



**SERIES 5000
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 810-002-111 REV. E

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810-002-111 REV. D

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INTRODUCTION

Congratulations on your purchase of a new Hiniker 5000 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.

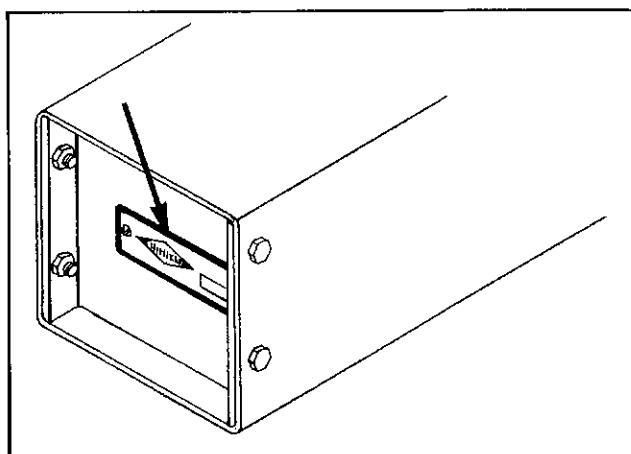
The serial number tag is located on the left end of the toolbar as indicated.

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. _____



DWG. NO. 162

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

- 7 x 7 Inch Toolbar With End Plates And Block Removing Rod.
- Two 3 x 16 Inch Gauge Wheels Per Row Unit With Scrapers And Screw Height Adjustment.
- Cutting/Stabilizing Coulters With Screw Depth Adjustment.
- High Strength Steel Shanks With Hardened Replaceable Point.
- Weight Transfer System With Variable Adjustment Up To 750 Lbs/Row.

- Hitch Mounting Brackets Fits Category II and III.
- One Pair Of Parking Stands

The Hlinker Row Cultivator is 3-point mounted and is available in five rigid models and five 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	75
6 Row	75
8 Row	100
12 Row	125
16 Row	160+

MODEL NO.	NO. OF ROWS	ROW SPACING	TRANSPORT WIDTH	TRANSPORT HEIGHT	APPRX. WT. (INCLUDES RIDGES)	OPTIONAL CONCRETE BLOCK WT.	OPTIONAL CUTAWAY DISC WT.
RIGID TOOLBARS - WITH SPRING CUSHION SHANK							
5002	4	36 & 38 IN	14 FT	6 FT 6 IN	2069	473	312
5003	6	30 IN	16 FT 6 IN	6 FT 6 IN	2745	563	468
5004	6	36 & 38 IN	20 FT 6 IN	6 FT 6 IN	2835	698	468
5005	8	30 IN	21 FT 6 IN	6 FT 6 IN	3477	743	624
5006	8	36 & 38 IN	26 FT 10 IN	6 FT 6 IN	3735	923	624
FOLDING TOOLBARS - WITH SPRING CUSHION SHANK							
5007	8	30 IN	12 FT 5 IN	11 FT 2 IN	4046	270	624
5008	8	30 IN	15 FT 5 IN	11 FT 4 IN	4216	360	624
5009	12	36 & 38 IN	17 FT 5 IN	11 FT 6 IN	5606	450	936
5010	12	36 & 38 IN	21 FT 5 IN	11 FT 8 IN	6391	585	936
5032	16	30 IN	22 FT 5 IN	11 FT 11 IN	7380	630	1248
RIGID TOOLBAR - WITH SPRING RESET SHANK							
5052	4	36 & 38 IN	14 FT	6 FT 6 IN	2189	473	NA
5053	6	30 IN	16 FT 6 IN	6 FT 6 IN	2913	563	NA
5054	6	36 & 38 IN	20 FT 6 IN	6 FT 6 IN	3003	698	NA
5055	8	30 IN	21 FT 6 IN	6 FT 6 IN	3693	743	NA
5056	8	36 & 38 IN	26 FT 10 IN	6 FT 6 IN	3981	923	NA
RIGID TOOLBAR - WITH SPRING RESET SHANK							
5057	8	30 IN	12 FT 5 IN	11 FT 2 IN	4262	270	NA
5058	8	36 & 38 IN	15 FT 5 IN	11 FT 4 IN	4432	360	NA
5059	12	30 IN	17 FT 5 IN	11 FT 6 IN	5918	450	NA
5060	12	36 & 38 IN	21 FT 5 IN	11 FT 8 IN	6409	585	NA
5061	16	30 IN	22 FT 5 IN	11 FT 11 IN	7728	630	NA

TROUBLE SHOOTING

TROUBLE	CAUSE	REMEDY
Residue plugging between coulter & shank	Gang riding out (gauge wheels off ground)	Worn points or shares. Coulter set too deep.
	Coulter not cutting residue	Set coulter deeper (see page 10). Set more or less down pressure on gang and/or add ballast to toolbar (see page 8).
	Tunnel Shields	Static shields prevent residue flow. Remove and use rolling type.
Residue plugging/bunching on end of shares Middleworker not penetrating	Machine tipped too far forward	Lengthen upper link.
	Worn points or shares	Replace worn components.
	Cutting coulter too deep	Set only deep enough to fully cut residue.
	Insufficient down pressure/ballast	Read toolbar & down pressure (adjustments).
Plugging between cutaway discs & coulter	Machine tilted too far forward	Lengthen upper hitch link.
	Hitch pins in lower holes	Raise lower link hitch pins to upper holes.
	Discs too close to gang	Move closer to row.
	Discs too deep	Set to shallower setting.
Slabbing	Insufficient ridge	Cutaway discs are not recommended in no-till or when rows are not on elevated ridge. Raise cutaways to storage position.
	Cultivator set too deep	Read depth control (adjustments).
	Slow tractor speed	Better soil fracturing occurs at 6-7 mph.
Weeds undercut but not destroyed	Cultivator set too deep	Read depth control (adjustments).
	Too slow tractor speed	Better soil boiling and mixing occurs at 6-7 mph.
Shares lifting ridge & crop	Cultivator too level	Pitch machine forward with upper link.
	Wrong size shares	Switch to smaller size, see chart on page 12.
Rotary hoe shields plugging	Support arm too long	Set to 36" (30" rows), 41" (36-38" rows).
	No-till conditions	Run hoe wheels backward.
Gauge wheels bury (loose soil)	Too much weight on gang	Switch to rolling shields. Carry toolbar on tractor.
		Decrease down pressure setting.
Mud between gauge wheels	Deposited from coulter	Install coulter scrapers Set coulter shallower

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 and oil impregnated bushings throughout the cultivator limits the grease fittings requiring periodic lubrication. Following are the fitting locations and hourly intervals requiring a high quality SAE multi-purpose grease.

20 HOURS

- CUTAWAY DISC (optional) A single fitting is located on the hub. Be careful not to over grease and push out the seal.
- 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.

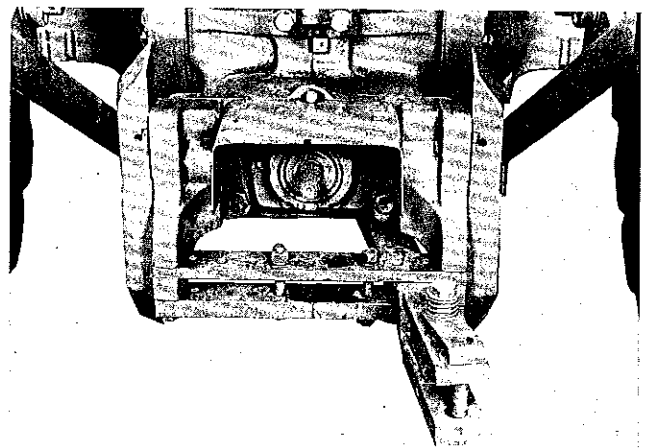



PHOTO NO. 917

 **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.

8 Preparing For Field Use

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 dual wheel.

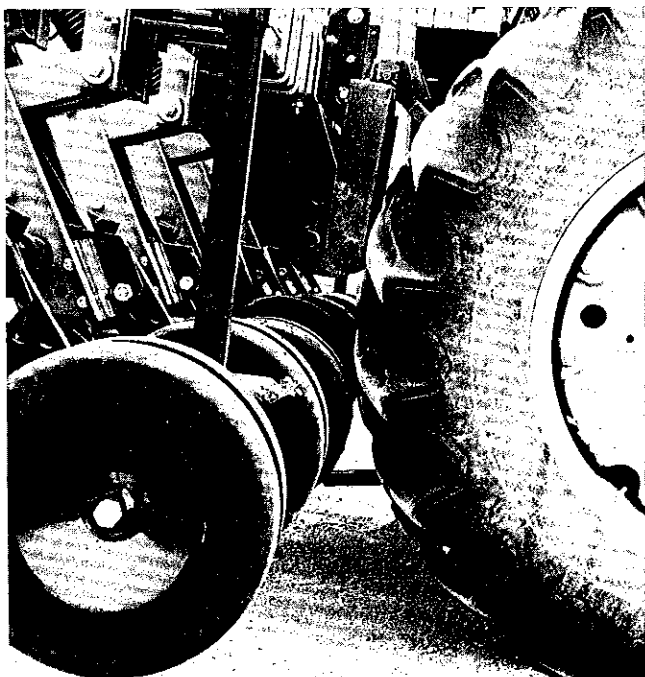


PHOTO NO. 2484

NOTE: If the tractor will not lift the cultivator high enough for transport or turning, the hitch pins may have to be placed in a lower set of holes, and adjust tractors lower lift arms to the highest lift position.



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 tractor's operator's manual.

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.

Both the upper and lower hitch brackets have two sets of holes. The tractor's three point arms should be attached to the cultivator pins in a manner which allows the linkage to be as close to level as possible when the cultivator is in the ground.

Attach row cultivator to tractor. Raise row cultivator to its highest transport position. Check gauge wheel clearance between it and rear tractor tire. **NOTE:** Always maintain a minimum of one inch clearance. If required, a quick hitch or hitch extension on Row Cultivator should be used.

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.

TOOLBAR AND DOWN PRESSURE

It is critical that the parallel linkages of the individual gangs be nearly level in operation. This will permit 8" of unit travel (4" 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, heavier residue, etc. and prevent "riding out" or plugging of that row. Usually the gangs following the tractor wheels will require increased down pressure.

Optional concrete ballast blocks usually are not necessary. It is important however, that the down pressure adjustment be set accordingly to maintain level parallel linkage in operation. This will require approximately a 30% of maximum spring setting **WITHOUT** ballast blocks and an 60% setting **WITH** the blocks in place.

The exact setting will also vary depending on whether a quick hitch or guidance system is being used and the relative weight of that component.

OPERATION PROCEDURES AND ADJUSTMENTS

ADJUSTMENT PHOTO

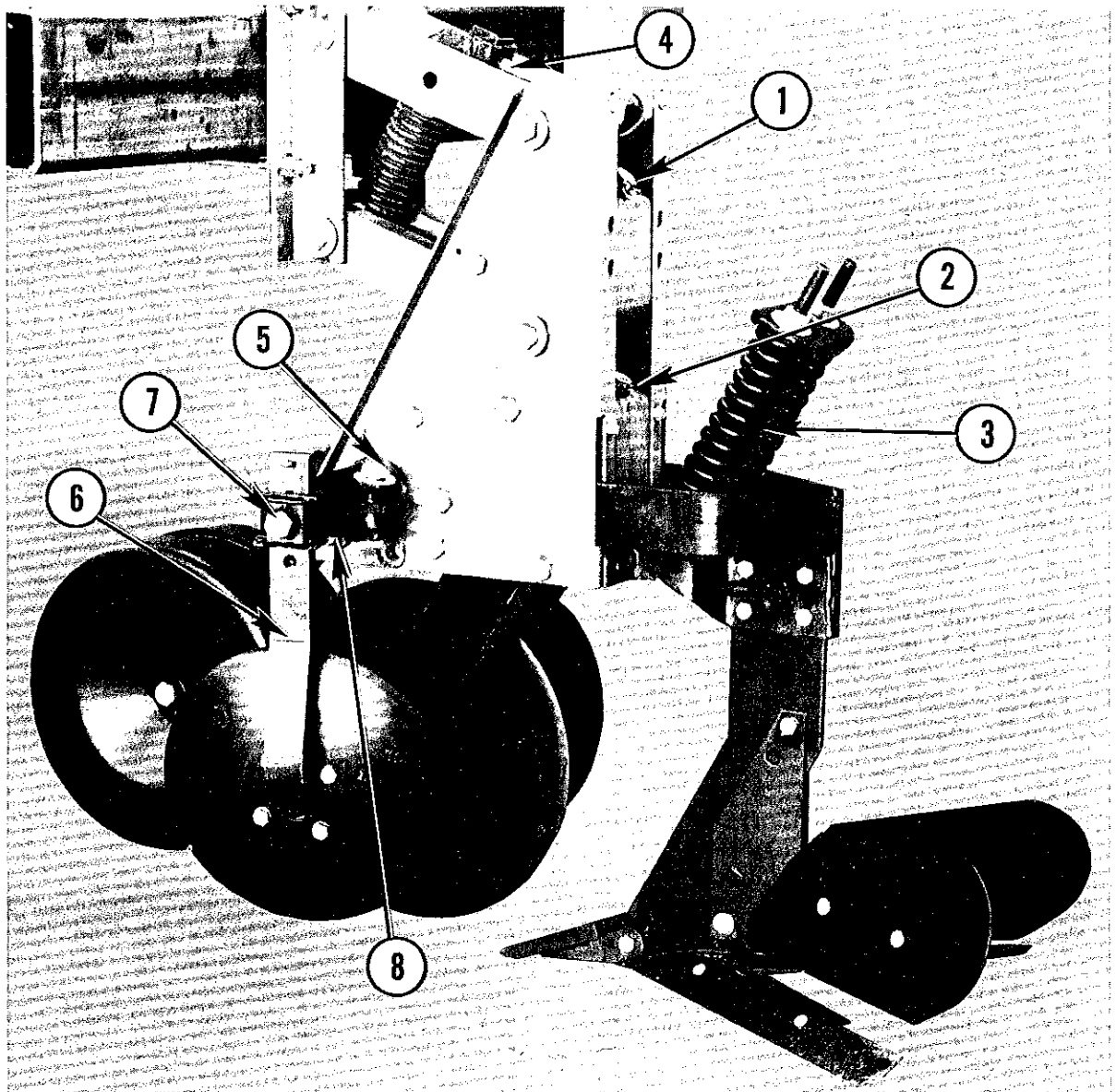


PHOTO NO. 2473A

NOTE: REFERENCE ADJUSTMENT PHOTO FOR ALL OPERATION PROCEDURES AND ADJUSTMENTS.

DEPTH CONTROL

There are two operating adjustments which effect working depth. One is the gauge wheel adjustment bolt and the other is the upper three point hitch link which will vary the tilt of the entire machine. There is an interrelationship between the two which will vary in different applications. Because the setting of the cutting coulter is also related to operating depth, it is included in this chapter.

First, a couple of generalizations regarding plugging. The 5000 Cultivator will NOT plug if the shares are below and the coulter is cutting through the surface residue. If lack of penetration is preventing either, check the troubleshooting chart on page 5.

SETTING PROCEDURES

UNTILLED/SURFACE RESIDUE

1. RIDGE PLANTED, HIGH RESIDUE. Set gauge wheels so 3/4" of center "notch" extends above side plates as shown in drawing #1, 1/4" above on gangs behind tractor tires.

NO-TILL or LOW RESIDUE. Set all gangs with center "notch" even with to 1/2" below side plates.

2. Set cutting coulter depth as shown in drawing #2 with 6" from top of bolt head to support weldment behind the tractor wheels and 7" setting on remaining rows. These measurements are for new 18" coulters. If coulters are worn to 16", one inch of depth must be added to above settings, etc.
3. Make sure down pressure springs are set so parallel linkages are level when all toolbars weight is on cultivator after fully collapsing tractor hydraulic level as described under TOOLBAR and DOWN PRESSURE.
4. Lengthen upper three point link until material flows smoothly through cultivator. Fine tune by shortening upper link until residue starts to hesitate on shares and relengthen one turn on upper link. This setting will vary between a flat and a ridged field and is usually the only resetting necessary when changing fields. Always operate shares as shallow as possible to reduce horsepower required and create maximum soil and weed turbulence.

Correct depth is when the TOP of the share is even with, to 1/2" below undistributed soil surface as shown in drawing #3

NOTE: The cultivator can correctly set and still plug if the planted row is off to the side of the ridge. The edge of the ridge is then in the interrow area and the cultivator gauge wheel will climb the ridge instead of following the normal interrow depression, causing the middleworker to run more shallow into the residue, rather than under it. If much of the field was planted in this manner, the cultivator must be set deeper to compensate.

TILLED/INCORPORATED RESIDUE

Set the gauge wheels initially with the bracket notch about an inch below the top of the side brackets. The coulter setting will depend on both the amount and the location of residue in the soil. If little residue is present in the working area, the coulter need only run an inch deep. If heavy residue has been disced or chiseled into the soil, the coulters may need to operate deeper than the suboiler point. Set the upper three point link to permit maximum soil turbulence and weed elimination. 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 some or all of the toolbar weight on the tractor.

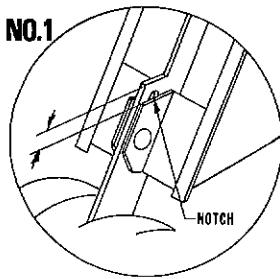
In some very loose listed conditions, cobs may lodge between the gauge wheels. Widen the gauge wheels by adding two spacers (#4, page 14) and removing one washer and the inside nut (#8 and #9).

RIDGING

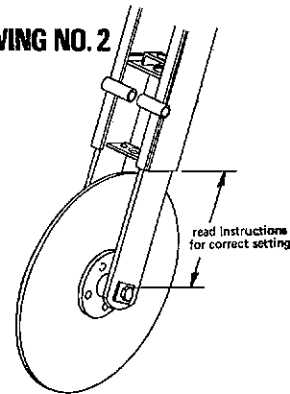
When ridging, the tilt or attitude of the cultivator should be close to level. This, together with gauge wheel depth and ridger width setting will determine desired ridge size and shape. Use the shortest shares available for your row width when ridging.

There are two pairs of holes on the ridger support bracket. Normally the bolts are placed in the lower holes which positions 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 an down slopes. Leaving some loose soil between rows rather than a bare "ditch" will reduce soil erosion.

DRAWING NO.1

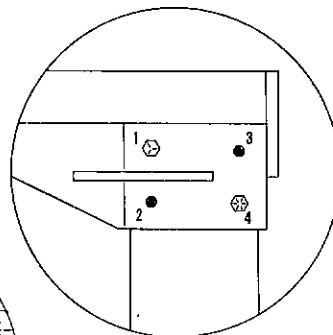
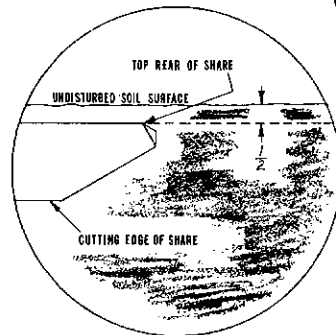


DRAWING NO. 2



DWG. NO. 2027

DRAWING NO. 3



DRAWING NO. 4

DWG. NO. 2001

STABILIZING COULTER

Depth setting of the coulters vary according to field conditions and are covered in the previous category.

If coulters are not centered or fork bracket (#6, page 42, 44) is too tight or too loose in the cage assembly (#5) spacer washers may be moved from either side and/or the center to correct the problem.

In loose sandy soil conditions where 20" coulters may be used, the right and left support brackets (#7, 8 page 47) must be moved forward to clear the coulters. The two securing bolts on each side will be placed in the rear holes on each bracket.

MIDDLEWORKER

The 5000 Cultivator uses a combination of subsoller point and bolt on shares in place of a sweep. The point is designed to both draw the unit into the ground and to break the soil ahead of the shares. The shares are available in several different sizes as shown in the accompanying chart. It is important (especially if cutaway discs are not being used) that the larger size share be used when cultivating smaller crops and that the smaller size be used in taller crops minimizing root pruning.

The shank of the middleworker is fabricated out of 1/2" high tensile steel and protected with dual cushion springs which allow up to 9" of tip deflection if an

12 Operation Procedures And Adjustments

obstacle is encountered. The tension is factory preset and should not permit spring compression from normal soil resistance. In very rocky conditions, structural damage is minimized by replacing bolt #4 with grade 8 and removing bolt #2 and #3. This permits bolt #1 to shear and the middleworker to swing back 90°, avoiding component breakage (see drawing #4, page 11).

In moderately to severe rocky conditions, auto reset shanks are recommended in lieu of spring cushion shank assemblies. These units provide superior breakage protection while resetting on the go in any soil condition. Cutaway disc option cannot be used with auto reset shank.

APPLICATION	30" Row Spacing				36" - 38" Row Spacing			
	Do Not Use Cutaway Discs				W/O Cutaways		With Cutaways	
	Conv. Tillage	No Till	Ridge Till	Layby or Hilling	Cultivation	Layby or Hilling	Cultivation	Layby or Hilling
Rolling Shields	1	1	2	3	2	3	1	3
Rotary Hoe Shields	2	2	1	3	1	3	2	3
17" Shares	2	2	2	1	3	2	3	2
19" Shares	2	2	2	2	3	2	3	2
21" Shares	1	1	1	3	3	1	2	1
25" Shares	3	3	3	3	2	2	1	2
27" Shares	3	3	3	3	1	3	2	3

KEY: 1. Recommended
2. Alternate
3. Not Recommended

SHIELDS

In heavy residue conditions, do not use any shields or fenders on the 5000 Cultivator other than the 5034 rotary hoe shields or the 5028 rolling shields. Either of these shields may be locked up and out of position in crops over 8"-9" of height by removing the hairpin, moving the spring rod from the center bracket to one of the holes in the angle mount brackets, and replacing the hairpin. Large or tunnel shields are unnecessary due to the lack of slabbing, and discouraged as they can contribute to plugging.

While available, both tunnel and "Full Season" plastic shields are recommended only in residue free conditions where the 5022 and 5034 shields do not provide sufficient shielding of the crop from loose soil flow. These shields can not be used with automatic reset shanks.

Little or no down pressure is required with the 5028 rolling shields. Excessive down pressure may cause the shields to stop turning and drag residue.

The 5034 rotary hoe shields should have down pressure sufficient to penetrate hoes to a depth of about 2". In heavy no-till residue conditions, and/or wet stalks the rotary hoe wheels may have to be reversed if they are wrapping or plugging. If crop is very small and/or growing in a depression, the use of the 5028 rolling shields with or without tunnel extensions may be necessary.

The telescope support arm for either of the shields is normally set at 36" from hinge pint to axle bolt in 30" rows. This will permit the material flow to ideally hit the shields just behind the axle bolt. Wider rows require additional support arm length, usually about 41". In very short crops (3"-4") and/or very loose soils, shield arms may have to be extended up to 4" longer than these settings.

ANHYDROUS APPLICATION

When using the fertilizer knife without the middleworker, turn up gauge wheels to deepest setting, then lengthen the upper link on tractor to set desired knife depth. Set coulter only deep enough to cut residue.

If the middleworker is being used, set to desired cultivation setting, then place knife in hole combination giving correct placement depth.

"Beavertails" are recommended on NH3 knives in either application.

NH3 may be applied through the liquid fertilizer pipe option. If sealing is a problem, clamp 30" lengths of 3/8" fertilizer hose to the ends of the tubes which trail behind the row placing fertilizer on each side of the row.

CUTAWAY DISCS

IMPORTANT: *Cutaway discs cannot be used with automatic reset shanks.*

If the optional cutway discs are used, the leading edge of the two discs should be not more than 6" to 7" apart. No point is served in setting the discs wider because the shares will be cleaning the row middles. This lateral setting is infinite and is adjusted by loosening the hex bolt (arrow 5) and sliding the 2" tube to the desired setting.

The working angle of the cutaway disc is fixed at 15 degrees. Vertical or depth adjustment is made by loosening hex bolt (arrow 7), moving shank up or down, and tightening the same bolt in the desired indentation in the shank, being careful to

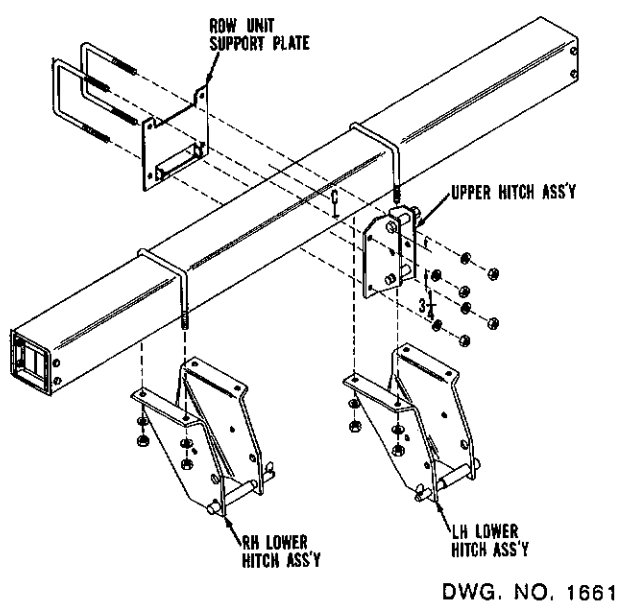
center the bolt in the indentation. Cutaway discs should never operate at a depth greater than 2".

If cutaway discs are not needed, they may be rotated 90 degrees upward and rearward to a passive position by removing hex bolt (arrow 8), rotating disc gang, and replacing the bolt in the rear hole.

The complete cutaway assemblies may have to be

removed if leaves are being damaged in crops over two feet tall. Remove the cutaway assemblies farthest to the left (facing the machine from the rear) by loosening the lateral adjustment bolts (arrow 5). Next, remove the rotation bolt on the leftmost gang (arrow 8) and slide the rotational tube out the left side of the gang. Repeat the process on the second left gang etc., moving left to right across the machine.

ASSEMBLY



STEP 1

Cut all bundling wires and conveniently arrange parts.

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.

STEP 2

Support toolbar on stands approximately 38 to 40 inches high. Locate serial number tag on left end. NOTE: Weld seam on the inside of toolbar must be on top side to allow optional concrete blocks to be installed.

STEP 3

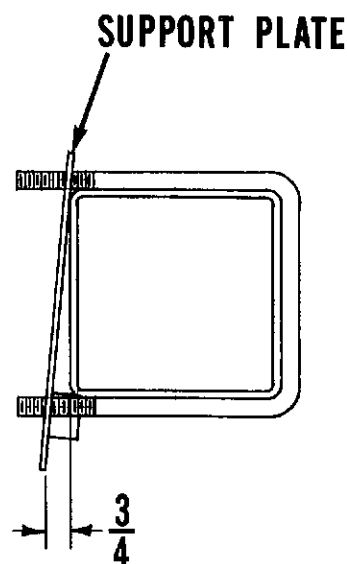
Mark the center of the 7 inch square toolbar. Then mark the centers between the rows as shown in assembly diagrams, pages 51 - 57, by measuring the correct row spacing from the center mark.

STEP 4

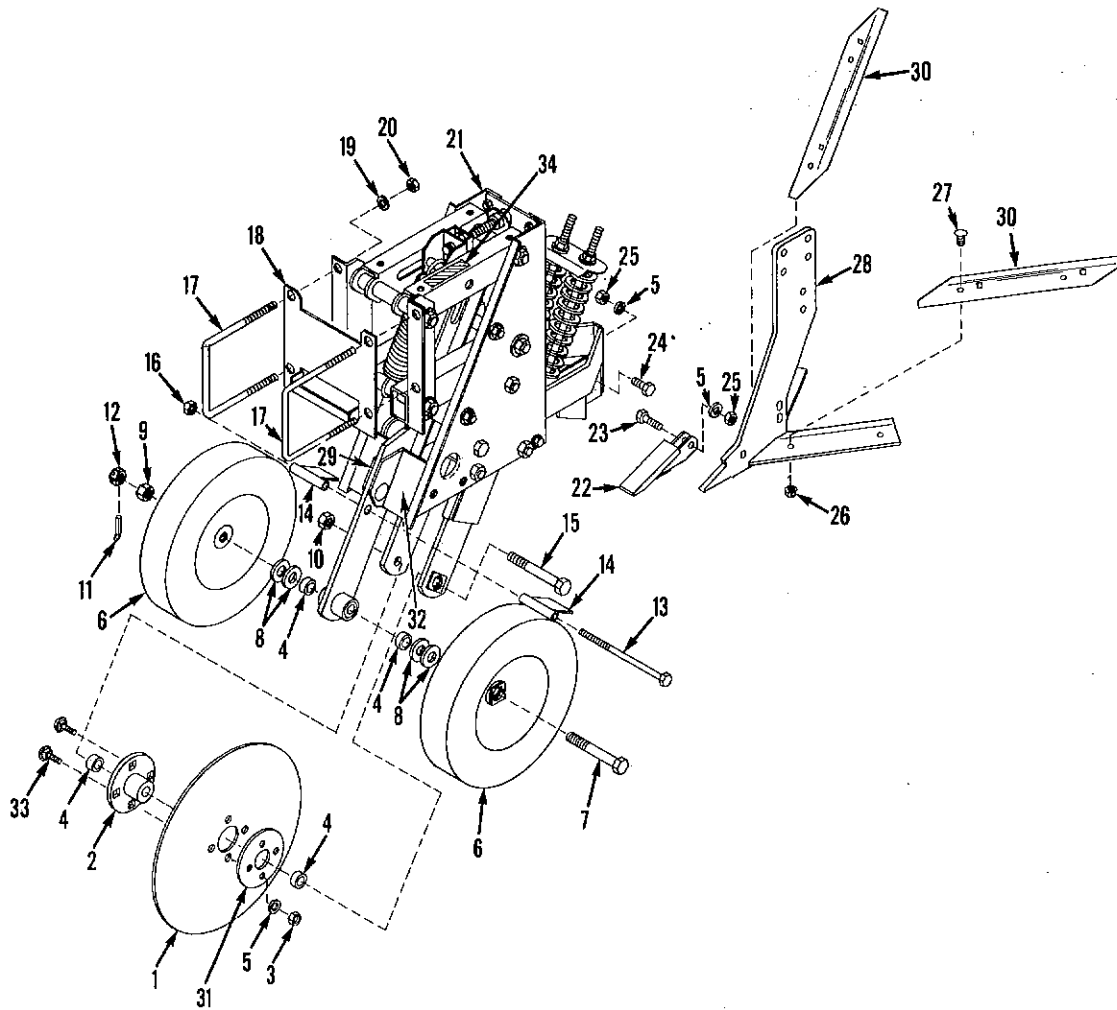
Install one upper three point hitch on the front side of toolbar on center making sure the hitch extends above the toolbar. NOTE: 3-3/4 dimension.

NOTE: The two 3/4 inch U-bolts must pass thru slot in support plate before installing upper hitch to toolbar.

Ridged toolbar only - Install two lower three point hitches to bottom of toolbar using 3/4 inch U-bolts. 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.



TILLAGE UNIT ASSEMBLY



DWG. NO. 1660

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	805-001-001	Coulter Blade 18" Straight	1
	805-003-561	Coulter Blade 20" Flute	1
2	810-002-100	Hub w/Bearing (see page 50)	1
3	951-001-007	1/2 - 13 NC Hex Nut	4
4	810-002-102	Spacer	4
5	952-001-004	1/2 Lockwasher	9
6	810-002-103	Guage Wheel Weld	2
7	810-002-274	3/4 - 10 UNC x 7 Lg. GR. 5 Hex Bolt w/Hole	1
8	952-002-008	3/4 Flatwasher	4
9	951-001-009	3/4 - 10 UNC Hex Nut	1
10	951-005-052	3/4 - 10 UNC Jam Nut	1
11	953-001-017	5/32 x 1-1/2 Lg Cotter Pin	1
12	951-005-076	3/4 - 10 UNC Slotted Nut	1
13	950-001-178	5/8 - 11 UNC x 10 Lg Gr. 5 Hex Bolt	1
14	810-002-263	Scraper Weld	2
15	950-001-192	3/4 - 10 UNC x 5-1/2 GR. 5 Hex Bolt	1
16	951-005-063	5/8 - 11 UNC Lock Nut	1
17	805-001-332	5/8 - U-Bolt	2

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
18	810-002-012	Support Plate	1
19	952-001-005	5/8 Lockwasher	4
20	951-001-008	5/8 - 11 UNC Hex Nut	4
21	810-002-008	Cult. Row Unit Assembly Spring Cushion Shank (See page 42)	1
	810-002-557	Cult. Row Unit Assy Automatic Reset Shank (See page 44)	1
22	810-002-106	Point Weld (with wear point)	1
	810-002-501	Point Weld (heat-treated for rocky soil)	1
23	950-001-125	1/2 - 13 UNC x 1-1/2 Lg GR. 5 Hex Bolt	1
24	950-001-120	1/2 - 13 UNC x 1-3/4 Lg GR. 5 Hex Bolt	4
25	951-001-007	1/2 - 13 UNC Hex Nut	5
26	951-002-003	3/8 - 16 UNC Whiz Nut	4
27	950-007-001	3/8 - 16 UNC x 1" Lg Plow Bolt	4
28	810-002-112	Center Shank Weld	1
	810-002-116	Rh Shank Weld	1
	810-002-117	Lh Shank Weld	1
29	810-002-048	Rh Support	1
30	810-002-432	17" Double Edge Share	2
	810-002-486	19" Double Edge Share	2
	810-002-433	21" Double Edge Share	2
	810-002-434	25" Double Edge Share	2
	810-002-435	27" Double Edge Share	2
31	805-001-015	Backup Washer	1
32	810-002-047	LH Support	1
33	950-003-028	1/2 - 13 UNC x 1-1/4 Lg Carriage Bolt	4
34	810-002-554	Decal	1

The double edge shares are not sold separately. They are sold as a two row option which contains:
4 double edge shares.

STEP 5

For ease of row unit attachment to toolbar, it is important that the following procedure be used. Place all the 5/8" U-bolts on the toolbar. Install the support plates on the U-bolts with the top of the plates touching the rear of the bar and the lower part (with the protruding tabs) pushed onto the U-bolts to within 3/4" of the toolbar. In this position the tabs will just be under the edge of the toolbar. At this time align the support plates to the exact row spacing desired. Next, install row units onto U-bolts. Drawing down the four nuts will force the support plate tabs under the toolbar, resulting in both a square and secure positioning of the row unit assembly.

STEP 6

Gauge wheels are assembled at the factory, with 250 ft/lbs torque on hex bolt (arrow 7). Gauge wheels are shown apart to best show the required adjustment to right and left support (arrow 29 and 32) when larger 20" cutting coulters is used. When installing 18" coulters, supports (arrow 29 and 32) remain in the front set of holes as shown. When installing 20" coulters, mount in rear set of holes.

STEP 7

Install 18" straight coulters or 20" fluted coulters using lock washer and hex nut as shown. Install coulters assembly into fork weld using two spacers and one 3/4 inch x 5-1/2 large bolt (arrow 15) as shown.

NOTE: Head of bolt must be on left side of fork and in lock plate.

STEP 8

Install center shank weld (arrow 28). Right and left hand share (arrow 30) and point weld (arrow 22) as shown.

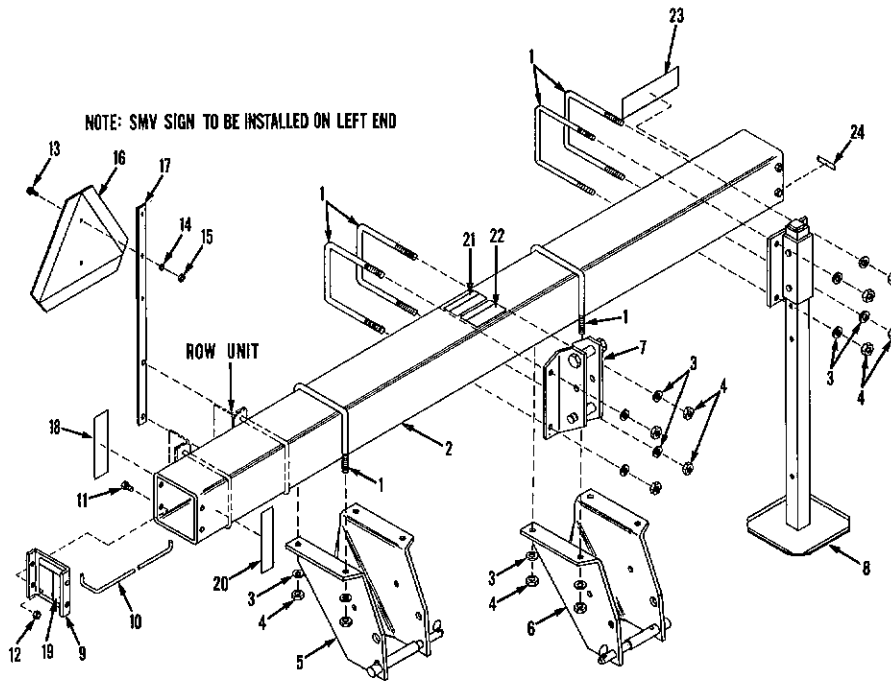
NOTE: Outside tillage units require a right and left hand shank.

STEP 9

Install parking stands onto front side of toolbar as shown in assembly diagrams, pages 50 through 56, and toolbar assemblies, pages 16 and 18.

16 Rigid Toolbar Assembly

RIGID TOOLBAR



DWG. NO. 1644

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	875-001-038	3/4 U-Bolt	10
2	810-002-240	Toolbar (170") (4/36 - 38)	1
	810-002-241	Toolbar (198") (6/30)	1
	810-002-242	Toolbar (246") (6/36 - 38)	1
	810-002-243	Toolbar (258") (8/30)	1
	810-002-244	Toolbar (322") (8/36 - 38)	1
3	952-001-006	3/4 Lockwasher	20
4	951-001-009	3/4 - 10 NC Hex Nut	20
5	810-002-080	Rh Lower Hitch Ass'y (Includes items 1, 3, and 4)	1
6	810-002-079	Lh Lower Hitch Ass'y (includes items 1, 3, and 4)	1
7	810-002-085	Upper Hitch Ass'y (Includes items 1, 3, and 4)	1
8	810-001-920	Parking Stand Ass'y (Includes items 1, 3, and 4)	2
9	810-001-284	End Plate	2
10	810-001-475	Block Removing Rod	1
11	950-002-006	5/16 x 3/4 Whiz Bolt	8
12	951-002-002	5/16 - 18 NC Whiz Nut	8
13	950-001-003	1/4 - 20 NC 1" Hex Bolt	2
14	952-001-001	1/4 Lockwasher	2
15	951-001-003	1/4 - 20 NC Hex Nut	2
16	850-001-354	SMV Sign	1
17	815-001-004	SMV Mount Strap	1
18	850-001-305	Tape Reflector (red)	2
19	810-001-473	Notice Decal	1
20	850-001-285	Tape Reflector (yellow)	2
21	850-002-426	Caution Decal	1
22	810-001-821	Notice Decal	1
23	860-001-183	Hiniker Decal	2
24	810-002-491	Patent Decal	1

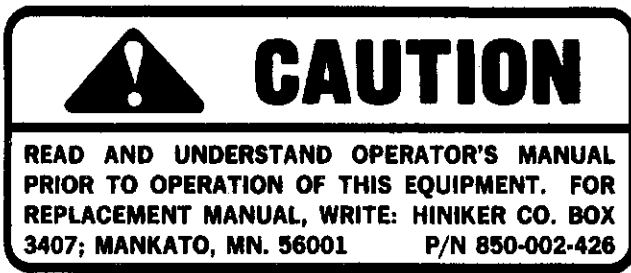
STEP 10

(Rigid toolbars) Install SMV bracket and sign, on left end of toolbar, over tillage unit mount angle, as shown in assembly diagrams, pages 52 through 54.

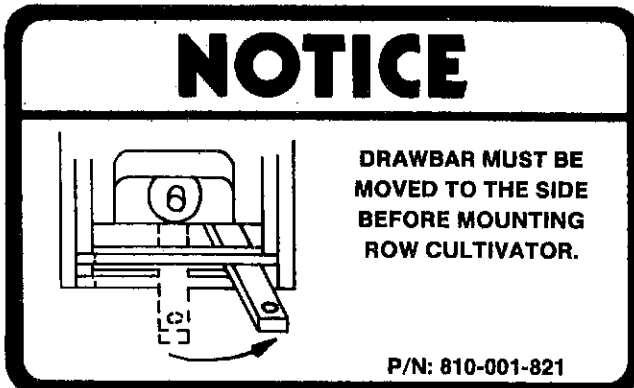
STEP 11

(Rigid toolbars) Install (2) 850-001-305 red reflective tapes (arrow 18) on the outer rear of toolbar. One on each end. Install (2) 850-001-285 yellow reflective tapes (arrow 20) on the outer front of toolbar. One on each end. Install the other caution, notice and pat/pending decals as listed below.

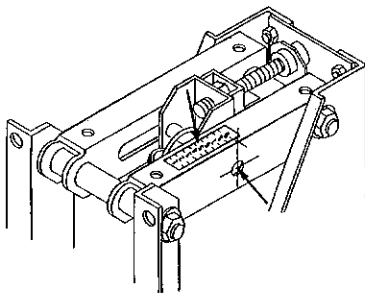
DECAL IDENTIFICATION AND PLACEMENT



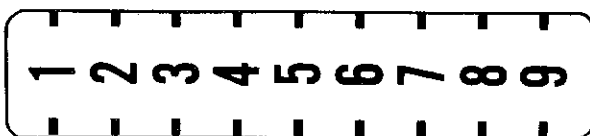
Decal (1) 850-002-426 (arrow 21) on toolbar top on centerline.



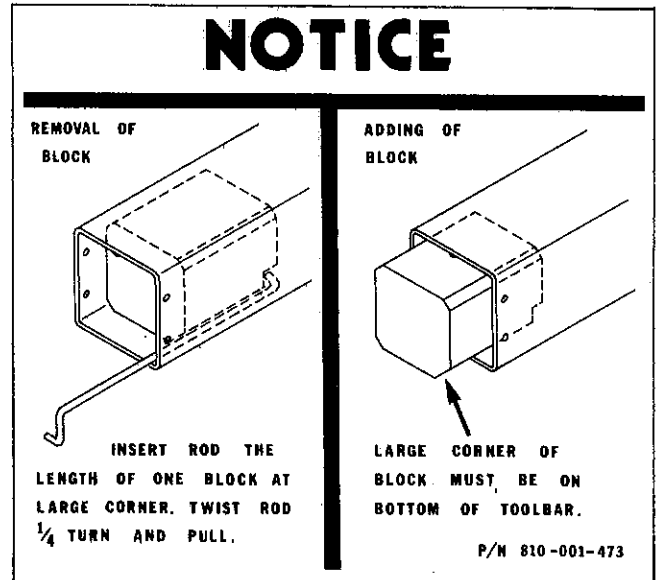
Decal (1) 810-001-821 (arrow 22) on toolbar top on centerline.



DWG. NO. 2263



Decal (1 per row unit) 810-002-554 on top of linkage with No. 9 on decal in line with center of hole on side of linkage.



Decal (1) 810-001-473 (arrow 19) on end cover without serial number tag.



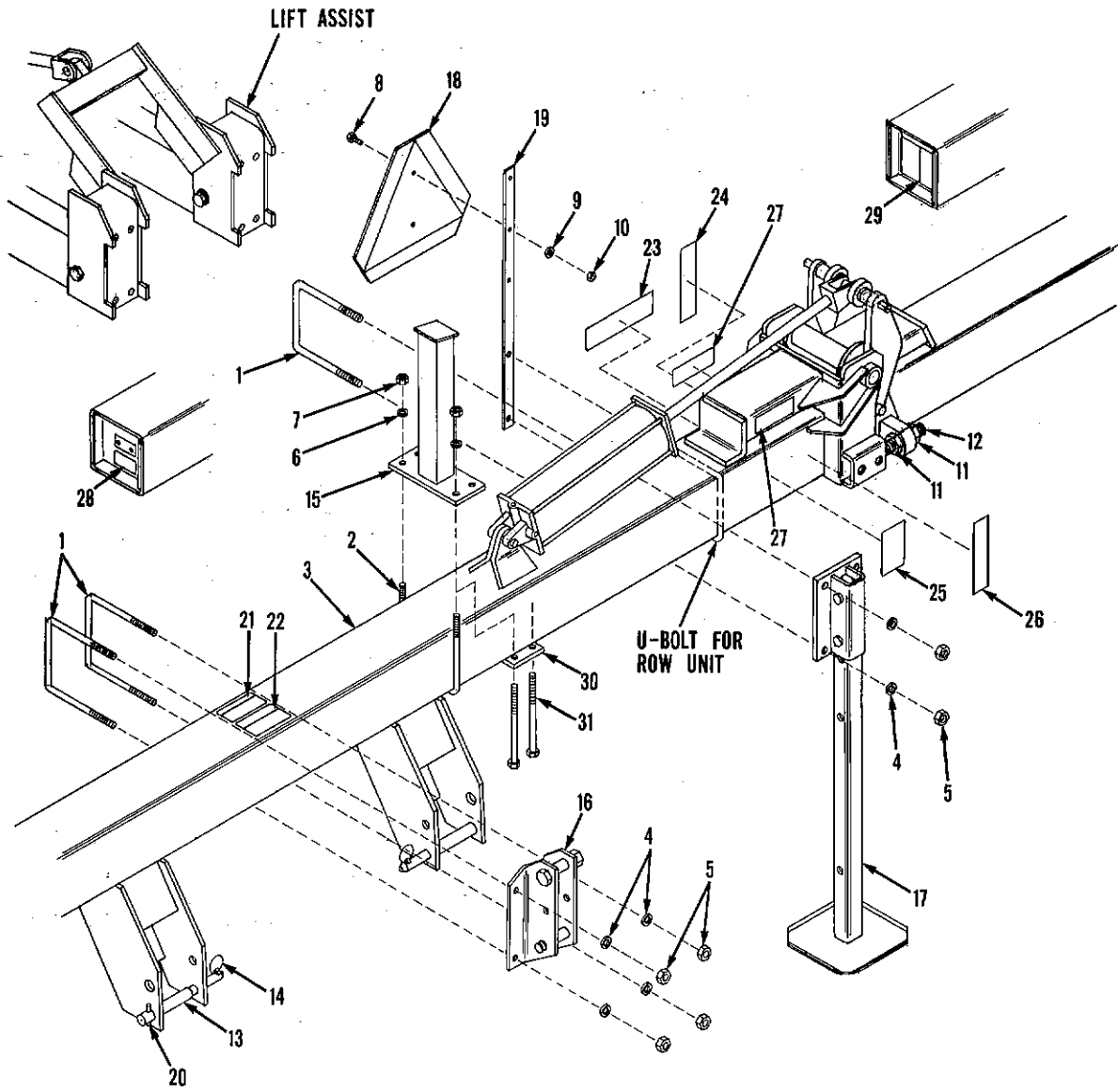
Decal (1) 810-002-491 (arrow 24) Pat. No. on end cover under serial number tag.



Decal (2) 860-001-183 (arrow 23) on toolbar between tillage units on outside.

18 Folding Toolbar Assembly

FOLDING TOOL BAR



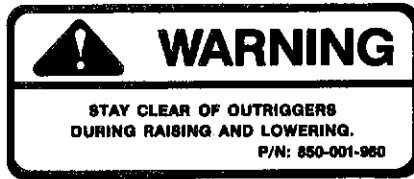
ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	875-001-038	3/4 U-Bolt	6
2	805-001-332	5/8 U-Bolt (12 row 30) (16 row 30) Only	4
3	810-002-316	Toolbar Assembly (8/30 Fold)	1
	810-002-318	Toolbar Assembly (8/36 - 38 Fold)	1
	810-002-166	Toolbar Assembly (12/30 Fold)	1
	810-002-319	Toolbar Assembly (12/36 - 38 Fold)	1
	810-002-322	Toolbar Assembly (16/30 Fold)	1
4	952-001-006	3/4 Lockwasher	12
5	951-001-009	3/4 - 10 NC Hex Nut	12
6	952-001-005	5/8 Lockwasher	8
7	951-001-008	5/8 - 11 NC Hex Nut	8
8	950-001-003	1/4 - 20 NC x 1" Hex Bolt	2
9	952-001-001	1/4 Lockwasher	2
10	951-001-003	1/4 - 20 NC Hex Nut	2
11	951-001-022	1-1/4 - 7 NC Hex Nut	4
12	850-002-503	1-1/4 Eye Bolt	2
13	810-002-485	Lower Hitch Pin	2
14	230-026-005	Klik Pin	2
15	810-002-164	Stand Weld	2
16	810-002-085	Upper Hitch Assembly (Includes Items 1, 4, & 5)	1
17	810-001-920	Parking Stand Assembly (Includes Items 1,4, & 5)	2
18	850-001-354	SMV Sign	1
19	815-001-004	SMV Mount Strap	1
20	953-003-002	1/2 x 2-1/2 Spring Pin	2
21	850-002-426	Caution Decal	1
22	810-001-821	Notice Decal	1
23	860-001-183	Hiniker Decal	2
24	850-001-305	Tape Reflector (Red)	2
25	850-001-306	Warning Decal	2
26	850-001-285	Tape Reflector (Yellow)	2
27	850-001-980	Warning Decal	4
28	810-002-491	Patent Decal	1
29	810-001-473	Notice Decal	1
30	810-001-411	Base Plate (8 Row Wide) (12 Row Wide)	2
31	950-001-227	5/8 - 11 NC x 9" Lg H.H.C.S Gr. 5 (8 Row Wide) (12 Row Wide)	8

20 Folding Toolbar Assembly

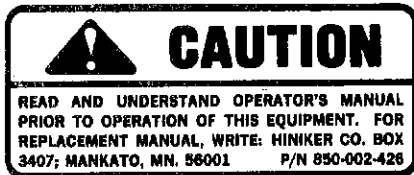
STEP 12

(Folding toolbar) Install SMV bracket (arrow 19) and sign on left end of center frame of folding toolbar over tillage unit mount angle as shown in assembly diagrams. Pages 55 through 57.

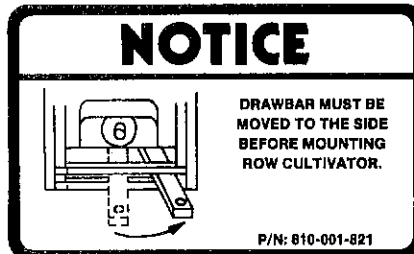
DECAL IDENTIFICATION AND PLACEMENT



Decal (4) 850-001-980 (arrow 27) on hinge tube.



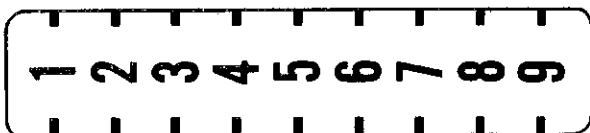
Decal (1) 850-002-426 (arrow 21) on toolbar top on centerline.



Decal (1) 810-001-821 (arrow 22) on toolbar top on centerline.



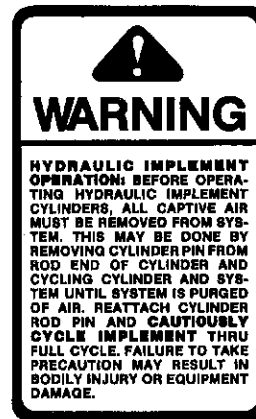
Decal (1) 810-002-491 (arrow 28) on wing end cover under serial number tag.



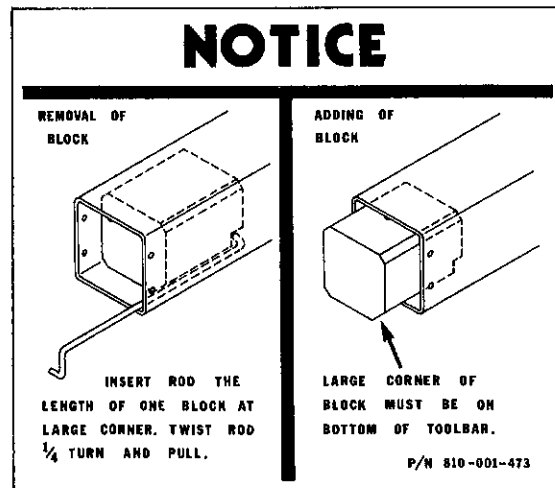
Decal (1 per row unit) 810-002-554 on top of linkage with No. 9 on decal in line with center of hole on side of linkage. Mounting instruction see page 17.

STEP 13

(Folding toolbar) Install (2) 850-001-305 red reflective tapes (arrow 24) on the outer rear of center frame. One on each end. Install (2) 850-001-285 yellow reflective tape (arrow 26) on the outer front of center frame. One on each end. Install the other caution notice and PAT/PEN decal as listed below.



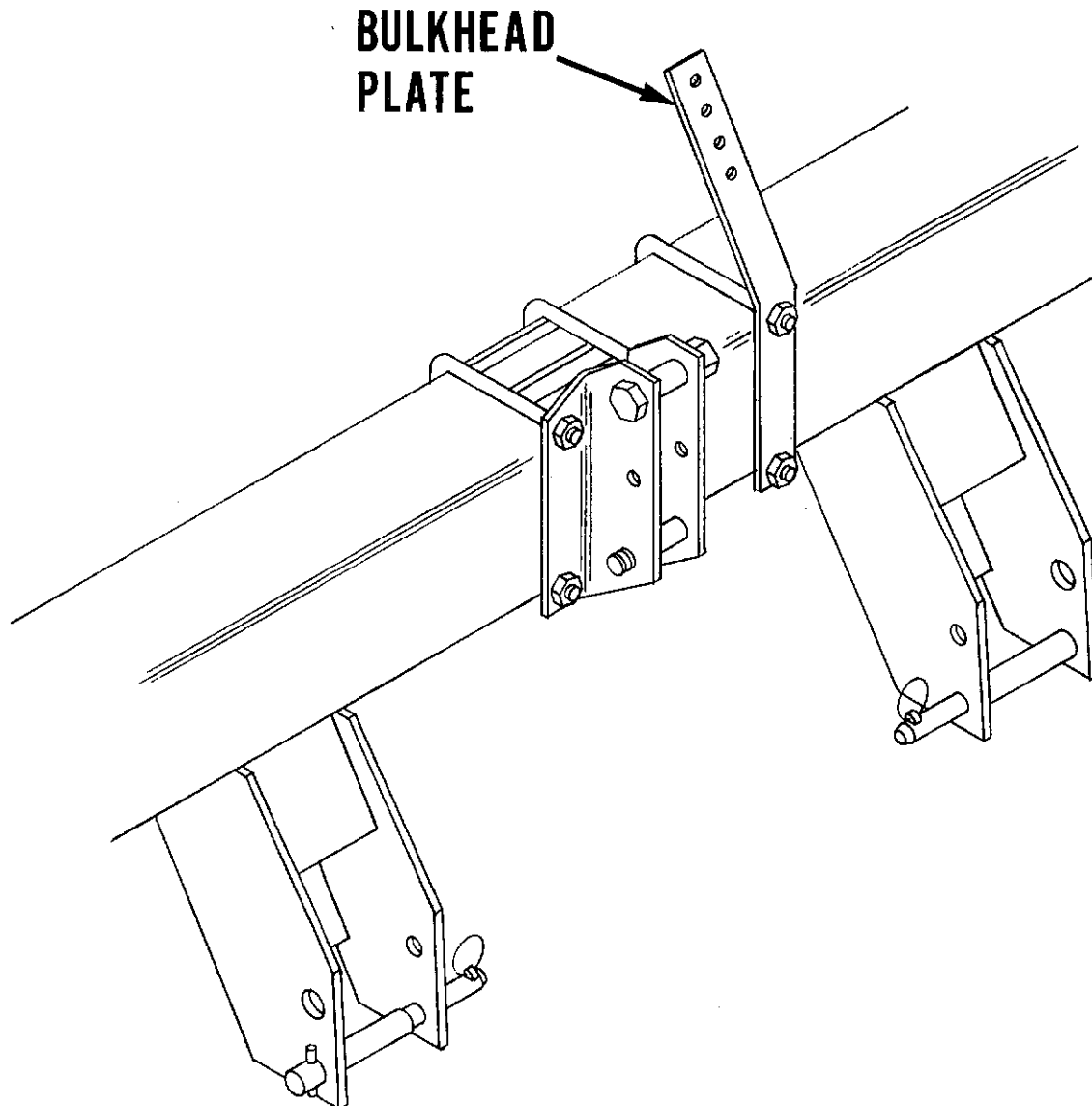
Decal (2) 850-001-306 (arrow 25) on front side of toolbar. One on each end.



Decal (1) 810-001-473 (arrow 29) on wing end cover without serial number tag.



Decal (2) 860-001-183 (arrow 23) on rear side of center frame toolbar between tillage unit on outside. One on each side.



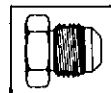
DWG. NO. 1664

Install bulkhead plate as shown using 5/8 U-bolt. Install hydraulic fittings and hoses as shown on plumbing diagrams page 16.

Inspect all hydraulic fittings and hoses for damage, wear, and tightness. Ensure that all hoses are secured to frame in such a manner as to prevent possible damage or wear due to chafing or pinching by moving parts.

NOTE: DO NOT overtighten hydraulic fittings. Fittings should be installed and tightened in accordance to Hydraulic Fitting Installation Procedures.

HYDRAULIC FITTING INSTALLATION PROCEDURES AND TORQUE TABLE



SAE Flare Connection

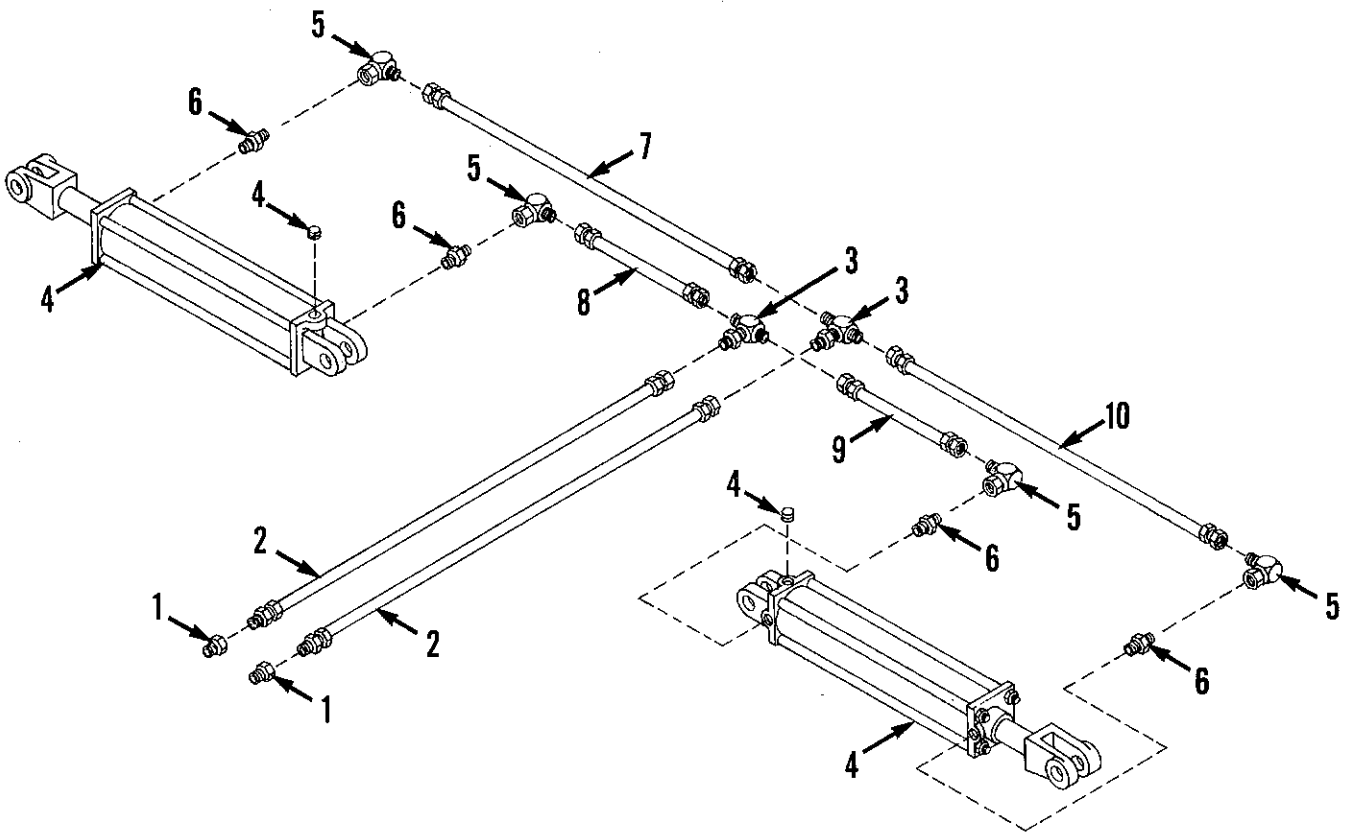
- 1) Tighten nut finger tight until it bottoms the seat.
- 2) Using a wrench, rotate nut to tighten. Turn nut 1/3 turn to apply proper torque.



SAE Straight Thread "O" Ring Seal

- 1) Insure jam nut and washer are backed up to the back side of smooth portion of elbow adapter.
- 2) Lubricate "O" Ring --VERY IMPORTANT!
- 3) Thread into port until washer bottoms onto spot face.
- 4) Position elbows by backing up adapter.
- 5) Tighten jam nut.

ASSEMBLY
HYDRAULIC PLUMBING
DIAGRAM FOLDING TOOLBAR
ALL FOLDING MODELS

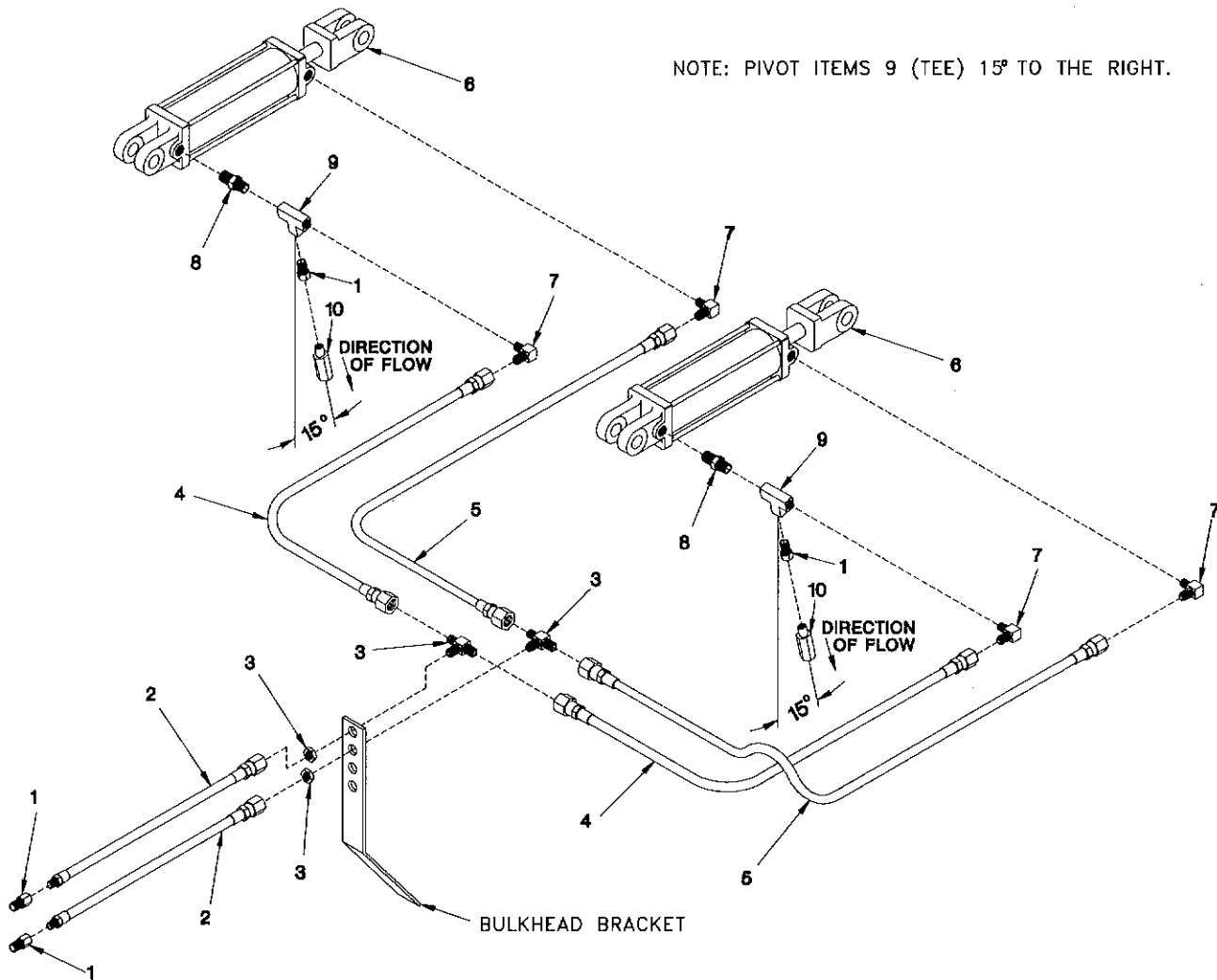


ASSEMBLY
HYDRAULIC PLUMBING
DIAGRAM FOLDING TOOLBAR
ALL FOLDING MODELS

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	956-004-002	Reducer Bushing 1/2 - 14 Male NPT To 3/8 - 18 Female NPT	2
2	957-002-014	3/8 Inch Hose Assembly (48 Inches)	2
3	956-007-003	Bulkhead Tee, 9/16 - 18 Male 37 Degree JIC To 9/16 - 18 Male 37 Degree JIC	2
4	81002579	4.00 Inch Diameter x 16 Inch Stroke Cylinder 8 Row 36, 38, 12 Row 30	2
	81002580	3.50 Inch Diameter x 16 Inch Stroke Cylinder 8 Row 30	2
	81002581	5.00 Inch Diameter x 16 Inch Stroke Cylinder 12 Row 36, 38, 16 Row 30	2
5	956-005-002	90 Degree Elbow, 9/16 - 18 Female 37° JIC To 9/16 - 18 Male 37 Degree JIC	4
6	956-008-024	Restrictor Fitting, 3/4 - 16 Male SAE Oring To 9/16 - 18 Male 37° JIC	4
6A	956-008-025	Restrictor Fitting 7/8 - 14 Male SAE Oring To 9/16 - 18 Male 37° JIC (12 Row 36/38 & 16 Row 30)	4
7	957-001-009	3/8 Inch Hose Assembly 50 Inch 8 Row 30	1
	957-001-017	3/8 Inch Hose Assembly 72 Inch 8 Row 36, 38	1
	957-001-018	3/8 Inch Hose Assembly 79 Inch 12 Row 30	1
	957-001-021	3/8 Inch Hose Assembly 102 Inch 12 Row 36, 38	1
	957-001-056	3/8 Inch Hose Assembly 108 Inch 16 Row 30	1
8	957-001-004	3/8 Inch Hose Assembly 29 Inch 8 Row 30	1
	957-001-009	3/8 Inch Hose Assembly 50 Inch 8 Row 36, 38	1
	957-001-014	3/8 Inch Hose Assembly 60 Inch 12 Row 30	1
	957-001-057	3/8 Inch Hose Assembly 86 Inch 12 Row 36, 38	1
	957-001-019	3/8 Inch Hose Assembly 92 Inch 16 Row 30	1
9	957-001-006	3/8 Inch Hose Assembly 41 Inch 8 Row 30	1
	957-001-015	3/8 Inch Hose Assembly 68 Inch 8 Row 36, 38	1
	957-001-018	3/8 Inch Hose Assembly 79 Inch 12 Row 30	1
	957-001-021	3/8 Inch Hose Assembly 102 Inch 12 Row 36,38	1
	957-001-056	3/8 Inch Hose Assembly 108 Inch 16 Row 30	1
10	957-001-014	3/8 Inch Hose Assembly 60 Inch 8 Row 30	1
	957-001-057	3/8 Inch Hose Assembly 86 Inch 8 Row 36, 38	1
	957-001-020	3/8 Inch Hose Assembly 96 Inch 12 Row 30	1
	957-001-054	3/8 Inch Hose Assembly 120 Inch 12 Row 36, 38	1
	957-001-023	3/8 Inch Hose Assembly 126 Inch 16 Row 30	1

24 Dual Lift Assist Wheel Assembly

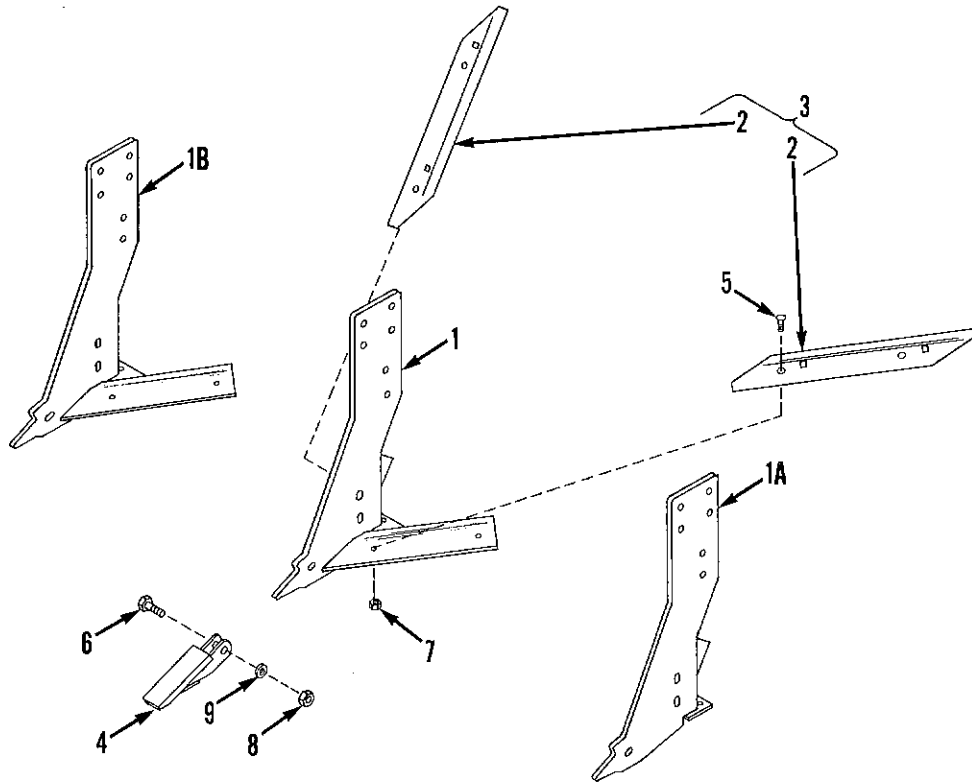
16 ROW 30
DUAL LIFT ASSIST WHEEL PLUMBING



DWG. NO. 2533

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	956-004-002	Reducer Bishing, 1/2-14 Male NPT to 3/8-18 Female NPT	4
2	957-002-014	3/8 x 48 Inches 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 Brach	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 1/2 NPT Ports	2
7	956-005-003	90°, 1/2-14 Male NPT to 9/16-18 Male 37° JIC	4
8	203-51201	STR Adapter 1/2 Male NPT	2
9	956-007-002	Street Tee 1/2 Female NPT	2
10	956-008-022	Relief Valve 3/8 Female NPT	2

OPTIONAL EQUIPMENT
ASSEMBLY INSTRUCTION AND OPERATION ADJUSTMENT



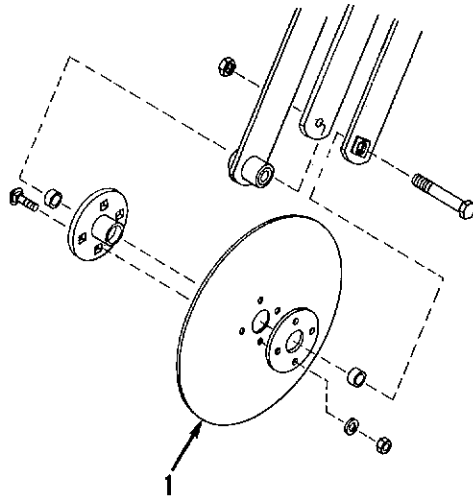
DWG. NO. 1655

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	810-002-112	Center Shank Weld	1
1A	810-002-116	Rh Shank Weld	1
1B	810-002-117	Lh Shank Weld	1
2	810-002-432	17" Double Edge Share	2
	810-002-486	19" Double Edge Share	2
	810-002-433	21" Double Edge Share	2
	810-002-434	25" Double Edge Share	2
	810-002-435	27" Double Edge Share	2
3	5033-17	17" Double Edge Share Option 2 Row	
	5033-19	19" Double Edge Share Option 2 Row	
	5033-21	21" Double Edge Share	
	5033-25	25" Double Edge Share Option 2 Row	
	5033-27	27" Double Edge Share Option 2 Row	
4	810-002-106	Point Weld (with wear pad point)	1
	810-002-501	Point Weld (heat treat for rocky soil)	1
5	950-007-001	3/8 - 16 UNC x 1" Plow Bolt	4
6	950-001-125	1/2 - 13 UNC x 1-1/2 Hex Bolt GR. 5	1
7	951-002-003	3/8 - 16 UNC Whiz Nut	4
8	951-001-007	1/2 - 13 UNC Whiz Nut	1
9	952-001-004	1/2 Lockwasher	1

The double edge share are not sold separately. They are sold as a two row opt. which contains: 4 double edge shares see item 3 for order no.

26 Optional Equipment Assembly

CUTTING COULTER

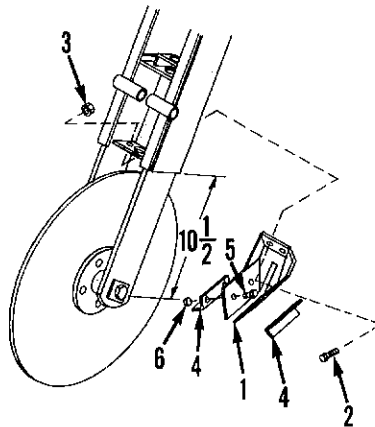


NOTE: When 20" fluted coultters are installed, gauge wheel support must be moved into forward position. See page 15, step 6.

DWG. NO. 1652

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	805-001-001 805-003-561	18" Straight Coultter 20" Fluted Coultter	1 1

COULTER SCRAPER

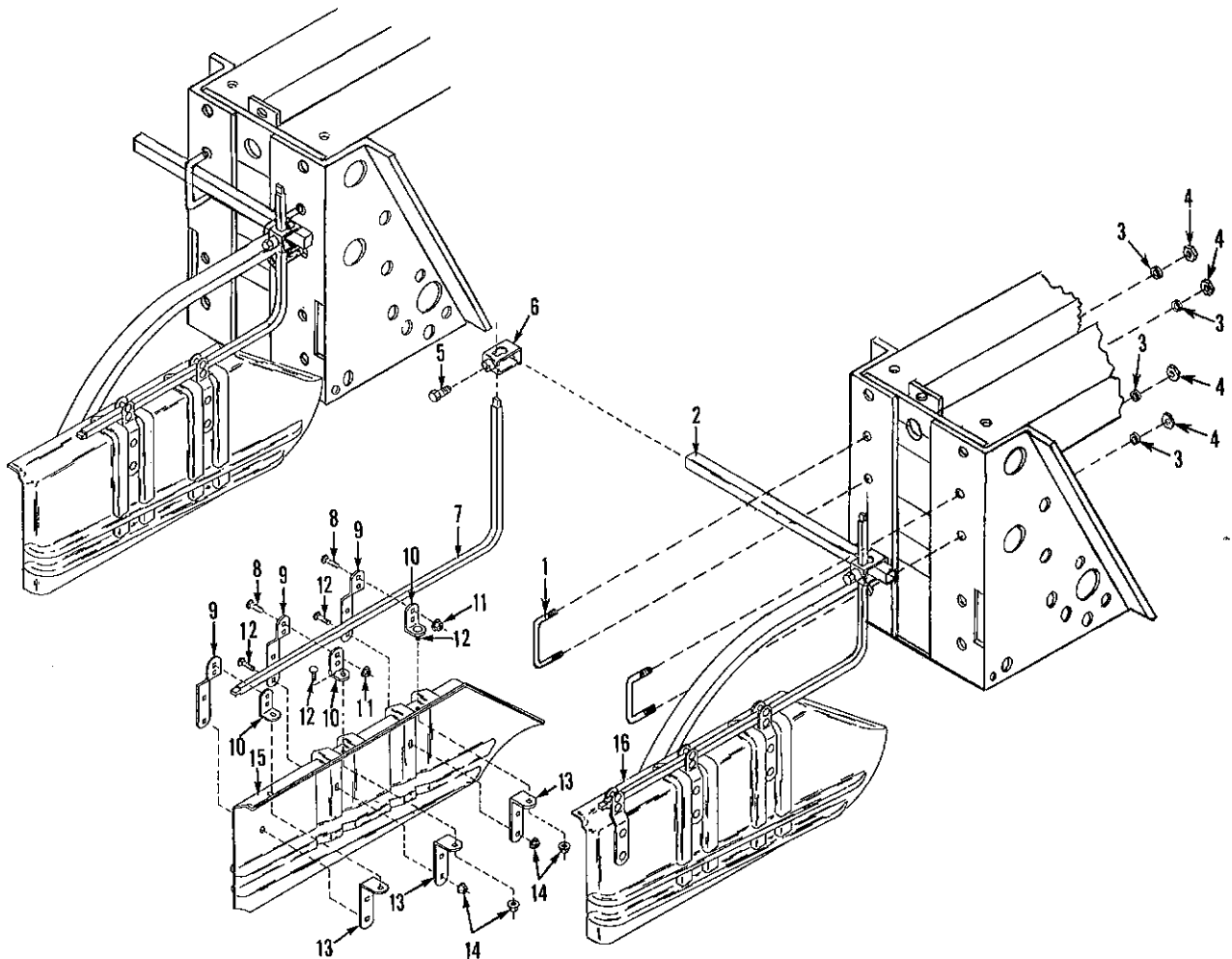


NOTE: To install Coultter Scraper, first move coultter support bracket down to the 10-1/2" dimension, then install scraper as shown. Then readjust coultter support bracket to 6" or to match field trash conditions.

DWG. NO. 1735

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	810-002-394	Scraper	1
2	950-002-009	3/8" - 16 UNC x 1" Whiz Bolt	2
3	951-002-003	3/8" - 16 UNC Whiz Nut	2
4	810-002-430	Angle	2
5	950-002-020	1/4 - 2- UNC x 1/2 Whiz Lock Bolt	4
6	951-002-001	1/4 - 20 UNC Whiz Lock Nut	4

PLASTIC SHIELDS

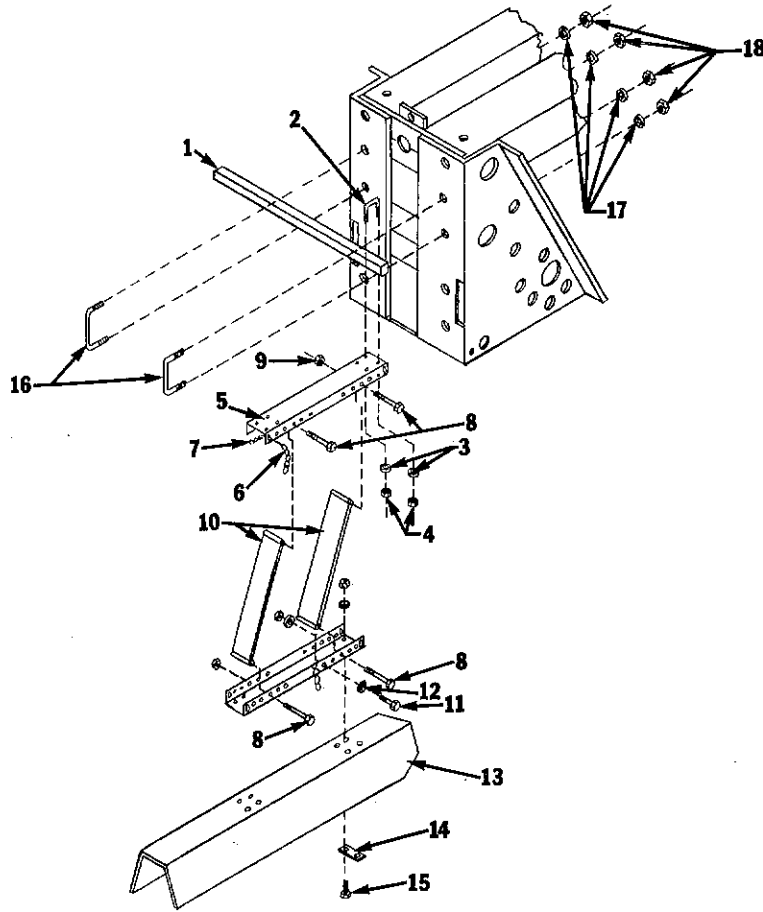


NOTE: This feature is not available with automatic reset shanks.

DWG. NO. 1939

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	810-002-216	1/2 x 2 Center U-Bolt	2
2	810-001-879	Mount Tube	1
3	952-001-004	1/2 Lockwasher	4
4	951-001-007	1/2 Hex Nut	4
5	950-001-166	3/4 x 2 Hex HD Bolt GR. 5	2
6	810-001-884	Clamp Weld	2
7	810-001-876	Shield Rod	2
8	950-003-009	3/8 x 1-3/4 Carr. Bolt Gr. 2	12
9	810-001-882	Outside Mount Bracket	6
10	810-001-881	Mount Bracket	6
11	951-002-003	3/8 Whiz Lock Nut	12
12	950-003-004	5/16 x 1" Carr. Bolt GR. 2	18
13	810-001-880	Inside Mount Bracket	6
14	951-002-002	5/16 Whiz Lock Nut	18
15	810-001-834	Right Plastic Shield	1
16	810-001-835	Left Plastic Shield	1

METAL TUNNEL SHIELDS

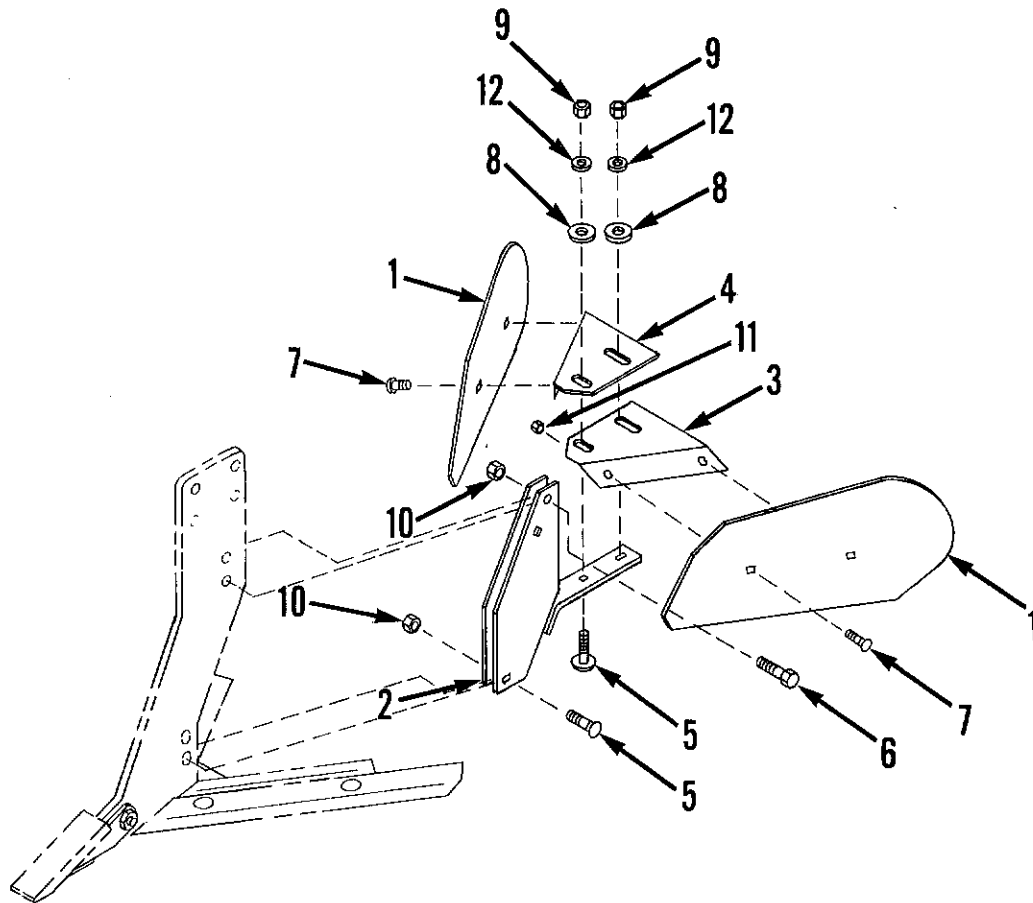


NOTE: This feature not available with automatic reset shanks.

DWG. NO. 1938

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	810-001-647	Tunnel Mount Tube	1
2	810-001-650	1-7/8 U-Bolt	4
3	952-001-007	3/8 Lockwasher	18
4	951-001-005	3/8 Hex Nut	18
5	810-001-640	Tunnel Channel	2
6	810-001-174	Chain	2
7	953-005-002	.178 x 3-9/16 Hair Pin Cotter	2
8	950-001-124	1/2 x 4 Hex HD Bolt GR. 5	8
9	951-005-023	1/2 Mac. Lock Nut	8
10	810-001-641	Pivot Strap Weld	4
11	950-001-105	3/8 x 1" Hex HD Bolt GR. 5	2
12	952-002-003	3/8 Flatwasher	2
13	810-001-648	Tunnel	2
14	810-001-649	Reinforcement Strap	4
15	950-003-029	3/8 x 1" Carr. Bolt	8
16	810-002-216	1/2 x 2 Center U-Bolt	2
17	952-001-004	1/2 Lockwasher	4
18	951-001-007	1/2 - 13 Hex Nut	4

RIDGERS



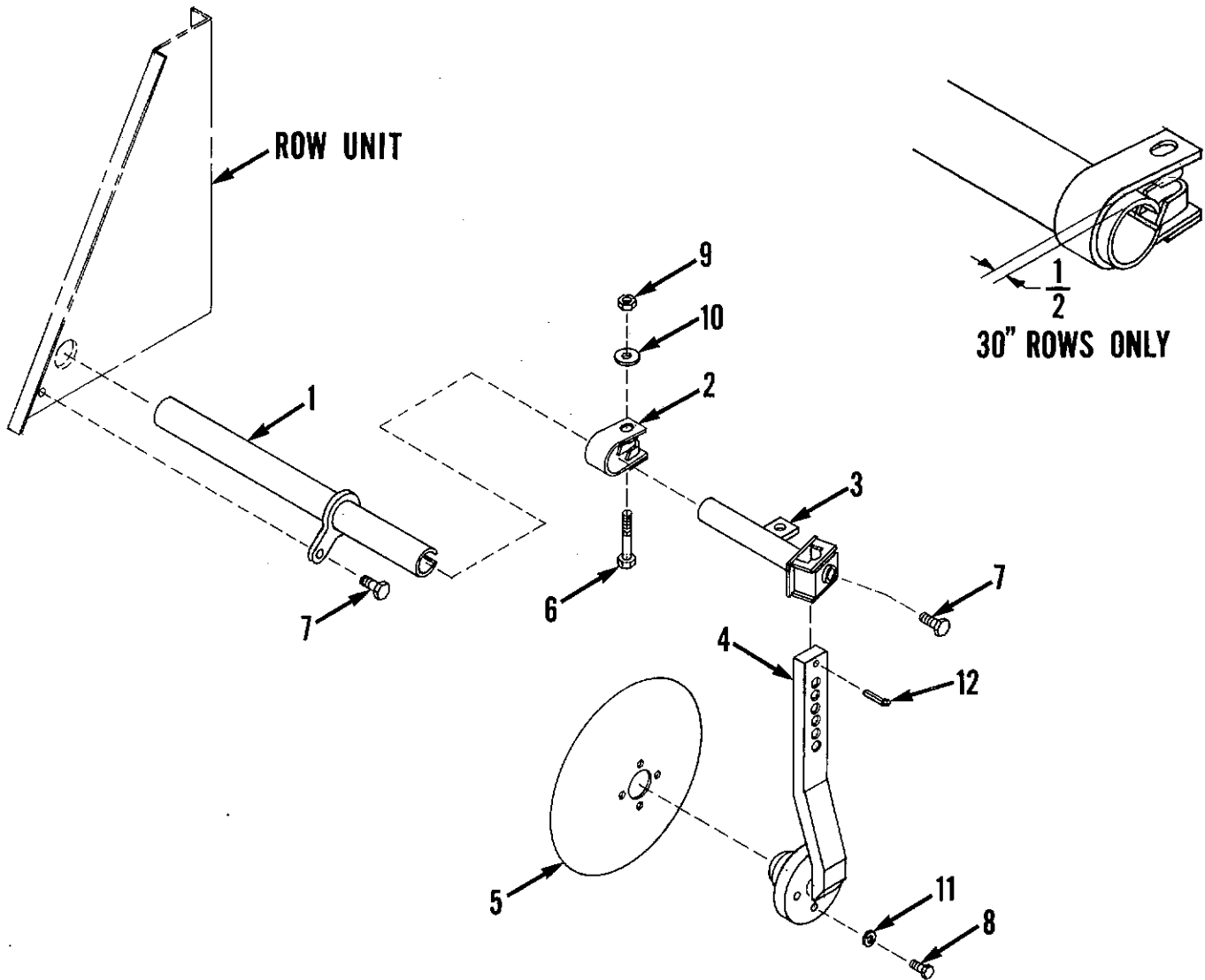
DWG. NO. 1656

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	810-002-124	Ridger Wings	2
2	810-002-127	Support Weld	1
3	810-002-125	LH Support	1
4	810-002-126	RH Support	1
5	950-003-019	1/2 - 13NC x 1-1/2 Carriage Bolt	3
6	950-002-013	1/2 - 13NC x 1-1/2 Whiz Bolt	1
7	950-003-054	3/8 - 16NC x 3/4 Carralage Bolt	4
8	952-004-059	Heavy Flat Washer	2
9	951-001-007	1/2 - 13NC Hex Nut	2
10	951-005-055	1/2 Machine Lock Nut	2
11	951-002-003	3/8 - 16NC Whiz Nut	4
12	952-001-004	1/2 Lock Washer	2

Install support weld (arrow 2) onto shank as shown. Ridger can adjust in width by loosening hex nut (arrow 9), slide ridge wings (arrow 1) to desired width to match row spacing and ground speed. If required to have more soil left behind ridger, sup-

port weld (arrow 2) can be moved up onto the second set of holes.

CUTAWAY DISC



NOTE: This feature is not available with automatic reset shanks.

DWG. NO. 1654

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	810-002-092	Tube Weld (30 Inch Rows)	1
	810-002-279	Tube Weld (36/38 Inch Rows)	1
2	810-002-096	Clamp Weld	2
3	810-002-070	Support Weld	2
4	810-002-088	Spindle Assembly	2
5	805-001-002	Concave Disc	2
6	950-001-174	Hex Bolt 3/4 - 10NC x 3-1/2; Grade No. 5	2
7	950-001-028	Hex Bolt 3/4 - 10 NC x 1-1/2; Grade No. 5	3
8	950-001-086	Hex Bolt 1/2 - 20NF x 1"; Grade No. 5	8
9	951-005-033	Locknut 3/4 - 10NC	2
10	952-002-008	3/4 Flat Washer	2
11	952-001-004	1/2 Lockwasher	8
12	953-001-012	1/4 x 2 Cotter Pin	2

Beginning on the right end row unit, install cutaway tube weld (arrow 1) securing with one 3/4" x 1-1/2" hex bolt into welded nut inside left hand mast plate. Install support weld (arrow 3) and clamp assemblies (arrow 2) in cutaway tube weld, end row unit.

NOTE: Clamp hex bolt (arrow 6) must be installed from the bottom and clamp weld (arrow 2) must have hex. Lock plate on bottom, as shown.

Repeat process on second row unit from right, inserting cutaway tube weld through row unit and support and clamp assemblies BEFORE hex bolt is installed into mast plate. Continue process right to left across cultivator.

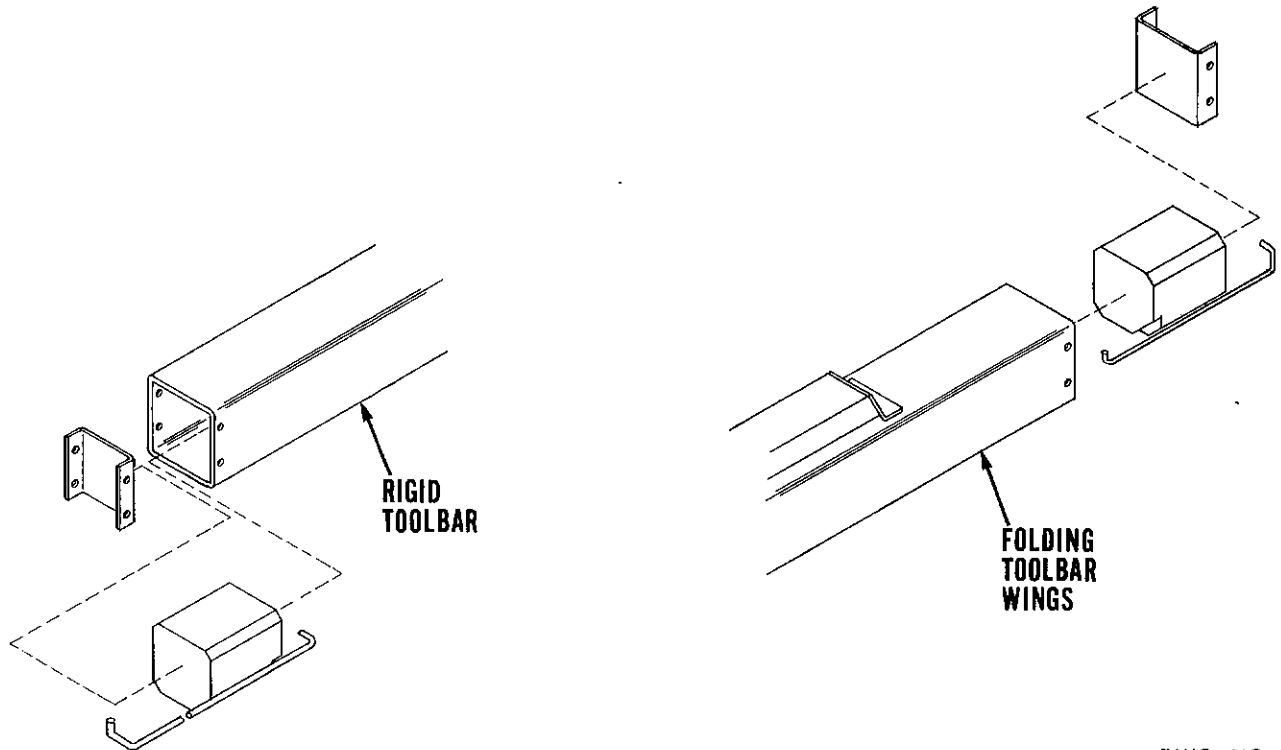
Install cutaway disc (arrow 5) large center hole over shank of spindle assemblies (arrow 4), securing with bolts and washers as shown. Install shank of this assembly through support weld (arrow 3) and secure with both adjustment bolt and cotter pin (arrow 7 and 12).

NOTE:

1. On 30" row spacing - clamp weld must not be slid in any more than 1/2" from end of tube weld (arrow 1).

2. On 36" row spacing only - to improve disassembly of support weld (arrow 3) from tube weld (arrow 1), 1-1/2" may be cut off each end of tube weld (arrow 1). Use a saw to cut it off, DO NOT use a torch.

CONCRETE BLOCKS



DWG. NO. 1666

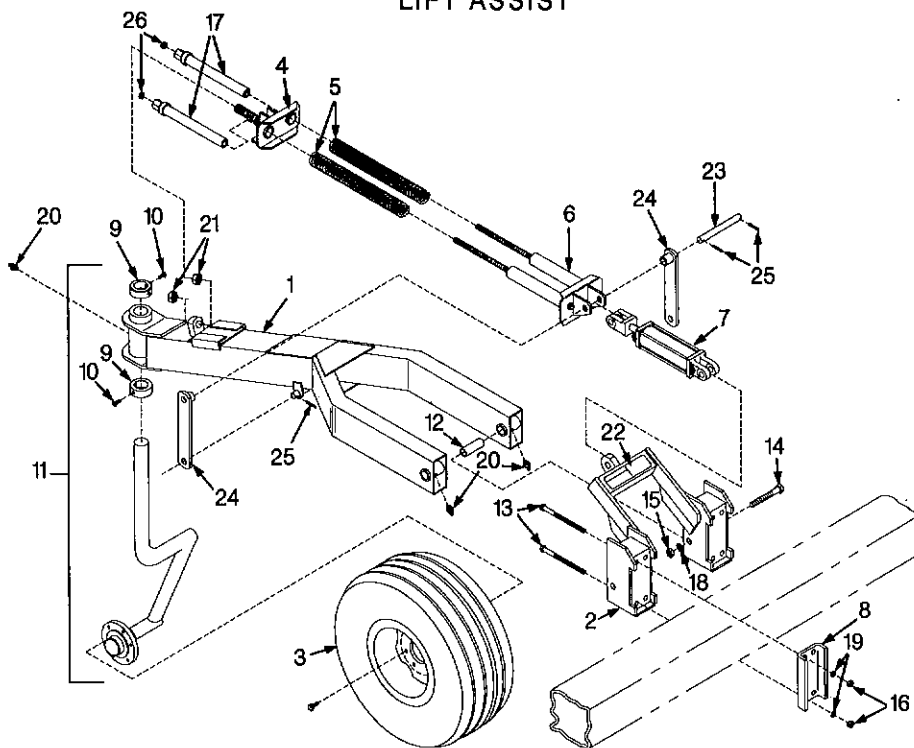
ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	810-001-176	Concrete Blocks	see below

QUANTITY REQUIRED

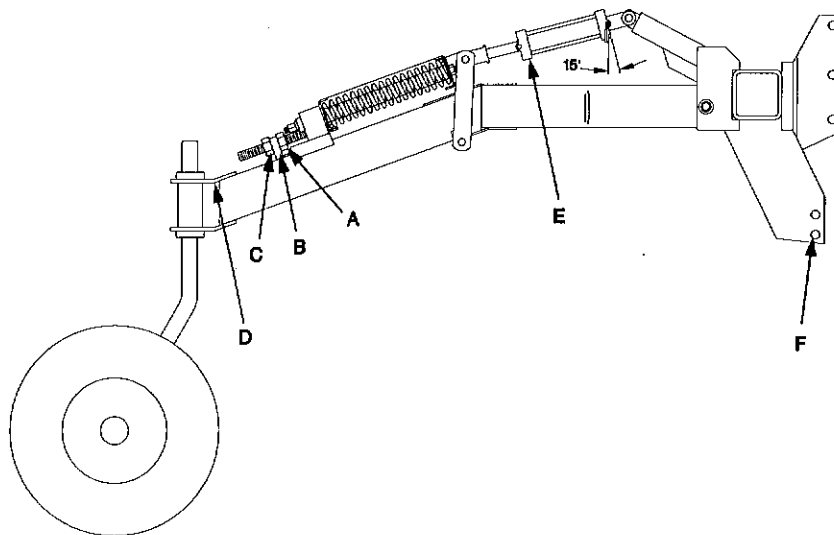
RIGID TOOLBAR		FOLDING TOOLBAR	
4 Row 36-38 Inch Rigid	= 21	8 Row 30 Inch Folding	= 12
6 Row 30 Inch Rigid	= 25	8 Row 36-38 Inch Folding	= 16
6 Row 36-38 Inch Rigid	= 31	12 Row 30 Inch Folding	= 20
8 Row 30 Inch Rigid	= 32	12 Row 36-38 Inch Folding	= 26
8 Row 36-38 Inch Rigid	= 41	12 Row 30 Inch Folding	= 28

32 Optional Equipment Assembly

LIFT ASSIST



DWG. NO. 2529



*NOTE: This Feature is not available with automatic reset shanks.

DWG. NO. 2530

INSTALLATION INSTRUCTION

1. Install front mast item 2, to toolbar, then install rear frame, item 1, as shown.
2. Install front 1 1/4 hex nut A to anchor weld, item 4. Note: Screw nut all the way on. Slide anchor weld, item 4 thru the anchor tab, B. Now install rear 1 1/4 hex nut, C, as shown.
3. Install springs, item 5, then front guide weld, item 6, using 3/4 flat washer and 3/4 lock nut,

item 26, as shown. Screw 3/4 lock nut down unit. Overall spring length is 22 inches.

4. Install fully retracted hydraulic cylinder (rod end to rear) with relief valve and hydraulic fittings as shown on page 1 or 4.
5. With row cultivator sweeps on the level ground or shop floor, lift rear frame, item 1, at point D with a lift chain. Raise until spring, item 5, has collapsed to 19 inches. Then retighten 3/4 lock nut, item 26, to back side on anchor weld, item 4.

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	81002664	Rear Frame Weld	1
2	810-002-181	Front Mast Weld	1
3	850-001-568	9.5L x 15 Tire and Rim Assembly	1
4	81002661	Rear Anchor Weld	1
5	880-001-071	Compression Spring	2
6	81002660	Front Guide Weld	1
7	80503830	3 x 8 Cylinder	1
8	810-001-210	Hitch Channel	2
9	805-001-105	Stem Collar	2
10	950-008-009	Sqare Head Set Screw 1/2-13 UNC x 1	2
11	805-001-191	Caster Stem ASsembly (includes items 9 & 10)	1
12	810-002-188	Sleeve	2
13	950-001-151	Bolt, Hex 3/4-10 UNC x 9, GR. 5	8
14	950-001-186	Bolt Hex 1-8 UNC x 6, GR. 5	2
15	951-001-024	Hex Nut, 1-8 UNC, GR. 5	2
16	951-001-009	Hex Nut 3/4-10 UNC	8
17	81002655	Spring Guide Weld	2
18	952-001-009	Lock Washer, 1 Inch	2
19	952-001-006	Lock Washer, 3/4 Inch	8
20	955-001-001	Grease Fitting, 1/8-27 NPT	3
21	951-001-022	Hex Nut 1 1/4-7 UNC	2
22	81002607	Decal, Caution	1
23	81002648	Cyl Arm Pin	1
24	81002647	Link Arm Weld	2
25	953-003-017	Slotted Spring Pin, 5/16 x 2	4
26	034-05173	Lock Nut 3/4-10 UNC	2

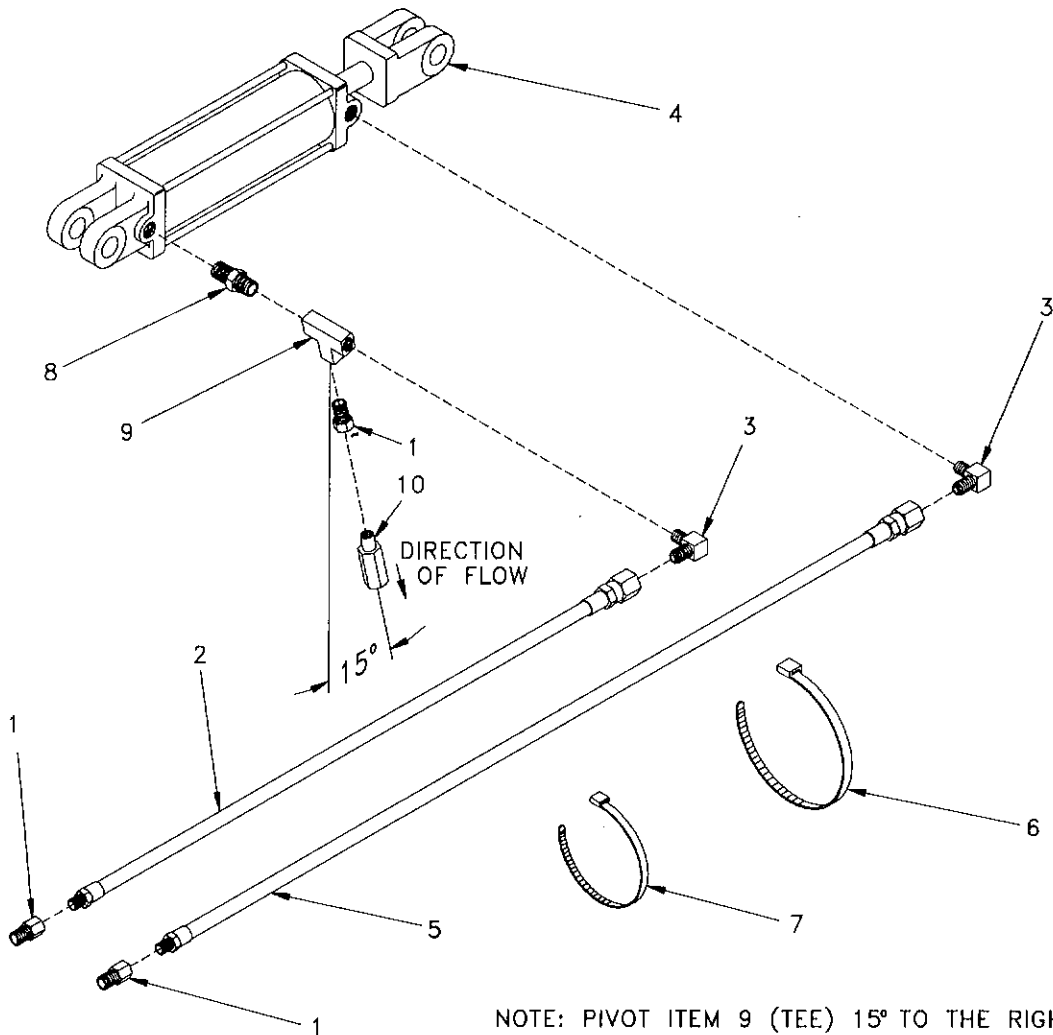
6. Raise the whole row cultivator to full raised height of the tractor lift. Install caster assembly, item 11. Note: Install lower stem collar, item 9, in its lowest position on stem, and place upper stem collar on the top end of caster stem.
7. Extend hydraulic cylinder, E, to full length. Note: Pin to pin length will be 28 1/4 inches. Now readjust position of both stem collars, item 9, to fit tractor lift height.
8. Readjust reload on spring by screwing front and rear 1 1/4 hex nut, A and C, moving anchor weld item 4, ahead 1 full inch. Note: Spring length will be 18 inches.

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 second.

If this is not allowed, it will cause undue 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).

HYDRAULIC PLUMBING SINGLE LIFT ASSIST WHEEL

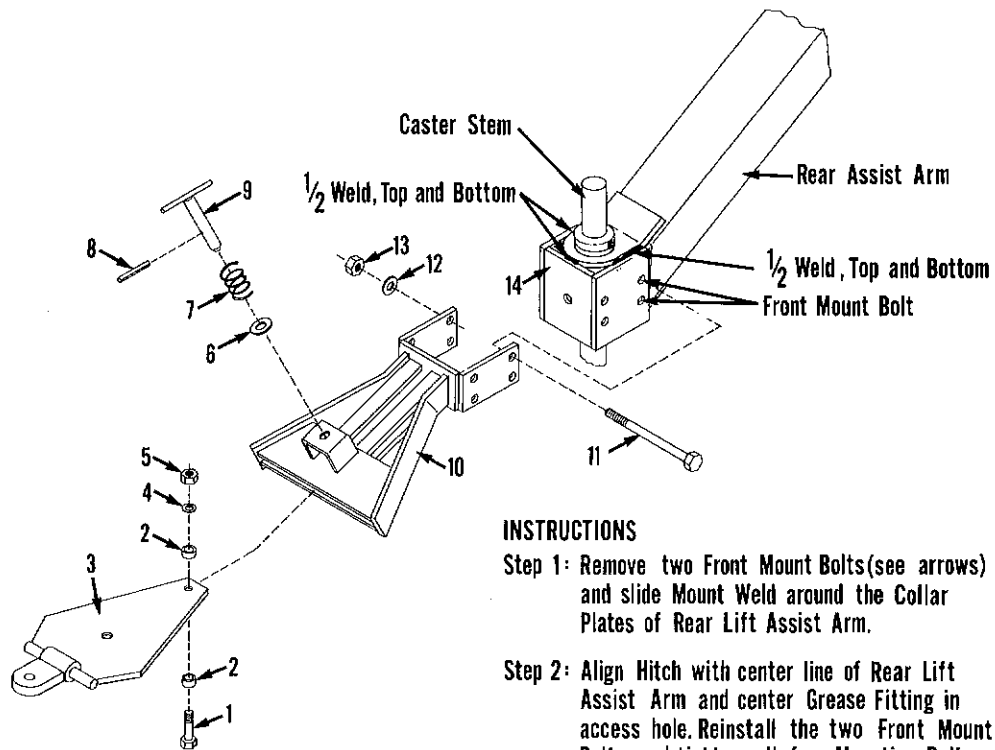


NOTE: PIVOT ITEM 9 (TEE) 15° TO THE RIGHT.

DWG. NO. 2534

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	956-004-002	Reducer Bushing, 1/2-14 Male NPT to 3/8-18 Female NPT	3
2	957-002-015	3/8 Inch Hose Assembly (108 Inches)	1
3	956-005-003	90° Elbow, 1/2-14 Male NPT to 9/16-18 Male 37° JIC	2
4	80503830	3.00 Inch Diamer x 8 Inch Stroke Cylinder 1/2 NPT Ports	1
5	957-002-016	3/8 Inch Hose Assembly (126 Inches)	1
6	921-001-145	21 Inch Long Plastic Cable Tie	1
7	921-001-144	14 Inch Long Plastic Cable Tie	1
8	203-51201	STR. Adapter 1/2 Male NPT	1
9	956-007-002	Street Tee 1/2 Female NPT	1
10	956-008-022	Relief Valve 3/8 Female NPT	1

ANHYDROUS HITCH WITH SINGLE LIFT ASSIST ASSEMBLY



INSTRUCTIONS

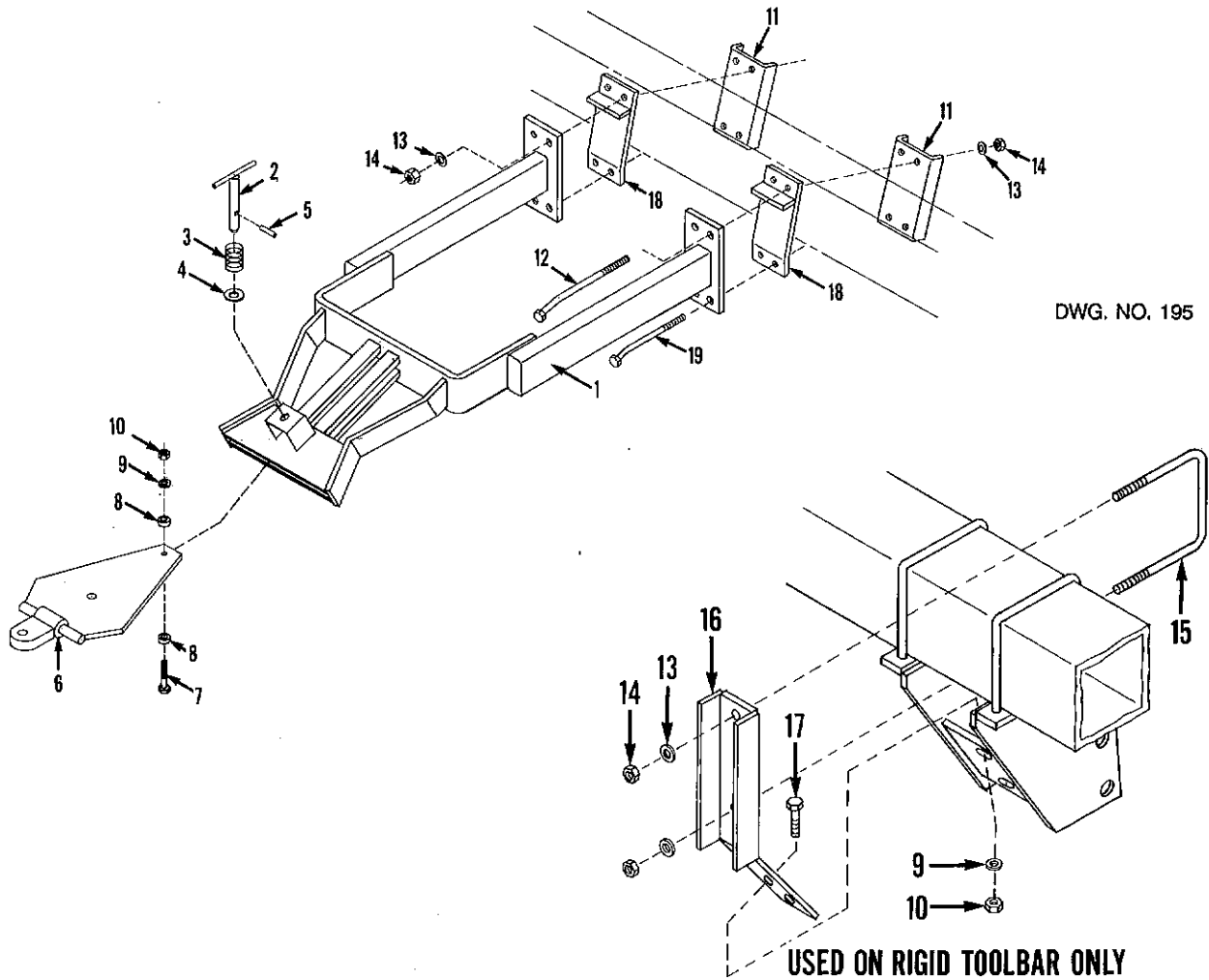
- Step 1: Remove two Front Mount Bolts(see arrows) and slide Mount Weld around the Collar Plates of Rear Lift Assist Arm.
- Step 2: Align Hitch with center line of Rear Lift Assist Arm and center Grease Fitting in access hole. Reinstall the two Front Mount Bolts and tighten all four Mounting Bolts.
- Step 3: Recheck alignment and then weld Mount(Item 14)only, to Rear Lift Assist Arm as indicated.

DWG. NO. 1051

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	950-001-141	5/8 - 11NC x 3 Inch Long Hex Head Bolt Grade No. 5	1
2	810-001-526	Collar	2
3	810-001-518	Hitch Plate Weld	1
4	952-001-005	5/8 Inch Lockwasher	1
5	951-001-008	5/8 - 11NC Hex Nut	1
6	952-002-010	1 Inch Flat Washer	1
7	810-001-527	Spring	1
8	953-003-003	1/4 x 1-3/4 Inch Long Spring Pin	1
9	810-001-522	Handle Weld	1
10	810-001-580	Anhydrous Hitch Weld	1
11	950-001-151	3/4 - 10NC x 9 Inch Long Hex HEead Bolt Grade No. 5	4
12	952-001-006	3/4 Inch Lockwasher	4
13	951-001-009	3/4 - 10NC Inch Hex Nut	4
14	810-001-578	Mount Weld	1

36 Optional Equipment Assembly

ANHYDROUS HITCH WITHOUT LIFT ASSIST



DWG. NO. 195

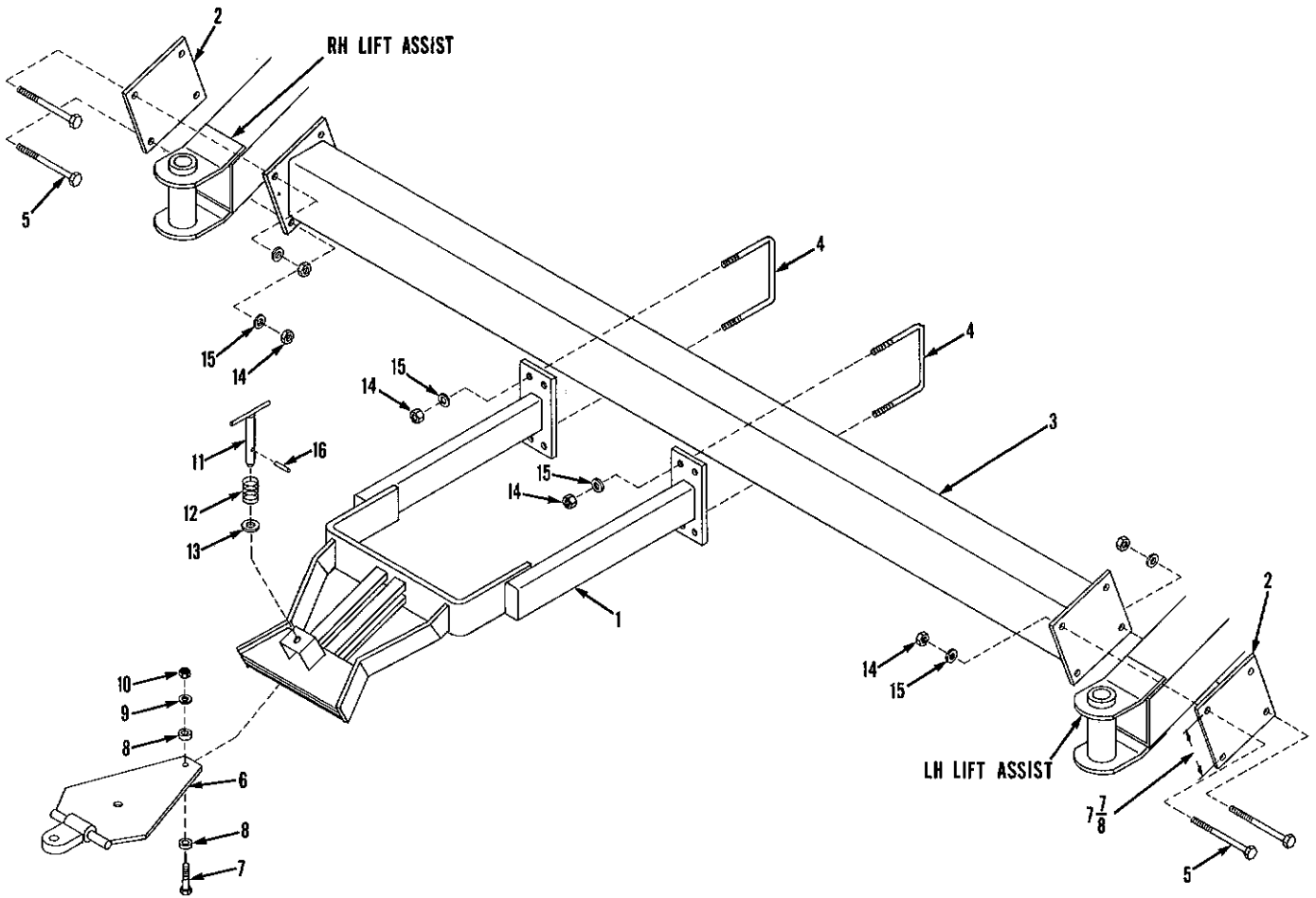
USED ON RIGID TOOLBAR ONLY

DWG. NO. 1675

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	810-001-206	Anhydrous Hitch Weld	1
2	810-001-522	Handle Weld	1
3	810-001-527	Spring	1
4	952-002-010	1 Inch Wrought Flat Washer	1
5	953-003-003	1/4 x 1-3/4 Inch Long Spring Pin	1
6	810-001-518	Hitch Plate Weld	1
7	950-001-008	5/8 x 3 Inch Long Hex Head Bolt Grade No. 5	1
8	810-001-526	Collar	2
9	952-001-005	5/8 Inch Lockwasher	AR
10	951-001-008	5/8 Inch Hex Nut	AR
11	810-001-210	Hitch Channel	2
12	810-002-443	12" Bent Bolt	4
13	952-001-006	3/4 Inch Lockwasher	AR
14	951-001-009	3/4 Inch Hex Nut	AR
15	875-001-038	3/4 U-Bolt	2
16	810-002-212	Support Weld	2
17	950-001-147	5/8 - 11 UNC x 2-1/2 Hex HD Bolt GR. 5	2
18	810-002-442	Angle Support Weld	2
19	810-002-444	10" Bent Bolt	4

NOTE: On units with automatic reset shanks, delete items 12, 18, 19; add 8 ea. 950-001-151 3/4 x 9 bolt.

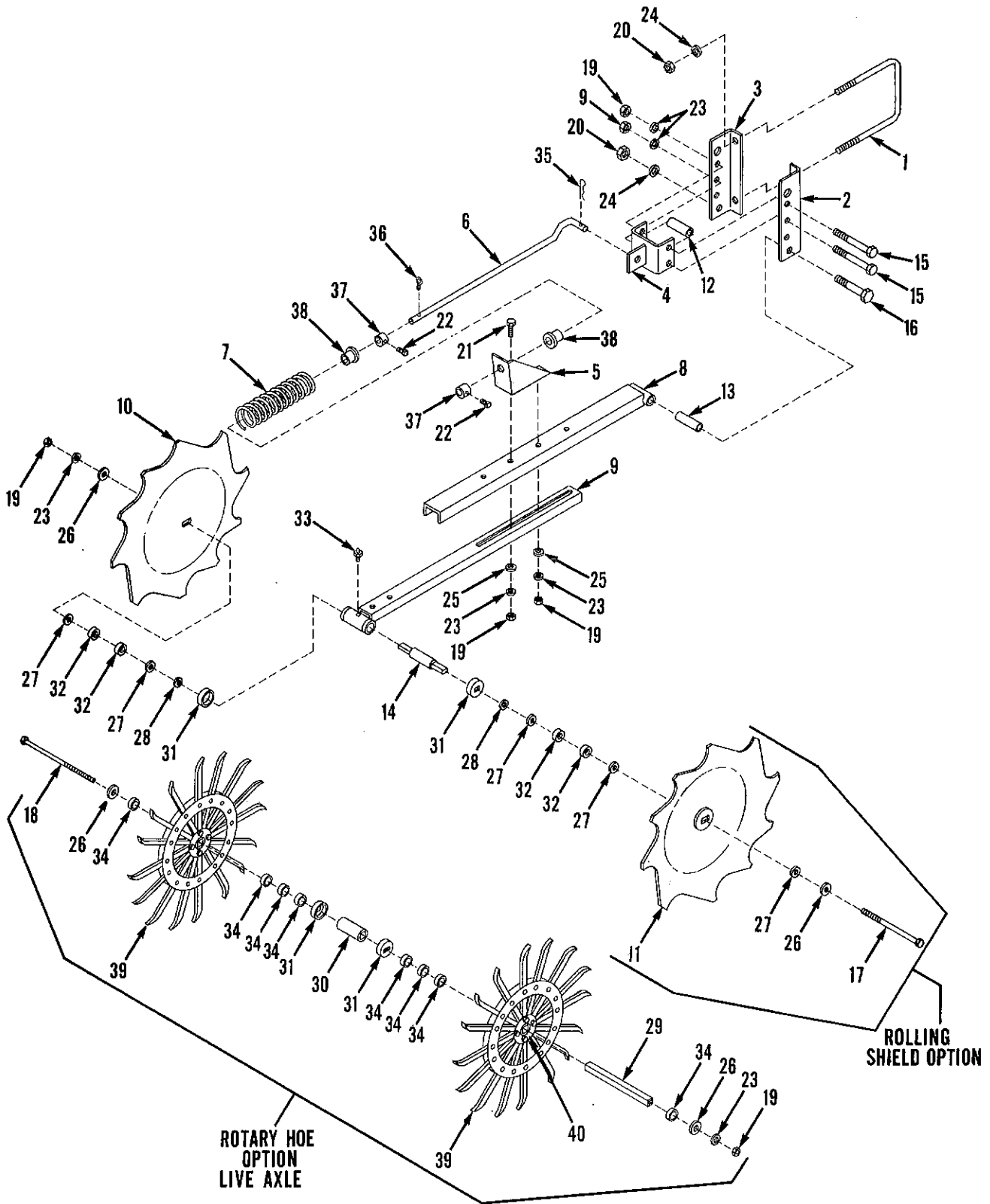
ANHYDROUS HITCH 16 ROW WITH DUAL LIFT ASSIST



DWG. NO. 1667

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	810-001-206	Anhydrous Hitch Weld	1
2	810-002-334	Mount Plate	2
3	810-002-328	Cross Tube	1
4	875-001-035	3/4 U-Bolt	4
5	950-001-229	3/4 - 10 UNC x 8 Hex Bolt GR. 5	8
6	810-001-518	Hitch Plate Weld	1
7	950-001-008	5/8 - 11 UNC x 3 Hex Bolt GR. 5	1
8	810-001-526	Collar	2
9	952-001-005	5/8 Lockwasher	1
10	951-001-008	5/8 - 11 UNC Hex Nut	1
11	810-001-522	Handle Weld	1
12	810-001-527	Spring	1
13	952-002-010	1" Flat Washer	1
14	951-001-009	3/4 - 10 UNC Hex Nut	16
15	952-001-006	3/4 Lockwasher	16
16	953-003-003	1/4 x 1-3/4 Spring Pin	1

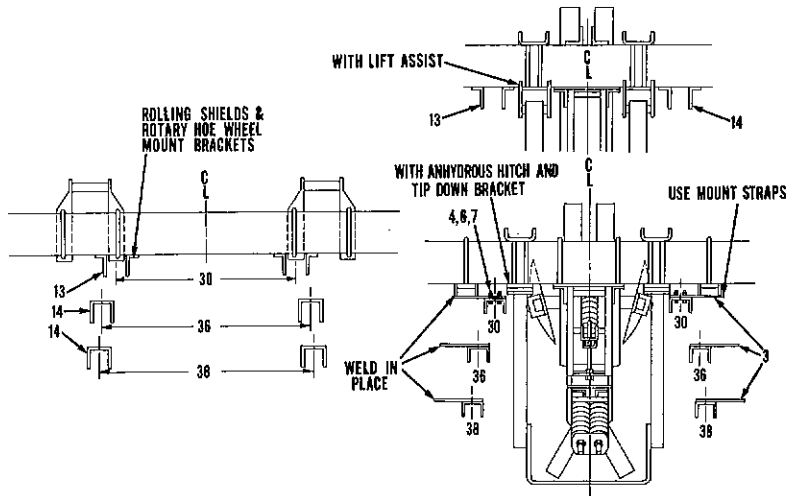
ROLLING SHIELD AND ROTARY HOE WHEEL



ROLLING SHIELD AND ROTARY HOE WHEEL

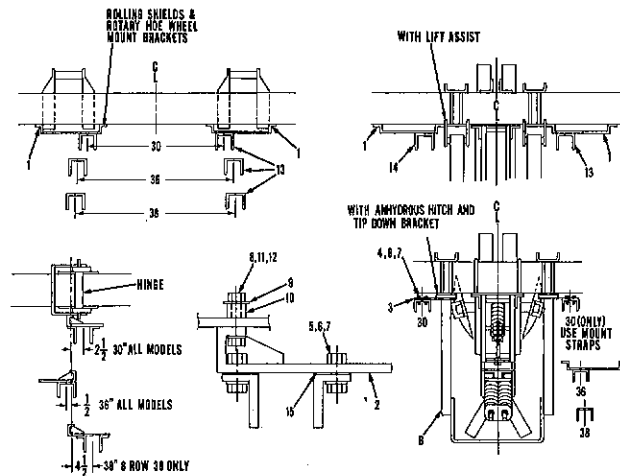
ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	805-001-332	5/8 x 7-5/8 Inch Center U-Bolt	2
2	810-002-364	Right Mount Bracket	1
3	810-002-363	Left Mount Bracket	1
4	810-001-487	Bracket Weld	1
5	810-001-497	Spring Bracket	1
6	810-001-500	Rod	1
7	850-002-403	Compression Spring	1
8	810-002-357	Outer Channel 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	1
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; Grade 5	2
16	950-001-131	5/8 - 11 NC x 4 - 1/2 LG Hex Head Bolt; Grade 5	1
17	950-001-259	1/2 - 13 NC x 8 LG Hex HD Bolt; GR. 5 (Rolling Shield Option Only)	1
18	950-001-274	1/2 - 13 NC x 10 LG Hex HD 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 HD 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 Flat Washer 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

RIGID TOOLBAR MOUNTING ROLLING SHIELD AND ROTARY HOE WHEEL



DWG. NO. 1765

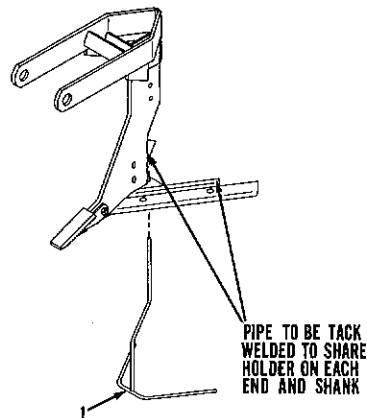
FOLDING TOOLBAR MOUNTING



DWG. NO. 1766

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	810-002-310	Mount Plate	2
2	810-002-311	Mount Bracket Weld	2
3	810-001-551	Shield Mount Straps	4
4	950-003-021	5/8 - 11 NC x 1-1/4 LG Carriage Bolt	8
5	950-001-087	5/8 - 11 NC x 1-1/2 LG Hex Bolt	16
6	952-001-005	5/8 Lockwasher	A/R
7	951-001-008	5/8 - 11 NC Hex Nut	A/R
8	950-001-029	3/4 - 10 UNC x 1-3/4 Hex Bolt	4
9	952-002-008	3/4 Flatwasher	2
10	810-002-421	Bushing	2
11	952-001-006	3/4 Lockwasher	4
12	951-001-009	3/4 - 10 UNC Hex Nut	4
13	810-002-363	Left Mount Bracket	A/R
14	810-002-364	Right Mount Bracket	A/R
15	805-001-329	Spacers*	A/R
NOTE: Spacers Used to Align Shields Over The Row.			

LIQUID FERTILIZER PIPE



NOTE: Install one pipe weld (arrow 1) per shank. When installing the outside right and left hand shank, the unused pipe end will have to be cut off and welded closed.

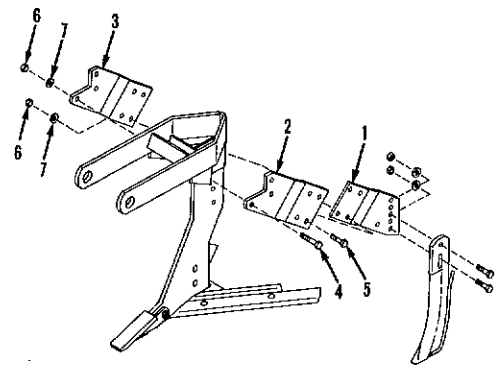
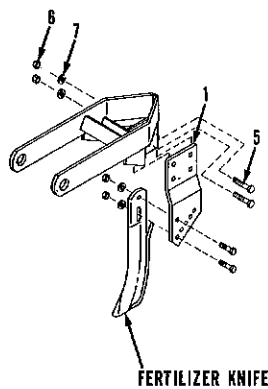
DWG. NO. 1668

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	810-002-390	Fertilizer Pipe Weld	1

ANHYDROUS KNIFE HOLDER

Without Middleworker

With Middleworker

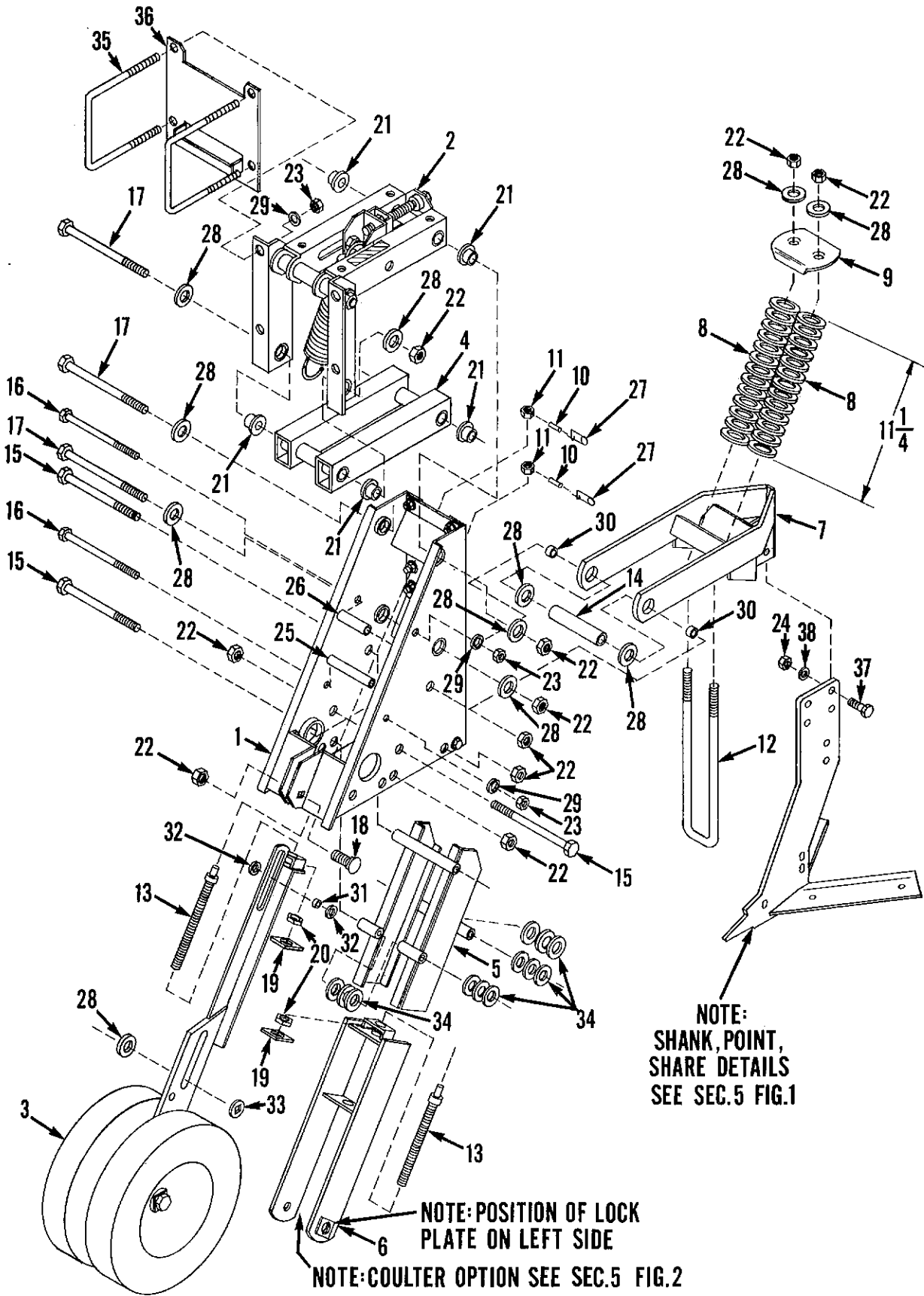


Spring cushion shank shown: automatic reset similar.

DWG. NO. 1663

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	810-002-256	Side Plate	1
2	810-002-258	LH Upper Side Plate (With Shank Only)	1
3	810-002-257	RH Upper Side palte (With Shank Only)	1
4	950-001-159	Hex Bolt 1/2 - 13 UNC x 2-1/2 GR. 5 (With Shank)	3
5	950-001-120	Hex bolt 1/2 - 13 UNC x 1-3/4 GR. 5	4
6	951-001-007	Hex Nut 1/2 - 13 UNC (With Shank)	7
	951-001-007	Hex Nut 1/2 - 13 UNC (Without Shank)	4
7	952-001-004	1/2 Lockwasher (With Shank)	7
	952-001-004	1/2 Lockwasher (Without Shank)	4

CULTIVATOR ROW UNIT ASSEMBLY - SPRING CUSHION SHANK

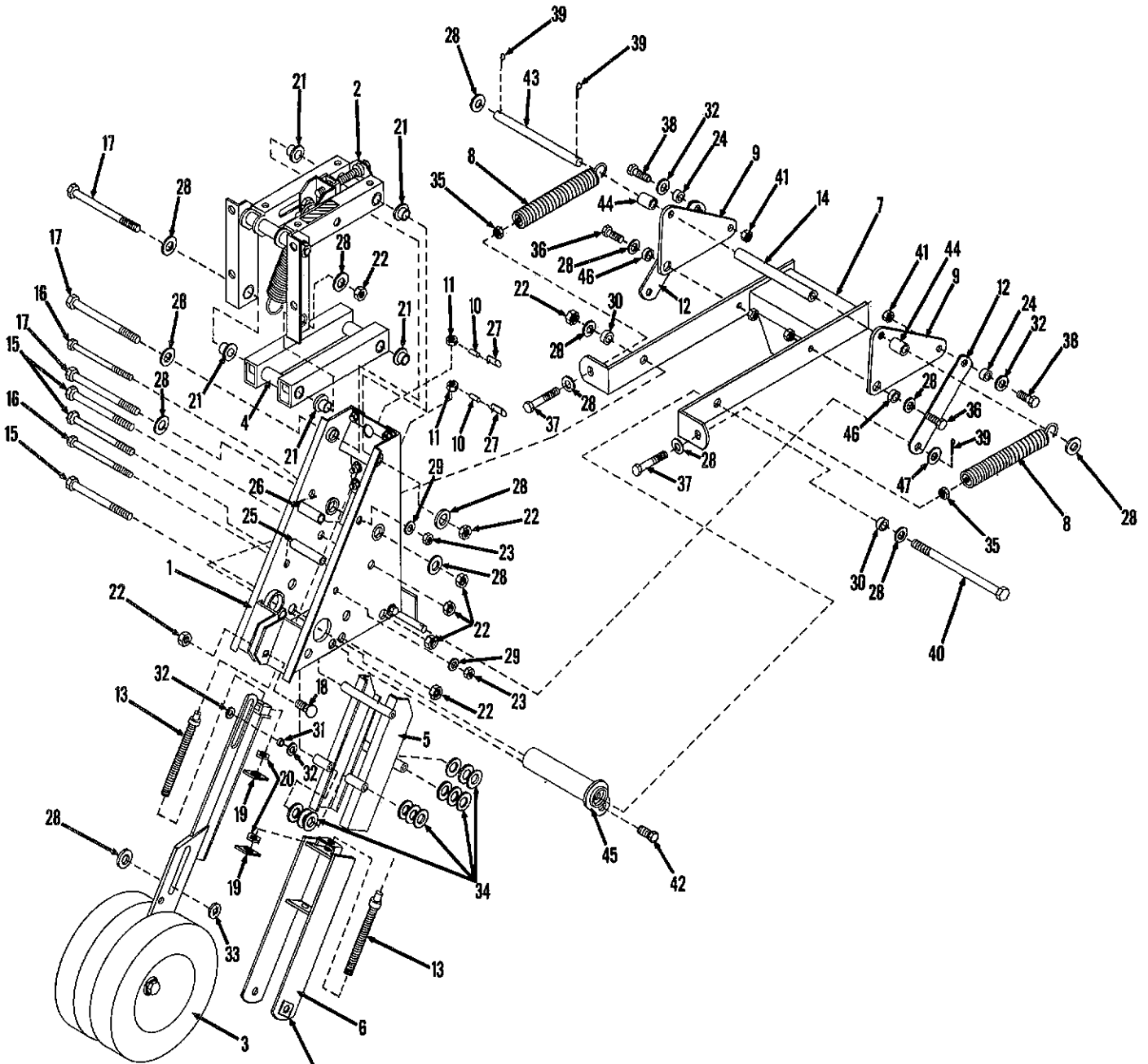


CULTIVATOR ROW UNIT ASSEMBLY - SPRING CUSHION SHANK

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1		Side Plate Ass'y (See Page 47)	1
2		Top Link & Angle Ass'y (See Page 49)	1
3		Gauge Wheel Ass'y (See Page 14, 48)	1
4	810-002-053	Lower Link Weld	1
5	810-002-056	Upper Coulter Support Weld	1
6	810-002-036	Coulter Support Weld	1
7	810-002-061	Shank Holder Weld	1
8	860-001-331	Compression Spring	2
9	810-002-035	Spring Cover	1
10	953-003-026	1/4 x 1-1/8 Spring Pin	2
11	810-002-011	Hex Nut Drilled	2
12	810-002-460	3" Center U-Bolt	1
13	810-001-436	Threaded Rod Weld	2
14	810-002-069	Butt Weld Tube	1
15	950-001-223	3/4 x 8-1/2 Hex Hd Bolt GR. 5	4
16	950-001-181	5/8 x 8-1/2 Hex HD Bolt GR. 5	2
17	950-001-236	3/4 x 10 Hex HD Bolt GR. 5	3
18	950-003-056	3/4 x 2 Carriage Bolt	1
19	810-002-010	Lock Plate	2
20	951-005-072	3/4 Acme Hex Nut	2
21	810-002-009	Flange Bushing	6
22	951-005-033	3/4 Uni-Torque Locknut	9
23	951-001-008	5/8 Hex Nut	6
24	951-001-007	1/2 - 13 UNC Hex Nut	4
25	810-002-025	Spacer	1
26	810-002-026	Spacer	2
27	953-005-001	Hair Pin Cotter	2
28	952-002-008	3/4 Flatwasher	11
29	952-001-005	5/8 Lockwasher	6
30	810-002-068	Sleeve	2
31	810-002-027	Spacer	1
32	952-002-007	5/8 Flatwasher	2
33	810-002-393	Washer	1
34	952-004-003	Washer	8
35	805-001-332	5/8 U-Bolt	2
36	810-002-012	Support Plate	1
37	950-001-120	Hex Bolt 1/2 - 13 UNC x 1-3/4 Grade No. 5	4
38	952-001-004	1/2 Lock Washer	4

44 Tillage Unit Components

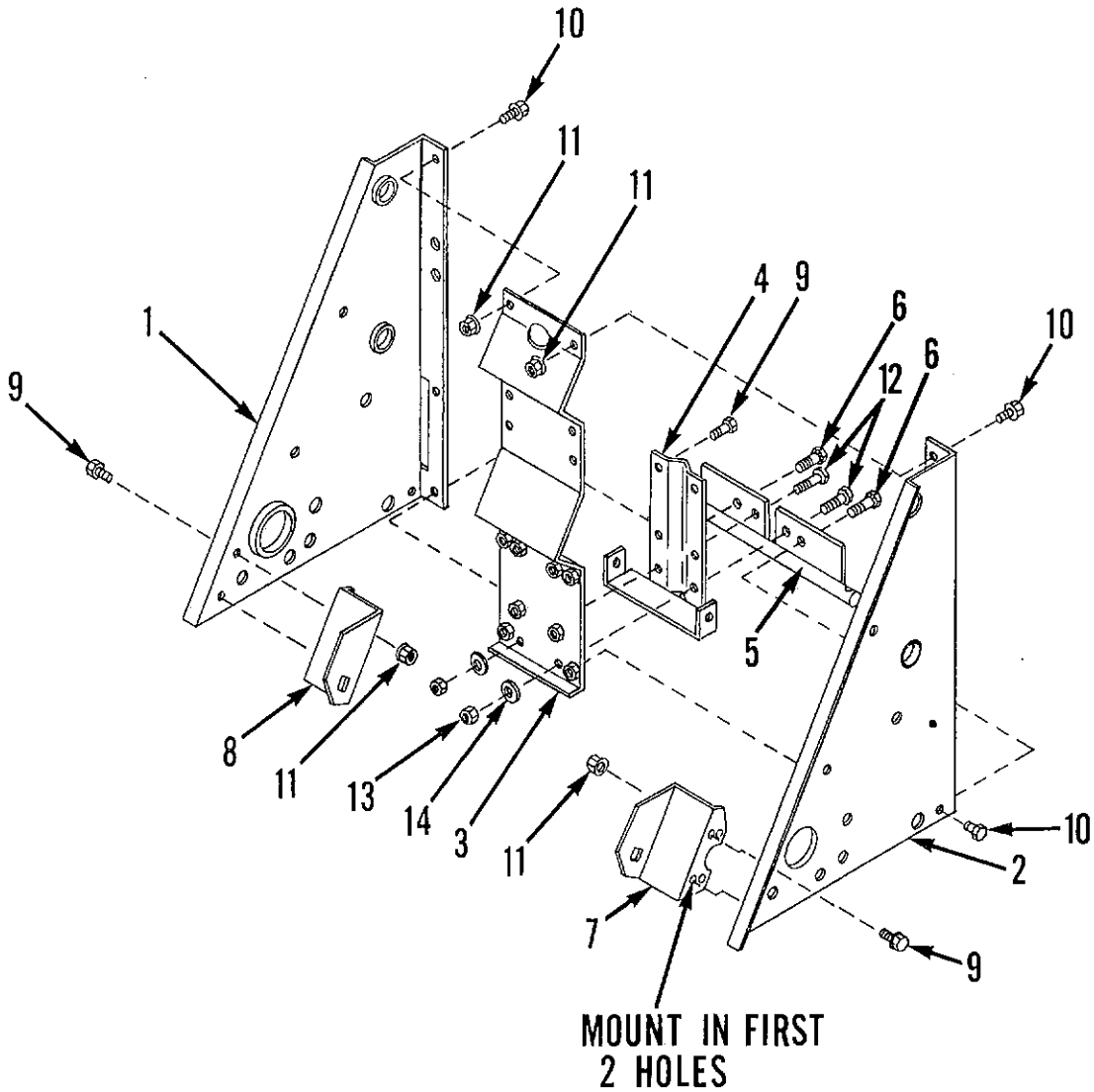
CULTIVATOR ROW UNIT ASSEMBLY - SPRING RESET SHANK



CULTIVATOR ROW UNIT ASSEMBLY - SPRING RESET SHANK

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1		Side Plate Assembly (See Page 46)	1
2		Top Link & Angle Assembly (See Page 49)	1
3		Gauge Wheel Assembly (See Page 14, 48)	1
4	810-002-053	Lower Link Weld	1
5	810-002-056	Upper Coulter Support Weld	1
6	810-002-036	Coulter Support Weld	1
7	810-002-555	Trip Shank Holder	1
8	810-002-552	Extension Spring Assembly	2
9	810-002-546	Pivot Plate	2
10	953-003-026	Spring Pin	2
11	810-002-011	Hex Nut Drilled	2
12	810-002-545	Pivot Link	2
13	8120-001-436	Threaded Rod Weld	2
14	810-002-542	Spacer	1
15	950-001-223	HHCS 3/4 - 10 UNC x 8-1/2 GR. 5	3
16	950-001-181	HHCS 5/8 - 11 x 8 1/2 GR. 5	2
17	950-001-236	HHCS 3/4 - 10 UNC x 10 GR.5	3
18	950-003-063	Carriage Bolt 3/4 - 10 UNC x 2 1/2	1
19	810-002-010	Lock Plate	2
20	951-005-072	Hex Nut 3/4 - 6 Acme	2
21	810-002-009	Flange Bushing	6
22	951-005-033	Uni-Torque Lock Nut 3/4 - 10 UNC	10
23	951-001-008	Hex Nut 5/8 - 11 UNC	2
24	810-002-543	Spacer	2
25	810-002-025	Spacer	1
26	810-002-026	Spacer	2
27	803-001-703	Safety Pin	2
28	952-002-008	3/4 Flat Washer	15
29	952-001-005	5/8 Lockwasher	2
30	810-002-540	Spacer	2
31	810-002-027	Spacer	1
32	952-002-007	5/8 Flat Washer	4
33	810-002-393	Square Hole Washer	1
34	952-004-003	Machine Bushing	18
35	951-005-052	Jam Nut 3/4 - 10 UNC	2
36	950-001-166	HHCS 3/4 - 10 UNC x 2 GR. 5	2
37	950-001-033	HHCS 3/4 - 10 UNC x 4-1/2 GR. 5	2
38	950-001-023	HHCS 5/8 - 11 UNC x 2 GR. 5	2
39	953-001-012	Cotter Pin 1/4 x 2	4
40	950-001-279	HHCS 3/4 - 10 UNC x 13 GR. 5	1
41	951-005-044	2 - Way Lock Nut 5/8 - 11 UNC	2
42	950-001-028	HHCS 3/4 - 10 UNC x 1-1/2 GR. 5	1
43	810-002-544	Rod	1
44	810-002-541	Spacer	2
45	810-002-536	Pivot Tube Weld	1
46	810-002-539	Spacer	2
47	952-002-009	7/8 Flat Washer	2

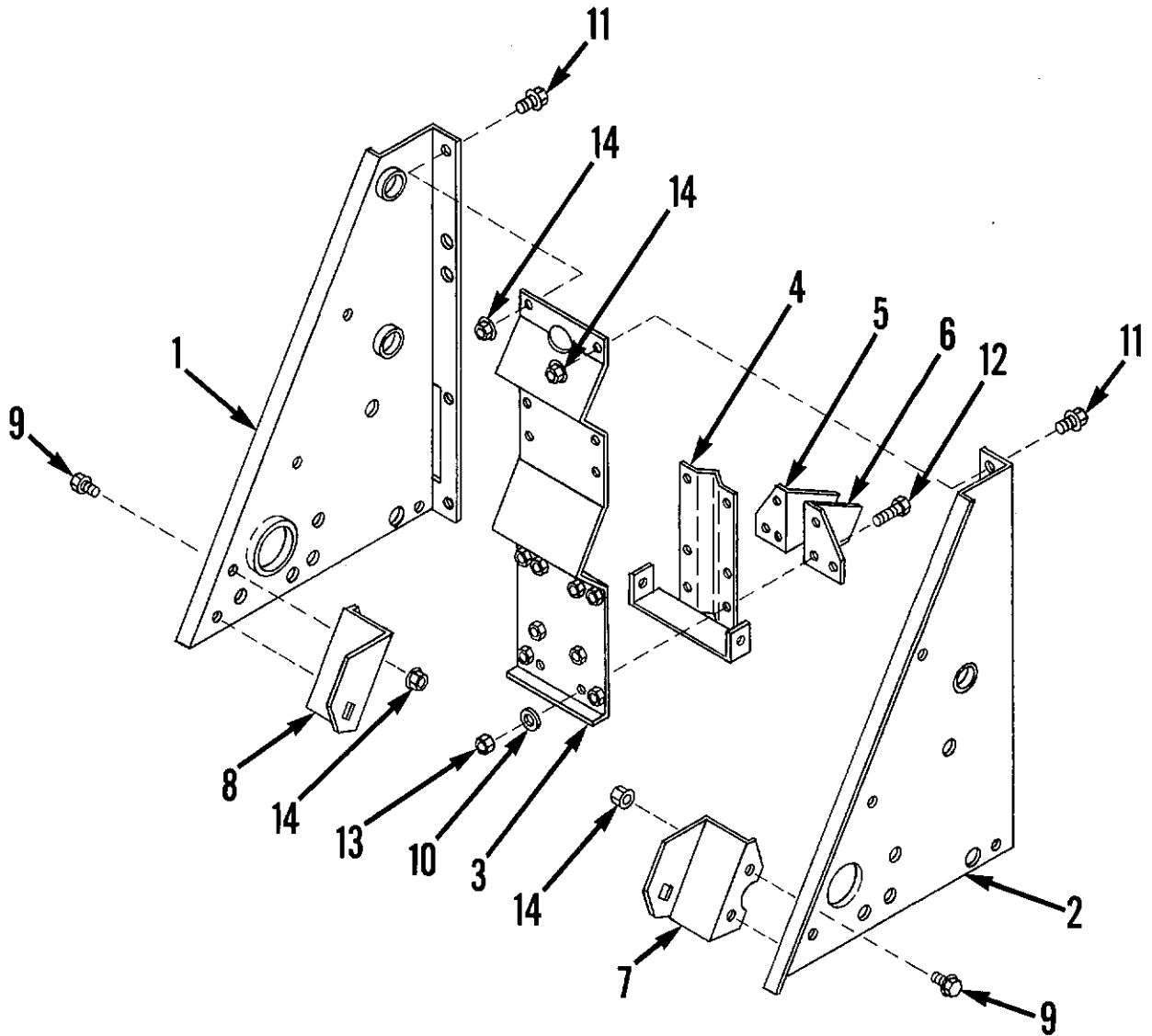
SIDE PLATE ASSEMBLY - AUTO RESET SHANK



DWG. NO. 2274

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	810-002-048	RH Mast Weld	1
2	810-002-049	LH Mast Weld	1
3	810-002-044	Back Plate Weld	1
4	810-002-041	Support Weld	1
5	810-002-537	Lower Pivot Weld	1
6	950-002-014	3/8 x 1-1/4 Hex Head Lock Bolt	1
7	810-002-047	LH Support	1
8	810-002-046	RH Support	1
9	950-002-009	3/8 Hex HD Whiz Lock Bolt	12
10	950-002-008	3/8 Hex HD Whiz Lock Bolt	4
11	951-002-003	3/8 Whiz Locknut	8
12	950-001-125	1/2 x 1 1/2 Hex Bolt GR. 5	2
13	951-001-007	1/2 Hex Nut	2
14	952-001-004	1/2 Lockwasher	2

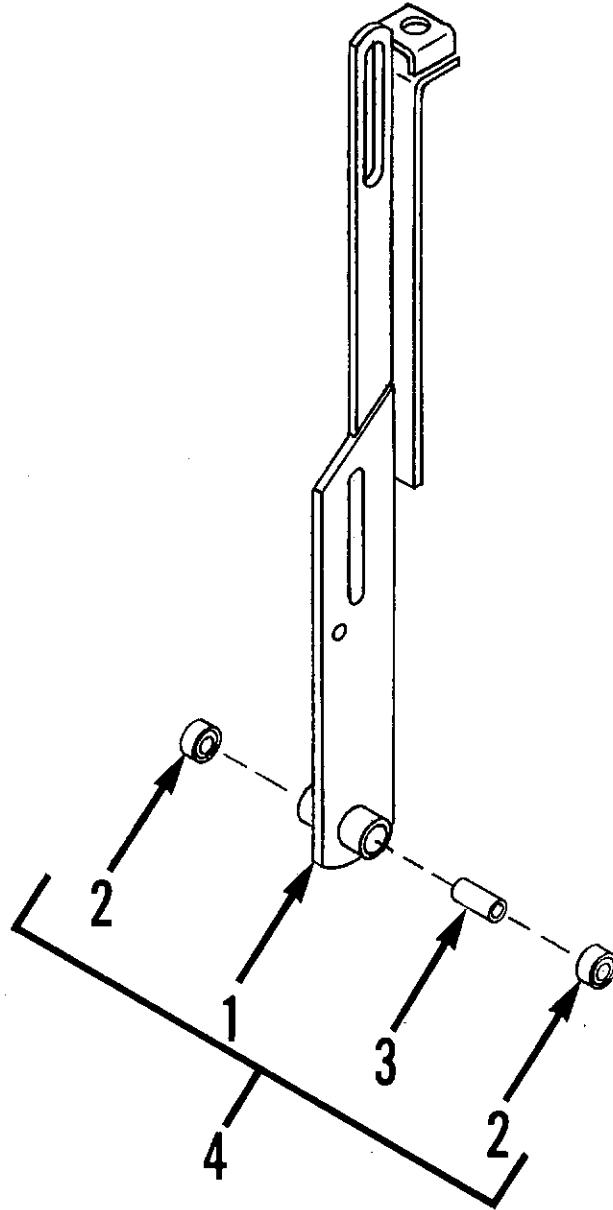
SIDE PLATE ASSEMBLY - SPRING CUSHION SHANK



DWG. NO. 1649

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	810-002-048	RH Mast Weld	1
2	810-002-049	LH Mast Weld	1
3	810-002-044	Back Plate Weld	1
4	810-002-041	Support Weld	1
5	810-002-040	RH Rear Support	1
6	810-002-039	LH Rear Support	1
7	810-002-047	LH Support	1
8	810-002-046	RH Support	1
9	950-002-009	3/8 x 1" Hex HD Whiz Lock Bolt	12
10	952-001-004	1/2 Lockwasher	2
11	950-002-008	3/8 x 3/4 Hex HD Whiz Lock Bolt	4
12	950-001-111	1/2 x 1 1/4 Hex Bolt GR. 5	2
13	951-001-007	1/2 Hex Nut	2
14	951-002-003	3/8 Whiz Locknut	8

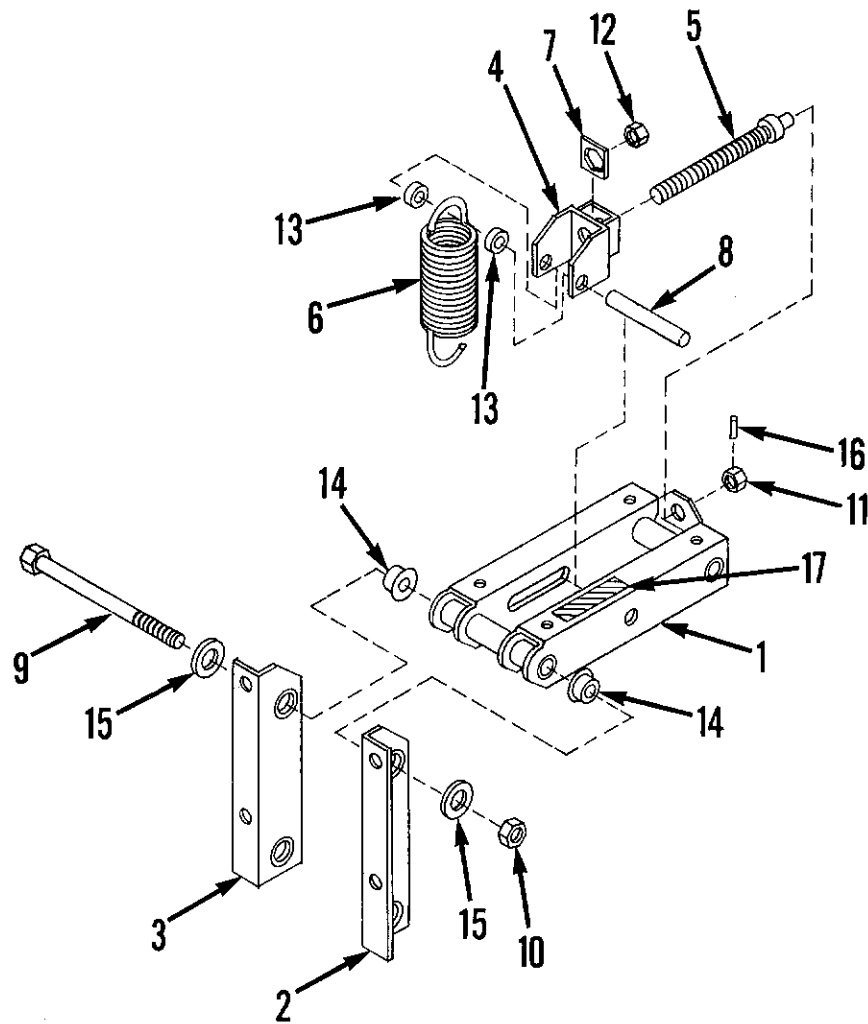
GAUGE WHEEL SUPPORT ASSEMBLY



DWG. NO. 1665

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	810-002-029	Guage Wheel Support Weld	1
2	600-02009	3/4 Bearing	2
3	810-002-034	Spacer	1
4	810-002-028	Gauge Wheel Support Assembly	1

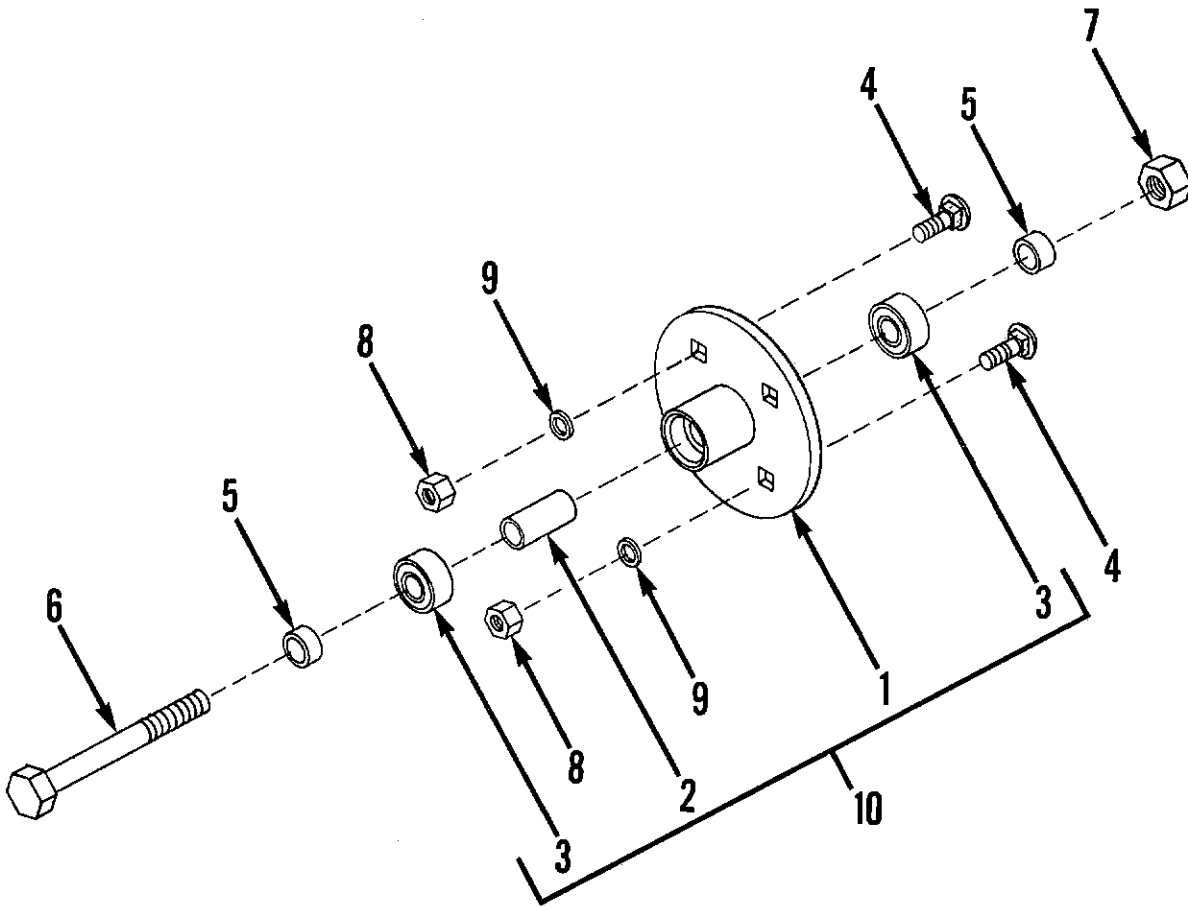
TOP LINK & ANGLE ASSEMBLY



DWG. NO. 1648

ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	810-002-018	Top Link Weld	1
2	810-002-013	LH Angle Weld	1
3	810-002-014	RH Angle Weld	1
4	810-002-023	Channel Support Weld	1
5	810-001-436	Threaded Rod Weld	1
6	810-002-119	Extension Spring	1
7	810-002-010	Lock Plate	1
8	810-002-458	Rod	1
9	950-001-236	3/4 - 10 UNC x 10" LG Hex Bolt GR. 5	1
10	951-005-033	3/4 Uni-Torque Lock Nut	1
11	810-002-011	Hex Nut Drilled	1
12	951-005-072	3/4 Acme Hex Nut	1
13	810-002-459	Set Screw Collar	2
14	810-002-009	Flange Bushing	2
15	952-002-008	3/4 Flat Washer	2
16	953-003-026	1/4 x 1-1/8 Spring Pin	1
17	810-002-554	Linkage Guide Decal	1

HUB w/BEARING ASSEMBLY



DWG. NO. 1651

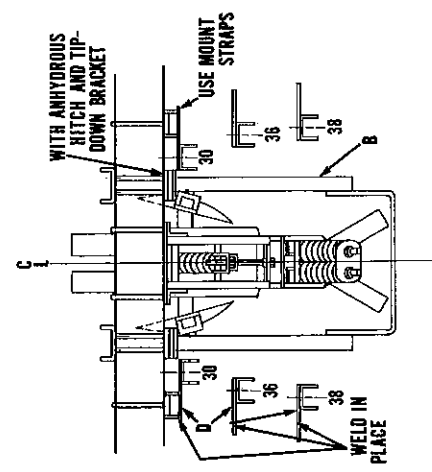
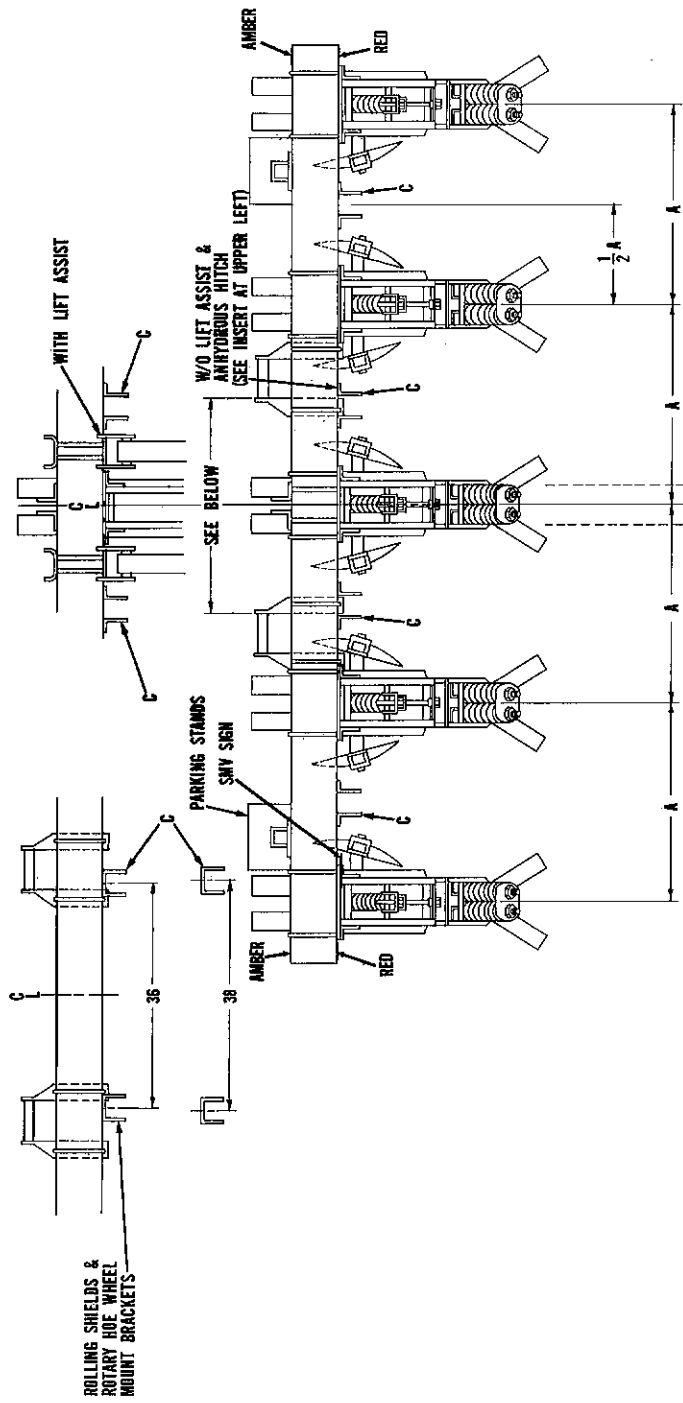
ITEM NO.	PART NO.	DESCRIPTION	QTY. REQ'D.
1	810-002-101	Hub Weld	1
2	810-002-034	Spacer	1
3	600-02009	3/4 Bearing	2
4	950-003-028	1/2 - 13 NC x 1-1/4 LG Carrlage Bolt	4
5	810-002-102	Spacer	2
6	950-001-192	3/4 - 10 NC x 5-1/2 Inch Long Hex Bolt GR. 5	1
7	951-005-052	3/4 - 10 NC Jam Nut	1
8	951-001-007	1/2 - 20 NF Hex Nut	4
9	952-001-004	1/2 Lockwasher	4
10	810-002-100	Hub w/Bearing (Includes Items 1, 2 & 3)	1

Assembly Diagrams Key Instructions

4 Row Through 16 Row

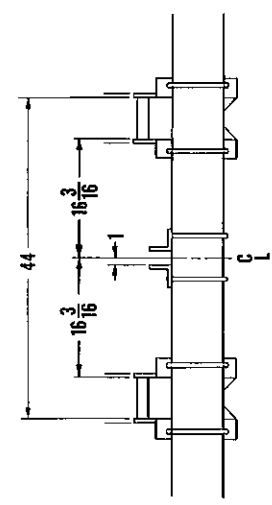
1. Shown On Diagrams, The Row Spacing 30, 36, And 28 Inch Dimension (letter A).
2. Hitch Location And Mounting Dimension.
3. Location Of Amber And Red Reflective Tapes.
4. Location Of S.M.V. Sign.
5. Location Of Parking Stands.
6. Folding Models, Location Of Center Stands.
7. 16 Row Model, Dual Lift Assist Wheels.
8. Optional Equipment Mounting Location Of:
 - Single Lift Assist Wheel, 4 Row Through 12 Row.
 - Anhydrous Hitch Without Lift Assist (Letter B), 4 Row Through 12 Row.
 - Rolling Shields/Rotary Hoe Wheels:
 - Mount Brackets (Letter C).
 - Offset Straps (Letter D).
 - Offset Plates (Letter E).
 - Mount Channel (letter F)

ASSEMBLY DIAGRAM - 4 ROW RIGID TOOLBAR



OPTIONAL SINGLE LIFT ASSIST WHEEL

ROW SPACING	A
	36 in
	38 in

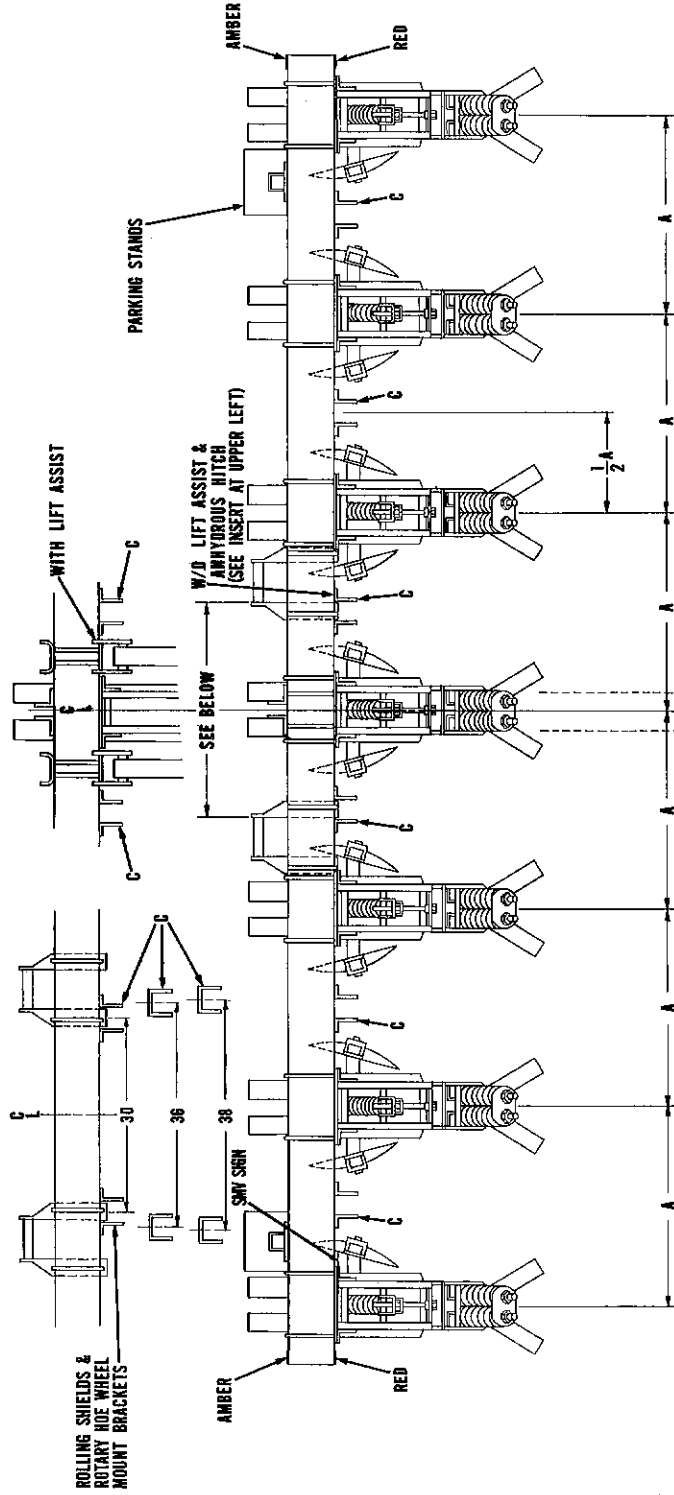


DWG. NO. 1641

DWG. NO. 1570
30, 36 & 38 inch ROW

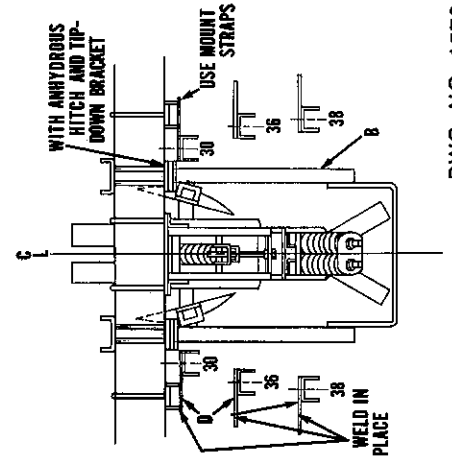
Diagram Key Instructions For Letter Reference.

ASSEMBLY DIAGRAM - 6 ROW RIGID TOOLBAR

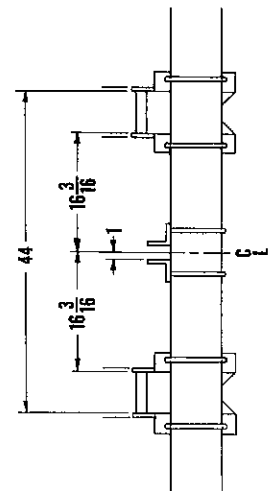


DWG. NO. 1566

ROW SPACING	A
30 in	
36 in	
38 in	

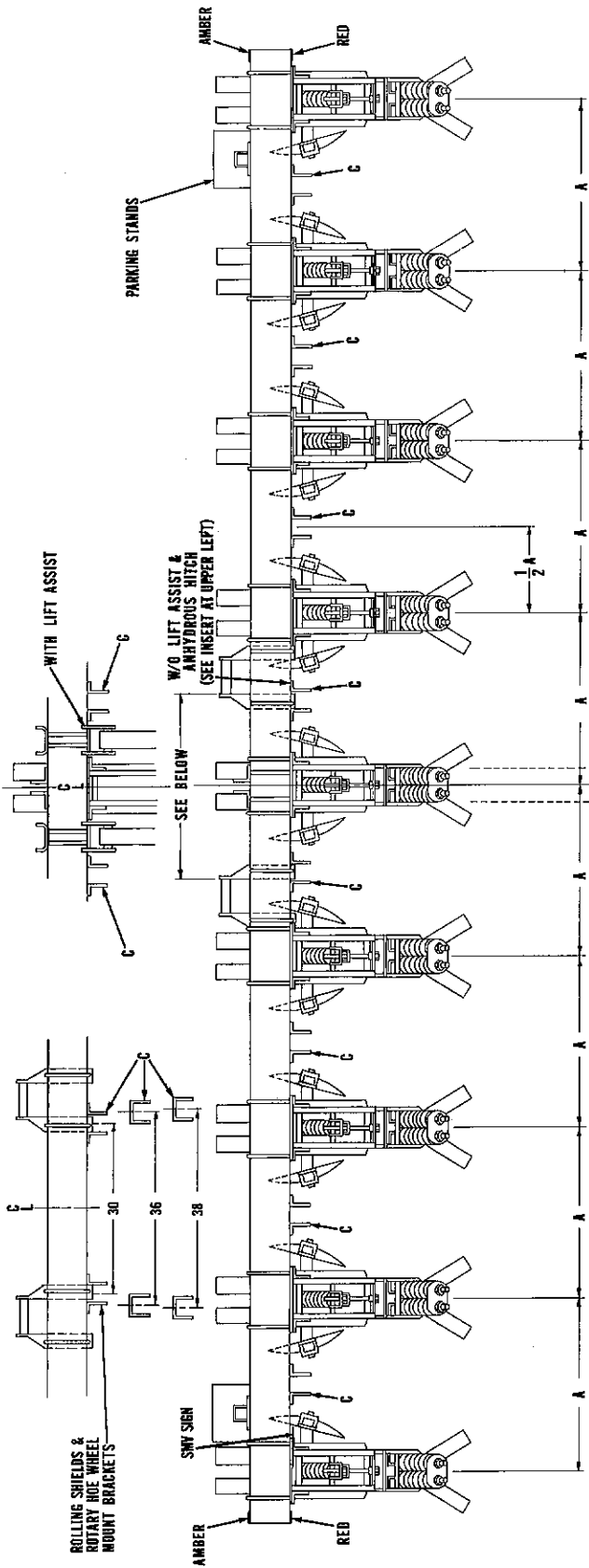


DWG. NO. 1576



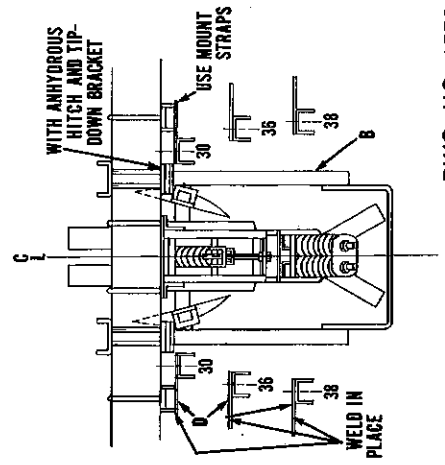
DWG. NO. 1570
Diagram Key Instructions For Letter Reference.

ASSEMBLY DIAGRAM - 8 ROW RIGID TOOLBAR

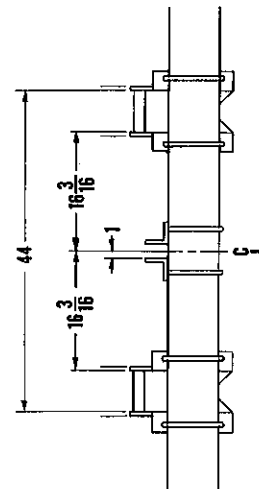


DWG. NO. 1567

ROW SPACING	A
30 in	
36 in	
38 in	



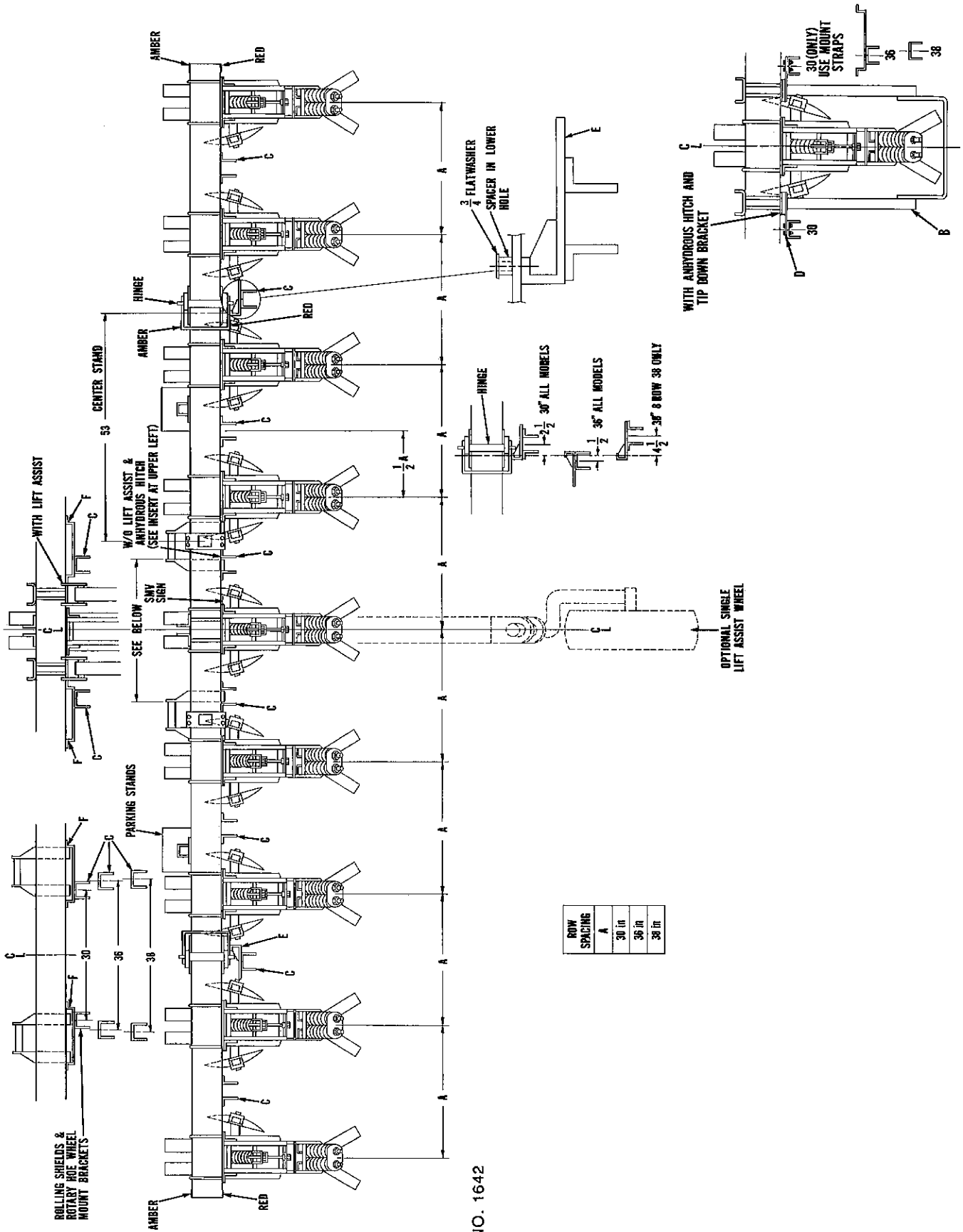
DWG. NO. 1576



DWG. NO. 1570

Diagram Key Instructions For Letter Reference.

ASSEMBLY DIAGRAM - 8 ROW FOLDING TOOLBAR



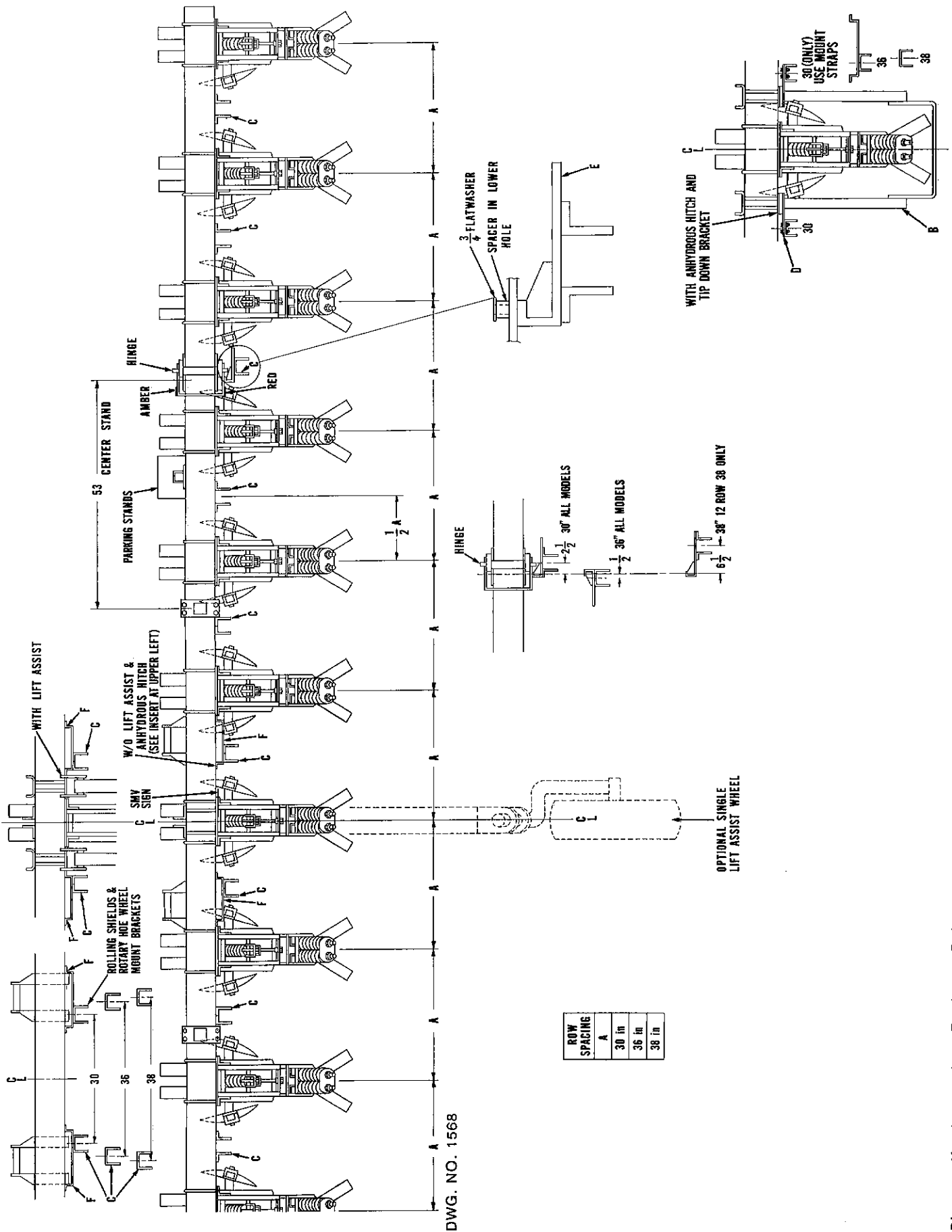
DWG. NO. 1642

ROW SPACING	A
30 in	
36 in	
38 in	

Diagram Key Instructions For Letter Reference.

DWG. NO. 2318

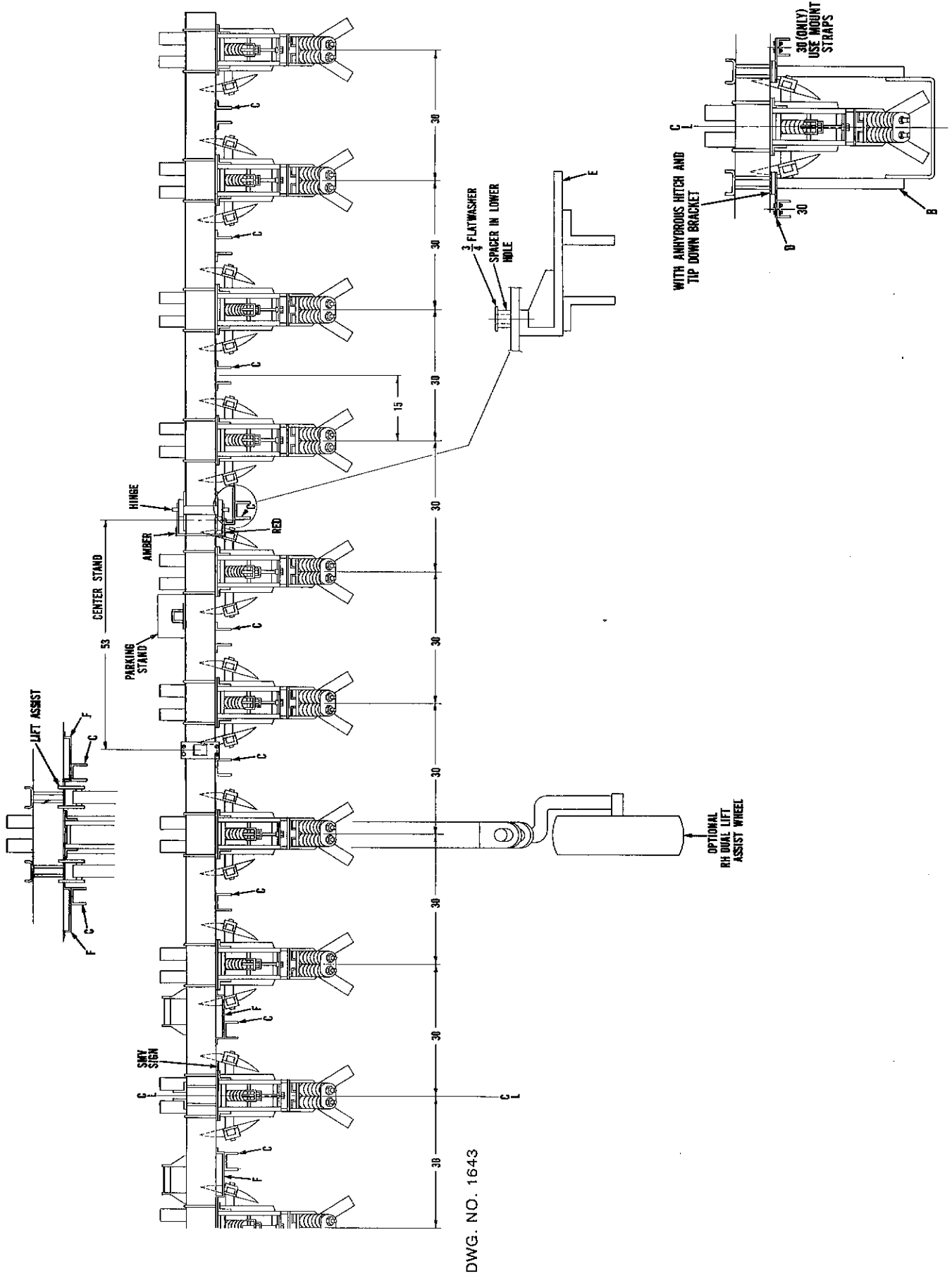
ASSEMBLY DIAGRAM - 12 ROW FOLDING TOOLBAR



DWG. NO. 2318

Diagram Key Instructions For Letter Reference.

ASSEMBLY DIAGRAM - 16 ROW FOLDING TOOLBAR



DWG. NO. 1643

Diagram Key Instructions For Letter Reference.

DWG. NO. 2317

HINIKER WARRANTY

The only warranty the company gives and the only warranty the dealer is authorized to give is as follows:

We warranty products sold by us 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, 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 installation or any liability for direct, indirect or consequential damage or delay. If requested by us, 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 us, 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 .

Warranty does not apply to any machine or part which has been repaired or altered in any way so as in the company's judgement to affect its reliability, or which has been subject to misuse, negligence or accident.

When Warranty is **LIMITED** or **NOT APPLICABLE**: Warranty on hoses, cylinder, engines, hubs, spindles, bolts or other trade accessories are limited to the warranties made by the respective manufacture only and not by **HINIKER COMPANY**.

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

**HINIKER COMPANY
AIRPORT ROAD
P. O. BOX 3407
MANKATO, MN 56002-3407**



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