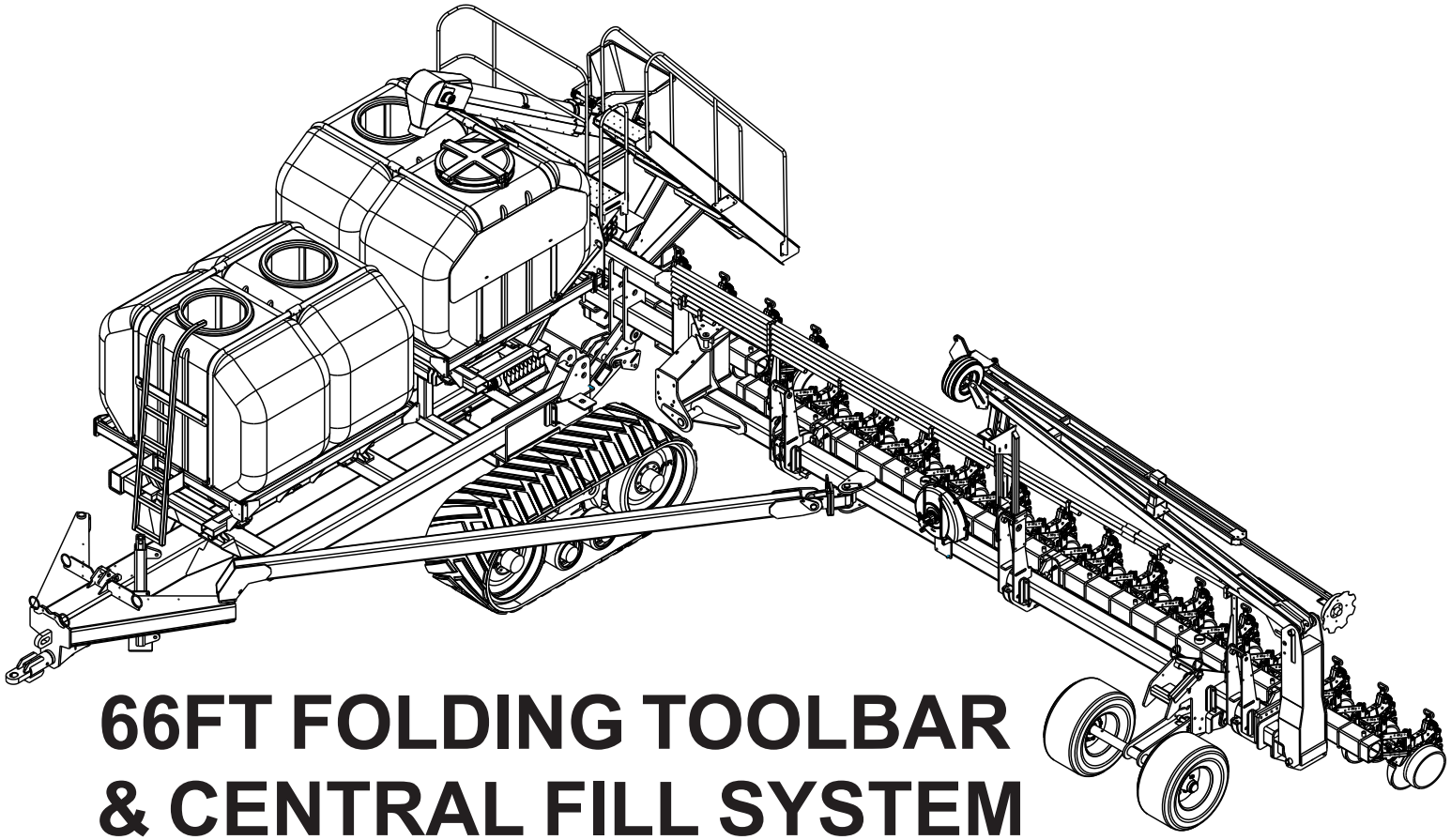
ASSEMBLY OPERATOR'S MANUAL



66FT FOLDING TOOLBAR & CENTRAL FILL SYSTEM 36 ROW 22” PRECISION PLANTING

WIL-RICH
PO Box 1030
Wahpeton, ND 58074
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www.wil-rich.com

Printed in USA (74366) 11/18

AGCO-Amity JV LLC LIMITED WARRANTY TERMS AND CONDITIONS – UNITED STATES AND CANADA

EFFECTIVE FOR EQUIPMENT RETAILED AND DELIVERED AFTER JANUARY 1, 2018

WHAT IS WARRANTED AGCO Amity JV warrants its new equipment to be free of defects in material and workmanship at time of delivery to the first retail purchaser, renter, or lessee. These terms apply to all Wishek, Wil-Rich, and Amity brands of new equipment originally marketed in the United States and Canada.

WARRANTY PERIOD

- 12 Months from the date of delivery to the first retail purchaser, renter or lessee.
- Field Cultivator and Disk Cultivators: 3 years on main frames, wing frames, and shank assemblies
- Precision Shank Drill: 3 years on main frame, wing frame, and rockshafts.

EXCEPTIONS FROM THIS WARRANTY

- Freight Charges - This warranty does not cover freight charges.
- Improvements, Changes, or Discontinuance AGCO Amity JV reserves the right to make changes and improvements in design or changes in specifications at any time to any product without incurring any obligations to owners of products previously sold.
- Repairs and Maintenance Not Covered Under Warranty - This warranty does not cover conditions resulting from misuse, natural calamities, use of non-AGCO-Amity JV parts, negligence, alteration, accident, use of unapproved attachments, usage which is contrary to the intended purposes, or conditions caused by failure to perform required maintenance. Replacement of Wear or Maintenance items (unless defective) such as but not limited to, filters, hoses, belts, lubricants, light bulbs, wheel alignment, tightening of nuts, belts, bolts, and fittings, service tune-up, computer parameter adjustments and general adjustments which may from time to time be required are not covered.
- Rubber Tire Warranty - Rubber tires are warranted directly by the respective manufacturer only and not by AGCO Amity JV.
- Satellite Outages - Interruptions in satellite interfaces and satellite communications are outside the control of this product and are not covered by this warranty. The company is not responsible for issues or degradation of system performance resulting from such interruptions in satellite interfaces and satellite communications where the issues are not related to defects in this product.

OWNER'S OBLIGATION

It is the responsibility of the Owner to transport the equipment or parts to the service shop of an authorized AGCO Amity JV Dealer or alternatively to reimburse the Dealer for any travel or transportation expense involved in fulfilling this warranty. This Warranty does NOT cover rental of replacement equipment during the repair period, damage to products which have been declared a total loss and subsequently salvaged, overtime labor charges, freight charges for replacement parts, or special handling requirements (such as, but not limited to, the use of cranes).

EXCLUSIVE EFFECT OF WARRANTY AND LIMITATION OF LIABILITY

THIS WARRANTY IS IN LIEU OF ALL WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PURPOSE OR OTHER REPRESENTATIONS, WARRANTIES OR CONDITIONS, EXPRESSED OR IMPLIED. The remedies of the Owner set forth herein are exclusive. The Company neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with the sale of covered machines. Correction of defects, in the manner and for applicable period of time provided above, shall constitute fulfillment of all responsibilities of AGCO Amity JV to the Owner, and AGCO Amity JV shall not be liable for negligence under contract or in any manner with respect to such machines. IN NO EVENT SHALL THE OWNER BE ENTITLED TO RECOVER FOR INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES SUCH AS BUT NOT LIMITED TO, LOSS OF CROPS, LOSS OF PROFITS OR REVENUE, OTHER COMMERCIAL LOSSES, INCONVENIENCE OR COST OF RENTAL OR REPLACEMENT EQUIPMENT.

Some States or Provinces do not permit limitations or exclusions of implied warranties or incidental or consequential damages, so the limitations or exclusions in this warranty may not apply.

"AGCO Amity JV" AS REFERRED TO HEREIN WITH RESPECT TO SALES IN: UNITED STATES and CANADA: AGCO Amity JV LLC
PO Box 1030
Wahpeton, ND 58074

Additional Warranty Information

New Equipment Warranty - Equipment is eligible for warranty service only if it qualifies under the provisions of the New Equipment Warranty. The selling dealer will deliver this Warranty to the original retail purchaser at the time of sale, and the dealer will register the sale and Warranty with AGCO Amity JV LLC.

Subsequent Owners - This Warranty covers the first retail purchaser and all subsequent owners of the equipment during the specified warranty period. Should the AGCO Amity JV Dealer sell this equipment to a subsequent owner, the Dealer must deliver the warranty document to the subsequent owner so the subsequent owner can register ownership with AGCO Amity JV and obtain the remaining warranty benefits, if available, with no intermission in the Warranty Period. Subsequent Owner Procedure will apply. It is the responsibility of the subsequent owner to transport the equipment to the service shop of an authorized AGCO Amity JV Dealer or alternatively to reimburse the Dealer for any travel or transportation expense involved in fulfilling this warranty. This Warranty does NOT cover charges for rental or replacement equipment during the repair period, products which have been declared a total loss and subsequently salvaged, overtime labor charges, freight charges for replacement parts, or units sold at auction.

Warranty Service - To be covered by Warranty, service must be performed by an authorized AGCO Amity JV Dealer. It is recommended that you obtain warranty service from the Dealer who sold you the equipment because of that Dealer's continued interest in you as a valued customer. In the event this is not possible, warranty service may be performed by any other authorized AGCO Amity JV Dealers in the United States or Canada. It is the responsibility of the Owner to transport the equipment to the service shop of an authorized AGCO Amity JV Dealer or alternatively to reimburse the Dealer for any travel or transportation expense involved in fulfilling this warranty.

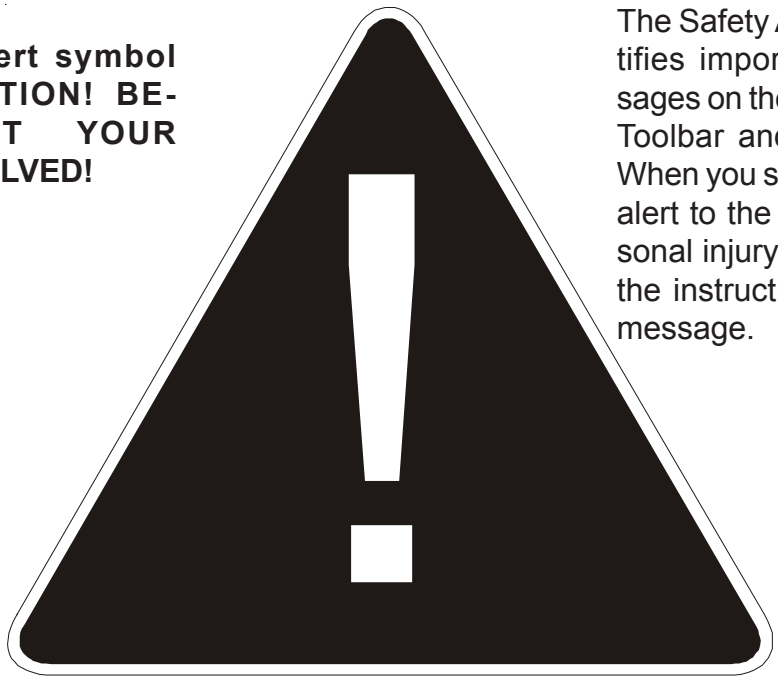
Maintenance Service - The Owner's Manual furnished to you with the equipment at the time of delivery contains important maintenance and service information. You must read the manual carefully and follow all the maintenance and service recommendations. Doing so will result in greater satisfaction with your equipment and help avoid service and warranty problems. Please remember that failures due to improper maintenance of your equipment are not covered by warranty.

Maintenance Inspections - To insure the continued best performance from your agricultural equipment, we recommend that you arrange to make your equipment available to your selling Dealer for a maintenance inspection 30 days prior to warranty expiration.

PERSONAL SAFETY IS IMPORTANT!

ALL PERSONNEL INVOLVED WITH THE ASSEMBLY AND/OR OPERATION OF THIS EQUIPMENT MUST BE INFORMED OF PROPER SAFETY PROCEDURES. OPERATOR'S/ ASSEMBLY MANUALS PROVIDE THE NECESSARY INFORMATION. IF THE MANUAL IS LOST FOR A PARTICULAR IMPLEMENT, ORDER A REPLACEMENT AT ONCE. OPERATOR'S AND ASSEMBLY MANUALS ARE AVAILABLE AT NO CHARGE UPON REQUEST.

This Safety Alert symbol means ATTENTION! BECOME ALERT YOUR SAFETY IS INVOLVED!



The Safety Alert symbol identifies important safety messages on the Wil-Rich Folding Toolbar and in this manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to you?

3 Big Reasons

Accidents Disable and Kill
Accidents Cost
Accidents Can Be Avoided

SIGNAL WORDS:

Note the use of the signal words **DANGER, WARNING** and **CAUTION** with the safety messages. The appropriate signal word for each message has been selected using the following guidelines:

DANGER

An immediate and specific hazard which WILL result in severe personal injury or death if the proper precautions are not taken.

WARNING

A specific hazard or unsafe practice which COULD result in severe personal injury or death if the proper precautions are not taken

CAUTION

Unsafe practices which COULD result in personal injury if proper practices are not taken, or as a reminder of good safety practices.

ADDRESS INQUIRIES TO: AGCO AMITY JV LLC
2800 7th Avenue North
Fargo, ND 58102
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Large Frame Folding Toolbar

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1.1 Introduction

1.1.1 Safety alert symbol

The safety alert symbol means Attention! Become Alert! Your Safety Is Involved!

Look for the safety alert symbol both in this manual and on safety signs on this machine. The safety alert symbol will direct your attention to information that involves your safety and the safety of others.



Fig. 1

1.1.2 Safety messages

The words DANGER, WARNING or CAUTION are used with the safety alert symbol. Learn to recognize these safety alerts and follow the recommended precautions and safety practices.



DANGER:
Indicates an imminently hazardous situation that, if not avoided, will result in DEATH OR VERY SERIOUS INJURY.



WARNING:
Indicates a potentially hazardous situation that, if not avoided, could result in DEATH OR SERIOUS INJURY.



CAUTION:
Indicates a potentially hazardous situation that, if not avoided, may result in MINOR INJURY.



Fig. 2

1.1.3 Informational messages

The words important and note are not related to personal safety, but are used to give additional information and tips for operating or servicing this equipment.

IMPORTANT: *Identifies special instructions or procedures which, if not strictly observed, could result in damage to or destruction of the machine, process, or its surroundings*

NOTE: *Identifies points of particular interest for more efficient and convenient repair or operation.*

1.1.4 Safety signs



WARNING:
Do not remove or obscure safety signs. Replace any safety signs that are not readable or are missing. Replacement signs are available from your dealer in the event of loss or damage. The actual location of the safety signs is illustrated at the end of this section.

Keep signs clean by wiping off regularly. Use a mild soap and water solution if necessary.

If parts have been replaced or a used machine has been purchased, make sure all safety signs are present and in the correct location and can be read. Illustrations of safety sign locations are located at the rear of this section.

Replace any safety signs that can not be read, are damaged, or are missing. Clean the machine surface thoroughly with a mild soap and water solution before replacing signs. Replacement safety signs are available from your dealer.

1.1.5 A word to the operator

It is your responsibility to read and understand the safety section in this manual and the manual for all attachments before operating this machine. Remember you are the key to safety. Good safety practices not only protect you, but also the people around you.

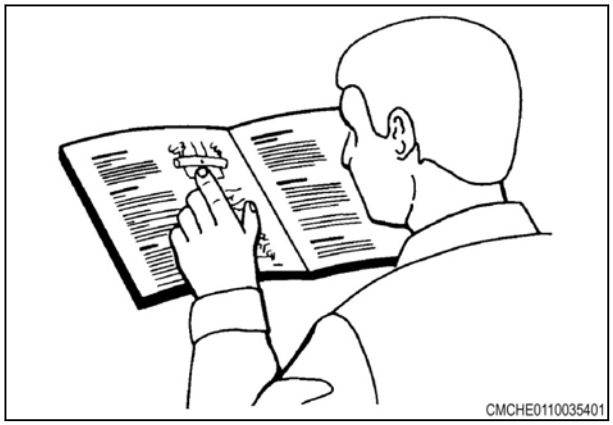


Fig. 3

Study the content in this manual and make the content a working part of your safety program. Keep in mind that this safety section is written only for this type of machine. Practice all other usual and customary safe working precautions, and above all remember - safety is your responsibility. You can prevent serious injury or death.

This safety section is intended to point out some of the basic safety situations that may be encountered during the normal operation and maintenance of your machine. This section also suggests possible ways of dealing with these situations. This section is not a replacement for other safety practices featured in other sections of this manual.

Personal injury or death may result if these precautions are not followed.

Learn how to operate the machine and how to use the controls properly.

Do not let anyone operate the machine without instruction and training.

For your personal safety and the personal safety of others, follow all safety precautions and instructions found in the manuals and on safety signs affixed to the machine and all attachments.

Use only approved attachments and equipment.

Make sure your machine has the correct equipment needed by the local regulations.

WARNING:
An operator should not use alcohol or drugs which can affect their alertness or coordination. An operator on prescription or 'over the counter' drugs needs medical advice on whether or not they can properly operate machines.



CAUTION:
If any attachments used on this equipment have a separate Operator Manual, see that manual for other important safety information.

1.1.6 This manual

This manual covers general safety practices for this machine. The operator manual must always be kept with the machine.

Right-hand and left-hand, as used in this manual, are determined by facing the direction the machine will travel when in use.

The photos, illustrations, and data used in this manual were current at the time of printing, but due to possible in-line production changes, your machine can vary slightly in detail. The manufacturer reserves the right to redesign and change the machine as necessary without notification.



WARNING:
In some of the illustrations and photos used in this manual, shields or guards may have been removed for clarity. Never operate the machine with any shields or guards removed. If the removal of shields or guards is necessary to make a repair, they must be replaced before operation.

1.2 Operation

1.2.1 Prepare for operation

Read and understand all operating instructions and precautions in this manual before operating or servicing the machine.

Make sure you know and understand the positions and operations of all controls. Make certain all controls are in neutral and the park brake is applied before starting the machine.

Make certain all people are well away from your area of work before starting and operating the machine. Check and learn all controls in an area clear of people and obstacles before starting your work. Be aware of the machine size and have enough space available to allow for operation. Never operate the machine at high speeds in crowded places.

Emphasize the importance of using correct procedures when working around and operating the machine. Do not let children or unqualified persons operate the machine. Keep others, especially children, away from your area of work. Do not permit others to ride on the machine.

Make sure the machine is in the proper operating condition as stated in the Operator Manual. Make sure the machine has the correct equipment required by local regulations.

1.2.2 General information

When parking, park the machine and the tractor on a solid level surface. put all controls in neutral and apply the tractor park brake. Stop the tractor engine and take the key with you.

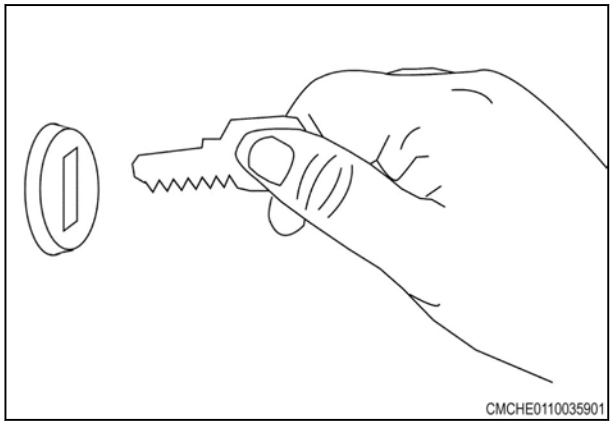


Fig. 4

Make sure the tractor and implement are in the proper operating condition according to the operator manuals. Make sure the tractor brakes and the machine brakes are adjusted correctly.

The tractor must have enough weight and braking capacity, especially when operating on roads and terrain that is not even. Use a tractor of recommended size and weight to tow the machine. See the machine specifications for the minimum tractor size and weight.

Tractor must be equipped with rollover protective structure (ROPS) and a seat belt. use seat belt during operation.

Do not dismount from moving machinery.

Always operate the machine with the terminal turned on.

Never start the tractor with the PTO engaged or terminal turned on.

Stay off slopes too steep for operation.

Where possible avoid operating the machine near ditches, embankments, and holes. Reduce ground speed when operating on rough, slippery, or muddy surfaces and when turning or crossing slopes.

Be aware of the size of the machine and have enough space available to allow for operation.

Always lower the machine when not in use and relieve the pressure in the hoses and cylinders.

Do not stand between the tractor and the implement to install the hitch pin when the tractor engine is running.

Avoid contact with electrical power lines. Contact with electrical power lines can cause electrical shock, resulting in very serious injury or death.

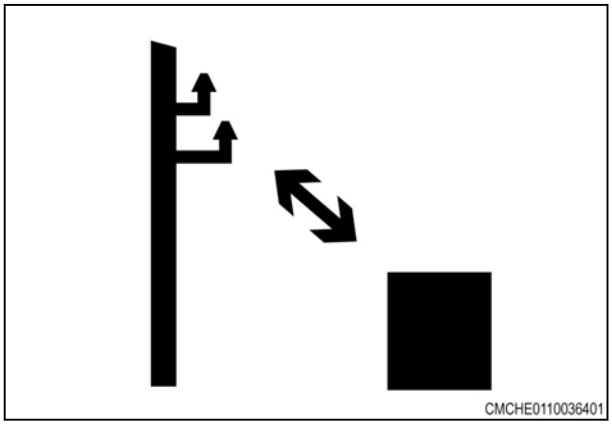


Fig. 5

1.2.3 Personal protective equipment

Wear all personal protective equipment (PPE) and protective clothing issued to you or called for by job conditions and country/local regulations. PPE includes, but is not limited to, equipment to protect eyes, lungs, ears, head, hands and feet when operating, servicing, or repairing equipment.

Always keep hands, feet, hair, and clothing away from moving parts. Do not wear loose clothing, jewelry, watches, or other items that could entangle in moving parts. Tie up long hair that can also entangle in moving parts.

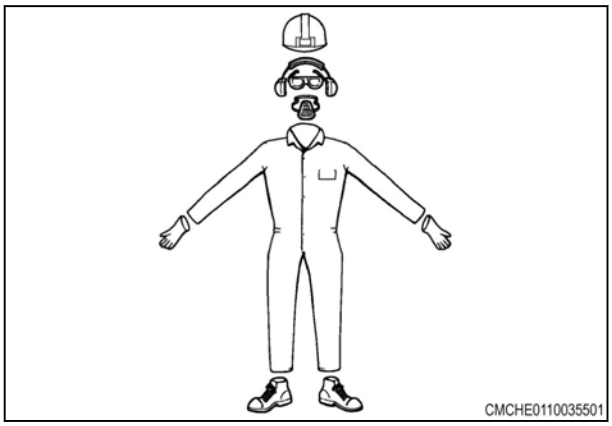


Fig. 6

1.2.4 Seat instructions

Securely fasten the seat belt before operating the machine. Always remain seated and have the seat belt fastened while operating the machine. Replace the seat belts when they become worn or broken.

Never wear a seat belt loosely or with slack in the belt system. Never wear the seat belt in a twisted condition or pinched between the seat structural members.

When using the instructional seat, if equipped, securely fasten the seat belt. The instructional seat is to be used only to train new operators or diagnose a problem. The instructional seat is only intended for short periods of use. Extra riders, especially children, are not permitted on the machine.

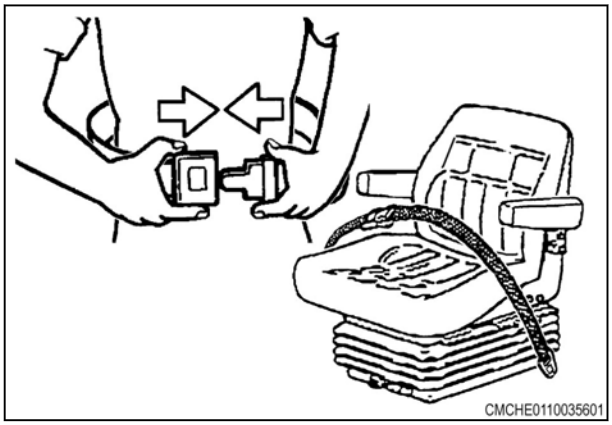


Fig. 7

When the instructional seat is used the machine must be driven at a slower speed and on level ground. Avoid quick starts, stops, and sharp turns. Avoid driving on highways or public roads.

1.2.5 Shield and guards

All shields and guards must be in the correct operating position and in good condition.

Do not open, remove, or reach around shields while the engine is operating. Entanglement in rotating belts and components can cause serious injury or death. Stay clear of rotating components.



Fig. 8

Do not operate the machine with the drive shaft shields open or removed. Entanglement in rotating drive shafts can cause serious injury or death. Stay clear of rotating components.

Make sure rotating guards turn freely.



Fig. 9

1.2.6 Exhaust warning

Never operate the engine in a closed building unless the exhaust is vented outside.

Do not tamper with or modify the exhaust system with unapproved extensions.

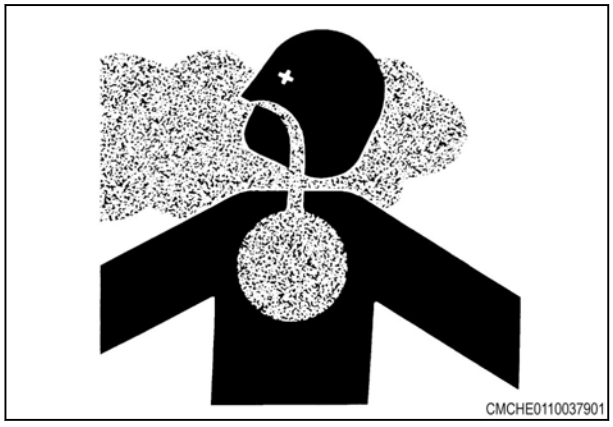


Fig. 10

1.2.7 Flying debris

WARNING:
Be careful when operating along the side of a road or building. Rocks or other debris can be thrown from the machine during operation possibly resulting in injury.

Never stand near the machine during operation. Debris can be thrown from the machine during operation possibly resulting in injury.



Fig. 11

1.2.8 Agricultural chemicals

Agricultural chemicals can be very hazardous. Improper use of fertilizer, fungicides, herbicides, insecticides and pesticides can injure people, plants, animals, soil and other people's property.

Always read and follow all manufacturers' instructions before opening any chemical container.

Even if you think you know the instructions, read and follow instructions each time you use a chemical.

Use the same precautions when adjusting, servicing, cleaning or storing the machine as used when installing chemicals into the hoppers or tanks.

Inform anyone who comes in contact with chemicals of the potential hazards involved and the safety precautions required.

Stand upwind and away from smoke from a chemical fire.

Store or dispose of all unused chemicals only in a manner as specified by the chemical manufacturer.

1.3 Travel on public roads

Make sure you understand the speed, brakes, steering, stability, and load characteristics of this machine before you travel on public roads.

Use good judgment when traveling on public roads. Maintain complete control of the machine at all times. Never coast down hills.

The maximum speed of farm equipment is governed by local regulations. Adjust travel speed to maintain control at all times.

Familiarize yourself with and obey all road regulations that apply to your machine. Consult your local law enforcement agency for local regulations regarding movement of farm equipment on public roads. Use head lamps, flashing warning lamps, tail lamps and turn signals, day and night, unless prohibited by local law.

Make sure all the flashers are operating prior to driving on the road. Make sure reflectors are correctly installed, in good condition, and wiped clean. Make sure the Slow Moving Vehicle (SMV) emblem is clean, visible, and correctly mounted on the rear of the machine.

Lock brake pedals together (if equipped with dual brake pedals) so both wheel brakes will be applied at the same time.

Raise implements to transport position and lock in place. Place all implements into narrowest transport configuration.

Disengage the power take-off and differential lock.

With towed implements, use a proper hitch pin with a clip retainer and safety transport chain.

Be aware of other traffic on the road. Keep well over to your own side of the road and pull over, whenever possible, to let faster traffic pass.

Be aware of the overall width, length, height, and weight of the machine. Be careful when transporting the machine on narrow roads and across narrow bridges.

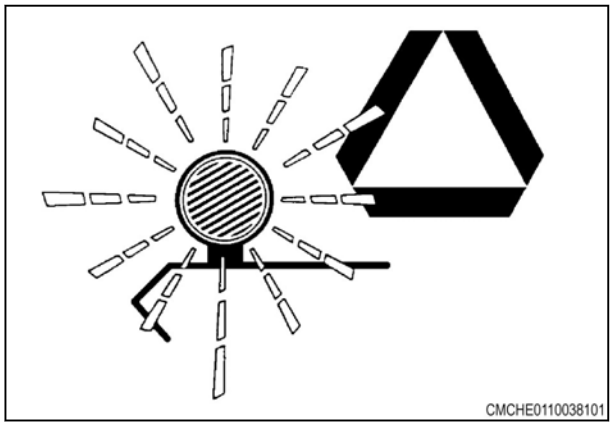


Fig. 12

Watch for overhead wires and other obstructions. Avoid contact with electrical power lines. Contact with electrical power lines can cause electrical shock, resulting in very serious injury or death.

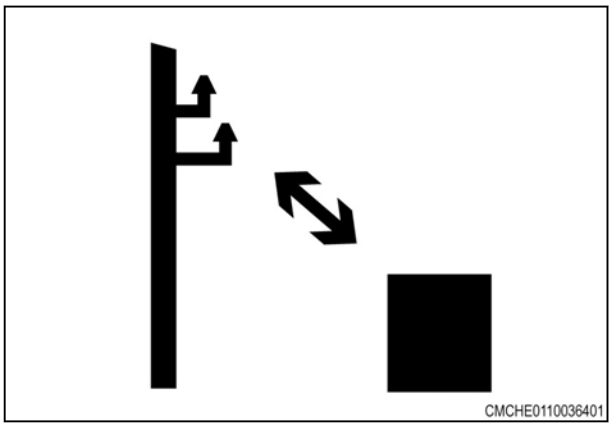


Fig. 13

1.4 Maintenance

1.4.1 General maintenance information

Before doing any unplugging, lubricating, servicing, cleaning, or adjusting:

- Park the machine on a solid level surface.
- Make sure all controls are in the neutral position and apply the park brake.
- Make sure all implements and attachments have been lowered to the ground.
- Stop the engine and take the key with you.
- Look and Listen! Make sure all moving parts have stopped.
- Put blocks in front of and behind the wheels of the machine before working on or under the machine.

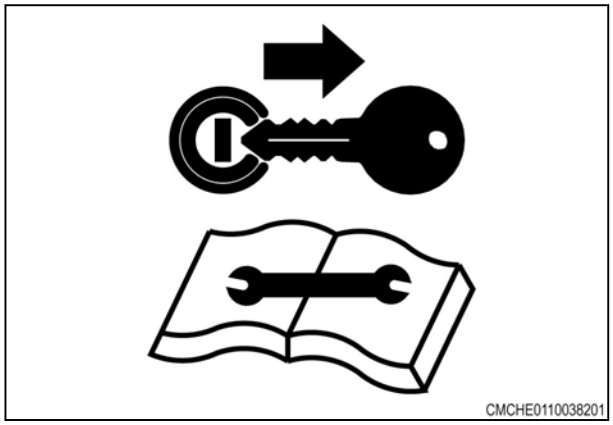


Fig. 14

Do not leave the tractor or implement unattended with the engine running.

Do not pull crop or any other object from the machine while the machine engine is running. Moving parts can pull you in faster than you can move away.

Check all nuts and bolts periodically for tightness, especially wheel mounting hardware.

Do not attempt to service or adjust the machine until all moving parts have stopped.

Check all nuts and bolts periodically for tightness, especially wheel mounting hardware.

Be aware of the size of parts when doing service work. Never stand under or near a part being moved with lifting equipment.

After unplugging, lubricating, servicing, cleaning, or adjusting the machine make sure all tools and equipment have been removed.

Make sure electrical connectors are clean and free of dirt or grease before connecting.

Check for loose, broken, missing, or damaged parts. Make sure the machine is in good repair. Make sure all guards and shields are in position.

Always raise implement, shut off tractor engine, apply the parking brake, shift to park position (or neutral) remove the key and install the cylinder stops channels before working around the machine.

Avoid working under the machine. However, if it becomes unavoidable to do so, make sure the machine is securely blocked and the cylinder lockup channels are in position.

When working around discs or shanks, be careful to not get cut on sharp edges.

Never service, check or adjust drive chains or belts while the engine is running.



Fig. 15

Do not operate the machine with the drive shaft shields open or removed. Entanglement in rotating drive shafts can cause serious injury or death.

Stay clear of rotating components.

Make sure rotating guards turn freely.

A loose yoke can slip off a shaft and result in injury to persons or damage to the machine.

When installing a quick disconnect yoke, the spring activated locking pins must slide freely and be seated in the groove on the shaft. Pull on the driveline to make sure the quick disconnect yoke can not be pulled off the shaft.

Remove spilled oil, antifreeze or fuel immediately from the steps, platform, and other access areas.

Keep all access areas clean and free of obstructions.



Fig. 16



Fig. 17

1.4.2 Fire prevention and first aid

Be prepared for emergencies.

Keep a first aid kit handy for treatment of minor cuts and scratches.

Always carry one or more fire extinguishers of the correct type. Check fire extinguishers regularly as instructed by the manufacturer. Make sure fire extinguishers are properly charged and in operating condition.

Due to the nature of the crops this machine will operate in, the risk of fire is of concern. Use a water type fire extinguisher or other water source for a fire in crop.

For fires involving anything other than crop, such as oil or electrical components, use a dry chemical fire extinguisher with an ABC rating.

Mount fire extinguishers within easy reach of where fires can occur.

Frequently remove accumulated crop material from the machine and check for overheated components. Check the machine daily for any noises that are not normal. Such noises could indicate a failed component that can cause excess heat.

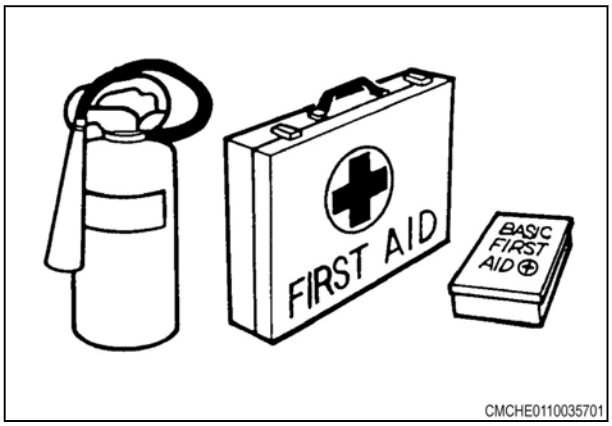


Fig. 18

If any flame cutting, welding, or arc welding is to be done on the machine or attachments, make sure to clear any crop material or debris from around the area. Make sure the area below the work area is clear of any flammable material as falling molten metal or sparks can ignite the material.

If fire occurs stand upwind and away from smoke from the fire.



Fig. 19

1.4.3 High pressure leaks

Fluid leaking from the hydraulic system or the fuel injection system under high pressure can be very hard to see. The fluid can go into the skin causing serious injury.

Fluid injected into the skin must be surgically removed within a few hours. If not removed immediately, serious infection or reaction can develop. Go immediately to a doctor who knows about this type of injury.

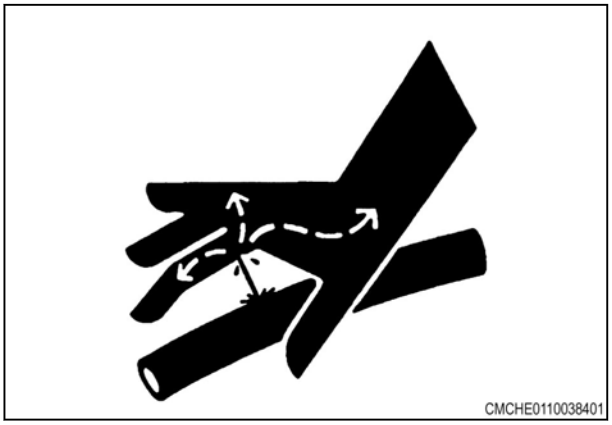


Fig. 20

Use a piece of cardboard or wood to search for possible leaks. Do not use your bare hand. Wear leather gloves for hand protection and safety goggles for eye protection.

Relieve all pressure before loosening any hydraulic lines. Relieve the pressure by lowering raised equipment, shutting off accumulator valve, if equipped, and shutting off the engine. Tighten all connections securely before applying pressure.

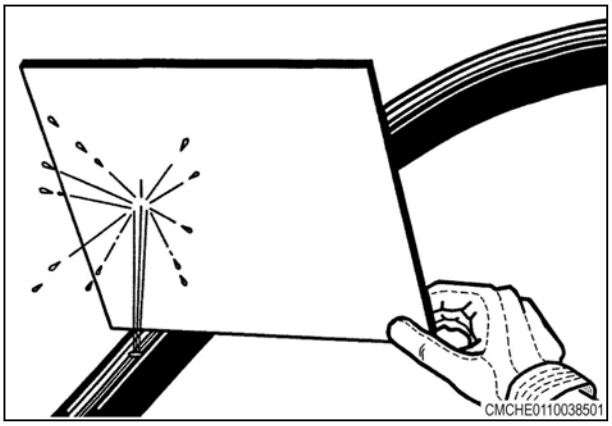


Fig. 21

1.4.4 Tire safety

Check tires for cuts, bulges, and correct pressure. Replace worn or damaged tires. When tire service is needed, have a qualified tire mechanic service the tire. Tire changing can be very hazardous and must be done by qualified tire mechanic using proper tools and equipment. See the Specifications Section for the correct tire size.

Tire explosion and/or serious injury can result from over inflation. Do not exceed the tire inflation pressures. See the Specifications Section for the correct tire pressure.

Do not inflate a tire that is seriously under inflated or has been run flat. Have the tire checked by qualified tire mechanic.

Do not weld on the rim when a tire is installed. Welding will make an air/gas mixture that can cause an explosion and burn with high temperatures. This danger applies to all tires, inflated or deflated. Removing air or breaking the bead is not enough. The tire must be completely removed from the rim prior to welding.

When preparing a calcium chloride solution for fluid ballast the tractor tires, never pour water onto the calcium chloride. A chlorine gas can be generated which is poisonous and explosive. This can be avoided by slowly adding calcium chloride flakes to water and stirring until they are dissolved.

When seating tire beads onto rims, never exceed 2.4 bar (35 psi) or the maximum inflation pressure specified on the tire. Inflation beyond this maximum pressure may break the bead, or even the rim, with explosive force.



Fig. 22

1.4.5 Replacement parts

Where replacement parts are necessary for periodic maintenance and servicing, genuine replacement parts must be used to restore your equipment to original specifications.

The manufacturer will not accept responsibility for installation of unapproved parts and/or accessories and damages as a result of their usage.

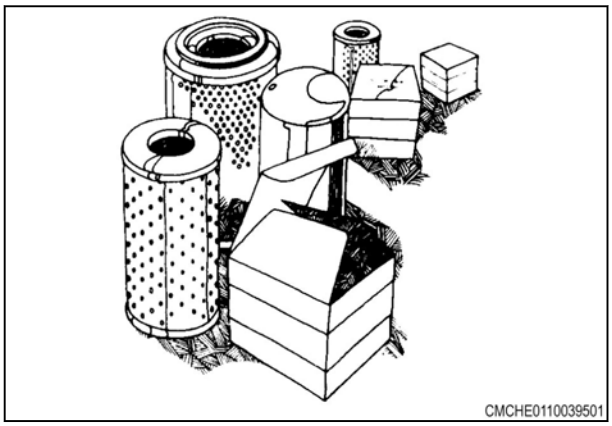
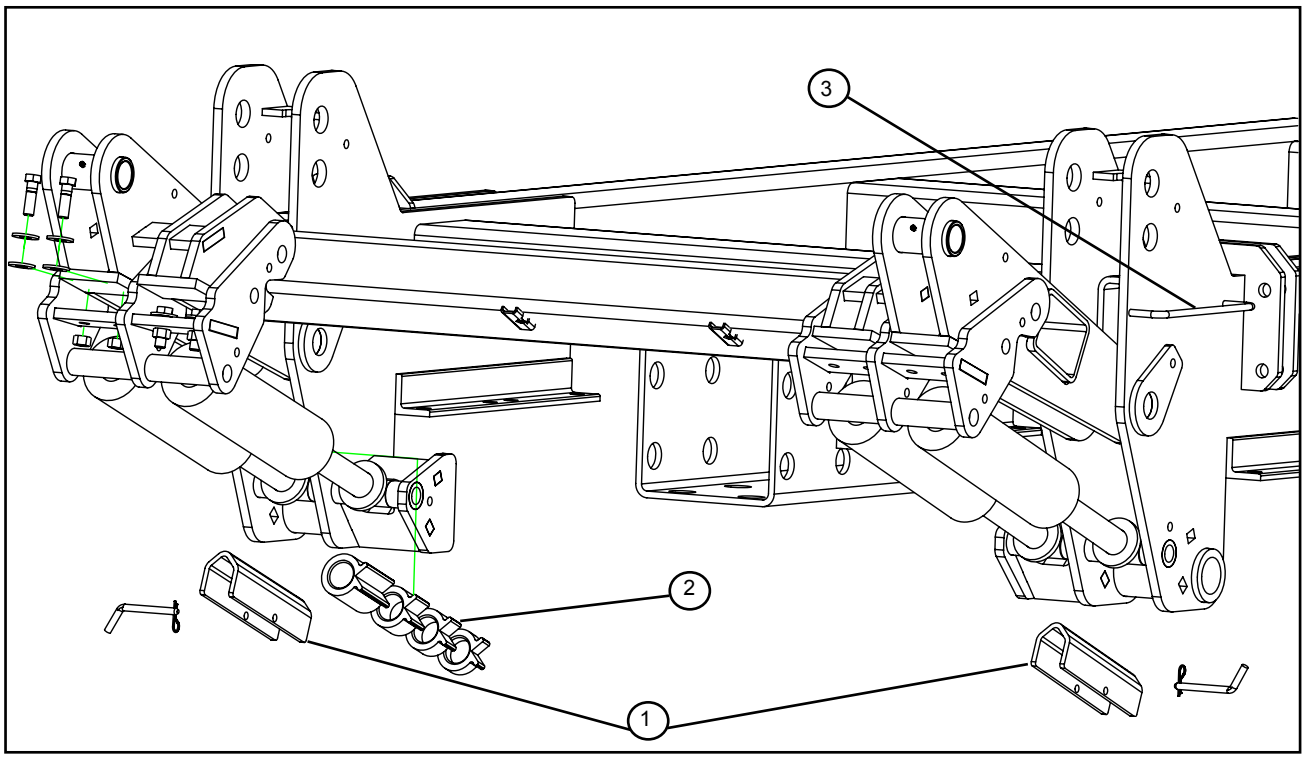


Fig. 23

1.5 Transport locks

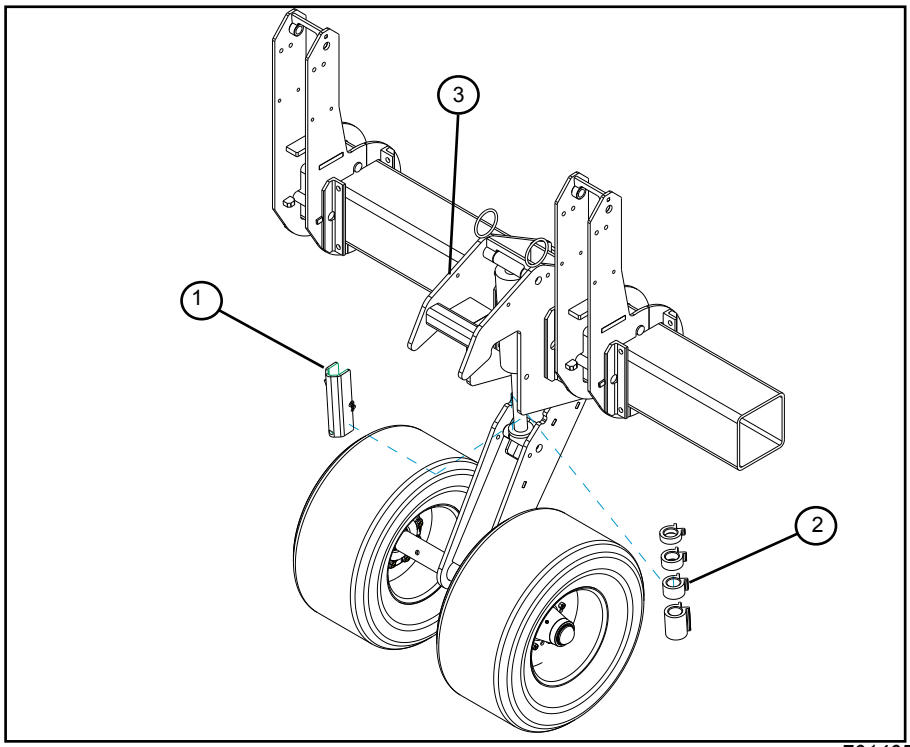
The machine is equipped with transport locks and depth stop collars. Remove the transport locks (1) and depth stop collars (2) before moving the machine on roads. When not in use, keep the transport locks and depth stop collars in the storage position (3). Install transport locks when machine is completely unfolded before doing any maintenance or service work.

CENTER SECTION



700187

WING SECTION



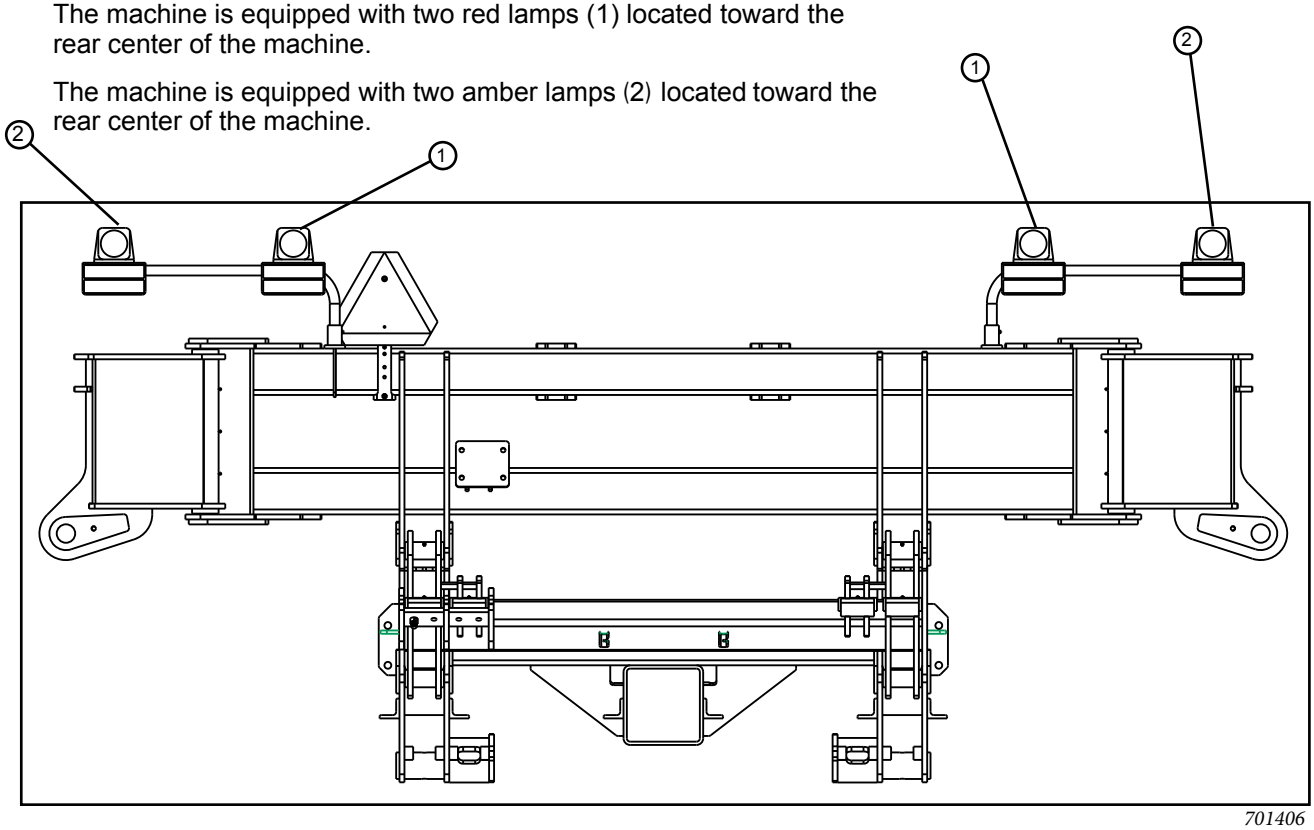
701405

1.6 Marker lamps

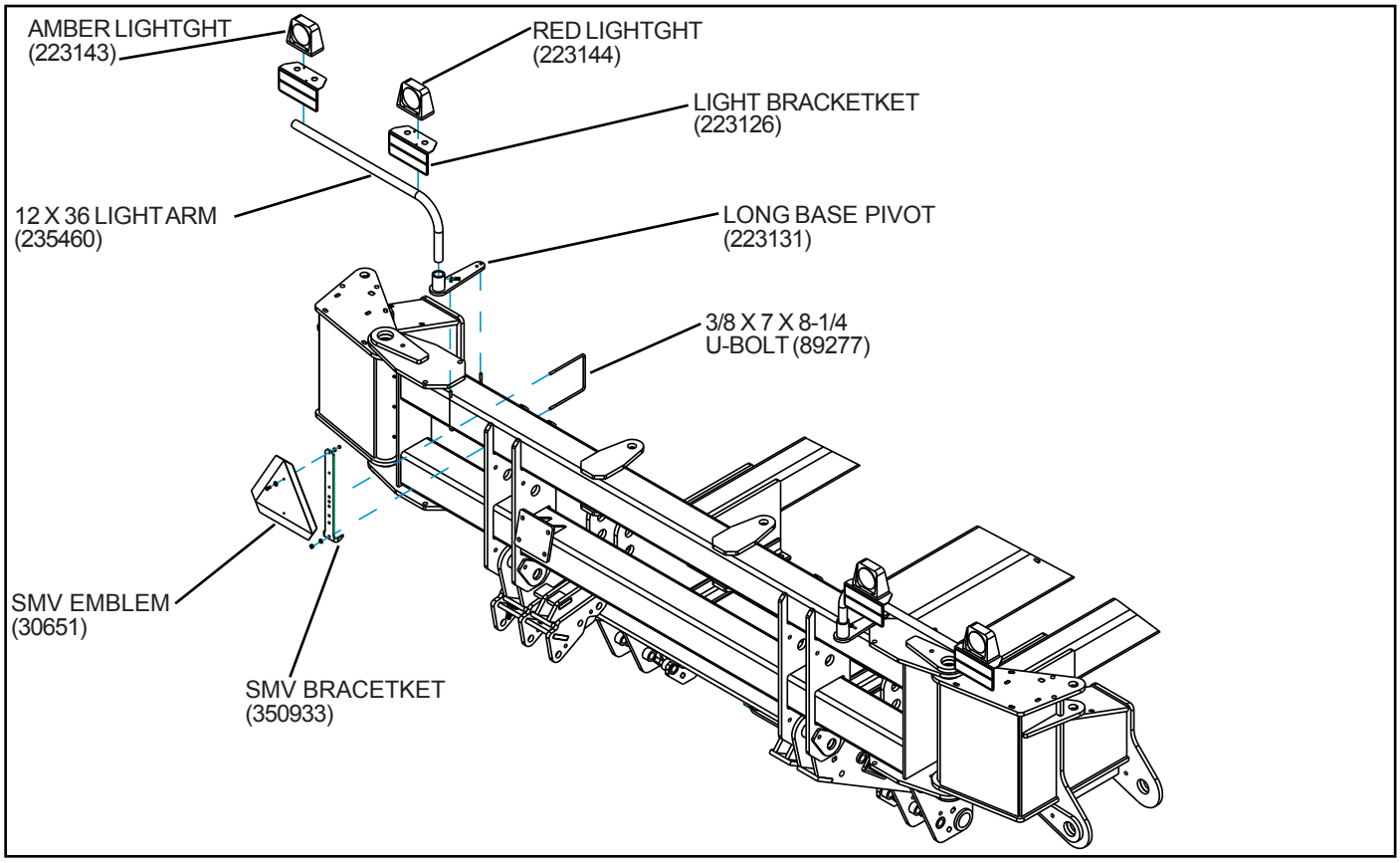
The machine has marker lamps that must be used when moving the machine in the folded position on roads.

The machine is equipped with two red lamps (1) located toward the rear center of the machine.

The machine is equipped with two amber lamps (2) located toward the rear center of the machine.

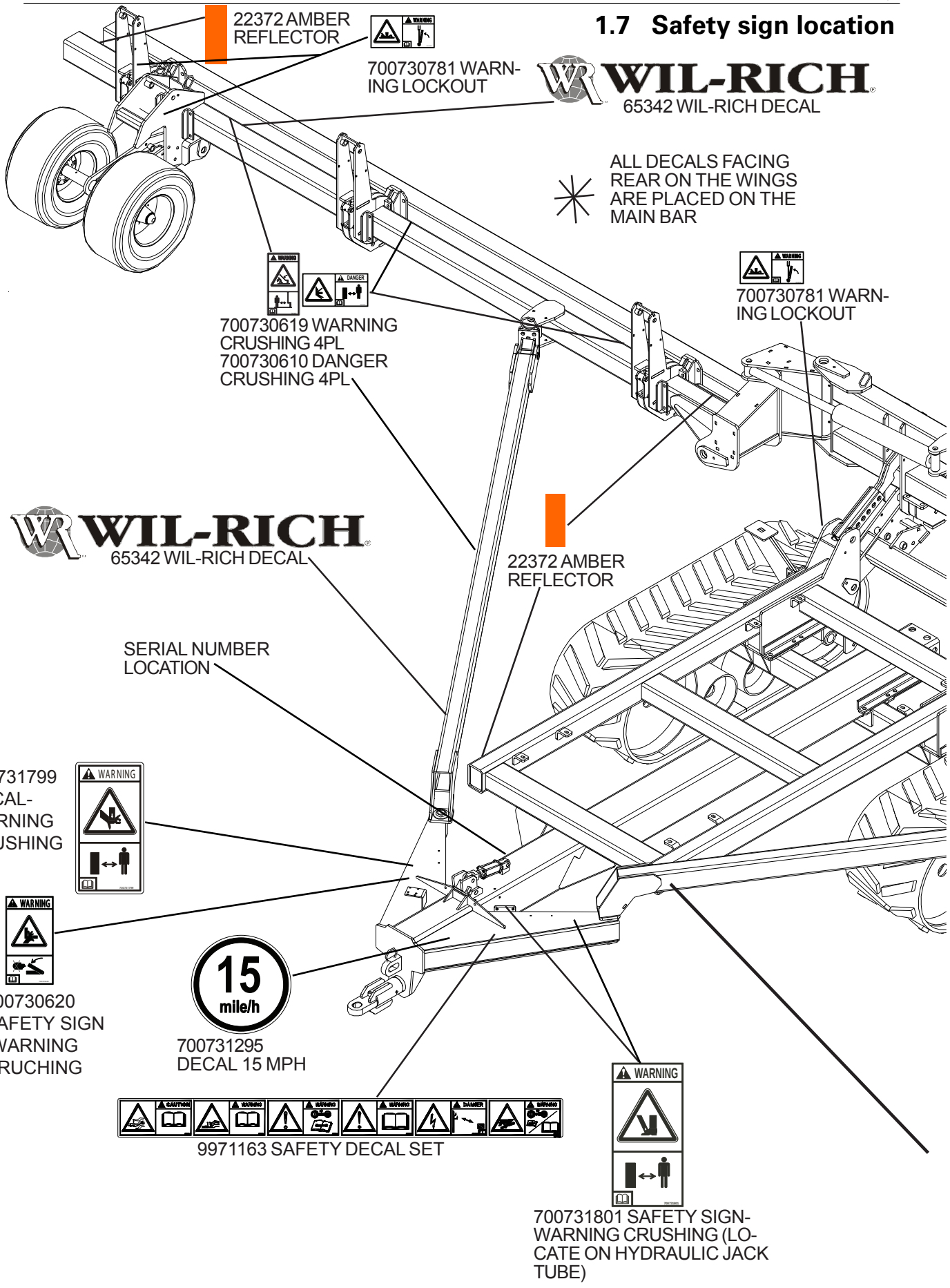


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1.7 Safety sign location



1.7 Safety sign location

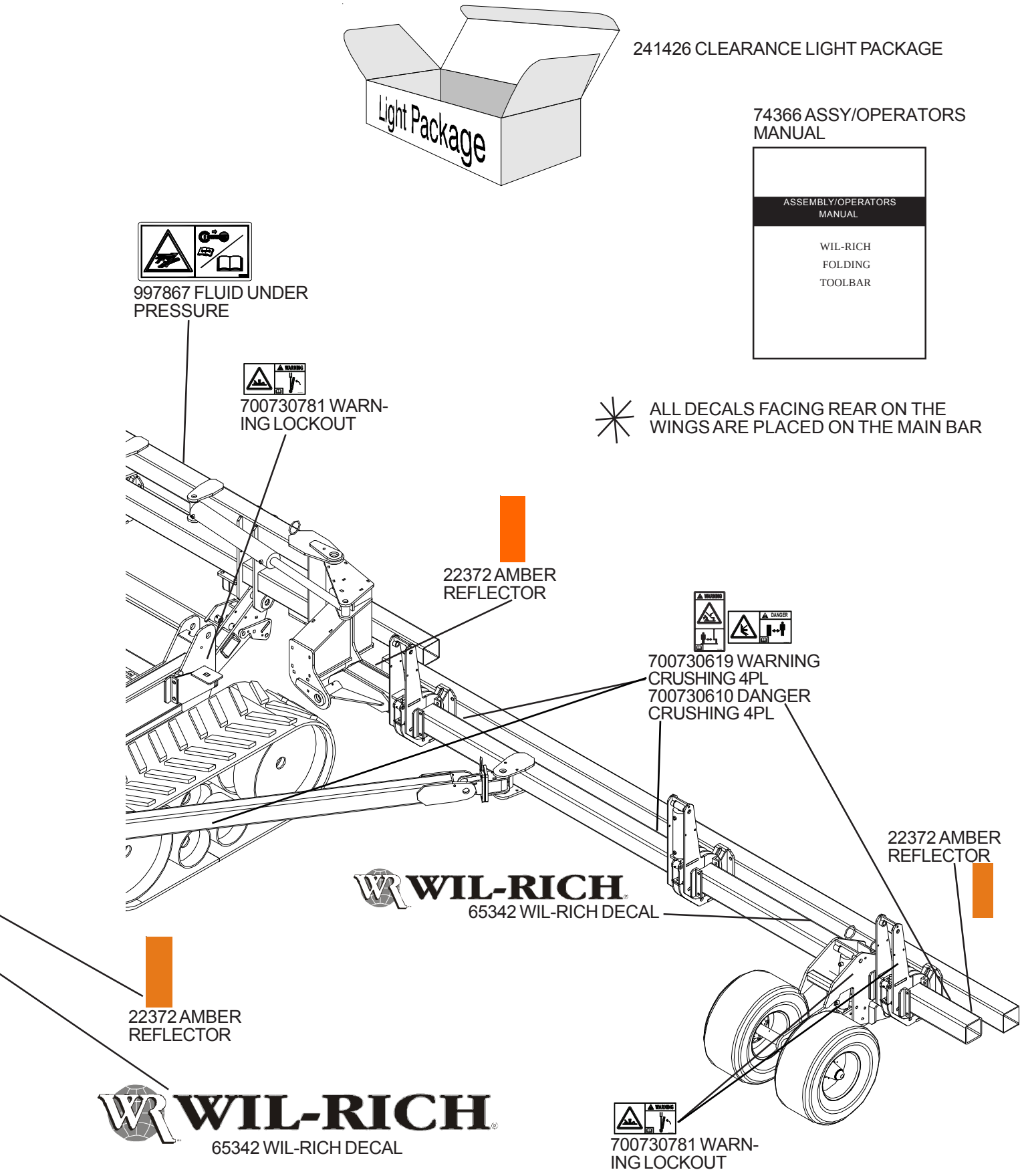


FIG. 1: Rear of the frame (1) and (2)

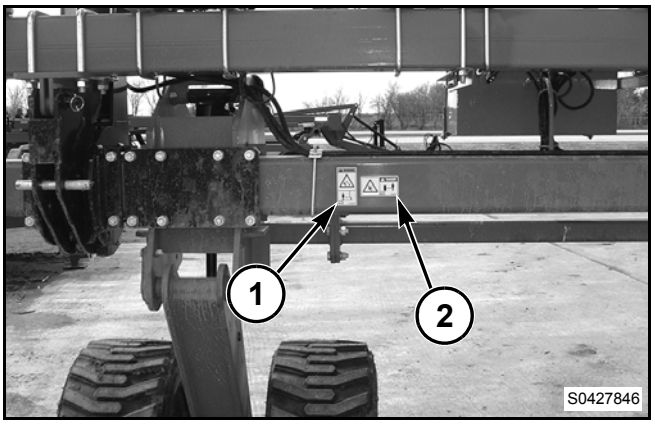


FIG. 1

FIG. 2: Warning sign (1)

Hazard (A) - Crushing hazard - row marker drop.

Avoidance (B) - Stay clear of area around row marker when engine is running.

700730619

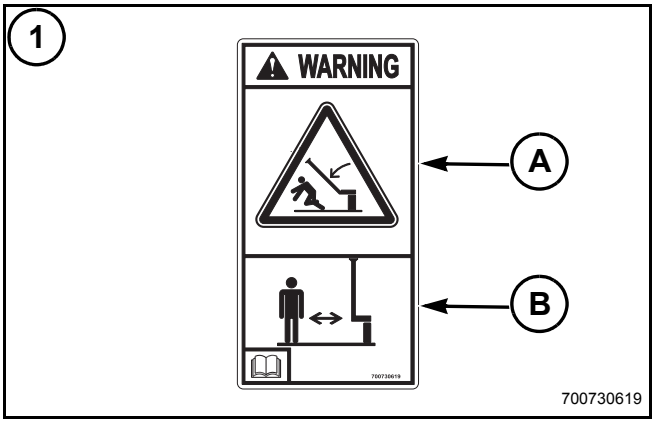


FIG. 2

FIG. 3: Danger sign (2)

Hazard (A) - Crushing hazard - planter frame movement.

Avoidance (B) - Stay clear of this area while engine and machine are operating.

700730610

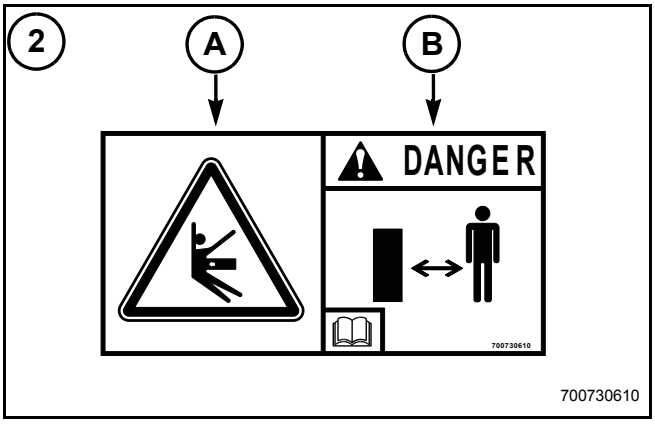


FIG. 3

FIG. 4: Wheel lift cylinder stops (1)

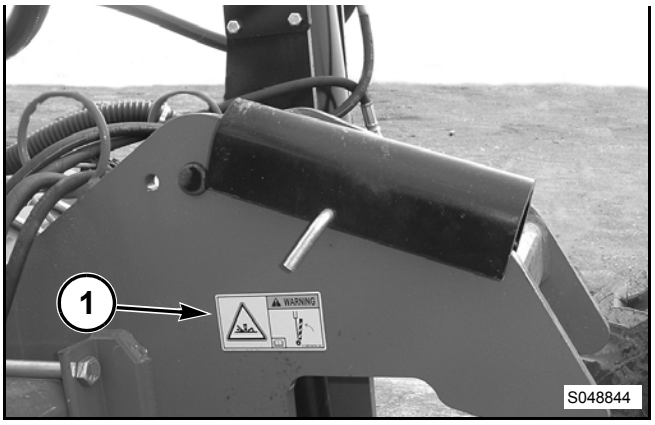


FIG. 4

FIG. 5: Warning sign (1)

Hazard (A) - Crushing hazard, planter frame drop.

Avoidance (B) - Install lift cylinder lockups before working on the machine.

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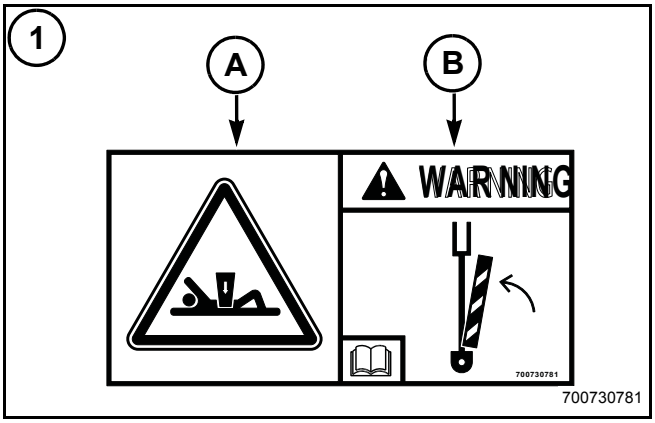


FIG. 5

FIG. 6: Side panel by the transport pad, both sides, Warning sign (1)

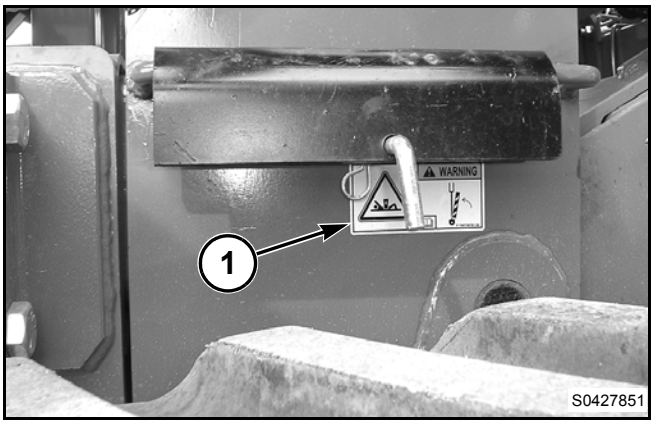


FIG. 6

FIG. 7: Warning sign (1)

Hazard (A) - Crushing hazard, planter frame drop.

Avoidance (B) - Install lift cylinder lockups before working on the machine.

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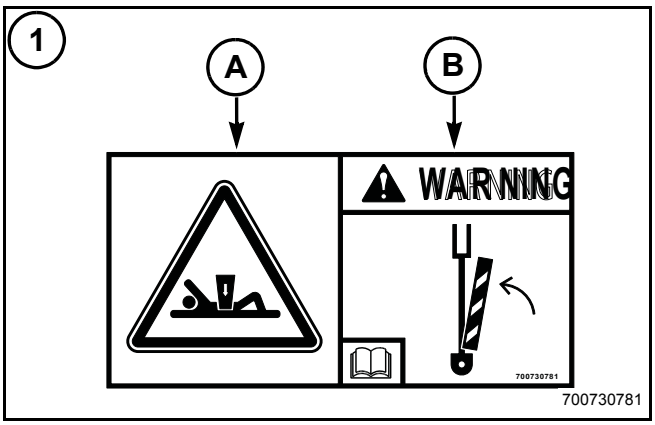


FIG. 7

FIG. 8: The back of the central fill hoppers, Warning sign (1)

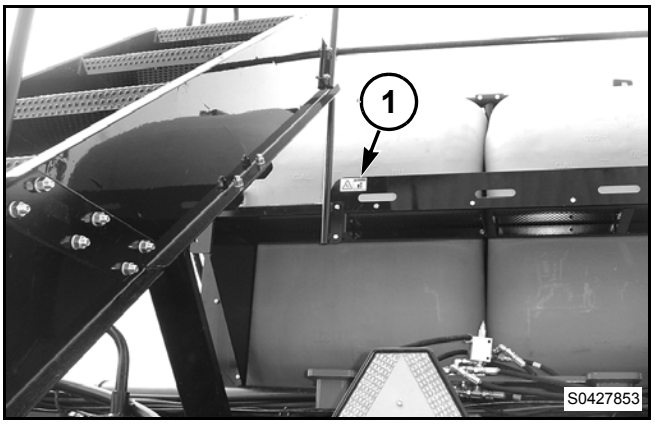


FIG. 8

FIG. 9: Warning sign (1)

Hazard (A) - Falling off hazard.

Avoidance (B) - Do not ride on the machine when it is operating or moving.

700731294

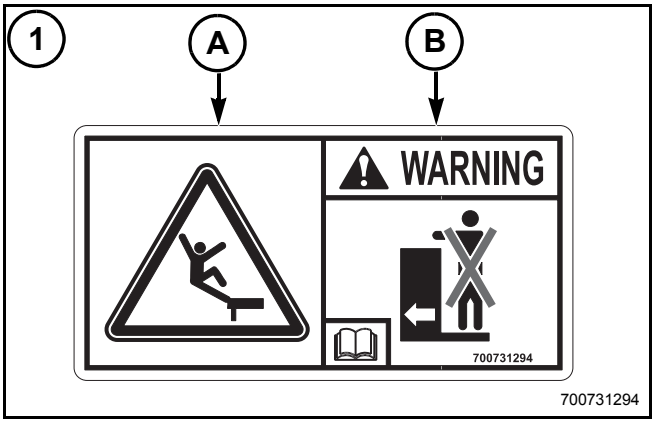


FIG. 9

FIG. 10: Top of the central fill hoppers, Warning sign (1)

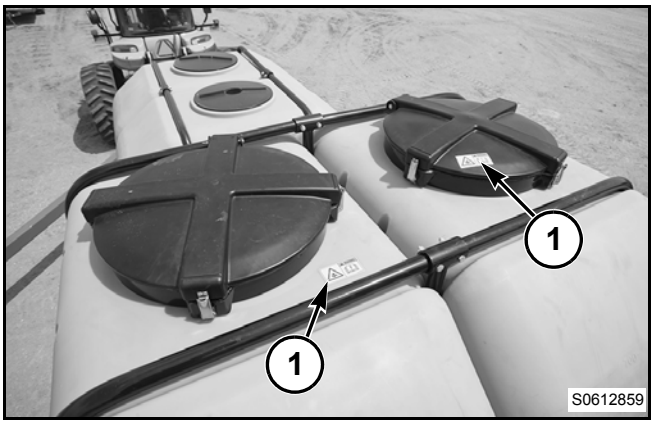


FIG. 10

FIG. 11: Warning sign (1)

Hazard (A) - Chemical injection hazard, lungs - opening the cover.

Avoidance (B) - Refer to the Operator's Manual and the chemical manufacturer's instructions.

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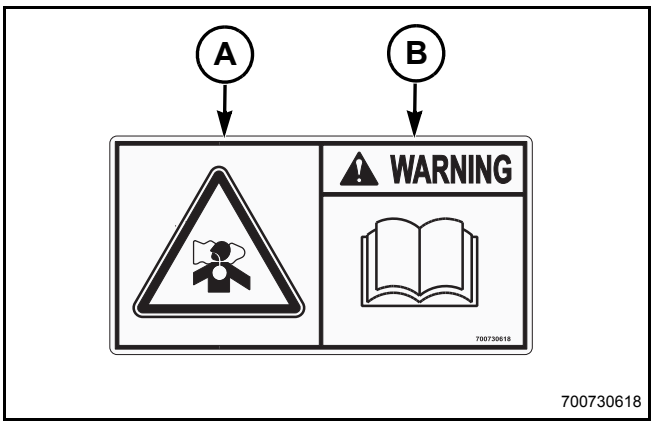


FIG. 11

1.7 Safety sign location



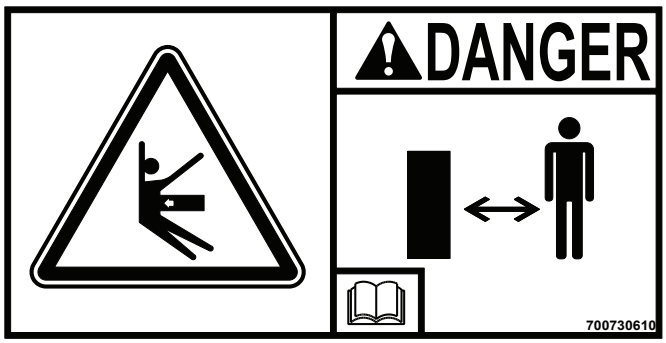
9971163 SAFETY DECAL SET

Warning/lockout

Hazard (A): Crushing hazard. Toolbar frame movement.

Avoidance (B): Stay clear of this area while engine and machine are operating. For service work, install the wing lock pins before getting under the wing.

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Warning/lockout

Hazard (A): Crushing hazard. Toolbar rotation - row unit.

Avoidance (B): Stay clear of this area while engine and machine are operating. For service work, install the wing lock pins before getting under the wing.

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(1) Danger/folding wings

Hazard (A): Overhead crushing hazard from lowering or falling wing.

Avoidance (B): Stay clear of this area while engine and machine are operating. For service work, install the wing lock pins before getting under the wing.

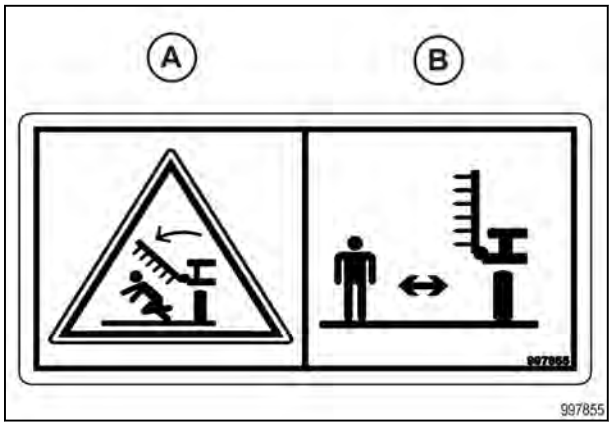


Fig. 27

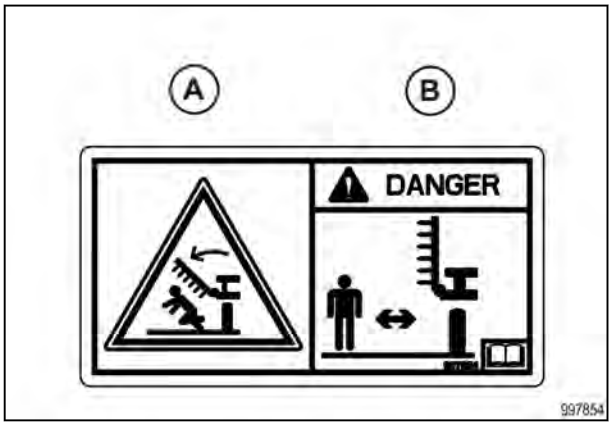


Fig. 27

(2) Warning/lockout

Hazard (A): Crushing hazard.

Avoidance (B): Stay clear of this area while engine and machine are operating. For service work, install the wing lock pins before getting under the wing.

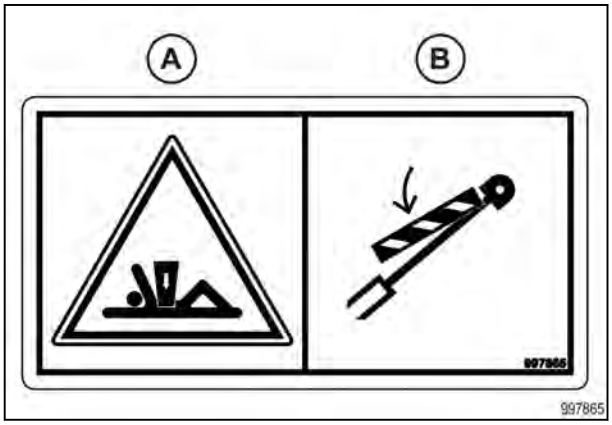


Fig. 28

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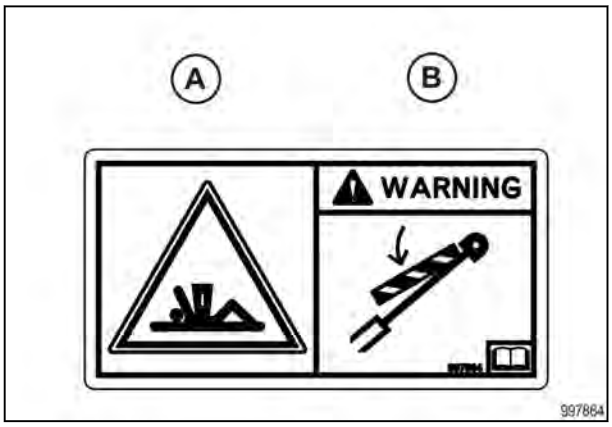


Fig. 28

(3) Caution/safety chains

Hazard (A): Loss of machine control.

Avoidance (B): Install the safety chains when connecting the machine to the tractor. Read the operators manual for safety information and the operating instruction before operating the machine.

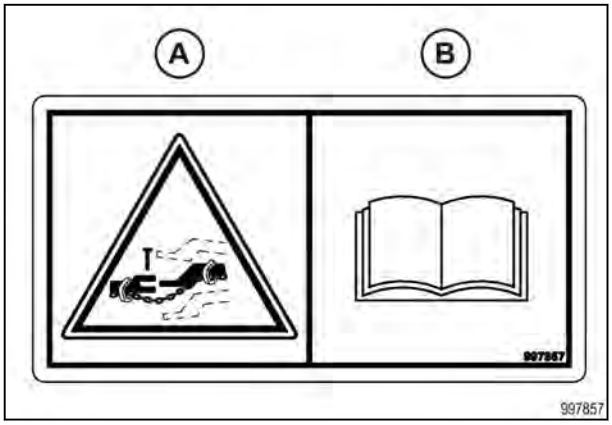


Fig. 29

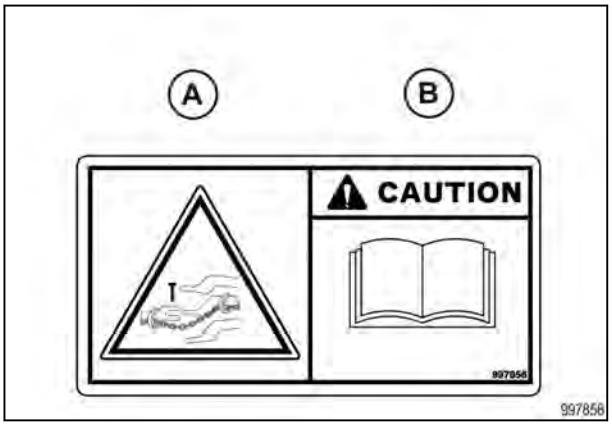


Fig. 29

(4) Warning/negative tongue weight

Hazard (A): Negative tongue weight will cause the tongue to rise immediately when disconnecting the machine.

Avoidance (B): Stay clear of the tongue when disconnecting the machine from the tractor. Read the operators manual for safety information and operating the instructions before operating the machine.

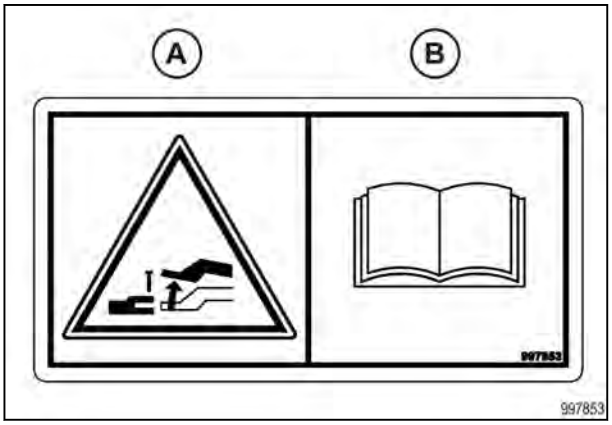


Fig. 30

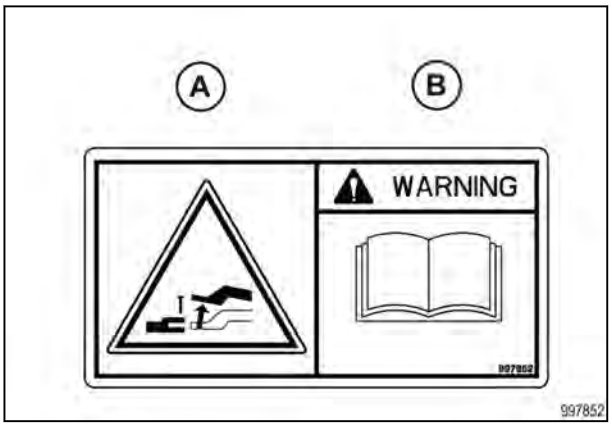


Fig. 30

(5) Warning/remove key

Hazard (A): General safety alert.

Avoidance (B): Turn off the machine and remove the key before maintenance or repair.

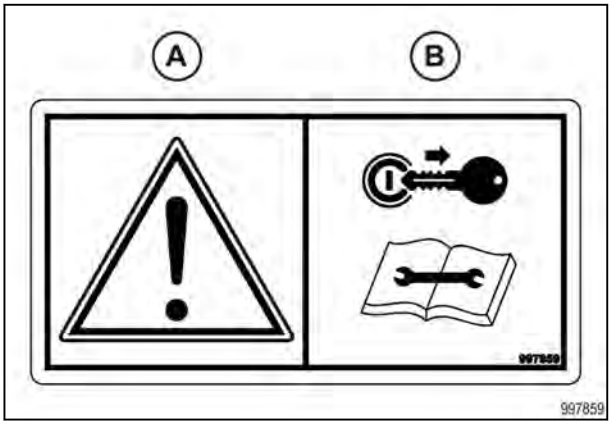


Fig. 31

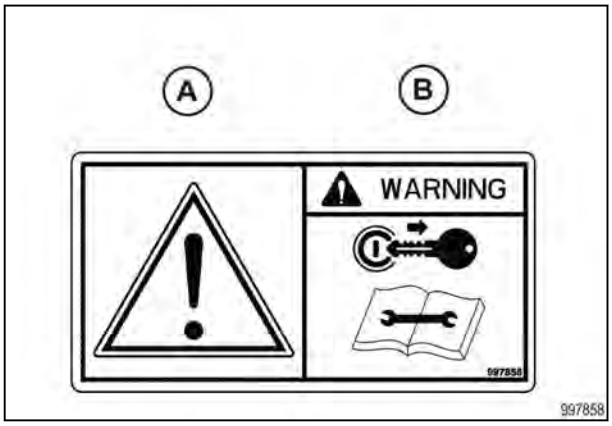


Fig. 31

(6) Warning/read operators manual

Hazard (A): General safety alert.

Avoidance (B): Read and understand the operators manual before operating the machine.

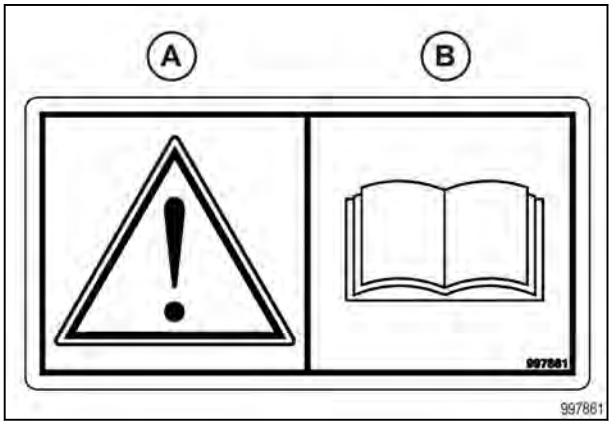


Fig. 32

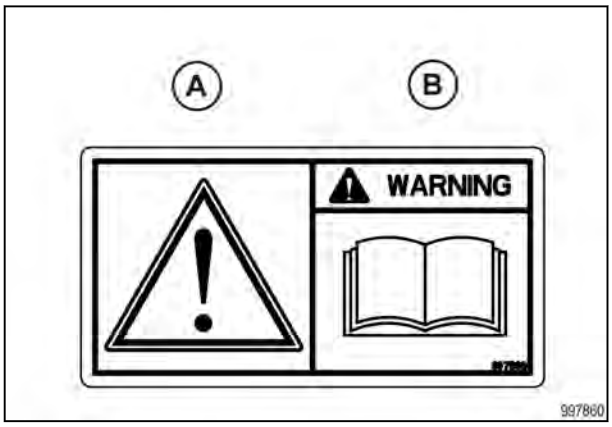


Fig. 32

(7) Danger/high line

Hazard (A): Electrical shock hazard - risk of personal injury and component damage.

Avoidance (B): Keep the correct distance away from electrical power lines.

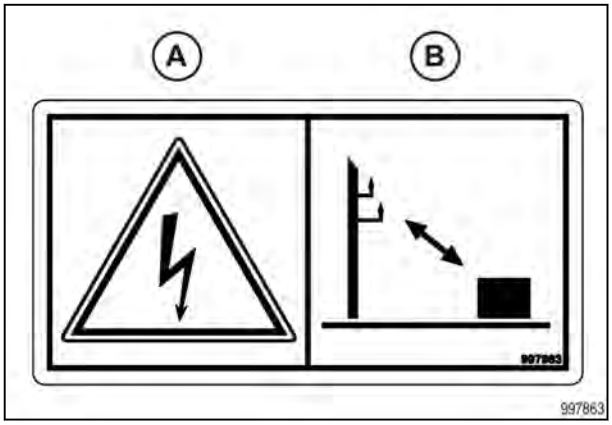


Fig. 33

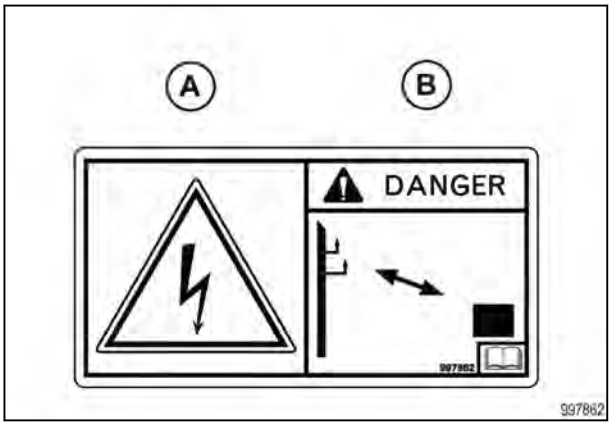


Fig. 33

(8) Warning/hydraulic fluid pressure

Hazard (A): Injection hazard into skin - escaping fluid under high pressure.

Avoidance (B): Turn off the engine, remove the key, relieve the pressure before maintenance or repair. Refer to the operator manual for the correct service procedures.

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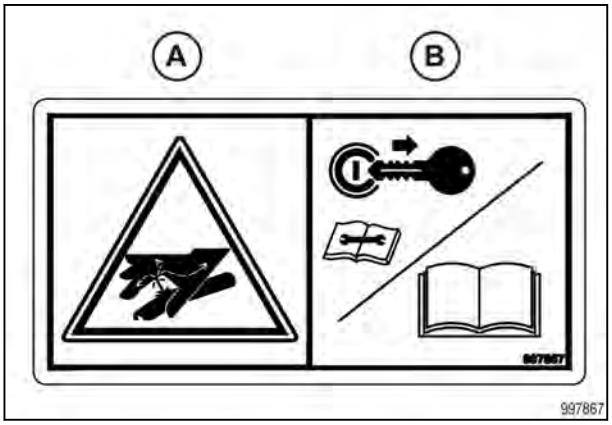


Fig. 34

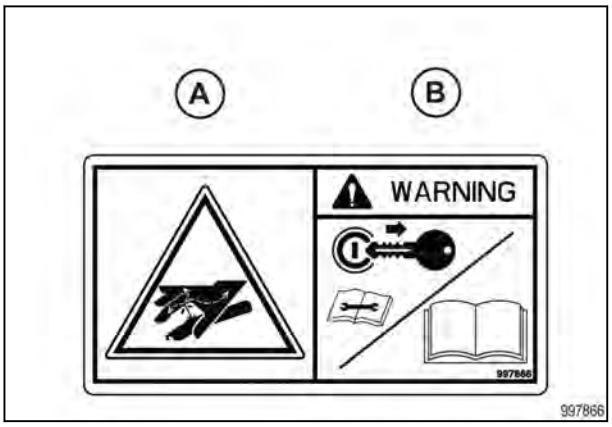


Fig. 34

(9) Maximum speed

The maximum speed safety sign displays the maximum speed to transport the machine.

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Fig. 35

(10) Reflector/yellow

22372

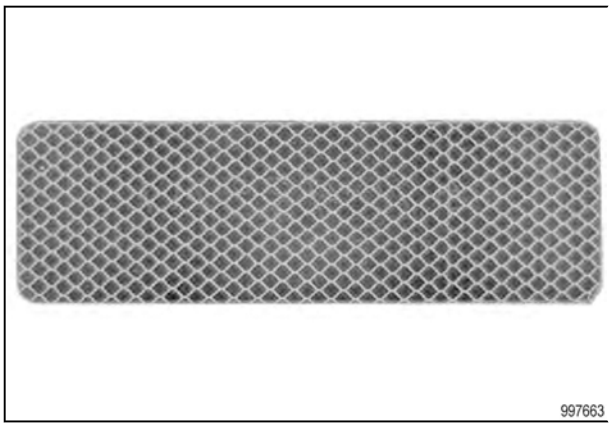


Fig. 36

FIG. 37: The hydraulic jack (1)

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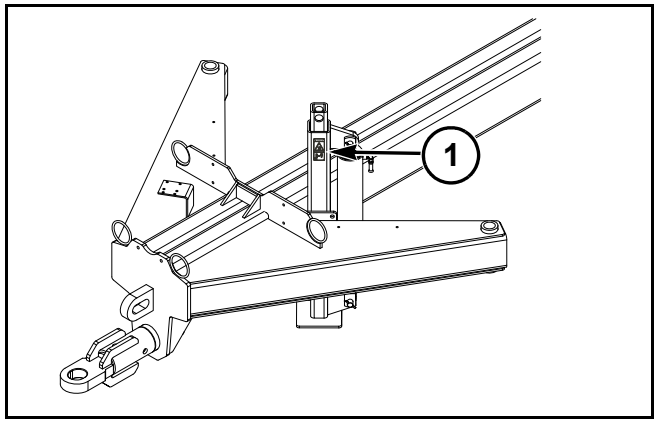


FIG. 37

Warning sign

Hazard (A): Foot crushing hazard part may lower without warning.

Avoidance (B): Turn off the engine, remove the key, relieve the pressure before maintenance or repair. Refer to the operator manual for the correct service procedures.

700731801



2. Introduction

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2.1 Introduction



CAUTION:
In some of the illustrations used in this Operator Manual, panels or guards may have been removed for clarity. Never operate the tractor with these panels and guards removed. If the removal of a shield is necessary to make a repair, it must be replaced before operation.



CAUTION:
Read this book in its entirety prior to operating machine. Use only genuine replacement parts for repairs and/or replacement.

This manual gives the operator the proper instructions needed for operation and maintenance. Read, understand, and follow these instructions for best machine performance and life. With proper maintenance and operation procedures, the machine will have better over all performance. Use normally available tools for maintenance on this machine.

All operators must read and understand this manual before operating this machine. Where possible, operators who have not operated the machine must receive instruction from an operator who has operated this machine. Your dealer can give instruction in machine operation. Keep this manual with the machine for future reference. If the original manual is damaged, order a replacement from your dealer.

See your dealer in for any service problems and adjustments. The dealer is equipped for all service work and to help with specific applications of the tractor in local conditions.

Left-hand and right-hand are determined by facing the direction the machine will travel when in use.

2.1.1 Units of measurement

Measurements are given in metric units followed by the equivalent in US units. Hardware sizes are given in millimeters for metric hardware and inches for US hardware.

2.1.2 Replacement parts

To receive your parts quickly, have the following information:

Correct part description and part
number Model number of the machine
Serial number of the machine

2.1.3 Intended use

This machine is designed solely for use in customary agricultural operations.

Do not use this machine for any application or purpose other than those described in this manual. The manufacturer accepts no liability for damage or injury resulting from misuse of this machine.

Compliance with the conditions of operation, service and repair as specified by the manufacturer constitute essential elements for the intended use of this machine.

This machine should be operated, serviced and repaired only by qualified persons familiar with its characteristics and familiar with the relevant safety rules and procedures.

All generally recognized safety regulations and road traffic regulations must be obeyed at all times.

Any unauthorized modifications performed on this machine will relieve the manufacturer of all liability for any resulting damage or injury.

2.1.4 Proper disposal of waste

Improper disposal of waste can pollute the environment and ecology. A few examples of potentially harmful equipment waste can include, but not limited to, items such as oil, fuel, coolant, brake fluid, filters, battery chemicals, tires, etc.

Use leak proof containers when draining fluids. Do not use food or beverage containers to collect waste fluids, as food or beverage container(s) may mislead someone into drinking from them.

Do not pour or spill waste onto the ground, down a drain, or into any water source.

Air conditioning refrigerants escaping into the air can damage the Earth's atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.

Inquire with local environmental or recycling center on the proper way to recycle or dispose waste.

2.2 LARGE FRAME FOLDING TOOLBAR

Use the large frame folding tool bar for planting corn and soybeans.

The large frame folding tool bar is designed to allow planter row units to be mounted to the secondary tool bar. The secondary tool bar rotates 90° up to for narrow transport. The planter row units place corn and soybean seed at a preset depth. Liquid fertilizer can also be placed in-furrow. The wings forward fold and hook onto the brace arms for transport.

2.2.1 Rubber Tracks

The mainframe is carried on a pair of rubber track assemblies. The wings are carried on a pair rugged tires. A heavy payload can be carried with low ground pressure as the track assemblies provide a large foot print.

2.2 Machine identification

Each machine is identified by a model and a serial number.

Record these numbers in the spaces given.

Give the model number and serial number to your dealer when parts or service are required.

Machine model number: _____

Machine serial number: _____

Date of delivery: _____

Dealer name: _____

Dealer address: _____

_____

_____

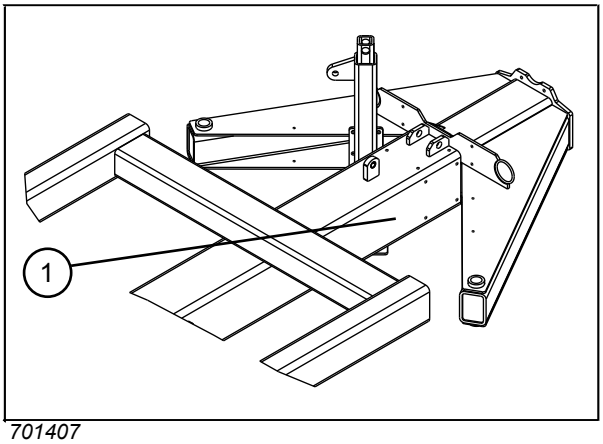
Dealer telephone number: _____

Dealer e-mail address: _____

Dealer fax number: _____

2.2.1 Serial number plate location

The serial number plate (1) is located on the side of the main frame tube.



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2.2.2 Serial number description

Description of the serial number for model year 2010 and up.

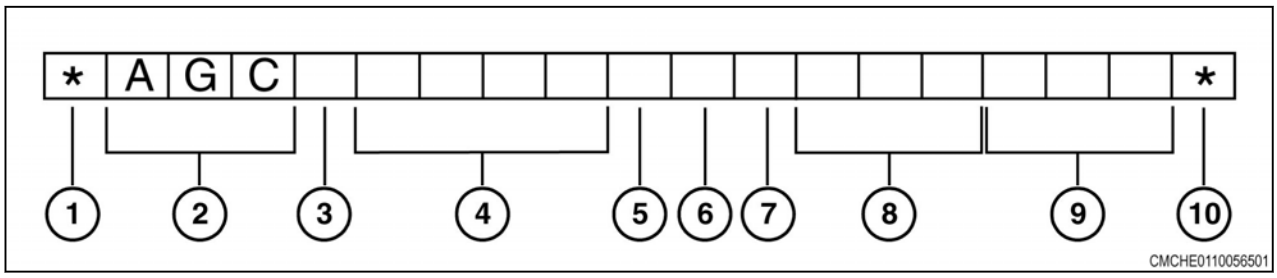
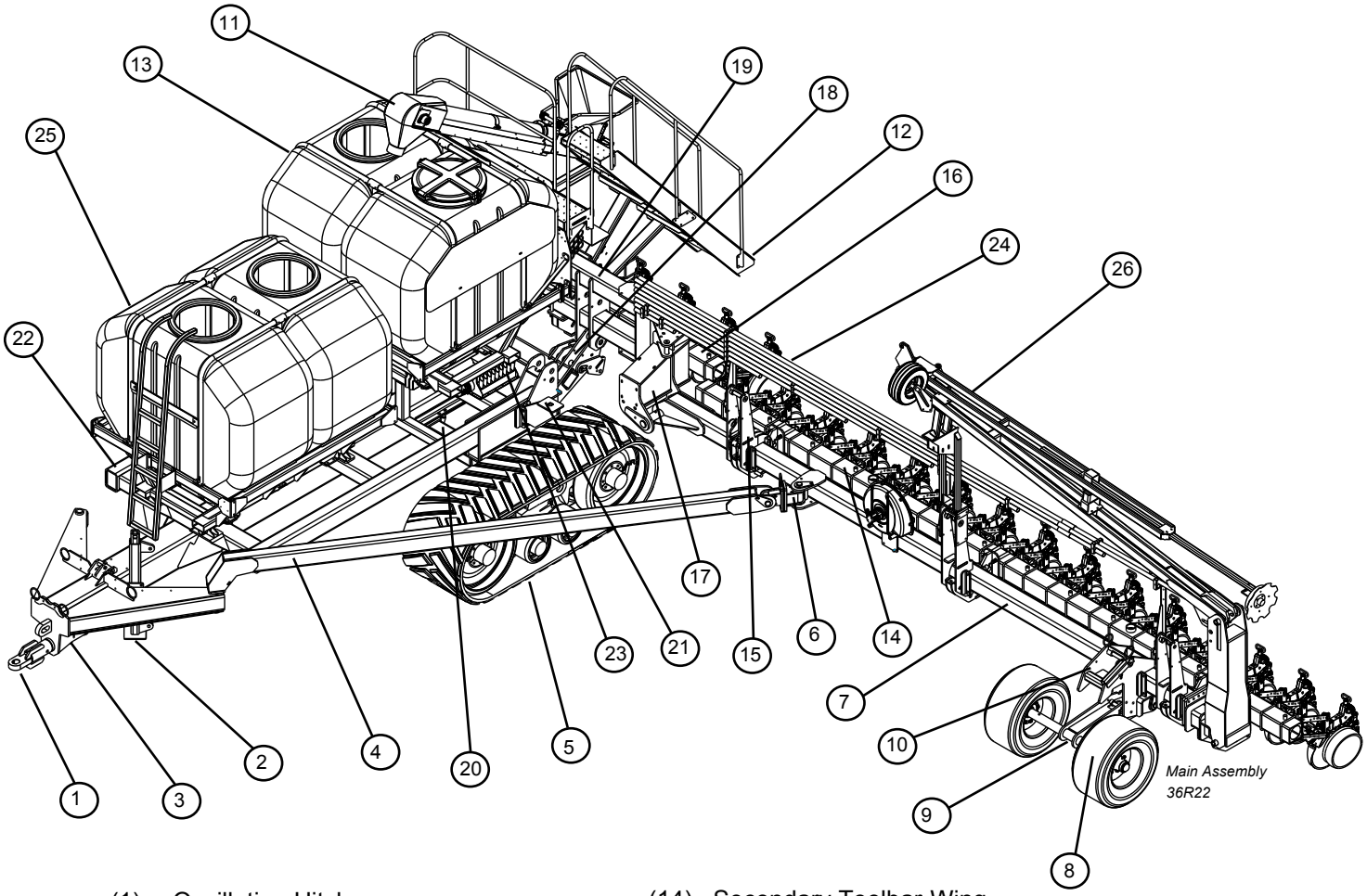


Fig. 2

(1) Beginning symbol
(2) World manufacturer code
(3) Brand code
(4) Model identifier (model number)
(5) Check letter (0 or used if model identifier is five digits)
(6) Model year code (A=2010, B=2011, C=2012, and on)

(7) Plant code
(8) Family code
(9) Unit number for the year
(10) Ending symbol

2.3 Major components



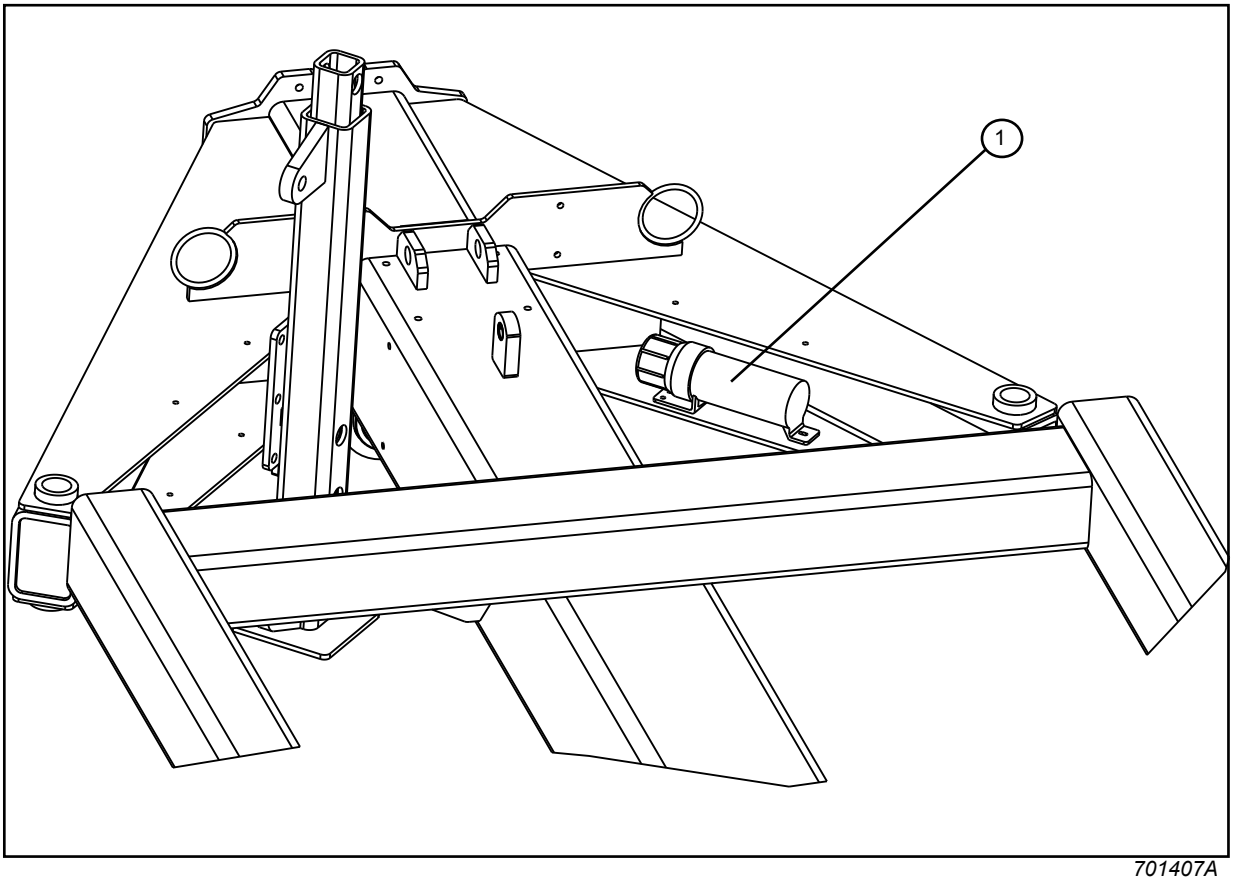
(1) Oscillating Hitch
(2) Hydraulic Jack
(3) Telescoping Tongue
(4) Brace Arm
(5) Rubber Track Assembly
(6) Front & Rear Knuckle
(7) Primary Wing-LH
(8) Wing Wheel
(9) Wing Wheel Leg
(10) Wing Wheel Mount
(11) Belt Conveyor
(12) Rear Staircase
(13) Seed Tanks
(14) Secondary Toolbar-Wing
(15) Toolbar Bearing Assembly
(16) Secondary Toolbar-Center
(17) Main Hinge LH
(18) Lower Lift Arm
(19) Center Frame
(20) Axle Mainframe
(21) Transport Pad
(22) Mainframe
(23) Plenum
(24) Horizontal Seed Tubes
(25) Liquid Fertilizer Tanks
(26) Folding Marker

2.4 Operator manual storage

The Operator Manual is located in the container (1) on the machine.



Fig. 4



3. Operation

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3.1 Connecting the machine to the tractor

Procedure

1. Make sure there are no persons, or obstructions between the tractor and the machine.
   figure 1
2. Use the hitch jack (1) on the front hitch of the machine to adjust the height of the hitch (2).
3. Slowly reverse the tractor toward the hitch of the machine. Align the hitch on the tractor with the hitch on the machine when backing.
4. Stop the tractor when the hole of the tractor drawbar aligns with the hole in the machine hitch.
5. Stop the engine, apply the park brake, and take the key with you.
   figure 2
6. Install the hitch pin (1) through the holes in the tractor draw bar (2) and the machine hitch. Install the keeper pin (3) in the hitch pin.
7. Connect the safety chain (4) from the front hitch of the machine to the tractor.
   figure 3
8. Retract the hitch jack. Move the hitch jack to the storage position (1) and fasten with pin.
   NOTE: *The location and position of the storage location of the hitch jack can vary.*
9. Clean the ends of the hydraulic connections on the machine and the tractor.
10. Make the following connections between the tractor and the machine.
    - Jack cylinder hydraulic hoses
    - Lift cylinder hydraulic hoses
    - Wing fold/tilt cylinder hydraulic hoses
    - Marker lamp harness

    The frame lift/lower and central fill fan circuit operates the lift and lower operations of the toolbar. This circuit also operates the central fill fan.
    Connect the 1/2" diameter hydraulic hose labeled case drain to a tractor port with Zero back pressure. This hose must be connected at all times to eliminate any damage to fan seals.
11. Start the tractor. Use the tractor hydraulics to lift the machine to the highest position.
12. If the wing frames were out during storage, connect the wing cylinders to the wing frames.
13. Use the tractor hydraulics to fully fold the wing frames.
14. Stop the engine, apply the park brake, and take the key with you.
15. Remove the wheel chocks or blocks from in front of and behind the support tires.
16. Make sure all persons and obstructions are clear before moving the tractor and machine.

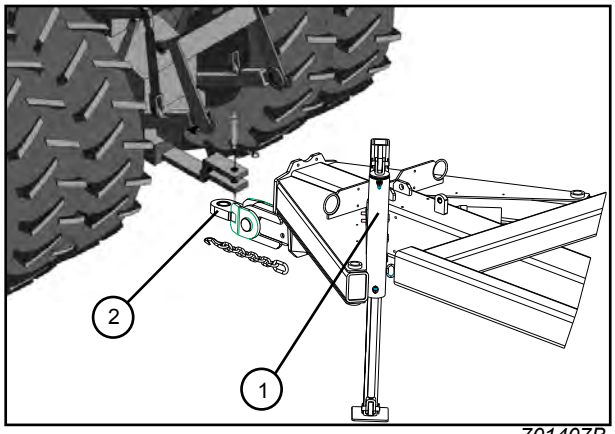


Fig. 1 *701407B*

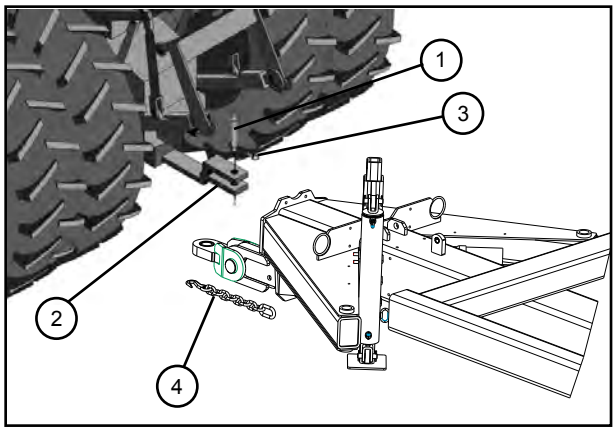


Fig. 2 *701407B*

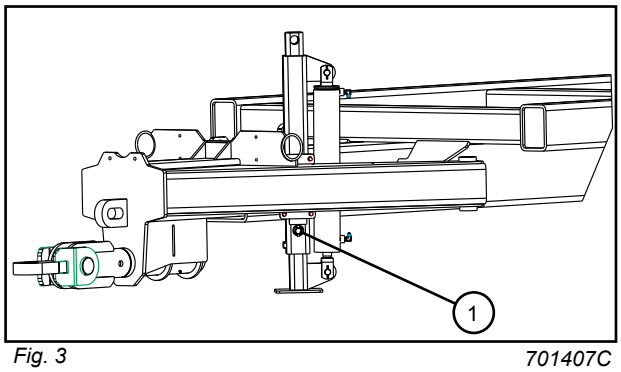
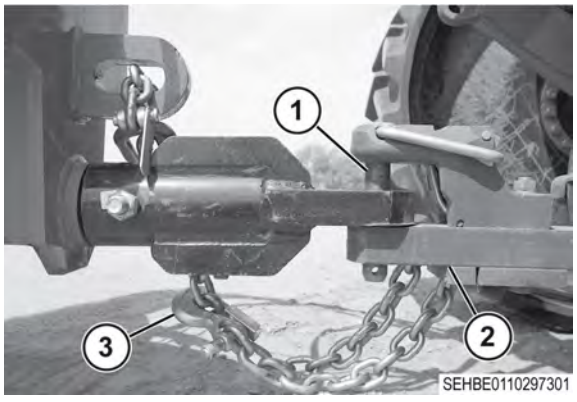


Fig. 3 *701407C*



3.2 Disconnect the planter from the tractor

Procedure

1. **WARNING:**
Disconnect the tractor with the planter in the transport position only.

WARNING:
Because the planter has negative hitch weight, park the planter on a firm level surface in the folded transport position.

Park the machine on a solid, level surface.

2. Lock secondary toolbar in vertically rotated position, use the pins supplied in locations on the tilt bearings.

3. Remove the pin from the storage position (1) and put in the locked position (2). Do this procedure in the front and rear bearing locations for each individual wing section(two pins per section).

4. Lift the hitch, use the hydraulic jack sufficient to remove the load on the tractor drawbar for easy hitch pin removal.

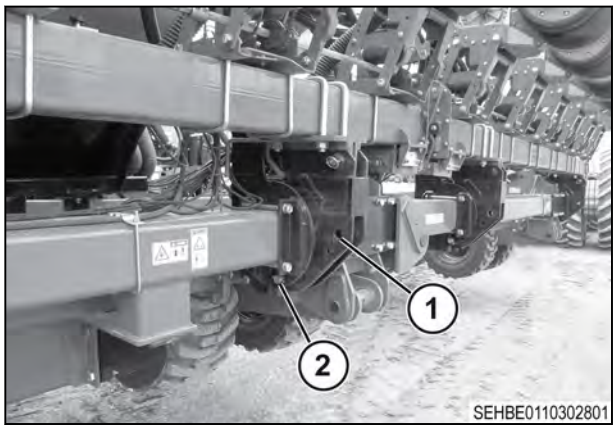


Fig. 7

5. Remove the pin (1) and disconnect the safety transport chain (2).

6. Move the tractor drawbar so the drawbar does not touch the hitch on the planter.

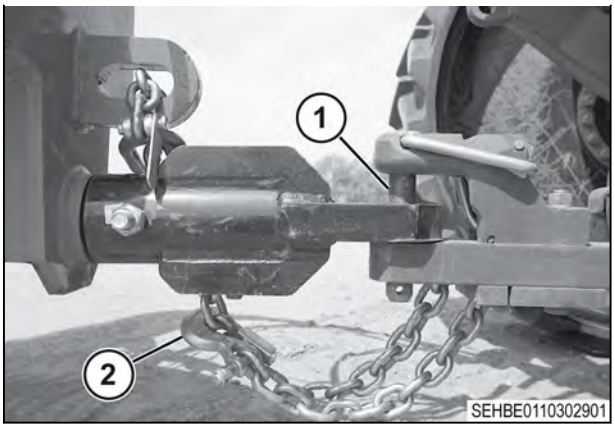


Fig. 8

7. Lift the hitch fully with the hydraulic jack, and put the lock pin (1) in the hydraulic jack.

8. Release the internal hydraulic system pressure in the tractor.

9. Stop the tractor engine, move to the park or neutral position and set the brakes before you dismount from the tractor.

10. Disconnect the wiring harnesses and install dust covers on the plug ends.

11. Disconnect the hydraulic hoses.
NOTE: ***The jack must be pinned in the top or lower position at all times. The jack must only be unpinned when you use the jack to connect to a tractor.***

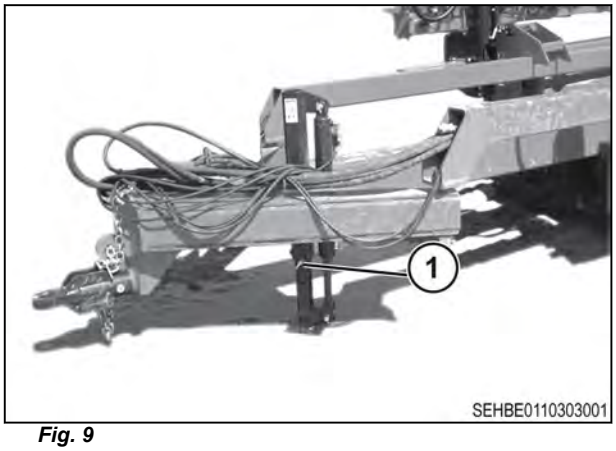


Fig. 9

3.3 Track operation

3.3.1 New track break-in

Operate the new tracks in dry and dusty soil conditions as soon as possible.

During the break in period, rolling components undergo a polishing in process to get a smooth steel to rubber interface with the guide lug. Rubber uses dust and dirt as a dry lubricant during the break in and operation to the minimum heat and decrease rubber stickiness.

Operation without dust or soil in the system, specially during high speed roading, could result in severe damage.

If roading must be done, a dry lubricant such as soil, talc, graphite, oil dry or cat litter must be applied to the guide lugs in intervals during roading until field operation continues.

3.3.2 Track operation

IMPORTANT: *The rubber tracks have not been designed for extended operation on the road. Long road periods and/or roading at higher than recommended maximum speeds of 25 km/h (15 mph) will cause wear or failure of the tracks or wheels. To decrease the damage during roading decrease overall machine weight and decrease machine speed.*

An application different from those in this manual is incorrect and dangerous.

Correct track tension is necessary for best performance and track life.

The track system can operate in very bad conditions: for operator and machine safety, be sure to know your surroundings.

The track system is free to pivot around the main axle following the ground conformation. During change over rough ground terrain, check for interferences and move slowly to prevent over oscillating the undercarriage.

Be sure to know accurate machine height, width and width limits before operation.

Go across large ground irregularities with correct speed reduction and/or correct incidence angle. When high, sharp bumps are crossed move forward slowly to prevent shocks on the machine.

The tracks do not damage standard road-bed contractions. Operator must know and respect road traffic laws.

If you operate on side slopes for a long period you can increase the wear on the side of the guide lugs and idlers.

Keep material out of the undercarriage. Examine the undercarriage daily. Remove material as necessary. In some conditions examine more frequently.

If a machine becomes blocked, clear away as much material from the undercarriage as possible before you pull the machine out.

Prevent low speed, high torque turns and operations specially when loaded. Prevent spot turning.

Configure drawbar and hitch correctly during field operation.

Use caution when you operate track systems in loose, flowing material. Loose material can become caught between track and idlers, this can result in track damage.

Keep material out of the undercarriage. This can make it necessary to scrape material out of tight areas and in some conditions it can be necessary to clean and examine frequently.

3.4 Bleeding air from the hydraulic lift system

Before starting the procedure



WARNING:
Leaking fluid under pressure can enter the skin causing serious injury. Release pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure. Wear correct hand and correct eye protection when looking for leaks. Use a piece of cardboard or paper instead of your hand. Any fluid injected into the skin can cause gangrene. The fluid must be removed by a doctor familiar with this type of injury.



WARNING:
Be careful of sweeps or blades when folded to prevent serious injury.

To bleed the air from the hydraulic lift system, connect the machine to a tractor that is the correct size to operate the machine. See the information for minimum tow vehicle weight.

Total volume of oil required to fill the lift system is 16 gallons(estimated).

Completely bleed the hydraulic system of air when:

The lift system is filled with hydraulic oil for the first time.

Air has entered the hydraulic system through a leak or through repair of the hydraulic system.

Procedure

1. Park the machine on a flat, level surface that is large enough for the machine when unfolded.
2. Set the tractor hydraulic flow to less than 75.7 L/min (20 gal/min).

   IMPORTANT: *If the hydraulic flow is set to more than 75.7 L/min (20 gal/min) the hydraulics will not operate correctly.*
3. Connect the lift system hoses to the tractor.
4. Make sure the tractor reservoir is full of the hydraulic oil required by the manufacturer.

   IMPORTANT: *Do not loosen any hydraulic fittings to bleed air from the system.*
5. Raise the machine. Continue to hold the tractor lever to let oil bypass and fill each wing lift cylinder.
6. Engage the hydraulics to remove any hydraulic transport locks if equipped.
7. Stop the engine, apply the park brake and take the key with you.
8. Remove the transport locks when all lift cylinders are fully extended.
9. Lower the unit.

   Make sure the cylinders move at the same time through the cycle.
10. Hold the hydraulic lever with the cylinders fully extended.
11. If the cylinders are not operating together, cycle the cylinders to remove the remaining air.

    IMPORTANT: *Do not loosen any hydraulic fittings to bleed air from the system.*
12. Stop the engine, apply the park brake, and take the key with you.
13. Check the tractor hydraulic oil reservoir to make sure the hydraulic oil is still within operating limits.
14. Make sure all lift cylinders are operating together before starting any field operation.
15. Fully raise the machine when making turns during field operation.

    This will make sure that the cylinders are operating together and keep the machine level during operation.

3.5 Bleeding air from the hydraulic fold system

Before starting the procedure



WARNING:
Leaking fluid under pressure can enter the skin causing serious injury. Release pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure. Wear correct hand and correct eye protection when looking for leaks. Use a piece of cardboard or paper instead of your hand. Any fluid injected into the skin can cause gangrene. The fluid must be removed by a doctor familiar with this type of injury.



WARNING:
Be careful of sweeps or blades when folded to prevent serious injury. Never keep the machine with the wings in the folded position.

IMPORTANT: *Do not fold or unfold the fold system before bleeding air from the fold system.*

To bleed the air from the hydraulic fold system, connect the machine to a tractor that is the correct size to operate the machine. See the information for minimum tow vehicle weight.

Total volume of oil required to fill the fold system is 24 gallons(estimated).

Completely bleed the hydraulic system of air when:

The fold system is filled with hydraulic oil for the first time.

Air has entered the hydraulic system through a leak or through repair of the hydraulic system.

Procedure

1. Set the tractor hydraulic flow to less than 75.7 L/min (20 gal/min).

   IMPORTANT: *If the hydraulic flow is set to more than 75.7 L/min (20 gal/min), the hydraulics will not operate correctly.*

   NOTE: *Restrictors are installed in the fold cylinders to prevent falling of the wings. Never remove the restrictors, or the machine will not fold correctly.*
2. Stop the engine, apply the park brake, and take the key with you.
3. Connect the fold system hoses to the tractor.
4. Make sure the tractor reservoir is full of the hydraulic oil required by the manufacturer.

   IMPORTANT: *Do not loosen any hydraulic fittings to bleed air from the system.*
5. Remove the pins from the rod ends of the fold cylinders.
6. Make sure the rod ends of the fold cylinders will not come into contact with any obstructions.
   If a blockage is present, lift the rod ends of the fold cylinders.
7. Use the remote lever in the tractor to fully extend and retract the fold cylinders.
   Extend and retract multiple times.
8. If the fold cylinders are not operating together, cycle the fold cylinders to remove the remaining air.

   IMPORTANT: *Do not loosen any hydraulic fittings to bleed air from the system.*
9. Stop the engine, apply the park brake, and take the key with you.
10. Check the tractor hydraulic oil reservoir to make sure the hydraulic oil reservoir is still within operating limits.
11. Connect the rod ends of the fold cylinders to the machine.
12. Find an area large enough for the machine when unfolded.
13. Park the machine on a solid, level surface. Stop the engine, apply the park brake, and take the key with you.
14. With the tractor at a low idle, slowly engage the hydraulics to fold and unfold the machine.
15. Fully extend the fold cylinders to let the wings flex freely.

3.6 Bolt Torque Chart

Wherever the terms "left" and "right" are used, it must be understood to mean from a position behind and facing the machine.

Lubricate all bearings and moving parts as you proceed and make sure they work freely.

Loosely install all bolts connecting mating parts before final tightening.

When tightening bolts, they must be torqued to the proper number of foot-pounds as indicated in the table unless specified. It is important that all bolts be kept tight.

On new machines, all nuts and bolts must be re-checked after a few hours of operation.

When replacing a bolt, use only a bolt of the same grade or higher. Except in shear bolt applications, where you must use the same grade bolt.

GRADE 2	GRADE 5	GRADE 8
		

TORQUE IN FOOT POUNDS						
BOLT DIA	3/8	1/2	5/8	3/4	7/8	1
HEX HEAD	9/16	3/4	15/16	1-1/8	1-5/16	1-1/2
UNC GR2	18	45	89	160	252	320
UNC GR5	30	68	140	240	360	544
UNC GR8	40	100	196	340	528	792
UNF GR2	21	51	102	178	272	368
UNF GR5	32	70	168	264	392	572
UNF GR8	48	112	216	368	792	840

TORQUE.EPS

Bolts with no markings are grade 2

Grade 5 bolts furnished with the machine are iden-tified by three radial lines on the head.

Grade 8 bolts furnished with the machine are iden-tified by six radial lines on the head.

All U-bolts are grade 5.

3.7 Prepare the machine for operation



DANGER: Machine electrical shock and electrocution hazard.

Personal injury or death can occur.

Keep the machine clear of overhead electrical power lines.



WARNING: Loss of control hazard of the machine.

Personal injury or death can occur.

Travel at a speed that permits complete control of the machine but not to exceed a speed of 25 km/h (15 mph)

More information for some of the steps is available in this manual or in other manuals for your machine. **Procedure**

1. Travel at an appropriate speed which allows for proper control of the tractor and machine but not faster than 25 kph (15 mph).
2. Park the machine on a solid, level surface.
3. Apply the parking brake, stop the engine, and take the key with you.
4. Block the wheels.
5. Install the cylinder stops.
6. Check the three-point linkage height or the drawbar hitch height.
7. Check the tractor wheel spacing.
8. Do the correct maintenance to the machine.
9. Lubricate the machine.
10. Check the tire inflation pressure.

3.8 Fold the machine

Procedure

1. Start the tractor engine, release the brakes and shift to neutral.
2. Fully raise the planter using the tractor hydraulic valve.
3. Remove all stop collars.
4. Using the tractor valve activate the fold circuit.
5. The tongue latch (1) will disconnect and the secondary toolbars(row units) will tilt up 90°.
6. The wings will begin to forward fold. Feather the tractor forward to aid in the fold process.

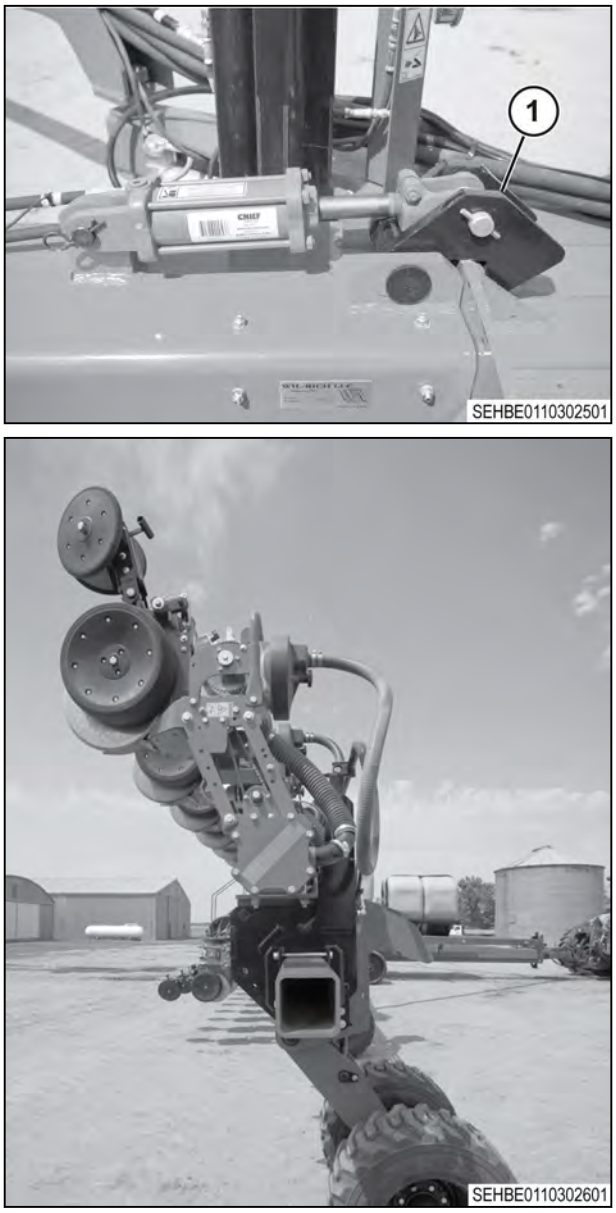


Fig. 10

7. Once the wings have completely forward folded and the wing hook frames (1) contact the brace arms (2), lower the lift circuit until the wing axles (3) are completely retracted.

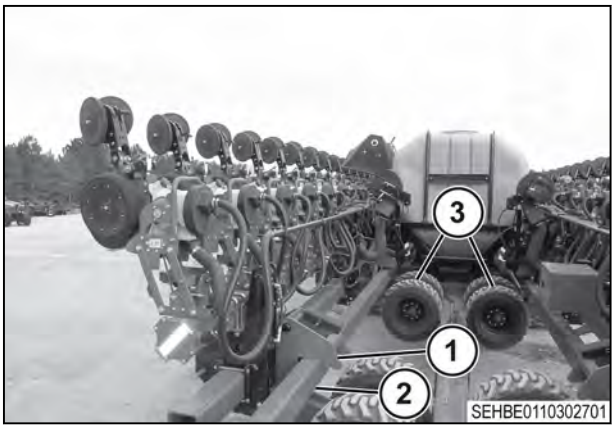


Fig. 11

8. Wings are folded and hooked onto the brace arms. Install the lock pins from the storage positions (1) into the tilt bearing locations in the locked position (2). Install these pins at the front and rear bearing locations(two per wing).

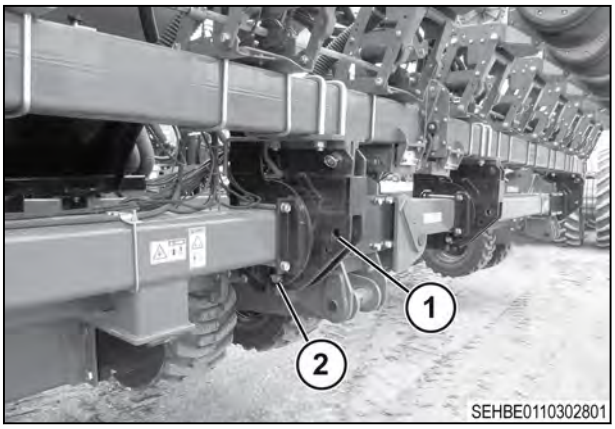


Fig. 12

3.9 Unfold the machine

Before starting the procedure

Make sure there is 6.7 m (25 ft) clearance behind the planter for unfolding.

The tractor must roll slightly as the frame is unfolded. Do not engage the parking brake.



WARNING: Crushing hazard.

Personal injury or death can occur.

Stay clear of machine while the machine components are being operated.



WARNING: Machine movement hazard.

Personal injury or machine damage can occur.

Park the machine on a solid level surface. Lower all implements to the ground. Stop the engine, apply the park brake, and take the key with you.

Procedure

1. On the tilt bearings, remove the click pins from the lock pins.
2. Install the lock pins in the storage positions.
3. Install the click pins in the lock pins.
   There are two lock pins on the left wing; and two lock pins on the right wing.
4. Start the tractor engine, release the brakes and shift to neutral.
5. Fully raise the planter with the main circuit to get the frame off the fold rests.
6. Using the tractor hydraulics fold the wings out 90°. Feathering the tractor in reverse to aid in the unfold process is required.
7. The tongue latch will activate and connect
8. Continue to activate the fold circuit. The left hand and right hand wing tilt system will rotate the row units down 90°.
9. The toolbar is now ready to use and can be raised and lowered with the tractor hydraulic valve.

3.9.1 Road the machine

3.9.1.1 Prepare to road the machine

More information for some of the steps is available in this manual.

Procedure

1. Make sure the large frame planter toolbar is connected according to the procedures outlined.
2. Fold the planter as described on the previous pages.
3. Lock the wings in the transport position.
4. Empty all the hoppers and tanks before transporting the large frame planter toolbar. The hoppers must be empty. For easier access, empty the tanks when the toolbar is folded.
5. Observe all safety precautions.
6. Make sure the tracks have been dry lubricated.

   IMPORTANT:

   New tracks requiring extended transport must be carried on a flat bed and not roaded. Do not road a new system without first checking the alignment and introducing the tracks to dirt or dry lubricant.

3.9.1.2 Safety Precautions



WARNING: Transporting

Planter may be unstable on rough ground.

Travel according to conditions but not faster than 25 km/h (15 mph).



DANGER: Machine electrical shock and electrocution hazard.

Personal injury or death can occur.

Keep the machine clear of overhead electrical power lines.

Procedure

1. Always install and use the highway safety transport chain.
2. Use good judgment when transporting the tractor implements on the highway. Maintain complete control of the machines at all times.
3. Comply with state and local laws governing highway safety and regulations when moving machinery.
4. Always make the necessary safety precautions prior to transporting the large frame planter toolbar on public roads. This includes maintaining the SMV (Slow Moving Vehicle) emblem and using taillights and side marker lights.
5. Never tow the large frame planter toolbar with a tractor having less then 187 kW (250 hp). Transport the toolbar only with a tractor.

3.9.1.3 Safety precautions



WARNING: Loss of control hazard of the machine.

Personal injury or death can occur.

Travel at a speed that permits complete control of the machine but not to exceed a speed of 25 km/h (15 mph)

3.9.2 Central fill system

(1) Plenum
(2) Fan
(3) Central fill hoppers
(4) Splitter tube

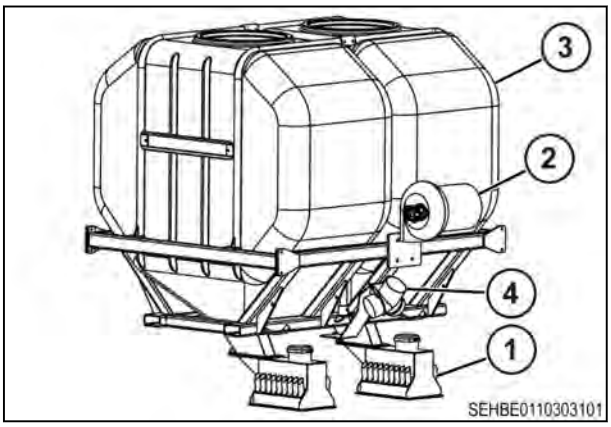


Fig. 63

3.9.2.1 Central fill seed gate

This is a picture of the plenum assembly. There is a seed gate under each central fill hopper.

The seed gate must be in the open position as shown for proper seed flow. Close the seed gate for plenum inspection.

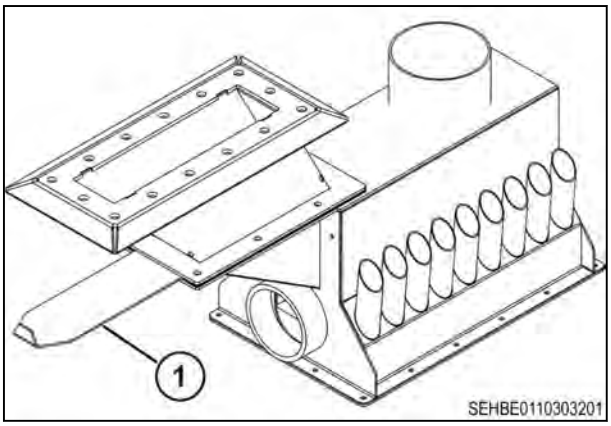


Fig. 64

Initial start-up:

For all crops, the plenum gate should be set to the maximum open setting.

Adjust the tractor hydraulic remote flow to achieve the correct CFS pressure for the seeds being planted. This adjustment should be made to the tractor remote showing a retracting cylinder or a negative sign indicating reverse flow. The following are suggested initial CFS pressures for most common seeds. Actual optimal pressures will vary with seed type, desired seed population and environmental conditions.

Seed	Desired population	Suggested CFS Pressure
Corn	24,000 - 48,000/acre	20 - 22 inches
Soybeans	120,000 - 180,000/acre	18 - 20 inches
Soybeans	180,000 - 220,000/acre	24 - 26 inches
Sunflower/Milo	20,000 - 40,000/acre	14 - 16 inches

3.9.2.2 Center fill system operation

The seed drops down from the main seed tank through the seed gate (1) into the mixing chamber (2). Air comes into the mixing chamber from the central fill fan (3). Air travels through perforated holes in the plate to mix with the seed. Air carries the seed to the manifold (4) where the seed is divided into the individual seed tubes. The seed continues through the seed tubes to the row unit. When the row unit is full of seed the air flow is cut off and seed stops flowing. When the seed in the row unit gets low enough the air flow picks up and the seed is again carried to the row unit.

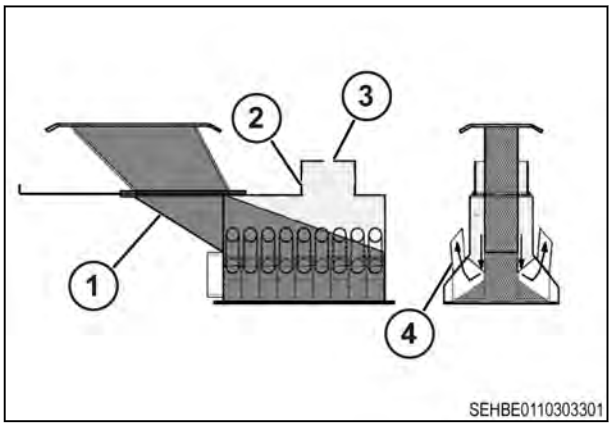


Fig. 65

3.9.2.3 Central fill air pressure

A hydraulically driven blower (1) at the rear of the central fill hoppers maintains air pressure for delivering seed to the row units. Seed is forced through flexible air hoses to the planter seed meter reservoirs.

A splitter tube (2) is connected to the central fill fan.

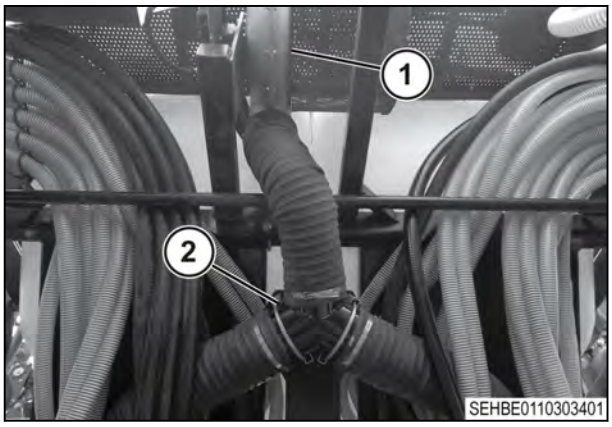


Fig. 66

The splitter tube connects to each plenum (1).

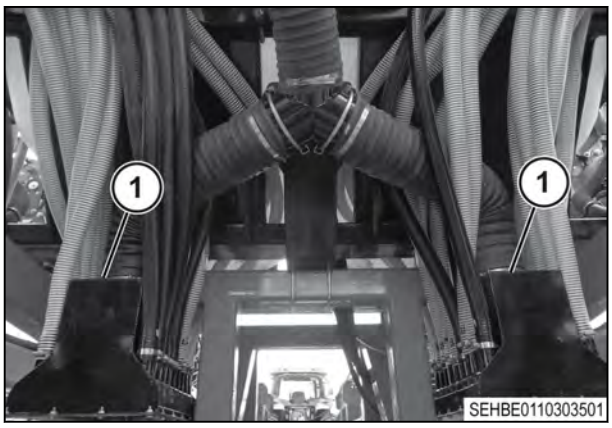


Fig. 67

Control the central fill fan air pressure by connecting the central fill fan hydraulic circuit to a tractor circuit with a flow control valve. The central fill fan is part of the raise and lower circuit. Hydraulic flow required is approximately 12 to 14 gpm.

IMPORTANT: *To warm the fluid and prevent pressure spikes, operate blower for 5 to 10 minutes at minimum speed.*

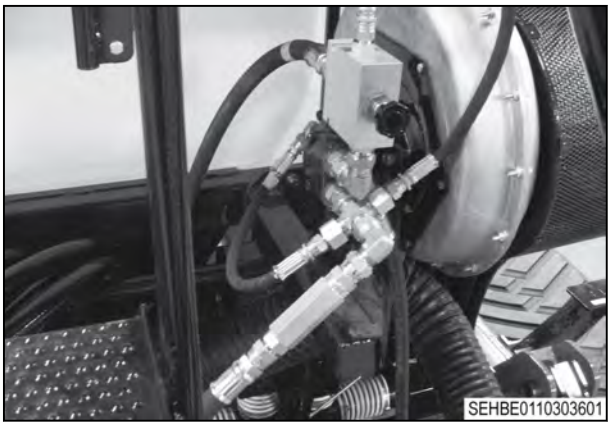


Fig. 68

3.9.2.4 Fill the seed tanks with the belt conveyor, if equipped

Procedure

1. Open the tank cover.
2. Slide the top of the conveyor over the tank fill hole.
3. Move the selector valve (1) out, to the upper position.
   This will allow the oil to flow to the flow control valve.
4. Activate the tractor remote.
5. Adjust the flow control valve (2) to set the desired speed of the belt.

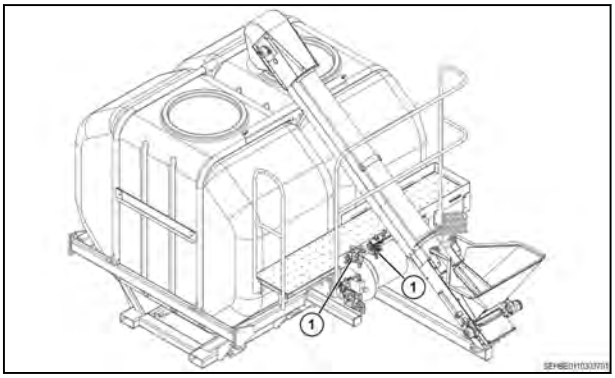


Fig. 69

6. After the seed tanks are full, move the selector valve in, to the lower position.

3.9.2.5 Remove the seed from the central fill system

Procedure

1. Park the machine on a solid, level surface.
2. Apply the park brake.
3. Block the wheels.
4. First close the gate (1). To close the gate push the plate toward the rear of the planter.
5. Stop the CFS fan.
6. Remove the cap (2).
7. Connect a 3 inch hose to the plenum where the cap was located.
8. Start the fan and open the gate 1-1/2 inches to blow seed into a vented container. To open the gate, pull the plate toward the front of the planter.
9. Make sure the top cover is sealed on the main seed hoppers to prevent the cleanout hose from plugging.

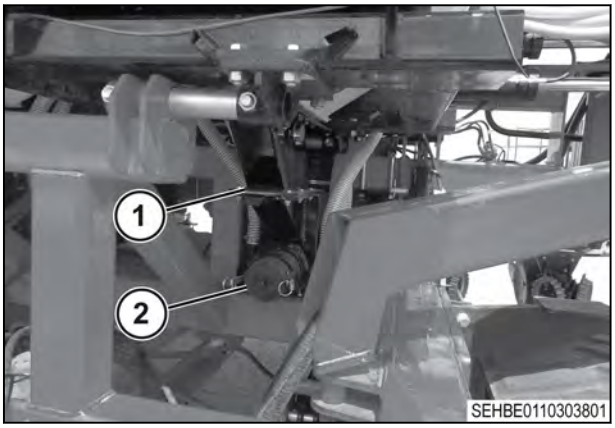


Fig. 70

10. Start the CFS fan to blow the seed out of each plenum (3) and all the horizontal seed tubes into a vented container.

11. Stop the CFS fan.

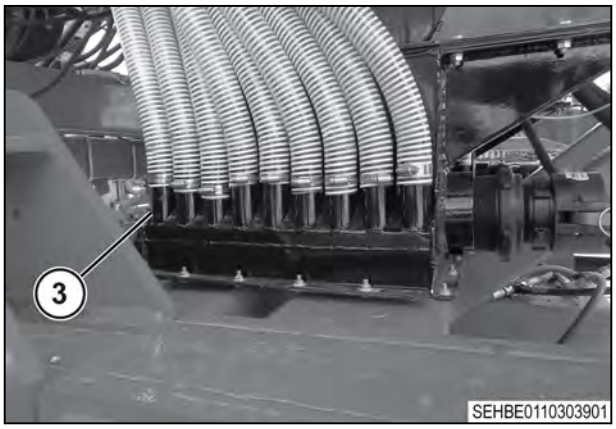


Fig. 71

3.9.3 Markers

3.9.3.1 Marker operation

The marker cylinders operate off of the tractor remote hydraulic system. A hydraulically operated sequence valve lets the markers lift and lower each time you move the tractor remote lever.

WARNING: Crushing hazard.

Personal injury or death can occur.

Stay clear of machine while the machine components are being operated.

If you must lower the two markers, lower one marker to the ground. Move the tractor remote lever to lift and as the cylinder for the lowered marker starts to extend, move the tractor remote lever to lower. This will lower the second marker.

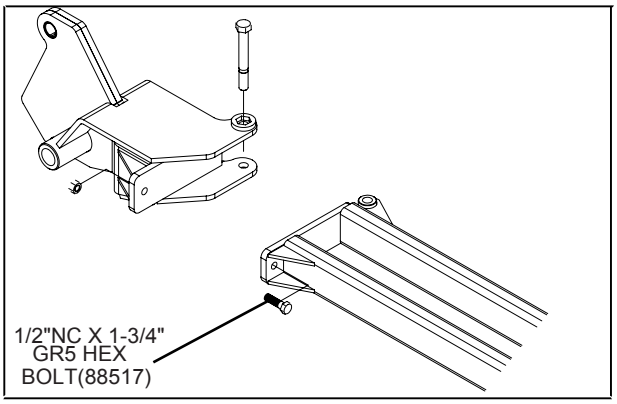
NOTE:
If a marker starts to lift, the marker cannot be lowered until the marker is fully lifted. On tractors with pressure detents remote valves it is necessary to hold the remote lever until the marker is fully lifted or lowered.

The markers do not operate if the machine frame is folded.

3.9.3.2 Marker shear bolt

The shear bolt (1) gives protection to the markers. When you replace the shear bolt, use the flat washer adjacent to the head on the bolt and adjacent to the lock nut. Install the lock nut until the threads on the lock nut fully engage the threads on the shear bolt.

IMPORTANT:
Use only the correct dimensions and the correct grade.



3.9.3.3 Adjust the marker disc

Procedure

1. Park the machine on a solid, level surface.
2. Fully extend the marker.
3. Apply the parking brake, stop the engine, and take the key with you.
4. Block the wheels.
5. Install the cylinder stops.

6. Loosen the hardware (1).
7. Rotate the marker disc (2).
   - Forward to increase the mark size.
   - Rearward to decrease the mark size.
8. Tighten the hardware.
9. Align the disc guard (3) and the marker disc.
   a) Loosen the set screws (4) on each side.
   b) Move the disc guard to align with the marker disc.
   c) Tighten the set screws.

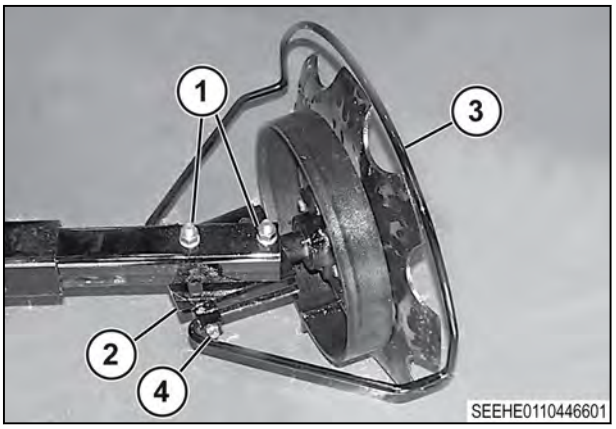


Fig. 85

3.9.3.4 Adjust the marker arm length

Procedure

1. Park the machine on a solid, level surface.
2. Fully extend the marker.
3. Apply the parking brake, stop the engine, and take the key with you.
4. Block the wheels.
5. Install the cylinder stops.
6. Loosen the nuts (1).
7. Move the arm to the correct length.
8. Tighten the nuts.

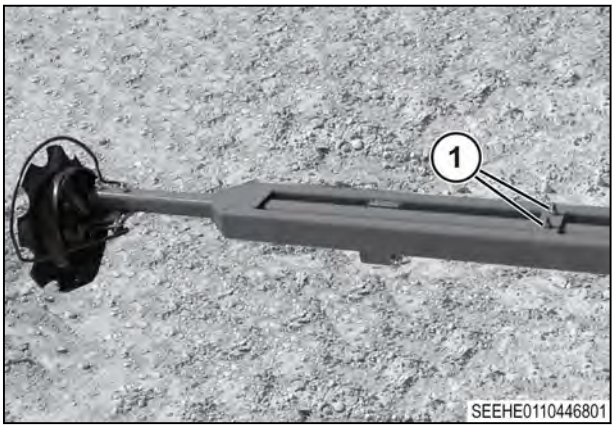


Fig. 86

3.9.3.5 Marker arm length

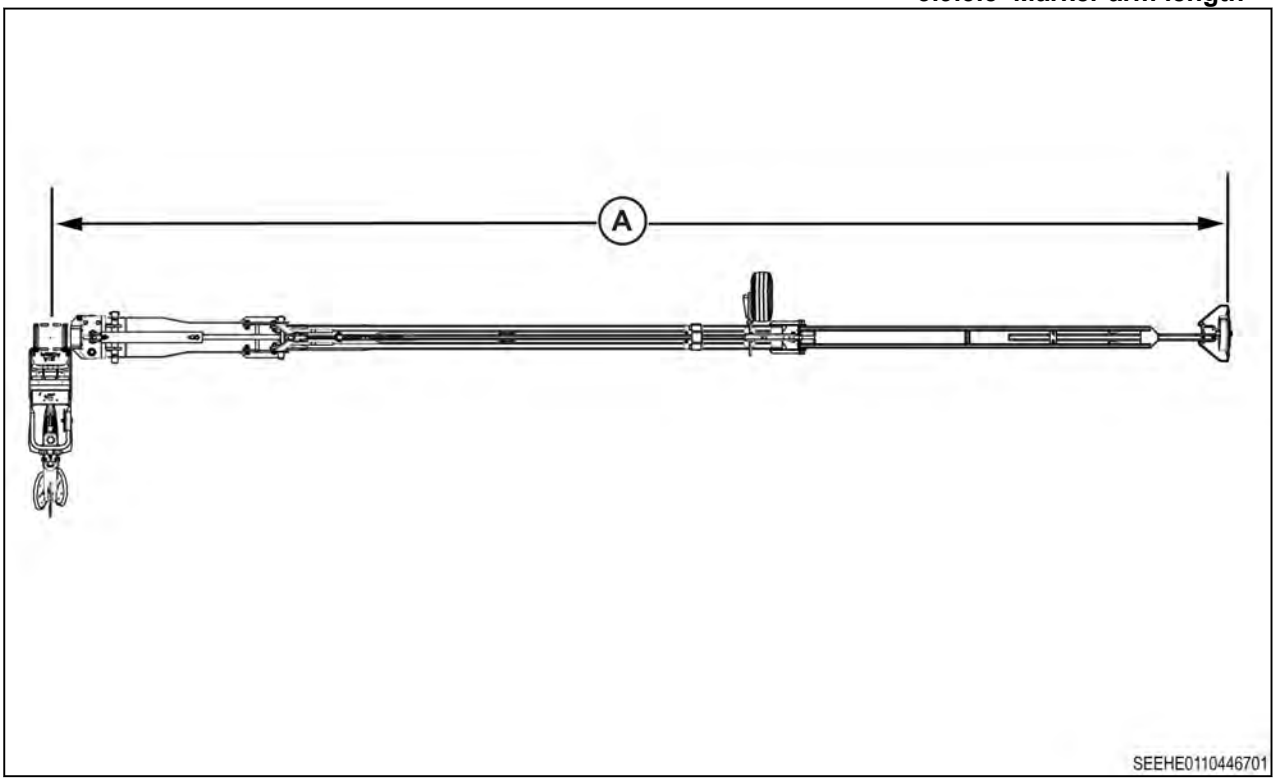


Fig. 87

The measurement (A) is made from the center of the outer row unit to the center of the marker disc.

Model	Row width	Measurement
36 - row	56 cm (22 in)	1034 cm (407 in)



DANGER: Machine electrical shock and electrocution hazard.

Personal injury or death can occur.

Keep the machine clear of overhead electrical power lines.

- The tractor weight must be at least 2/3 of the planter weight.
- Use good judgment when roading the tractor implements on the highways. Keep complete control of the machine at all times.
- Always take the necessary safety precautions prior to roading the machine on public roads. This includes keeping the SMV (Slow Moving Vehicle) emblem in good condition and properly installed. Use enough light or other safety warnings after dark except when prohibited by law.

3.9.4 Lamp operation

The machine lighting system includes a turn signal module that causes the machine lamps to operate differently than some tractor/machine lighting systems.

IMPORTANT:
For lamp operation, the tractor hazard flashers must be ON or the machine lamps will not operate.

Day operation

Machine operation	Machine lamps			
	Left-hand amber lamp	Left-hand tail/stop lamp	Right-hand amber lamp	Right-hand tail/ stop lamp
Straight line	Flashing	Off	Flashing	Off
Stopping	Flashing	Solid	Flashing	Solid
Left turn	Flashing	Flashing	Solid	Solid
Right turn	Solid	Solid	Flashing	Flashing

Night operation with tractor headlamps

Machine operation	Machine lamps			
	Left-hand amber lamp	Left-hand tail/stop lamp	Right-hand amber lamp	Right-hand tail/ stop lamp
Straight line	Flashing	Solid	Flashing	Solid
Stopping	Flashing	Solid	Flashing	Solid
Left turn	Flashing	Flashing	Solid	Solid
Right turn	Solid	Solid	Flashing	Flashing

3.9.5 Field operation

3.9.5.1 Operate in the field



WARNING: Machine movement hazard.

Personal injury or machine damage can occur.

Park the machine on a solid level surface. Stop the engine, apply the park brake, and take the key with you.



WARNING: Dust/Fume inhalation hazard.

Personal injury can occur from asphyxiation or chemical burn.

Read, understand and follow the manufacturer's label instruction when handling and cleaning up agricultural chemicals.



WARNING: Moving parts hazard.

Personal injury or death can occur.

Shift to park and apply the park brake. Make sure all persons are clear of moving parts during this adjustment procedure.



WARNING: Whole body crushing hazard. A loss of hydraulic pressure or movement of the mechanism can cause the raised machine component to fall.

Personal injury or death can occur.

Install the lift cylinder stops before working on the machine to prevent movement.

Procedure

1. **Unfold the machine.**
   See the information for unfolding the machine.
2. **Lower the machine to the operating position.**
   IMPORTANT: *DO NOT adjust the equipment while the tractor is running.*
3. **Adjust the initial settings.**
   - **All row unit down pressure adjustments.**
   - **All row unit attachment adjustments.**
   - **Put the fertilizer in the fertilizer tank.**

3.9.6 Center section adjustment - Leveling

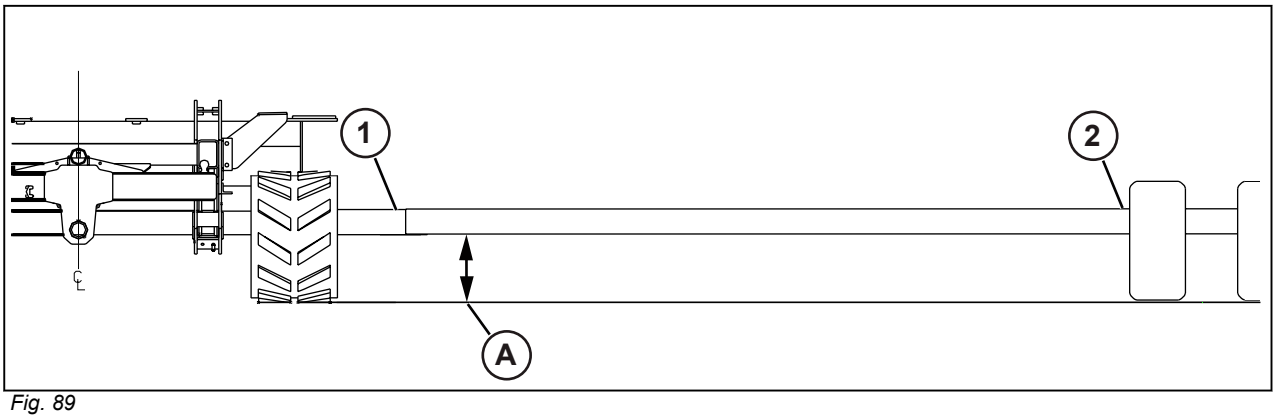


Fig. 89

The center section (1) is set to run one inch higher then the wings (2). The center section carries more weight then the wings. When operating in the field the center section and the wings should all run level.

If operating in soft ground, the center section can be set to run higher by adding bolts and washers in the link arms (1) as shown below(fig 90). When using the cylinder stops, the cylinder stops must be used on all the lift cylinders.

On the link arm with the 4-1/2 cylinder (1), use four 3/4 x 2-1/2 grade 5 hex bolts (2), eight 3/4 flat washers (3), and four 3/4 lock nuts (4). Flat washers can be added to raise the bolts higher or lower as desired. Make sure to add this hardware to **both sides** to prevent any twisting on the lift arms.

When the toolbar is set, cylinder stops (5) must be added to all the main lift cylinders and to all the wing lift cylinders to set the toolbar height to the desired level.

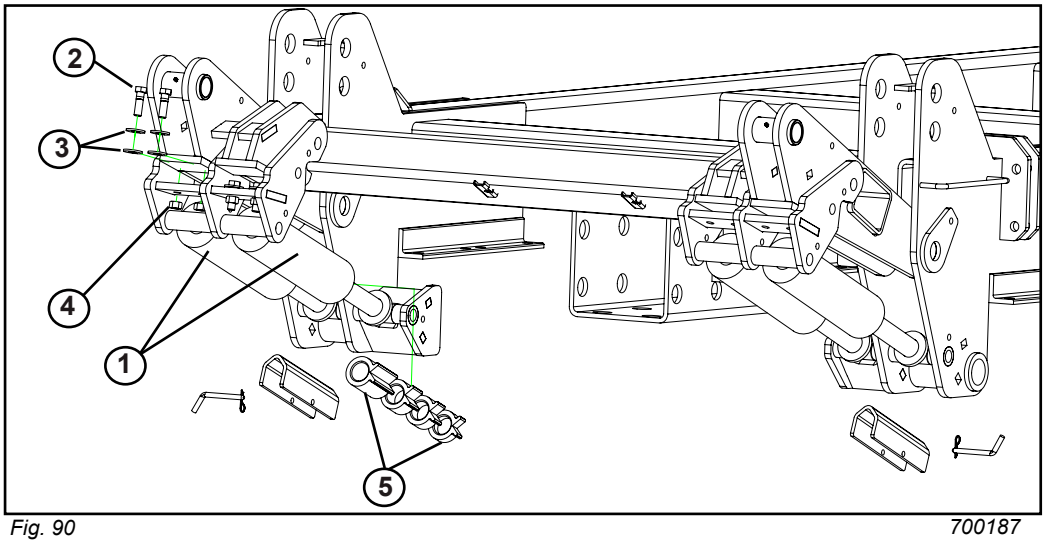


Fig. 90 *700187*

3.9.7 Adjustment for field position

(1) Inner wing
(2) 1 x 3-1/2 bolt
(3) 2 x 8-3/4 pin
(4) 5/8 nut
(5) 5/8 x 2 bolt
(6) Rear hinge
(7) Space plate
(8) Front hinge
(9) 1.00 nut
(10) 2 x 6-3/4 pin
(11) 5/8 bolt
(12) Wing brace

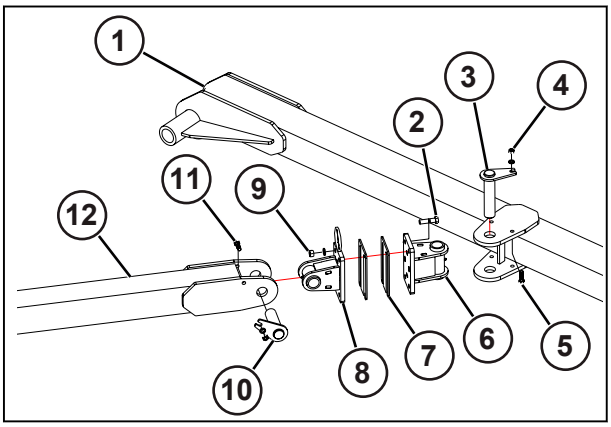


Fig. 91

A spacer plate (1) is used to straighten the wings from the front to the back, parallel with the center section.

To make an adjustment:

- Unfold the planter to the field position
- Lower the toolbar down to the lowest position
- Use a suitable hoist or stand to support the win brace.
- Loosen the four 1 x 3-1/2 bolts (2)
- Add or remove the spacer plates until wings are in the desired position. The spacer plate will slide out from the bottom.
- Tighten the bolts
- Repeat these steps for the other wing

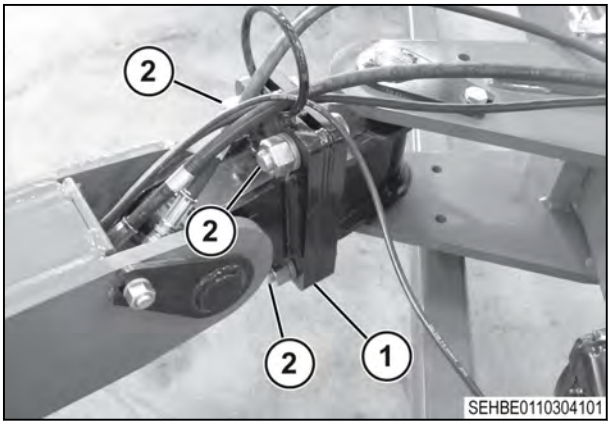


Fig. 92

3.9.8 Track system

3.9.8.1 Track tension

The tension is set at the factory and no adjustment during operation is necessary. The track system is prepared to de-tension to let you align the rubber track.

3.9.8.2 Align the track

Procedure

1. Remove the retainer lock plate cap screws (1) and lock plate (2) from the inboard and outboard sides of the track that it is necessary to adjust.

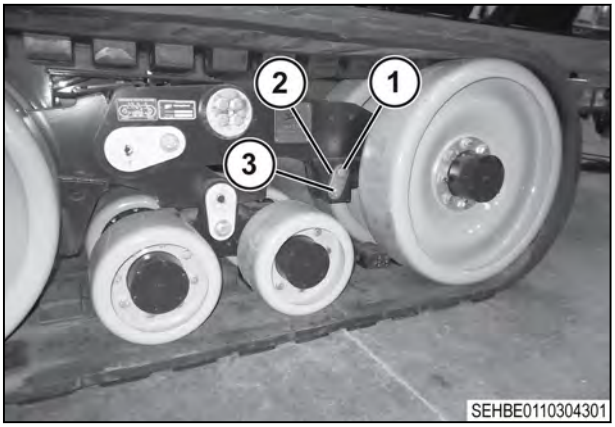


Fig. 93

2. Loosen the cap screw (3) counterclockwise 1.0 to 1.5 turns on the side of the undercarriage that is necessary for the track to move towards.
3. Tighten the cap screw on the opposite side to 300 Nm (221 lbf ft). Tighten the cap screw that was loosened first to 300 Nm (221 lbf ft).
   NOTE: *One full turn is the standard increment during adjustment. Lessen this quantity as you near the last adjustment.*
4. Check the track alignment again. Adjust until you near correct clearance on the two sides of the guide lugs.
   NOTE: *Lock plates are reversible for double the index increments. If necessary, increase the torque on the special cap screw to let small advancement to a correct lock plate position.*
5. When alignment is complete install the lock plates and tighten the cap screws to 130 Nm (95 lbf ft).

4. Maintenance

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4.1 Service schedule

Hazardous conditions and unusual operating conditions will make more frequent lubrication necessary.

See the machine specifications for the correct type and quantity of lubricant.

End of Season	Beginning of Season	40 hours (Weekly)	8 hours (Daily)	Lube Points	Item
		X		1	Lubricate the hitch
		X		2 each	Lubricate the wing brace front and rear hinge
		X		2 each	Lubricate the wing pivot points
		X		3 each	Lubricate the main hinge RH &LH
			X	1 each	Lubricate the upper link arms
			X	3 each	Lubricate the toolbar bearing
			X	2 each	Lubricate the main lift bearings - 4 cylinders
		X		2 each	Lubricate the tilt cylinders
		X		2 each	Lubricate the wing fold cylinders
			X	2 each	Lubricate the wing lift cylinders
		+		1 each	Lubricate the track - Center pivot
		+		1 each	Lubricate the track - Frame pivot
		+		1 each	Lubricate the track - Boggie pivot
+				8 hubs	Lubricate the track - Repack bearings
		+		1 each	Lubricate the track - Stabilizer bars
Lubricate with pressure gun, using multi-purpose grease					X
Lubricate with pressure gun, using a NLGI GC-LB equivalent grease.					+
Lubricate with some drops of light oil.					
Lubricate with chain and gear lube.					^

IMPORTANT:

Wheel bearing assemblies: The spindle nuts on the wheel assemblies are set at the factory.
Road transport and work in the field will seat the bearings.
More adjustment on the wheels will be necessary on the machine after 20 hours of operation. Remove the grease cap and tighten the bearings.
Remove the cotter pin and turn the tire while you tighten the spindle nut. Tighten until the drag on the tire stops the turn. Find the cotter pin hole in the spindle and loosen the spindle nut sufficient to put in the cotter pin. Replace cotter pin and grease cap.

4.2 Checklists

4.2.1 Beginning of the day

- Do the daily lubrication.
- Check 16.5 x 12 wing tire pressure. Inflate to 344 kPa (50 psi) or maximum listed on tire sidewall.
- Inspect the condition of the tracks.
- Check the alignment of the tracks.

4.2.2 End of the day

- Clean collected chemicals off the planter.



WARNING:
Use same precautions as in the chemical manufacturer's instructions when you clean up chemicals as when you fill the toolbar. Failure to do so can cause injury.

- Repair damage that occurred during the day.
- If the toolbar will not be used for a period of time, layer the surface that touches soil with the correct rust preventative.
- Examine the track system for material build-up on frames and wheels. Clean material from the undercarriage.
- Examine the tracks for oil leaks on the idler, midroller hubs and pivot axles. If leaks are recorded, check oil level of the hub to make sure the oil is up to the fill hole when on a level surface.
- Check the rubber track alignment daily by inspecting the guide lugs. If wear or chunking of the guide lug occurs, track alignment adjustment can be necessary.
- Inspect the track surface to remove imbedded stones or debris. Steel wire can come out from the track carcass without effect on the performance of the track. Cut the wire at the rubber surface to remove loose wires.
- Clean the hydraulic oil cooler fins (or optional screen).
- Clean seed coating residue off the seed discs with soap and hot water.

4.2.3 Beginning of the season

- Clean all dirt and grease off the machine.
- Lubricate the machine. See the information for the service schedule.
- Make sure all the chemical tanks and the hoppers are clean and dry before filling.
- Clean the monitor harness connections with the correct electrical contact cleaner.
- Check the tire pressure.

4.2.4 Storage

- Remove all dirt and waste from the machine.
- Clean all chemicals from the hoppers, tanks, tubes, spreaders, discs and areas where chemicals collect.



WARNING:
Use same precautions as in the chemical manufacturer's instructions when you clean up chemicals as when you fill the toolbar. Failure to do so can cause injury.

- Replace damaged parts.
- Check the hydraulic hoses for leaks and abrasions. Replace as necessary.
- Remove the folding switch box from the tractor and store in a clean, dry location.
- Store the toolbar away from livestock.
- Cover the toolbar if stored outside.
- Block the machine wheels.



WARNING:
Overhead crushing hazard. Movement of the mechanism can cause the lifted machine components to fall. Injury or death can occur.

4.3 Track system maintenance

1. The stabilizer bars are set at the factory.
2. Before you check the track alignment the implement must be empty and the spring tensioning mechanism with no pre-load.
3. Measure the dimension from the inner area of the rim center(flat surface of the center hub) (1) to the square tube (2). The front dimension (3) must be equal to the rear dimension (4).
4. Pull the implement on a flat surface for a correct time frame, This will let the belts relax and move freely on the undercarriage rollers.
5. Drive in a straight line for approximately 200 ft and coast the tractor to a stop. Put the tractor in PARK and apply the emergency brake. Do not apply the brake during this process as sudden stops can effect the track position during the alignment process.
6. Use a 1/4 x 4 x 8 in shim slide between the front midroller and guide lugs. Bridge the guide lugs with the shim while you hold pressure on a minimum of 2 lugs.
7. If the shim fits freely between the lugs and midroller on the two sides of the undercarriage the alignment is correct. If the shim binds and does not fit between the midrollers and guide lugs, track adjustment is necessary.

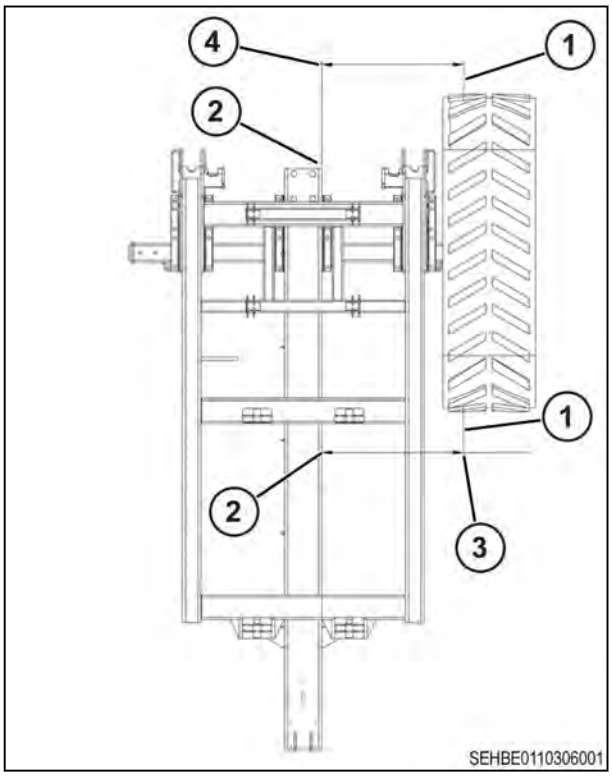


Fig. 1

4.4 Lubrication points

See the machine specification for the correct lubricant.

Shut off the engine, lower the machine to the ground, set the parking brake and the the key with you.

Do not let grease build up on or around parts, especially when operating in sandy soil.

Make sure to clean the lubrication fittings fully before connecting the grease gun.

Watch each lubrication point while lubricating to make sure the lubricant applies correctly.

Check for any loose, missing, or worn parts when lubricating the machine.

Check the lubrication service schedule for the correct lubrication interval.

4.4.1 Sealed bearings

Sealed bearings are used to give trouble free operation with a minimum of maintenance and lubrication.

Sealed bearings are lubricated for life. Because of the type of seal, lubricant cannot be added.

If a seal is damaged, replace the sealed bearing.

NOTE:
The bearings used on some components must be lubricated.

4.4.2 Frame lubrication points

Do not let grease build up on or around parts, specially when you operate in sandy soil. Make

sure to clean the lubrication fittings fully before you connect the grease gun.

Monitor each lubrication point while you lubricate to make sure the lubricant applies correctly.

Check for loose, missing, or worn parts when you lubricate the machine.

All arrows point to grease fittings unless recorded differently.

Lubricate machine with an SAE multi-purpose grease at the intervals shown.

Hitch

(1) Swivel

Lubricate with grease each week.

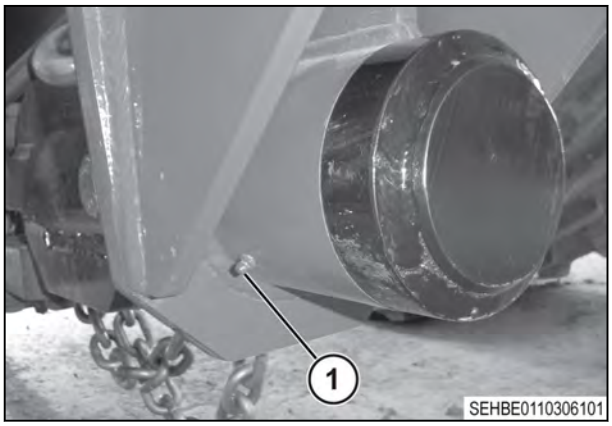


Fig. 3

Wing brace - front and rear hinge (1)

Lubricate with grease each week.

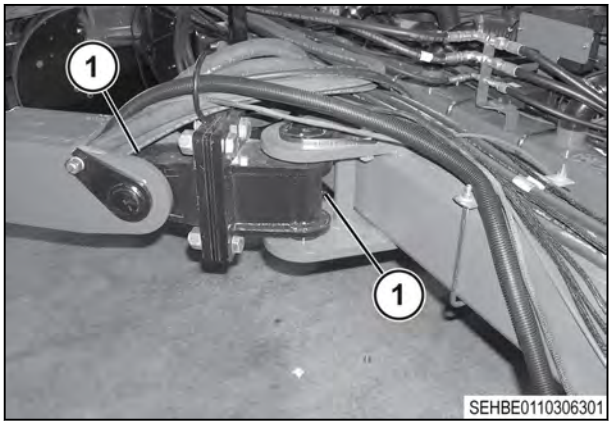


Fig. 4

Wing pivot points (1)

Lubricate with grease each week.

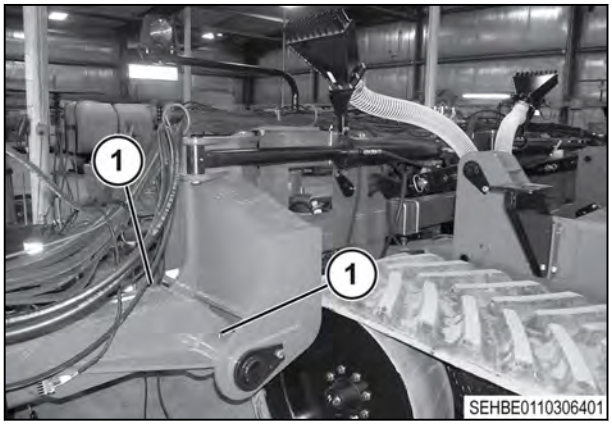


Fig. 5

Main hinge (1)

Lubricate with grease each week.

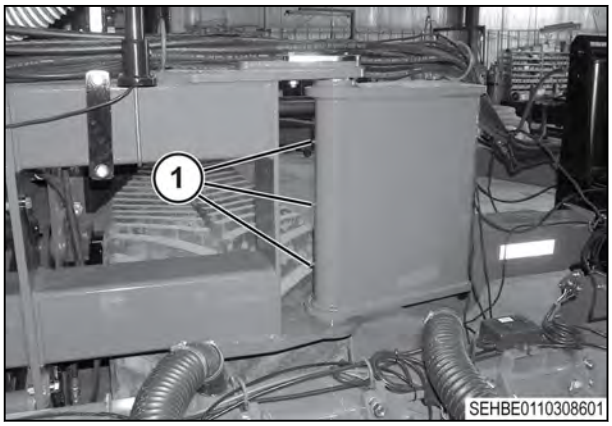


Fig. 6

Upper link arms (1)

Lubricate with grease each week.

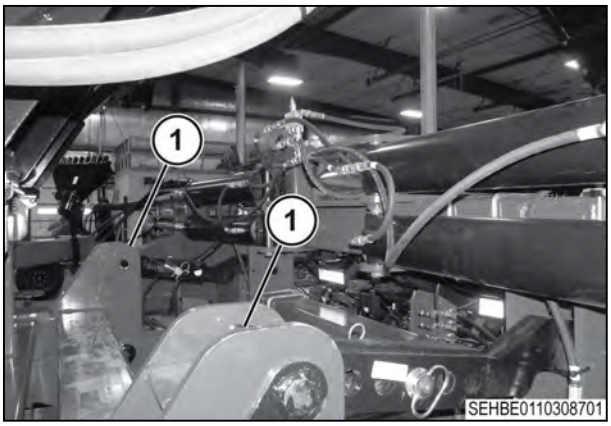


Fig. 7

Tilt bearing (1) (tilt)

Each tilt bearing has three grease zerks.

6 tilt bearings

Lubricate with grease each week.

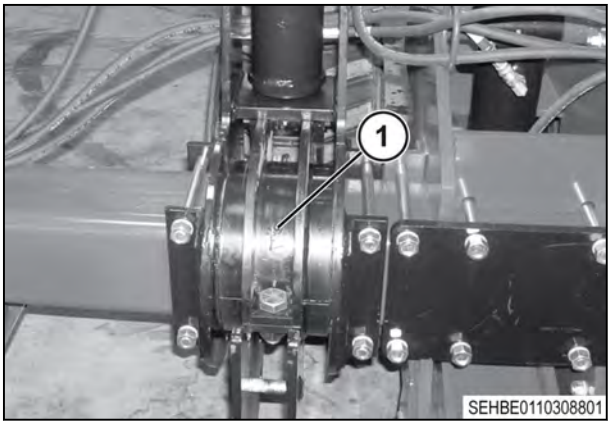


Fig. 8

4.4.3 Cylinder lubrication points

Primary lift cylinders (1) on each end. Two cylinders are on each side of the center section of the main frame.

When cylinder stops are used, the cylinder stops must be used on all lift cylinders.

Lubricate with grease each week

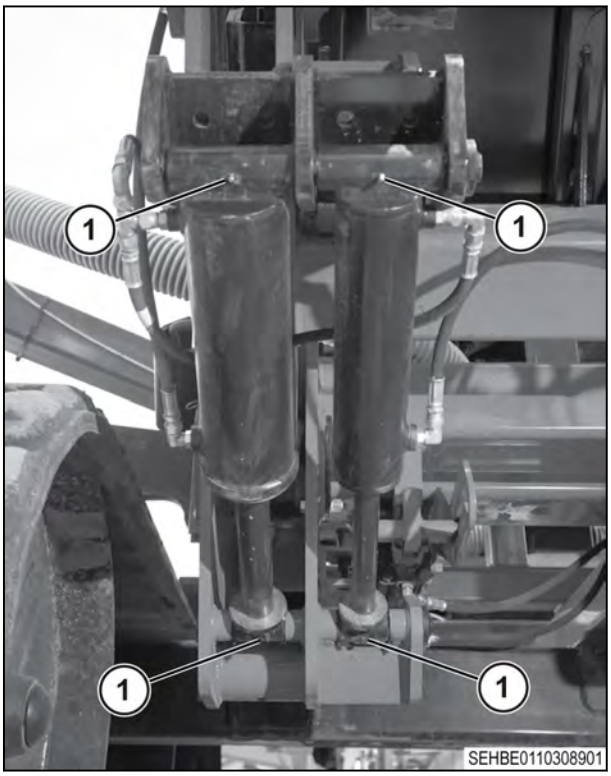


Fig. 9

Tilt cylinders (1)

Lubricate with grease each week

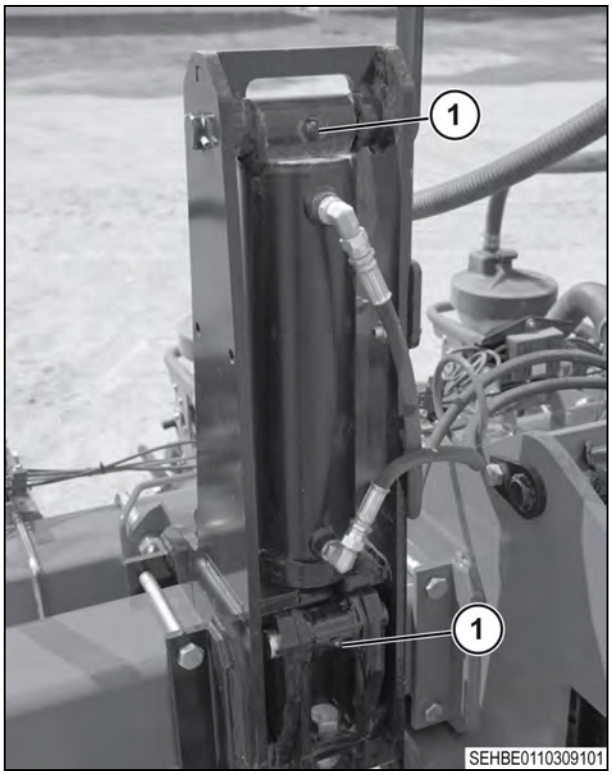


Fig. 10

Wing fold cylinders (1) on the two ends of each cylinder.

There is one fold cylinder on each side of the center section.

Lubricate with grease each week.

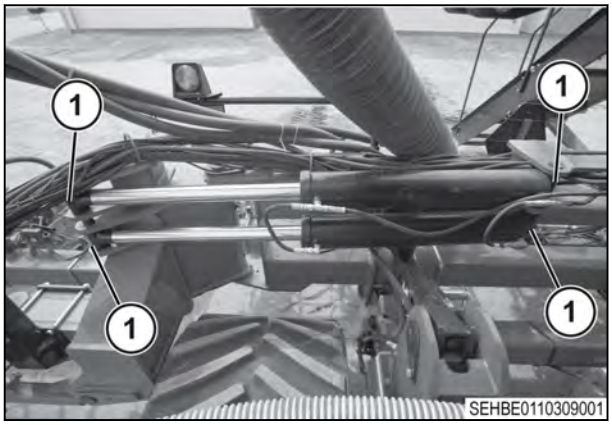


Fig. 11

Wing lift cylinders (1)

When cylinder stops are used, the cylinder stops must be used on all lift cylinders.

Lubricate with grease each week.

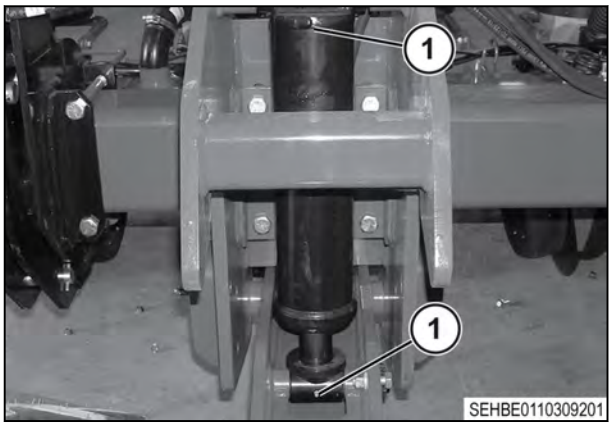


Fig. 12

4.4.4 Track lubrication points

Do not let grease build up on or around parts, specially when you operate in sandy soil.

Make sure to clean the lubrication fittings fully before you connect the grease gun.

Monitor each lubrication point while you lubricate to make sure the lubricant applies correctly.

Check for loose, missing, or worn parts when you lubricate the machine.

All arrows point to grease fittings unless recorded differently.

Lubricate planter with an SAE multi-purpose grease at the intervals shown.

(1) Center pivot - 2 total, one on each side

(2) Frame pivot - 2 total, one on each side

(3) Bogie pivot - 2 total, one of each side

Lubricate with grease each week.

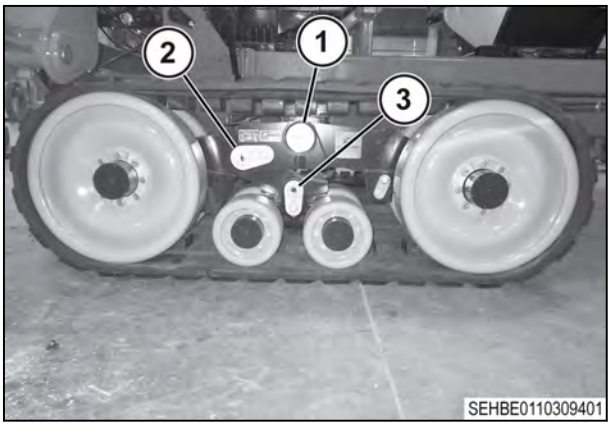


Fig. 13

Track - Stabilizer bar (1) - 2 total, one on each side Lubricate with grease each week.



Fig. 14

4.5 Wheel bearing assemblies

IMPORTANT: *The spindle nuts on the wheel assemblies are set at the factory.*

Road transport and field work will seat the bearings. More adjustment on the bearings will be necessary. After 20 hours of machine operation remove the grease cap and check if the bearings are tight.

Remove the cotter pin and turn the tire while you tighten the spindle nut. Tighten until the drag on the tire turn stops. Put the cotter pin hole in the spindle and loosen the spindle nut sufficient to put in the cotter pin. Replace cotter pin and grease cap.



Fig. 15

4.6 Prime the hydraulic circuits

IMPORTANT: *Before you release air from (priming) the hydraulic circuits, select an area with a hard, level surface sufficient to let the wings fully extend. Also, have space in front of and behind the tractor.*

IMPORTANT: *It is necessary for the planter hydraulic system to have approximately 25 gal of fluid. Make sure to examine tractor fluid supply frequently when priming circuits and add as necessary.*

IMPORTANT: *Use the tractor to help pull the wings forward to fold up the planter toolbar. Use the tractor to push the wings rearward to unfold the planter toolbar.*



WARNING:
To prevent personal injury, make sure each person is clear of the planter before you continue to fold or unfold the planter.

The hydraulic system will be primed at the factory. If a cylinder is replaced and it is necessary to prime the system, follow these steps

Procedure

1. Connect the bottom end of all cylinders but do not connect the rod ends. Hold the cylinders to let the rods extend without machine contact.
2. Most fittings, but not the connection points at the tractor end and some valves, are JIC or O-ring type fitting. It is not necessary to use thread compound to correctly seal the JIC and O-ring fitting. **NOTE:** *Keep all connections, fitting, hose, etc as clean as possible.*
3. Where pipe threads are used a thread-sealing compound must be used.
   NOTE: *Do not use Teflon type tape on hydraulic circuitry use an applicable liquid compound. If tape or contamination enters the system, the tape can clog the bypass hole.*
4. With all connections attached and if the cylinders have support it will let the rod extension apply pressure to the system.
   The main or base cylinder must extend as oil flows into the bottom of the cylinder. Because there is air in the remaining cylinders and in the connecting hoses the outer cylinders can extend quickly. Because the cylinders are extended it does not show the system is purged.
5. Continue to pour oil into the system until all cylinders have extended fully.
   NOTE: *The cylinders will only bypass when the cylinders are fully extended. If you let the cylinders extend without the lift of the unit, the cylinders will touch the bypass position.*
   Keep in mind that all the oil that goes to the outer cylinders must be bypassed through the base cylinder bypass hole and subsequent cylinders. This will be some time, in some conditions a large quantity of time. Machines with many wings and lift cylinders, the system will take longer to charge. Make sure to see that the tractor has sufficient oil capacity. It can be necessary to add oil to the tractor reservoir. It is necessary to have 2500 to 3000 psi to push all the oil through the by-pass holes.
6. When all the cylinders on the unit are fully extended, retract the cylinders and again extend fully.
7. Hold the cylinders in the extended (bypass) position for some minutes.
8. Retract the cylinders and monitor the cylinders that they work in sequence.
9. Connect the cylinder rod ends to the anchor points of the unit.
10. Lift and lower the unit and check to make sure the unit moves in a level manner.
    If the cylinders are correctly bypassed, all cylinders and hoses must be filled with oil with no air in the system. There will be some air in the system as it is possible that all air is not removed from the system. With some air in the system the cylinders must move in sequence and lift and control the depth of the unit. If the cylinder is apparently not bypassing it can show that some contamination has

blocked the bypass hole. Because the hole can possibly be blocked, it is very important to keep clean oil.

11. Supply protection for the complete hydraulic system at all connection points.

5. Assembly

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5.1 Assembly safety

- Wear all personal protective equipment (PPE) and protective clothing issued to you or called for by job conditions and country/local regulations. PPE includes, but is not limited to, equipment to protect eyes, lungs, ears, head, hands, and feet when operating, servicing, or repairing equipment.
- Use a lift crane, jack, tackle, or forklift to lift heavy parts and assemblies.
- The assembly area must be a solid, level surface and clean of debris to prevent the assembly personal from tripping or falling.
- Put parts and tools within easy reach of the work area.
- Inspect parts for sharp edges, grease, oil, and dirt that can cause injury during assembly.
- Read and understand each assembly step before doing a procedure.
- Make sure the blocking material is of the correct strength and in good condition. The blocking material must be smooth, dry, and level.
- Do not put any body part under blocked-up assemblies.
- If welding or flame cutting, make sure no flammable materials are in the area. Clear all persons from the area.
- Make sure all lines and hoses are in good condition during assembly. Tighten all fittings.
- Use a piece of cardboard to check for leaks. Never use your hand.
- Correct any fluid leaks before using the machine.

5.2 Before delivery

- After you complete the assembly of the machine, make sure all nuts, bolts, other fasteners, and hydraulic fittings are correctly tightened.
- Make sure all safety guards and safety locking devices are in position.
- Make sure machine is fully lubricated.
- Before you operate the machine, make sure to read the Operation Section of operator's manual.
- Before you supply the machine, go through machine maintenance, operation, and safety with the customer.
- Complete the Pre-delivery Inspection and Service Report at the end of these instructions.

5.3 New track break-in

Operate the new tracks in dry and dusty soil conditions as soon as possible.

During the break in period, rolling components undergo a polishing in process to get a smooth steel to rubber interface with the guide lug. Rubber uses dust and dirt as a dry lubricant during the break in and operation to the minimum heat and decrease rubber stickiness.

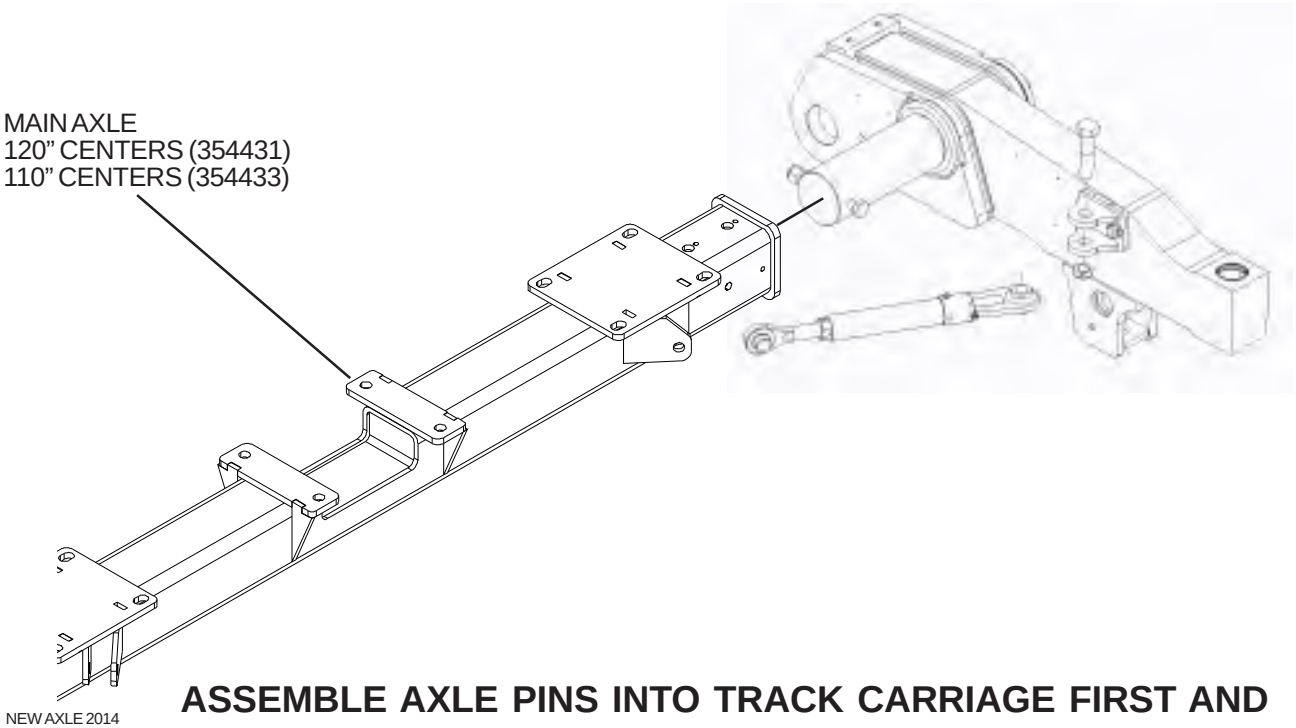
Operation without dust or soil in the system, specially during high speed roading, could result in severe damage.

If roading must be done, a dry lubricant such as soil, talc, graphite, oil dry or cat litter must be applied to the guide lugs in intervals during roading until field operation continues.

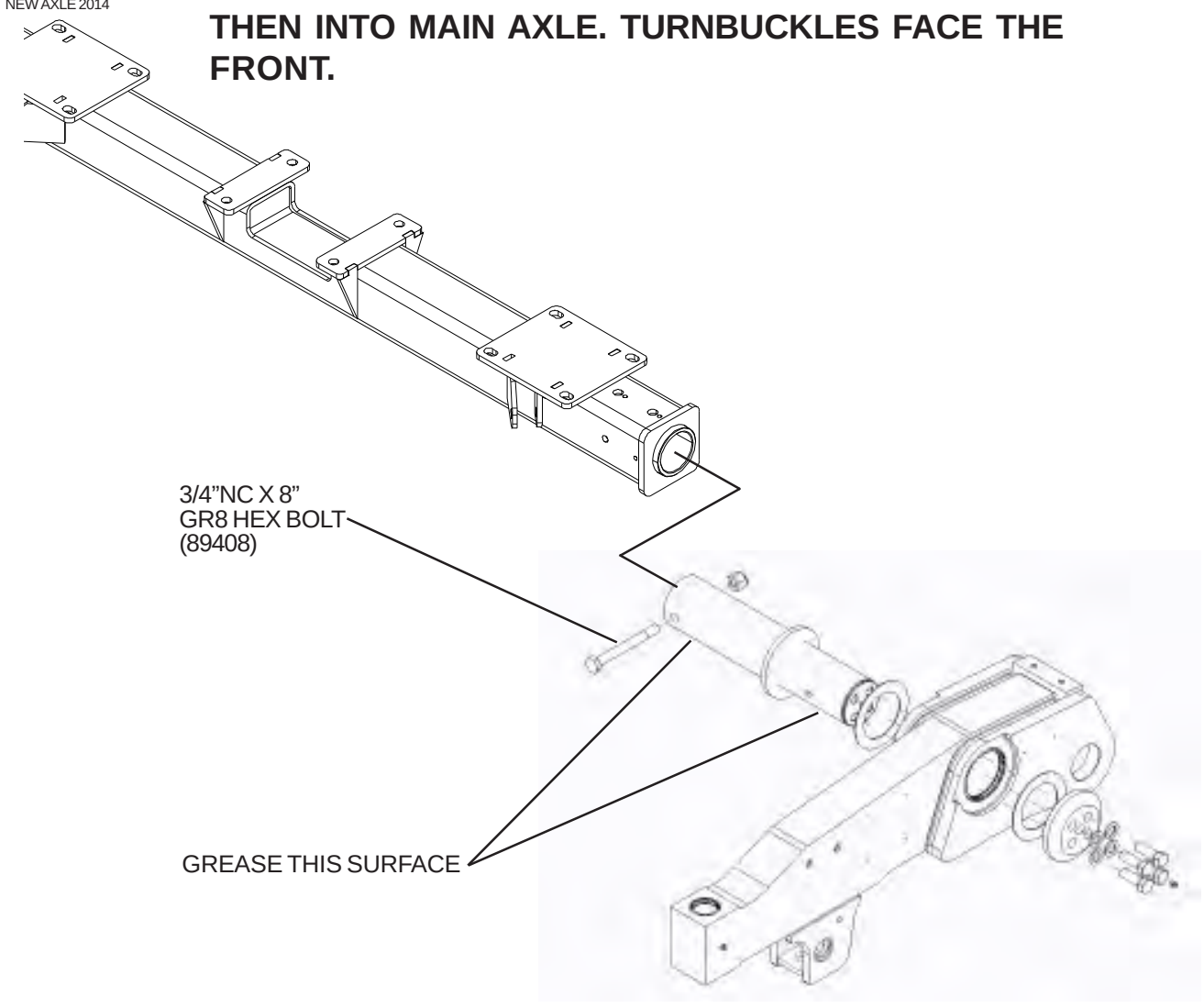
5.4 ASSEMBLY SEQUENCE

1.) LH & RH TRACK ASSEMBLIES INTO MAIN AXLE
(TREAD RUNS BACKWARDS & TURNBUCKLES FACE FRONT)
2.) MAINFRAME & AXLE
3.) SLIDE TONGUE INTO MAINFRAME
4.) ASSEMBLE FRONT END COMPONENTS
A.) HYD JACK
B.) TONGUE LATCH
C.) SWIVEL HITCH
D.) PARTS BOOK TUBE
E.) SAFETY CHAIN
5.) LOWER LIFT ARM
6.) MAIN LIFT CYLINDERS & FLOATING LINK (CENTER SECTION)
7.) CENTER SECTION & TOP LINK ARMS
8.) MAIN HINGES & FOLD CYLINDERS
9.) LH & RH WING TUBES
10.) TOWERS & BEARING ASSEMBLIES (TILTING MECHANISM)
11.) WING WHEEL ASSEMBLIES (TREAD RUNS BACKWARDS)
12.) BRACE ARMS
13.) HYDRAULIC HOSES
14.) LIGHTS, SMV & DECALS

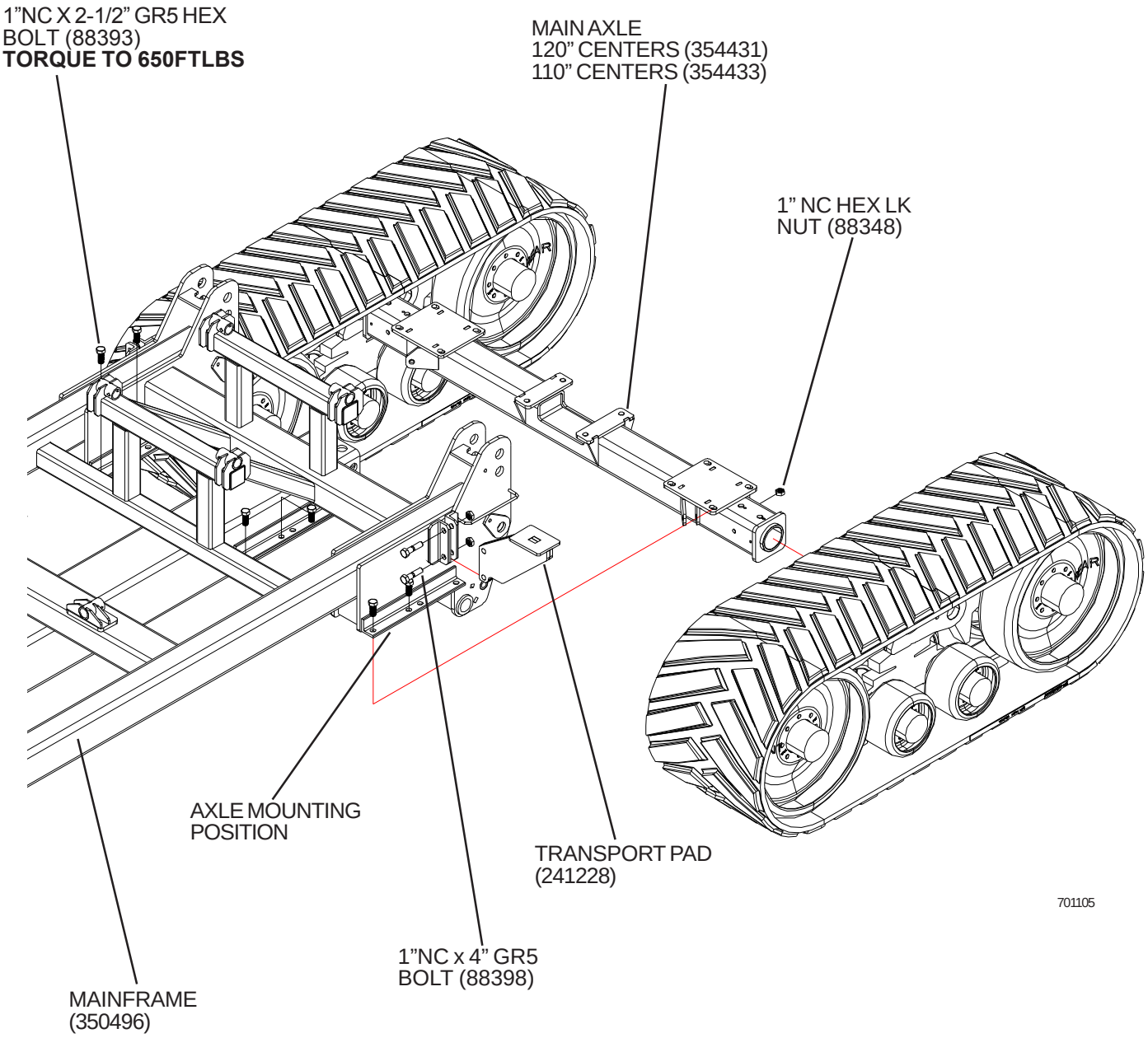
5.5 AXLE & TRACKS



ASSEMBLE AXLE PINS INTO TRACK CARRIAGE FIRST AND THEN INTO MAIN AXLE. TURNBUCKLES FACE THE FRONT.



5.6 AXLE & TRANSPORT PAD



STEP ONE-ASSEMBLE THE AXLE BETWEEN EACH TRACK ASSEMBLY USING THE 4-1/2” DIA PINS.

STEP TWO-SET THE MAINFRAME ON TOP OF THE AXLE.

5.7 Track system maintenance and assembly

1. The stabilizer bars are set at the factory.
2. Before you check the track alignment the implement must be empty and the spring tensioning mechanism with no pre-load.
3. Measure the dimension from the inner area of the rim center(flat surface of the center hub) (1) to the square tube (2). The front dimension (3) must be equal to the rear dimension (4).
4. Pull the implement on a flat surface for a correct time frame, This will let the belts relax and move freely on the undercarriage rollers.
5. Drive in a straight line for approximately 200 ft and coast the tractor to a stop. Put the tractor in PARK and apply the emergency brake. Do not apply the brake during this process as sudden stops can effect the track position during the alignment process.
6. Use a 1/4 x 4 x 8 in shim slide between the front midroller and guide lugs. Bridge the guide lugs with the shim while you hold pressure on a minimum of 2 lugs.
7. If the shim fits freely between the lugs and midroller on the two sides of the undercarriage the alignment is correct. If the shim binds and does not fit between the midrollers and guide lugs, track adjustment is necessary.

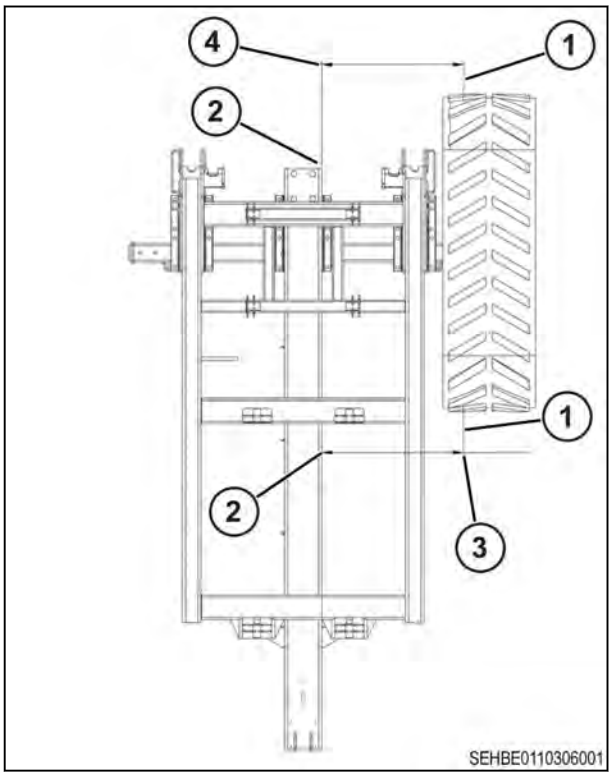
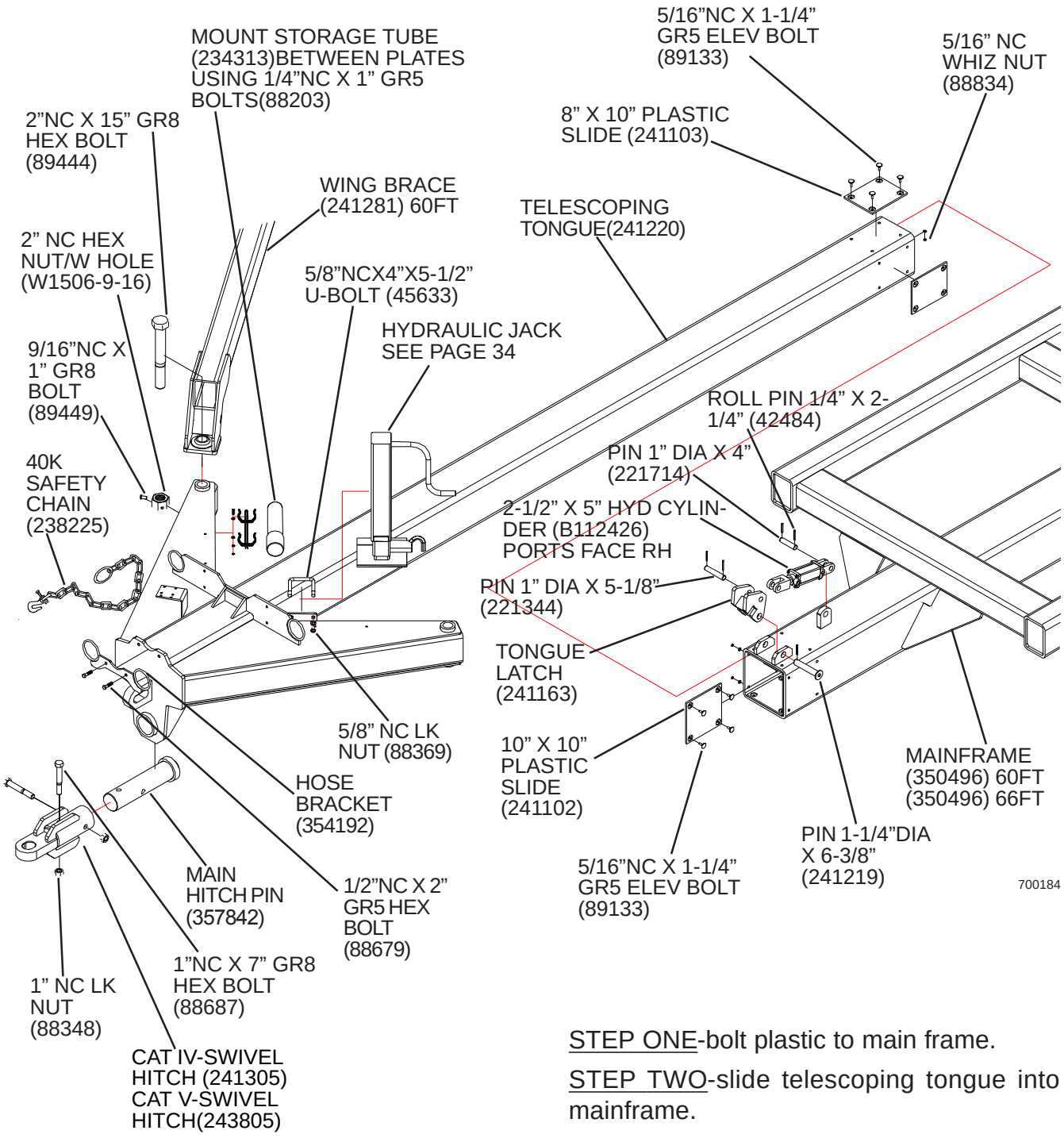


Fig. 1

5.8 TELESCOPING TONGUE



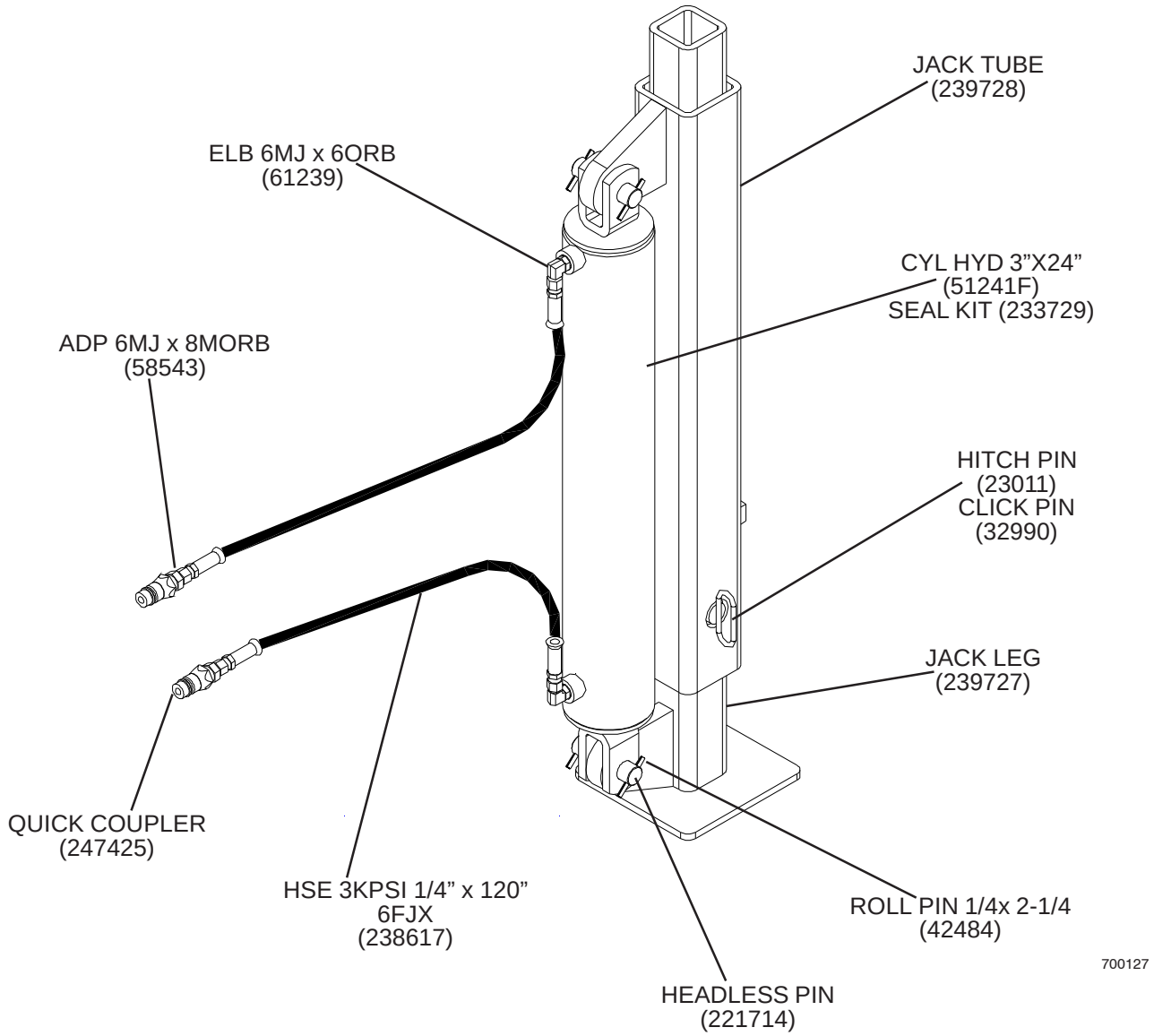
2-1/2" X 5" HYD CYLINDER (B112426) PORTS FACE RH & CLEVIS BOLT MUST BE ON TOP

STEP ONE-bolt plastic to main frame.

STEP TWO-slide telescoping tongue into mainframe.

STEP THREE-bolt plastic to telescoping tongue using the large holes at the rear of the main frame.

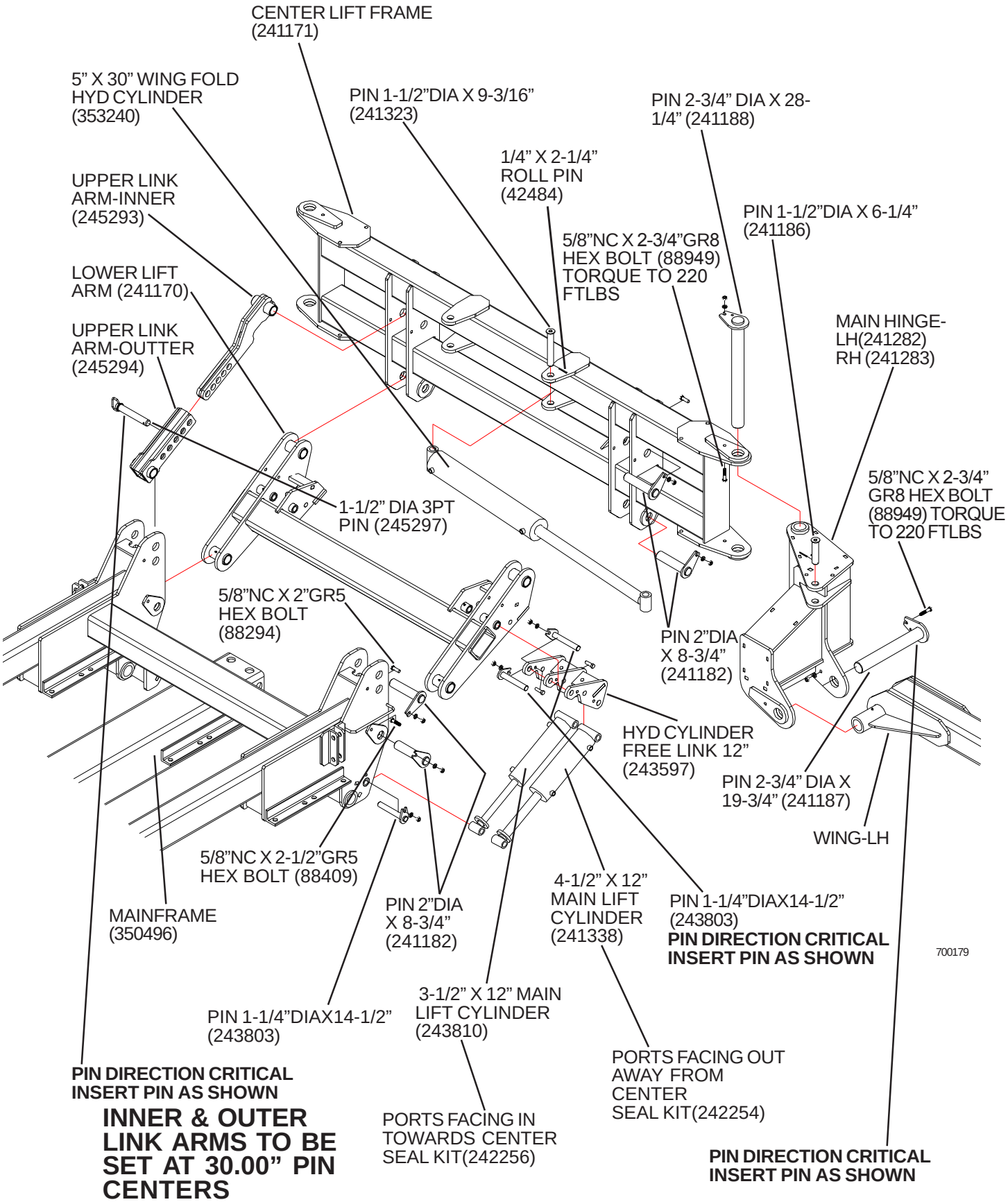
5.9 HYDRAULIC JACK



WARNING

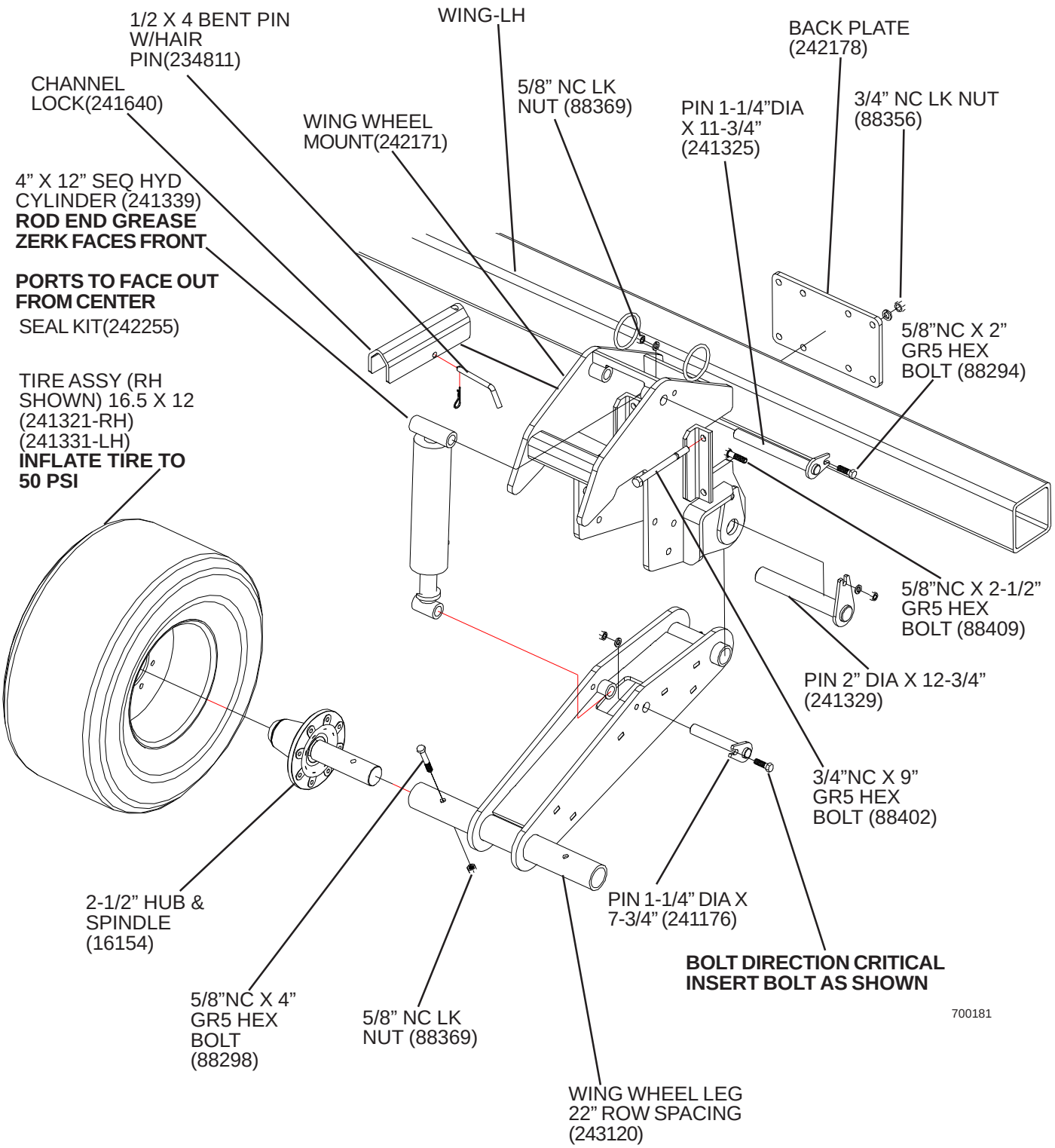
JACK MUST BE PINNED IN THE UPPER OR LOWER POSITION AT ALL TIMES. IT SHOULD ONLY BE UNPINNED WHEN USING THE JACK FOR ATTACHING TO A TRACTOR OR SERIOUS INJURY OR DEATH MAY RESULT.

5.10 CENTER FRAME & MAIN HINGE



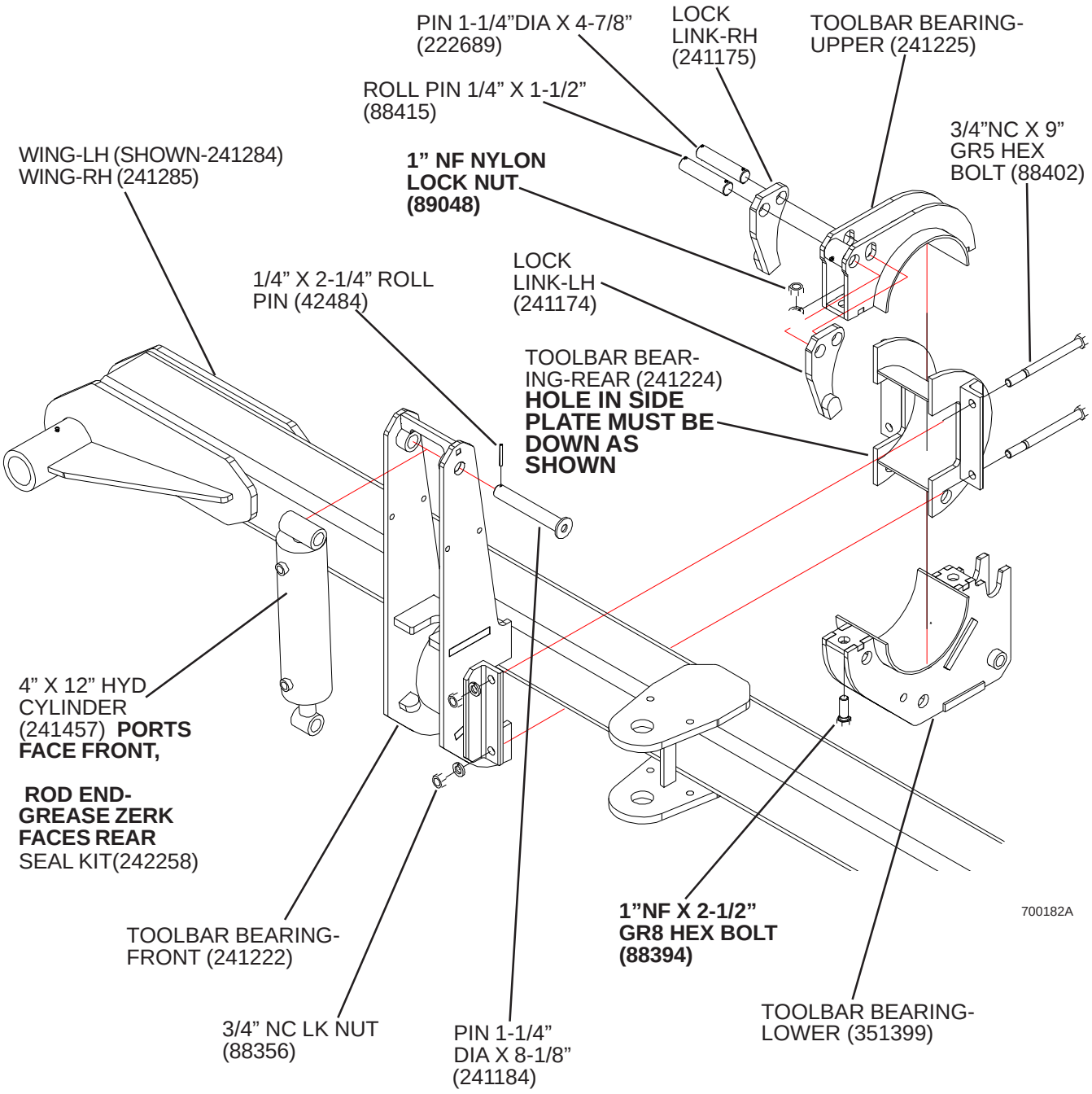
DEPTH STOP COLLARS SHOULD BE USED ON ALL LIFT CYLINDERS.

5.11 WING WHEEL



PIN (241325) TO BE INSERTED FROM THE OPPOSITE SIDE AS ITEM 241222 SEE PAGE 131

5.12 BEARING W/TILT CYLINDER

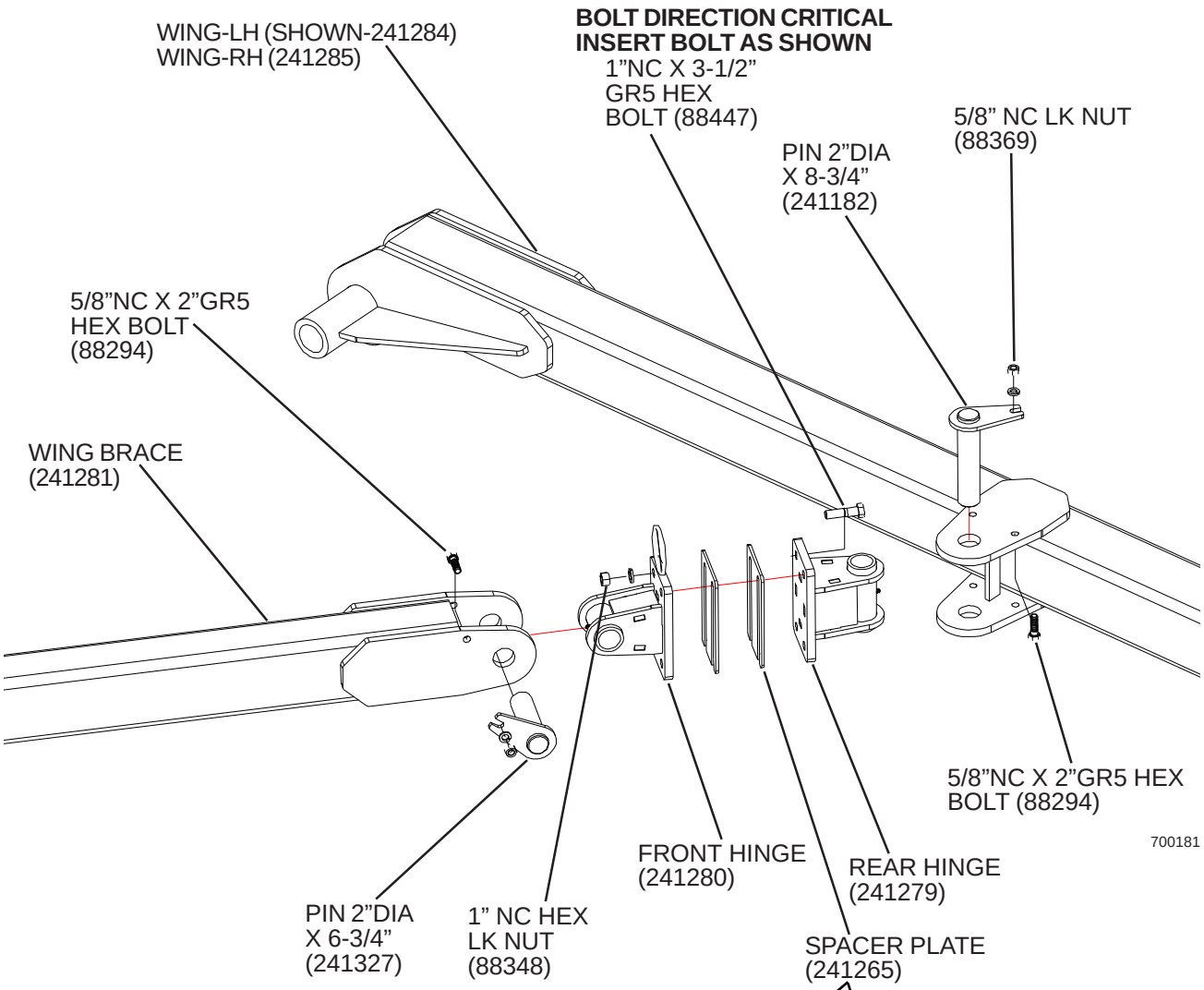


SEE PAGE 131 FOR BEARING LOCATIONS

BEFORE TIGHTENING 88394 GREASE ITEMS 241225 & 351399

IF A BEARING ASSEMBLY IS NOT ROTATING A SPACER WASHER CAN BE INSERTED BETWEEN ITEMS 241225 & 351399 FOR PROPER ROTATION

5.13 BRACE ARM HINGE

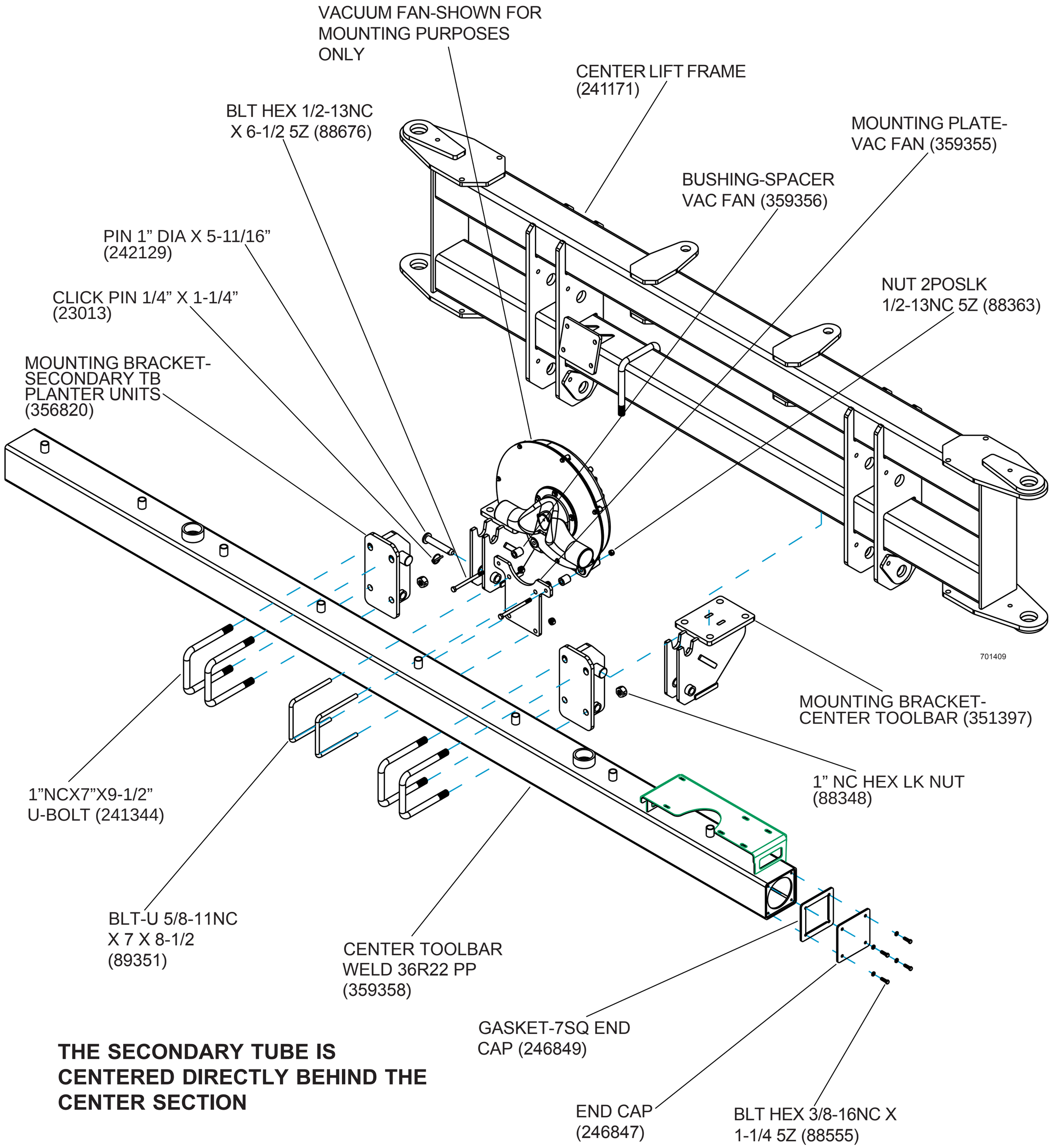


Position spacer plates with the open slots facing up. These plates can then be dropped out the bottom for ease of adjustment.

Spacer plates are used to straighten wings from front to back (parallel with center section). Check during field operation only.

5.14 SECONDARY TOOLBAR - CENTER

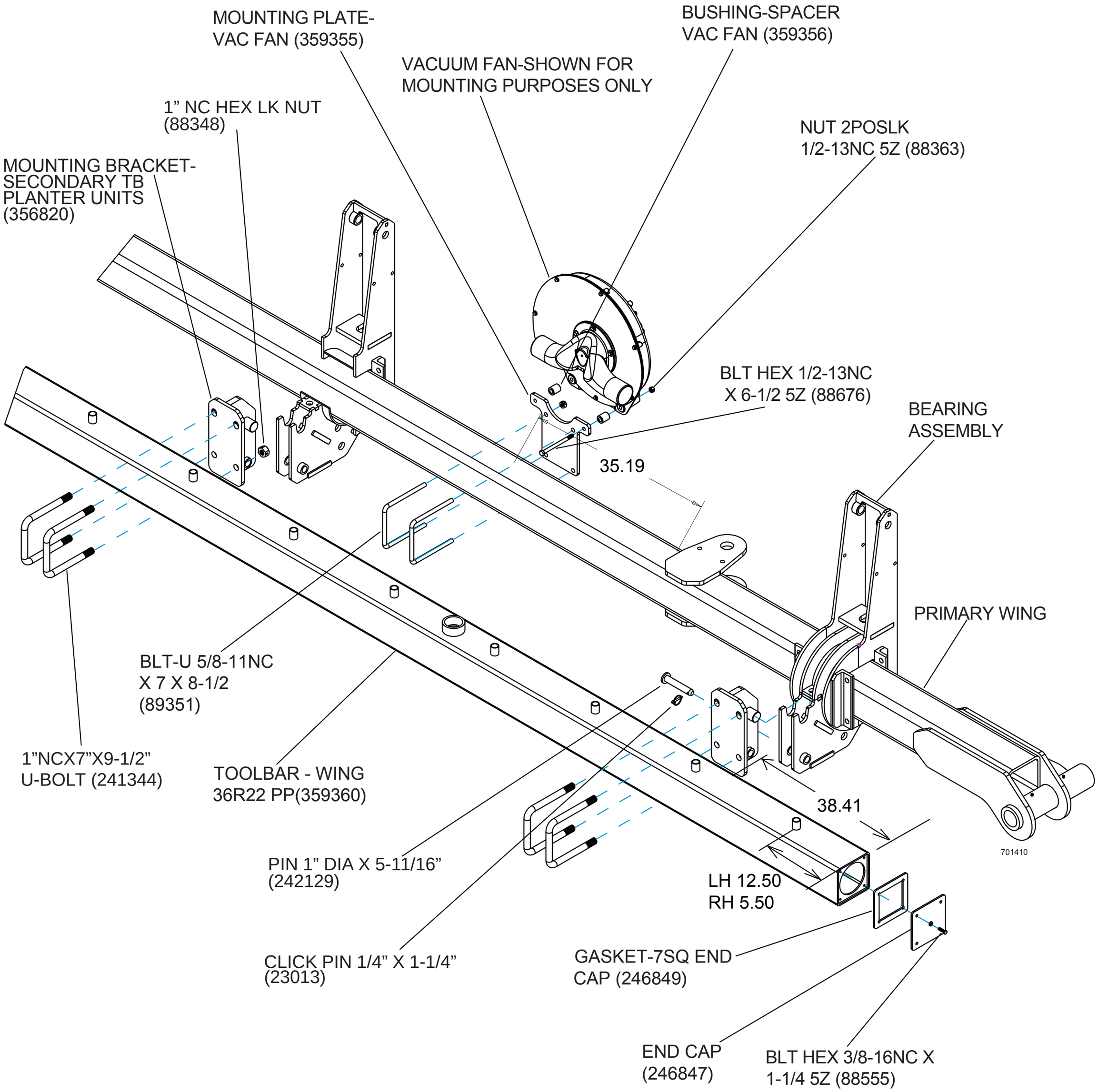
36.00” BETWEEN MOUNTING PLATES



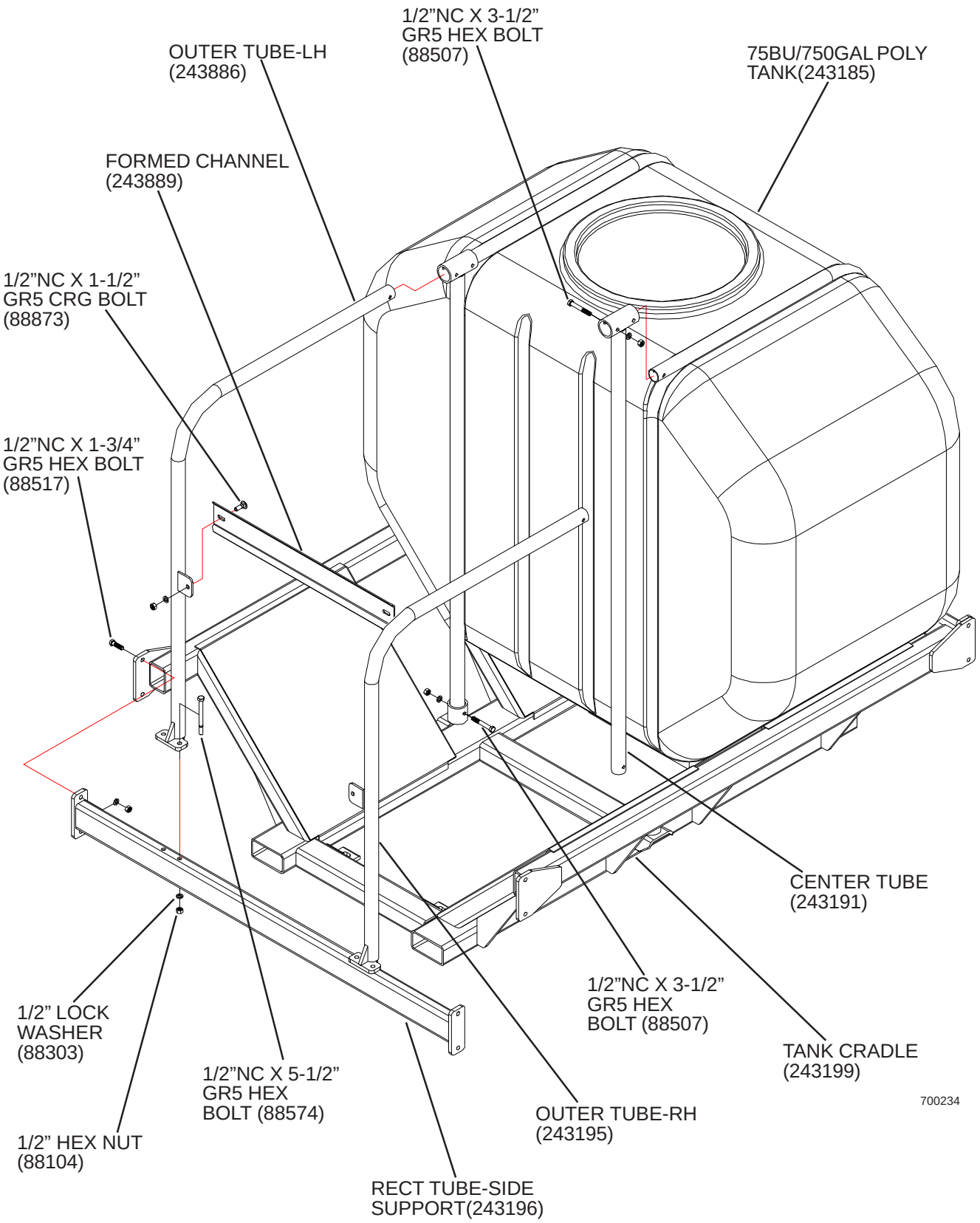
THE SECONDARY TUBE IS CENTERED DIRECTLY BEHIND THE CENTER SECTION

5.15 SECONDARY TOOLBAR - WING

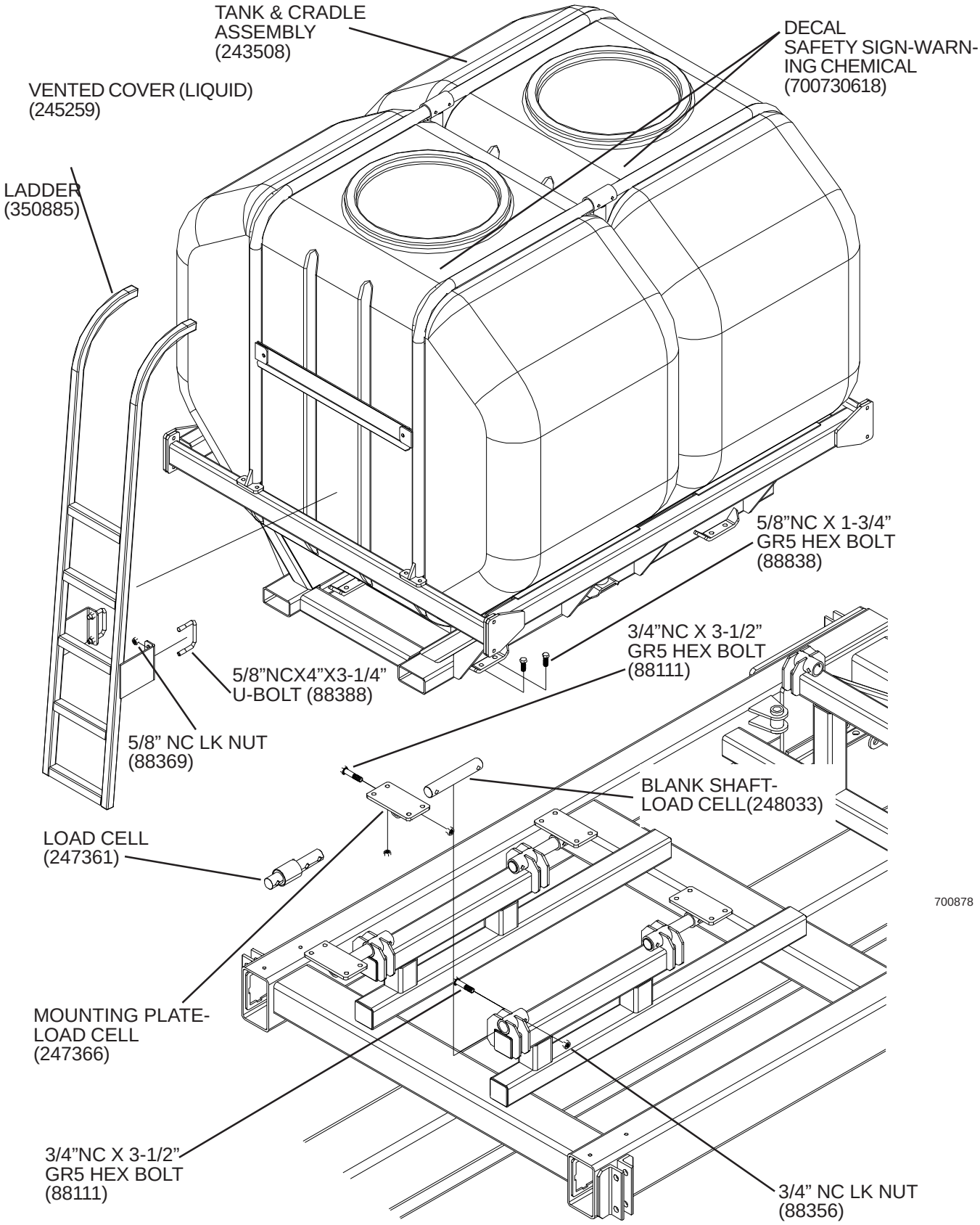
LEFT HAND WING SHOWN
36R22"



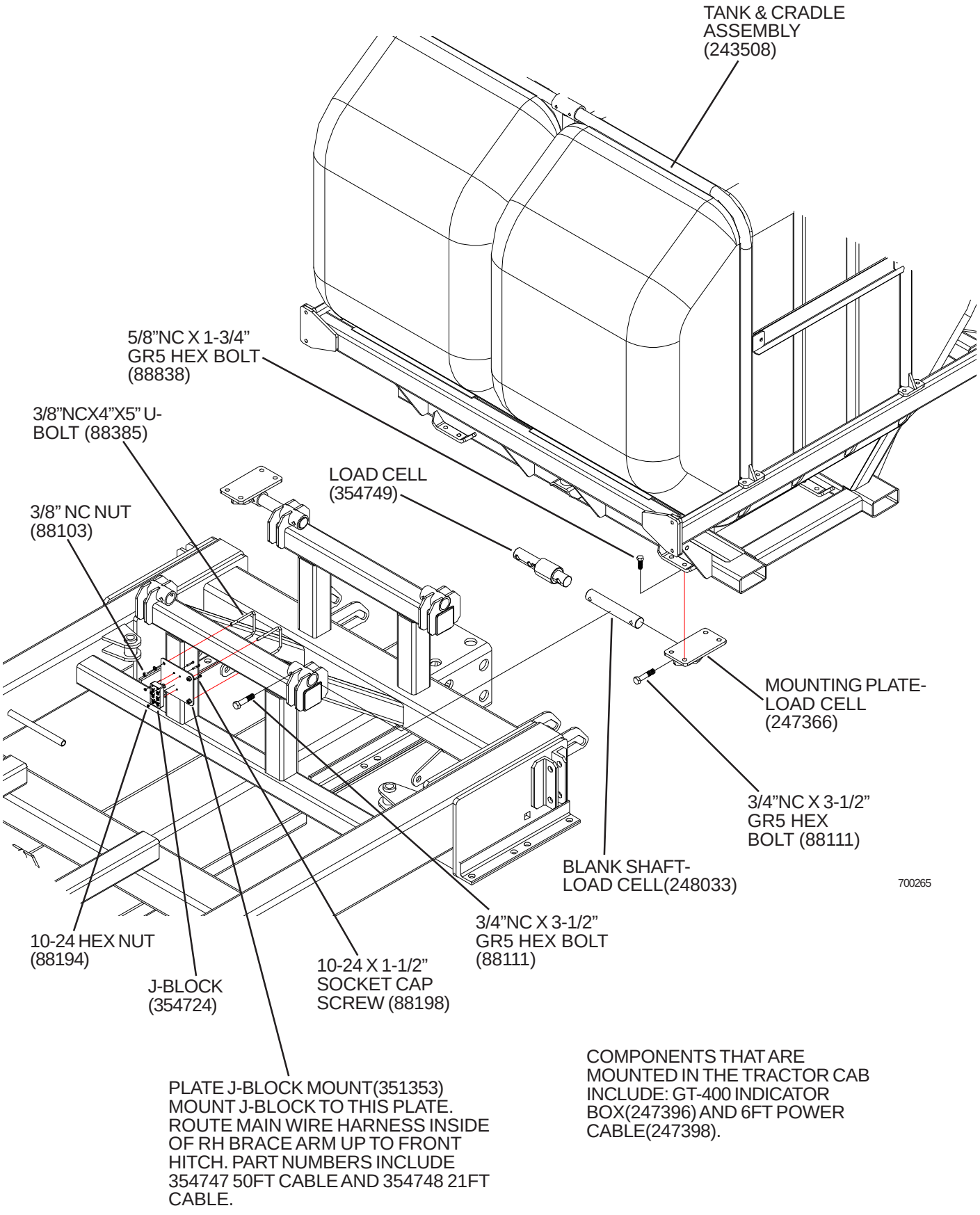
5.16 75BU/750GAL TANK & CRADLE



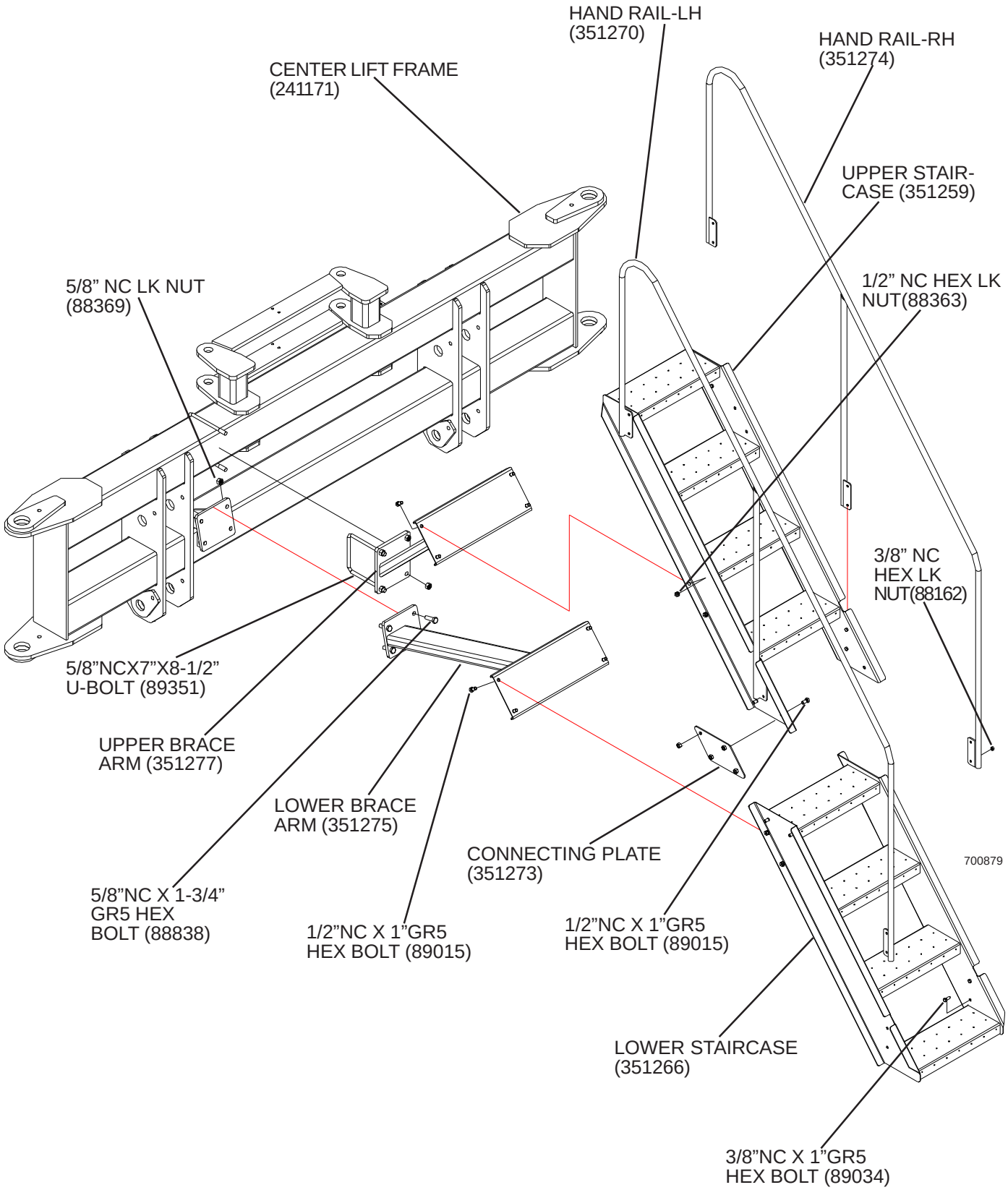
5.17 FRONT CRADLE MOUNT-LIQUID TANKS



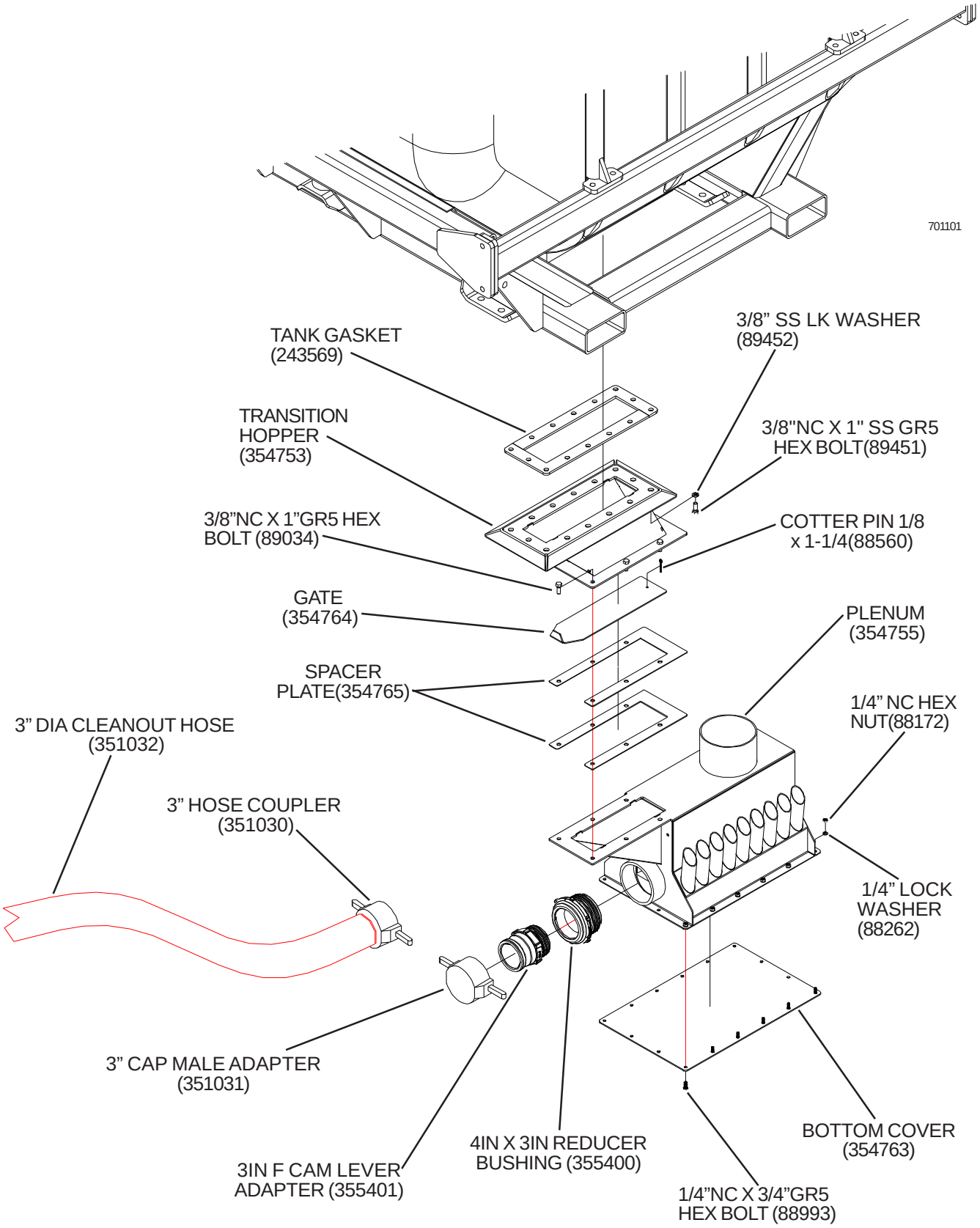
5.18 REAR CRADLE MOUNT & SCALE



5.19 REAR STAIR CASE

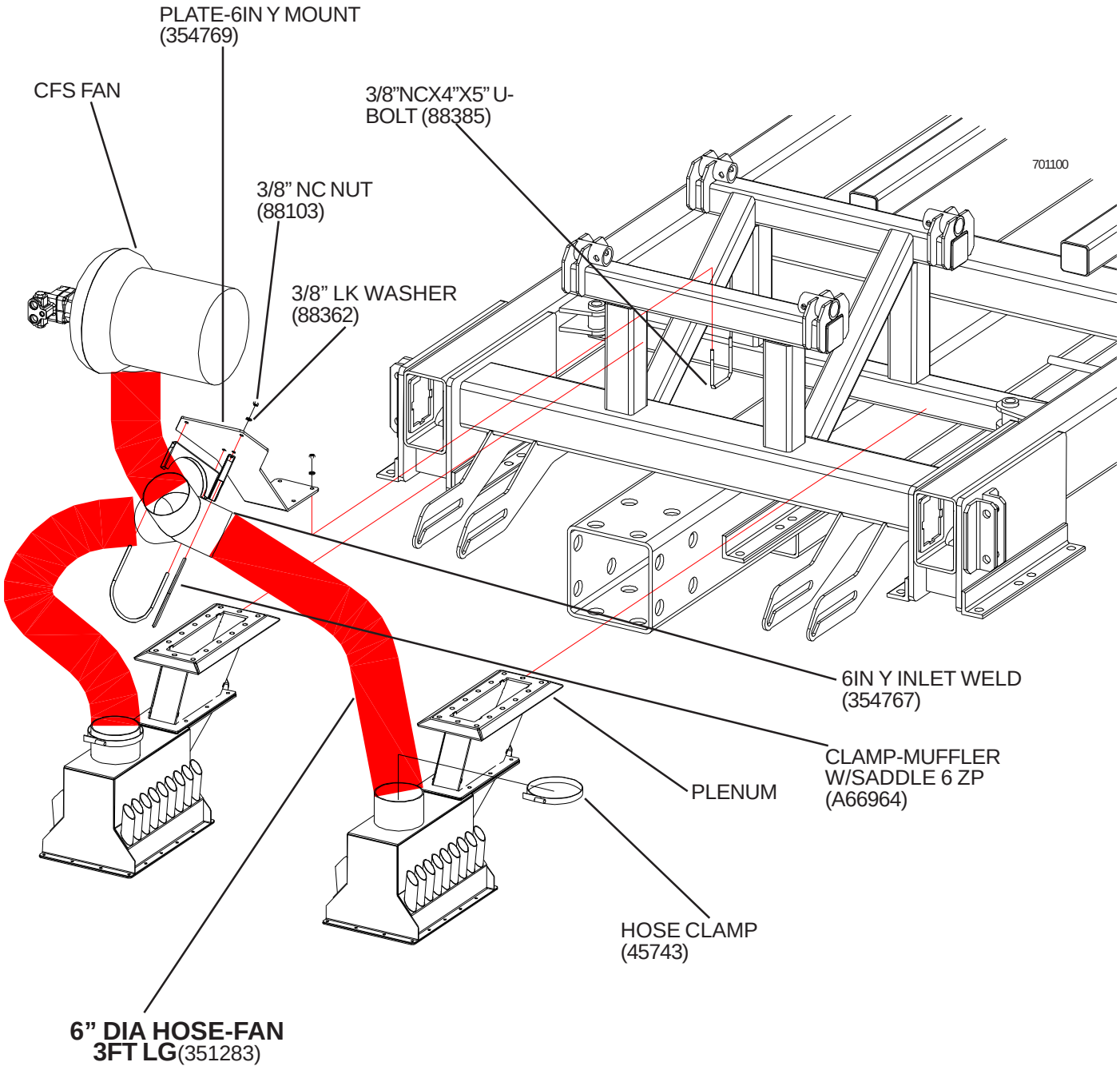


5.20 PLENUM & CLEANOUT HOSE



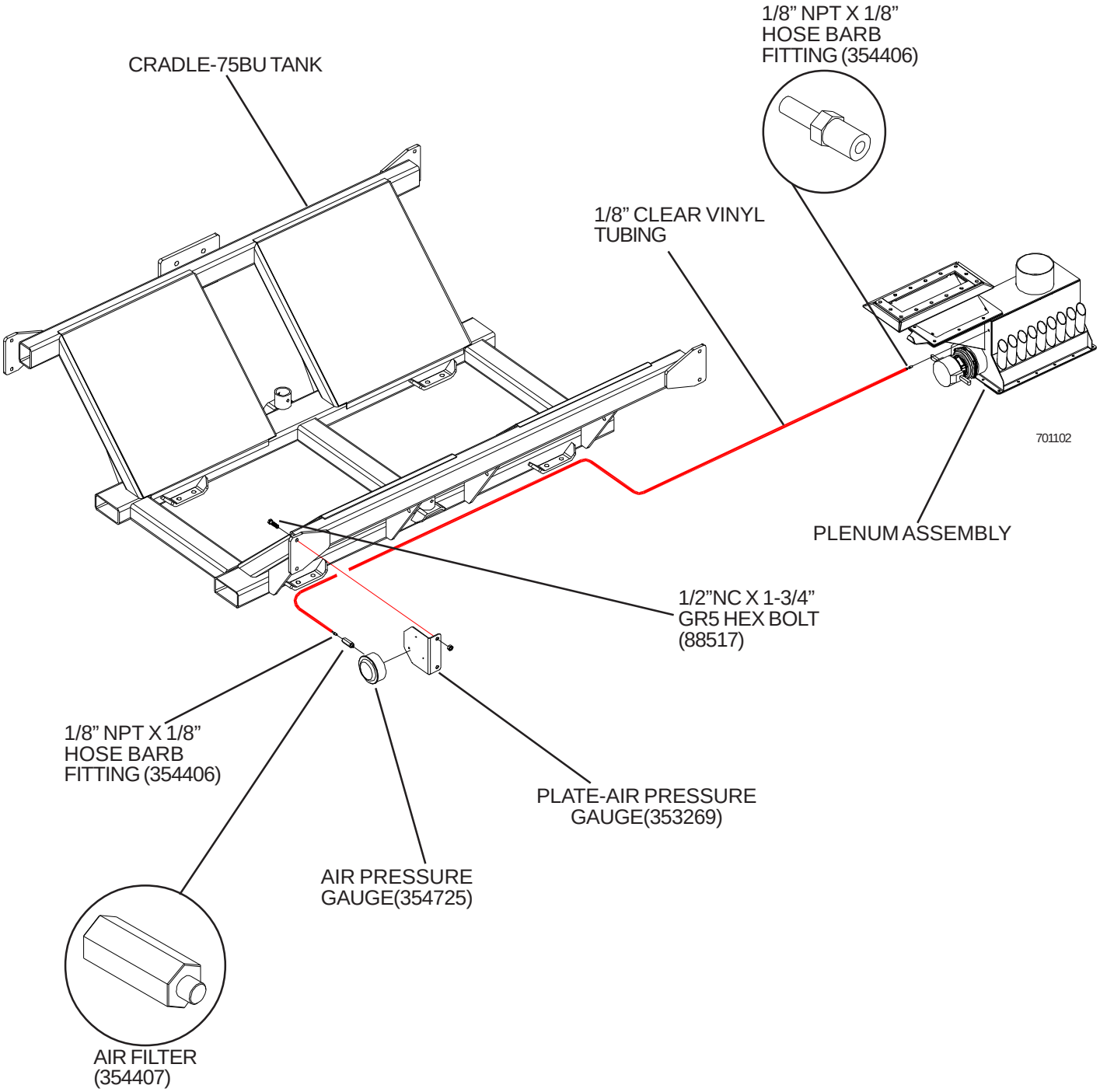
CUT A RECTANGLE HOLE IN BOTTOM OF POLY TANK BETWEEN THE INSERTS(3-1/2” X 13-3/4”). ASSEMBLE PLENUM AS SHOWN.

5.21 SPLITTER TUBE & INLET HOSE



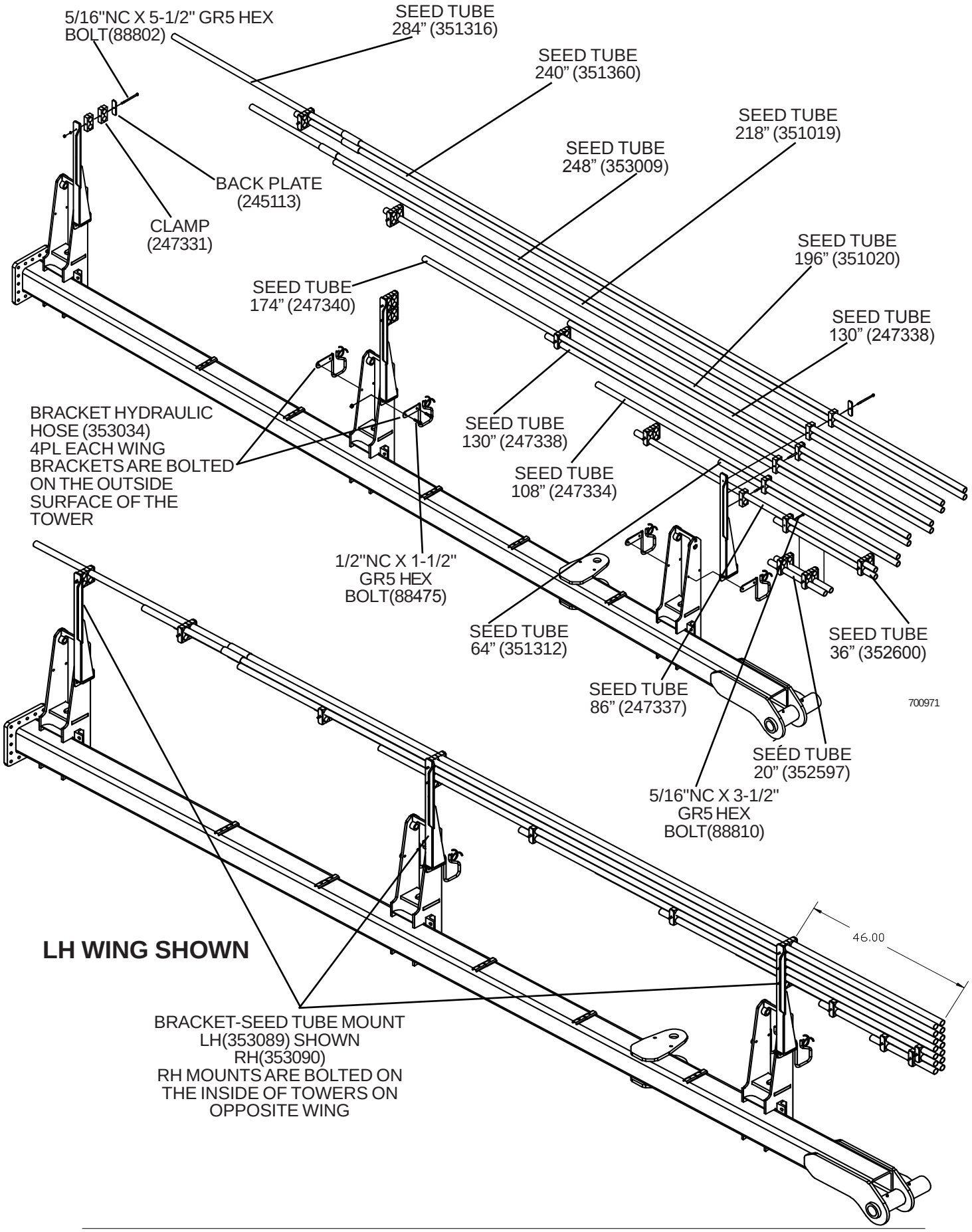
CUT EACH 6" DIA HOSE TO THE PROPER LENGTH. EXCESS HOSE WILL CAUSE AIR OBSTRUCTIONS. FASTEN WITH HOSE CLAMPS ON EACH END.

5.22 AIR PRESSURE GAUGE-CFS SYSTEM

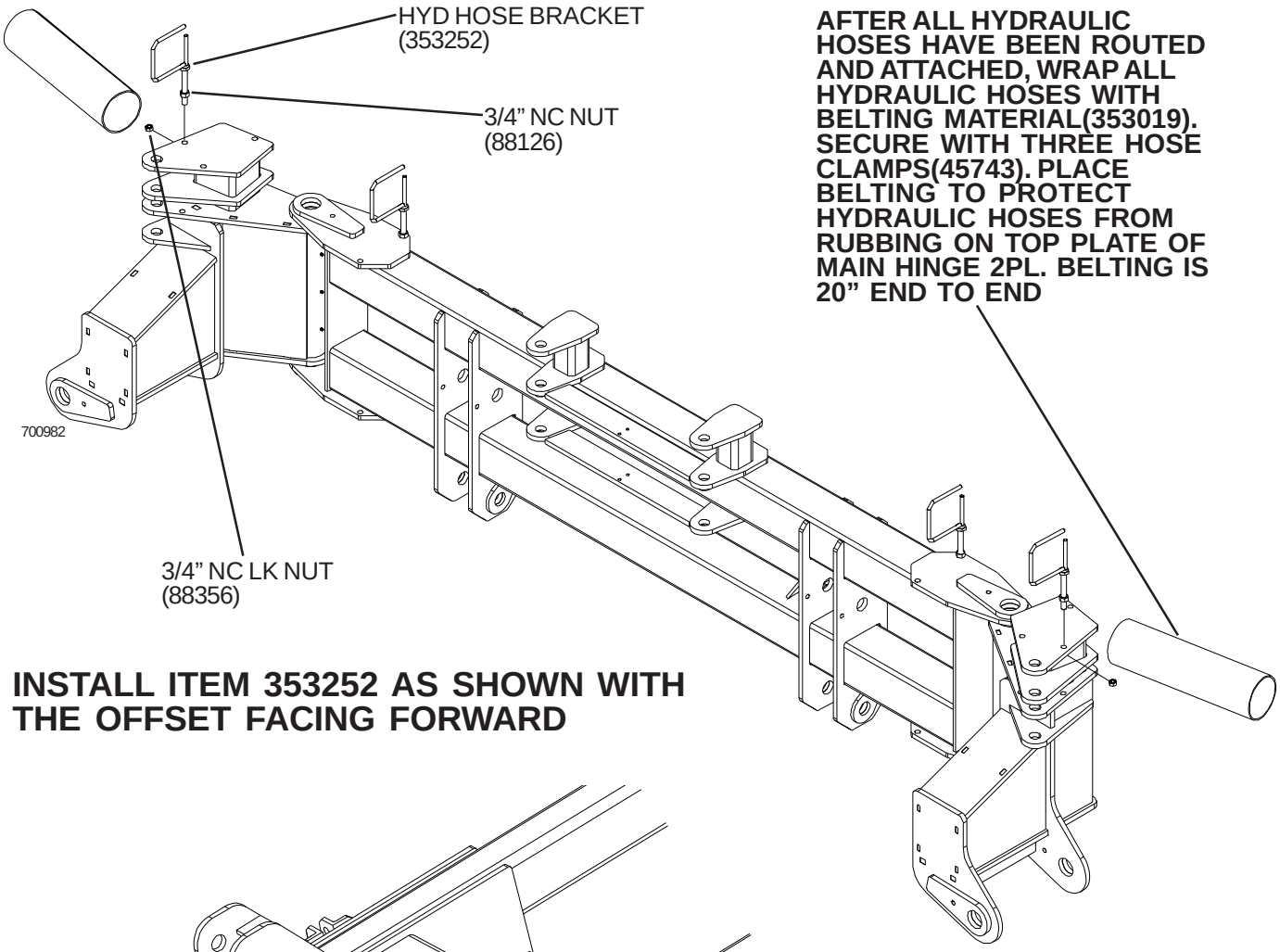


MOUNT AIR PRESSURE GAUGE ON THE FRONT LH CORNER OF THE LIQUID FERTILIZER TANK CRADLE. MOUNT GAUGE TO MOUNTING PLATE USING (3) 6-32 MACHINE SCREWS PROVIDED WITH GAUGE. ASSEMBLE AIR FILTER AND BRASS FITTINGS AS SHOWN ABOVE. ROUTE 1/8” CLEAR VINYL TUBING IN AREAS WERE IT IS PROTECTED.

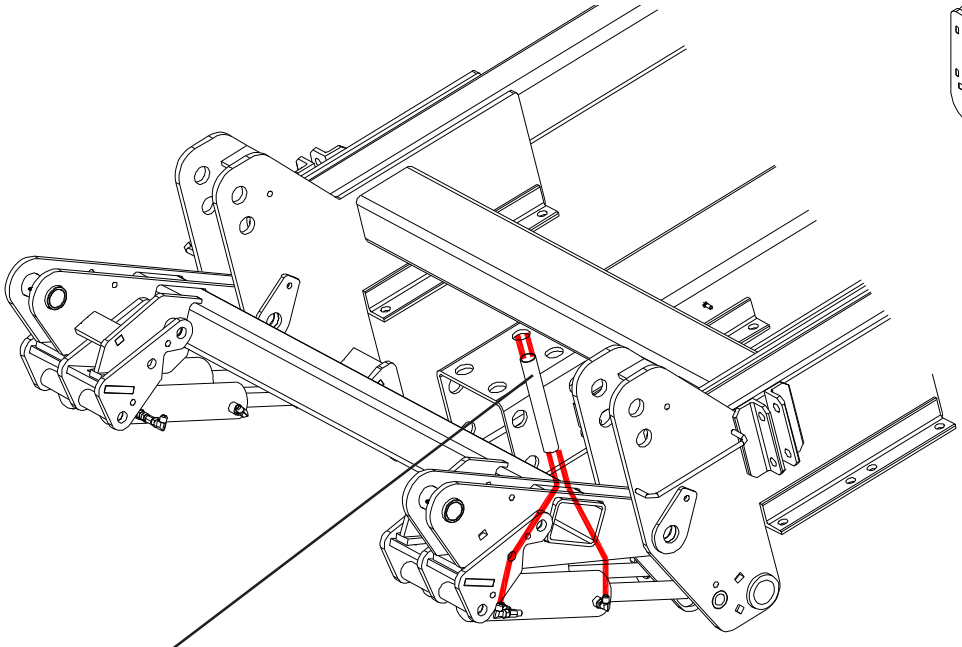
5.25 SEED TUBES 36R22



5.24 HYDRAULIC HOSE PROTECTION

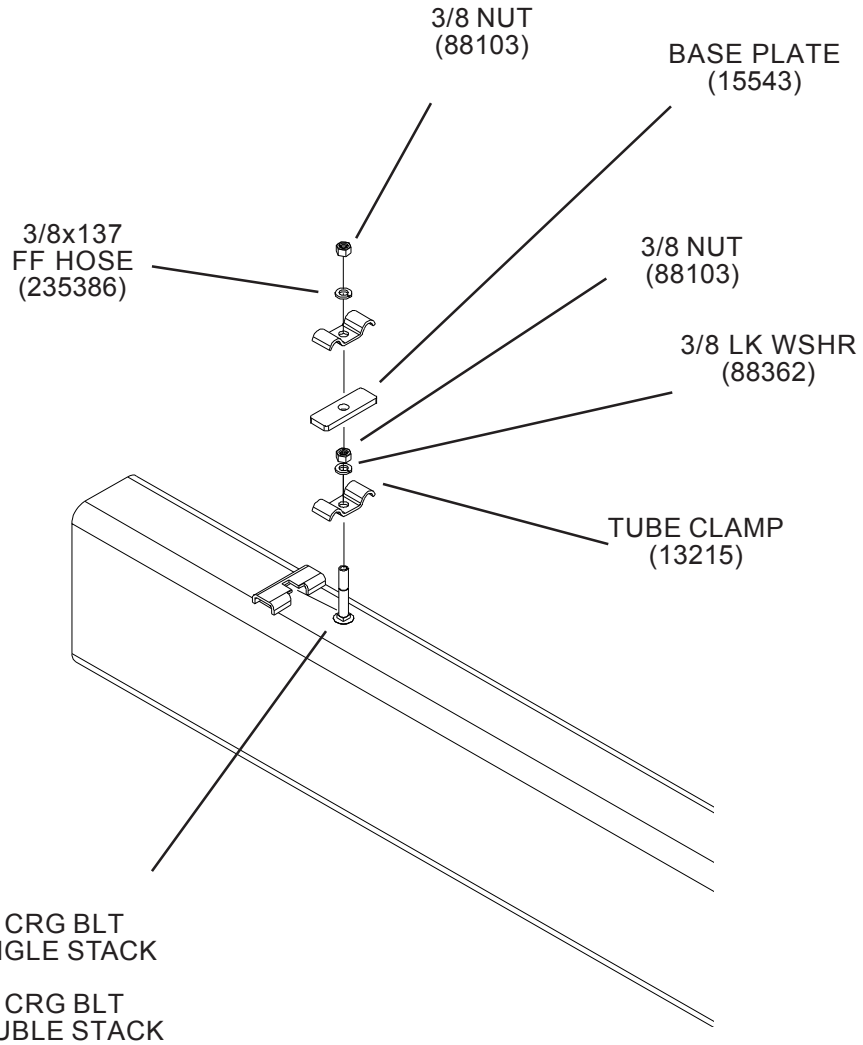


INSTALL ITEM 353252 AS SHOWN WITH THE OFFSET FACING FORWARD



CUT A 16 INCH LONG PIECE OF HOSE FROM THE 1-1/2 DIA SEED TUBE HOSE. CUT IT THE LONG WAY AND OPEN THE 1-1/2 DIA HOSE AND WRAP IT AROUND BOTH HYDRAULIC HOSES AS SHOWN. MAKE SURE IT IS PLACED PROPERLY TO PREVENT ANY RUBBING FROM THE LOWER LIFT ARM. ATTACH A HOSE CLAMP ON BOTH ENDS TO PREVENT THE HOSE WRAP FROM SLIDING AND OPENING.

5.25 HOSE CLAMP ASSEMBLY

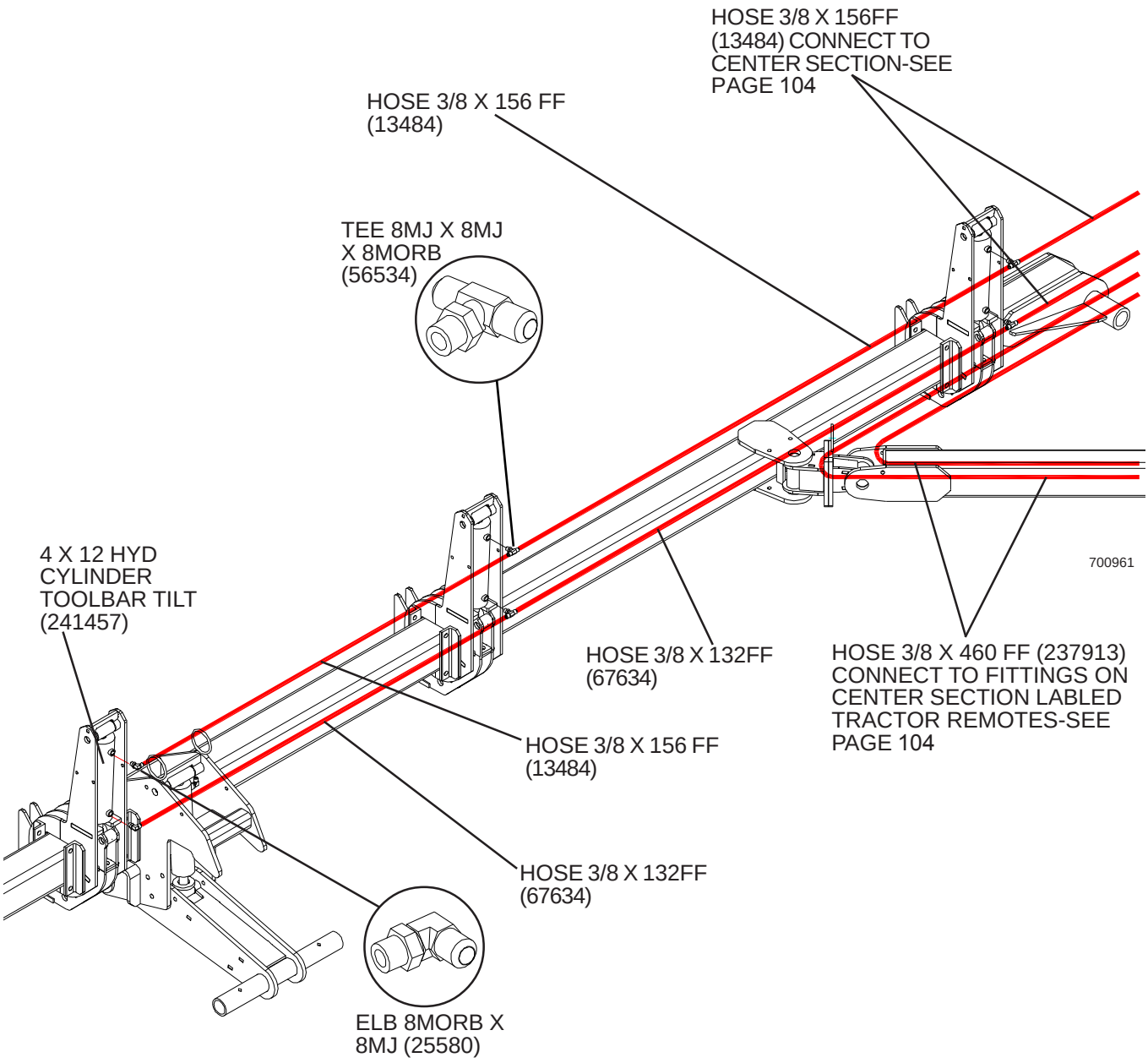


3/8x1-1/2 CRG BLT
(89375) SINGLE STACK

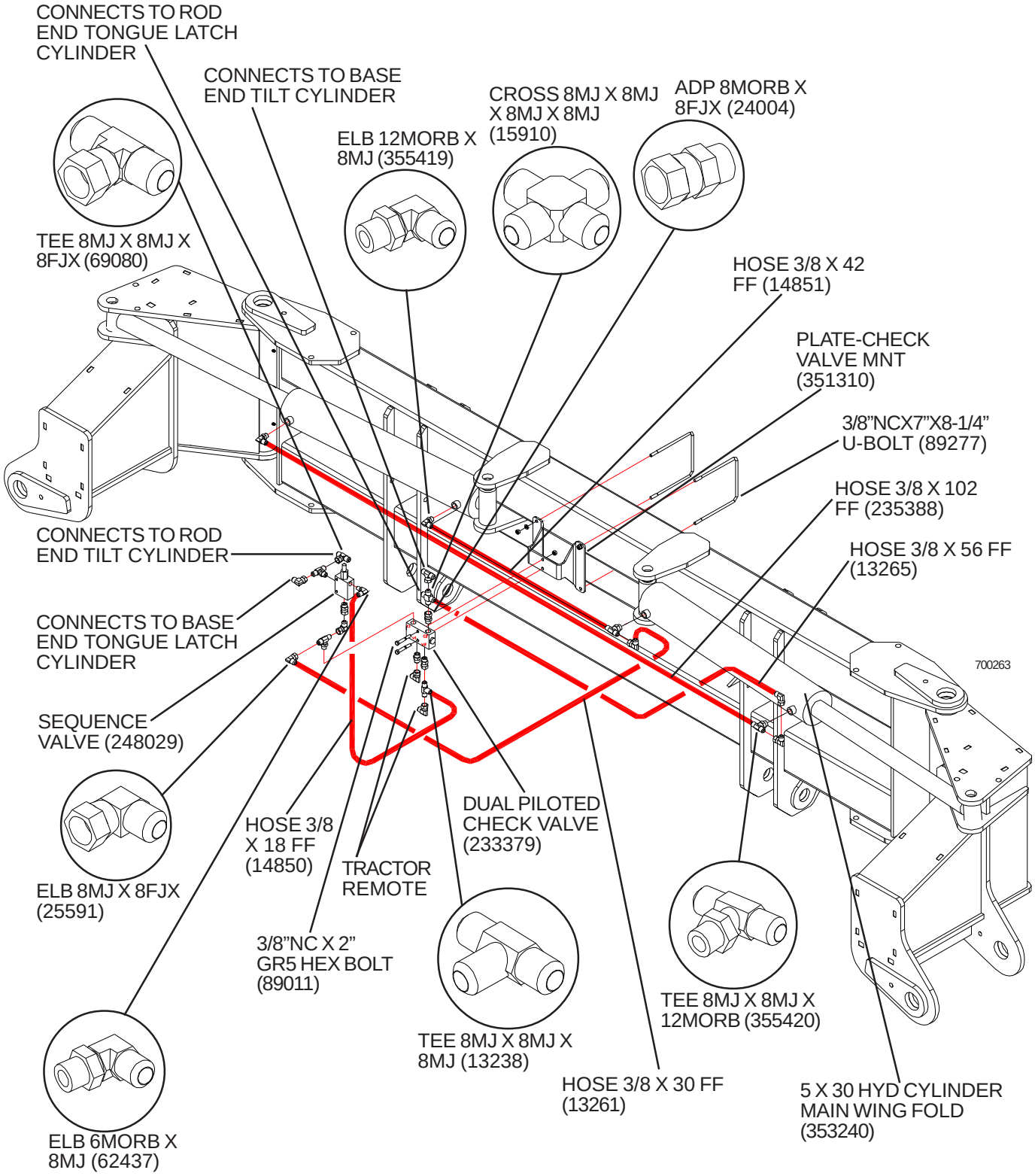
3/8x2-1/2 CRG BLT
(89473) DOUBLE STACK

3/8x3-1/2 CRG BLT
(89475) TRIPPLE STACK

5.26 HYDRAULICS-RH WING TILT & FOLD



5.27 HYDRAULICS-CENTER TILT & FOLD

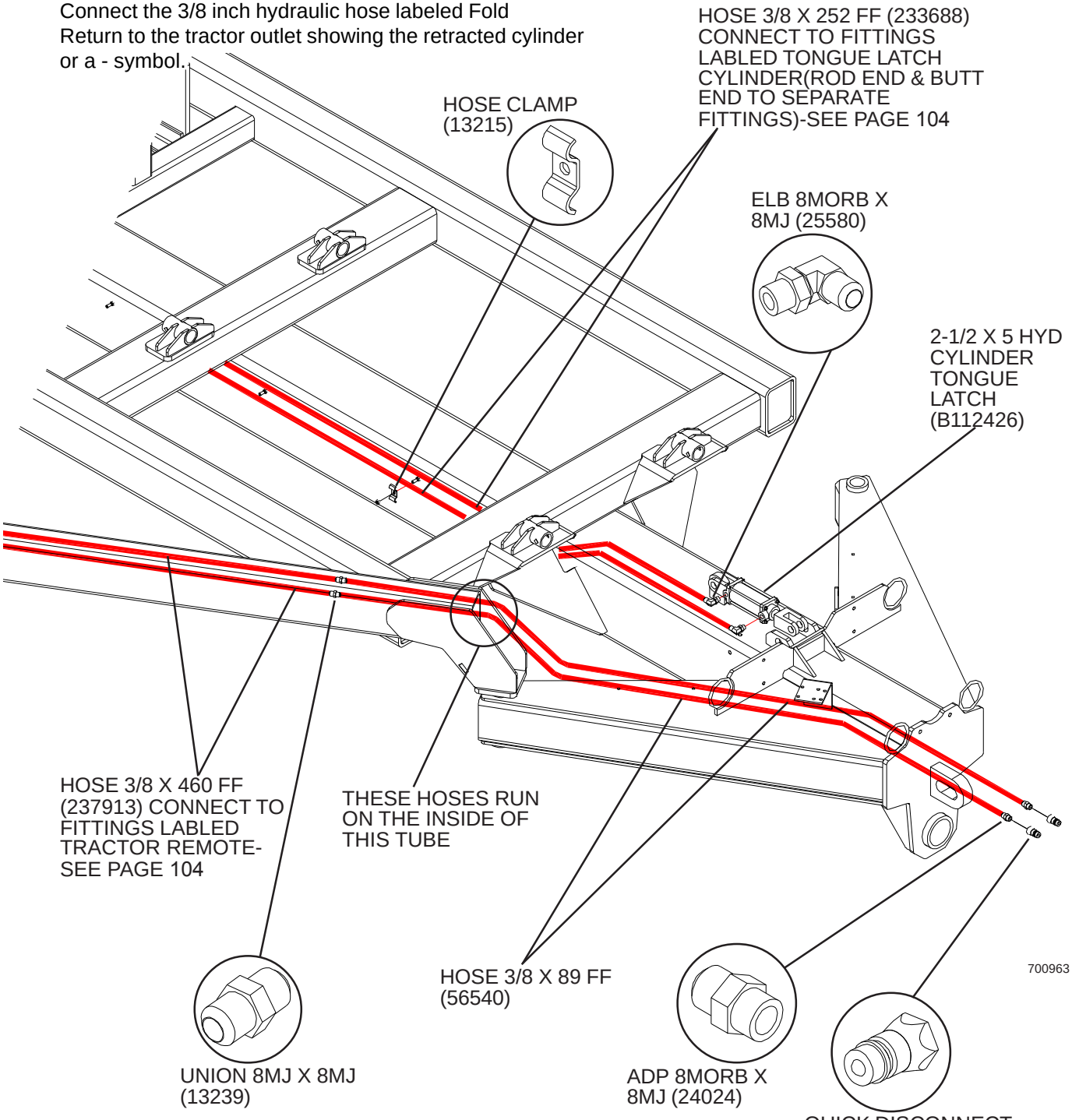


5.28 HYDRAULICS-MAINFRAME TILT & FOLD

Tractor Remote Hydraulic Connections for the Tilt and Fold:

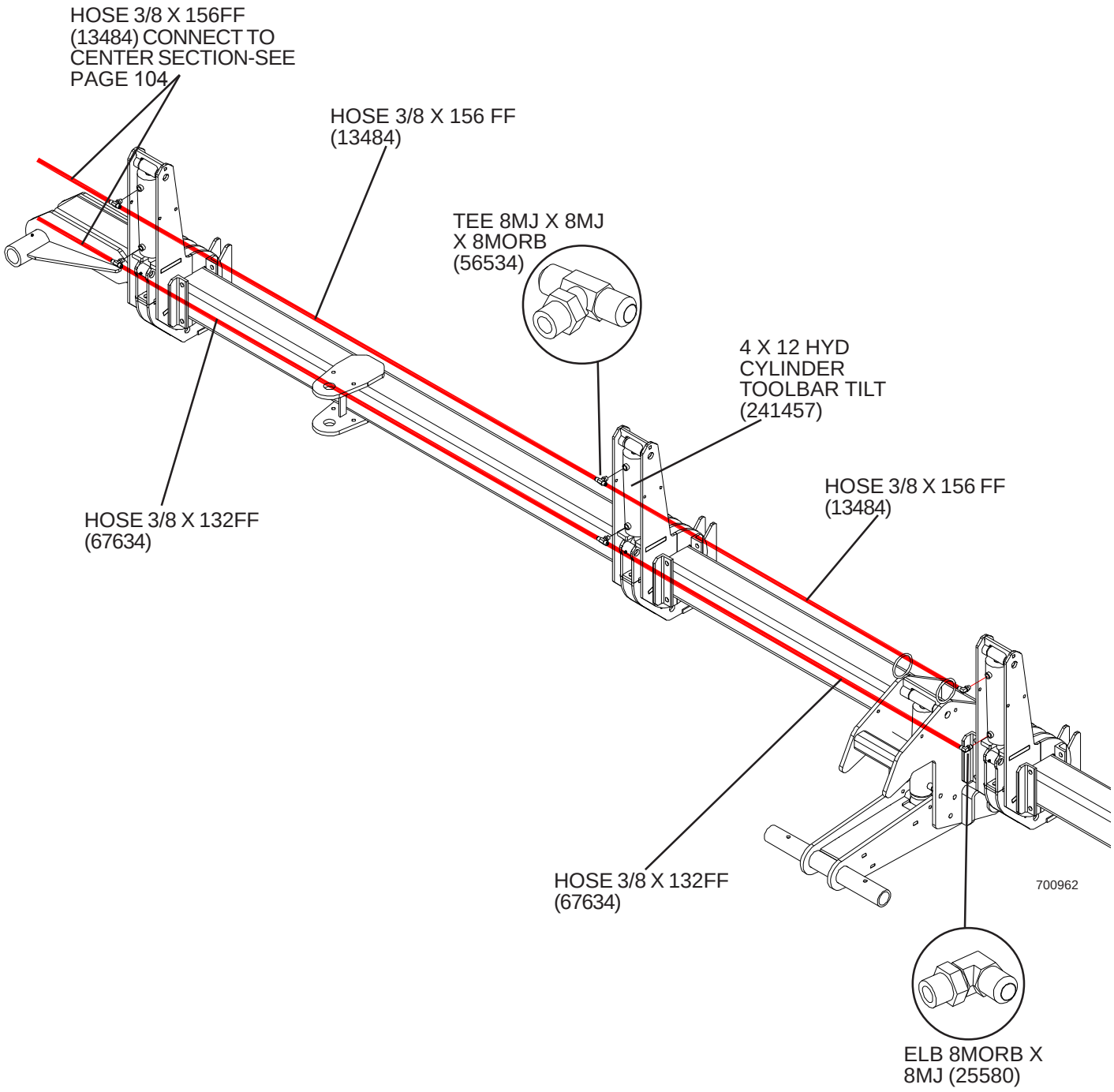
Connect the 3/8 inch hydraulic hose labeled Fold Pressure to the tractor outlet showing an extended cylinder or a + symbol.

Connect the 3/8 inch hydraulic hose labeled Fold Return to the tractor outlet showing the retracted cylinder or a - symbol.

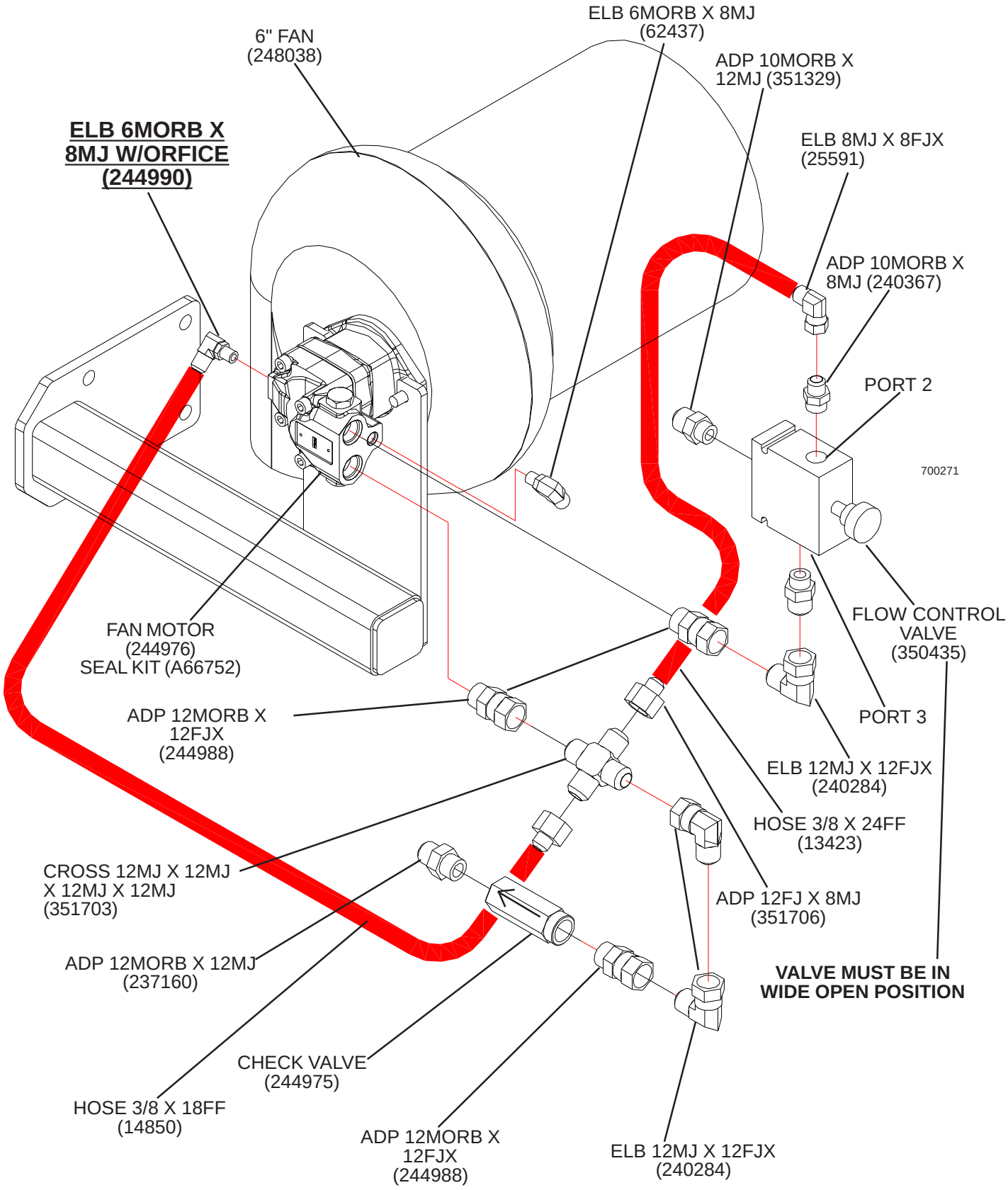


2-1/2” X 5” HYD CYLINDER (B112426) PORTS FACE RH & CLEVIS BOLT MUST BE ON TOP

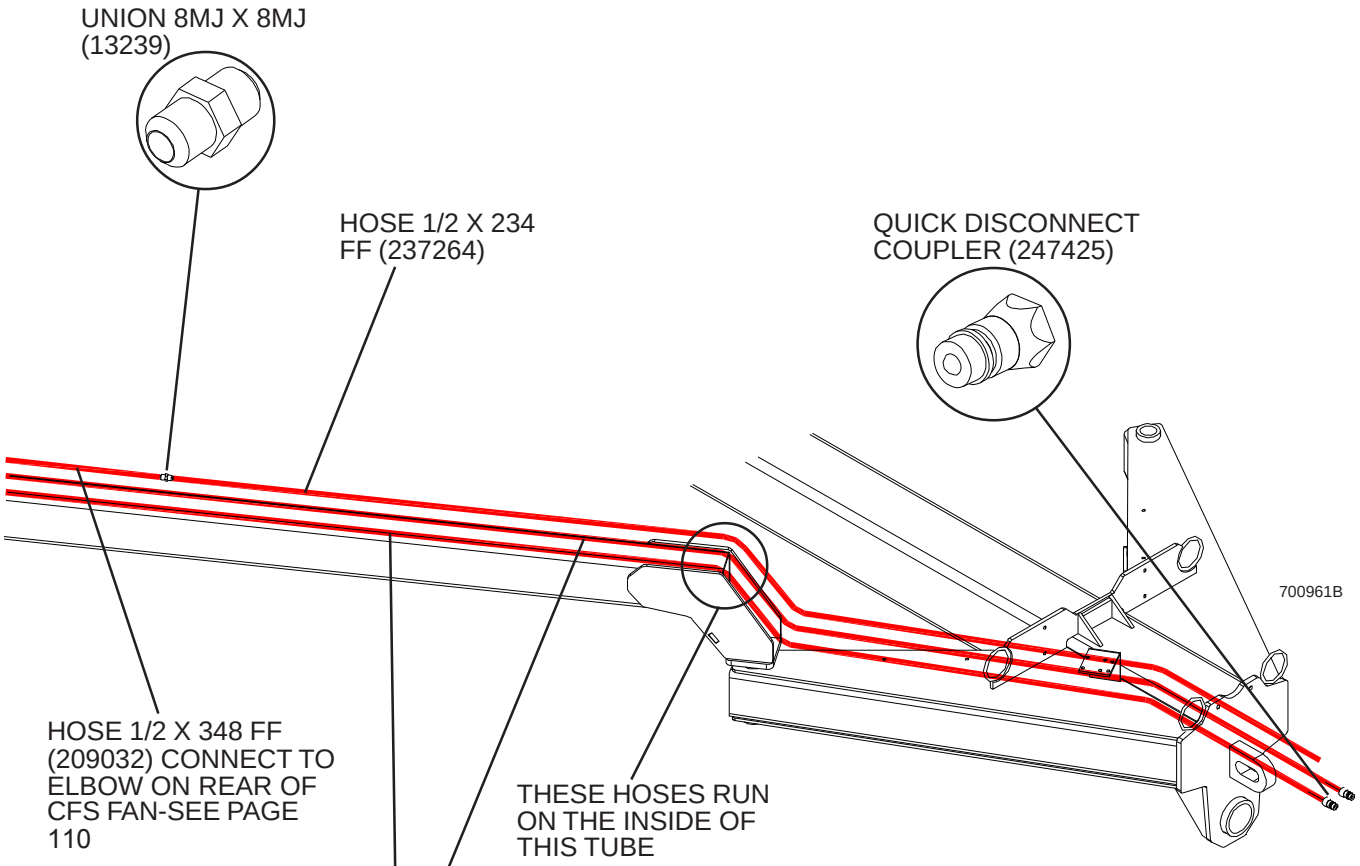
5.29 HYDRAULICS-LH WING TILT & FOLD



5.30 HYDRAULICS-CENTRAL FILL FAN



5.31 HYDRAULICS-LH BRACE ARM MAIN LIFT



Tractor Remote Hydraulic Connections for the Lift/lower and Central Fill Fan:

Connect the 1/2 inch hydraulic hose labeled Fan Case Drain hose to the tractor zero pressure return. The case drain must have zero back pressure. This hydraulic hose drains excess oil from the fan motor.

Connect the 3/4 inch hydraulic hose labeled Lift Pressure to the tractor outlet showing an extended cylinder or a + symbol.

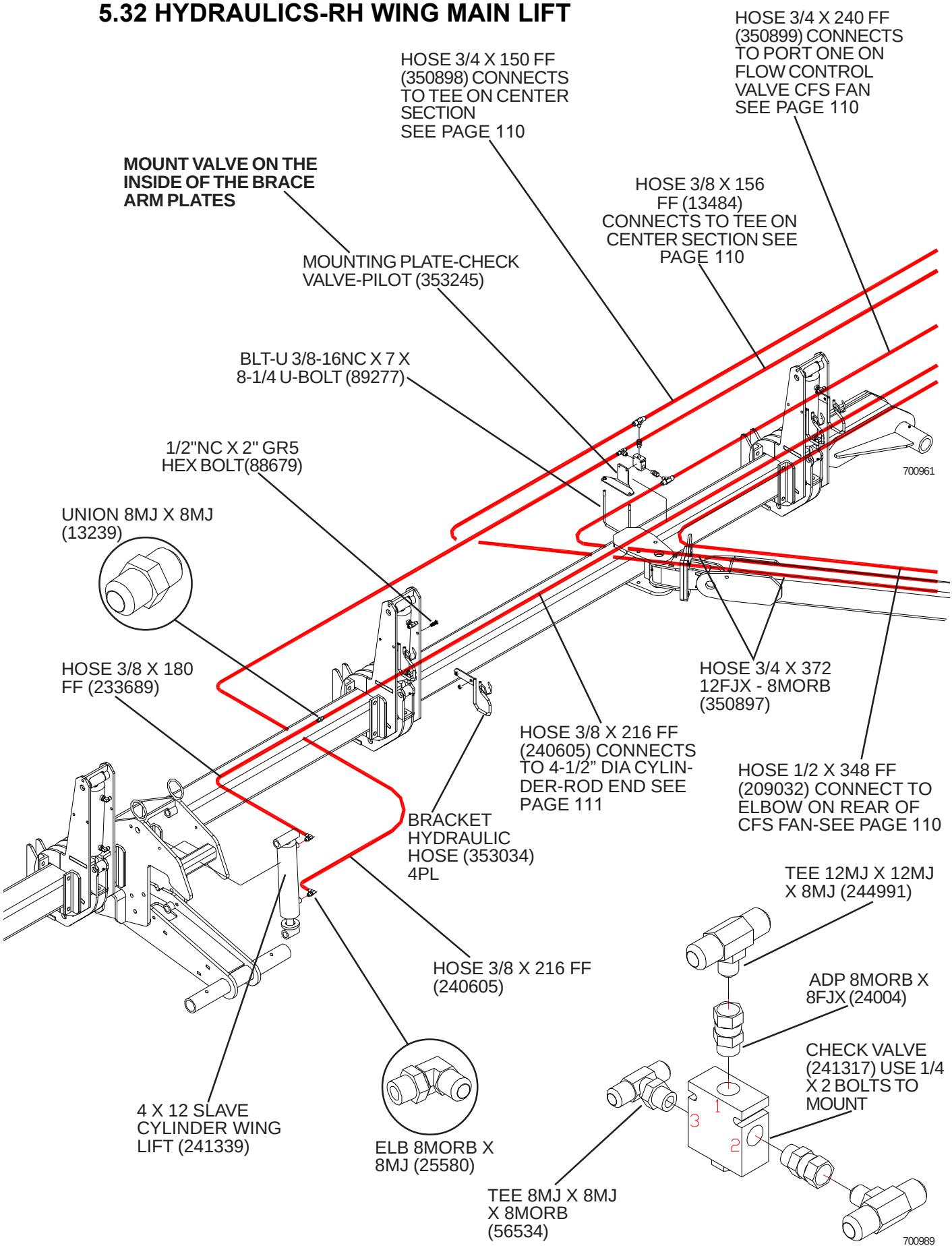
Connect the 3/4 inch hydraulic hose labeled Lift Return to the tractor outlet showing the retracting cylinder or a - symbol.

NOTE: Machine Damage Risk:

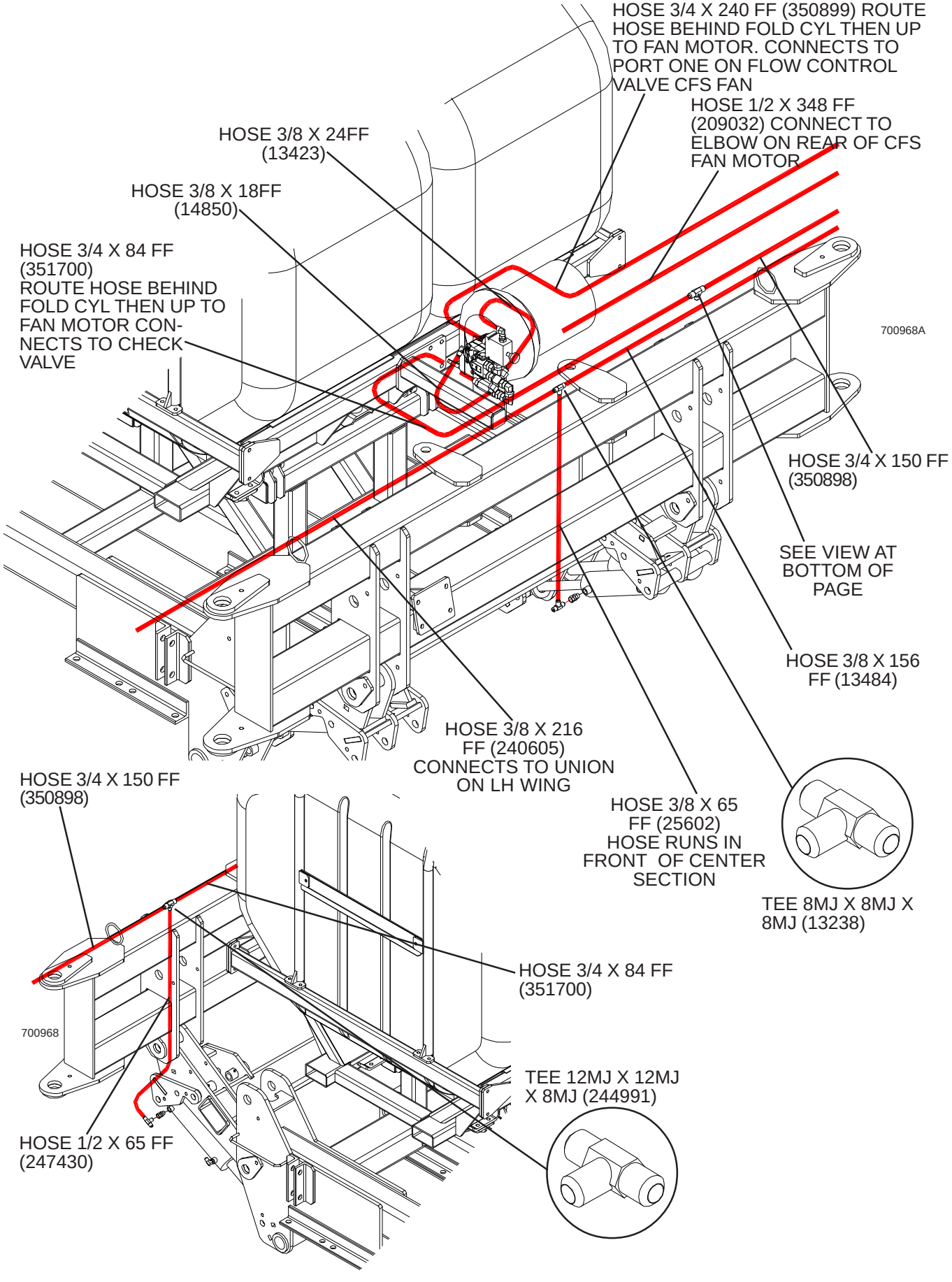
Make sure the Fan Case Drain hose is connected first, prior to the pressure and return hoses being connected.

Make sure the Fan Case Drain hose is disconnected last, to prevent damage to the fan motor.

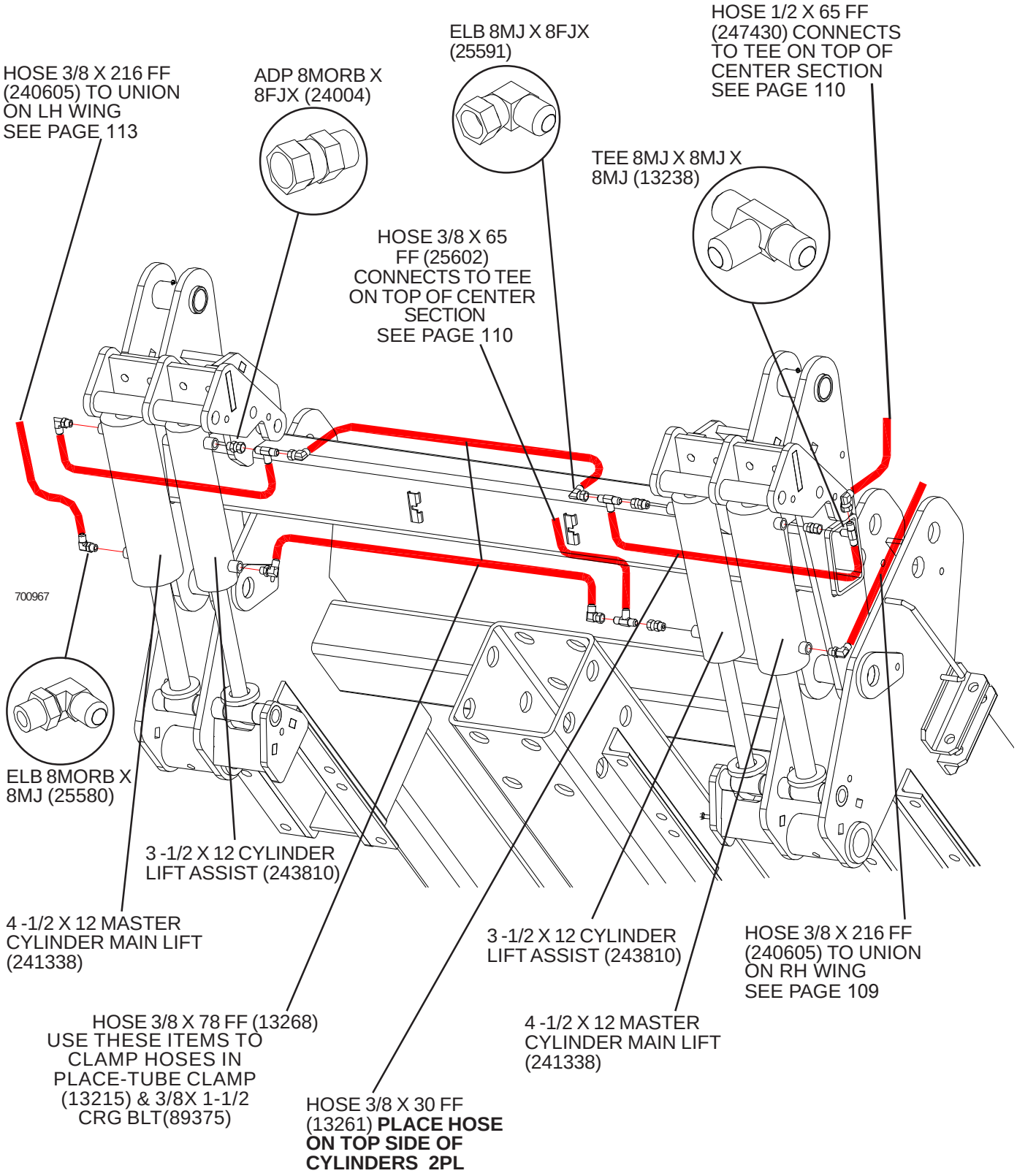
5.32 HYDRAULICS-RH WING MAIN LIFT



5.33 HYDRAULICS-CENTER SECTION MAIN LIFT



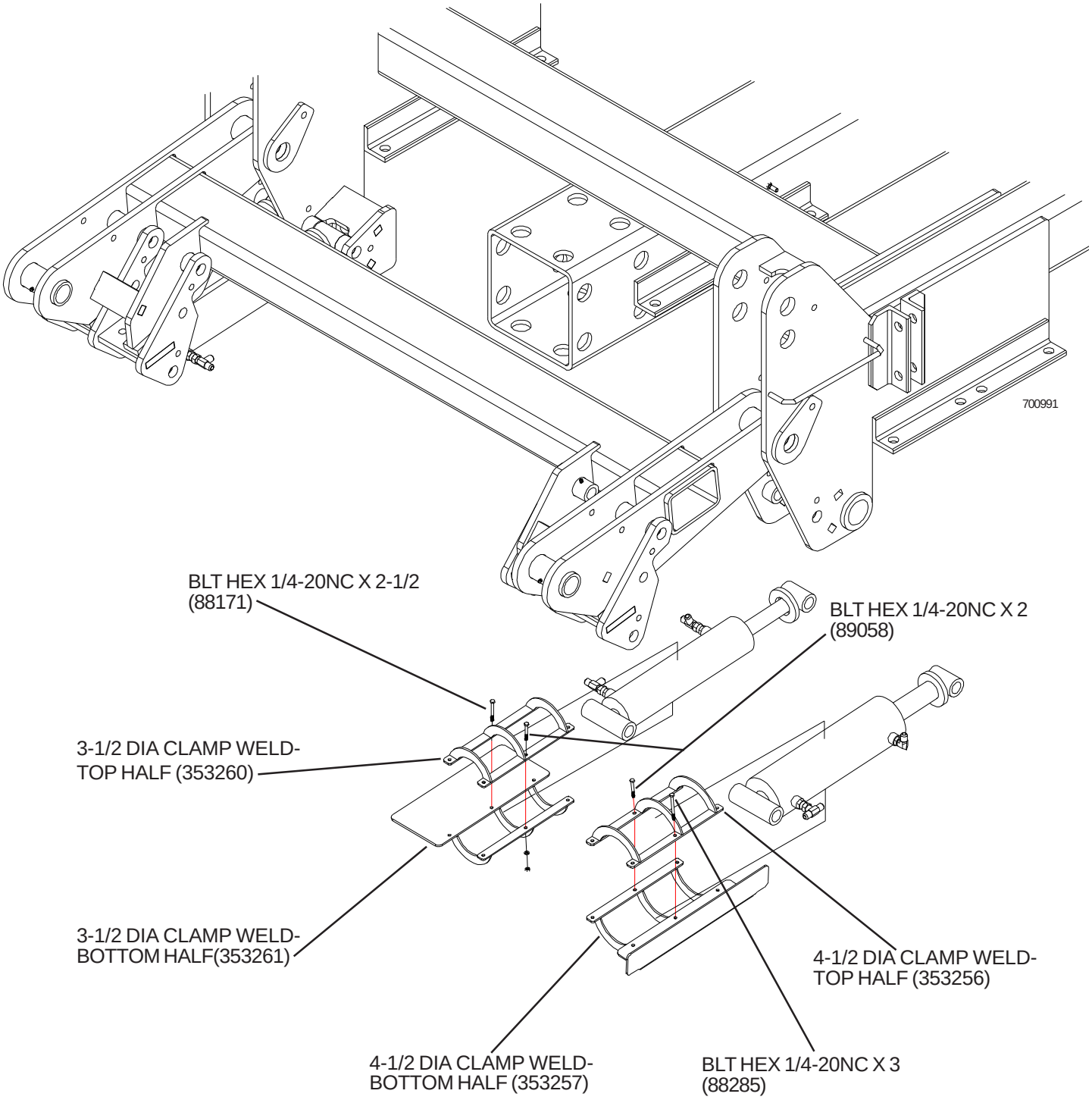
5.34 HYDRAULICS - CENTER MAIN LIFT



WHEN ASSEMBLING UNITS WITH 110” AXLE AND 25” WIDE TRACKS REMOVE ITEMS 13238, 24004, AND 25591 FROM THE RH SIDE. INSERT 56534 AND 25591 FOR MORE CLEARANCE.

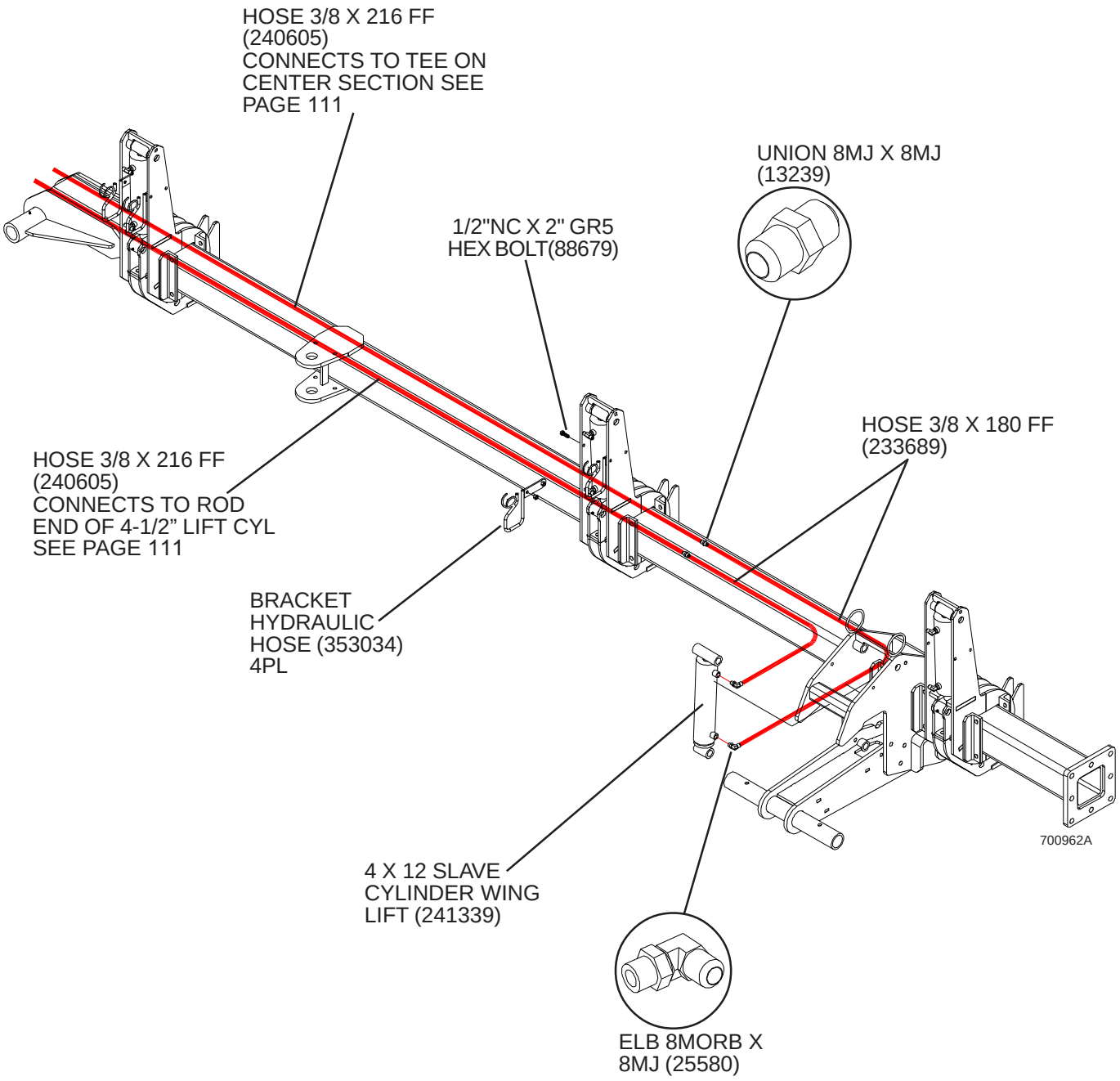
DEPTH STOP COLLARS SHOULD BE USED ON ALL LIFT CYLINDERS.

5.35 HYDRAULIC CYLINDER GUARDS

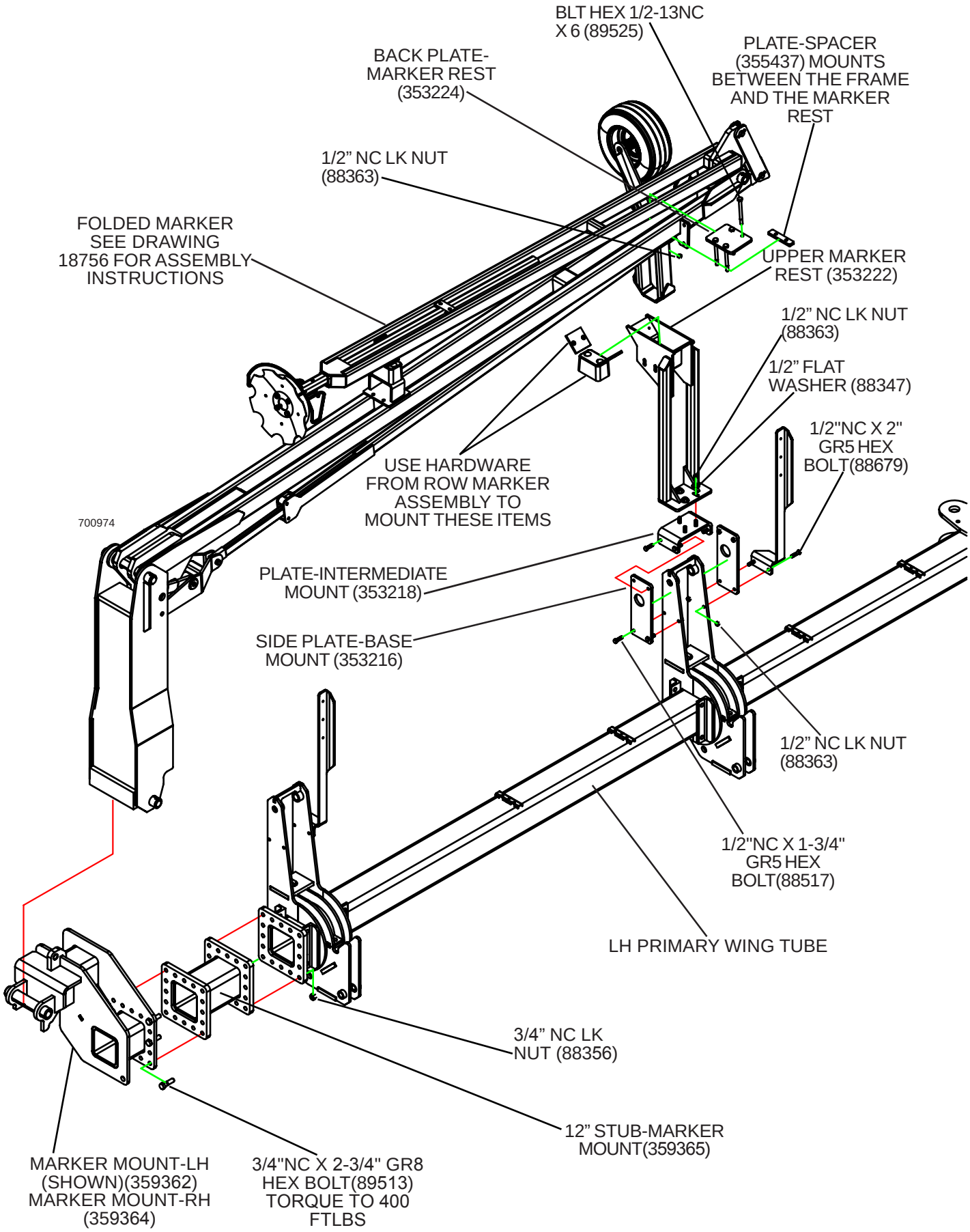


ASSEMBLE CLAMPS USING HARDWARE AS INDICATED. BOLTS ALL RUN INBETWEEN THE PORTS ON HYDRAULIC CYLINDERS. RH SIDE SHOWN ASSEMBLE LH SIDE OPPOSITE.

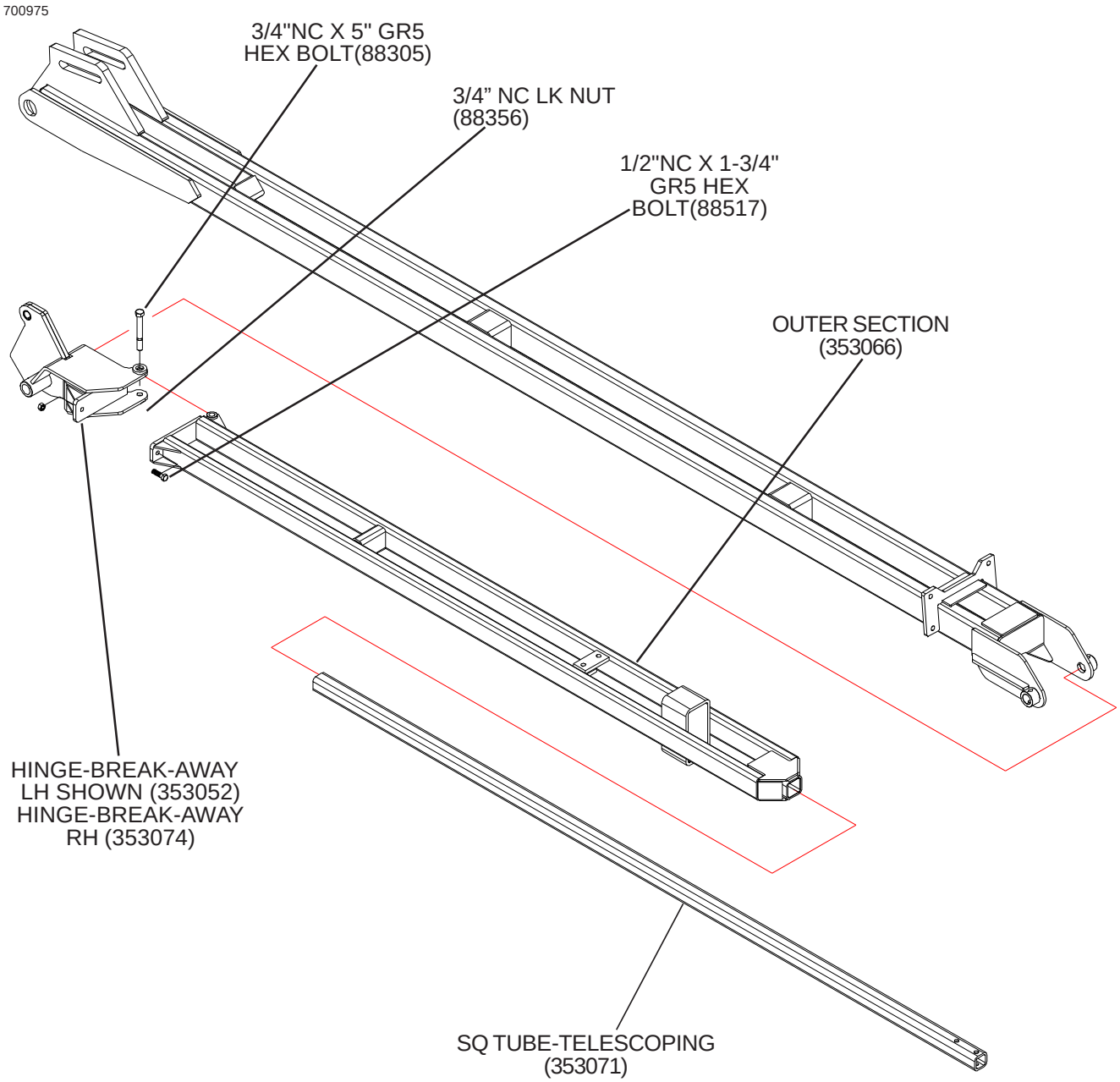
5.36 HYDRAULICS-LH WING MAIN LIFT

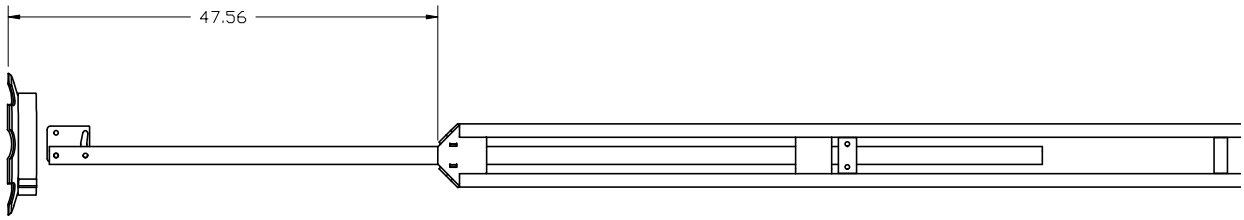


5.37 ROW MARKER(OPTIONAL)-MAIN MOUNT

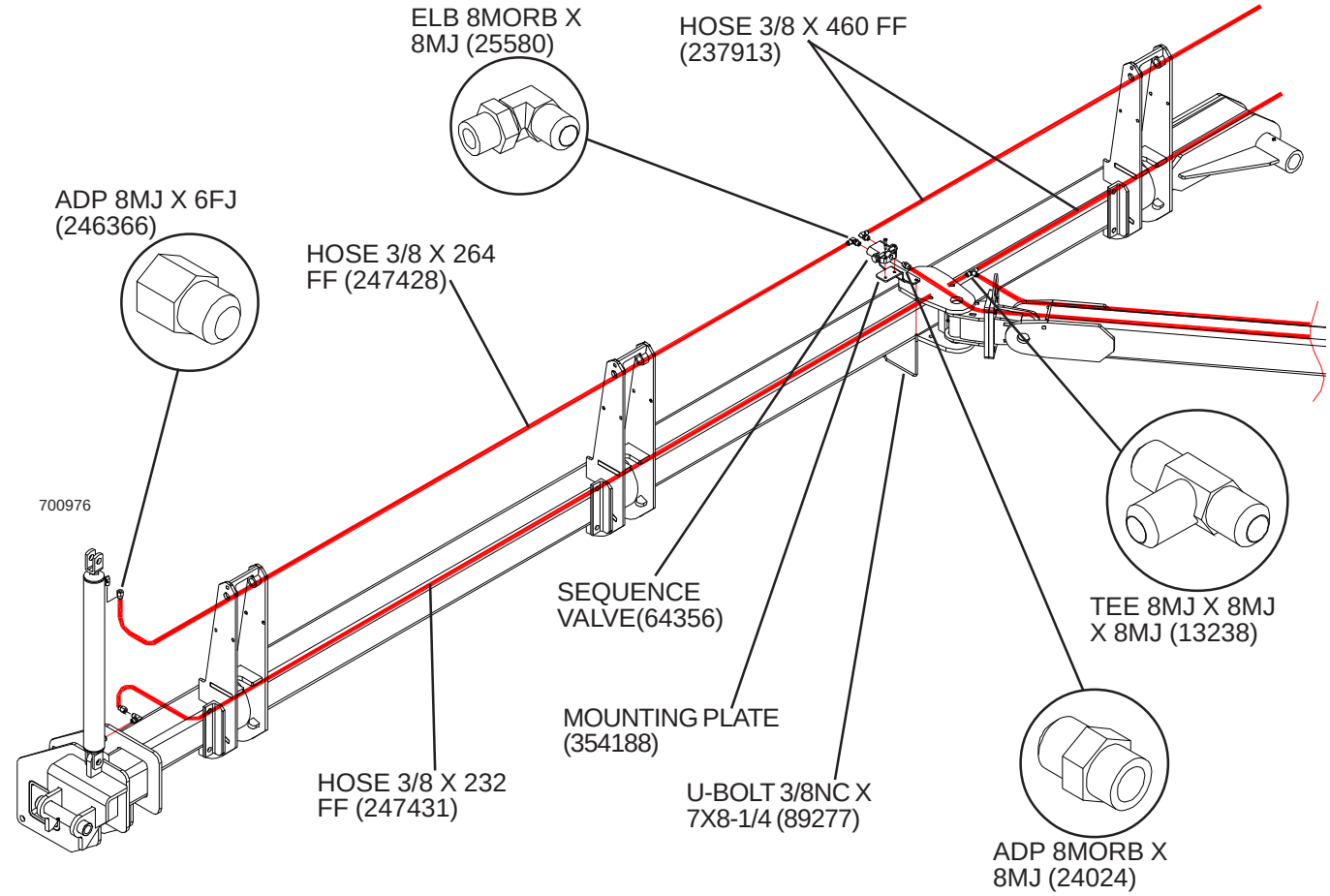


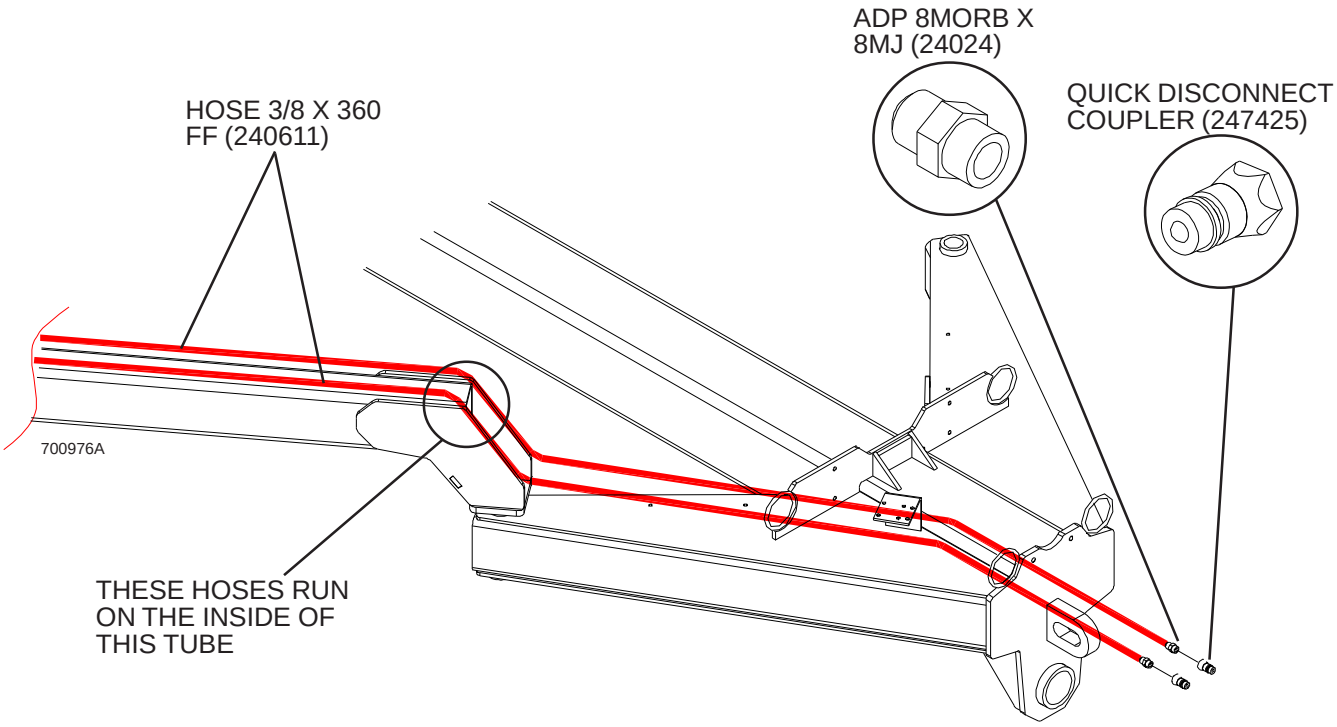
5.38 ROW MARKER-BREAKAWAY SECTION



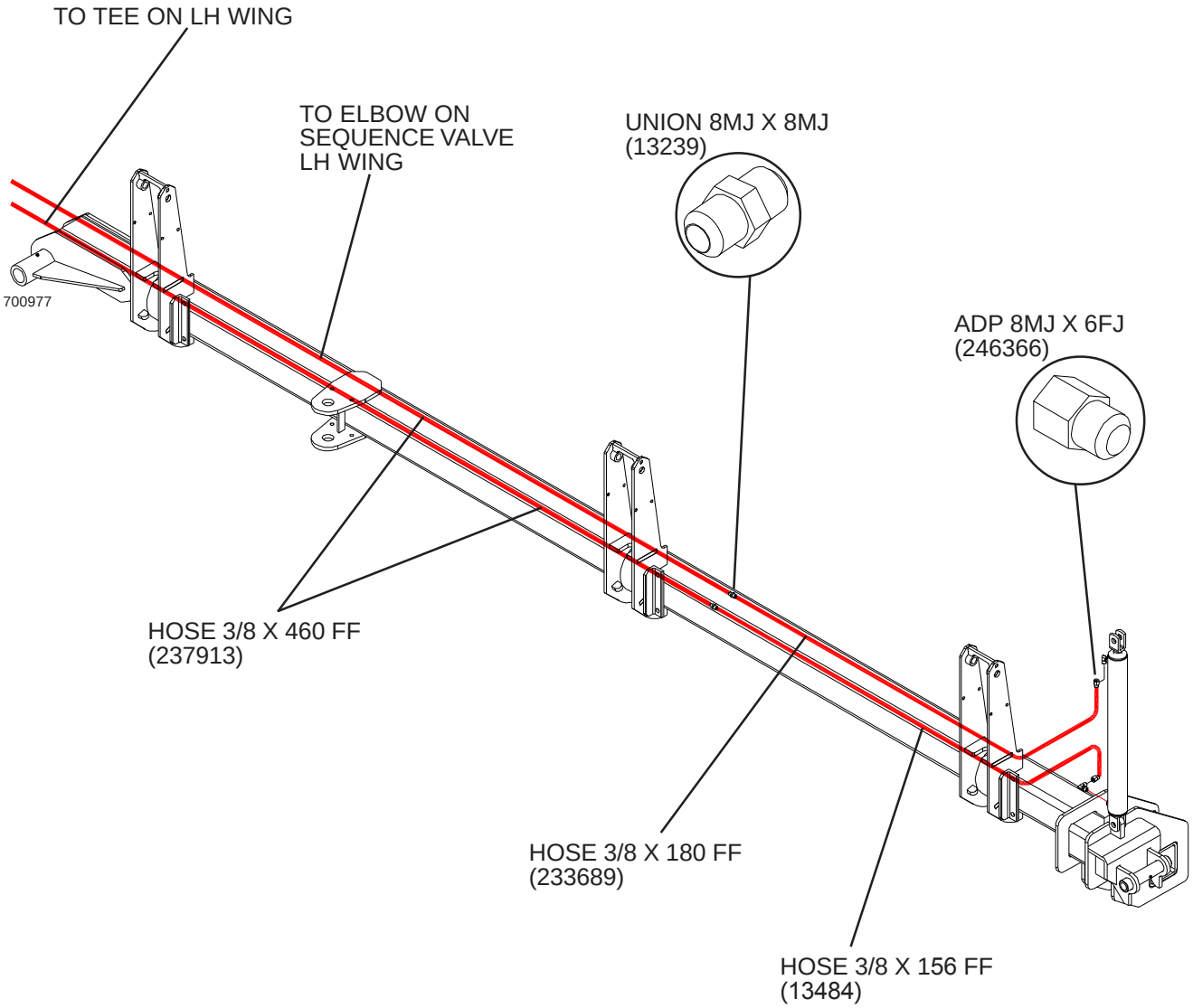


5.39 HYDRAULICS-ROW MARKER RH WING





5.40 HYDRAULICS-ROW MARKER LH WING



5.41 HYDRAULICS-HOSE ROUTING







5.42 HYDRAULICS-HOSE ROUTING







5.43 HYDRAULICS-HOSE ROUTING







5.44 HYDRAULICS-HOSE ROUTING







5.45 HYDRAULICS-HOSE ROUTING

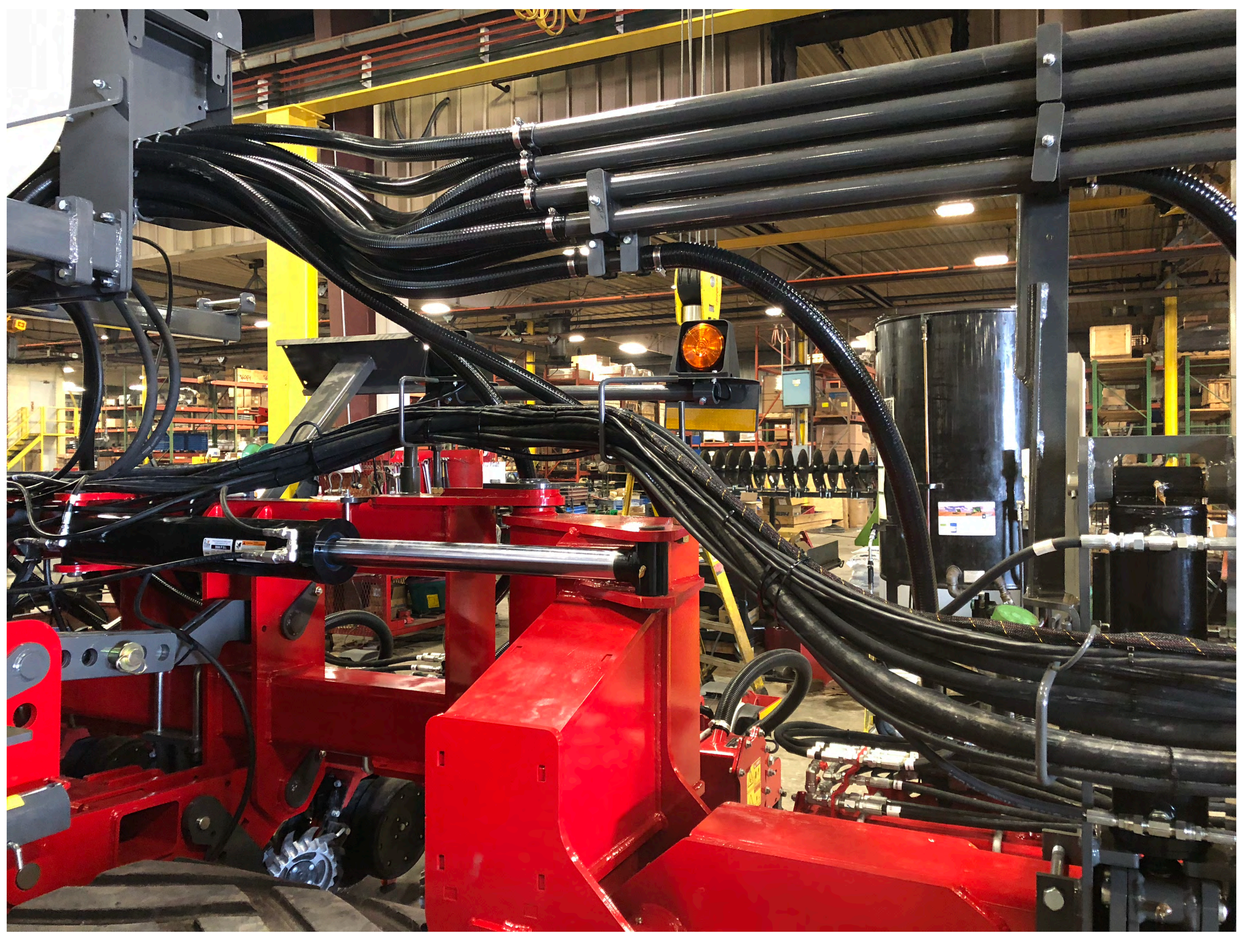






5.46 HYDRAULICS-HOSE ROUTING





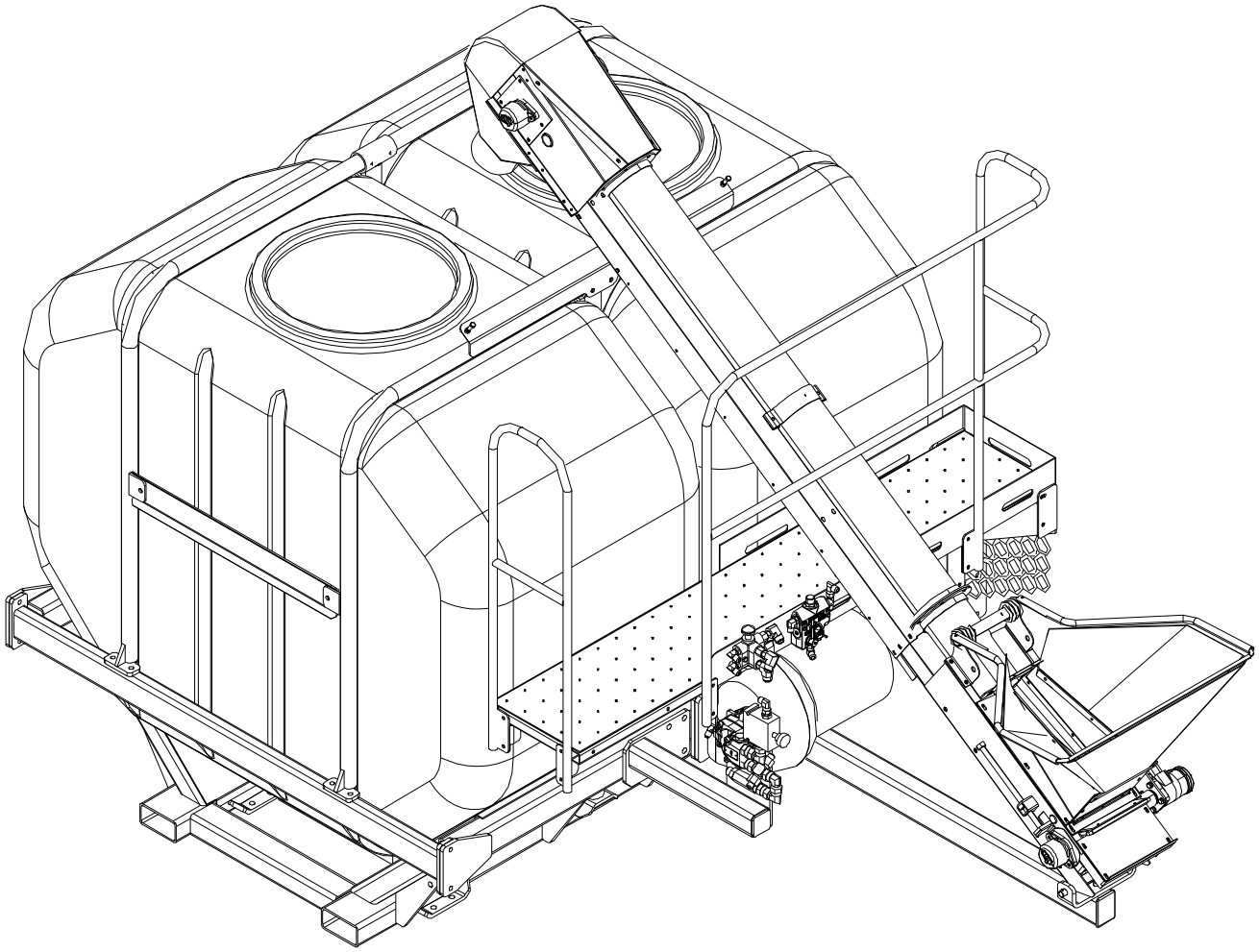


5.47 HYDRAULICS-HOSE ROUTING

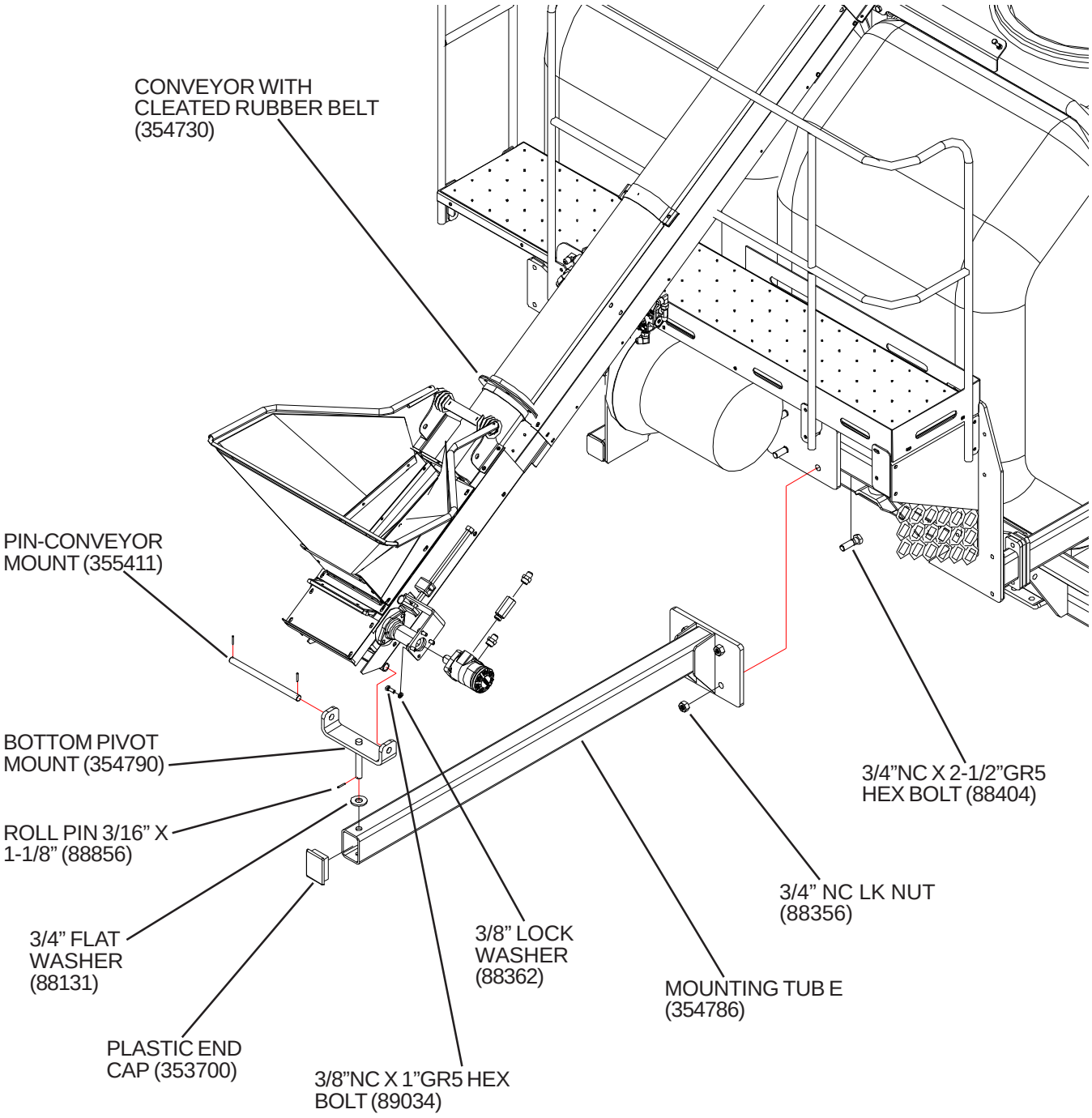




5.48 BELT CONVEYOR (OPTIONAL)

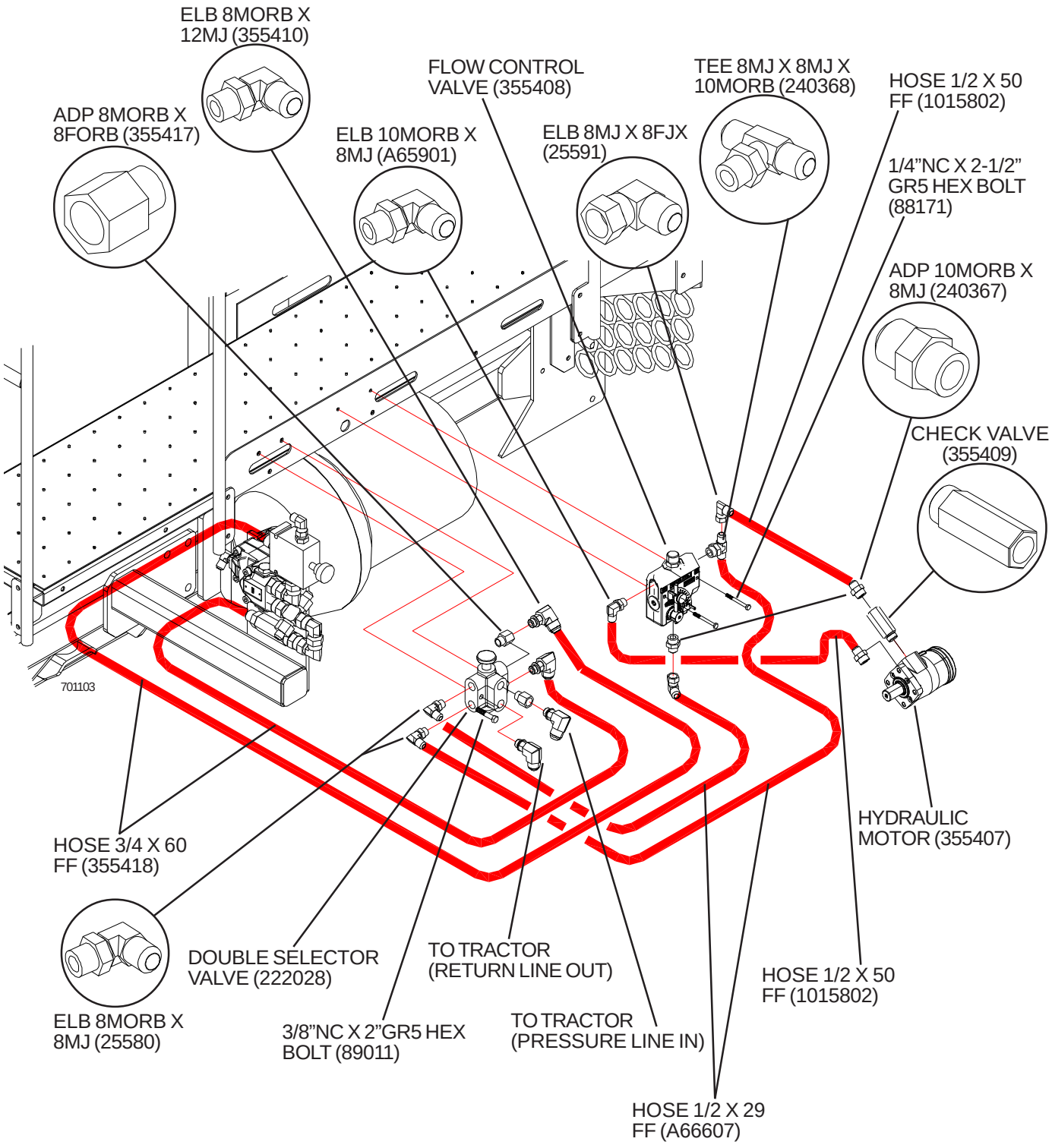


5.49 CONVEYOR-MAIN MOUNT



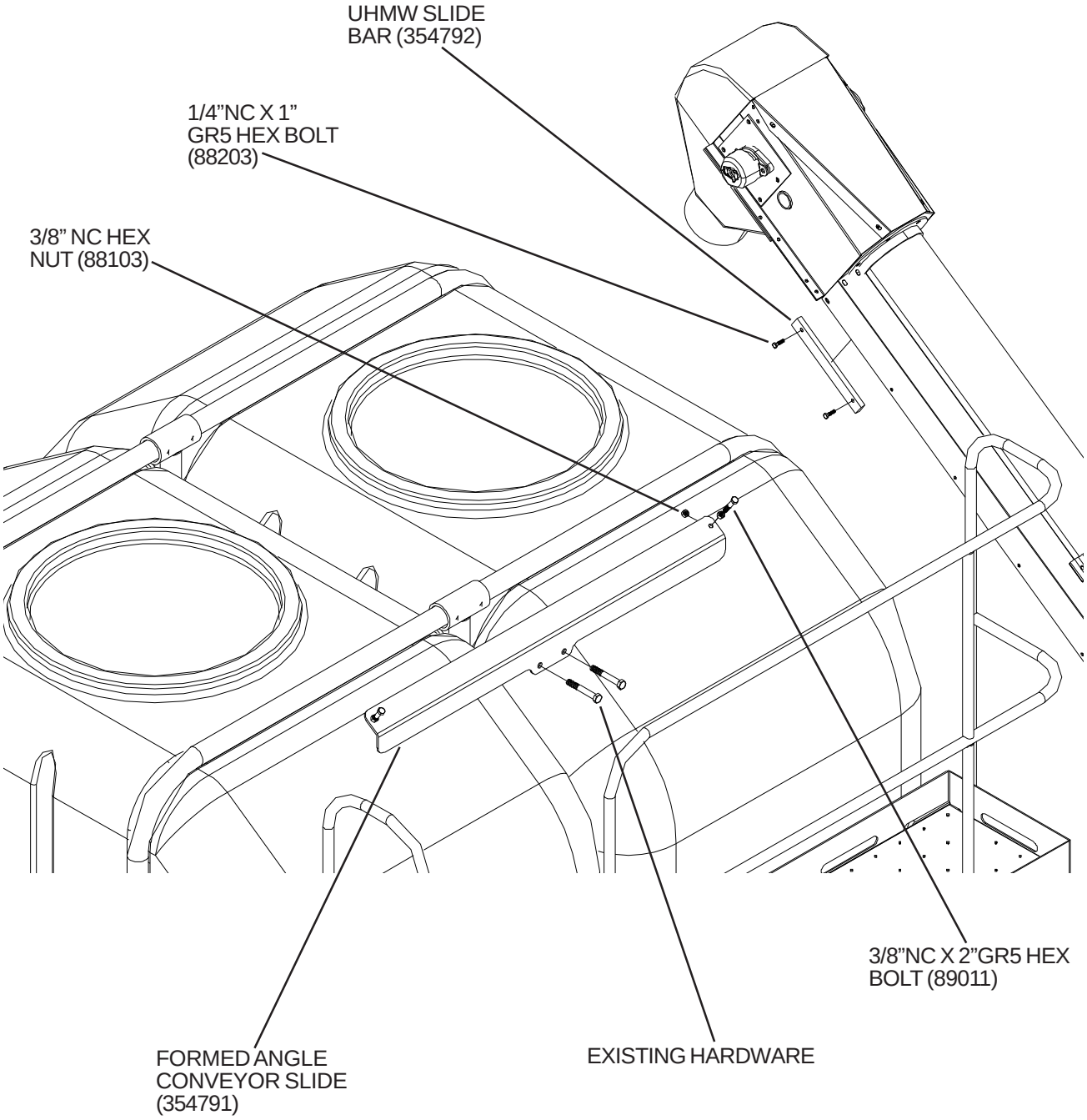
WHEN MOUNTING ITEM 354786 MAKE SURE THERE IS PROPER CLEARANCE BELOW THIS TUBE WHEN THE TOOLBAR IS IN THE RAISED POSITION. THE SEQUENCE VALVE SHOWN ON PAGE 102 SHOULD BE MOUNTED OFF CENTER TO PREVENT INTERFERANCE.

5.50 CONVEYOR-HYDRAULICS



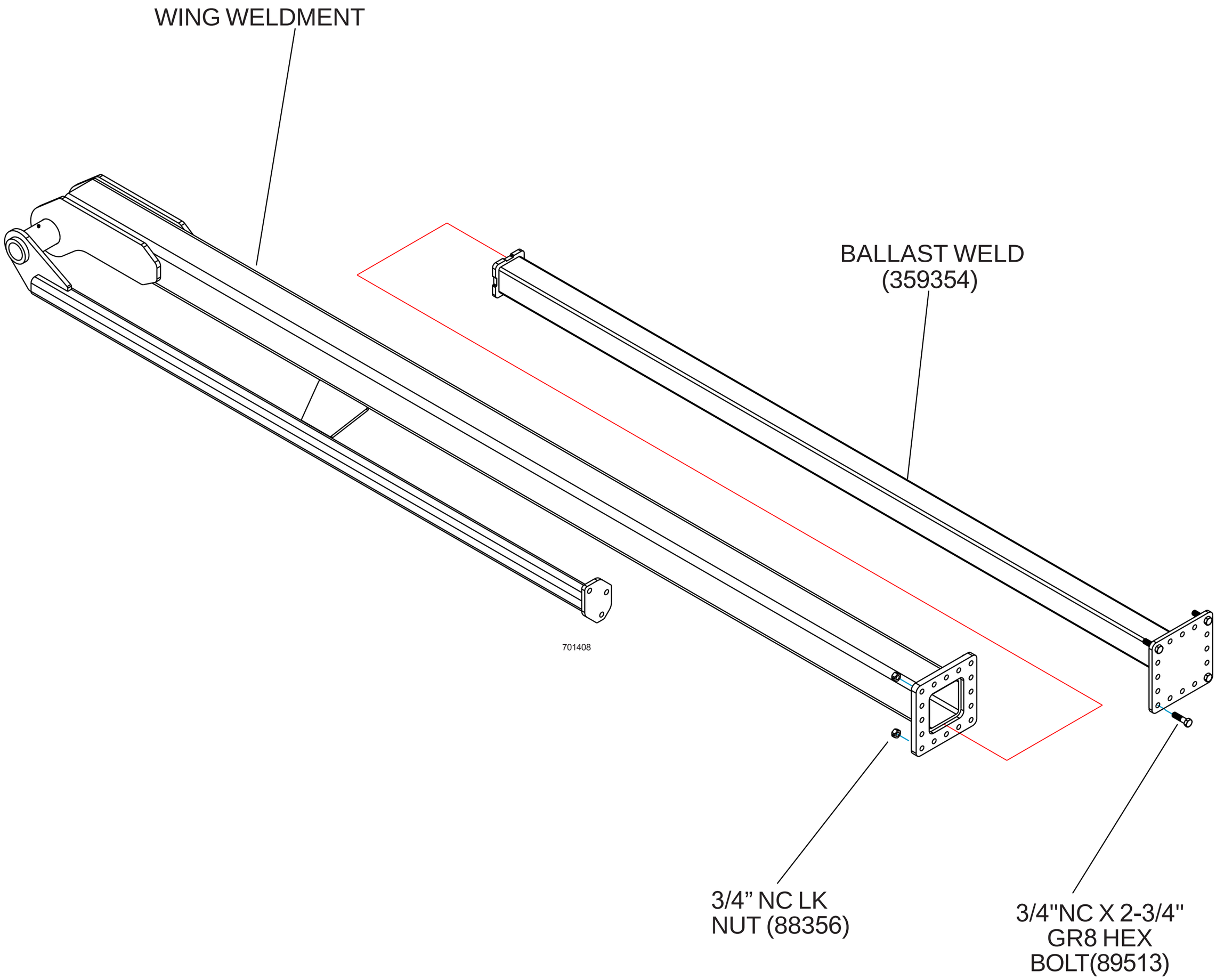
5.51 CONVEYOR-TOP SLIDE

MOUNT UHMW BAR(354792) ON THE INSIDE OF THE CONVEYOR FLANGE ON BOTH SIDES.



USE EXISTING HARDWARE TO MOUNT FORMED ANGLE(354791) IN PLACE.

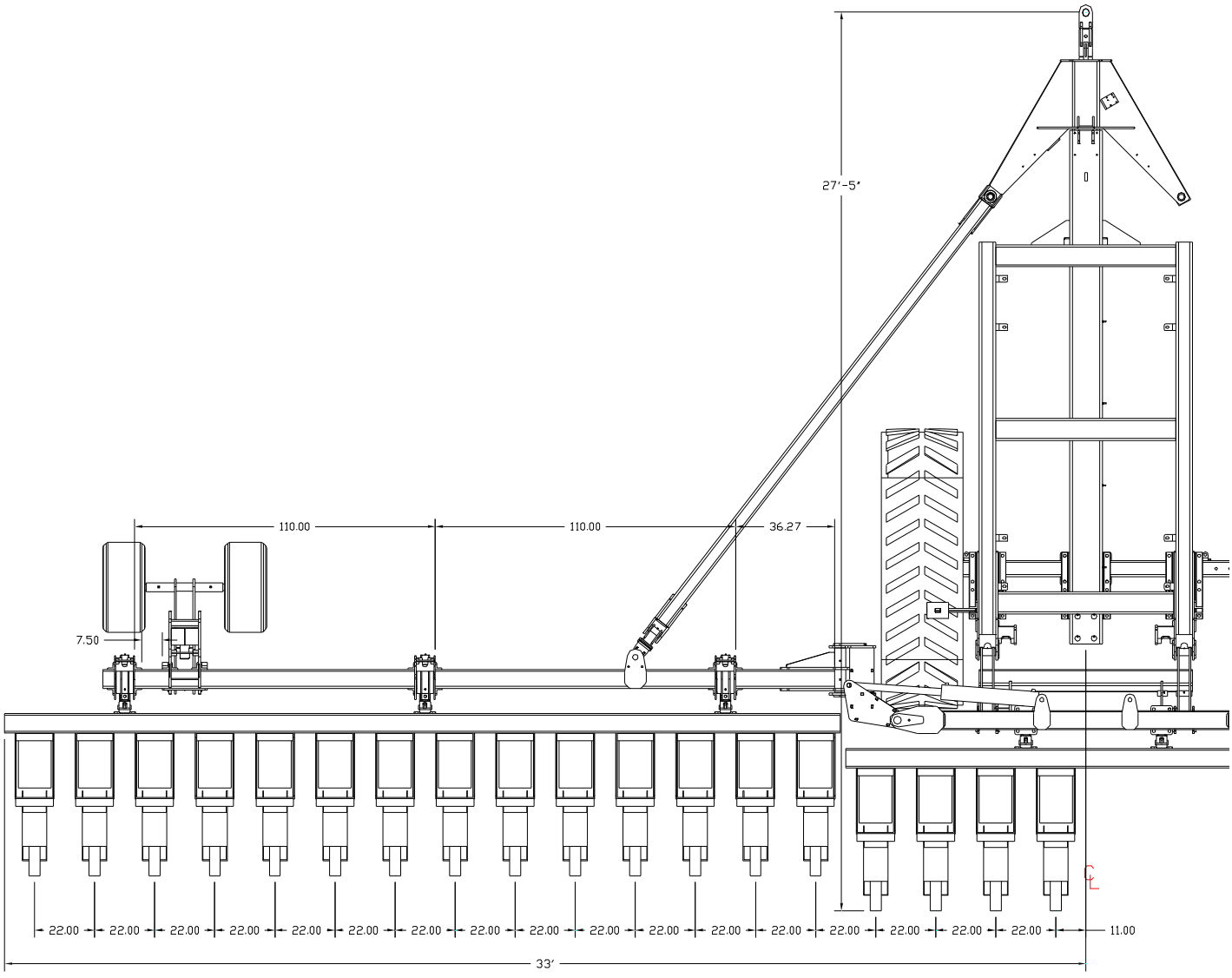
5.52 WEIGHT BALANCE KIT (OPTIONAL)



INSERT BALLAST IN END OF WING TUBES(LH & RH) AND SECURE WITH HARDWARE SHOWN. USE CAUTION WHEN TRANSPORTING TOOLBAR AS THIS ADDITIONAL WEIGHT WILL ADD TO VERTICAL LOAD ON DRAWBAR.

36 ROW 22” SPACING 66FT WITH (3) HYDRAULIC TILT CYLINDERS ON EACH WING

5.53 BEARING LOCATIONS



700230

BEARING LOCATION DIMENSIONS START FROM THE END OF THE 7” SQ TUBE

5.54 Checklists

Pre-delivery checklist

Delivery checklist

- ☐ Make sure dealer personnel are on location when starting the machine in the field. Make sure all systems work correctly. Look at the Operator's Manual to make sure the machine is set up correctly.
- ☐ Make sure the owner understands the Warranty of the machine. Complete the Warranty Registration form and list the serial number of the machine. The dealer and the owner must each sign the form.
- ☐ Make sure the machine operator understands the Safety Section. Tell about the different warning decals for dangerous operating procedures or conditions. Tell the owner of the machine to study the Operator's Manual with each operator of the machine.
- ☐ If necessary, make sure the operator knows how to adjust, connect, or disconnect other attachments to the machine.
- ☐ Make sure the operator knows the locations and functions of the controls.
- ☐ Tell the operator about the adjustments for different field conditions.
- ☐ Tell the operator about how important correct lubrication and servicing is.
- ☐ Make sure with the operator understands the light system when operating a machine on the road at night and during the day. The tail lamps, warning lamps, and SMV (Slow Moving Vehicle) emblem must be used for warning operators of other vehicles. Tell the customer to know local government regulations that deal with movement of slow and over width vehicles.
- ☐ Give the Operator's Manual to the owner. Make sure the owner will study all sections of the manual.

6. Specifications

6.1 Specifications 133
6.1.1 Frame specifications 134
6.1.2 Tire specifications 134
6.1.3 Track specifications 134
6.1.4 Machine dimensions 134
6.1.5 Hydraulic system specifications 135
6.1.6 Hydraulic flow requirements 135
6.1.7 Approximate shipping weights 135
6.1.8 Tractor requirements 135
6.1.9 Maximum transport speed 135

6.1 Specifications

6.1.1 Frame specifications

	10K
Primary Toolbar Size	17.78 x 17.78 cm (7 x 7 in)
Secondary Toolbar Size	17.78 x 17.78 cm (7 x 7 in)
Flexibility	+/- 21 degrees over total frame width
Fold Cylinders	Two, 5 x 30 inch double acting
Wheel Lift Cylinders	Six phasing double acting
Latch Cylinder	One, 2-1/2 x 5 inch double acting

6.1.2 Tire specifications

Tires	Four, 16.5 x 12, 12 ply
Tire pressure (maximum)	482 kPa (50 psi) or maximum indicated on sidewall
Wheel bearings	Tapered roller

6.1.3 Track specifications

Wheel stud diameter	1/2 inch diameter 80 +/- 10 lb ft 5/8 inch diameter 160 +/- 10 lb ft

6.1.4 Machine dimensions

Rows	36
Row spacing	56 cm (22 in)
Transport width	4.6 m (15 ft)
Transport length	11.6 m (38 ft)
Transport height	3.9 m (12 ft 8 in)
Operating length	8.5 m (28 ft)
Operating width	20.12 m (66 ft)
Tracks	2

6.1.5 Hydraulic system specifications

Tractor remote valve requirements	Three
Frame lift - fold system capacity	95 liter (25 gal)

6.1.6 Hydraulic flow requirements

Total minimum flow required utilizing tractor remotes gpm	208 Lpm (55 gpm)
Lift system gpm	76 Lpm (20 gpm)
Frame fold gpm	76 Lpm (20 gpm)
Hydraulic gpm	19 Lpm (5 gpm)

6.1.7 Approximate shipping weights

Total toolbar weight	13608 kg (30,000 lb)

6.1.8 Tractor requirements

Horsepower	400 hp
Minimum tractor weight	13,612 kg (30,010 lb)

6.1.9 Maximum transport speed

Maximum speed:

24 km/h (15 mph)

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