



The Original

Switch Plow

Model 8200

IN-FURROW

OWNER OPERATOR/PARTS MANUAL
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Allen Farm Equipment, LP
PO Box 21049
Carson City, NV. 89721
888-459-9615, Fax 775-246-4512
www.AllenFarmEquipment.com

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INTRODUCTION

Before operating the switch plow, study this manual carefully to become familiar with the operation and safety procedures. Failure to do so could result in personal injury or damage to the equipment.

All measurements in this manual are in U.S. Standard Units.

The right and left side is determined by facing the direction of travel when in use.

The warranty certificate is included in this manual and supplied to owner at time of purchase.

PRE-DELIVERY CHECKLIST

Plow should be assembled and in proper operating condition before delivery to customer.

- Plow has been assembled according to manufacturer's instruction.
- Landslides, mold boards and all other hardware have been installed properly and tightened to specifications.
- All moving parts have been lubricated properly and all grease fittings will take grease.
- All functions of plow are working as designed by manufacturer.
- All safety decals are located in proper places.
- Clean and touchup any scratches in paint.
- Be sure dealer rep has fully explained proper setup operation of plow.**
- Signature and date of technician performing work.

Set-up Technician

Date of Service

DELIVERY CHECKLIST

ADVISE CUSTOMER OF THE FOLLOWING AT THE TIME OF DELIVERY:

- Regular lubrication and maintenance extend life of equipment.
- Always follow safe and proper operating procedures.
- Point out warning decals and safety hazards.
- Keep all bolts tightened to specifications.
- Use safety and warning lights when transporting plow on public roads.
- Fill out delivery and warranty forms and have customer sign.
- Show and explain to customer how to hitch plow to tractor, make field adjustment, and operate correctly according to operator's manual.

Set-Up Technician

Date

When ordering replacement parts from your dealer, refer to Model No. and Serial No. of your switch plow.

Serial No.: _____

Model No.: _____



SAFETY PRECAUTIONS



3. Always operate plow in a careful, controlled manner.
2. Always lower plow to ground when not in use.
3. Stand clear of switch plow when being raised or lowered.
4. Never operate plow from side to side while someone is standing inside main frame.
5. All personnel should stand clear of switch plow during preparation for movement of equipment from one location to another.
6. Always stand clear of plow when being operated from side to side.
7. Always place tool bar in center of main frame before unhitching from tractor.
8. Do not park vehicles or place objects within 10 feet of the rear of the Switch Plow.
9. Always park plow on flat, level ground before unhooking from tractor.
- 10.. When transporting plow, always make sure tool bar is in center position and hydraulic cylinder hoses are connected to tractor outlets so plow cannot swing from side to side during transit.
11. Turn on flashing lights when transporting unit on highway, unless prohibited by law.
12. Never check for hydraulic leaks with hands or clothes.
13. Do not operate hydraulic systems when hydraulic leaks are present.
14. Do not operate unit close to high voltage electric lines.

SAFETY SYMBOLS

RECOGNIZE SAFETY INFORMATION

This is the safety symbol. When you see this, it means:

**ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!**



Follow recommended precautions and procedures.

UNDERSTAND SIGNAL WORDS

A signal word –**DANGER**, **WARNING**, or **CAUTION** – is used with the safety alert symbol.

DANGER indicates imminently hazardous situations that, if not avoided, will result in serious injury, or death.



DANGER

WARNING indicates potentially hazardous situations that, if not avoided, could result in serious injury, or death.

WARNING may also be used to alert against unsafe practices.



WARNING

CAUTION indicates potentially hazardous situations that, if not avoided, may result in minor or moderate injury.

CAUTION may also be used to alert against unsafe practices.



CAUTION

FOLLOW SAFETY INSTRUCTIONS

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Remove missing or damaged safety signs. Contact your local dealer for replacement parts.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine or disrepair may impair safety, or the machine function.

SAFETY INSTRUCTIONS AND RULES

KEEP RIDERS OFF MACHINE

Only allow the operator on the machine. Keep riders off.

Riders on machine are subject to injury such as being struck by foreign objects and being thrown off the machine. Riders also obstruct the operator's view resulting in the machine being operated in an unsafe manner.

OPERATOR'S MANUAL

Do not put this operator's manual away unread. Read the manual carefully regardless of previous experience. Allow yourself this time, it will save time and labor later on.

IMPORTANT: Keep an extra copy of the operator's manual in your office or in the garage in case one gets lost.

An extra copy may be acquired from your dealer for an extra fee.

PREPARE FOR EMERGENCIES

Be prepared if fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital and fire department near your telephone.

AVOID HIGH PRESSURE FLUIDS

Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before unhooking hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles that eject fluids under pressure. Use a piece of cardboard to search for leaks.

If any fluid is injected into the skin, a doctor familiar with this type of injury must surgically remove it within a few hours or gangrene may result.

SAFETY SIGN LOCATIONS
READ ALL SAFETY DECALS CAREFULLY



Detaching Decal: Located on Center Mast of Main Frame.



Tool Bar Guide Decal: Located on Right and Left Front Side of Tool Bar Guide



Gauge Wheel Decal: Located on Each Side of Gauge Wheel Arm



Tool Bar Guide Danger Decal: Located on Left & Right Front Side of Tool Bar Guide

OPERATIONS

PRE-OPERATIONS CHECKLIST

All tractor preparation should be as recommended in your tractor operator's manual. Tractor should be fully weighted in accordance with tractor manufacturer's recommendations.

1. Tractor has been prepared according to tractor operator's manual and Start-Up Procedures on page 8.
2. Tractor sway blocks are in position as recommended in section on "Sway Block Positions".
3. The plow has been prepared and properly attached to tractor and is operating as designed.
4. Adjust both lift links on tractor to same length.
5. Grease main tool bar pivot pin (every 8 hours).
6. Grease gauge wheel yoke pivot (every 8 hours).
7. Check gauge wheel bearings for loose play weekly (tighten or replace if necessary).
8. Check plow shanks for proper spacing (28" center to center for 18" cut).
9. Check all hydraulic hose connections for leaks and operate tool bar back and forth to remove air from lines.
10. Keep all nuts and bolts tight. Check upon delivery and weekly thereafter.

SHEAR BOLT STANDARDS

The switch plow is equipped with 3/8" UNC x 4 1/2" Grade 2 shear bolts in each shank. When the bottom hits a hard object, the bolts will shear, permitting the plow bottom to trip and swing backwards. Reset by raising plow and pushing bottom back to operating position and replacing shear bolt.

SWAY BLOCK POSITIONS

Each bottom plow is equipped with a landslide which helps the plow to run straight. The landslides can be turned upside-down for additional wear time. Side draft control can also be controlled by the position of the tractor sway blocks.

8200 IN-FURROW SERIES

Install sway blocks in down position

STARTUP PROCEDURES 8200 SERIES ONLY

IMPORTANT! MAKE SURE CYLINDER IS ADJUSTED PROPERLY; OTHERWISE, IT COULD DAMAGE CYLINDER.

NOTE: All tractor preparations should be as recommended in your tractor operator's manual. Tractor should be fully weighted in accordance with tractor manufacturer's recommendations.

1. Full set of weights on front of tractor.
2. Make sure the lift arms on the tractor are all the way in.
3. Make sure rear tires are a minimum of 72" center to center of tire.
4. Swing plow from side to side and make sure that the guide roller touches both stops. If necessary, adjust clevis on cylinder. It is important that this is done, otherwise, the cylinder could be damaged.
5. Swing tool bar to center of frame, lift off the ground until rear plow barely touches the ground, then adjust top link until **front plow is off the ground by approximately 6"**. This sets top link on tractor to proper length.
6. Set rear gauge wheel adjusting screw to preferred depth.
7. Use stabilizers on In-Furrow plow.

REVERSING THE PLOW

Raise plow slowly and reverse tool bar completely to opposite side of main frame. Turn tractor around and slowly lower plow to ground and continue plowing.

CAUTION:
**NEVER SHIFT TOOL BAR WHILE IN
GROUND!!**

TROUBLE SHOOTING

PROBLEM	CAUSE	SOLUTIONS
Plow will not go in ground:	<p>Tractor depth control too shallow</p> <p>Insufficient plow bottom suction.</p> <p>Worn plow shares</p> <p>Incorrect rockshaft setting.</p> <p>Severe hard ground conditions</p> <p>Spring trip shank mold board tilt not set properly.</p>	<p>Adjust tractor setting.</p> <p>Shorten center link on tractor and extend lift arms outward.</p> <p>Replace with new shares.</p> <p>Adjust on tractor.</p> <p>Tilt gangs forward to rear shear bolt position.</p> <p>Adjust each trip spring shank jam nuts in to move shank and mold board forward to take more ground.</p>
Poor depth control:	<p>Too much load response.</p> <p>Worn shares.</p>	<p>Adjust sensitivity lever on tractor.</p> <p>Replace sensitivity lever on tractor</p>
Plow not running straight:	<p>Improper lateral adjustment.</p> <p>Plow running on nose.</p>	<p>Check right and left hand link for the same dimension.</p> <p>Check tractor wheel setting and tire wear.</p> <p>Check for excess landslide wear.</p> <p>Adjust center link on tractor and/or rear gauge wheel on plow.</p>
Ridging:	<p>Plow not properly level laterally.</p> <p>Plow not level fore & aft.</p> <p>Front bottom cutting too wide or too narrow.</p>	<p>Both right and left hand lift links should have the same dimensions.</p> <p>Adjust tractor center link and/or rear gauge wheel adjustment.</p> <p>Check for incorrect distance of tractor from last water furrow.</p>

TROUBLE SHOOTING

PROBLEM	CAUSE	SOLUTIONS
High draft:	Plow running on nose.	Adjust center link and/or rear gauge wheel setting.
	Too little load response.	Adjust rockshaft lever.
	Insufficient traction.	Increase tire or tractor weight.
Poor trash covering:	Incorrect tractor speed.	Adjust to proper speed (4-5 mph) in normal soil conditions.
	Too much trash on ground.	A light harrowing or mowing may be necessary.
Standard trip too often for soil conditions:	Improper shear bolt.	Switch to 3/8" x 4 1/2" grade 2 shear bolt.
Spring trip shanks trip too often for soil conditions:	Improper setting on Trip tension.	Adjust each shank from front to back by increasing spring tension with jam nuts.

ASSEMBLY INSTRUCTIONS

8200 SERIES SWITCH PLOW

MAIN FRAME AND TOOL BAR (REFER TO FIGURE 1)

The main frame and 3-Bottom tool bar will come completely assembled with the required hydraulics factory installed.

CAUTION:

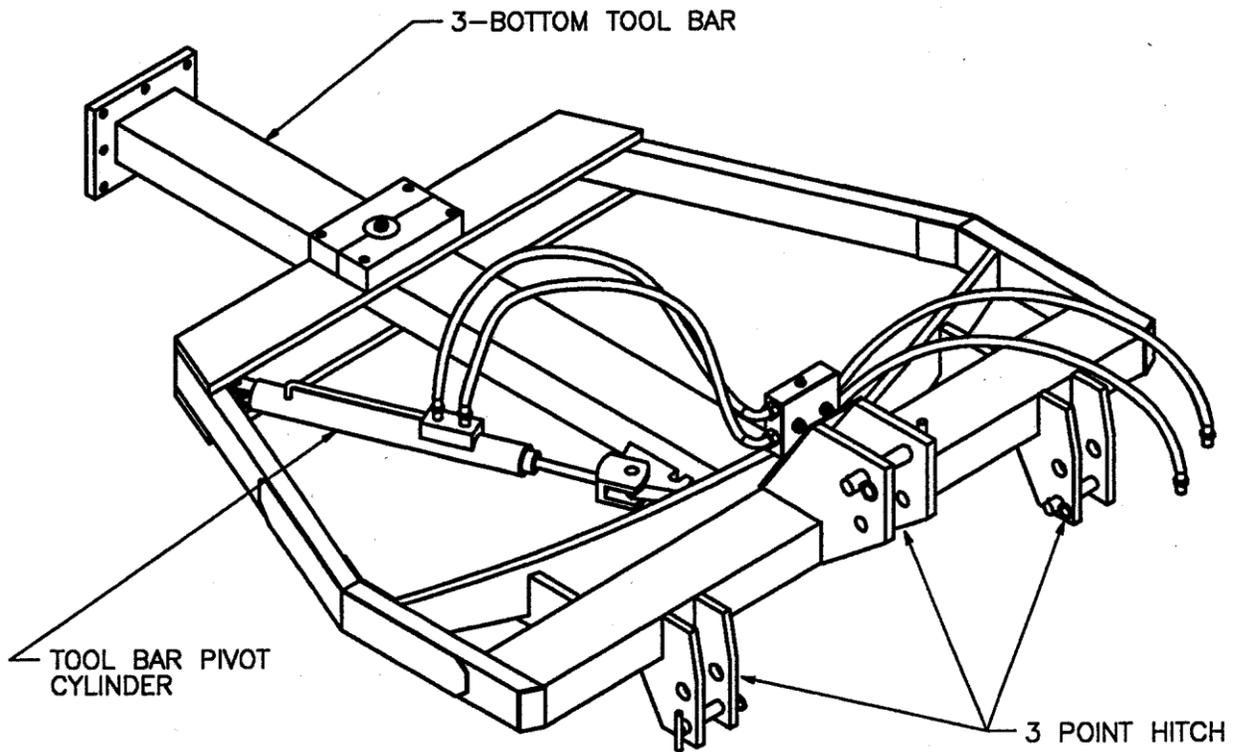


The main frame should be supported by adequate floor supports that will support the weight of the frame and any added plow components



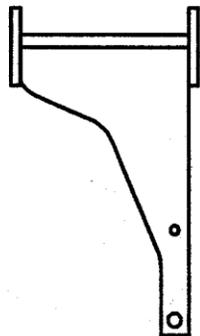
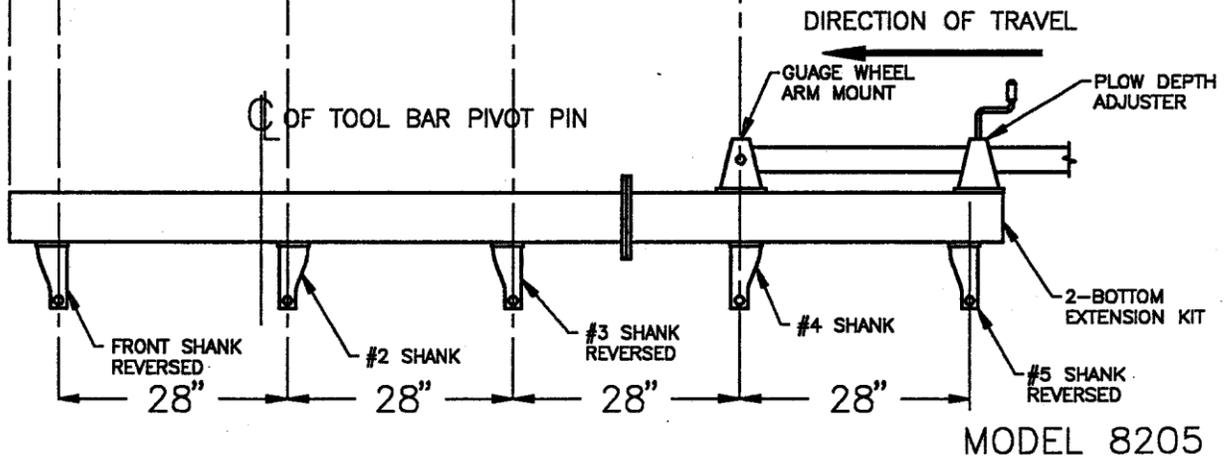
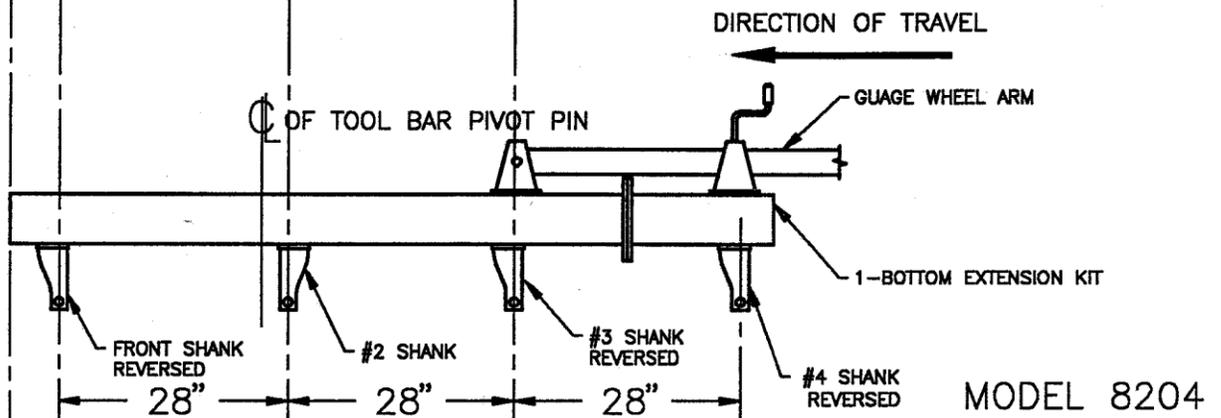
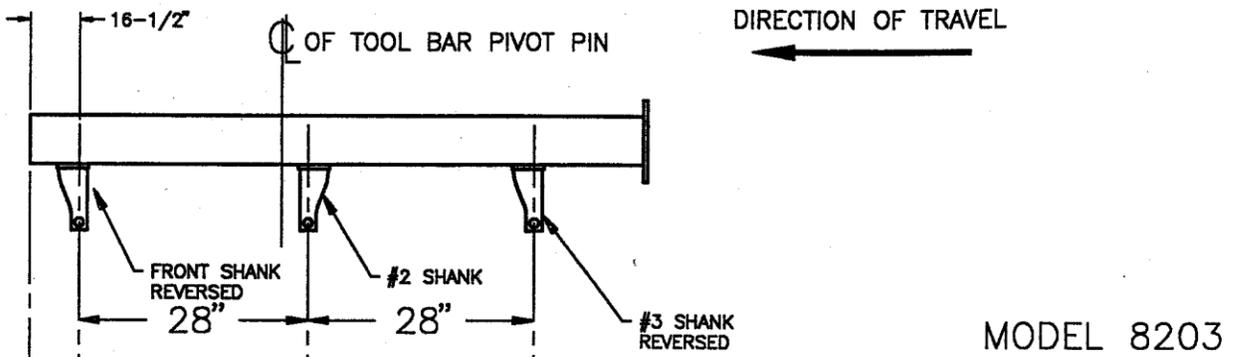
Es necesario soportar el armazon principal suficientemente para soportar las armazon tambien con el pest de las otras adiciones del arado.

Set-up the main frame on floor supports so the frame is level from side to side and for to aft. The height of the frame should be set to allow for assembly of plow shanks and mold boards under the main frame. For Model 8204 and 8205 attach the tool bar extension to tool bar using (8) $\frac{3}{4}$ " UNC x 3" long hex bolts.

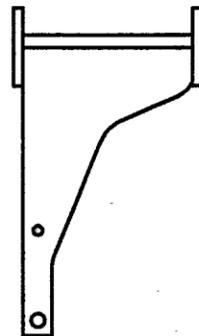


(FIGURE 1)

SHANK SPACING AND DIRECTION FOR ALL 8200 SERIES PLOWS



(FIGURE 2)



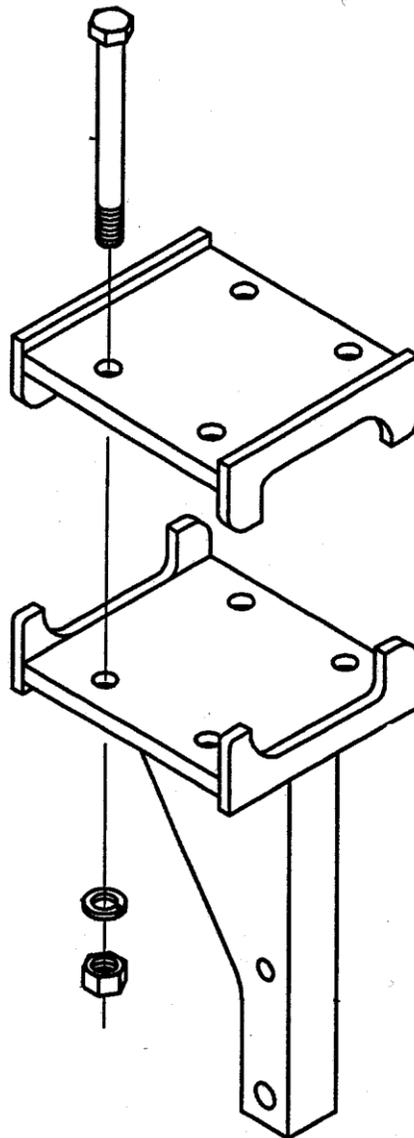
REVERSED INTERMEDIATE SHANK

INTERMEDIATE SHANK

ASSEMBLY OF PLOW SHANKS TO TOOL BAR

Refer to (Figure 2) and position the required shanks for your model switch plow at the 28" spacing shown. Note the position of each shank post and direction the shank post is turned.

The front shank post must be positioned as shown in Figure 2. Position the next shank along the tool bar at the 28" spacing shown in Figure 2. Loosely attach the front shank to the tool bar with (4) four 7/8" x 9" long hex bolts. Loosely attach the next shank to the tool bar with 7/8" UNC bolt. Refer to Figure 3.



(FIGURE 3)

SHANK AND GAUGE WHEEL MOUNT

(Refer to Figure 4)

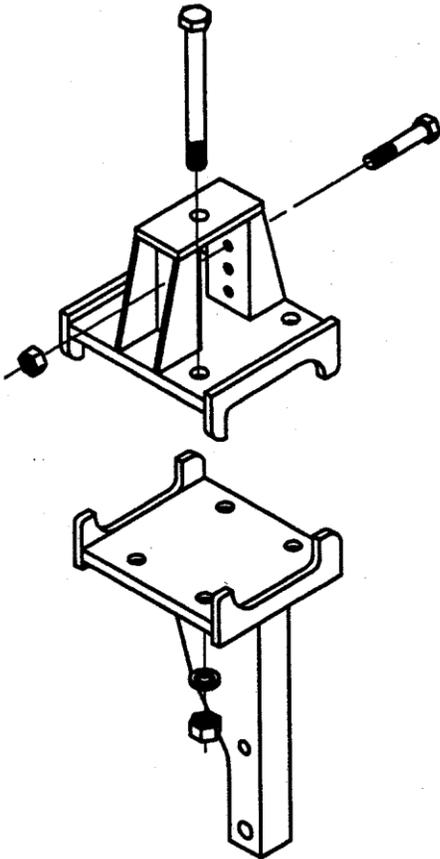
For the assembly of the Model 8204, the gauge wheel arm mount should be positioned above the fifth shank on the tool bar, and the depth adjuster should be positioned on the tool bar above the approximate position of the next shank (refer to Figure 2). Attach each shank with (4) four 7/8" x 9" long hex bolts (refer to Figure 4).

SHANK AND DEPTH ADJUSTER

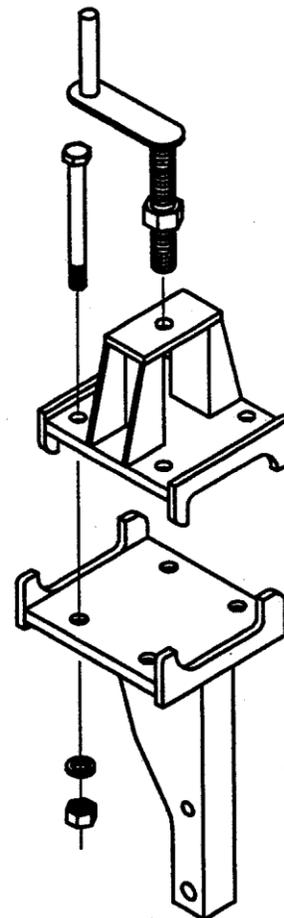
(Refer to Figure 5)

For the assembly of the Model 8205, the gauge wheel should be positioned on the tool bar above the fifth shank on the tool bar, and the depth adjuster should be on the tool bar above the last shank (refer to Figure 2). Attach each shank with (4) 7/8" x 9" long hex bolts (refer to Figure 5).

Recheck the 28" spacing and tighten each shank to the tool bar. Refer to bolt torque settings on page 17.



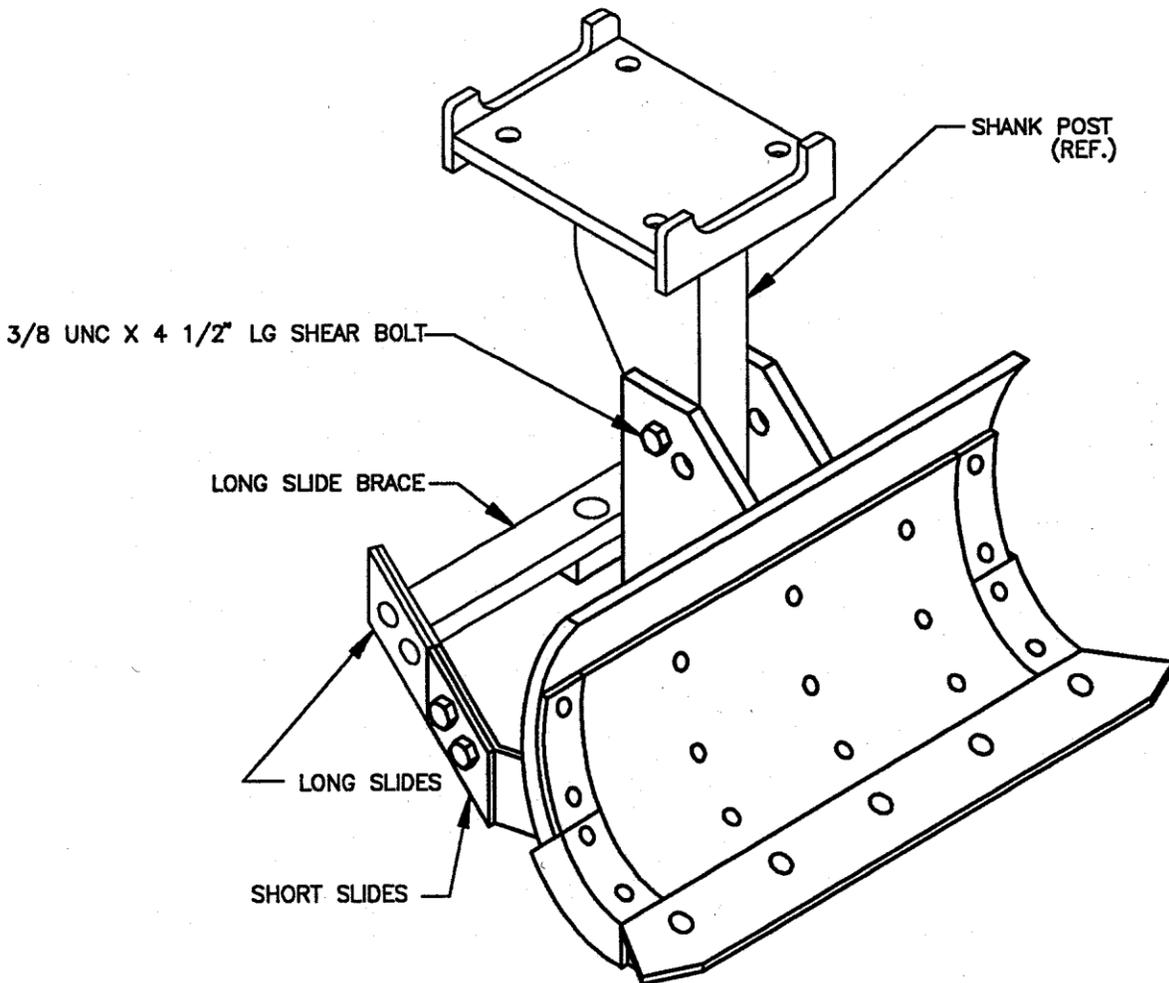
SHANK WITH GAUGE WHEEL MOUNT
(FIGURE 4)



SHANK WITH DEPTH ADJUSTER
(FIGURE 5)

ASSEMBLY OF MOLD BOARDS TO SHANKS (REFER TO FIGURE 6)

Attach the required number of mold boards to the plow shanks for your model switch plow. Be sure to position the mold boards with the long land slide at the last position in the rear. Attach each mold board to the shank with (1) $\frac{3}{8}$ " UNC x $4\frac{1}{2}$ " long shear bolt in the top hole and (1) $\frac{7}{8}$ " UNC x $5\frac{1}{2}$ " long hex bolt in the bottom hole. Tighten each bolt to the proper torque setting on page 17.



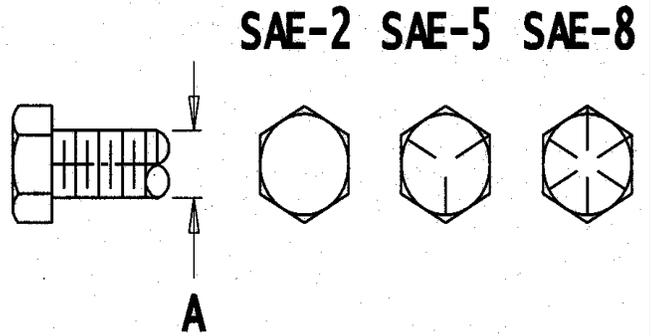
(FIGURE 6)

CHECKING BOLT TORQUE

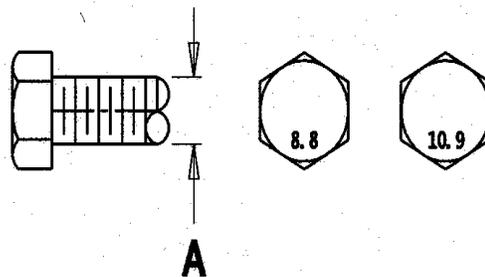
The table shown below gives correct torque values for various bolts and cap screws. Tighten all bolts to the torques specified in chart unless otherwise noted. Check tightness of bolts periodically using bolt torque chart as a guide. Replace hardware with the same strength bolt.

U.S MEASUREMENT

BOLT DIAMET ER "A"	BOLT TORQUE IN N-M (ft-lb)		
	SAE2	SAE5	SAE8
1/4	NOT USED	14 (10)	19 (14)
5/16	NOT USED	27 (20)	41 (30)
3/8	31 (23)	47 (35)	68 (50)
7/16	47 (35)	75 (55)	108 (80)
1/2	75 (55)	115 (85)	163 (120)
9/16	102 (75)	176 (130)	237 (175)
5/8	142 (105)	231 (170)	325 (240)
3/4	217 (160)	407 (300)	576 (425)
7/8	251 (185)	603 (445)	929 (685)
1	339 (250)	910 (670)	1396 (1030)
1-1/4	450 (330)	1235 (910)	1979 (1460)



BOLT DIAMETER "A"	BOLT TORQUE IN N-M (ft-lb)	
	8.8	10.9
5mm	6 (5)	9 (7)
6mm	11 (9)	17 (13)
8mm	28 (20)	40 (30)
10mm	55 (40)	80 (59)
12mm	95 (70)	140 (103)
16mm	235 (173)	350 (258)
20mm	475 (350)	675 (498)
24mm	825 (608)	117 (863)
30mm	1630 (1201)	2320 (1712)



METRIC MEASUREMENT

NOTE: Bolts having locknuts with plated and wax finish should be tightened to approximately 50 percent of amounts shown in chart.

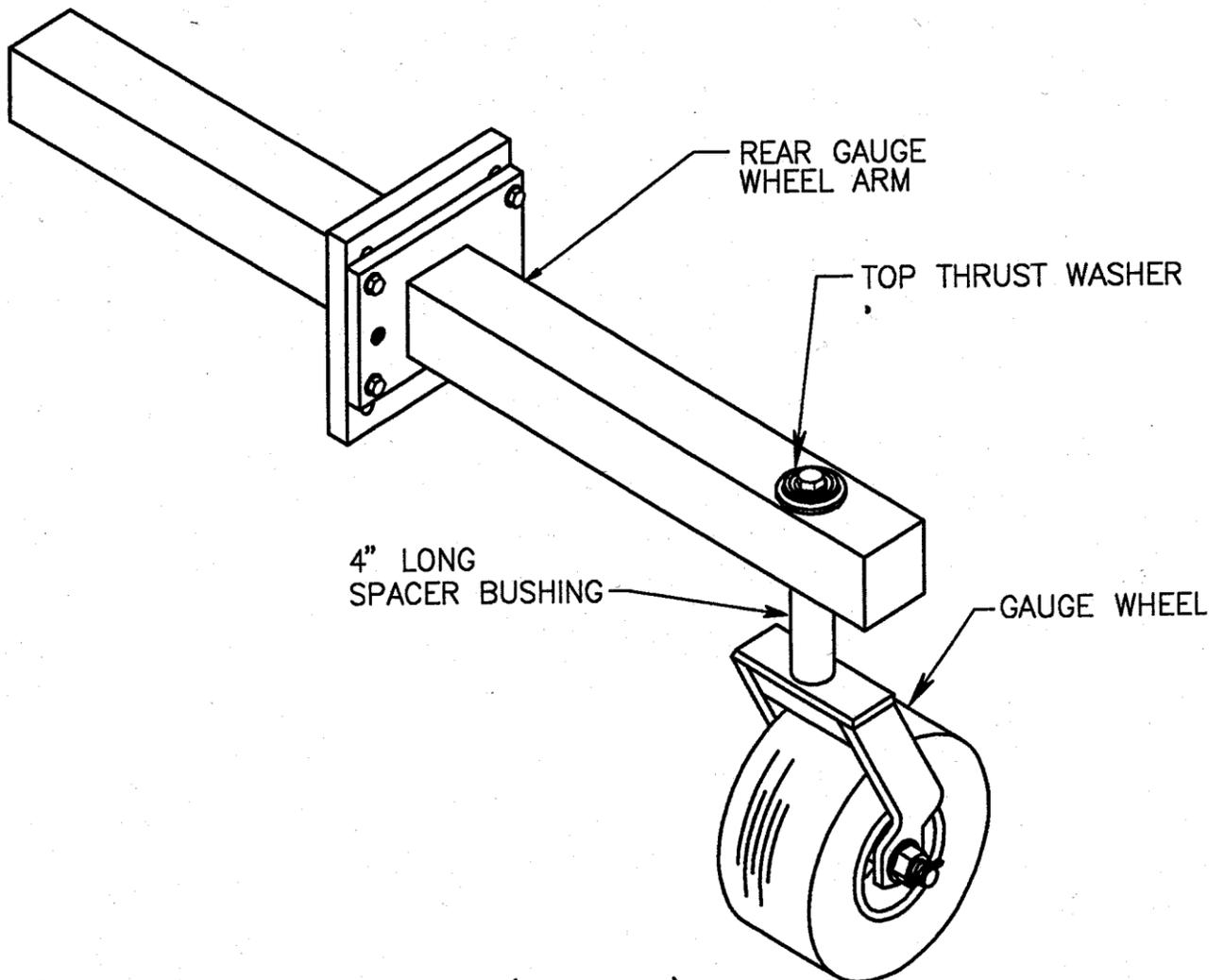
GAUGE WHEEL AND GAUGE WHEEL ARM ASSEMBLY

(REFER TO FIGURE 7)

Model 8200, 3-Bottom

The Model 8200 (3 Bottom In-Furrow) has a rear gauge wheel arm which bolts to the end of the standard tool bar. Attach the rear gauge wheel arm so top hole is aligned with second hole from top on tool bar plate. Install (4) four $\frac{3}{4}$ " x 3" long hex bolts with lock washers and hex nuts (refer to Figure 7).

The gauge wheel yoke will come pre-assembled with a 4" long spacer bushing. The spacer bushing is to be placed below the gauge wheel arm (refer to Figure 7). Insert the yoke assembly thru the gauge wheel arm and replace the top thrust washer and $\frac{1}{2}$ " hex bolt.



(FIGURE 7)

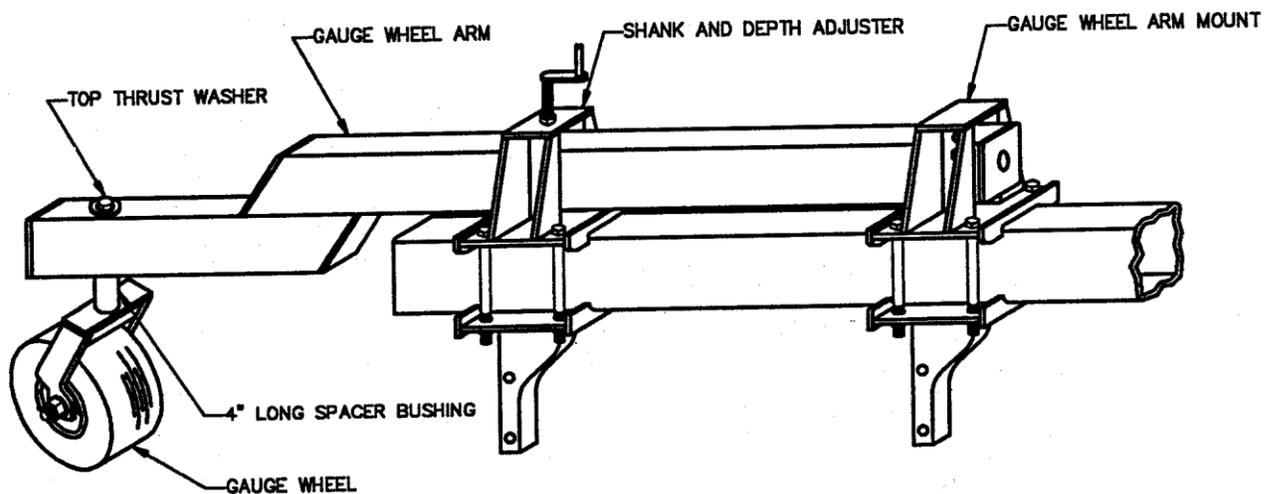
GAUGE WHEEL AND GAUGE WHEEL ARM ASSEMBLY

Model 8200, 4 & 5 Bottom

(REFER TO FIGURE 8)

Place the gauge wheel arm (83-009-28) thru the shank and depth adjuster. Position the arm and attach with (1) one $\frac{3}{4}$ " UNC x 6" long hex bolt in the second hole from the top on the gauge wheel arm mount.

The gauge wheel yoke will come pre-assembled with a 4" long spacer bushing. The bushing will be placed below the gauge wheel arm. Insert the yoke assembly thru the gauge wheel arm and replace the top thrust washer and $\frac{1}{2}$ " hex bolt.

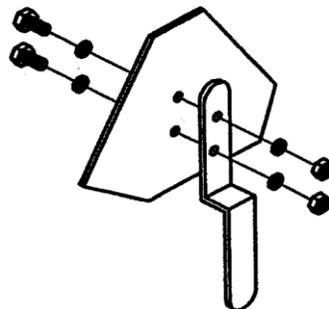


(FIGURE 8)

SMV SIGN ASSEMBLY

(REFER TO FIGURE 9)

Attach the SMV sign mounting bracket with (2) two $\frac{1}{4}$ " UNC x $\frac{3}{4}$ " long hex bolts. Insert the SMV bracket into the slot on the rear of the gauge wheel arm.



(FIGURE 9)

INSTRUCTIONS FOR CHANGING MODEL 8200 (3-BTM.) TO MODEL 8200 (4-BTM.)

Parts required to convert 3-Bottom Plow (Model 8200) to 4-Bottom (Model 8200):

- One - Tool bar extension – 24”
- One - Intermediate mold board
- One - Intermediate Shank
- One - Gauge wheel arm
- One - Gauge wheel arm mount
- One - Depth adjuster
- One - Extension mounting bolt bag
- One - Shank mounting bolt bag

ASSEMBLY INSTRUCTIONS

CAUTION:

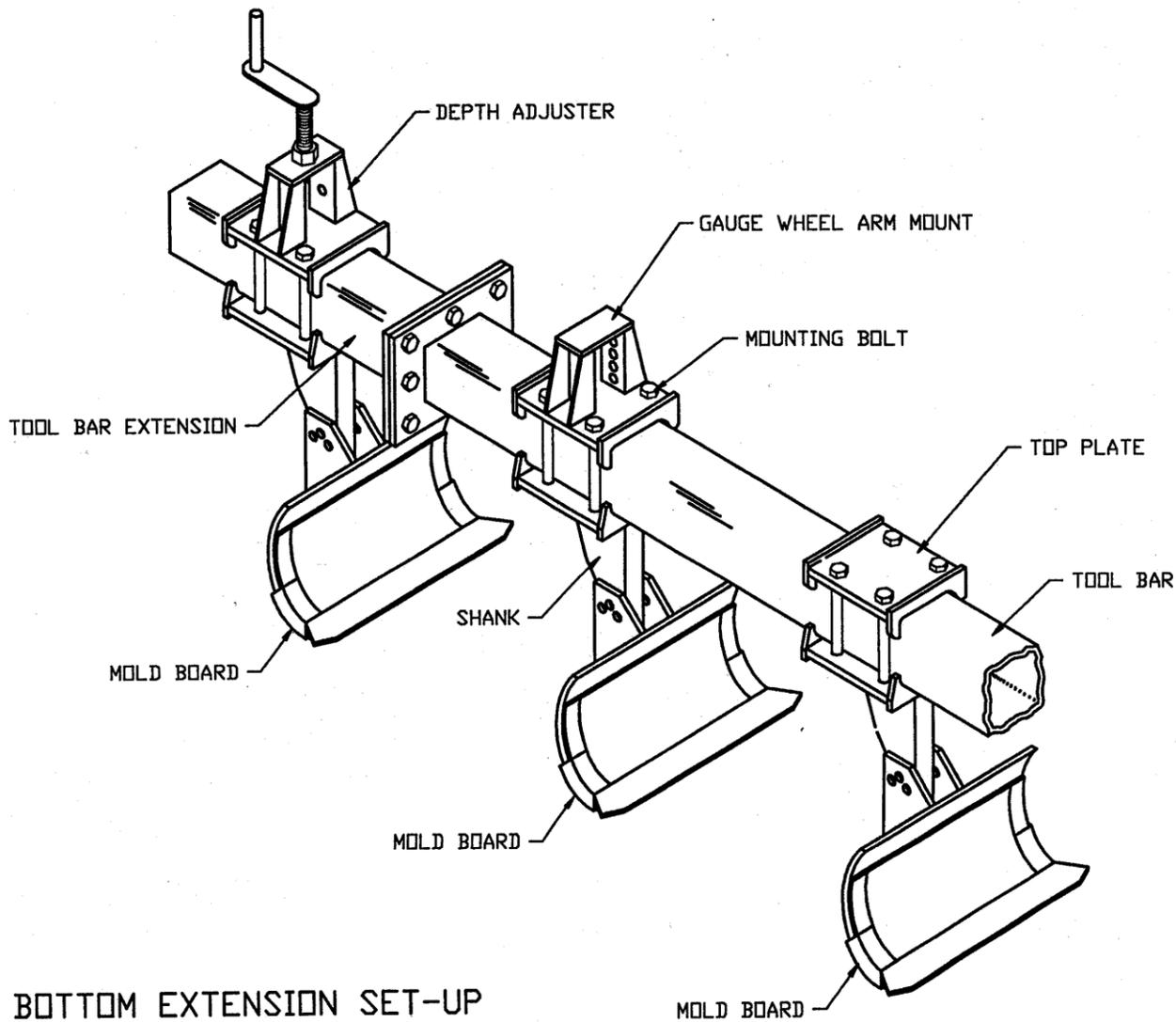


The main frame and tool bar should be supported by adequate floor supports that will support the weight of the frame and any additional components.

Es necesario soportar el armazon principal suficientemente para soportar las armazon tambien con el pest de las otras adiciones del arado.

1. Remove the rear gauge wheel arm and gauge wheel from end of tool bar.
2. With the plow resting on all three (3) bottoms, attach the one bottom extension to main tool bar with eight (8) $\frac{3}{4}$ ” x 3” hex, lock washers and hex nuts. Torque as specified on page 17.
3. Remove top plate from #3 bottom by removing the four (4) $\frac{7}{8}$ ” x 9” bolts. Replace with gauge wheel arm (see page 37), and tighten with four (4) $\frac{7}{8}$ ” x 9” bolts (see page 21).
4. Attach shank post to extension (see page 13 for shank direction on 8204) with depth adjuster using four (4) $\frac{7}{8}$ ” x 9” bolts (see figure 10). Do not tighten bolts until distance between shanks has been set. Then torque as specified on page 17.
5. Remove the mold board with long land slides from the #3 shank post and install on #4 shank post.
6. Install new mold board with short land slides to the #3 shank post.

NOTE: Snug the $\frac{7}{8}$ ” x $5\frac{1}{2}$ ” bolt that mounts the mold board to the shank. **DO NOT TIGHTEN TOO TIGHT OR MOLD BOARD MAY NOT TRIP WHEN REQUIRED.**



(FIGURE 10)

INSTRUCTIONS FOR CHANGING MODEL 8200 (3-BTM.) TO MODEL 8200 (5-BTM.)

Parts required to convert 3-Bottom Plow (Model 8200) to 5-Bottom (Model 8200)

- Two - Intermediate mold board units
- Two - Intermediate shanks
- One – 2 bottom tool bar extension 52”
- One - Gauge wheel arm
- One - Rear gauge wheel arm mount
- One - Depth adjuster
- One - Extension mounting bolt bag
- Two - Shank mounting bolt bags

ASSEMBLY INSTRUCTIONS

CAUTION:



The main frame and tool bar should be supported by adequate floor supports that will support the weight of the frame and any additional components.



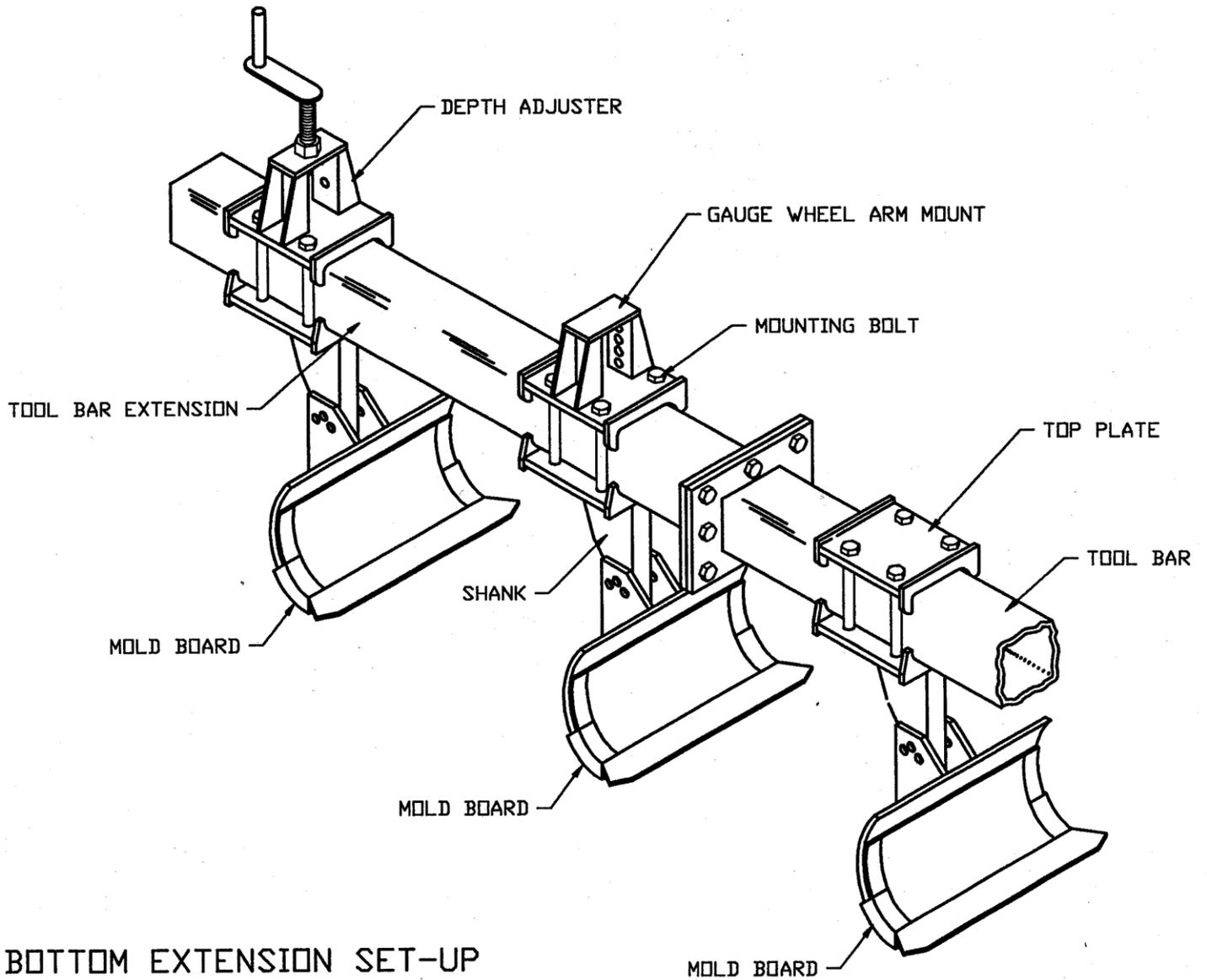
Es necesario soportar el armazon principal suficientemente para soportar las armazon tambien con el pest de las otras adiciones del arado.

1. Remove the rear gauge wheel arm and gauge wheel from end of tool bar.
2. With the plow resting on all three (3) bottoms, attach the two bottom extension to main tool bar with eight (8) $\frac{3}{4}$ ” x 3” hex, lock washers and hex nuts. Torque as specified on page 17.
3. Attach shank post to extension (see page 13 for shank direction on 8205) with gauge wheel arm mount (see page 37) over #4 shank, and depth adjuster (see page 38) over #5 shank, using $\frac{7}{8}$ ” x 9” bolts, lockwashers and hex nuts. Do not tighten bolts until spacing between shanks has been set. Then torque as specified on page 17.
4. Remove the mold board with long land slides from the #3 shank post and install on #5 shank post.
5. Install new mold board with short land slides to the #3 and #4 shank posts.

NOTE: Snug the $\frac{7}{8}$ ” x $5\frac{1}{2}$ ” bolt that mounts the mold board to the shank. **DO NOT TIGHTEN TOO TIGHT OR MOLD BOARD MAY NOT TRIP WHEN REQUIRED.**

Insert the new gauge wheel arm through the depth adjuster and attach to the gauge wheel mount in the second hole from the top with one (1) $\frac{3}{4}$ ” x $6\frac{1}{2}$ ” hex bolt. Insert the existing gauge wheel in the gauge wheel arm with the 4” long spacer bushing below the gauge wheel arm (refer to FIGURE 8).

Raise main frame with tractor hitch and remove floor supports. Provide the necessary lubrication and service all pivot points before operating plow. Refer to pre-operations checklist and start-up procedures in the "OPERATIONS" section before operating the plow.



**2 – Bottom Extension Set-Up
(FIGURE 11)**

INSTRUCTIONS FOR CHANGING MODEL 8200 (4-BTM.) TO MODEL 8200 (5-BTM.)

Parts required to convert 4-Bottom Plow (Model 8200) to 5-Bottom (Model 8200)

- One - Intermediate mold board unit
- One - Intermediate shank
- One -2-bottom tool bar extension – 52”
- One - Top mounting plate
- One - Extension mounting bolt bag
- One - Shank mounting bolt bag

ASSEMBLY INSTRUCTIONS

CAUTION:



The main frame and tool bar should be supported by adequate floor supports that will support the weight of the frame and any additional components.



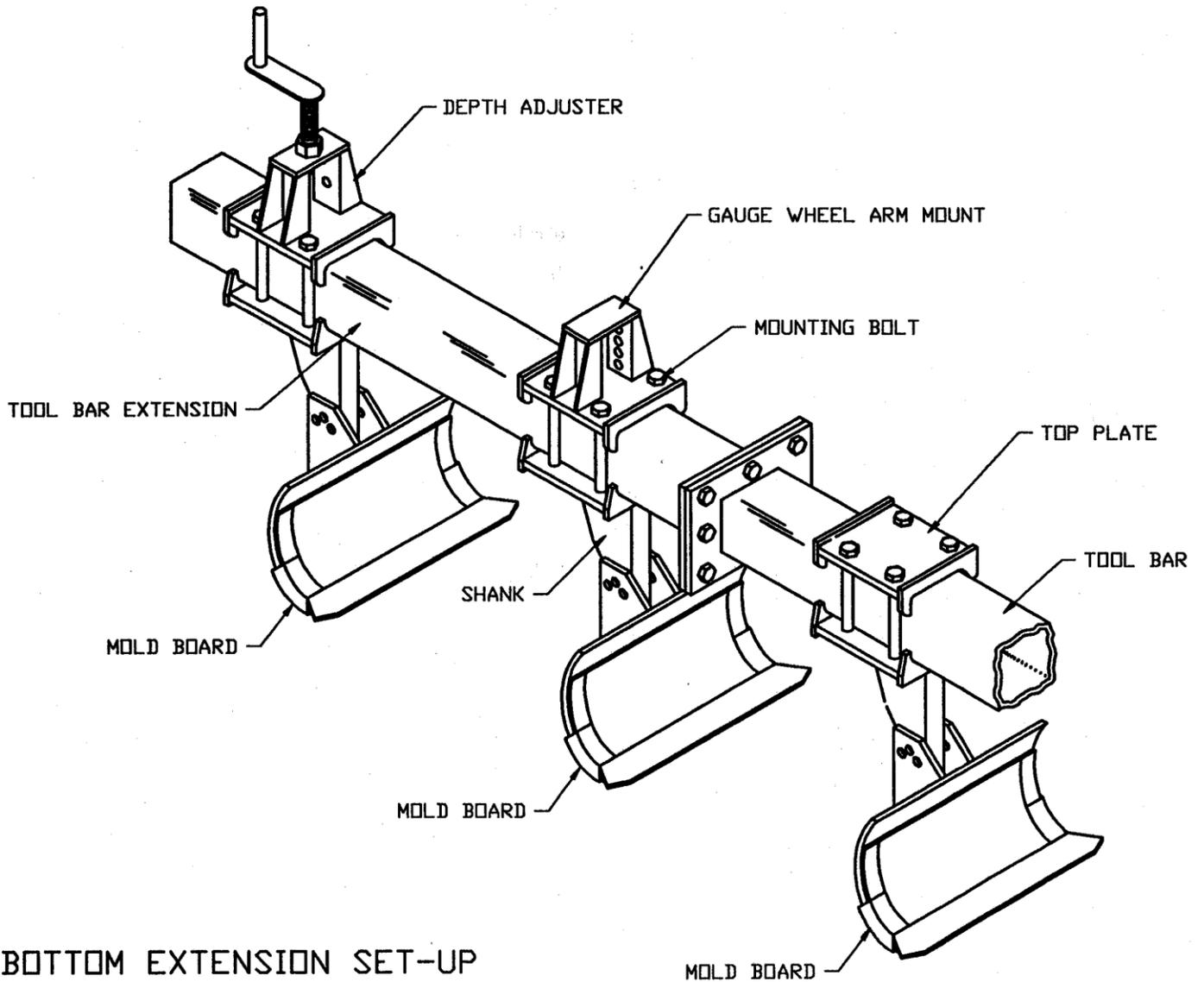
Es necesario soportar el armazon principal suficientemente para soportar las armazon tambien con el pest de las otras adiciones del arado.

1. Remove the rear gauge wheel arm and gauge wheel from end of tool bar.
2. Remove the rear mold board, shank assembly, and tool bar extension from the tool bar.
3. With the plow resting on all three (3) bottoms, attach the two bottom extension to main tool bar with eight (8) $\frac{3}{4}$ ” x 3” hex, lock washers and hex nuts. Torque as specified on page 17.
4. Remove the gauge wheel arm mount from #3 by removing the four (4) $\frac{7}{8}$ ” x 9” bolts. Replace with standard top plate (see page 37), and tighten with four (4) $\frac{7}{8}$ ” x 9” bolts (see page 21).
5. Attach shank post to extension (see page 13 for shank direction on 8205) with gauge wheel arm mount in the #4 position, and depth adjuster in the #5 position, using four (4) $\frac{7}{8}$ ” x 9” bolts (see figure 10). Do not tighten bolts until distance between shanks has been set. Then torque as specified on page 17.
6. Remove the mold board with long land slides from the #4 shank post and install on #5 shank post.
7. Install new mold board with short land slides to the #4 shank post.

NOTE: Snug the $\frac{7}{8}$ ” x $5\frac{1}{2}$ ” bolt that mounts the mold board to the shank. **DO NOT TIGHTEN TOO TIGHT OR MOLD BOARD MAY NOT TRIP WHEN REQUIRED**

Insert the new gauge wheel arm through the depth adjuster and attach to the gauge wheel mount in the second hole from the top with one (1) $\frac{3}{4}$ ” x $6\frac{1}{2}$ ” hex bolt. Insert the existing gauge wheel in the gauge wheel arm with the 4” long spacer bushing below the gauge wheel arm (refer to FIGURE 8).

Raise main frame with tractor hitch and remove floor supports. Provide the necessary lubrication and service all pivot points before operating plow. Refer to pre-operations checklist and start-up procedures in the "OPERATIONS" section before operating the plow.



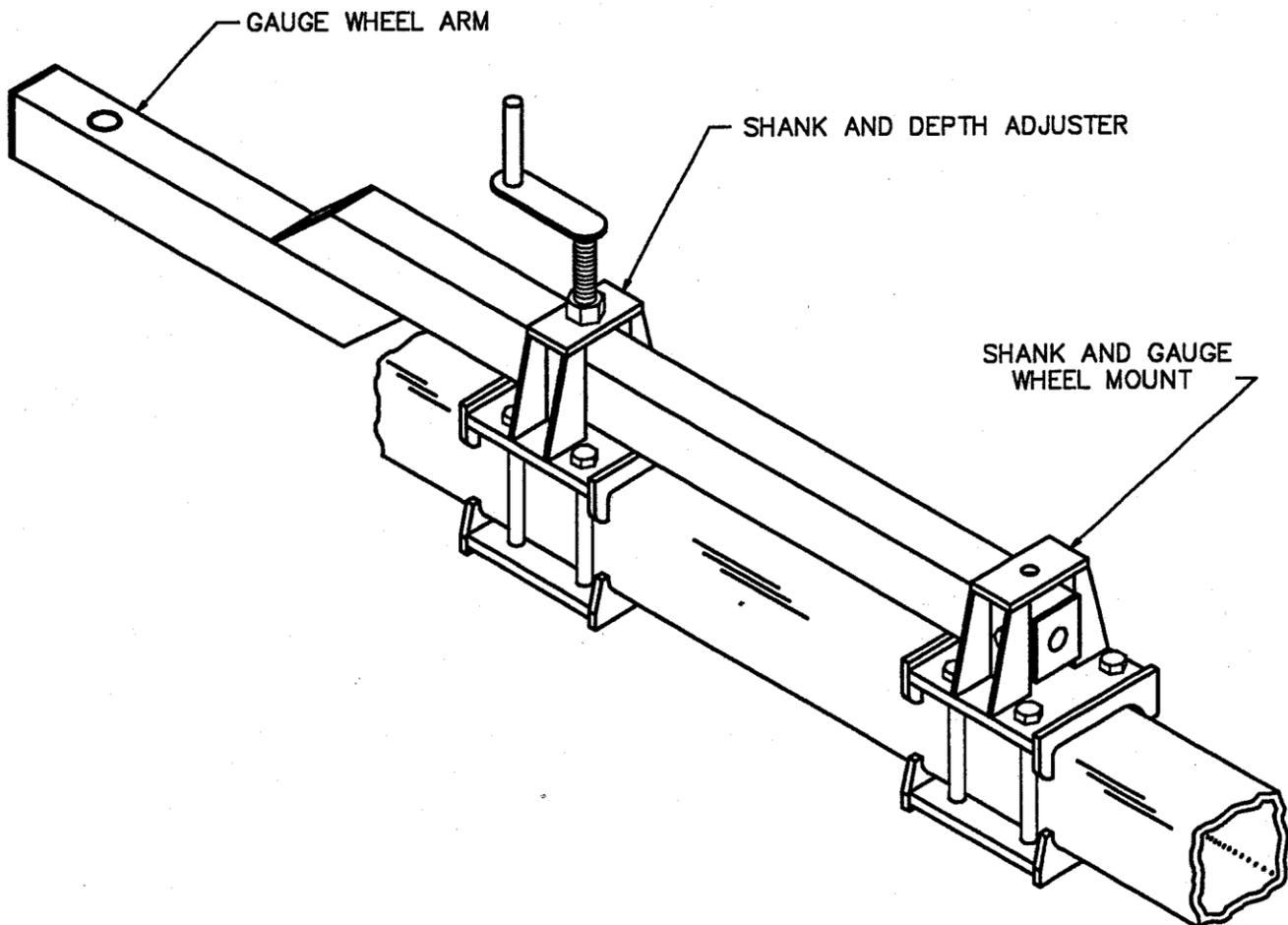
2 BOTTOM EXTENSION SET-UP

(FIGURE 12)

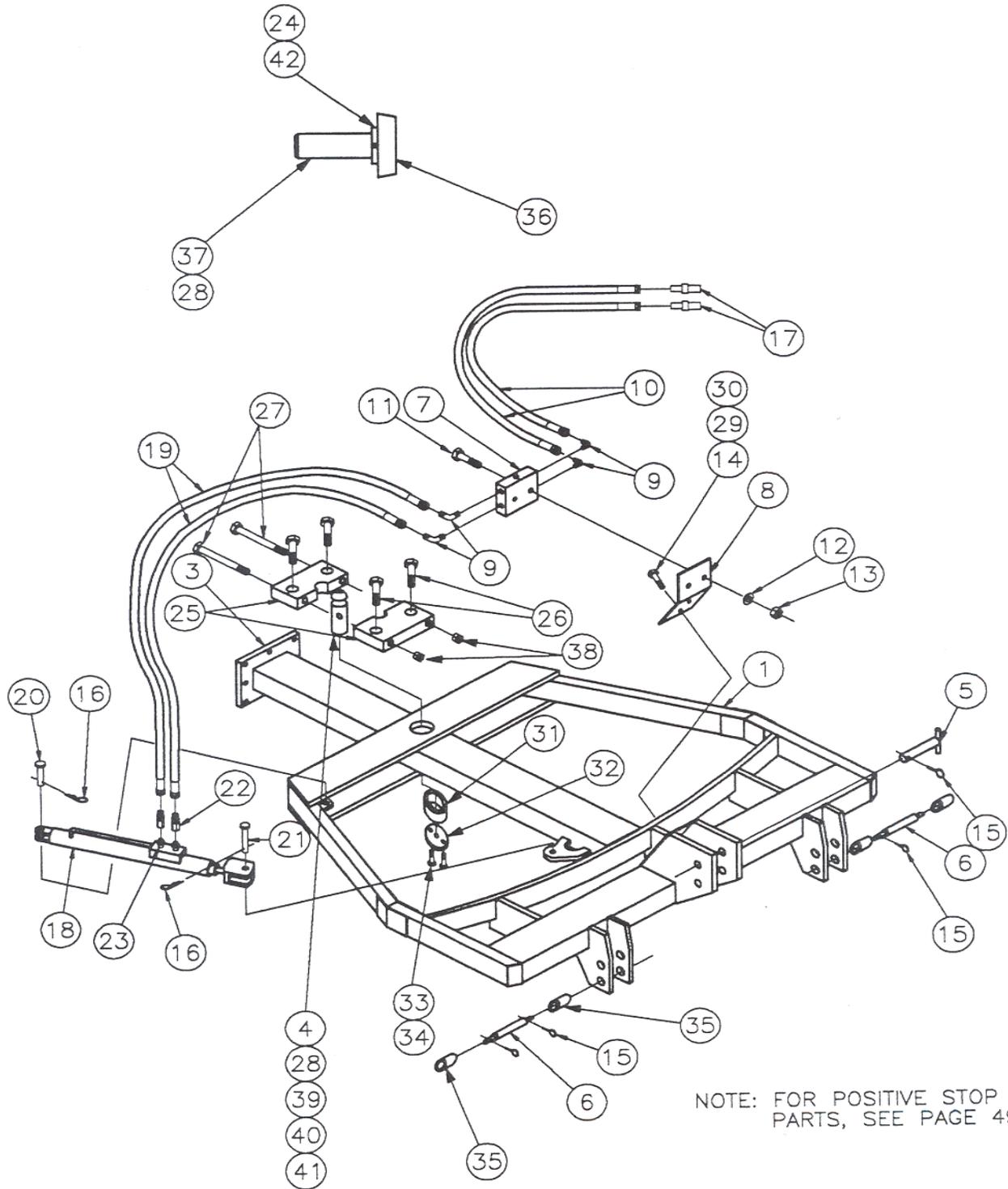
SHANK AND GAUGE WHEEL MOUNT (REFER TO FIGURE 18)

For the assembly of the Model 8204, the gauge wheel arm mount is positioned above the third shank on the tool bar and the depth adjuster is positioned above the fourth shank on the tool bar. Refer to Figure 14 on page 27. Attach each shank with (4) four 7/8 UNC x 9" long hex bolts (refer to FIGURE 18).

For the assembly of the Model 8205, the gauge wheel arm mount is positioned above the fourth shank on the tool bar extension and the depth adjuster is positioned above the fifth shank on the tool bar extension. Refer to Figure 14 on page 27. Attach the each shank with (4) four 7/8 UNC x 9" long hex bolts. Refer to Figure 18. Recheck the 28" spacing and then tighten each shank to the tool bar. Refer to the bolt torque settings on page 17.



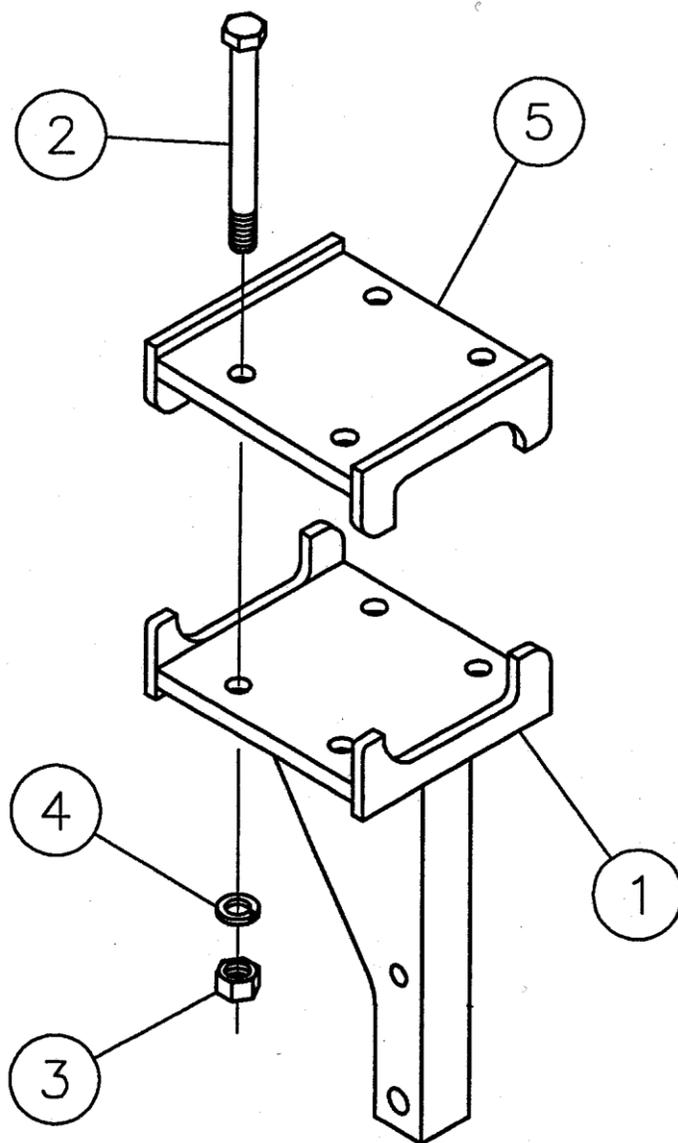
8200 SERIES MAIN FRAME AND TOOL BAR



NOTE: FOR POSITIVE STOP PARTS, SEE PAGE 49.

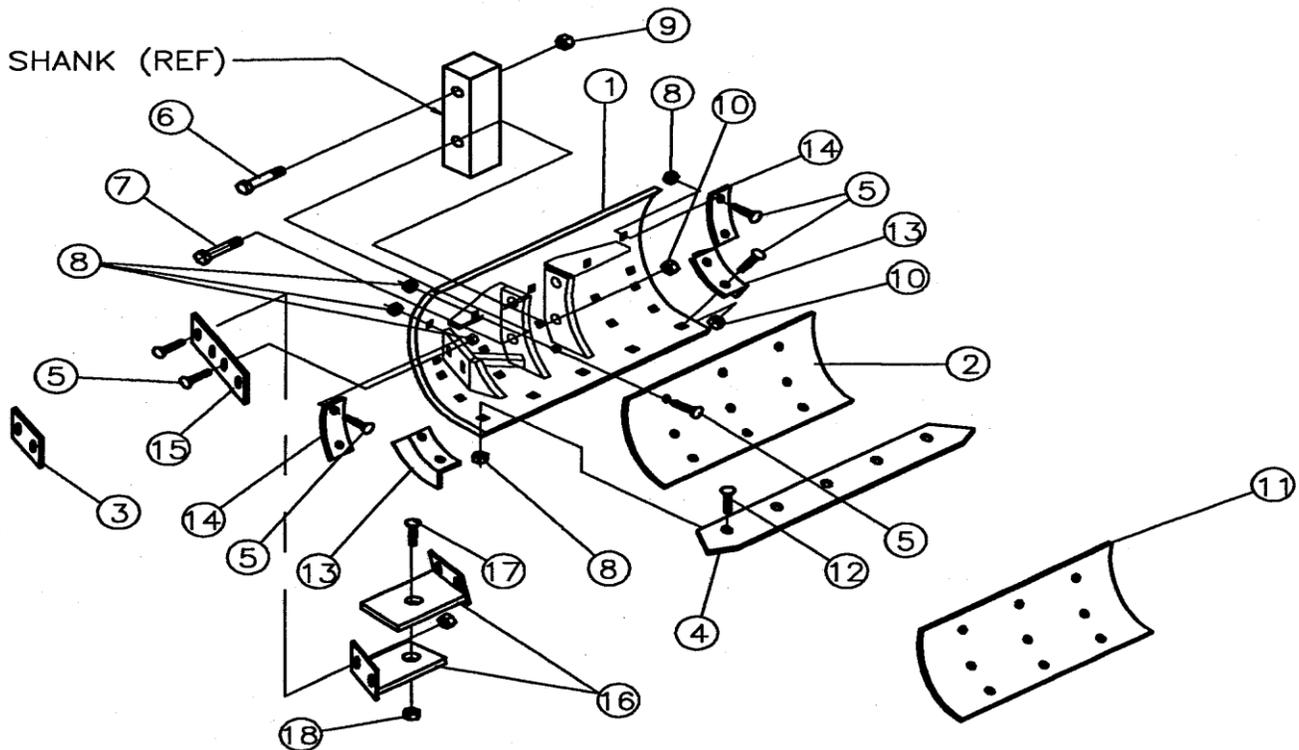
MAIN FRAME & TOOL BAR ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.	NO. REQ'D
1	Frame Weldment	85-1002-82	1
3	Tool Bar	85-003-82	1
4	Tool Bar Pivot Pin	96-001-82	1
5	Upper Hitch Pin	85-029-77	1
6	Lower Hitch Pin	96-015-36	2
7	Counter Balance Valve	79-201-28	1
8	Mounting Bracket	98-049-36	1
9	Straight Thread Elbow, 6 ORB. X 6MJ	79-209-28	4
10	Hose Assy. 3/8" x 65"-6fj x 8mp	79-011-28	2
11	Hex Head Bolt 3/8" UNC x 2"	2816-1220	2
12	Flat Washer 3/8" Dia.	1702-1200	2
13	Lock Nut 3/8" UNC	1412-1200	2
14	Hex Head Bolt 1/2" UNC x 1 1/2"	2816-1614	2
15	Lynch Pin 7/16" Dia.	79-061-36	5
16	Hair Pin 3/16" Dia.	79-043-06	3
17	Quick Disconnect Adapter	79-212-36	2
18	Cylinder 3 1/2" Bore, 24 1/2" Long	79-202-28	1
19	Hose Assy. 3/8" x 36"- 6fj. x 6fj.	137-3000-82	1
20	Clevis Pin 1" Dia x 2 3/4" Long	79-006-06	3
21	Clevis Pin 1" Dia. x 3 1/4" Long	79-051-36	1
22	In-Line Swivel 6fj.x 6mj.	79-205-28	2
23	Straight Thread Connector 6mp. x 6mj	79-1001-88	2
24	1/2" Set Screw	1911-1604	2
25	Pivot Pin Retainer Section	95-001-82	2
26	Hex Head Bolt 7/8" UNC x 3"	2816-2830	4
27	Hex Head Bolt 3/4" UNC x 9"	2816-2490	2
28	Grease Fitting, Press In, 5/16"		3
29	Hex Lock Nut 1/2" UNC	1412-1600	2
30	Flat Washer 1/2" Dia.	1702-1600	2
31	Pivot Pin Bushing	94-006-82	2
32	Cap Washer	96-004-82	1
33	Hex Head Bolt 3/8" UNC x 1"	2816-1210	2
34	3/8" Lock Washer	1602-3200	2
35	Spacer	94-020-36	2
36	Roller with Bushing	84-003-82	1
37	Roller Shaft	96-003-82	1
38	Hex Lock Nut 3/4" UNC	0912-2400	2
39	Hex Head Bolt 7/8" UNC x 7" Gr. 8	2818-2870	1
40	Hex Lock Nut 7/8" UNC	1412-2800	1
41	Lock Washer 7/8" Dia.	1602-2800	1
42	Collar	94-007-82	1
19	Hose Assy. 3/8" x 48"-6fj x 6fj.	79-206-28	1



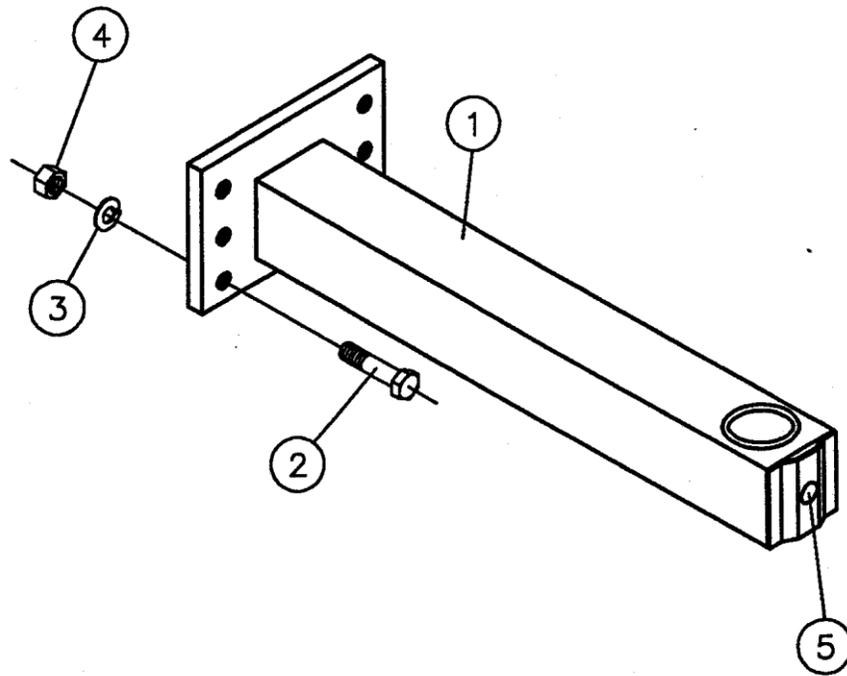
INTERMEDIATE SHANK ASSY

ITEM NO.	DESCRIPTION	PART NO.	NO. REQ'D
1	Lower Shank Section	85-222-36	1
2	Hex Bolt 7/8" UNC x 9" Long Grade 5	2816-2890	4
3	Hex Nut 7/8" UNC	0812-2800	4
4	Lock Washer 7/8" DIA	1602-2800	4
5	Top Mounting Plate	85-017-36	1



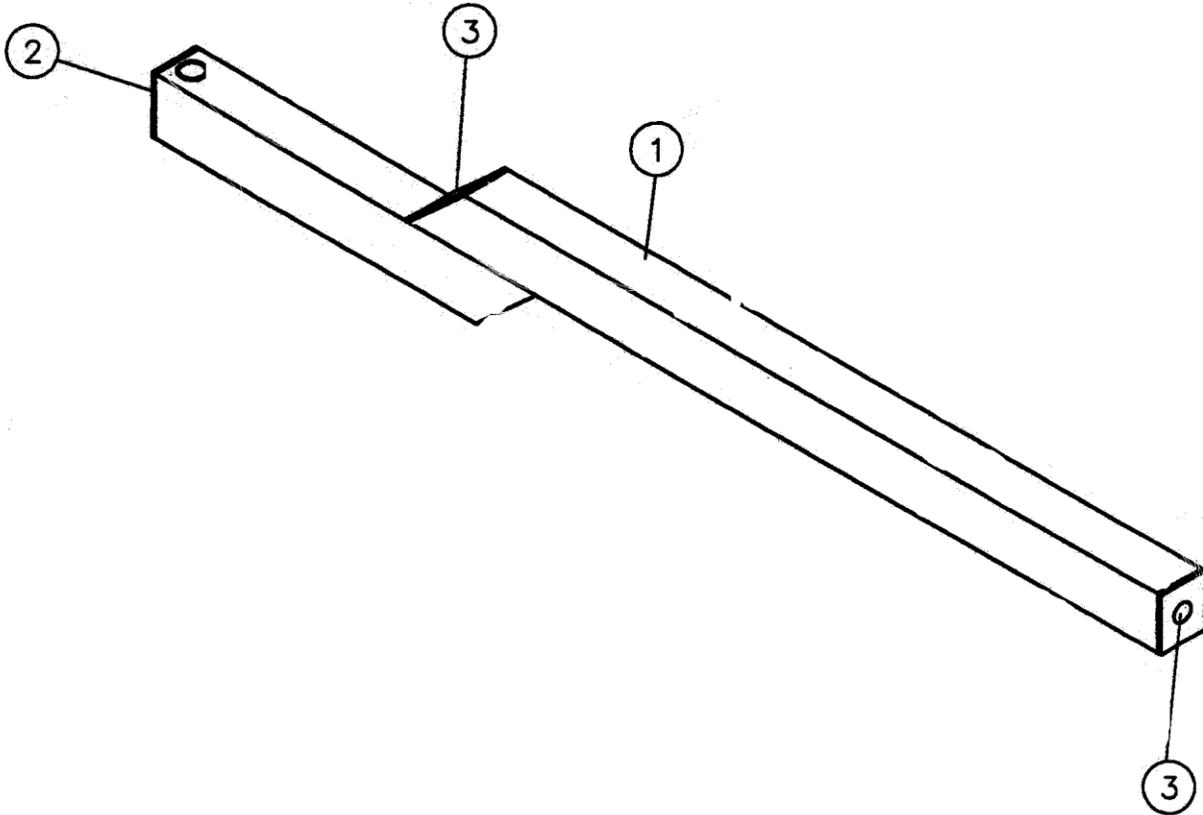
**MOLD BOARD WITH SHORT SLIDES
MOLD BOARD WITH LONG SLIDES**

ITEM NO.	DESCRIPTION	PART NO.	NO. REQ'D
1	Mold Board	85-006-36	1
2	Steel Wing (Optional)	79-217-36	1
3	Small Slide – Standard	79-010-36	2
3	Small Slide – Multi-Life	79-204-36	2
4	Plow Point, Heat Treated (Standard)	79-006-36	1
4	Plow Point, Surface Hardened (Optional)	79-028-36	1
5	Plow Bolt 7/16" UNC x 1 1/2" Long	0315-1414	20-24
6	Hex Bolt 3/8" UNC x 4 1/2" Long Grade 5	2816-1244	1
7	Hex Bolt 7/8" UNC x 5 1/2" Long Grade 5	2816-2854	1
8	Hex Nut 7/16" UNC	0812-1400	25-30
9	Hex Lock 3/8" UNC	1412-1200	1
10	Hex Lock Nut 7/8" UNC	1412-2800	1
11	Plastic Wing	79-201-36	1
12	Plow Bolt 7/16" UNC x 2" Long	0315-1420	5
13	Wear Shin – Lower (Multi-Life)	79-208-36	2
14	Wear Shin – Upper	98-207-36	2
15	Long Slide – Standard (Steel)	79-206-36	2
15	Long Slide – (Optional) (Multi-Life)	79-205-36	2
16	Long Slide Brace	85-217-36	2
17	Hex Bolt 1/2" UNC x 1 1/2" Long	2816-1614	1
18	Hex Lock Nut 1/2" UNC	1412-1600	1
NS	Plow Bolt 7/16" UNC x 1 1/4" Long	0315-1412	1



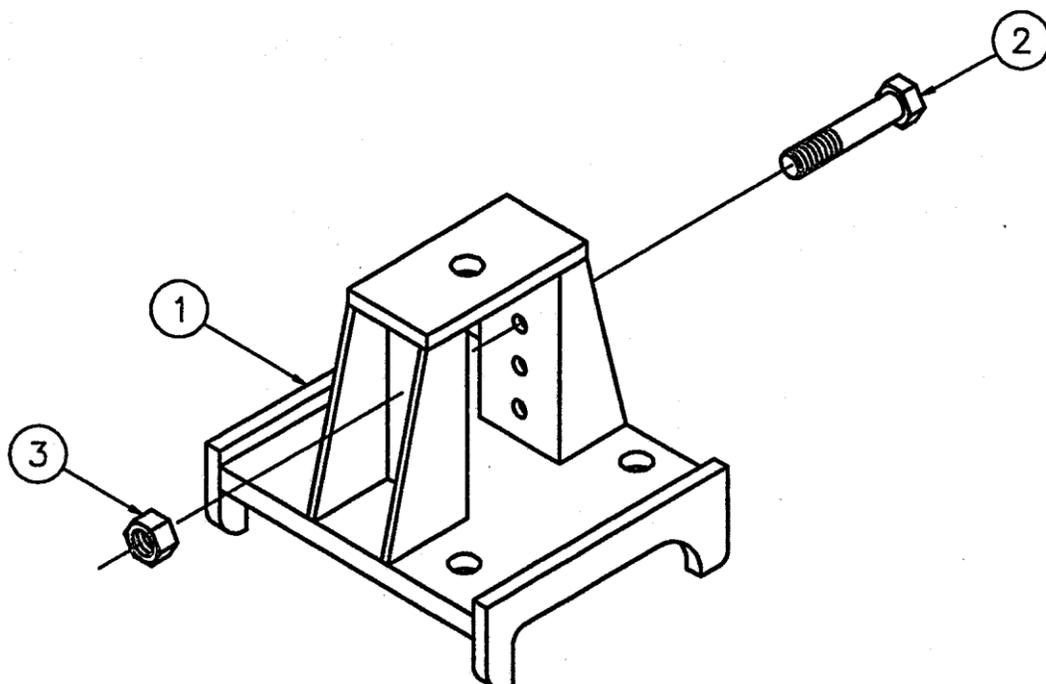
REAR GAUGE WHEEL ARM (3 BOTTOM IN-FURROW)

ITEM NO.	DESCRIPTION	PART NO.	NO. REQ'D
1	Rear Gauge Wheel Arm	85-017-28	1
2	Hex Bolt $\frac{3}{4}$ " UNC x 3" Long	2816-2430	4
3	Lock Washer $\frac{3}{4}$ " Dia	1602-2400	4
4	Hex Nut $\frac{3}{4}$ " UNC	0812-2400	4
5	Grease Fitting $\frac{5}{16}$ " Drive In -	79-6441-40	1



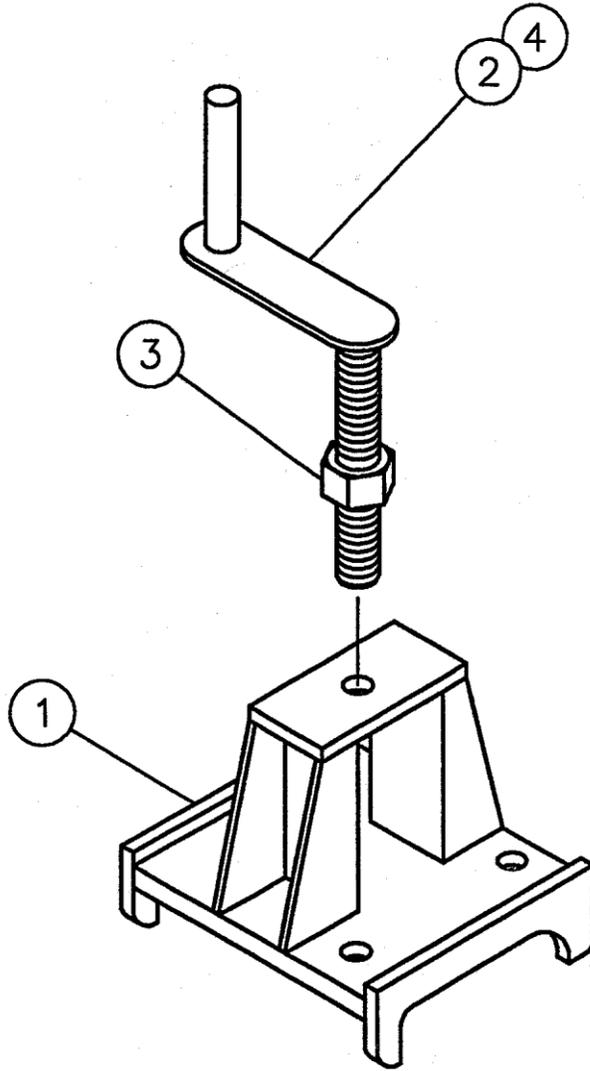
**GAUGE WHEEL ARM
(4 AND 5 BOTTOM IN-FURROW)**

ITEM NO.	DESCRIPTION	PART NO.	NO. REQ'D
1	Gauge Wheel Arm	85-014-36	1
2	Grease Fitting, 5/16" Drive In -	79-6441-40	1
3	Not Used		



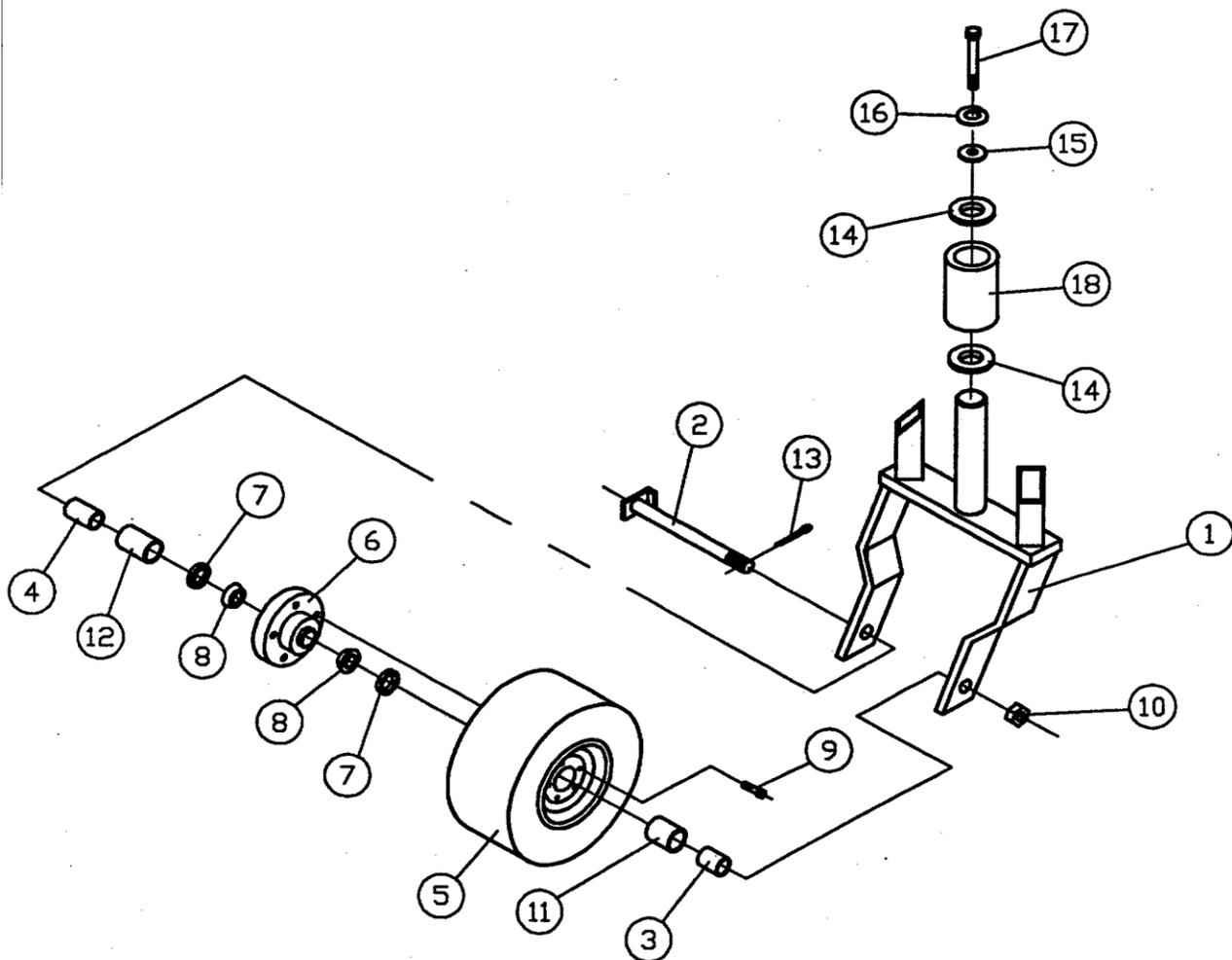
GAUGE WHEEL ARM MOUNT

ITEM NO.	DESCRIPTION	PART NO.	NO. REQ'D
1	Top Mounting Plate	85-026-36	1
2	Hex Bolt $\frac{3}{4}$ " UNC x 6 $\frac{1}{2}$ " Long	2816-2464	1
3	Hex Lock Nut $\frac{3}{4}$ " UNC	1412-2400	1



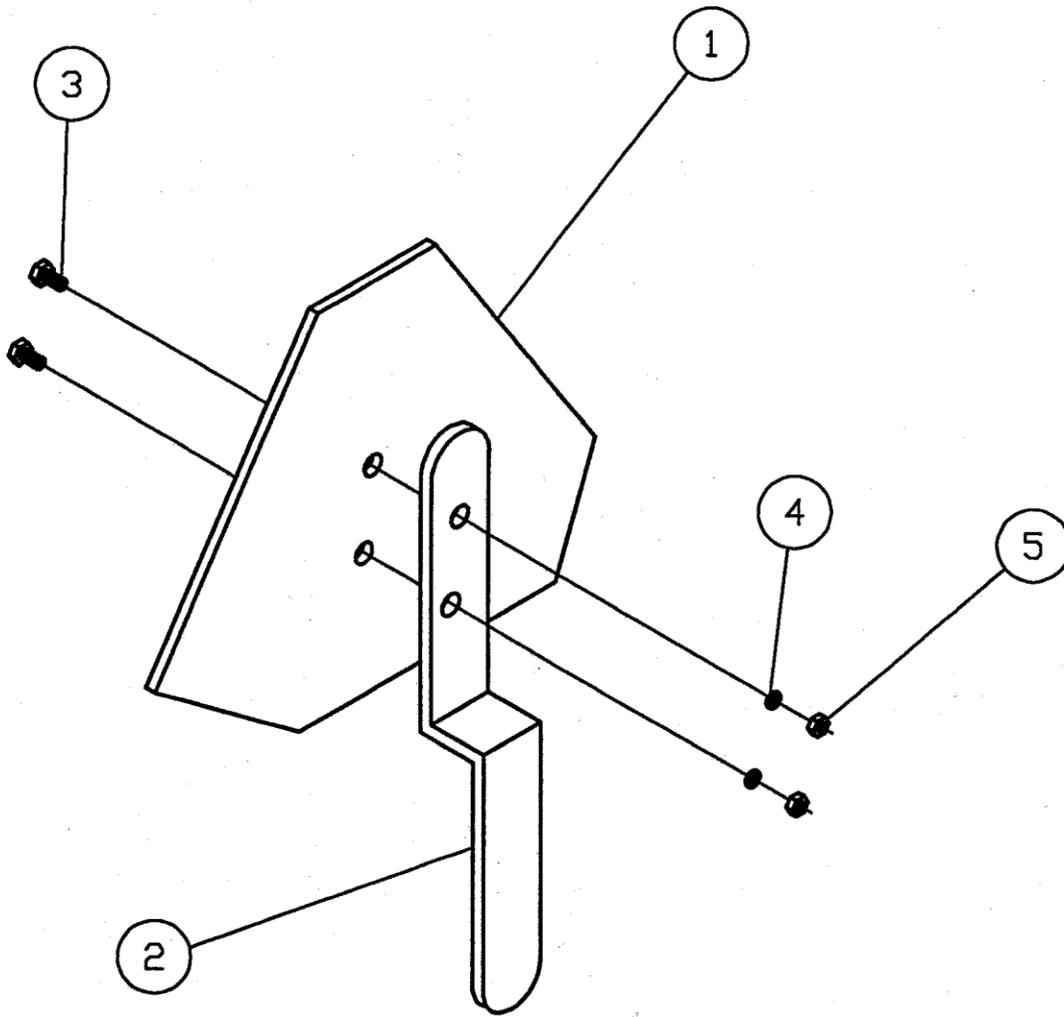
DEPTH ADJUSTER

ITEM NO.	DESCRIPTION	PART NO.	NO. REQ'D
1	Top Mounting Plate with Adjuster	85-011-36	1
2	Depth Adjusting Screw	85-012-36	1
3	Hex Nut 1 1/4" UNC	0812-4000	1
4	Plastic Hand Grip , Adjusting Screw	79-036-36	1



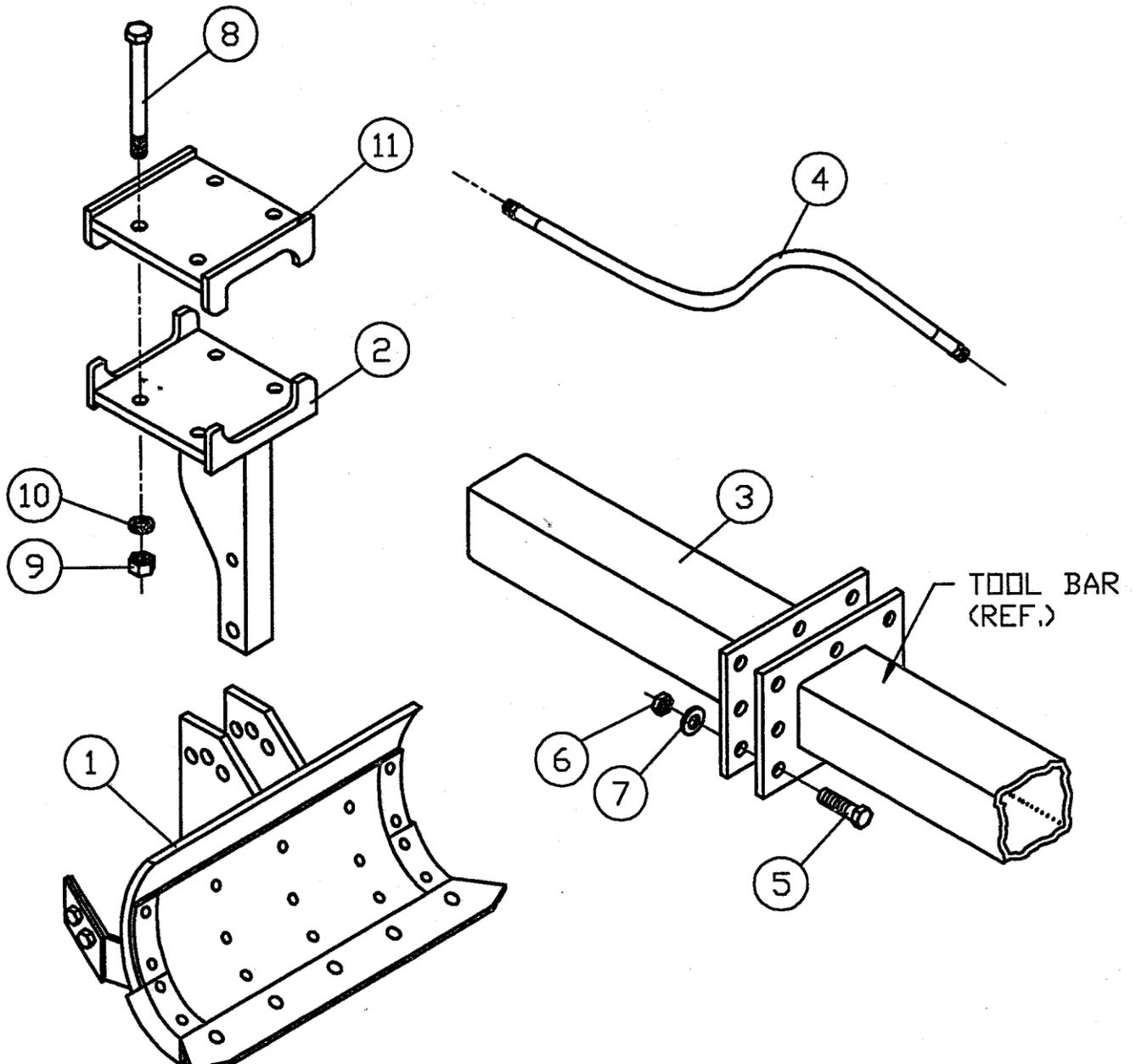
REAR GAUGE WHEEL

ITEM NO.	DESCRIPTION	PART NO.	NO. REQ'D
1	Yoke	85-050-36	1
2	Spindle Shaft	85-019-36	1
3	Outer Bushing 2 7/8" Long	94-010-36	1
4	Inner Bushing 2 3/8" Long	94-011-36	1
5	Wheel and Tire Assembly	84-001-36	1
6	Hub with Cups	77-001-36	1
7	Grease Seals	77-044-88	2
8	Bearing	77-045-88	2
9	Lug Bolt	77-009-36	5
10	Hex Slotted 1" Nut	4511-3200	1
11	Keeper 2 5/8" Long	92-004-36	1
12	Keeper 2" Long	92-003-36	1
13	Cotter Pin	79-042-06	1
14	Thrust Washer	79-005-36	2
15	Cap Washer	96-004-36	1
16	Lock Washer 1/2" Dia.	1602-1600	1
17	Hex Head Bolt 1/2" UNC x 1 1/2" Long	2816-1614	1
18	Spacer Bushing 4" Long	94-203-36	1



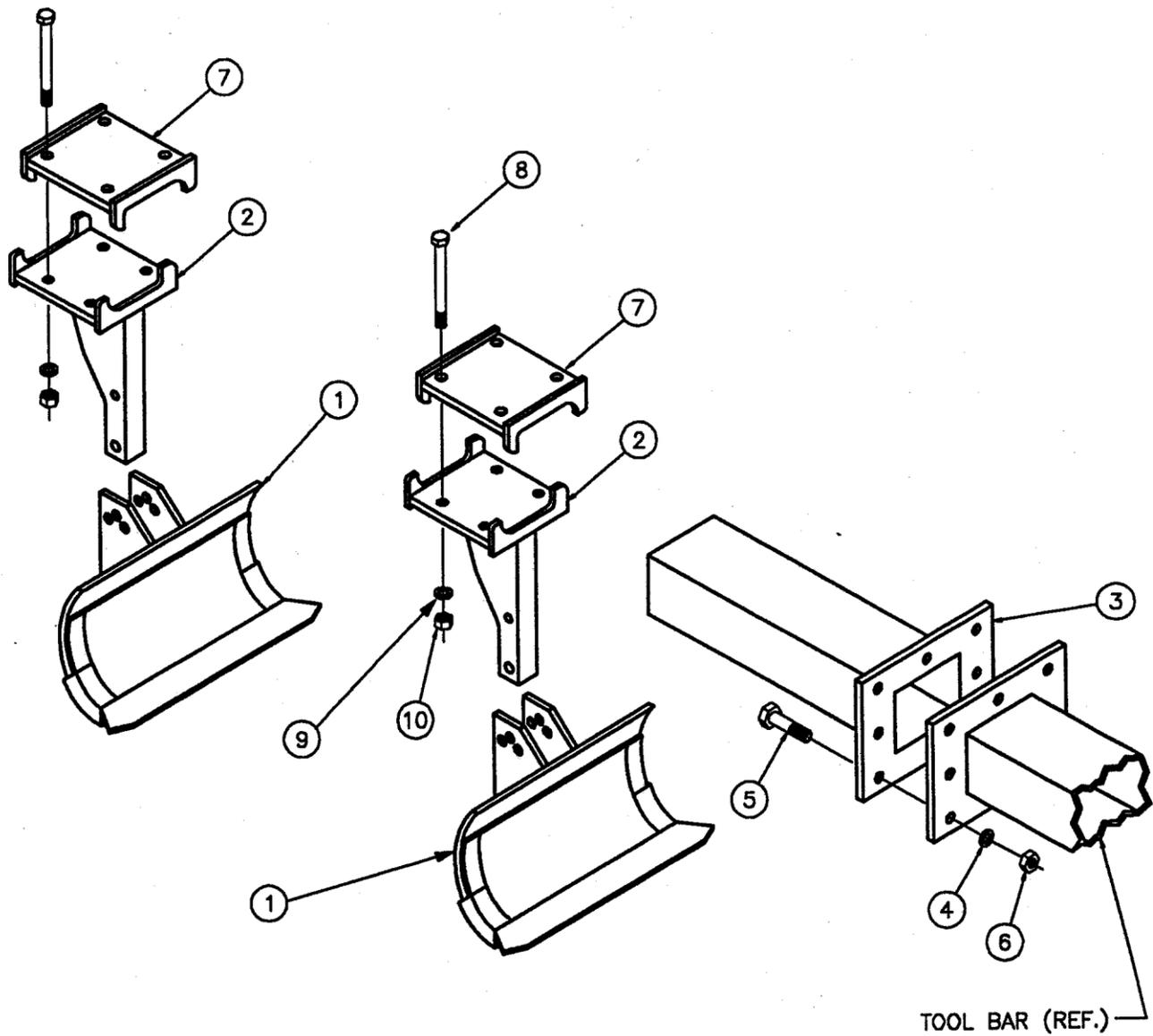
SMV WARNING SIGN

ITEM NO.	DESCRIPTION	PART NO.	NO. REQ'D
1	Slow Moving Vehicle Sign	79-002-01	1
2	Mounting Bracket	93-1196-88	1
3	Hex Bolt 1/4" UNC x 3/4" Long	2814-0806	2
4	Flat Washer 1/4" DIA	1702-0800	4
5	Hex K Lock Nut 1/4" UNC	0812-0800K	2



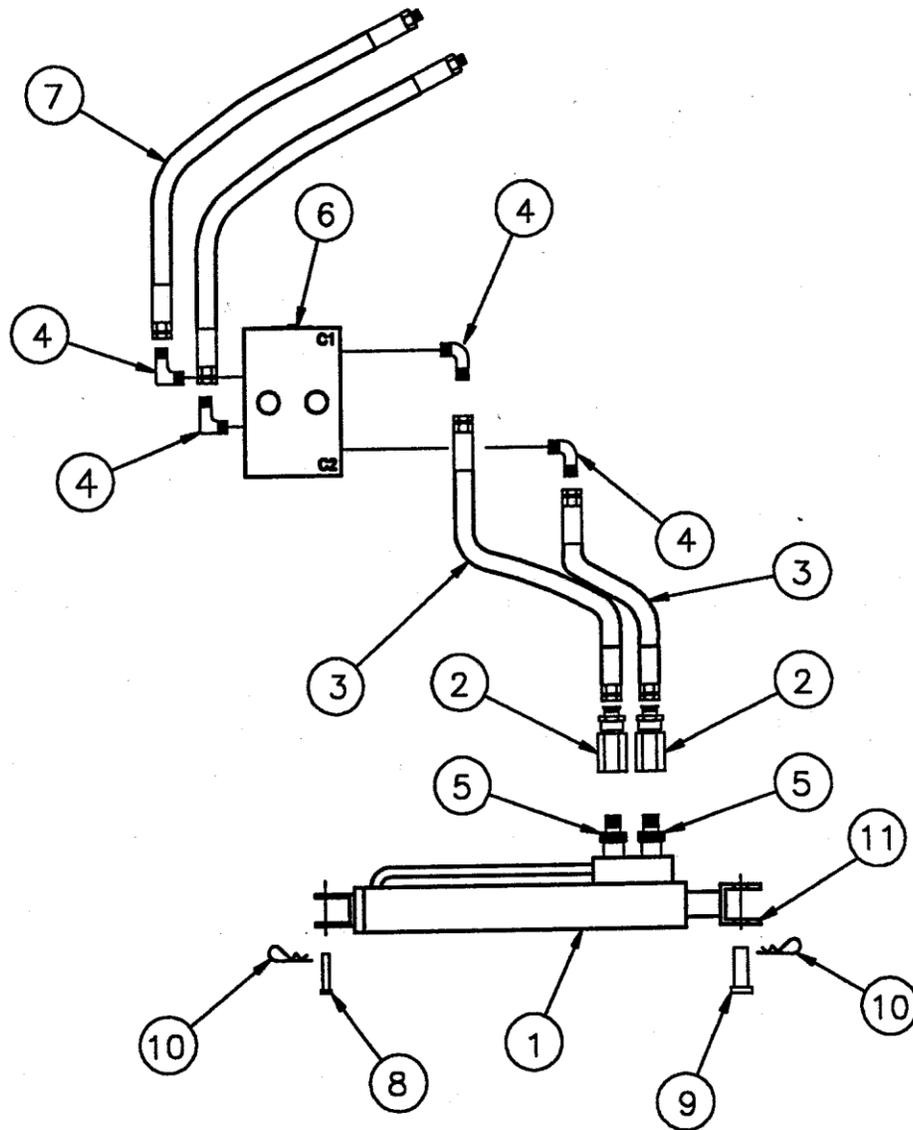
1-BOTTOM EXTENSION KIT

ITEM NO.	DESCRIPTION	PART NO.	NO. REQ'D
1	Mold Board Bundle (Refer to page 29) N/A		
2	Standard Shank	85-222-36	1
3	Tool Bar Extension	85-032-36	1
4	Not Used		
5	Hex Bolt $\frac{3}{4}$ " UNC x 2 $\frac{1}{2}$ " Long Grade 5	2816-2424	8
6	Hex Lock Nut $\frac{3}{4}$ " UNC	1412-2400	8
7	Not Used		
8	Hex Head Bolt $\frac{7}{8}$ " UNC x 9" Long Grade 5	2816-2890	
9	Hex Nut $\frac{7}{8}$ " UNC	0812-2800	4
10	Lock Washer $\frac{7}{8}$ " UNC	1602-2800	4
11	Top Mounting Plate	85-017-36	1



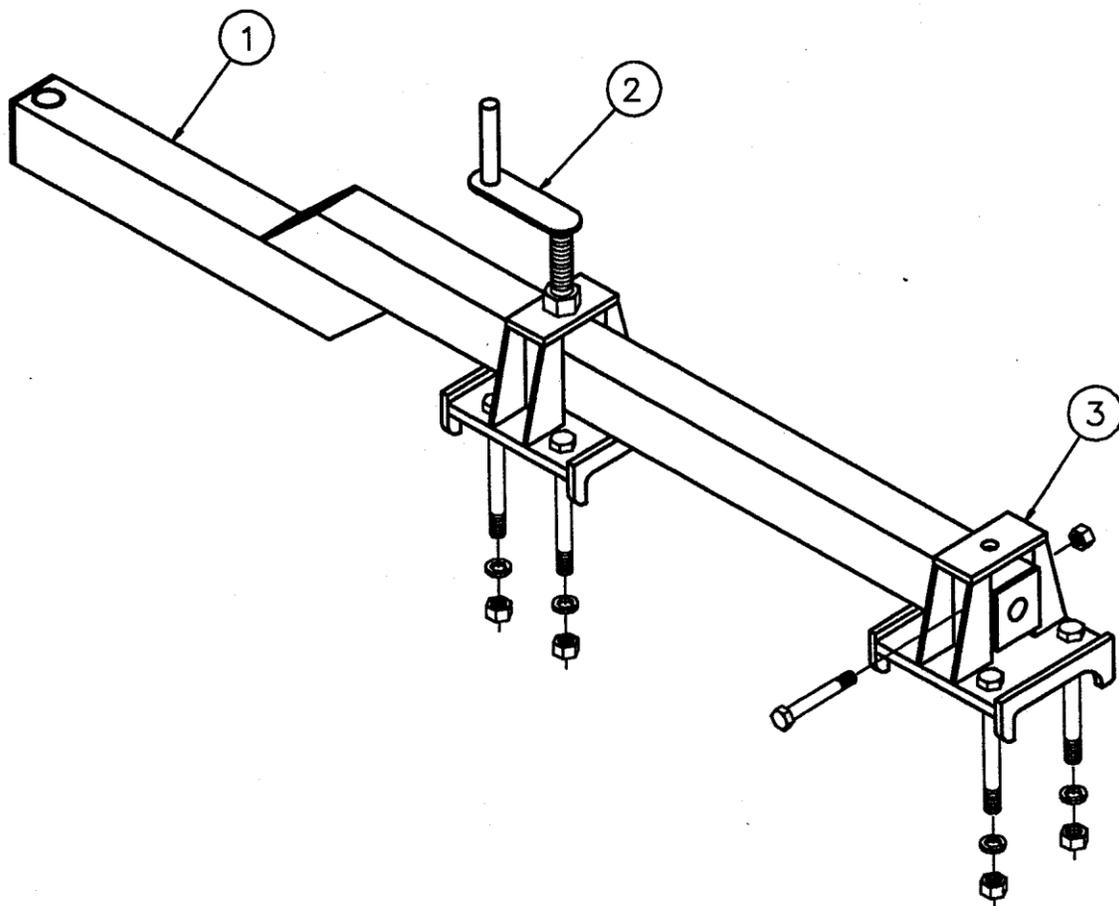
2-BOTTOM EXTENSION KIT

ITEM NO.	DESCRIPTION	PART NO.	NO. REQ'D
1	Mold Board (Refer to Page 29)	83-003-36	2
2	Intermediate Shank	85-222-36	2
3	Tool Bar Extension	85-022-36	1
4	Not Used		
5	Hex Bolt $\frac{3}{4}$ " UNC x 2 $\frac{1}{2}$ " Long	2816-2424	8
6	Hex Lock Nut $\frac{3}{4}$ " UNC	1412-2400	8
7	Top Mounting plate	85-017-36	2
8	Hex Bolt $\frac{7}{8}$ " UNC x 9" Long	2816-2890	8
9	Lock Washer $\frac{7}{8}$ " Dia	1602-2800	8
10	Hex Nut $\frac{7}{8}$ " UNC	0812-2800	8



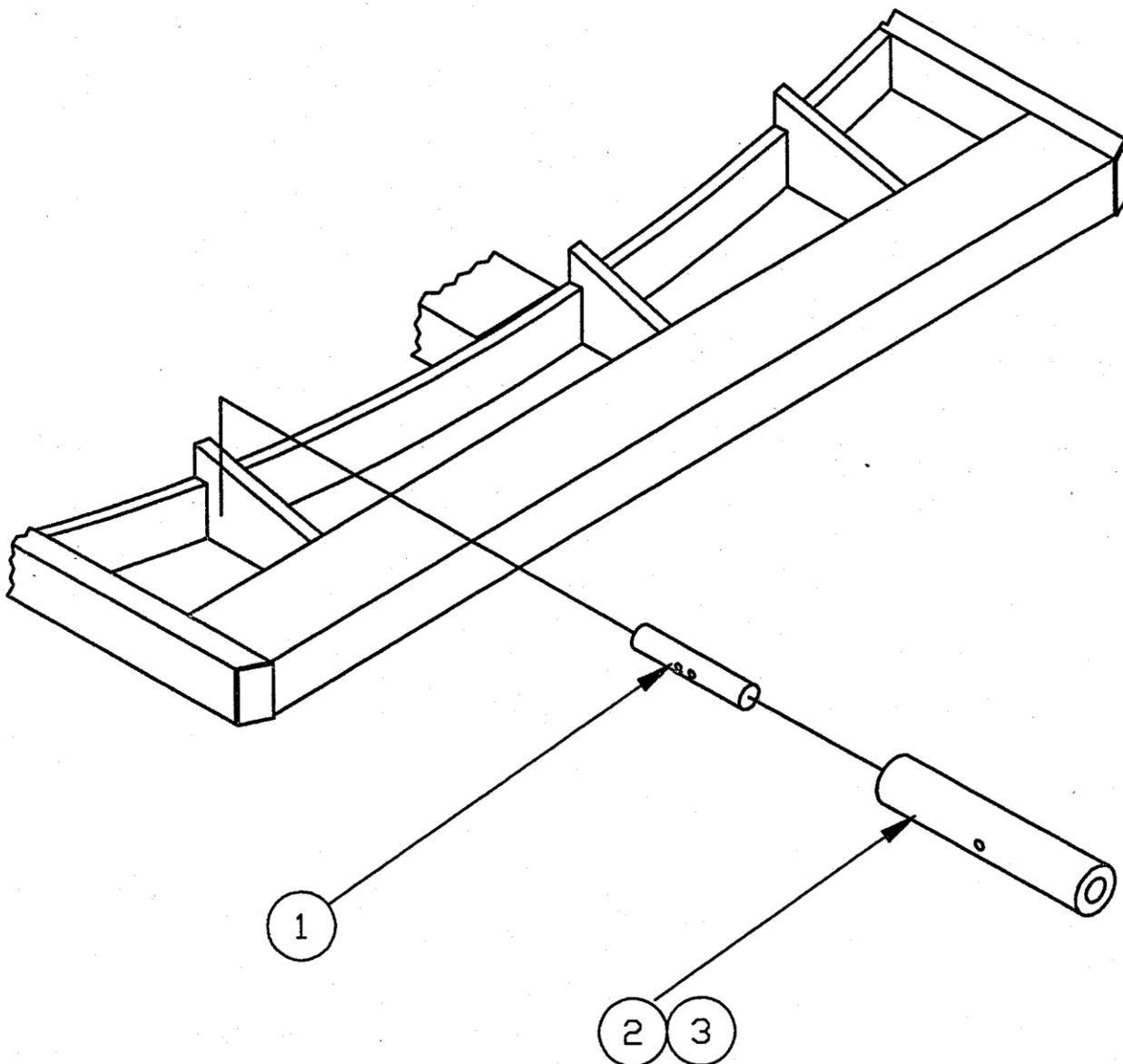
HYDRAULICS PARTS LIST

ITEM NO.	DESCRIPTION	PART NO.	NO. REQ'D
1	Cylinder, Tool Bar 3 1/2" Bore x 24 1/2" Ret	79-202-28	1
2	In-Line Swivel, 6fj x 6mj	79-205-28	2
3	Hose Assy. 3/8" x 36"-6fj x 6fj	137-3000-82	1
4	Straight Thread Elbow, 6orb. x 6mj.	79-209-28	4
5	Straight Thread Connector 6mp x 6mj	79-1001-88	2
6	Holding Valve	79-201-28	1
7	Hose Assy. 3/8" x 65" 6fj x 8mp.	79-011-28	2
8	Clevis Pin 2 3/4" Long	79-006-06	3
9	Clevis Pin 3 1/4" Long	79-051-36	1
10	Hair Pin	79-043-06	4
11	Adjustable Clevis	79-215-28	1
N.S.	Seal Kit (for 79-2020-28)	72-201-28	1
3	Hose Assembly, 3/8" x 48"-6fj x 6fj	79-206-36	1



GAUGE WHEEL MOUNTING ASSY

REFER TO PAGES 31 - 33



NOTE: TUBE IS WELDED TO FRAME

POSITIVE STOP ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.	NO. REQ'D
1	Positive Stop Pin	96-005-82	2
2	Hex Lock Nut 3/8" UNC	1412-0800	2
3	Hex Head Bolt 5/16" UNC x 2 1/2" Long	2816-0824	2

MACHINE IMPROVEMENTS

Allen Farm Equipment, LP reserves the right to make changes and improvements in the product at any time without notice. Allen Farm Equipment, LP shall not be obligated to incorporate such changes and improvements in products previously sold to any customer, nor shall Allen farm Equipment, LP be obligated to replace previously sold products with customers incorporating such changes and improvements.

MAINTENANCE RECORD

DATE SERVICED	SERVICE PERFORMED	PARTS REPLACED

WARRANTY REQUEST AND PROCEDURE

1. The Warranty Registration Card must be completely filled out by the retailing dealer or user, and then mailed to **Allen Farm Equipment, LP**. This information is kept on file and referenced to by unit serial number and the date the unit was retailed.

This Registration card must be on file before Warranty consideration can be given.

2. To File A Warranty Claim:

A: Call **Allen Farm Equipment, LP** at (775) 246-4555 to obtain a Warranty Request Number.

B: Completely fill out a warranty request form and fax it or mail it to:

Allen Farm Equipment, LP.

P.O. Box 21049

Carson City, NV. 89721 Fax # (775) 246-4512

C: All Warranty Request Forms must accompanied by pictures of failed parts.

Pictures can be sent with form and or e-mailed to

jon@allenfarmequipment.com

D: Some parts will require inspection by our staff or vendors before warranty is approved. Our parts department will advise if these parts need to be sent back or discarded.

E: Returned parts must be accompanied with a complete copy of the Warranty Claim.

3. Parts not manufactured by **Allen Farm Equipment, LP** Must be approved by our vendors before warranty credit is issued.
4. When warranty claim is approved, a credit memo will be issued an the customers account will credited accordingly.
5. When warranty claim is denied, it will be sent back to the dealer with an explanation.
6. Warranty applications will not be considered if:

-All request information is not supplied.

-The warranty request received is received more than 30 days after failure.

-**Allen Farm Equipment, LP** or our vendor's inspection indicates the machine or parts were operated with insufficient lubrication, were abused, or had improper maintenance.

-Parts needed for inspection not returned.

-Parts, when returned are not clearly tagged with RAN and part number.

WARRANTY

Allen Farm Equipment, LP, as manufacturer, warrants its products against defective parts in workmanship and material, for a period of twelve (12) consecutive months from the date of retail to the original purchaser. **Allen Farm Equipment, LP** does not warrant in any way other attachments or accessories manufactured by other companies which may be attached to and therefore becoming a part of the product manufactured and sold by **Allen Farm Equipment, LP**. Such other attachments and accessories are in general covered by the warranty or warranties of the company which manufactured them.

Under no circumstances will it cover any merchandise or components thereof, which, in the opinion of the company, has been subjected to misuse, unauthorized modifications, alterations, an accident or if repairs have been made with parts other than those obtained through **Allen Farm Equipment, LP**.

Allen Farm Equipment, LP in no way warrants engines, batteries, tires, electronics, or trade accessories since their respective manufacturer warrants these items separately.

Our obligations under this warranty shall be limited to repairing or replacing, free of charge to the ORIGINAL PURCHASER, any part that, in our judgment, shall show evidence of such defect, provided further that such parts shall be returned within thirty (30) days from date of failure to **Allen Farm Equipment, LP**, routed through the dealer and distributor from whom the purchase was made.

This warranty shall not be interpreted to render **Allen Farm Equipment, LP** liable for injury or damages of any kind or nature to person or property. This warranty does not extend to the loss of crops, loss of production, loss because of delay in harvesting, or any expense or loss incurred for labor, substitute machinery, rental or for any other reason.

Except as set forth above, **Allen farm Equipment, LP** shall have no obligation or liability of any kind on account of any of its equipment and shall not be liable for special or consequential damages. **Allen Farm Equipment, LP** makes no other warranty, expresses or implied, and, specifically, **Allen Farm Equipment, LP** disclaims any implied warranty or merchantability or fitness for a particular purpose. Some states or provinces do not permit limitations or exclusions or implied warranties or incidental or consequential damages, so the limitations or exclusions in this warranty may not apply.

This warranty is subject to any existing conditions of supply that may directly affect our ability to obtain materials or manufacture replacement parts.

Allen Farm Equipment, LP reserves the right to make improvements in design or changes in specifications at any time, without incurring any obligation to owners of a previously sold unit or units.

No one is authorized to alter, modify or enlarge this warranty nor the exclusion, limitations and reservations.

Allen Farm Equipment, LP

WARRANTY REGISTRATION CARD

Dealer Name: _____

Customer Name: _____

Address: _____

Product: _____

Model Number: _____ Serial Number: _____

Date Delivered: _____

Did you receive the owner's manual? Yes__ No__

Did you receive a copy of warranty? Yes__ No__

WARRANTY IS VOID IF CARD IS NOT RETURNED

I have read and fully understand the contents of this manual and am familiar with the operation procedures of this product.

Customer signature _____ Dealer signature _____

Date signed _____ Date signed _____

**Allen Farm Equipment, LP
PO Box 21049
Carson City, NV. 89721**

ATTN: Warranty Dept.

NOTES

