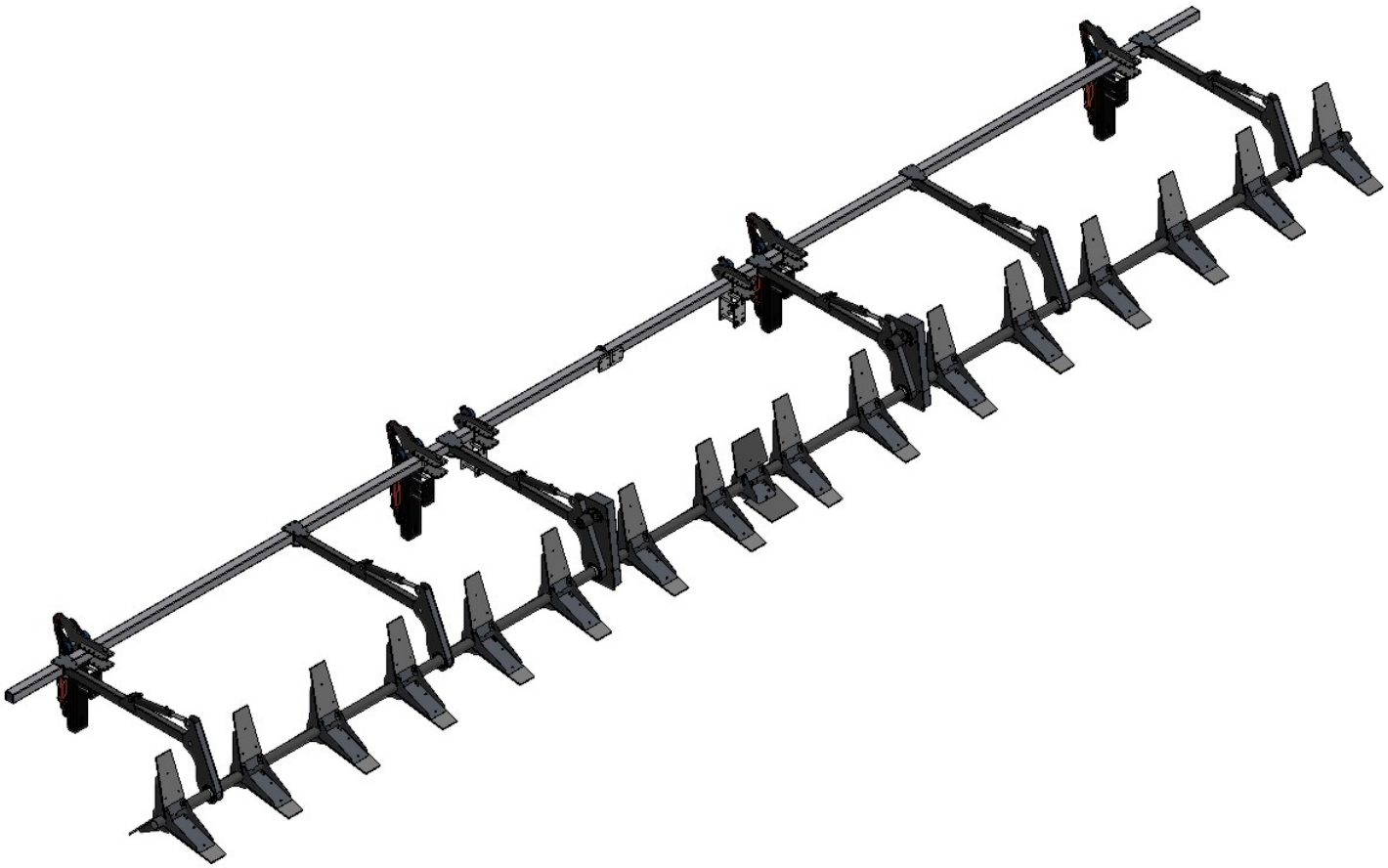
# 16 ROW CROP SWEEPER OWNER'S MANUAL & MOUNTING INSTRUCTIONS



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PATRIOT EQUIPMENT

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# SAFETY AND OPERATION RULES

## General Safety Statements

Safety precautions are essential when the use of any mechanical equipment is involved. These precautions are necessary when using, storing, and servicing mechanical equipment. Using this equipment with the respect and caution demanded will considerably lessen the possibilities of personal injury. If safety precautions are overlooked or ignored, personal injury or property damage may occur.

The machine was designed for a specific application. It should not be modified and/or used for any application other than which it was designed. If there are any questions regarding its application, please write or call. Do not use this unit until you have been advised. For more information, call 1-800-264-6587.

Read this entire manual carefully. Know your equipment. Consider the application, limitations, and the potential hazards specific to your unit. Occupational safety is of prime concern to us. This manual was written with the safety of the operator and others who come in contact with the equipment. This manual was written to help you understand the safe operating procedures of the Crop Sweeper. We want you as our partner in safety. A copy of this manual should be available to all persons who may operate this machine.

It is your responsibility as an owner, operator, or supervisor to know what specific requirements, precautions, and work hazards exist and to make these known to all other personnel working with the equipment or in the area, so that they too may take any necessary safety precautions that may be required. Avoid any alterations of the equipment. Such alterations may create a dangerous situation where serious injury or death may occur and will void warranty.

Why is SAFETY important? Three reasons:

1. Accidents disable and kill
2. Accidents cost money
3. Accidents can be avoided

Note the use of the signal words **DANGER, WARNING,** and **CAUTION** with 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 proper precautions are not taken.

**WARNING** – A specific hazard or unsafe practice which could result in severe personal injury or death if proper precautions are not taken.

**CAUTION** – Unsafe practices which could result in personal injury if proper precautions are not taken or a reminder of good safety practices.

## Safety Alert Symbol

**BE ALERT! YOUR SAFETY IS INVOLVED!**

The Symbol Shown Above Is Used To Call Your Attention To Instructions Concerning Your Personal Safety. Watch for This Symbol - It Points Out Important Safety Precautions. It Means ATTENTION! Become Alert! Your Personal Safety Is Involved! Read The Message That Follows And Be Alert To The Possibility Of Personal Injury Or Death.

Read this manual before operating or working around a Crop Sweeper! This manual must be delivered with the equipment to its owner and operator. Failure to read this manual and its safety instructions is a misuse of equipment.

## Safety Equipment

Please, remember safety equipment provides important protection for persons around a Crop Sweeper that is in operation. Be sure ALL safety shields and protective devices are installed and properly maintained. If you find any shields or guards damaged or missing, contact Patriot Equipment for the correct items.

## Safety Procedures

1. Use only lifting equipment with the proper capacity when installing or removing the Crop Sweeper. Forklifts with too little capacity may tip towards the front where the lifted weight is.
2. Do not operate unit without safety shields or guards in place.
3. IMPORTANT: Use caution when transporting. Be alert of the transport unit's overall width when approaching obstacles, such as post sign and poles, along the road. Check the transport width of the unit to ensure clearance before entering.
4. Comply with all safety warnings and cautions in this manual and in the combine operator's manuals.
5. Do not allow any riders on the corn head or near the Crop Sweeper when in use.
6. In case of any defect or awareness of potential danger, please contact Patriot Equipment at 1-800-264-6587 immediately.

## Operator Qualifications

Operation of this Crop Sweeper shall be limited to competent and experienced persons. In addition anyone who will operate or work around a Crop Sweeper must use good common sense. In order to be qualified, they must also know and meet all other requirements, such as:

1. Some regulations specify that no one under the age of 18 may operate power machinery. This may include the Crop Sweeper. It is your responsibility to know what these regulations are in your own area or situation.
2. Current Occupational Safety Health Administration regulations state in part: "At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee or user in the safe operation and servicing of all equipment with which the employee or user is, or will be involved."
3. Unqualified persons are to stay out of the work area.
4. A person who has not read and understood all operating and safety instruction is not qualified to operate the machine.

## Safety Overview

YOU are responsible for SAFE operation and maintenance of your Crop Sweeper. YOU must ensure that you and anyone who is going to operate and maintain or work around the Crop Sweeper must be familiar with the operating, maintenance, and safety information contained in the manual.

Remember YOU are the key to safety. GOOD PRACTICES protect not only you but also the people around you. Make these practices a working part of your safety program. Be certain EVERYONE operating this machine is familiar with the procedures recommended and follows safety precautions. Remember, most accidents can be prevented. Do not risk injury or death by ignoring any information addressed.

Crop Sweeper owners must give operating instructions to operators before allowing them to operate the Crop Sweeper. They must be reviewed at least annually thereafter per OSHA regulation 1928.57.

The most important safety device on the equipment is a SAFE OPERATOR. It is the operator's responsibility to read and understand ALL instructions in the manual and to follow them. All accidents can be avoided!

Any person who has not read and understood all operation and safety instructions is not qualified to operate the Crop Sweeper. An untrained operator exposes himself and bystanders to possible serious injury or death.

Do not modify the equipment in any way. Unauthorized modifications may impair the functions and/or safety and could affect the life of the equipment.

## Safety Affirmation

1. I have read and understand the operator's manual and all safety signs before operation, maintenance, adjusting, or unplugging the Crop Sweeper.
2. I will allow only trained persons to operate the Crop Sweeper. *An untrained operator is not qualified to operate this equipment.
3. I have access to a fire extinguisher.
4. I have all guards in place and will not operate the Crop Sweeper without them.
5. I will not allow riders on the Crop Sweeper.
6. I understand the danger of moving parts (rotating paddle reel, hydraulics, and pinch points) and will stop engine before servicing.
7. I recognize the danger of the Crop Sweeper coming in contact with power lines.
8. I have the safety lock up pins and know and understand where and when to use them.
9. I understand that any accidents that occur with the Crop Sweeper are my responsibilities.
10. I understand that Patriot Equipment will not be held responsible for any accidents that involve the Crop Sweeper.

## Sign Off Sheet

(This sheet should be signed annually as part of your safety program)

As a requirement of OSHA, it is necessary for the owner/employer to train the employee in the safe operation and safety procedures with this Crop Sweeper. We include this sign off sheet for your convenience and personal record keeping.

| DATE | EMPLOYER SIGNATURE | EMPLOYEE SIGNATURE |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

## Machine Inspection

After delivery of your new Crop Sweeper and/or completion of assembly, and before each use, inspection of the machine is mandatory. This inspection should include, but not be limited to:

1. Check to see that all guards are in place, secured and functional.
2. That all fasteners are tight.
3. That all Hydraulic lines are free from leaks and defects.
4. That all electronics are working properly and wires are in good condition.

## Lighting and Marking

It is the responsibility of the customer to know the lighting and marking requirements of the local highway authorities and to install and maintain the equipment to provide compliance with the regulations. Add extra lights when transporting at night or during periods of limited visibility if necessary.

## Serial Number

To ensure efficient and prompt service, please furnish us with the model and serial number of your Crop Sweeper in all correspondence or other contact. The serial number is located on the hydraulic motor plate.

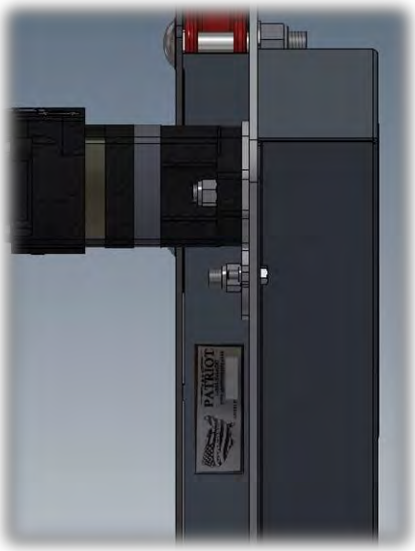
## Safety Decals

1. Keep safety decals clear and legible at all times.
2. Replace decals and signs that are missing or have become unreadable.
3. Safety signs are available from your Dealer or the Manufacturer.

## How to install Safety Decals

1. Be sure that the installation area is clean and dry.
2. Decide on the exact position before you remove the backing paper.
3. Align the decal over the specified area and carefully press the small portion with the exposed sticky backing in place.
4. Slowly peal back the remaining paper and carefully smooth the remaining portion of the decal in place.
5. Small air pockets can be pierced with a pin and smoothed out using a piece of decal backing paper.

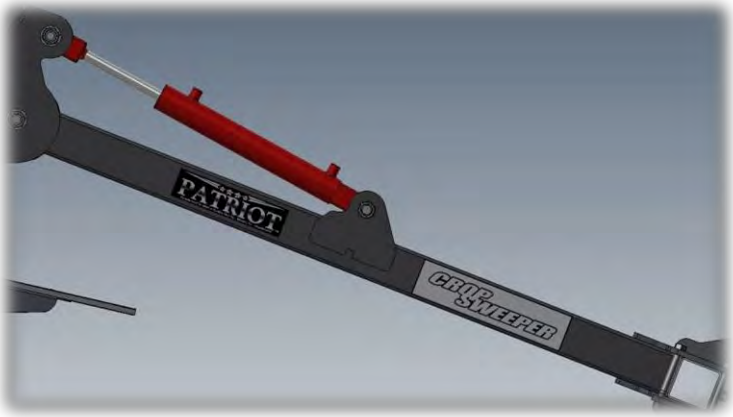
# Safety Decal Locations and Part Numbers



**BE ALERT! YOUR SAFETY IS INVOLVED!**

Important: Install new safety decals immediately if the old decals are destroyed, lost, painted over, or cannot be read. When parts are replaced that have safety decals, make sure you install a new decal with each new part. New decals are available from the manufacturer or your authorized dealer.

Serial Number Decal: TS2003: Decal located below hydraulic motor.




Patriot Decal: TS2004
Crop Sweeper Decal: CSP154

Decals are located on the main arm.


Chain Pinch Point Decal: CSP152

Falling Reel Pinch Point Decal: CSP153

Hydraulic Oil Warning Decal: BC2515

Decals are located on the upper chain cover.

# Safety Decal Locations and Part Numbers


CSP154


CSP152


CSP153


TS2004


TS2003


BC2515

## OPERATING THE CROP SWEEPER

Controls

Fig. 1


The Crop Sweeper uses two hydraulic circuits from the harvesting machine.

1. The fore/aft hydraulic circuit for the reel on a platform head or the deck plates on a corn head,
2. Reel drive circuit

Both circuits are easily controlled from the operator's seat in the combine cab using the combine control joystick and operator console. On newer harvesting machines, the factory hydraulic control for the deck plates is located on the corn head itself. If the control is on the corn head, the hydraulic oil supply for the crop sweeper will come from this location and not from the single point connector on the combine. The reel drive will still come from the single point connector on the combine.

The Crop Sweeper comes with a control box (Fig. 1) that turns the fore/aft circuit into three circuits:

1. Stripper Plate Adjustment – deck plate or stripper plate adjustment on the corn head
2. Fore/Aft Adjustment – adjusts the length of the paddle reel from the rear tube
3. Lift Adjustment – adjusts the height of the paddle reel

These circuits are used to control certain functions of the Crop Sweeper depending upon which circuit switch is selected. The circuit will only be activated if the associated toggle is placed in the "on" position. Once the operator selects the circuit to be used, the fore/aft button on the combine joystick is used to control the hydraulic flow. For example, if the operator selects the "Stripper" circuit, that will activate, and when the operator uses the fore/aft button in the combine, the deck or stripper plates on the corn head will get closer together or further apart depending upon the direction of operation of the fore/aft button.

Please notice the toggle switch labeled as the "Reel Motor". This toggle switch controls an optional motor shut off kit for the Crop Sweeper.

Finally, the Crop Sweeper also uses the reel drive hydraulic circuit from the combine to supply oil to the reel motor giving control of the reel speed to the operator. The operator can adjust the reel speed the same way they do with the reel on the platform head, right from the cab of the combine.

# Operation

 **DANGER! Make sure everything and everyone is clear of the Crop Sweeper and the combine before operating!**

1. Have the fore and aft in the back position when starting the CROP SWEEPER.

2. Lift the CROP SWEEPER hydraulics so that the reel is about a foot above the gathering chains.

3. Engage the combine to run and then move the feeder house switch to the on position and the CROP SWEEPER will start.

4. Once the combine is running to speed, adjust the rotational speed of the CROP SWEEPER paddles with the reel dial-o-matic switch on the combine console.

5. In the field, adjust the CROP SWEEPER up or down according to crop conditions.

6. If the crop is down and will not slide over the snouts, adjust the paddles out using the fore and aft feature and then lower the CROP SWEEPER, being careful to avoid contact with the head.

7. If the corn slides up and over the snouts, bring the CROP SWEEPER back so that the paddles run right behind the rubber ear saver.

8. In extreme down conditions, removing the rubber ear savers may improve crop flow into the combine head. The CROP SWEEPER may also be lowered.

9. In all situations, run the height of the CROP SWEEPER wherever it best improves crop flow.

10. On standing corn or in fluff run the CROP SWEEPER about ear high with the paddles running slowly to keep the trash and fluff moving into the auger and feeder house.

11. When the CROP SWEEPER is not in use, move it to a position that allows for the best visibility for the combine operator.

12. Transport the CROP SWEEPER in the down position.

13. When working under the Crop Sweeper or when transporting it in the up position, **always** install the safety lock pins that are provided to prevent the reel from dangerously coming down!

## Adjusting the height of the Crop Sweeper

1. Use the threaded yokes at the top of the raise and lower cylinders.

2. Use the hydraulic cylinder lower link plates by moving them up or down and flipping left to right to get the optimum height when the CROP SWEEPER is in the down position.

3. NOTE: When making adjustments, care must be used to prevent the reel from making contact with the corn head or combine cab. Making contact with the corn head or combine cab may cause damage to the Crop Sweeper, corn head, or cab.

## Fore and Aft Setting

1. Run the reel as far back and close to the corn head auger as possible and still maintain sweeping performance.

2. The optimum position of the reel is to run in the dead space between the gathering chains and the auger, grabbing the crop at the front of the reel and pushing it into the auger at the back of the reel.

3. In standing corn, raise the reel to cob height or higher. Barely touching the stalk as it passes by.

4. In all cases it is necessary for the operator to find the “sweet spot” that matches field conditions.

## Extra Electric Plug at Valve Block

The two pin plug, Fig. 2, is for the optional reel shut off valve. The shut off valve can be purchased separately, the part number is CSP12C. See the shut off valve diagram for complete instructions of installation. The control switch, labeled “Reel Motor”, is factory installed in the switch box that came with the Crop Sweeper.

Fig. 2

## Hints to Improve Performance

1. Not all field conditions encountered are the same. The Crop Sweeper is shipped with the 19” standard paddles which are the best to address most all crop conditions. In the event you are experiencing difficulty in getting down stalks to come up onto the head, one of the following suggestions should solve this problem.

2. If more reach is needed, check to see that the rear lift tube is slid all of the way out in the mounting bracket rocker assemblies. This gives the Crop Sweeper its maximum reach.

3. For more down reach, there is adjustment at the top of the hydraulic lift cylinders. If the downward reach is still inadequate after this adjustment, it is possible to gain more downward reach by moving the hydraulic cylinder lower link plates.

4. On rare occasions, in extreme down crop conditions, it sometimes becomes necessary to resort to adding the (27”) longest paddles available for 30" or wider row spaced machines. When these paddles become necessary, the corn head snout is longer, taller, or are not as slick as standard snouts combined with extremely down corn. Place over standard paddle supplied.

5. ORDER CSP152 BOLTS, 9 PER ROW, WHEN ORDERING CSP130 PADDLES.

6. When these longer paddles are used, the Crop Sweeper reel is not able to be drawn in as close to the auger as would be possible with the standard paddles. The reel is drawn in close when it is necessary to clear fluff building up in front of the auger and feeder house. In addition, the longer paddles do not have as long of a useful life as the standard paddle because of the extra leverage being applied to them.

7. All paddles are normal wear items.

## TROUBLE SHOOTING

### Plugging

| Symptom | Solution |
|---|---|
| What is the combine ground speed?<br>Are you running too slowly, below 2 mph? | Increase the combine ground speed up to 3 mph |
| Are you exactly on the row? | Align the two center paddles with the rows. |
| Debris building on the snout? | Raise the crop sweeper. |
| The paddles are slipping. | Install the three set screws provided per row. |
| Stalks are draping on the inside of the snout. | Lower the crop sweeper. |
| The crop is not coming far enough up the snout to feed in. | Adjust the reel out and/or down. |

### Reel Doesn't Lift or Work Properly

| Symptom | Solution |
|---|---|
| Reel will not lift or is not working correctly? | • Check for power to the switch box.<br>• Check the switch box to see if it has more than one switch that is in the on position. The crop sweeper is designed to have a single circuit active at a time.<br>• Depending on make and model of the combine, check to see that the reel is activated with the operating system.<br>• Depending on the make and model of the combine, check to see that the hydraulic oil supply is coming from the correct outlet. Some combine models have a check valve installed so the hydraulic oil supply comes from the head and not the feeder house. |

### Reel Doesn't Turn

| Symptom | Solution |
|---|---|
| Reel doesn't turn | • Check oil flow to the hydraulic motor<br>• Check the combine control system that the reel is activated.<br>• Check that the drive sprocket set screws are across from each other and tightened. |

## Hydraulic Motor Wobbles/Hanger Bearings Wobble

| Symptom | Solution |
|---|---|
| Hydraulic motor not running straight and/or hanger bearings not running straight. | • Loosen set screws on the center tube and run the Crop Sweeper empty. This should center the bearings to run straight.<br>• Tighten the set screws |

## Crop Material Wrapping

| Symptom | Solution |
|---|---|
| Crop material wrapping around center tube | Add the 27” paddle (CSP130). The taller paddle moves the center tube further away from the wrapping material. The 27” paddle is placed over the existing paddle, so longer fasteners will be required (CSP152, 9 per row). |
| Extreme wrapping conditions | Use a 3” sleeve, schedule 40 PVC that is purchased locally, cut to length and placed over the center tube, in between the rows. If extreme conditions are known before assembly, add prior to assembling the Crop Sweeper. |

# Minden Machine Shop Inc

## LIMITED Warranty

Minden Machine Shop Inc warrants all products manufactured by it to be free of defect in material and workmanship for a period of one (1) year from the date of purchase.

This Minden Machine Shop Inc. warranty does not cover:

1. Parts and accessories supplied by Minden Machine Shop Inc. but manufactured by others. Minden Machine Shop Inc. will facilitate the other manufacturer warranty for the benefit of the purchaser but will not be bound thereby (example: augers, motors, trailers, tanks, etc.).
2. Products that have been altered by anyone other than a Minden Machine Shop Inc. employee or are used by the purchaser, for purposes other than what was intended at time of manufacture or used in excess of the "built specifications".
3. Products that are custom manufactured by Minden Machine Shop Inc. utilizing the purchaser's design which deviates from Minden Machine Shop Inc. normal production line manufactured or customized features of the products.
4. Malfunctions or damages to the product from misuse, negligence, customer alteration, accidents or product abuse due to incoming material or poor material flow ability or lack of required performance or required maintenance (e.g., poor material flow ability caused by incoming wet fertilizer or hot soybean meal, etc).
5. Loss of time, inconvenience, loss of material, down time or any other consequential damage.
6. Product use for a function that is different than designed intent (e.g., storing soybean meal in grain bin, unacceptable material in the bin such as hot bean meal when product originally designed for other application, etc).
7. Minden Machine Shop Inc is not responsible for any equipment that this product is attached to or mounted on.

To activate this warranty, the purchaser must make contact in writing with Minden Machine Shop Inc. within one (1) year of date of purchase. After contact, Minden Machine Shop Inc. has the right to determine the cause and qualify the legitimacy of the claim. Minden Machine Shop Inc., upon acceptance of a warranty claim, shall have a reasonable time to plan any repair or replacement and may affect repair or replacement out of its factory or through contract with a local repair service. If a purchaser after warranty notice is made, chooses to make the repair itself, Minden Machine Shop Inc. must approve any expenses before they are incurred to be responsible for customer reimbursement. Minden Machine Shop Inc. shall be liable on a warranty claim for repair or replacement of any defective products and this is the purchaser's sole and exclusive remedy. Minden Machine Shop Inc. will not be liable for any other or further remedy including claims for personal injury, property damage or consequential damage. The law of the Sate of Nebraska shall govern and any such claim and any issues with regard to the same shall be resolved in the Nebraska District Court for the county of Kearney.

## RETURN OF MERCHANDISE

Merchandise may not be returned without written approval from the factory. All returns must have a return authorization number. Obtain this number before the return and show it on all return items. A 15% restocking charge is made on merchandise returned. Returned merchandise must be shipped pre-paid.

## RECEIVING MERCHANDISE AND FILING CLAIMS

When receiving merchandise it is important to check both the number of parts and their description with packing slip. The consignee must make all claims for freight damage or shortage within 10 days from the date of delivery.

When the material leaves the factory it becomes the property of the consignee. It is the responsibility of the consignee to file a claim on any possible damage or loss. Please list your preferred routing on purchase orders.

## MODIFICATIONS

It is the policy of Minden Machine Shop Inc. to improve its products whenever possible and practical to do so. We reserve the right to make changes, improvements and modifications at any time without incurring the obligation to make such changes, improvements and modifications on any equipment sold previously.

# WARRANTY REGISTRATION

**To register equipment, or file a claim, copy and paste the words on this page into an email or word document, fill out the appropriate information completely, and email it to larry@mindenmachine.com with the subject as EQUIPMENT WARRANTY, or fill it out and fax it to 308-832-1340.**

**Dealer Information:** Not Applicable, check here: [ ]

Dealer Name:

Address:

City:

State:

Zip Code:

Phone #:

Email:

**End User Information:**

Purchaser:

Address:

City:

State:

Zip Code:

Phone #:

Email:

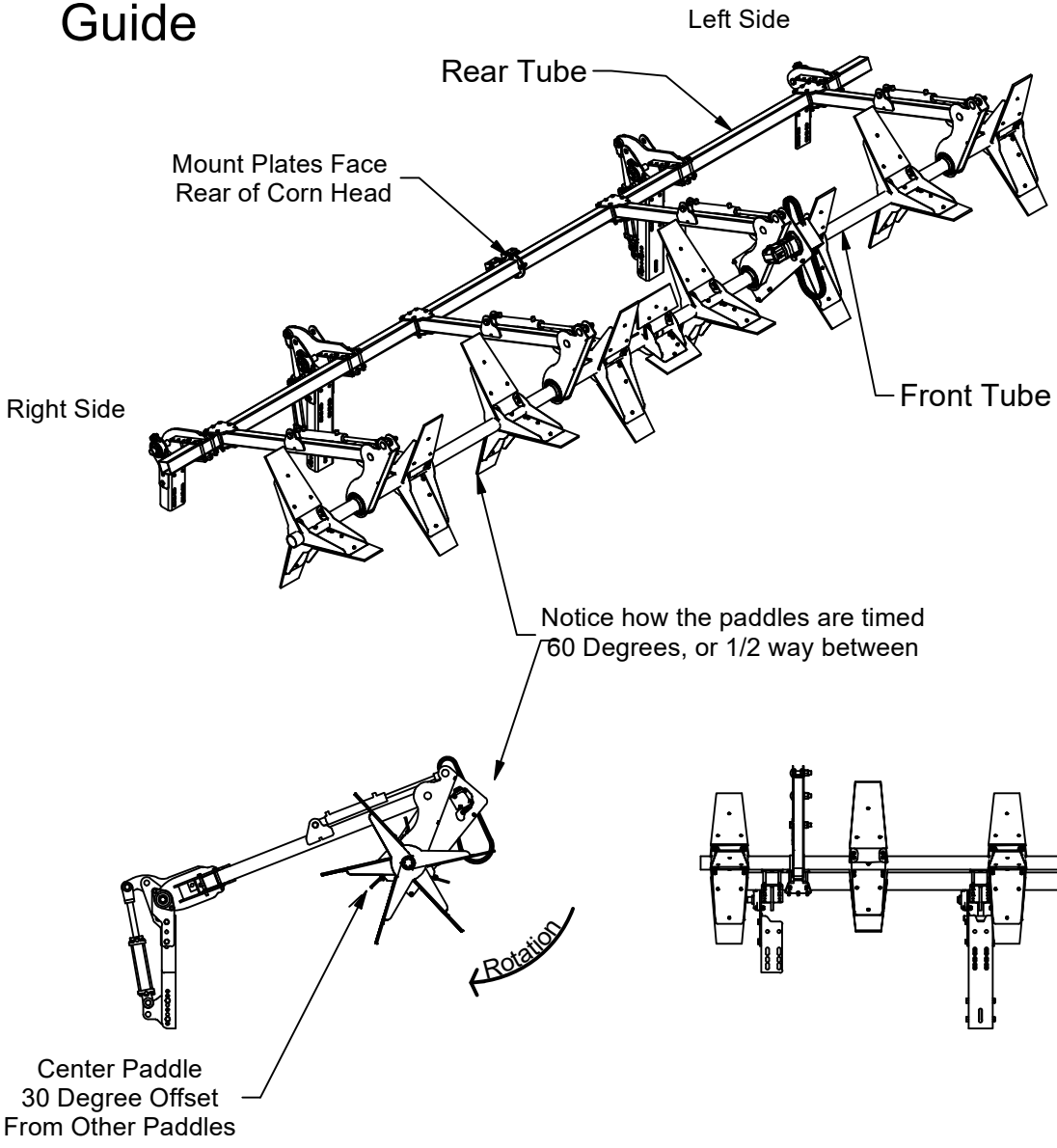
Equipment:

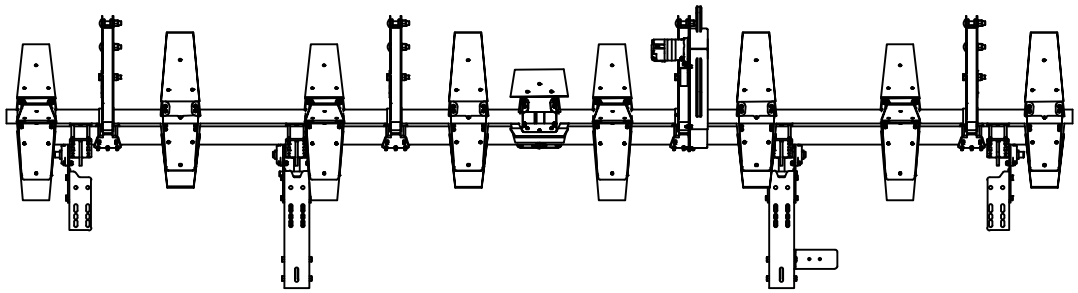
Serial #:

Date of Purchase:

# CROP SWEEPER ASSEMBLY INSTRUCTIONS

# Machine Layout Guide



Thank you for choosing the Patriot Crop Sweeper for your needs! The following is the assembly guide for the machine. Please refer to the machine layout on this page as you assemble the crop sweeper. Just a few references before the assembly process begins. The left and right side of the machine is determined by sitting in the operator seat of the combine. An 8 row machine is shown, but it is a reference that can be used for smaller or larger machines. If you have any questions, please feel free to contact Patriot Equipment at 1-308-832-0220.

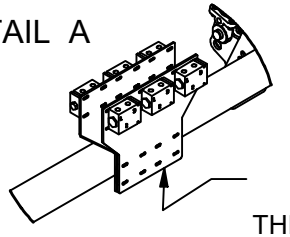
Thank you!

Patriot Equipment

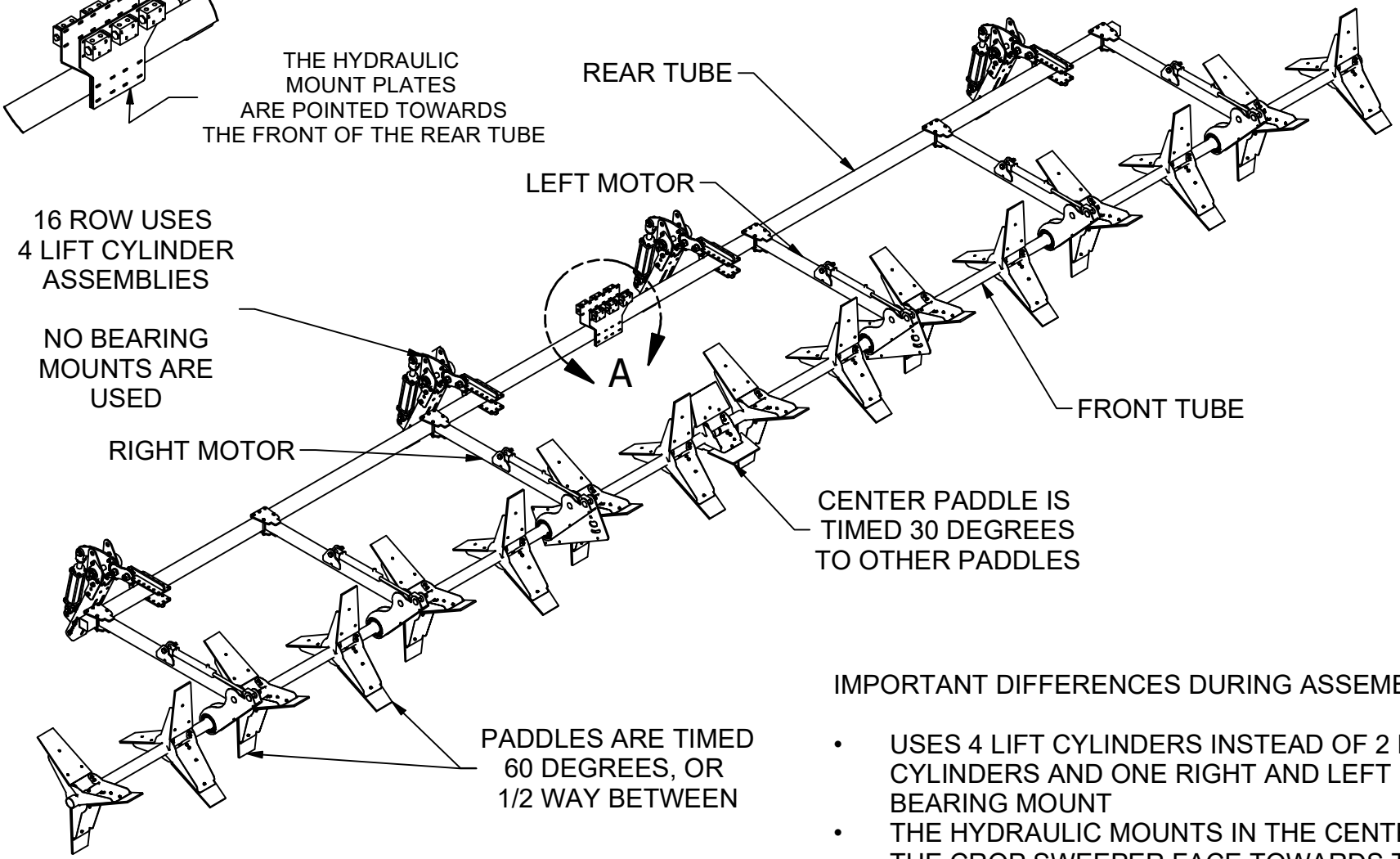
**Minden Machine Shop Inc.**
1302 K Road Minden, NE
800-264-6587 / 308-832-0220

# 16 ROW MACHINE LAYOUT GUIDE

DETAIL A



THE HYDRAULIC MOUNT PLATES ARE POINTED TOWARDS THE FRONT OF THE REAR TUBE

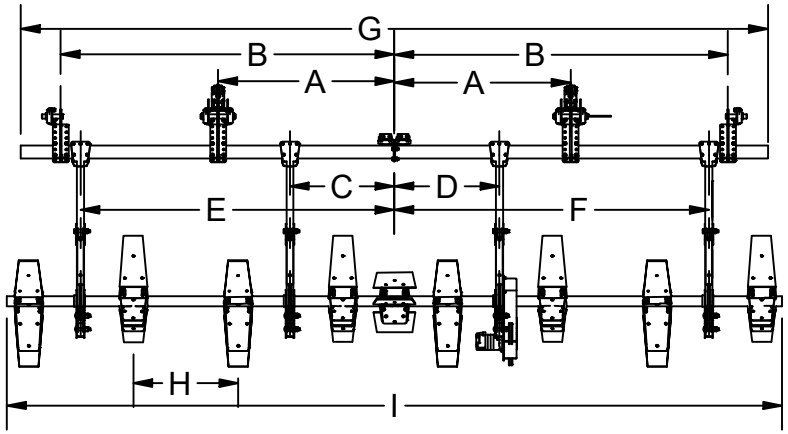



IMPORTANT DIFFERENCES DURING ASSEMBLY

- USES 4 LIFT CYLINDERS INSTEAD OF 2 LIFT CYLINDERS AND ONE RIGHT AND LEFT BEARING MOUNT
- THE HYDRAULIC MOUNTS IN THE CENTER OF THE CROP SWEEPER FACE TOWARDS THE FRONT INSTEAD OF THE REAR
- THERE IS 6 FORE/AFT CYLINDERS
- 16 ROW HAS TWO MOUNT ARMS WITH MOTOR MOUNT

**Patriot Equipment**
1302 K Road Minden, NE
308-832-0220

# Specific Machine Dimensions




| Specific Machine Dimensions | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Machine | A | B | C | D | E | F | G | H | I | Ext Tube |
| 4Row30 | Adjustable | - | 30 | 29 | - | - | 102 | 30 | 102 | - |
| 4Row36 | Adjustable | - | 36 | 35 | - | - | 102 | 36 | 120 | - |
| 4Row38 | Adjustable | - | 38 | 37 | - | - | 102 | 38 | 127 | - |
| 4Row40 | Adjustable | - | 40 | 39 | - | - | 102 | 40 | 132 | - |
| 6Row30 | Adjustable | - | 30 | 29 | - | - | 160 | 30 | 162 | - |
| 6Row36 | Adjustable | - | 36 | 35 | - | - | 192 | 36 | 196 | 32" |
| 6Row38 | Adjustable | - | 38 | 37 | - | - | 192 | 38 | 206 | 32" |
| 6Row40 | Adjustable | Adjustable | 40 | 39 | 80 | 81 | 192 | 40 | 214 | 32" |
| 8Row20 | Adjustable | - | 40 | 39 | - | - | 160 | 20 | 153 | - |
| 8Row22 | Adjustable | - | 44 | 43 | - | - | 160 | 22 | 162 | - |
| 8Row30 | Adjustable | Adjustable | 30 | 29 | 60 | 61 | 214 | 30 | 222 | - |
| 8Row36 | Adjustable | Adjustable | 36 | 35 | 72 | 73 | 256 | 36 | 266 | 42" |
| 8Row38 | Adjustable | Adjustable | 38 | 37 | 76 | 77 | 256 | 38 | 278 | 42" |
| 8Row40 | Adjustable | Adjustable | 40 | 39 | 80 | 81 | 256 | 40 | 292 | 42" |
| 12Row20 | Adjustable | Adjustable | 40 | 39 | 60 | 61 | 256 | 20 | 234 | 42" |
| 12Row22 | Adjustable | Adjustable | 44 | 43 | 88 | 89 | 256 | 22 | 256 | 42" |
| 12Row30 | Adjustable | Adjustable | 60 | 59 | 120 | 121 | 324 | 30 | 344 | - |
| 12Row36 | Adjustable | Adjustable | 72 | 71 | 144 | 145 | 384 | 36 | 410 | - |
| 16Row20 | Adjustable | Adjustable | 40 | 39 | 100 | 101 | 256 | 20 | 292 | 42" |
| 16Row22 | Adjustable | Adjustable | 44 | 43 | 110 | 111 | 324 | 22 | 342 | - |
| 16Row30 | Adjustable | Adjustable | 60 | 59 | 150 | 151 | 364 | 30 | 464 | 40" |
| 18Row20 | Adjustable | Adjustable | 60 | 59 | 120 | 121 | 324 | 20 | 354 | - |
| 18Row22 | Adjustable | Adjustable | 66 | 65 | 132 | 133 | 324 | 22 | 388 | - |

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## TORQUE DATA FOR STANDARD NUTS, BOLTS, AND CAPSCREWS.

Tighten all bolts to torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt chart as guide. Replace hardware with same grade bolt.

NOTE: Unless otherwise specified, high-strength Grade 5 hex bolts are used throughout assembly of equipment.

### Torque Specifications

**Bolt Torque for Standard bolts ***

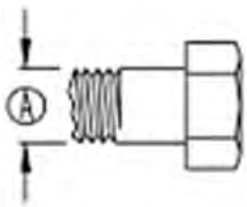
| | GRADE 2 | | GRADE 5 | | GRADE 8 | |
|---|---|---|---|---|---|---|
| "A" | lb-ft | (N.m) | lb-ft | (N.m) | lb-ft | (N.m) |
| 1/4" | 6 | (8) | 9 | (12) | 12 | (16) |
| 5/16" | 10 | (13) | 18 | (25) | 25 | (35) |
| 3/8" | 20 | (27) | 30 | (40) | 45 | (60) |
| 7/16" | 30 | (40) | 50 | (70) | 80 | (110) |
| 1/2" | 45 | (60) | 75 | (100) | 115 | (155) |
| 9/16" | 70 | (95) | 115 | (155) | 165 | (220) |
| 5/8" | 95 | (130) | 150 | (200) | 225 | (300) |
| 3/4" | 165 | (225) | 290 | (390) | 400 | (540) |
| 7/8" | 170 | (230) | 420 | (570) | 650 | (880) |
| 1" | 225 | (300) | 630 | (850) | 970 | (1310) |

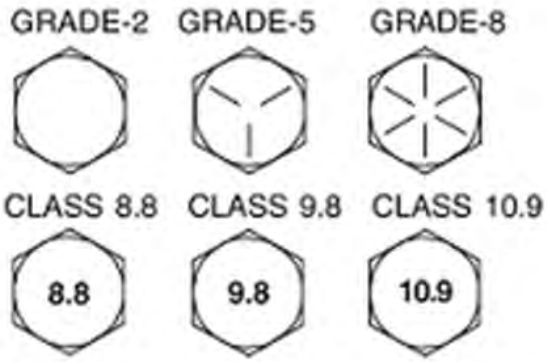
**Bolt Torque for Metric bolts ***

| | CLASS 8.8 | | CLASS 9.8 | | CLASS 10.9 | |
|---|---|---|---|---|---|---|
| "A" | lb-ft | (N.m) | lb-ft | (N.m) | lb-ft | (N.m) |
| 6 | 9 | (13) | 10 | (14) | 13 | (17) |
| 7 | 15 | (21) | 18 | (24) | 21 | (29) |
| 8 | 23 | (31) | 25 | (34) | 31 | (42) |
| 10 | 45 | (61) | 50 | (68) | 61 | (83) |
| 12 | 78 | (106) | 88 | (118) | 106 | (144) |
| 14 | 125 | (169) | 140 | (189) | 170 | (230) |
| 16 | 194 | (263) | 216 | (293) | 263 | (357) |
| 18 | 268 | (363) | -- | -- | 364 | (493) |
| 20 | 378 | (513) | -- | -- | 515 | (689) |
| 22 | 516 | (699) | -- | -- | 702 | (952) |
| 24 | 654 | (886) | -- | -- | 890 | (1206) |

Torque figures indicated are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or capscrews unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

*GRADE or CLASS value for bolts and capscrews are identified by their head markings.

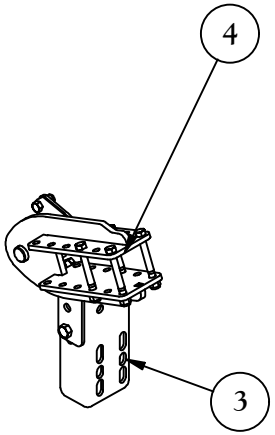


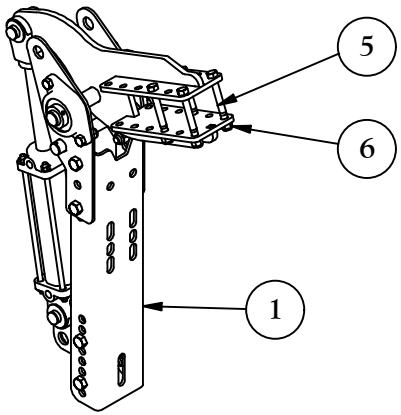



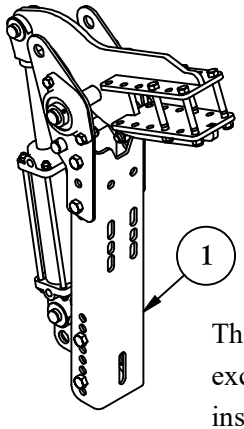
# Standard Mount Assembly

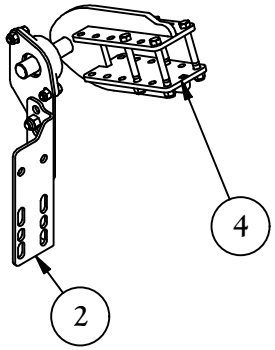
## Contains

Main Lift Cylinder Assembly
Left and Right Bearing Mount




The standard mount assembly is the base mount for all of the crop sweepers except for Geringhoff corn heads. Geringhoff cornhead installation instructions are later in this manual. To begin with installation of the crop sweeper:

1. Find and mark the center location of the the corn head. This will be the base meaurement for the installation.
2. It will be useful to mark the locations of the crop sweeper pivot arms at this time.
3. The first to be mounted will be the main lift cylinder mount (Item 1) and the outer bearing mounts (Item 2) to the main upper back beam of the corn head. Mounting these items can vary on the back of the head so that they will miss obstructions. The support and bearing brackets can be placed where they best fit. The locations can be interchanged. Make sure not to interfere with planned arm locations.

| Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 2 | Main Lift Cylinder Mounting Assembly | Lifting Assembly |
| 2 | 1 | Bearing Mount Left Side Assembly | Outer Support |
| 3 | 1 | Bearing Mount Right Side Assembly | Outer Support |
| 4 | 2 | CS-A003 | Gator Clamp Idler Weldment |
| 5 | 16 | B1/2x4.5 | Hex Bolt |
| 6 | 16 | N1/2NYL | Nylock Nut |

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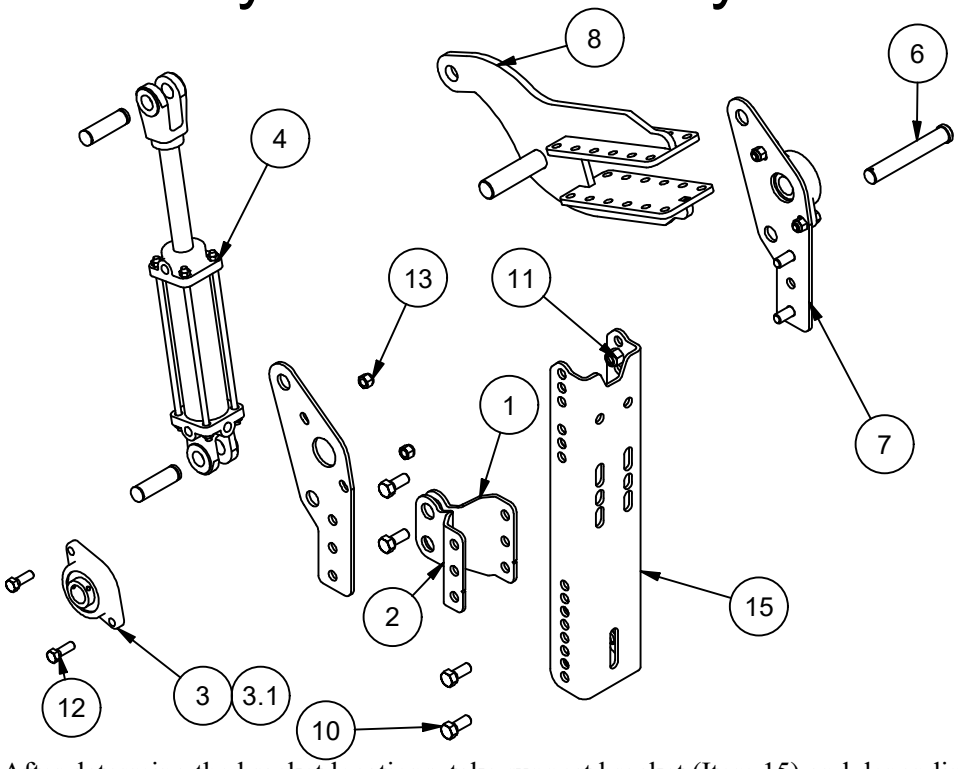
# Main Lift Cylinder Assembly




1. After determing the bracket locations, take support bracket (Item 15) and depending upon which mounting you have, insert the top two bolts and nuts and install loosely by hanging over the top of the corn head bar in the desired location.
2. Using the clamp plate for your mount, use it as a template to drill two 5/8" holes through the sheet metal on the back of the corn head. After the holes are drilled, install the bolts, washers, and nuts. Once the bracket is in the correct location, tighten the fasteners.
3. Repeat with the other side.
4. Install the lift cylinder lower link plates (Item 1 and Item 2) onto the universal mount (Item 15). Mount the lower link plates in the center group of holes as a starting point with the notches up. The cylinder mount holes (1" diameter) are offset by a 1/2" compared to the 5/8" diameter holes so that adjustment is in 1/2" increments. The position can be altered if needed. Use the 5/8" x 1-1/2" bolts and nuts to mount.
5. Install the 1-1/4" flange bearing (Item 3) to the bearing ear mounting plate (Item 7) using the 1/2 x 1-1/2" bolts and nuts.
6. Slide the assembled flange bearings onto each side of the Gator Clamp Weldment (Item 8) with the bearings towards the outside. Attach the bearing ear mounts (Item 7) to the universal mount (Item 15) and bolt in the middle set of holes with the 5/8" x 1-1/2 bolts and nuts. Center the Gator Clamp assembly. Tighten the fasteners and then tighten the bearings onto the shaft of the Gator Clamp Weldment.
7. Remove the plastic plugs from the cylinder (Item 4) and extend the ram. Connect the cylinder to the lower link plate with the supplied cylinder pin and then connect to the Gator Clamp with the ram end with the other supplied pin. Install retaining clips. Make sure the hydraulic ports are accessible.

| Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | CS-P001 | Left Rear Hyd Cylinder Lower Link Plate |
| 2 | 1 | CS-P002 | Right Rear Hyd Cylinder Lower Link Plate |
| 3 | 2 | BR1005 | 2 Bolt Flange with 1-1/4" Bearing |
| 3.1 | 2 | BR1030 | 2 Bolt Flange with 1-1/4" Bearing (Alternate) |
| 4 | 1 | HCY1004 | 2.5 x 8 Cylinder with #6 SAE O-ring Fittings |
| 6 | 1 | CSP14 | Chain and Quick Pin 7 1/4" Overall Length |
| 7 | 2 | CS-P032 | Safety Lock Bearing Ear Mounting Plate |
| 8 | 1 | CS-A004 | Gator Clamp Weldment |
| 10 | 8 | B5/8x1.5 | Hex Bolt |
| 11 | 8 | N5/8NYL | Nylock Nut |
| 12 | 12 | B1/2x1.5 | Hex Bolt |
| 13 | 4 | N1/2NYL | Nylock Nut |
| 15 | 1 | CS-P079 | Universal Mount |

#Be sure that all fasteners are tightened correctly!

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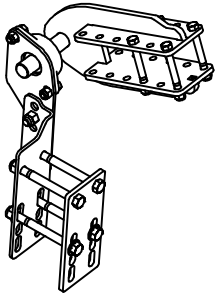
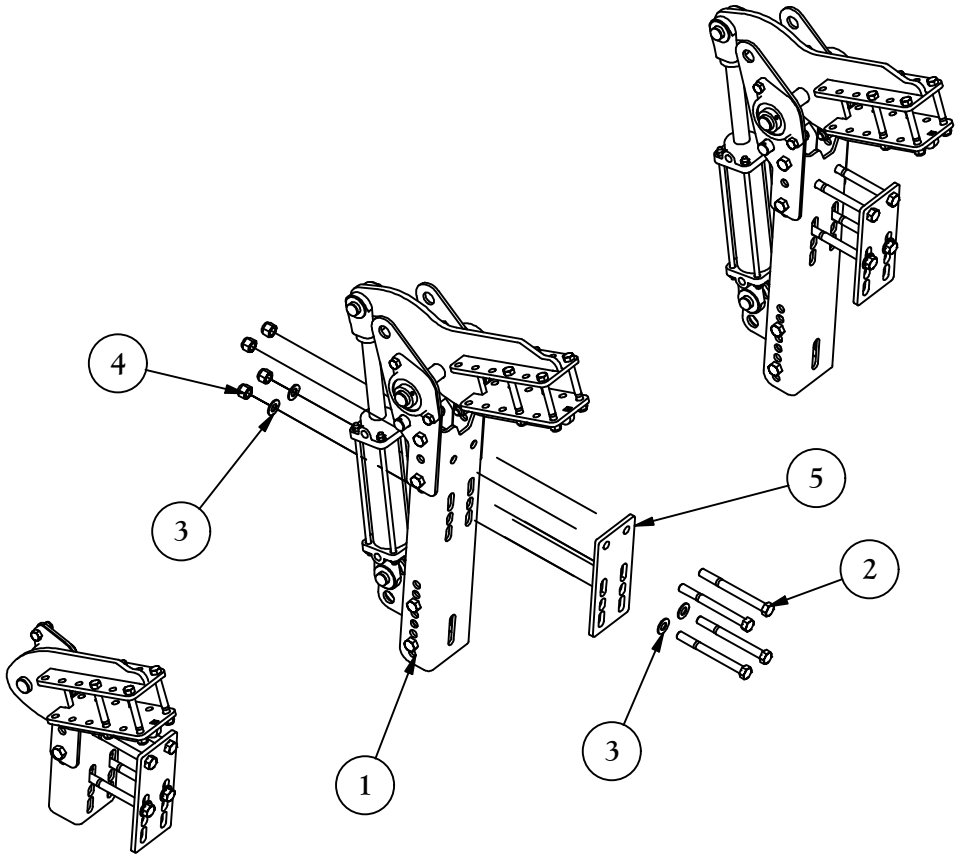
# Standard Crop Sweeper Mount






Front of Cornhead

| Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | Standard Mount Assembly | Standard Crop Sweeper Mount |
| 2 | 16 | B5/8x6.5 | Hex Bolt |
| 3 | 16 | W5/8F | Plain Washer |
| 4 | 16 | N5/8NYL | Nylock Nut |
| 5 | 4 | CS-P080 | Standard Mount Clamp Plate |

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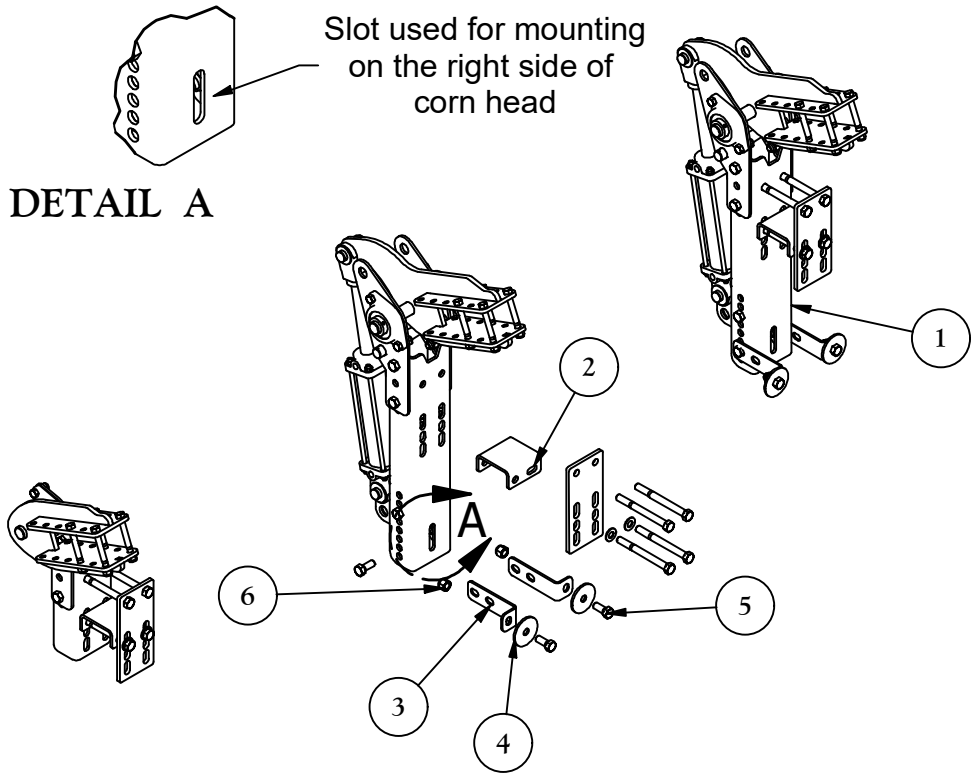
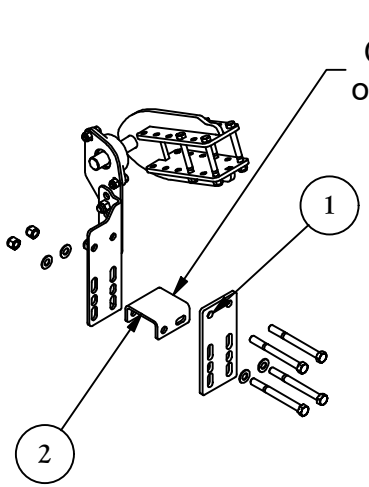
# John Deere C Series Mount




The John Deere "C" Series mount is only used on the John Deere "C" Series heads that have a formed channel as the main beam at the top of the corn head. Item 2 is used to provide a rigid surface for the attachment of the mounts.

On the right side of the corn head, a hole may be drilled into the diagonal tube that aligns with the slot of the mount (See Detail A). A 5/8" x 5" bolt and 5/8" nylock nut is used to fasten the mount to the cornhead. The attachment on the right side of the head would eliminate the use of items 3, 4, 5, and 6 on that side.

| Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | Standard Mount Assembly | Standard Mount |
| 2 | 4 | CS-P041 | JD Channel Bracket |
| 3 | 4 | CS-P042 | JD Lift Cylinder Mount Offset Bracket |
| 4 | 4 | CS-P043 | JD Offset Bracket Washer |
| 5 | 4 | B5/8x1.5 | Hex Bolt |
| 6 | 4 | N5/8NYL | Nylock Nut |

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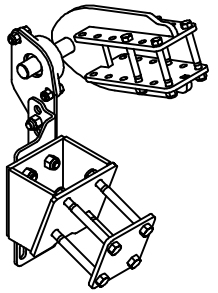
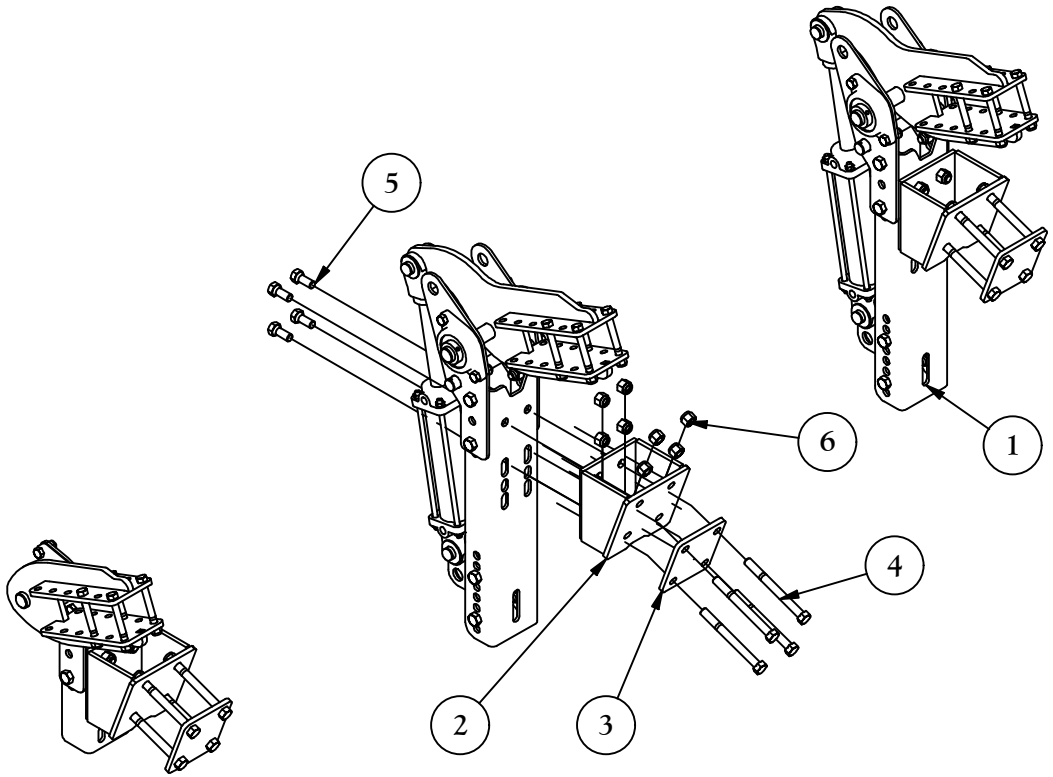
# Case 800, 900, 1000 Series
# Head Mount






The adapter mount (Item 2) is used on the Case corn heads that use a 3 x 5 angled bar. It is recommended to install the adapter bracket first (Item 2) and then mount the crop sweeper brackets.

| Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | Standard Mount Assembly | Crop Sweeper Standard Mount Assembly |
| 2 | 4 | CS-A009 | Case Adapter Bracket Weldment |
| 3 | 4 | CS-P044 | Case Adapter Clamp Plate |
| 4 | 16 | B5/8x6.5 | Hex Bolt |
| 5 | 16 | B5/8x1.5 | Hex Bolt |
| 6 | 32 | N5/8NY | Nylock Nut |

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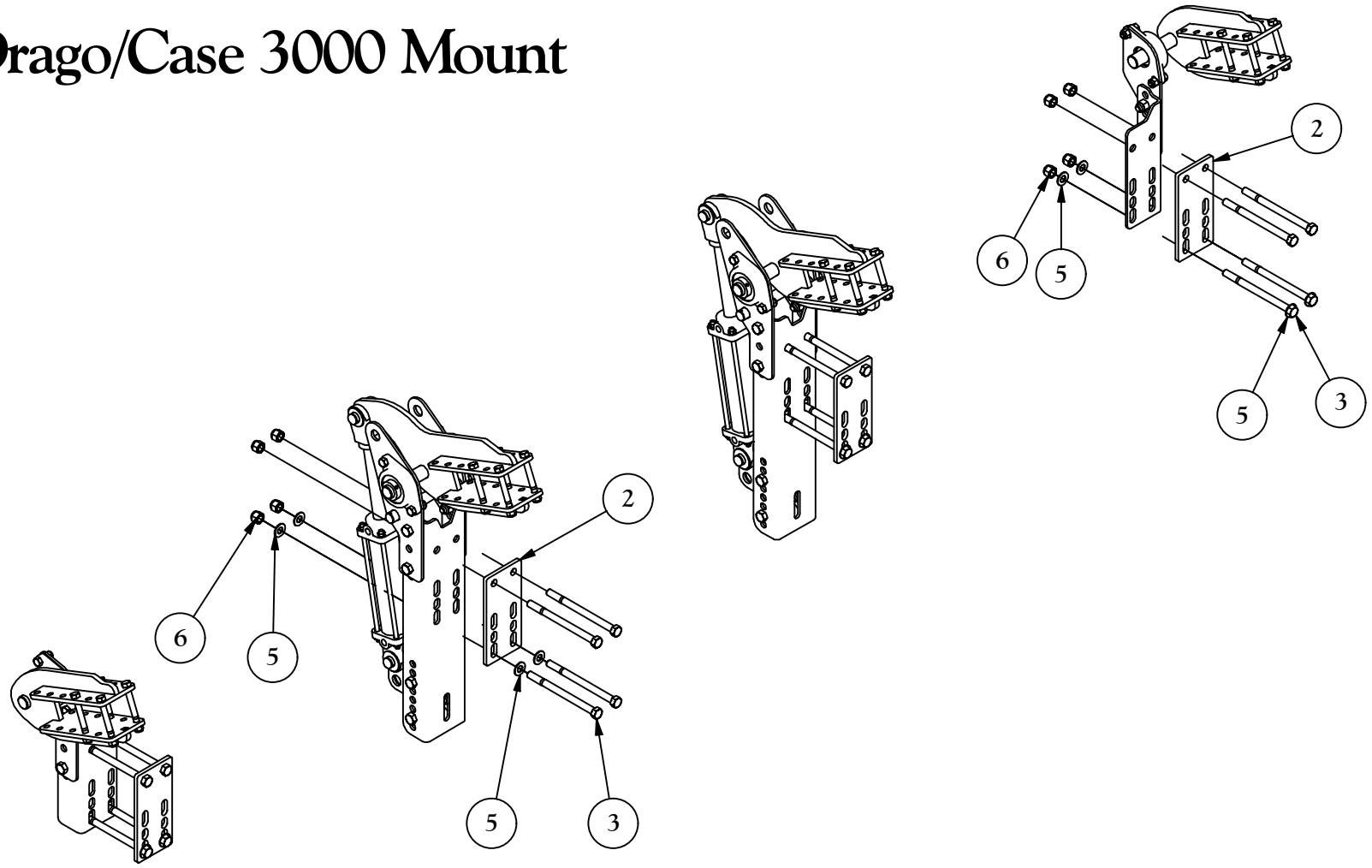
# Drago/Case 3000 Mount




| Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | Standard Mount Assembly | Standard Mount |
| 2 | 4 | CS-P080 | Clamp Plate |
| 3 | 16 | B5/8x8.5 | Hex Bolt |
| 5 | 16 | W5/8F | Plain Washer |
| 6 | 16 | N5/8NYL | 5/8 Std NC Nylock Nut |

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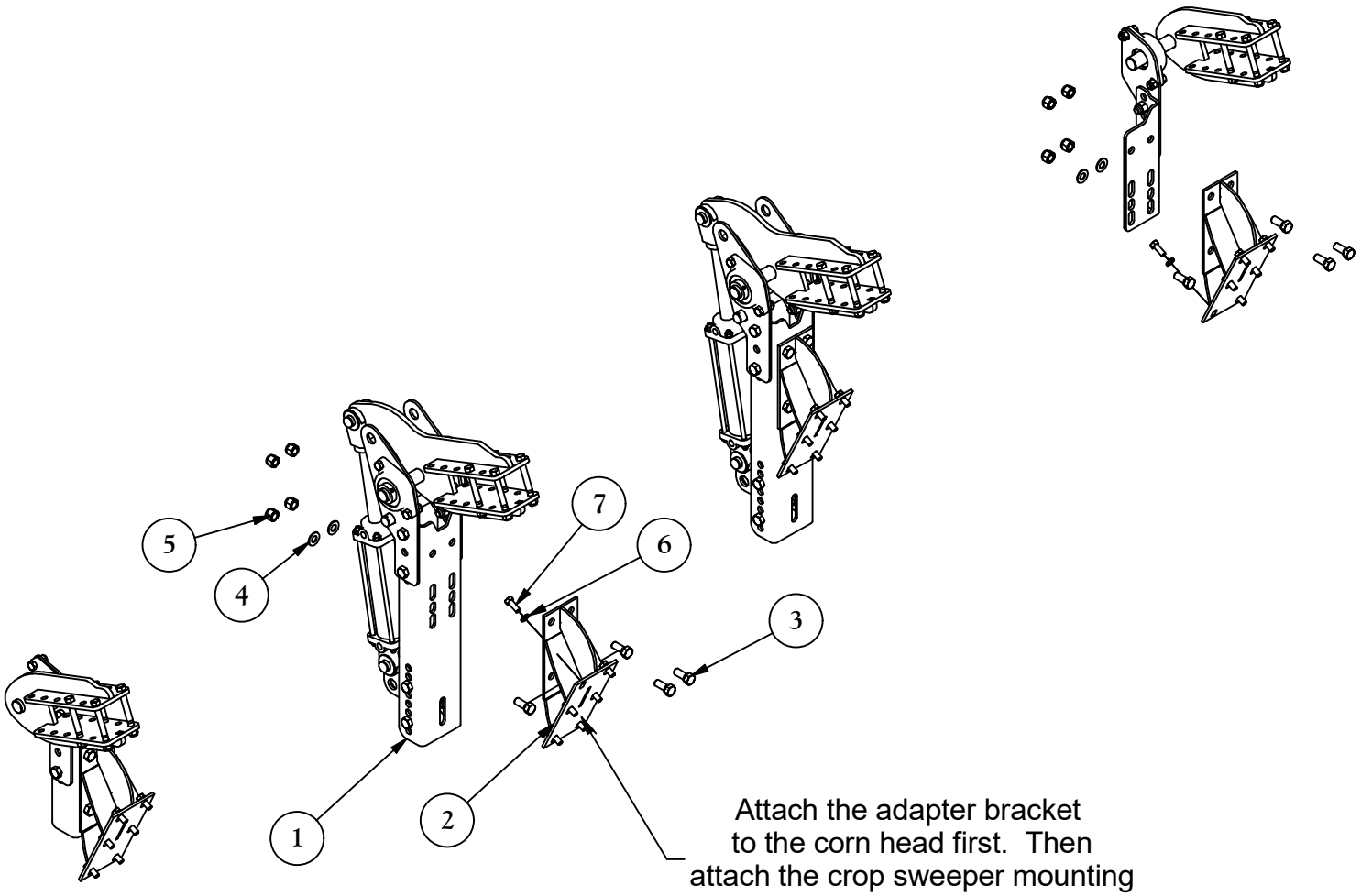
# Drago GT Mount Assembly




Attach the adapter bracket to the corn head first. Then attach the crop sweeper mounting brackets.

| Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | Standard Mount Assembly | Standard Mount Assembly |
| 2 | 4 | CS-A014 | Drago GT Adapter Weldment |
| 3 | 16 | B5/8x1.5 | Hex Bolt |
| 4 | 8 | W5/8F | Plain Washer |
| 5 | 16 | N5/8NYL | Nylock Nut |
| 6 | 24 | WM12L | Metric Lock Washer |
| 7 | 24 | BM12x1.75x30 | Metric Hex Bolt |

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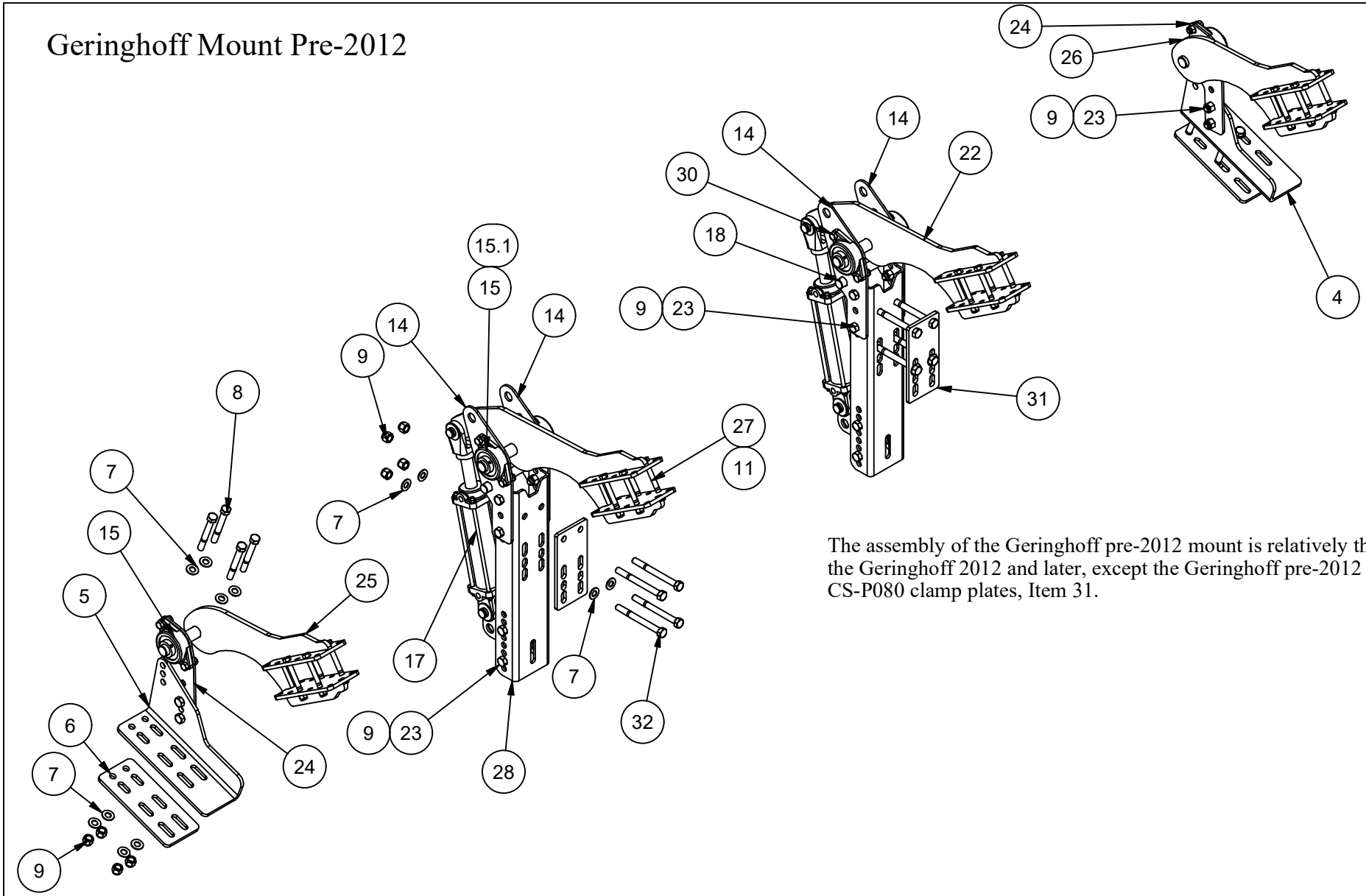
# Geringhoff Mount Pre-2012




The assembly of the Geringhoff pre-2012 mount is relatively the same as the Geringhoff 2012 and later, except the Geringhoff pre-2012 will use the CS-P080 clamp plates, Item 31.

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| Geringhoff Pre-2012 Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 4 | 1 | CS-P039 | Geringhoff Bearing Mount Adjustment Angle LH |
| 5 | 1 | CS-P055 | Geringhoff Bearing Mount Adjustment Angle RH |
| 6 | 2 | CS-P036 | Geringhoff Clamp Plate |
| 7 | 24 | W5/8F | Plain Washer |
| 8 | 8 | B5/8x5.0 | Hex Bolt |
| 9 | 36 | N5/8NYL | Nylock Nut |
| 11 | 28 | N1/2NYL | Nylock Nut |
| 14 | 4 | CS-P032 | Safety Lock Bearing Ear Mounting Plate |
| 15 | 6 | BR1005 | 2 Bolt Flange with 1-1/4" Bearing |
| 15.1 | 6 | BR1030 | 2 Bolt Flange with 1-1/4" Bearing (Alternate) |
| 16 | 2 | HCY1004 | 2.5 x 8 Cylinder with #6 SAE Fittings |
| 18 | 2 | CSP14 | Chain and Quick Pin 7 1/4" Overall Length |
| 20 | 2 | CS-P001 | Rear Hyd Cylinder Lower Link Plate |
| 21 | 2 | CS-P002 | Rear Hyd Cylinder Lower Link Plate MIR |
| 22 | 2 | CS-A010 | Geringhoff Lift Arm Weldment |
| 23 | 20 | B5/8X1.5 | Hex Bolt |
| 24 | 2 | CS-P004 | Flange Bearing Ear Mounting Plate |
| 25 | 1 | CS-A008 | Geringhoff idler arm RH |
| 26 | 1 | CS-A007 | Geringhoff Idler Arm LH |
| 27 | 16 | B1/2X4.5 | Hex Bolt |
| 28 | 2 | CS-P079 | Universal Cylinder Mounting Plate |
| 30 | 12 | B1/2X1.5 | Hex Bolt |
| 31 | 2 | CS-P080 | Mounting Plate |
| 32 | 8 | B5/8X6.5 | Hex Bolt |

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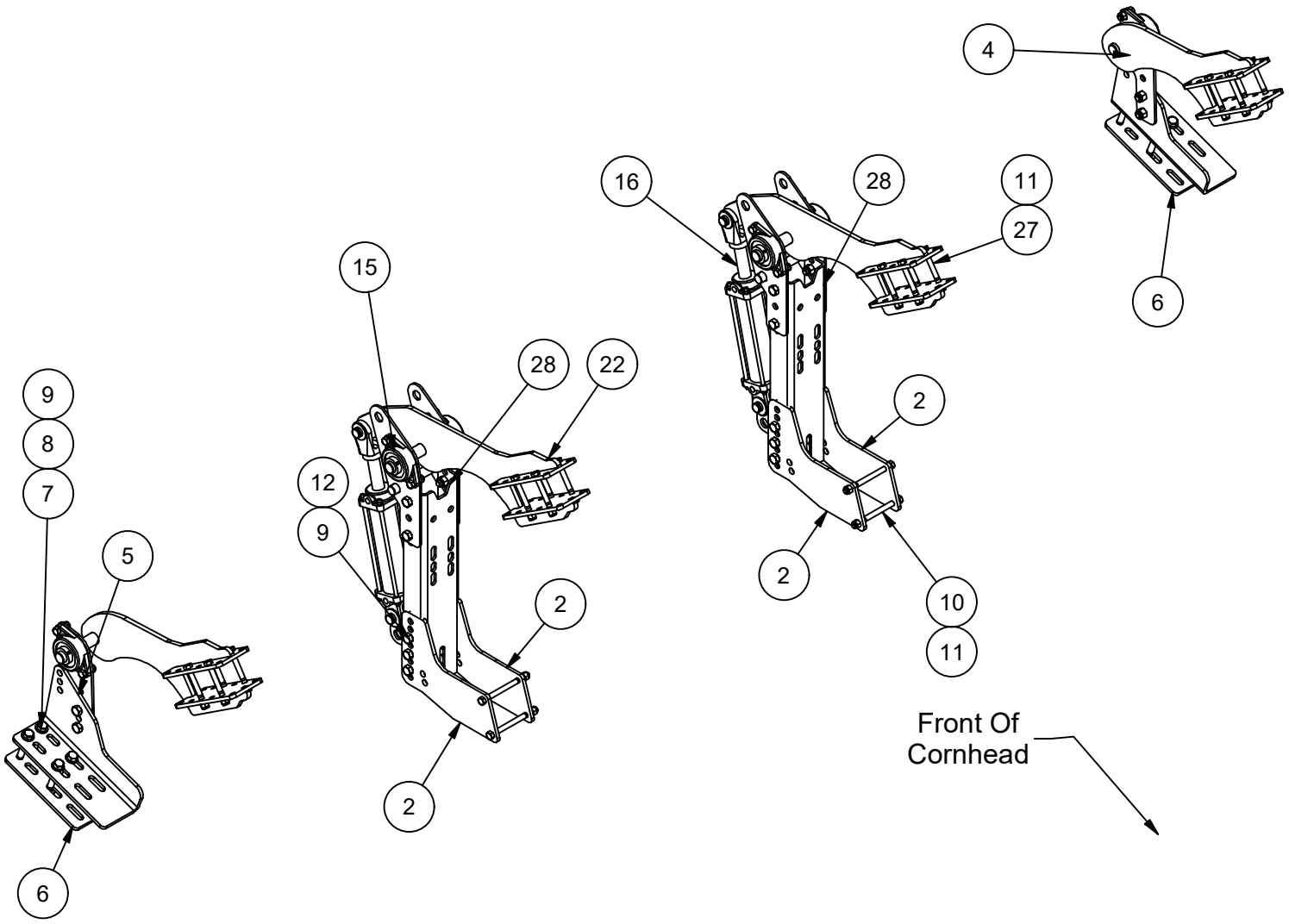
# Geringhoff 2012 and Newer Mounts

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# Geringhoff 2012 and Newer Mounts

| Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 28 | 2 | CS-P079 | Cylinder Mounting Plate |
| 2 | 4 | CS-P037 | Geringhoff Bolted Link RH |
| 4 | 1 | CS-P039 | Geringhoff Bearing Mount Adjustment Angle LH |
| 5 | 1 | CS-P055 | Geringhoff Bearing Mount Adjustment Angle RH |
| 6 | 2 | CS-P036 | Geringhoff Clamp Plate |
| 7 | 16 | W5/8F | Plain Washer |
| 8 | 8 | B5/8x5.0 | Hex Bolt |
| 9 | 32 | N5/8NYL | Nylock Nut |
| 10 | 4 | B1/2x6.5 | Hex Bolt |
| 11 | 32 | N1/2NYL | Nylock Nut |
| 12 | 12 | B5/8x2.0 | Hex Bolt |
| 14 | 4 | CS-P032 | Safety Lock Bearing Ear Mounting Plate |
| 15 | 6 | BR1005 | 2 Flange 1-1/4" Bearing |
| 15.1 | 6 | BR1030 | 2 Flange 1-1/4" Bearing |
| 16 | 2 | HCY1004 | 2.5x8 Cylinder with #6 SAE Fittings |
| 18 | 2 | CSP14 | Chain and Quick Pin 7 1/4" Overall Length |
| 20 | 2 | CS-P001 | Rear Hyd Cylinder Lower Link Left Plate |
| 21 | 2 | CS-P002 | Rear Hyd Cylinder Lower Link Right Plate |
| 22 | 2 | CS-A010 | Geringhoff Lift Arm Weldment |
| 23 | 12 | B5/8x1.5 | Hex Bolt |
| 24 | 2 | CS-P004 | Flange Bearing Ear Mounting Plate |
| 25 | 1 | CS-A008 | Geringhoff idler arm RH |
| 26 | 1 | CS-A007 | Geringhoff Idler Arm LH |
| 27 | 16 | B1/2x4.5 | Hex Bolt |
| 30 | 12 | B1/2x1.5 | Hex Bolt |

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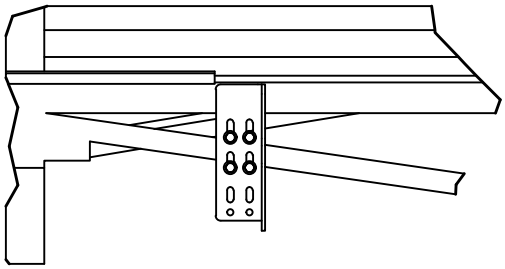
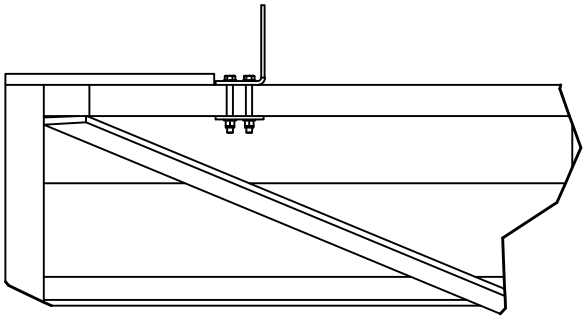
# Geringhoff End Mount
# Corn Head with Angled Tube

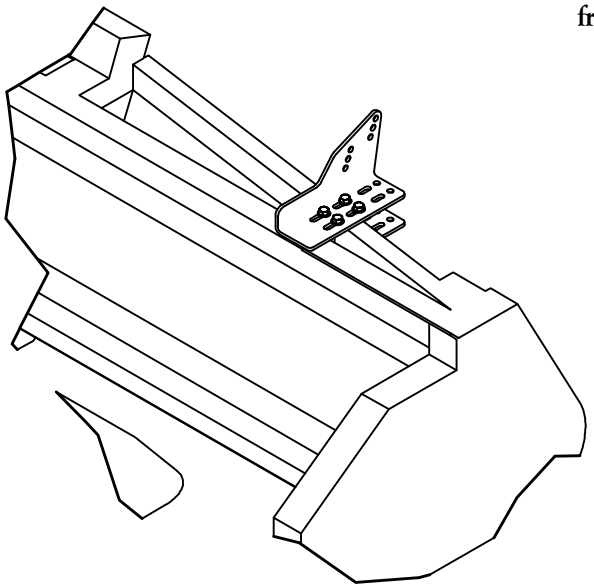


DETAIL A



DETAIL B

When placing the end mounts, keep in mind that the pivot points need to align so the Crop Sweeper can be raised and lowered correctly.
The Geringhoff end mount can be placed in multiple locations. The end clamp can be placed around the angled tube of the corn head. The mount can be moved side to side, forwards and backwards as needed to be aligned with the main mounts and front tube.



DETAIL C

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## Geringhoff Mount Example

Geringhoff Left Side Main Mount and Outer Mount

Geringhoff Right Side Main Mount and Outer Mount

Geringhoff Single Point Connector Location

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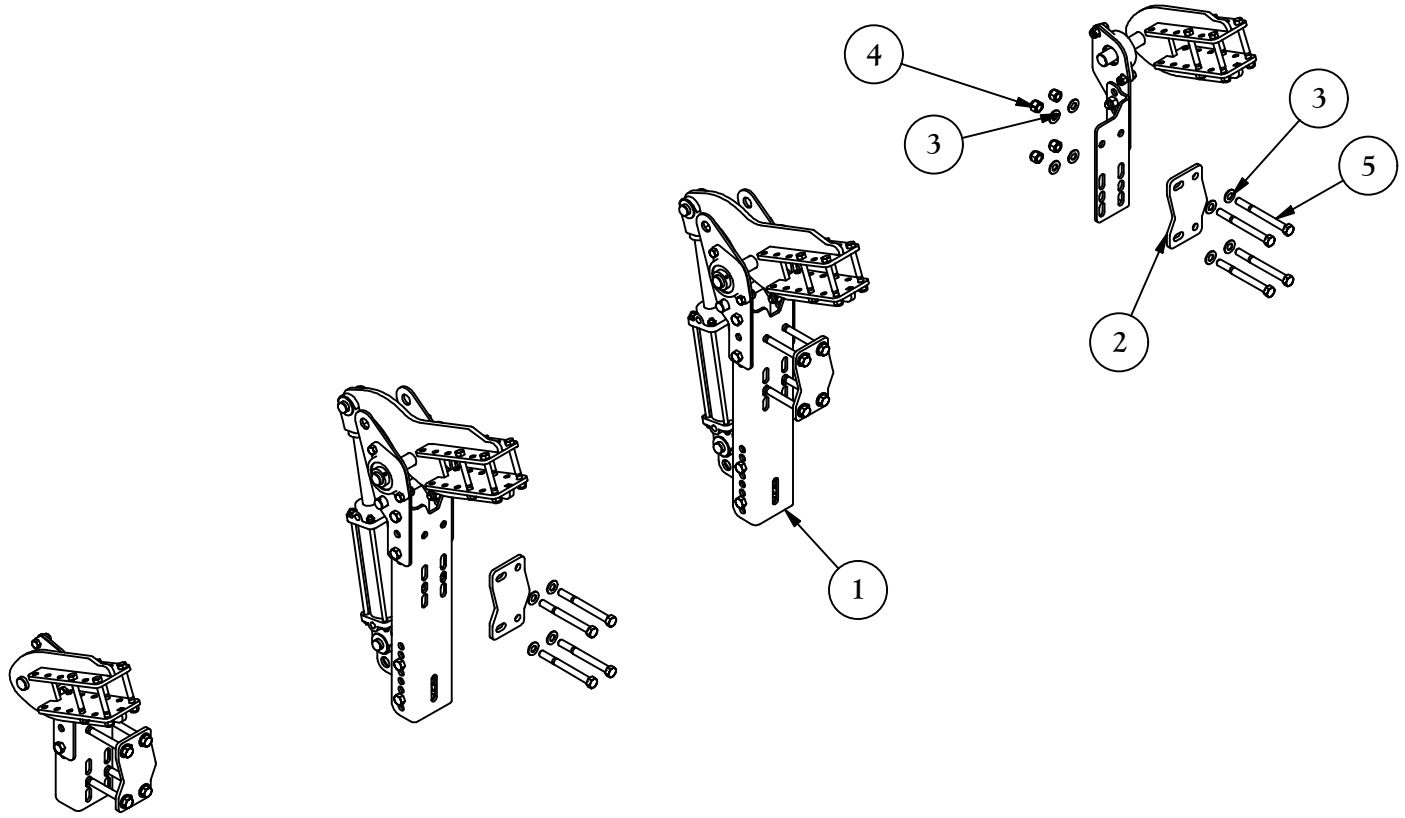
# Lexion Mount




The crop sweeper for the Lexion corn head uses the formed clamp plate (Item 2).

| Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | Standard Mount Assembly | Standard Mount |
| 2 | 4 | CS-P078 | Lexion Mount Plate |
| 3 | 36 | W5/8F | Plain Washer |
| 4 | 16 | N5/8NYL | Nylock Nut |
| 5 | 16 | B5/8x6.5 | Hex Bolt |

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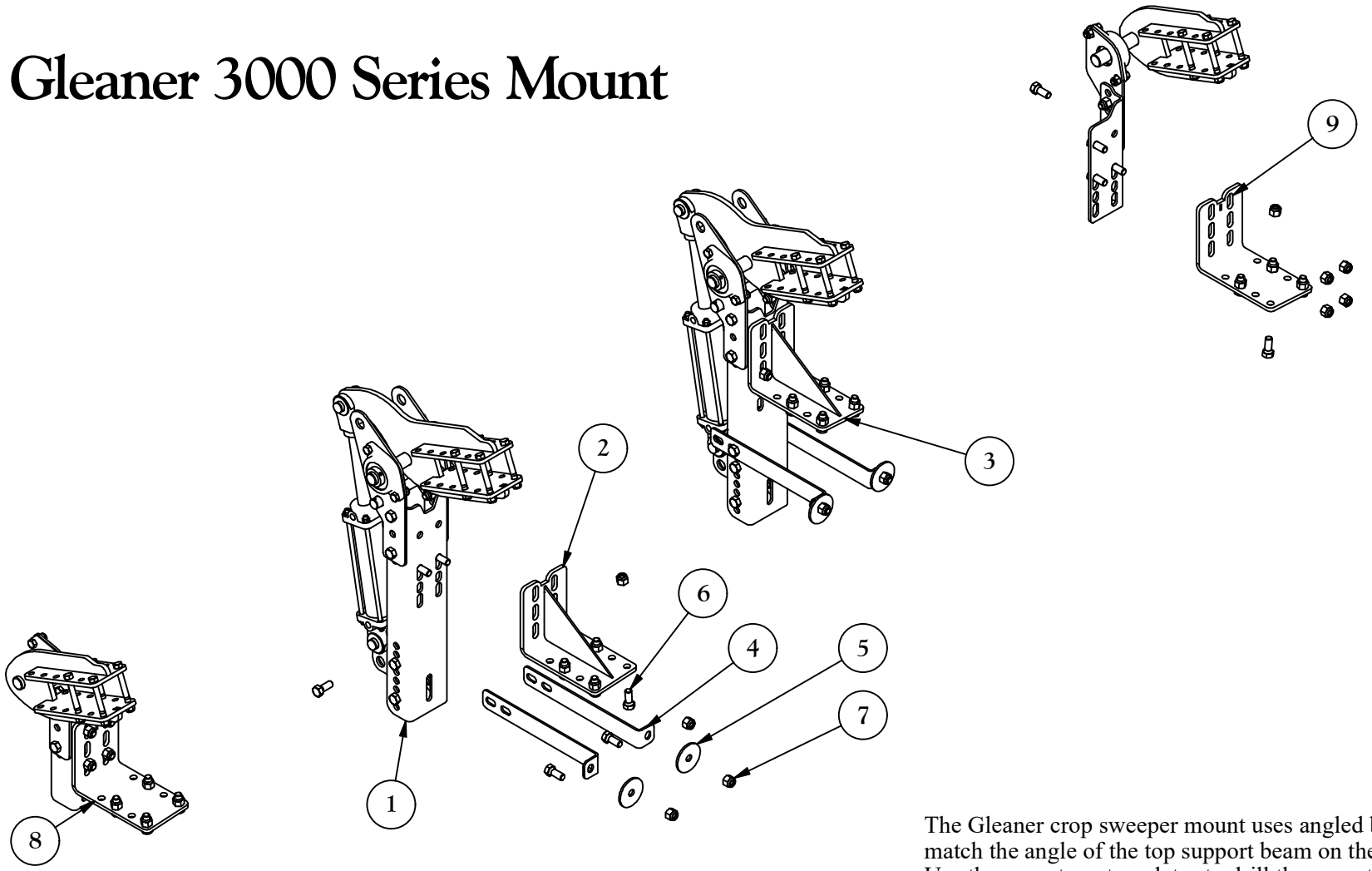
# Gleaner 3000 Series Mount




The Gleaner crop sweeper mount uses angled brackets to match the angle of the top support beam on the corn head. Use the mounts as templates to drill the mounting holes.

| Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | Standard Mount Assembly | Standard Mount |
| 2 | 1 | CS-A013 | Sloped Idler Bearing Mount RH |
| 3 | 1 | CS-A012 | Sloped Idler Bearing Mount LH |
| 4 | 4 | CS-P065 | Lify Cylinder Mount Offset Bracket |
| 5 | 4 | CS-P064 | Offset Bracket Washer |
| 6 | 36 | B5/8x1.5 | Hex Bolt |
| 7 | 36 | N5/8NYL | Nylock Nut |
| 8 | 1 | CS-P062 | Sloped Side Mount RH |
| 9 | 1 | CS-P061 | Sloped Side Mount LH |

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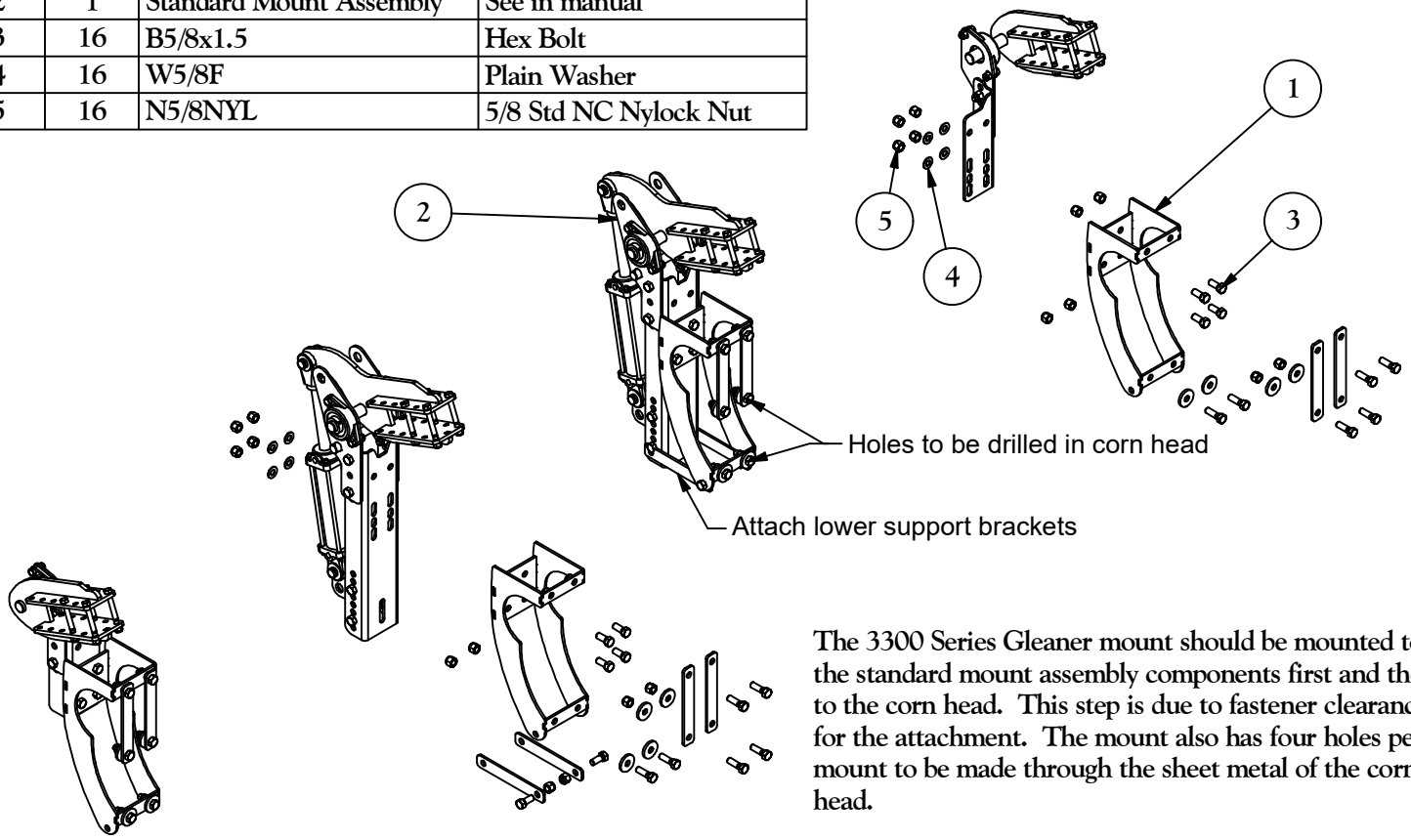
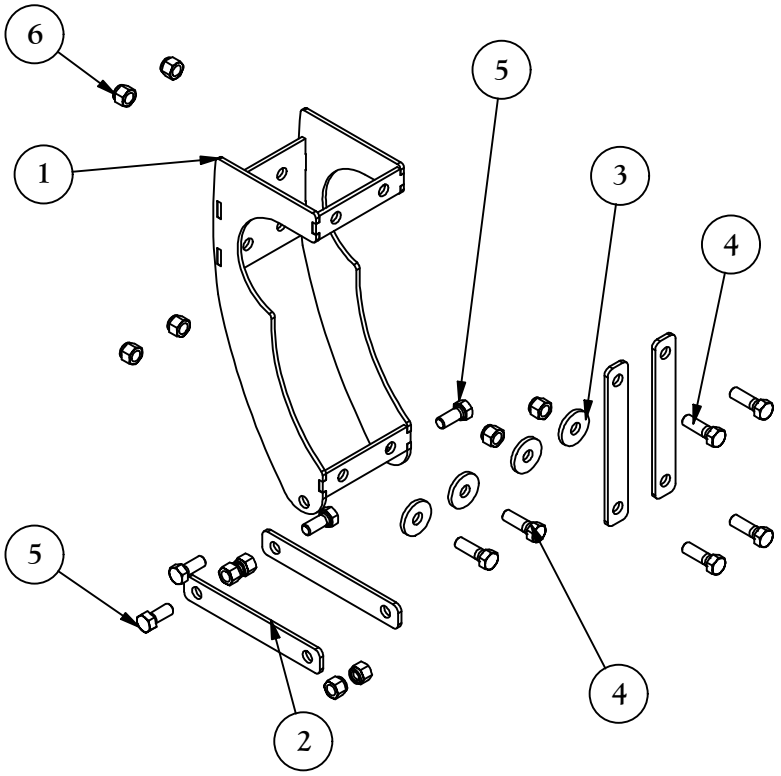
# Gleaner 3300 Series Mount

| Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 4 | CS-A023 | KIT, GLEANER 33XX Corn Head |
| 2 | 1 | Standard Mount Assembly | See in manual |
| 3 | 16 | B5/8x1.5 | Hex Bolt |
| 4 | 16 | W5/8F | Plain Washer |
| 5 | 16 | N5/8NYL | 5/8 Std NC Nylock Nut |




The 3300 Series Gleaner mount should be mounted to the standard mount assembly components first and then to the corn head. This step is due to fastener clearance for the attachment. The mount also has four holes per mount to be made through the sheet metal of the corn head.

# 3300 Series Mount




| Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | CS-A022 | Gleaner 33xx Weldment |
| 2 | 4 | CS-P089 | Bolt Plate |
| 3 | 4 | CS-P090 | Washer |
| 4 | 6 | B5/8x2 | Hex Bolt |
| 5 | 4 | B5/8x1.5 | Hex Bolt |
| 6 | 10 | N5/8NYL | 5/8 Std NC Nylock Nut |

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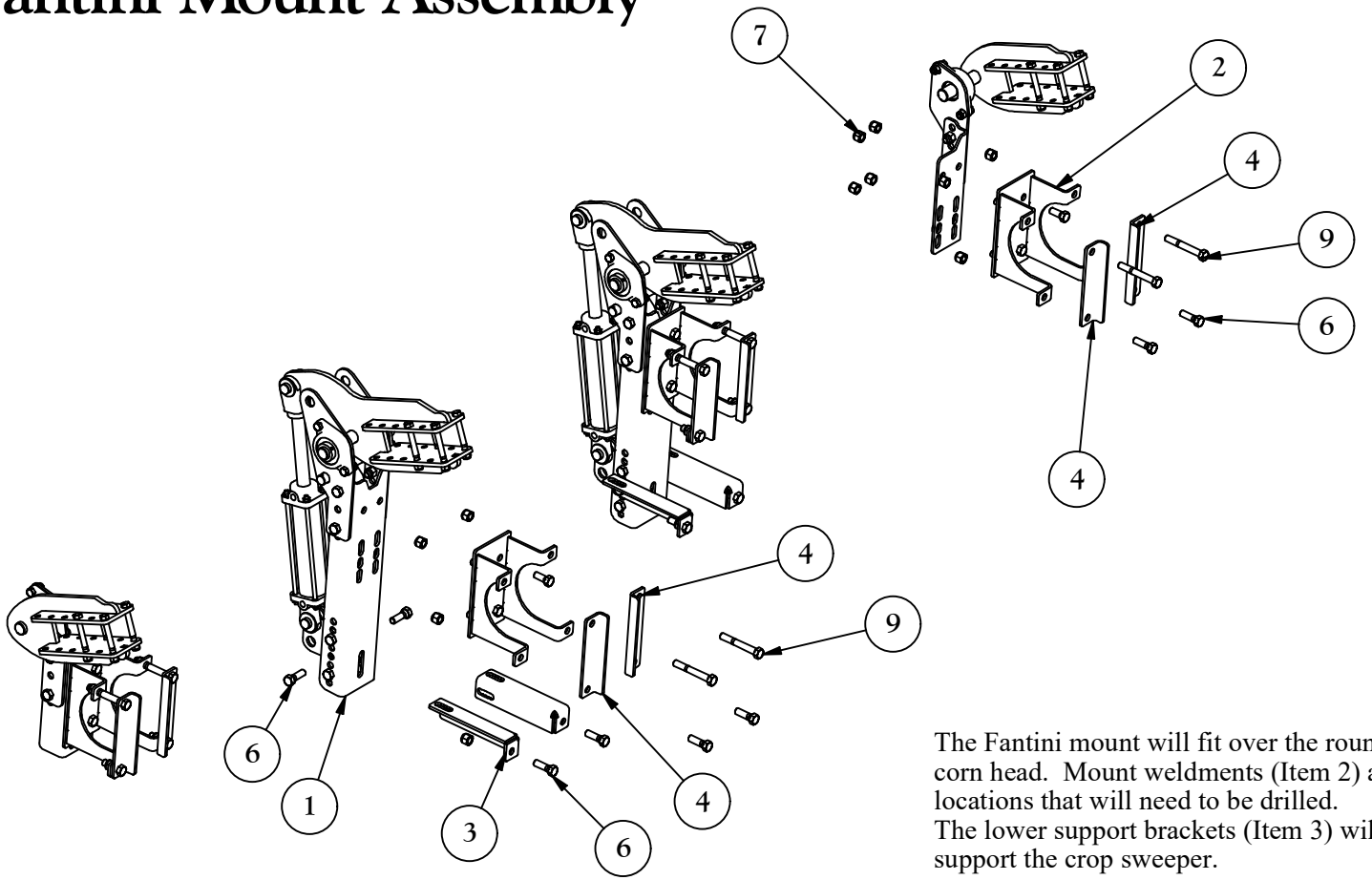
# Fantini Mount Assembly




The Fantini mount will fit over the round upper support tube of the corn head. Mount weldments (Item 2) as a guide to mark the hole locations that will need to be drilled.
The lower support brackets (Item 3) will need installed as well to fully support the crop sweeper.

| Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | Standard Mount Assembly | Standard Mount |
| 2 | 4 | CS-A011 | Fantini Mount Weldment |
| 3 | 4 | CS-P060 | Lower Standoff Bracket |
| 4 | 8 | CS-P059 | Front Clip |
| 5 | 16 | B5/8x1.5 | Hex Bolt |
| 6 | 20 | B5/8x2.0 | Hex Bolt |
| 7 | 40 | N5/8NYL | 5/8 Std NC Nylock Nut |
| 8 | 8 | W5/8F | Plain Washer |
| 9 | 8 | B5/8x4.5 | Hex Bolt |

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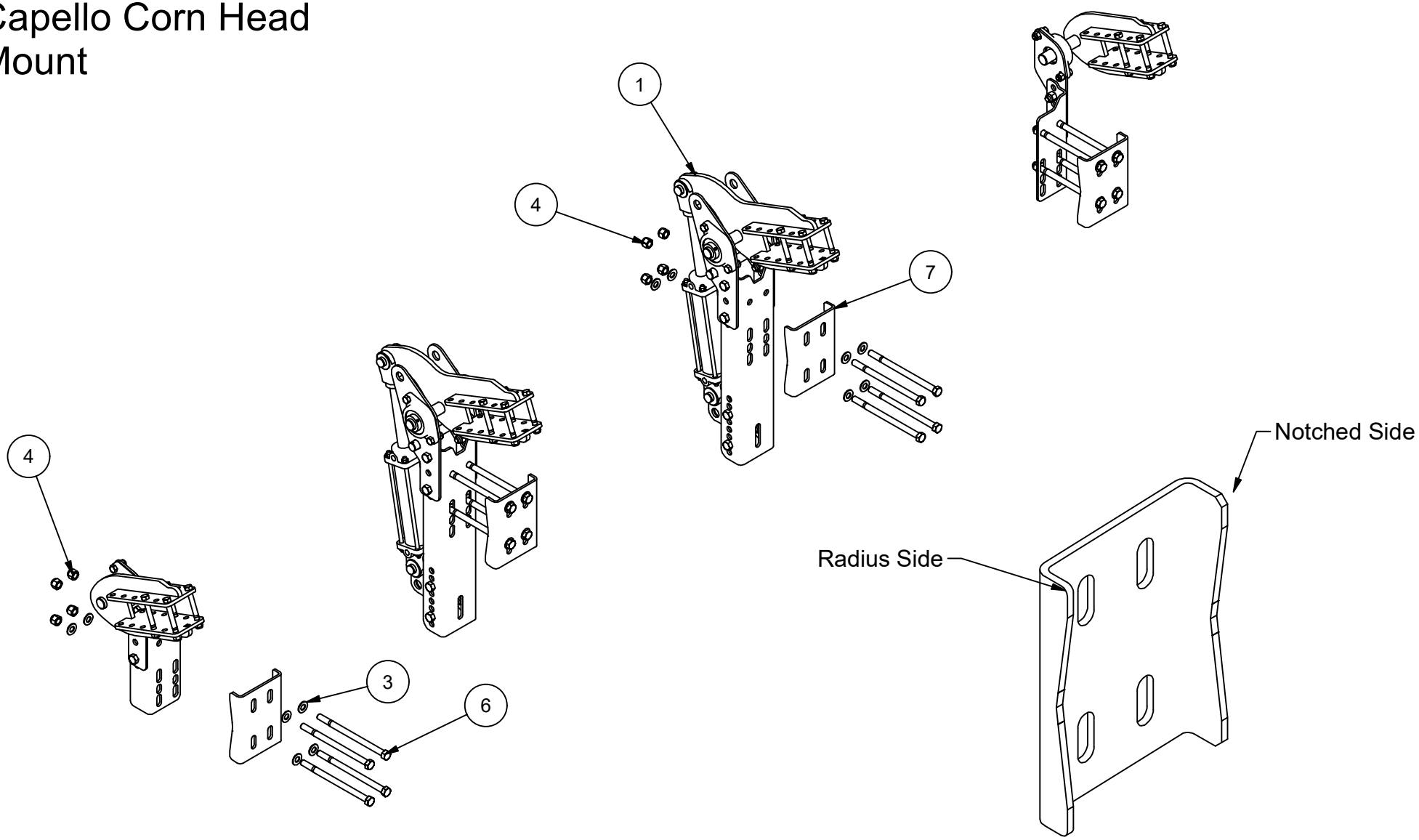
# Capello Corn Head Mount




| Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | Standard Mount Assembly | Crop Sweeper Mount |
| 3 | 24 | W5/8F | Flat Washer |
| 4 | 16 | N5/8NY | Nylock Nut |
| 6 | 16 | B5/8x10.0 | Hex Bolt |
| 7 | 4 | CS-P099 | Capello Head Adapter Plate |

The notched side of the Capello head adapter plate will always be to the outside of the corn head to compensate for the angle present in the head.
If the corn head mounting area is flat, simply turn the adapter plate around to mount.

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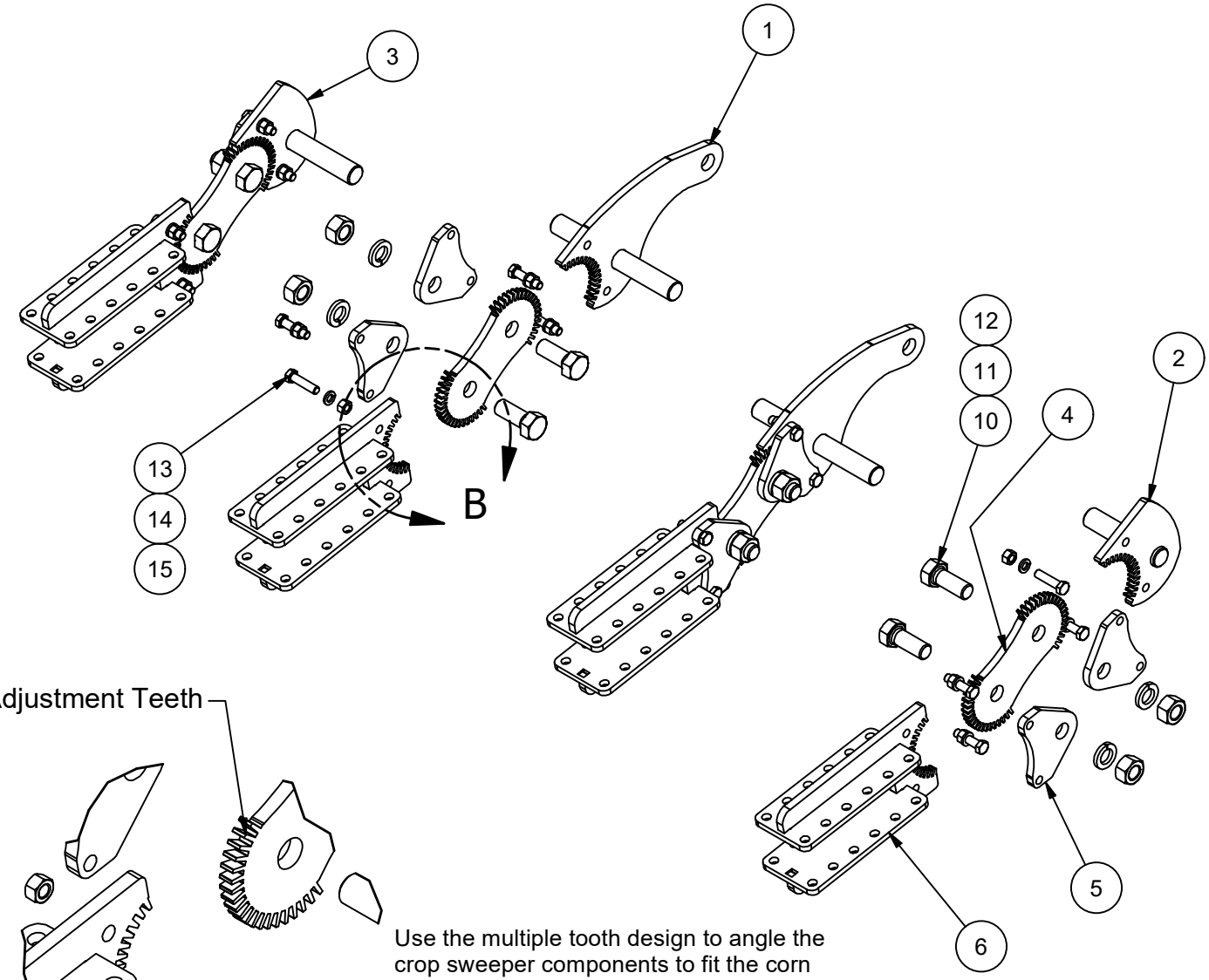
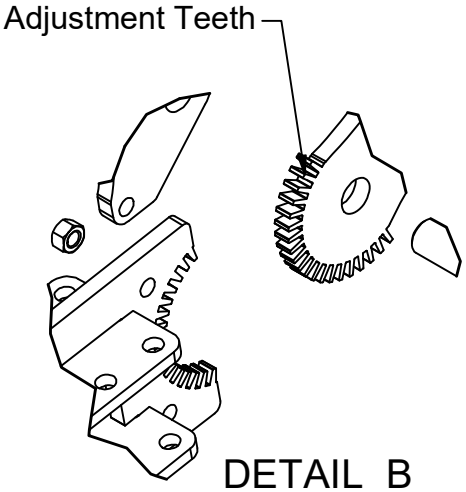
# Universal Folding Head Tube Mount




DETAIL B

Use the multiple tooth design to angle the crop sweeper components to fit the corn head. Simply, move the plate out, adjust to the next tooth, and reinsert to adjust the angle. Angle can be adjusted on both sides to customize the install further. The locking plates need to be bolted in place to lock the assembly in place.

| Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 2 | CS-A035 | Universal Folding Cylinder Mount Assembly |
| 2 | 1 | CS-A037 | Universal Folding Left Side Support Assembly |
| 3 | 1 | CS-A040 | Universal Mount Right End Support Assembly |
| 4 | 4 | CS-P115 | Universal Folding Long Adjustment Plate |
| 5 | 8 | CS-P118 | Universal Mount Locking Plate |
| 6 | 4 | CS-A034 | Universal Folding Clamp Assembly |
| 10 | 8 | B1x2.5 | Hex Bolt |
| 11 | 8 | W1L | Lock Washer |
| 12 | 8 | N1N | Hex Nut |
| 13 | 16 | B1/2x2.0 | Hex Cap Screw |
| 14 | 16 | W1/2L | Lock Washer |
| 15 | 16 | N1/2N | Hex Nut |

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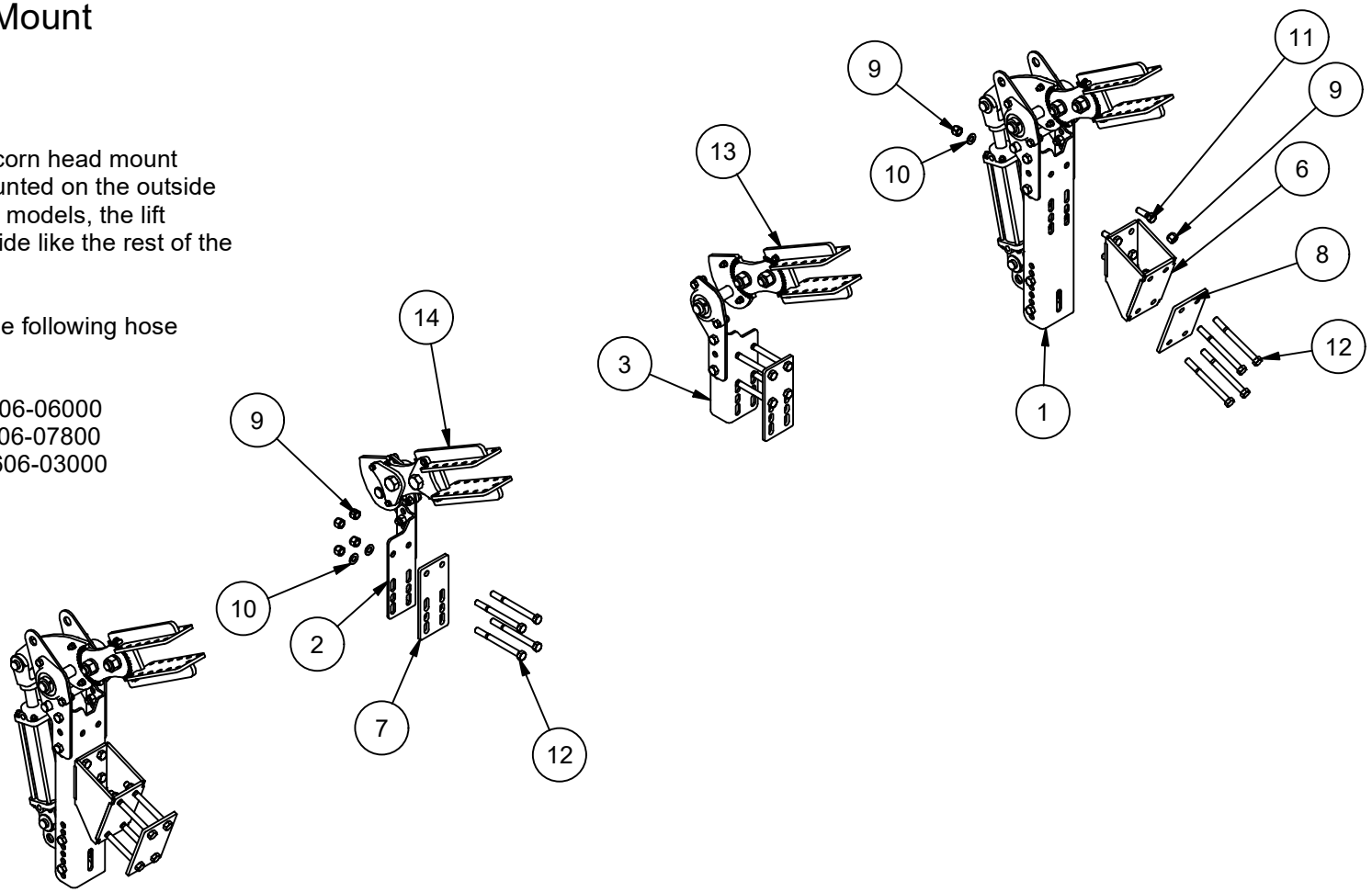
# John Deere C#F Series Mount

The John Deere C#F series folding corn head mount requires that the lift cylinders be mounted on the outside with the 12 row models. The 16 row models, the lift cylinders can be mounted on the inside like the rest of the Crop Sweeper mounts.

When installing the 12 row model, the following hose extensions are needed:

Supply hose: Qty. 2: R1706A-506606-06000
Lift hose: Qty. 2: R1704A-506606-07800
Fore/Aft hose: Qty. 2: R1704A-506606-03000




| Parts List | | | | Parts List | | | |
|---|---|---|---|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION | ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 2 | Main Lift Cylinder Mounting | See Main Lift Cylinder Assembly | 10 | 12 | W5/8F | Flat Washer |
| | | | | 11 | 8 | B5/8X2 | Hex Bolt |
| 2 | 1 | Bearing Mount Left Side | See Left Side Bearing Mount | 12 | 16 | B5/8X7 | Hex Bolt |
| 3 | 1 | Bearing Mount Right Side | See Right Side Bearing Mount | 13 | 1 | CS-A038 | Universal Folding Left End Support Assembly |
| 6 | 2 | CS-A031 | Corn Head Adapter | | | | |
| 7 | 2 | CS-P080 | Universal Clamp Plate | 14 | 1 | CS-A042 | Universal Folding Right End Support Assembly |
| 8 | 2 | CS-P107 | Clamp Plate | | | | |
| 9 | 24 | N5/8NYL | Nylock Nut | | | | |

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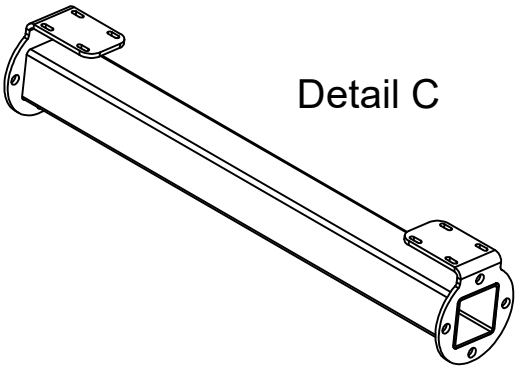
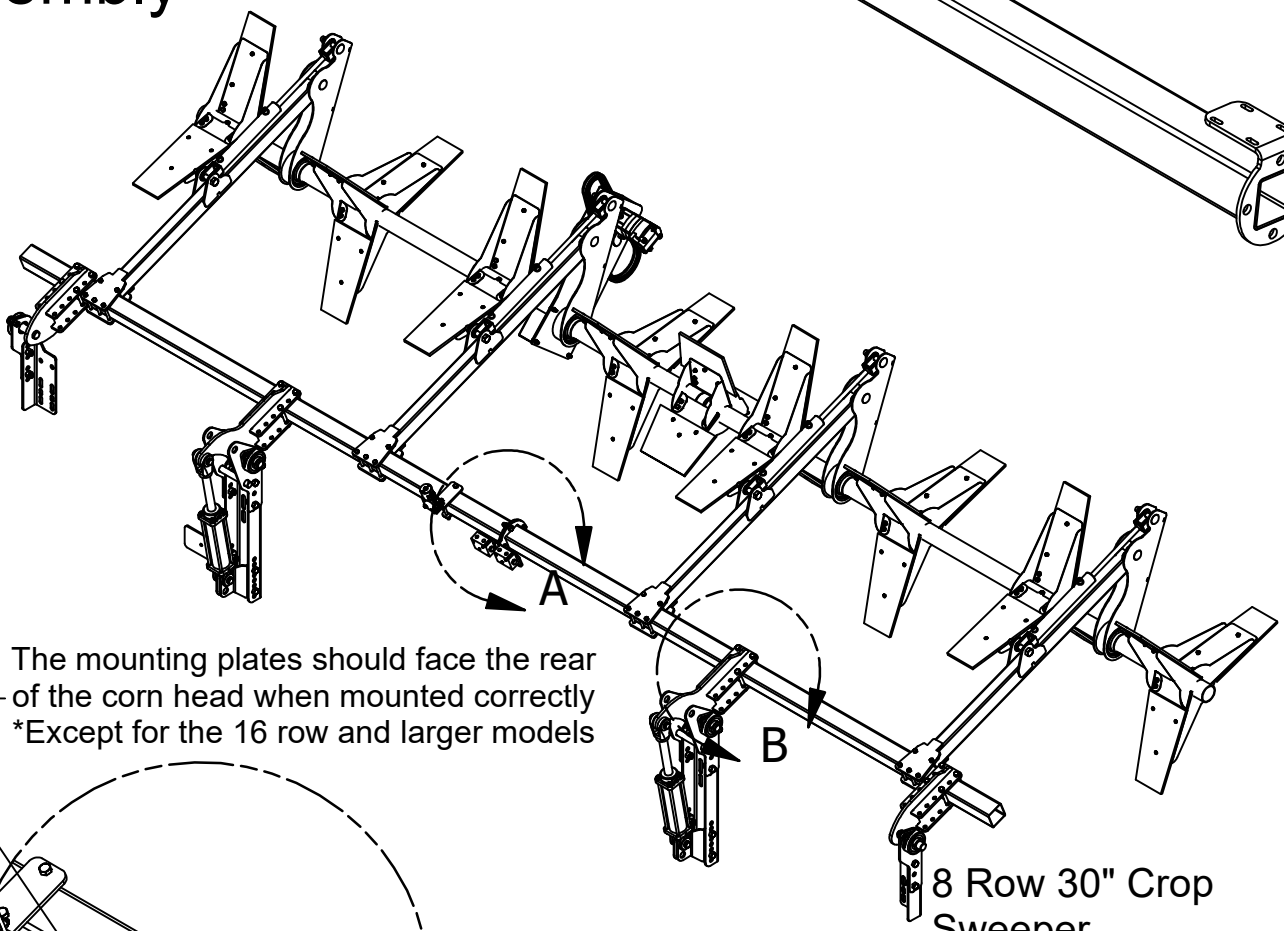
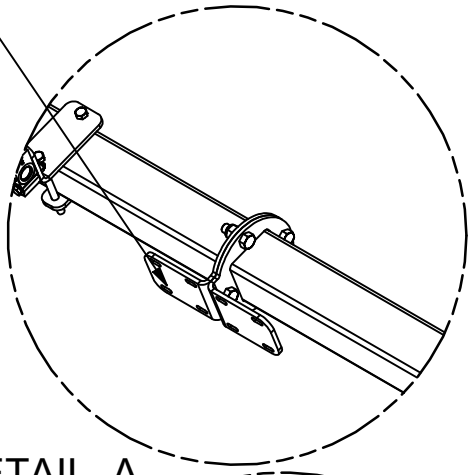
# Rear Tube Assembly



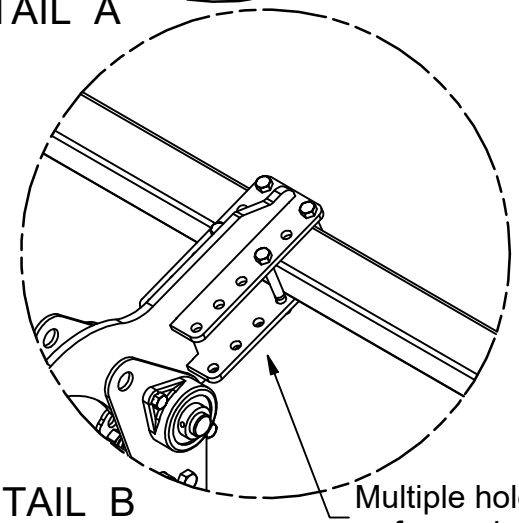




8 Row 30" Crop Sweeper Shown

The mounting plates should face the rear of the corn head when mounted correctly
*Except for the 16 row and larger models



DETAIL A



DETAIL B

Multiple holes allow for the tube to be moved forward or backward for best operation.

1. Assemble the rear tube which is the square main tube. Use the 1/2" x 1-1/2" bolts and nuts to fasten the tubes together. If the crop sweeper kit came with a tube extension, install it now. The tube extension is mounted in the center of the rear main tube. See Detail A which shows the rear tube assembled and Detail C shows the tube extension. Tube extensions come in 32" long and 42" long.
2. Once the rear tube is assembled, install it into the clamps (Detail B). Use the 1/2" x 4-1/2" bolts and nuts to fasten into place. Be sure rear tube is centered with the corn head. The clamps are designed to be able to move the tube forward and backward depending upon where it best fits the corn head in relation to the paddle assemblies and the feed of the corn head.
3. Tighten all fasteners.

** Note: Assembling and mounting the hydraulic blocks at this time that attach to the rear tube (Detail A) may be easier now than when the rear tube is mounted on the corn head. See the hydraulic section for assembly and mounting instructions.

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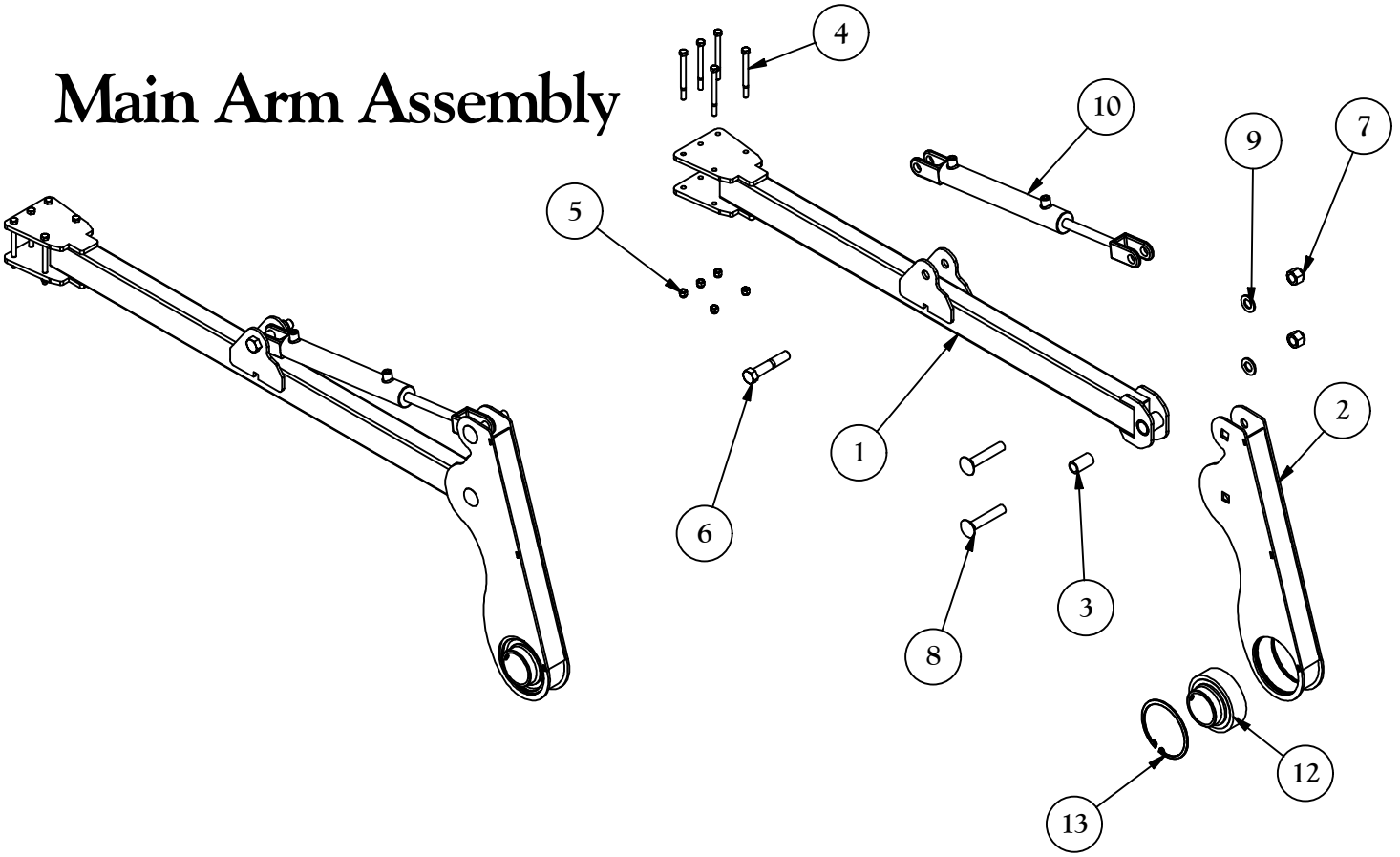
# Main Arm Assembly




1. Install the main arms (Item 1) onto the rear main tube and align in the middle of the corn snout as was measured before. Use the 3/8 x 4-1/2" bolts and nuts. Install the fasteners loosely so the arm can be moved to the correct location.
2. Install the bearing arm (Item 2) on all the arms except for the arm closest to the feeder house on the left side. This is the location for the hydraulic drive motor. Refer to main and pivot arm assembly hydraulic motor. Be sure to install the nylon busing (Item 3) and use the 3/4" carriage bolt, washer and nut. Tighten the fastener so that the joint will pivot.
3. Install the fore-aft cylinder (Item 10). It is recommended installing the hydraulic fittings and then install the cylinder. The hydraulic elbows should be facing towards the combine to aid in hydraulic hose attachment. Use the 3/4 bolt, 3/4" carriage bolt, washers, and nuts to install. These areas will need to pivot, so when tightening the fasteners, be sure the area can pivot.
4. Align all the main arm assemblies in the middle of the associated corn snout and tighten in place.
5. Item 12 and 13 are pre-installed at the factory.

| Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | CS-A005 | Raising Arm Weldment |
| 2 | 1 | CS-A002 | Bearing Arm Weldment |
| 3 | 1 | P108 | 1.034 X 0.76 Nylon Bushing |
| 4 | 5 | B3/8x4.5 | Hex Bolt |
| 5 | 5 | N3/8NYL | Nylock Nut |
| 6 | 1 | B3/4x4.0 | Hex Bolt |
| 7 | 3 | N3/4NYL | Nylock Nut |
| 8 | 2 | B3/4x4.0C | Carriage Bolt |
| 9 | 2 | W3/4F | Plain Washer |
| 10 | 1 | P1 | 1-1/2 x 10 Cylinder |
| 12 | 1 | P11 | Bearing Insert |
| 13 | 1 | P36 | Snap Ring |

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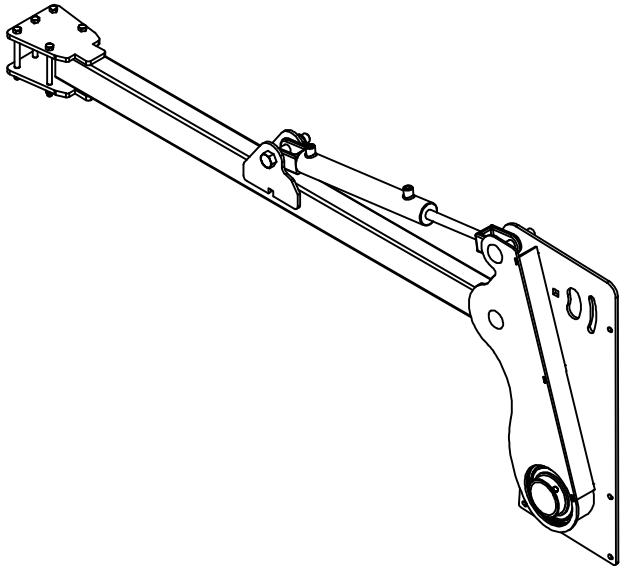
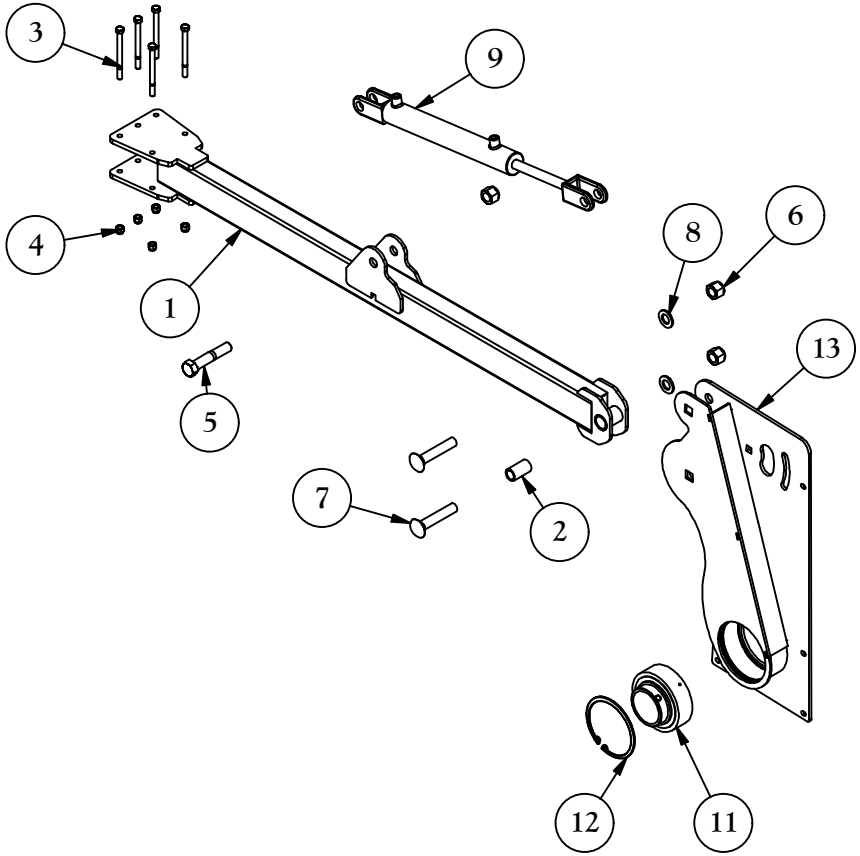
# Mount Arm with Motor Mount






| Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | CS-A005 | Mount Arm with Motor Mount |
| 2 | 1 | P108 | 1.034 x 0.76 Nylon Bushing |
| 3 | 5 | B3/8x4.5 | Hex Bolt |
| 4 | 5 | N3/8NYL | Nylock Nut |
| 5 | 1 | B3/4x4 | Hex Bolt |
| 6 | 3 | N3/4NYL | Nylock Nut |
| 7 | 2 | B3/4x4C | Carriage Bolt |
| 8 | 2 | W3/4F | Plain Washer |
| 9 | 1 | P1 | 1-1/2 x 10 Cylinder |
| 11 | 1 | P11 | Bearing Insert |
| 12 | 1 | P36 | Snap Ring |
| 13 | 1 | CS-A001 | Motor Mount and Bearing Arm Weldment |

1. Install the main arm (Item 1) onto the rear main tube and align in the middle of the corn snout as was measured before. Use the 3/8 x 4-1/2" bolts and nuts. Tighten the fasteners loosely so the arm can be adjusted to the correct location.
2. Install the motor mount and bearing arm (Item 13) on the arm closest to the feeder house on the left side. This is the location for the hydraulic drive motor. Be sure to install the nylon busing (Item 2) and use the 3/4" carriage bolt, washer and nut. Tighten the fastener so that the joint will pivot.
3. Install the fore-aft cylinder (Item 9). It is recommended to install the hydraulic fittings and then install the cylinder. The hydraulic elbows should be facing towards the combine to aid in hydraulic hose attachment. Use the 3/4 bolt, 3/4" carriage bolt, washers, and nuts to install. These areas will need to pivot, so when tightening the fasteners, be sure the area can pivot.
4. Item 11 and 12 are pre-installed at the factory.
5. Align the mount arm in the correct location and tighten the fasteners.

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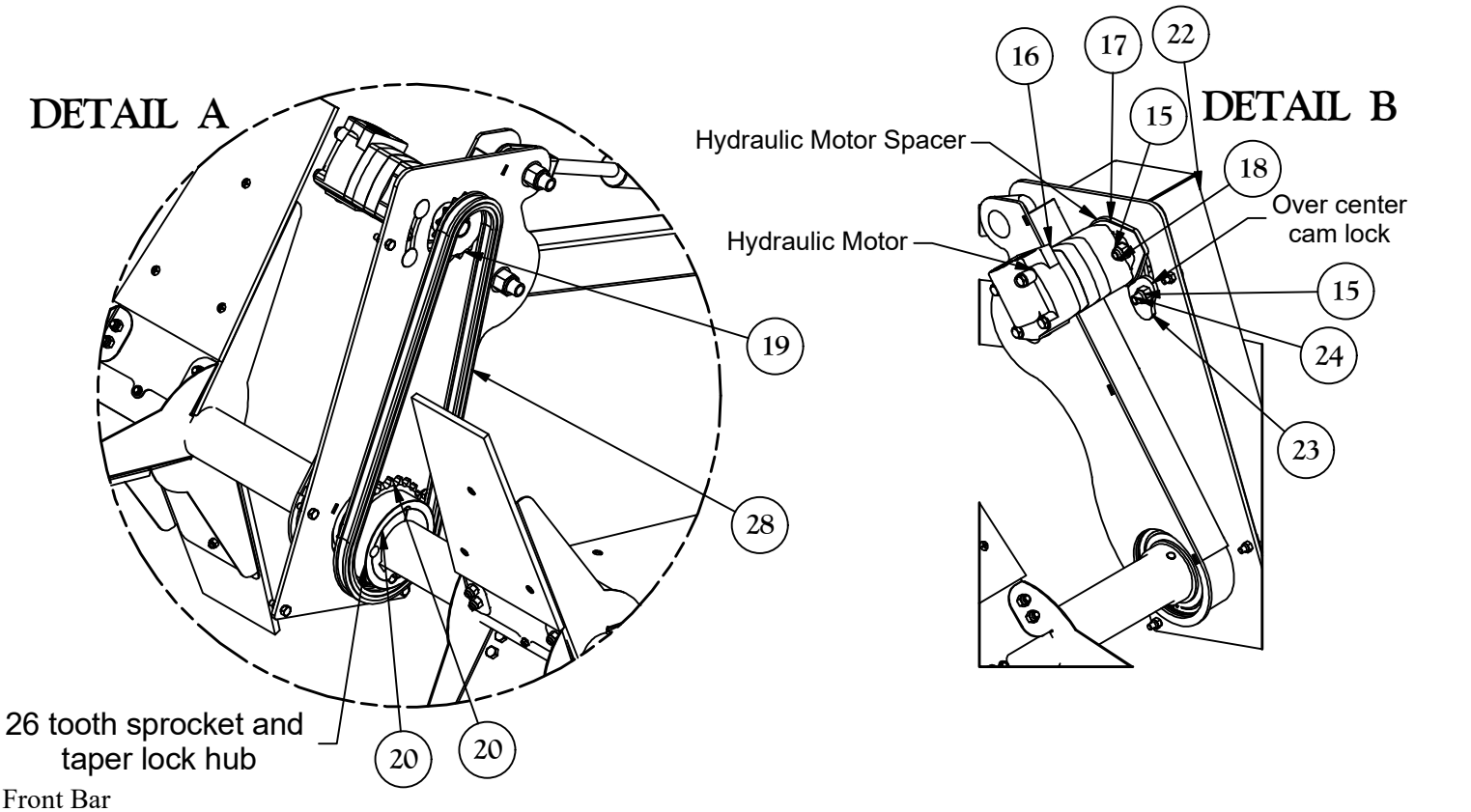
# Front Tube Installation and Hydraulic Motor Installation




Front Bar

1. Lay out the two round 2-7/8" front tubes with threaded ends towards the center.
2. Slide the left round tube into the bearing on the hydraulic motor mount from the inside out. See Detail A.
3. Locate the 26 tooth taper sprocket and taper lock hub and slide that over the left tube as well. See Detail A. The key with this sprocket will not be used. Install so that the sprocket teeth are toward the motor mount plate.
4. Continue sliding the left tube through the remaining bearings on the mount arms and stop when the threaded portion of the front tube is in the center of the corn head.
5. Locate the right front tube. Slide the right tube into the mount arm bearings on the right side of the corn head. Begin in the center and slide to the outside with the threaded portion towards the center.
6. Screw the front tubes together (left hand thread) and position the threaded connection in the center of the corn head.
7. Slide the 26 tooth sprocket and taper lock hub up to the motor mount. See instruction sheet for taper lock hub to complete installation.

Hydraulic Motor Installation

1. Mount the hydraulic motor using the 1/2" x 2" Carriage bolts and nuts. Do not tighten completely at this time.
2. Install the 1/4" x 1" square key into the slot on the hydraulic motor. Retain in place. Slide the 15 tooth sprocket over the motor shaft and align the key way on the sprocket with that one on the hydraulic motor and install the sprocket. Tighten the sprocket set screw.
3. Align the bottom 26 tooth taper lock sprocket assembly to the top sprocket on the motor. Install across from each other and tighten the taper lock sprocket with the two provided set screws. See taper sprocket installation sheet.
4. Install the 60 series chain with connection link to the hydraulic motor sprocket and the 26 tooth lower sprocket.
5. Tighten the chain by pushing up on the hydraulic motor and then tighten the mounting bolts.
6. Once the chain is to the correct tension, install the over center motor cam lock under the hydraulic motor with 1/2" x 1-1/2" carriage bolt and nut, and adjust to keep the hydraulic motor in place.
7. Install the upper and lower chain covers with the 5/16" x 1" bolts and nylock nuts.

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# Front Tube and Hydraulic Motor Installation

| Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 15 | 7 | N1/2NYL | Nylock Nut |
| 16 | 1 | P8 | Char Lynn 2000 Series Motor 101-1037 |
| 17 | 1 | CS-P010 | Hyd Motor Mount Spacer |
| 18 | 2 | B1/2x2.0CB | Carriage Bolt |
| 19 | 1 | P9 | 1" ID 6015 Sprocket |
| 20 | 1 | P17 | 26 tooth Sprocket Body |
| 20.1 | 1 | P10 | 3020 2-7/8" Taper Lock Bushinig |
| 21 | 1 | CS-P009 | Metal Shield Lower |
| 22 | 1 | CS-P008 | Metal Shield Upper |
| 23 | 1 | CS-P011 | Overcenter Cam Lock |
| 24 | 1 | B1/2x1.5CB | Carriage Bolt |
| 25 | 8 | B5/16x1.0 | Hex Bolt |
| 26 | 6 | N5/16NYL | Nylock Nut |
| 28 | 1 | P15 | 60 Series Roller Chain |
| 28.1 | 1 | P16 | 60 Series Connector Link |

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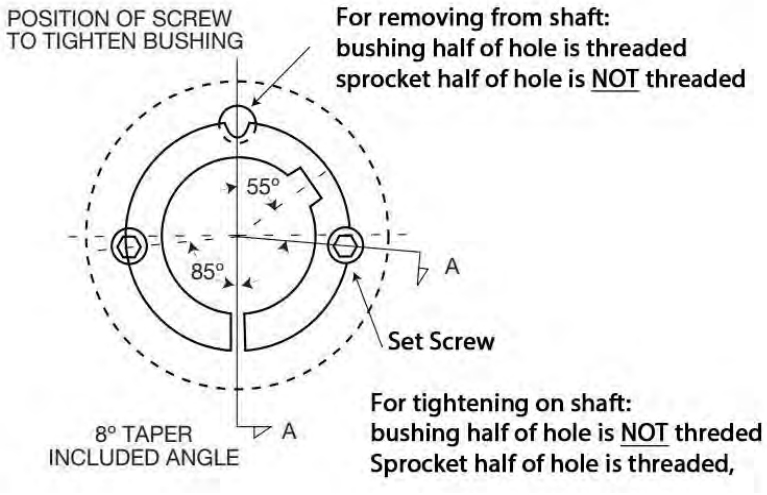
***TAPER BUSHING INSTALLATION GUIDE***

IMPORTANT NOTE: Please follow the instructions below in order for the Martin bushing to perform satisfactorily.




**INSTALLATION**

1 Clean all oil, dirt, and paint from shaft, bushing bore, outside of bushing and component (sprocket, sheave...etc.) bore.

2 Insert bushing into component. Match the hole pattern, not the threaded holes (each hole will be threaded on one side only.)

3. Thread set or cap screws into those half threaded holes indicated by ❍on above diagram. Mount assembly on shaft.

4. Alternately torque set or cap screws* to recommended torque setting in chart below.

5. Repeat steps 4 and 5 until torque wrench reading, after hammering, is the same as before hammering.

6. Fill all unoccupied holes with grease.

**REMOVAL**

1. Remove all set or cap screws.

2. Insert set or cap screws in holes indicated by ● on drawing. Loosen bushing by alternately tightening set or cap screws.

3. To reinstall, complete all seven (7) installation instructions.

Recommended Torque:

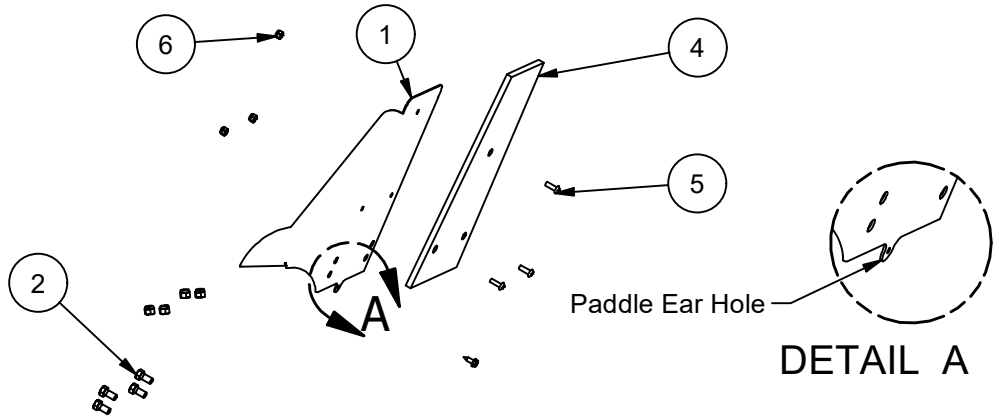
| Bushing # | Set Or Cap Screw | Wrench Torque In./Lbs. |
|---|---|---|
| 3020 | 5/8 – 11 Socket Set Screw | 800 |

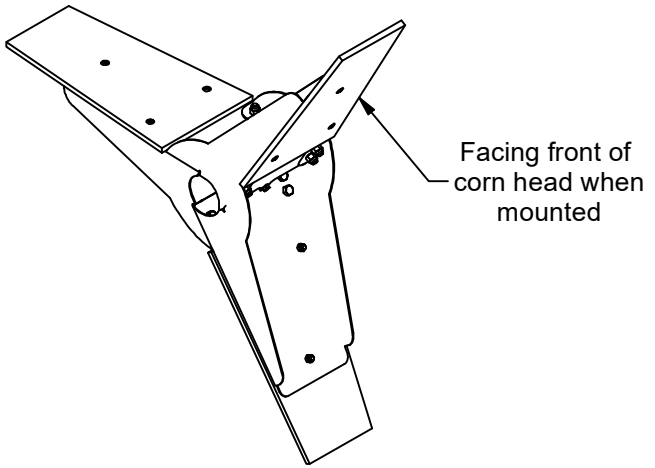
Note: If two bushings are used on same component and shaft, fully tighten one bushing before working on the other.

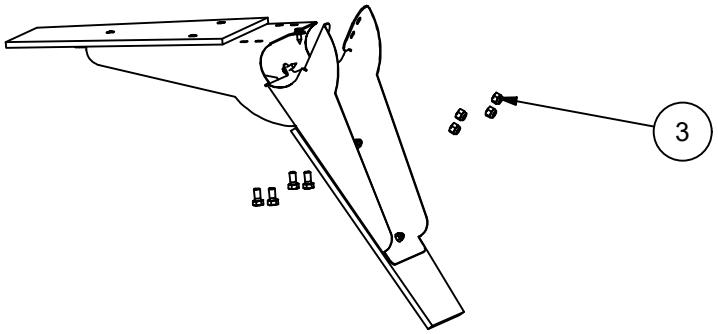
**WARNING:** Because of the possible danger to person(s) or property from accidents which may result from the improper use of products, it is important that correct procedures be followed: Products must be used in accordance with the engineering information specified in the catalog. Proper installation, maintenance and operation procedures must be observed. The instructions given above must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. All rotating power transmission products when used in a drive are potentially dangerous and must be guarded by the user as required by applicable laws, regulations, standards, and good safety practice. (Refer to ANSI Standard B15.1.)

## WARNING:
## USE OF ANTISEIZE LUBRICANT ON TAPERED CONE SURFACES OR ON BOLTTHREADS WHEN MOUNTING MAY RESULT IN DAMAGE TO SHEAVES AND SPROCKETS. THIS VOIDS ALL MANUFACTURER'S WARRANTIES.

# Mounting Paddles to the Front Tube




| Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 3 | CS-P020 | Formed Paddle |
| 2 | 12 | B3/8x3/4 | Hex Bolt |
| 3 | 12 | N3/8NYL | Nylock Nut |
| 4 | 3 | P134 | 15" Paddle (Not Standard) |
| 4.1 | 3 | P119 | 19" Paddle (Standard) |
| 4.2 | 3 | P125 | Narrow paddle for 20" and 22" Rows |
| 4.3 | 3 | P130 | 27" Paddle |
| 4.4 | 3 | P135 | Narrow 15" Paddle |
| 5 | 9 | B1/4x.75 | Hex Button Head Screw 19" Paddles |
| 5.5 | 9 | B1/4x1.25 | Hex Button Head Screw Aggressive Paddles |
| 6 | 9 | N1/4NYL | Nylock Nut |
| 7 | 3 | SC1/4x.75SelfDrill | 1/4 x 3/4 Zip Screw |

1. Attach the plastic paddles (Item 4 - 4.4 depending upon style) to the steel frame (Item 1) using hex button cap screw (Item 5 or 5.5) and the nuts (Item 6).
2. Assemble two paddles (Item 1 and 4 assembled) using the 3/8" bolts and nuts (Item 2 and 3). Do not tighten completely.
3. Fit the paddle assembly over the front tube near its intended location on the tube. Add the third paddle with the 3/8" bolts and nuts. Tighten the bolts lightly. This is called a paddle set. Repeat for each row of the crop sweeper.
4. Slide the paddle sets to the center of each of their associated rows directly above the center of the gathering chains.
5. The paddle sets will need to be timed. Begin on the right side and tighten the paddle set in place with the 3/8" bolts and nuts.
6. The next paddle set will be set 60 degrees from the first (basically the paddles will be half way between the first paddle set.
7. The third paddle set will align with the first paddle set.
8. The fourth paddle set will align with the second paddle set.
9. Repeat this pattern until all paddle sets are timed and tightened in place. Refer to the Machine Layout Guide for illustration.
10. Drill through the paddle ear hole into the main tube with a 3/32" drill bit and install the zip screw (Item 7). Repeat, 3 screws per paddle set. Be careful not to over tighten. Repeat for all paddle sets.

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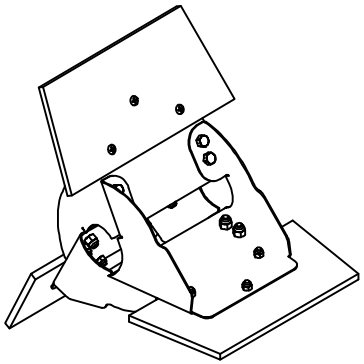
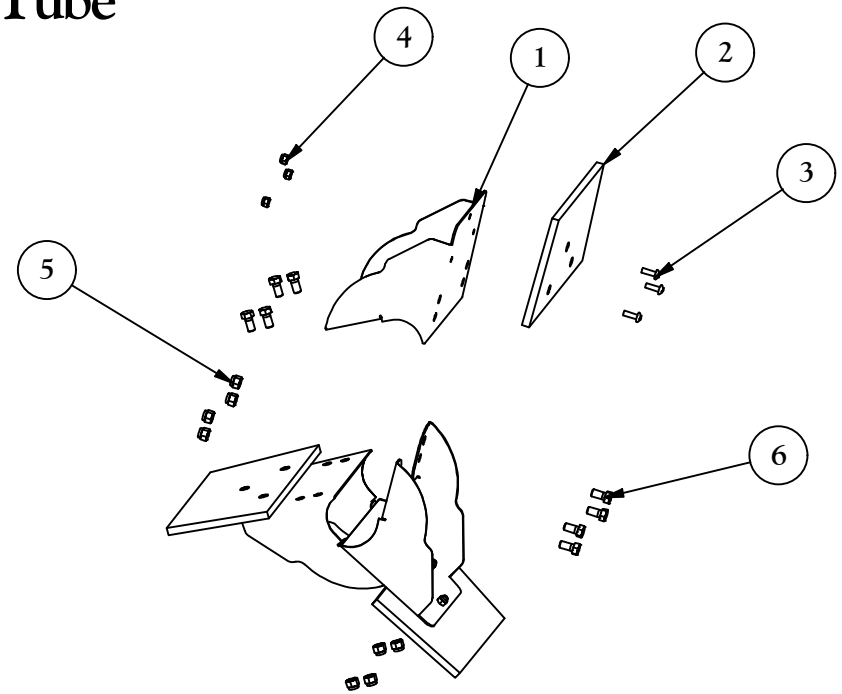
# Mounting Center Paddle to the Front Tube






1. Attach the plastic paddles (Item 2 - 2.1 depending upon style) to the steel frame (Item 1) using hex button cap screw (Item 3) and the nuts (Item 4).
2. Assemble two paddles (Item 1 and 2 assembled) using the 3/8" bolts and nuts (Item 5 and 6). Do not tighten completely.
3. Fit the paddle assembly over the front tube in the center of the tube. Add the third paddle with the 3/8" bolts and nuts. Tighten the bolts lightly. This completes the paddle set. The center paddle set will be aligned in the center of the feeder house or the center of the middle corn snout on the corn head.
4. The center paddle will need to be timed to the other paddle sets.
5. The center paddle set will be set 30 degrees from the other paddle sets (basically the paddles will be half way between the other paddle sets). Refer to the Machine Layout Guide for an illustration.
6. Once the center paddle is correctly timed, tighten the 3/8" bolts and nuts to keep the center paddle in place.

| Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 3 | CS-P021 | Center Formed Paddle |
| 2 | 3 | CSP150 | 5-3/4" for 15" Paddle |
| 2.1 | 3 | CSP151 | 10" for 19" Paddle |
| 3 | 9 | B1/4x.75BHStainless | Hex Button Head Screw |
| 4 | 9 | N1/4NYL | Nylock Nut |
| 5 | 12 | N3/8NYL | Nylock Nut |
| 6 | 12 | B3/8x3/4 | Hex Bolt |

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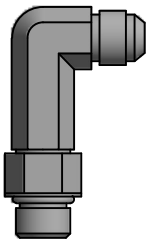
# CROP SWEEPER HYDRAULICS

# CROP SWEEPER HYDRAULIC FITTINGS



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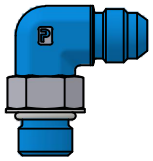

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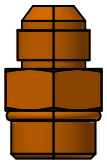

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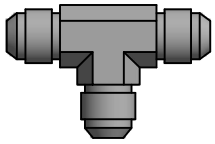
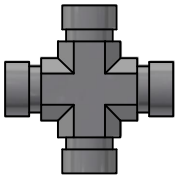


2603-06-06-06



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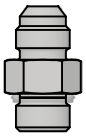

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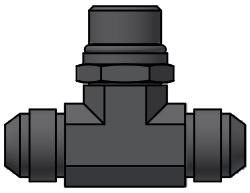

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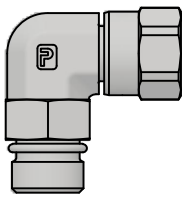

6809-08-08

6400-08-08
(CSP1308)

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# Single Point Connectors

The Patriot Crop Sweeper is powered by the combine hydraulics. The hydraulics are often supplied at the single point connector of the combine. The Patriot Crop Sweeper will use the reel drive hydraulic system to power the reel for the Crop Sweeper. The John Deere Large single point connector is used (two connectors are used for the connection to the combine). Also, the deck plate or fore/aft hydraulic system is used to supply hydraulics to the power beyond valve (the power beyond valve turns one hydraulic outlet into three outlets). The Crop Sweeper uses these hydraulics for the raise and lower function, the fore and aft function, and the deck plate adjustment function. The John Deere Small single point connector is often used to supply the hydraulics to the Crop Sweeper power beyond valve.

The Case/IH single point connector is used on Case/IH corn heads to supply the hydraulics for the Crop Sweeper power beyond valve (two connectors are used for the connection to the combine). The figure below shows the more common single point connectors that Patriot Equipment uses.


The 6400-08-10 (straight connector with #8 JIC male fitting to a #10 SAE male fitting) adapter is used to connect the John Deere Large single point connector to the reel motor supply and return hoses.

The 6400-06-08 (straight connector with #6 JIC male fitting to a #8 SAE male fitting) adapter is used to connect the John Deere Small and Case/IH single point connectors to the supply hoses for the Crop Sweeper power beyond valve.

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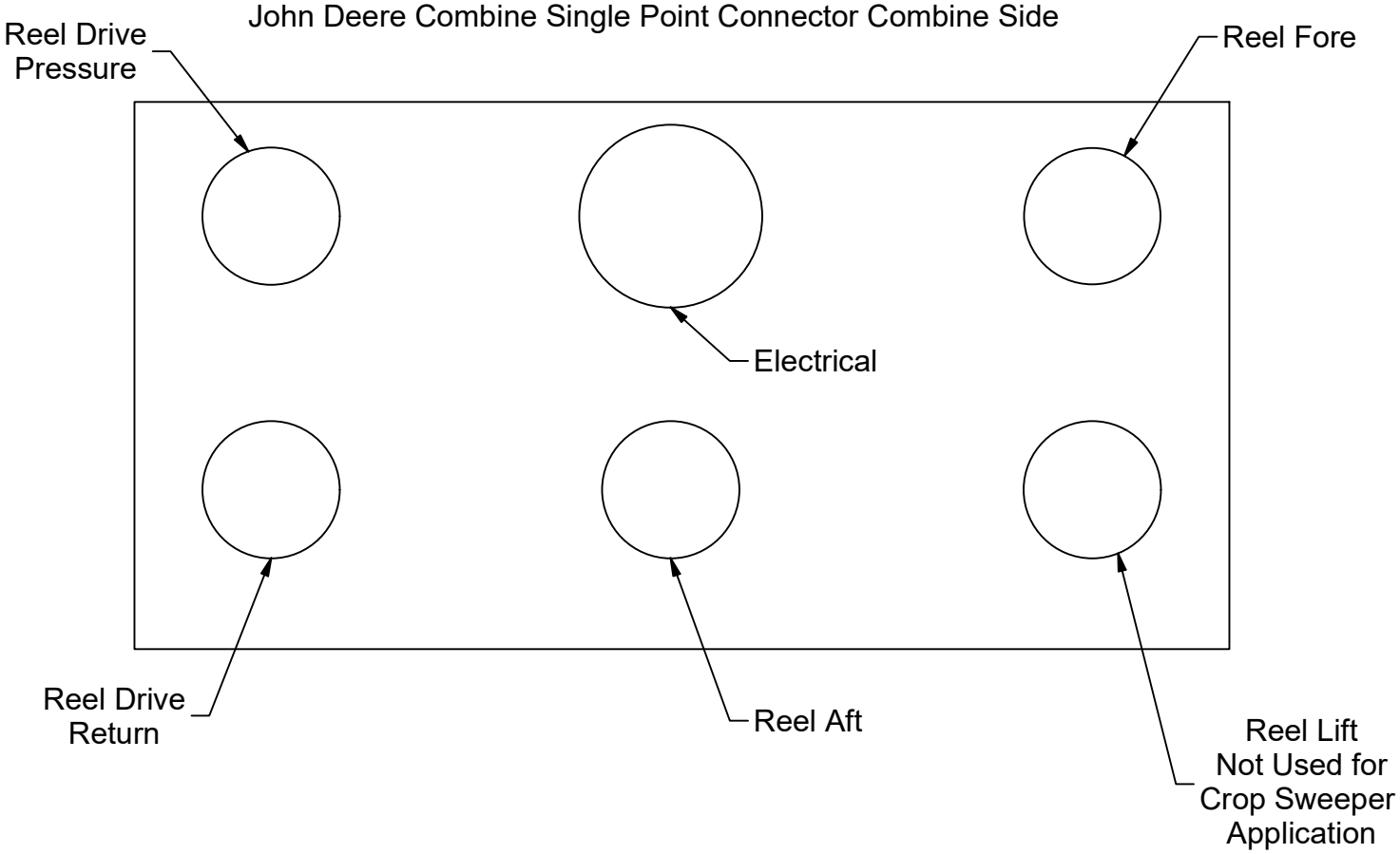
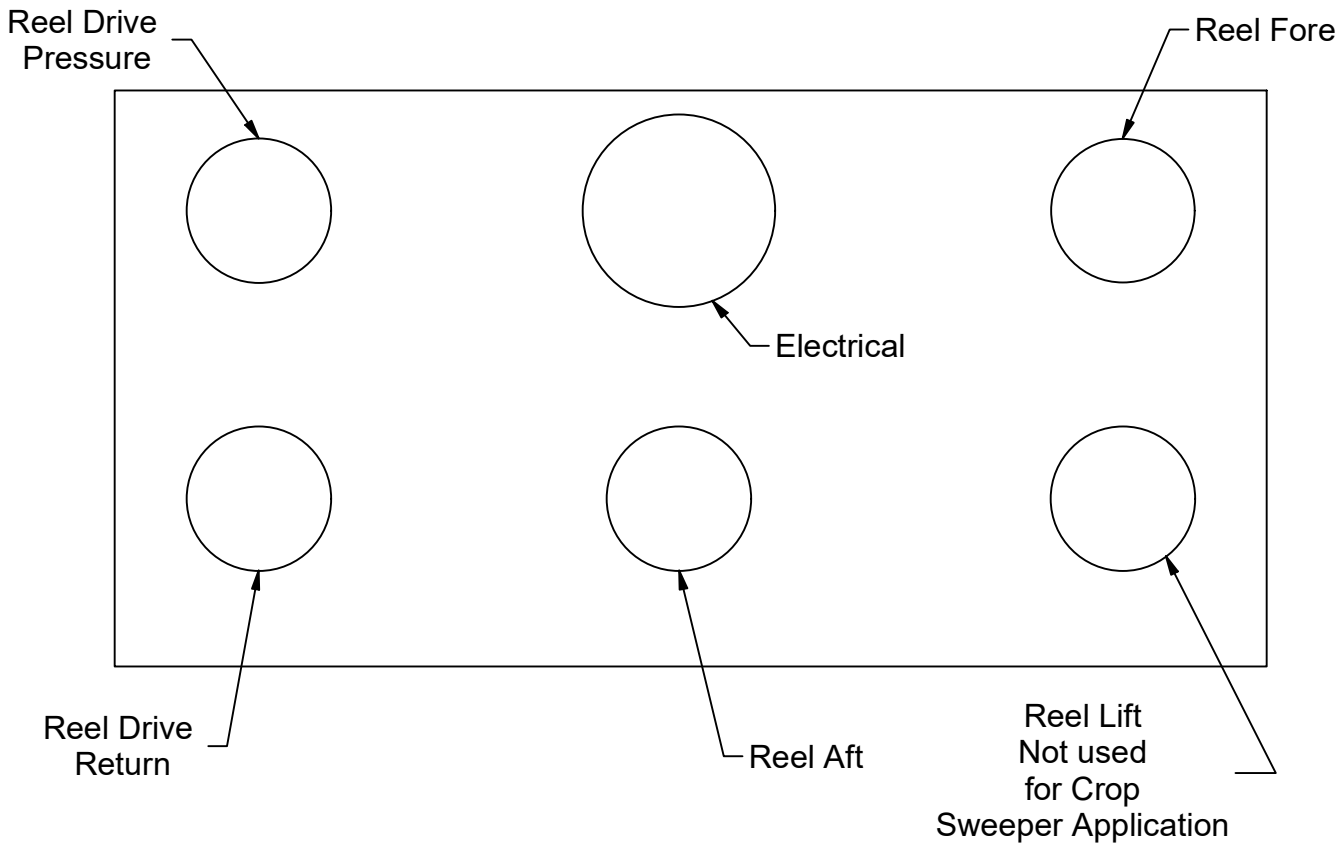
John Deere Combine Single Point Connector Combine Side




John Deere Combine Single Point Connector Head Side

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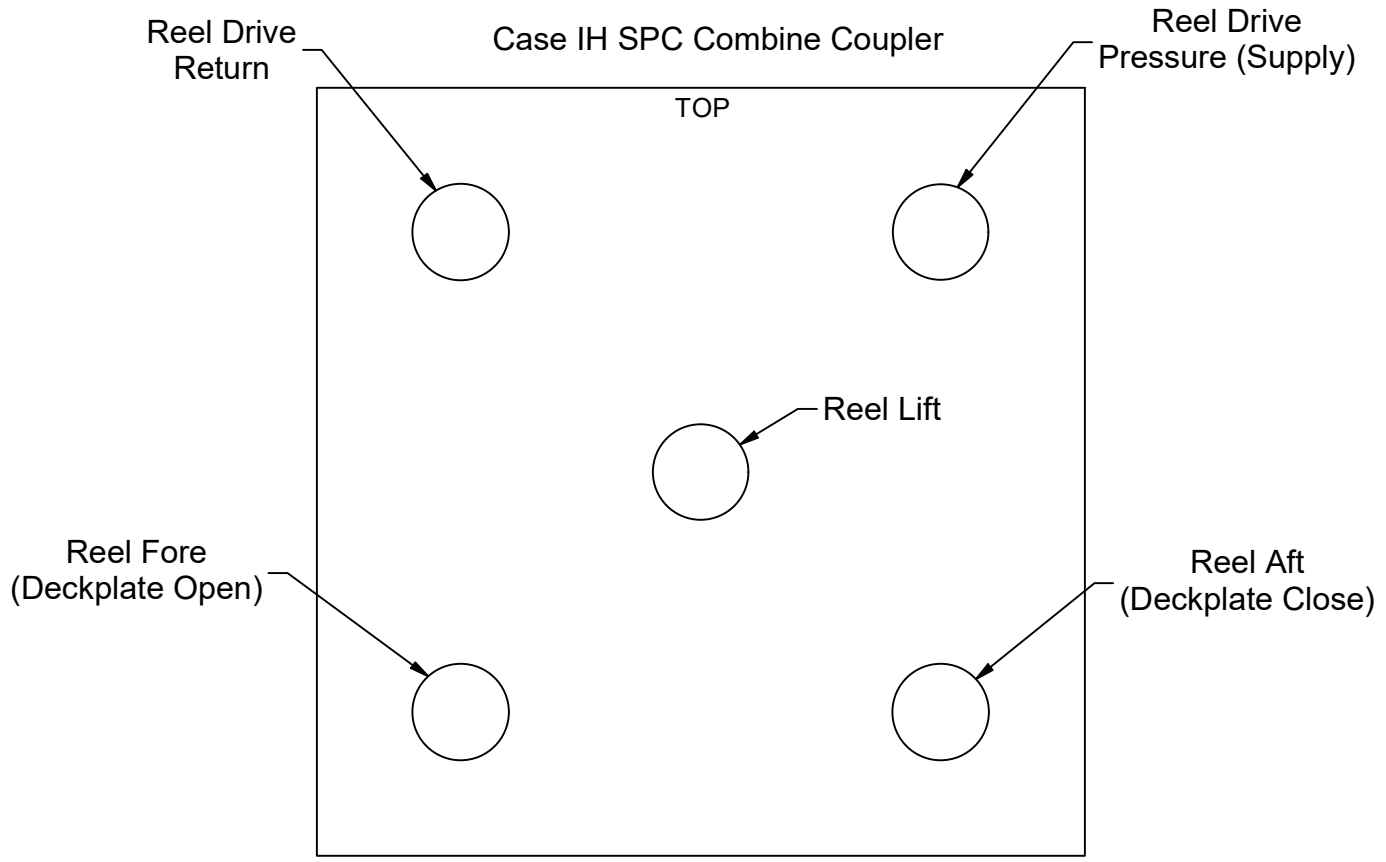


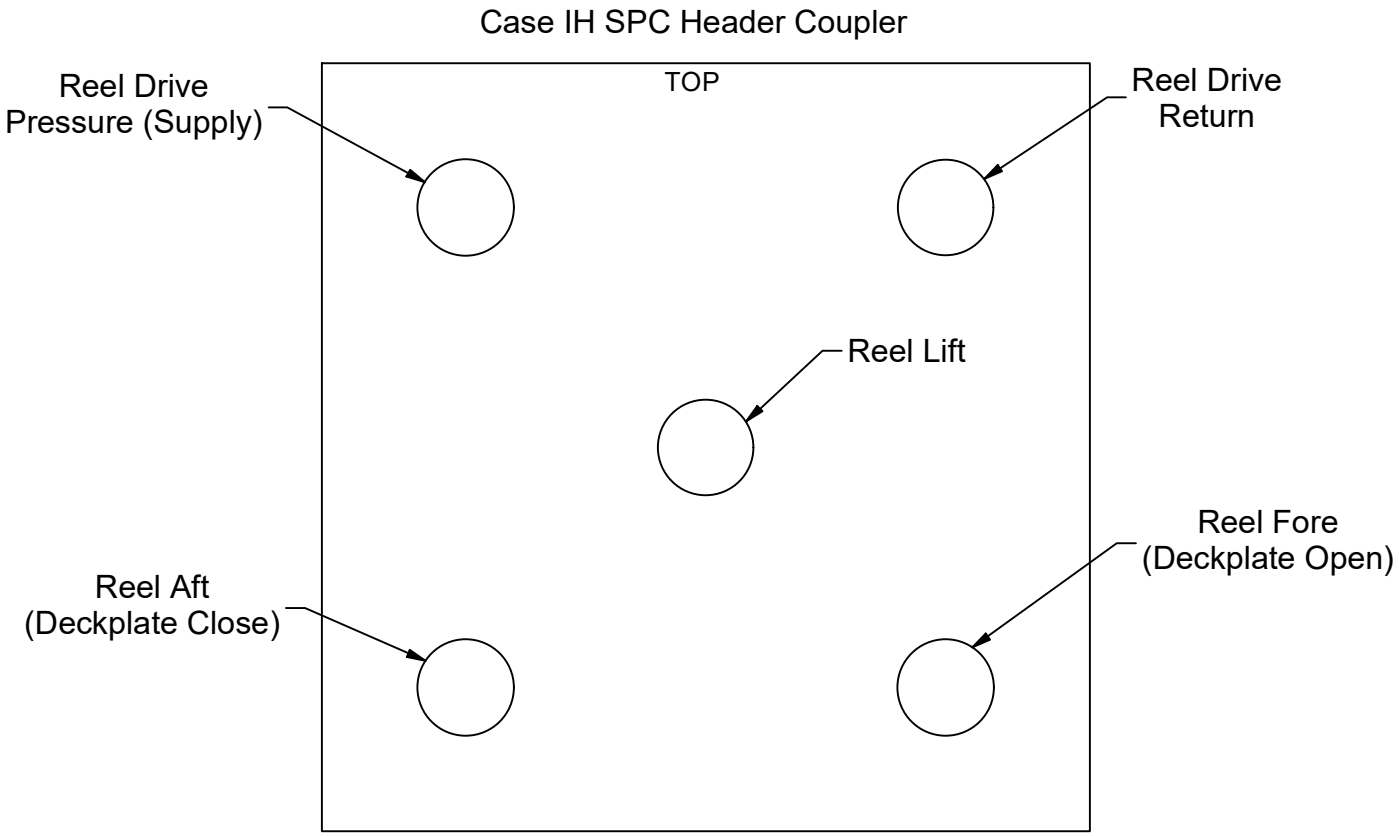


Coupler views are shown from the mating side of the couplers, not the hose side.

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## Check Valve Mounted on the Corn Head


Some models of corn heads come with a check valve that is connected to the stripper plates of the corn head (we have a John Deere valve as an example in the picture to the right). The check valve is designed to give the operator control of the deck plates to move them further apart and closer together. A good way to think of this is visualize a hydraulic cylinder extending and retracting. The check valve enables the associated cylinders to have a power extend and a power retract.

The check valve will be the supply source of the crop sweeper. The Crop Sweeper has to use a power extend and a power retract for correct operation of the raise and lower function, the fore/aft function, and the stripper plate function.

To supply the needed hydraulic oil for the Crop Sweeper, trace the hydraulic hoses that connect the check valve assembly to the deck plates. These hoses will be disconnected at the check valve and moved to the Crop Sweeper valve assembly. Use caution and relieve the hydraulic pressure within the stripper plate system first. If the corn head is connected to the combine, check that the corn head is properly supported and will not fall while working on it. Be sure that the corn head is locked onto the feeder house attaching points and that the lift cylinder stop is in position on the feeder house lift cylinder to prevent the head from falling. Also, have a container ready to catch any oil that may spill out of the system when loosening hydraulic hoses. Turn the key switch to “on” and move the stripper plate switch back and forth to relieve the hydraulic pressure within the system. Turn the key switch back to “off.” Use caution when loosening the hose connections at the check valve as hydraulic oil pressure can still be present. If a combine is not connected to the corn head, check that the corn head is properly supported and will not fall. Loosen the hose connection at the valve. Oil will come out so use extreme caution! Have a container in place to catch the hydraulic oil that will come out.


CAUTION

**Use caution when relieving hydraulic oil pressure from a closed system! Severe injury or death can result from the hydraulic oil coming out under pressure! Wear all personal protective equipment! DO NOT cover areas where the hydraulic oil is coming out with any part of the human body!**

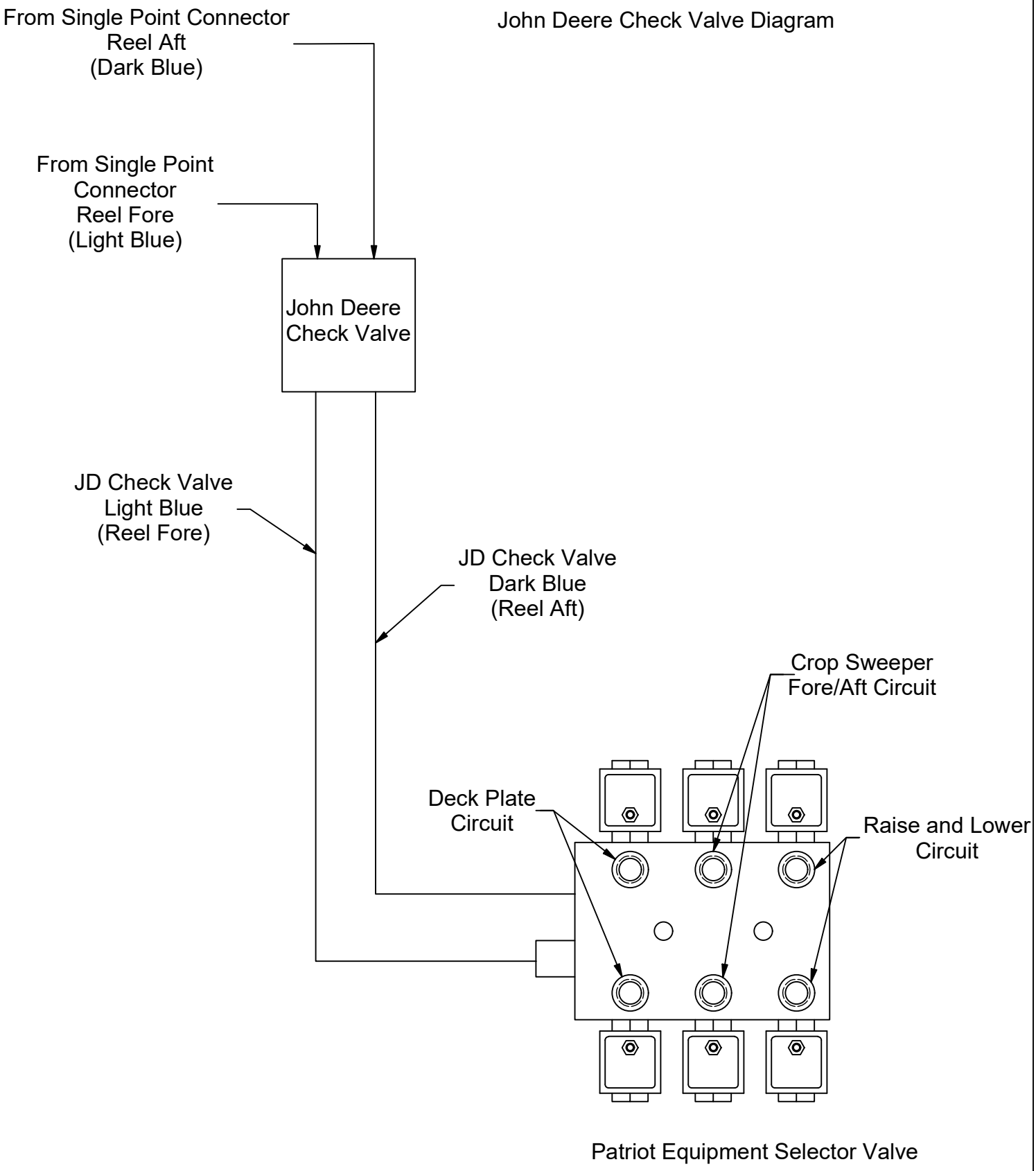
After both of the stripper plate hydraulic lines have been disconnected from the check valve assembly, connect them to the stripper plate outlets on the crop sweeper hydraulic valve assembly (see the hydraulic plumbing instructions). Connect the supply hoses of the Crop Sweeper hydraulic manifold to the hydraulic check valve. Adapter fittings may be needed to connect the hoses to the hydraulic check valve.

The stripper plate or fore/aft button located in the combine on the control paddle will operate the crop sweeper. Use the Crop Sweeper selector switch control to determine which hydraulic circuit to be operated. If operations are reversed, cylinder retract is cylinder extend and vice versa, simply reverse the hose connections at the supply end of the Crop Sweeper hydraulic manifold (use caution when disconnecting and reconnecting the hydraulic hoses). After all hydraulic connections are completed; test the different circuits for correct operation. Check for hydraulic leaks and make repairs as necessary.

CAUTION

**Never use any part of the human body to check for hydraulic leaks! Use a piece of cardbaord to check for hydraulic leaks. Failure to correctly locate hydaulic leaks will result in serious injury or death!**

John Deere Check Valve Diagram




Patriot Equipment Selector Valve

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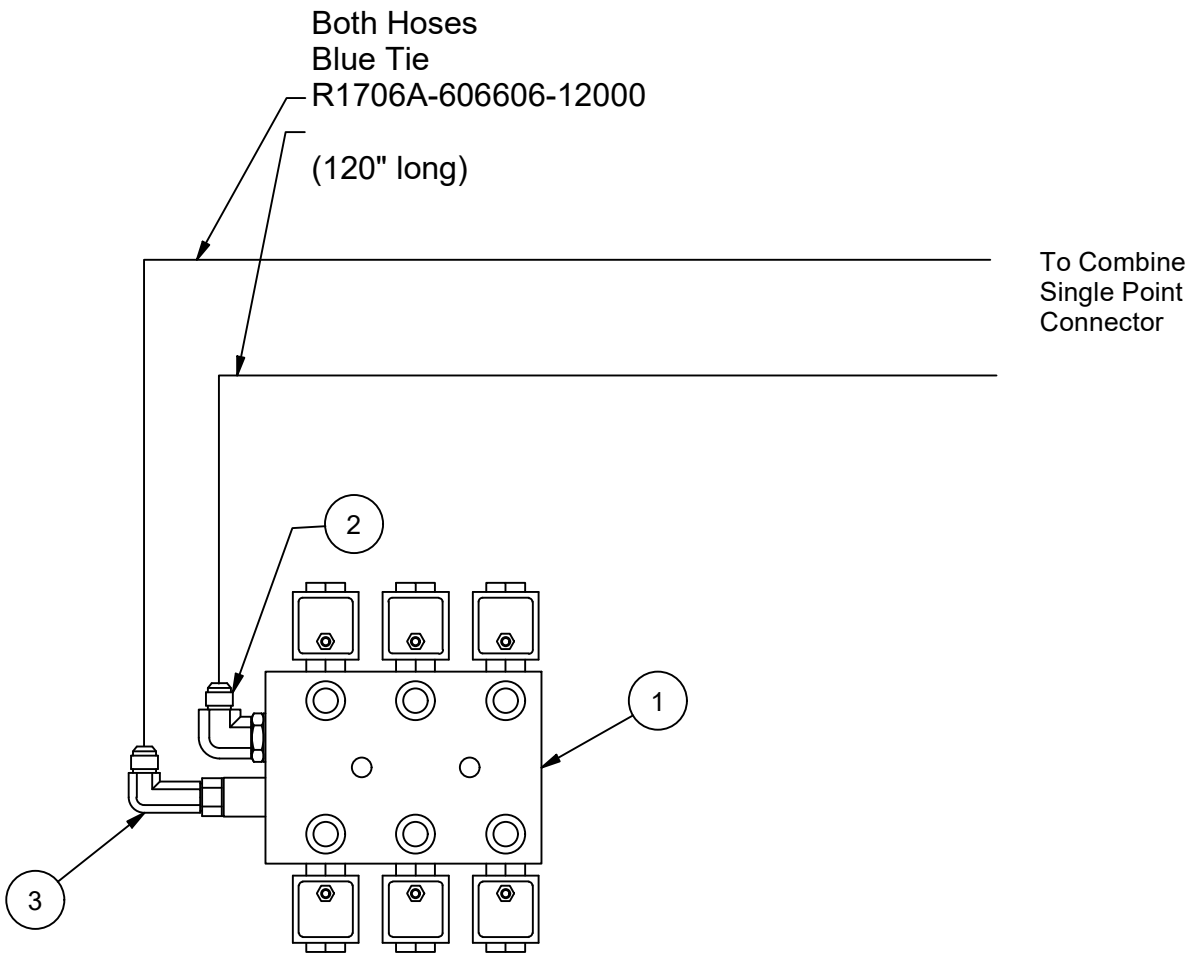
Hydraulic Supply From the Combine to the Crop Sweeper Multi-Valve




| Hydraulic Supply Circuit Parts List | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | P12 | MULTI-PORT VALVE WITH WIRING |
| 2 | 1 | 6801-6-6 | HYD FITTING |
| 3 | 1 | 6801-LL-6-6 | HYD FITTING |

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## Hydraulic Oil Supply

Assemble the multi-valve and the supply fittings. Connect the multi-valve to the Crop Sweeper (locations can vary depending upon how the Crop Sweeper is installed) usually to the left of the feeder house on the bracket for the inner lift cylinder. Locate the hoses with the Blue Tie. The hoses are the supply hoses for the Crop Sweeper multi-valve. The hoses are 120" long. Connect one end of the hose to the fitting on the side of the multi-valve. Connect the second hose to the other fitting of the multi-valve. The other ends of the hoses will connect to the combine, normally at the single point connector. Select the correct fitting that will fit the combine circuit and attach these to the respective hoses. Depending upon the model of combine, the supply oil for the Crop Sweeper will come from the deck plate circuit that has a check valve. This connection is detailed in another section of this manual. Please refer to those directions for correct oil supply installation.

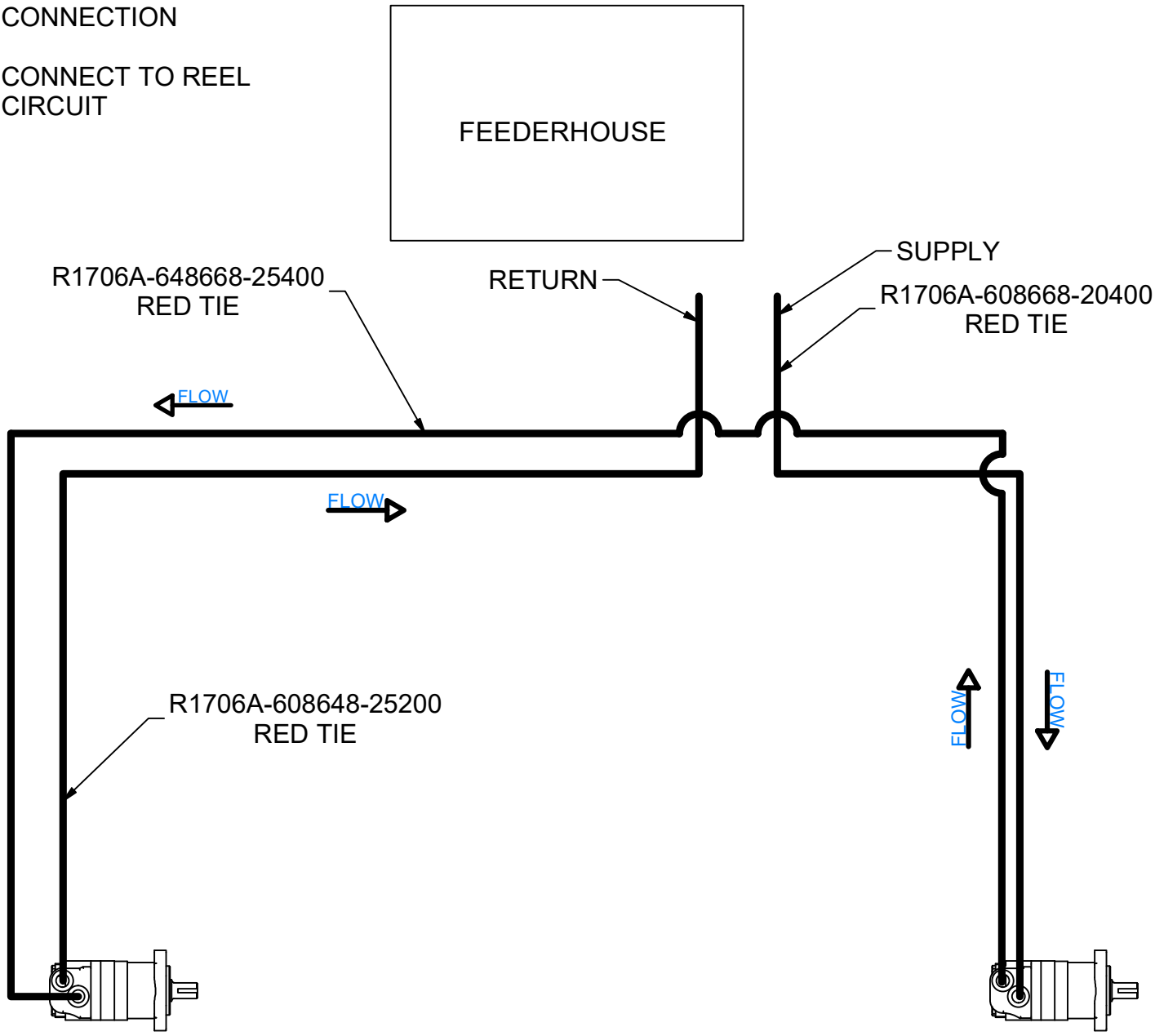
The hydraulic circuit that will be used for the Crop Sweeper is the reel fore and aft circuit (or the hydraulic deck plate circuit). The reel fore and aft circuit is used so that the cylinders on the Crop Sweeper can be supplied oil in both directions so the cylinders can extend or retract. Once all of the hydraulic plumbing is completed for the Crop Sweeper, the circuits can be tested. If the direction is incorrect, simply reverse the hoses supplying oil to the multi-valve.

**Caution**

The hydraulic oil will be under pressure, use caution when disconnecting hoses! Turn the combine off, remove the key, and relieve system pressure before disconnecting hydraulic hoses.

CROP SWEEPER
HYDRAULIC MOTOR
CONNECTION

CONNECT TO REEL
CIRCUIT

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As the hose connections are made, route the hose along the frame of the Crop Sweeper. Once the hoses are properly connected, secure the hoses in place to prevent them from getting pinched and caught in moving parts.

1. Locate the three hoses with a red tie. One hose will be a 3/8" x 204" long, the second will be a 3/8" x 254" long and the third will be a 3/8" x 252" long.
2. Connect the 204" long hose to the front port of the left hydraulic motor. The other end of this hose will connect to the single point connection at the combine feeder house.
3. Locate the 254" long hose and connect one end to the rear port of the left hand hydraulic motor. Route the hose so that it is out of the way and will not get pinched and connect the other end of the hose to the front port of the right hand hydraulic motor.
4. Next, connect the 252" long hose to the rear port of the right hand hydraulic motor and route the hose so that it will not get pinched and be out of the way. The other end of this hose will get connected to the single point connection at the combine feeder house.
5. The hoses will connect to the single point connection for the hydraulic reel drive of the combine. Connect the correct hydraulic fitting to fit in the single point connector for the combine to the end of the hose. Do not connect the hydraulic lines to the combine until installation is complete and the machine is ready for a test run. The reel will be controlled by the combine in the same way as the reel on a platform head. If the reel runs backwards, switch the hoses at the single point connection.

**Note:** If connecting the Crop Sweeper to the corn head factory end row cones, supply the hydraulic motors of the Crop Sweeper and then use the hydraulic return line of the Crop Sweeper motors to supply the left end cone.

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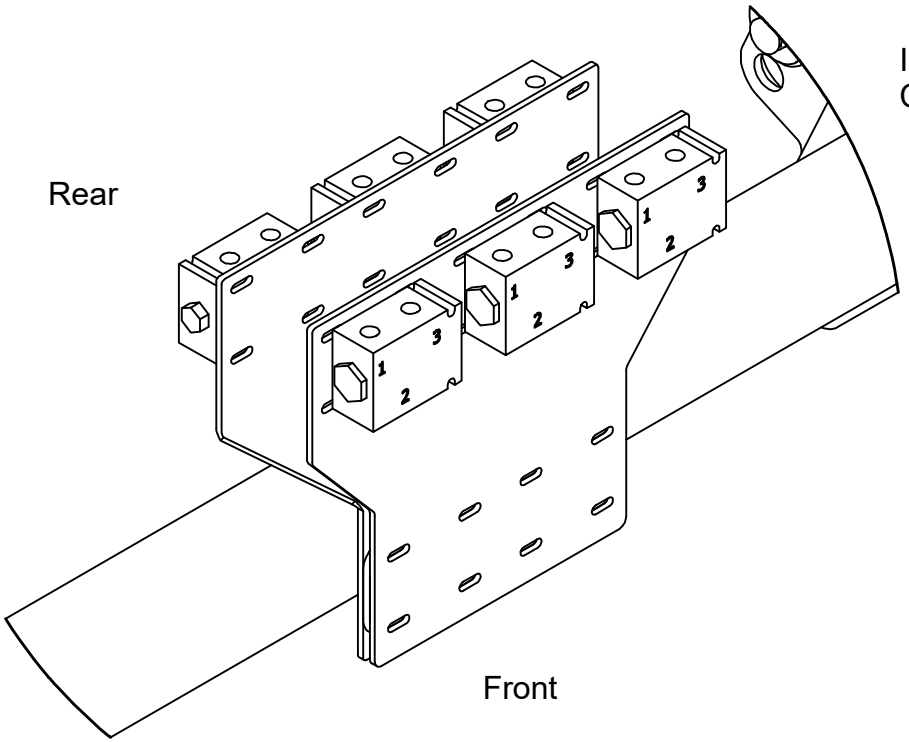
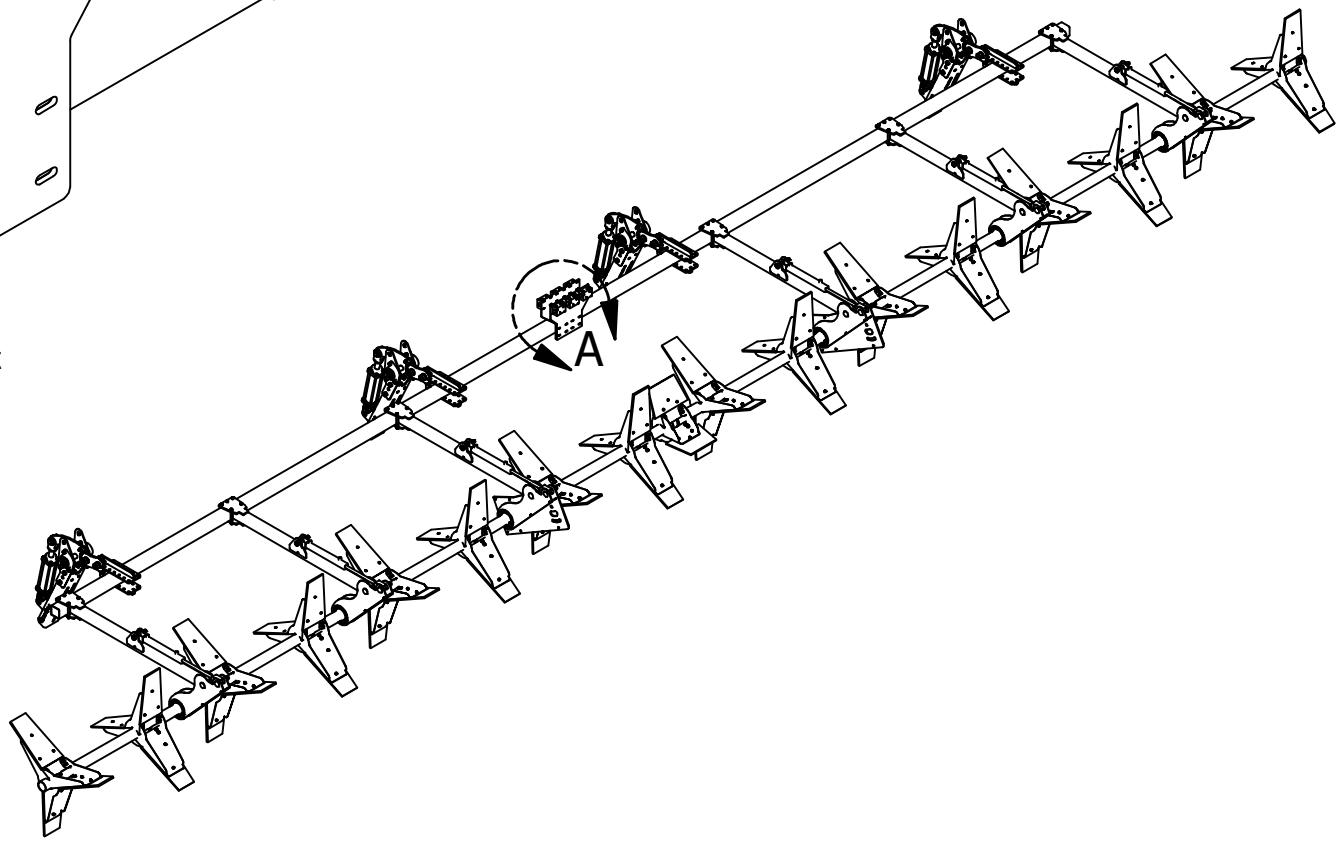
# FLOW DIVIDERS

Notice how the flow dividers are mounted, they are mounted on both sides of the mounting plates. Towards the rear of the machine, use this set of flow dividers for the Raise/Lower Hydraulic circuit. Towards the front of the machine, use this set of flow dividers for the Fore/Aft Hydraulic circuit.

Install the fittings for the flow dividers before they are mounted to the Crop Sweeper.




DETAIL A




| | |
|---|---|
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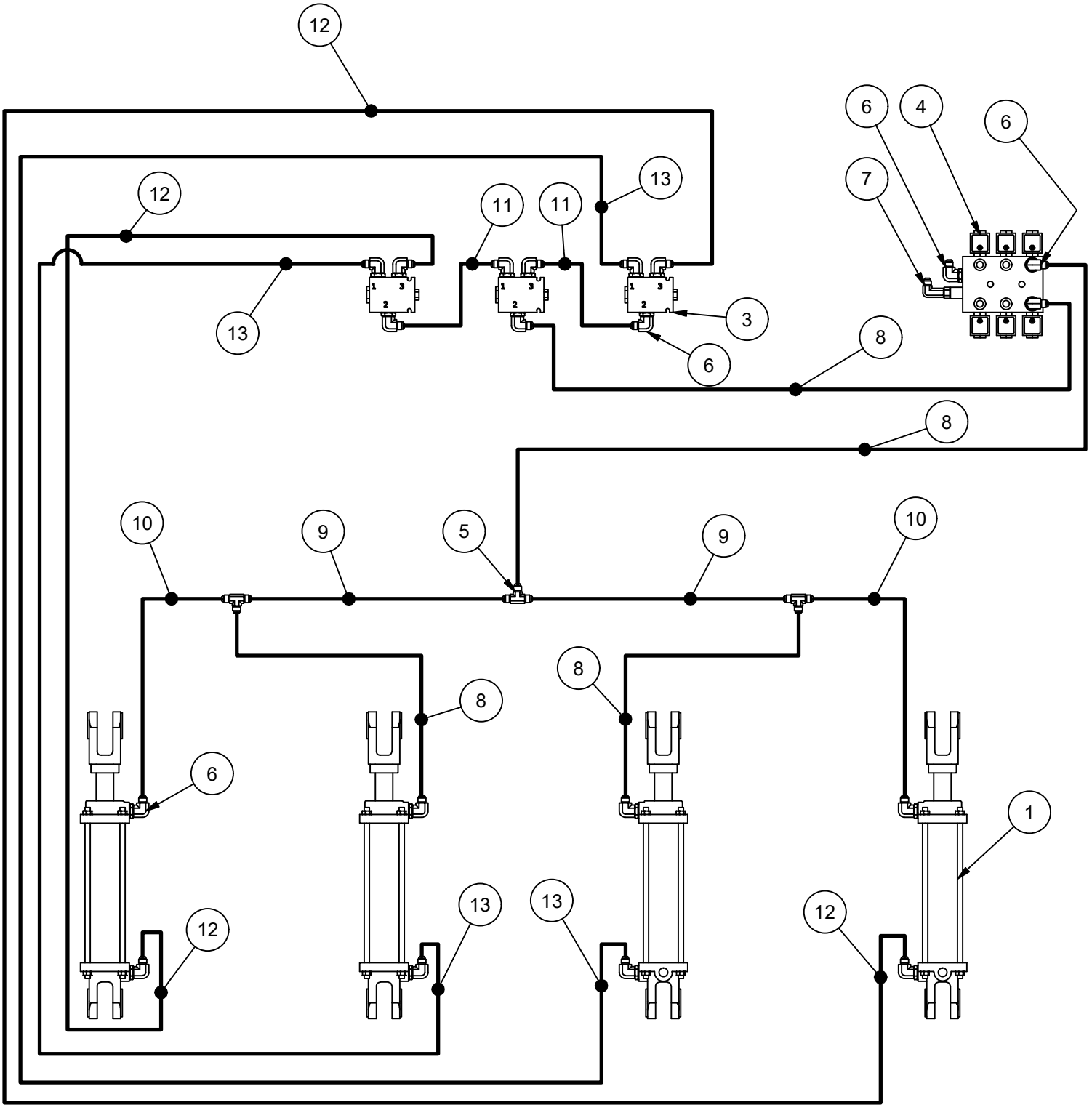
# RAISE/LOWER HYDRAULIC CIRCUIT
# CROP SWEEPER
# 16 ROW

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| RAISE/LOWER HYDRAULIC CIRCUIT PARTS | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 4 | HCY1004 | 2-1/2" x 8" Hydraulic Cylinder SAE Ports |
| 3 | 3 | P12E | Flow Divider |
| 4 | 1 | P12 | FASSE 3 CIRCUIT (Multi-Valve) with wiring |
| 5 | 3 | 2603-06-06-06 | #6 JIC TEE |
| 6 | 20 | 6801-6-6 | #6 JIC X SAE 90 DEGREE |
| 7 | 1 | 6801-LL-6-6 | #6 JIC X SAE 90 DEGREE LONG |
| 8 | 4 | R1704A-606606-12000 | LIFT SUPPLY/RETURN (GREEN TIE) |
| 9 | 2 | R1704A-606606-01200 | LIFT RETURN (GREEN TIE) |
| 10 | 2 | R1704A-606606-24000 | LIFT RETURN/FLOW CONN (GREEN TIE) |
| 11 | 2 | R1704A-606606-02400 | FLOW DIV CONN (GREEN TIE) |
| 12 | 2 | R1704A-606606-25200 | LOWER CYL HOSE OUTSIDE (GREEN TIE) |
| 13 | 2 | R1704A-606606-14400 | LOWER CYL HOSE INSIDE (GREEN TIE) |

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## Raise and Lower Hydraulics

To install the raise and lower hydraulic system, confirm the lift cylinders are installed and install the hydraulic fittings into the cylinders (see list). Next, locate three of the flow divider valves, install the correct fittings (see list) and install them on the mounting plate (see diagram) and secure them in place. Install the fittings into the multi-port valve (port #3). Finally, find three of the JIC hydraulic tees and have them available for installation.

Locate the hoses with the green ties. Please see the parts list for the number of hoses and their lengths (the final 5 digits of the hose# is the length, ex. 12000 is 120" long). Using the hydraulic diagram for the Raise/Lower Hydraulic Circuit, begin assembling the Raise/Lower hydraulics at the multi-valve. Use the diagram for the hose connections. The hoses will have to be routed on the Crop Sweeper frame as the connections are made.

1. Begin with the #8 hose from the multi-valve (port #3, see diagram) to the center flow divider
2. Using the two #11 hoses, connect the center flow divider as shown to the other two flow dividers.
3. Locate the two #12 hoses, each of these hoses will get connected to the outer flow dividers and will get connected to the outer lift cylinders at the lower port (see diagram)
4. Locate the two #13 hoses, each of these hoses will get connected to the outer flow dividers and will get connected to the inner lift cylinders at the lower port (see diagram)
5. Find the second #8 hose, connect one end to the multi-valve and the other end will get connected to a tee fitting (see diagram). Route the hose to the center of the Crop Sweeper rear tube.
6. Obtain the two #9 hoses, connect one end of each hose to the tee fitting that the #8 hose is connected to in step 5 (see diagram). Connect the other end of the #9 hoses to a tee fitting and route towards each end of the Crop Sweeper (see diagram).
7. Find the two #10 hoses. These hoses will get connected to the tee fittings that are towards the outside of the Crop Sweeper (one hose on each of the 2 tee fittings). Attach the other end of the #10 hoses to the two outer lift cylinders at the ram end port.
8. Locate the two #8 hoses. Attach one end of the hoses to the two tee fittings. Attach the other end of the hoses to the inner lift cylinders at the ram end port (see diagram).
9. Be sure that all connections are correctly tightened.
10. Secure hoses in place. Make sure hoses cannot be pinched or get caught in any moving parts.

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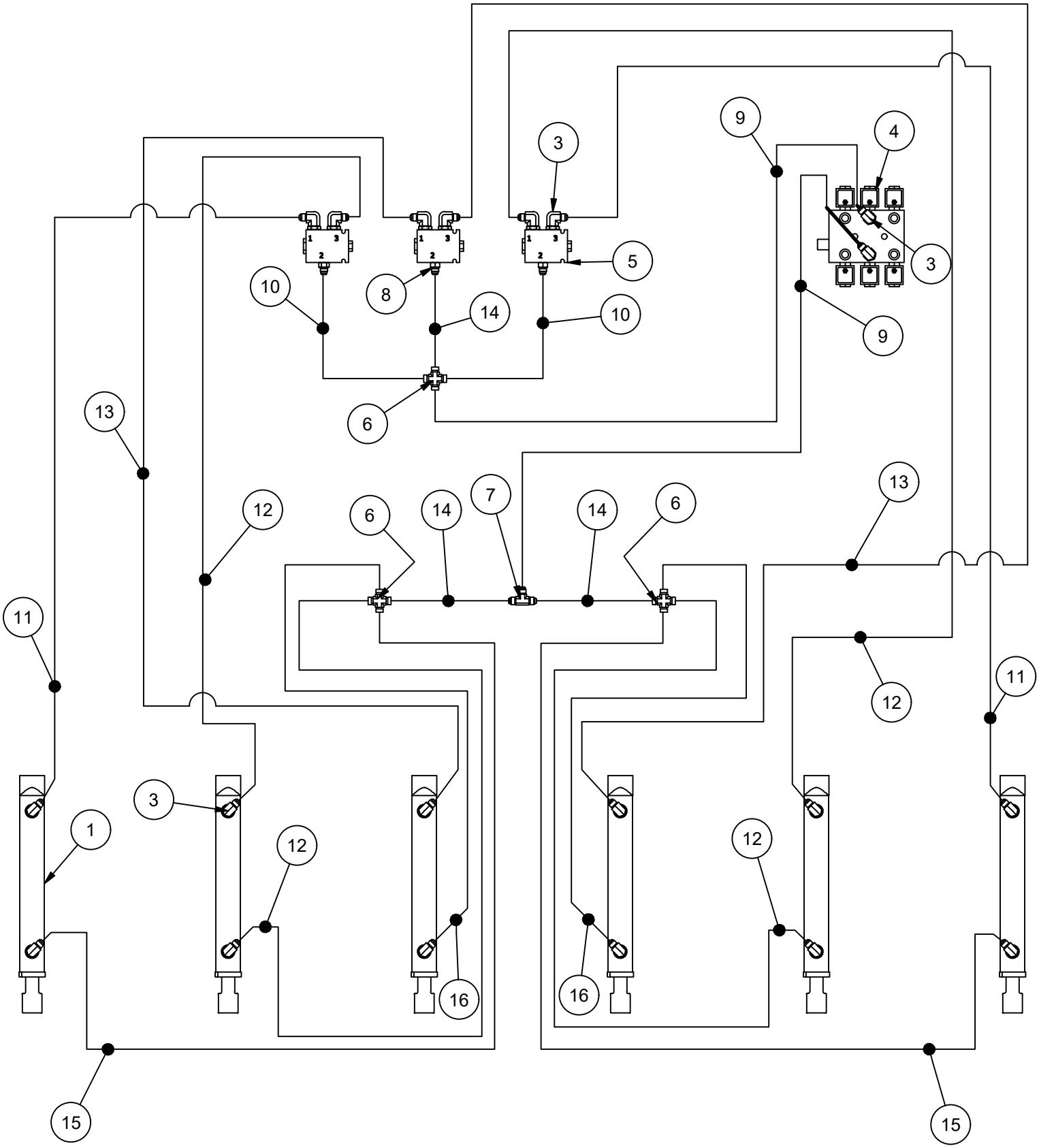
FORE/AFT 16 ROW CROP SWEEPER
HYDRAULICS

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| Fore/Aft Hydraulic Circuit | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 6 | P1 | Fore Aft Cylinder |
| 3 | 20 | 6801-6-6 | HYDRAULIC FITTING |
| 4 | 1 | P12 | Multi-Port Valve with wiring |
| 5 | 3 | P12E | Flow Divider |
| 6 | 3 | 2650-06-06-06-06 | HYDRAULIC FITTING |
| 7 | 1 | 2603-06-06-06 | HYDRAULIC FITTING |
| 8 | 3 | 6400-6-6 | HYDRAULIC FITTING |
| 9 | 2 | R1704A-606606-15600 | F/A CONN HOSE (YELLOW TIE) |
| 10 | 2 | R1704A-606606-01800 | F/A CONN HOSE (YELLOW TIE) |
| 11 | 2 | R1704A-606606-25200 | F/A OUTSIDE CYL LOWER (YELLOW TIE) |
| 12 | 4 | R1704A-606606-16800 | F/A MIDDLE CYL (YELLOW TIE) |
| 13 | 2 | R1704A-606606-10800 | F/A INNER CYL LOWER (YELLOW TIE) |
| 14 | 3 | R1704A-606606-01200 | F/A TEE CONN (YELLOW TIE) |
| 15 | 2 | R1704A-606606-26400 | F/A OUTER UPPER (YELLOW TIE) |
| 16 | 2 | R1704A-606606-12000 | F/A INNER UPPER (YELLOW TIE) |

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To install the Fore/Aft Hydraulic System, confirm that the six fore/aft cylinders have been installed. Install the fittings into the hydraulic cylinders, the multi-port valve (port #2), and obtain the three cross fittings and the tee fitting. Next, locate three flow dividers and install the fittings for them (see diagram). Mount the flow dividers to the center mount on the rear tube of the Crop Sweeper.

Locate the hydraulic hoses with the yellow tie. Please see the parts list for the number of hoses and their lengths (the final 5 digits of the hose# is the length, ex. 09600 is 96" long) Using the hydraulic diagram for the Fore/Aft Hydraulic Circuit, begin assembling the Fore/Aft Hydraulic Circuit at the multi-valve. Please refer to the diagram for hose connections. The hoses will have to be routed as the connections are made. Follow the framework of the Crop Sweeper as the hoses are based from a center point connection on the Crop Sweeper.

1. Begin with a #9 hose from the top port of the multi-port valve to a cross fitting
2. Locate one of the #14 hoses and connect it to the cross fitting and the middle flow divider
3. Locate the two #10 hoses and connect them to the cross and then to the outside flow dividers.
4. Find the two #11 hoses. Connect one end of the hose to the outside flow divider and the other end of the hose to the outside fore/aft cylinders at the lower port. The hoses will have to be routed as the connections are made.
5. Next, find the two of the #12 hoses and connect one end of the hoses to the outside flow dividers and the other end of the hoses to the second inner fore/aft cylinders at the lower port.
6. Locate the two #13 hoses, connect one end of the hoses to the center flow divider and route the hoses to the inner fore/aft cylinders and connect the hoses to the lower ports.
7. All connections should be completed for the lower ports of the fore/aft cylinders.
8. To continue, locate the second #9 hose and connect one end of this hose to the lower port of the multi-valve and connect the other end of the hose to a tee fitting.
9. Locate the two other #14 hoses. Connect the one end of the hoses to the tee fitting and the other end to the cross fittings as shown in the diagram.
10. Locate the #15 hoses. One of the hoses will connect to the left cross fitting and the other hose will connect to the right cross fitting. The other end of the hoses will connect to the rod end port of the outer fore/aft cylinders respectively.
11. Locate the remaining two #12 hoses. One of the hoses will connect to the left cross fitting and the other hose will connect to the right cross fitting. The other end of the hoses will connect to the rod end port of the first inner (from the outside) fore/aft cylinders respectively.
12. Find the #16 hoses. One of the hoses will connect to the left cross fitting and the other hose will connect to the right cross fitting. The other end of the hoses will connect to the rod end port of the inner fore/aft cylinders respectively.

Double check all the hydraulic connections to make sure they are correctly tightened. Secure the hydraulic lines to the framework of the Crop Sweeper to keep the hoses out of the way of any moving parts. Do not put the lines in an area that can pinch the hoses.

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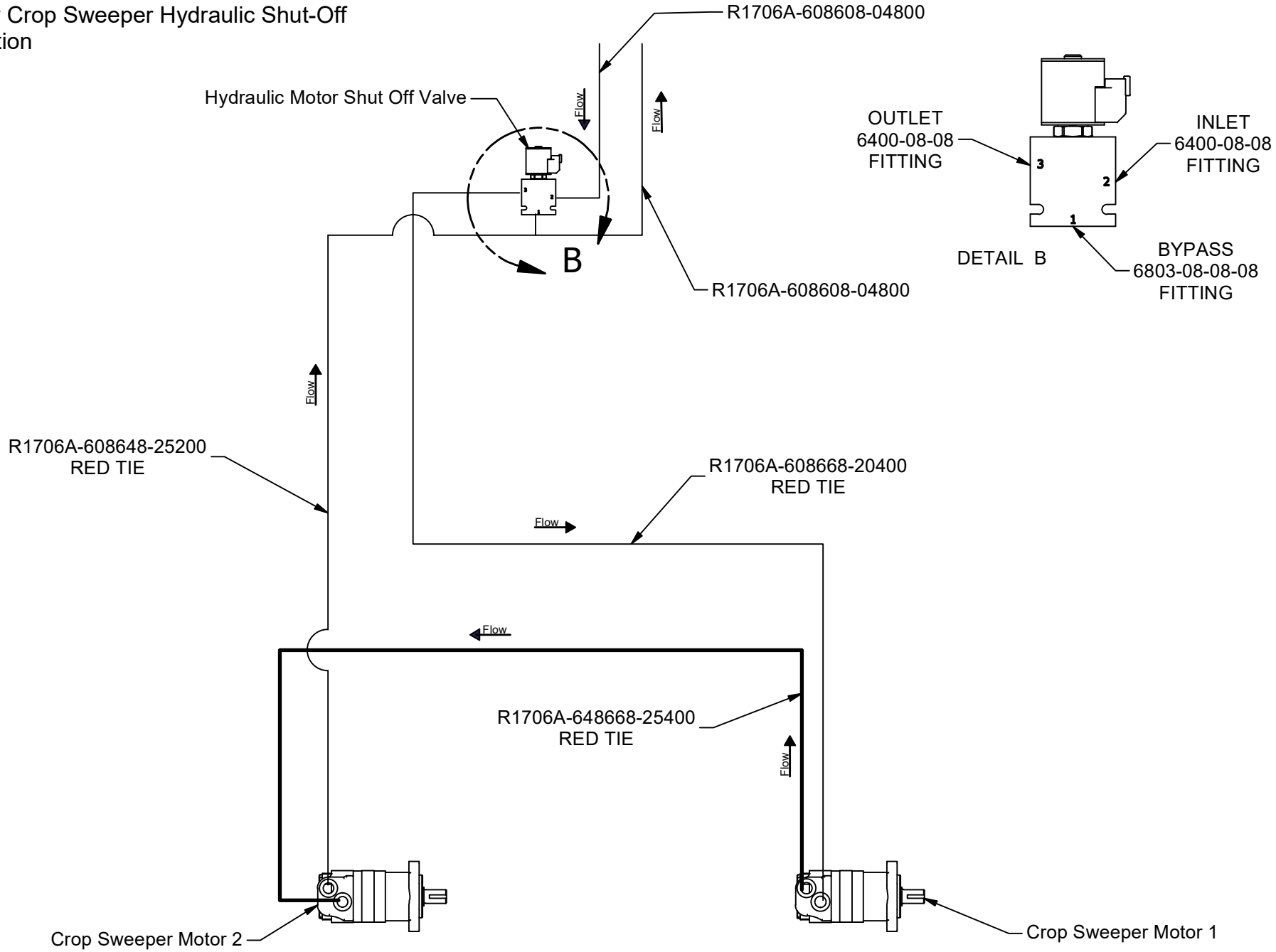
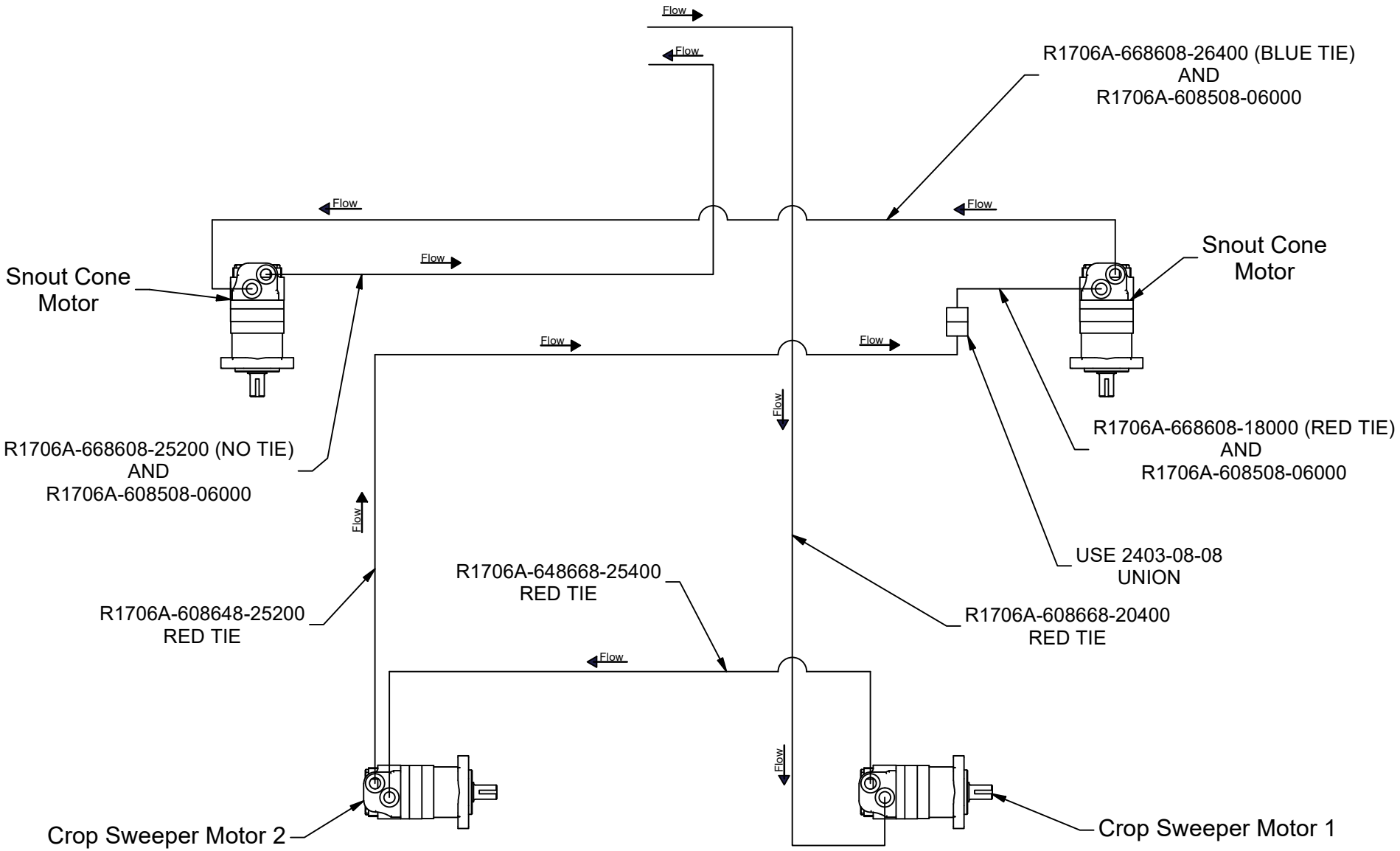
# 16 Row Crop Sweeper Hydraulic Shut-Off Installation




| | |
|---|---|
| **Patriot Equipment**<br>1302 K Road Minden, NE<br>308-832-0220 |  |

# 16 Row Crop Sweeper with Snout Cone Hydraulics





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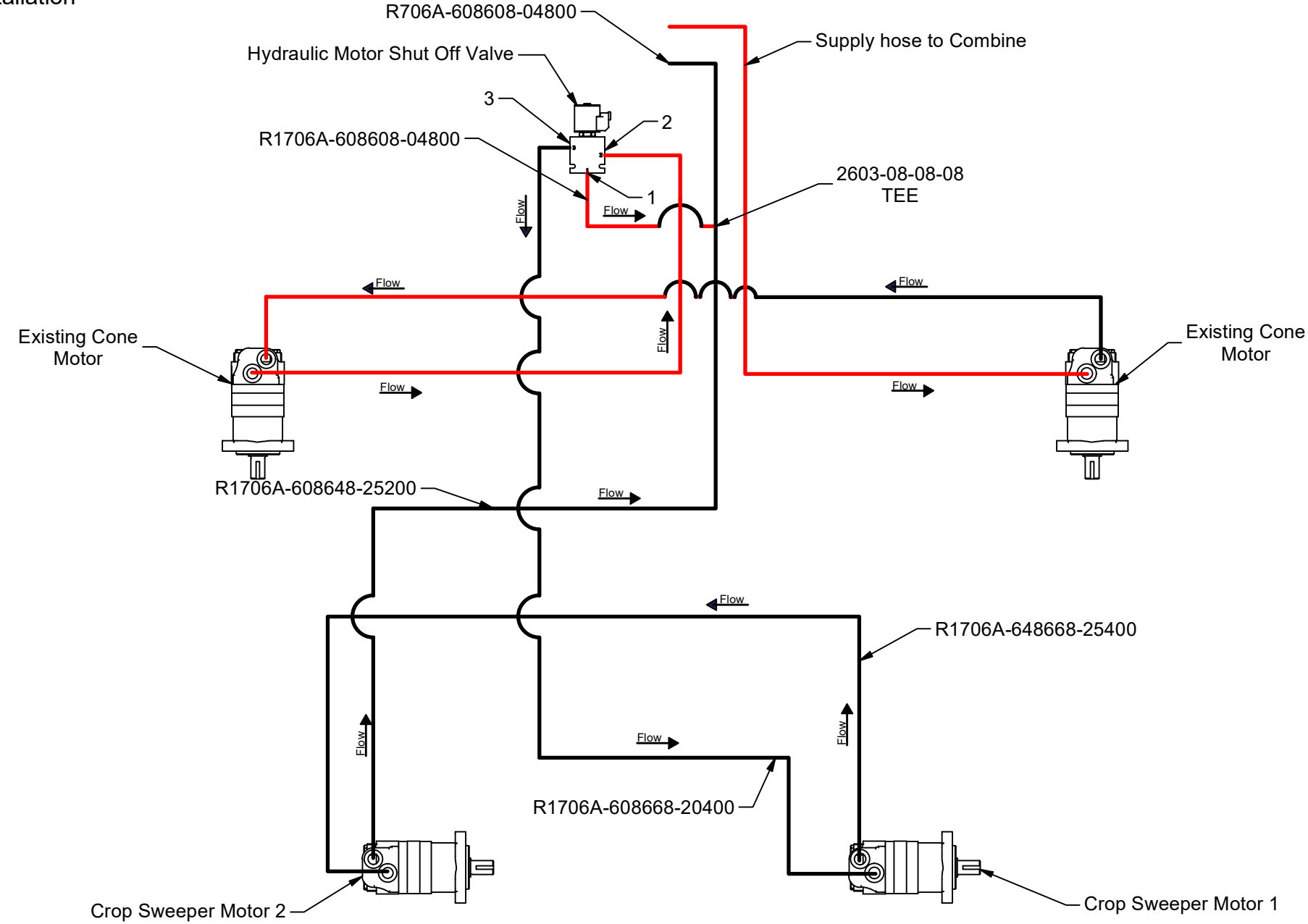
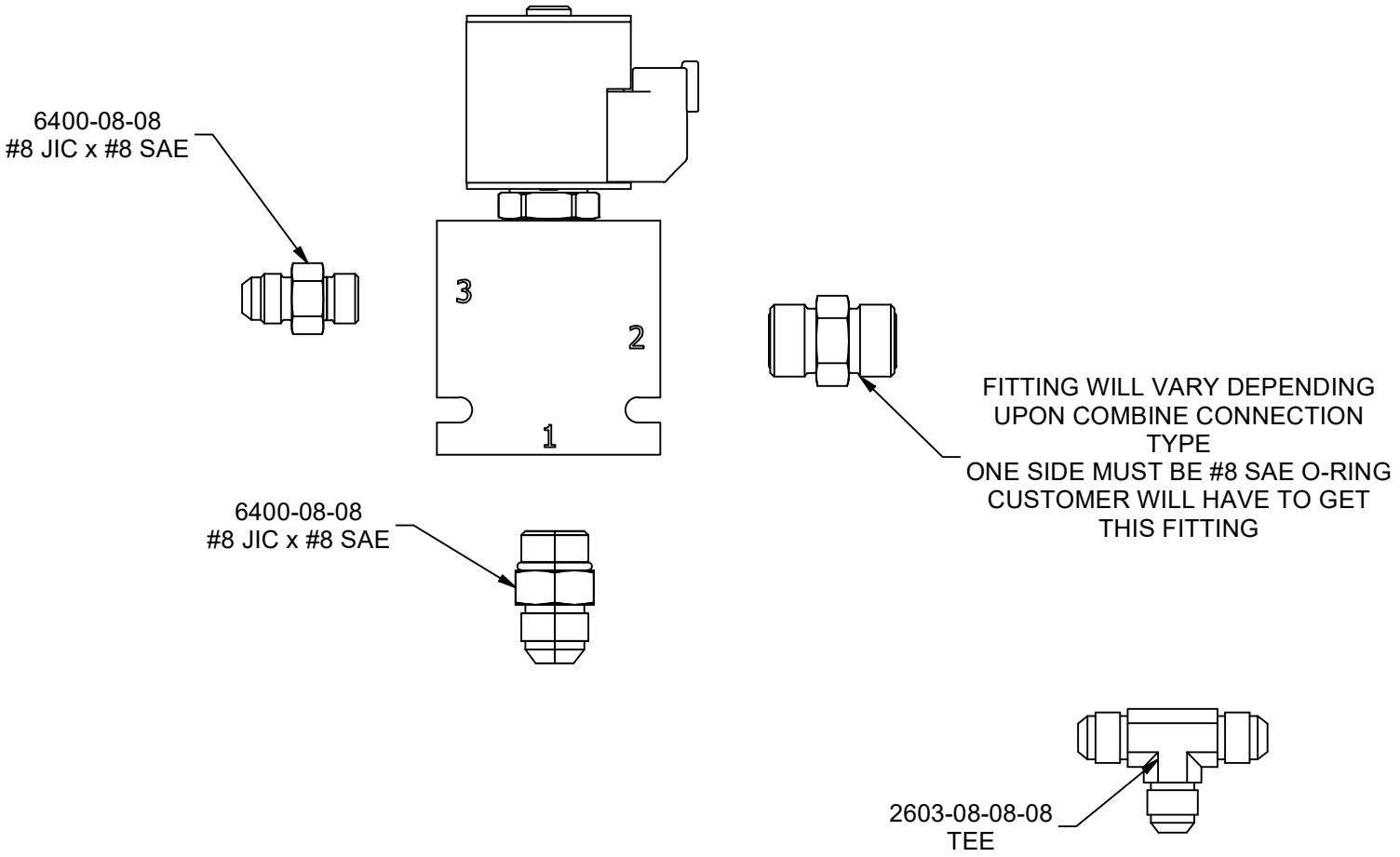
# 16 Row Crop Sweeper Hydraulic Shut-Off Installation




| | |
|---|---|
| **Patriot Equipment**<br>1302 K Road Minden, NE<br>308-832-0220 | This drawing, and the information hereon, are the property of Minden Machine Shop Inc., and may be used only as authorized by us. Unpublished - All rights reserved under the copyright laws. |

Port 1 - Bypass Flow
Port 2 - Supply Flow
Port 3 - Non-Bypass Flow




| | |
|---|---|
| **Patriot Equipment**<br>1302 K Road Minden, NE<br>308-832-0220 |  |

The hydraulic shut-off valve can be mounted to the square rear tube of the Crop Sweeper in a convenient location that allows for the connections of the necessary hydraulic hoses. A mounting bracket is included. Adjustment of the location may be necessary depending upon the individual set-up of the Crop Sweeper.

**Oil Supply to the Hydraulic Shut-Off Valve**
The hydraulic shut-off valve for the Crop Sweeper motors will be installed at the point of the hydraulic oil supply for the dual hydraulic motors. The drawing shows the oil supply for the crop sweeper motors being supplied from the return line for the end cones on the corn head. The oil supply will be plumbed into port #2 of the shut off valve, since the existing hose for the end cones return line will be used, the customer will have to purchase the adapter fitting to connect the hose to the shut-off valve locally as numerous fittings are used by different manufacturers. One end of this fitting will be #8 SAE O-ring that will fit into the shut off valve. Once the adapter fitting is purchased, install it into port #2 and connect the hydraulic hose.

**Oil to the motors**
Install the 6400-08-08 adapter into port #3. This port will supply the oil to the Crop Sweeper motors from the shut-off valve. The hose that will be used (R1706A-608668-20400) is in the Crop Sweeper hydraulic kit and will connect here and then to the left motor power side. Make the other hydraulic hose connections to the hydraulic motors as explained in the Crop Sweeper installation manual.

**Oil return from the Crop Sweeper motors**
The hydraulic oil return hose (R1706A-608648-25200) from the Crop Sweeper motors will connect to the 2603-08-08-08 tee that is in the Crop Sweeper hydraulic hose kit. Connect the R1706-608608-04800 hose across from the return line. This line will go back to the connection for the combine. Next, connect the 6400-08-08 fitting into port #1 of the Crop Sweeper hydraulic shut-off valve. Connect the second R1706A-608608-04800 hydraulic hose, that is in the hydraulic hose kit for the Crop Sweeper, to to fitting at port #1 of the Crop Sweeper hydraulic shut-off valve. Connect the other end of the hydraulic hose to the 2603-08-08-08 tee.

Tighten all hydraulic connections correctly.

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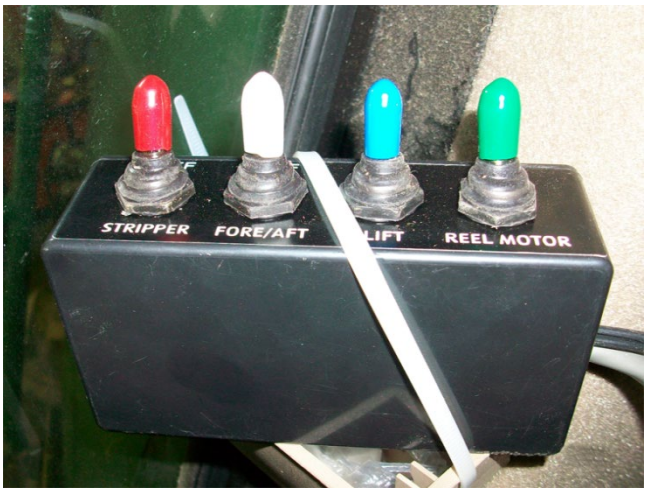
# Control Box Installation

## Electric Power Cord

1. Route Power Cord of Control Box (P12B) underneath and into the inside of the cab.
2. Mount Control Box to console and plug into lighter outlet.
3. Attach wiring harness to the connectors that control each of the functions; stripper plates, and reel Fore/Aft, Up/Down, and On/Off. (The reel On/Off switch is installed in the control box and the necessary wiring is in the harness but the reel control valve (P12C) is optional and must be ordered separately if wanted.)
4. Plug harness wire together close to combine hydraulic connection block.
5. Use plastic ties to hold electrical wiring and hoses neatly in place.

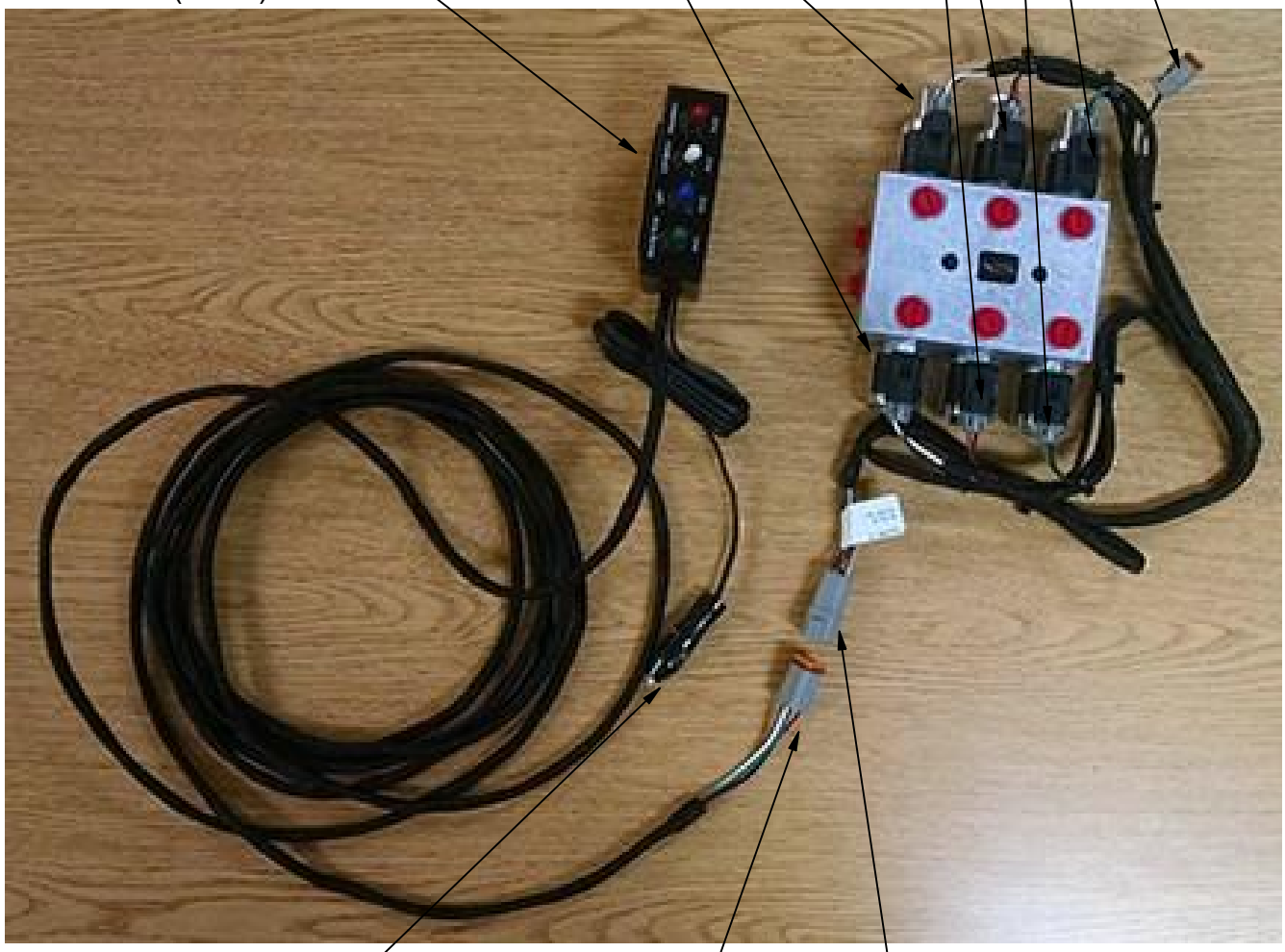


# CROP SWEEPER CONTROL VALVE WIRING

Optional: 6' Extension Harness for Switch Box: P12B-1

P12D: Manifold Wiring Harness Only

P12F: 6 Port Selector Valve with Harness, no control box




ALL CONNECTORS ARE DEUTSCH CONNECTORS

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# Pre-Operation Adjustments

## Level Crop Sweeper

1. Adjust the fore and aft cylinders so that the main tube is as far down in the arc as possible (approximately in the middle of the cycle).
2. Use threaded adjustment on Lift Cylinder rods (#4) page 23 and adjust reel up or down to give approximately 2" to 4" above gathering chains. If this does not work, flip the Lower Link Plates (#1) and (#2) upside down or right side up to move the bottom cylinder pin hole up or down by a 1/2" or move up or down 1 complete hole. If this is still not enough adjustment, move Bearing Holder Plates (#7) up or down as needed.

# Check Machine before Operating

1. Raise machine up and down to make sure it clears the cab in the up position and gathering chains in the down position. Adjust again if necessary as described above in "Level Crop Sweeper."



2. Cycle the Fore and Aft to assure paddles move in and out and do not hit the snouts.
3. Engage combine to run Sweeper (reel) motor, adjust speed of Sweeper with combine reel speed control.
4. Use the Crop Sweeper control box to control Stripper Plates, Reel Fore/Aft, Up/Down and On/Off. (Sweeper On/Off control valve (P12C) is optional.)

# Reference Sheets

| Part # For Aluminum Machines | Row Width | Front Tube Part # | Length and quantity of each part | Rear Tube Part # | Length and quantity of each parts | Rear Tube Extension Part# | Length of Rear Tube Extension | Hose Extension Kit # | Machine Weight | Tube Kit Weight |
|---|---|---|---|---|---|---|---|---|---|---|
| DGA-430 | 30 | M266A | 102" | M268A | 1@102" | | | | | 48 |
| DGA-436 | 36 | M371A | 120" | M268A | 1@102" | | | | | 51 |
| DGA-438 | 38 | M372A | 127" | M268A | 1@102" | | | | | 52 |
| DGA-440 | 40 | M373A | 132" | M268A | 1@102" | | | | | 53 |
| DGA-820 | 20 | M374 | 153" | M268A | 2@80" | | | | | 89 |
| DGA-630 | 30 | M282A | 2@80" | M285A | 2@80" | | | | | 69 |
| DGA-822 | 22 | M282 | 2@80" | M285A | 2@80" | | | | | 91 |
| DGA-636 | 36 | M376A | 2@97" | M285A | 2@80" | M279A | 32" | | | 88 |
| DGA-638 | 38 | M377A | 2@102" | M285A | 2@80" | M279A | 32" | | | 90 |
| DGA-640 | 40 | M378A | 2@106" | M285A | 2@80" | M279A | 32" | | | 91 |
| DGA-830 | 30 | M165 | 2@111" | M188A | 2@107" | | | | 615 | 120 |
| DGA-1220 | 20 | M379 | 2@116" | M188A | 2@107" | M203A | 42" | | 675 | 132 |
| DGA-1222 | 22 | M380 | 2@127" | M188A | 2@107 | M203A | 42" | P424 | 675 | 138 |
| DGA-836 | 36 | M381 | 2@132" | M188A | 2@107" | M203A | 42" | P422 | | 141 |
| DGA-838 | 38 | M382 | 2@138" | M188A | 2@107" | M203A | 42" | P422 | | 145 |
| DGA-840 | 40 | M383 | 2@145" | M188A | 2@107" | M203A | 42" | P422 | | 149 |
| DGA-1620 | 20 | M383 | 2@156" | M188A | 2@107" | M203A | 42" | P422 | 730 | 149 |
| DGA-1230 | 30 | M190 | 2@171" | M212A | 2@162" | | | P422 | 690 | 178 |
| DGA-1238 | 38 | M219 | 2@219" | M212A | 2@162" | | | P422 | | 206 |
| DGA-1622 | 22 | M190 | 2@171" | M210A | 2@210" | | | P422 | | 198 |
| DGA-1820 | 20 | M384 | 2@176" | M212A | 2@162" | | | P422 | 750 | 181 |
| DGA-1822 | 22 | M385 | 2@193" | M212A | 2@162" | | | P422 | | 191 |
| DGA-1630 | 30 | M386 | 2@231" | M212A | 2@230.5" | | | | 1029 | 242 |

| Part # For Steel Machines | Row Width | Front Tube Part # | Length and quantity of each part | Rear Tube Part # | Length and quantity of each parts | Rear Tube Extension Part# | Length of Rear Tube Extension | Hose Extension Kit # | Machine Weight | Tube Kit Weight |
|---|---|---|---|---|---|---|---|---|---|---|
| DG-430 | 30 | CSM266 | 102" | CSM268 | 1@102" | | | | | 81 |
| DG-436 | 36 | CSM371 | 120" | CSM268 | 1@102" | | | | | 86 |
| DG-438 | 38 | CSM372 | 127" | CSM268 | 1@102" | | | | | 88 |
| DG-440 | 40 | CSM373 | 132" | CSM268 | 1@102" | | | | | 89 |
| DG-630 | 30 | CSM282 | 2@80" | CSM285 | 2@80" | | | | 547 | 121 |
| DG-636 | 36 | CSM376 | 2@97" | CSM285 | 2@80" | CSM279 | 32" | | | 156 |
| DG-638 | 38 | CSM377 | 2@102" | CSM285 | 2@80" | CSM279 | 32" | | | 159 |
| DG-640 | 40 | CSM378 | 2@106" | CSM285 | 2@80" | CSM279 | 32" | | | 161 |
| DG-830 | 30 | CSM165 | 2@110" | CSM188 | 2@107" | | | | 794 | 160 |
| DG-836 | 36 | CSM381 | 2@132" | CSM188 | 2@107" | CSM203 | 42" | P422 | | 206 |
| DG-838 | 38 | CSM382 | 2@138" | CSM188 | 2@107" | CSM203 | 42" | P422 | 903 | 209 |
| DG-840 | 40 | CSM383 | 2@145" | CSM188 | 2@107" | CSM203 | 42" | P422 | | 213 |
| DG-1230 | 30 | CSM190 | 2@171" | CSM212 | 2@162" | | | P422 | 865 | 239 |
| DG-1238 | 38 | CSM219 | 2@219" | CSM213 | 2@210" | | | P423 | 1007 | 305 |

| CS-BK1 | 4 Row and 6 Row Main Bolt Kit | |
|---|---|---|
| 2 | B1/4X2 | 1/4 x 2 Hex Bolt |
| 2 | N1/4NYL | 1/4 Std NC Nylock Nut |
| 6 | N5/16NYL | 5/16 Std NC Nylock Nut |
| 6 | B5/16X1.0 | 5/16 X 1 Hex Bolt |
| 2 | B3/8X3.0 | 3/8" x 3" Hex Bolt |
| 10 | B3/8X4.5 | 3/8" x 4 1/2" Bolt |
| 12 | N3/8NYL | 3/8" Std NC Nylock Nut |
| 12 | B1/2X1.5 | 1/2" x 1 1/2" Hex Bolt |
| 1 | B1/2X1.5C | 1/2 x 1 1/2 Carriage Bolt |
| 2 | B1/2X2.0C | 1/2 x 2 Carriage Bolt |
| 15 | N1/2NYL | 1/2" Std NC Nylock Nut |
| 16 | B5/8X1.5 | 5/8" x 1 1/2" Bolt |
| 16 | N5/8NL | 5/8 Std NC Nylock Nut |
| 2 | B3/4X4.0 | 3/4" x 4" Hex Bolt |
| 4 | B3/4X3.5C | 3/4" x 3 1/2" Carriage Bolt |
| 2 | W1F | 1" Flat Washer |
| 4 | W3/4F | 3/4" Flat Washer |
| 6 | N3/4NYL | 3/4" Std NC Nylock Nut |

| CS-BK2 | 8 Row and 12 Row Main Bolt Kit | |
|---|---|---|
| 4 | B1/4X2 | 1/4 x 2 Hex Bolt |
| 4 | N1/4NYL | 1/4 Std NC Nylock Nut |
| 6 | N5/16NYL | 5/16 Std NC Nylock Nut |
| 6 | B5/16X1.0 | 5/16 X 1 Hex Bolt |
| 2 | B3/8X3.0 | 3/8" x 3" Hex Bolt |
| 20 | B3/8X4.5 | 3/8" x 4 1/2" Bolt |
| 22 | N3/8NYL | 3/8" Std NC Nylock Nut |
| 16 | B1/2X1.5 | 1/2" x 1 1/2" Hex Bolt |
| 1 | B1/2X1.5C | 1/2 x 1 1/2 Carriage Bolt |
| 2 | B1/2X2.0C | 1/2 x 2 Carriage Bolt |
| 19 | N1/2NYL | 1/2" Std NC Nylock Nut |
| 20 | B5/8X1.5 | 5/8" x 1 1/2" Bolt |
| 20 | N5/8NL | 5/8 Std NC Nylock Nut |
| 4 | B3/4X4.0 | 3/4" x 4" Hex Bolt |
| 8 | B3/4X3.5C | 3/4" x 3 1/2" Carriage Bolt |
| 4 | W1F | 1" Flat Washer |
| 8 | W3/4F | 3/4" Flat Washer |
| 12 | N3/4NYL | 3/4" Std NC Nylock Nut |

| CS-BKT1 | REAR TUBE EXTENSION KIT BOLT KIT 1 | |
|---|---|---|
| 4 | B1/2X1.5 | 1/2" x 1 1/2" Bolt |
| 4 | N1/2NYL | 1/2" Std NC Nylock Nut |

| CS-BKP1 | PADDLE BOLT KIT | | |
|---|---|---|---|
| | 3 | SC1/4X3/4SELFDRILL | 1/4 x 3/4 Zip Screw |
| | 9 | B1/4X.75BHSTAINLESS | 1/4" x 3/4" Hex Button Head Cap Screw |
| | 9 | N1/4NYL | 1/4” Std NC Nylock Nut |
| | 12 | B3/8X.75 | 3/8" x 3/4" Bolt |
| | 12 | N3/8NYL | 3/8" Std NC Nylock Nut |

| CS-BKP2 | AGGRESSIVE PADDLE BOLT KIT | | |
|---|---|---|---|
| | 3 | SC1/4X3/4SELFDRILL | 1/4 x 3/4 Zip Screw |
| | 9 | B1/4X1.25BHSTAINLESS | 1/4" x 1 1/4" Hex Button Head Cap Screw |
| | 9 | N1/4NYL | 1/4” Std NC Nylock Nut |
| | 12 | B3/8X.75 | 3/8" x 3/4" Bolt |
| | 12 | N3/8NYL | 3/8" Std NC Nylock Nut |

| CS-BKU2 | UNIVERSAL 4-6 ROW ROCKER ASSEBLY BOLT KIT | | |
|---|---|---|---|
| | 8 | B1/2X4.5 | 1/2 x 4 1/2 Hex Bolt |
| | 8 | N1/2NYL | 1/2 Std NC Nylock Nut |

| CS-BKU4F | UNIVERSAL FOLDING ROCKER ASSEBLY BOLT KIT | | |
|---|---|---|---|
| | 16 | B1/2X4.5 | 1/2 x 4 1/2 Hex Bolt |
| | 16 | N1/2NYL | 1/2 Std NC Nylock Nut |
| | 16 | B5/8X1.5 | 5/8" x 2" Bolt |
| | 16 | N5/8NL | 5/8” Std NC Nylock Nut |

| CS-BK11 | UNIVERSAL 4-6 ROW MOUNT KIT BOLT KIT | | |
|---|---|---|---|
| | 8 | B5/8X6.5 | 5/8" x 6 1/2" Bolt |
| | 8 | W5/8F | 5/8” Flat Washer |
| | 8 | N5/8NL | 5/8” Std NC Nylock Nut |

| CS-BK21 | CASE 800-1000 SERIES 4-6 ROW MOUNT KIT BOLT KIT | | |
|---|---|---|---|
| | 8 | B5/8X6.5 | 5/8" x 6 1/2" Bolt |
| | 8 | B5/8X1.5 | 5/8" x 1 1/2" Bolt |
| | 16 | N5/8NL | 5/8” Std NC Nylock Nut |

| CS-BK31 | CASE 3000 SERIES/DRAGO 4-6 ROW MOUNT KIT BOLT KIT | | |
|---|---|---|---|
| | 8 | B5/8X7.0 | 5/8" x 7" Bolt |
| | 16 | W5/8F | 5/8” Flat Washer |
| | 8 | N5/8NL | 5/8” Std NC Nylock Nut |

| CS-BK41 | OLD GERINGHOFF 4-6 ROW MOUNT KIT BOLT KIT | | |
|---|---|---|---|
| | 8 | B5/8X5.0 | 5/8" x 5" Bolt |
| | 8 | W5/8F | 5/8” Flat Washer |
| | 8 | N5/8NL | 5/8” Std NC Nylock Nut |

| CS-BK42 | OLD GERINGHOFF 8-12 ROW MOUNT KIT BOLT KIT | |
|---|---|---|
| 8 | B5/8X5.0 | 5/8" x 5" Bolt |
| 8 | B5/8X6.5 | 5/8" x 6 1/2" Bolt |
| 16 | W5/8F | 5/8” Flat Washer |
| 16 | N5/8NL | 5/8” Std NC Nylock Nut |

| CS-BK51 | NEW GERHINGHOFF 4-6 ROW MOUNT KIT BOLT KIT | |
|---|---|---|
| 4 | N1/2NYL | 1/2” Std NC Nylock Nut |
| 12 | B5/8X1.5 | 5/8" x 2" Bolt |
| 4 | N5/8NL | 5/8” Std NC Nylock Nut |
| 4 | B1/2X6.5 | ½ x 6 ½ Hex Bolt |

| CS-BK52 | NEW GERHINGHOFF 8-30 ROW MOUNT KIT BOLT KIT | |
|---|---|---|
| 4 | N1/2NYL | 1/2” Std NC Nylock Nut |
| 4 | B1/2X6.5 | ½ x 6 ½ Hex Bolt |
| 8 | B5/8X6.5 | 5/8" x 6 1/2" Bolt |
| 12 | B5/8X1.5 | 5/8" x 2" Bolt |
| 16 | W5/8F | 5/8” Flat Washer |
| 4 | N5/8NL | 5/8” Std NC Nylock Nut |

| CS-BK55 | DRAGO GT BOLT KIT | |
|---|---|---|
| 8 | B5/8X1.5 | 5/8 x 1 1/2 Bolts |
| 8 | W5/8F | 5/8” Flat Washer |
| 8 | N5/8NL | 5/8” Std NC Nylock Nut |
| 12 | BM12X1.75X30 | 12mm X30mm Bolt |
| 12 | W1/2F | 1/2” Flat Washer |

| CS-BK57 | FANTINI 4-6 ROW MOUNT KIT BOLT KIT | |
|---|---|---|
| 32 | B5/8X2.0 | 5/8" x 2" Bolt |
| 8 | B5/8X4.5 | 5/8" x 4 1/2" Bolt |
| 44 | W5/8F | 5/8” Flat Washer |
| 40 | N5/8NL | 5/8” Std NC Nylock Nut |

| CS-BK61 | JOHN DEERE C SERIES 4-6 ROW MOUNT KIT BOLT KIT | |
|---|---|---|
| 8 | B5/8X6.5 | 5/8" x 6 1/2" Bolt |
| 8 | W5/8F | 5/8” Flat Washer |
| 14 | N5/8NL | 5/8” Std NC Nylock Nut |
| 2 | B5/8X5.5 | 5/8 X 5 1/2 Bolt |
| 4 | B5/8X1.5 | 5/8 x 1 1/2 Bolts |

| CS-BK62 | JOHN DEERE C SERIES 8-12 ROW MOUNT KIT BOLT KIT | |
|---|---|---|
| 16 | B5/8X6.5 | 5/8" x 6 1/2" Bolt |
| 16 | W5/8F | 5/8” Flat Washer |
| 22 | N5/8NL | 5/8” Std NC Nylock Nut |
| 2 | B5/8X5.5 | 5/8 X 5 1/2 Bolt |
| 4 | B5/8X1.5 | 5/8 x 1 1/2 Bolts |

| CS-BK71 | LEXION 4-6 ROW MOUNT KIT BOLT KIT | | |
|---|---|---|---|
| | 8 | B5/8X6.5 | 5/8" x 6 1/2" Bolt |
| | 8 | W5/8F | 5/8” Flat Washer |
| | 8 | N5/8NL | 5/8” Std NC Nylock Nut |

| CS-BK72 | GLEANER 4-6 ROW MOUNT KIT BOLT KIT | | |
|---|---|---|---|
| | 24 | B5/8X1.5 | 5/8" x 1 1/2" Bolt |
| | 24 | W5/8F | 5/8” Flat Washer |
| | 24 | N5/8NL | 5/8” Std NC Nylock Nut |

| CS-BK74 | GLEANER 8-12 ROW MOUNT KIT BOLT KIT | | |
|---|---|---|---|
| | 48 | B5/8X1.5 | 5/8" x 1 1/2" Bolt |
| | 48 | W5/8F | 5/8” Flat Washer |
| | 48 | N5/8NL | 5/8” Std NC Nylock Nut |

| CS-BK76 | GLEANER 3300 SERIES 8-12 ROW BOLT KIT | | |
|---|---|---|---|
| | 24 | B5/8X1.5 | 5/8" x 1 1/2" Bolt |
| | 24 | W5/8F | 5/8” Flat Washer |
| | 24 | N5/8NL | 5/8” Std NC Nylock Nut |
| | | | |
| CS-BK80 | MAINERO MDD-100 CORN HEAD 8-12 ROW BOLT KIT | | |
| | 24 | B5/8X1.5 | 5/8" x 1 1/2" Bolt |
| | 24 | W5/8F | 5/8” Flat Washer |
| | 24 | N5/8NL | 5/8” Std NC Nylock Nut |
| | | | |
| | | | |
| | | | |