

1700 MINIMUM-TILL CULTIVATOR

4-Thru 16-Row Models

**OPERATORS MANUAL
SETUP AND PARTS BOOK**

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INTRODUCTION

Congratulations, you are now the owner of a Wetherell Cultivator. In the following pages, we have pointed out **WARRANTY, SAFETY RULES, TRACTOR PREPERATION, PARTS BREAKDOWN, AND GENERAL** "Common Sense" suggestions for you to study carefully!

We do feel that you will have the best results with your cultivator, if you follow our instructions and suggestions.

Thank you for choosing a Wetherell Cultivator.

Ronald Wetherell

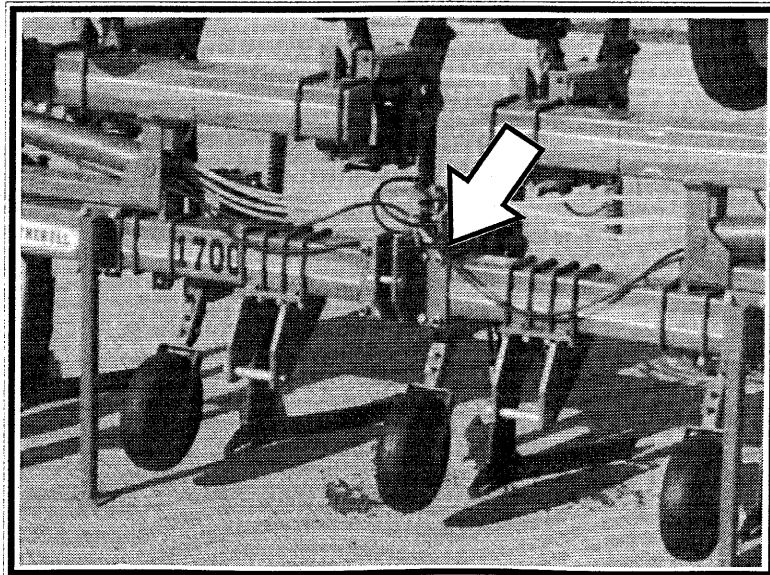
SERIAL NUMBER LOCATION

Always give your dealer the model number and serial number of the machine when ordering parts or requesting service information.

The serial Number is located on the left side of the mast (shown below) and is stamped in the metal on the toolbar.

MODEL NUMBER _____

SERIAL NUMBER _____



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FOREWORD

READ THIS MANUAL CAREFULLY to learn how to assemble, and service your Wetherell Cultivator properly.

Failure to do so could result in personal injury or equipment damage.

THIS MANUAL SHOULD BE CONSIDERED a permanent part of your Wetherell Cultivator and should remain with the machine when you sell it.

MEASUREMENTS in this manual are U.S. customary units.

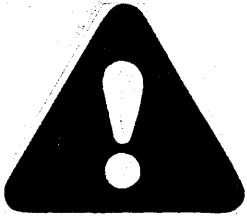
RIGHT HAND AND LEFT HAND SIDES are determined by standing behind cultivator and facing the direction the Wetherell Cultivator will travel when going forward.

THE FRONT SECTION of this manual contains safety assembly, operation and service instruction's for Wetherell Cultivators. The rear section contains a list of parts available for service and repair.

WRITE PRODUCT IDENTIFICATION NUMBERS in the serial number location section, located in the front of the manual. An accurate record of these numbers will help in tracing your machine, should it be stolen. Your dealer also needs these numbers when you order parts. If this manual is kept on the machine, also file a copy of the identification numbers in a secure place off the machine.

WARRANTY is provided as part of Wetherell Manufacturing Company's support program for customers who operate and maintain their equipment as described in this manual. All Wetherell Manufacturing Company parts and workmanship will be free of defect for the first crop season. All warranty claims must be processed by **DECEMBER 31 OF THAT SEASON**. Should the equipment be abused, or modified to change its performance beyond the original factory specifications, the warranty will become void. Additionally, Wetherell Manufacturing Company's Warranty does not cover labor or expense involved. This concludes any and all warranties implied in the manufacture, unless otherwise stated in writing.

SAFETY



RECOGNIZE SAFETY INFORMATION. This is the safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

FOLLOW RECOMMENDED PRECAUTIONS and safe operating practices.

FOLLOW SAFETY INSTRUCTION. Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs.



DANGER

LEARN HOW TO OPERATE the machine and how to use the controls properly. Do not let anyone operate without instruction. Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.



WARNING

UNDERSTAND SIGNAL WORDS. A signal word—**DANGER, WARNING** or **CAUTION**- is used with the safety-alert symbol. **DANGER** identified the most serious hazards. Safety signs with the signal words **DANGER OR WARNING** are typically near specific hazards. General precautions are listed on **CAUTIONS** safety signs. **CAUTION** Also calls attention to safety messages in this manual.



CAUTION

SAFETY RULES

- Although we make every effort to insure maximum safety when using a Wetherell Cultivator, a careful operator is always the best assurance against an accident.
- When working under or around the cultivator, always lower cultivator down on parking stands, if a hydraulic failure were to occur, unsupported equipment could suddenly lower causing serious personal injury or death.
- Misuse or modification of this machine can cause a mechanical breakdown, property damage or personal injury or death.
- Stop the engine as well as any other power source and set parking brake before making any adjustments, lubricating, cleaning or unclogging cultivator.
- Before hitching a Wetherell Cultivator to the tractor 3-point hitch, check this manual for cultivator weight, and any other weight (attachments) to be carried by the tractor 3-point hitch for gross weight. Now refer to the tractor owners manual to determine if the tractor and 3-point hitch have enough capacity for the weight or will you need front end weights or a larger tractor.
- All New Wetherell Cultivators (as of Jan. 1993) are equipped with 1" dia. pins, used to lock cultivator wings down when cultivating. Make sure these pins are REMOVED and placed in pin carrier at the bottom of the wing toolbar, when raising or lowering the wings to prevent damage to the machine or personal injury.
- Keep all persons clear of the cultivator when raising or lowering the wings.
- Do not allow anyone to ride on the cultivator, rider is subject to injury and may obstruct the operators view.
- Operate the cultivator from the tractor seat only.
- No one other than the operator should ride on the tractor.
- Hydraulic fluid escaping under pressure can have enough force to penetrate the skin. Hydraulic fluid can infect cuts or minor skin openings. Should you be injured by escaping hydraulic fluid seek medical attention immediately. Relieve all pressure before disconnecting hydraulic hoses or working on hydraulic cylinders.
- Use extreme care when operating close to ditches, fences or on hillsides.
- Shift tractor into a lower gear when transporting down hills and steep slopes.
- Before unhitching cultivator from tractor make sure front parking stands are lowered and secured with lock pin.
- Comply with all state, federal and local laws when transporting down hills and steep slopes.
- Be sure a SMV emblem is visible from the rear when transporting the cultivator.
- Always place the cultivator in the transport position when transporting.
- Operate at a reasonable speed to maintain complete control at all times.

PREPARING THE TRACTOR

TRACTOR - STABILITY

IMPORTANT !

- Refer to the cultivator weights page of this manual for the size and weight of the cultivator you are going to use. Also consider, the additional weight of: Toolbar gauge wheels, guide hitch, fertilizer attachments, herbicide and insecticide attachments, or any other devices that may be added to the gross cultivator weight to be raised by the tractor's 3-point hitch.
- Refer to the tractor owner's manual to determine if the tractor size is adequate for the weight of the cultivator and attachments you have selected. You may have to add front end ballast or lift assist wheels (possibly both) or perhaps the tractor is not large enough for the load. If you are having trouble determining the tractor's stability, consult your tractor dealer for assistance.
- Drive tractor onto level surface, and make sure all tires are inflated to tire manufacturer's recommended pressure.

(A) TRACTOR WHEEL SPACING

Center to center of wheels should be the row width to be cultivated times 2. (Example: 38" rows x 2 = 76" centers). The wheel spacing of the tractor should be set as close to the center of the row as possible. If dual wheels are used, center the dual wheel, using the proper spacers.

(B) ADJUST LIFT LINKS

To maximum length, tractor cab can be damaged if links are not adjusted properly.

(C) FOR CULTIVATORS WITH GAUGE WHEELS

Set lift links to free or float position.

FOR CULTIVATORS WITHOUT GAUGE WHEELS

Set lift links for rigid position.

(D) POSITION SWAY BLOCKS

To wide setting (for least amount of clearance).

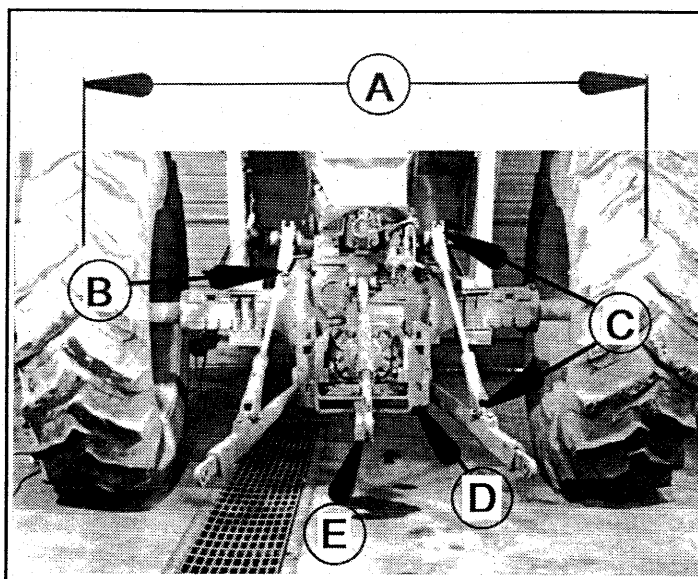
(E) SLIDE DRAWBAR

To the extreme left or right of support, or remove drawbar.

NOTE: If the drawbar remains on center, it will interfere with center gang gauge wheels.

CAUTION !

After cultivator has been mounted to tractor, check the front end stability of the tractor. Tractor front end stability is necessary for safe and efficient operation. 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.



CULTIVATOR WEIGHTS W/SWEEPS—ADD OPTIONS

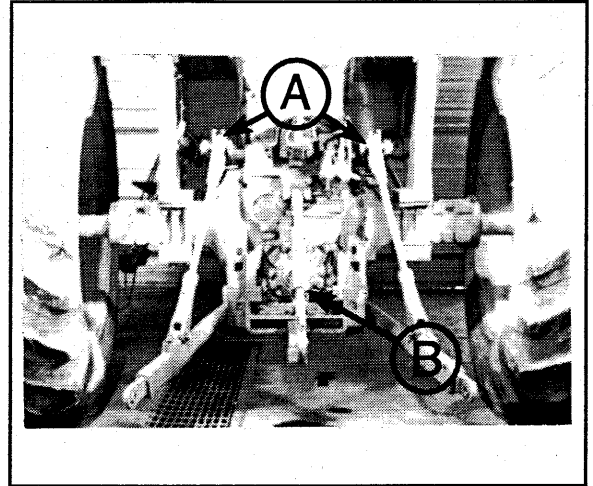
TYPE AND SIZE CULTIVATOR	MODEL	ITEM#	WEIGHT
1700-Minimum Till 4 - Row Wide <i>(Non - Fold)</i>	1700 - 4W	300-170100	1890 #
1700 Minimum Till 6 - Row Narrow <i>(Non - Fold)</i>	1700 - 6N	300-170110	2560 #
1700 Minimum-Till 6 - Row Wide <i>(Non - Fold)</i>	1700 - 6W	300-170120	2670 #
1700 Minimum-Till 8 - Row Narrow <i>(Non - Fold)</i>	1700 - 8N	300-170130	3342 #
1700 Minimum-Till 8 - Row Wide <i>(Non - Fold)</i>	1700 - 8W	300-170135	3760 #
1700 Minimum-Till 12 - Row Narrow <i>(Non - Fold)</i>	1700 - 12N	300-170165	4695 #
1700 Minimum-Till 8 - Row Narrow <i>(Hyd. Flat Fold)</i>	1700 - 8N-FF	300-170140	4000 #
1700 Minimum-Till 8 - Row Wide <i>(Hyd. Flat Fold)</i>	1700 - 8W-FF	300-170150	4102 #
1700 Minimum-Till 12 - Row Narrow <i>(Hyd. Flat Fold)</i>	1700 - 12N-FF	300-170160	5390 #
1700 Minimum-Till 16 - Row Narrow <i>(Hyd. Flat Fold)</i>	1700 - 16N-FF	300-170170	7190 #

OPTIONAL EQUIPMENT	ITEM #
Wetherell Lift Assist Bundle <i>(cylinder, hoses, and tires included) See page 10.0</i> <i>(note: 410 # each)</i>	300-700175
Wetherell 48" Open Top Shields <i>(mounting included) See page 10.3</i> <i>(note: 70 # per row)</i>	300-270320
Wetherell 48" Open top Shields(same shield w/poly strip on bottom) <i>See page 10.3</i> <i>(note: 71 # per row)</i>	300-270321
Large Gauge Wheel Kit w/15x4.5" rims <i>(pair) See pages 9.0, 9.1</i>	300-700180
590 x 15" or equiv. tire for above lg. gauge wheel kit	300-300230
Cut Away Disc (Hillers) <i>See page 10.1</i> <i>(note: 44 # per row)</i>	300-270490
Deluxe Ridge Builder <i>See page 10.5</i> <i>(note: 18 # per gang)</i>	300-270480
Two 48"Hyd. hoses and Pioneer Tips	300-300340
Telescoping NH3 Hitch <i>See page 10.2</i>	300-270510
Heavy Duty Spring Loaded Stabilizer <i>See pages 8.7, 8.8</i>	300-400240
Hydra-Power Top Link Cylinder <i>see page 10.4</i>	340-012635
Complete 1700 Gang (No point or plow lays)	300-170099
Westbar Ag Lighting Kit	300-800850

PREPARING THE CULTIVATOR

LEVELING CULTIVATOR FRAME

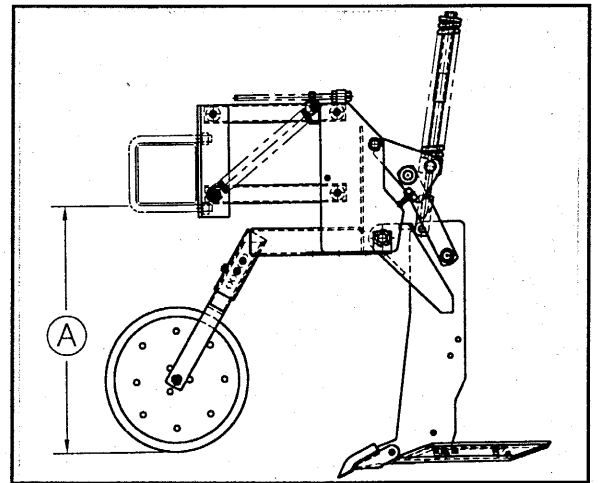
1. Adjust lift links (A) to level cultivator frame.
2. Adjust upper link (B) in or out until the front side of cultivator toolbar is perpendicular to the ground in field position.



TOOLBAR HEIGHT

When front side of cultivator toolbar is perpendicular to ground in field position, dimension (A) should be as follows:

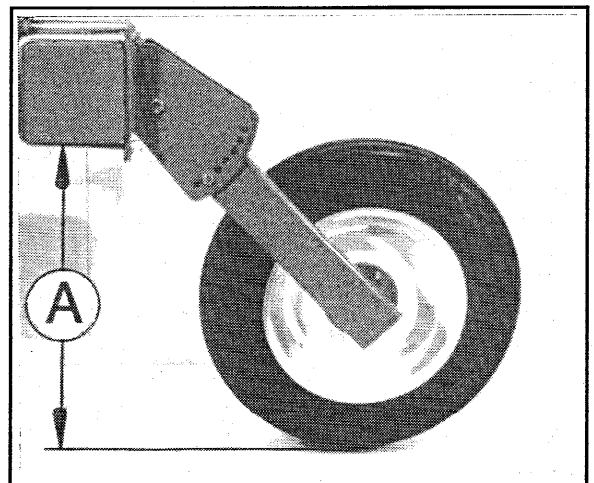
From the ground up to the bottom of the 7 x 7 toolbar DIM. (A)= 30"



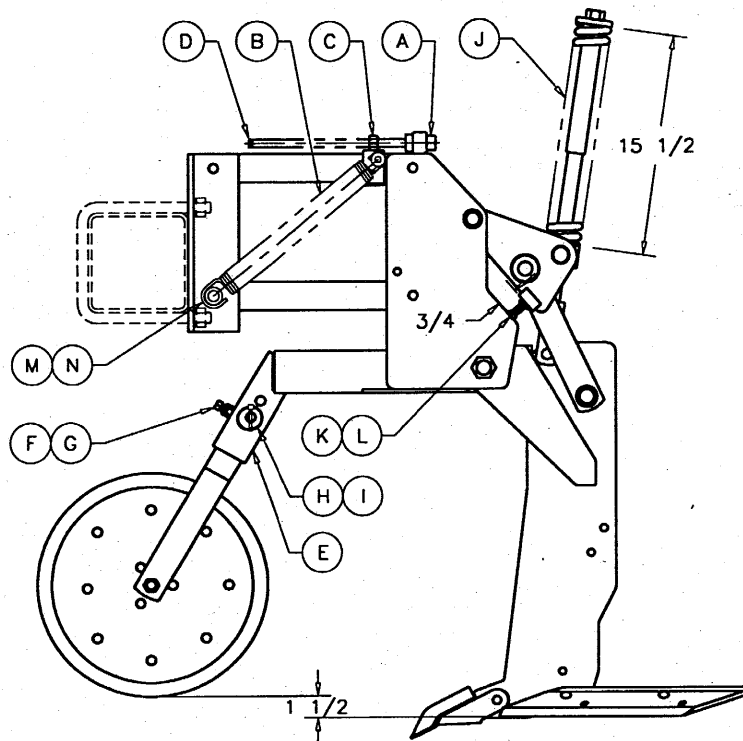
TOOLBAR GAUGE WHEEL HEIGHT

When front side of cultivator is perpendicular to ground in field position, DIM. (A) should be as follows:

From the ground up to the bottom of the 7 x 7 toolbar DIM. (A)= 30"



PREPARING THE CULTIVATOR



Setting Down Pressure

Adjustment (A) By turning the threaded adjusting rod, located on top of the upper parallel tube, (which is attached to down pressure adjuster (C) that slides over the parallel tube with 2-extension springs (B) hooked to it. The opposite ends of the springs are hooked over spacer (M) on bolt (N), on the front lower gang mounting angle.) this allows the operator to increase or decrease down pressure on each gang. By turning the adjusting rod (A) clockwise will increase down pressure on the gang, by turning the adjusting rod (A) counter-clockwise will decrease down pressure on the gang.

Note: At the factory the down pressure adjuster (C) is set at the end of the adjuster rod (D), for minimum down pressure, so the operator can adjust the down pressure for his soil conditions. The adjuster (C) shown above is in the maximum down pressure setting. Also note that the gangs in line with tractor tires, may require more down pressure, than outer gangs.

Setting Gang Depth

Adjustment (E) This adjustment sets the cutting depth of the shank, which is set from the factory at 1 1/2" from the bottom of the gauge wheel to the bottom edge of the plow lay as shown in the diagram above. This adjustment is made by loosening (F) 7/16 jam nut, and (G) 7/16 setscrew. Remove 3/16" lynch pin (I) from 5/8" pin (H) pull pin out and raise or lower gauge wheel to proper height and reassemble 5/8" pin (H) and secure with 3/16" lynch pin (I), retighten set screw and jam nut.

Spring Trip Adjustment

It allows the shank to remain Rigid at the proper working position, yet if the shank contacts a rock or object, the shank will trip and automatically reset after clearing the rock or object. The adjustment on compression spring (J) is preset at the factory at 15 1/2", from the bottom of the spring guide to the top of the spring swivel mount, as shown in the diagram above. The Spring Trip adjusting screw (K), with jam nut (L) is also pre-set at the factory at 3/4" as shown in the diagram above. (Note: the use of bigger plow lays may require more Spring Trip Adjustment.)

NOTE: It is important to keep cultivator toolbar level when cultivating in the field!

PREPARING CULTIVATOR 3-POINT

WETHERELL 1700 Minimum-Till TYPE AND SIZE CULTIVATOR	MODEL NO.	REF.	3-POINT HITCH PART NO.
4-ROW WIDE (36-38") (NON-FOLDING)	17004W	A	302-14044
6-ROW NARROW (30") (NON-FOLDING)	17006N	A	302-14044
6-ROW WIDE (36-38") (NON-FOLDING)	17006W	A	302-14044
8-ROW NARROW (30") (NON-FOLDING)	17008N	A	302-14044
8-ROW WIDE (36-38") (NON-FOLDING)	17008W	A	302-14044
8-ROW NARROW (30") (HYDRAULIC FLAT FOLD)	1700-8N-FF	A	302-14044
8-ROW WIDE (36-38") (HYDRAULIC FLAT FOLD)	1700-8W-FF	A	302-14044
12-ROW NARROW (30") (HYDRAULIC FLAT FOLD)	1700-12N-FF	B	302-14045
12-ROW WIDE (36-38") (HYDRAULIC FLAT FOLD)	1700-12W-FF	B	302-14045
16-ROW NARROW (30") (HYDRAULIC FLAT FOLD)	1700-16N-FF	B	302-14045

CAUTION !



Before attaching your **1700 Minimum-Till CULTIVATOR** to your Tractor, Hitch Pins and Spacers must match your Tractor Hitch Configuration.

IMPORTANT - Tighten all Hitch, Mast Bolts and U-Bolts after 10 to 15 hours of Operation to the following Torque:

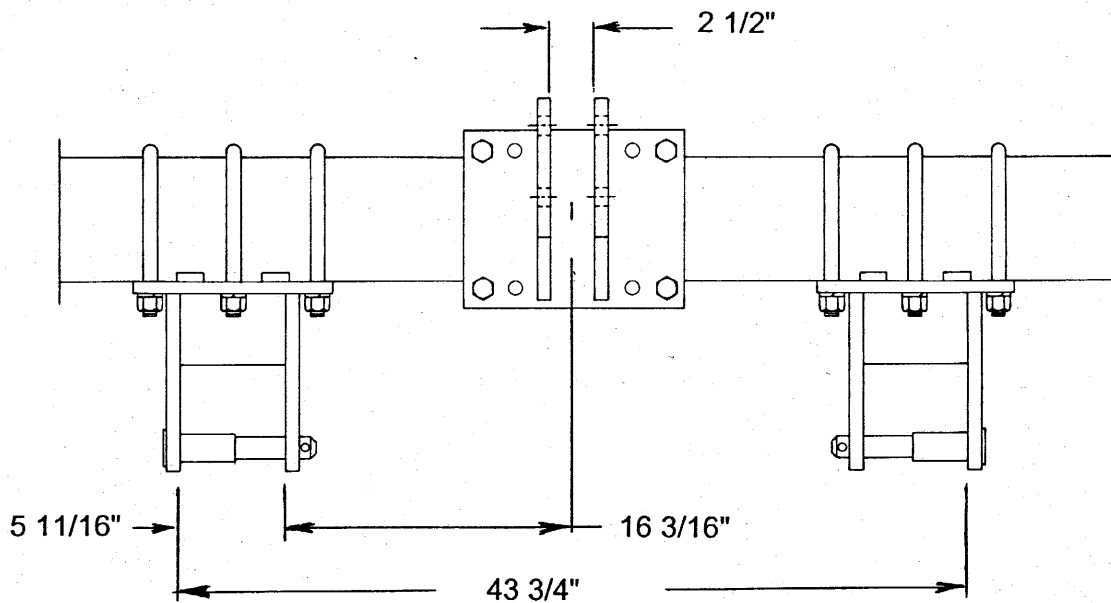
5/8" Dia. Bolts and U-Bolts ——— 145 Foot Pounds

3/4" Dia. Bolts and U-Bolts ——— 260 Foot Pounds

7/8" Dia. Bolts and U-Bolts ——— 415 Foot Pounds

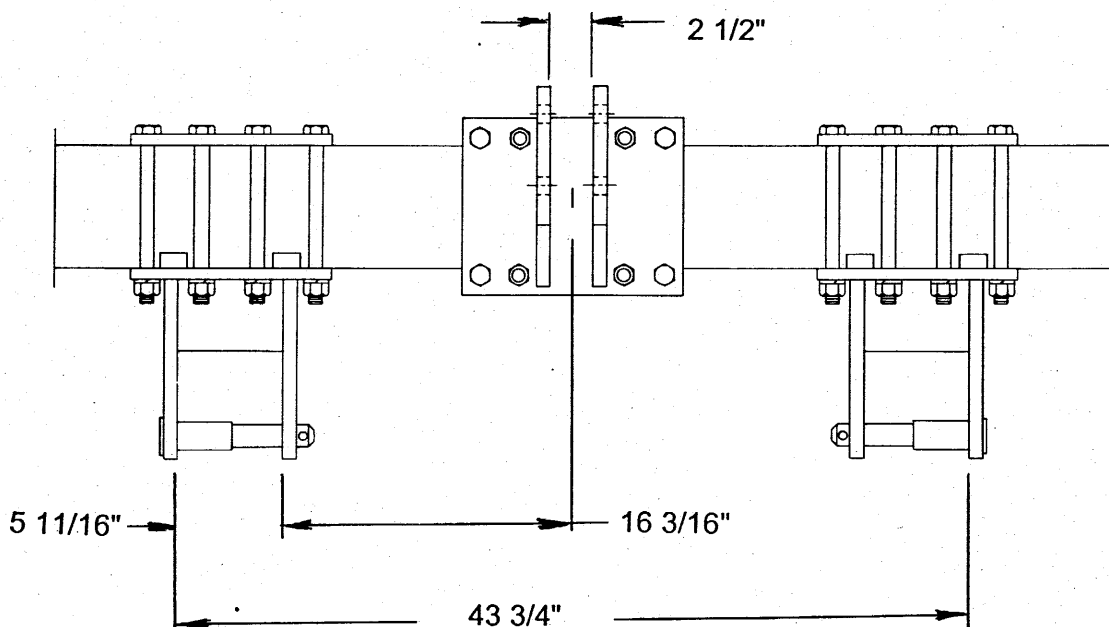
PREPARING CULTIVATOR 3-POINT

REF. A 302-14044 3-Point Hitch Assembly (4 -Thru 8-Row Models)



NOTE: See 302-14044 3-Point Hitch parts breakdown on page 3.6

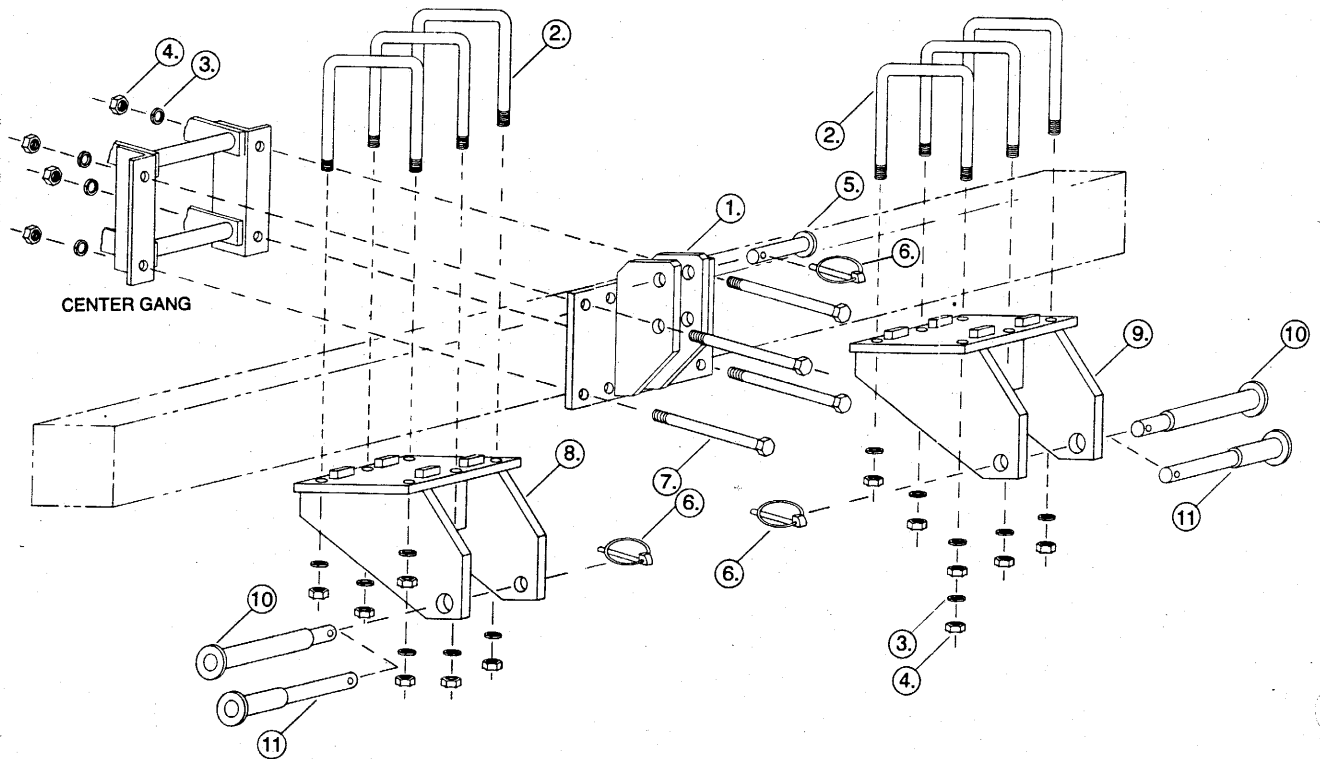
REF. B 302-14045 3-Point Hitch Assembly (12-Thru 16-Row Models)



NOTE: See 302-14045 3-Point Hitch parts breakdown on page 3.5

3-POINT HITCH ASSEMBLY (4-THRU 8-ROW MODELS)

Part No. 302-14044 3-Point Hitch Assembly

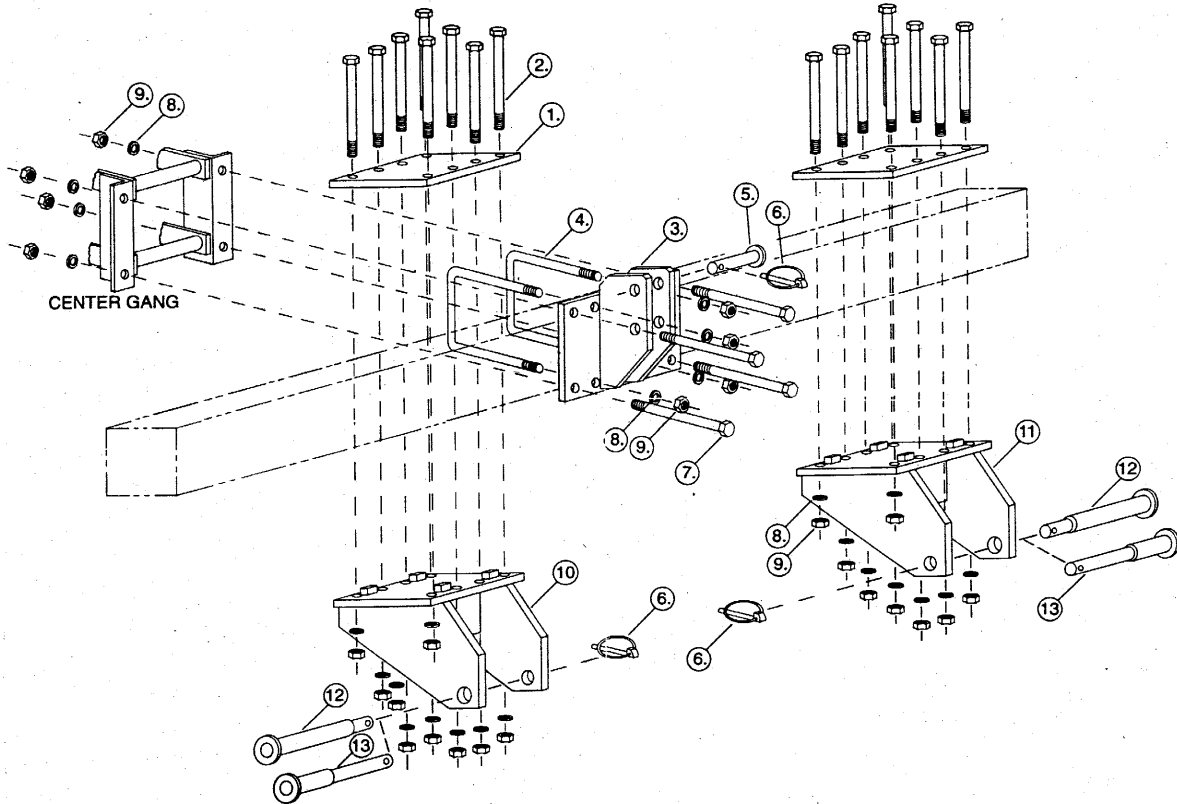


3 - POINT HITCH PARTS ASSEMBLY

ITEM	PART NO.	DESCRIPTION	QTY.
1.	302-12457	TOP MAST WELDMENT	1
2.	302-11322	3/4 N.C. X 7 X 7 U-BOLT	6
3.	020-11750	3/4" LOCKWASHER	16
4.	017-116248	3/4" N.C. HEXNUT	16
5.	302-12736	PIN, MAST	1
6.	037-218324	7/16" LYNCH PIN	3
7.	016-186500	3/4 - N.C. HEXBOLT X 9 1/2" LG.	4
8.	302-12999	LOWER 3-POINT HITCH WELD'T (RIGHT HAND)	1
9.	302-12456	LOWER 3-POINT HITCH WELD'T (LEFT HAND)	1
10.	302-10508	CAT. III PIN	2
11.	302-10507	CAT. II PIN	2

3-POINT HITCH ASSEMBLY (12-THRU 16-ROW MODELS)

Part No. 302-14045 3-Point Hitch Assembly



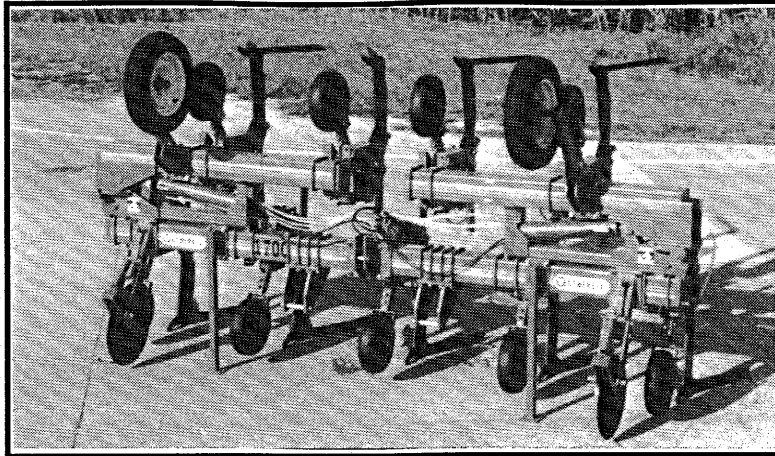
3 - POINT HITCH PARTS ASSEMBLY

ITEM	PART NO.	DESCRIPTION	QTY.
1.	302-13011	CLAMP PLATE	2
2.	016-186504	3/4 - N.C. HEXBOLT X 10" LG.	16
3.	302-12457	TOP MAST WELDMENT	1
4.	302-11322	3/4" N.C. X 7 X 7 U-BOLT	2
5.	302-12736	PIN, MAST	1
6.	037-218324	7/16" LYNCH PIN	3
7.	016-186500	3/4 - N.C. HEXBOLT X 9 1/2" LG.	4
8.	020-11750	3/4" LOCKWASHER	24
9.	017-116248	3/4" N.C. HEXNUT	24
10.	302-13005	LOWER 3-POINT HITCH WELD'T (RIGHT HAND)	1
11.	302-12524	LOWER 3-POINT HITCH WELD'T (LEFT HAND)	1
12.	302-10508	CAT.III PIN	2
13.	302-10507	CAT.II PIN	2

TROUBLESHOOTING

SYMPTOM	PROBLEM	SOLUTION
Cultivator does not tow straight when operating.	Cultivator bar not level.	Adjust tractor 3-point lift arms to level cultivator toolbar.
	Gangs not spaced correctly.	See gang spacing diagrams in this manual.
Plugging and bunching on end of plow shares.	Cultivator tipped too far forward.	Adjust upper hitch link out.
Digger point not penetrating.	Digger point or shares worn.	Replace worn parts.
	Gauge wheel too shallow.	See setting gang depth page.
	Lacking enough down pressure.	See setting gang and down pressure page.
Slabbing	Cultivator set to deep	See setting gang depth page.
	Cultivating too fast for soil conditions	Reduce speed, ideal cultivating speed is between 6-7 mph.
Weeds undercut but not completely destroyed.	Cultivator set too deep.	See setting gang depth page.
	Tractor speed is too slow.	Increase speed, ideal cultivating speed is between 6-7 mph.
Gauge wheels bury (loose soil).	Too much weight on gang.	Carry toolbar on tractor, and decrease down pressure setting.
Extremely hard ground, point penetration difficult.	Not enough angle on point.	Shorten top 3-point link.

STORAGE



PREPARING CULTIVATOR FOR STORAGE

CAUTION! - Implement may tip over and cause bodily injury if unhitched incorrectly.

Always lower parking stands, insert parking stand pin and secure with hair pin.

1. Lower and secure parkings.
2. Clean up cultivator and store in dry place.
3. Inspect for damaged parts and replace before next season.
4. Repaint areas that have been scratched or chipped to prevent rusting.
5. Coat sweeps with grease or oil.
6. Coat hydraulic cylinder rods with grease if exposed.
7. Lubricate all grease zerks.

REMOVING CULTIVATOR FROM STORAGE

1. Clean cultivator thoroughly.
2. If cylinder rods were exposed, clean grease off exposed rods.
3. Check all gang spacings to be sure they match your row widths.
4. Check all bolts and u-bolts for proper tightness.
5. Inflate tires to correct pressure, see proper pressure on tire side wall.
6. Lubricate all grease zerks and wheel bearings. physically inspect all sealed bearings.

ASSEMBLY

GENERAL

Before assembling cultivator, remove shipping bands or wires and arrange all parts where they can be readily seen.

When ever the terms **LEFT** and **RIGHT** side are used, it should be understood to mean from a position behind the cultivator and facing the direction of travel in field conditions.

During assembly, tighten bolts and u-bolts to the number of foot-pounds as indicated in the bolt torque chart on page **6.2**

3-POINT HITCH

Support toolbar on stands approx. 32" high. (**WARNING:** Do not use parking stands!) Measure the length of the toolbar and mark the center. Mount the 3-point hitch onto the toolbar using the dim. on page **3.4**

Connect toolbar with 3-point hitch mounted, to tractor and lower down onto stands, for protection against cultivator tipping over during ass'y preventing serious persona; injury.

For ass'y of gangs, gauge wheels & park stands see pages **7.1, 7.2**

HYDRAULIC LINES (Folding Wing Cultivators)

Hydraulic lines are factory installed to the center of the toolbar. You must install two lines from the center of the toolbar to the tractor hydraulic remote outlets.

Attach the hydraulic lines to the tractor with the proper hydraulic adaptor. Before folding the wings, check to see if there is room above and beyond the toolbar, for the wings to fold over. **CAUTION!** hydraulic cylinders may not be filled with hyd. oil. Extend and retract cylinders only 3" for approx. four times to allow cylinders to fill with oil. if this procedure is not followed there could be damage to the cultivator or personal injury.

GANG ASSEMBLY

See pages **8.3** and **8.4** for gang ass'y (Mainframe & Gang Gauge Wheel).

See pages **8.5** and **8.6** for gang ass'y (Shank).

See pages **7.1** and **7.2** for gang locations on toolbar.

STABILIZER ASSEMBLY

See pages **8.7** and **8.8** for Stabilizer ass'y

See pages **7.1** and **7.2** for stabilizer location on toolbar.

TOOLBAR GAUGE WHEELS

See pages **9.0** and **9.1** for toolbar gauge wheel ass'y

See pages **7.1** and **7.2** for toolbar gauge wheel location.

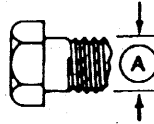
ASSEMBLING UNITS TO TOOLBAR

Spacings for attaching gangs, toolbar gauge wheels, stabilizers, and parking stands see pages **7.1** and **7.2**

BOLT TORQUE CHART & DECAL IDENTIFICATION & PLACEMENT

SAE 2

SAE 5



BOLT TORQUE CHART

Tighten all bolts, U-bolts to the torques specified in the chart shown to the right. Also when replacing bolts, U-bolts and nuts, be sure that the replacements are the same size, type, and grade as the originals

BOLT TORQUE CHART		
(A) BOLT DIAMETER	MARKING ON HEAD	
	SAE 2 (lb - ft)	SAE 5 (lb - ft)
3/8"	18	30
7/16"	30	50
1/2"	45	75
9/16"	65	105
5/8"	90	145
3/4"	160	260
7/8"	165	415
1"	245	625
1 1/4"	490	1100

NOTE: Left and Right hand sides are determined by standing behind cultivator and facing the direction the cultivator will travel when going forward.



1700

Decal 302-12470 located on the front left side of center section, two on back side, each end of center section. (3-req. per cult.)

Decal 302-12572 located on the front right side of center section of cultivator.
(1-req. per cultivator)

WARNING

HIGH-PRESSURE FLUID HAZARD

To prevent serious injury or death:

- Relieve pressure on system before repairing or adjusting or disconnecting.
- Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
- Keep all components in good repair.

SW700

Decal 102-700 located on top of toolbar, on the left side of the top 3-point mast.
(1-req. per cultivator)

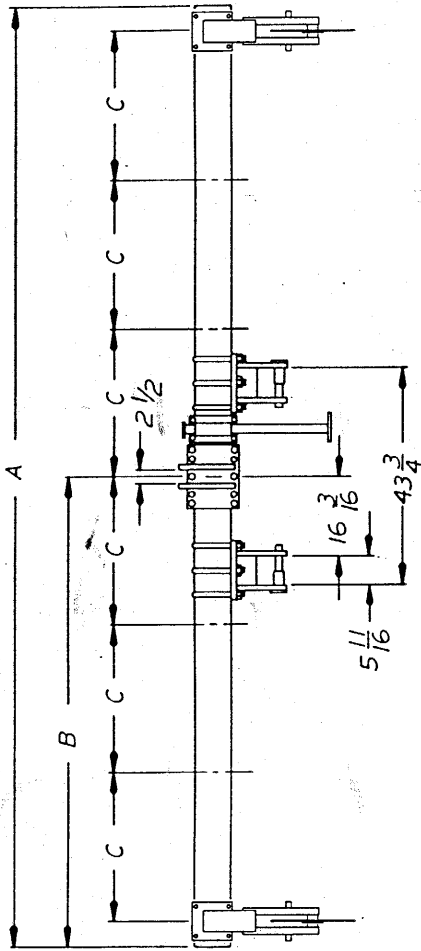
DANGER

STAND CLEAR
Falling Wings May Cause
Bodily Injury or Death

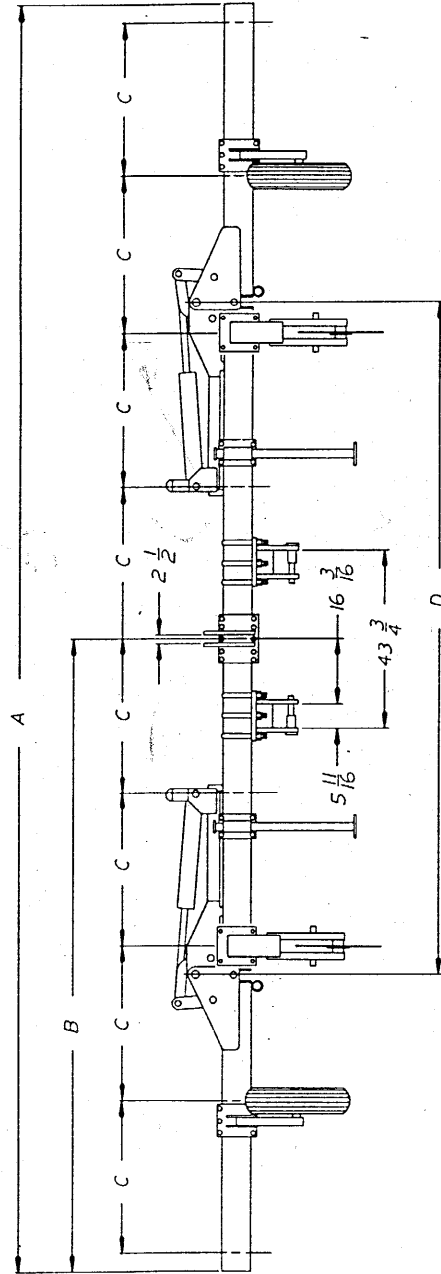
Decal 302-12469 located on the front and back sides of both wings, on the hinge plate.
(4-req. per cultivator)

ROW SPACING CHART AND DIAGRAM

(FOR 4-8 ROW NON-FOLDING, & 8-ROW NARROW & WIDE FOLDING)



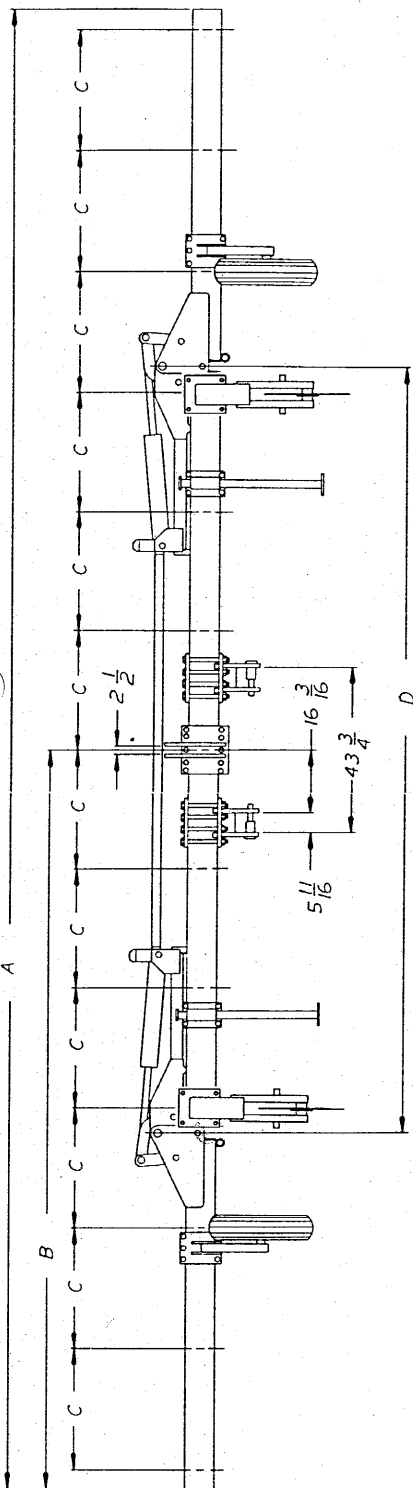
TOOLBAR NO.	CODE	NO./ ROWS	C	B	A	TOOL BAR	NO./ GANGS	PARK STANDS	TOOLBAR GAUGE WHEELS	STABILIZER	3-POINT HITCH
302-12462-1	17004W	4	36"-38"	83"	166"	7 X 7	5	1/302-12466	NOT REQ.	2/300-400240	302-14044
302-12462-2	17006N	6	30"	97"	194"	7 X 7	7	1/302-12466	NOT REQ.	2/300-400240	302-14044
302-12462-3	17006W	6	36"-38"	121"	242"	7 X 7	7	2/302-12466	2/300-700185	2/300-400240	302-14044
302-12462-4	17008N	8	30"	127"	254"	7 X 7	9	2/302-12466	2/300-700185	2/300-400240	302-14044
302-12462-5	17008W	8	36"-40"	158"	334"	7 X 7	9	2/302-12466	2/300-700185	2/300-400240	302-14044



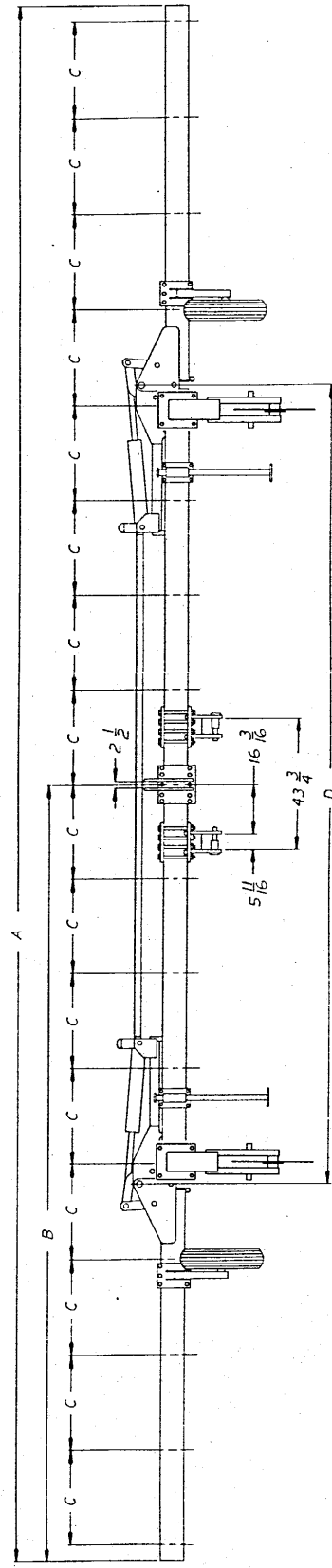
TOOLBAR NO.	CODE	NO./ ROWS	C	B	A	D	TOOLBAR CENTER/WINGS	NO./ GANGS	PARK STANDS	TOOLBAR GAUGE WHEELS	STABILIZER	3-POINT HITCH	WING CYLINDER	HINGE ASS'Y
302-11267-28	17008NHF	8	30"	126.75	253.5	137	7 X 7 / 7 X 7	9	2/302-12466	2/300-700185	2/300-400240	302-14044	4 X 22	E
302-11267-29	17008WHF	8	36"-38"	158.5	317	170	7 X 7 / 7 X 7	9	2/302-12466	2/300-700185	2/300-400240	302-14044	4 X 22	F

ROW SPACING CHART AND DIAGRAM

(FOR 12-ROW NARROW & WIDE FLAT FOLD & 16-ROW NARROW FLAT FOLD)



TOOLBAR NO.	CODE	NO./ ROWS	C	B	A	D	TOOLBAR CENTER/ WINGS	NO./ GANGS	PARK STANDS	TOOLBAR GAUGE WHEELS	STABILIZERS	3-POINT HITCH	WING CYLINDER	HINGE ASS'Y
302-11267-30	170012NHF	12	30"	186.62	373.25	196.75	7 X 7 1/7 X 7	13	2/302-12466	2/300-700185	2/300-400240	302-14045	4 X 22	G
302-11267-32	170012WHF	12	36"/38"	235	470	246.25	7 X 7 1/7 X 7	13	2/302-12466	2/300-700185	2/300-400240	302-14045	4 X 22	H

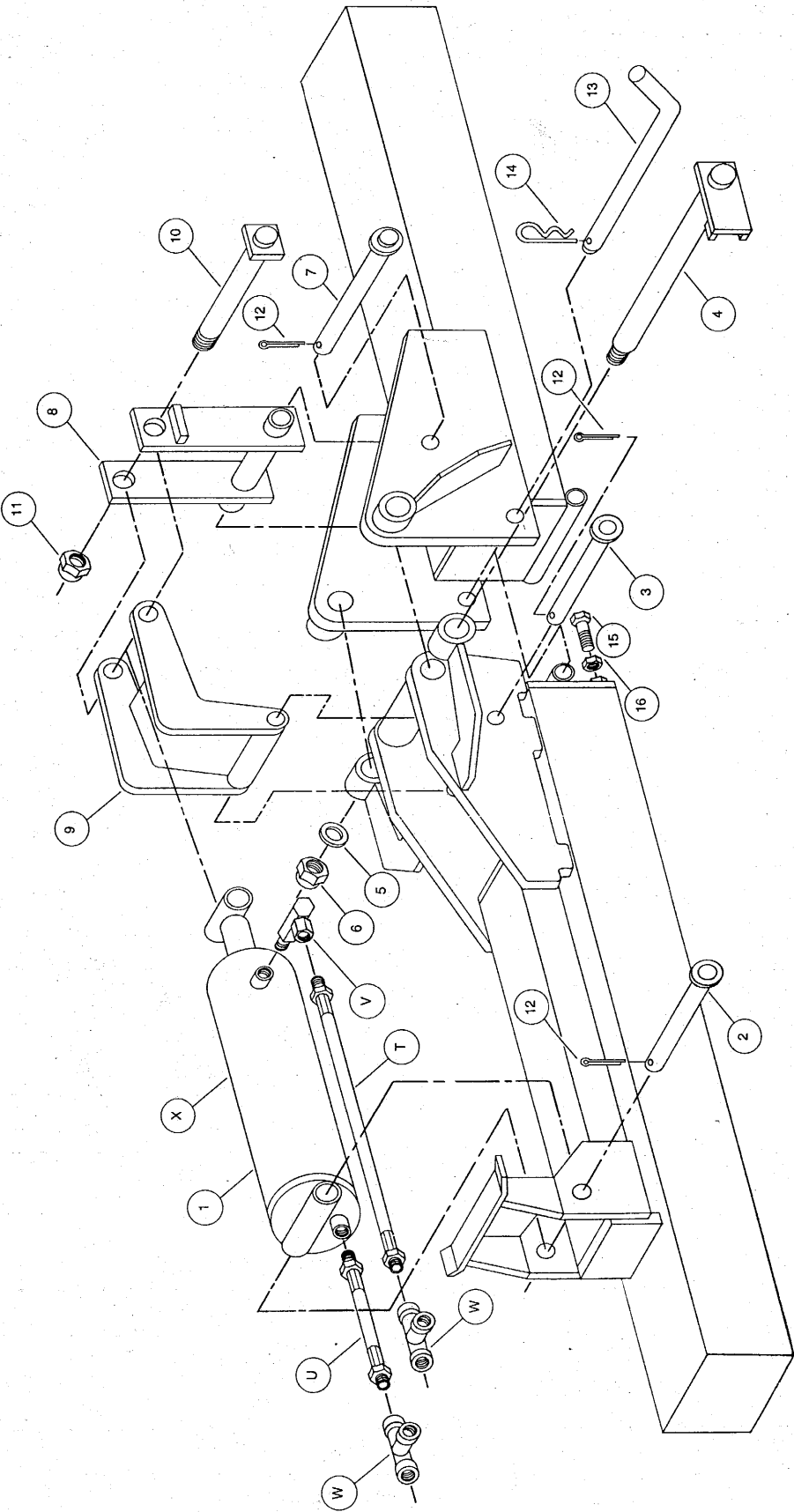


TOOLBAR NO.	CODE	NO./ ROWS	C	B	A	D	TOOLBAR CENTER/ WINGS	NO./ GANGS	PARK STANDS	TOOLBAR GAUGE WHEELS	STABILIZERS	3-POINT HITCH	WING CYLINDER	HINGE ASS'Y
302-11267-33	170016NHF	16	30"	247	494	256.5	7 X 7 1/7 X 7	17	2/302-12466	2/300-700185	2/300-400240	302-14045	5 X 22	I

HYDRAULIC FOLD HINGE ASS'Y

REF.	DESCRIPTION	ASS'Y (E) 8-ROW -N-30" HYD.FLAT FOLD	ASS'Y (F) 8-ROW-W-36"/40" HYD. FLAT FOLD	ASS'Y (G) 12-ROW -N-30" HYD. FLAT FOLD	ASS'Y (H) 12-ROW-W-36"/38 HYD. FLAT FOLD	ASS'Y (I) 16-ROW-N-30" HYD. FLAT FOLD
T	HOSE ASS'Y LONG	302-400024	302-400005	302-400013	302-400014	302-400016
U	HOSE ASS'Y SHORT	302-400022	302-400003	302-400011	302-400012	302-400015
V	3/8" 90 DEGREE SWIVEL	071-1501-6-6	071-1501-6-6	071-1501-6-6	071-1501-6-6	071-1501-6-6
W	3/8" STEEL TEE	071-5605-6-6	071-5605-6-6	071-5605-6-6	071-5605-6-6	071-5605-6-6
X	L.H.WING CYLINDER	400-13485	400-13485	400-13485	400-13485	400-10328
Y	R.H. WING CYLINDER	400-13468	400-13468	400-13468	400-1346	400-13090
1.	SEAL KIT	424-13536	424-13536	424-13536	424-13536	424-12873
2.	PIN, CYLINDER MTG.	302-11918	302-11918	302-11919	302-11919	302-11919
3.	PIN, LINK PIVOT	302-11920	302-11920	302-11920	302-11920	302-11920
4.	PIN, HINGE	302-11907	302-11907	302-11906	302-11906	302-11906
5.	MACH. BUSHING	020-42000	020-42000	020-42000	020-42000	020-42000
6.	LOCKNUT	401-12278	401-12278	401-12278	401-12278	401-12278
7.	PIN, LINK TO WING	302-10915	302-10915	302-10915	302-10915	302-10915
8.	LINK	302-10338	302-10338	302-10338	302-10338	302-10338
9.	BELLCRANK	302-10336	302-10336	302-10336	302-10336	302-10336
10.	PIN, LINK TO WING	302-11914	302-11914	302-11914	302-11914	302-11914
11.	LOCKNUT	401-12286	401-12286	401-12286	401-12286	401-12286
12.	COTTER PIN	032-424434	032-424434	032-424434	032-424434	032-424434
13.	WING LOCKPIN	302-12727	302-12727	302-12727	302-12727	302-12727
14.	HAIR PIN	049-202356	049-202356	049-202356	049-202356	049-202356
15.	HEXBOLT	016-176348	016-176348	016-176348	016-176348	016-176348
16.	JAMNUT	017-116238	017-116238	017-116238	016-116238	016-116238

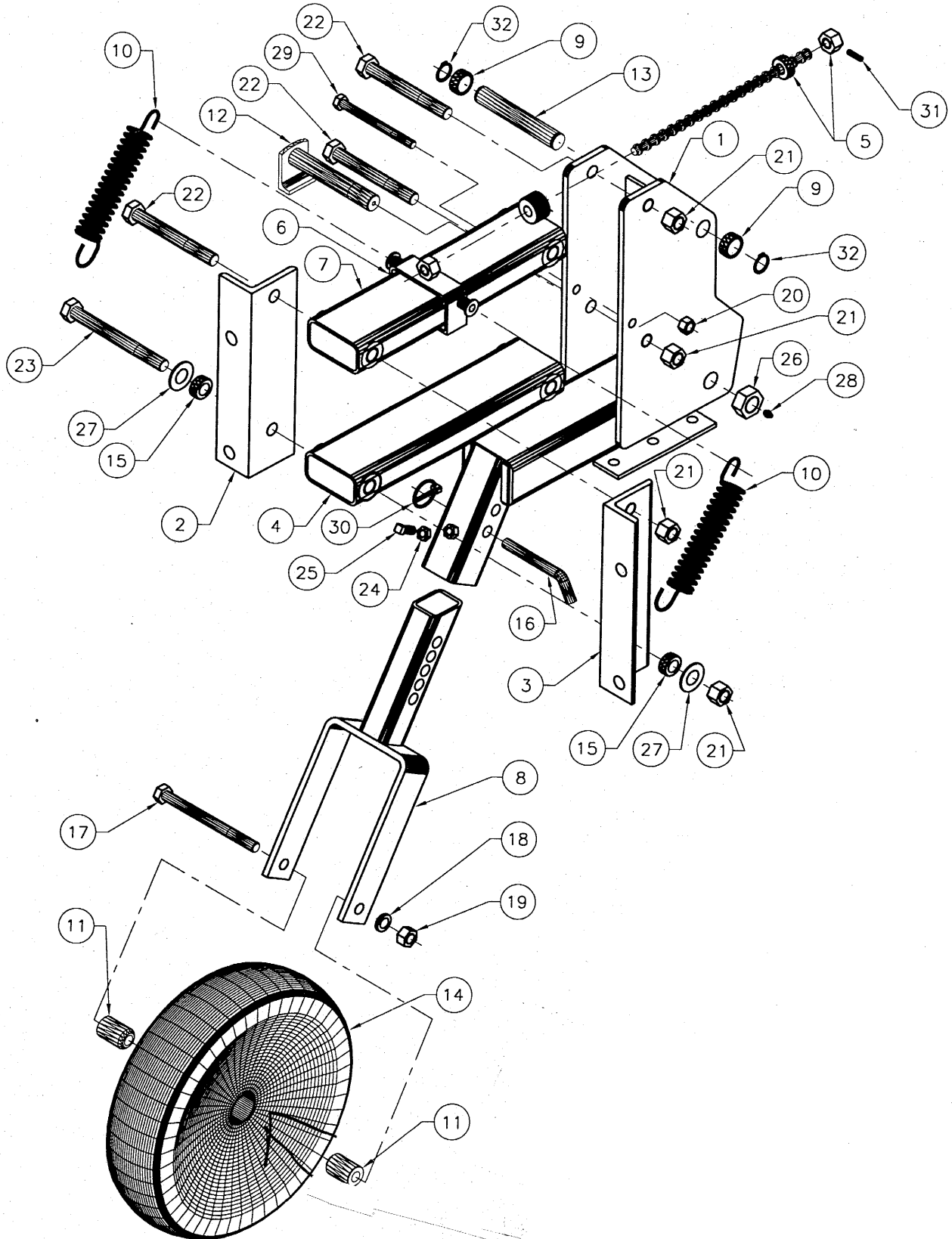
HYDRAULIC FOLD HINGE ASS'Y



GANG ASS'Y (MAINFRAME)

ITEM NO.	PART NO.	DESCRIPTION	PER GANG
1.	302-13394	Main Frame Gang	1
2.	302-13376	Angle Mount Right	1
3.	302-13377	Angle Mount Left	1
4.	302-13374	Arm Ass'y Lower	1
5.	302-13388	Bolt Spring Adjuster	1
6.	302-13387	Yoke Spring Adjuster	1
7.	302-13406	Arm Ass'y Upper	1
8.	302-13382	Strut Gauge Wheel Weld	1
9.	302-13398	Collar Toggle Pin	2
10.	302-13369	Spring Extension	2
11.	302-13407	Spacer Gauge Wheel	2
12.	302-12429	Pin Shank Pivot	1
13.	302-12426	Pin Toggle Upper	1
14.	302-12436	Wheel Gauge (Complete)	1
15.	302-12933	Collar Adj. Bolt	2
16.	302-11320	Pin Park Stand	1
17.	016-176402	Bolt Hex 5/8-11UNC x 7	1
18.	017-116236	Nut Hex 5/8-11UNC	1
19.	020-11625	Washer lock 5/8 Dia.	1
20.	017-166529	Nut Lock 1/2-13UNC	2
21.	017-166541	Nut Lock 3/4-10UNC	4
22.	016-186480	Bolt Hex 3/4-10UNC x 6	3
23.	016-186486	Bolt Hex 3/4-10UNC x 7	1
24.	017-116219	Nut Jam 7/16-14UNC	3
25.	047-402212	Screw Set Sq. Hd. 7/16-14UNC x 1	1
26.	017-168349	Nut Lock 1-14UNS	1
27.	020-41875	Bushing Machine 7/8 Wide	2
28.	031-341202	Zerk Grease 1/4-28UNF	1
29.	016-166330	Bolt Hex 1/2-13UNC x 5 1/2	1
30.	037-218310	Pin Lynch	1
31.	029-120360	Pin Roll 1/4 x 1	1
32.	302-1400-100	Ring Retaining 1"	2

GANG ASS'Y (MAINFRAME)

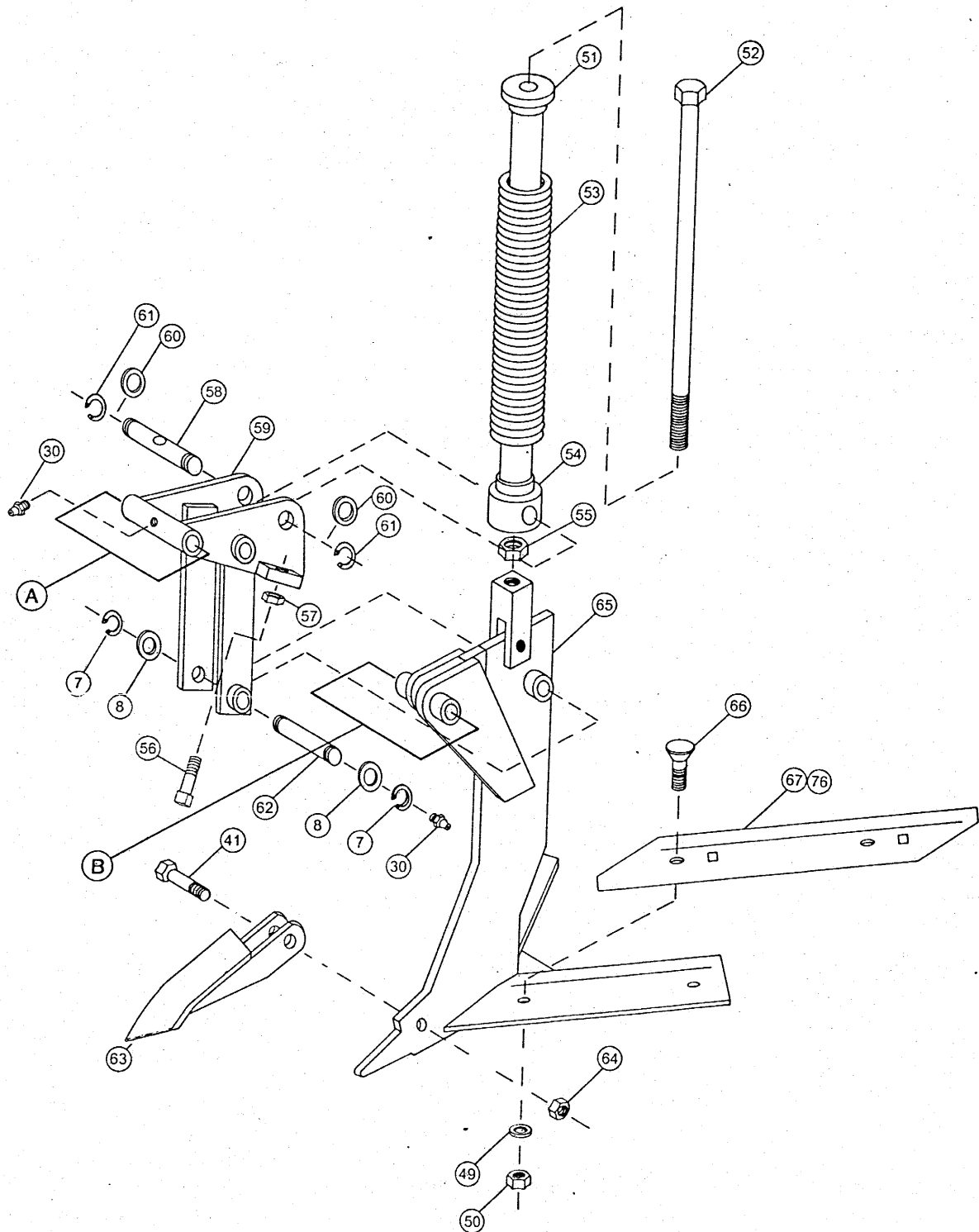


SHANK ASS'Y (GANG)

ITEM	PART NO.	DESCRIPTION	QTY.
7.	302-1400-100	1" Retaining Ring	2
8.	020-32000	1" Machinery Bushing (Narrow)	2
30.	031-341202	1/4-28 Grease Zerk	2
41.	016-166282	1/2" N.C. Hexbolt x 1 1/2"lg.	1
49.	020-11375	3/8" Lockwasher	4
50.	017-116212	3/8" N.C. Hexnut	4
51.	302-12387	Spring Guide	1
52.	302-12388	3/4" N.C. Hexbolt x 21" lg.	1
53.	302-12391	Compression Spring	1
54.	302-12386	Swivel, Spring Mount	1
55.	017-116243	3/4" N.C. Hex Jam Nut	1
56.	047-402228	7/16" N.C. Sq. Hd. Set Screw x 1 1/2"lg.	2
57.	017-116219	7/16" N.C. Hex Jam Nut	2
58.	302-12439	Pivot Pin, Upper	1
59.	302-12384	Link & Toggle Weldment	1
60.	020-32250	1 1/4" Machinery Bushing, Narrow	2
61.	302-1400-125	1 1/4" Retaining Ring	2
62.	302-12440	Pivot Pin, Lower	1
63.	300-270481	Digger Point w/Cap	1
64.	017-166529	1/2" N.C. Locknut	1
65.	302-12442	T1 Standard Shank Weldment	ref.
	302-12993	T1 Left Hand Weldment	ref.
	302-12992	T1 Right Hand Weldment	ref.
66.	302-12443	3/8"N.C. Plow Bolt x 1 1/4"lg.	4
67.	300-270330	17" Plain Reversible Plow Lays	ref.
68.	300-270340	17" Hard Surfaced Reversible Plow Lays	ref.
69.	300-270350	19" Plain Reversible Plow Lays	ref.
70.	300-270360	19" Hard Surfaced Reversible Plow Lays	ref.
71.	300-270370	21" Reversible Plow Lays	ref.
72.	300-270380	21" Hard Surfaced Reversible Plow Lays	ref.
73.	300-270390	25" Plain Reversible Plow Lays	ref.
74.	300-270400	25" Hard Surfaced Reversible Plow Lays	ref.
75.	300-270410	27" Plain Reversible Plow Lays	ref.
76.	300-270420	27" Hard Surfaced Reversible Plow Lays	ref.
77.	300-270440	31" Plain Non-Reversible Plow Lays	ref.
78.	300-270450	31" Hard Surfaced Non-Reversible Plow Lays	ref.
79.	300-270461	33" Plain Non-Reversible Plow Lays	ref.
80.	300-270470	33" Hard Surfaced Non-Reversible Plow Lays	ref.

SHANK ASS'Y (GANG)

NOTE: Item (A) on page 8.6 (Toggle Link Weldment) connects to Gang Mainframe (page 8.4) where Toggle Pin (item 13) is located . Item (B) Shank Weldment (page 8.6) connects to Gang Mainframe (page 8.4) where Shank Pivot Pin (item 12) is located.



STABILIZER ASS'Y

NOTE; All 1700 Minimum-Till Cultivators come from the Factory with 2-Complete stabilizers as Standard Equipment. To add additional Stabilizers would be considered Optional Equipment: Part No. 300-400240 Heavy Duty Spring Loaded Stabilizer (Each).(complete).

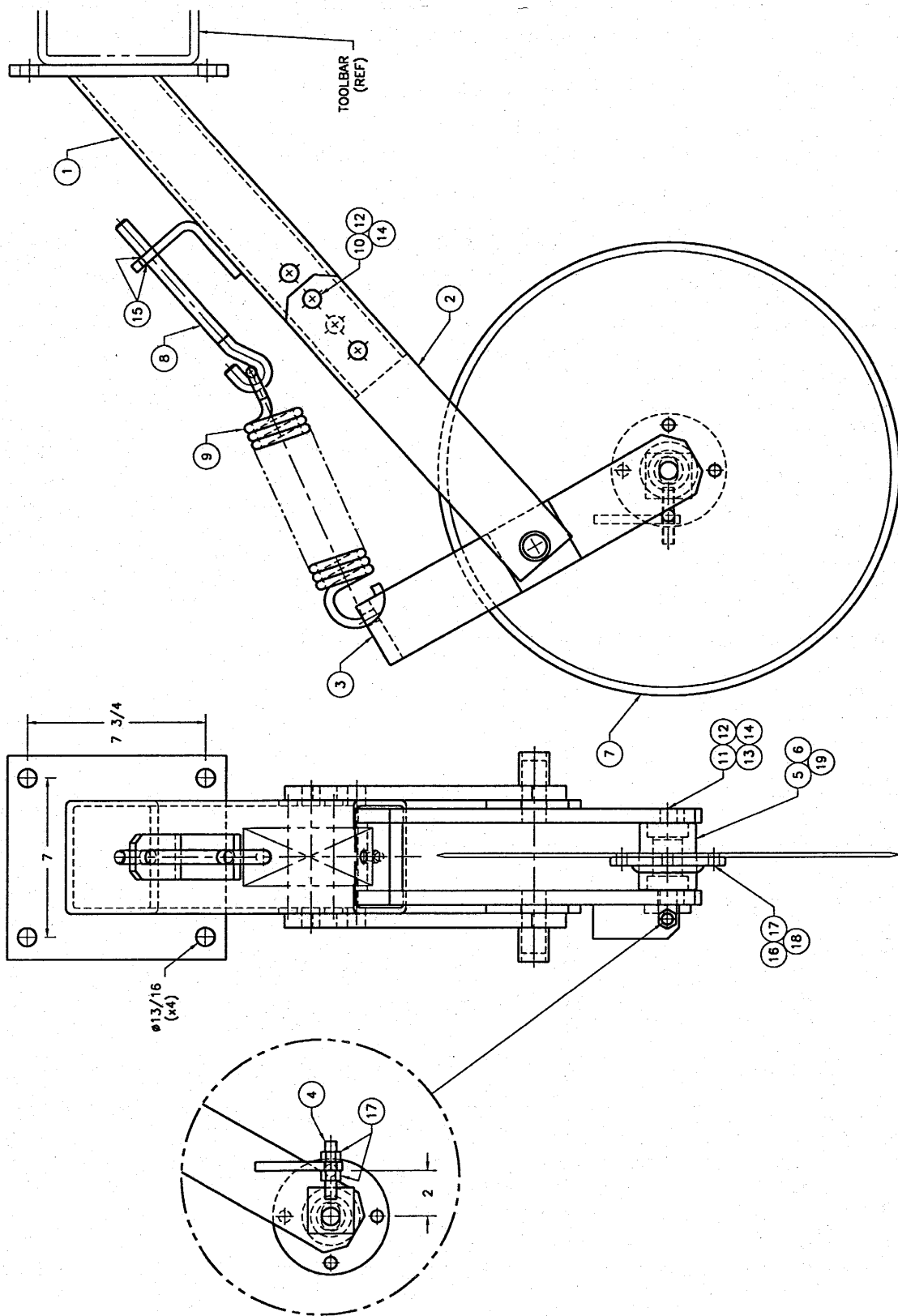
STABILIZER PARTS ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION	PER UNIT
1.	302-13478	Mount	1
2..	302-13472	Leg	2
3.	302-13469	Fork	1
4.	302-13480	Adjuster	1
5.	302-13483	Hub, 4-bolt (coultter)	1
6.	302-12435	Spacer, Bearing	1
7.	302-13482	Coulter, 20"	1
8.	302-11350	Eyebolt	1
9.	302-12962	Spring, extension	1
10.	016-186489	3/4-10 UNC Hexbolt x 7 1/2" lg.	2
11.	016-186480	3/4-10 UNC Hexbolt x 6" lg.	1
12.	020-11750	3/4" Lockwasher	3
13.	020-31750	3/4" Machinery bushing (narrow)	2
14.	017-116242	3/4-10 UNC Hexnut	3
15.	017-116236	5/8-11UNC Hexnut	2
16.	020-11500	1/2" Lockwasher	4
17.	017-116224	1/2-13 UNC Hexnut	6
18.	016-166279	1/2-13 UNC Hexbolt x 1 1/4" lg.	4
19.	302-25005	3/4" I.D. Sealed Bearing	2

Note: For Stabilizer Parts Breakdown See page 8.8

STABILIZER ASS'Y

STABILIZER PARTS ASSEMBLY



TOOLBAR GAUGE WHEEL ASSEMBLY

NOTE: Toolbar Gauge Wheels (Pair) are Standard Equipment on all 1700 Hydraulic Flat Folding Models. If you wish to add additional Gauge wheels, the Optional Part No. is as follows:

300-700180 - Large Gauge Wheel Kit w/15 x 4.5" Rims (Pair)

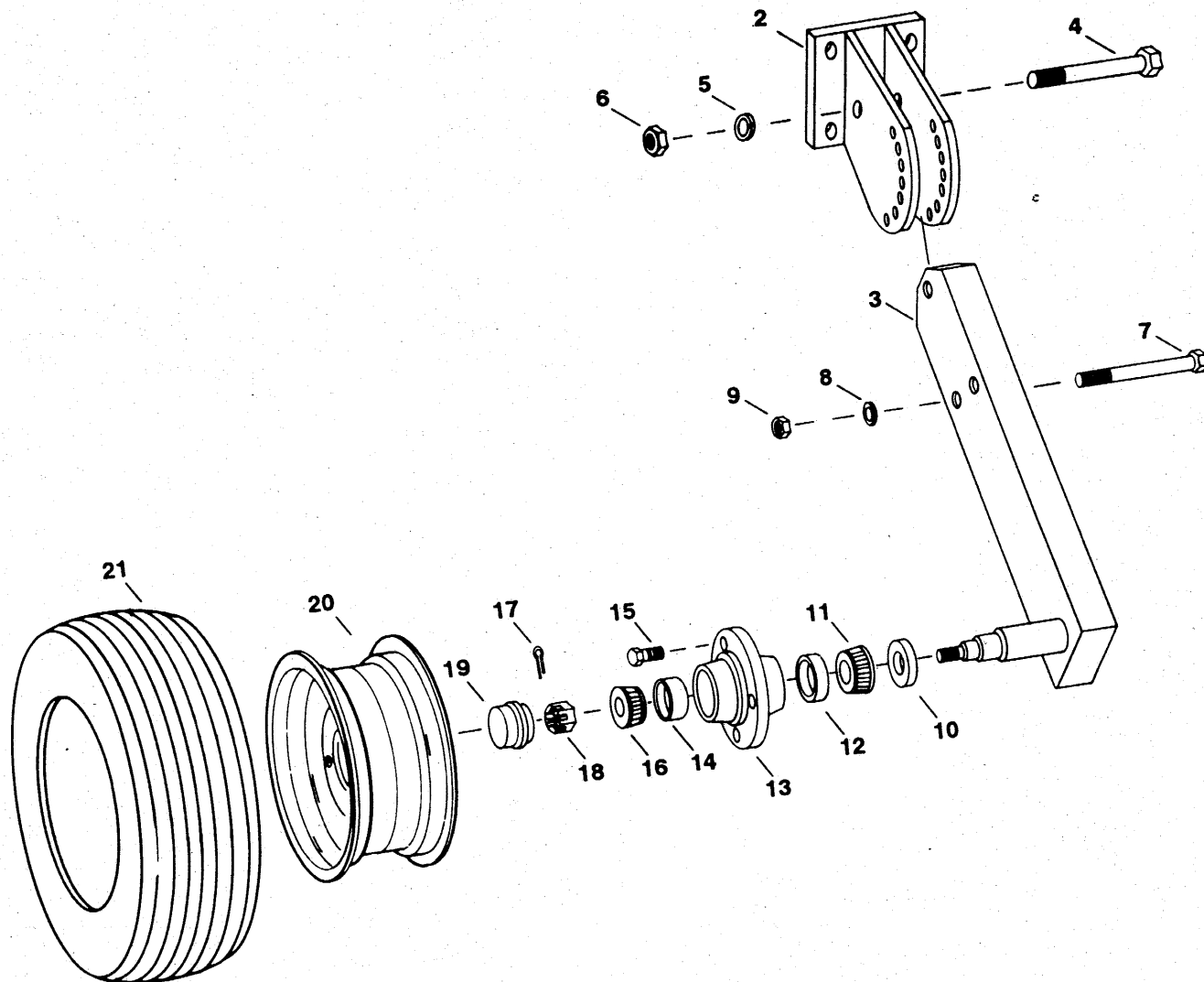
300-300230 - 590 x 15" or equiv. tire for above large gauge wheel kit (Each)

TOOLBAR GAUGE WHEEL PARTS ASSEMBLY

ITEM	PART NO.	DESCRIPTION	QTY.
2.	302-13017	7 x 7 Mounting Bracket	1
3.	302-13014	Leg, Gauge Wheel	1
4.	016-176366	5/8" N.C. Hexbolt x 3 1/2" lg.	1
5.	020-11625	5/8" Lock Washer	1
6.	017-116236	5/8" N.C. Hexnut	1
7.	016-166306	1/2" N.C. Hexbolt x 3 1/2" lg.	1
8.	020-11500	1/2" Lock Washer	1
9.	017-116224	1/2" N.C. Hexnut	1
10.	050-41111	Hub Seal	1
11.	019-1-LM67048	Inner Bearing	1
12.	019-LM67010	Cup, Inner	1
13.	050-41100	4-Bolt Hub w/Cups	1
14.	019-LM11910	Cup, Outer	1
15.	050-41150	1/2"-N.F. Wheel Bolt x 1 1/4" lg.	4
16.	019-LM11949	Outer Bearing	1
17.	032-424302	Cotter Pin 1/8" Dia. x 2" lg.	1
18.	017-170190	3/4"-16 Slotted Nut	1
19.	050-41160	Dust Cap	1
20.	050-15041	15" 4-Bolt Rim	1
21.	300-300230	15" Tire (OPTIONAL)	1

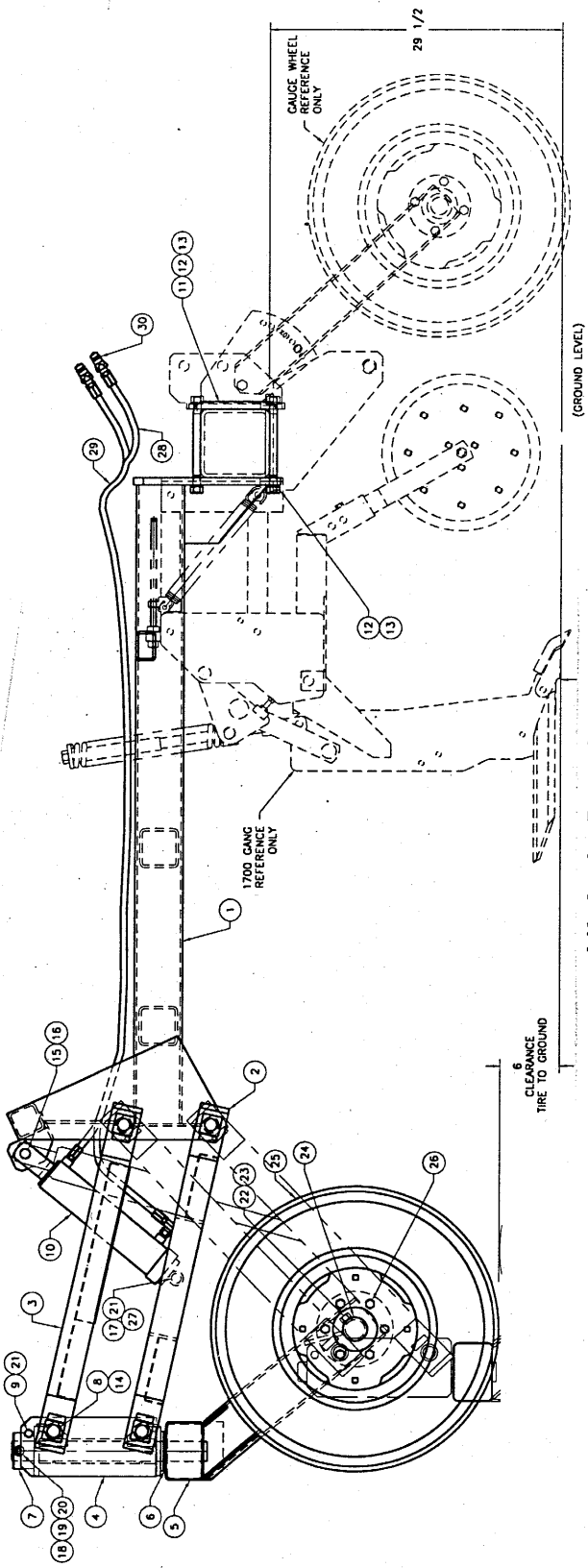
TOOLBAR GAUGE WHEEL ASS'Y

300-700185 7 X 7 (Complete Gauge Wheel Pair)



OPTIONAL WETHERELL LIFT ASSIST

Note: If you have purchased a 1700 Minimum -Till Cultivator without Wetherell Lift Assist, and would like to add this Option, the Part Number for Lift Assist Bundle (Hyd. Cylinder, Hoses to Tractor, and Tire included.) is 300-700175



Lift Assist Parts Assembly

ITEM	PART NO.	DESCRIPTION	ITEM	PART NO.	DESCRIPTION
1.	302-12298	Frame Main Weld't	17.	302-11946	Pin Weld Pivot Belcrank
2.	302-12300	Arm, Lower	18.	016-156246	Hexbolt 7/16-14 UNC x 4" lg.
3.	302-12301	Arm, Upper	19.	017-116218	Hexnut 7/16-14 UNC
4.	302-12299	Support, Wheel	20.	020-11437	7/16" Lockwasher
5.	302-12302	Frame, Castor	21.	032-424368	Cotter Pin 3/16 x 1 1/2
6.	302-12306	Collar, Thrust	22.	047-402284	Set Screw 5/8-11UNC x 1 1/2 lg.
7.	302-12304	Cam, Anti-Shimmy	23.	017-116238	Jam Nut 5/8-11UNC
8.	302-12303	Pin, Arm	24.	302-13199	Spindle and Hub Assy
9.	302-12305	Shaft, Spring	25.	302-13199	Wheel and Tire Assy
10.	400-13154	Cylinder, Hydraulic	26.	050-41150	Wheel Bolt
11.	060-11322	U-Bolt	27.	600-425110	Depth Stop Set Cylinder Rod
12.	017-116242	Nut, Hex 3/4-10 UNC	28.	302-13669	Hose, Hydraulic
13.	020-11750	Washer, Lock	29.	302-13197	Hose, Hydraulic
14.	017-166565	Nut, Locking Thin 1 1/4	30.	071-8010-4MB	ISO Male Tip x 1/2 FPT
15.	426-13007	Pin, Clevis	31.	031-341202	Grease Zerk 1/4-28UNF
16.	049-202356	Hair pin 5/32			

OPTIONAL HILLERS (CUT AWAY DISC)

Note: If you have purchased a 1700 Minimum-Till cultivator without Hillers, and would like to add this Option, the Part Number for Hillers (Per Row) is 300-270490.

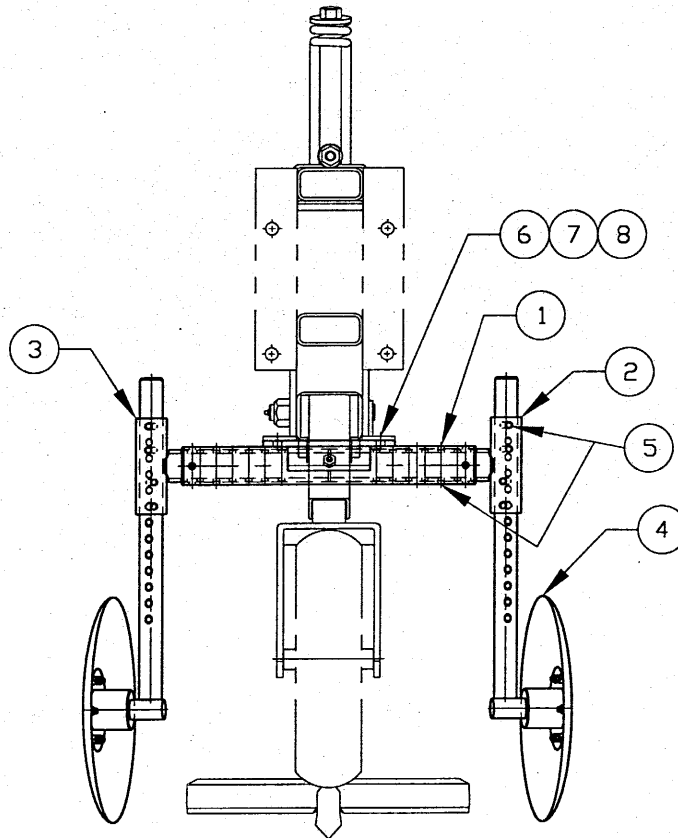
ASSEMBLY OF DISC HILLERS

ON ONE GANG

Place disc hiller mount (item # 1) under mounting flange of gang frame in the forward of two positions. Bolt mount in place with 4 - 1/2" bolts, nuts, and lockwashers (items # 6, 7, 8). Insert Left Hand pivot (item # 2) and Right Hand pivot (item # 3) in mount, turned to the alternate (horizontal) position, temporarily pin in place (item # 5). Insert disc/axle ass'y's (item # 4) in both pivots, oriented to take away from or deposit soil to crop row. Establish disc to soil engagement height, pin in place (item # 5). Remove temporary pin to telescope disc/pivot ass'y's to width, allowing clearance to crop row.

ON REMAINING GANGS

Use the accumulated information to assemble the remaining units.

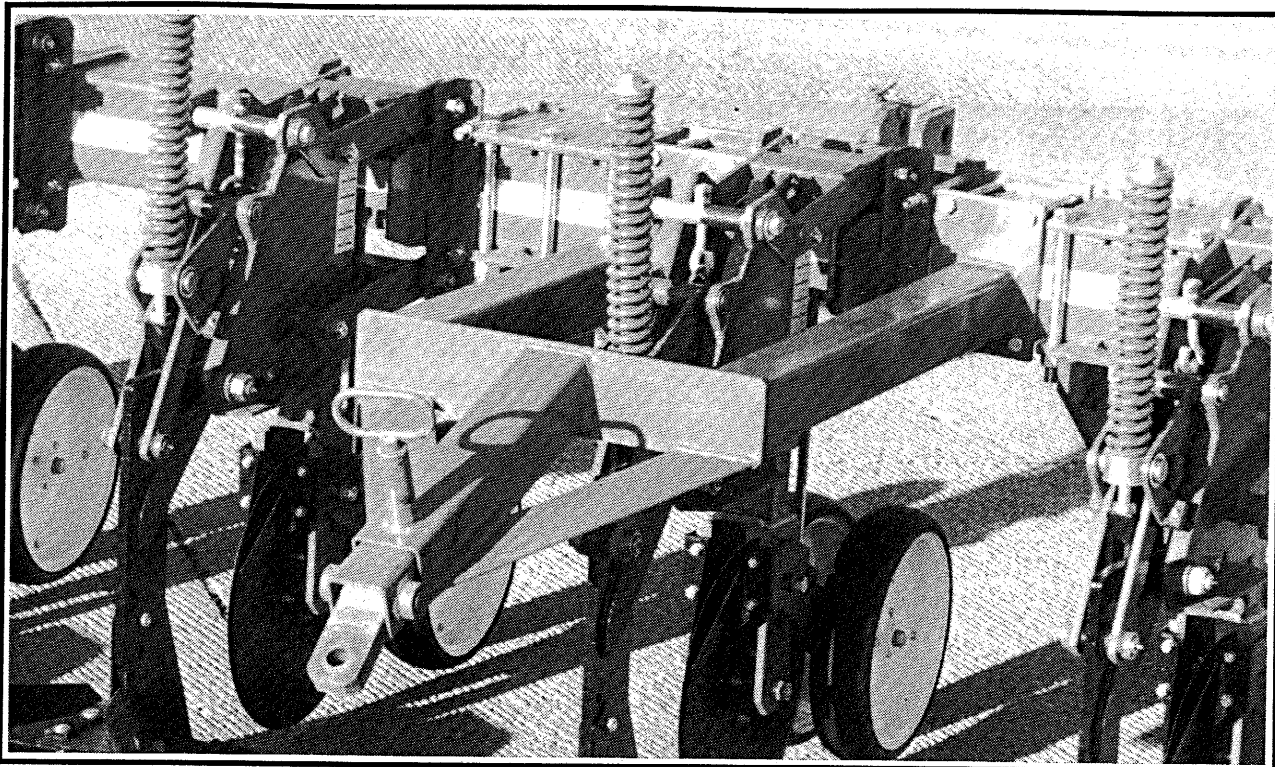


DISC HILLER ASS'Y

ITEM	PART NUMBER	DESCRIPTION	Qty. Per Gang
1.	302-13263	Mount Disc Hiller	1
2.	302-13267	Left Hand Pivot Weld't	1
3.	302-13268	Right hand Pivot Weld't	1
4.	302-13273	Disc/Axle Ass'y	2
5.	037-233752	Safety Pin (Snap)	4
6.	016-166282	1/2"-N.C. Hexbolt x 1 1/2" lg.	4
7.	017-116224	1/2"-N.C. Hexnut	4
8.	020-11500	1/2" Lockwasher	4

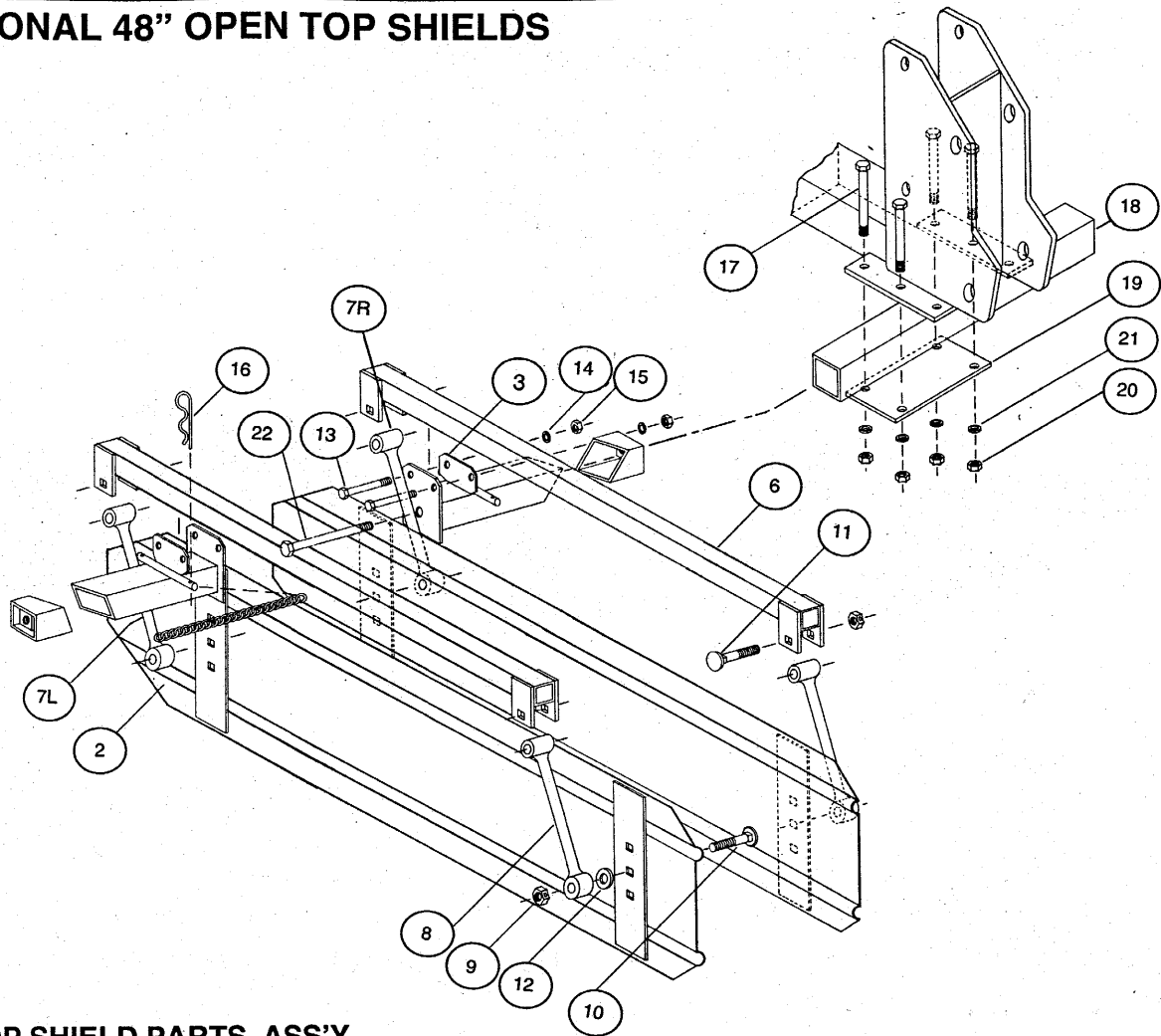
OPTIONAL NH3 HITCH

NOTE: If you have purchased a 1700 Minimum-Till cultivator, without the Telescoping NH3 (anhydrous) Hitch, and would like to add this Option, the Part Number is 300-270510 complete.



The Wetherell Telescoping NH3 (Anhydrous) Hitch, bolts on to cultivator toolbar, over center gang. 4- 5/8" x 7 x 7 U-Bolts are required, and are included. The NH3 Hitch has a telescoping Tang for adjustment and easier hookup to pull type Anhydrous Tank.

OPTIONAL 48" OPEN TOP SHIELDS

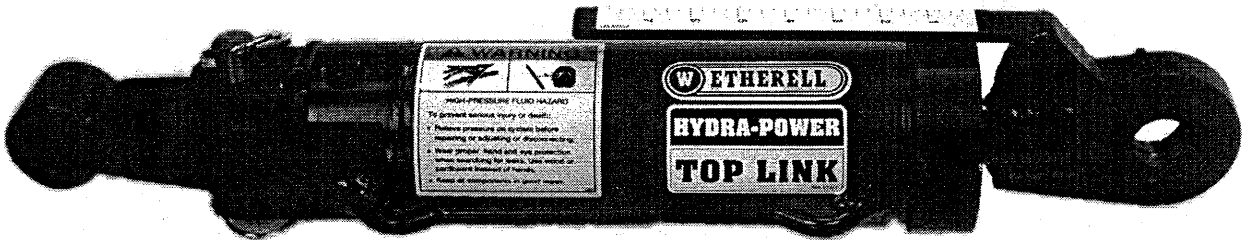


OPEN TOP SHIELD PARTS ASS'Y

ITEM	PART NO.	DESCRIPTION
2.	300-12248	48" Open Top Shield
3.	302-13525	2" Wedge Tube Weld't
	302-13521	2" Wedge (included w/ 2" wedge tube)
6.	302-12256	Upper Tube Weldment
7L	302-13495	Left Hand Link w/chain
7R	302-13494	Right Hand Link w/chain
8.	302-12251	Shield Link
9.	017-166532	7/16"-N.C. Locknut
10.	013-330688	7/16"-N.C. Carriage Bolt x 2" lg.
11.	013-330696	7/16"-N.C. Carriage Bolt x 2 1/2" lg.
12.	020-21437	7/16" Flatwasher
13.	013-330403	5/16"-N.C. Hexbolt x 2 1/4" lg.
14.	020-11315	5/16" Lockwasher
15.	017-116206	5/16"-N.C. Hexnut
16.	049-202348	Hair Pin
17.	019-156246	7/16"-N.C. Hexbolt x 4" lg.
18.	302-13545	Cross Tube 2 1/2" Sq. x 3/16 Wall x 16" lg. (For Narrow Rows)
	302-13546	Cross Tube 2 1/2" Sq. x 3/16 Wall x 18" lg. (For Wide Rows)
19.	302-13496	Clamp Plate
20.	017-116218	7/16" Hexnut
21.	020-11437	7/16" Lockwasher
22.	016-176420	5/8" N.C. Hexbolt x 10" lg.

NOTE: If you have purchased a 1700 Minimum Till-Cultivator without Open Top Shields, and would like to add this Option the Part Number for 48" Open Top Shields (Per Row) is 300-270320 (Mounting Brackets Included).

OPTIONAL HYDR-POWER TOP LINK



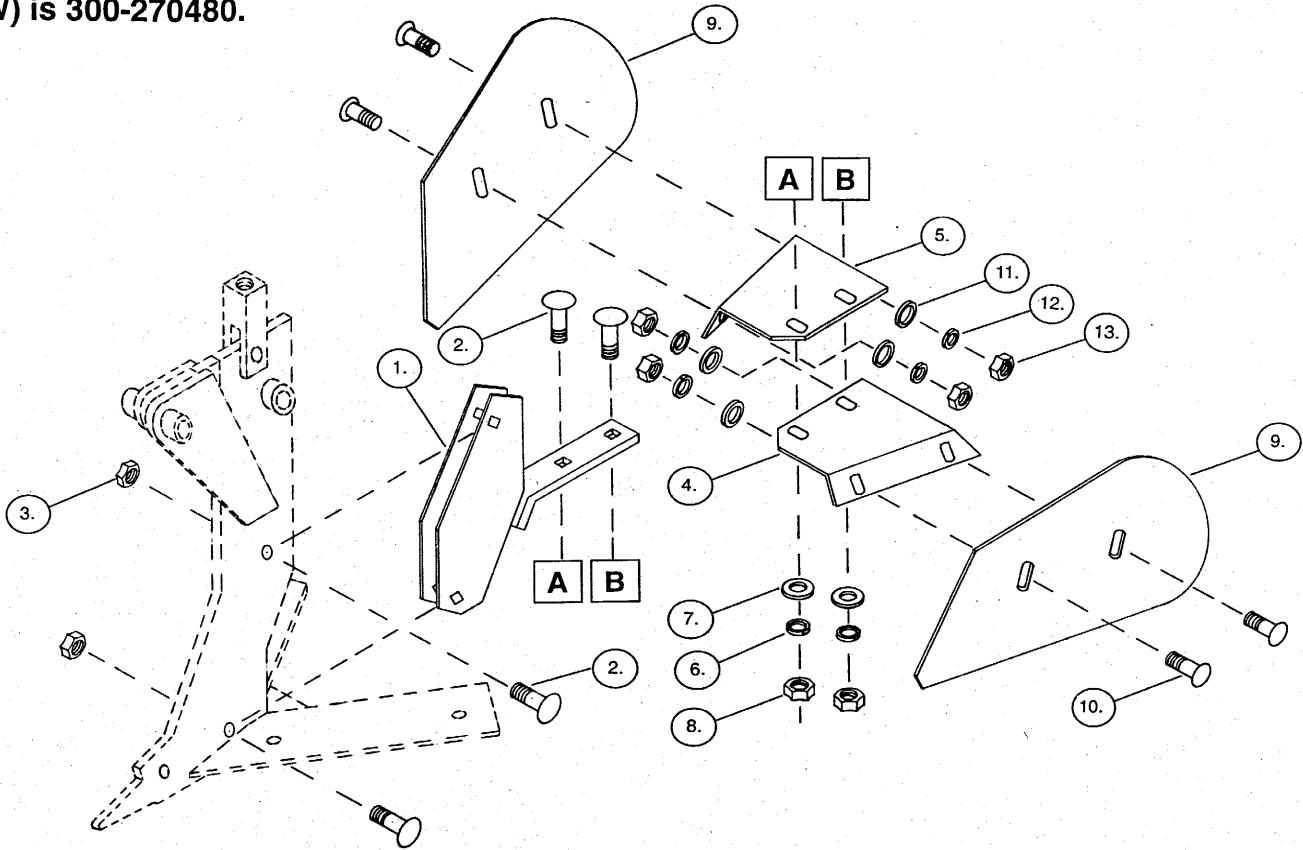
Hydra-Power Top Link Part No. 340-012635

The Hydra-Power Top Link assembly is comprised of a 3 1/2" bore x 7" stroke cylinder, with 4 1/4" and 7 1/2" Spacer Bars; built in check and Counter Balance Valves; Easy read Depth Gauge; Heavy Duty Swivel Socket on rod end; and Cat. II bushings. The Top Link, designed so you can eliminate the top 3-point turnbuckle to fully utilize your quick hitch, or your tractor's top 3-point . Tilt your quick hitch back and forth from the tractor cab when hooking up to unlevelled implements; Increase or decrease implement angle when cultivating, as soil type varies from one end of the field to the other. Top link locks cylinder in place, with check & counter balance valve (No Drifting, in or out) even in the event of a ruptured hydraulic hose; Make adjustments on the go, easy to read ruler type cylinder stroke gauge for accurate adjustment from the tractor seat.

For complete OPERATORS MANUAL AND PARTS BOOK - PART NO. 340-98129

OPTIONAL DELUXE RIDGE BUILDERS

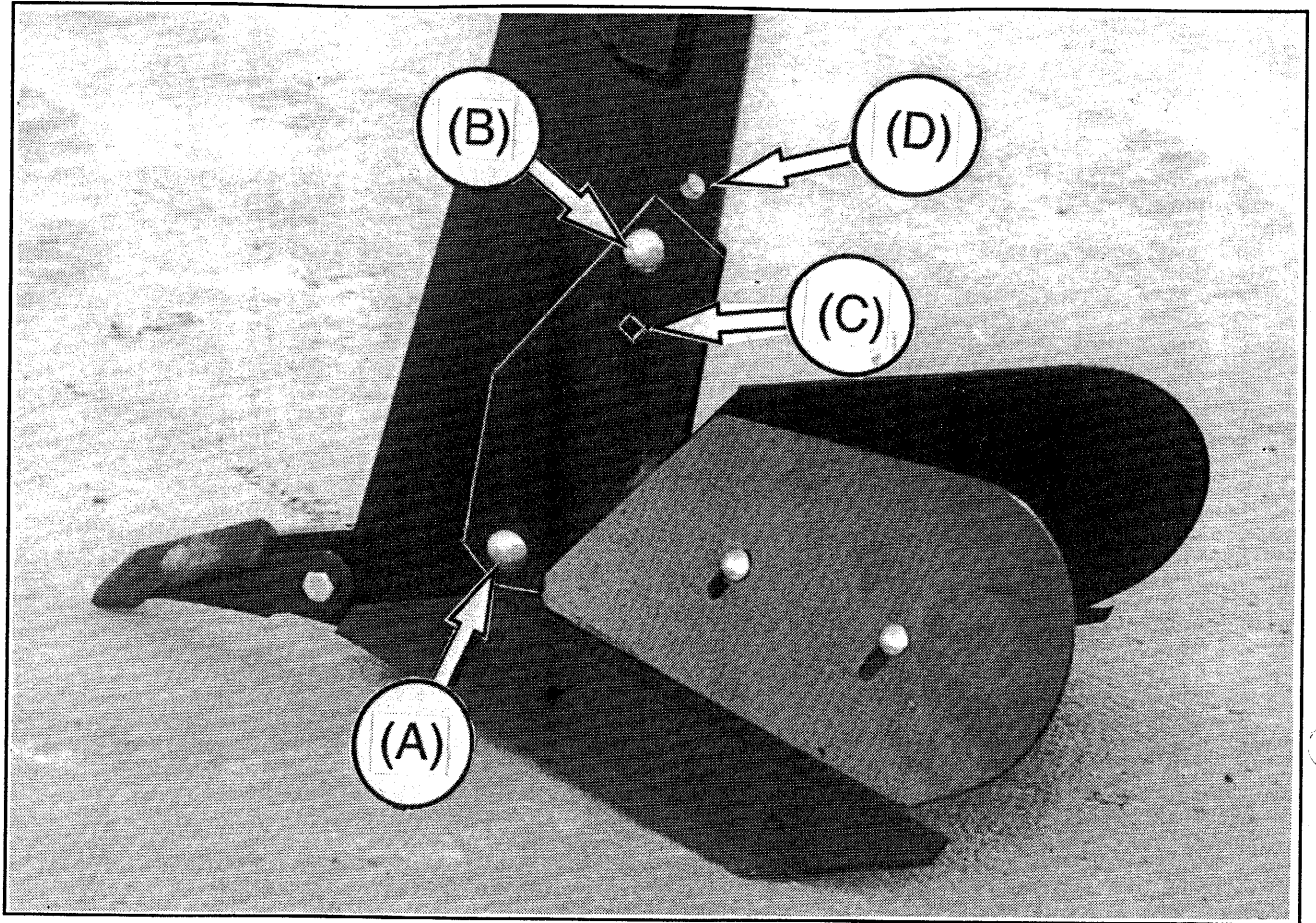
Note: If you have purchased a 1700 Minimum-Till Cultivator without Deluxe Ridge Builders, and would like to add this Option, The Part No. for Deluxe Ridge Builders (PER ROW) is 300-270480.



DELUXE RIDGE BUILDER PARTS ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION	PER GANG
1.	302-12491	Ridger Mount Weld't	1
2.	013-330803	1/2"-N.C. Carriage Bolt x 1 1/2" lg.	4
3.	017-166529	1/2"-N.C. Locknut	2
4.	302-13000	Left Hand Adjuster Support	1
5.	302-12492	Right Hand Adjuster Support	1
6.	020-11500	1/2"-N.C. Lockwasher	2
7.	020-21500	1/2"-N.C. Flatwasher	2
8.	017-116224	1/2"-N.C. Hexnut	2
9.	302-12488	Ridger Blade	2
10.	013-330662	7/16"-N.C. Carriage Bolt x 1" lg.	4
11.	020-21437	7/16" Flatwasher	4
12.	020-11437	7/16" Lockwasher	4
13.	017-116218	7/16"-N.C. Hexnut	4

OPTIONAL DELUXE RIDGE BUILDERS



SIDE VIEW OF DELUXE RIDGE BUILDERS ON 1700 SHANK

NOTE: The photo above shows Deluxe Ridge Builders mounted on a 1700 Minimum-Till Cultivator shank.

The convenience of the ridge builder is that it's not necessary to remove them from the cultivator when there not needed ; simply remove Carriage bolt (A), Loosen carriage bolt (B) , swing ridge builder ass'y up ; line up bracket hole (C) with shank hole (D) place carriage bolt (A) through (C) & (D) , tighten both carriage bolts and your field ready.