



Belly Blade

Installation Instructions

New Holland TC 40 & TC 45
Case DX 40 & DX 45
Loader/No Loader

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

Assembly Parts:

Qty	PN	Description
3	16-20062	3/8" x 3/4" Hex Bolt Gr 5 NC
8	16-20190	5/8" x 2-1/2" Hex Bolt Gr 5 NC
2	16-20218	3/4" x 2" Hex Bolt Gr 5 NC
1	17-11457	Valve Mount
1	18-10248	2-1/2" U-bolt Clamp Assembly
5	39-10199	Belly Blade Control Handles
1	43-7767	Cylinder Hitch Pin Clip
1	43-7995	Pin 1" x 2.125"
1	54-10595-A	Undercarriage Assembly
1	56-10280-B	Belly Blade Valve System
8	57-11324	2 Hole Washer
3	57-20762	3/8" Lock Washer
10	59-34950	Zip Ties (large)
8	70-20606	5/8" Hex Center Lock Nut Gr 5 NC
2	70-20607	3/4" Hex Center Lock Nut Gr 5 NC

Loader Parts:

Qty	PN	Description
1	16-20124	1/2" x 1" Hex Bolt Gr 5 NC
1	18-11454	Valve Support Bracket
1	31-34081	Swivel Nut Branch Tee JIC (6600-10-10-10)
1	31-34100	Swivel Nut Elbow 90° JIC (6500-8-8)
1	31-34159	Male Connector JIC x Pipe (2404-8-6)
1	35-10207-0270	27" x 1/2" Hydraulic Hose -8-10
1	35-10204-0270	27" x 5/8" Hydraulic Hose -10-10
1	35-10204-0470	47" x 5/8" Hydraulic Hose -10-10
1	35-10207-0600	60" x 1/2" Hydraulic Hose -8-10
1	35-10207-0720	72" x 1/2" Hydraulic Hose -8-10
1	70-20584	1/2" Hex Nut Gr 5 NC

NOTE: The 27" x 1/2" hose (PN: 35-10207-0270) is included in this kit for tractors that have a -8 fitting on the loader control valve.

No Loader Parts:

Qty	PN	Description
8	16-1620050	16mm x 2.00mm x 50mm Metric Hex Bolt Gr 10.9 NC
1	18-11332	No Loader Support Bracket (Left)
1	18-11333	No Loader Support Bracket (Right)
1	18-11453	No Loader Valve Support Bracket
2	31-34101	Swivel Nut Elbow 90° JIC (6500-10-10)
3	31-34161	Male Connector JIC x Pipe (2404-10-6)
3	35-10204-0540	54" x 5/8" Hydraulic Hose -10-10
7	57-20746	5/8" Flat Washer

Blade Assembly - Shipment includes one of the following

Qty	PN	Description
1	15-10300-6	6 ft. Moldboard
1	15-10300-7	7 ft. Moldboard
1	15-10300-8	8 ft. Moldboard
1	15-10300-9	9 ft. Moldboard
1	15-10300-10	10 ft. Moldboard

General Information

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



Using Your Manual

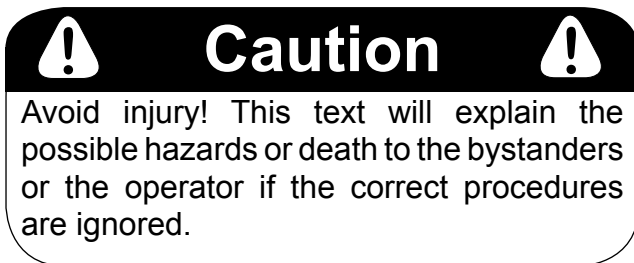
Read this manual completely prior to assembling to help you and others avoid injuries. This manual provides information on the proper way of installing the Belly Blade to prevent injuries and any machine damage.

This manual shows the Belly Blade installation process with the rear tires removed from the tractor. 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.



Safety Information

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

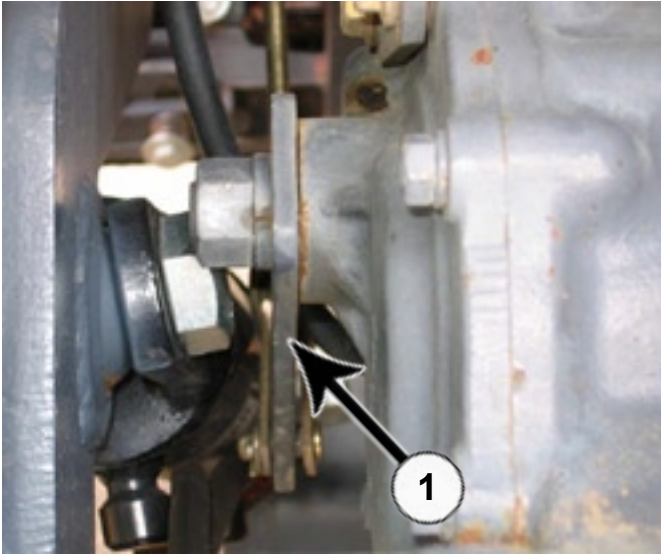
Accident Prevention

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.

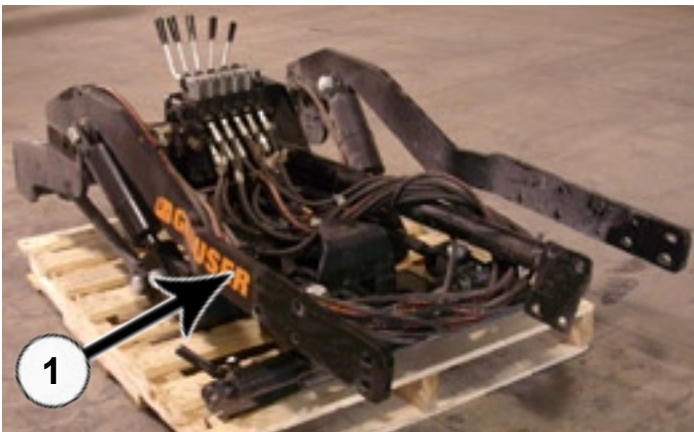
No equipment can be safer than the person running the controls. A careful, informed operator is the best safety device.

Preparing Tractor For Installation

1. Park the tractor on a smooth, level surface.
2. Disconnect the battery.



3. Remove the brake actuator lever (1). The brake actuator lever is located near the rear axle. Bend the brake actuator lever on each size 1" towards the center to allow enough room for the undercarriage to fit. Reinstall brake actuator lever.
4. Set parking brake and block front tires to keep the tractor from rolling.
5. Remove step on right side of tractor.



6. The Belly Blade will arrive on a pallet. Unwrap and set the blade aside. Remove the undercarriage assembly from the pallet (1).
7. Check the inventory and ensure that all parts are included with the Belly Blade Kit. If any parts are missing, contact your dealer.

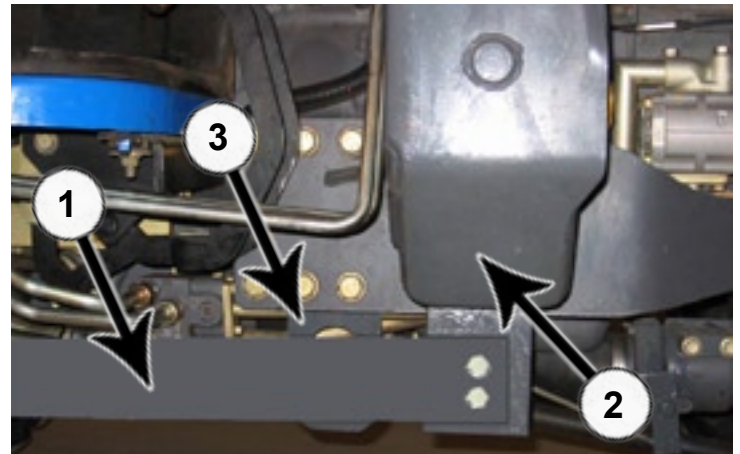
NOTE: To ease assembly, remove rear tires and support the tractor safely.

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

8. 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.

9. 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.

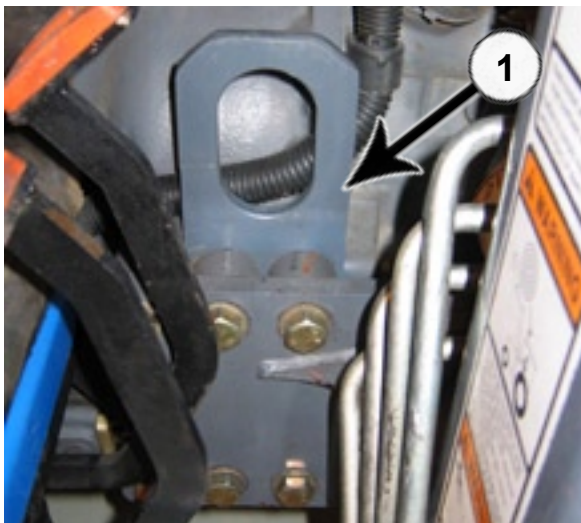
NOTE: If tractor does not have a loader, skip to Step #14 on Page 6. If tractor has a loader, continue with Step #10.



10. Remove the front loader from the tractor. Remove front loader arm brace on the right side of the tractor (1).

NOTE: If chain hook (3) is not present, skip Steps #11-13.

11. Remove the right, front loader mount (2) to gain access to the chain hook (3).

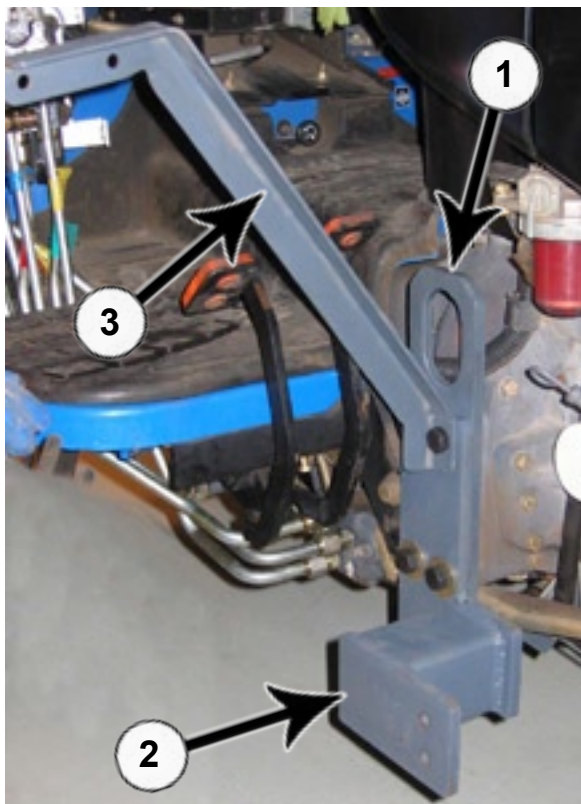


12. Rotate the chain hook 180° so that the slot is up instead of down (1). The chain hook may hit the Belly Blade assembly if not turned up.

13. Reinstall the front loader mount.

NOTE: Continue Installation on Page 8 with Step #22.

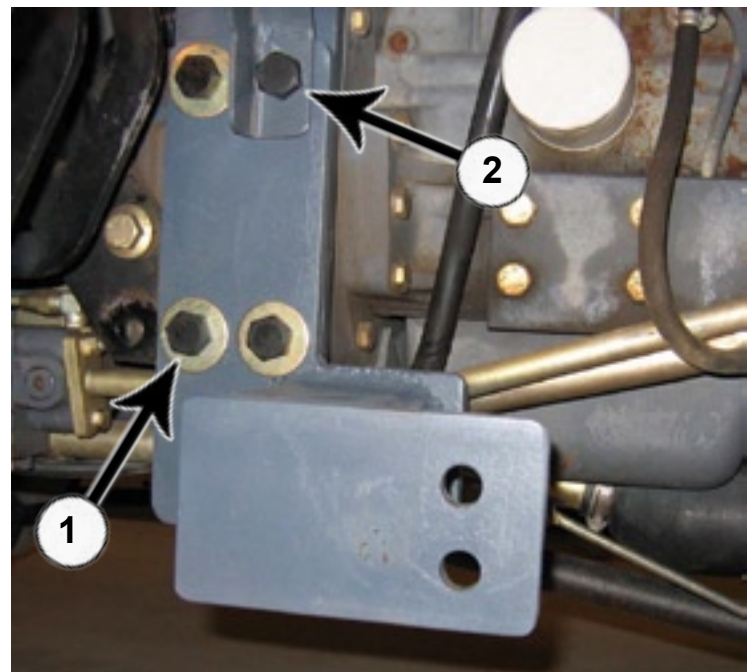
No Loader Bracket Installation



14. Remove and discard factory bolts from the spacer located on the right side of tractor.

NOTE: If a chain hook is present, rotate chain hook 180° so that the slot is up instead of down (1). The chain hook may hit the belly blade assembly if not turned up.

15. Install the right support and valve mount brackets. The spacer goes on first, then the right support bracket (2) (PN: 18-11333), and finally the valve mount bracket (3) (PN: 18-11453).



16. Use three 16mm x 2.00mm x 50mm bolts (PN: 16-1620050) with three washers (1) (PN: 57-20746) to attach the right support bracket along with the spacer to the tractor. Use one 16mm x 2.00mm x 50mm bolt with NO washer (2) to attach the valve mount bracket along with the right support bracket and chain hook. This is attached at the top right hole.

17. Attach the left support bracket (PN: 18-11332) on the left side of the tractor with four 16mm x 2.00mm x 50mm bolts (PN: 16-1620050) and four washers (PN: 57-20746).

Plumbing (without Factory Loader)

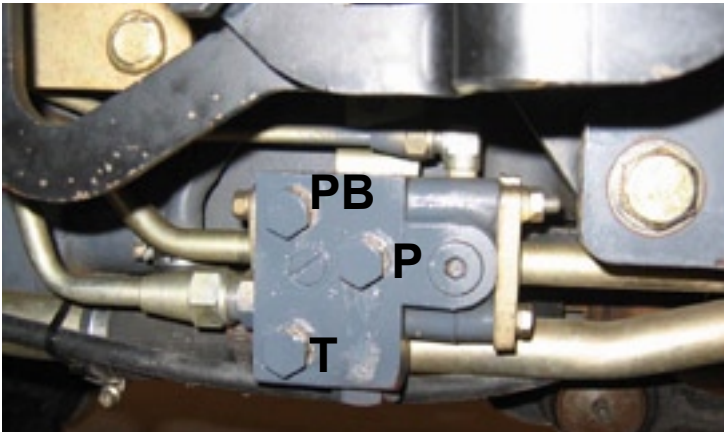
- NOTE:** 1. Have a catch pan available to collect hydraulic oil when removing hydraulic lines.
2. Release all hydraulic pressure before removing any lines.



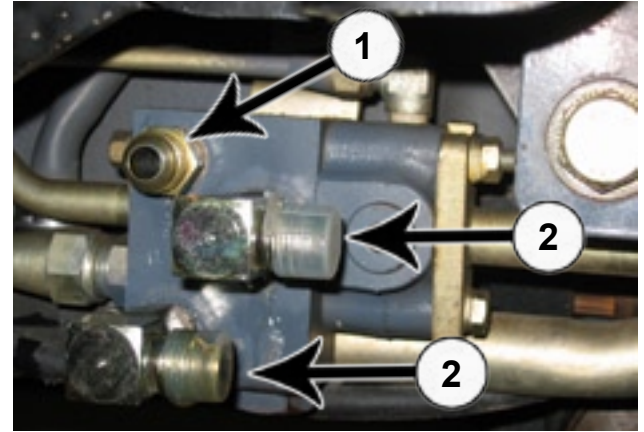
Caution



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.** Locate the P, PB, and T ports on the right side of tractor beneath the operator's platform.



NOTE: Use Loctite 569 Adhesive Thread Sealant or an equivalent.

- 19.** Install a straight fitting (1) (PN: 31-34161) in the PB port.

- 20.** Install two straight fittings (2) (PN: 31-34161) with two 90° swivel fittings (PN: 31-34101) in the P and T ports.

- 21.** Attach a 54" hose (PN: 35-10204-0540) to each fitting. Lay the other end of the hoses on the operator's platform to keep them out of the way for installing the undercarriage. They will be attached later in Step #47-49.

NOTE: Continue Installation on Page 9 with Step #30.

Plumbing (with Factory Loader)

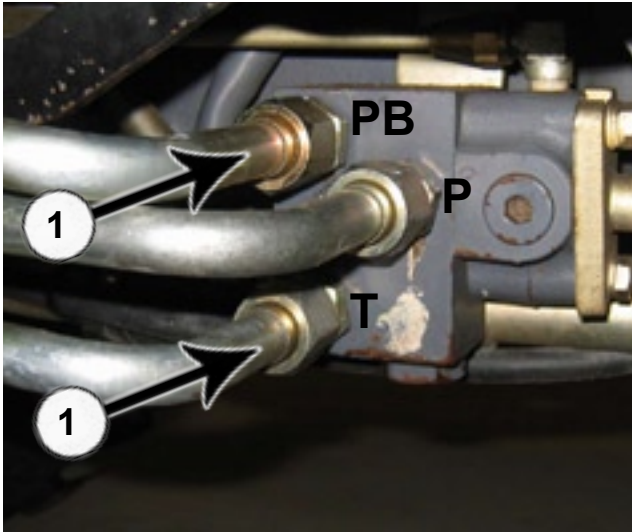
- NOTE:** 1. Have a catch pan available to collect hydraulic oil when removing hydraulic lines.
2. Release all hydraulic pressure before removing any lines.



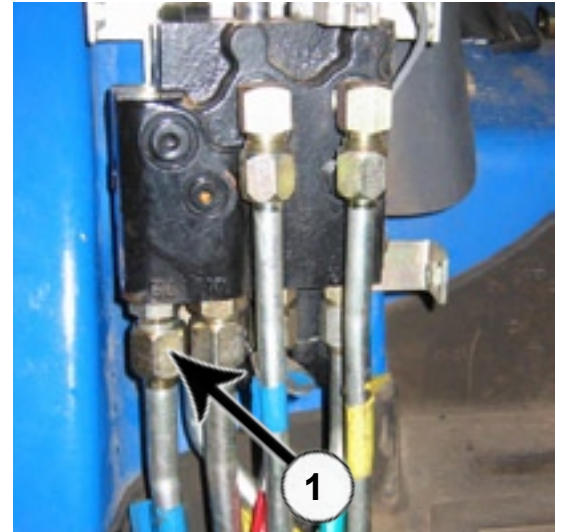
Caution



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.



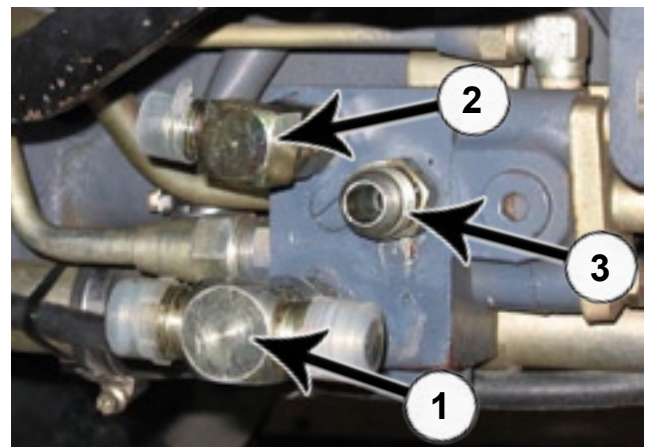
- 22.** Locate the three hydraulic lines on the right side of the tractor under the operator's platform. Disconnect the two hydraulic lines on the left (PB & T) (1).



- 24.** Remove the two corresponding hydraulic lines from the loader control valve (1). They were disconnected in Step #22. Set these aside. Keep them for when removing the Belly Blade.



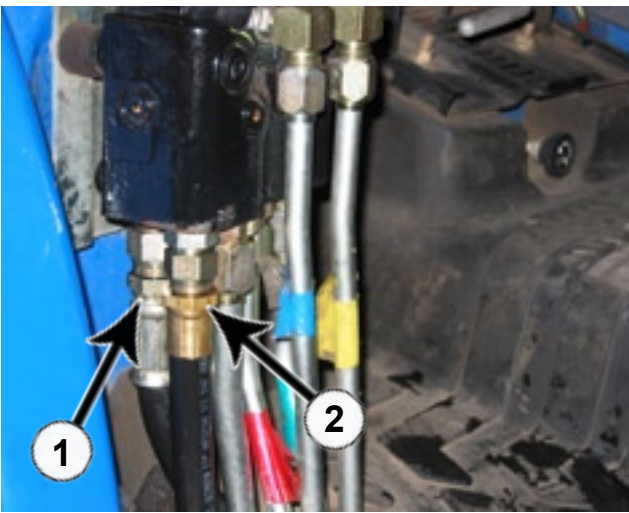
- 23.** Take off the cover (1) of the loader control valve to gain access to the factory loader hydraulic lines.



NOTE: Use Loctite 569 Adhesive Thread Sealant or an equivalent.

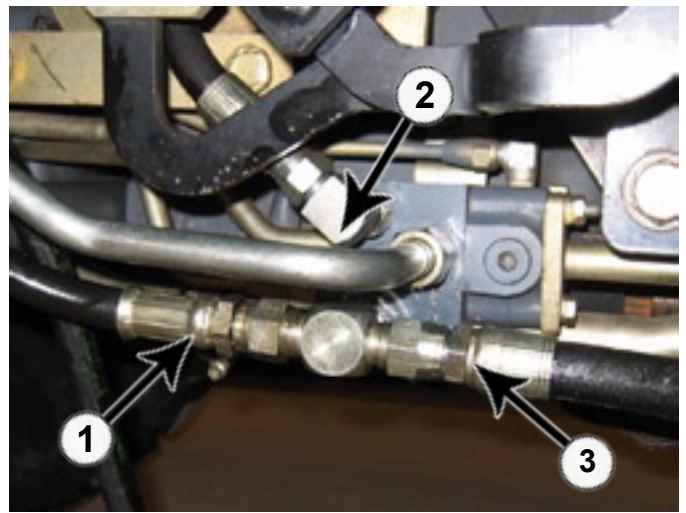
- 25.** Install a straight fitting (PN: 31-34159) with a 90° swivel fitting (PN: 31-34100) in the top (PB) port (2). Install a T-fitting (PN: 31-34081) in the bottom (T) port (1).

- 26.** The third hydraulic line was removed from the right (P) port for clarity, but it does **not** need to be removed for assembly (3).



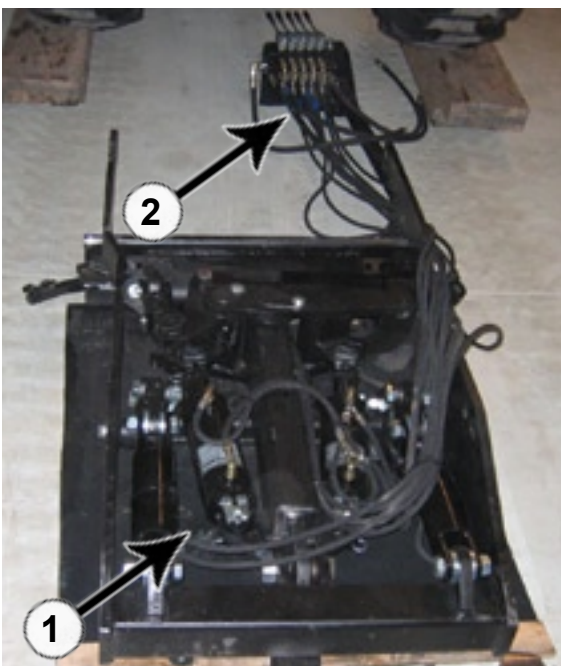
27. Attach one end of the 27" hose (1) (PN: 35-10204-0270) to the back port of the loader control valve on the tractor. The other end will be attached in Step #29.

28. Attach one end of the 60" hose (2) (35-10207-0600) to the front port, labeled PB, on the loader control valve of the tractor. The other end will be attached to the Belly Blade Control Valve (BBCV) later in Step #50.

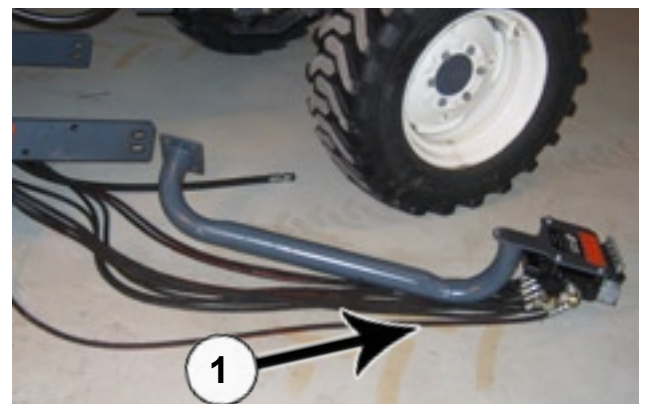


29. Attach the opposite end of the 27" hose to the left side of the T-fitting (1). Attach one end of the 72" hose (PN: 35-10207-0720) to the top 90° fitting (2). Attach one end of the 47" hose (PN: 35-10204-0470) to the right side of the T-fitting (3). Lay the other ends of all hoses on the operator's platform to be attached later in Step #51-52.

Placing Undercarriage Under Tractor



30. Align the undercarriage (1) behind the tractor. Lay out the valve and hoses in front of the undercarriage (2). The hoses should be over the right undercarriage arm.

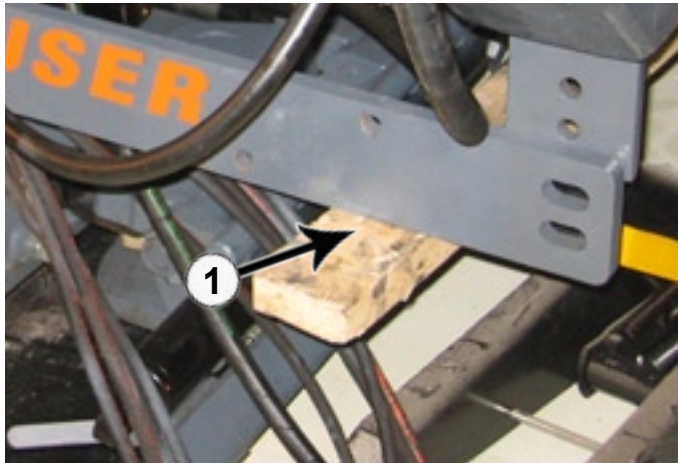


31. Guide the undercarriage and the valve stand under the tractor. Make sure the valve and valve stand exit the right side of the tractor (1).

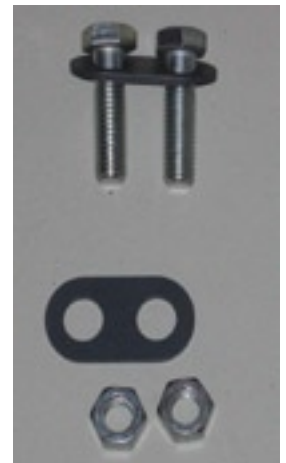
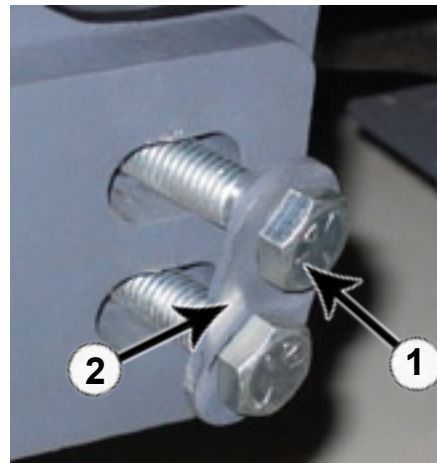
Installing Undercarriage

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.

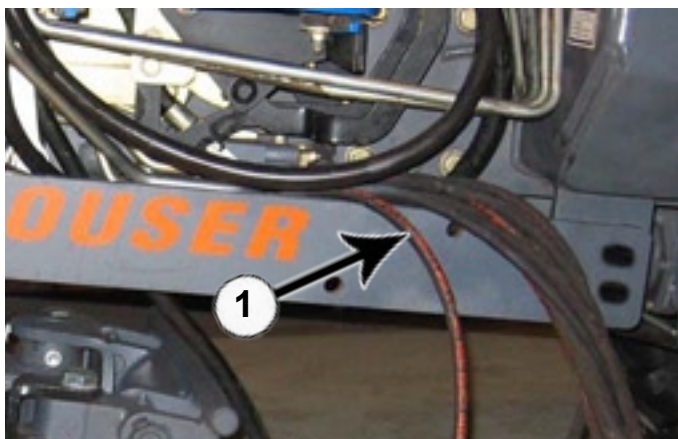


32. Place jacks under the undercarriage in the front and in the back. The use of a block in the front will ensure that both arms are raised at the same time (1). Lift until the undercarriage holes line up with the holes on the tractor bracket.



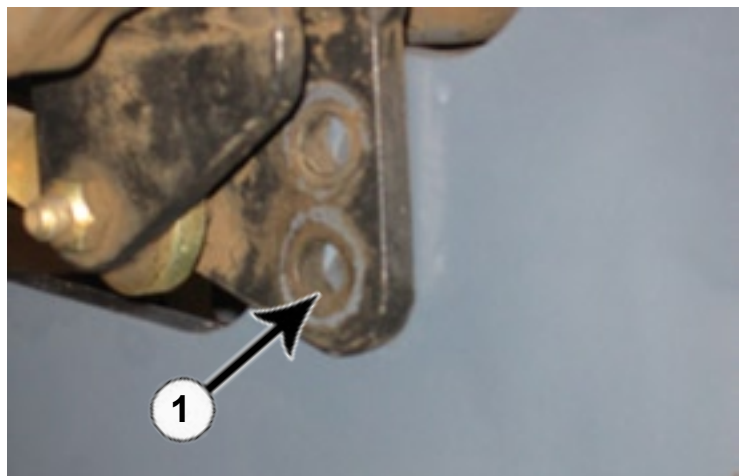
34. Once the front holes are aligned, insert two 5/8" x 2-1/2" bolts (1) (PN: 16-20190) with a 2 hole washer (2) (PN: 57-11324) into the left and right undercarriage arms. The washer is installed on the outside of the undercarriage arm.

35. Install a 2 hole washer and two 5/8" center lock nuts (PN: 70-20606) on the bolts.

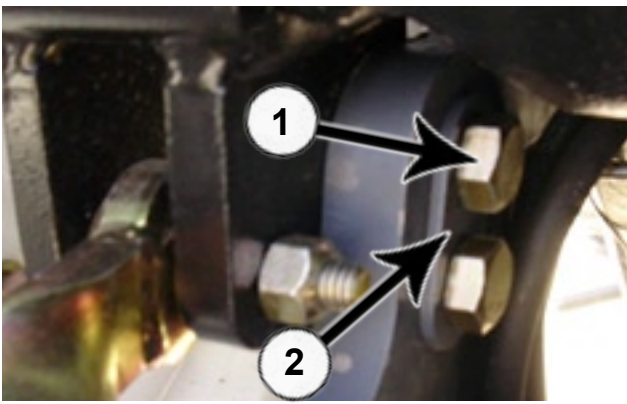


33. Verify that the control valve hoses are positioned over the top of the undercarriage arm (1).

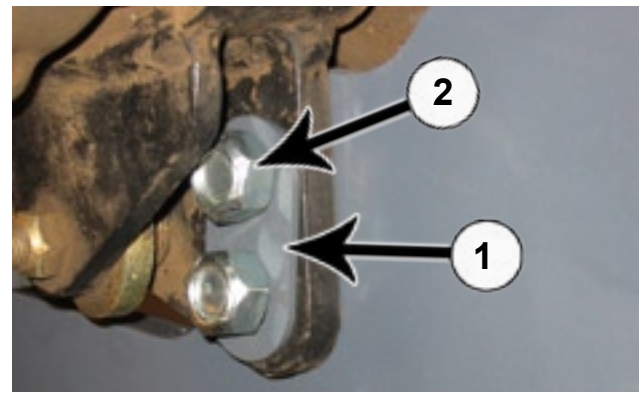
NOTE: Do not tighten until all mounting bolts have been installed.



36. Continue lifting the rear of undercarriage until the holes on the undercarriage line up with the holes on the tractor bracket (1).



37. For each side, insert two 5/8" x 2-1/2" bolts (1) (PN: 16-20190) with a 2 hole washer (2) (PN: 57-11324). The washer is to be on the outside of the undercarriage. Insert the bolts so the head is facing the inside of the tractor.



38. Put a 2 hole washer (1) (PN: 57-11324) and a 5/8" center lock nut (2) (PN: 70-20606) on the bolts. These will be on the outside of the tractor as shown in the pictures.

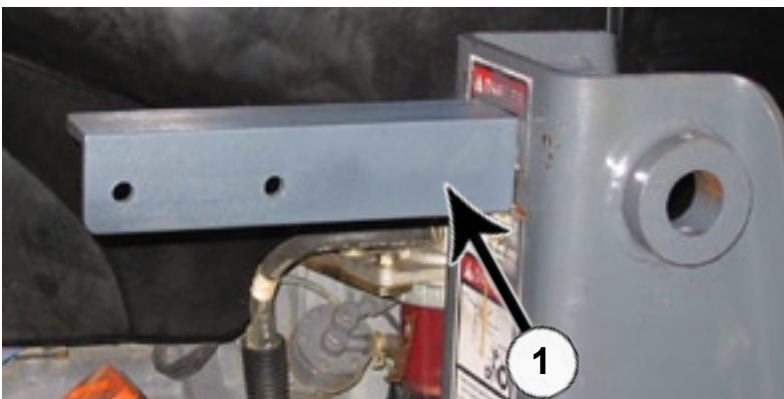
39. Torque all fasteners to the correct specifications after all 8 bolts and nuts have been installed.

40. Reinstall tires on the tractor, remove jacks, and lower the tractor. The undercarriage installation is complete.

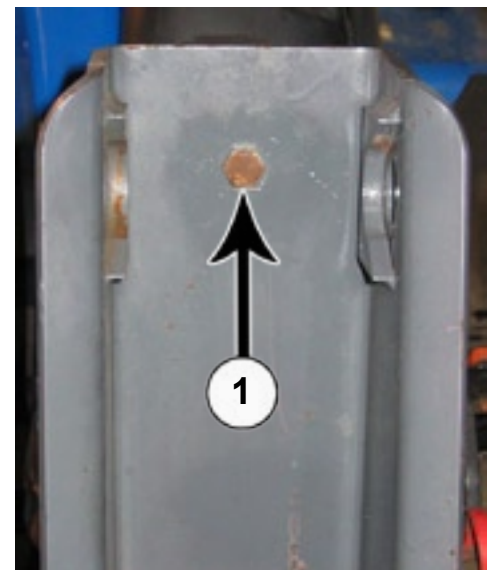
NOTE: If the tractor has 4 wheel drive, a cable is under the engine located by the drive shaft. Attach this cable to the tractor with zip ties to prevent it from catching on the Belly Blade.

NOTE: If tractor does not have a loader, skip to Step #42 on Page 12. If tractor has a loader, continue with Step #41.

Installing Valve Bracket Support (Factory Loader)

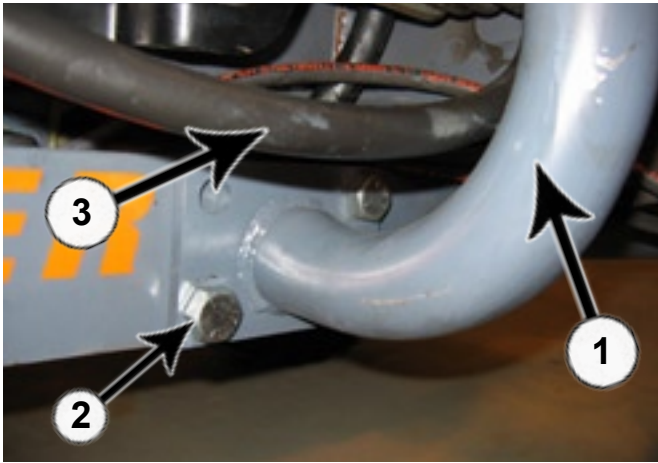


41. Attach valve support bracket (1) (PN: 18-11454) onto back side of loader bracket on the right side of the tractor with a 1/2" x 1" bolt (16-20124) and a 1/2" nut (PN: 70-20584). Install bolt from inside the loader bracket and the nut on the valve support side.

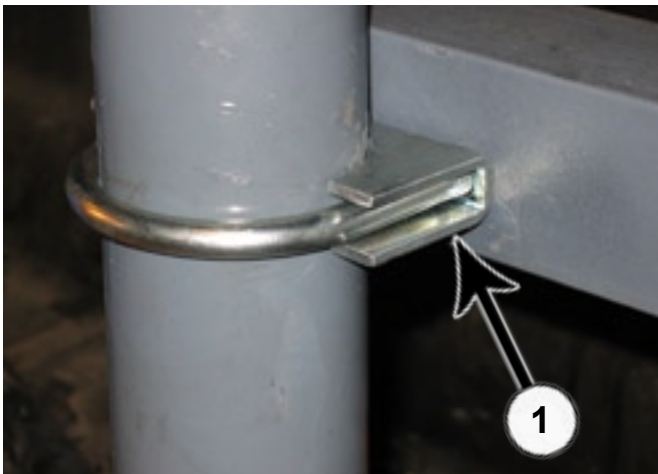


NOTE: View of Bolt Head (1)

Control Stand and Valve Installation

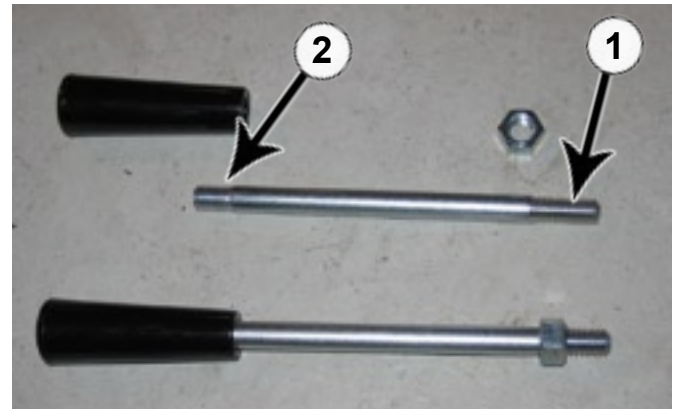


42. Align the control valve stand (1) (PN: 17-11457) with the undercarriage. Use two 3/4" x 2" bolts (2) (PN: 16-20218) with two 3/4" center lock nuts (PN: 70-20607) to securely attach the stand to the undercarriage. Keep all hydraulic hoses above the valve stand (3).

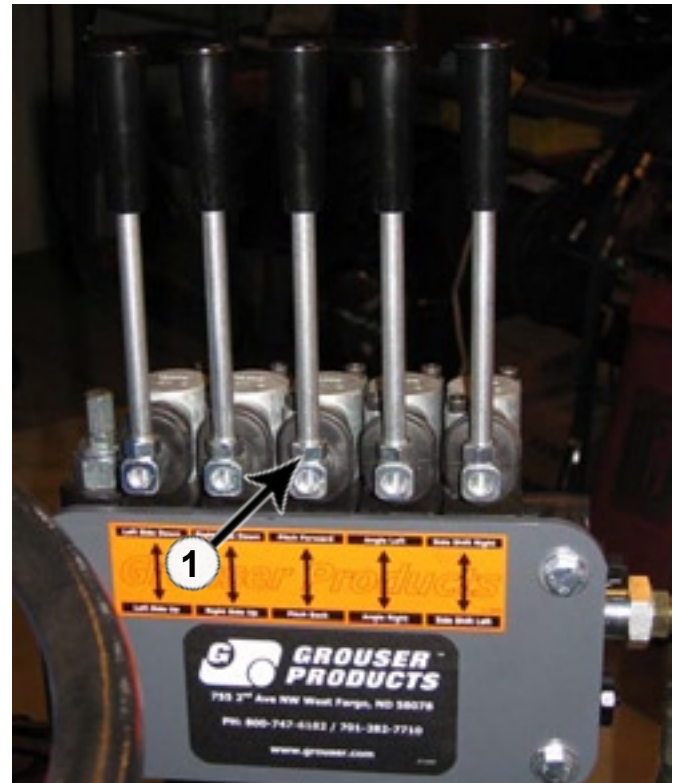


43. Attach the valve stand to the valve mount bracket with a U-bolt (1) (PN: 18-10248).

44. Attach the control valve (PN: 56-10280-B) to the valve stand with three 3/8" x 3/4" bolts (PN: 16-20062) and three lock washers (PN: 57-20762).



45. Assemble control valve handles (PN: 39-10199). Put the nut on the side of the bolt that has longer threads (1). Put the black handle on the other end that has shorter threads (2).



46. Insert assembled handles into Belly Blade control valve. Tighten the lock nuts (1).

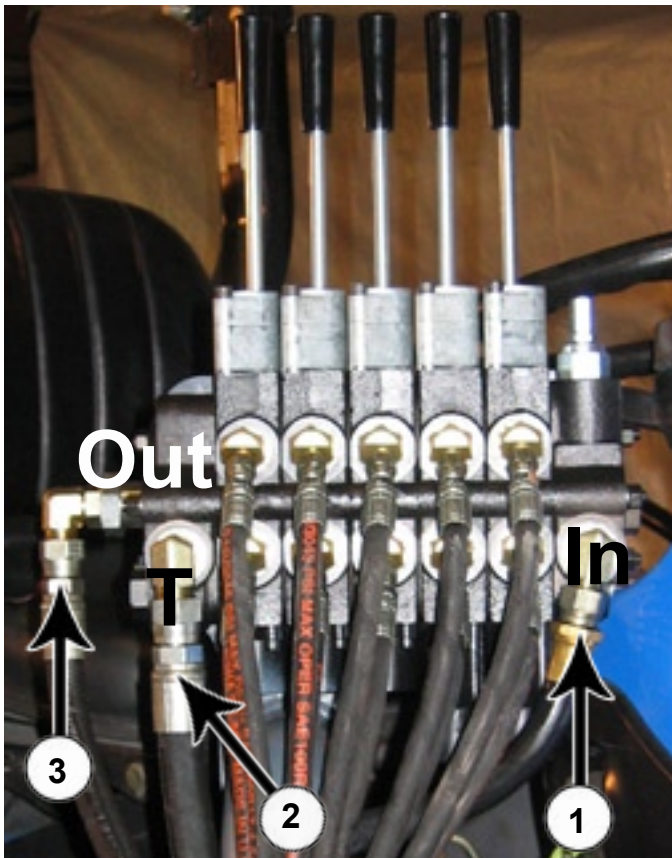
NOTE: If tractor does not have a loader, skip to Step #50 on Page 13. If tractor does not have a loader, continue with Step #47.



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.



Valve Connection without Loader

47. Attach the previously installed 54" hose from the **P Port** in Step #21 to the **In** port on the BBCV (1).

48. Attach the previously installed 54" hose from the **T Port** in Step #21 to the **Tank Port (T)** on the BBCV (2).

49. Attach the previously installed 54" hose from the **PB Port** in Step #21 to the **Out** port on the BBCV (3).

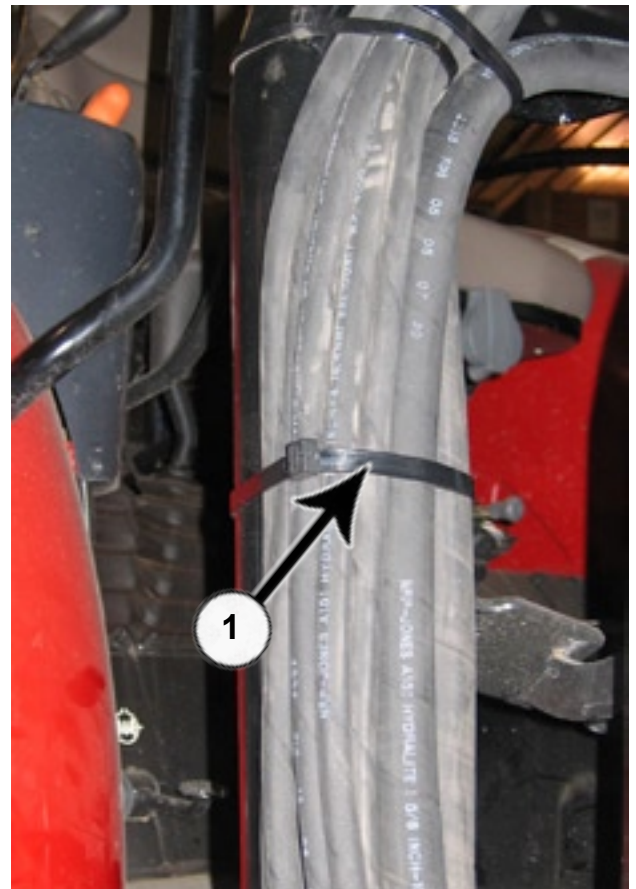
Note: Continue installation with Step #53.

Valve Connection with Loader

50. Attach the previously installed 60" hose from the loader control valve **PB Port** in Step #28 to the **In** port on the BBCV (1).

51. Attach the previously installed 72" hose from the **PB Port** in Step #29 to the **Out** port on the BBCV (3).

52. Attach the previously installed 47" hose from the T-fitting in the **T Port** in Step #29 to the **Tank Port (T)** on the BBCV (2).



53. Make sure all hoses underneath the tractor are clear of any moving parts on the undercarriage. Ensure that all hoses are above either of the arm rails. Group hoses with zip ties if needed to keep from moving.

NOTE: DO NOT secure hoses to the undercarriage arm rails.

54. After all hoses are in place, group hoses together and secure hoses to the valve stand with zip ties (1) (PN: 59-34950).

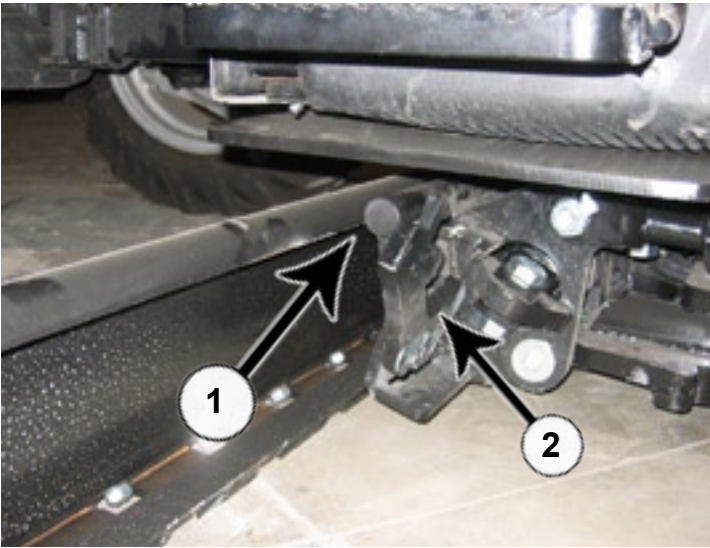
55. Reconnect the battery.

56. Start the tractor and run the controls to check for any leaks.

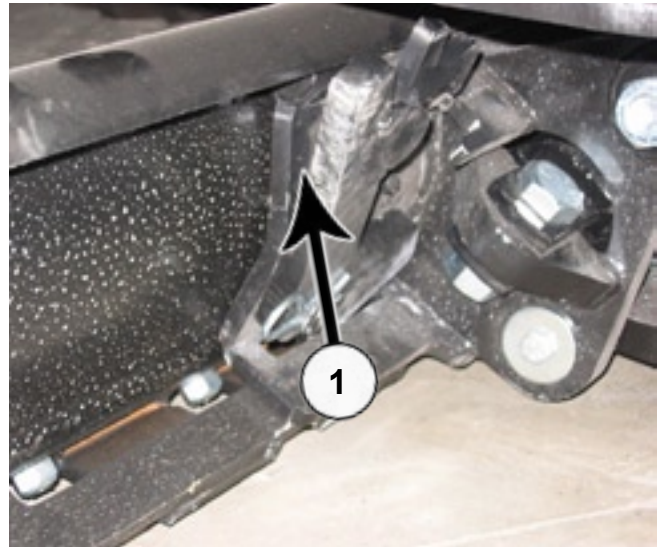
Note: Watch the blade carefully for any collisions when running the controls.

57. Check hydraulic oil level after all cylinders have been cycled. Add hydraulic oil if necessary.

Blade Installation



58. Slide blade under tractor until the quick attach is in line with the center of the blade (1). Make sure that the quick attach locking levers are still up (2) .



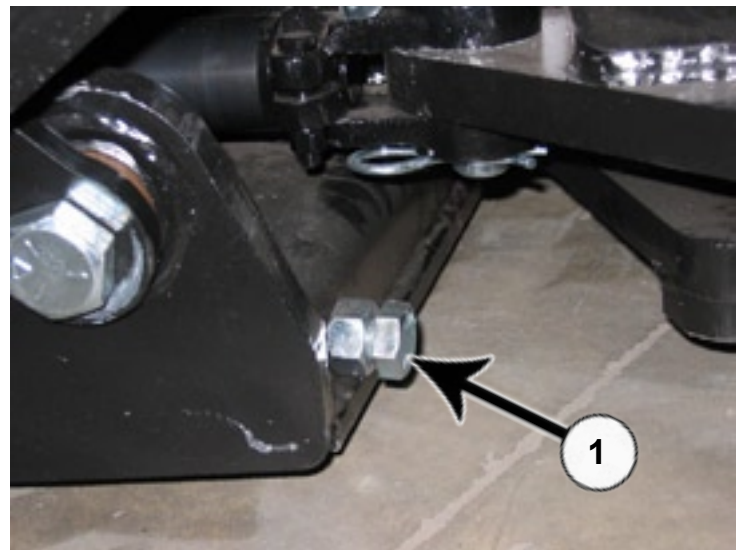
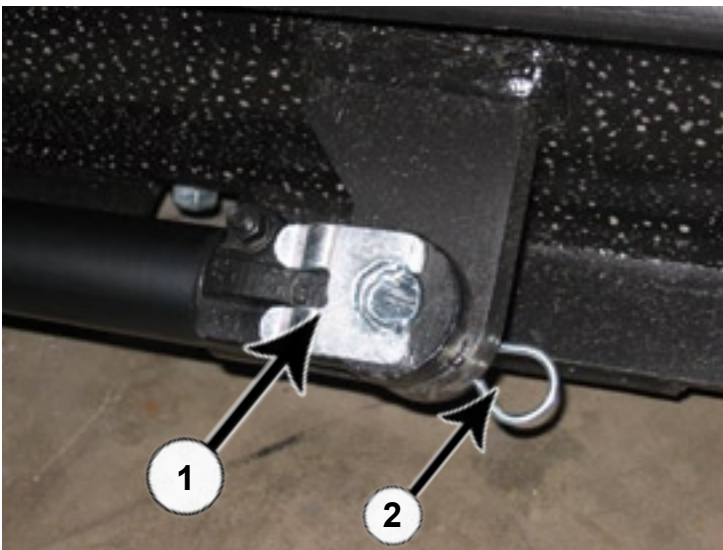
60. Pitch the male quick attach back to lift the blade off the ground (1).



59. Pitch the male quick attach forward. Position the blade so the top round bar will hook under blade lip (1).



61. Lock the quick attach lever on each side (1). Verify that the lever engaged the corresponding slot on the bottom of the blade.



62. Extend the side shift cylinder out to the cylinder connector. Insert pin (PN: 43-7995) (1) and the clip pin (PN: 43-7767) on the bottom (2).

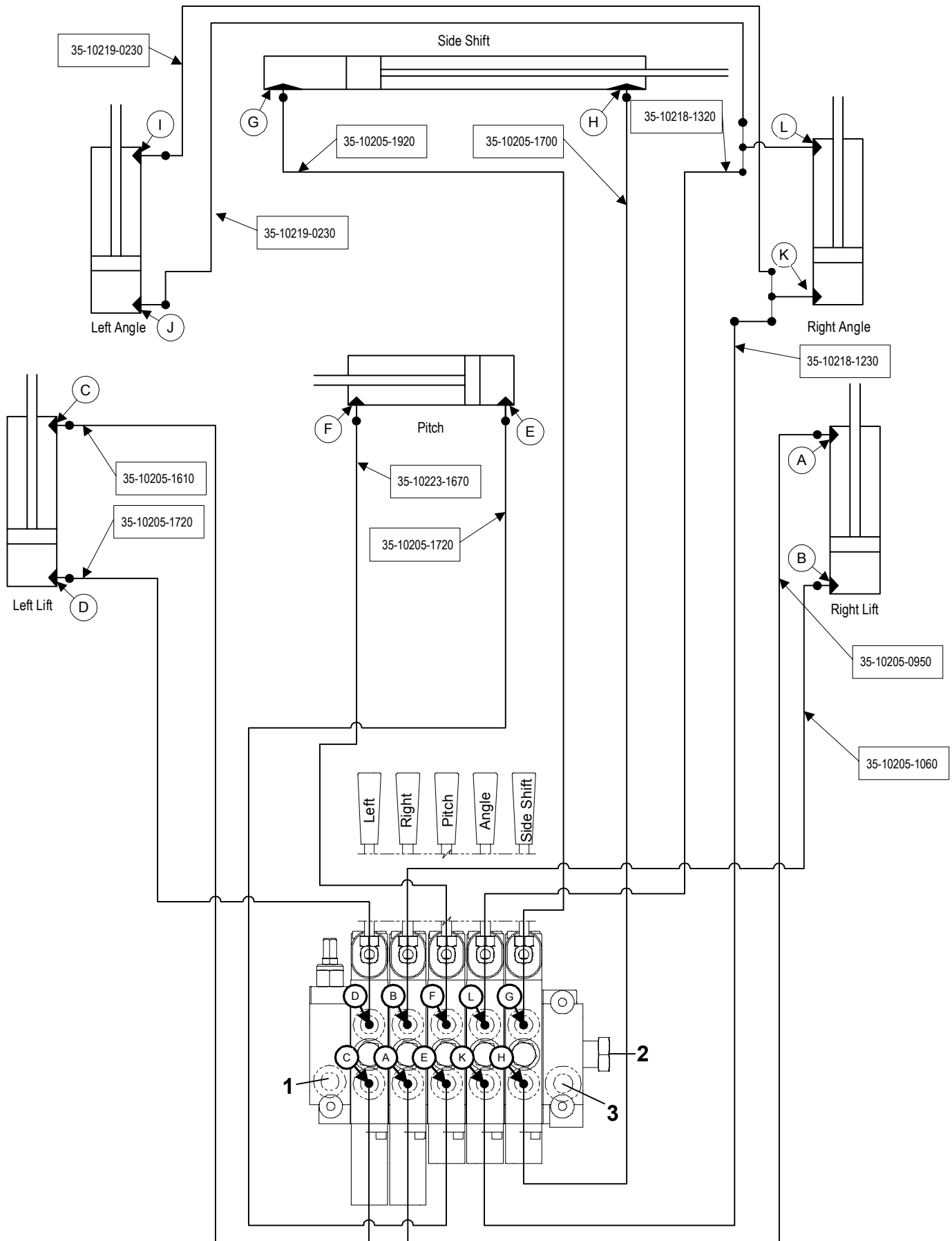
63. After mounting the blade, apply up and down pressure to verify proper blade installation.

64. Cycle through blade functions checking for interferences.

65. Adjust angle stops (1) 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.

66. Tractor and blade are ready for use. Refer to the blade operator's manual for safety, operation, and maintenance information.

Hydraulic Schematic



As Viewed From Drivers Seat

Notes

Notes

Notes

Warranty Statement

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 one year. If such equipment is found to be defective within one year, 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. Grouser Products will pay \$35 / hr. on the modification or repair of defective parts in the setup procedure.

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

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