



FRONT END LOADER BLADES

For Tractor and Skid-Steer Loaders

F.E.L.B. Standard Mount - Part Number 5FBMSB

F.E.L.B. Skid Steer Mount - Part Number 5FBMSS

F.E.L.B. John Deere Quick Attach Mount - Part Number 5FBMQA



Rev A October 11th, 2012

Assembly & Mounting Instructions



WARNING

Do not attempt to install or operate Front End Loader Blade without reading and understanding all Warnings and Instructions in this Manual and on the Loader Blade.

- ⇒ ALWAYS travel at reduced speed when Loader Blade is attached.
- ⇒ ALWAYS ensure Lift Chain (if used) is securely attached to Grab Hook.
- ⇒ ALWAYS familiarize yourself with area to be plowed.
 - ⊘ DO NOT exceed 10 mph when plowing snow.
 - ⊘ DO NOT exceed 5 mph if obstructions could be encountered when plowing.
- ⇒ ALWAYS lower Loader Blade to ground when not in use.
- ⇒ DO NOT position any part of your body under Loader Blade.
- ⇒ DO NOT use any part of your body when dislodging an obstruction from Loader Blade Assembly.
- ⇒ DO NOT service Loader Blade in tripped condition. Dangerous release of stored energy may result.

NOTE: Curtis F.E.L.B.'s are suited for installation on Tractors and Skid Steer Vehicles up to 47HP.

Figure 1. Front End Loader Blade Illustrated Parts List

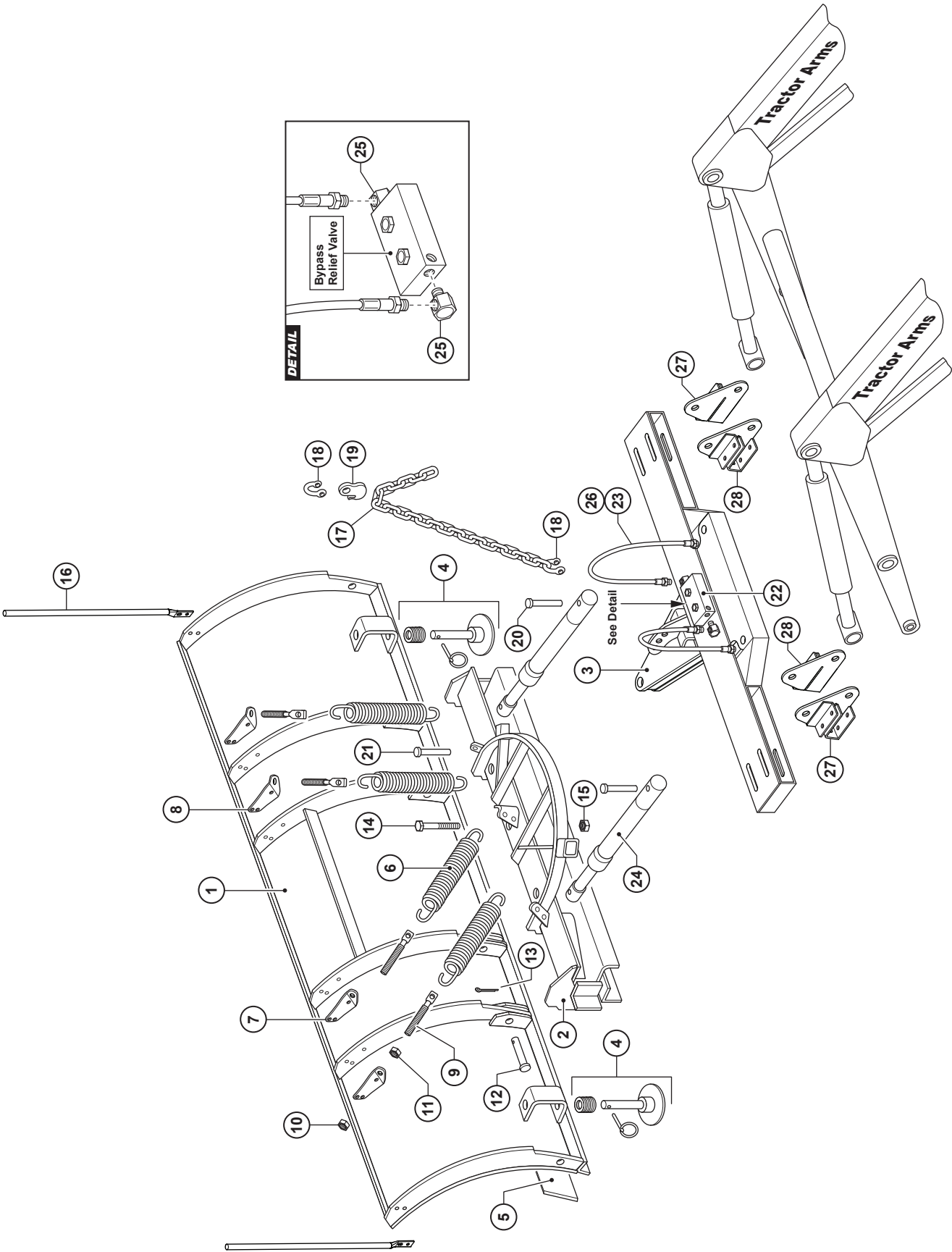


Figure 2. Front End Loader Blade Illustrated Parts List (continued)

NO.	PART NO.	DESCRIPTION	QTY.	NOTES
1	1TBP21D	5' Moldboard Kit	1	
	1TBP21E	6' Moldboard Kit	1	
	1TBP21F	6.5' Moldboard Kit	1	
	1TBP21G	7' Moldboard Kit	1	
	1TBP21AF	7.5' Moldboard Kit	1	
	1TBP21BF	8' Moldboard Kit	1	
2	1TBP22B1	Trip Frame	1	
3	1TBP29A	A-Frame	1	FOR 5FBMSB ONLY
	1FELB1BW	A-Frame	1	FOR 5FBMSS ONLY
	1TBP29Q	A-Frame	1	FOR 5FBMQA ONLY
4	1TBP50	Skid Shoe	2	
5	1TBP49D	5' Cutting Edge	1	
	1TBP49E	6' Cutting Edge	1	
	1TBP49F	6.5' Cutting Edge	1	
	1TBP49G	7' Cutting Edge	1	
	1TBP49A	7.5' Cutting Edge	1	
	1TBP49B	8' Cutting Edge	1	
6	1TBP33	Trip Springs	4	
7	8SV-TBP133LR-B5	L Moldboard Spring Mount Bracket	2	REPLACEMENTS SOLD AS SET OF 4 (2L & 2R)
8	8SV-TBP133LR-B5	R Moldboard Spring Mount Bracket	2	REPLACEMENTS SOLD AS SET OF 4 (2L & 2R)
9	1TBP34	Spring Eyebolt	4	
10	1TBP36	5/8"-11 Nylon Locknut	4	BUY REPLACEMENTS LOCALLY
11	SN-MK1307	5/8"-11 Jam Nut	4	BUY REPLACEMENTS LOCALLY
12	1TBP23	1" x 4" Clevis Pin	4	
13	1TBP24	3/16" x 1-1/2" Cotter Pin	4	BUY REPLACEMENTS LOCALLY
14	1TBP25	1"-8 x 6" Gr. 5 Bolt	1	BUY REPLACEMENT LOCALLY
15	1TBP26	1"-8 Nylon Locknut	1	BUY REPLACEMENT LOCALLY
16	1TBP37	Blade Markers	1	2 PER SET
17	1TBP30A	5/16" x 50" Lift Chain	1	
18	1TBP31	5/16" Anchor Shackle	2	
19	1TBP77	Grab Hook	1	
20	1TBP73	1 x 3" Clevis Pins	2	
21	1TBP23	1 x 4" Clevis Pin	2	
22	1TBP71	By-Pass Relief Valve	1	
23	1TBP72	Hydraulic Hose	2	
24	1TBP27	10" Angle Cylinder	2	
25	1TBP71-B	90° Angle for Bypass Relief Valve	4	
26	1TBP98U	10.5 Ft. Hydraulic Hose	2	

STANDARD MOUNT LOADER PARTS				
27	1TBP170	Loader Bracket - Right	2	REPLACEMENTS SOLD AS SET OF 4 (2L & 2R)
28	1TBP170	Loader Bracket - Left	2	REPLACEMENTS SOLD AS SET OF 4 (2L & 2R)

Curtis Front End Loader Blade (F.E.L.B.) Assembly Instructions

- 1.) Lay Moldboard on its face with ribbing up. To prevent paint damage place cardboard under top bend.
- 2.) If assembling a 5' to 7' Moldboard skip to Step #3. If assembling a 7-1/2' or 8' Moldboard, locate four Moldboard Spring Mount Brackets, two left (1TBP133L) and two right (1TBP133R). Refer to Figure 1. Moldboard Spring Mount Brackets must be installed with Spring Mounting Tab pointing towards the outside of Moldboard. Refer to Figure 3.
Mount each Moldboard Spring Mount Bracket using three 3/8"-16 x 1-1/4" Gr.8 Bolts (1TBP25), six Flat Washers (supplied) and three Nylon Locknuts (1TBP36). **Torque all Bolts to 30 ft./lbs.**
- 3.) Assemble Trip Frame (1TBP22B) to Moldboard using four 1" x 4" Clevis Pins (1TBP23) and secure each with a 3/16" Cotter Pin (1TBP24). Refer to Figure 4.
When installing Clevis Pins, work from Left to Right. Refer to Figure 4 for correct orientation of Clevis Pins before installing. All Clevis Pins should be installed pointing towards the A-Frame. Tap with Hammer or Mallet if needed to ease installation.
- 4.) The F.E.L.B. has been designed with adjustable trip performance. Two Trip Spring mounting holes are located on all three Trip Frame Spring Mounting Tabs, one Upper and one Lower. Refer to Figure 6.



NOTE

The *Upper* Spring mounting holes will give a *lighter* trip when encountering an obstacle. The *Lower* Spring mounting holes will give a *heavier* trip when encountering an obstacle.

- 4a. Thread one 5/8"-11 Jam Nut (SN-MK1307) half way onto each of the four Spring Eyebolts (1TBP34).
- 4b. Insert Trip Spring (1TBP33) end into hole on Spring Eyebolt, then insert each Spring Eyebolt into hole in Moldboard Spring Mounting Bracket (orient Trip Springs as shown in Figure 5). Thread one 5/8" Nylon Locknut (1TBP36) onto each of the Spring Eye Bolts.
- 4c. Tighten the Nylon Locknuts until Trip Springs are taught. **Do not** overtighten Trip Springs when installing. Fully tighten Jam Nuts.
- 4d. Install supplied orange plastic End Caps to Spring Eyebolt ends to prevent corrosion.
- 5.) Install Blade Markers (1TBP37) to Moldboard ends using supplied 5/16" Hardware. Refer to Figure 7.

Figure 3. Install Spring Mounting Brackets to Moldboard

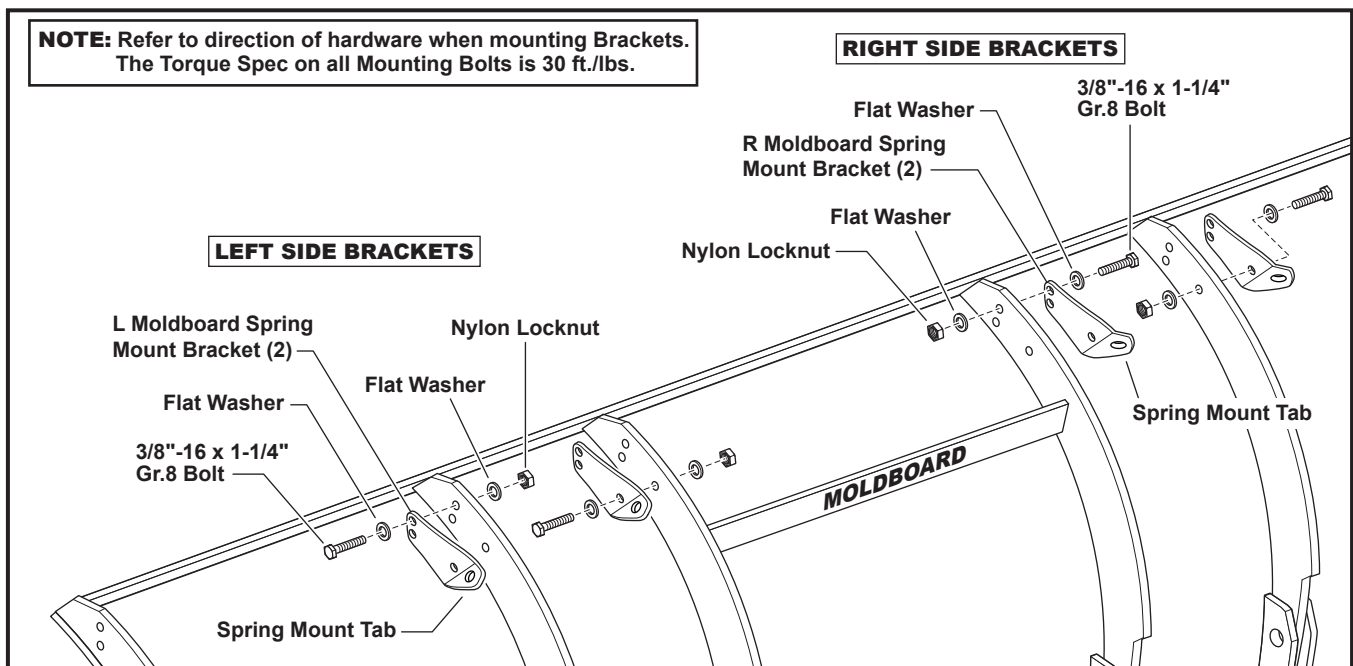


Figure 4. Mount Trip Frame to Moldboard

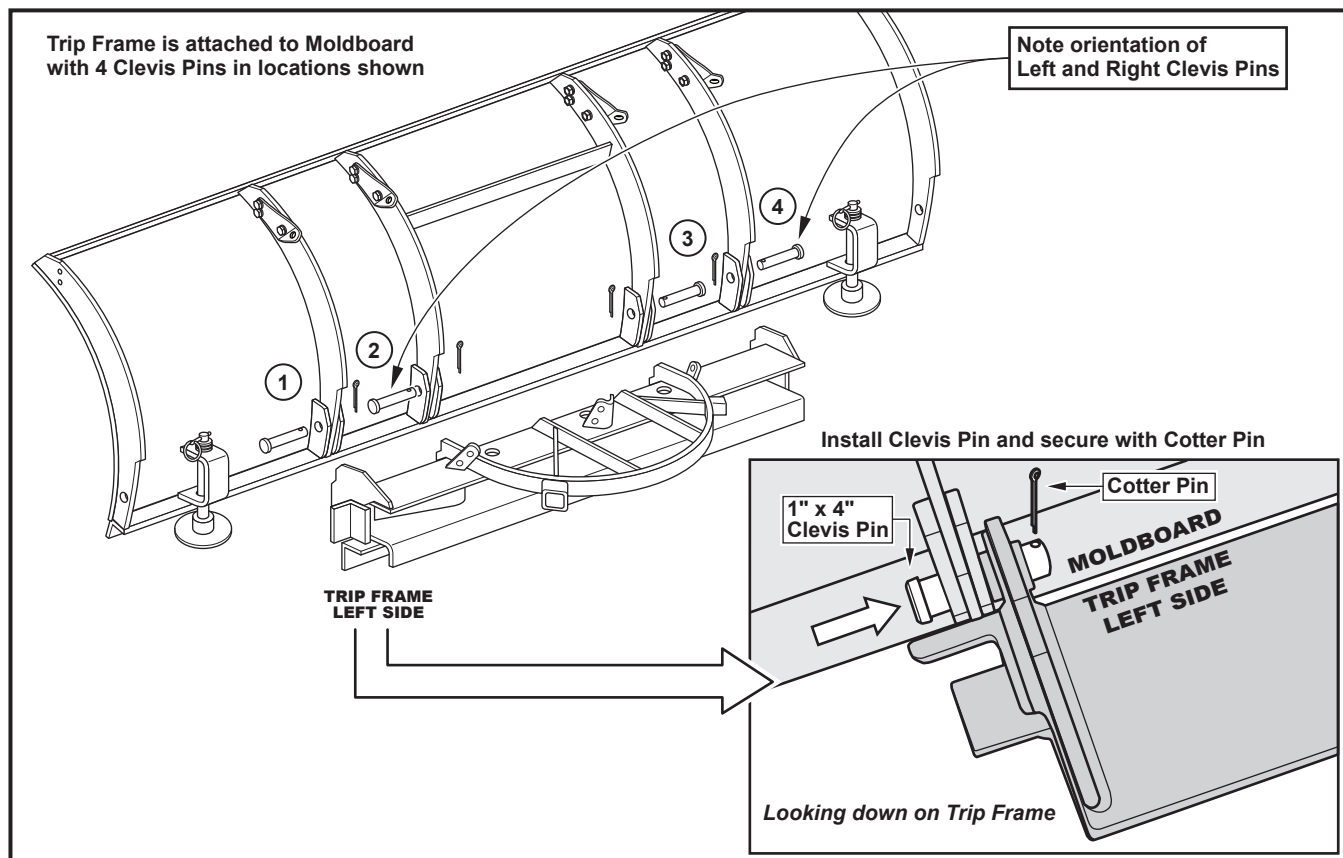


Figure 5. Install Trip Springs

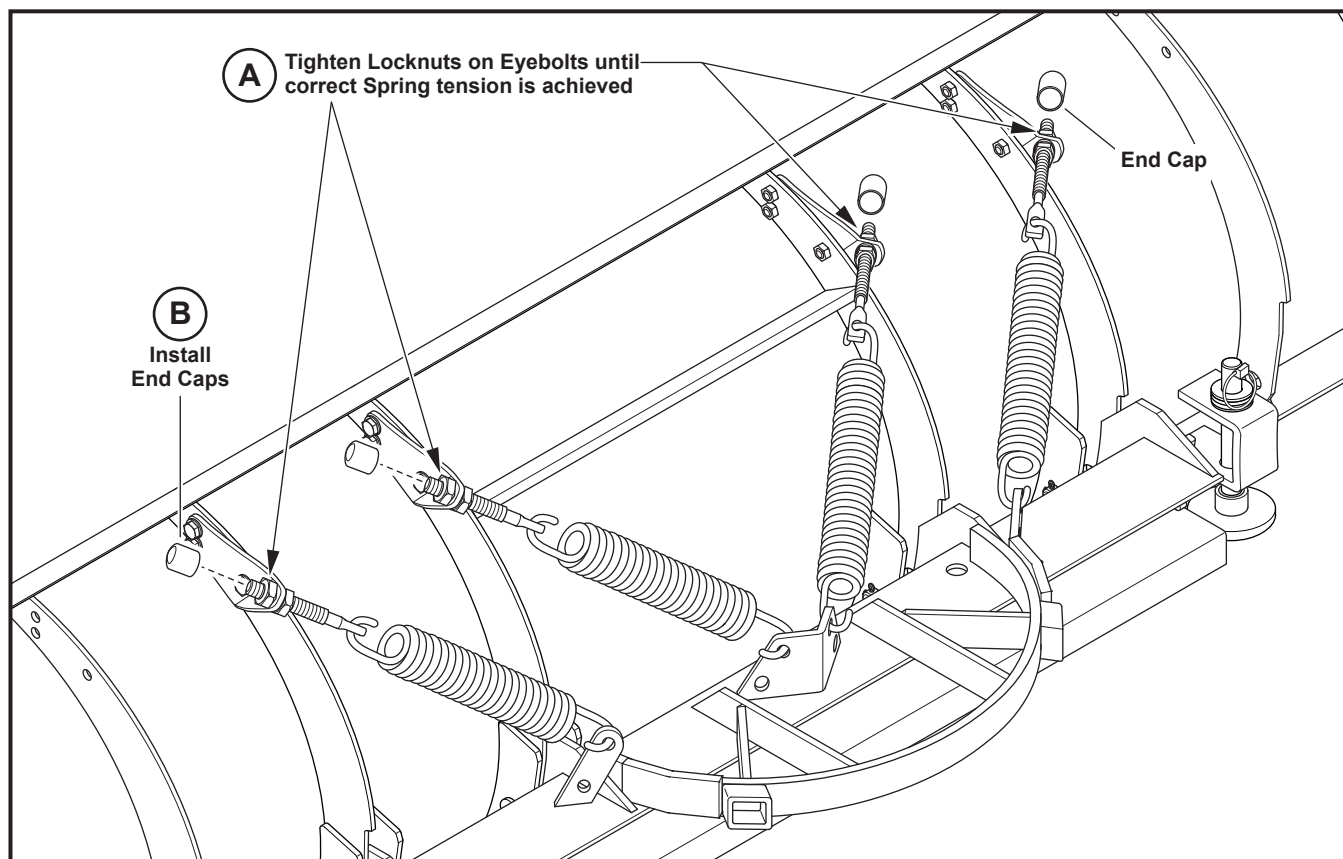


Figure 6. Trip Spring Installation - Adjustable Trip Performance

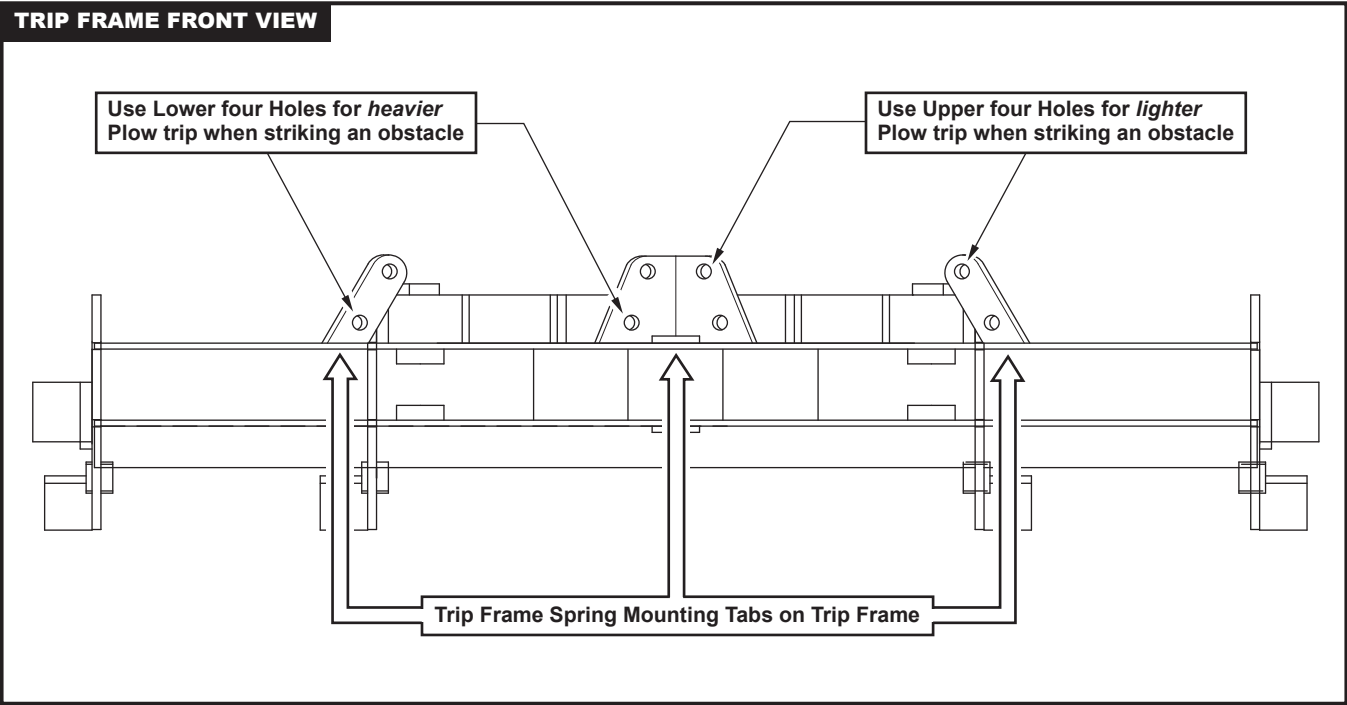
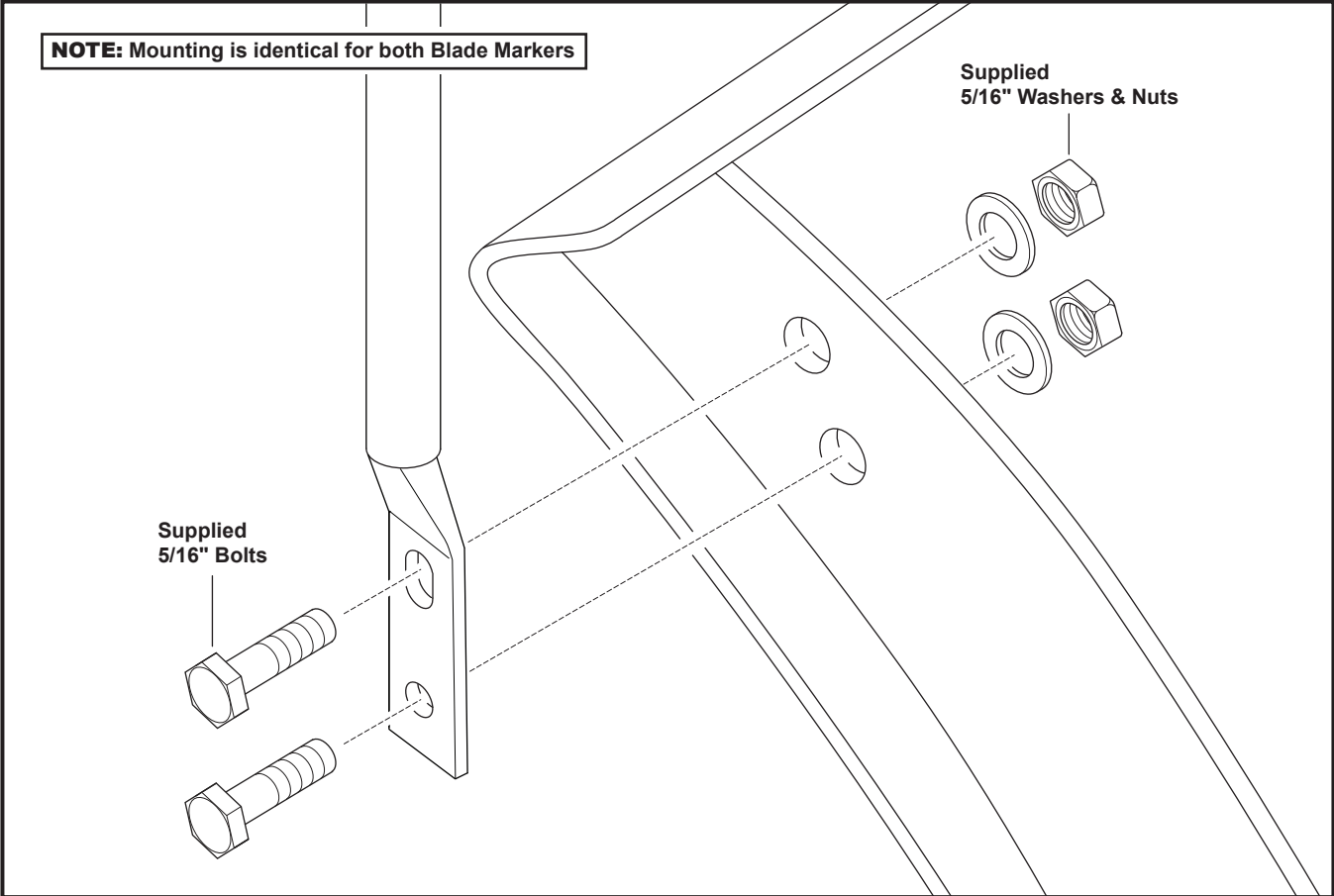


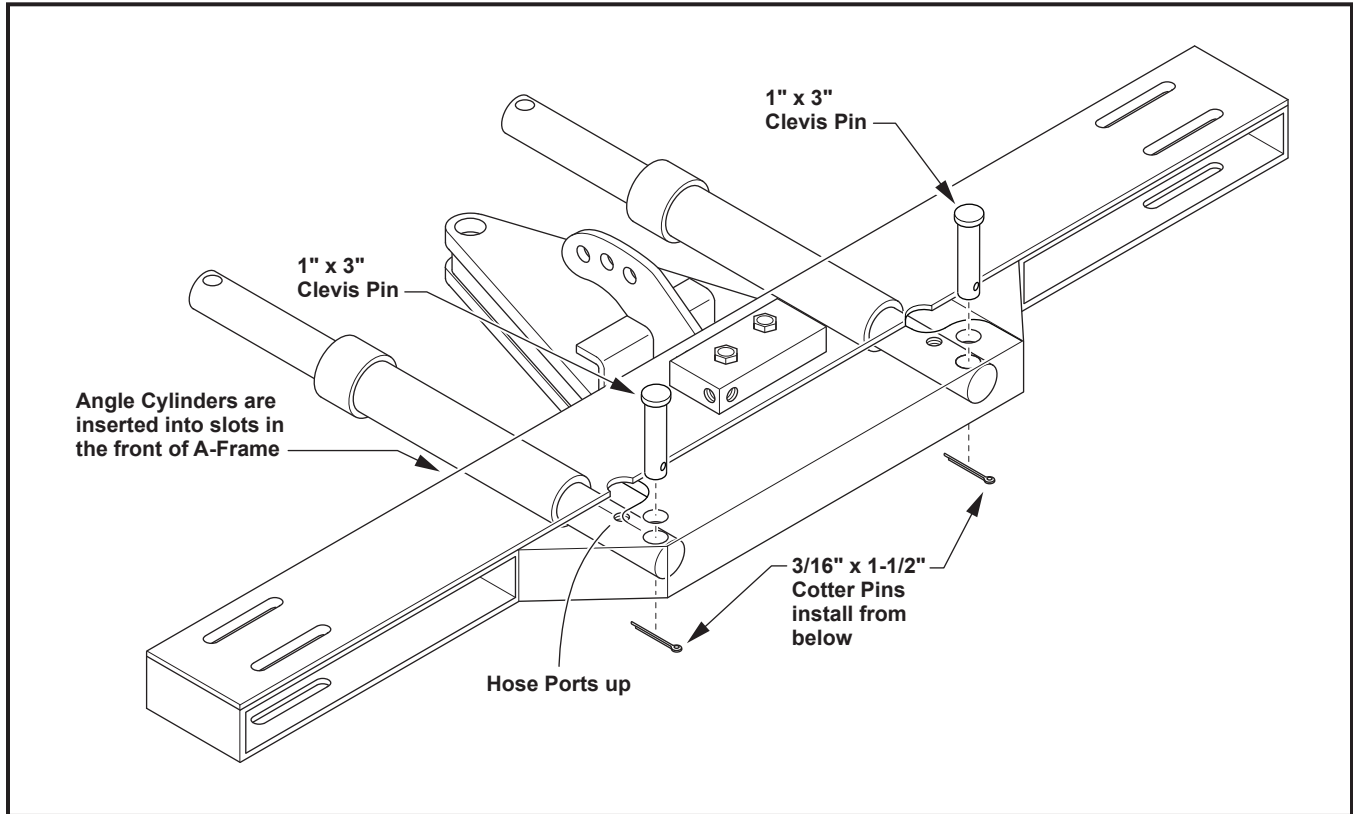
Figure 7. Blade Marker Mounting



Curtis Front End Loader Blade (F.E.L.B.) Assembly Instructions (continued)

- 7.) Locate both 10" Angle Cylinders (1TBP27) and mount one to each side of the A-Frame. The Angle Cylinders will be inserted into the A-Frame at the front through the slots, with the Hydraulic Port facing up and visible through the opening at the top of the A-Frame. Mount each Angle Cylinder to the A-Frame with a 1" x 3" Clevis Pin (1TBP73) and secure each Clevis Pin with a 3/16" x 1-1/2" Cotter Pin (1TBP24). Refer to Figure 8.

Figure 8. Mount Angle Cylinders to A-Frame



- 8.) Lift the A-Frame above the Trip Frame, and insert the A-frame and Angle Cylinders into the Trip Frame. Apply grease to the 1"-8 x 6" Gr.5 Center Bolt (1TBP25) and insert through the Trip Frame and A-Frame. Secure the Center Bolt with a 1" Nylon Lock Nut (1TBP26). Refer to Figure 9.



NOTE Do not over tighten the Nylon Lock Nut, the A-Frame must pivot freely.

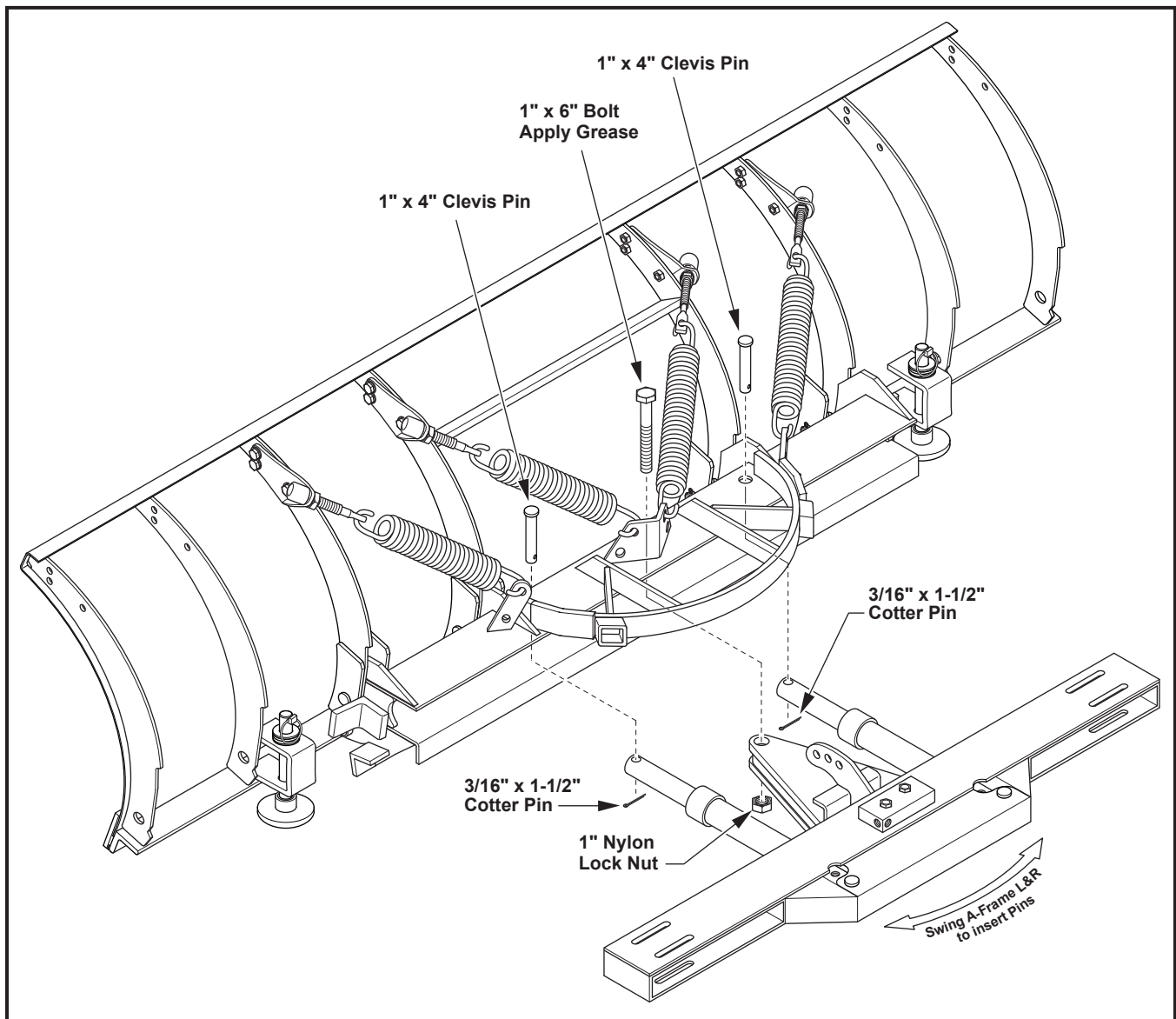
- 9.) Swing A-Frame to Left or Right and align hole in Angle Cylinder Ram with the corresponding hole in Trip Frame. Install (1) 1" x 4" Clevis Pin (1TBP23) through Trip Frame and Angle Cylinder Ram. Secure Clevis Pin with (1) 3/16" x 1-1/2" Cotter Pin (1TBP24). Swing A-Frame to opposite side and repeat alignment and pinning procedure. Swing A-Frame back to the center.



NOTE It may be necessary to extend the Angle Cylinder Piston Rod 1-2" to make the connection to the Trip Frame. To do this, insert a long pin or ratchet handle through the Piston Rod and work the piston Rod side to side while pushing downward.

- 10.) Return the A-Frame to the center position after the Angle Cylinders are secured to the Moldboard. Using the A-Frame as a lever, grasp the A-Frame by the cross-brace and pull back, raising the Moldboard to a vertical position.

Figure 9. Mount A-Frame to Trip Frame



- 11.) Locate and install the two Hydraulic Hoses (1TBP72) to each side of the By-Pass Relief Valve and to the corresponding Ports on the Left and Right Angle Cylinders.

IMPORTANT

Do not use Teflon Tape on the Hydraulic Fittings as it may contaminate the Hydraulic System causing a malfunction. Use a high quality paste type thread sealant on all N.P.T. fittings.

IMPORTANT

Due to the large number of variations in tractor hydraulic systems and fittings, two hoses with 1/4" male NPT threads have been provided to connect between the tractor and By-Pass Valve, but fittings and quick connectors have not. Most skid steer loaders have extra lines which can be tied into. Some tractors have an auxillary valve that can be used, or an optional valve kit can be purchased from Curtis. The last option is to connect the lines from the loader tilt cylinders and tie them into the bypass block. Be sure to connect before the T-Fitting that connects the left and right tilt cylinders. If using this option the loader blade will need to be supported with Lift Chain provided. See Step 12 below.

- 12.) Attach Lift Chain (1TBP30A) to A-Frame assembly with 5/16" Anchor Shackle (1TBP31).

Figure 10. Install Hydraulic Hoses

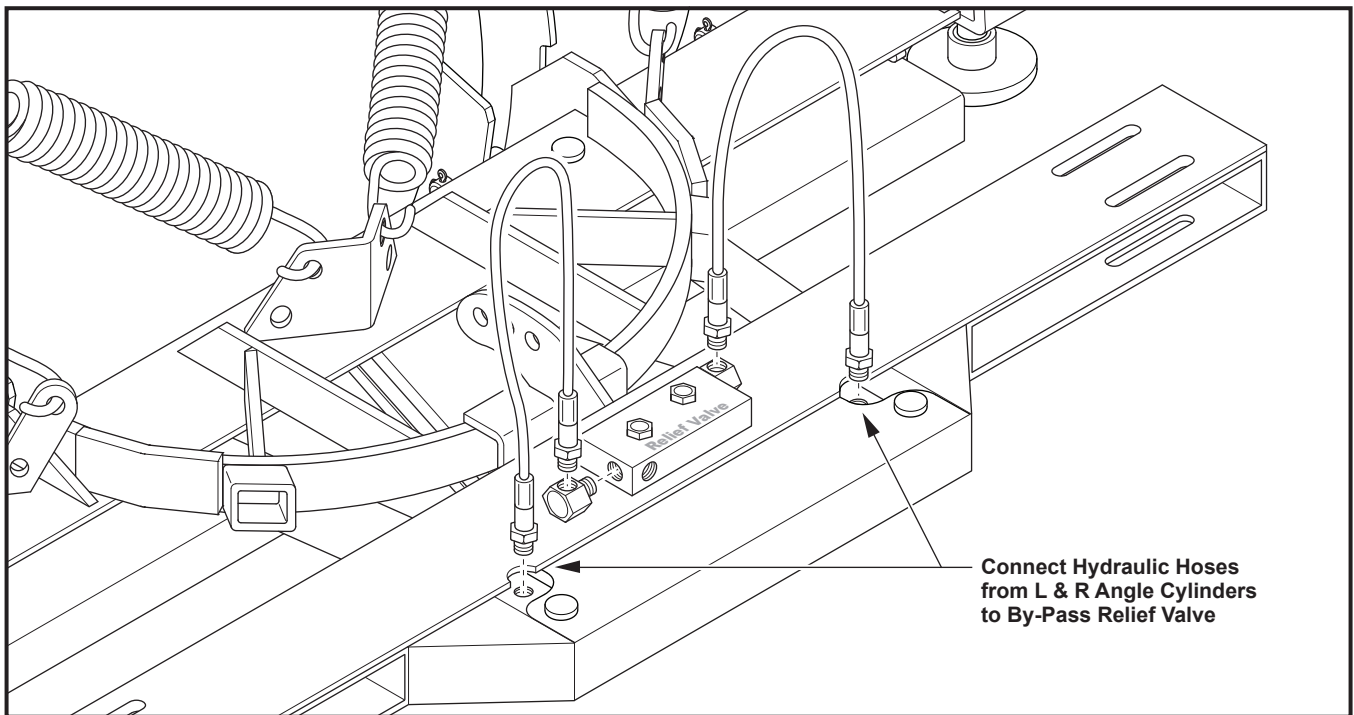


Figure 11. F.E.L.B. with Skidsteer Reference View



Mounting F.E.L.B. with Loader Attachment Brackets

- 1.) Center A-Frame (1TBP29A) in front of the Tractor. Position one or both Loader Brackets (1TBP170) to align with each of the Tractor Loader Arms, depending on width. Refer to Figure 12.
- 2.) Fully seat the tongue and groove cutouts of the L & R Loader Brackets into A-Frame Rear Cross Brace.



NOTE

Position L & R Loader Brackets so that the outboard bracket bolt holes line up with slots in Rear A-Frame Cross-Brace. This may result in two of the same bracket on each Loader Arm depending on Loader Arm width.

- 3.) Verify 1/8" clearance on either side of Tractor Loader Arms. Attach the outboard L& R Loader Brackets to A-Frame Rear Cross Brace by bolting through the slots in the A-Frame. Use 1/2" x 1-3/4" Bolts in top of A-Frame (2 per bracket). Use 1-1/2" length Bolts in all other holes (3 per Bracket).

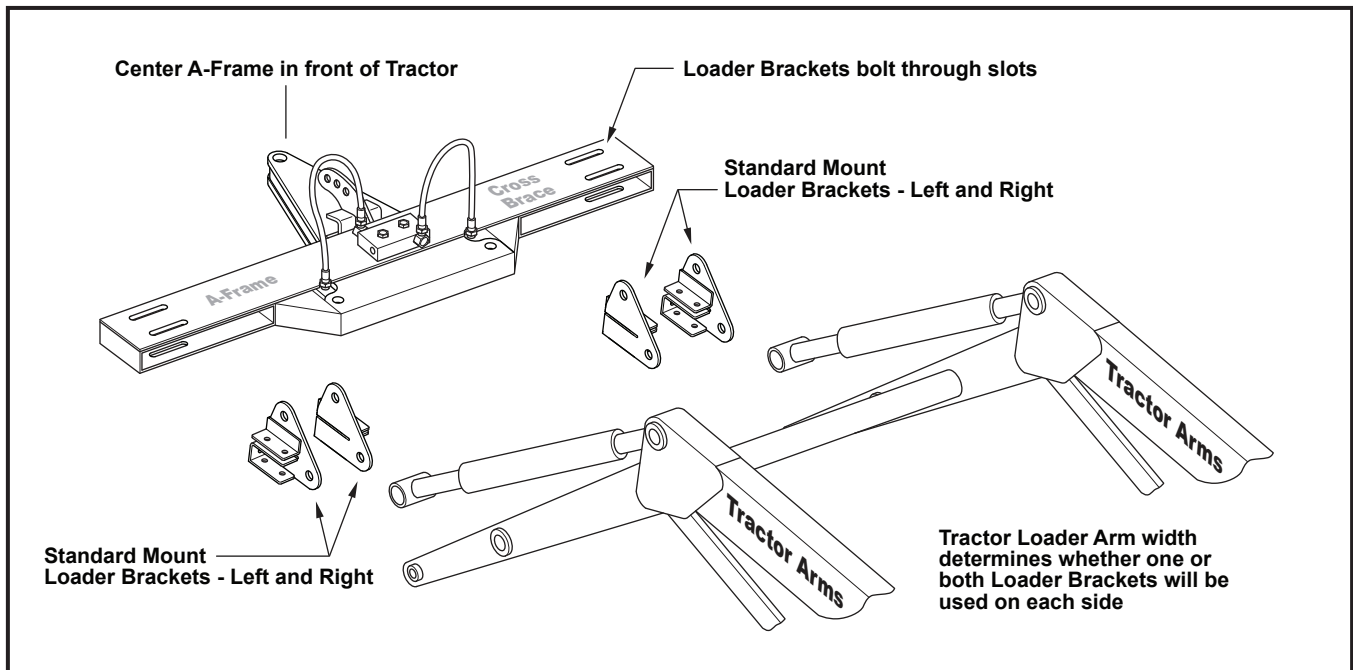


NOTE

Install 1-1/2" Bolt through front of A-Frame Cross Brace first.

- 4.) Position inboard Brackets with a 1/8" clearance and clamp in place. Drill 9/16" holes into the A-Frame Cross-Brace using the holes in the Loader Brackets as guides. Bolt inboard Brackets to A-Frame Rear Cross Brace with 1/2" x 1-3/4" Bolts in the top of the A-Frame (2 per Bracket) and 1-1/2" length Bolts in all other holes. **Torque all Loader Bracket Bolts to 98 ft./lbs.**

Figure 12. Mounting F.E.L.B. with Standard Mount Loader Brackets L & R



ADDITIONAL NOTES

- Loader Brackets L & R are to be bolted to the A-Frame in accordance with the I.D. and O.D. of Loader Arms. Tongue and Groove design allows installer to slide Brackets into position. Leave 1/8" clearance for Easy On/Easy Off.
- Due to Tractor Loader Arm variations, Dealer/Customer is to supply Attachment Pins. Curtis recommends a Grade 8 Bolt and Nylon Locknut of the proper length and diameter.

IMPORTANT

After 2 hours of use, all bolted assemblies on the F.E.L.B. should be rechecked for proper torque specifications and tightened as needed.

Figure 13. Loader Blade secured with Lift Chain



Attach Lift Chain to Loader • (If Loader Tilt Cylinders have been disconnected for Power Angle)

- 1.) Find a secure spot on the Loader Cross-Brace to wrap Lift Chain (1TBP31) around. The Chain should go over the Top of the Cross-Brace and wrap underneath. Refer to Figure 13 above. Be certain Chain will not pinch or damage any hydraulic lines or other parts of the Loader.
- 2.) Cut Chain to length and install supplied Grab Hook (1TBP77) to the Chain with Anchor Shackle (1TBP31) provided. Hook back onto the Chain.

Figure 14. Skid Steer Adaptor - Part Number: 1FELB1BW

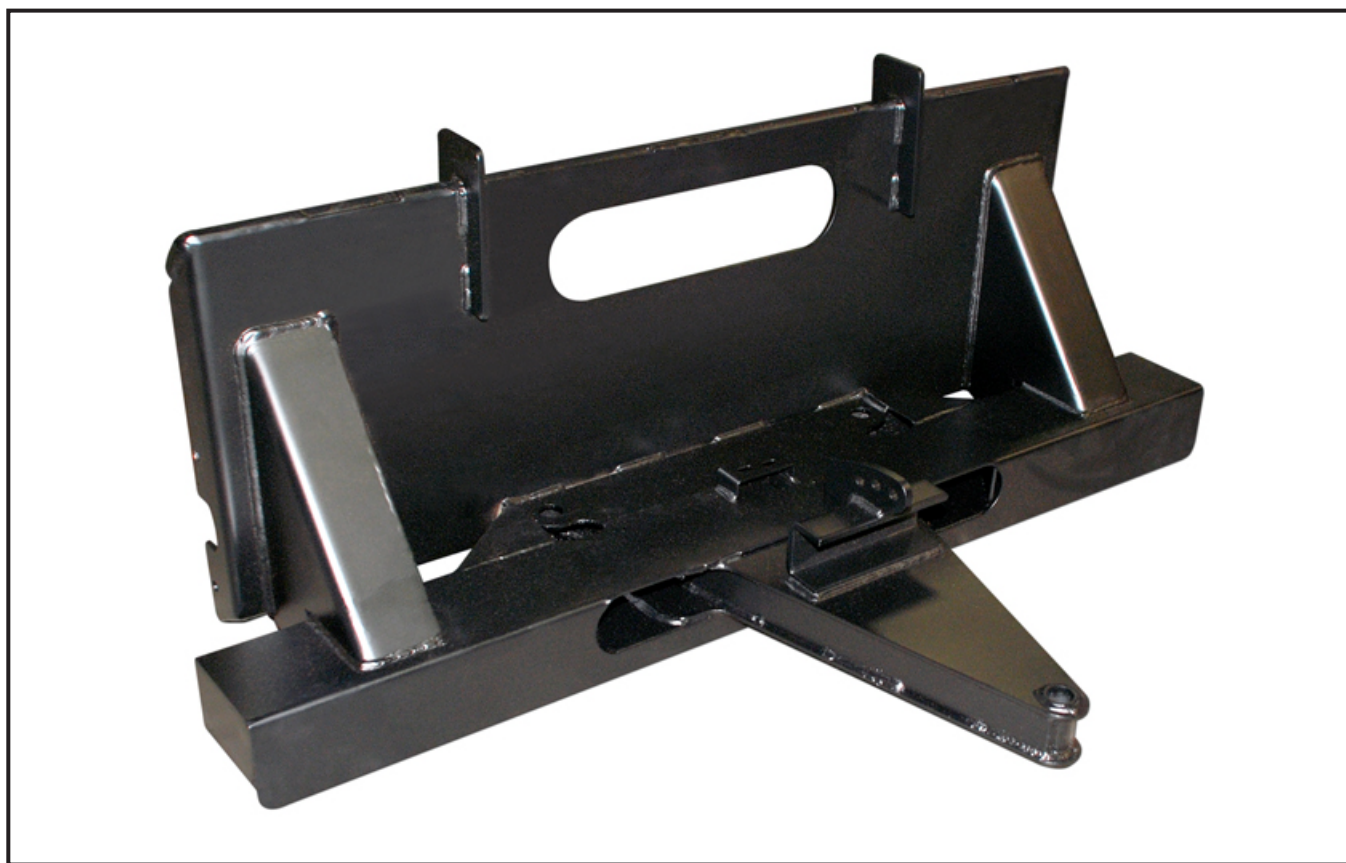
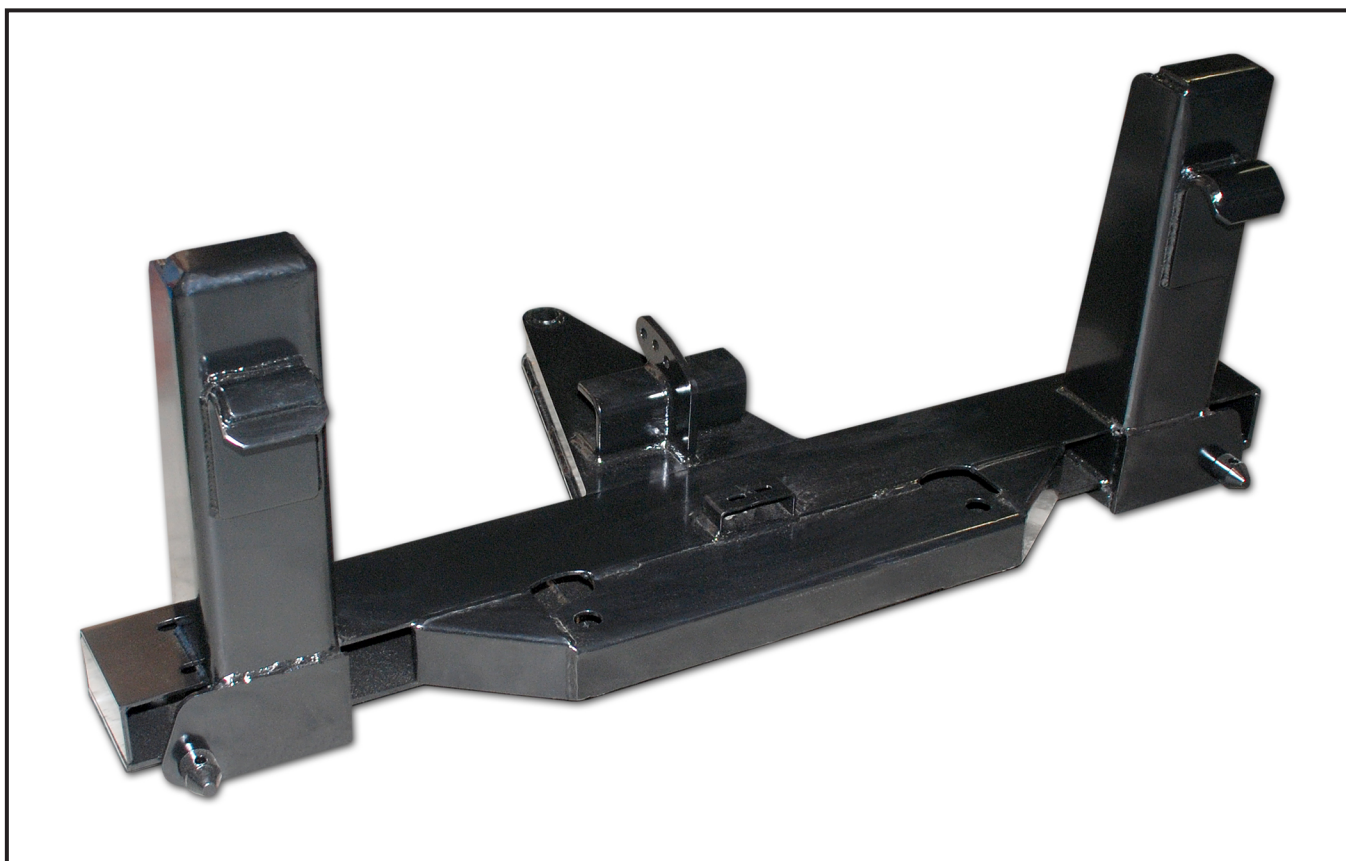


Figure 15. John Deere Quick Attach Adaptor - Part Number: 5FBMQA



Optional Auxiliary By-Pass Control Valve (PN: 9PKFELBV)

IMPORTANT

- Installation of this Curtis Auxiliary Control Valve retains the Tractor/Loader's Bucket Cylinders for down pressure
- The Curtis Auxiliary Control Valve is Universal in nature.
- Carefully consider mounting location before proceeding.
- Due to Tractor variations, Curtis only supplies Hoses and Fittings between the Angle Cylinders and Curtis By-Pass Relief Valve. All additional Hoses, Fittings and Couplings are Dealer/Customer supplied.

- 1.) Determine convenient location to mount Auxiliary Control Valve.
If Loader is Quick Attach Style, consider mounting Valve to remain with Tractor/Loader when detached.
- 2.) Disconnect Pressure Supply Line from existing Tractor/Loader Valve.
- 3.) Route Tractor/Loader Pressure Supply Line to Inlet Port marked **"IN"** on Auxiliary Control Valve.
- 4.) Route a Dealer supplied Line from Outlet Port marked **"OUT"** on Auxiliary Control Valve to Pressure Port on existing Tractor/Loader Valve.
- 5.) Route two additional Dealer Supplied Hoses from Ports marked **"A"** and **"B"** on existing Tractor/Loader Valve down along Tractor/Loader Arms to corresponding **"A"** and **"B"** ports on Curtis By-Pass Relief Valve.



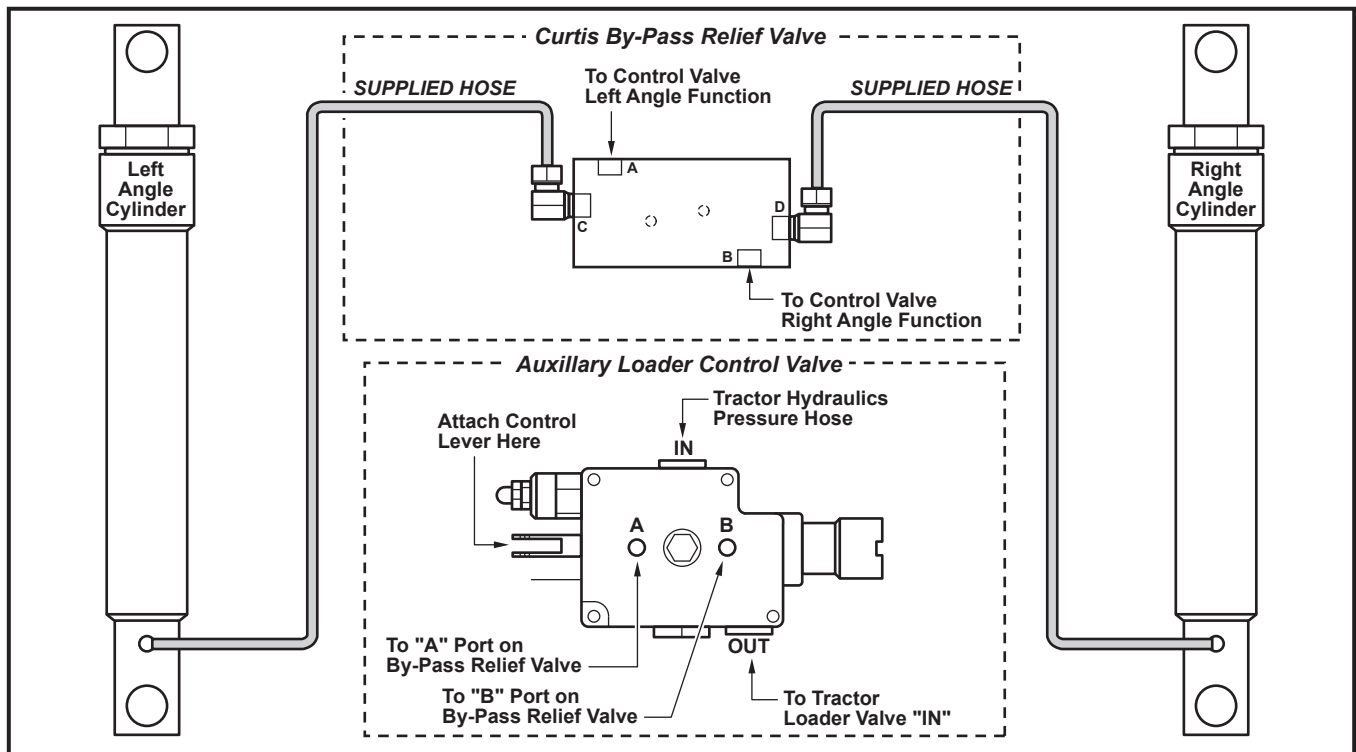
NOTE Curtis Auxiliary By-Pass Control Valve Port designations are for reference only.

- 6.) Route Curtis Supplied Angle Hoses from **"C"** and **"D"** Ports on Curtis By-Pass Relief Valve to Left and Right Angle Cylinders.
- 7.) Check all Hydraulic connections and test operation. Inspect for leaks.

IMPORTANT

Seal all N.P.T. (National Pipe Thread) connections with a Paste Type Thread Sealer (e.g. 3M, Great White) DO NOT use Teflon Tape. Teflon Tape may contaminate Hydraulic System and cause a malfunction.

Figure 16 . Hydraulic Routing Diagram



Curtis Front End Loader Blade (F.E.L.B.) Storage Instructions

- 1.) When F.E.L.B. is disconnected, coat all exposed chrome rods on both Angle Ram Cylinders with Light Grease. The Grease will keep exterior surfaces free from rust and corrosion.
- 2.) Coat all Pivot Pins and other wear points with Chassis Lubricant.

IMPORTANT

After 2 hours of use, all bolted assemblies on the F.E.L.B. should be rechecked for proper torque specifications and tightened as needed.



LIMITED WARRANTY

Curtis warrants that Products sold to Customer shall be free from defects in material and workmanship under normal use and service for one (1) year from the date of shipment.

IN NO EVENT SHALL CURTIS BE LIABLE FOR LOSS OF PROFITS OR INCIDENTAL, INDIRECT, SPECIAL, CONSEQUENTIAL OR OTHER SIMILAR DAMAGES ARISING OUT OF ANY SALE OF PRODUCT OR FROM DEFECTIVE PRODUCT.

This limited warranty shall automatically terminate if any product has been improperly installed, maintained or operated or used for a purpose for which it was not designed. The limited warranty does not cover Product which has been altered or parts which are expendable by their nature (e.g. cutting edges, blade guides, springs, nuts, bolts, pins, hoses, etc.). This limited warranty also does not cover any plows installed on vehicles not designed by the manufacturer for plowing or not equipped with the manufacturer's snowplow preparation package.

In the event that a Product is defective, Curtis, at its option, will correct such defect at its expense upon delivery of the Product to Curtis FOB, its Worcester, Massachusetts facility, or refund that portion of the purchase price allocatable to the defective Product. The remedy contained in the preceding sentence will be the sole and exclusive remedy against Curtis.

EXCEPT AS SPECIFICALLY PROVIDED IN THIS DOCUMENT, THERE ARE NO OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE.

Notes: