HINIKER

SERIES 1000
ROW CULTIVATOR
RIGID AND FOLDING TOOLBAR

OPERATOR'S MANUAL

DO NOT USE OR OPERATE THIS EQUIPMENT UNTIL THIS MANUAL
HAS BEEN READ AND THOROUGHLY UNDERSTOOD

PART NUMBER 81003152 REV D

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81003152 REV E **1/2000** **FN #1013, E:Newfol/1000Cult**

INTRODUCTION

Congratulations on your purchase of a new Hiniker 1000 Cultivator. Your selection is an indication of your awareness of the intense research, engineering, design and quality control that has produced your durable and dependable row cultivator from Hiniker.

This manual is provided as set-up and assembly instructions, and as an aid to the operator in explaining settings and adjustments for all soil, residue and functional applications of the Hiniker Row Cultivator. Also, its operational care and maintenance requirements. Careful application of the recommended procedures contained in this manual will assure you of many years of dependable, efficient operation.

Your Hiniker Row Cultivator has been designed to accept additional attachments to broaden its scope of operation and make your job easier under unusual or adverse field conditions. These attachments are described in the attachment section of this manual and are available through your local Hiniker Dealer.

"Right hand" and "left hand" sides of your row cultivator are determined by facing the direction that the row cultivator travels while in use.

This safety symbol identifies important safety information in this manual. When you see this symbol, be alert to the possibility of personal injury and read carefully the information that follows.

Warranty information and procedures are on hand at your local Hiniker Dealer, or may be obtained from the manufacturer.

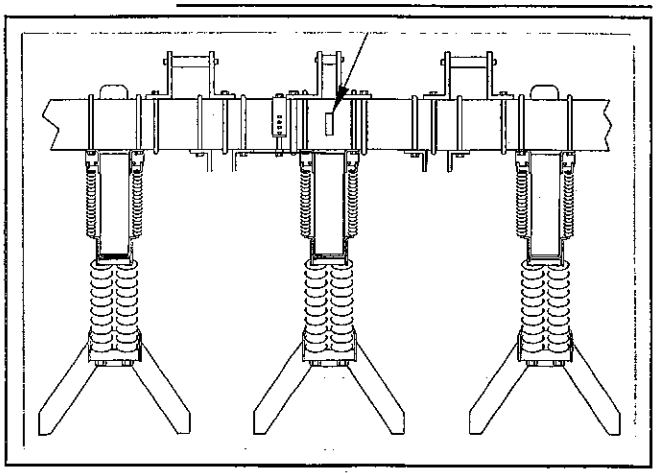
The serial number tag is located on the center of the toolbar.

Information required for service parts and/or warranty service includes the serial number and model of your row cultivator.

A space is provided below to record this information for future reference, should your serial number tag become obscured or obliterated.

Model No. _____

Serial No. _____



Serial Number Tag DWG. NO. 2591

SAFETY SUGGESTIONS

WARNING: Your safety and the safety of those around you depend upon your using care and good judgement in the operation of this equipment. Know the positions and functions of all controls before attempting to operate.

All equipment has limitations. Understand the speed, braking, steering, stability, and load characteristics of the machine before starting to operate. Read your OPERATOR'S MANUAL!

The following are general safety comments that apply to all equipment. Review them often as safety reminders.

- Don't be in a hurry.
- Check all controls and operating functions of the machine in a safe area before starting to work.
- Never allow anyone around machinery when you are performing operating functions.
- When service demands working on, under, or around, tillage implement, proper precautions should be taken to stabilize or secure implement. (Lowering stands, blocking of implement, etc.)
- When transporting the machine, ensure all warning devices, such as SMV sign and reflective devices are in place, clean, and clearly visible.
- Watch where you are going. Note all hazards and obstructions such as ditches, overhead electrical wires, narrow gates, etc. when transporting and/or operating the machine. Refer to page 4 of this manual for transport height and width specifications.
- Never ride or permit others to ride on tractor drawbar or on machine; nor allow anyone other than yourself on the tractor while in operation.
- Reduce tractor speed when transporting over uneven or rough terrain.
- When transporting down steep hills or slopes, shift tractor into lower gear.
- Escaping hydraulic fluid under pressure can have sufficient force to penetrate the skin causing serious personal injury. Before connecting lines, be sure to relieve all pressures in the system by moving hydraulic control levers in both directions before attaching couplers.
- Before disconnecting lines, be sure to relieve all pressures to the system.
- Be sure all connections are tight and that lines, pipes, and hoses are not damaged or worn.
- A very small leak from a hydraulic line, pipe, hose, or fitting can be almost invisible. Use a piece of cardboard or wood when checking for suspected leaks rather than your hands.
- If injury is received from escaping fluid, see a doctor at once, as serious reaction or infection can result if proper medical treatment is not received immediately.

SPECIFICATIONS

STANDARD EQUIPMENT

- 5 x 7 Inch Toolbar On 4, 6, And 8 Row 30 Inch Rigid Models.
- 7 x 7 Inch Toolbar On 8 Row 36/38 Inch Rigid Models and 12 Row 20/22 Inch.
- 7 x 7 Inch Center Section On All Folding Models.
- 5 x 7 Inch Wings on 30, 36, and 38 row Spacing.
- 7 x 7 Inch Wings on 20/22 Inch Row Spacing.
- Two Pair of 8 x 20 Toolbar Gauge Wheels On 16 Row 30 Inch.
- Category II Or III Hitch.
- Hydraulic Cylinders And Hoses Included On Folding Models.
- Single Shank Per Gang.
- 4 x 16 Inch Rubber Gang Gauge Wheels With Single Pin adjustment.
- Two (2) Down Pressure Springs Per Gang.
- Two 18 Inch Spring-loaded Stabilizing Coulters. (Optional on 20"/22" Rows).

The Hiniker Row Cultivator is 3-point mounted and is available in six rigid models and seven folding models. It is recommended that a tractor of the following minimum size be used on the appropriate size cultivators:

	RECOMMENDED DRAWBAR HORSEPOWER
4 Row	50
6 Row	60
8 Row	90
12 Row (20/22/24)	90
12 Row	140+
16 Row	140+
16 Row (20/22)	150+
18 Row (20/22)	150+
24 Row (20/22)	150+

Consult Tractor's Operators Manual For Proper Amount Of Front End Ballast Required For Safe Operation.

MODEL NO.	NO. OF ROWS	ROW SPACING	TRANSPORT WIDTH	TRANSPORT HEIGHT	APPRX. WT.
RIGID TOOLBARS					
1002	4	36/38 IN.	14 FT	6 FT 6 IN.	1456 LBS.
1003	6	30 IN.	16 FT 4 IN.	6 FT 6 IN.	1810 LBS.
1004	6	36/38 IN.	20 FT 4 IN.	6 FT 6 IN.	1941 LBS.
1005	8	30 IN.	21 FT 4 IN.	6 FT 6 IN.	2355 LBS.
1006	8	36/38 IN.	26 FT 8 IN.	6 FT 6 IN.	2518 LBS.
1020	12	20/22 IN.	23 FT 10 IN.	6 FT 6 IN.	3163 LBS.
1014	12	24 IN.	25 FT 4 IN.	6 FT 6 IN.	3200 LBS.
FOLDING TOOLBARS					
1007	8	30 IN.	12 FT 10 IN.	11 FT 2 IN.	2799 LBS.
1008	8	36/38 IN.	15 FT 10 IN.	11 FT 4 IN.	2954 LBS.
1009	12	30 IN.	17 FT 10 IN.	11 FT 6 IN.	3710 LBS.
1010	12	36/38 IN.	21 FT 10 IN.	11 FT 11 IN.	3969 LBS.
1011	16	30 IN.	22 FT 10 IN.	11 FT 11 IN.	5120 LBS.
1021	16	20/22 IN.	18 FT 8 IN.	11 FT 3 IN.	4149 LBS.
1022	18	20/22 IN.	18 FT 8 IN.	11 FT 11 IN.	4406 LBS.
1023	24	20/22 IN.	26 FT	12 FT	5321 LBS.

TROUBLE SHOOTING

TROUBLE	CAUSE	REMEDY
Residue plugging/bunching on end of sweeps	Machine tipped too far forward	Lengthen upper link.
Sweep not penetrating	Worn sweeps	Replace worn sweeps.
	Insufficient down pressure	Readjust down pressure springs.
	Machine tipped too far forward.	Lengthen upper link.
	Adverse soil conditions.	Install auxillary points, Part No. 81003270.
	Toolbar running too high	Raise height of toolbar wing gauge wheel. Page 10.
Slabbing	Cultivator set too deep Slow tractor speed	Readjust depth Better soil fracturing occurs at 6 - 7 MPH+.
Weeds undercut but not destroyed	Cultivator set too deep Slow tractor speed	Readjust depth Better soil fracturing occurs at 6 - 7 MPH+.
Rotary hoe shields plugging	Support arms too long	Set to 40" for 30" rows, 46" for wide row.
	Excessive Residue	Run hoe wheels backward. Switch to rolling shields.
Gauge wheels bury in loose soil	Too much down pressure on gang	Carry toolbar on tractor. Decrease down pressure setting.
Cultivator does not travel straight	Coulter not aligned	Align coulter with adjustment washer.

LUBRICATION

CAUTION: Never clean, lubricate, inspect, repair, or adjust your machine, nor allow anyone else to, while it is in operation.

Lubrication of moving parts and wear surfaces is essential to the extended service life of those parts. Inspect your machine frequently to ensure that all parts are working smoothly in addition to inspection and lubrication at required intervals as indicated.

The use of sealed ball bearings throughout the cultivator limit the grease fittings requiring periodic lubrication. Following are the fitting locations and hourly intervals requiring a high quality SAE multi-purpose grease.

20 HOURS

—ROLLING OR ROTARY HOE SHIELD (optional) No restriction of grease volume on single hub fitting.

200 HOURS

—FOLDING TOOLBAR HINGE - No restriction of grease volume in single hinge fitting.

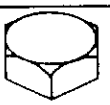
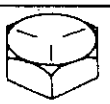
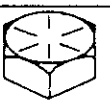
PREPARING FOR FIELD USE

PREPARING ROW CULTIVATOR

Prior to the operation of your new Row Cultivator or one which has been stored, inspect all hardware and verify proper torque on all bolts and nuts in accordance with the recommended torque specifications listed below.

STANDARD MARKINGS AND TORQUE SPECIFICATIONS

Manufacturer marks may vary. These are all SAE Grade 5 (3-line).

SAE Grade Number	1 or 2		5		8	
Capscrew Head Markings						
Capscrew Body Size (Inches) - (Thread)	Torque FT-LB	(kgm)	Torque FT-LB	(kgm)	Torque FT-LB	(kgm)
1/4 - 20	5	(0.6815)	8	(1.1064)	12	(1.6596)
- 28	6	(0.2898)	10	(1.3830)	14	(1.9362)
5/16 - 18	11	(1.5213)	17	(2.3511)	24	(3.3192)
- 24	13	(1.7979)	19	(2.6277)	27	(3.7341)
3/8 - 16	18	(2.4894)	31	(4.2873)	44	(6.0852)
- 24	20	(2.7660)	35	(4.8405)	49	(6.7767)
7/16 - 14	28	(3.8132)	49	(6.7767)	70	(9.6810)
- 20	30	(4.1490)	55	(7.6065)	78	(10.7874)
1/2 - 13	39	(5.3937)	75	(10.3725)	105	(14.5215)
- 20	41	(5.6703)	85	(11.7555)	120	(16.5960)
9/16 - 12	51	(7.0533)	110	(15.2130)	155	(21.4365)
- 18	55	(7.6065)	120	(16.5960)	170	(23.5110)
5/8 - 11	83	(11.4789)	150	(20.7450)	210	(29.0430)
- 18	95	(13.1385)	170	(23.5110)	240	(33.1920)
3/4 - 10	105	(14.5215)	270	(37.3410)	375	(51.8625)
- 16	115	(15.9045)	295	(40.7985)	420	(58.0860)
7/8 - 9	160	(22.1280)	395	(54.6285)	605	(83.6715)
- 14	175	(24.2025)	435	(60.1605)	675	(93.3525)
1 - 8	235	(32.5005)	590	(81.5970)	910	(125.8530)
- 14	250	(34.5750)	660	(91.2780)	990	(136.9170)

DWG. NO. 1935

CAUTION: Loose bolts can cause elongation of holes and part failures resulting in dangerous operating conditions and equipment breakdown. Check all bolts and nuts periodically during equipment operation and keep them tightened to torques specified. When bolt replacement becomes necessary, replace worn bolt with equal SAE grade bolt number.

TRACTOR PREPARATION

For complete tractor operating instructions and use of 3-point hitch implements, refer to your tractor operator's manual.

Place tractor on level surface and check tire inflation to ensure equal tire pressure. Lower draft arms to their lowest position and adjust lift links so that both draft arms are the same distance off the ground as measured from the draft arm sockets.

Reference tractor operator's manual for proper adjustment of draft arms and center link. If a quick hitch coupler is to be used, install it to the 3-point hitch at this time in accordance with the tractor operator's manual.

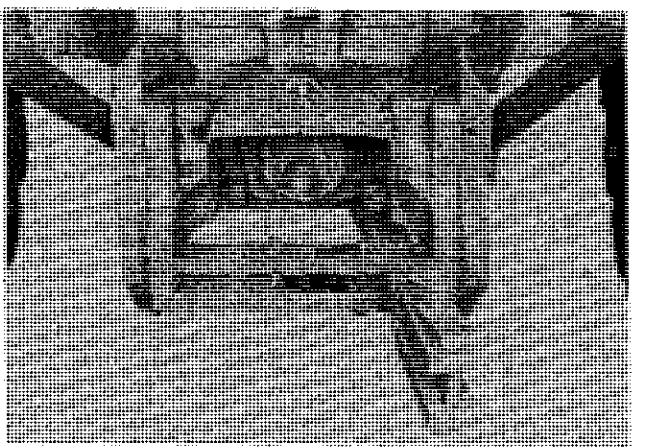


PHOTO NO. 917

CAUTION: Position tractor drawbar to the extreme right or left side of support, as shown, or remove drawbar. NOTE: If drawbar remains on center, it will interfere with center row unit gauge wheel. The tractor sway blocks should be positioned, as shown, to prevent too much sway whether the row cultivator is in working position or in transport position.

TRACTOR PREPARATION CONTINUED

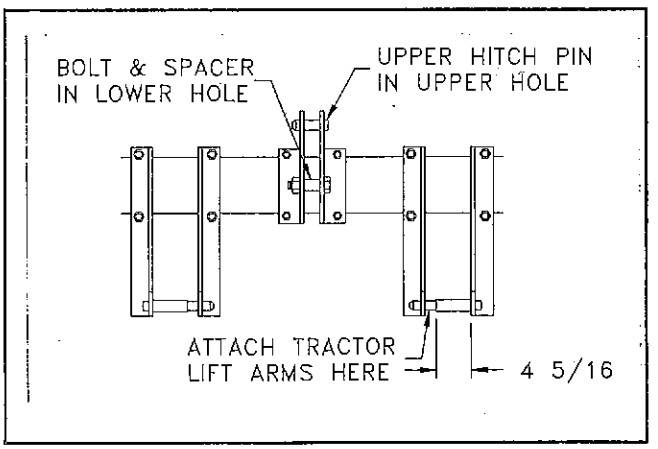
There should be 1/2 inch to 3/4 inch of spacing between the lower lift arms on the tractor and the sway blocks. This will allow the cultivator to follow contours, terraces, etc. Some model tractors use different methods to secure lift arms and must be set to allow equivalent movement. If position of the cultivator hitch brackets permit either too much or too little movement, they must be moved either in or out on the toolbar.

Tractor wheel spacing should be set as close to the center of the row as possible. If dual wheels are used, use the proper spacers to also center the dualed wheel.

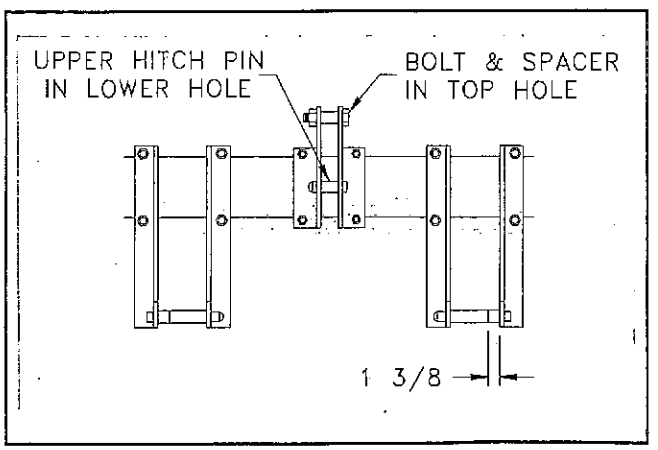
HITCH PREPARATION

The toolbar hitch is designed to accommodate both Category II and Category III tractor hitches. It may also be used with a quick hitch.

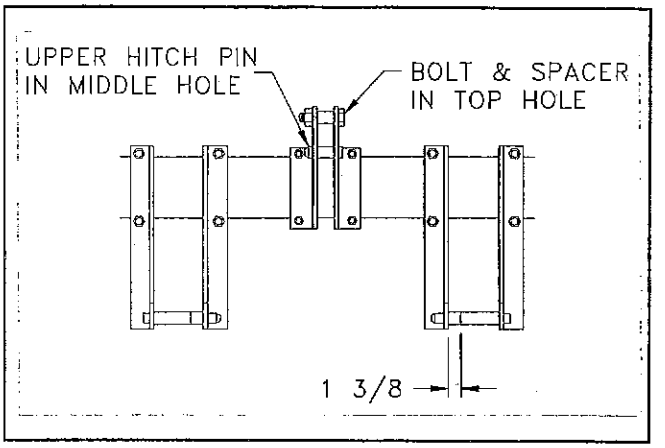
Set hitch pins and spacers to match your tractor as shown in following drawings.



DWG. NO. 2556
Category II without quick hitch



DWG. NO. 2557
Category II with quick hitch



DWG. NO. 2558
Category III with quick hitch

Caution: After attaching Row Cultivator to tractor, check front end stability. Tractor front end stability is necessary for safe and efficient operation. Therefore, it is important that the proper amount of weight be installed on the front of the tractor, as recommended in your tractors operator's manual.

TRACTOR HYDRAULIC SETTINGS

Most modern tractors have a POSITION/DRAFT control which will lift the hitch as draft increases when in the draft mode. This setting could decrease penetration of the Cultivator units, so be sure the POSITION setting is used.

The rock arm (three point) lever should be placed in full collapse or down position when the Cultivator is in operation.

OPERATION PROCEDURES AND ADJUSTMENTS

DEPTH CONTROL

There are two operating adjustments that control working depth. The tillage unit gauge wheel sets the depth at each unit. The upper three point hitch link varies the attitude and the depth of the entire machine. The sweeps should operate below surface residue to minimize plugging. The sweeps should be level. For optimal penetration, sweeps should run level in working position.

SETTING DEPTH

Adjust upper link of three point hitch so sweeps are level. Remove gauge wheel adjustment pin (#1 page 17) and set tillage unit to its midway point. For proper operation the sweeps should run about one inch below the soil surface. Operate sweeps as shallow as possible without plugging. Deeper operation will result in less soil agitation, more soil moisture loss, possible slabbing, and require more tractor power.

In very loose soil conditions, the gauge wheels may tend to bury, pushing soil and quit rolling. Reduce spring down pressure and carry more of the toolbar weight on the tractor.

TILLAGE UNIT DOWN PRESSURE

It is critical that the parallel linkage of the individual tillage units be nearly level in operation. This will permit 9" of unit travel (5" up and 4" down) and maintain uniform ground penetration on irregular surfaces. The down pressure spring on each unit will "borrow" weight from the others if that individual gang encounters harder ground to prevent "riding out" or plugging of that row. Usually the units following the tractor wheels will require increased down pressure.

TILLAGE UNIT DOWN PRESSURE ADJUSTMENT

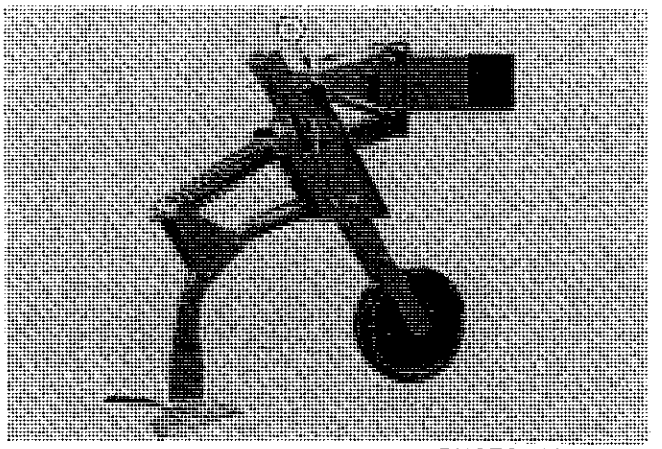


PHOTO NO. 2946B

Adjust down pressure spring by turning nut (arrow 1) when the tillage unit is in the raised position.

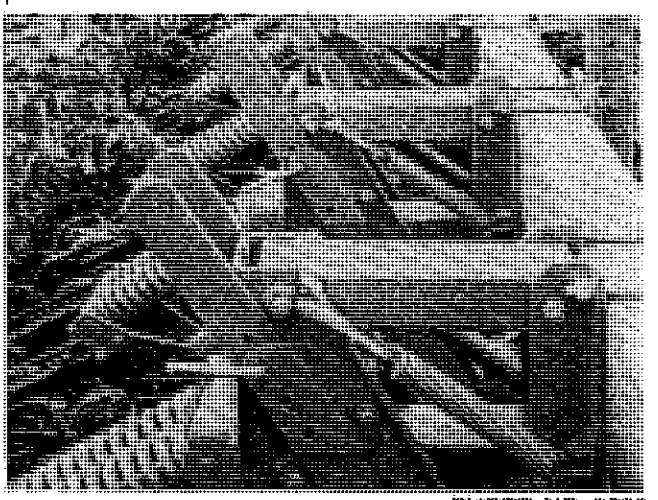


PHOTO NO. 3000

On tillage units behind tractor rear tires, springs may be adjusted to full tension. All other tillage units will require much less, like half tension. End row down pressure springs should be adjusted to the loosest position. Too much down pressure will float toolbar.

SWEEP PENETRATION

Always run parallel links horizonal to one inch higher at rear. Change tractor lift arms and wing gauge wheel to carry toolbar at correct height. Lengthen tractor center link to make sweep go deeper. Shorten to raise sweep. Install optional cast point (see page 30) if necessary.

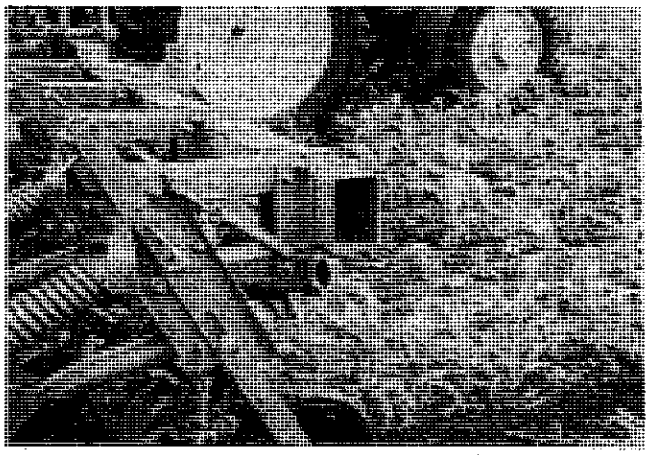


PHOTO NO. 3590

TOOLBAR GAUGE WHEEL

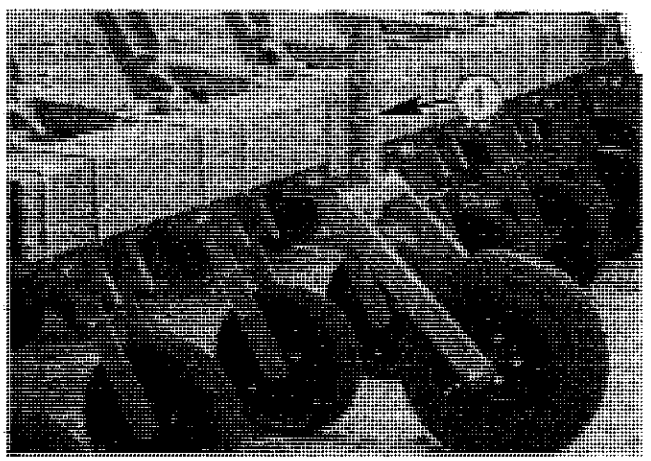


PHOTO NO. 3588

Adjust toolbar gauge wheel height (Arrow 1). Have the tillage unit in the ground at working depth, with the parallel links running higher at rear approximately 1 inch.

WING GAUGE WHEEL (OPTIONAL)

On folding models, optional wing mounted gauge wheels may be used for additional stability. After depth of operation is set on center section, remove bolts from mounting bracket and lower gauge wheel to ground. Reinstall bolts in holes that most closely line up.

CUTAWAY HOE SHIELD

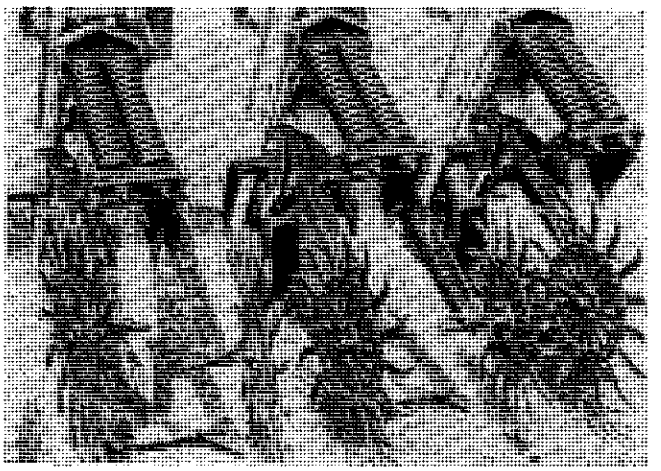


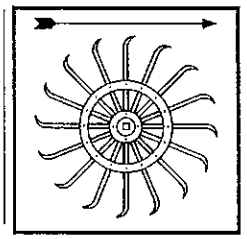
PHOTO NO. 3591

Cutaway hoe shields serve both as a shield for small crops and a weeding device for any size row crop. In small crops, operate the hoe wheels in the aggressive position. The telescoping fore and aft arm should be adjusted to direct the sweep soil flow to the center of the hoe wheel. Faster ground speed will require longer arm length and slower speeds a shorter setting.

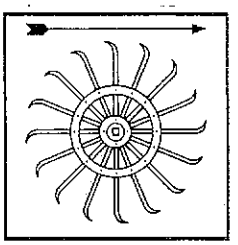
PHOTO NO. 3592

Five holes are provided in the mount bracket to set depth and down pressure in addition to the top hole which is the lock out setting. Hoes should penetrate about 2".

NOTE: On folding toolbar models, with cutaway hoe shields, when hoe shield arms are in the raised (non-use) position, one or more shield arms must be lowered near wing hinge. Otherwise they will hit one another in the full transport position.

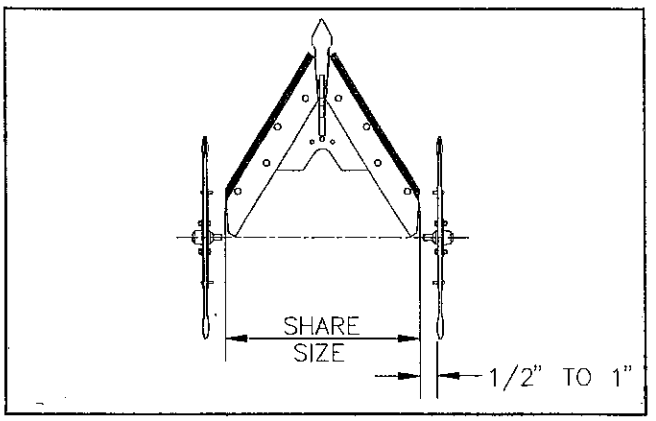


AGGRESSIVE



PASSIVE

In large crop or second cultivation, operating the shields in a passive position will prevent foliage damage to the crop.



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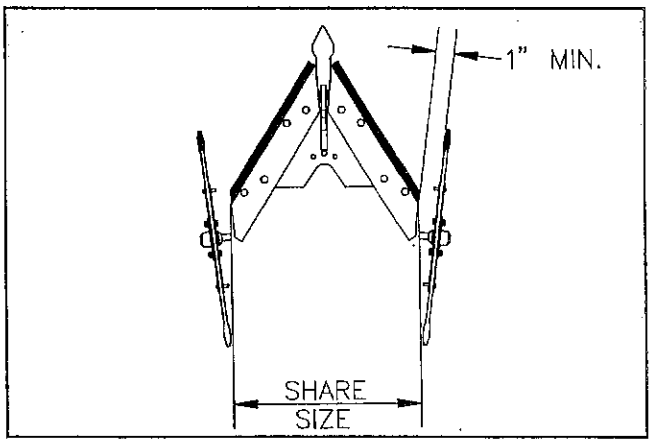
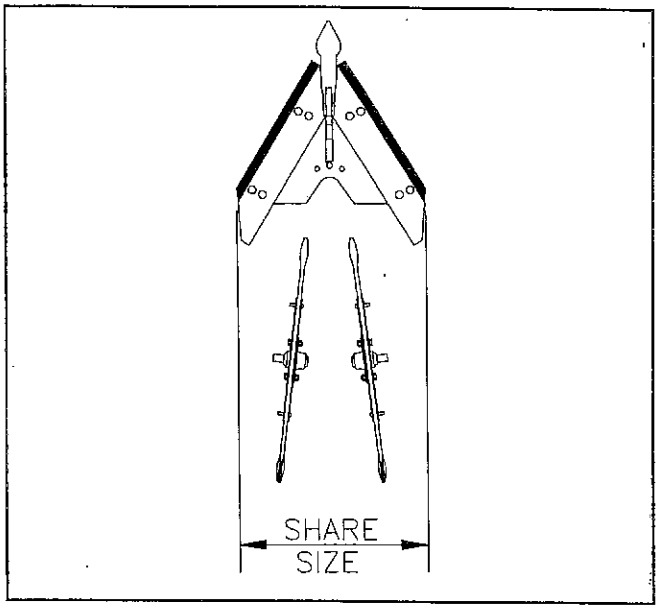


DWG. NO. 3122

One size smaller share is recommended when using the rotary hoe shields in the angled setting. For example, use 17" shares with shields, versus 19" without shields in 30" rows.



DWG. NO. 3121

The cutaway hoe shields can also be positioned behind the sweeps to throw soil back into the row.

SHIELDS

The 1000 row cultivator may use either the rotary hoe shields (Photo 3520)or the rolling shields (photo 3521). Either of these shields may be locked up and out of position in crops over 8-9" of height by removing the hair pin, moving the spring rod from the center bracket to one of the holes in the angle mount brackets, and replacing the hairpin.

Little or no down pressure is required with the rolling shields. Excessive down pressure may cause the shields to stop turning and drag in the soil.

PHOTO NO. 3520

The rotary hoe shields should have down pressure sufficient to penetrate hoes to a depth of about 2". In some conditions the rotary hoe wheels may have to be reversed to prevent wrapping and plugging.

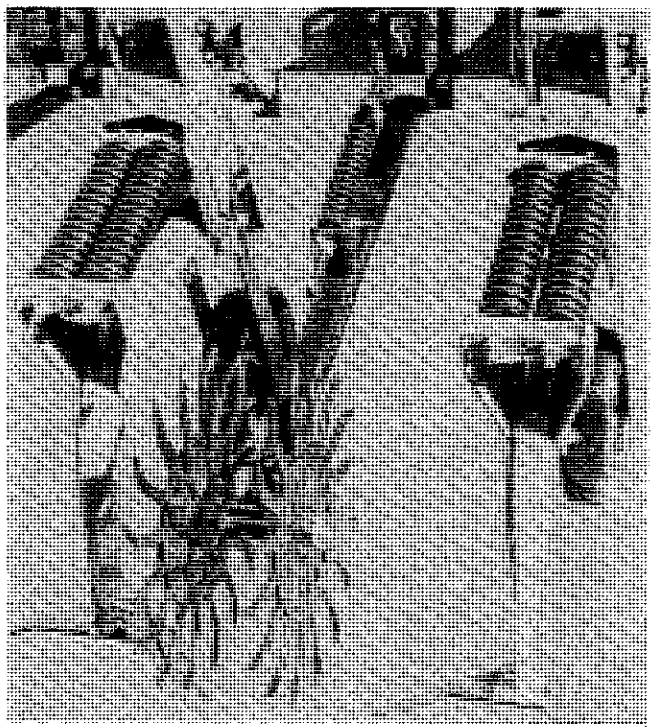


PHOTO NO. 3521

The telescoping support arm for either of the shields is normally set at 40" for 30" rows, 46" for wide rows. This will permit the material flow to ideally hit the shields just behind the axle bolt. In very short crops or very loose soil, shield arm may have to be extended up to 4" longer than standard. If extended too long, the material will flow ahead of the shield, both covering the crop and causing the shields to plug and drag.

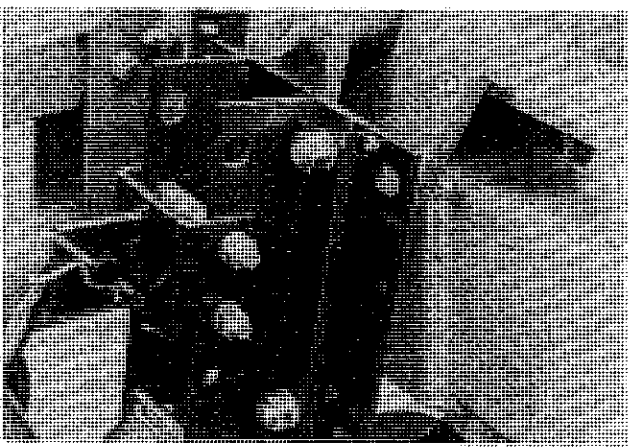


PHOTO NO. 2948

Shim as required to center shield over row.

To align shields over row near folding toolbar hinge, add or remove shims as shown in photo 2948.

TUNNEL SHIELDS

Tunnel shields can only be used on 30" or narrower row spacings. The chain on the tunnel shield should be set so that the tunnel shield pivot arms do not pivot any farther forward than 20 degrees less than vertical. The shields should not strike any attachments to the cultivator when they swing forward.

The shields can be adjusted fore and aft using the series of holes in the top of the shield. The shields will wear excessively if the shields are allowed to drag on the ground during operation. Level the tunnel shields in the field using the slots provided in the mounting bracket.

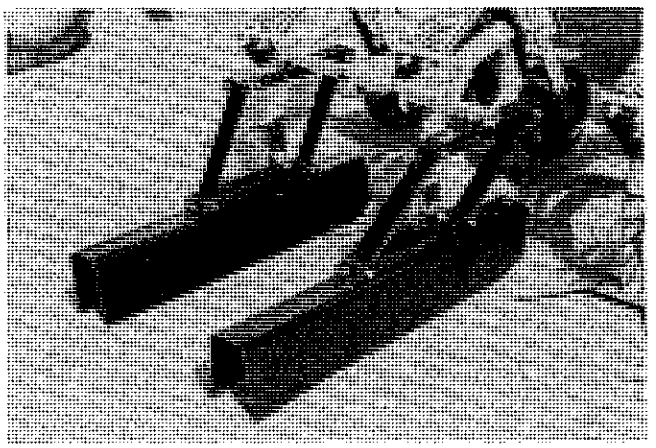


PHOTO NO. 3595

PARKING STANDS

Parking stands are an integral part of the stabilizing coulter. If your cultivator is set for 20/22" row spacing you may have either stabilizing coulters with parking stands as shown in photo 2950 or parking stands as shown in photo 3592.

The parking stands may be pinned in either the up or down position. Before detaching the cultivator from the tractor, lock the parking stands down. Always use parking stands when unhooking cultivator to prevent the cultivator from tipping.

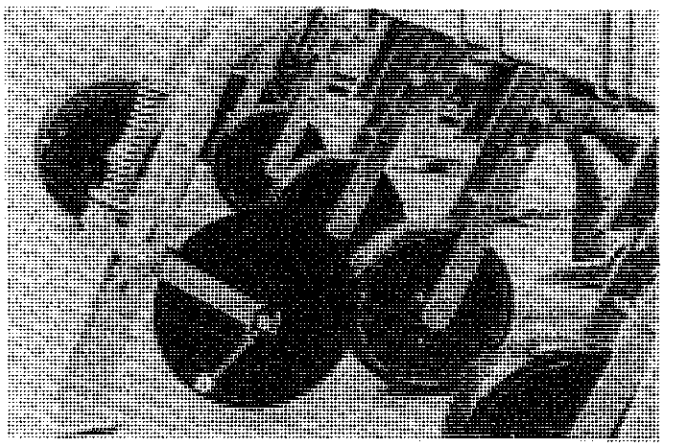


PHOTO NO. 2950A

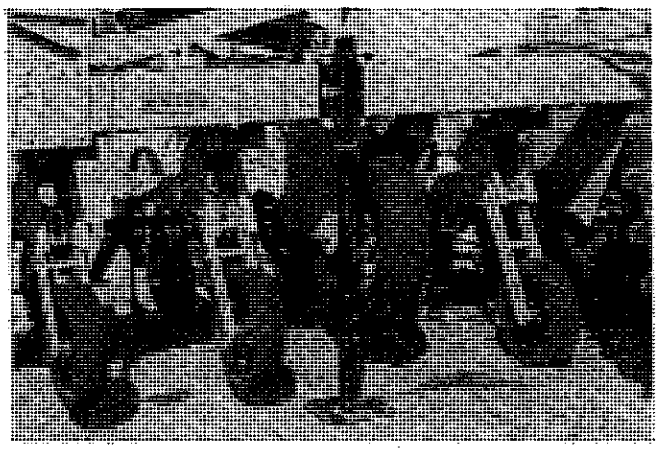


PHOTO NO. 3598

STABILIZING COULTER

Refer to Photo No. 2950A

The coulter prevents side sway and should trail straight. Rotate eccentric washer Item 1 on coulter axle until coulter is straight.

Proper operating depth should be 2-4 inches. In adverse field conditions additional downpressure may be required. Tighten coulter spring until desired coulter depth is obtained. Do not allow coulter hub to operate in soil.

SWEEPS

The 1000 cultivator uses an exclusive high speed sweep. The sweep is available in 5 different sizes. It is important that the larger sweep be used when cultivating smaller crops and the smaller sweeps be used in taller crops to minimize root pruning.

The shank is protected by either a spring cushion or a toggle trip. The toggle trip requires the cultivator to be stopped and raised to allow the toggle to reset. A higher "breakaway force" is obtained by placing the bolt and spacer in the top hole of the lower toggle arm. The distance between trunnions on spring cushion trip mechanism should remain at 15".

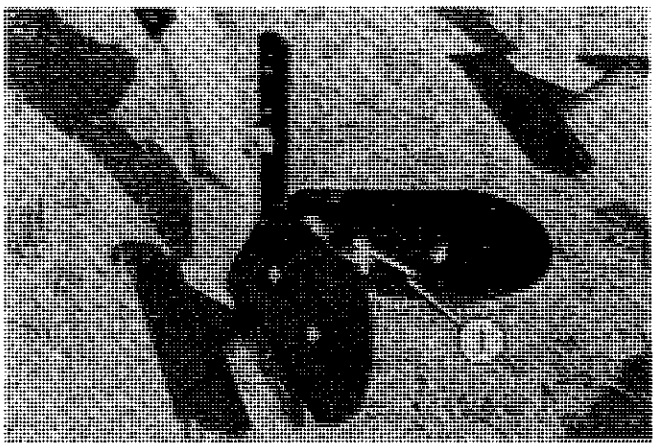
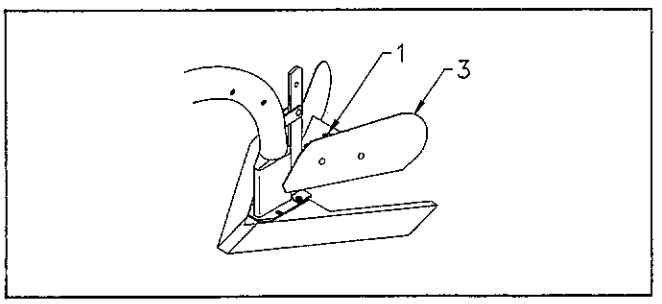


PHOTO NO. 3594

RIDGING

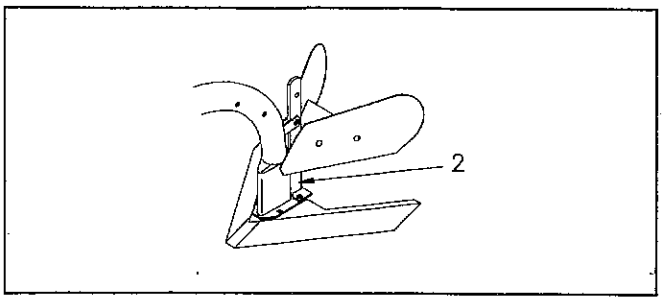
When ridging, the tilt or attitude of the cultivator should be close to level. This, together with gauge wheel depth and ridger width setting will determine desired ridge size and shape. Use the shortest shares available for your row width when ridging.



DWG. NO. 3217

Low working position for ridging.

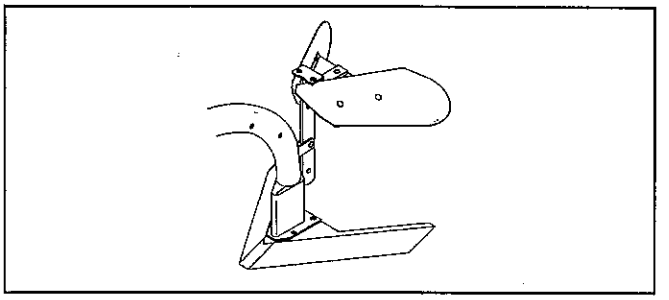
Ridger wings can be adjusted in width by loosening two hex nuts (Arrow 1). Slide ridger wings to desired width to match row spacing and ground speed. See Photo No. 3594 and Drawing No. 3217.



DWG. NO. 3217

High working position.

There are two pairs of holes on the ridger support bracket. Normally the bolts are placed in the lower holes which position the ridger lower for maximum soil movement. Less aggressive ridging (example: ridging soybeans) results when the bolts are placed in upper holes allowing some soil to pass under the ridger. This may also be desirable when ridging up and down slopes. Leaving some loose soil between rows rather than a bare "ditch" will reduce soil erosion.



DWG. NO. 3217

Storage position shown. For more crop clearance move support strap up into second hole.

FOLDING TOOLBAR
30 & 36/38 INCH
ROW SPACING CULTIVATORS

Before initial operation or after hydraulic service of folding models, the hydraulic system must be purged of all captured air. See step 4 of assembly for instructions.

For field operation, the wings should be locked into working position by inserting link pin in upper hole in locking tab under hinge. Before folding the toolbar the pin must be removed and stored in lower hole in tab on main toolbar.

The wings may be leveled by adding or removing shims under lock weldment on wing.

Important: The locking link pin must be removed from locked position before raising wings.

Caution: Never raise wings to transport position or lower wings while machine is in motion. Stay clear of folding sections during raising or lowering. Keep away from overhead power lines. Serious injury or death may result from contact with electric power lines.

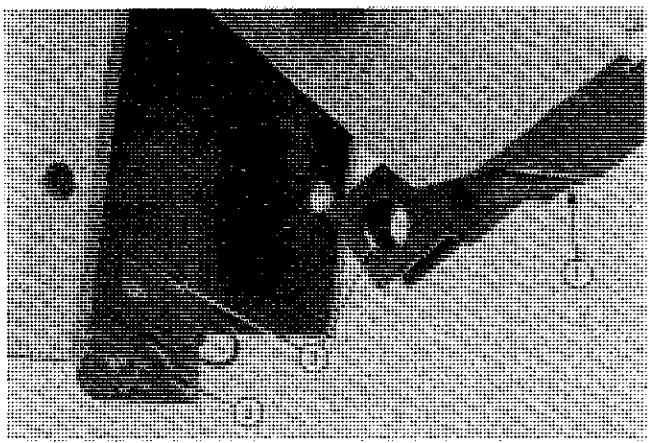


PHOTO NO. 2947

1 - Shims

2 - Locking Pin in Storage Position

3 - Locking Pin, Operating Position

FOLDING TOOLBAR WING LOCK
20/22" ROW SPACING

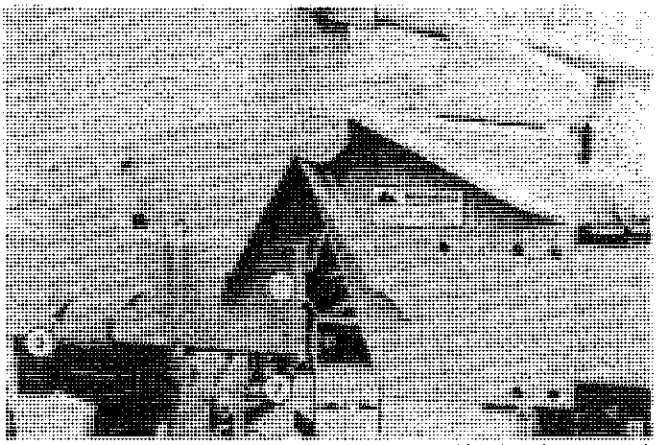


PHOTO NO. 3317A

ADJUST WING STOP
With Wing in Locked Flat Position

Extend wing fold cylinder until wing section is held flat. Notice the position of wing spacer tube (arrow 1) as shown in photo 3317A. Shims (arrow 2) may be moved to make toolbar level to slightly below level.

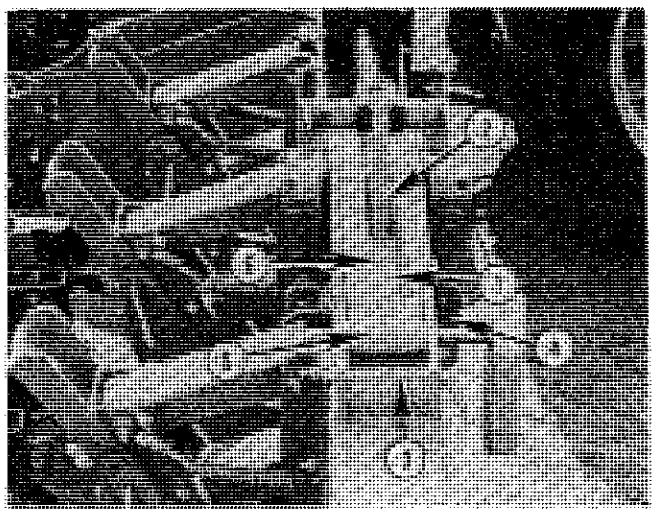


PHOTO NO. 3596

LOCK POSITION

With toolbar wing section now adjusted to desired flat position, fully extend cylinder. NOTE: . Cylinder must hold at that fully extended length. All trapped air is to be purged out of the cylinders. They may be cycled 3 or 4 times before rechecking wing lock flat bar (arrow 1). Retract hydraulic cylinders about 1" and rotate wing lock assembly (Arrow 1) as shown. Fully extend the hydraulic cylinders and check that the lift link (arrow 2) is preloading the wing lock mechanism (arrow 1). Add or subtract shims (arrow 4) (stored on wing toolbar) between the tube weld (arrow 5) and lock bar weld (arrow 6). The wing toolbar should be locked in a position of level to slightly below level when it is operating in the field. Note position of the storage pin (arrow 3).

IMPORTANT: DO NOT INSTALL ANY EQUIPMENT THAT WILL INTERFERE WITH THE WING LOCK MECHANISM.

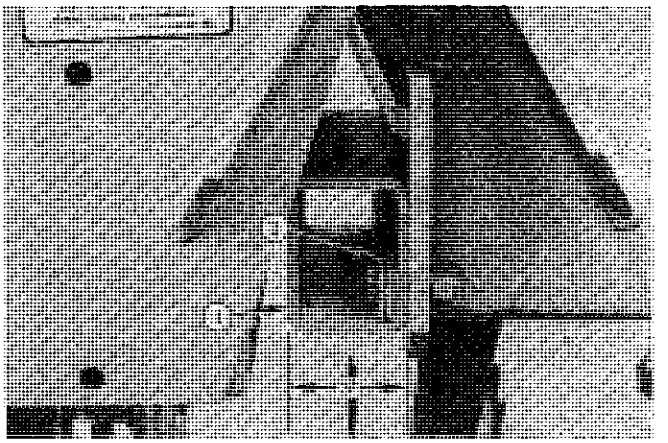


PHOTO NO. 3320

ADJUST WING STOP
With Wing in Float Position

When wing section is in float position, notice the position of wing spacer tube (arrow 1) and shims (arrow 2) (Photo No. 3320). Rotate wing spacer tube (arrow 1) and move shims as shown to allow wing to float.

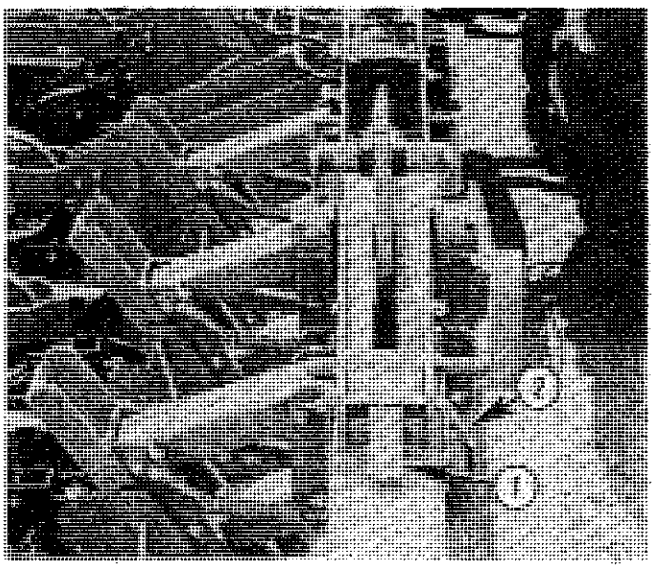
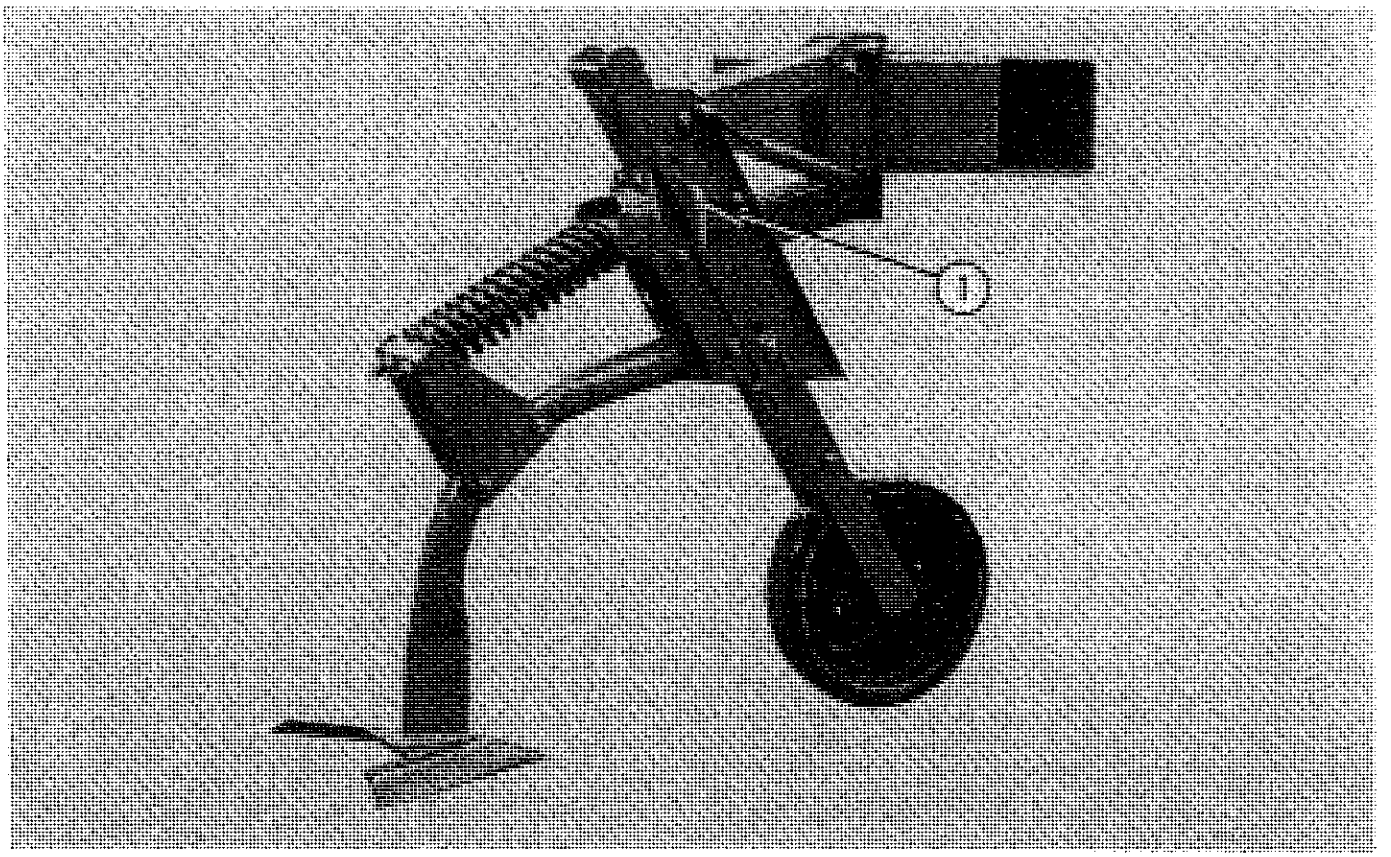


PHOTO NO. 3597

FLOAT POSITION

When wing section is in the float position, the lock bar (arrow 1) will not be used. Note the position of storage pin (arrow 2). (Photo No. 3597)



CUSHION SPRING SHANK UNIT PHOTO NO. 2946

ASSEMBLY

CAUTION: Lifting device such as crane, loader, or forklift required for handling large parts and shipping bundles. Support heavy sections with hoist or blocks before removing wires or straps.

STEP 1

To remove 1000 Row Cultivator tillage unit from shipping bundle:

1. Place shipping bundle on hard, level surface.

2. Remove 5/8 inch bolts, (arrow 1) attaching mounting angles. Remove 3/8 inch lag bolts, (arrow 2) in shipping lumber at rear of unit. These bolts may be discarded. Leave spring and L-anchor with row unit. (Arrow 3.)

3. Remove tillage unit from bundle.

4. Set tillage unit aside and remove remaining units in the same manner

All hardware should be tightened only enough to insure safety during assembly. Torque hardware to specified values, as shown on Torque chart on page 7, only after assembly has been completed.

Caution: When removing any bundling straps, wires or brackets, be certain to keep clear of any parts which may drop. Support heavy sections with hoist or blocks before removing wires or straps.

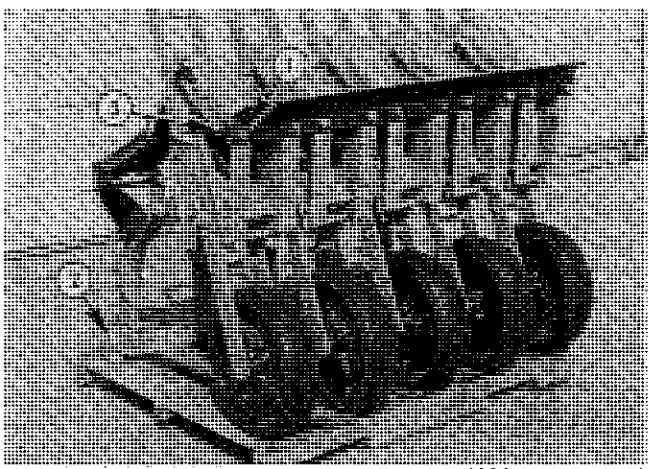


PHOTO NO. 3593

STEP 2

Use crane to lift toolbar onto supports approximately 40 inches high. Model Number Tag must be on top surface of toolbar.

STEP 3

Mark center of main toolbar. Measure and mark the centers for each tillage unit as shown in assembly diagrams.

STEP 4

Install upper hitch bracket at center of toolbar as shown in the assembly diagrams on pages 41-52. The center tillage unit on rigid models must be installed using same hardware as upper hitch bracket. The upper hitch bracket must extend above the toolbar.

Install two lower three point hitches to front of toolbar using U-bolts (except 16, 18 and 24 20/22" models). Reference assembly diagrams for locating dimensions. Three point hitch will adapt to category II or III tractors with and without quick hitches by changing positions of hitch pins. NOTE: On 12 row 22" machines the three point hitch lower assemblies must be disassembled. Reassemble them with the bent legs pointing toward the center as shown (see page 21 of assembly).

For folding models, install bulk head strap, and SMV symbol strap, to left of upper hitch bracket using 5/8 bolts. Install hydraulic fittings and hoses as shown on plumbing diagram on pages 25 and 26.

Bulkhead tees pass through holes in bulkhead strap. Inspect all hydraulic fittings and hoses for damage, wear, and tightness. Be sure that hoses are routed to prevent pinching of hoses. Connect cultivator and tractor with 3 point hitch, attach hydraulic hoses to tractor hydraulic ports.

Caution: Before operating hydraulic cylinders, all captive air must be removed from system. Failure to follow proper procedure could cause wings to drop unexpectedly causing injury or death.

Be sure nobody is near area of implement wings while raising and lowering.

Loosen hydraulic fittings on hydraulic cylinders to allow air to escape. Cautiously raise implement wings approximately 30°. Do not allow wings to unfold over the top. Lower wings and hold hydraulic lever down until oil flows from loosened fittings. Cycle implement wings until oil flows without bubbles from loosened fittings. Cycle hydraulic system until all air is purged from system. Retighten fittings and lower implement wings.

STEP 5

Use 5/8" U-bolts to attach tillage units to toolbar. Be sure that tillage units are centered on marks as shown in assembly diagrams. Attach mounting strap for SMV emblem on tillage unit U-bolts as shown in assembly diagrams. Install spring "L" anchor (arrow 9) on lower leg of u-bolt with spring attached to adjusting bolt. NOTE: 20" and 22" row require special mounting. Refer to assembly diagrams for more information.

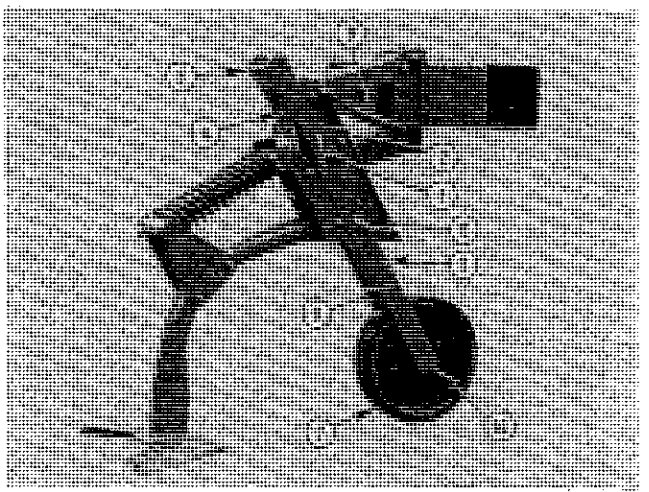
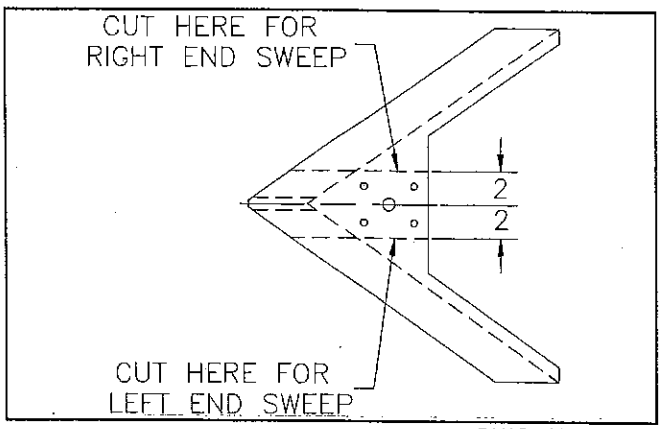


PHOTO NO. 2946A

STEP 6

Install sweeps using 3/8 x 1 carriage bolts, and whiz lock nuts.

End sweeps may be cut with a cutting torch along a line 2" out from center of sweep.



DWG. NO. 2355

STEP 7

Mount coulter mast to toolbar as shown in assembly diagrams. Center of coulter mast may be offset from center of tillage unit on 30, 36 and 38 inch rows. Eight 5/8 bolts are provided for center mounting on 30, 36 and 38 inch rows. You must provide your own u-bolts to offset mount the coulter on 30, 36 and 38 inch rows. Coulter mast must be centered on 20 and 22 inch rows.

Install coulter to hub using 1/2 x 1-1/4 carriage bolts, lockwasher, 1/2 nuts and backup washer. Install coulter and hub to coulter fork with 5-1/2' 3/4" bolts and spacers. Eccentric adjustment washer must be placed on left side. Place washer so bolt is centered in slot. If coulter does not run straight, change orientation of washer to align coulter to direction of travel. See page 24 for more information.

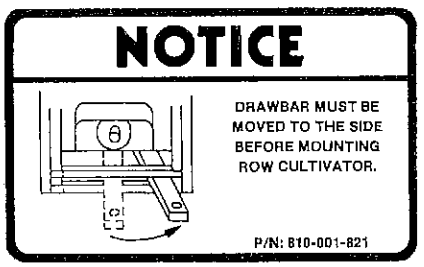
Remove hair pin and pin. Rotate parking stand down and reinstall pin and hair pin.

STEP 8
SMV

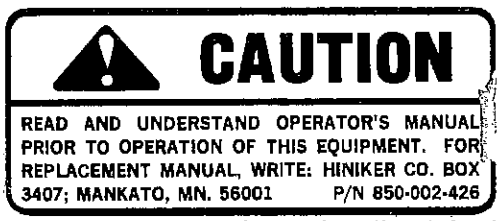
Install SMV bracket and sign on left tillage unit of rigid tool bar and bulkhead plate near center of folding toolbar.

STEP 9A
RIGID TOOLBARS ONLY!

(Rigid toolbars) Install (2) 850-001-305 red reflective tapes on the outer rear of toolbar (one on each end). Install (2) 850-001-285 yellow reflective tapes on the outer front of toolbar (one on each end). Install the other caution, notice and model decals as listed below. See page 21 for locations of decals.



Decal (1) 810-001-821 On Front Of Toolbar Left Of Upper Hitch.



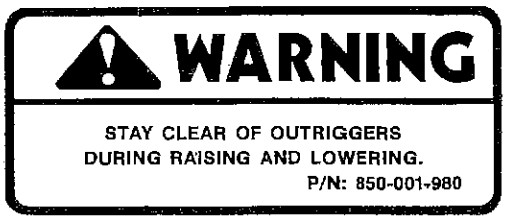
Decal (1) 850-002-426 on front of toolbar left of upper hitch.

Decal (1) 81003191 Hiniker Decal; Left End Of Toolbar Between Outer Tillage Units.

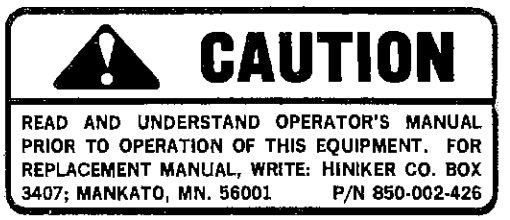
Decal (1) 81003192 1000 Decal; Right End Of Toolbar Between Outer Tillage Units.

STEP 9B
FOLDING TOOLBARS ONLY!

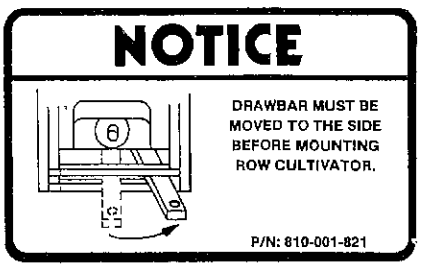
(Folding Toolbars) Install (2) 850-001-305 red reflective tapes on the outer rear of center frame (one on each end). Install (2) 850-001-285 yellow-reflective tapes on the outer front of center frame (one on each end). Install the other warning, caution, notice and model decals as listed. See page 22 and 23 for locations of decals.



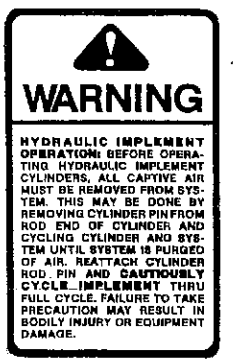
Decal (4) 850-001-980 On Front And Back Of Toolbar Near Hinge.



Decal (1) 850-002-426 On Front Of Toolbar Left Of Upper Hitch.



Decal (1) 850-001-821 On Front Of Toolbar Left Of Upper Hitch.

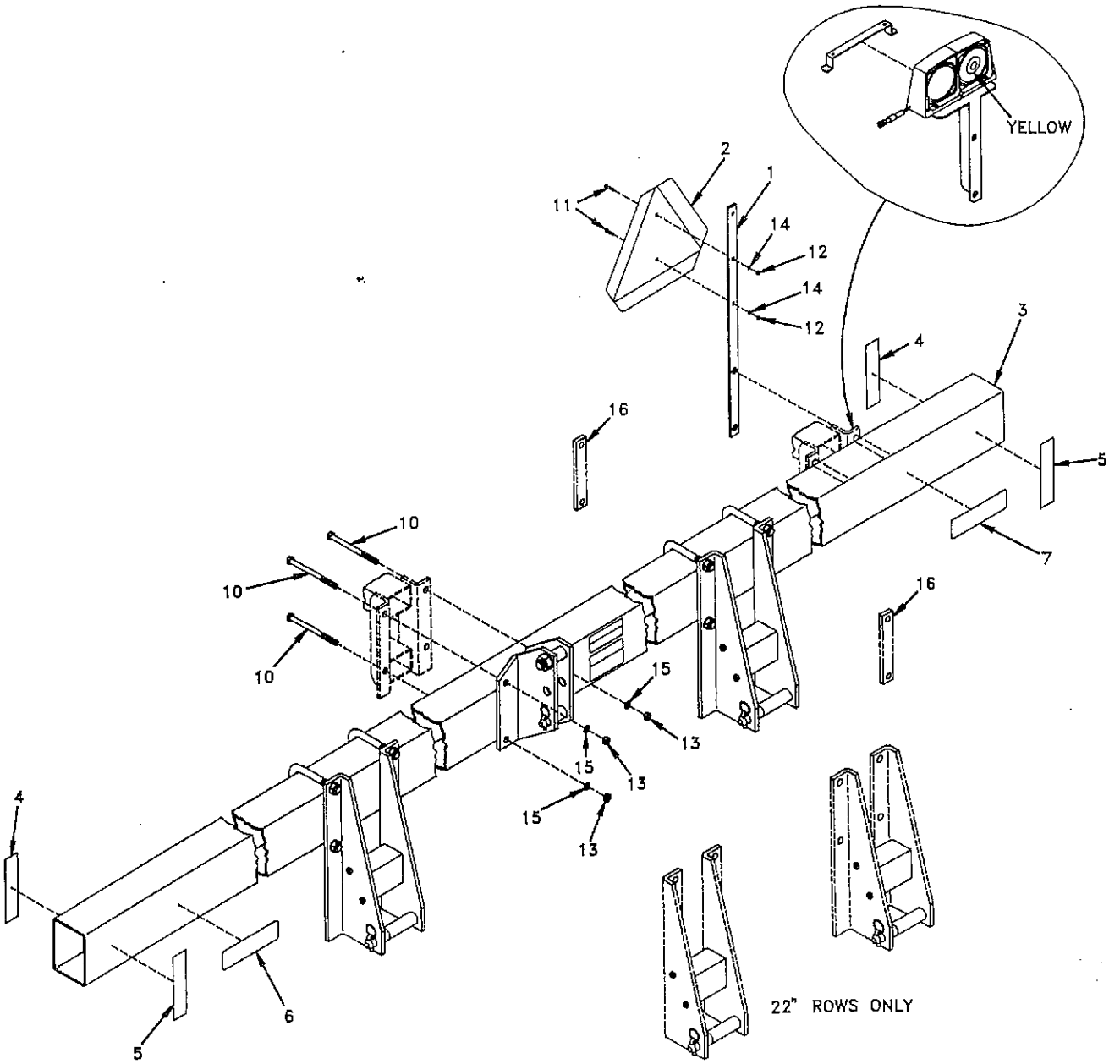


Decal (2) 850-001-306 On Front Side Of Toolbar One On Each End.

Decal (1) 81003191 Hiniker Decal; Left End Of Center Toolbar Between Outer Tillage Units.

Decal (1) 81003192 Hiniker Decal; Right End Of Center Toolbar Between Outer Tillage Units.

RIGID TOOLBAR



DWG. NO. 3220A

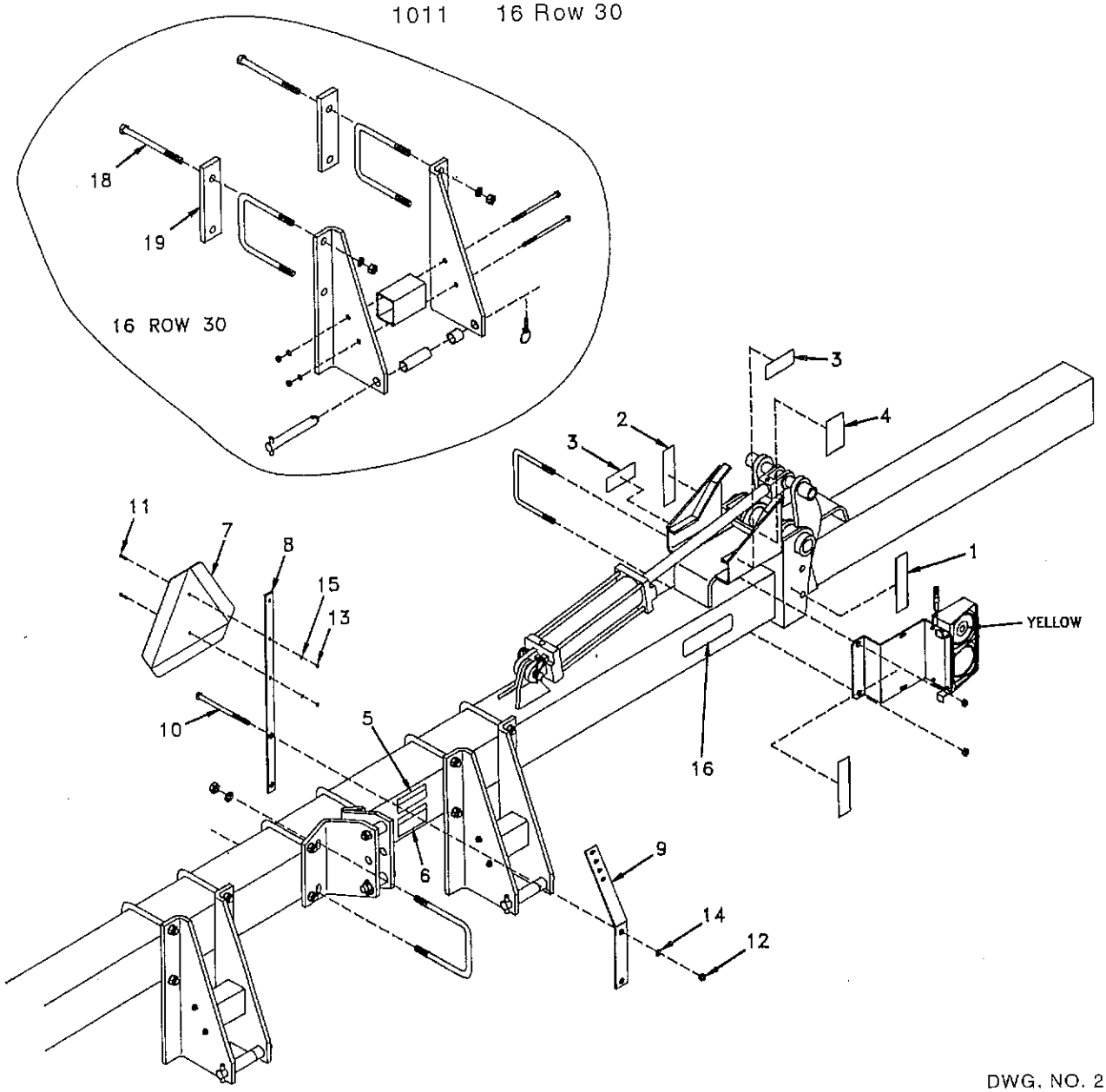
REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	815-001-004	SMV Mount Strap	1
2	850-001-354	SMV Sign	1
3	81003211	Toolbar, 168 Inch (4 Row 36/38)	1
	81003030	Toolbar, 196 Inch (6 Row 30)	1
	81003212	Toolbar, 244 Inch (6 row 36/8)	1
	81003025	Toolbar, 256 Inch (8 Row 30)	1
	81003210	Toolbar, 320 Inch (8 Row 36/38)	1
	81003312	Toolbar 282" (12 Row 20"/22")	1
	81003281	Toolbar 304" (12 Row 24)	1
4	850-001-305	Red Reflective Tape	2
5	850-001-285	Yellow Reflective Tape	2
6	81003192	"1000" Decal	1

REF. NO.	PART NUMBER	DESCRIPTION	QTY.
7	81003191	Hiniker Decal	1
8	850-002-426	Caution Decal	1
9	850-001-821	Notice Decal	1
10	950-001-143	5/8-11 UNC x 7 HHCS GR. 5 (5 x 7 Toolbar)	4
	950-001-227	5/8-11 UNC x 9 HHCS GR. 5 (7 x 7 Toolbar)	4
11	950-001-003	HHCS 1/4-20 UNC x 1" GR. 2	2
12	951-001-003	Hex Nut 1/4 - 20 UNC	2
13	951-001-008	Hex Nut 5/8 - 11 UNC	4
14	952-001-001	Lockwasher 1/4 Inch	2
15	952-001-005	Lockwasher 5/8 Inch	4
16	81004186	Spacer Plate (20/22 Only)	4

FOLDING TOOLBAR

MODELS

1007	8 Row 30
1008	8 Row 36/38
1009	16 Row 30
1010	12 Row 36/38
1011	16 Row 30



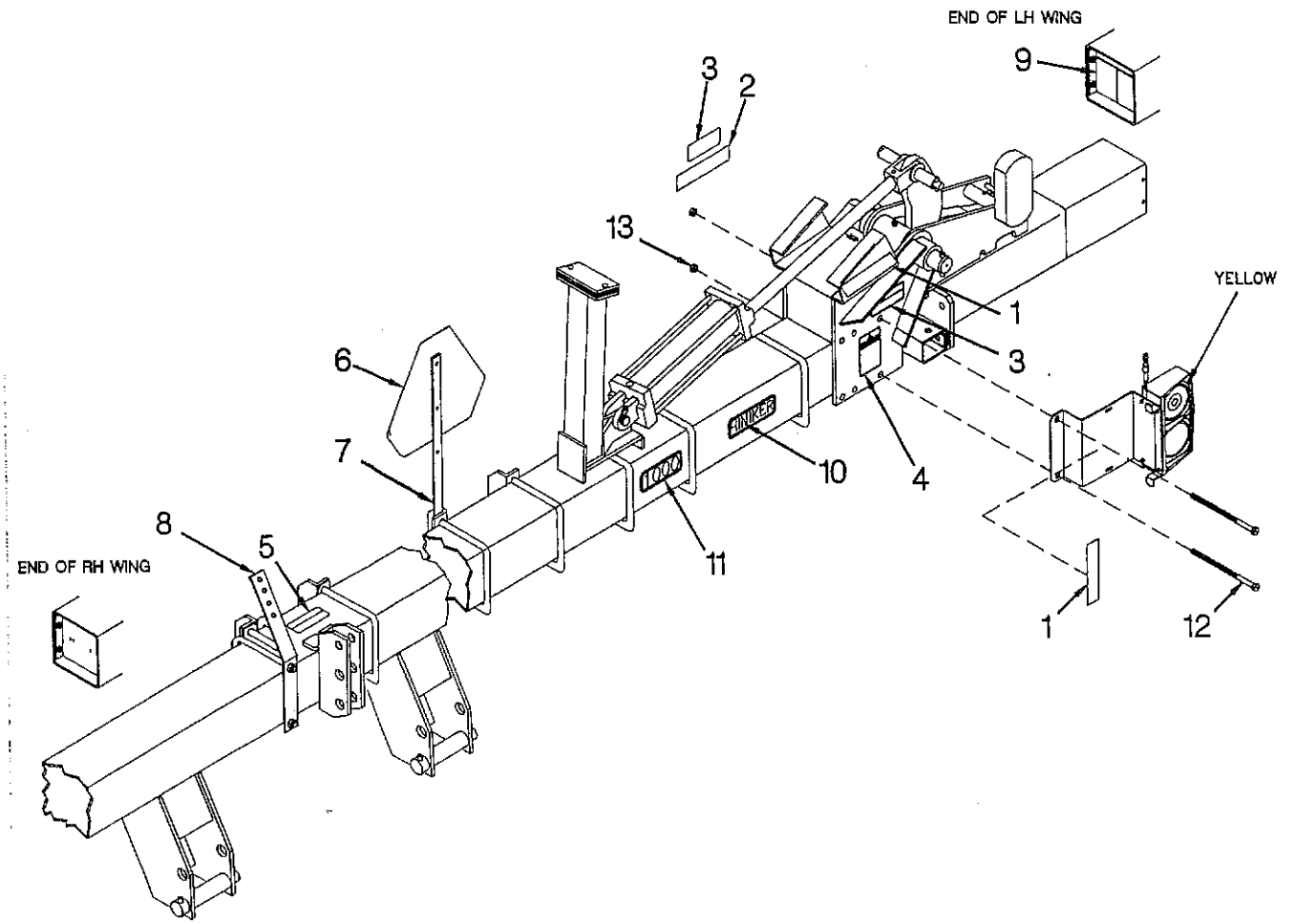
DWG. NO. 2366

REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	850-001-285	Yellow Reflective Tape	2	11	950-001-003	1/4 - 20 UNC x 1" Hex HD Cap Screw Gr. 2	2
2	850-001-305	Red Reflective Tape	2	12	951-001-008	5/8 - 11 UNC Hex Nut	2
3	850-001-980	Warning Decal	4	13	951-001-003	1/4 - 20 UNC Hex Nut	2
4	850-001-306	Warning Decal	2	14	952-001-005	5/8 Lockwasher	2
5	850-002-426	Caution Decal	1	15	952-001-001	1/4 Lockwasher	2
6	810-001-821	Decal Notice	1	16	81003191	Hiniker Decal	2
7	850-001-354	SMV Sign	1	17	81003192	1000 Decal (Not Shown - Same Position as Item 16 But Other End)	1
8	815-001-004	SMV Mount Strap	1				
9	805-001-784	30° Bulkhead Plate	1	18	950-001-210	7/8 - 9 UNC x 10" Gr. 5	8
10	950-001-181	5/8 - 11 UNC x 8 1/2 Hex HS Cap Screw Gr. 5	1	19	81003524	Mount Plate	4

FOLDING TOOLBAR

MODELS

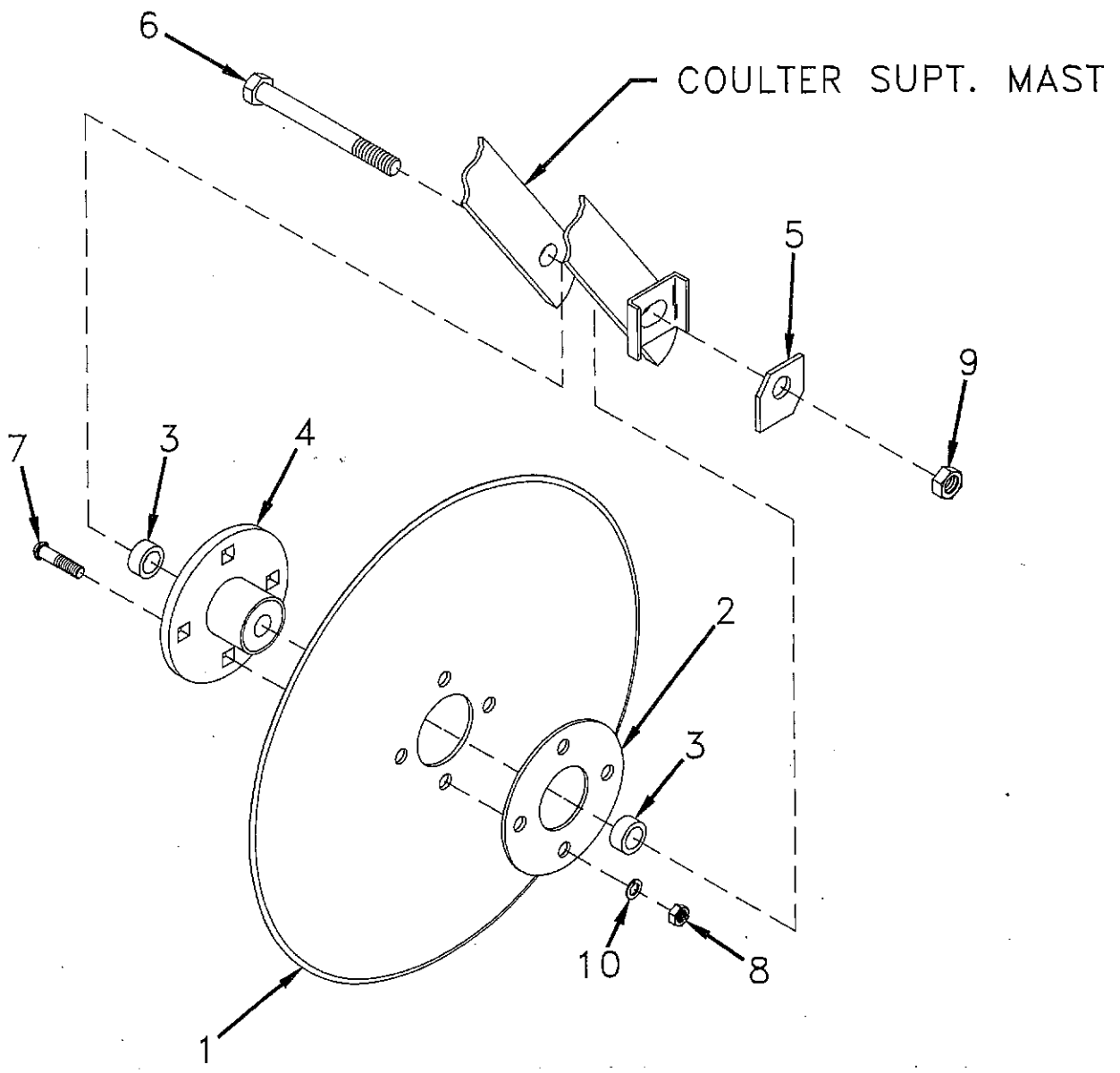
1021 16 Row 20/22
1022 18 Row 20/22
1023 24 Row 20/22



DWG. NO. 3223

REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	850-001-285	Yellow Reflective Tape	2	7	815-001-004	SMV Mount Strap	1
2	850-001-305	Red Reflective Tape	2	8	850-001-784	30° Bulkhead Plate	1
3	850-001-980	Warning Decal	4	9	810-001-821	Decal Notice	2
4	850-001-306	Warning Decal	2	10	81003191	Hiniker Decal	2
5	850-002-426	Caution Decal	1	11	81003192	1000 Decal	2
6	850-001-354	SMV Sign	1				

STABILIZING COULTER

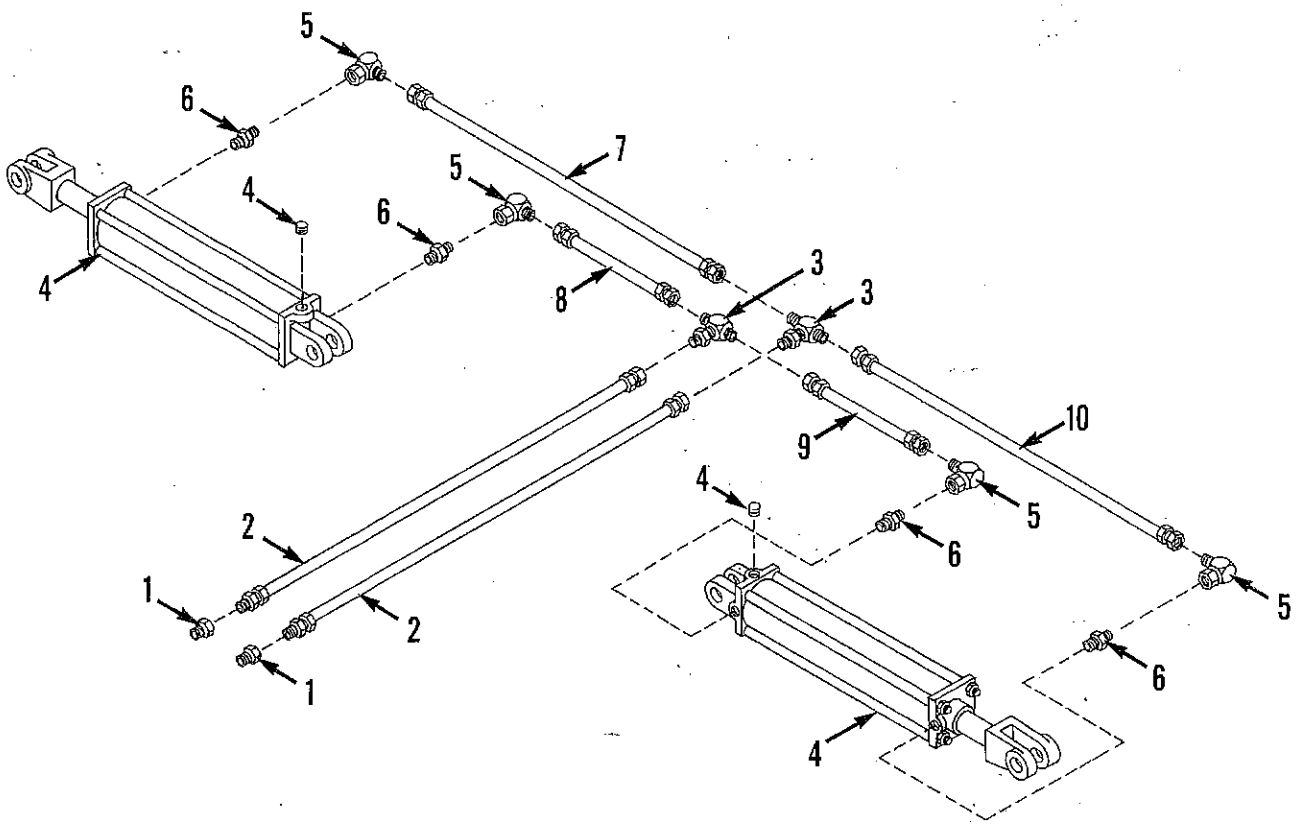


DWG. NO. 2365

REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	805-001-001	Coulter Blade 18 Inch	1	6	950-001-152	HHCS 3/4 - 10 UNC x 6 Gr. 5	1
2	805-001-015	Backup Washer	1	7	950-003-028	Carriage Bolt 1/2 - 13 UNC x 1 1/4	4
3	810-002-102	Spacer - 3/4 ID x 1/2 Long	2	8	951-001-007	Hex Nut 1/2 - 13 UNC	4
4	810-002-100	Hub With Bearing Assembly	1	9	951-005-037	Locknut 3/4 - 10 UNC	4
5	81003086	Adjustment Washer	1	10	952-001-004	Lockwasher 1/2 Inch	4

ASSEMBLY
HYDRAULIC PLUMBING
DIAGRAM FOLDING TOOLBAR
MODELS

1007	8 Row 30
1008	8 Row 36/38
1009	12 Row 30
1010	12 Row 36/38
1011	16 Row 30

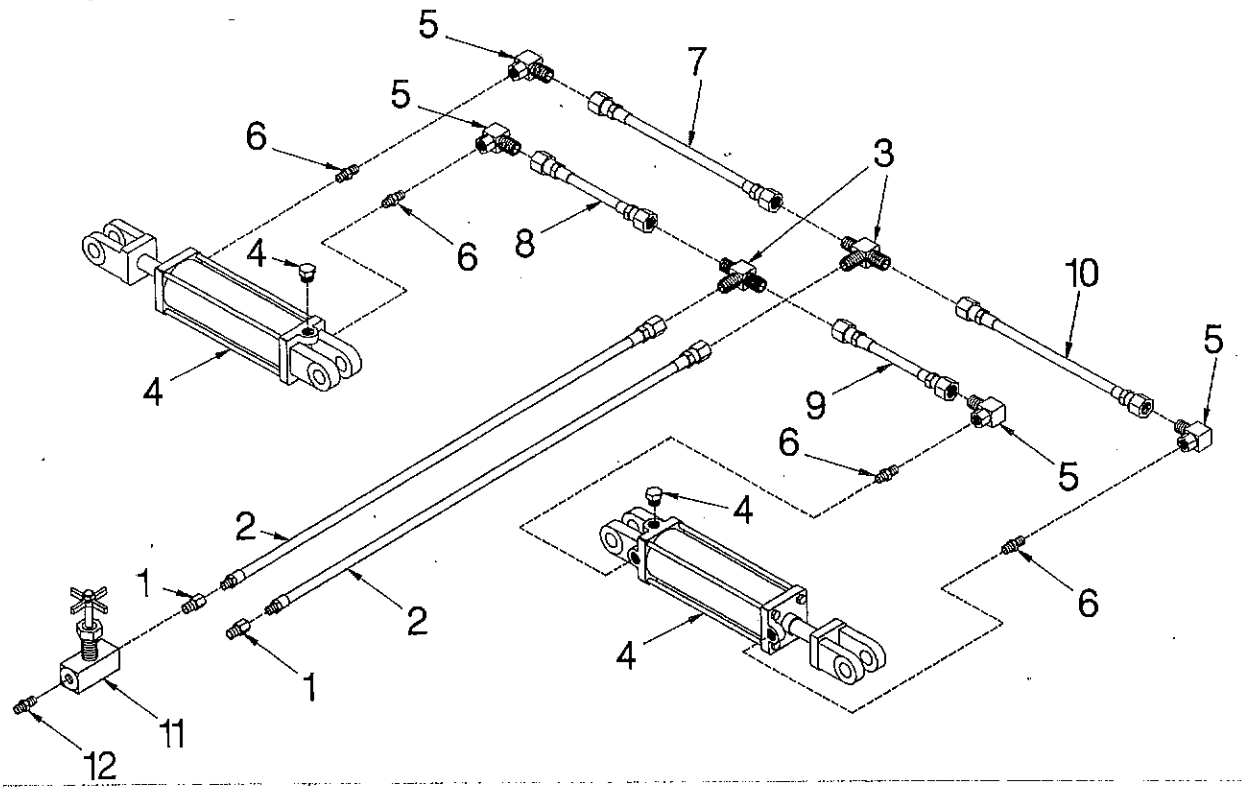


DWG. NO. 2539

REF. NO.	PART NUMBER	DESCRIPTION	QTY	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	956-004-002	Reducer Bushing, 1/2 - 14 Male NPT To 3/8 - 18 NPT	2	8	957-001-004	3/8 x 29 Inch Long Hose Assembly (8 Row 30)	1
					957-001-009	3/8 x 50 Inch Long Hose Assembly (8 Row 36/38)	1
2	957-002-014	3/8 x 48 Inch Long Hose Assembly	2		957-001-014	3/8 x 60 Inch Long Hose Assembly (12 Row 30)	1
3	956-007-003	Bulkhead Tee, 9/16 - 18 Male 37° JIC To 9/16 - 18 Male 37° JIC	2		957-002-014	3/8 x 48 Inch Long Hose Assembly (12 Row 36/38)	1
4	81002579	4.00 Inch Diameter x 16 Inch Stroke Cylinder (16 Row 30)	2		957-001-019	3/8 x 92 Inch Long Hose Assembly (16 Row 30)	1
	81002580	3.50 Inch Diameter x 16 Inch Stroke Cylinder (8 Row 30, 36/38) (12 Row 30) (12 Row 36/38)	2	9	957-001-006	3/8 x 50 Inch Long Hose Assembly (8 Row 30)	1
					957-001-015	3/8 x 41 Inch Long Hose Assembly (8 Row 30)	1
5	956-005-002	90° Elbow 9/16 - 18 Female 37° JIC To 9/16 - 18 Male 37° JIC	4		957-001-018	3/8 x 68 Inch Long Hose Assembly (8 Row 30)	1
					957-001-057	3/8 x 79 Inch Long Hose Assembly (12 Row 30)	1
6	956-008-024	Restrictor Fitting, 3/4 - 16 Male SAE O-Ring To 9-16 - 18 Male 37° JIC	4		957-001-056	3/8 x 86 Inch Long Hose Assembly (12 Row 36/38)	1
7	957-001-009	3/8 x 50 Inch Long Hose Assembly (8 Row 30)	1	10	957-001-014	3/8 x 60 Inch Long Hose Assembly (8 Row 30)	1
	957-001-017	3/8 x 72 Inch Long Hose Assembly (8 Row 36/38)	1		957-001-057	3/8 x 86 Inch Long Hose Assembly (8 Row 36/38)	1
	957-001-018	3/8 x 79 Inch Long Hose Assembly (12 Row 30)	1		957-001-020	3/8 x 96 Inch Long Hose Assembly (12 Row 30)	1
	957-001-021	3/8 x 102 Inch Long Hose Assembly (12 Row 36/38)	1		957-001-054	3/8 x 120 Inch Long Hose Assembly (12 Row 36/38)	1
	957-001-056	3/8 x 108 Inch Long Hose Assembly (16 Row 30)	1		957-001-023	3/8 x 126 Inch Long Hose Assembly (16 Row 30)	1

ASSEMBLY
HYDRAULIC PLUMBING
MODELS

1021 16 Row 20/22
1022 18 Row 20/22
1023 24 Row 20/22



*Note: To have a positive lock on the toolbar wing lock, an optional needle valve is offered No. 81004701. This will insure that the lift cylinder will not close, and disengage wing lock.

DWG. NO. 3215

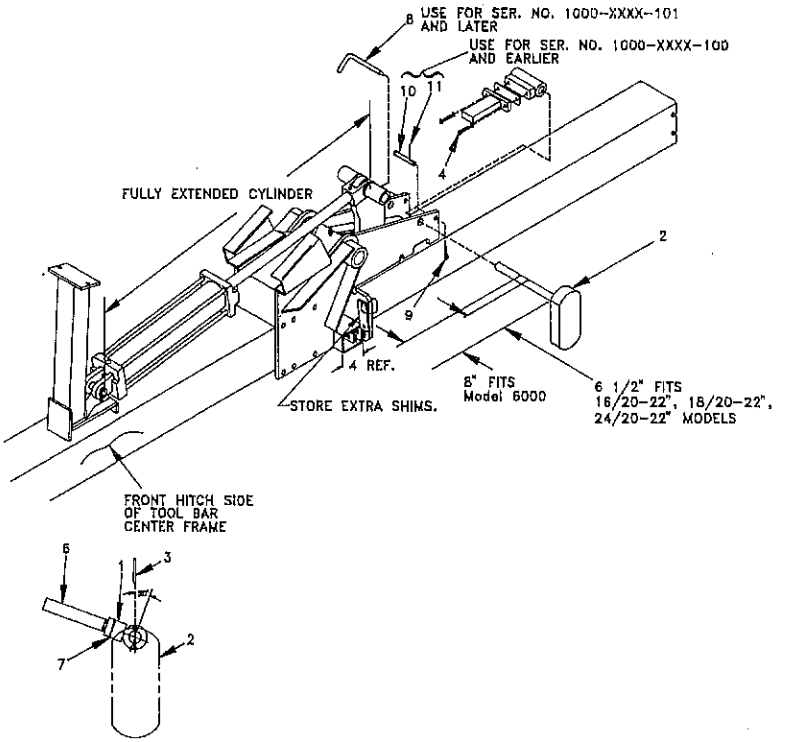
REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	956-004-002	Reducer Bushing 1/2 Male NPT To 3/8 Female NPT	2	7	957-001-018	3/8 Inch Hose Assembly 79 Inch 16 Row 22,18 Row 22	1
2	957-002-014	3/8 Inch Hose Assembly 48 Inches	2		957-001-023	3/8 Inch Hose Assembly 126 Inch 24 Row 22	1
3	956-007-003	Bulkhead Tee 9/16 Male JIC To 9/16 Male JIC To 9/16 Male JIC	2	8	957-001-014	3/8 Inch Hose Assembly 60 Inch 16 Row 22, 18 Row 22	2
4	81004342	4.000 Inch Diameter x 16 Inch Stroke Cylinder 16 & 18 Row 20/22	2		957-001-056	3/8 Inch Hose Assembly 108 Inch 24 Row 22	2
	81002581	5.00 Inch Diameter x 16 Inch Stroke Cylinder 24 Row 20/22	2	9	957-001-018	3/8 Inch Hose Assembly 79 Inch 16 Row 22, 18 Row 22	2
5	956-005-002	90° Elbow 9/16 Female JIC To 9/16 Female JIC	4		957-001-056	3/8 Inch Hose Assembly 108 Inch 24 Row 22	2
6	956-008-024	Restrictor Fitting 3/4 Male SAE O-Ring To 9/16 Male JIC 3.50 & 4.00 Cylinder	4	10	957-001-020	3/8 Inch Hose Assembly 96 Inch 16 Row 22, 18 Row 22	2
					957-001-027	3/8 Inch Hose Assembly 144 Inch 24 Row 22	1
	956-008-025	Restrictor Fitting 7/8 Male SAE O-Ring To 9/16 Male JIC 5.00 Cylinder	4	11	81004701	3/8 Needle Valve (Optional)*	1
				12	956-003-002	STR Adapter 3/8 M to 1/2 M (Optional)*	

Before operating hydraulic wing lift cylinders, all captive air must be removed from system. This may be done by removing cylinder pin from rod end of cylinder and cycling cylinder and system until system is purged of air. Reattach cylinder rod pin and cautiously cycle row cultivator through full cycle. Failure to take precaution may result in bodily injury or equipment damage.

IMPORTANT: Never operate wing lift cylinders without (4) restrictor fittings part number 956-008-024 for 3 1/2 and 4 inch cylinder or 956-008-025 for 5 inch cylinder, one at each end of both cylinders. Failure to have restrictors in place may result in body injury or equipment damage.

ASSEMBLY
WINGLOCK
MODELS

1021 16 Row 20/22
1022 18 Row 20/22
1023 24 Row 20/22



DWG. NO. 3222

REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	81004700	Tube Weld	2	7	81004695	Shim	A/R
2	81004702	Weight Weld	2	8	81003042	Pin	2
3	701-30022	Spring Pin 3/16 x 2	2	9	953-005-001	Hair Pin Cotter .120 x 2 3/8	2
4	950-001-108	Hex Bolt 3/8 - 16 NC x 1 1/2	4	10	953-002-011	1/2 x 3 1/2 Adjustable Clevis Pin	2
5	952-001-007	Lockwasher 3/8	4	11	953-003-029	Spring Pin 5/32 x 1 1/4	2
6	81004697	Lock Bar Weld	2				

1. Unfold toolbar wings

2. With both toolbar wings in the flat position install wing lock as shown in drawing. (See notes listed below).

3. For toolbar wing lock adjustment and operation procedures see page 16.

ASSEMBLY NOTES

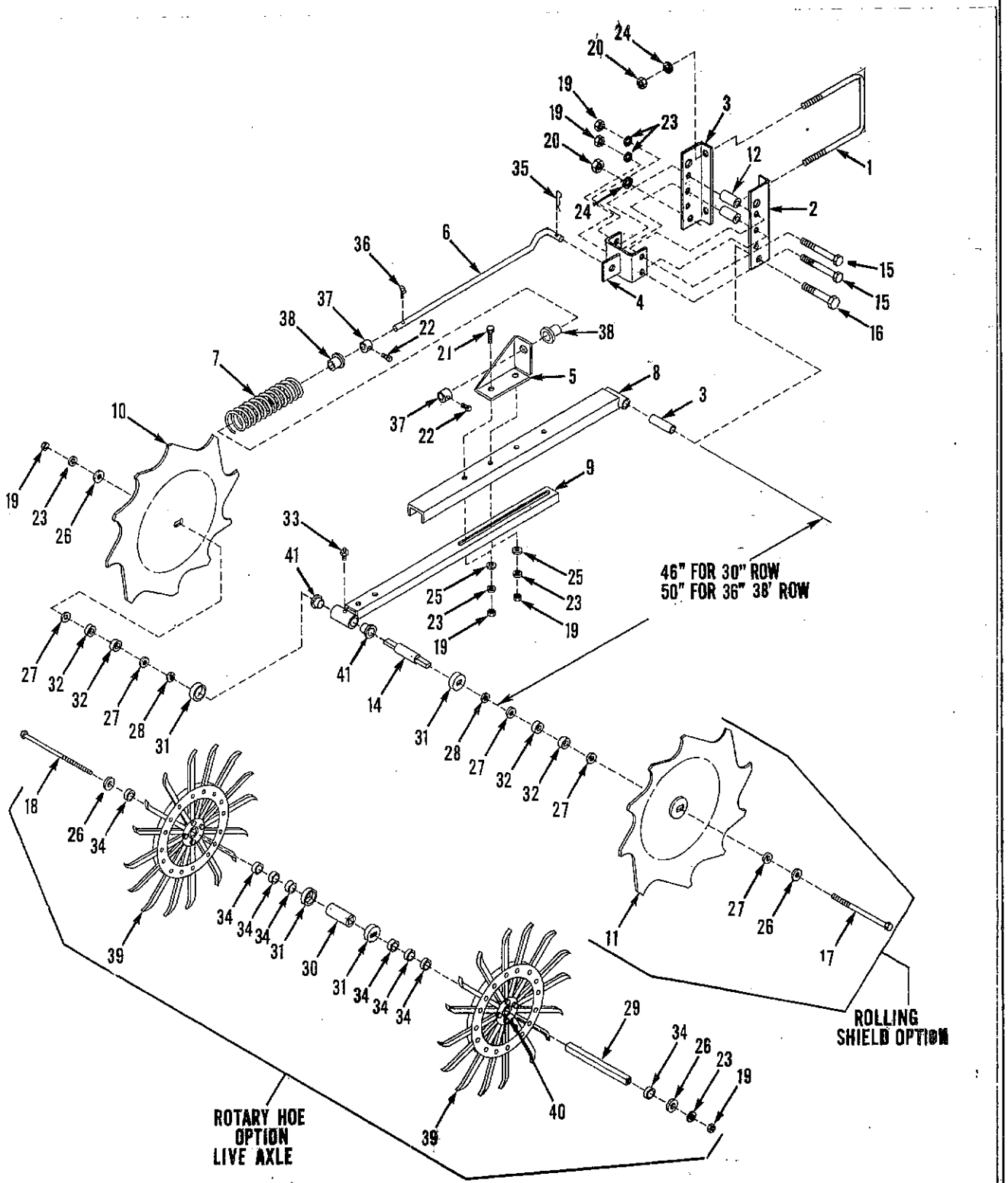
1. Position weight weld (item 2) and tube weld (item 1) as shown. NOTE: 20° Ref. when driving in spring pin (item 3). Also note which hole to use in weight shaft to fit toolbar model being used.

2. Weight weld (item 2) must be mounted on front side of both right and left side hinges.

3. Install lock bar weld (item 6) using (2) 3/8 x 1 1/2 hex bolt (arrow 4) with (2) 3/8 lock washer. Shorten lift cylinder about 1" to allow lock bar to fall in place. Then extend cylinder to full extension. Check for proper preload on wing lock, if required use shims (arrow 7).

4. Extra shims will be stored by wiring in place as shown in drawing.

ROLLING SHIELD AND ROTARY HOE WHEEL



DWG. NO. 1855

REF. NO.	PART NUMBER	DESCRIPTION	QTY
1	805-001-332	5/8 x 7 5/8 Inch Center U-Bolt Fits 7 x 7	2
	81003020	5/8 X 7 5/8 Inch Center U-bolt Fits 5 x 7	2
2	810-002-364	Right Mount Bracket	1
3	810-002-363	Left Mount Bracket	1
4	810-001-487	Bracket Weld	1
5	810-001-497	Spring Bracket	1
6	810-001-500	Rod	1
7	850-002-403	Compression Spring	1
8	810-002-357	Outer Channel Weld	1
9	810-001-179	Inner Channel Assembly (Includes Item 33)	1
10	810-001-499	Left Rolling Shield Weld	1
11	810-001-498	Right Rolling Shield Weld	1
12	810-001-490	Spacer	2
13	810-002-361	Tube	1
14	810-001-590	Axle (Rolling Shield Only)	1
15	950-001-060	1/2 - 13 NC x 5 LG Hex Head Bolt; Gr. 5	2
16	950-001-131	5/8 - 11 NC x 4 - 1/2 LG Hex Head Bolt; Gr. 5	1
17	950-001-259	1/2 - 13 NC x 8 LG Hex Head Bolt; GR. 5 (Rolling Shield Option Only)	1
18	950-001-274	1/2 - 13 NC x 10 LG Hex Head Bolt; GR. 5 (Rotary Hoe Option Only)	1
19	951-001-007	1/2 - 13 NC Hex Nut	5
20	951-001-008	5/8 - 11 NC Hex Nut	5
21	950-001-125	1/2 - 13 NC x 1-1/2 LG Hex Head Bolt; Grade 5	2
22	950-008-008	1/2 - 13 NC x 3/4 LG SQ. HD Set Screw	2
23	952-001-004	1/2 Inch Lockwasher	5
24	952-001-005	5/8 Inch Lockwasher	5
25	952-002-005	1/2 Inch Flatwasher	2
26	952-004-059	9/16 x 1 3/4 x .250 Flat Washer	2
27	952-002-010	1 Inch Flatwasher (Rolling Shield Option Only)	5
28	952-003-005	1 Inch Flatwasher SAE (Rolling Shield Option Only)	2
29	810-002-462	Axle Tube (Rotary Hoe Option Only)	1
30	810-002-461	Sleeve Axle Bearing (Rotary Hoe Option Only)	1
31	515-301-012	Dust Cap	2
32	810-001-591	Spacer (Rolling Shield Option Only)	4
33	955-001-002	1/4 - 28 UNF Grease Fitting	1
34	810-002-463	Axle Spacer (Rotary Hoe Option Only)	8
35	953-005-002	.178 x 3-9/16 Hair Pin Cotter	1
36	953-001-010	1/4 x 1-1/2 Cotter Pin	1
37	828-001-005	Lock Collar	2
38	810-001-493	Spring Cap Weld	2
39	810-002-467	Wheel Assembly W/Washer Weld	2
40	810-002-466	Washer Weld (Service Replacement Part)	4

Rotary Hoe Wheels with Support Arms

ITEM NUMBER	DESCRIPTION
1013-4	Rotary Hoe Wheels and Arms - 4 Row
1013-6	Rotary Hoe Wheels and Arms - 6 Row
1013-8	Rotary Hoe Wheels and Arms - 8 Row 30 Rigid
1013-8W	Rotary Hoe Wheels and Arms - 8 Row 30-38 Rigid
1013-8F	Rotary Hoe Wheels and Arms - 8 Row Folding
1013-12F	Rotary Hoe Wheels and Arms - 12 Row Folding
1013-16F	Rotary Hoe Wheels and Arms - 16 Row Folding

21 Inch Rolling Shield with Support Arm

ITEM NUMBER	DESCRIPTION
1012-4	Rolling Shields and Arms - 4 Row
1012-6	Rolling Shields and Arms - 6 Row
1012-8	Rolling Shields and Arms - 8 Row 30 Rigid
1012-8W	Rolling Shields and Arms - 8 Row 36-38 Rigid
1012-8F	Rolling Shields and Arms - 8 Row Folding
1012-12F	Rolling Shields and Arms - 12 Row Folding
1012-16F	Rolling Shields and Arms - 16 Row Folding

RIGHT AND LEFT MOUNT BRACKET TYPICAL MOUNTING ARRANGEMENT

FIG. 1 FIG. 2 FIG. 3 FIG. 4

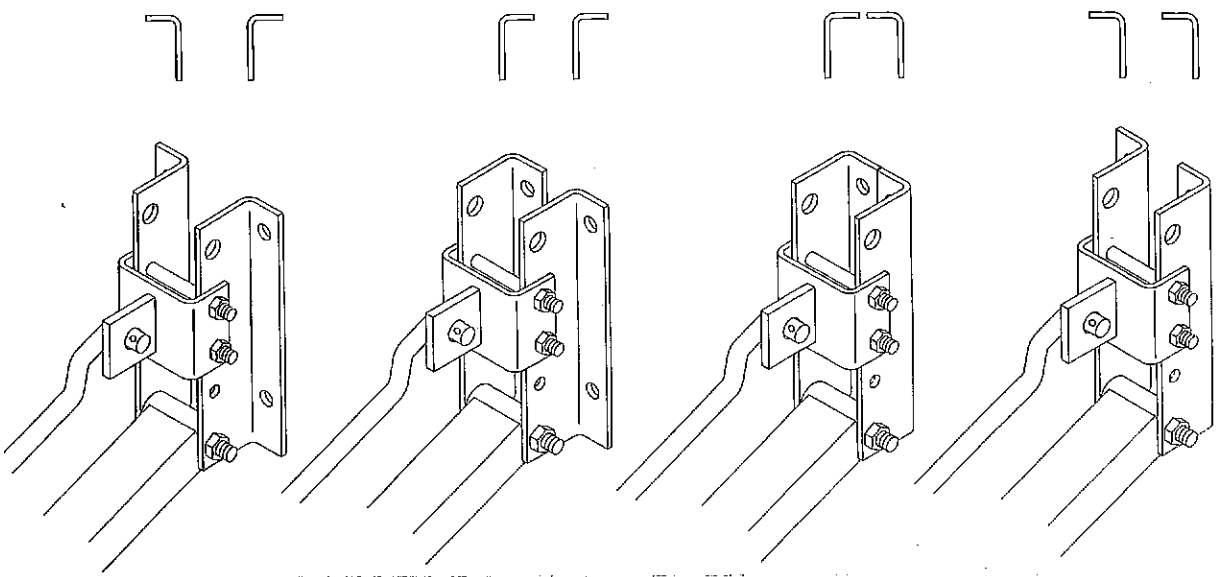
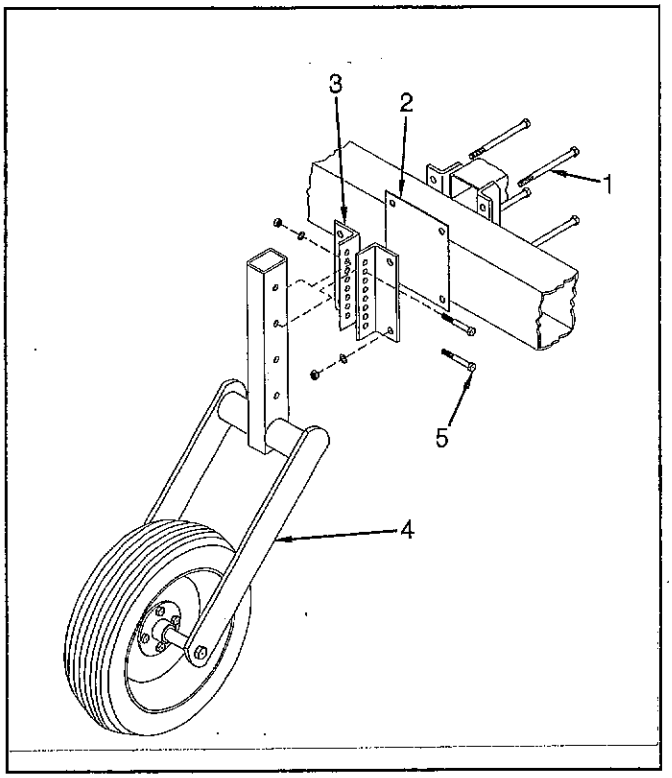


DIAGRAM KEY; USED IN ASSEMBLY DIAGRAMS

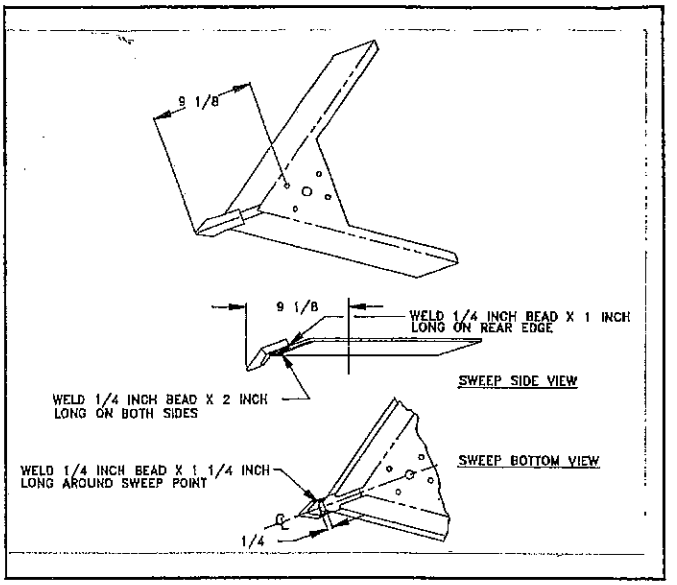
DWG. NO. 2891



DWG. NO. 3218

TOOLBAR GAUGE WHEEL

Install (4) 5/8 hex bolts (Arrow 1) through tillage unit mount angles. Slide hex bolts over and under 5 x 7 toolbar. Use (4) 5/8 x 9 hex bolts on 7 x 7 toolbar. Install front mount plate (arrow 2) and mount angles (arrow 3) using 5/8 lockwasher and 5/8 hex nuts. Install gauge wheel assembly (Arrow 4) using (2) 1/2 x 3 1/4 hex bolts (arrow 5) with 1/2 lockwasher and 1/2 hex nut.



DWG. NO. 3117

OPTIONAL CAST POINT

To improve penetration of the 1000 cultivator sweeps in adverse conditions, the use of auxiliary cast points is recommended.

The sweeps are hardened high carbon steel and cast points are cast chrome material that may be welded using standard welding equipment.

The following specifications and procedures are recommended to weld the points to the top side of the sweeps:

Rod: AWS Number E8018 or E1118
Amperage: 1/8" rod to 130 Amps,
5/32" rod - 90 to 150 Amps

1. Position cast point as shown and clamp together with c-clamps

2. Weld in a well ventilated area, because welding abrasion resistant cast chrome material can be hazardous.

3. Weld 1/4 inch bead on all four sides of the point where it meets the topside of the sweep.

4. Cool it slowly to prevent the weld from cracking. Keep hot parts away from water, cold drafts and cold floors. Stacking hot parts on dry sand is recommended.

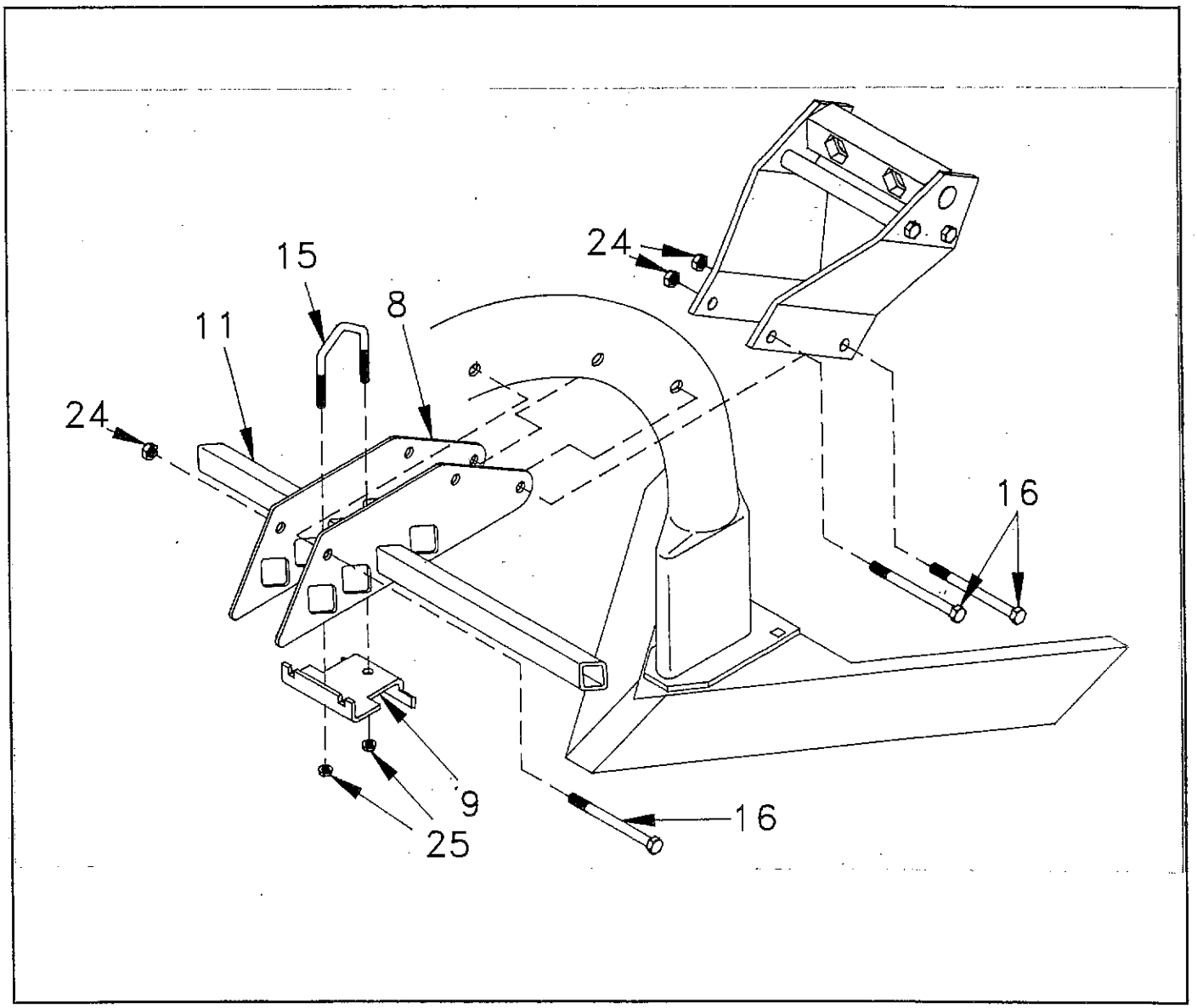
CUTAWAY HOE SHIELDS

Begin assembly of the cutaway shield by removing the two 1/2 x 4 1/2 bolts securing the spring cushion anchors to the shank tube weld. Save the bolts, nuts and lockwashers for reuse. Put the cutaway mount plates (Item 8) between the spring cushion anchor plates and the shank tube weld as shown. Secure using the 1/2 x 4 1/2 bolts, nuts and lockwashers just removed. Bolt the front of the cutaway mount plates to the shank tube using a 1/2 x 4 1/2 long bolt and a lock nut. Repeat for each row unit. Shanks on units with serial numbers ending in -101 and higher will have the hole.

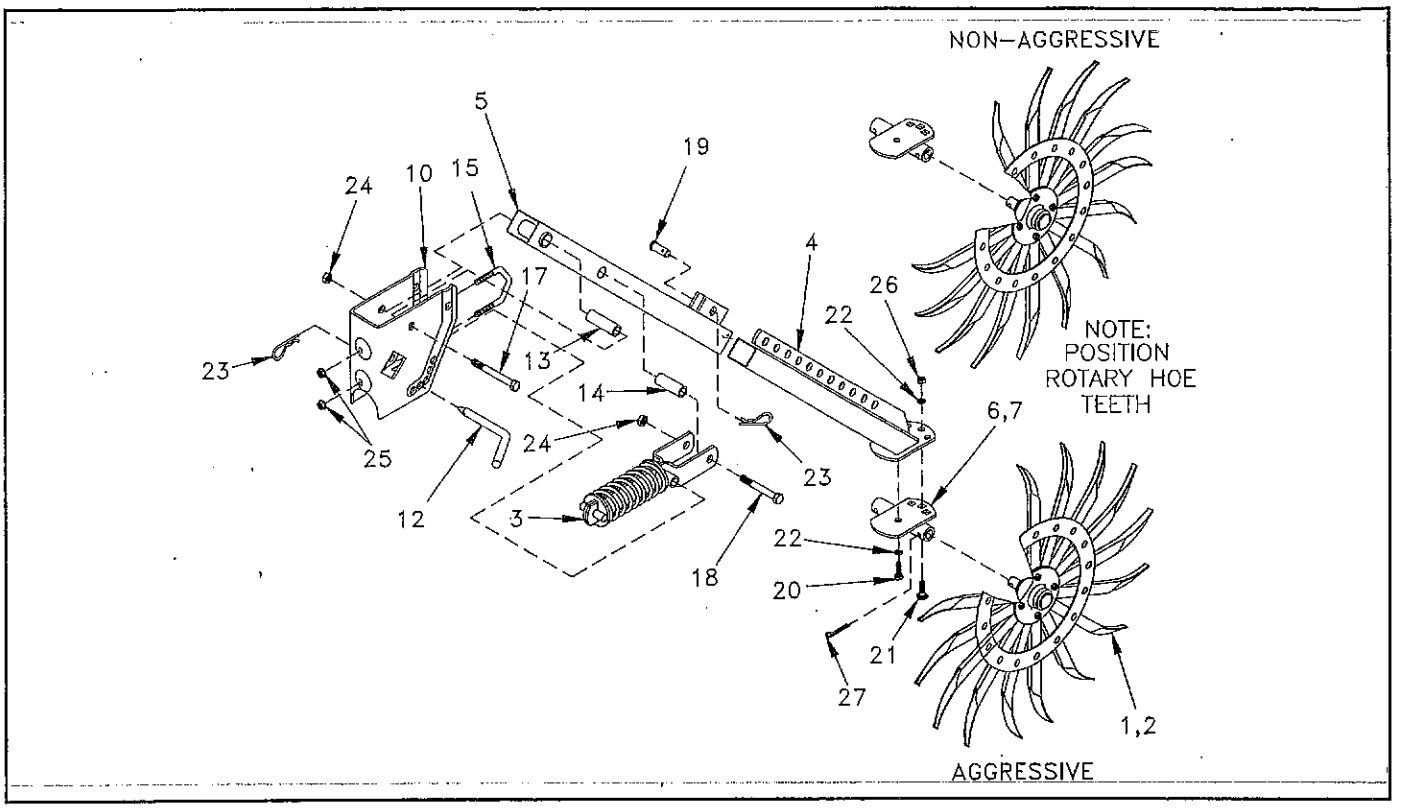
To secure the cutaway mount plates (item 8) in the front, on machines with serial numbers ending in-100, bolt the cutaway mount plates (item 8) between the spring cushion mount plates and the shank tube weld. Use the cutaway mount plates as a template and drill two 17/32 diameter holes through the shank tube using the 1/2 x 4 1/2 bolt and locknut in the front hole. Bolt the cutaway mount plate to the shank tube using the 1/2 x 4 1/2 bolt and locknut in the front hole. Repeat for each row unit.

An alternative method to secure the front of the cutaway mount plates (item 8) (on machines with S/N ending in -100) is to weld the cutaway mount plates to the shank tube. After you bolt them between the spring cushion anchor plates and the shank tube, use touch up paint to cover the welds and to prevent rusting. Repeat for each row unit.

Secure the mount tube (item 11) 22" for narrow rows, 28" for wide rows) in the cutaway mount plates using a diagonal u-bolt (item 15), a clamp plate (item 9) and two whiz lock nuts (item 25). The mount tube should be centered on the row unit. On end row units the extra length of the mounting tube can be cut off.



DWG. NO. 3211

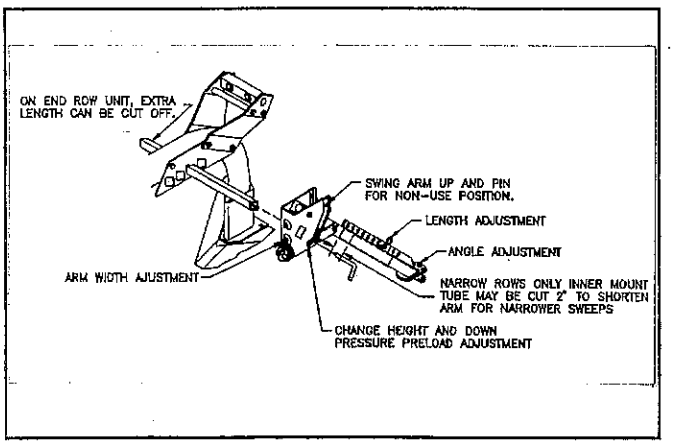


DWG. NO. 3212

Attach the diagonal u-bolt (item 15) to the mounting channel (item 10) and secure loosely with two 3/8 whiz lock nuts. Slide the inner tube (item 13) into the tube weld (item 5) and place the spacer (item 14) into the tube weld arm as shown. Attach the spring assembly (item 3) to the tube weld (item 5) using a 1/2 x 3 bolt and a lock nut. The spring assembly must clamp the spacer and still be free to pivot on the tube weld. Attach the tube weld with the pivot spring to the mounting channel (item 10) with a 1/2 x 3 1/2 bolt and lock nut. Secure the spacer tube under the spring in the spring assembly using the pin (item 12) and a hairpin clip (item 23) in the upper most hole (transport position) of the mounting channel.

Bolt the right and left hand bottom plate weld (item 6 & 7) to the inner mount tube welds (item 4) using a 3/8 x 1 bolt and lockwasher (item 20 & 22). The 9/16 inch leg of the bottom plate weld should be towards the row for 30" row spacing and the 1 9/16 inch leg of the bottom plate weld should be towards the row for 36/38" row spacing. Use the 3/8 x 1 carriage bolts with a lockwasher and nut to set the angle of the cutawy hoe wheel in the straight position (center hole). Slide inner tube mount weld into the tube weld already assembled to the mounting channel. Secure using a clevis pin (item 19) and a hairpin clip (item 23) as shown.

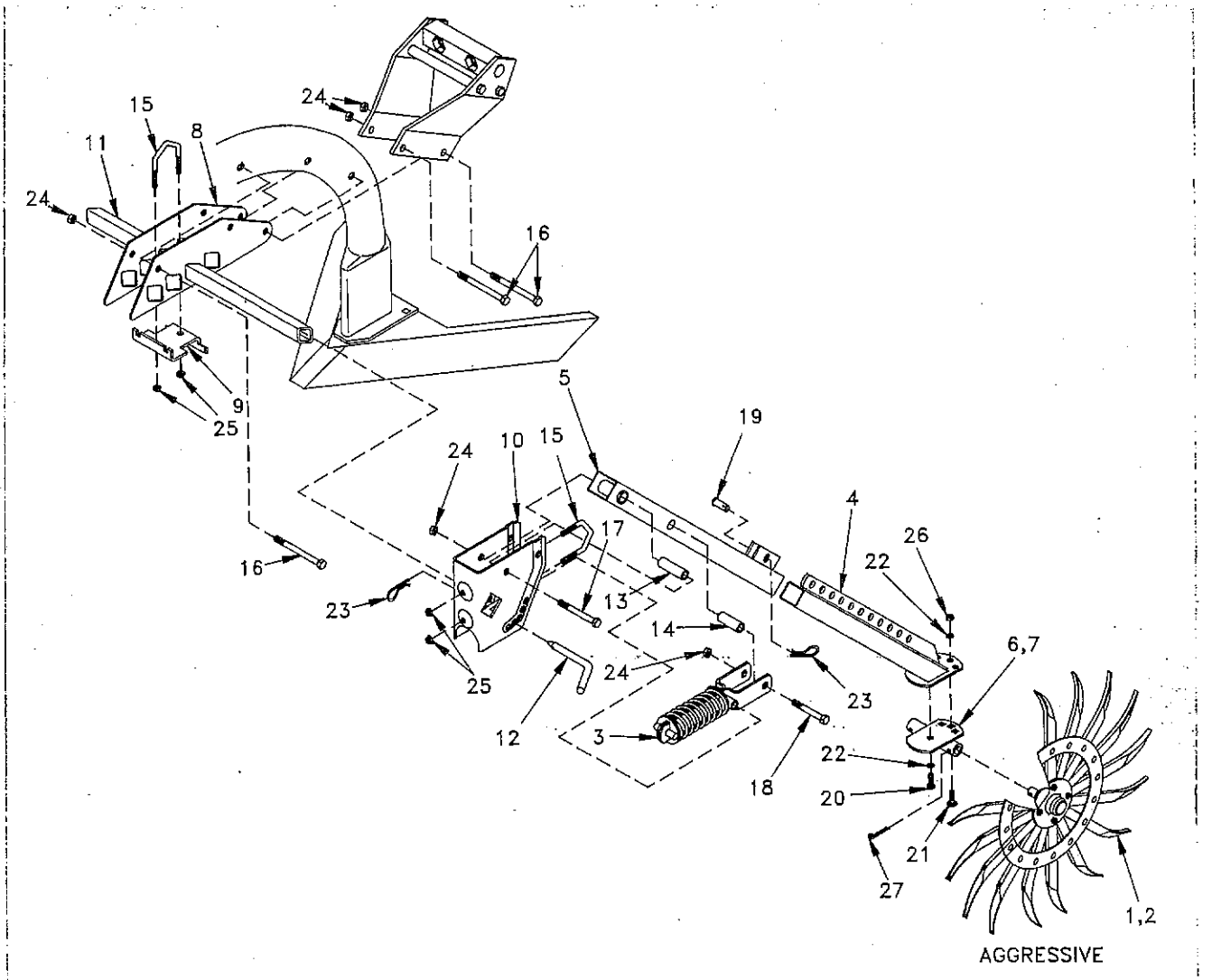
Slide the cutaway hoe wheel axle (items 1 & 2) into the bottom plate weld and secure with 1/4 inch cotter pin (item 27). The cutaway hoe teeth should be set in the aggressive position for small crops and first cultivation as shown (cutaway hoe teeth curved forward at the top of the cutaway hoe wheel). The cutaway hoe teeth should be set in the non-aggressive position for large crops and in high residue as shown (cutaway hoe teeth curved forward at the bottom the the cutaway hoe wheel).



DWG. NO. 3213

Slide the cutaway hoe arm assembly on the mount tube (item 11) and tighten the diagonal u-bolt on the mount tube with the cutaway hoe wheel set at 1/2 to 1" beyond the end of the sweep. Distance away from the end of the sweep will depend on crop size and field speed.

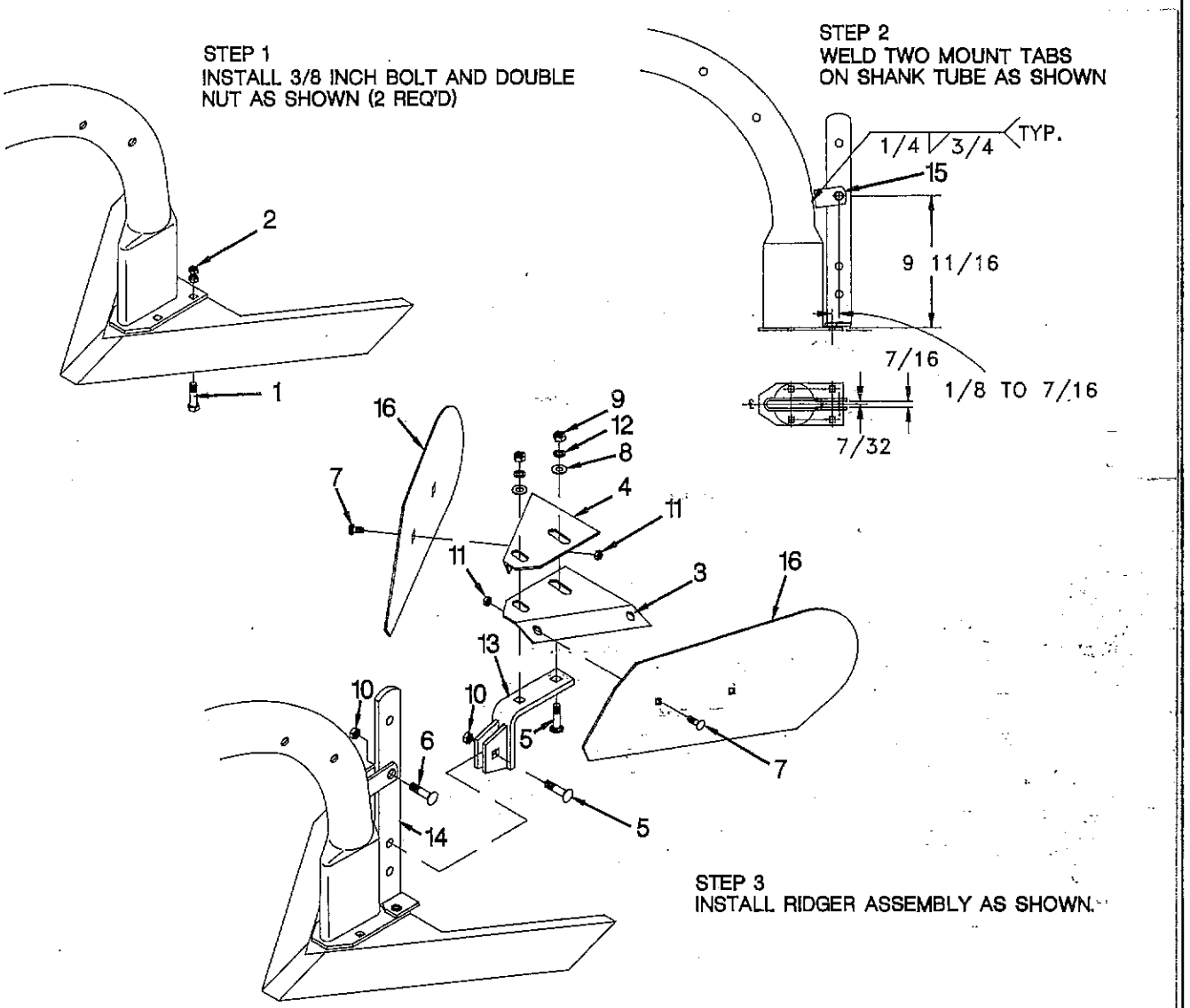
PARTS BREAKDOWN



DWG. NO. 3214

REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	81004573	RH Wheel Assembly	2	14	81004577	Spacer	4
2	81004574	LH Wheel Assembly	2	15	81004572	Diagonal U-Bolt	6
3	81004578	Spring Assembly	4	16	950-001-012	HHCS 1/2 - 13 x 4 1/2 Gr. 5	6
4	81004649	Inner Mount Tube Weld	4	17	950-001-142	HHCS 1/2 - 13 x 3 1/2 Gr. 5	4
5	84004652	Tube Weld	4	18	950-001-075	HHCS 1/2 - 13 x 3 Gr. 5	4
6	81004583	RH Bottom Plate Weld	2	19	953-003-034	Clevis Pin 1/2 - 13 x 3 Gr. 5	4
7	81004584	LH Bottom Plate Weld	2	20	950-001-105	HHCS 1/2 - 13 x 1 Gr. 5	4
8	81003338	Cutaway Mount Plate	4	21	950-003-029	Bolt - Cge. 3/8 - 16 x 1 Gr. 5	4
9	81003339	Clamp Plate	2	22	952-001-007	Washer - Lk 3/8 Med. Split SAE	8
10	81004569	Mounting Channel	4	23	953-005-001	Hair Pin .120 x 2 3/8	8
11	81004582	Mount Tube (22" Narrow Row)	2	24	10304	Nut Lock 1/2 - 13 UNC	14
	81004650	Mount Tube (28" Narrow Row)	2	25	951-002-003	Nut FL Wzlk 3/8 - 16	12
12	81004549	Pin	4	26	951-001-005	Nut Hex 3/8 - 16	4
13	81004571	Inner Tube	4	27	035-42065	Cotter Pin 1/4 x 1 3/4 PL	4

ADJUSTABLE RIDGERS



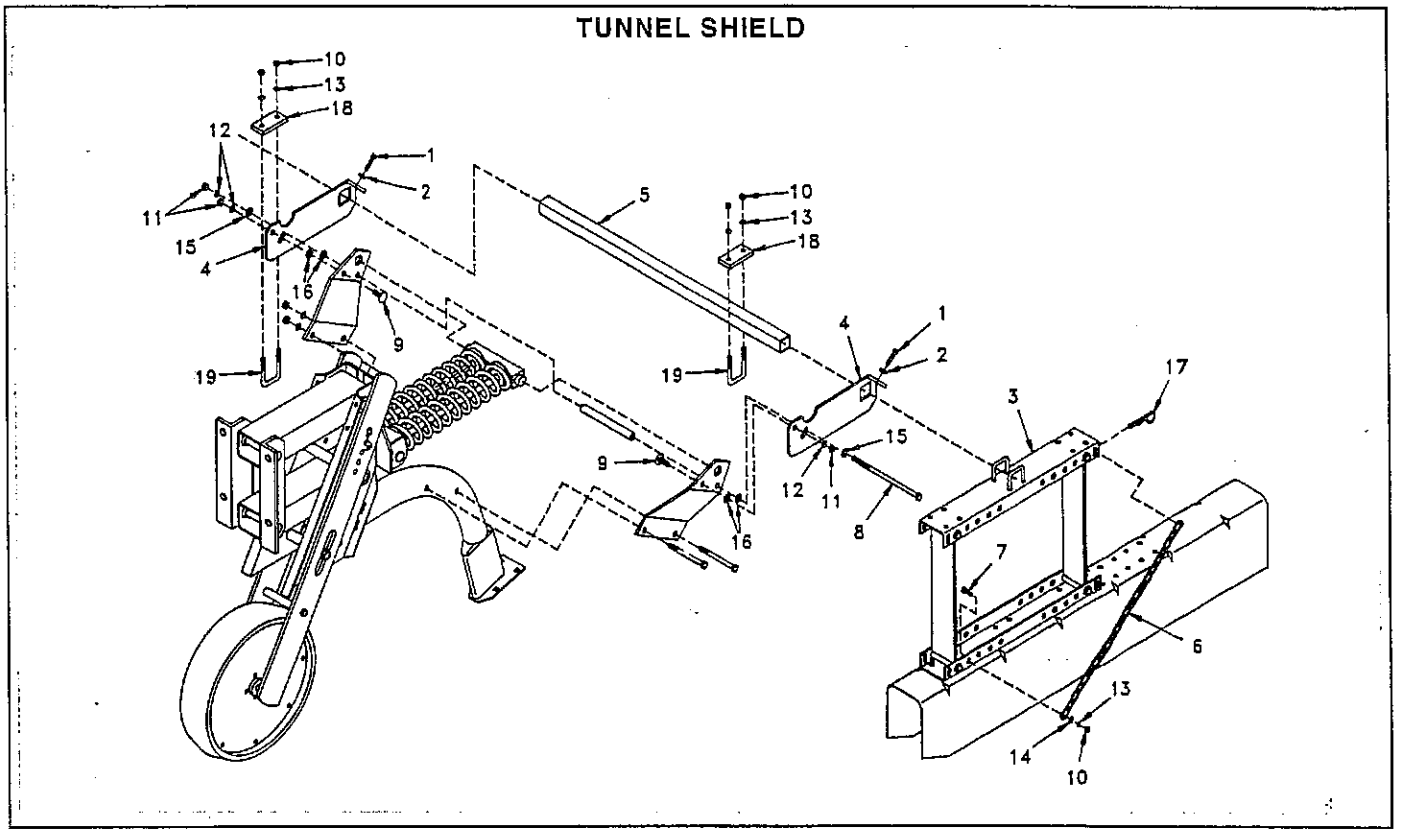
DWG. NO. 3116

REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	950-001-108	Hex Head Cap Screw 3/8 - 16 UNC x 1 1/2 Gr. 5	2	9	951-001-007	Hex Nut 1/2	2
2	951-001-005	Hex Nut 3/8	4	10	10304	Lock Nut 1/2	2
3	810-002-125	LH Support	1	11	951-002-003	Whiz Flange Nut 3/8	4
4	810-002-126	RH Support	1	12	952-001-004	Lock Washer 1/2	2
5	030-16132	Carriage Bolt 1/2 - 13 UNC x 1 1/2 Gr. 5	3	13	81004143	Ridger Support Weld	1
6	950-003-025	Carriage Bolt 1/2 - 13 UNC x 2 Gr. 5	1	14	81004422	Support Weld	1
7	030-16067	Carriage Bolt 3/8 - 16 UNC x 3/4 Gr. 5	4	15	81003277	Mount Tab (1993 & Earlier)	2
8	952-004-059	Flat Washer 9/16 x 1 3/4 x .25	2	16	810-002-124	Ridger Wings	2

ADJUSTABLE RIDGER

PART NUMBER	DESCRIPTION	PART NUMBER	DESCRIPTION
6030-4	Ridgers For 4-Row	6030-12	Ridgers For 12-Row
6030-6	Ridgers For 6-Row	6030-16	Ridgers For 16-Row
6030-8	Ridgers For 8-Row		

TUNNEL SHIELD



DWG. NO. 3124

1. The tunnel shield mount can only be used on spring cushion shank assemblies.

2. Remove the 1/2 x 8" hex bolts from the upper rear holes of the spring anchors, secure the tunnel shield mount plates to the spring anchor using a 1/2 x 9" long hex bolt, internal/external tooth lock washers, flat washers and nuts. Re-use the spacer tube between the spring anchors. The internal/external tooth lock washers should be between the tunnel shield mount plates and the spring anchor as shown. The flat washers should be used as shown on the leveling adjustment slots on the mount plates. Secure the tunnel shield mount plates to the front hole in the spring anchor using a 1/2 x 1 1/4 RD socket screw, internal/external tooth lock washer, lock washer and nut as shown.

3. Slide the 1 1/2 inch square tube into the mounting brackets and center the tube over the shank. Secure the tube using 3/8 x 1 3/4 square head set screws and 3/8 jam nuts. Use the support plates (Item 18) and u-bolts (Item 19) to lock the cross tube (Item 5) in place.

4. Slide the u-bolts in the tunnel shield assembly over the square tube. Center the tunnel shield assembly over the row. Secure the tunnel shield assembly to the square cross tube by tightening the 3/8 x 1 7/8 u-bolts, lock washer and nuts.

5. Secure the chain to the lower tunnel channel in one of the holes provided using a 3/8 x 1 bolt, flat washer, lock washer and nut. Run the chain to the stop provided in the upper tunnel channel and secure the chain using a hairpin cotter. Adjust the chain so that when the cultivator is raised the chain stops the tunnel shield from swinging forward. The tunnel shield should not strike any attachments to the cultivator gang and the pivot strap should not go beyond being vertical. The tunnel shield may have to be adjusted to match the field conditions and the options on the cultivator.

6. Repeat steps 4 and 5 for the other tunnel shield mounted on the other side of the gang.

Single Lift Assist

PHOTO NO. 3286

STEP 1

7 x 7 Toolbar

Install two mount strap welds (arrow 1), on front side of toolbar, centered around center tillage unit. Install front mast weld (arrow 2) using eight 7/8 x 3 inch hex bolts (arrow 3) with hex nuts and lock washers as shown. (Photo No. 3286)

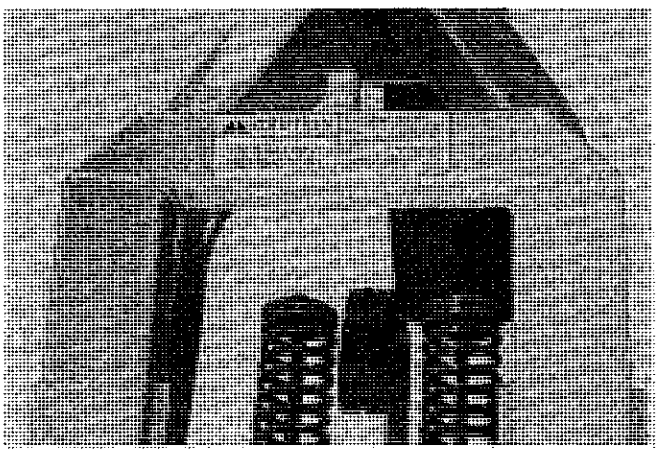


PHOTO NO. 3287

STEP 2

Install caution decal on front mast weld as shown. It must be readable from tractor seat. (Photo No. 3287)

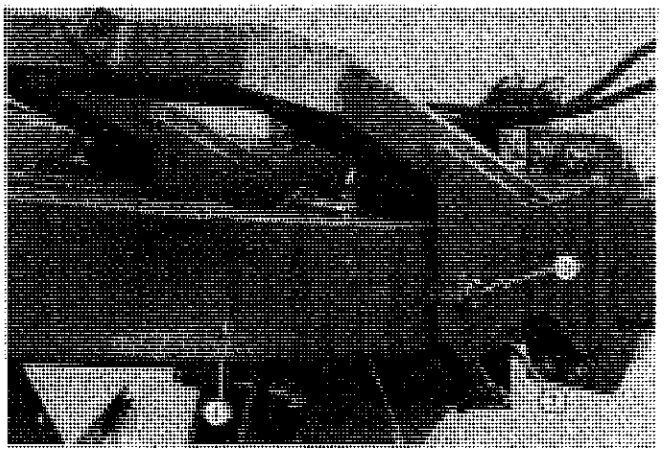
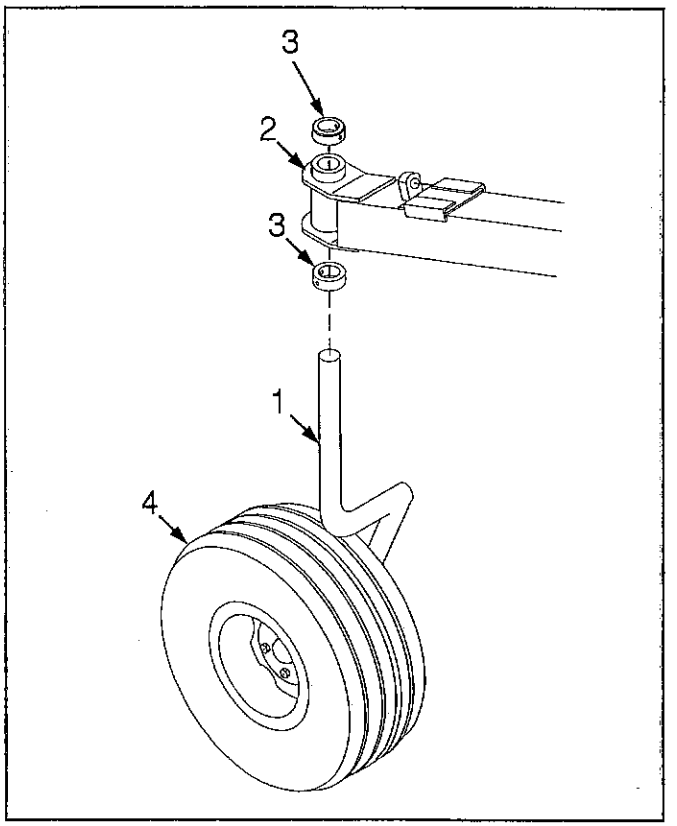


PHOTO NO. 3288

STEP 3

Install rear frame (arrow 1) into front mast weld (arrow 2) using two 1 3/8 O.D. x 3 15/16 inch sleeves with two 1 x 6 inch hex bolts (arrow 3) hex nuts and lockwashers as shown. (Photo No. 3288)



DWG. NO. 2863

STEP 4

Install rear caster assembly (arrow 1) through rear frame mounting sleeve (arrow 2) using two stem collars (arrow 3) top and bottom. Install tire (arrow 4) as shown.

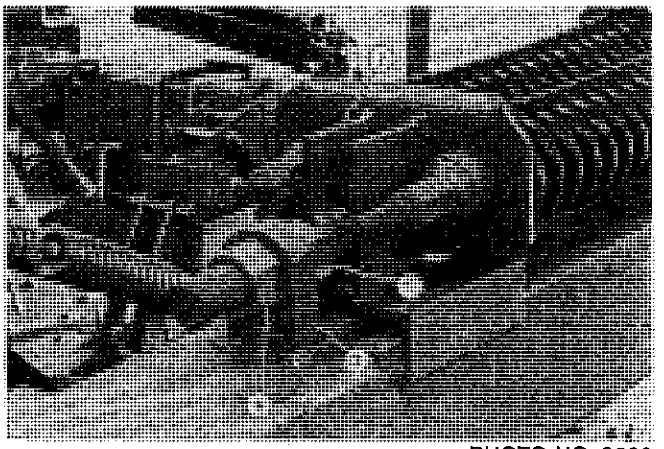


PHOTO NO. 3289

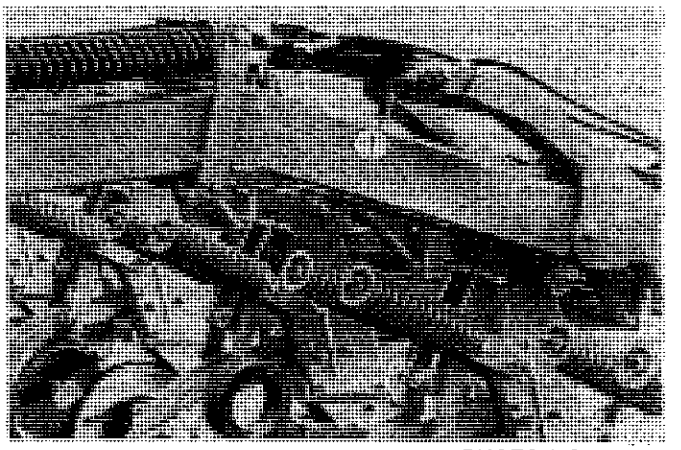
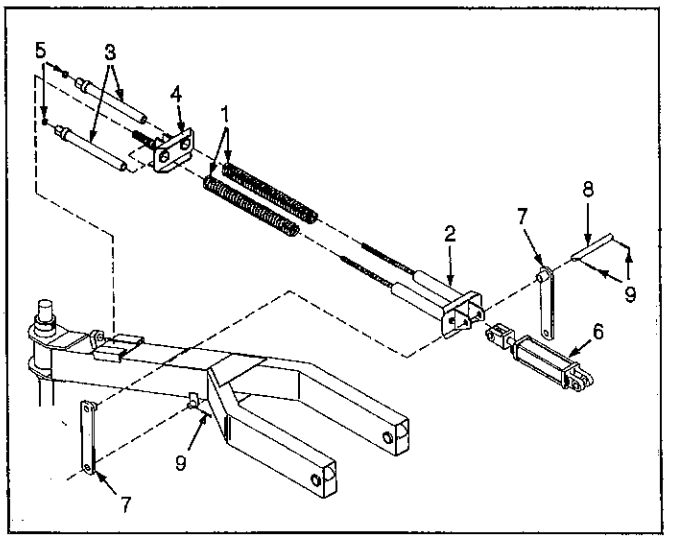


PHOTO NO. 3290A

STEP 5

Install front 1 1/4 inch hex nut (arrow 1) to anchor weld (arrow 2). NOTE: Screw nut all the way on. Slide anchor weld (arrow 2) through the anchor tab (arrow 3). Now install rear 1 1/4 inch hex nut (arrow 4) as shown.

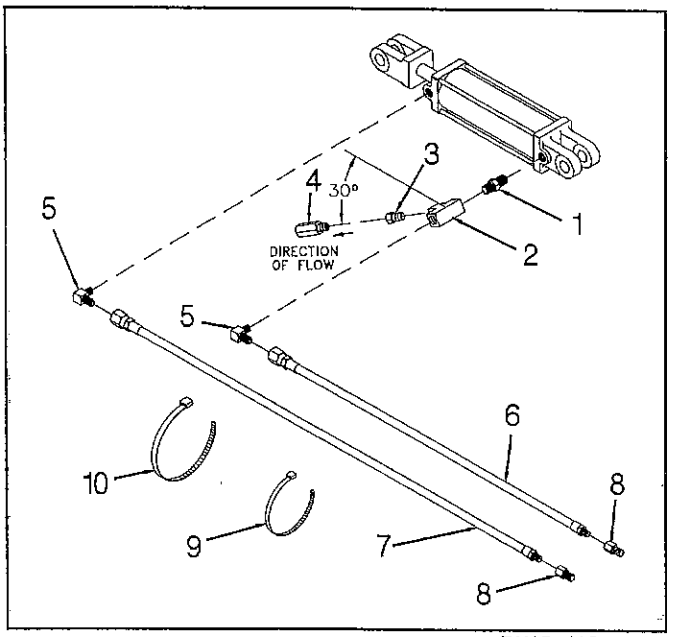


DWG. NO. 3264

STEP 6

Install two springs (arrow 1) over front guide weld (arrow 2). Slide two rear guide tubes (arrow 3) through anchor weld (arrow 4). Screw two 3/4 inch locknuts (arrow 5) down until springs overall length is 22 inches. Install fully retracted hydraulic cylinder (arrow 6).

NOTE: Rod end must be to rear as shown. Install two link arm welds (arrow 7) and cylinder arm pin (arrow 8), using four 5/16 x 2 inch spring pins (arrow 9).



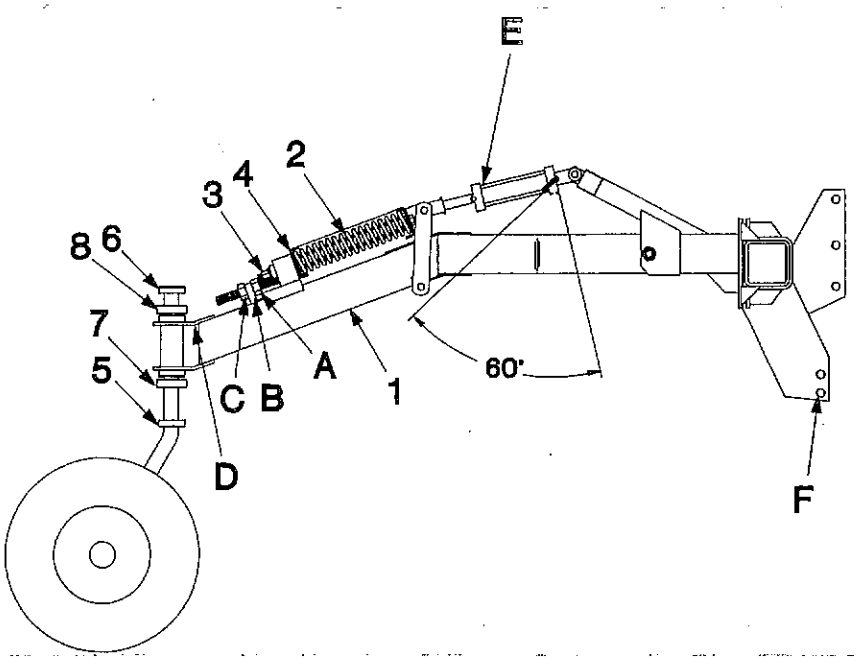
DWG. NO. 2861

STEP 7

Install straight adapter (arrow 1) into base end of cylinder. Install street tee (arrow 2) with a reducer bushing (arrow 3) then relief valve (arrow 4). NOTE: Position relief valve at 30° from center line of cylinder as shown. Install two 90° elbows (arrow 5) and 3/8 hose x 108 inches (arrow 6) and 3/8 hose x 126 inches (arrow 7). If required use two reducer bushings (arrow 8) on end of hose to fit into couplers.

Install plastic ties (arrow 9 & 10) as required to hold hydraulic hose in place.

LIFT ASSIST SPRING
PRELOAD AND HEIGHT ADJUSTMENT



DWG. NO. 2860

STEP 8

With cultivator sweeps on level ground or shop floor, lift rear frame (arrow 1) at point D with a lift chain. Raise until spring (arrow 2) has collapsed to 19 inches. Then retighten 3/4 inch lock nut, (arrow 3) to back side of anchor weld (arrow 4).

STEP 9

Raise the whole row cultivator to full raised height of the tractor lift. (NOTE: This may require auxiliary lift device). Recheck that caster assembly lower stem collar, item 5, is in its lowest position on stem, and place upper stem collar, item 6, on the top end of caster stem.

STEP 10

Extend hydraulic cylinder, E, to full length. NOTE: Pin to pin length will be 28 1/4 inches. Now readjust position of both stem collars, item 7 and 8 to fit tractor lift height.

STEP 11

Readjust preload on spring by screwing front and rear 1 1/4 inch hex nut, A and C, moving anchor weld (arrow 4) ahead 1 full inch. NOTE: Spring length will be 18 inches.

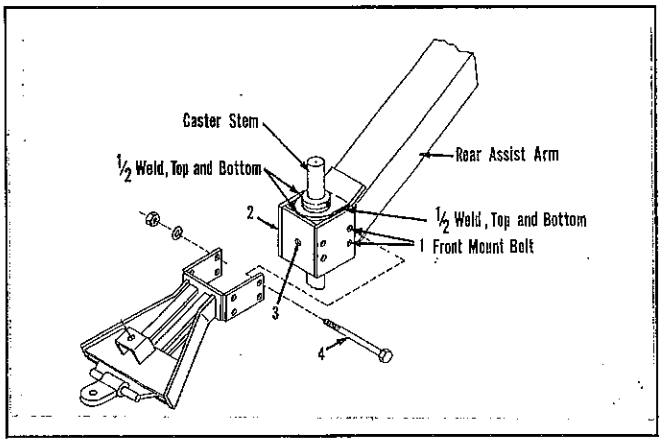
STEP 12
IMPORTANT OPERATING INSTRUCTIONS

When lowering row cultivator into working position, proper operating order must be followed. Lift assist cylinder, E, must be retracted first or tractor remote valve placed in float, before lowering tractor 3-point hitch, F. When lifting row cultivator, lift tractor 3-point hitch, F, first, and then extend lift assist cylinder, E, second.

If this is not followed, it will cause undo stress on lift assist components and relief valve will discharge hydraulic oil. NOTE: Operator will be required to check oil level of hydraulic system (relief valve will not discharge oil if proper operating lowering and raising order is followed.)

ORDER ITEM NUMBER	DESCRIPTION
6017	Single Lift Assist Fits All Size Models

TELESCOPING REAR HITCH (FOR SINGLE LIFT ASSIST)

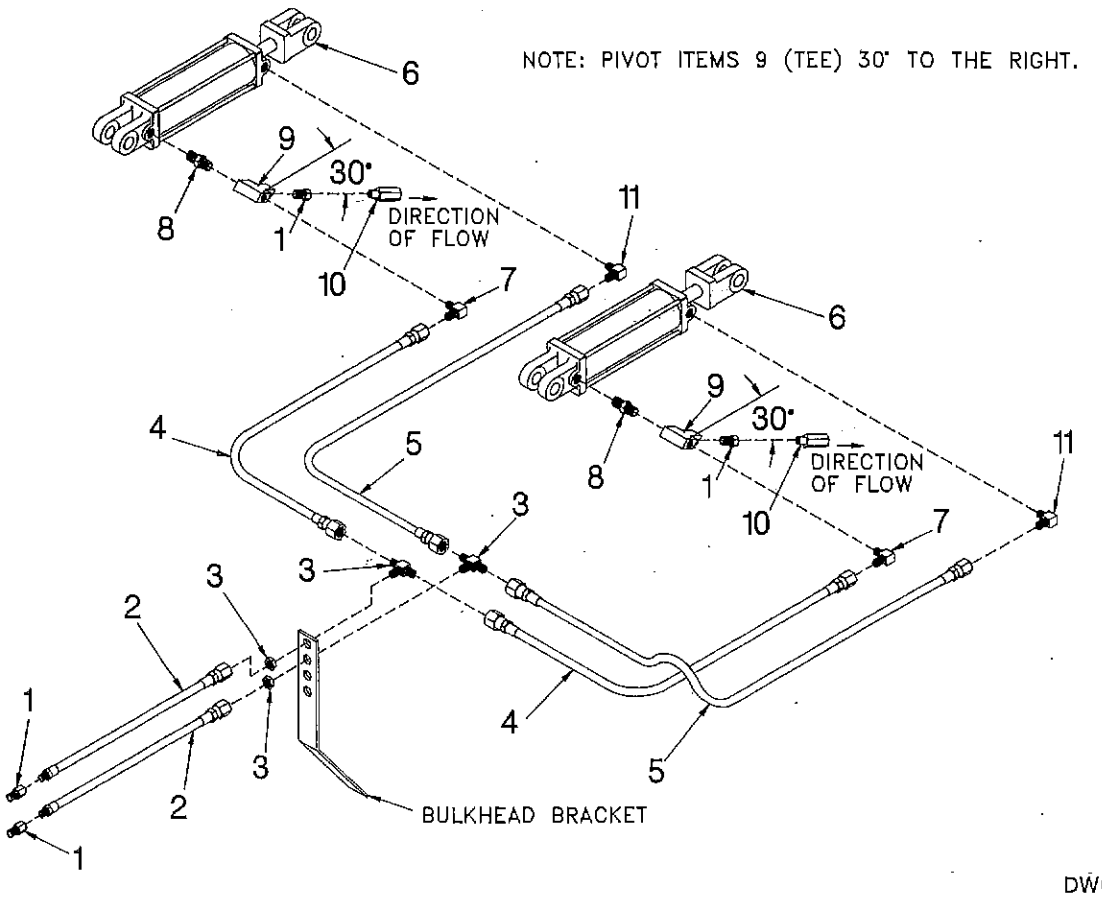


DWG. NO. 2865

- Step 1: Remove two front mount bolts (arrow 1). Slide mount weldment (arrow 2) around the collar plates of rear lift assist arm.
- Step 2: Align hitch with center line of rear lift assist arm and center grease fitting in access hole (arrow 3). Reinstall the two front mount bolts (arrow 4) and tighten all four mounting bolts.
- Step 3: Recheck alignment and then weld mount (arrow 2) only, to rear lift assist arm as indicated.

ORDER ITEM NUMBER	DESCRIPTION
6314	Telescoping rear hitch for cultivator with single lift assist.

PLUMBING DIAGRAM DUAL LIFT ASIST



DWG. NO. 2925

REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	956-004-002	Reducer Bushing, 1/2 - 14 Male NPT To 3/8 - 18 Female NPT	4
2	957-002-014	3/8 x 48 Inch Long Hose Assembly	2
3	956-007-003	Bulkhead Tee, 9/16 - 18 Male 37° JIC To 9/16 - 18 Male 37° JIC on Run 9/16 - 18 Male 37° JIC Bulkhead On Branch	2
4	957-001-017	3/8 x 72 Inch Long Hose Assembly	2
5	957-001-058	3/8 x 82 Inch Long Hose Assembly	2
6	80503830	3.00 Inch Diameter x 8 Inch Stroke Cylinder With 3/4 - 16 O-Ring Port	2
7	956-005-003	90° Elbow, 1/2 - 14 Male NPT To 9/16 - 18 Male 37° JIC	2
8	956-003-020	STR Adapter 1/2 Male NPT To 3/4 Male Orb	2
9	956-007-002	Street Tee 1/2 Female NPT	2
10	956-008-022	Relief Valve 3/8 Female NPT	2
11	956-005-001	90° Elbow 3/4 - 16 Male Orb To 9/16 - 18 Male 37° JIC	2
		NOTE: Refer To Assembly Diagrams To Determine Position For Dual Lift Assist	

TELESCOPING REAR HITCH

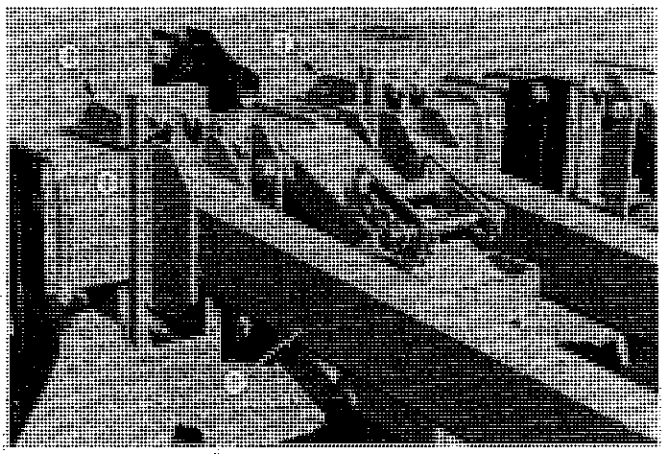


PHOTO NO. 3284

7 x 7 Toolbar

Install rear hitch (arrow 1) centered around upper 3-point hitch and center tillage unit as shown. Install two front mount straps (arrow 2) using eight 7/8 x 3 inch hex bolts (arrow 3).

ORDER ITEM NUMBER	DESCRIPTION
6019	Telescoping Rear Hitch

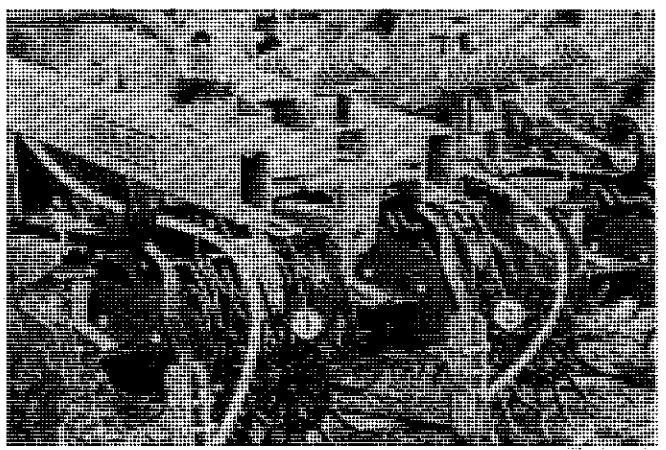


PHOTO NO. 3328

When pulling tank or trailer use safety anchor loops (arrow 1) or (arrow 2) to secure safety chain.

NOTE: Two hitch support assemblies and four 1/2 x 2 x 8 inch flat bars are sent with this hitch bundle. They will not be used with this folding toolbar model.

HINIKER SERVICE LITERATURE:

A. PARTS CATALOG - P/N 81003197

1000 Parts Book is available from your Hiniker dealer. It lists service parts for your machine with exploded illustrations to help you identify-ify the correct parts. It is also helpful in assembling and disassembling.

B. OPERATORS MANUAL & ASSEMBLY- P/N 81003152

The operator's manual provides safety, operating, maintenance, and service information about Hiniker machines. It also includes set up instructions for the 1000 row crop cultivator.

Contact your Hiniker Dealer or contact:

Hiniker Company
Airport Road
P.O. Box 3407
Mankato, MN. 56002-3407
(507) 625-6621
Fax (507) 625-5883

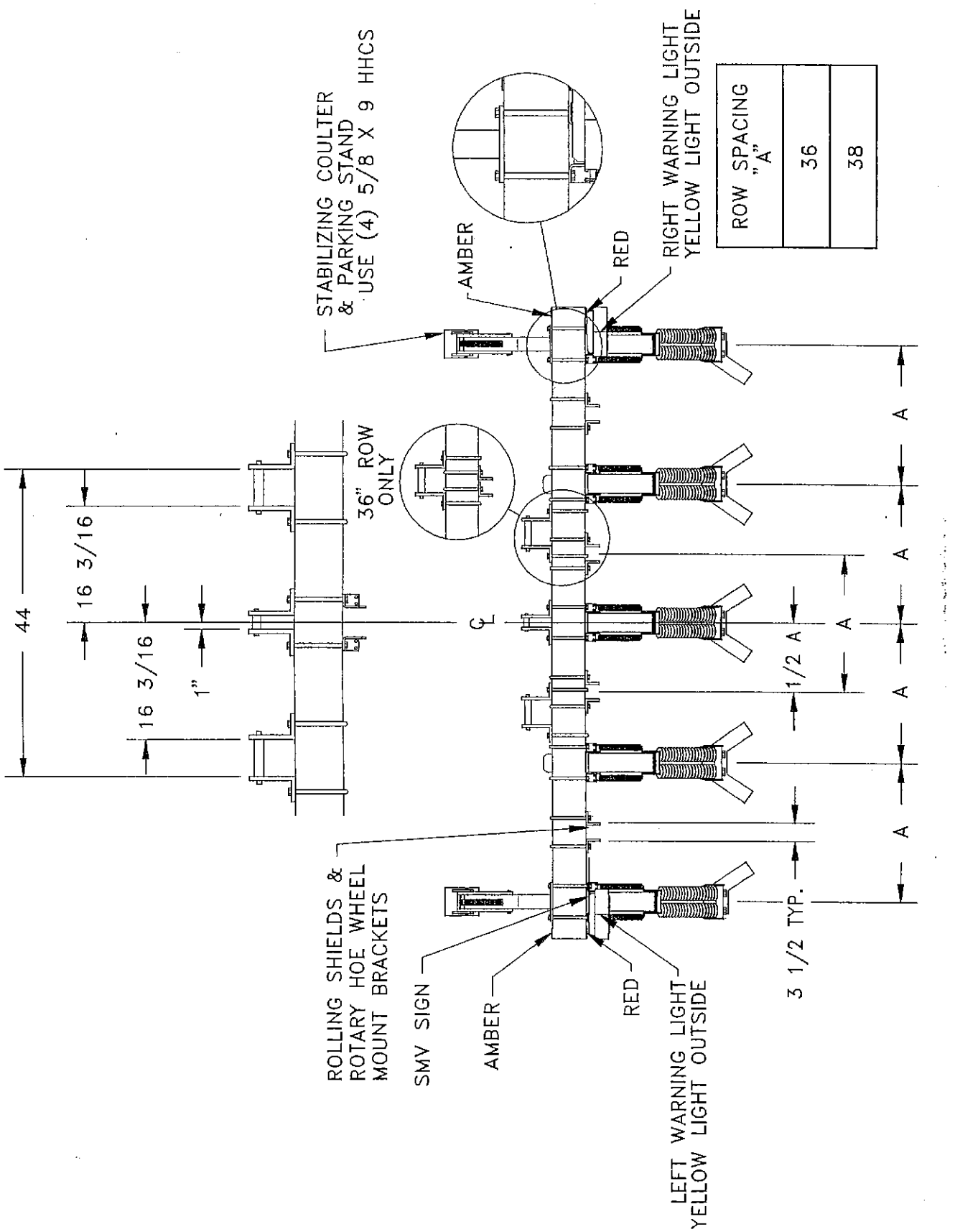
Assembly Diagrams Key Instructions

4 Row Through 24 Row

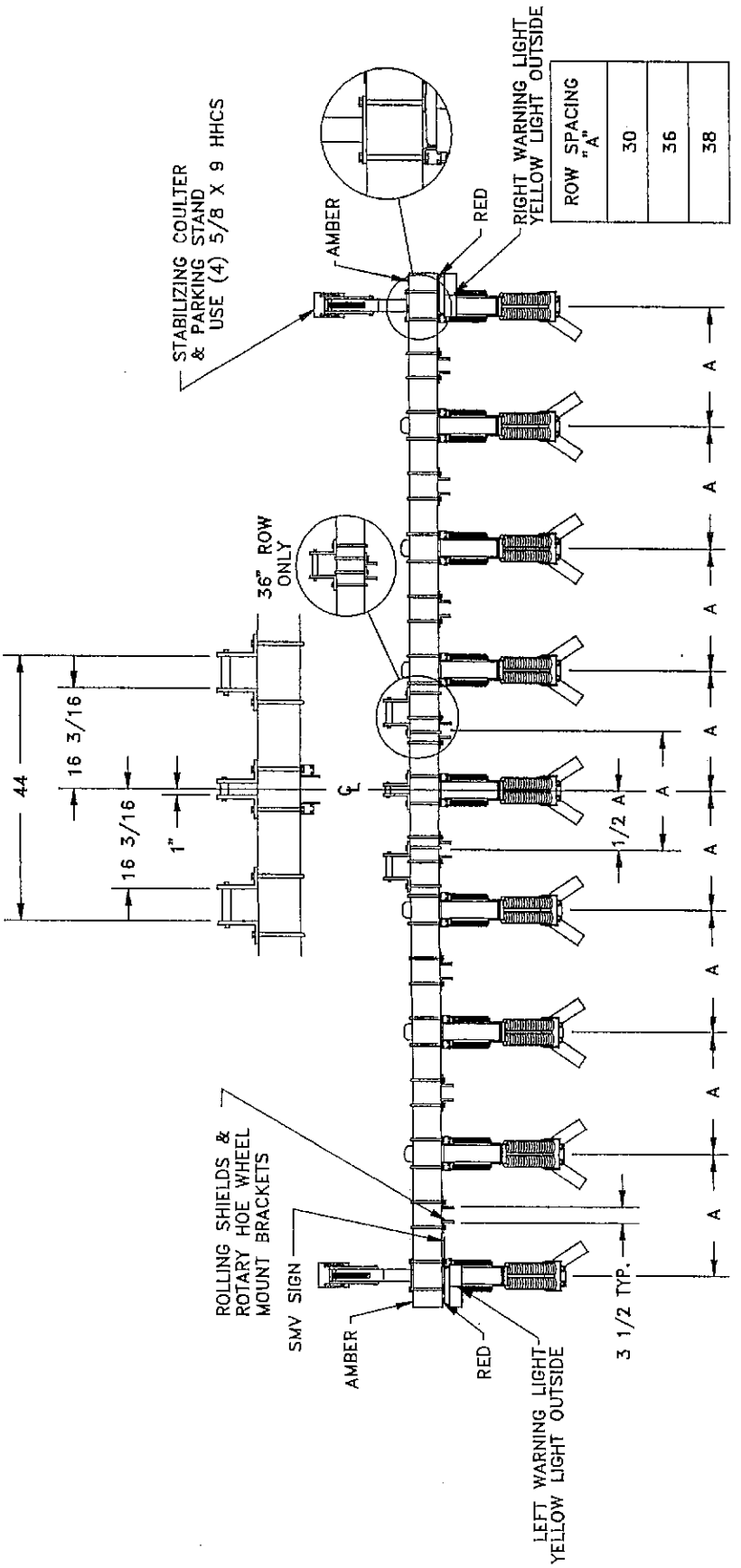
1. Shown On Diagrams, The Row Spacing 20, 22, 30, 36 & 38 Inches, Letter "A"
2. Hitch Location And Mounting Dimension.
3. Location Of Amber And Red Reflective Tapes.
4. Location Of S.M.V. Sign.
5. Location Of Parking Stands and Stabilizing Coulter.
6. Folding Models, Location Of Center Stands.
7. Optional Equipment Mounting Location Of:
   - Rolling Shields/Rotary Hoe Wheels:
   - Mount Brackets.
   - Offset Plates.
   - Safety Warning Lights.

DWG. NO. 2540A

ASSEMBLY DIAGRAM
4 ROW RIGID TOOLBAR



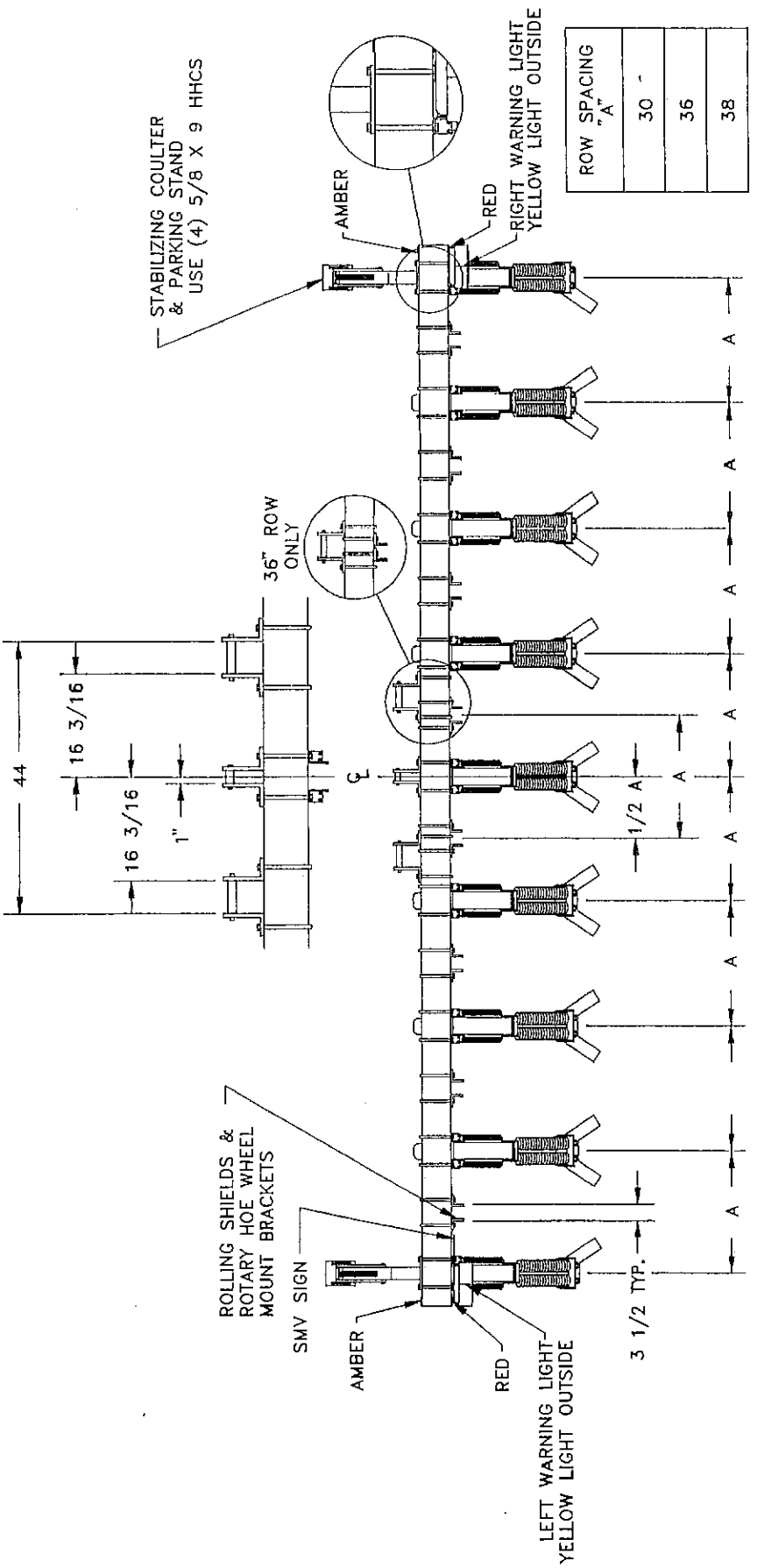
ASSEMBLY DIAGRAM
6 ROW RIGID TOOLBAR



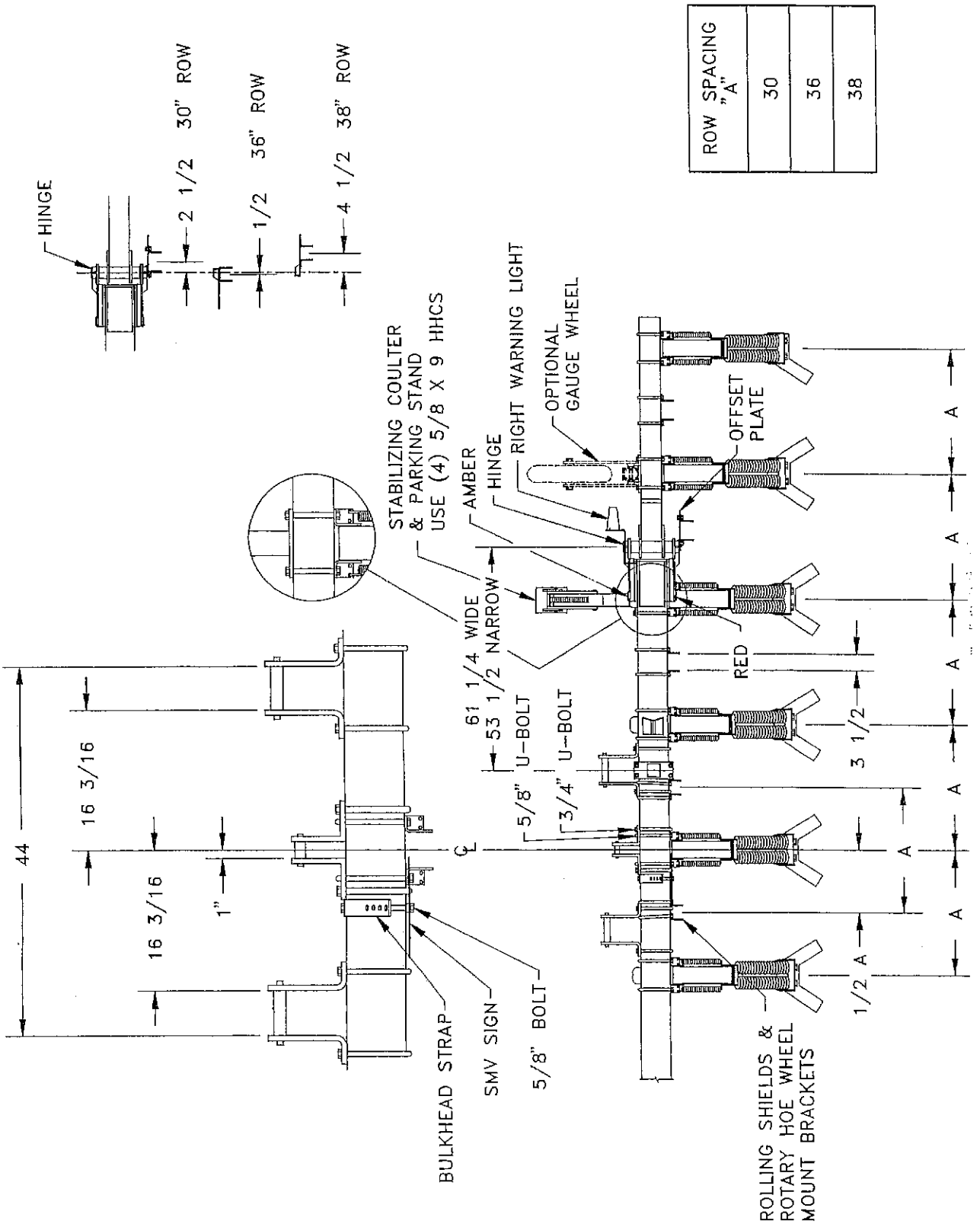
DWG. NO. 2313A

DWG. NO. 2312A

ASSEMBLY DIAGRAM
8 ROW RIGID TOOLBAR



ASSEMBLY DIAGRAM
8 ROW FOLDING TOOLBAR

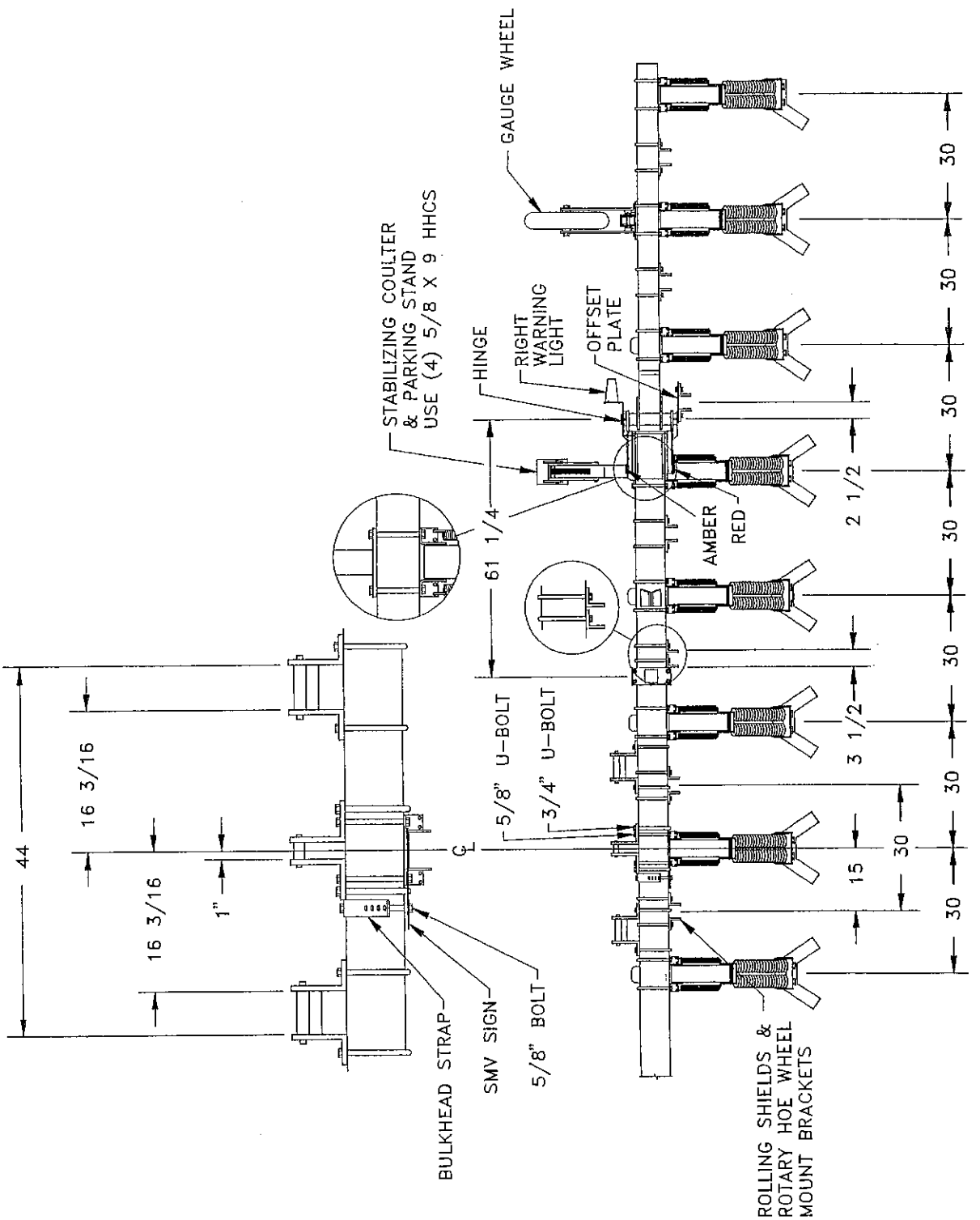


ROW SPACING "A"
30
36
38

DWG. NO. 2541A

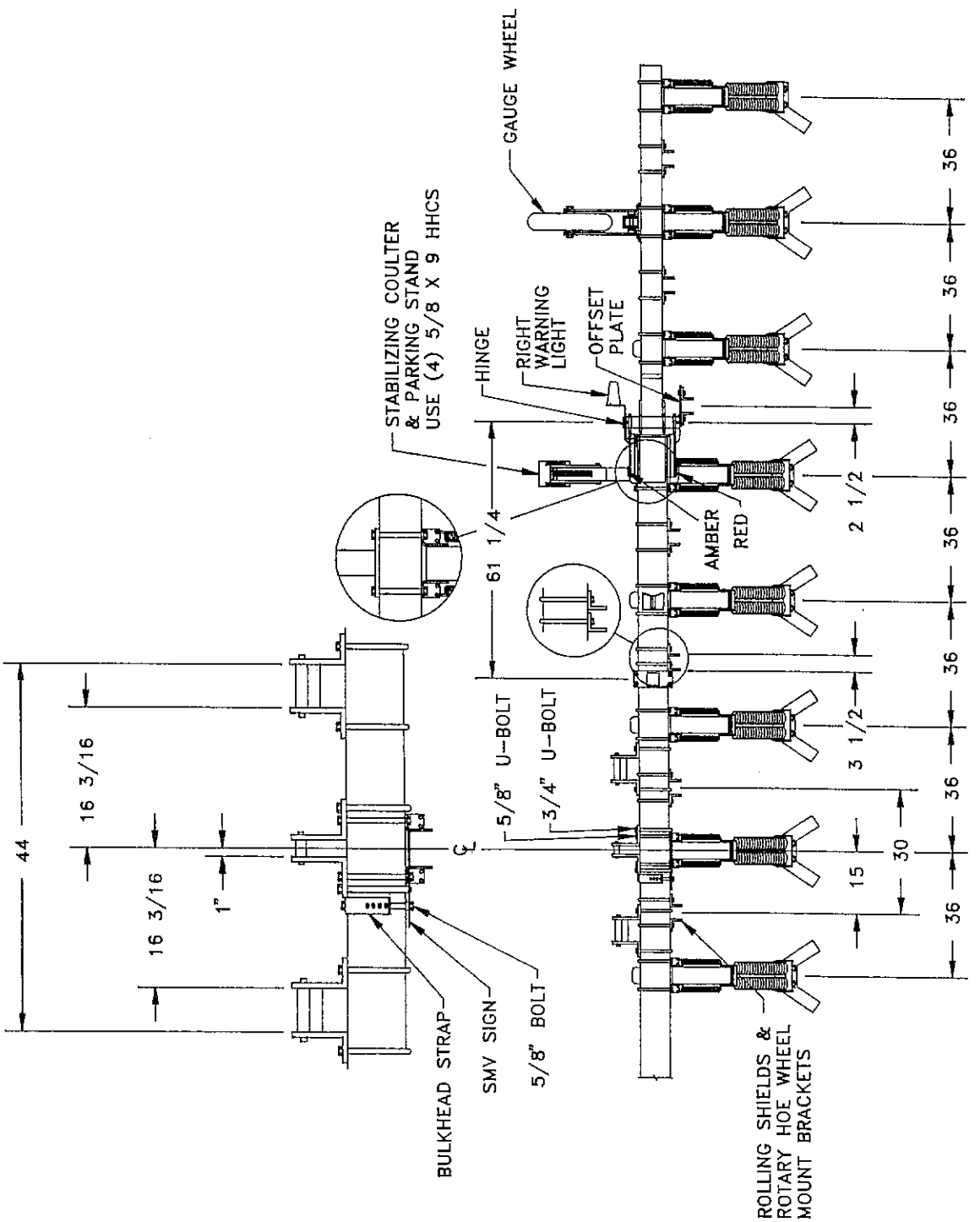
DWG. NO. 2311A

ASSEMBLY DIAGRAM
12 ROW FOLDING TOOLBAR



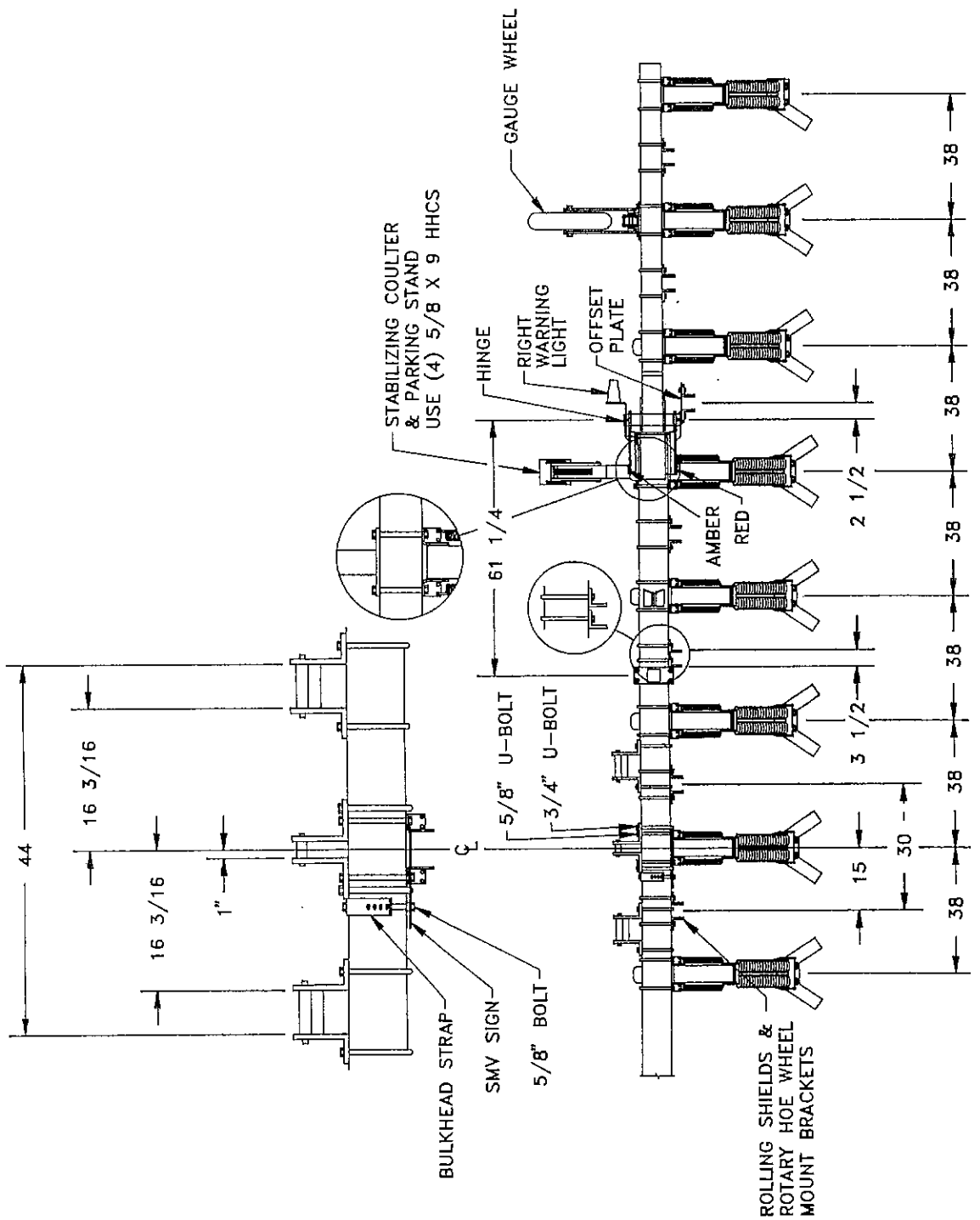
ASSEMBLY DIAGRAM
12 ROW FOLDING TOOLBAR
36" SPACING

DWG. NO. 3605



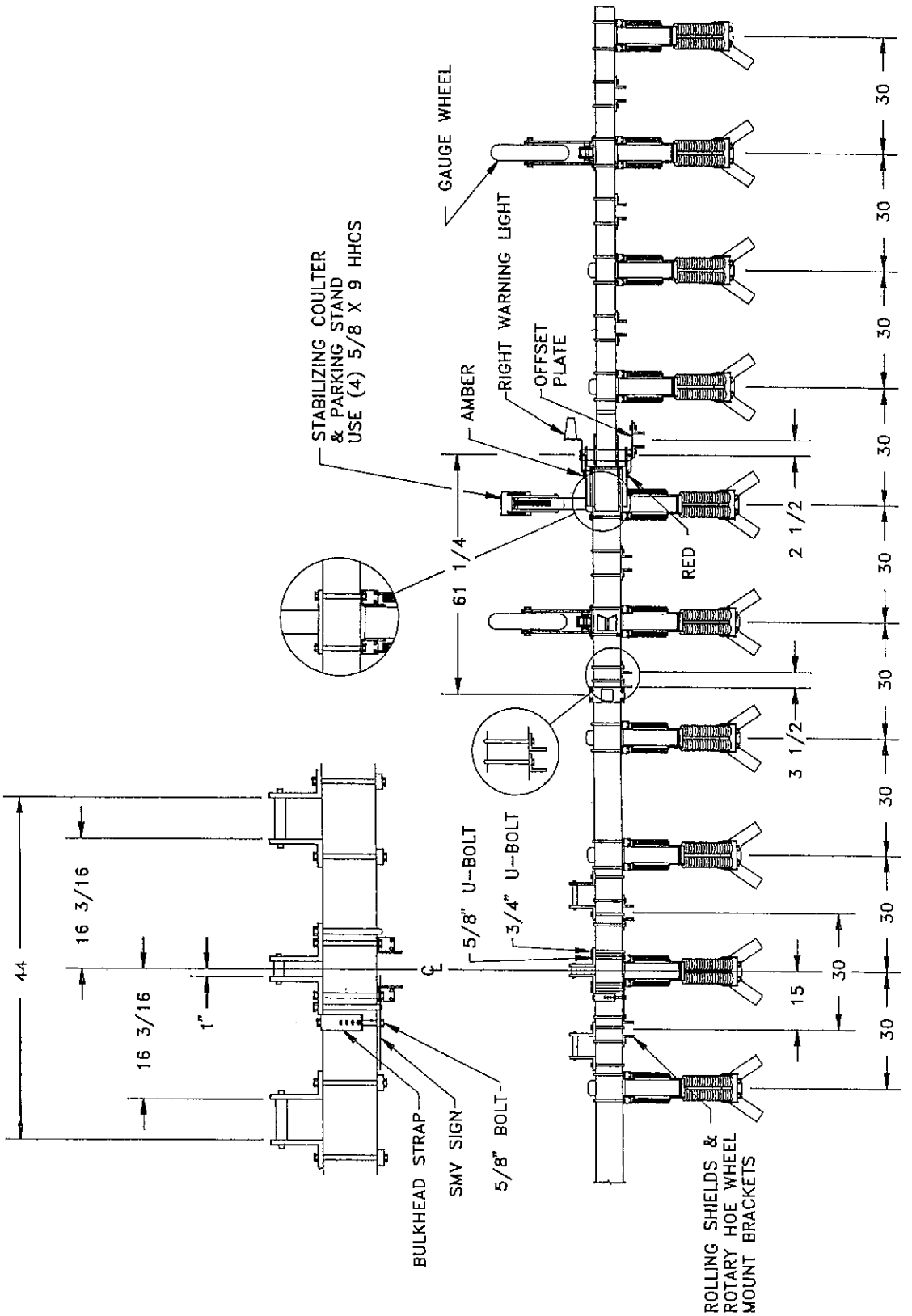
DWG. NO. 3606

ASSEMBLY DIAGRAM
12 ROW FOLDING TOOLBAR
36" SPACING



ASSEMBLY DIAGRAM
16 ROW FOLDING TOOLBAR

DWG. NO. 2542

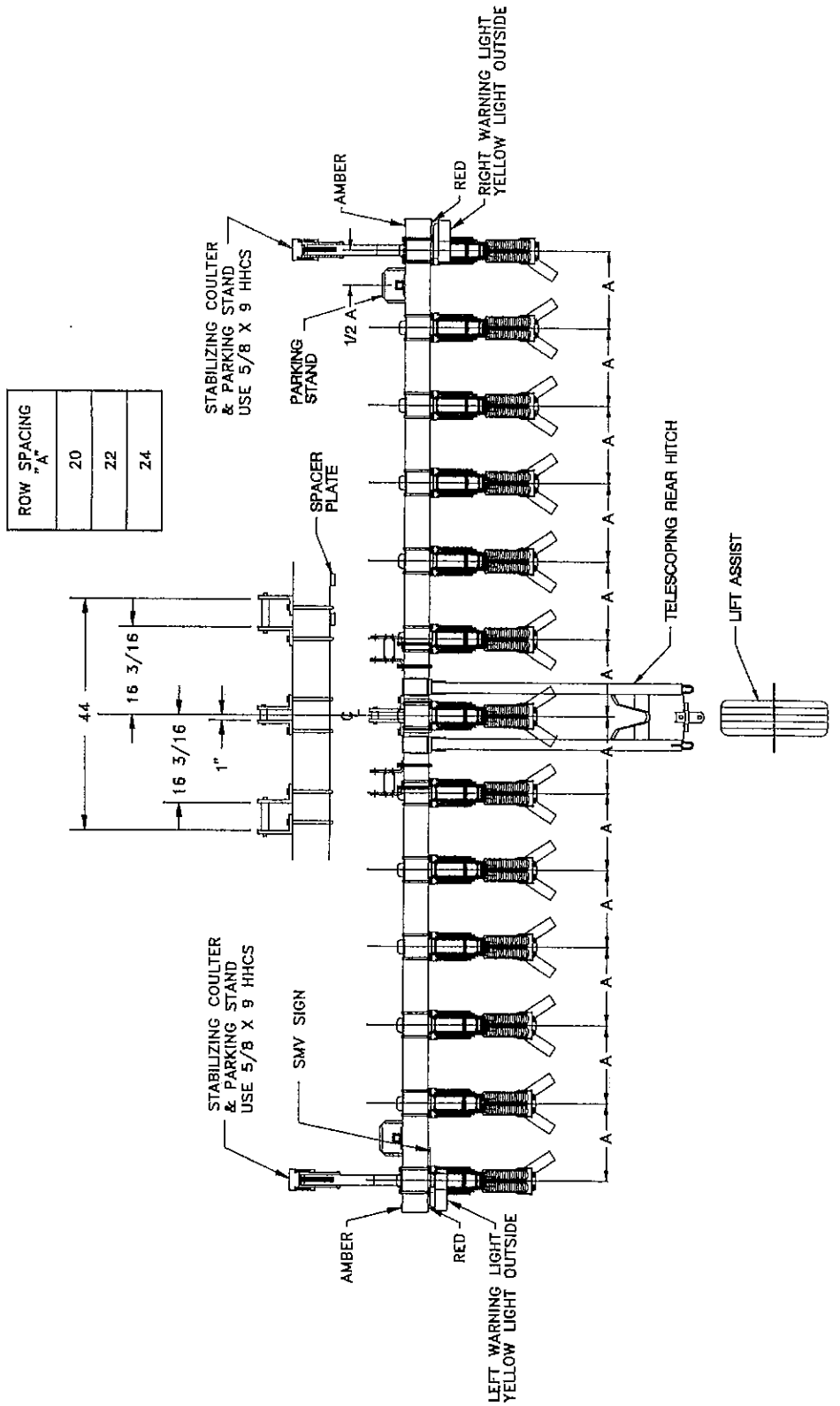


DWG. NO. 3230

ASSEMBLY DIAGRAM
12 ROW RIGID TOOLBAR
20"/22"/24" SPACING

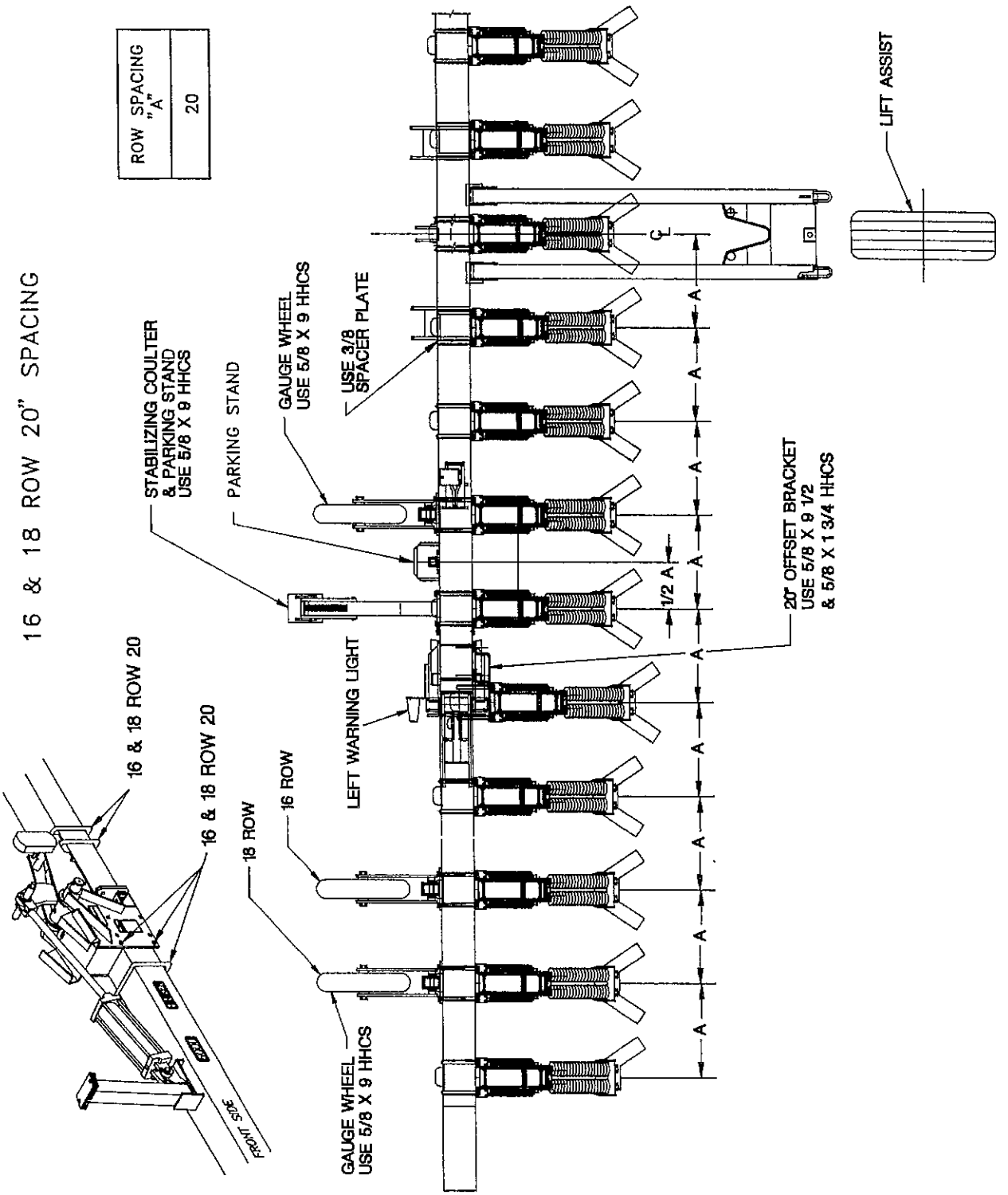
12 ROW 20"/22" SPACING

ROW SPACING "A"
20
22
24



ASSEMBLY DIAGRAM
16 & 18 ROW FOLDING TOOLBAR
20" SPACING

DWG. NO. 3231

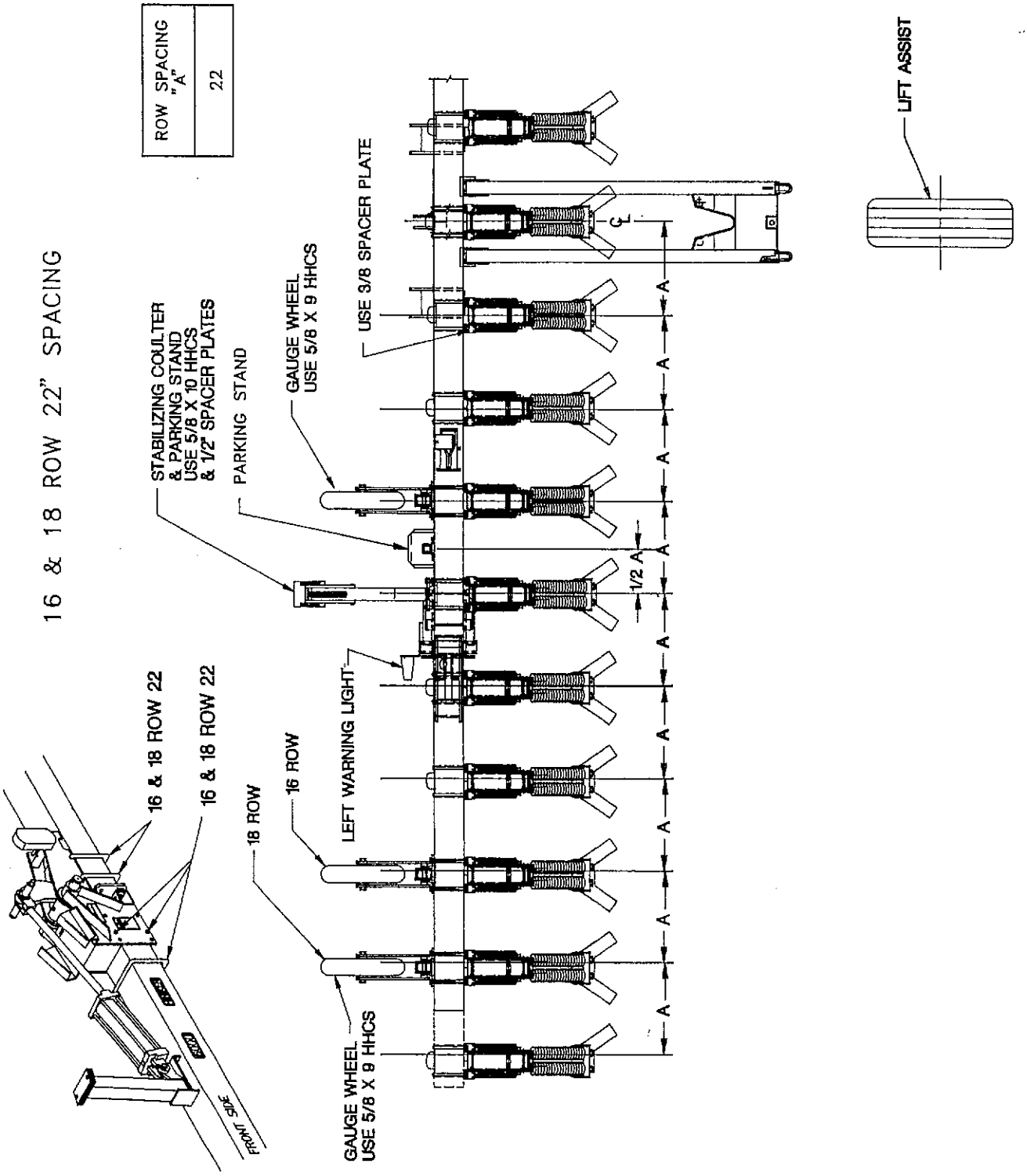


ASSEMBLY DIAGRAM
16 & 18 ROW FOLDING TOOLBAR
22" SPACING

DWG. NO. 3232

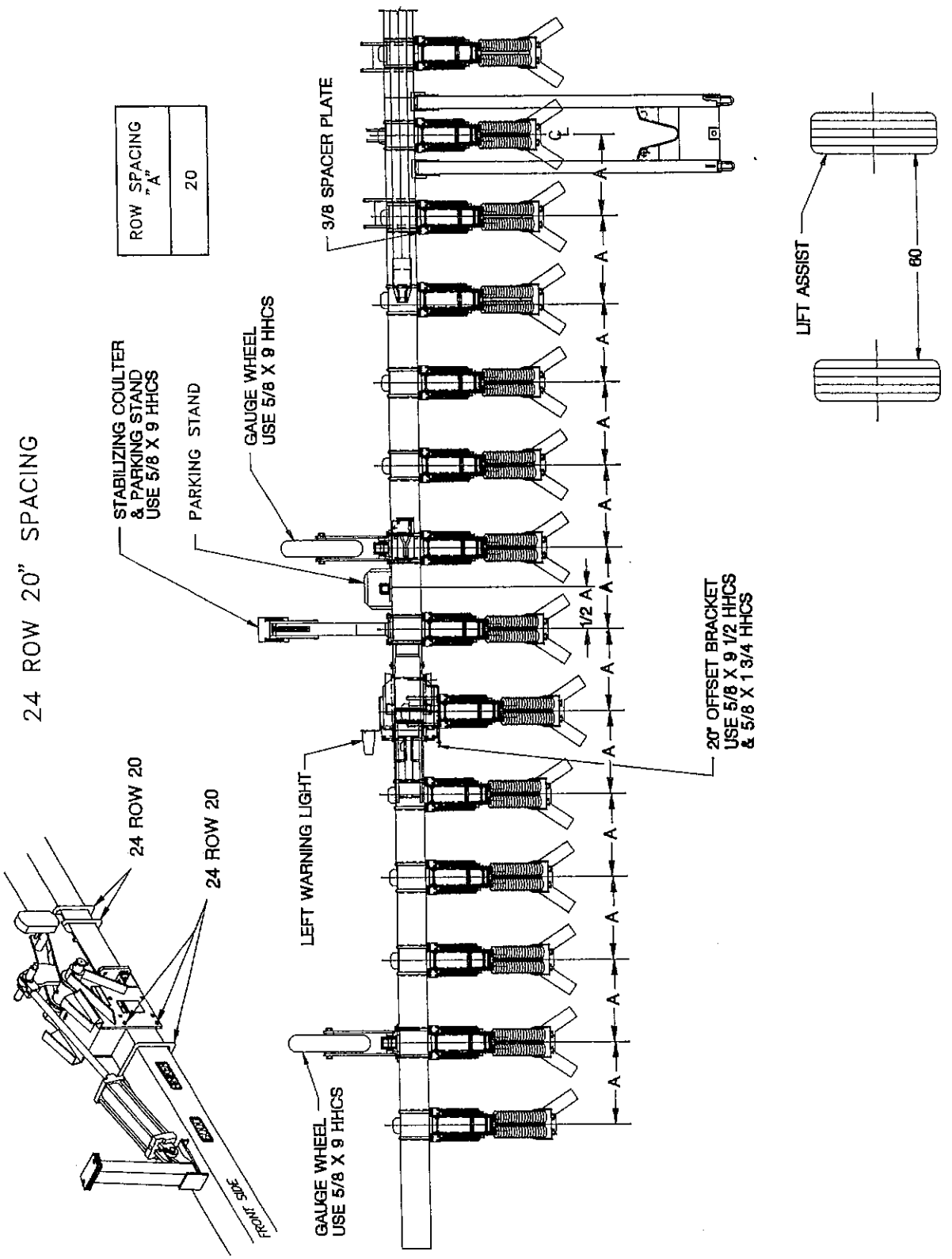
16 & 18 ROW 22" SPACING

ROW SPACING "A"
22



ASSEMBLY DIAGRAM
24 ROW FOLDING TOOLBAR
20" SPACING

DWG. NO. 3233

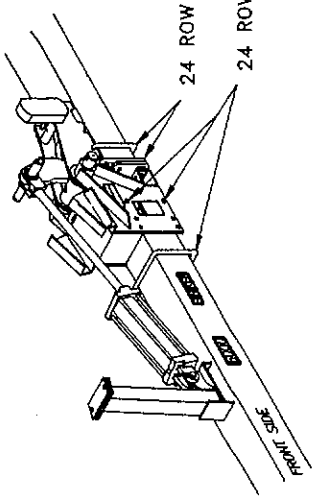


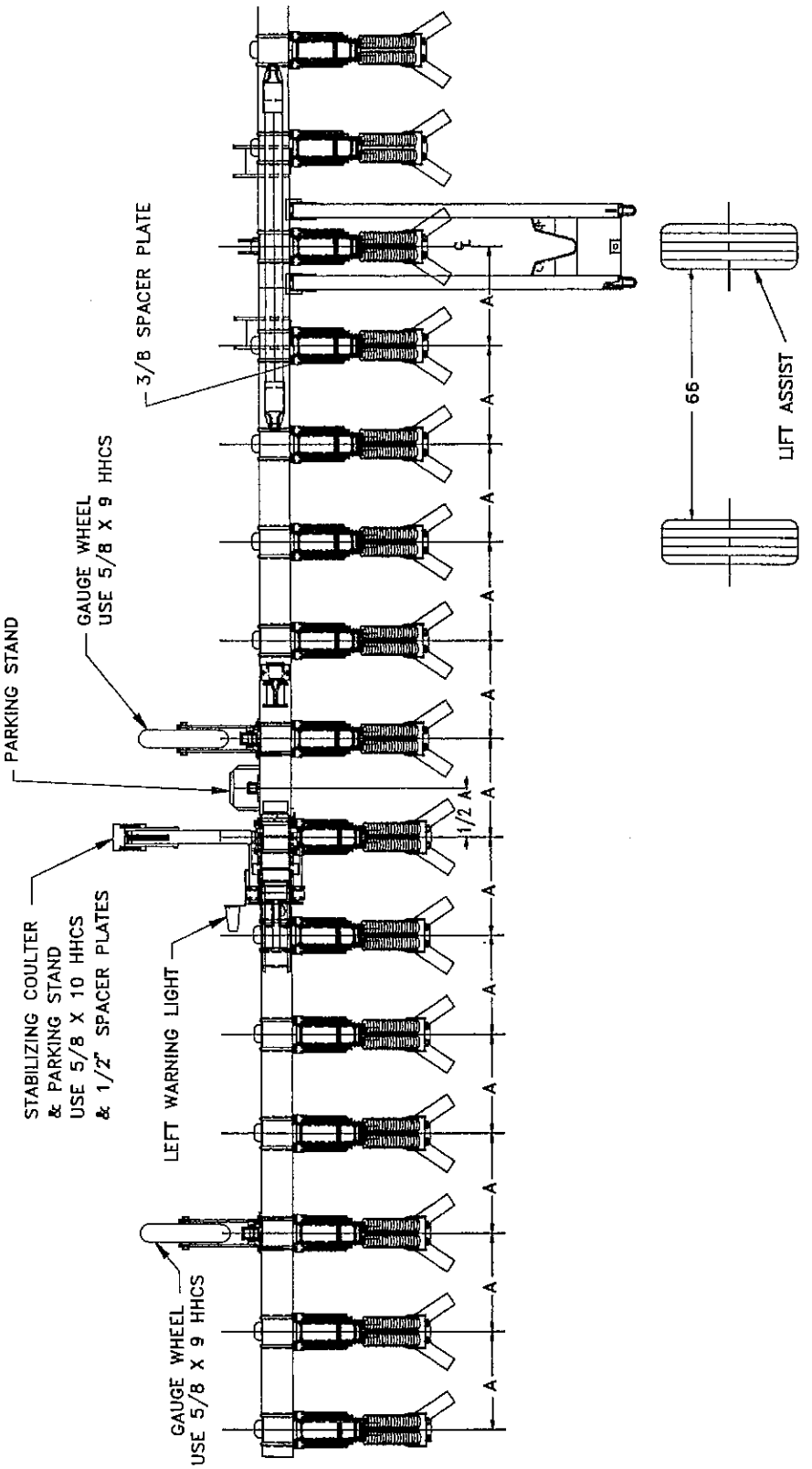
ASSEMBLY DIAGRAM
24 ROW FOLDING TOOLBAR
22" SPACING

DWG. NO. 3234

ROW SPACING "A"
22

24 ROW 22" SPACING





1000 ROW CROP CULTVIATORS SAFETY WARNING LIGHTS

NOTE: Right hand and left hand sides of your row crop cultivator are determined by facing the direction that the row cultivator travels while in use.

RIGID TOOLBARS

On the two outermost row units remove the 5/8 inch nuts and lockwashers from the outside u-bolts. Secure the right warning bracket to outermost u-bolt on the right end row unit with the 5/8 inch nuts and lockwashers. See pages 21, 42, 43 and 50. On the 1000 series row unit be sure to re-attach the anchor strap for the down pressure spring.

Secure the left warning light bracket to the outermost u-bolt on the left end row unit with the 5/8 inch nuts and lockwashers.

On the 1000 series row units be sure to re-attach the anchor straps for the down pressure springs.

Attach the right warning light assembly to the left warning light bracket, (amber light to outside, red to inside) with (4) 1/4 x 1 1/4 bolts and whiz locknuts. Secure the cord carrier underneath the warning light bracket using the 1/4 x 1 1/4 bolts and whiz locknuts.

Attach the left warning light assembly to the right warning light bracket, (amber light to outside, red to inside) with (4) 1/4 x 1 1/4 bolts and whiz locknuts. Secure the cord carrier underneath the warning light bracket using the 1/4 x 1 1/4 bolts and whiz locknuts.

Start routing the lighting harness from the center of the toolbar.

Extend the 7 pin connector about 4 feet from the toolbar.

Run the right and left cables to the correct side of the implement securing the cable with the cable ties provided. Connect the end to the light assemblies and store any excess cable on the cord carrier.

FOLDING MODELS

Assemble the right warning light assembly (Item 4) to the warning light bracket with the amber light to the top. Use (4) 1/4 x 1 1/4 bolts and whiz locknuts

Attach the cord carrier (Item 14) to the back side of the warning bracket.

Assemble the left warning light assembly (Item 3) to the warning light bracket with the amber light to the top. Use (4) 1/4 x 1 1/4 bolts and whiz locknuts.

Attach the cord carrier (Item 14) to the back side of the warning light bracket.

On the 1000 folding toolbars, use a 5/8 inch bolt lockwasher and nuts to secure the right and left assemblies to the front of the toolbar as shown in drawings on pages 22 thru 23.

On the 6000 series folding toolbars use 5/8 x 9 1/2 inch bolts, (Item 13) lockwashers and nuts to secure the assemblies to the outermost holes in the toolbar.

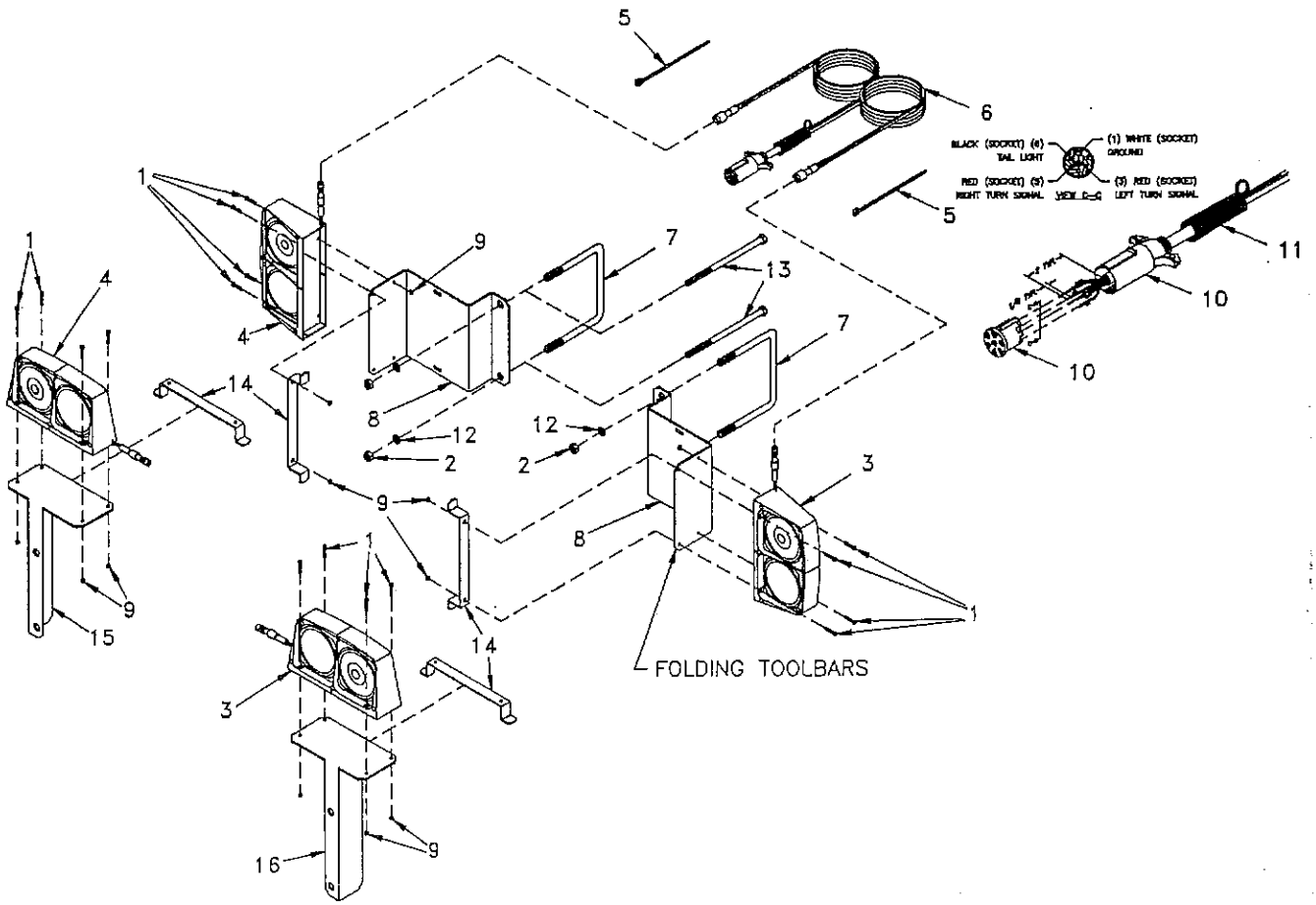
The light assemblies must be assembled on the front side of the toolbar. Refer to the row unit diagrams on pages 45 to 54. Do the same for the other end of the toolbar.

To attach the warning harness to the 1000 folding toolbars, start with approximately 4 feet of cable extending beyond the tractor hitch point. Take the cable in the direction indicated by the label on the cables, one to the right and the other to the left, securing the cable as you go with tie straps.

Wrap the excess cable around the cord carrier and connect the warning light cable to the warning light assembly.

Connect the 7 pin plug to a tractor and check that all lights function as they are expected to. If they do not work, have your tractor dealer check out the receptacle on the tractor.

WARNING LIGHT KIT
1000 ROW CROP CULTIVATOR



DWG. NO. 3601

REF NO.	PART NUMBER	DESCRIPTION	QTY.	REF NO.	PART NUMBER	DESCRIPTION	QTY.
1	031-06007	HHCS 1/4 UNC x 1 1/4 Gr. 5 PL	8	10	38450002	Connector Plug 7 Pin	1
2	951-001-230	Nut 5/8 UNC PL	4	11	38400004	Strain Relief Spring	1
3	36100000	Light, Implement, LH Assy	1	12	952-001-005	Washer -LK 5/8 Med	8
4	36100001	Light, Implement, RH Assy	1	13	950-001-230	HHCS 5/8-11 x 9 1/2 Gr. 5	4
5	921-001-145	Cable Tie, Black 21 Inch	16	14	624960	Cord Carrier	2
6	38809029	Harness, Lighting, Cult 16' (Includes 10 & 11)	1	15	81003527	RH Warning Light Bracket	1
7	81003020	5/8 U-Bolt 7 5/8 Center	2	16	81003528	LH Warning Light Bracket	1
8	81003404	Warning Light Bracket	2	17	81003529	Instruction Warning Lights (Not Shown)	1
9	034-05150	Locknut Stover 1/4	8				

HINIKER WARRANTY

The only warranty Hiniker Company (Hiniker) gives and the only warranty the dealer is authorized to give is as follows:

We warranty new products sold by Hiniker or authorized Hiniker dealers to be in accordance with our published specifications or those specifications agreed to by us in writing at time of sale. Our obligation and liability under this warranty is expressly limited to repairing or replacing, at our option, within one year after date of retail delivery, to the original purchaser, any product not meeting the specification. **WE MAKE NO OTHER WARRANTY, EXPRESS OR IMPLIED AND MAKE NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE.** Our obligation under this warranty shall not include any transportation charges or costs or any liability for direct, indirect or consequential damage or delay. If requested by Hiniker Company, products or parts for which a warranty claim is made are to be returned freight prepaid to our factory. Any improper use, operation beyond rated capacity, substitution of parts not approved by Hiniker Company, or any alteration or repair by others in such manner as in our judgement affects the product materially and adversely shall void this warranty. **NO EMPLOYEE OR REPRESENTATIVE IS AUTHORIZED TO CHANGE THIS WARRANTY IN ANY WAY OR GRANT ANY OTHER WARRANTY.**

HINIKER reserves the right to make improvement changes on any of our products without notice.

HINIKER does not warrant the following:

1. Used products
2. Any product that has been repaired, modified or altered in a way not approved by Hiniker Company.
3. Depreciation or damage caused by normal wear, lack of reasonable and proper maintenance, failure to follow Operator Manual instructions, misuse, lack of proper protection during storage, or accident.
4. Parts replacement and service necessitated by normal wear or maintenance including, but not limited to, belts, cutting parts, and ground engaging parts.

A DELIVERY REPORT FORM must be filled out and received by HINIKER COMPANY to initiate the warranty coverage.

HINIKER COMPANY
58766 240TH St.
P.O. Box 3407
Mankato, MN 56002-3407
PH. (507) 625-6621
FAX (507) 625-5883