



Belly Blade

## Installation Instructions

# John Deere 6105E

With Cab

Purchase Date
Serial Number
Model Number
Tractor Model
Dealer

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## Bolt Torque Specifications

Bolt Dia. (inch)	Thread per inch	Grade 5	Grade 8
		Torque (ft·lbs.)	Torque (ft·lbs.)
1/4	20	8	12
1/4	28	10	14
5/16	18	17	25
5/16	24	19	29
3/8	16	30	45
3/8	24	35	50
7/16	14	50	70
7/16	20	55	80
1/2	13	75	110
1/2	20	90	120
9/16	12	110	150
9/16	18	120	170
5/8	11	150	220
5/8	18	180	240
3/4	10	260	380
3/4	16	300	420
7/8	9	430	600
7/8	14	470	660
1	8	640	900
1	12	710	990

Bolt Dia. (mm)	Pitch	Grade 8.8	Grade 10.9
		Torque (ft·lbs.)	Torque (ft·lbs.)
4	0.70	2	
5	0.80	4	
5	1.00	7	11
7	1.00	12	
8	1.25	17	26
8	1.00	18	
10	1.50	35	51
10	1.20	37	
10	1.00	39	
12	1.75	59	88
12	1.50	62	
12	1.25	65	
14	2.00	94	139
14	1.50	101	
16	2.00	146	210
18	2.50	210	
20	2.50	292	
22	2.50	398	
44	3.00	503	

# Kit Inventory

Qty.	PN	Description
4	16-35C616	3/8" -16 X 1" FLANGED BOLT (CLEAR ZINC)
12	16-1878	20mm x 2.5mm x 50mm Hex Bolt Gr 10.9
2	16-20032	5/16" x 3/4" Hex Bolt Gr 5 NC
4	16-20034	5/16" x 1" Hex Bolt Gr 5 NC
3	16-20125	1/2" x 1-1/4" Hex Bolt Gr 5 NC
2	16-20566	1" x 4" Hex Bolt Gr 8 NC
4	16-21218	3/4" x 2" Carriage Bolt Gr 5 NC
4	16-2488	20mm x 2.5mm x 80mm Hex Bolt Gr. 10.9
1	18-42730-L	Bracket, Rear
1	18-42730-R	Bracket, Rear
1	31-34055	Straight Thread Elbow 90° JIC x O-Ring
1	31-34102	Swivel Nut Elbow 90° JIC
2	31-15KB1212	Straight JIC x O-Ring
1	31-34082	Swivel Nut Branch Tee JIC
1	31-42487-12-12-12	Run Tee OFS x O-Ring (FS-6804-12-12-12)
1	35-42469-0130	-12 FOFS 90° x -12 FJIC - 5/8" Hose - 13"
1	35-42472-0520	-12 MOFS x -12 FJIC - 5/8" - 52"
1	35-42473-0130	-12 FOFS x -12 FJIC - 5/8" - 13"
2	44-42735	Plate, Front
1	44-42736	Plate, Valve Cover
1	54-42725	JD 6E Series UC
1	56-11925	Belly Blade Valve System with Controller
8	57-20741	5/16" Flat Washer
6	57-20744	1/2" Washer
4	57-20757	3/4" Flat Washer - 1-1/2" OD
24	57-20827	20mm Flat Washer
1	69-15155	3 Pin Aux. Power Supply Wire Harness
3	70-20604	1/2" Center Lock Hex Nut
4	70-20607	3/4" Center Lock Hex Nut Gr 2 NC
2	70-20609	1" Hex Top Lock Nut Gr.2 NC
6	70-20611	5/16" Nyloc Hex Nut Gr. 5
8	70-20872-10	20mm Hex Nut 2.5 Pitch Class 10
4	70-20622	3/8" Flange Hex Nut Gr 5 NC

<b>Blade Assembly - Shipment includes one of the following</b>		
Qty	PN	Description
1	15-10300-60	6 ft. Moldboard
1	15-10300-70	7 ft. Moldboard
1	15-10300-80	8 ft. Moldboard
1	15-10300-90	9 ft. Moldboard
1	15-10300-100	10 ft. Moldboard

# General Information

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Locate the Belly Blade assembly identification number and record the information on the front of this manual. This will be needed when contacting any service center or your dealer.



## Using Your Manual

Read this manual completely prior to assembling to help you and others avoid injuries. This manual provides information on the proper way of installing the Belly Blade to prevent injuries and any machine damage.

These instructions show the Belly Blade installation process with the tractor on a hoist. All references to the tractor or undercarriage are taken from the view at the tractor's seat.

Your machine may vary slightly from the machine in this manual, but the same installation procedure will be compatible.

## Important Messages

This manual contains messages that will bring attention to potential safety concerns and machine damage. Read all of the information carefully and thoroughly to avoid injury and machine damage. Below is an example.

⚠Caution⚠

Avoid Injury! This text will explain the possible hazards or death to the bystanders or the operator if the correct procedures are ignored.

## Safety Information

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1. Wear protective eye wear.
2. Always block tractor safely.
3. Engage parking break before raising the tractor.
4. Follow all tractor manufacturing safety recommendations when working on the tractor.

## Accident Prevention

An accident prevention program can be successful when a responsible equipment operator is cooperating. An operator can prevent accidents when they accept a full measure of their responsibility. The designers, manufacturers, and engineers can help, but a single careless act by the operator can outweigh all of their efforts.

No equipment can be safer than the person running the controls. A careful, informed operator is the best safety device.

# Preparing Tractor For Installation

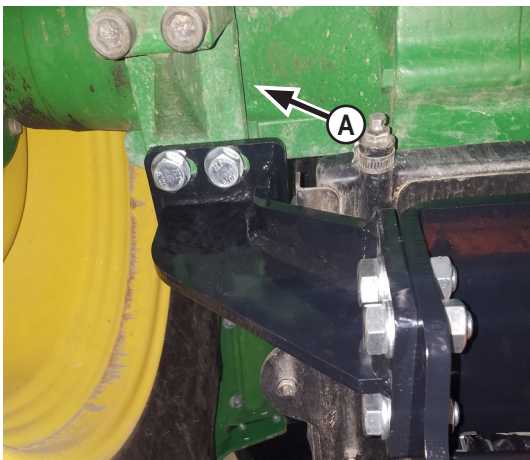
1. Park the tractor on a smooth, level surface.
2. Set parking brake and block front tires to keep from rolling.
3. Disconnect the battery.

**Note:** To ease assembly, remove rear tires and support the tractor safely.

**IMPORTANT:** Raise the tractor high enough for the undercarriage to fit under the rear axle when installing the undercarriage.

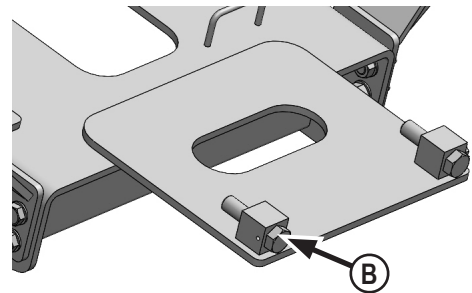
4. The Belly Blade will arrive on a pallet. Unwrap and set the blade aside. Remove the undercarriage assembly from the pallet.
5. Check the inventory and ensure that all parts are included with the Belly Blade Kit. If any parts are missing, contact your dealer.
6. If the rear tires are not removed, raise the back of tractor, and place blocks safely underneath the tractor tires or use an appropriate hoist. Keep enough distance between the blocks, so the undercarriage will fit.
7. If the rear tires are removed, raise the back of the tractor and use jack stands that are recommended for your tractor to support the tractor safely. Keep enough distance between the jack stands, so the undercarriage will fit.

## Bracket Installation



8. Remove front two bolts from 3-point hitch brace on right and left rear axle. Attach rear brackets with 2 - 20mm x 80mm bolts and 2 - 20mm flat washers (A).

**Note:** Verify the correct orientation of the rear brackets. Refer to diagram on Page 12-13.



9. Completely thread 2 - 1" x 2" adjustment bolts at rear or undercarriage with heads facing away from undercarriage. The bolts will be adjusted after undercarriage is installed. (B).

# Installing Undercarriage

**NOTE:** When jacking up the undercarriage, make sure to not jack too high or you may hit other parts of the tractor.

**NOTE:** When raising the undercarriage, properly guide the hoses to avoid pinching them between the tractor frame and the undercarriage.



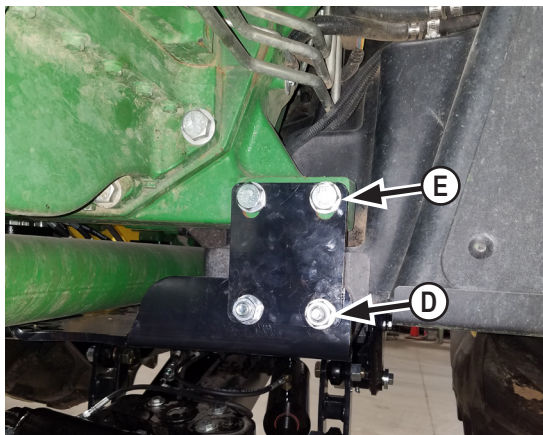
**10.** Align the undercarriage behind the tractor and guide the undercarriage under the tractor.

**11.** Raise the undercarriage up to the installed tractor brackets and the tractor frame. Line up the undercarriage to the corresponding holes on the installed brackets.

**Note:** Do Not tighten bolts until all mounting bolts have been installed.



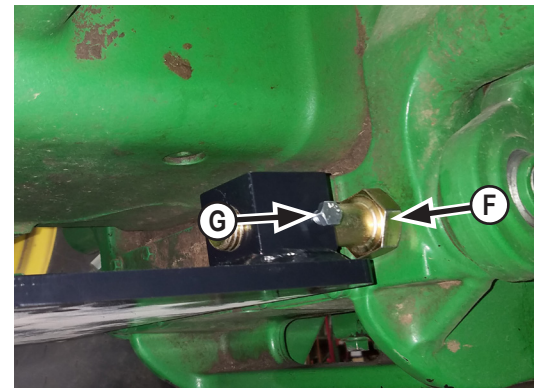
**12.** Use 8 - 20mm x 50mm bolts, 16 - 20mm flat washers and 8 - 20mm nuts (**C**) to attach rear brackets to undercarriage.



**13.** Attach front plate to front of undercarriage with 4 - 3/4" x 2" carriage bolts, 4 - 3/4" flat washers and 4 - 3/4" nuts. Install carriage bolts from undercarriage side (**D**).

**14.** Attach front plate to tractor with 4 - 20mm x 50mm bolts and 8 - 20mm washers (**E**).

**15.** Torque all fasteners to the correct specifications listed on Page 2 after all bolts and nuts have been installed.



**16.** Evenly unscrew 1" bolts at rear of undercarriage to push against rear of tractor. Torque 1" bolts to 90-95 ft-lbs (**F**).

**17.** Install 2 - 5/16" x 3/4" bolts into blocks at rear of undercarriage to lock 1" bolts. Torque 5/16" bolts to 19 ft-lbs (**G**).

# Plumbing

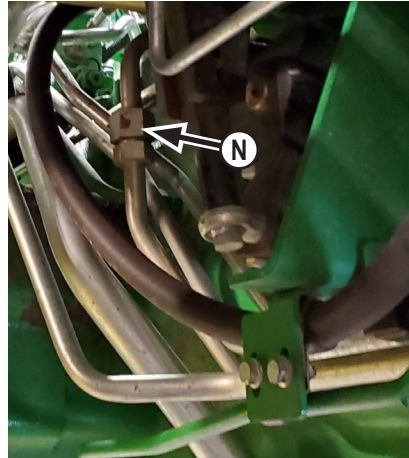
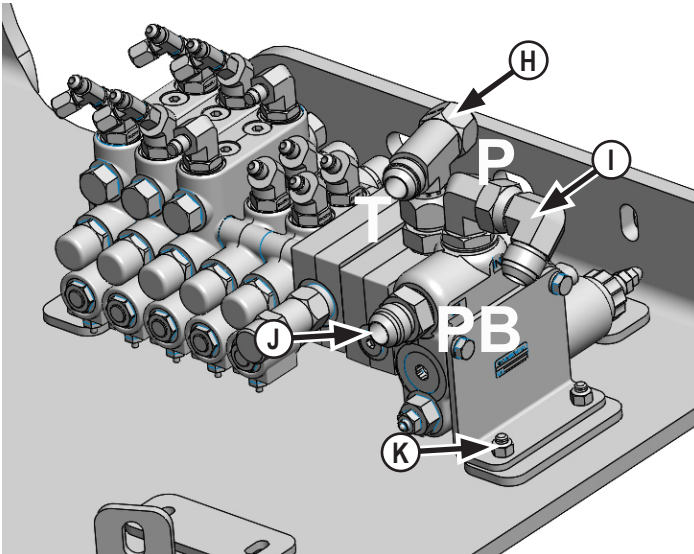
- Note:** 1. Have a catch pan available to collect hydraulic oil when removing hydraulic lines.  
2. Before removing any hydraulic lines, release all hydraulic pressure with the engine off.



## Caution

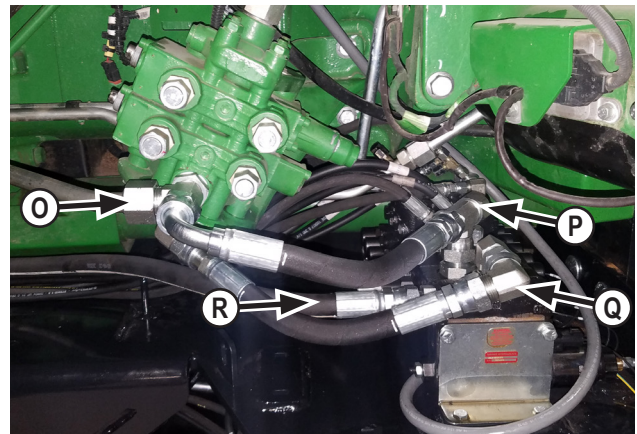
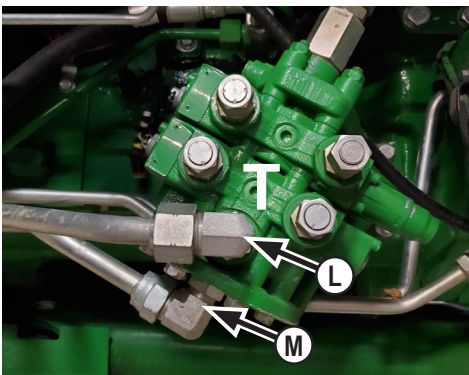


Avoid injury! Hydraulic oil that is under pressure will penetrate the skin and cause a serious injury. If this occurs, it needs to be surgically removed by a doctor familiar with this type of injury within a few hours or gangrene may result.



- 18.** Install a straight fitting and JIC swivel T-Fitting into Tank Port on valve (**H**).
- 19.** Install a 90° fitting and JIC swivel 90° fitting into Pressure In Port on valve (**I**).
- 20.** Install a straight fitting into Power Beyond Port on valve (**J**).
- 21.** Attach valve to top of right side of undercarriage with 4 - 5/16" x 1" bolts, 4 - 5/16" washers and 4 - 5/16" nyloc nuts (**K**).

**23.** Remove steel line from the bottom of the mid mount valve (**M & N**). Turn the 90° fitting until it is pointing away from the center of tractor.



**22.** Remove the fitting from the steel line and the Tank Port on the mid mount valve (**L**) located under the operator platform..

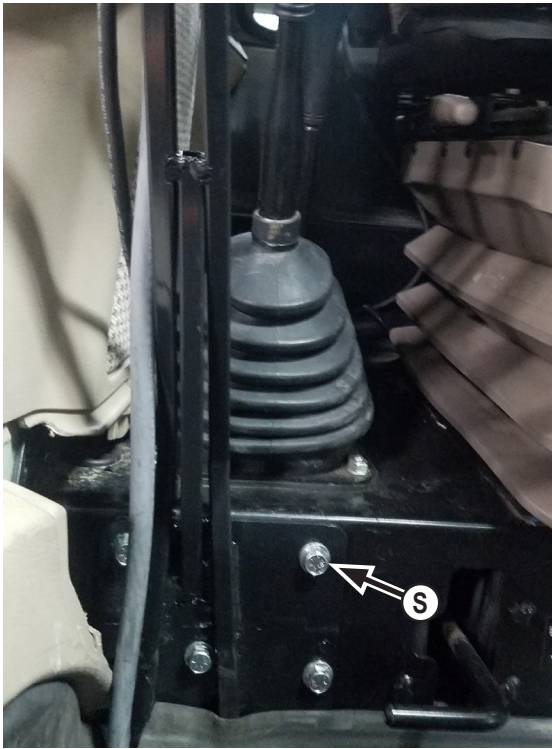
**24.** Install a O-Ring Face Seal T-fitting into the Tank Port on the mid mount valve. Reattach the steel line to one open end of the T-fitting (**O**).

**25.** Install the 13" hose from the t-fitting on the mid mount valve to the T-fitting (**Tank Port**) on the belly blade control valve (**P**).

**26.** Install the 13" hose from the 90° fitting on the bottom of mid mount valve to the 90° fitting (**Pressure Port**) on the belly blade control valve (**Q**).

**27.** Install the 52" hose where the steal line was removed in front of rear axle in Step #23 and attach to straight fitting (**Power Beyond**) on the belly blade control valve (**R**).

# Electric Valve Control Box



28. Attach Controller bracket in cab in front of platform by drilling 4 holes and using 4 - 3/8" x 1" flange bolts and 4 - 3/8" flange nuts (S).



30. Attach the power cord from valve controller to auxiliary power socket (U).

31. Run wire harness to electric valve. Connect colored wires from harness to their corresponding port on back of electric valve. Refer to diagram on Page 13 -14.

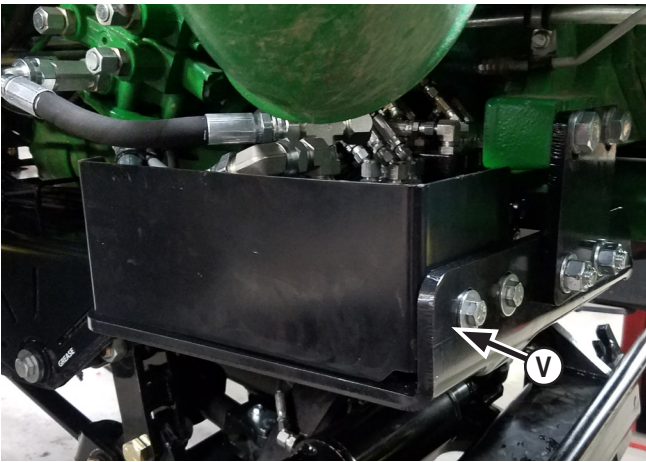


29. Attach controller to bracket with 2 - 5/16" x 1" bolts, 4 - 5/16" washers and 2 - 5/16" nyloc nuts (T).



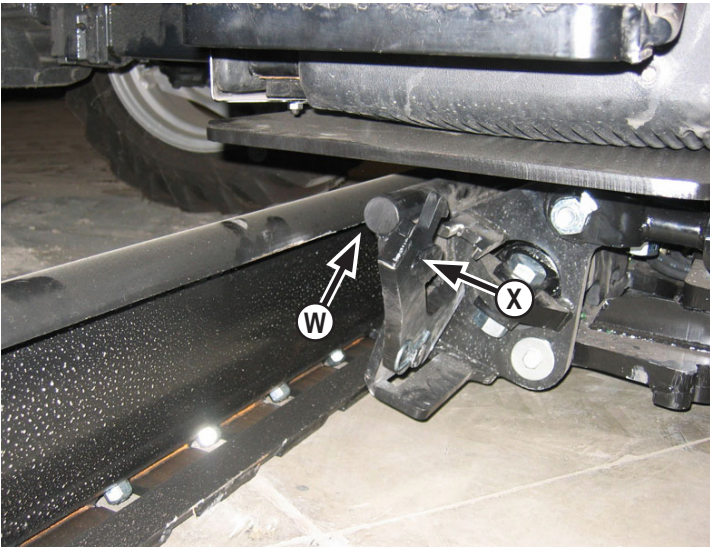
# Valve Cover

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- 32.** Attach valve cover to undercarriage with 3 - 1/2" x 1-1/4" bolts, 6 - 1/2" flat washers, and 3 - 1/2" lock nuts (**V**).
  - 33.** After all hoses are in place, group hoses together and secure hoses with zip ties.
  - 34.** Reconnect the battery.
  - 35.** Reinstall tires on the tractor, lower the tractor and remove the jacks.
  - 36.** Start the tractor and run the controls to check for any leaks.
- Note:** Watch the blade carefully for any collisions when running the controls.
- 37.** Check hydraulic oil level after all cylinders have been cycled. Add hydraulic oil if necessary.

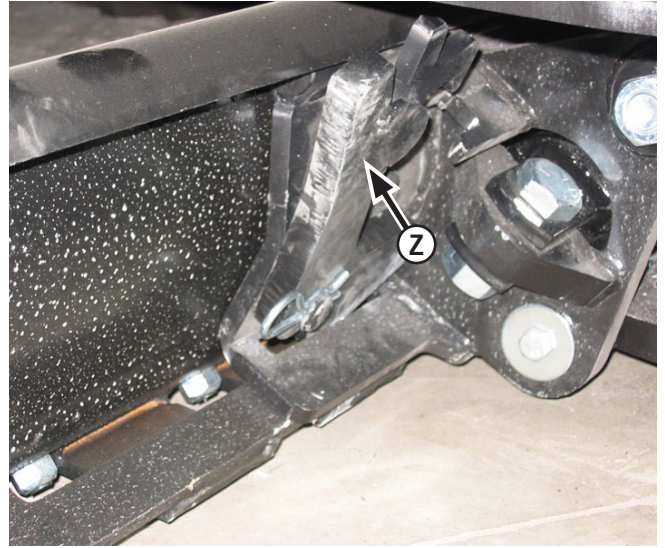
# Blade Installation



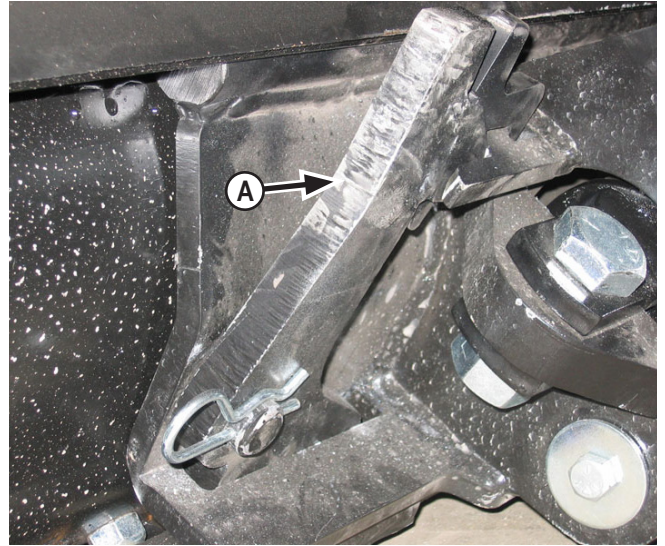
**38.** Slide blade under tractor until the quick attach is in line with the center of the blade (**W**). Make sure that the quick attach locking levers are still up (**N**).



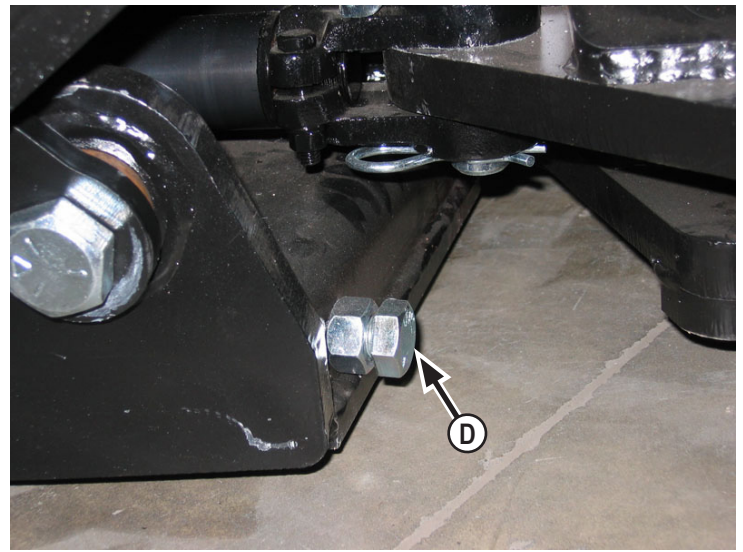
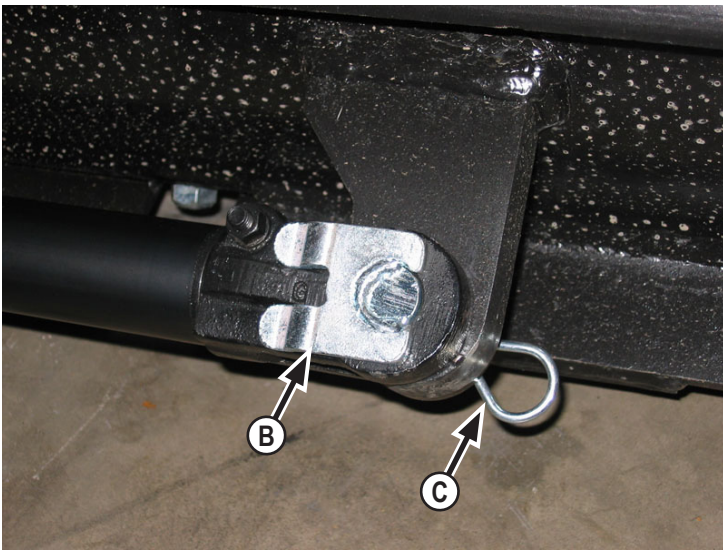
**39.** Pitch the male quick attach forward. Position the blade so the top round bar will hook under blade lip (**O**).



**40.** Pitch the male quick attach back to lift the blade off the ground (**Z**).

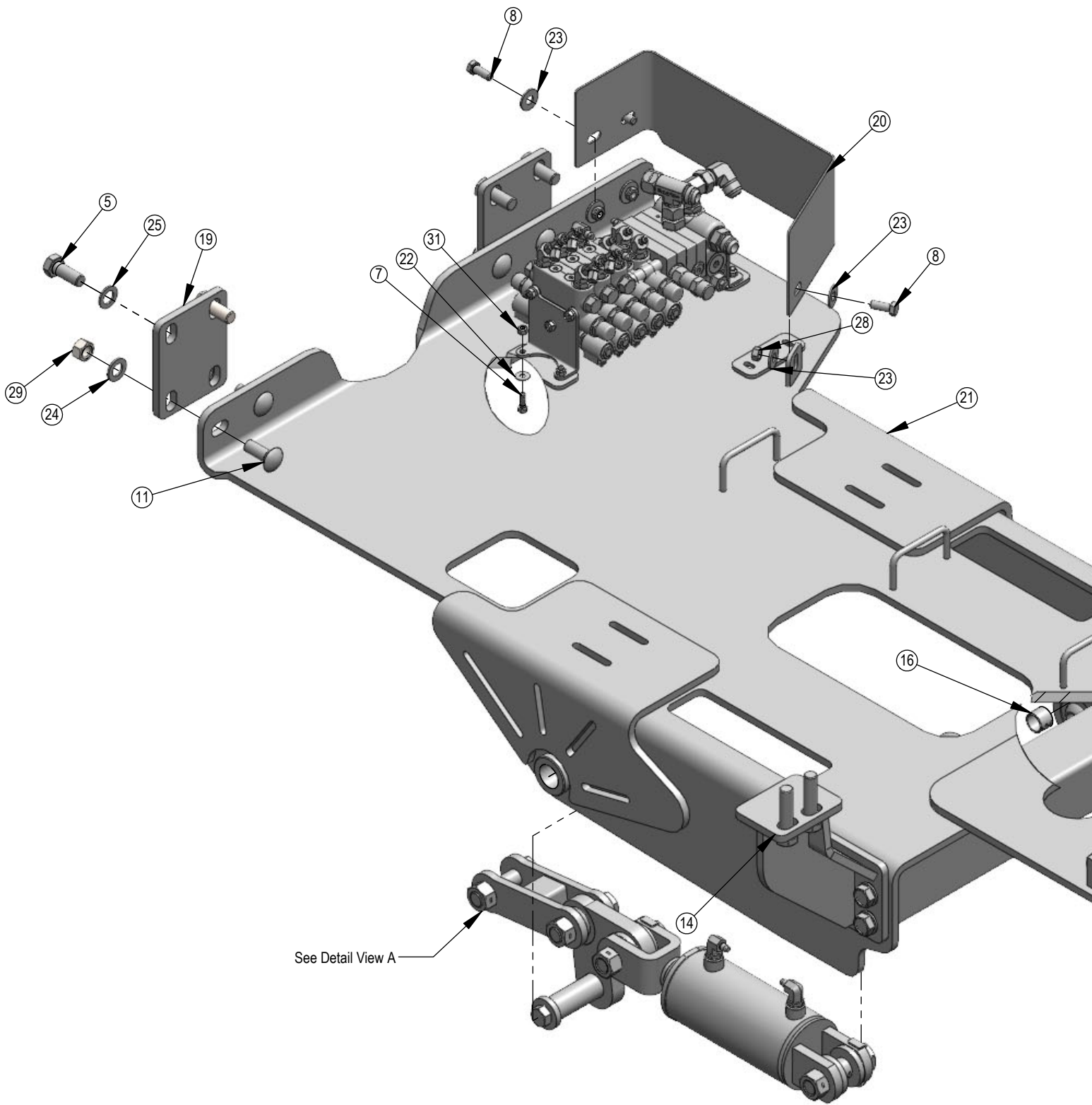


**41.** Lock the quick attach lever on each side (**A**). Verify that the lever engaged the corresponding slot on the bottom of the blade.

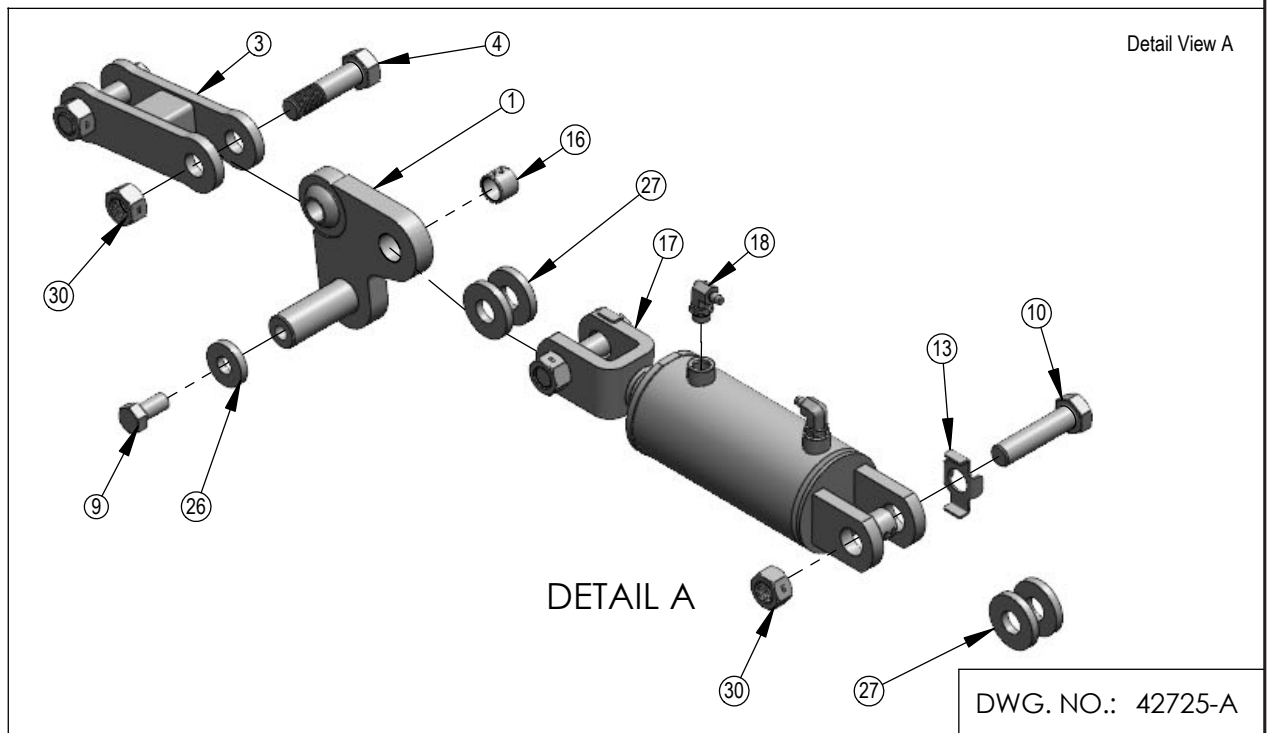
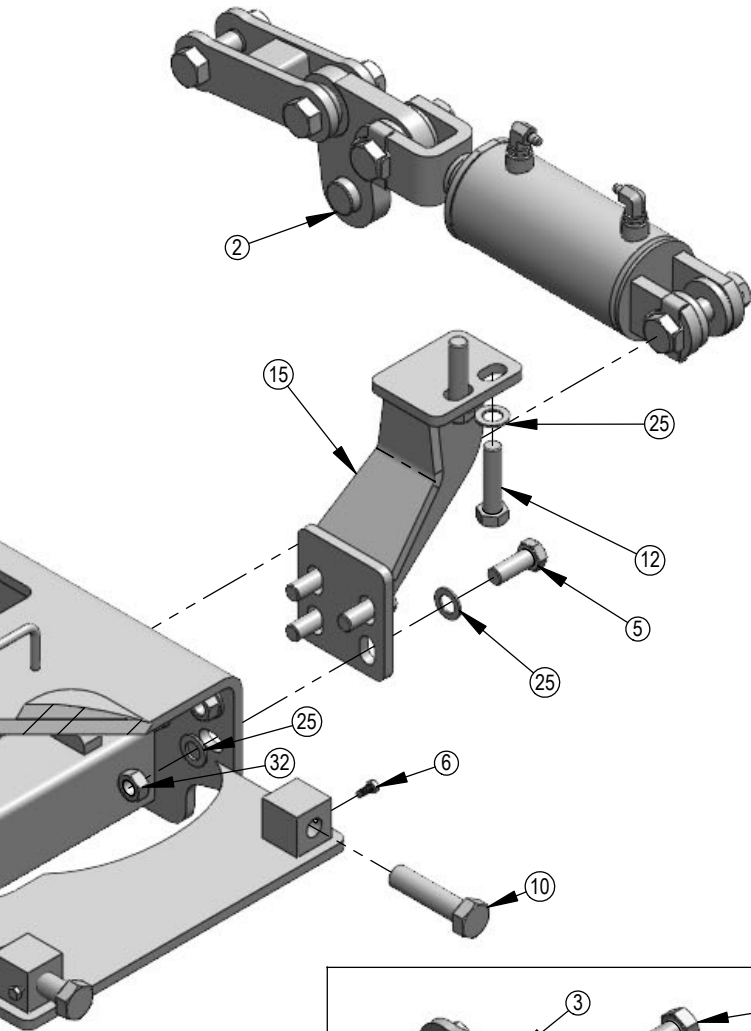


- 42.** Extend the side shift cylinder out to the cylinder connector. Insert pin **(B)** and the clip pin on the bottom **(C)**.
- 43.** After mounting the blade, apply up and down pressure to verify proper blade installation.
- 44.** Cycle through blade functions checking for interferences.

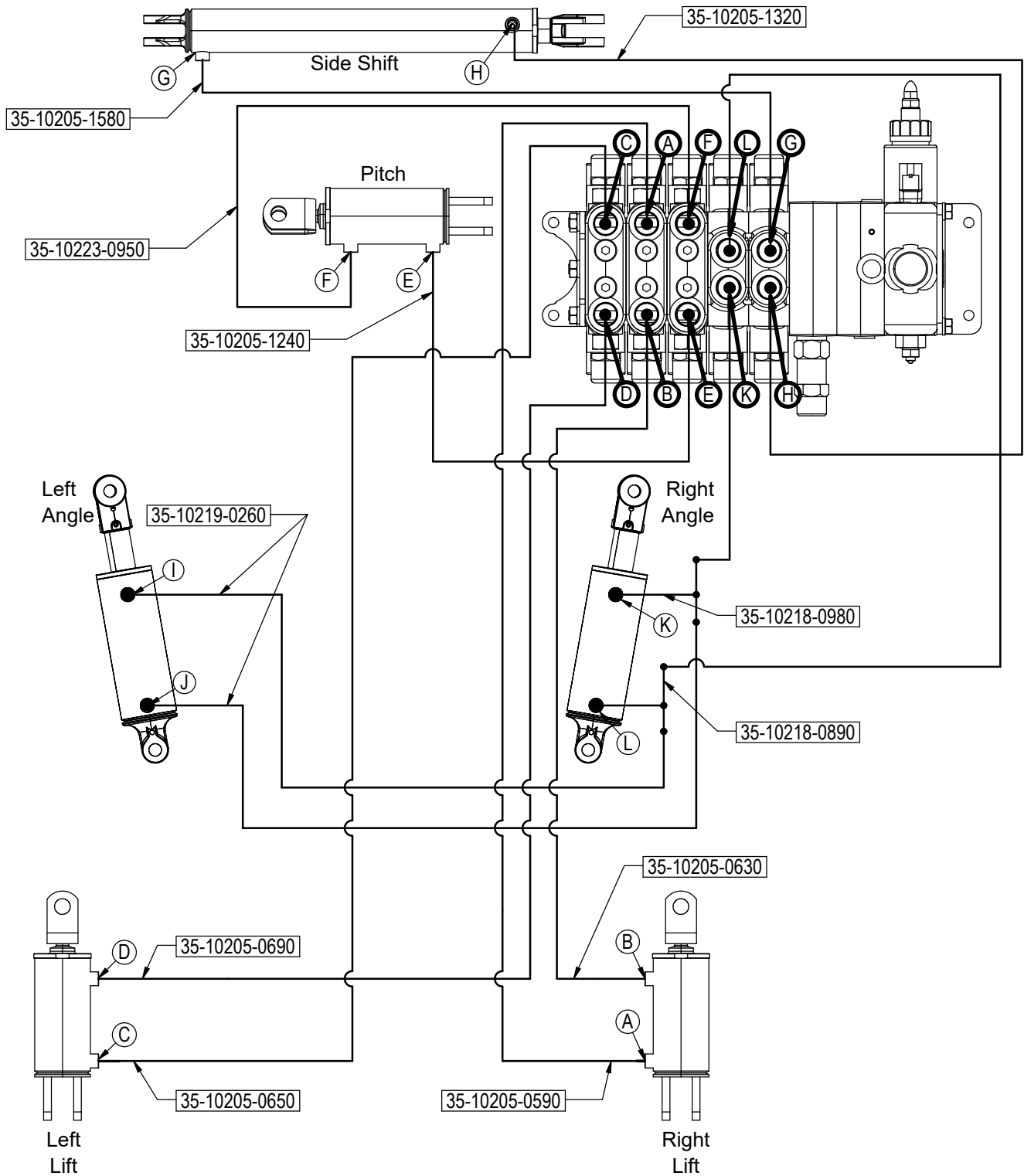
- 45.** Adjust angle stops **(D)** so blade does not interfere with tires during angle of blade. Use a wrench to loosen the nut and to the turn the bolt either in or out depending if the blade is hitting the tire. After adjustment, tighten the nut.
- 46.** Tractor and blade are ready for use. Refer to the blade operator's manual for safety, operation, and maintenance information.



ITEM NO.	Qty.	PART NO.	DESCRIPTION
1	1	11-10400-L	Arm Weld Left
2	1	11-10400-R	Arm Weld Right
3	2	11-10410	Arm Weld
4	4	16-10165	1" x 3-3/4" Hex Bolt Gr.5 NC
5	12	16-1878	20mm x 2.5mm x 50mm Hex Bolt Gr 10.9
6	2	16-20032	5/16" x 3/4" Hex Bolt Gr 5 NC
7	4	16-20034	5/16" x 1" Hex Bolt Gr 5 NC
8	3	16-20125	1/2" x 1-1/4" Hex Bolt Gr 5 NC
9	2	16-20216	3/4" x 1-1/2" Hex Bolt Gr 5 NC
10	6	16-20566	1" X 4" Hex Bolt Gr 8 NC
11	4	16-21218	3/4" x 2" Carriage Bolt Gr 5 NC
12	4	16-2488	20mm x 2.5mm x 80mm Hex Bolt Gr. 10.9
13	4	18-10430	Bracket, NR 1.00" Bolt
14	1	18-42730-L	Bracket, Rear
15	1	18-42730-R	Bracket, Rear
16	4	19-7774	1" x 1" Spring Bushing
17	2	26-34731	4 x 5 Cylinder Clevis Ends
18	4	31-34049	Straight Thread Elbow 90° JIC x O-Ring (6801-4-8)
19	2	44-42735	Plate, Front
20	1	44-42736	Plate, Valve Cover
21	1	54-42725	JD 6E Series UC
22	4	57-20741	5/16" Flat Washer
23	6	57-20744	1/2" Washer
24	4	57-20757	3/4" Flat Washer - 1-1/2" OD
25	24	57-20827	20mm Flat Washer
26	2	57-3680	0.75" ID x 2.00" OD x .375" Heavy Washer
27	8	57-3682	1.00" ID x 2.50" OD x .375" Heavy Washer
28	3	70-20604	1/2" Center Lock Hex Nut
29	4	70-20607	3/4" Center Lock Hex Nut Gr 2 NC
30	8	70-20609	1" Hex Top Lock Nut Gr.2 NC
31	4	70-20611	5/16" Nyloc Hex Nut Gr. 5
32	8	70-20872-10	20mm Hex Nut 2.5 Pitch Class 10



# Hydraulic Schematic



## Color Designation for Wire Harness

A = Right Lift Base = Black/Red  
 B = Right Lift Rod = Blue/Black  
 C = Left Lift Base = Blue  
 D = Left Lift Rod = Orange  
 E = Pitch Base = Red/Black  
 F = Pitch Rod = Brown/Black

G = Side Shift Base = Brown  
 H = Side Shift Rod = Yellow/Black  
 K = Angle Rod = Orange/Black  
 L = Angle Base = Yellow



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## Contact Us

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As always, if you have any questions about your Belly Blade or other products made by Grouser, feel free to contact us.

### **Grouser Products**

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**Website:** [www.grouser.com](http://www.grouser.com)

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## Improvements

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Grouser Products Inc. is continually striving to improve its products. We reserve the right to change prices, specification, or equipment at any time without notice. We also reserve the right to make improvements or changes when it becomes practical and possible to do so without incurring any obligation to make changes or additions to the equipment sold previously.

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## Warranty

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Grouser Products warrants to the original purchaser of each item that the product be free from defects in material and workmanship under normal use and service for a period of two years from date of original retail delivery. If such equipment is found to be defective within two years, it is the obligation of Grouser Products under this warranty to repair or replace (exclusive of the cost of labor and transportation), any equipment or parts, in the judgment of Grouser Products to be defective in material or workmanship.

All equipment or parts claimed to be defective in material or workmanship must be made available for inspection at the place of business of a dealer authorized to handle the equipment covered by this warranty, or, upon request by Grouser Products, shipped to the Grouser Products factory in West Fargo, North Dakota. Grouser Products shall have no obligation to bear the cost of labor or transportation in connection with replacement or repair of any such defective parts in the setup process.

This warranty covers only defects in material and workmanship. It does not cover depreciation or damage caused by normal wear, accident, improper assembly, improper adjustments, improper maintenance including lack of proper lubrication, or improper use. Therefore, Grouser Products liability under this warranty shall not be effective or actionable unless the equipment is assembled, maintained and operated in accordance with the operating instructions accompanying the equipment. Grouser Products shall have no liability if the equipment has been altered or reworked without the written authorization of Grouser Products.

Grouser Products' parts, which are furnished under this warranty and properly installed, shall be warranted to the same extent as the original parts under this warranty if, and only if, such parts are found to be defective within the original warranty period covering the original equipment.

