



400DB HYDRAULIC HITCH OWNER'S MANUAL

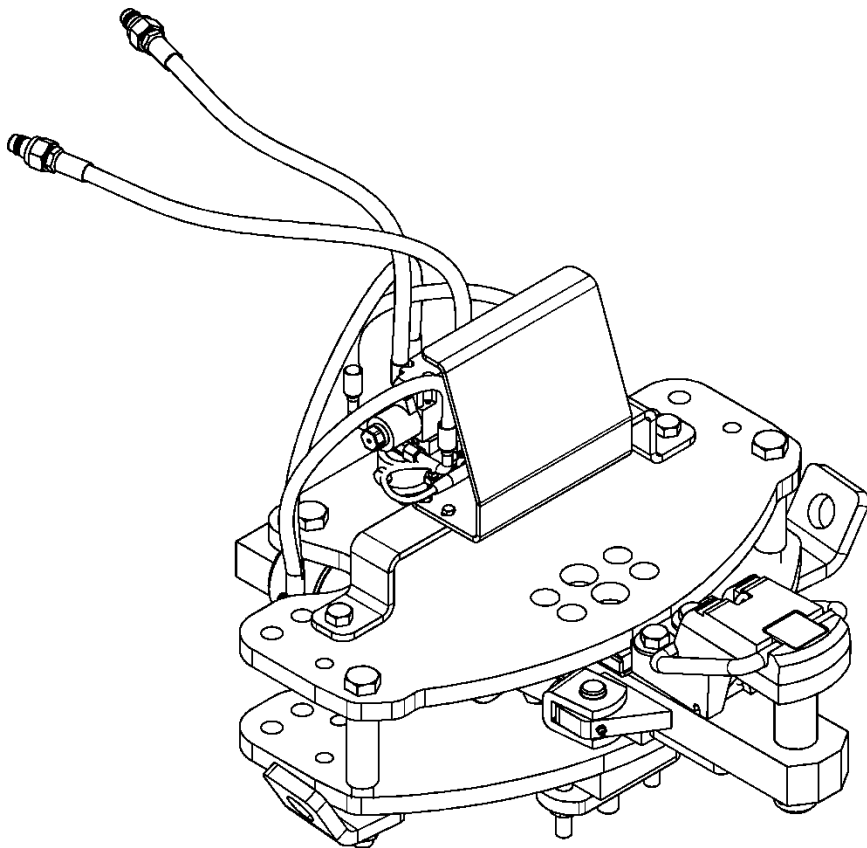


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Specifications

Hydraulic Requirements:

Single Hydraulic Outlet, Continuous Duty
Flow Rate: 1.5 gpm
Pressure Range: 2250-3000 psi

Electrical Requirements:

Maximum Current: 3.5 amps
Voltage Range: 9-16 Volts DC

Capacity and Performance:

Maximum Vertical Load: 10,000 lbs
Power Rating: Up to 400 HP
Left/Right Travel: 26 inches

Standards and Limitations:

Not for use with PTO drive-line powered equipment

Contacting the Company

MBW

122 North Des Moines Street
Odebolt, Iowa 51458
U.S.A.

Toll Free: 877.568.4240 (Monday – Friday, 7:30AM – 5:30PM U.S. CST,
Saturday 7:30AM – 12:00PM U.S. CST)

Local/International Phone: 1.712.668.4240

Fax: 1.712.668.2311 (24 hours, 7 days/week)

Email: cory@mbwproducts.com

Website: www.proTrakker.com or www.mbwproducts.com

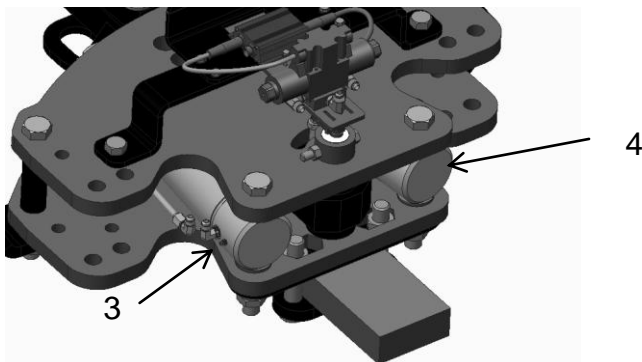
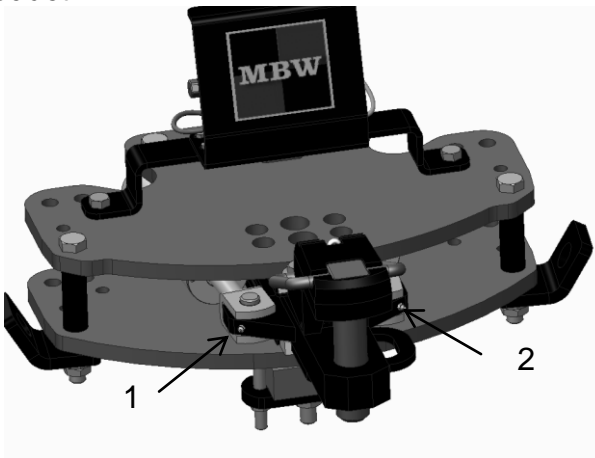
Safety Instructions

- Read and understand the information in this manual before installing or operating this system.
- Inspect this system for damage and/or wear before every operation. Replace any damaged or worn components before using.
- Never work alone.
- Never operate this system with guarding removed.
- When preparing to install or maintain this system, the tractor wheels need to be blocked to prevent movement and any jacks or lifts used should be appropriate for the weight to be lifted, stable and in good condition.
- Hydraulic lines should be inspected for wear and cracks. Any indication of damage to these lines should be immediate grounds for replacement of the line.
- Caution should be taken when working on hydraulic systems. Ensure all pressure in the system is relieved properly and that the fluid is cool before loosening any fittings or removing lines.
- Use appropriate personal protective equipment (PPE) when performing maintenance on hydraulic systems, such as safety glasses with approved side shields, heavy leather work gloves, and coveralls or an apron.
- The tractor 3-point may settle during operation. Be sure to check and apply chain tension by 'bumping' up the 3-point often.

Maintenance

Initial Installation: After the first few hours of operations, check the tightness of all hardware. Substantial wear will occur to the product and implement if fasteners and hardware are not properly secured.

Grease Fittings: Proper lubrication of the 4 grease locations at 12-hour intervals will dramatically prolong the life of the product.



Bolts: If the 1" bolts become loose for any reason, they must be tightened to 580 ft-lbs. Check the bolts periodically.

Troubleshooting

Problem: The hydraulic hitch does not move	
The tractor hydraulics are not active.	Make sure the hydraulic hoses are hooked up correctly (line labeled pressure; the other line return).
Poor electrical connection.	Check indicator lights on the hydraulic block coil connectors. If no light, check cable connections. If lights show, then replace the coil.
Problem: The hydraulic hitch moves the wrong direction	
The tractor hydraulics are reversed	Make sure the hydraulic hoses are hooked up correctly (line labeled pressure; the other line return).
Problem: The hydraulic hitch seems very “jerky” and seems to “hunt” when the tractor is at a standstill.	
The hydraulic flow is too fast	Turn the oil flow way down. The slower the hitch moves, the better it will perform. If your tractor hydraulics will not turn down far enough, MBW offers a needle valve to put inline.
Too much 3-point movement	Tighten up drawbar and/or 3-point slap. When the hitch stops it will sense any looseness or slop and a chain reaction will occur.

Installation Instructions

Tractor Preparation

WARNING!

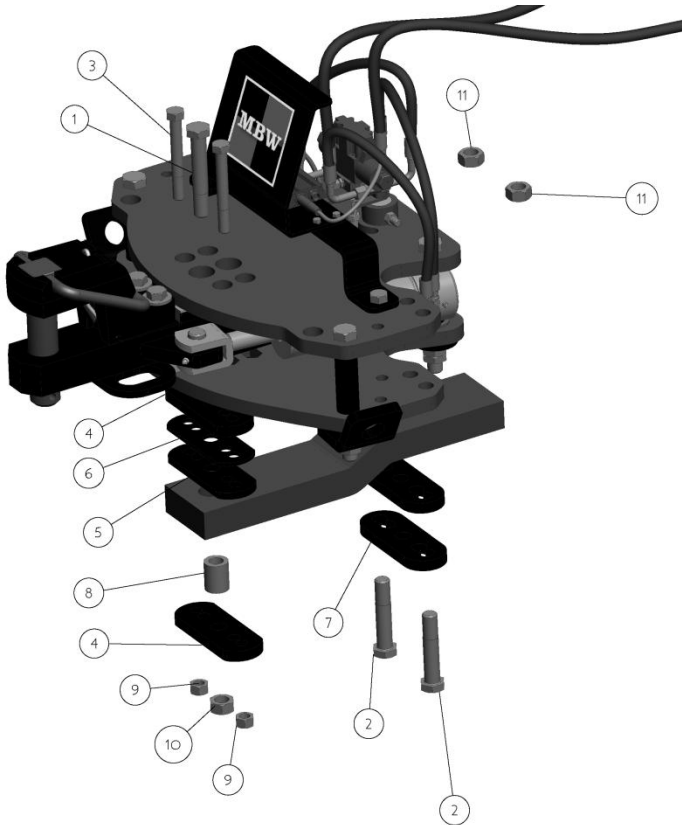
Installation of this system will change the leverage on the rear of the tractor. Some implement/tractor combinations may require added weight to the front of the tractor to improve handling. Test the steering performance of the tractor with the implement in all configurations before use and add weight if needed. Review your tractor's specifications for instructions and limitations.

Before installing the 400DB, park the tractor on a smooth level floor with adequate clearance to work around the drawbar area.

Hitch Preparation

Use a lift or hoist to lift the 400DB assembly.

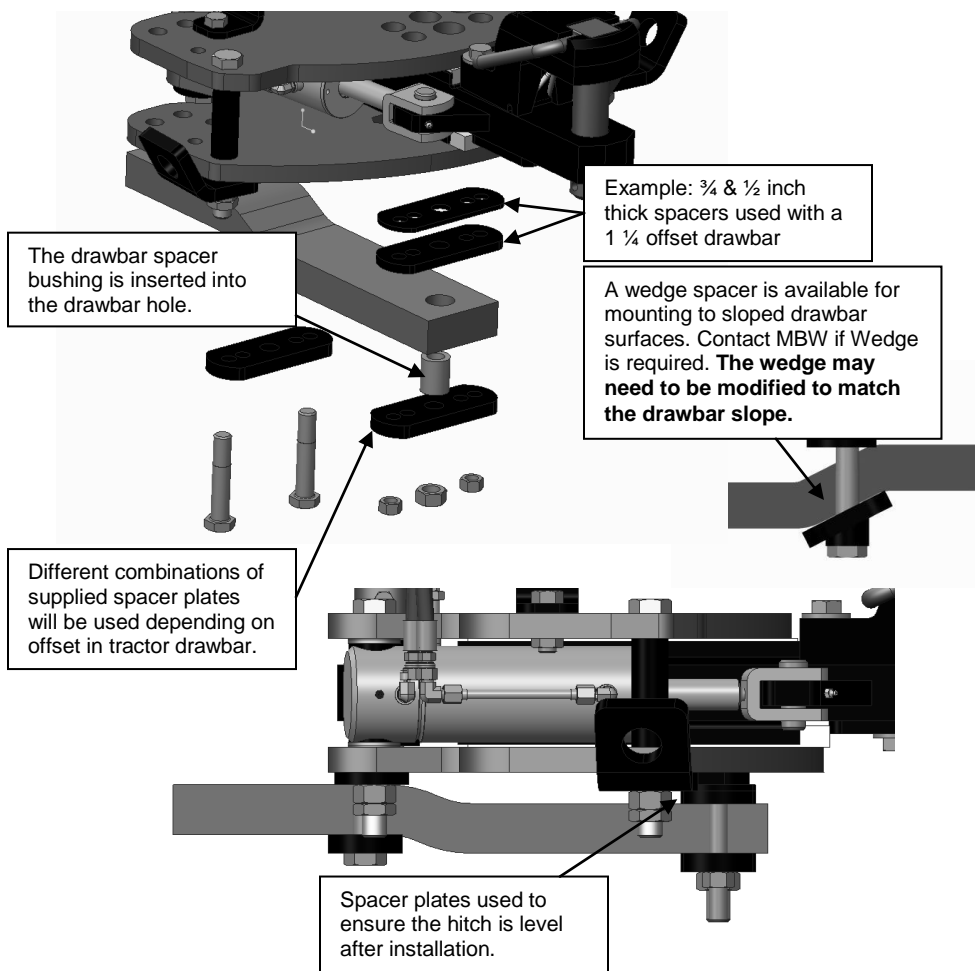
If the tractor is equipped with a drop-style drawbar, be sure that the drop is down. The Protrakker Hydraulic Hitch requires a minimum mounting clearance of 14 1/4 inches between the center of the draw-pin hole and rear of the tractor support casting.

Mounting Hardware


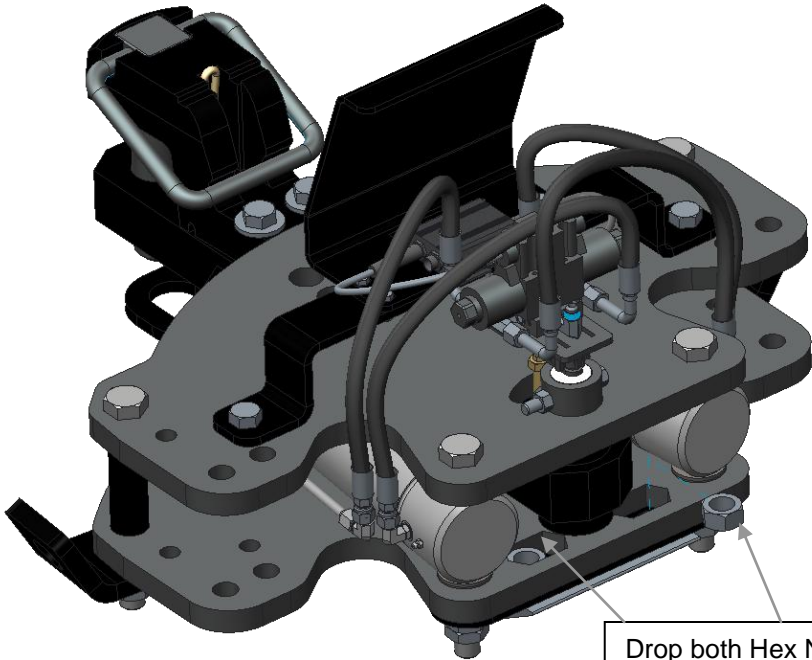
ITEM	PART #	DESCRIPTION	QTY Provided
1	B10-400DB	BOLT 1 X 6	1
2	B12-400DB	BOLT 1 X 5	2
3	B13	BOLT 3/4 X 6	2
4	MB15-400DB	CLAMP PLATE 3/4 IN THICK	3
5	MB32-400DB	CLAMP PLATE 1/2 IN THICK	3
6	MB33-400DB	CLAMP PLATE 1/4 IN THICK	2
7	MB40-400DB	REAR CLAMP PLATE	1
8	MB81-400DB	SPACER BUSHING	1
9	N6	LOCKNUT 3/4	2
10	W5	1IN LOCKNUT NC	1
11	W8	1IN NUT NF G9	2
	CH1	DRAWBAR SUPPORT CHAINS (not shown)	2

Determine Proper Mounting Configuration

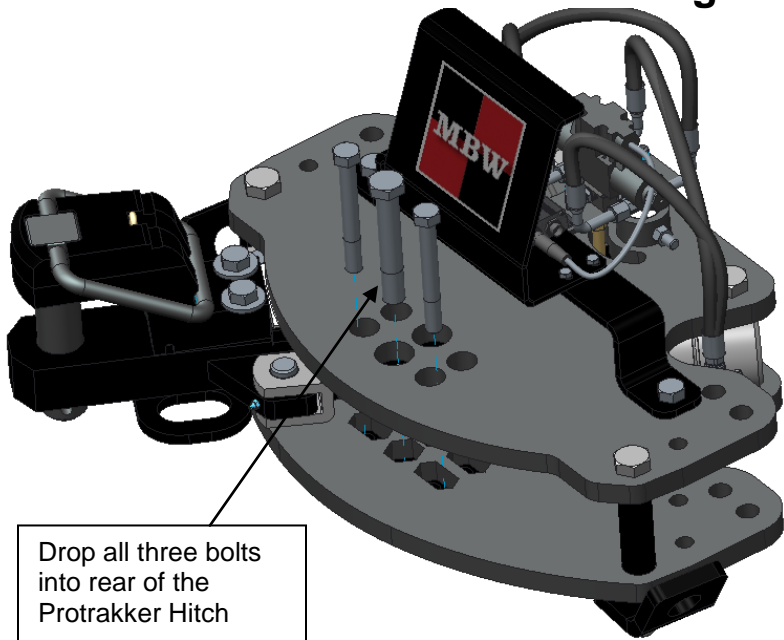
Note: The mounting hardware included with the ProTrakker unit is compatible with common straight or offset drawbars. Not all hardware will be used. Some drawbars may require additions or modifications to the hardware to allow the unit to be properly mounted. Contact MBW if you are not certain if your drawbar is compatible with the hardware provided.



Protrakker Hydraulic Hitch Preparation:



Drop both Hex Nuts into the front of the Protrakker Hitch.



Ensure you have the proper spacer plates positioned on the tractor drawbar correctly. Use a straightedge as shown to figure out how many spacer plates you need. Note: Straight tractor drawbars will not require spacer plates in-between Protrakker Hitch and tractor drawbar, but will be needed on the bottom side of the tractor drawbar to properly space bolts.



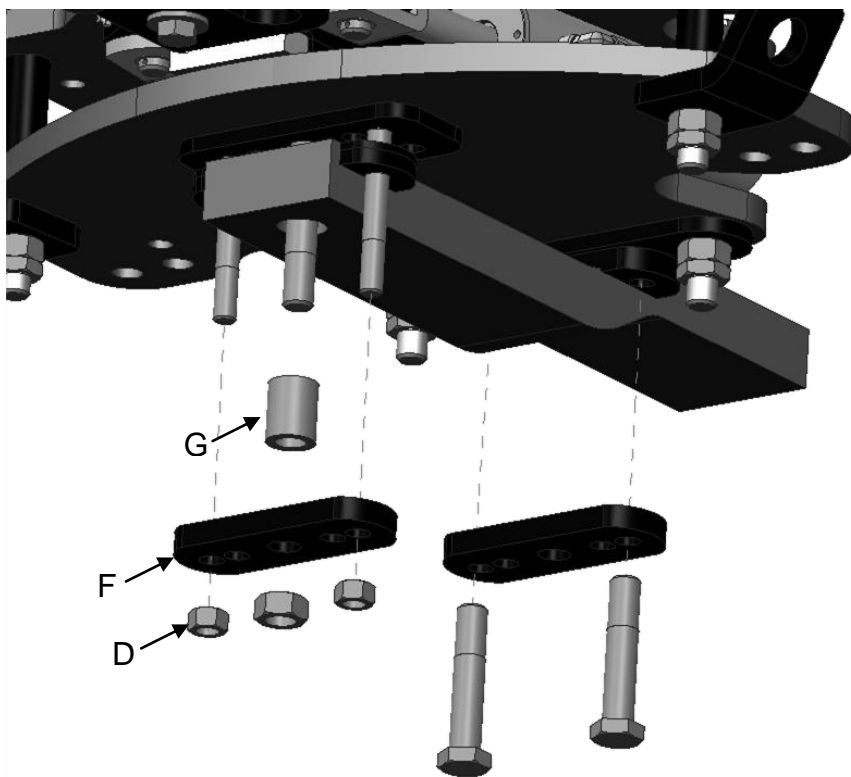
Mounting the Protrakker Hydraulic Hitch



Using a forklift or chain hoist, position the Protrakker Hydraulic Hitch over the tractor drawbar as shown. Center the Protrakker Hitch directly over the tractor drawbar with the draw-pin hole lined up over the center or the corresponding Protrakker Hitch mounting hole. Carefully lower the Protrakker Hitch down ensuring all bolts and spacers fall into place.

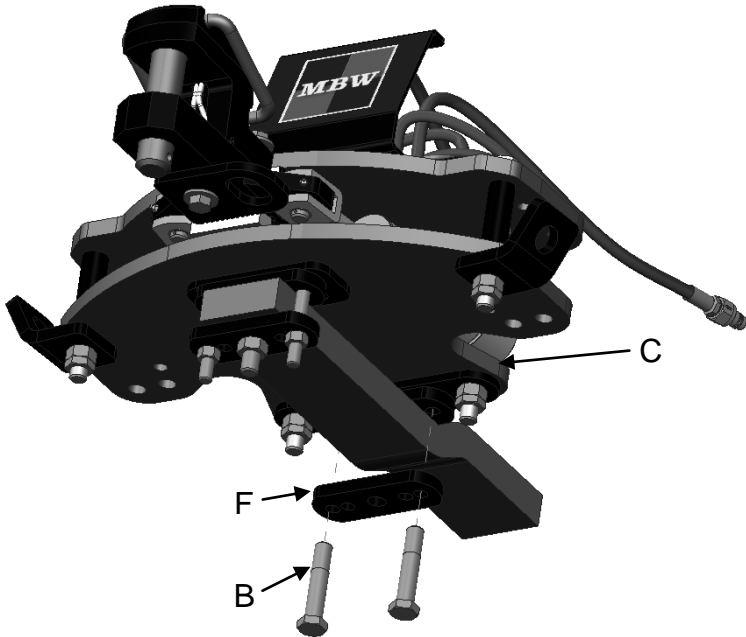
Install Hammerstrap at Front of Drawbar

Note: The mounting hardware included with the ProTrakker unit is compatible with common straight or offset drawbars. Some drawbars may require additions or modifications to the hardware to allow the unit to be properly mounted. Contact MBW if you are not certain if your drawbar is compatible with the hardware provided.



Install 3/4" thick hammer strap clamp (F) and spacer bushing (G) underneath tractor drawbar and secure with 3/4" flanged nuts (D).

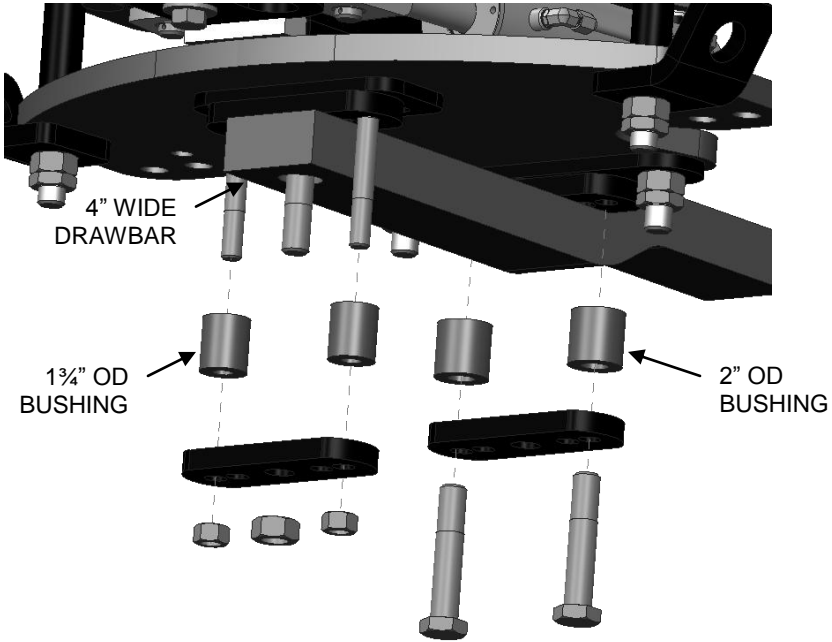
Install Hammerstrap at Rear of Drawbar



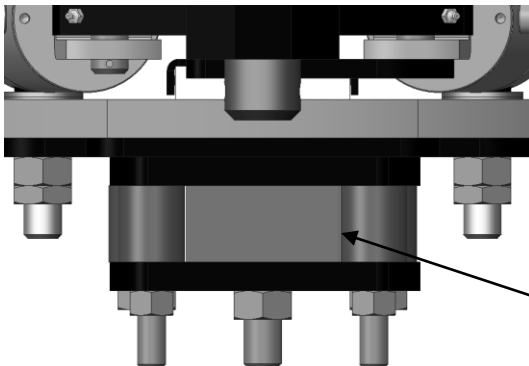
With the rear Protrakker Hitch bolts secured, slide underneath of hitch and install front Protrakker Hitch hammerstrap (F). Carefully thread the bolts (B) into hex nuts (C) at the front of the Protrakker Hitch.

BE SURE THE HAMMERSTRAP CLAMP IS LEVEL WITH THE HITCH. THE WEDGE CLAMP OR OTHER MODIFICATIONS MAY BE NEEDED IF POSITIONED ON THE SLOPE OF THE TRACTOR DRAWBAR.

4 Inch Wide Drawbars



4 inch wide drawbars will require the 1 3/4" OD and 2" OD spacer bushings to eliminate gap between the bolts and drawbar.



Inspect the installation to ensure there is minimal gap between the bolts or bushings and the drawbar. If your drawbar width is not accommodated by bolt positions and bushings, contact MBW for special components.

Tighten Mounting Hardware

With all the hardware in place, remove chain hoist and tighten 3/4" bolts and nuts to a torque 350 foot pounds and 1" bolts to a torque of 580 foot pounds.

Connect Hydraulic Hoses

Connect the supply lines to the tractor remote outlets so that the line labeled **pressure line** is pressure and the other line being return.



Install Drawbar Stabilizer Chains

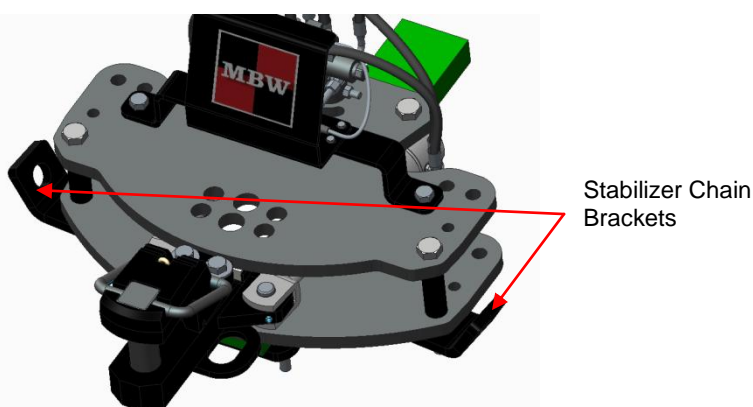
⚠ WARNING

CHAINS MUST BE INSTALLED AS INSTRUCTED. FAILURE TO PROPERLY INSTALL STABILIZER CHAINS COULD RESULT IN SERIOUS INJURY AND DAMAGE TO EQUIPMENT

⚠ WARNING

HYDRAULIC DRIFT WILL CAUSE SLACK IN THE SAFETY CHAINS. ALWAYS CHECK FOR HYDRAULIC DRIFT ON THE 3-POINT SYSTEM BEFORE USING THE DRAWBAR. CHECK FOR DRIFT OFTEN WHILE USING THE DRAWBAR.

With the two-point of the tractor in the complete raised position, loop the chain through the drawbar stabilizer chain brackets located on each side of the Protrakker Hitch and over the tractor two-point as shown.



Hook the chains as tight as possible. With chains hooked, lower the tractor's two-point approximately six inches and tighten each chain **one more link only**. Raise the two-point up and tie-up excess chain.

Be sure the tractor drawbar remains down on the support casting. Chains are made to help stabilize the drawbar, and not made to carry the entire load.



Mounting the Console

The RAM Mounting System provided gives you many options for mounting your console. It fits many different sizes of monitor bars inside the tractor cab.



Install Power and Control Cables

Install the four-pin cable to the control box on the Protrakker Hitch. Carefully route the four-pin cable up to the tractor cab.



Install the four-pin connector to the console and then install the remaining two-pin power cable.

Route the power cable to a reliable 12-volt supply. We recommend going directly to the battery.

Red wire = positive

Black wire = negative

Powering Up

With the control console in the off position, start up the tractor. Lock the correct hydraulic lever into place and turn console to manual mode. Using left and right jog button, observe the indicator and hitch moving. Switch to auto mode and take tractor to a hillside to observe auto mode working. **Note: If these modes are not working properly switch around the pressure and return lines.**

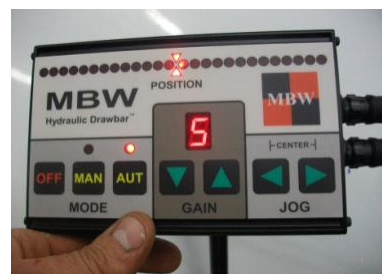
Manual Mode: This function enables the operator to move the hitch left or right by using the jog switch.

Auto Mode: This function enables the hitch to sense side hill slope and automatically compensates to establish level reference value.

Gain Function: This enables the operator from the cab to adjust the Hitch travel more or less per degree of slope. This is particularly useful when switching to implements with different pin to axle lengths.

GPS Ready Models: Follow steps 1-7 for mounting instructions.

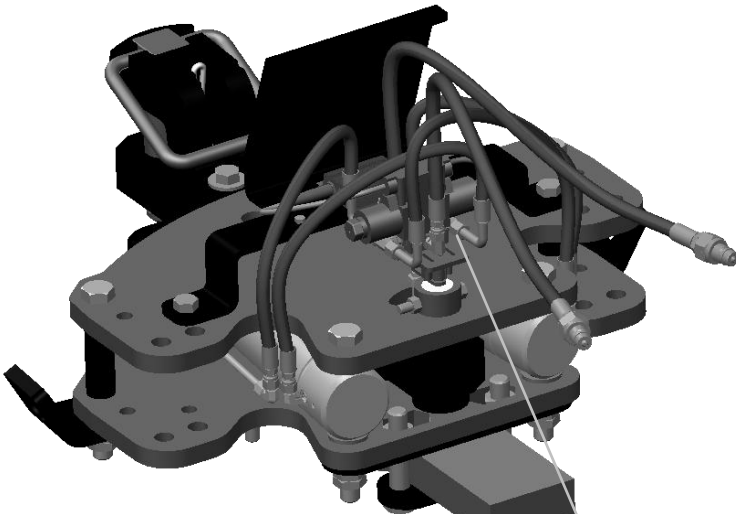
GPS wiring harness will be plugged into the Protrakker's position sensor cable. All further set-ups will be done by your GPS provider.



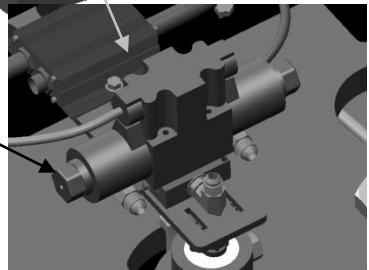
Manual Hitch Operation

The 400DB can be operated manually using a 3/32 hex key or any small rod 3/32 or less in diameter.

The hitch can be moved by inserting the hex key or rod into the small hole on each end of the hydraulic valve unit.



Insert into hole (one on each end) and push to move hydraulics

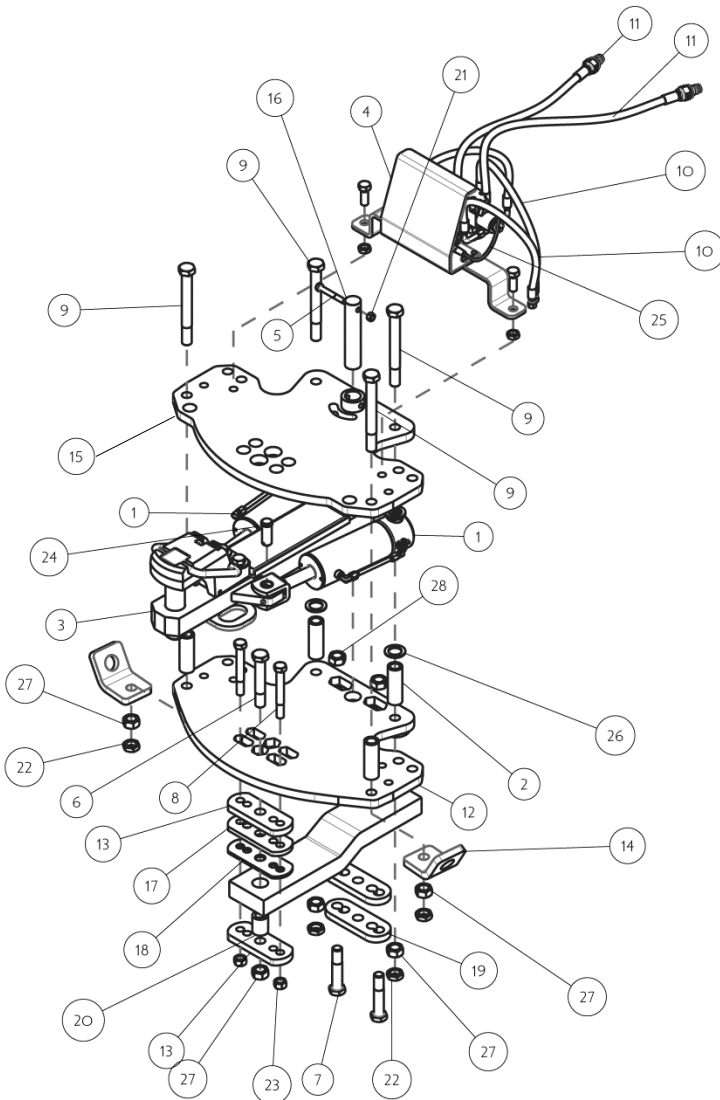


WARNING

MAKE SURE YOU ARE CLEAR OF ALL MOVING COMPONENTS BEFORE MANUALLY OPERATING THE SYSTEM.

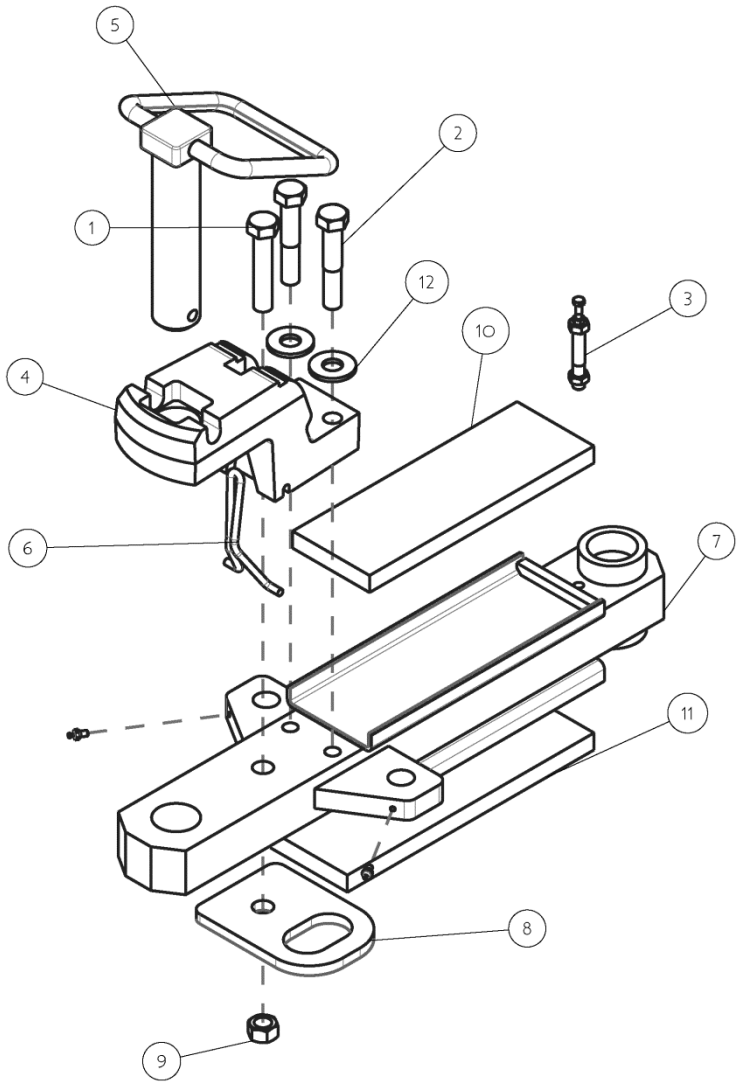
Parts Diagram: 400DB ASSEMBLY

NOTE: More hardware may be required for your specific application. Contact MBW if included hardware is not sufficient.

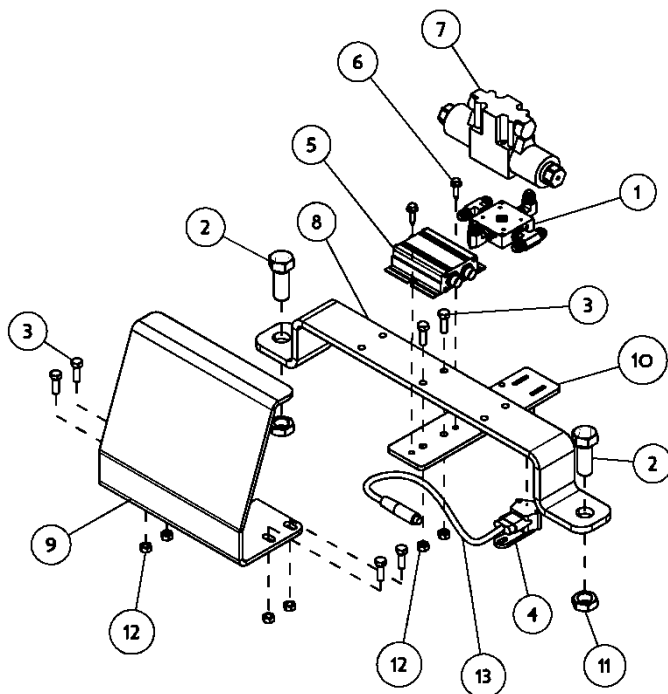


ITEM	PART #	DESCRIPTION	QTY
1	C2	RIGHT/LEFT CYLINDER 3.5 x 6.00	2
2	MB21-400DB	SPACER BUSHING – 1 x 1 1/2 x 4 3/8	4
3	ASM2-400DB	DRAWBAR ASSEMBLY	1
4	ASM3-400DB	VALVE & SENSORY ASSEMBLY	1
5	B6	BOLT 1/2 X 3 1/2	1
6	B10-400DB	BOLT 1 X 6 NC G8	1
7	B12-400DB	BOLT 1 X 5 NF G9	2
8	B13	BOLT 3/4 X 6 NC G5	2
9	B19	BOLT - 1 X 9.00 NC G5	4
10	HS3	1/4 x 26 In. HOSE	4
11A	HS2	Dbl 3/8 x 39 HOSE (John Deere Ready)	2
11B	HS1	3/8 x 38 HOSE (ProTrakker & Trimble Ready)	2
12	MB1-400DB	BOTTOM PLATE	1
13	MB15-400DB	CLAMP PLATE 3/4 IN THICK	3
14	MB16-400DB	SUPPORT CHAIN HOOKS	2
15	MB2-400DB	TOP PLATE	1
16	MB20-400DB	CHROME PIN 1-5/8 X 8 1/8	1
17	MB32-400DB	CLAMP PLATE 1/2 IN THICK	3
18	MB33-400DB	CLAMP PLATE 1/4 IN THICK	2
19	MB40-400DB	REAR CLAMP PLATE	1
20	MB81-400DB	SPACER BUSHING 2"	1
21	N1	1/2 LOCK NUT	1
22	N5	1IN JAM NUT	4
23	N6	LOCKNUT 3/4	2
24	PP2-400DB	PICKER PIN 1 X 3	2
25	VHB1	HYDRAULIC VALVE CABLE	1
26	W3-400DB	SPACER 10 GA 1 1/2 NR	6
27	W5	1IN LOCKNUT NC	5
28	W8	1IN NUT NF GRADE 9	2
	CH1	SUPPORT CHAINS (Not Shown)	2

Parts Diagram: 400DB DRAWBAR ASSEMBLY



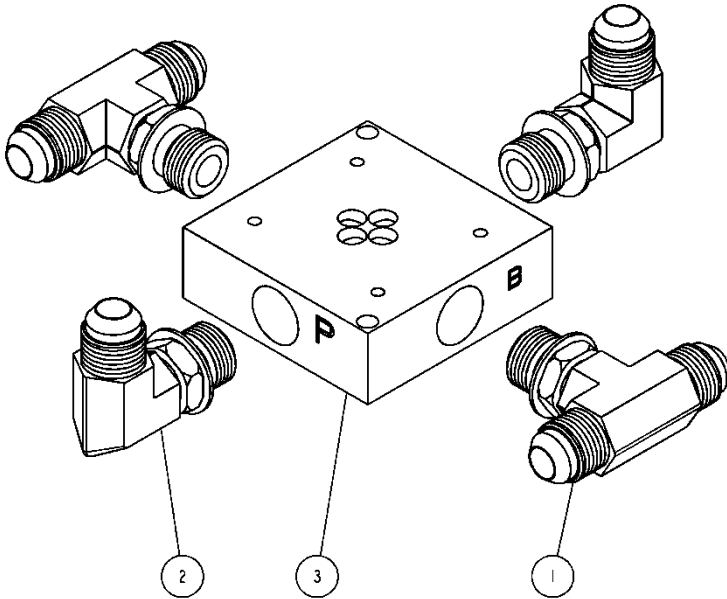
ITEM	PART #	DESCRIPTION	QTY
1	B3-400DB	BOLT 7/8 x 6 NC G8	1
2	B8-400DB	BOLT 3/4 x 4 1/2 NC G8	2
3	CA1	SENSOR BOLT ASSEMBLY 1/2 x 3	1
4	CD1-400DB	HAMMERSTRAP – CAT 4	1
5	CD2-400DB	HAMMERSTRAP PIN – CAT 4	1
6	CD3-400DB	HAMMERSTRAP TRIGGER	1
7	MB22-400DB	DRAWBAR CAT4	1
8	MB6-2-400DB	CHAIN HOOK	1
9	N7-400DB	LOCKNUT 7/8	1
10	PS3-400DB	PLASTIC SPACER - TOP	1
11	PS4-400DB	PLASTIC SPACER - BOTTOM	1
12	W1-400DB	LOCK WASHER 3/4	2
	GMX-400DB	GARMAX BUSHING 1 5/8 x 2 1/8 x 4 ¼ (Not Shown)	1
	CNX-400DB	CONNEX BUSHING 1 x 1 1/8 x 1 (Not Shown)	2

Parts Diagram: 400DB VALVE & COVER


ITEM	PART #	DESCRIPTION	QTY
1	ASM4	ALUMINUM MANIFOLD ASSEMBLY	1
2	B4	BOLT 3/4 X 2	2
3	B5	BOLT 5/16 X 1	6
4	BEIDS	POSITION SENSOR	1
5	DH02	SENSOR HUB (ProTrakker Controlled Only)	1
6	DH03	SCREW	2

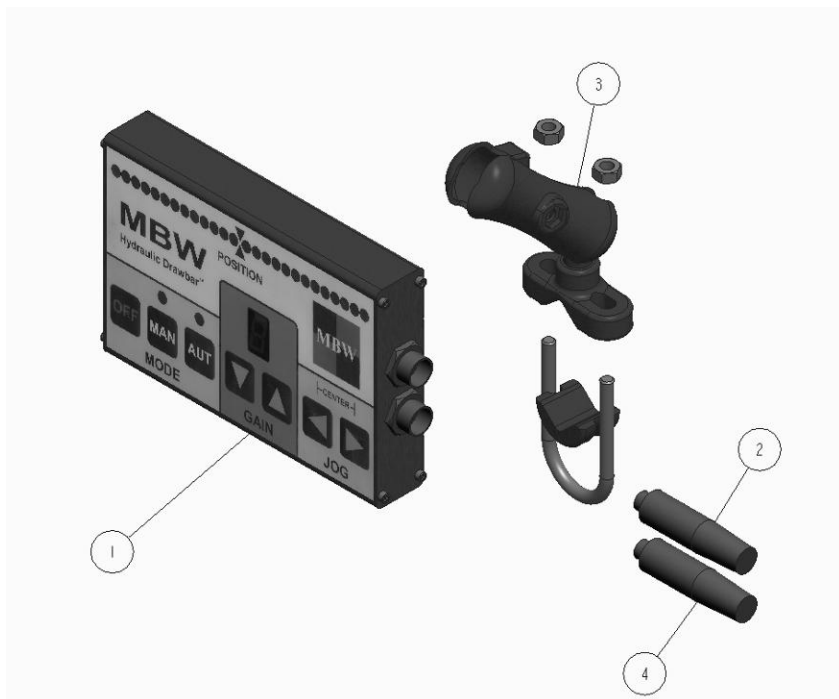
7A	HV1	BLACK & WHITE VALVE (Protrakker Controlled)	1
7B	HV2	PROPORTIONAL VALVE (Trimble Ready)	1
8	MB23	HYD VALVE BRACKET	1
9	MB26	SHIELD	1
10	MB27	HITCH VALVE & SENSOR MOUNT	1
11	N3	3/4 JAM NUT	2
12	N4	NUT 5/16	6
13A	PSN1	POSITION SENSOR CABLE – Protrakker Controlled	1
13B	PSN2	POSITION SENSOR CABLE – Trimble Ready	1
13C	PSN3	POSITION SENSOR CABLE – John Deere Ready	1

Parts Diagram: MANIFOLD ASSEMBLY



ITEM	PART #	DESCRIPTION	QTY
1	FT1	9/16 ORB T-FITTING	2
2	FT2	9/16 ORB 90 DEG ELBOW FITTING	2
3	HV3	ALUMINUM MANIFOLD	1

Parts Diagram: CAB CONTROL ASSEMBLY



ITEM	PART #	DESCRIPTION	QTY
1	CC1	CAB CONTROL BOX	1
2	HBC	CAB BOX TO SENSOR BOX CABLE	1
3	MC1	RAM MOUNT	1
4	PC1	POWER CABLE	1

Protrakker™ Hydraulic Hitch Quick Reference Guide

MODE			GAIN			JOG	
MODE	(GAIN)		DWN/UP	BOTH		LFT/RGT	BOTH
MANUAL (solid)	***		***	***		JOG	CEN
PROGRAM (slow flash)	1-Intensity	PAGE	PAGE	RESTORE DEFAULTS		SETTING	CEN- >MAN
	2-Auto-Off						
	3-HystStop						
	4-HystStart						
	5-G1FsTilt						
	6-G9FsTilt						
	7-RdTiltDly						
CALIBRATE (fast flash)	1-PosLft	PAGE	PAGE	ENTER		JOG	CEN
	2-PosCen						
	3-PosRgt						
	4-TiltLft						
	5-TiltCen						
	6-TiltRgt						
AUTO (solid)	9-Jan	GAIN	***		JOG->MAN	CEN- >MAN	
SWEEP (slow flash)	9-Jan	GAIN	***		JOG->MAN	CEN- >MAN	
FLOAT (fast flash)	9-Jan	GAIN	***		JOG->MAN	CEN- >MAN	
SWEEP DELAYS (sec)			ERROR CODES				
1	0	6	120	1	Controller		
2	5	7	180	2	Hub		
3	10	8	240	3	Position		
4	30	9	300	4	Valve		
5	60			5	Tilt		