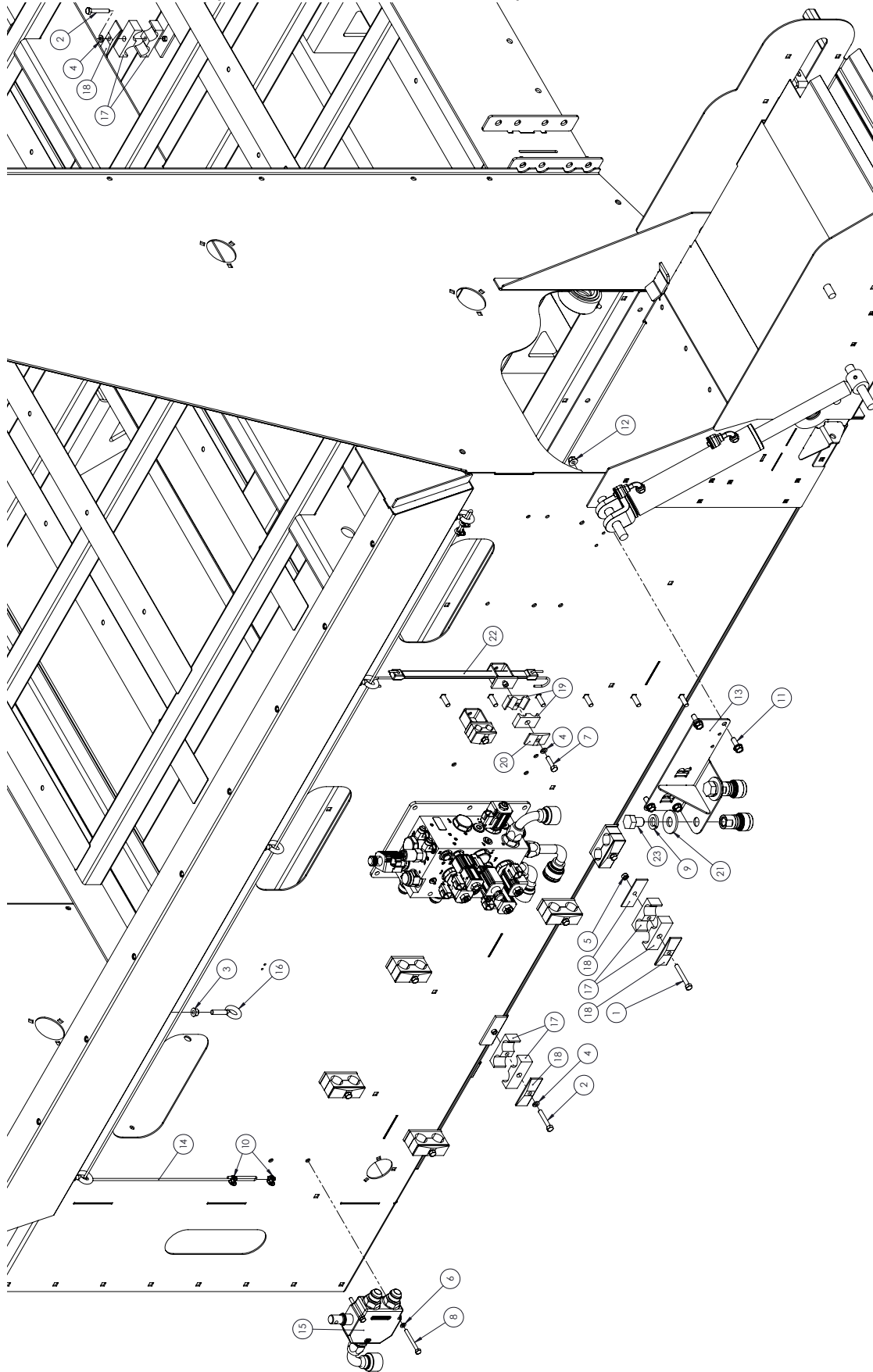
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	009800	BOLT, HHCS 5/16-18 X 2 1/2	1
2	017120	BOLT, HHCS 5/16-18 X 2 G	15
3	020180	NUT, LOCK 3/8-16 FLG	5
4	023620	WASHER, LOCK 5/16	17
5	025670	NUT, LOCK 5/16-18	1
6	029440	WASHER, LOCK 1/4 SAE	2
7	030030	BOLT, HHCS 5/16-18 X1-1/4 GR5	2
8	031560	BOLT, HHCS 1/4-20 X 2-1/2	2
9	036800	WASHER, LOCK 3/4 SAE	2
10	148120	CLAMP, 3/16" WIRE ROPE	4
11	600050	BOLT, HFH 3/8-16 X 1.00"	4
12	600120	NUT, HFH NYLOC 3/8-16	4
13	710490	HOSE/CABLE HOLDER WLDT	1
14	710590	CABLE, SAFETY PULL	1
15	710745	BLOCK, SAFETY KILL	1
16	710801	BOLT, EYE 3/18"-16	5
17	710811	CLAMP, HALF PLASTIC	32
18	710812	CLAMP, COVER PLATE	17
19	710816	CLAMP, HALF PLASTIC	4
20	710817	CLAMP, COVER PLATE	2
21	990710	WASHER, FLAT 3/4 STD	2
22	MP906533	RUBBER STRAP, 15"	1
23	MP907309	BOLT, HHCS 3/4 X 2.50 GR 8	2

HYDRAULICS ASSEMBLY (INCAB 18' COMBO UNLOAD)



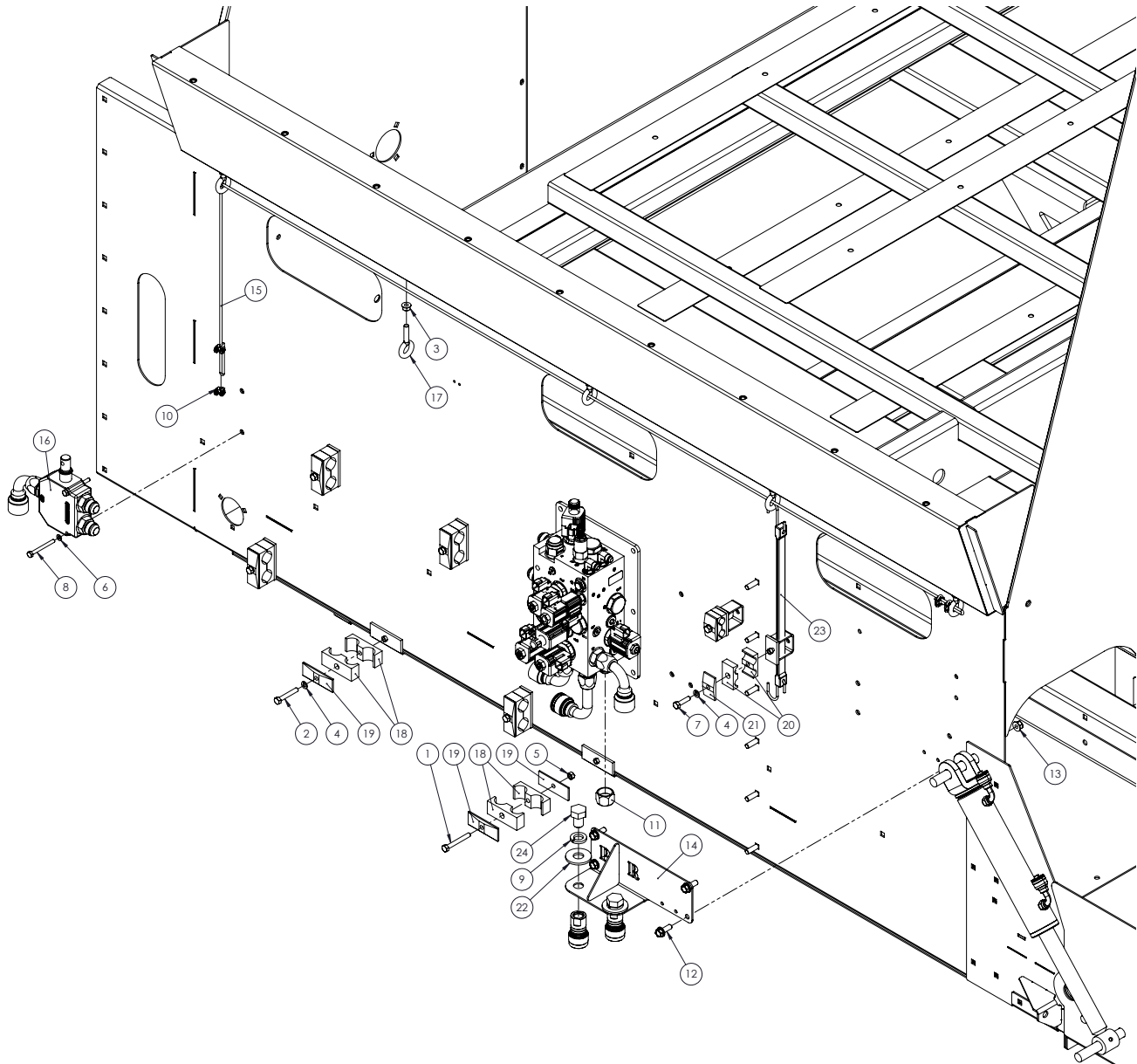
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	009800	BOLT, HHCS 5/16-18 X 2 1/2	1
2	017120	BOLT, HHCS 5/16-18 X 2 G	14
3	020180	NUT, LOCK 3/8-16 FLG	5
4	023620	WASHER, LOCK 5/16	16
5	025670	NUT, LOCK 5/16-18	1
6	029440	WASHER, LOCK 1/4 SAE	2
7	030030	BOLT, HHCS 5/16-18 X1-1/4 GR5	2
8	031560	BOLT, HHCS 1/4-20 X 2-1/2	2
9	036800	WASHER, LOCK 3/4 SAE	2
10	148120	CLAMP, 3/16" WIRE ROPE	4
11	600050	BOLT, HFH 3/8-16 X 1.00"	4
12	600120	NUT, HFH NYLOC 3/8-16	4
13	710490	HOSE/CABLE HOLDER WLDT	1
14	710590	CABLE, SAFETY PULL	1
15	710745	BLOCK, SAFETY KILL	1
16	710801	BOLT, EYE 3/18"-16	5
17	710811	CLAMP, HALF PLASTIC	30
18	710812	CLAMP, COVER PLATE	16
19	710816	CLAMP, HALF PLASTIC	4
20	710817	CLAMP, COVER PLATE	2
21	990710	WASHER, FLAT 3/4 STD	2
22	MP906533	RUBBER STRAP, 15"	1
23	MP907309	BOLT, HHCS 3/4 X 2.50 GR 8	2

HYDRAULICS ASSEMBLY (INCAB 16' COMBO UNLOAD)



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	009800	BOLT, HHCS 5/16-18 X 2 1/2	1
2	017120	BOLT, HHCS 5/16-18 X 2 G	13
3	020180	NUT, LOCK 3/8-16 FLG	5
4	023620	WASHER, LOCK 5/16	15
5	025670	NUT, LOCK 5/16-18	1
6	029440	WASHER, LOCK 1/4 SAE	2
7	030030	BOLT, HHCS 5/16-18 X1-1/4 GR5	2
8	031560	BOLT, HHCS 1/4-20 X 2-1/2	2
9	036800	WASHER, LOCK 3/4 SAE	2
10	148120	CLAMP, 3/16" WIRE ROPE	4
11	600050	BOLT, HFH 3/8-16 X 1.00"	4
12	600120	NUT, HFH NYLOC 3/8-16	4
13	710490	HOSE/CABLE HOLDER WLDT	1
14	710590	CABLE, SAFETY PULL	1
15	710745	BLOCK, SAFETY KILL	1
16	710801	BOLT, EYE 3/18"-16	5
17	710811	CLAMP, HALF PLASTIC	28
18	710812	CLAMP, COVER PLATE	15
19	710816	CLAMP, HALF PLASTIC	4
20	710817	CLAMP, COVER PLATE	2
21	990710	WASHER, FLAT 3/4 STD	2
22	MP906533	RUBBER STRAP, 15"	1
23	MP907309	BOLT, HHCS 3/4 X 2.50 GR 8	2

HYDRAULICS ASSEMBLY (INCAB 20'/18'/16' FRONT UNLOAD)





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	009800	BOLT, HHCS 5/16-18 X 2 1/2	1
2	017120	BOLT, HHCS 5/16-18 X 2 G	6
3	020180	NUT, LOCK 3/8-16 FLG	5
4	023620	WASHER, LOCK 5/16	8
5	025670	NUT, LOCK 5/16-18	1
6	029440	WASHER, LOCK 1/4 SAE	2
7	030030	BOLT, HHCS 5/16-18 X1-1/4 GR5 ZN	2
8	031560	BOLT, HHCS 1/4-20 X 2-1/2	2
9	036800	WASHER, LOCK 3/4 SAE	2
10	148120	CLAMP, 3/16" WIRE ROPE	4
11	589320	CAP, HYD -12 FJIC	2
12	600050	BOLT, HFH 3/8-16 X 1.00"	4
13	600120	NUT, HFH NYLOC 3/8-16	4
14	710490	HOSE/CABLE HOLDER WLDT	1
15	710590	CABLE, SAFETY PULL	1
16	710745	BLOCK, SAFETY KILL	1
17	710801	BOLT, EYE 3/18"-16	5
18	710811	CLAMP, HALF PLASTIC	14
19	710812	CLAMP, COVER PLATE	8
20	710816	CLAMP, HALF PLASTIC	4
21	710817	CLAMP, COVER PLATE	2
22	990710	WASHER, FLAT 3/4 STD	2
23	MP906533	RUBBER STRAP, 15"	1
24	MP907309	BOLT, HHCS 3/4 X 2.50 GR 8	2

**HYDRAULICS ASSEMBLY (MANUAL 20' COMBO UNLOAD)**



**HYDRAULICS ASSEMBLY (MANUAL 18' COMBO UNLOAD)**



**HYDRAULICS ASSEMBLY (MANUAL 16' COMBO UNLOAD)**



**HYDRAULICS ASSEMBLY (MANUAL 20'/18'/16' FRONT UNLOAD)**





**HYDRAULICS ASSEMBLY (MANUAL 20' REAR UNLOAD)**



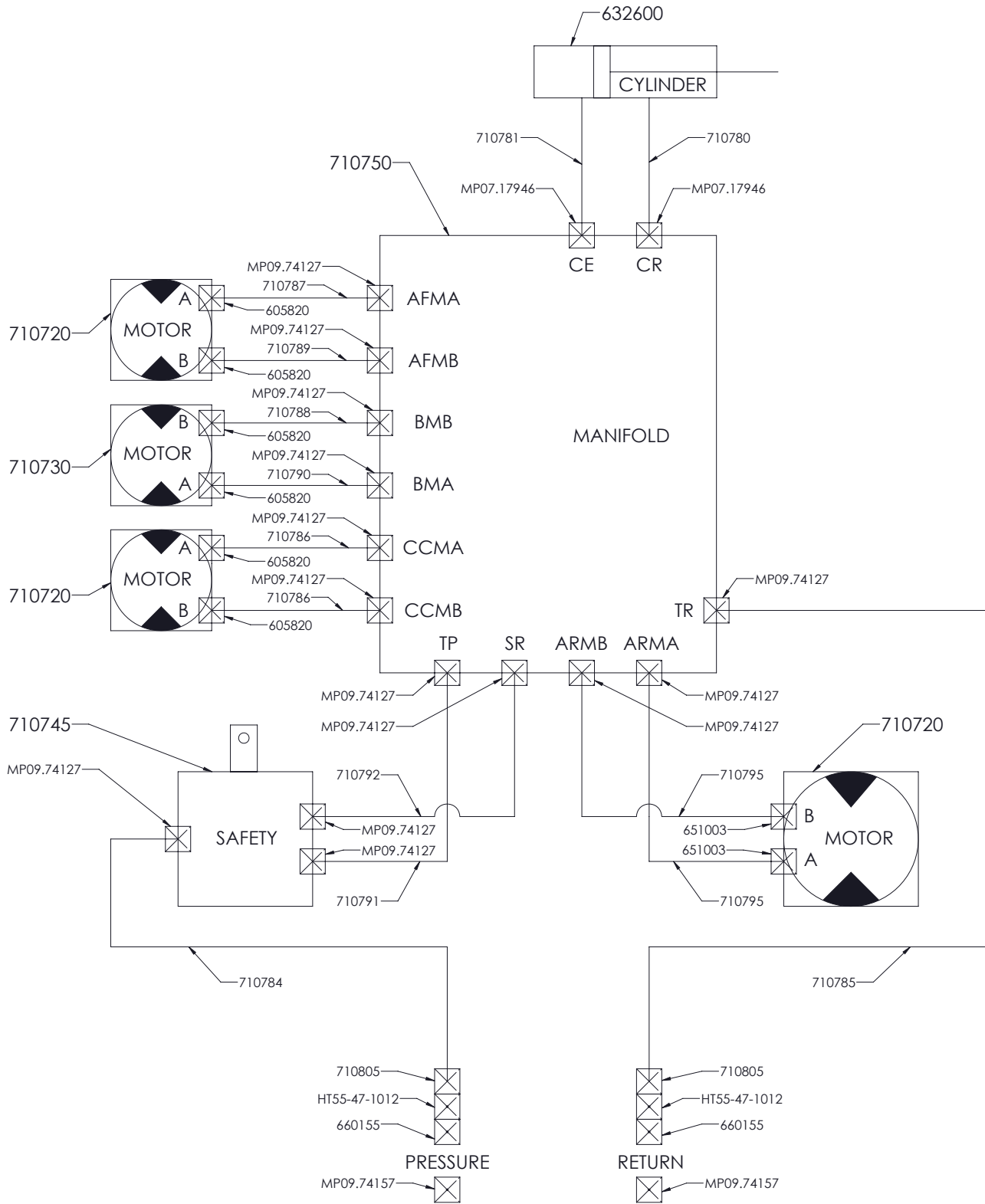
**HYDRAULICS ASSEMBLY (MANUAL 18' REAR UNLOAD)**



**HYDRAULICS ASSEMBLY (MANUAL 16' REAR UNLOAD)**



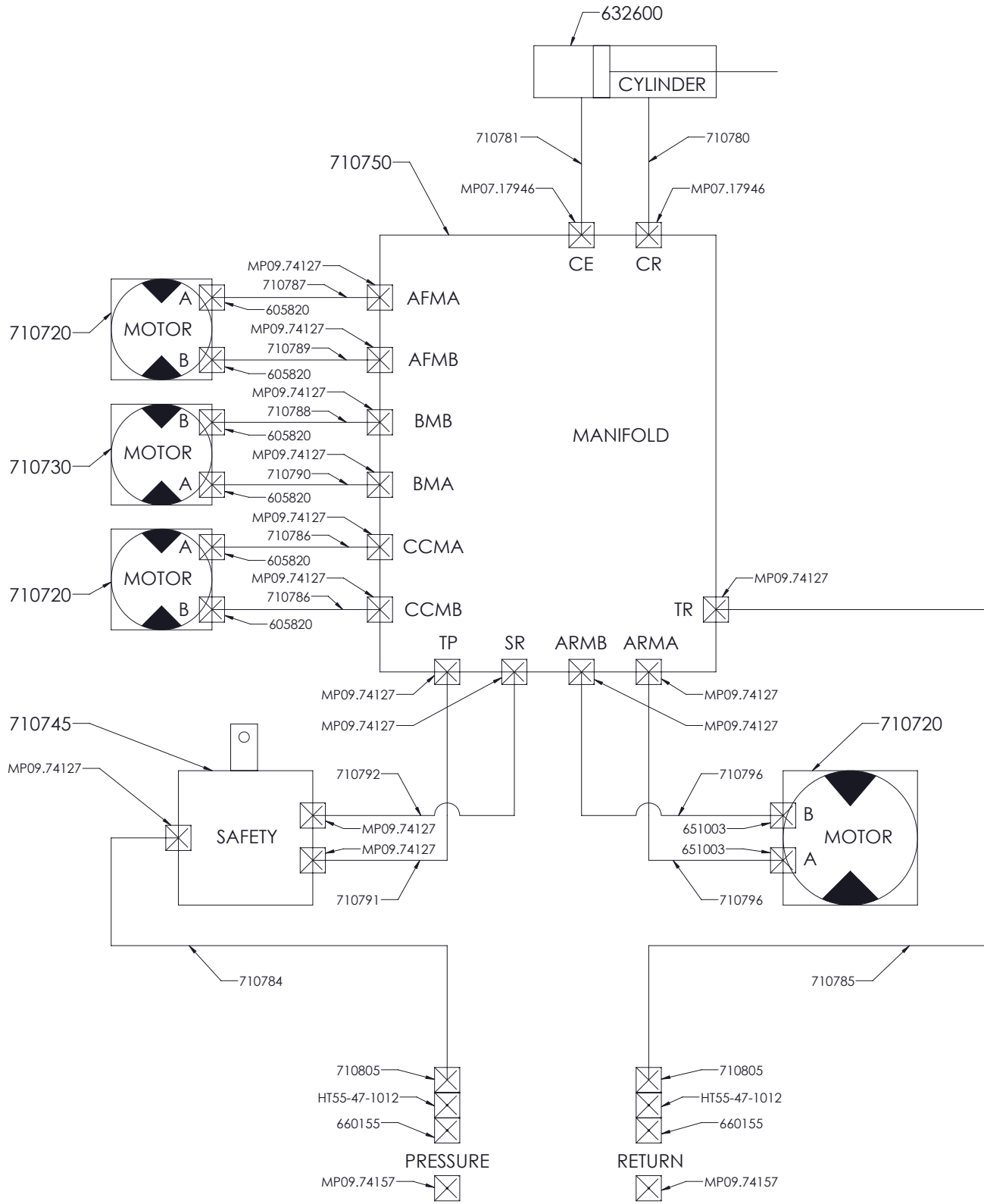
HYDRAULICS DIAGRAM (INCAB 20' COMBO UNLOAD)





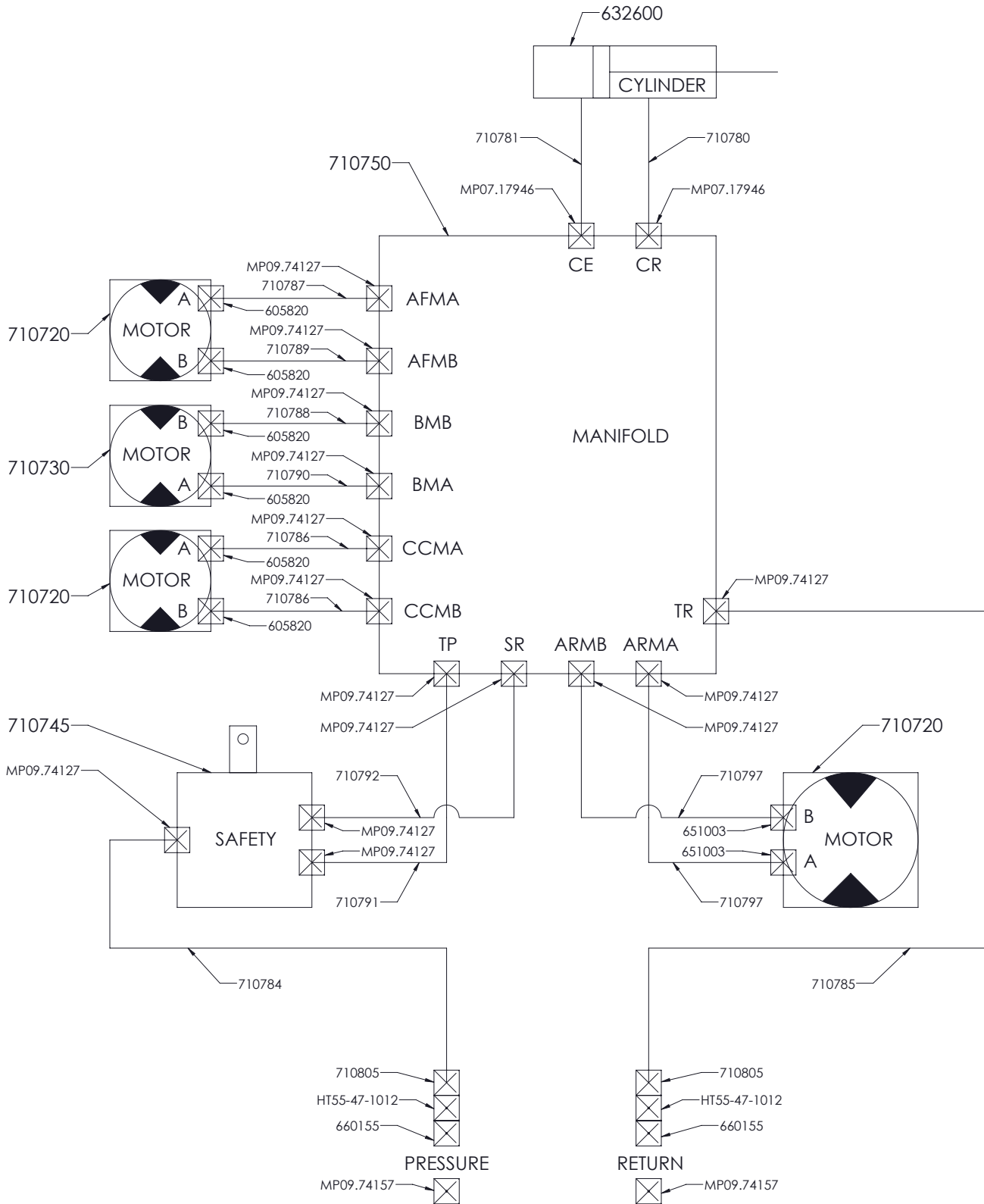
IDENTIFICATION KEY	
TP	TRACTOR PRESSURE
TR	TRACTOR RETURN
SR	SAFETY RETURN
CCMB	CROSS CONV. MOTOR B PORT
CCMA	CROSS CONV. MOTOR A PORT
BMB	BEATER MOTOR B PORT
BMA	BEATER MOTOR A PORT
AFMB	APRON FORWARD MOTOR B PORT
AFMA	APRON FORWARD MOTOR A PORT
ARMB	APRON REVERSE MOTOR B PORT
ARMA	APRON REVERSE MOTOR A PORT
CE	CYLINDER EXTEND
CR	CYLINDER RETRACT

HYDRAULICS DIAGRAM (INCAB 18' COMBO UNLOAD)



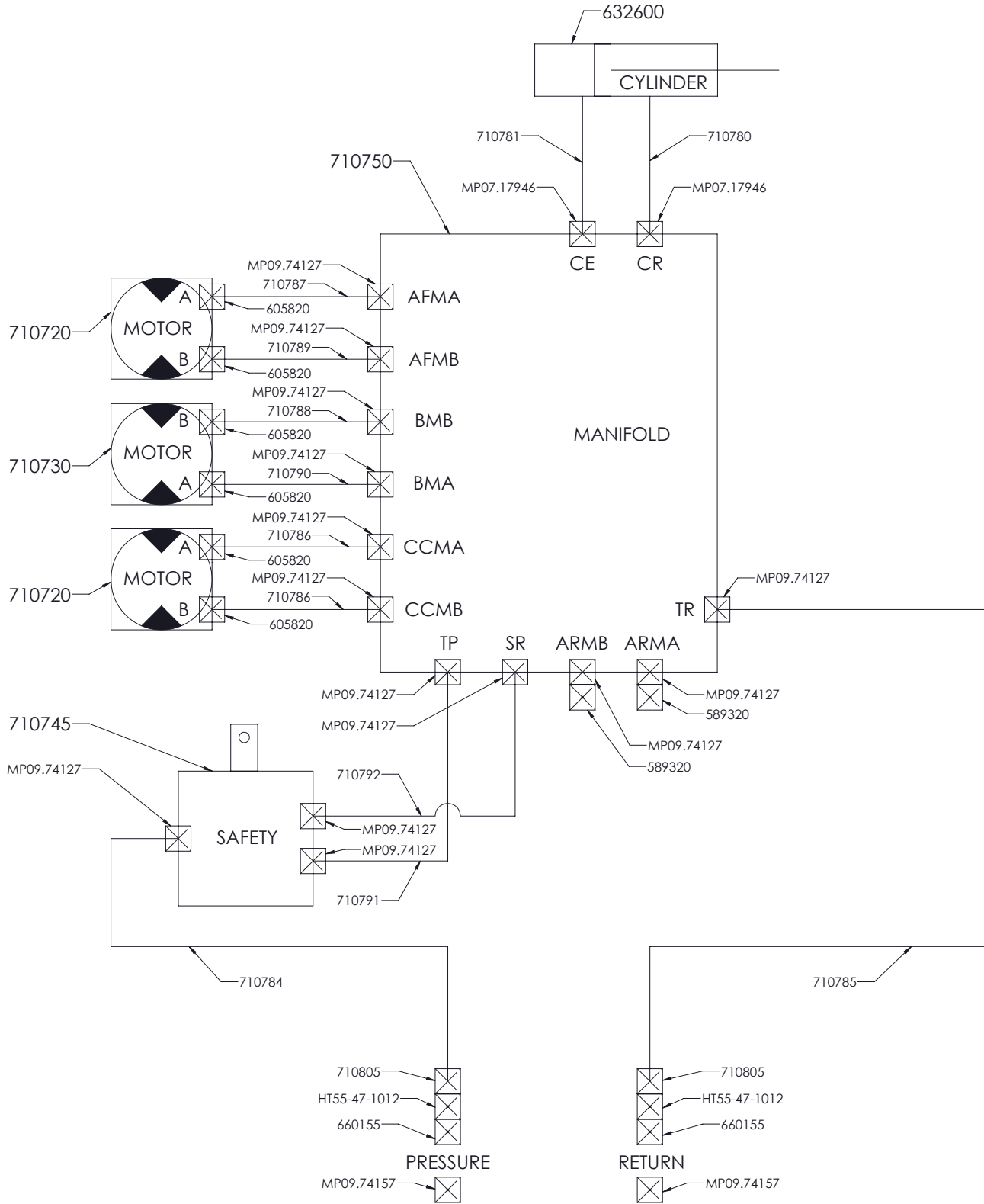
IDENTIFICATION KEY	
TP	TRACTOR PRESSURE
TR	TRACTOR RETURN
SR	SAFETY RETURN
CCMB	CROSS CONV. MOTOR B PORT
CCMA	CROSS CONV. MOTOR A PORT
BMB	BEATER MOTOR B PORT
BMA	BEATER MOTOR A PORT
AFMB	APRON FORWARD MOTOR B PORT
AFMA	APRON FORWARD MOTOR A PORT
ARMB	APRON REVERSE MOTOR B PORT
ARMA	APRON REVERSE MOTOR A PORT
CE	CYLINDER EXTEND
CR	CYLINDER RETRACT

HYDRAULICS DIAGRAM (INCAB 16' COMBO UNLOAD)



IDENTIFICATION KEY	
TP	TRACTOR PRESSURE
TR	TRACTOR RETURN
SR	SAFETY RETURN
CCMB	CROSS CONV. MOTOR B PORT
CCMA	CROSS CONV. MOTOR A PORT
BMB	BEATER MOTOR B PORT
BMA	BEATER MOTOR A PORT
AFMB	APRON FORWARD MOTOR B PORT
AFMA	APRON FORWARD MOTOR A PORT
ARMB	APRON REVERSE MOTOR B PORT
ARMA	APRON REVERSE MOTOR A PORT
CE	CYLINDER EXTEND
CR	CYLINDER RETRACT

HYDRAULICS DIAGRAM (INCAB 20'/18'/16' FRONT UNLOAD)



IDENTIFICATION KEY	
TP	TRACTOR PRESSURE
TR	TRACTOR RETURN
SR	SAFETY RETURN
CCMB	CROSS CONV. MOTOR B PORT
CCMA	CROSS CONV. MOTOR A PORT
BMB	BEATER MOTOR B PORT
BMA	BEATER MOTOR A PORT
AFMB	APRON FORWARD MOTOR B PORT
AFMA	APRON FORWARD MOTOR A PORT
ARMB	APRON REVERSE MOTOR B PORT
ARMA	APRON REVERSE MOTOR A PORT
CE	CYLINDER EXTEND
CR	CYLINDER RETRACT

**HYDRAULICS DIAGRAM (MANUAL 20' COMBO UNLOAD)**



IDENTIFICATION KEY	
TP	TRACTOR PRESSURE
TR	TRACTOR RETURN
SR	SAFETY RETURN
CCMB	CROSS CONV. MOTOR B PORT
CCMA	CROSS CONV. MOTOR A PORT
BMB	BEATER MOTOR B PORT
BMA	BEATER MOTOR A PORT
AFMB	APRON FORWARD MOTOR B PORT
AFMA	APRON FORWARD MOTOR A PORT
ARMB	APRON REVERSE MOTOR B PORT
ARMA	APRON REVERSE MOTOR A PORT
CE	CYLINDER EXTEND
CR	CYLINDER RETRACT

**HYDRAULICS DIAGRAM (MANUAL 18' COMBO UNLOAD)**

IDENTIFICATION KEY	
TP	TRACTOR PRESSURE
TR	TRACTOR RETURN
SR	SAFETY RETURN
CCMB	CROSS CONV. MOTOR B PORT
CCMA	CROSS CONV. MOTOR A PORT
BMB	BEATER MOTOR B PORT
BMA	BEATER MOTOR A PORT
AFMB	APRON FORWARD MOTOR B PORT
AFMA	APRON FORWARD MOTOR A PORT
ARMB	APRON REVERSE MOTOR B PORT
ARMA	APRON REVERSE MOTOR A PORT
CE	CYLINDER EXTEND
CR	CYLINDER RETRACT

**HYDRAULICS DIAGRAM (MANUAL 16' COMBO UNLOAD)**

IDENTIFICATION KEY	
TP	TRACTOR PRESSURE
TR	TRACTOR RETURN
SR	SAFETY RETURN
CCMB	CROSS CONV. MOTOR B PORT
CCMA	CROSS CONV. MOTOR A PORT
BMB	BEATER MOTOR B PORT
BMA	BEATER MOTOR A PORT
AFMB	APRON FORWARD MOTOR B PORT
AFMA	APRON FORWARD MOTOR A PORT
ARMB	APRON REVERSE MOTOR B PORT
ARMA	APRON REVERSE MOTOR A PORT
CE	CYLINDER EXTEND
CR	CYLINDER RETRACT

**HYDRAULICS DIAGRAM (MANUAL 20'/18'/16' FRONT UNLOAD)**

IDENTIFICATION KEY	
TP	TRACTOR PRESSURE
TR	TRACTOR RETURN
SR	SAFETY RETURN
CCMB	CROSS CONV. MOTOR B PORT
CCMA	CROSS CONV. MOTOR A PORT
BMB	BEATER MOTOR B PORT
BMA	BEATER MOTOR A PORT
AFMB	APRON FORWARD MOTOR B PORT
AFMA	APRON FORWARD MOTOR A PORT
ARMB	APRON REVERSE MOTOR B PORT
ARMA	APRON REVERSE MOTOR A PORT
CE	CYLINDER EXTEND
CR	CYLINDER RETRACT

**HYDRAULICS DIAGRAM (MANUAL 20' REAR UNLOAD)**



IDENTIFICATION KEY	
TP	TRACTOR PRESSURE
TR	TRACTOR RETURN
SR	SAFETY RETURN
CCMB	CROSS CONV. MOTOR B PORT
CCMA	CROSS CONV. MOTOR A PORT
BMB	BEATER MOTOR B PORT
BMA	BEATER MOTOR A PORT
AFMB	APRON FORWARD MOTOR B PORT
AFMA	APRON FORWARD MOTOR A PORT
ARMB	APRON REVERSE MOTOR B PORT
ARMA	APRON REVERSE MOTOR A PORT
CE	CYLINDER EXTEND
CR	CYLINDER RETRACT

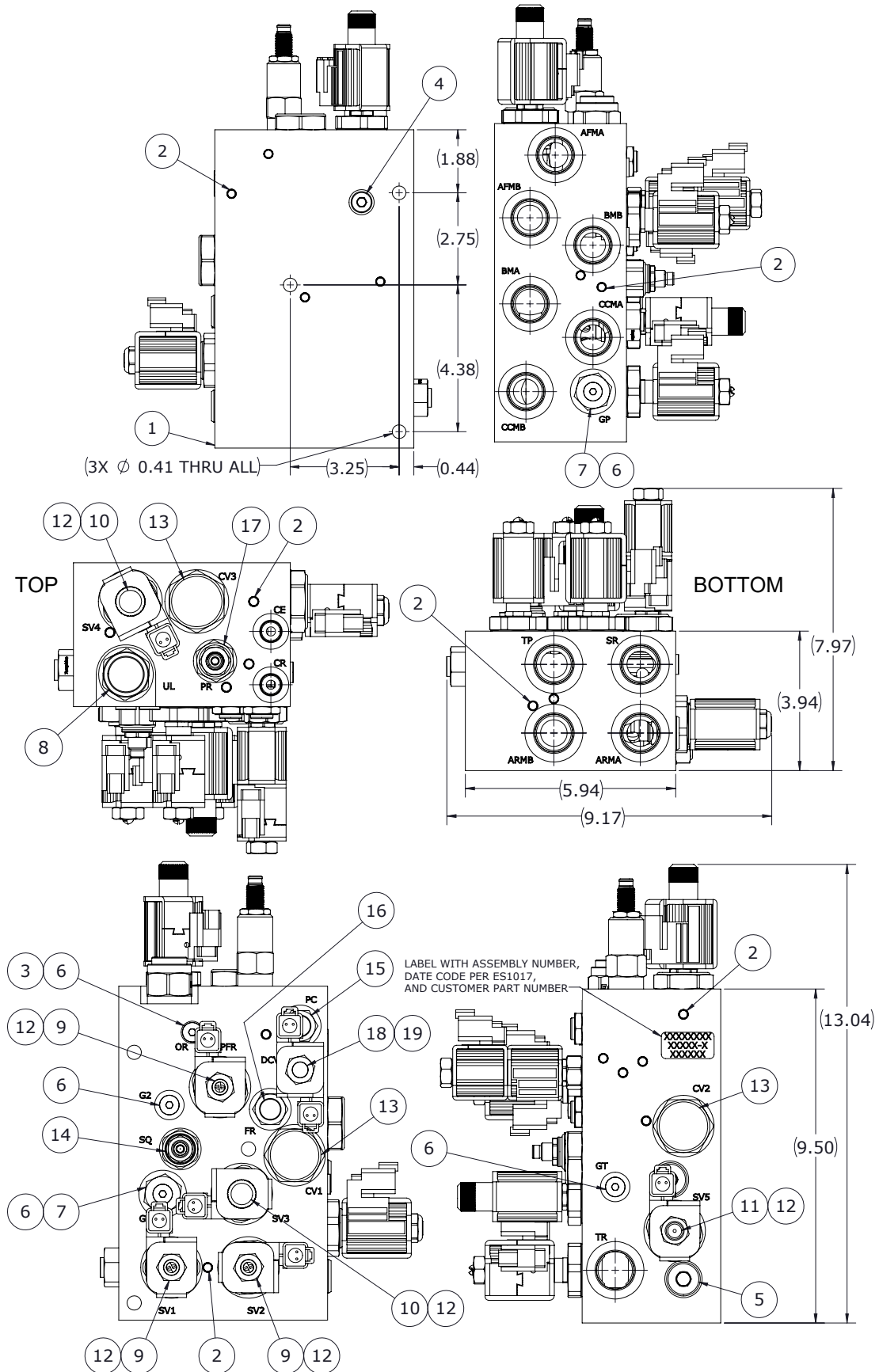
**HYDRAULICS DIAGRAM (MANUAL 18' REAR UNLOAD)**

IDENTIFICATION KEY	
TP	TRACTOR PRESSURE
TR	TRACTOR RETURN
SR	SAFETY RETURN
CCMB	CROSS CONV. MOTOR B PORT
CCMA	CROSS CONV. MOTOR A PORT
BMB	BEATER MOTOR B PORT
BMA	BEATER MOTOR A PORT
AFMB	APRON FORWARD MOTOR B PORT
AFMA	APRON FORWARD MOTOR A PORT
ARMB	APRON REVERSE MOTOR B PORT
ARMA	APRON REVERSE MOTOR A PORT
CE	CYLINDER EXTEND
CR	CYLINDER RETRACT

**HYDRAULICS DIAGRAM (MANUAL 16' REAR UNLOAD)**

IDENTIFICATION KEY	
TP	TRACTOR PRESSURE
TR	TRACTOR RETURN
SR	SAFETY RETURN
CCMB	CROSS CONV. MOTOR B PORT
CCMA	CROSS CONV. MOTOR A PORT
BMB	BEATER MOTOR B PORT
BMA	BEATER MOTOR A PORT
AFMB	APRON FORWARD MOTOR B PORT
AFMA	APRON FORWARD MOTOR A PORT
ARMB	APRON REVERSE MOTOR B PORT
ARMA	APRON REVERSE MOTOR A PORT
CE	CYLINDER EXTEND
CR	CYLINDER RETRACT

MANIFOLD ASSEMBLY (INCAB COMBO/FRONT UNLOAD)



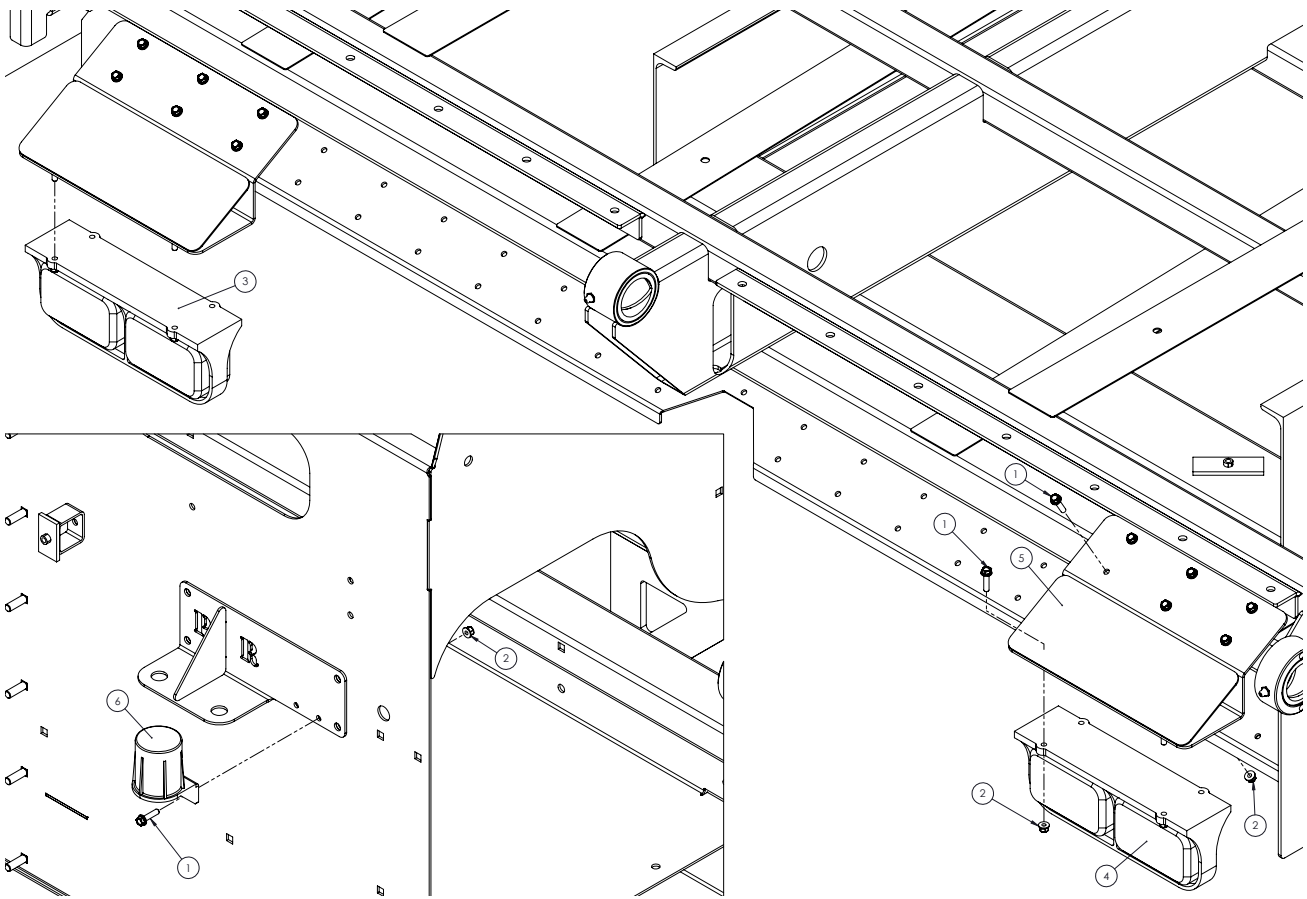
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	N/A	BODY, FORAGE BOX MANIFOLD	1
2	N/A	EXPANDER PLUG, 7 MM	20
3	710820	ORIFICE PLUG 5/16-24 0.031	1
4	488940P	SAE-6 PLUG, ZERO-LEAK	1
5	274425	SAE-10 PLUG ZERO-LEAK	2
6	710821	PLUG SAE -04 HOLLOW HEX	5
7	710822	FITTING RED/EXP -10 MORB / -4 FORB	2
8	710823	CART, LOGIC SPOOL N/C L/S	1
9	646209	CART, PROP 2W2P NC POPPET	3
10	710824	CART, PROP 2W2P NO POPPET	2
11	710825	CART, SOLENOID NO POPPET	1
12	710826	SUPER COIL 5/8 ID 12 VDC DEUTSCH	6
13	710827	CART, CHECK VALVE	3
14	710828	CART, SEQUENCE VALVE, EXT. PILOT	1
15	710829	CART, PO CHECK VALVE 65 PSI, 3:1	1
16	710830	CART, FLOW REGULATOR 1.50 GPM	1
17	710831	CART, PRESSURE RED/REL D.A.	1
18	710832	CART, 4W3P SOLENOID CLOSED CENTER	1
19	710833	SUPER COIL 1/2 ID 12 VDC DEUTSCH	2

**MANIFOLD ASSEMBLY (MANUAL COMBO/FRONT UNLOAD)**



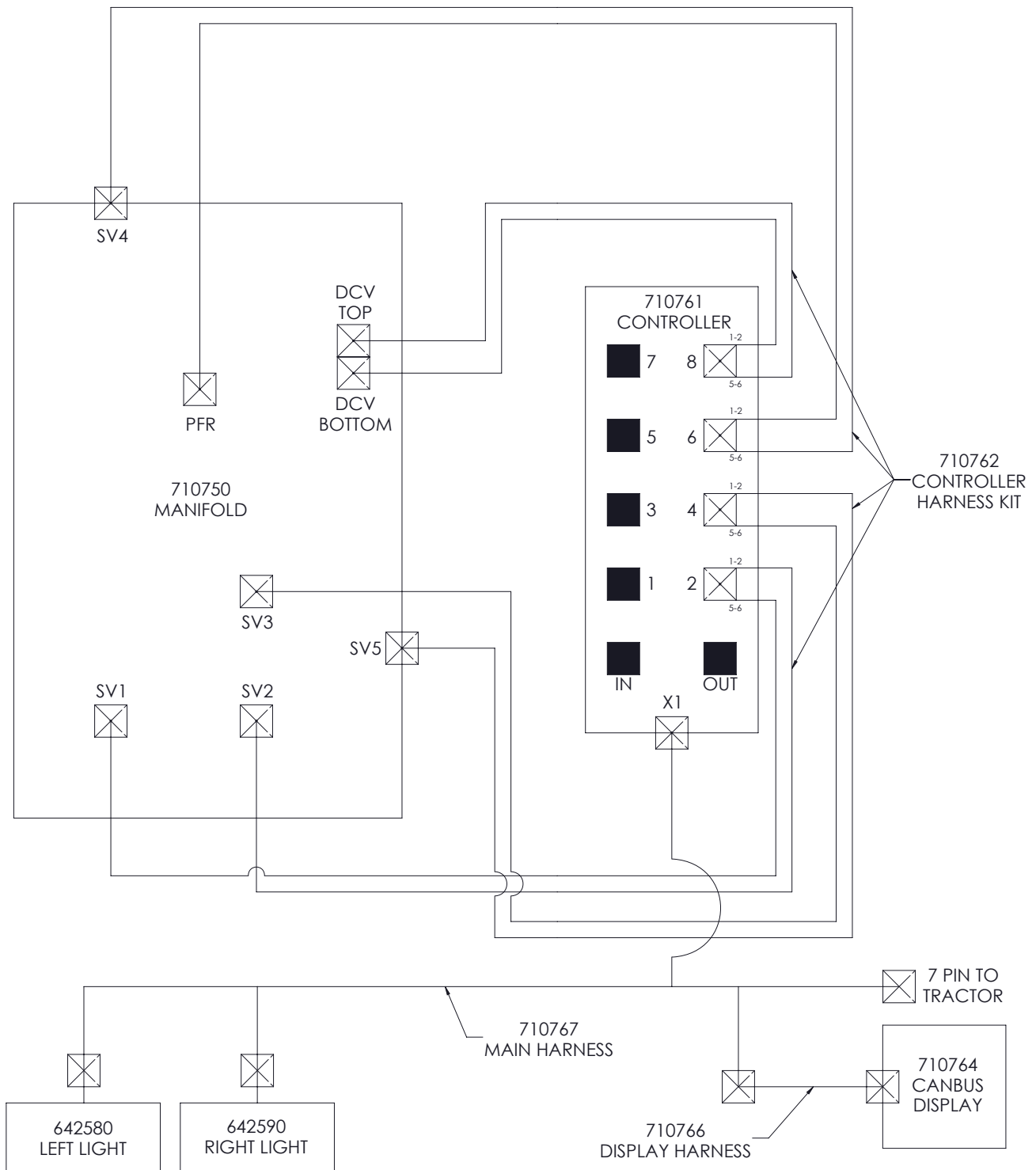
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	N/A	BODY, FORAGE BOX MANIFOLD	1
2	N/A	EXPANDER PLUG, 7 MM	20
3	710820	ORIFICE PLUG 5/16-24 0.031	1
4	488940P	SAE-6 PLUG, ZERO-LEAK	1
5	274425	SAE-10 PLUG ZERO-LEAK	2
6	710821	PLUG SAE -04 HOLLOW HEX	5
7	710822	FITTING RED/EXP -10 MORB / -4 FORB	2
8	710823	CART, LOGIC SPOOL N/C L/S	1
9	646209	CART, PROP 2W2P NC POPPET	3
10	710824	CART, PROP 2W2P NO POPPET	2
11	710825	CART, SOLENOID NO POPPET	1
12	710826	SUPER COIL 5/8 ID 12 VDC DEUTSCH	6
13	710827	CART, CHECK VALVE	3
14	710828	CART, SEQUENCE VALVE, EXT. PILOT	1
15	710829	CART, PO CHECK VALVE 65 PSI, 3:1	1
16	710830	CART, FLOW REGULATOR 1.50 GPM	1
17	710831	CART, PRESSURE RED/REL D.A.	1
18	710832	CART, 4W3P SOLENOID CLOSED CENTER	1
19	710833	SUPER COIL 1/2 ID 12 VDC DEUTSCH	2

ELECTRONICS ASSEMBLY

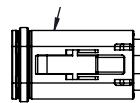
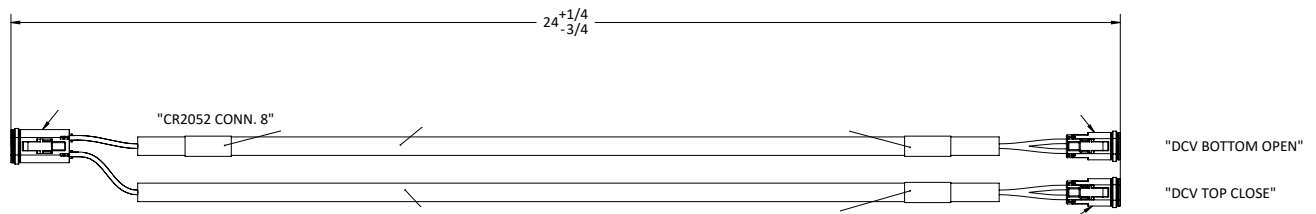
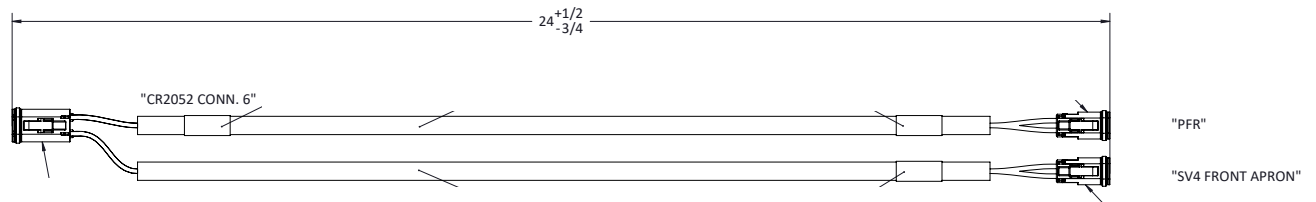
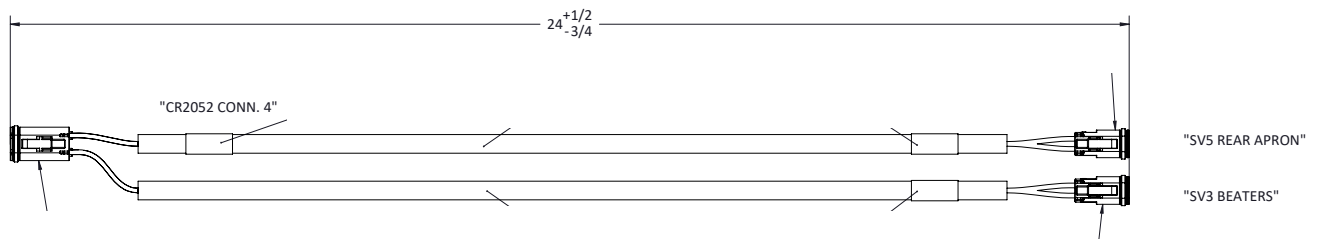
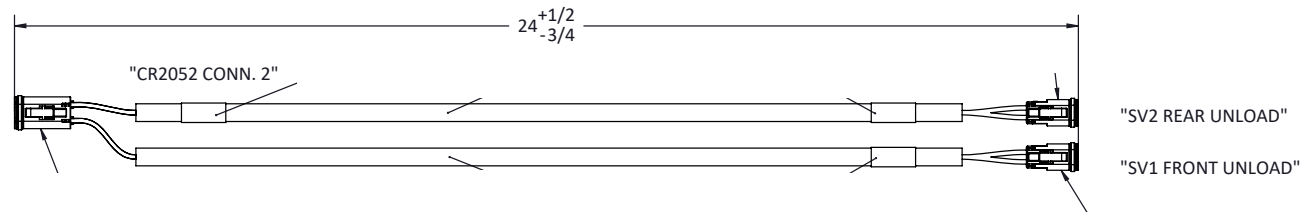


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	600020	BOLT, HFH 1/4-20 X 1.00"	22
2	600100	NUT, HFH NYLOC 1/4-20	22
3	642580	LIGHT, LED	1
4	642590	LIGHT, LED	1
5	710460	LIGHT BRACKET,	2
6	JPT1296	BRACKET, STORAGE HOLDER 7 POLE	1

ELECTRONICS DIAGRAM (INCAB COMBO/FRONT UNLOAD)



CONTROLLER HARNESS KIT

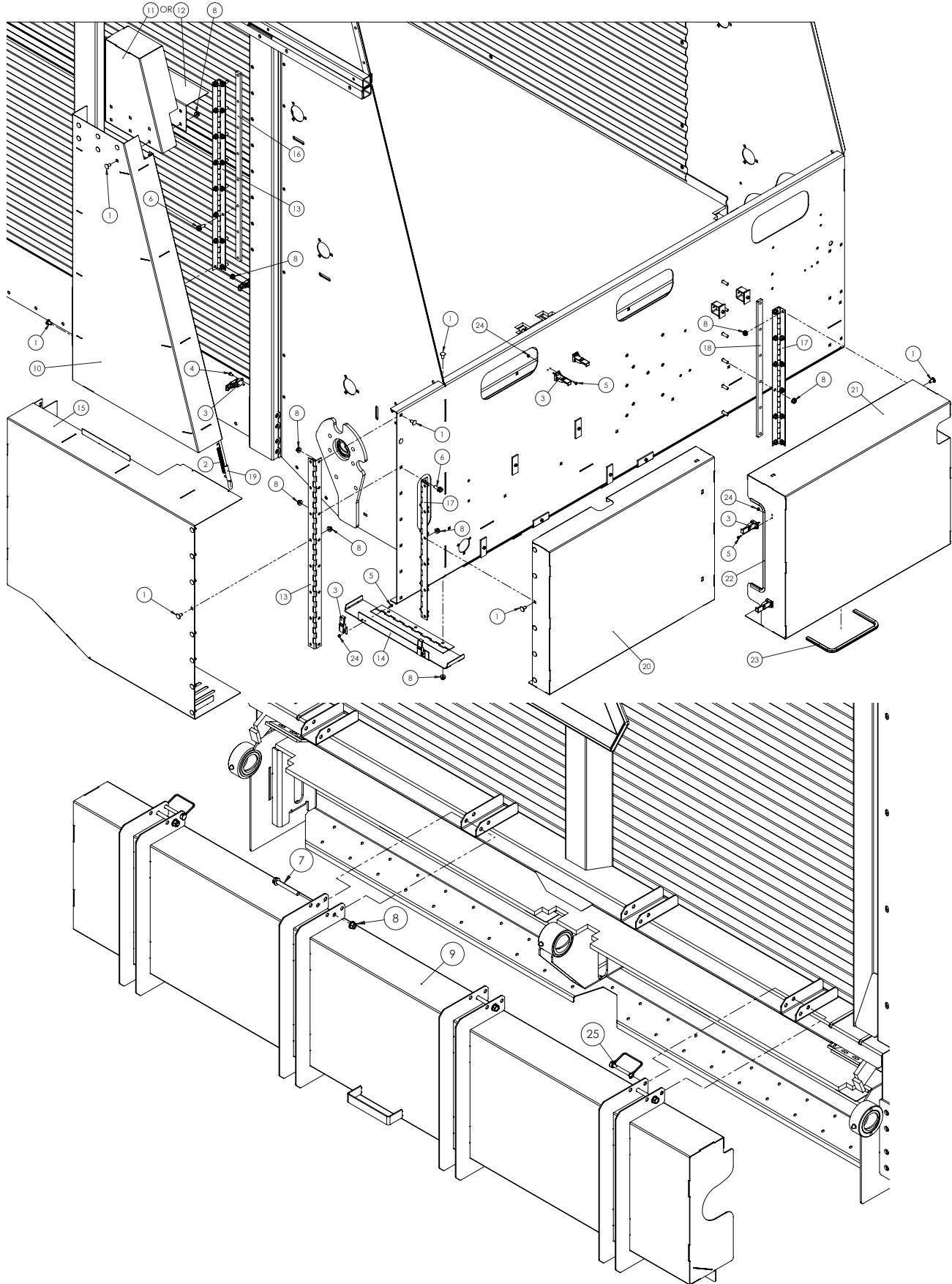


X6

**ELECTRONICS DIAGRAM (REAR UNLOAD)**



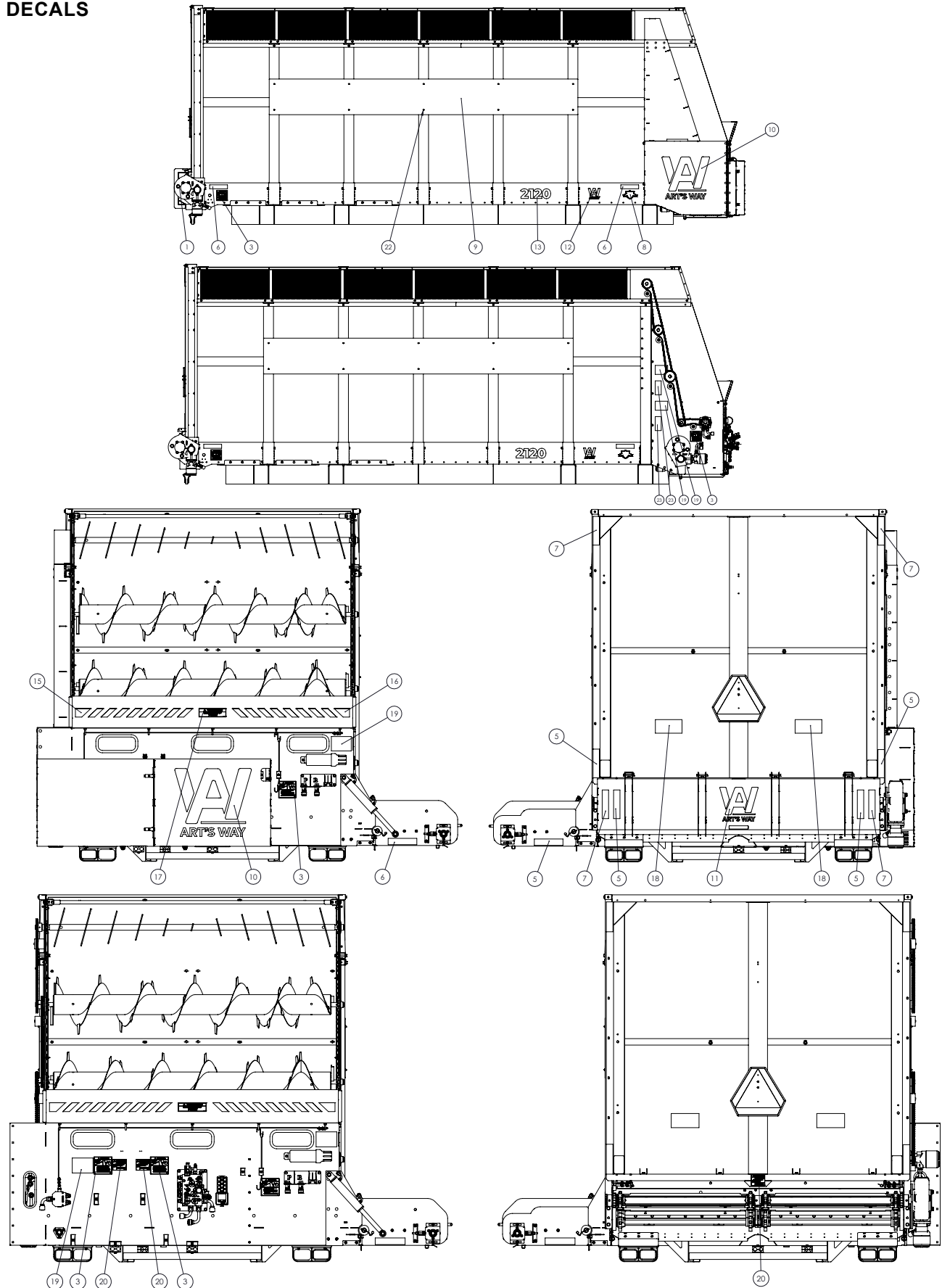
**SHIELDS ASSEMBLY**

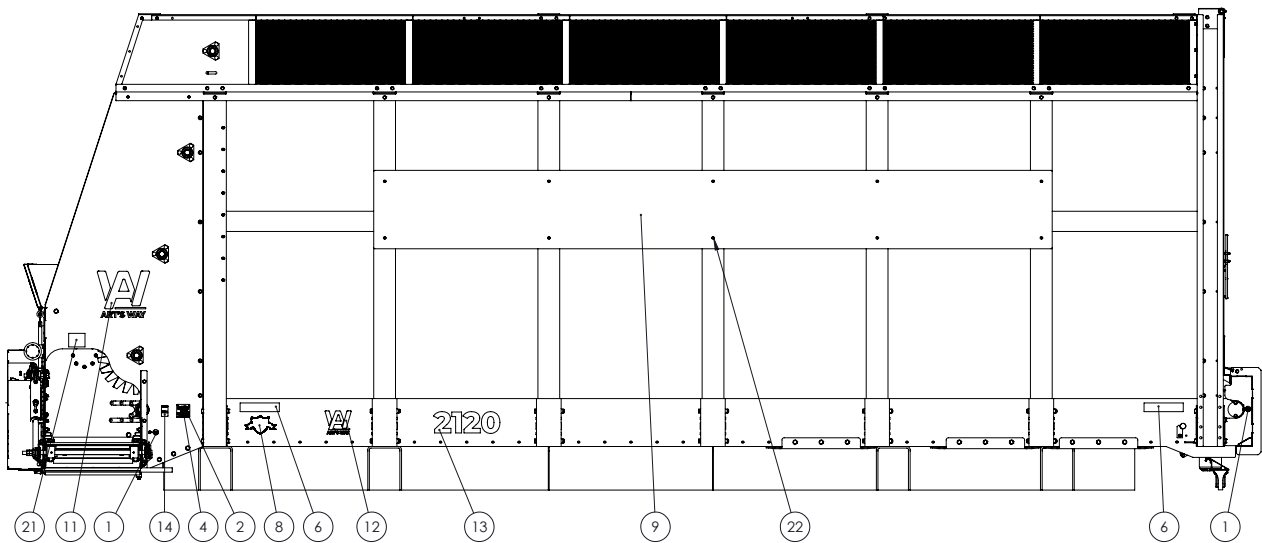




ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	032840	BOLT, CRG 3/8-16 X 3/4	39
2	100750	SPRING, EXTENSION	1
3	163400	LATCH, TENSION 17L	10
4	205940	SCREW, TEK 8-18 X 1/2 SELF DRILLING ZN	4
5	600015	BOLT, HFH #8-32 X 0.50"	16
6	600050	BOLT, HFH 3/8-16 X 1.00"	14
7	600080	BOLT, HFH 3/8-16	4
8	600120	NUT, HFH NYLOC 3/8-16	55
9	710450	REAR DRIVE SHIELD	1
10	710514	BEATER SHIELD	1
11	710520	4TH BEATER SHIELD WLDT	1
12	710523	BEATER SHIELD CAP	1
13	710524	SHIELD HINGE	2
14	710525	CLEAN OUT DOOR	1
15	710528	MAIN SHIELD WLDT	1
16	710533	HINGE SHIM	1
17	710543	SHIELD HINGE	2
18	710544	HINGE SHIM	1
19	710545	BEATER SHIELD PIN WLDT	1
20	710555	FRONT RIGHT SHIELD WLDT	1
21	710560	FRONT LEFT SHIELD WLDT	1
22	710586	SEAL, FRNT SHIELD CENTER	2
23	710588	SEAL, LH F SHIELD LOWER	1
24	710802	NUT, LOCK #8-32 NYLOCK	16
25	R18660	PIN, SNAPPER 5/16 X 2-3/4	2

DECALS





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	146670	DECAL, GREASE SYMBOL	3
2	204510	NAIL, 1/4 GRIP	4
3	346310	DECAL, WARNING HIGH PRESSURE	5
4	355600	TAG, SERIAL NUMBER	1
5	476450	TAPE, RED RETROREFLECTIVE	5
6	476460	TAPE, YELLOW RETROREFLECTIVE	5
7	476470	TAPE, RED-ORANGE FLORESCENT	4
8	608085	DECAL, MADE IN AMERICA	2
9	710480	NAME PLATE, 20'	2
10	720100	DECAL, NEW ARTS WAY LOGO	2
11	720110	DECAL, NEW ARTS WAY LOGO	2
12	720120	DECAL, NEW ARTS WAY LOGO	2
13	720500	DECAL, 2120 WHITE 5"	2
	720510	DECAL, 2118 WHITE 5"	
	720520	DECAL, 2116 WHITE 5"	
14	K18534203	DECAL, FEMA	1
15	MP01.77720	DECAL-SPILL PLATE RH	1
16	MP01.77730	DECAL-SPILL PLATE LH	1
17	MP01.77740	DECAL, WARNING	1
18	MP16.10552	DECAL, DANGER	2
19	MP16.20178	DECAL, WARNING	4
20	MP16.20179	DECAL, WARNING	5
21	MP16.20181	DECAL, WARNING	1
22	MP907120	SCREW, TEK 1/4"	20
23	NH9611750	DECAL, WARNING	2





**NOTES:**



---

**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.

Manuals are also available at [www.artsway-ag.com](http://www.artsway-ag.com) free to download for your convenience.

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

Art's-Way Manufacturing 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.

Except as expressly authorized, no part of this manual may be reproduced, copied, transmitted, or disseminated, in any storage medium, for any purpose without the express prior written consent of Art's-Way Manufacturing Co., Inc.

**ART'S-WAY MANUFACTURING CO., INC.**

**5556 HWY 9 WEST**

**Armstrong, IA. 50514 U.S.A.**

**[WWW.ARTSWAY-AG.COM](http://WWW.ARTSWAY-AG.COM)**