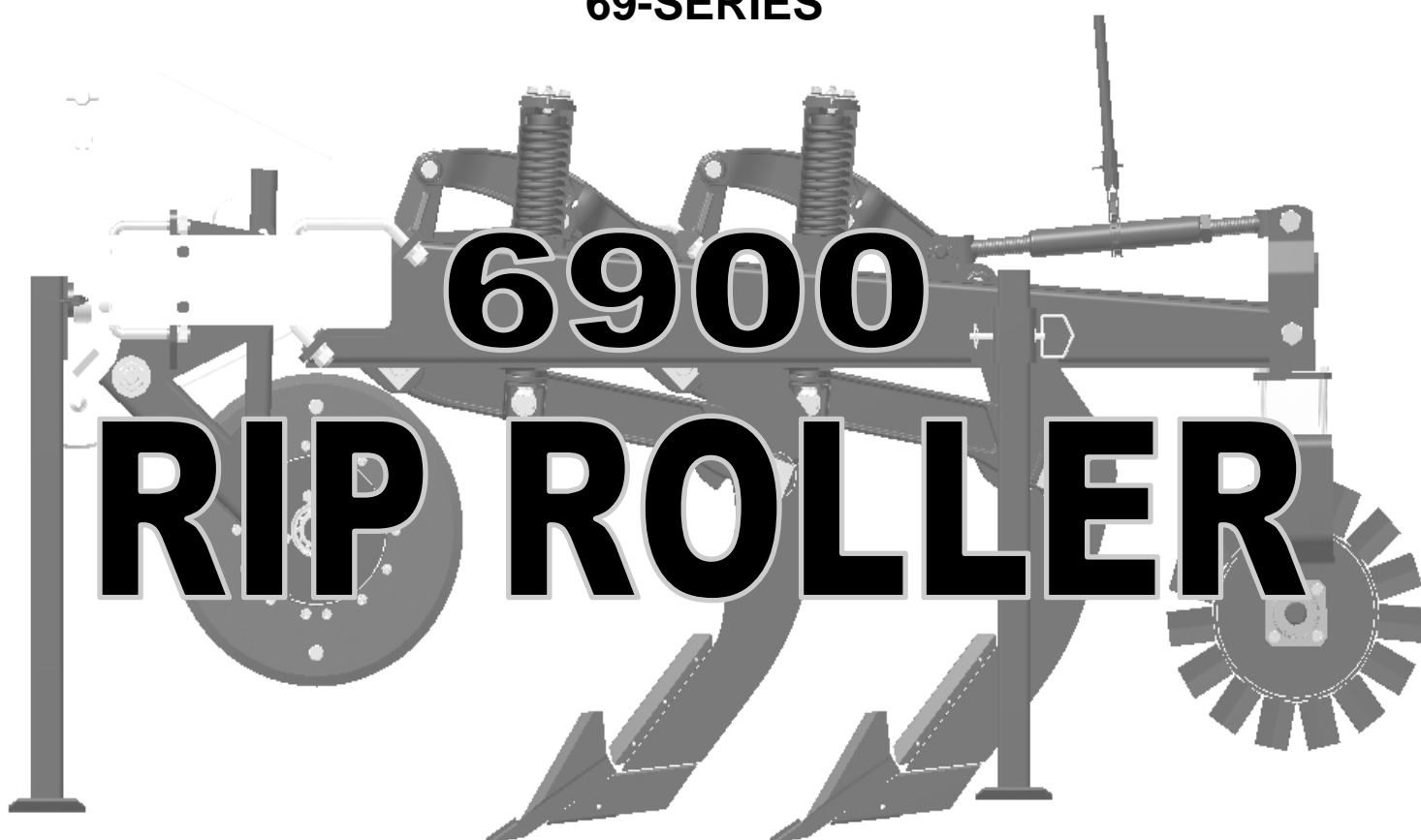




69-SERIES



OPERATOR'S MANUAL

THIS MANUAL TO ACCOMPANY MACHINE

PART NO. 69-OM-01
PRINTING DATE: DEC 2013

WARRANTY POLICY

KELLEY MANUFACTURING COMPANY (KMC) warrants that all goods sold to the original purchaser of any KMC product shall be free of any defects in material and workmanship if used under normal operating conditions. The warranty period begins on the date of purchase by the retail customer and ends twelve (12) months thereafter. KMC's sole responsibility is to repair and/or replace the defective part or parts at no cost to purchaser. This remedy is the **SOLE AND EXCLUSIVE REMEDY** of purchaser.

The purchaser must fill out and return the warranty registration form found in the front of the operator's manual. Failure to return the warranty registration form within 30 days shall result in the goods being sold "AS IS", and all warranties shall be excluded.

This warranty shall not apply to those items that are by nature worn in normal service, including but not limited to belts, springs, teeth, chains, etc. Items such as tires, tubes, and gearboxes and all other items warranted by the original manufacturer are warranted only to the extent of their individual manufacturer warranty, and KMC is not warranting any of said items. All warranty claims must be made through a KMC licensed dealer, and a warranty form request must be submitted to KMC within 30 days of failure or the warranty provision shall be unenforceable against KMC.

No agent or person has authority to change or add to this warranty as written.

THE ABOVE IS THE ONLY WARRANTY MADE BY KMC AND IS MADE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. KMC MAKES NO WARRANTY OF MERCHANTABILITY AS TO ANY GOODS MANUFACTURED BY KMC AND FURTHER, KMC DOES NOT WARRANT ANY SUCH GOODS AS SUITABLE FOR ANY PARTICULAR PURPOSE TO THE RETAIL CUSTOMER. THE SUITABILITY OF GOODS FOR ANY PURPOSE PARTICULAR TO THE CUSTOMER IS FOR THE CUSTOMER, IN HIS SOLE JUDGEMENT, TO DETERMINE. KMC FURTHER MAKES NO WARRANTIES WITH RESPECT TO ITS MANUFACTURED GOODS THAT WOULD NORMALLY BE DISCLOSED BY AN EXAMINATION. THIS IS THE FULL AND FINAL EXPRESSION OF ALL WARRANTY LIABILITY OF KMC. NO OTHER WARRANTY, EITHER EXPRESSED OR IMPLIED, SHALL BE ENFORCEABLE AGAINST KMC.

Kelley Manufacturing Co.

80 Vernon Drive / Zip 31794
P.O. Drawer 1467 / Zip 31793
Tifton GA

6900 SERIES SUBSOILER LEVELER OWNERS MANUAL

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FORWARD

INTRODUCTION:

The 6900 Series Subsoiler Leveler is a heavy-duty deep tillage tool that is capable of breaking up the ground hardpan across the entire width of the implement while leveling the soil surface in heavy residue conditions. The unit comes equipped with Residue Cutting Coulters, whether on individual Front Swivel Coulters Mounts or attached directly to a Cover Crop Roller. The unit also comes equipped with a Spiked Roller that trails behind to provide a firm, level seedbed for fall cover crops or spring row crops. Two shank versions are offered with this series product. Reset on the Go Shanks for non-stop operation, with the ability to clear obstructions and fully reset back in the ground without ever slowing down and Toggle Trip Shanks offering the same superior load protection, but requiring lifting for full reset.

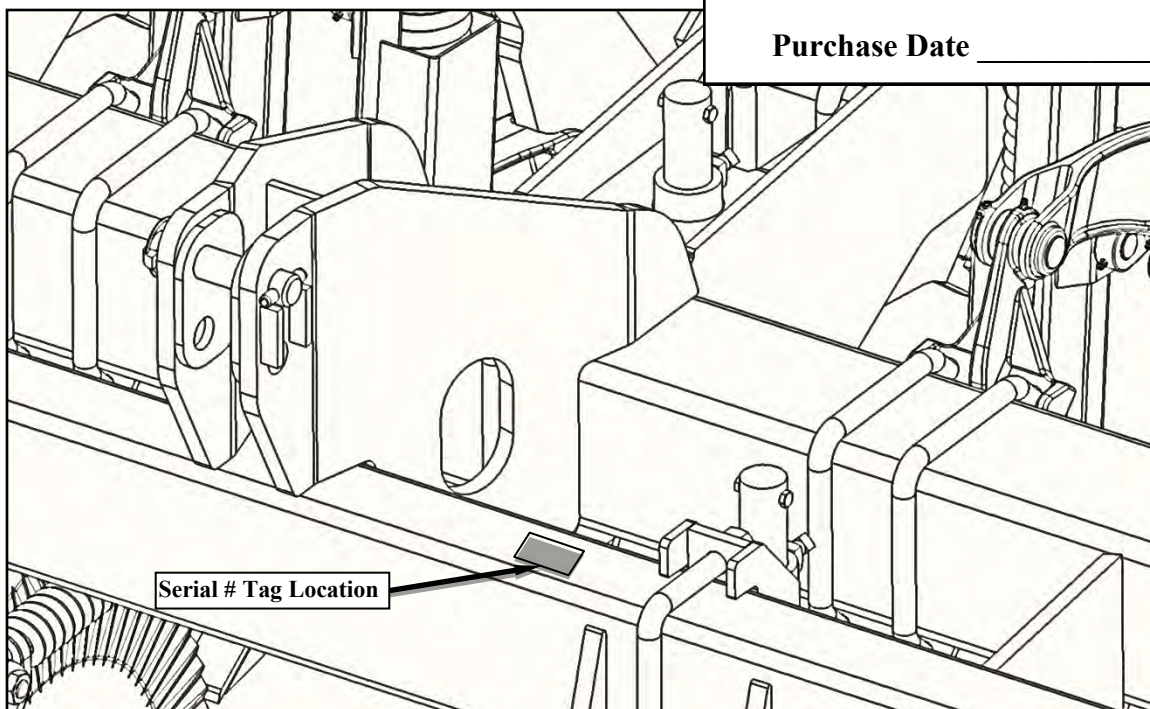
TO THE PURCHASER

This **KMC 6900 Series Subsoiler Leveler** has been carefully designed and manufactured to give years of dependable service. In order to operate it efficiently and maintain it properly, please read the instructions within this manual thoroughly.

Some components of this machine are labeled left or right. The notations are determined by standing behind the implement and facing the direction of forward travel.

After reading this Operator's Manual, Please keep it for reference each season.

To insure procurement of the proper repair parts, please record your machine's Model Number, Serial Number, and Purchase Date as shown below:



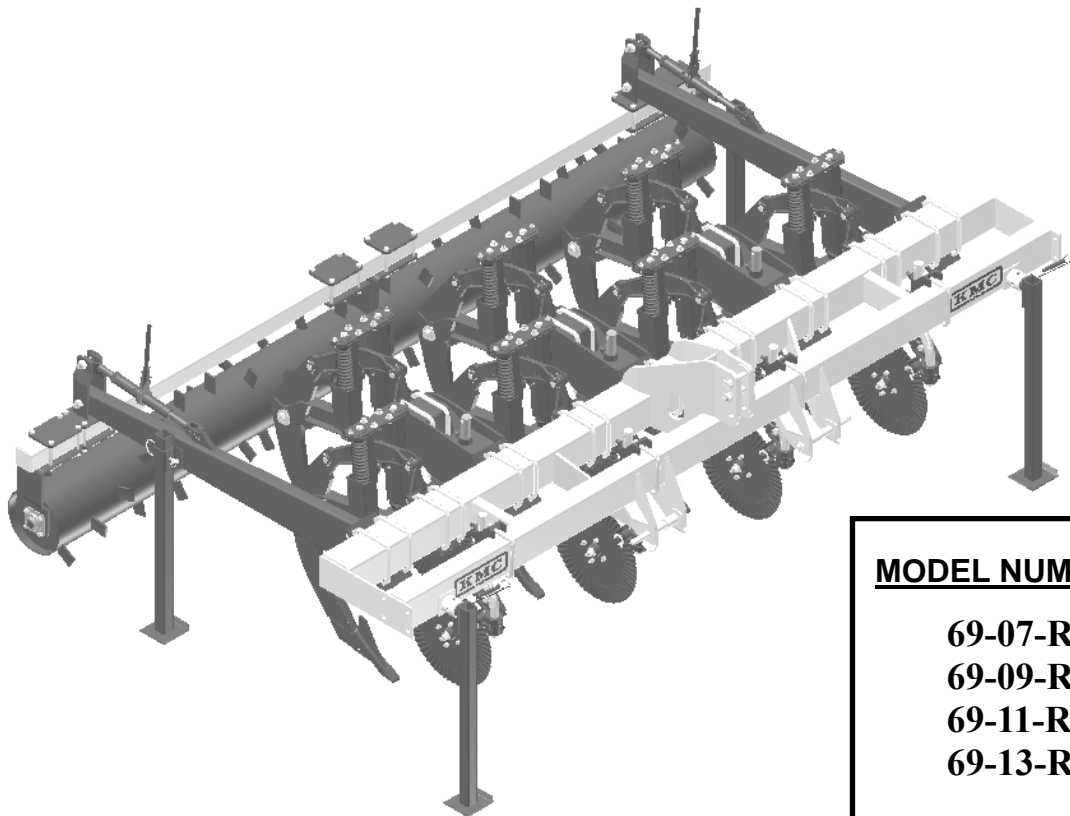
Model No. _____

Serial No. _____

Purchase Date _____

MODELS COVERED IN THIS OWNER'S MANUAL:

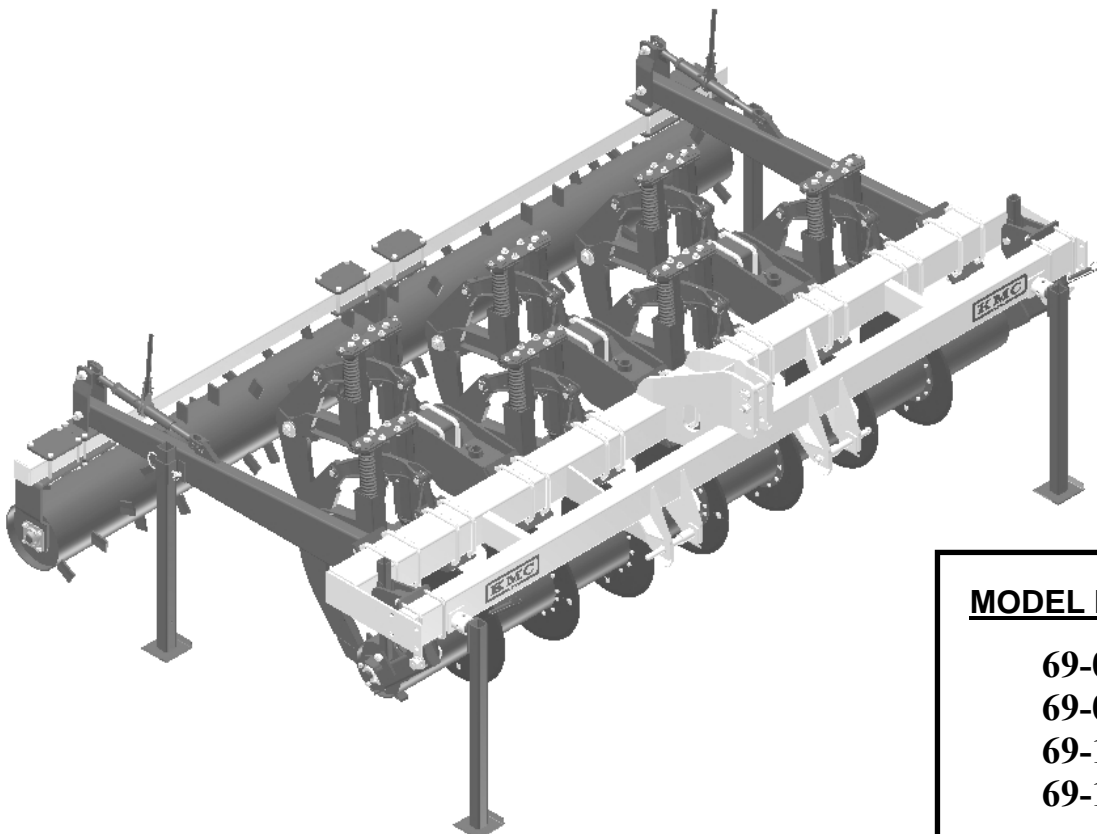
Subsoiler Leveler With Reset On The Go & Front Swivel Coulters



MODEL NUMBERS

**69-07-R-FC
69-09-R-FC
69-11-R-FC
69-13-R-FC**

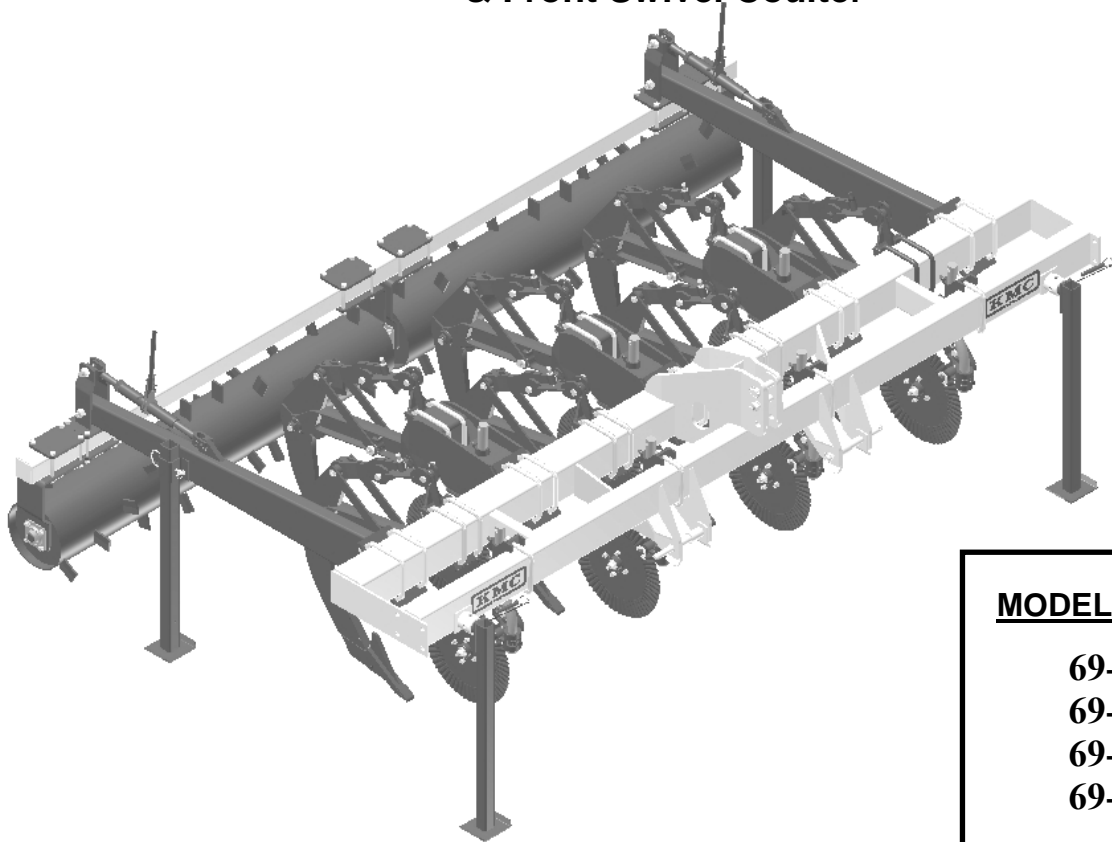
Subsoiler Leveler With Reset On The Go & Cover Crop Roller



MODEL NUMBERS

**69-07-R-CR
69-09-R-CR
69-11-R-CR
69-13-R-CR**

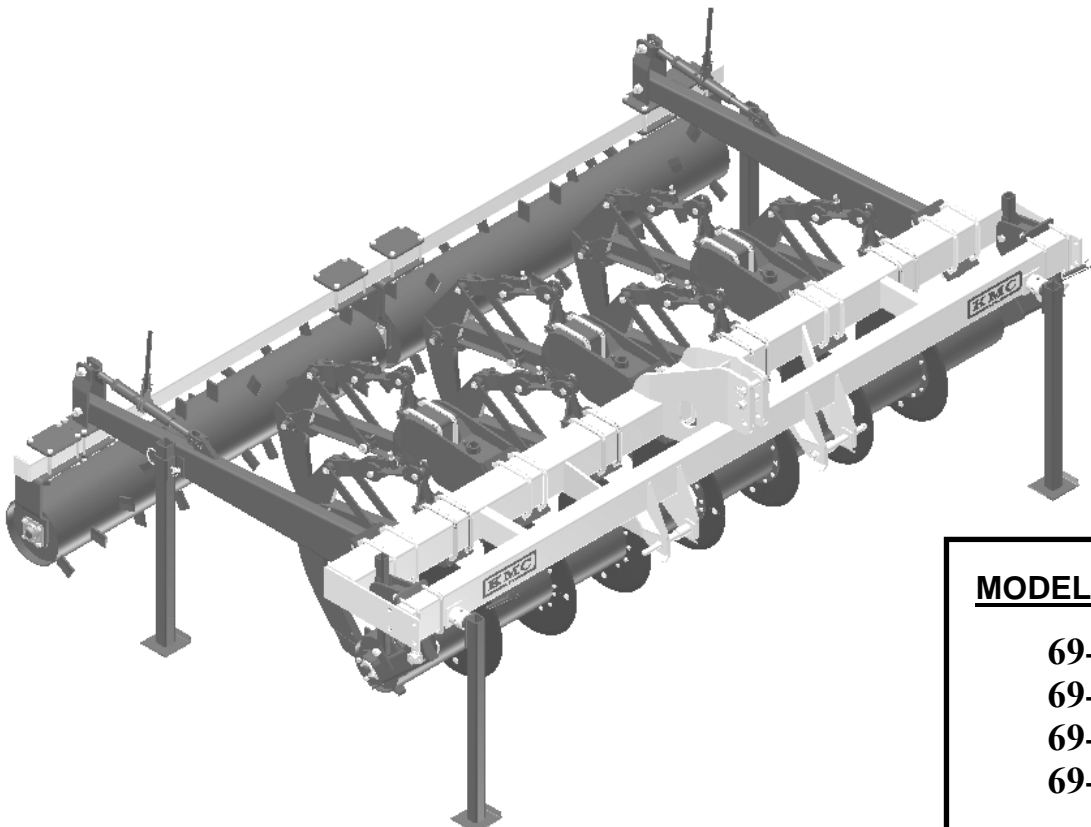
**Subsoiler Leveler With Toggle Trip Shanks
& Front Swivel Coulter**



MODEL NUMBERS

**69-07-T-FC
69-09-T-FC
69-11-T-FC
69-13-T-FC**

**Subsoiler Leveler With Toggle Trip Shanks
& Cover Crop Roller**



MODEL NUMBERS

**69-07-T-CR
69-09-T-CR
69-11-T-CR
69-13-T-CR**

PRE-OPERATIONAL CHECKLIST:

- ☐ All safety and operating procedures reviewed
- ☐ All hardware checked for tightness
- ☐ Hitch connection to implement information reviewed
- ☐ Field adjustment procedures reviewed
- ☐ Lubrication information reviewed
- ☐ Machine fully lubricated
- ☐ Warranty information reviewed

NOTES:

[illegible]

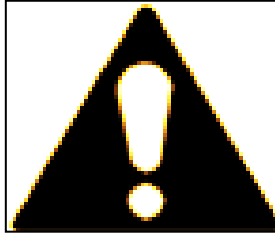
SAFETY

SYMBOL INFORMATION



This safety alert symbol is used throughout this manual to identify safety messages. When you see this symbol, read the message which follows as it will advise you of possible injury.

REMEMBER



THINK SAFETY!



DANGER

(RED)

This symbol indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.



WARNING

(ORANGE)

This symbol indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. It may also be used to alert against unsafe practices.



CAUTION

(YELLOW)

This symbol indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

! IMPORTANT !

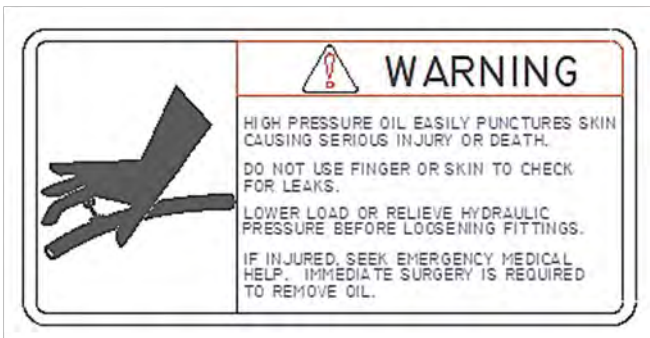
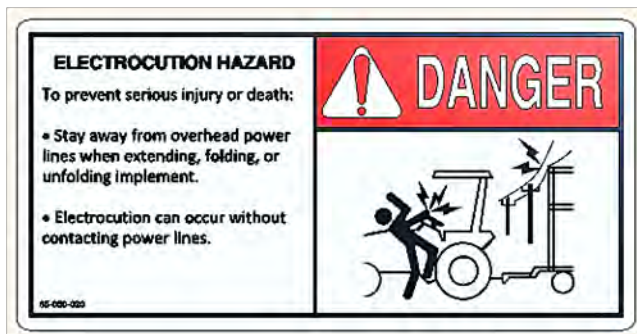
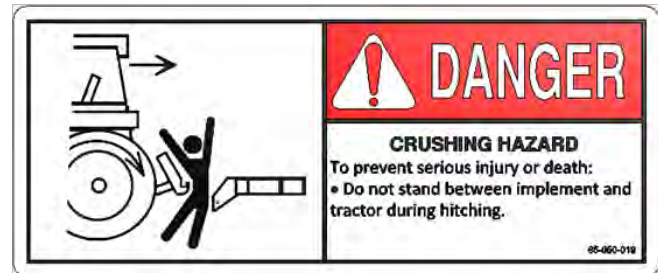
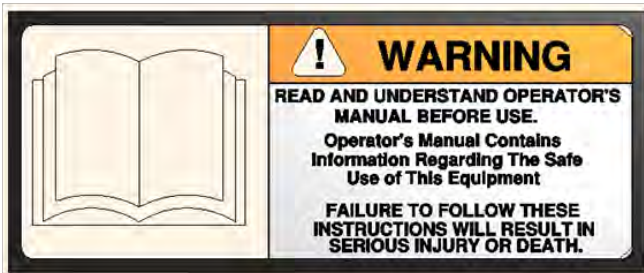
(GREEN
OR
BLACK)

Is used for instruction on operating, adjusting, or servicing a machine.

BEING SAFETY CONSCIOUS IS GOOD BUSINESS!

SAFETY DECALS

The Safety decals that follow are associated with the implement covered in this owner's manual. They should be reviewed and associated with where they are applicable on the implement being covered.



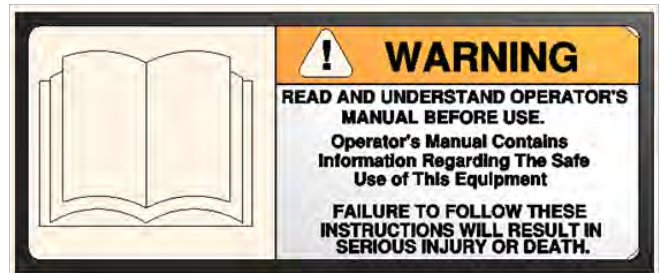
RETAIL CUSTOMERS RESPONSIBILITY UNDER THE KMC WARRANTY:

The retail customer's responsibilities are:

1. To read the Operator's Manual and operate the **Subsoiler Leveler** in accordance with the instructions given in this manual.
2. To inspect the **Subsoiler Leveler** daily, lubricate as specified and repair or replace parts as needed, especially when continued use would cause damage or excessive wear to other parts.
3. To maintain and keep in place all safety shields and devices.
4. When warranty service is necessary, it is the customer's responsibility to deliver the machine to the KMC dealer from which it was purchased. Warranty repairs should be submitted to the dealer within **thirty (30)** days of failure.
5. Dealer travel to the machine or hauling the machine to his shop for the purpose of performing warranty service is not allowed under KMC warranty. It is a cost to be paid for by the retail customer. Any arrangement whereby the dealer agrees to absorb all or part of this cost is strictly between the dealer and the retail customer.

SAFETY PROCEDURES:

Safety and performance are the primary objectives of the designers of KMC equipment. Safety features have been incorporated into this machine where possible and warnings given in other areas. For your safety, **PLEASE** read and observe the following safety procedures.



1. All persons operating this piece of equipment should **READ** the Owner's Manual.



2. Do not permit anyone to ride on the machine at any time.
3. Before starting or operating the machine, make a walk-around inspection and check for obvious defects such as loose mounting bolts and damaged components. Correct any deficiencies before starting. **(The equipment must be properly maintained and guarded and must be suitable to performing its task.)**



4. Keep all persons a safe distance away from the rear and sides of the machines while it is in operation.

5. **Do not allow children to operate the Subsoiler Leveler. Only experienced tractor operators should operate the tractor when using the Subsoiler Leveler.**



6. Stay clear of hydraulic lines, as they may be under extreme pressure or heat.

7. Drive safely during transport; excessive speed while turning or on rough ground could cause damage to the Subsoiler Leveler and/or cause the tractor to tip over. **(Maximum speed of implement should never exceed 20 mph on highway and 10 mph off-highway.)**

8. Make sure hitch components are attached securely before operating or transporting.

9. Use flashing warning lights when on highways, except where prohibited by law.

10. Disengage PTO, apply parking brake, and stop tractor engine before dismounting tractor. Allow mechanisms to stop completely before cleaning, working, or adjusting on machine. Even when the tractor is stationary, you should make sure it is properly secured and made safe by following the **Safe Stop procedure:**

1. **Handbrake/Footbrake on**
2. **Controls in neutral/park**
3. **Engine off**
4. **Key out**



11. Keep hands, feet and clothing away from moving parts.

12. Make sure everyone is clear of machine before starting tractor or operating machine.

13. Observe all safety decals located on machine. Replace them if they become damaged.



HIGH VOLTAGE SAFETY ACT

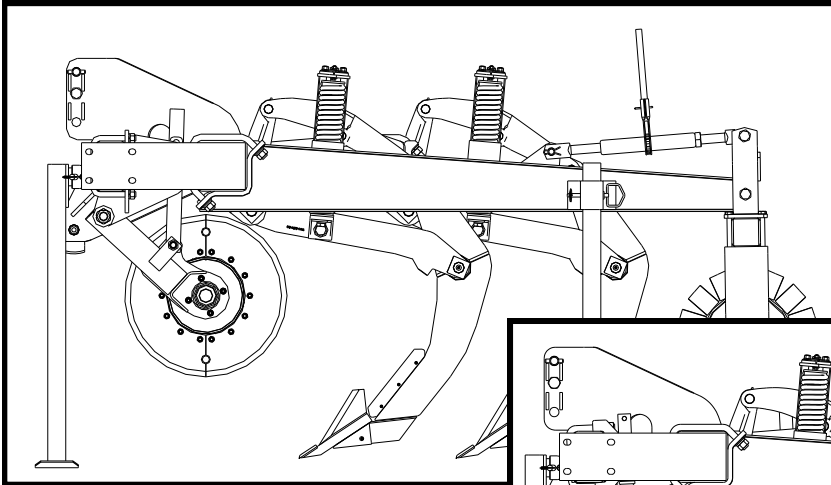


Georgia Law requires that anyone operating equipment within 10 feet of an overhead high voltage line of more than 750 volts, must contact the Utilities Protection Center (UPC) by telephone at least 72 hours before commencing the work. For more information call (811), toll free (1-800-282-7411) or visit on the web “www.gaupc.com”. **Please** contact your local power company about laws before operating near high voltage lines.

ASSEMBLY SET-UP

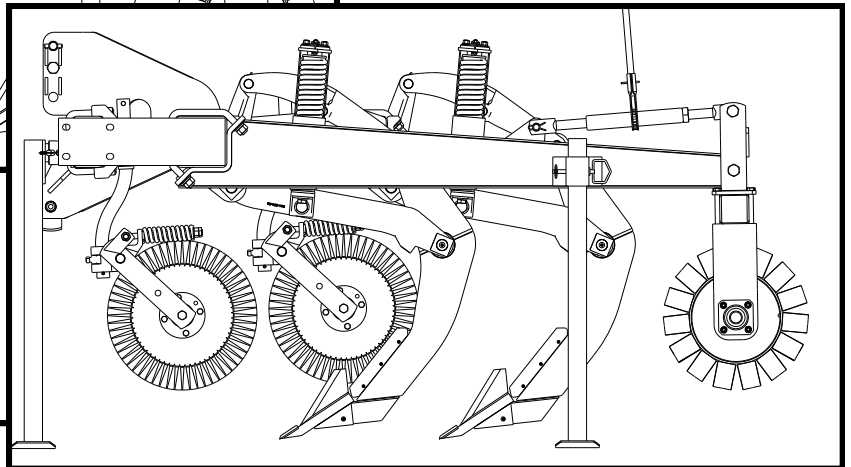
GENERAL:

Most of the general set-up and assembly for your KMC Subsoiler Leveler has been performed at the factory. Those items not installed at KMC will be reviewed later in this section. For your convenience, please see the “**Overhead Layouts**” portion of this section, to ensure proper positioning for the size and configuration of your KMC Subsoiler Leveler.

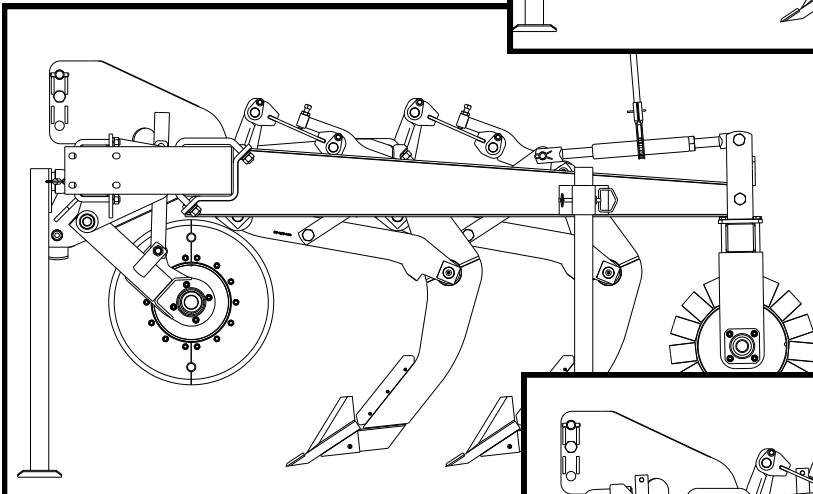


**SUBSOILER LEVELER
W/RESET ON THE GO &
COVER CROP ROLLER**

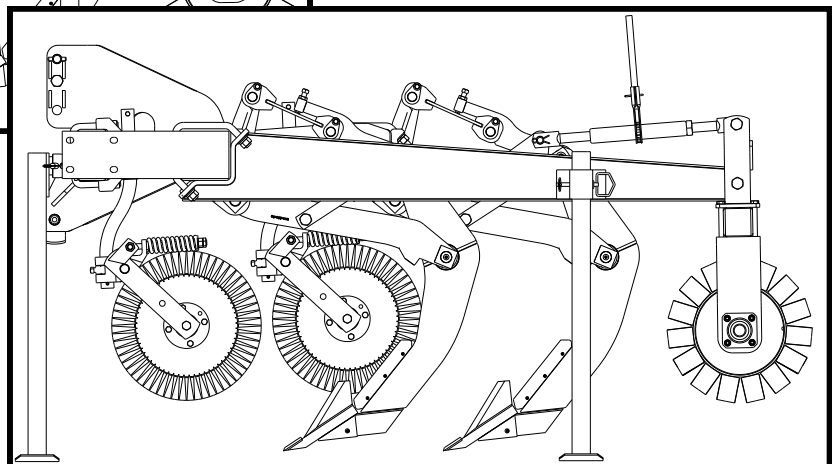
**SUBSOILER LEVELER
W/RESET ON THE GO
& FRONT COULTERS**



**SUBSOILER LEVELER
W/TOGGLE TRIP &
COVER CROP ROLLER**



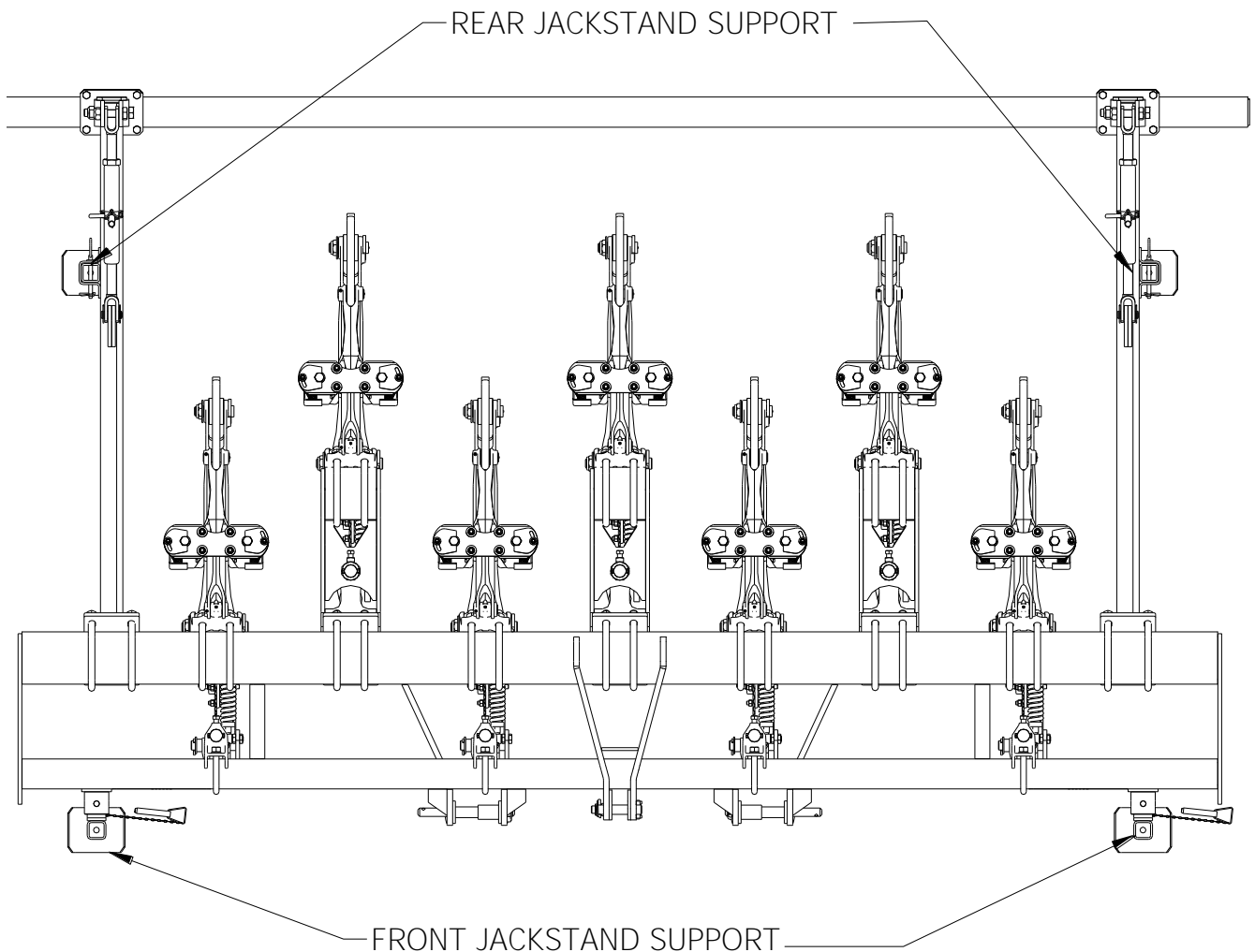
**SUBSOILER LEVELER
W/TOGGLE TRIP &
FRONT COULTERS**





WARNING

CARE SHOULD BE TAKEN DURING SET-UP AND ASSEMBLY OF THIS PRODUCT. DEATH OR SERIOUS INJURY COULD OCCUR IF PROPER STEPS ARE NOT TAKEN TO FULLY SECURE THE UNIT WHEN WORKING UNDERNEATH IT. FOR YOUR SAFETY, ENSURE THE UNIT IS PROPERLY SUPPORTED BY LOWERING THE JACKSTAND SUPPORTS THAT HAVE COME ASSEMBLED WITH IT, OR PROPERLY SECURE THE UNIT WITH ANY HOISTING DEVICES BEFORE ATTEMPTING ANY FURTHER SET-UP OF THIS PRODUCT. ANY HOISTING DEVICES SHOULD BE RATED TO FULLY SUPPORT THE LOAD OF THE UNIT BEING LIFTED.



! IMPORTANT !

Before set-up and assembly can be completed ensure that all hardware is in place and fully tightened. Refer to the **Bolt Torque Chart** below for proper torque values.

BOLT TORQUE CHART

SAE GRADE 5



DIAMETER & THREADS PER INCH	TENSILE STRENGTH MIN. PSI	PROOF LOAD LB	CLAMP LOAD LB	TORQUE DRY FT LB	LUBRICATED FT LB
1/4-20	120,000	2,700	2,020	8	6.3
1/4-28	120,000	3,100	2,320	10	7.2
5/16-18	120,000	4,450	3,340	17	13
5/16-24	120,000	4,900	3,700	19	14
3/8-16	120,000	6,600	4,950	30	23
3/8-24	120,000	7,450	5,600	35	25
7/16-14	120,000	9,050	6,780	50	35
7/16-20	120,000	10,100	7,570	55	40
1/2-13	120,000	12,100	9,050	75	55
1/2-20	120,000	13,600	10,200	85	65
9/16-12	120,000	15,500	11,600	110	80
9/16-18	120,000	17,300	12,950	120	90
5/8-11	120,000	19,200	14,400	150	110
5/8-18	120,000	21,800	16,350	170	130
3/4-10	120,000	28,400	21,300	260	200
3/4-16	120,000	31,700	23,780	300	220
7/8-9	120,000	39,300	29,450	430	320
7/8-14	120,000	43,300	32,450	470	350
1-8	120,000	51,500	38,600	640	480
1-14	120,000	57,700	43,300	720	540

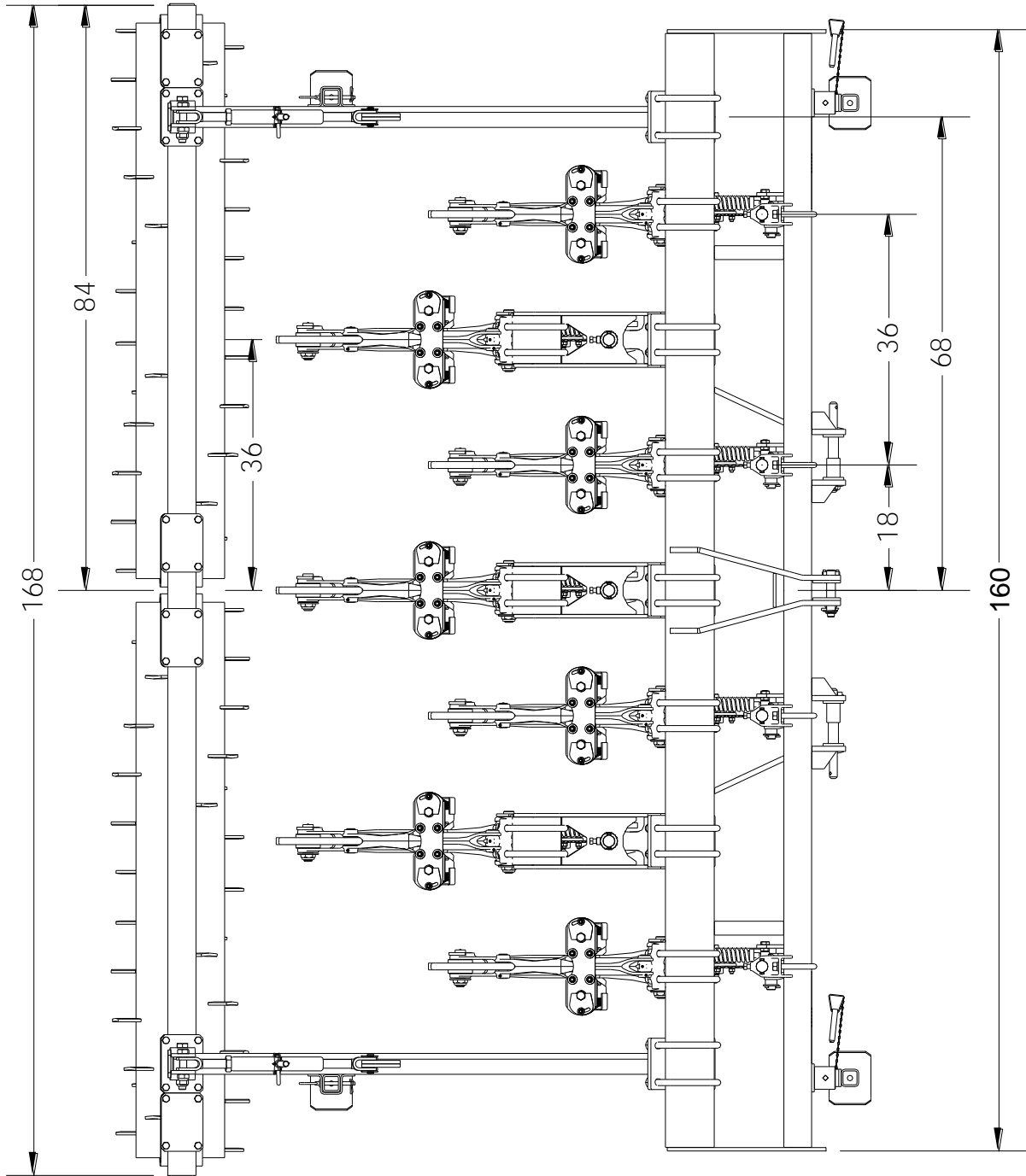
SAE GRADE 8



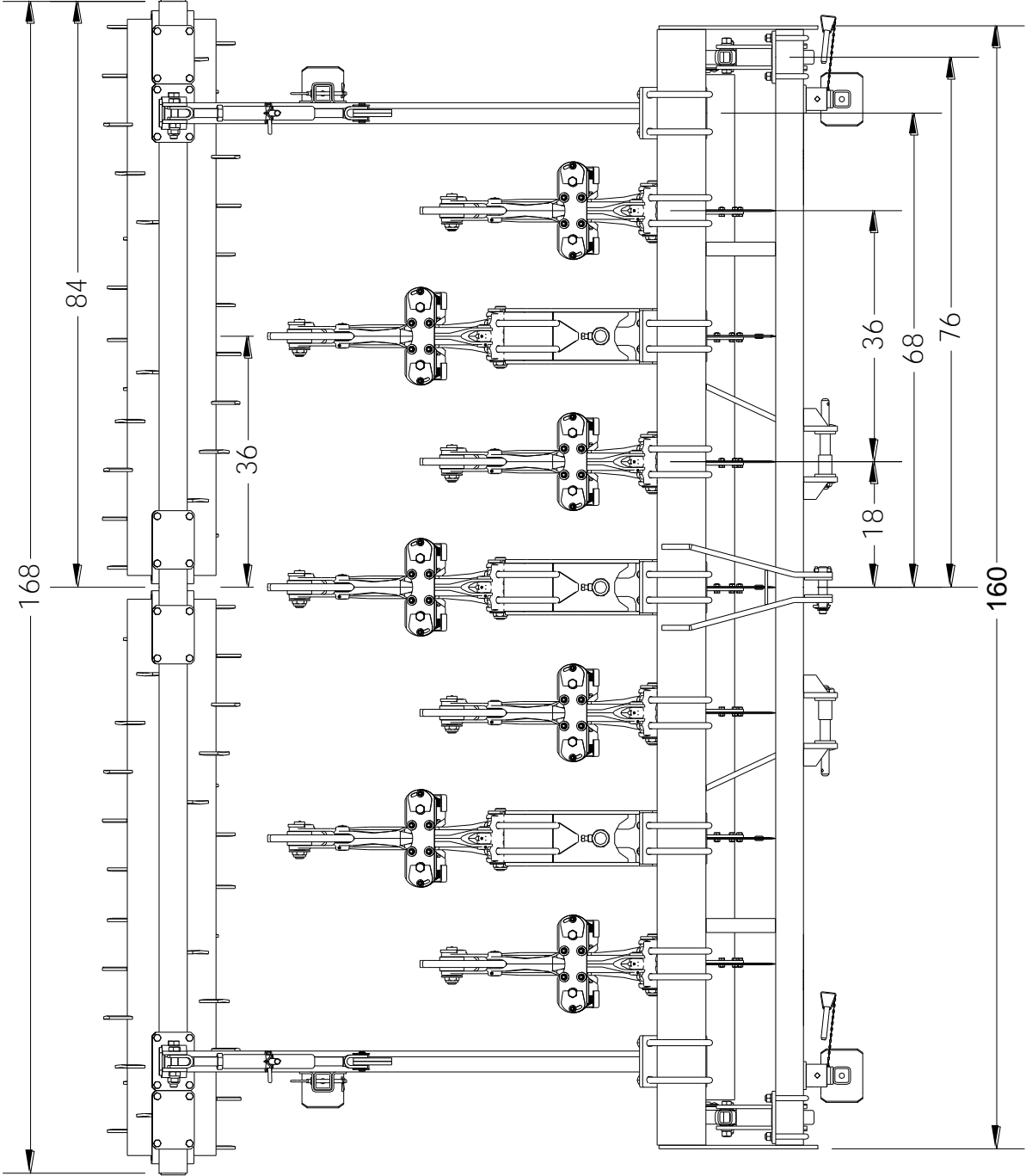
DIAMETER & THREADS PER INCH	TENSILE STRENGTH MIN. PSI	PROOF LOAD LB	CLAMP LOAD LB	TORQUE DRY FT LB	LUBRICATED FT LB
1/4-20	150,000	3,800	2,850	12	9
1/4-28	150,000	4,350	3,250	14	10
5/16-18	150,000	6,300	4,700	24	18
5/16-24	150,000	6,950	5,200	27	20
3/8-16	150,000	9,300	6,980	45	35
3/8-24	150,000	10,500	7,900	50	35
7/16-14	150,000	12,800	9,550	70	50
7/16-20	150,000	14,200	10,650	80	60
1/2-13	150,000	17,000	12,750	110	80
1/2-20	150,000	19,200	14,400	120	90
9/16-12	150,000	21,800	16,350	150	110
9/16-18	150,000	24,400	18,250	170	130
5/8-11	150,000	27,100	20,350	210	160
5/8-18	150,000	30,700	23,000	240	180
3/4-10	150,000	40,100	30,100	380	280
3/4-16	150,000	44,800	33,500	420	310
7/8-9	150,000	55,400	41,600	600	450
7/8-14	150,000	61,100	45,800	670	500
1-8	150,000	72,700	54,500	910	680
1-14	150,000	81,500	61,100	1,020	760

OVERHEAD LAYOUTS:

7-Shank Bar W/ Front Swivel Coulters (MODEL # 69-07-R-FC & 69-07-T-FC)



7-Shank Bar W/ Cover Crop Roller
(MODEL # 69-07-R-CR & 69-07-T-CR)



Technical drawing of a mechanical assembly, likely a conveyor system component, showing dimensions in millimeters (mm). The drawing includes a side view and a top view.

Dimensions:

- Overall width: 168 mm
- Overall height: 182 mm
- Distance between vertical supports: 84 mm
- Distance between horizontal supports: 36 mm
- Distance between vertical supports (top view): 36 mm
- Distance between horizontal supports (top view): 45 1/8 mm
- Distance between vertical supports (top view): 18 mm

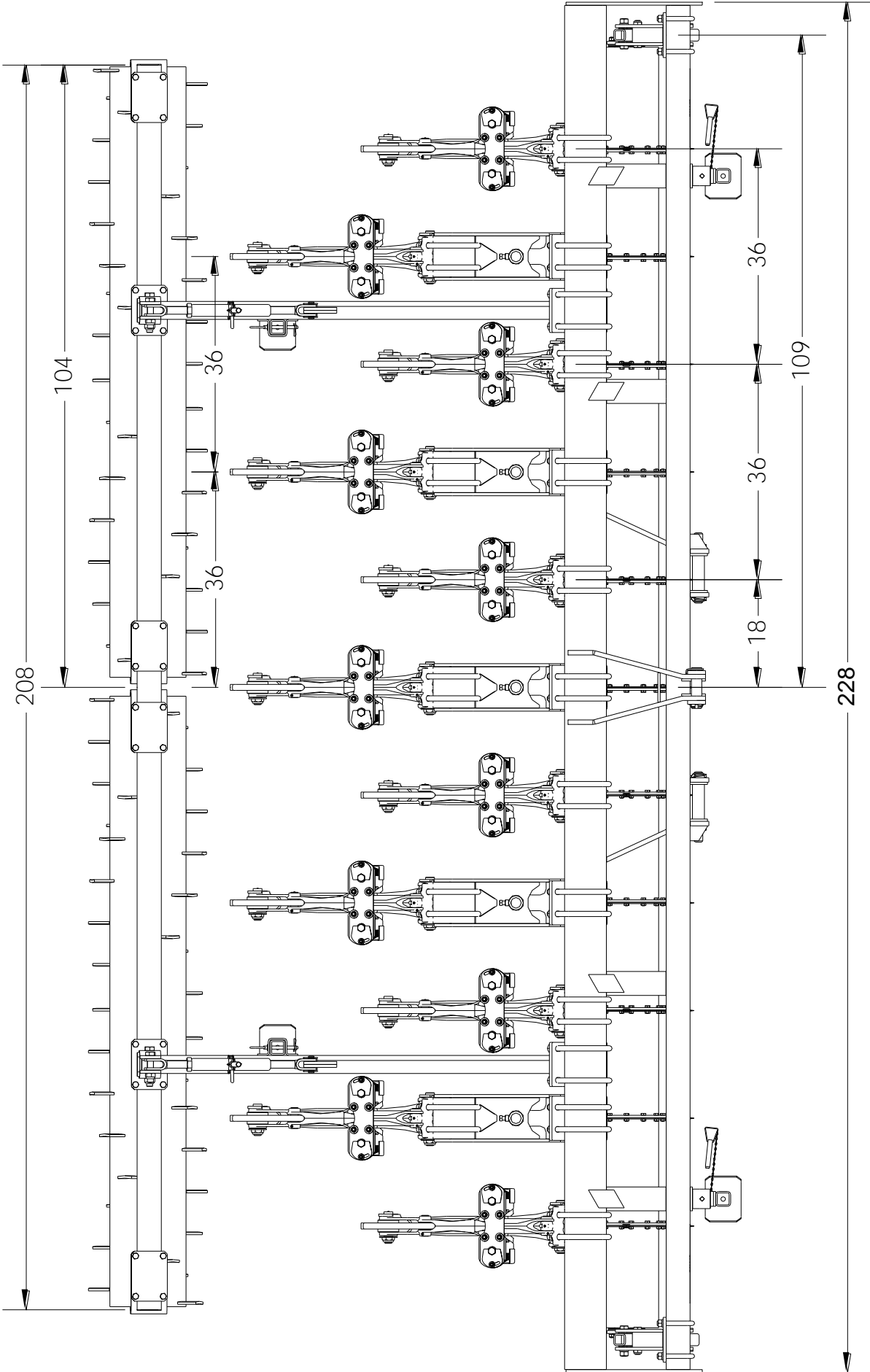
Technical drawing of a mechanical assembly, likely a conveyor system component, showing dimensions in millimeters. The drawing includes a side view and a top view.

Dimensions:

- Overall width: 168
- Overall height: 182
- Distance between main vertical supports: 84
- Distance between horizontal supports: 36
- Distance between horizontal supports (right side): 36
- Distance between horizontal supports (right side): 45 1/8
- Distance between horizontal supports (right side): 18
- Distance between horizontal supports (right side): 86

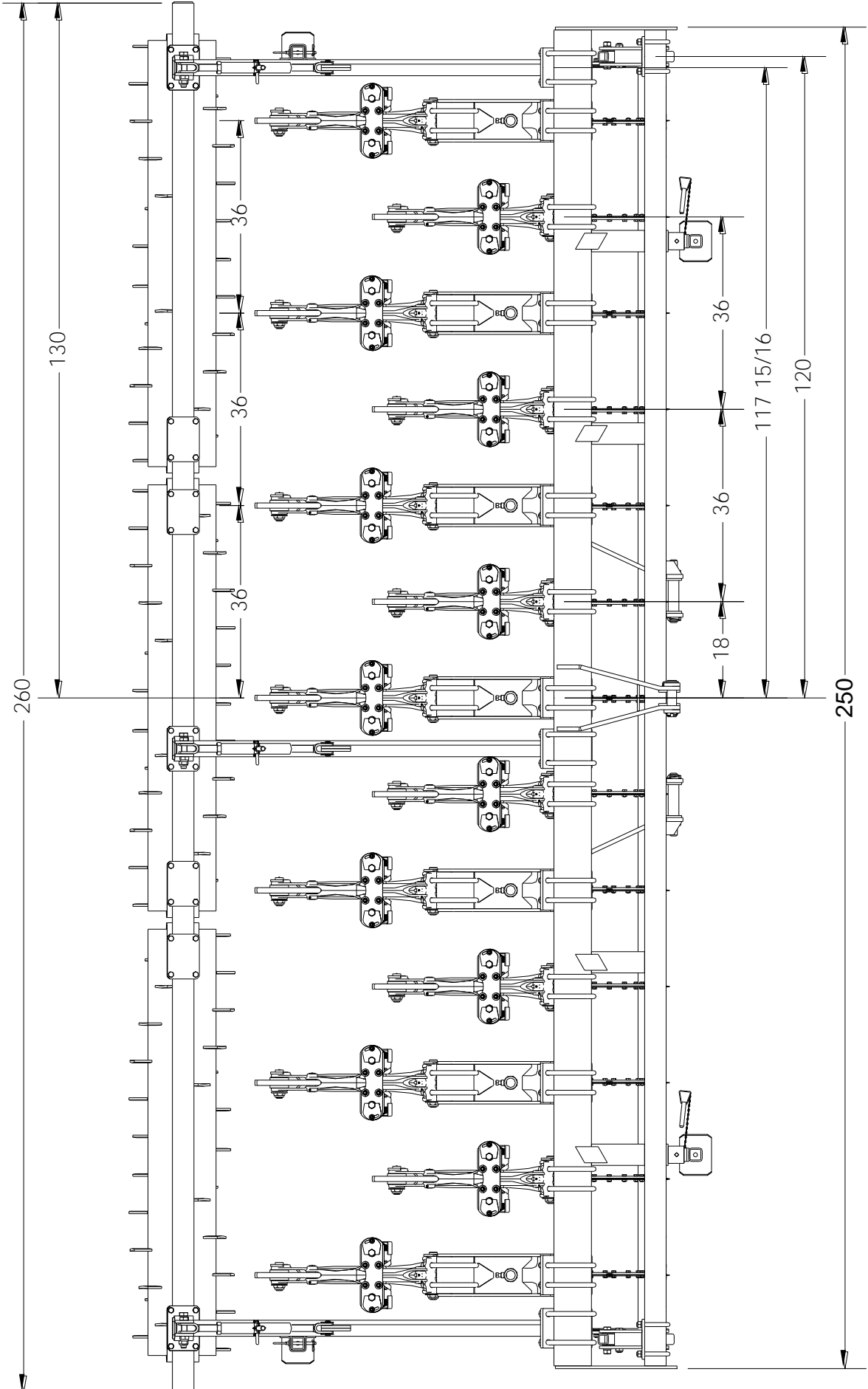
[illegible]

11-Shank Bar W/ Cover Crop Roller
(MODEL # 69-11-R-CR & 69-11-T-CR)



[illegible]

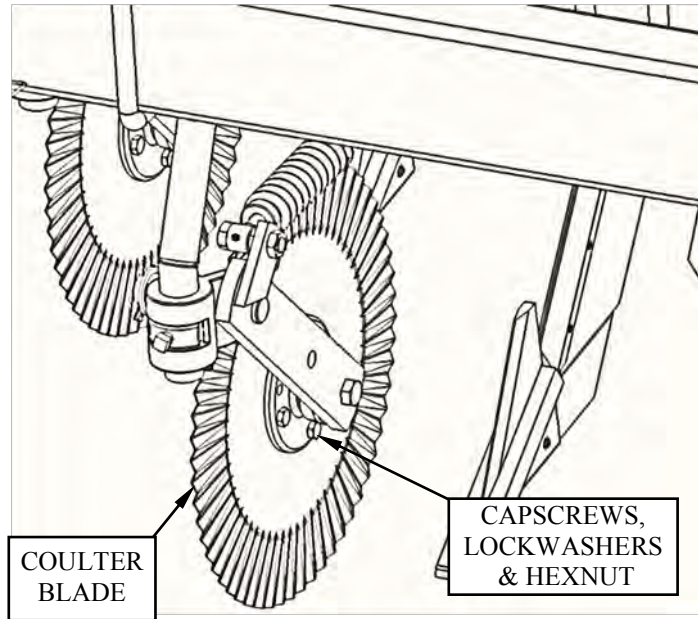
13-Shank Bar W/ Cover Crop Roller (MODEL # 69-13-R-CR & 69-13-T-CR)



RESIDUE CUTTING OPTIONS:

Front Swivel Coulters:

If equipped with Front Swivel Coulters on the unit, the coulters arm assemblies will be pre-mounted to the bar (verify pre-mount location using the “**Overhead Layout**” portion of this section) and it may be necessary to mount the coulters blades to the coulters arm assemblies. Install the coulters blades, as shown, using 1/2-13 NC x 1-1/2” long capscrews, 1/2” lockwashers and 1/2” hexnuts. (Refer to the “**Bolt Torque Chart**” at the first of this section for proper assembly torque).

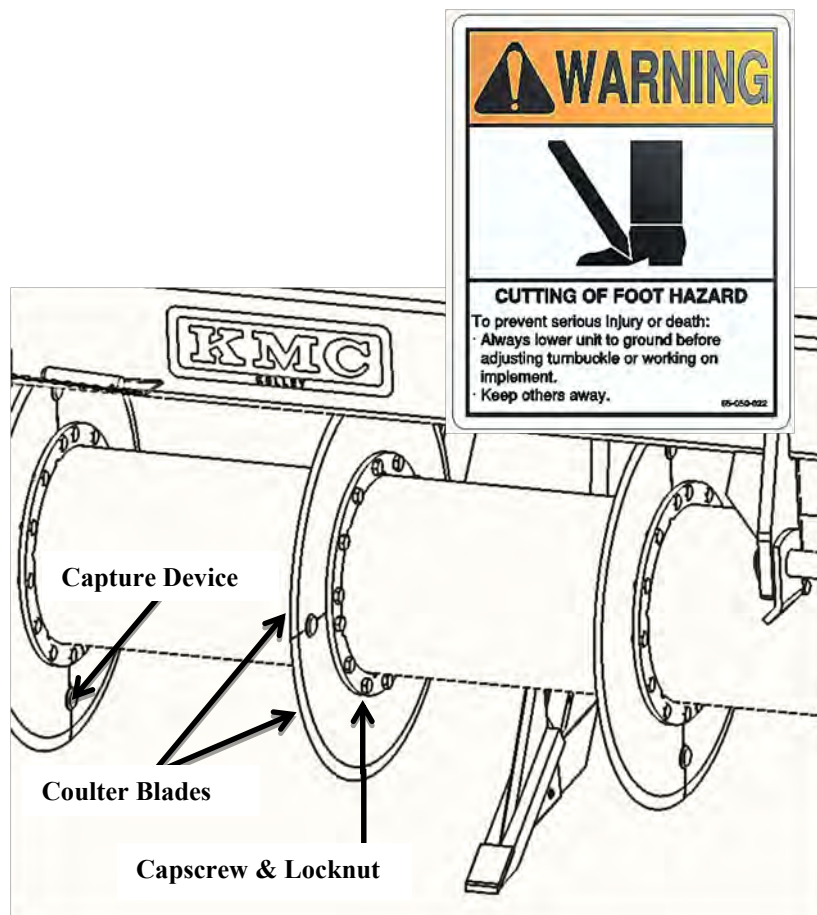


WARNING

CARE SHOULD BE TAKEN WHEN WORKING AROUND COULTER BLADES. FAILURE TO DO SO COULD RESULT IN DEATH OR SERIOUS INJURY DUE TO THE BLADE SHARP EDGES.

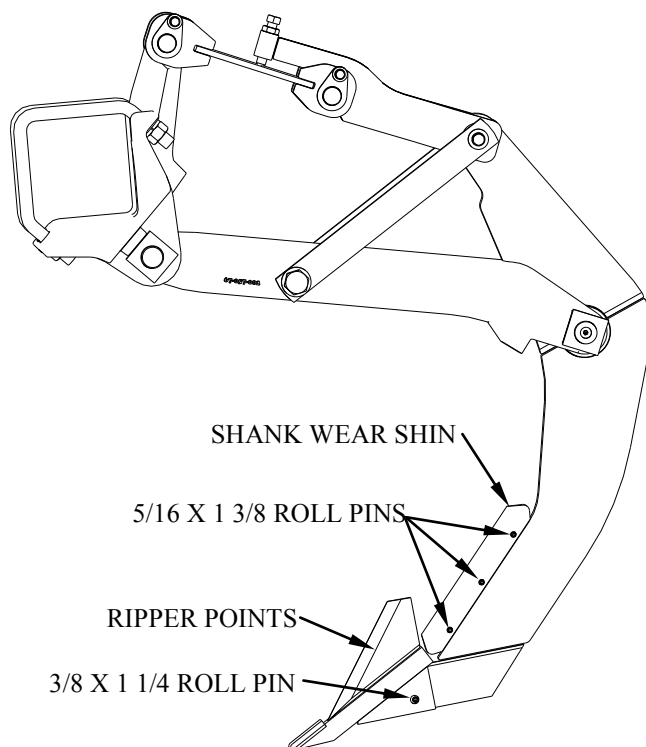
Cover Crop Roller:

If equipped with Cover Crop Roller on the unit, the roller assembly will be pre-mounted to the bar (verify pre-mount location using the “**Overhead Layout**” portion of this section) and it may be necessary to mount the two piece coulters blades to the roller assembly. Install the coulters blades, as shown, using 1/2-13 NC x 1” long capscrews and 1/2-13” jam locknuts. (Torque jam locknuts to 50 ft lbs for proper assembly torque). Make sure the Capture Devices are installed between Coulters Blade halves before the other hardware is installed. Fully close the gap between the blade pairs before fully tightening the hardware.

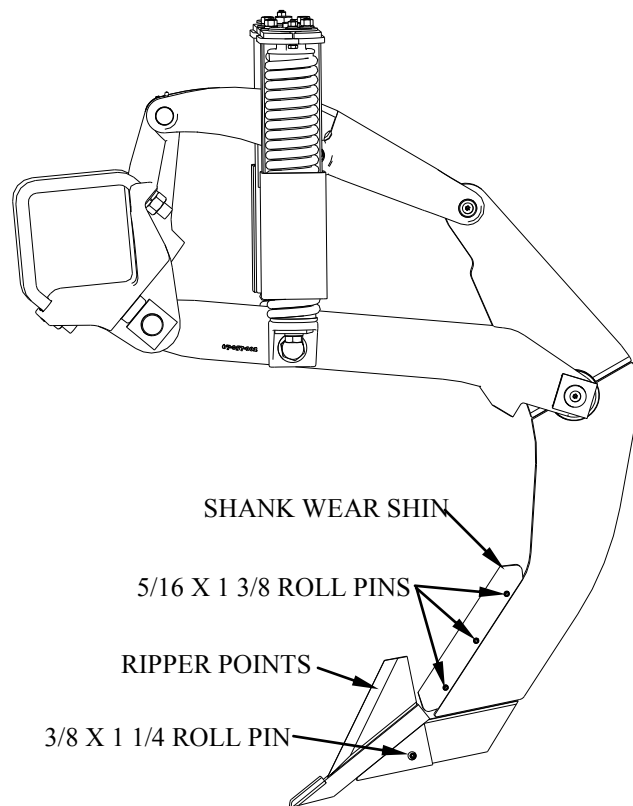


RIPPER TOOL OPTIONS:

Toggle Trip Shanks



Reset-On-The-Go Shanks



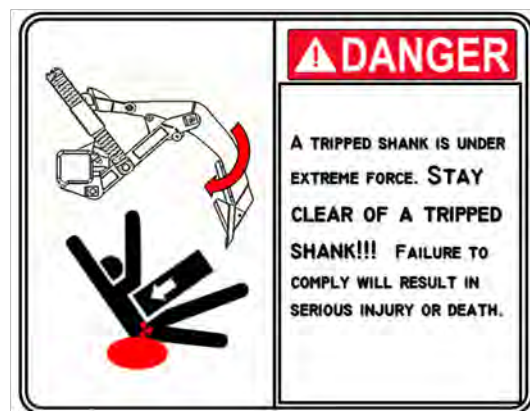
The 6900 Series Subsoiler Leveler comes equipped with a choice of the Reset on the Go Ripper Shank or the Toggle Trip Shank. Either of these will be pre-mounted to the bar when the unit arrives. Verify the pre-mount location of all the shanks by using the “**Overhead Layout**” portion of this section. It may be necessary to mount some of the wear items associated with these ripper shanks using the following:

For the KMC Ripper Points use (1) 3/8 x 1 1/4” long roll pins to secure in place on each shank as shown. For KMC Shank Wear Shins use (3) 5/16 x 1 3/8” long roll pins to secure to each shank as shown. Once all items on each shank are in place verify that all hardware is in place and properly tightened and secured.



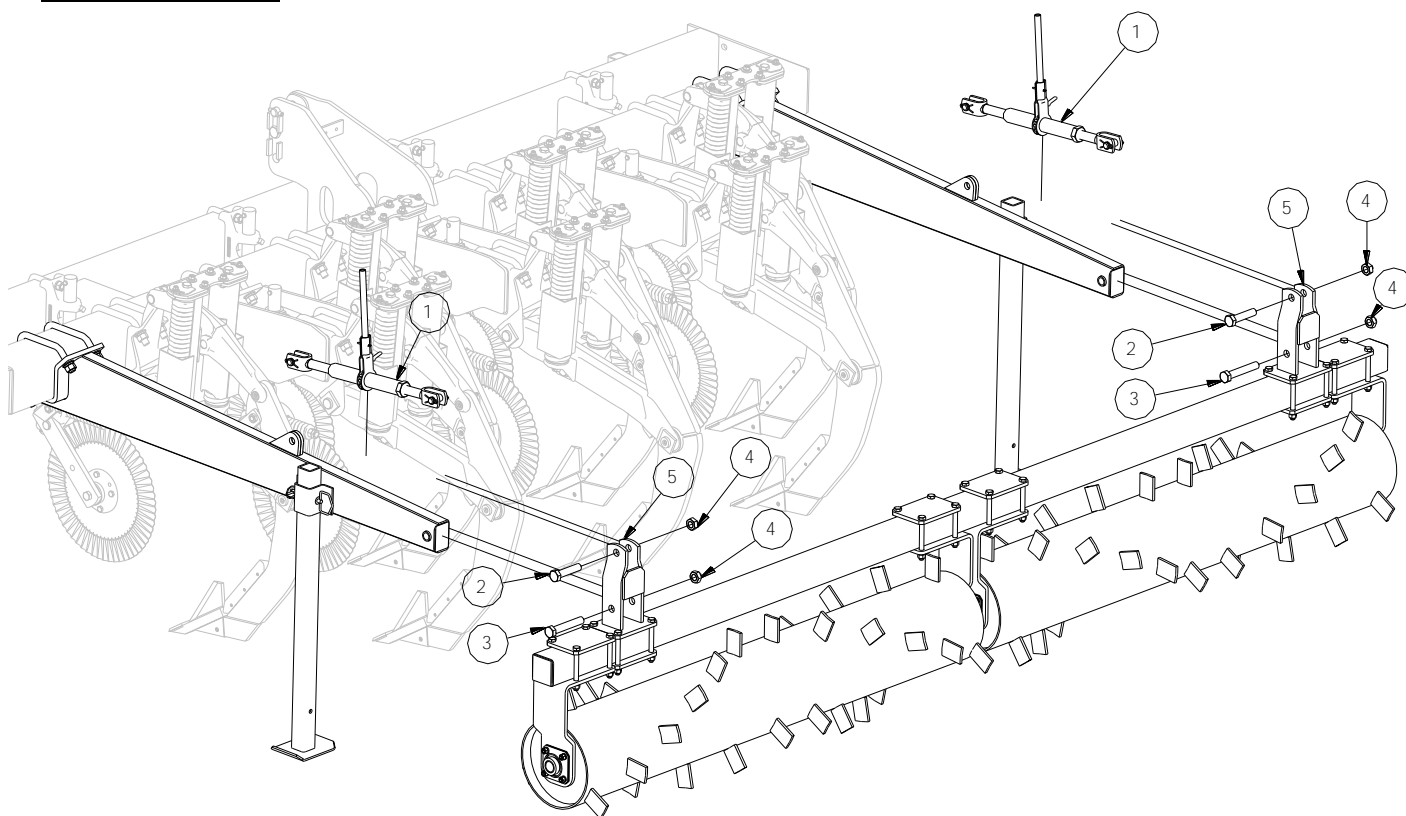
DANGER

A TRIPPED SHANK IS UNDER EXTREME FORCE. STAY CLEAR OF A TRIPPED SHANK! FAILURE TO COMPLY WILL RESULT IN SERIOUS INJURY OR DEATH.



FINSHING TOOL ATTACHMENT:

Spiked Roller

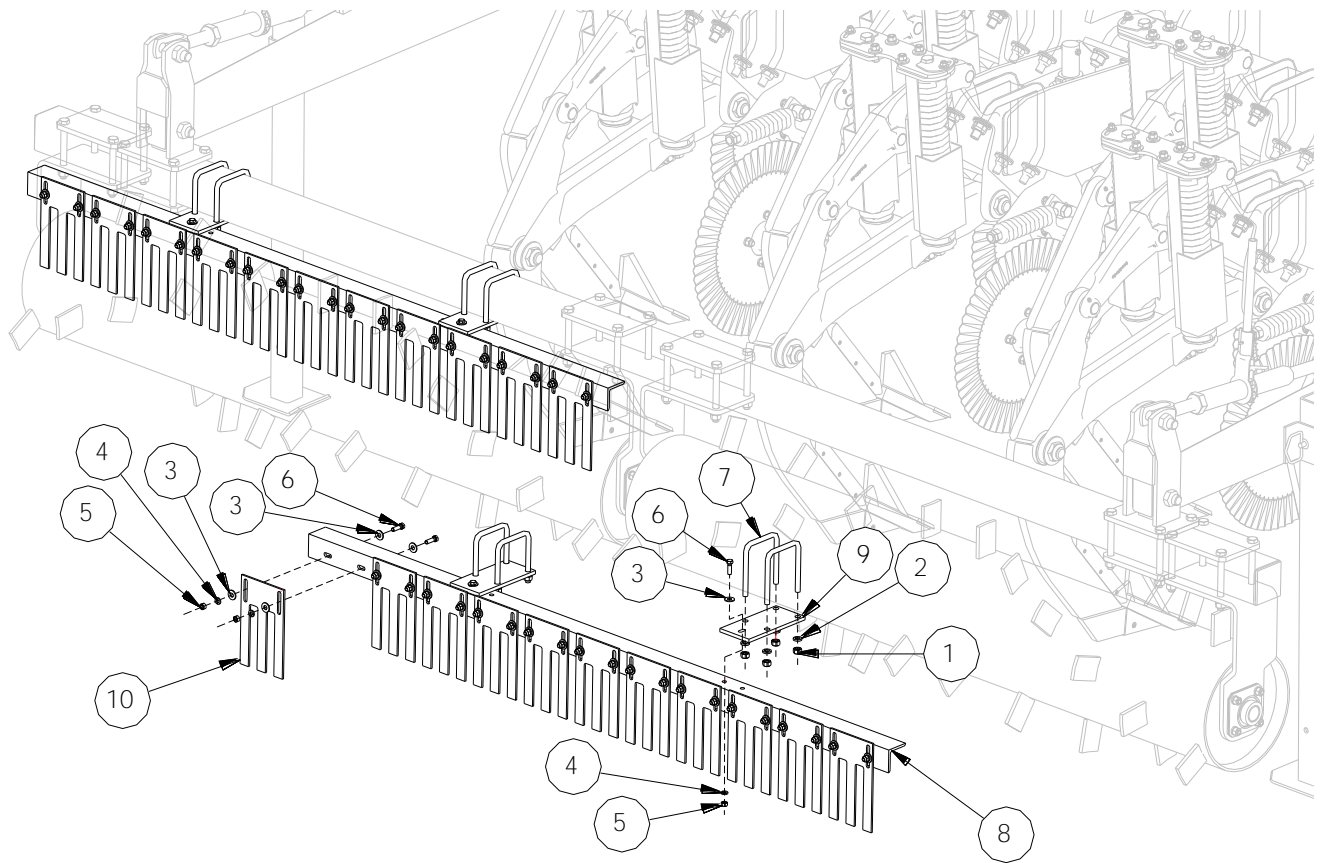


ITEM	PART NUMBER	DESCRIPTION	QTY
1	22-050-024	RATCHET ASSEMBLY	2
2	48-100550	CAPSCREW, 1 X 4 1/2 G5 PLT	2
3	48-100615	CAPSCREW, 1 X 6 G5 PLT	2
4	72-020125	LOCKNUT, 1 STOVER G"B" PLT	4
5	69-080-004	PIVOT BRACKET, SSL REACH	2

The Spiked Roller Attachment is not shipped in operating position because of height and width restrictions. To reassemble, line up the lower hole in the pivot brackets (5) with the bushing in the reach arm and insert the 1" x 6" capscREW (3). Thread 1" locknut (4) on the end of the bolt and tighten until snug against pivot bracket. **DO NOT OVERTIGHTEN.** The pivot bracket should still be able to rotate in the reach arm bushing. Repeat on opposite side. Attach the ratchet assembly (1) to the reach arm using the included pin and cotter pin. Attach the opposite end of the ratchet assembly (1) to the top hole on the pivot bracket (5) using the 1" x 4 1/2" capscREW (2). Thread 1" locknut (4) on the end of the bolt and tighten until snug against pivot bracket. **DO NOT OVERTIGHTEN.** The ratchet assembly should still be able to rotate in the pivot bracket.

To set the roller at operating depth, refer to the section on “**Operational Setup**”.

Spiked Roller Scraper (OPTIONAL)



ITEM	PART NUMBER	DESCRIPTION
1	68-010250	HEXNUT, 1/2 PLT
2	66-010250	LOCKWASHER, 1/2 REG PLT
3	62-010100	FLATWASHER, 3/8 STD PLT
4	66-010150	LOCKWASHER, 3/8 PLT
5	68-010150	HEXNUT, 3/8 PLT
6	48-090150	CAPSCREW, 3/8 X 1 1/4 G5 PLT
7	61-050-028	U-BOLT, 1/2 X 4 9/16 X 5 1/4 G5 PLT
8	50-025-003	ANGLE, 80\"
9	50-023-021	BRACKET, SSL SCRAPER
10	50-050-008	SCRAPER FINGER, TRIPLE

In some soil conditions, it may be beneficial to add a scraper kit to the spiked roller to prevent soil buildup on the roller surface. The optional scraper kit comes with scraper brackets, scraper mount angles, scraper fingers, and hardware required for mounting. To install the scraper kit on an existing roller, use U-bolts (7) to loosely mount the scraper brackets (9) to the 4 x 4 tube the roller is mounted on. Using 3/8\" hardware (6) (3) (4) (5), loosely bolt the scraper angle (8) to the scraper brackets (9). Next, attach the scraper fingers (10) to the scraper angle (8) using 3/8\" hardware (6)(3)(4)(5). Scraper fingers should be spaced so the spikes on the roller pass through the center of the slots in the fingers. There should also be an 1/8\" gap between the tip of each finger and the surface of the roller so that the roller spins freely. Once the fingers are evenly spaced across the surface of the spiked roller, tighten all bolts according to the torque chart in the “**General Assembly**” setup part of this manual.

OPERATIONAL SETUP

TRACTOR PREPARATION:

Before operating implement refer to tractor operator's manual for information concerning safe methods of operation, hydraulics, hitch adjustment, tire inflation, wheel adjustments and tractor weights.

Check tractor brakes and warning lights, make sure they are in proper working order.

Check tractor hydraulics oil reservoir and add oil if needed.



WARNING

TRANSPORTING THE IMPLEMENT WILL ADD SIGNIFICANT WEIGHT TO YOUR TRACTOR. MAKE SURE THE TRACTOR IS PROPERLY BALLASTED.

Front-End Weights:

Use front-end weights as needed to provide effective steering control and front-end stability.

See your tractors Operator's Manual for recommendations on ballasting procedures.



WARNING

DO NOT EXCEED THE TRACTOR'S LIFT CAPACITY OR BALLAST RECOMMENDATIONS.

Horse Power Requirements:

The power requirement for this unit is 25 - 40 HP per shank, depending on the depth of penetration and ground conditions. Select a tractor with sufficient power to operate this machine.

Sway Blocks

Sway blocks should be used and adjusted to limit movement in operating position. Your implement should be permitted to sway very little while operating and should be held rigid while transporting.

See your Tractor Operator's Manual.

Wheel Spacing

Set tractor wheels so they are equally spaced from center of tractor. If using the tool to penetrate in fields for row crops, set tractor wheels so they are centered between the rows.

Drawbar Position

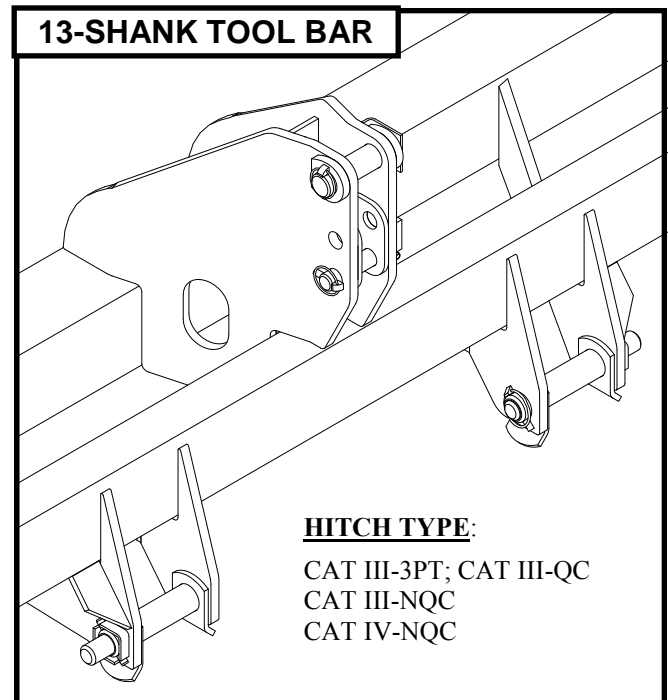
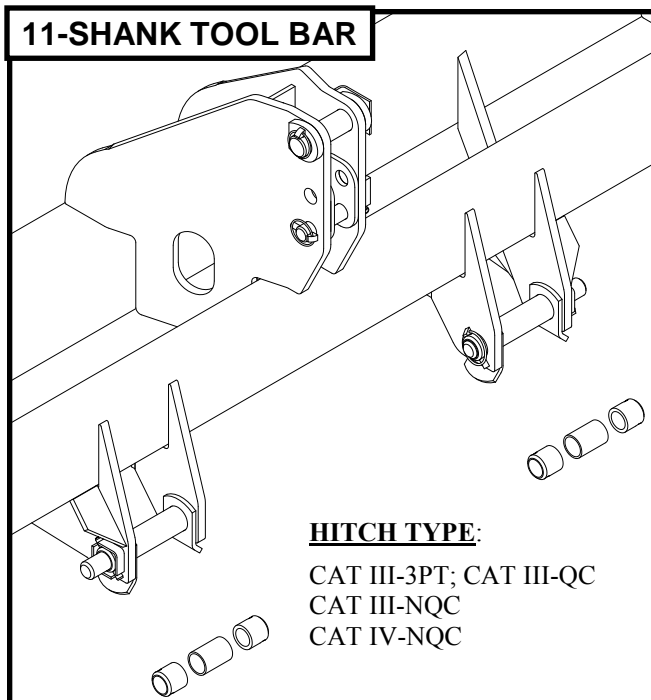
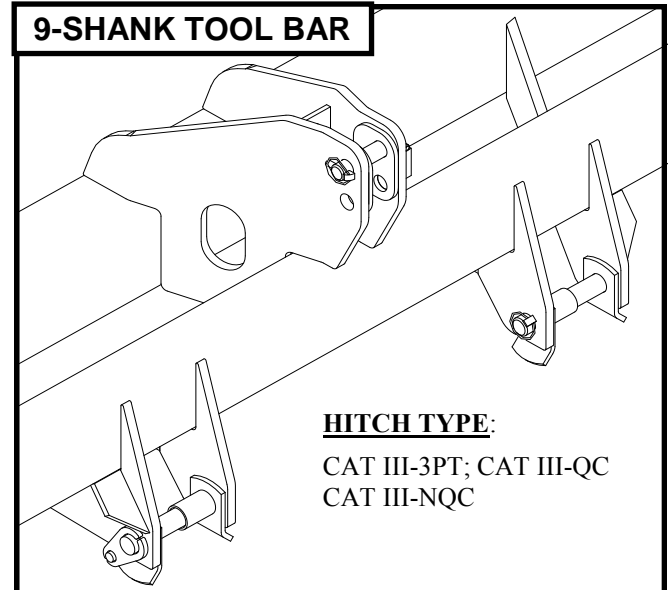
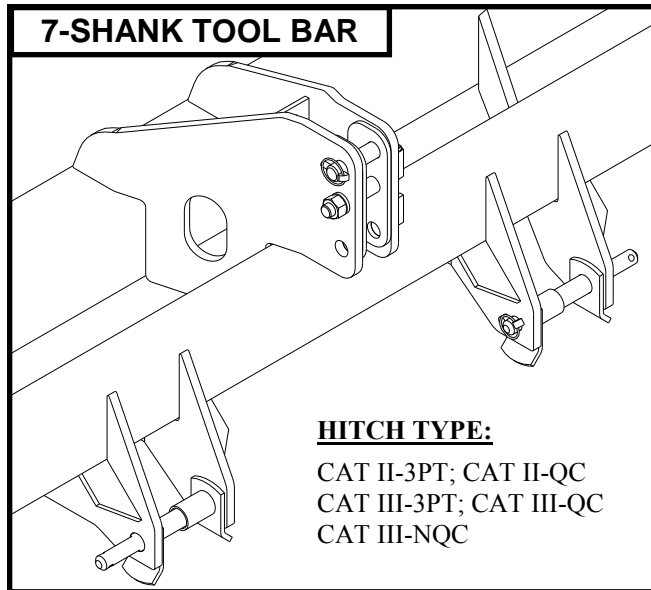
Place the drawbar in the short, center position to provide maximum clearance between drawbar and tool.

HITCHING TO THE IMPLEMENT

! IMPORTANT !

WARRANTY NOTE: Use of articulated four-wheel drive or track tractors with 3 point lift implements voids the warranty on the toolbar main frame. Sudden turns or steering corrections made by these types of tractors, when the implement is in the ground, can exert extreme forces through the implement's frame and/or shank components and cause unwarranted fatigue/failure.

Mast and Hitch Configurations

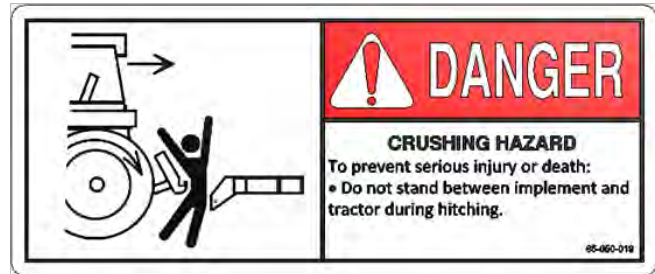


Tractor Hook-Up



DANGER

DO NOT STAND BETWEEN TRACTOR AND IMPLEMENT DURING HITCHING.

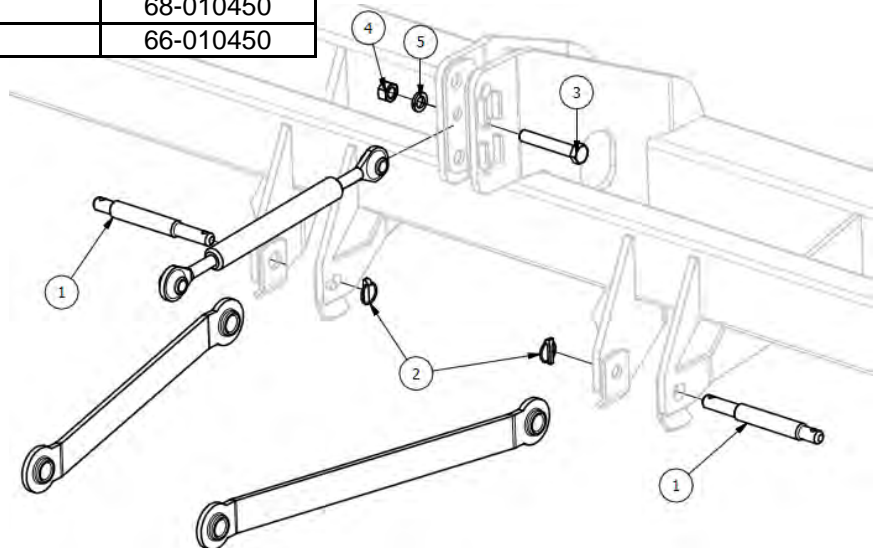


ITEM	DESCRIPTION	PART NUMBER
1	STEP HITCH PIN, LONG PLT	05-026-008
2	KLIK PIN, 7/16 X 1 3/4	02-050-002
3	CAPSCREW, 1 X 6 G8 PLN	48-200450
4	HEXNUT, 1 PLT	68-010450
5	LOCKWASHER, 1 PLT	66-010450

7-SHANK TOOLBAR

CAT II 3-POINT HITCH

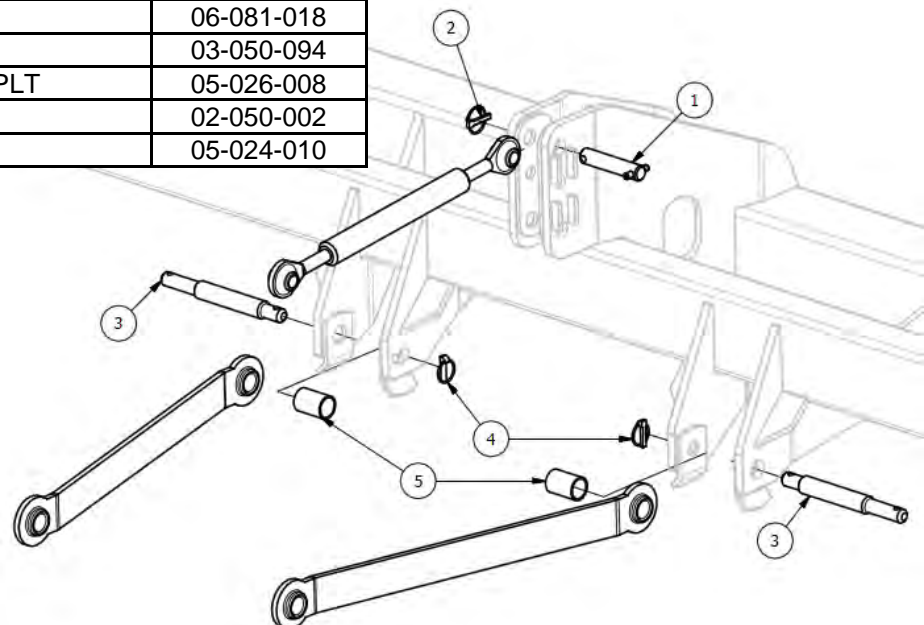
- Top link pins with bolt in center mast hole
- Lower links against inside of lower hitch
- Lower hitch pins with long small diameter to inside



ITEM	DESCRIPTION	PART NUMBER
1	PIN, MAST	06-081-018
2	KLIK PIN, 7/16 X 2	03-050-094
3	STEP HITCH PIN, LONG PLT	05-026-008
4	KLIK PIN, 7/16 X 1 3/4	02-050-002
5	SPACER, CAT III	05-024-010

CAT III 3-POINT HITCH

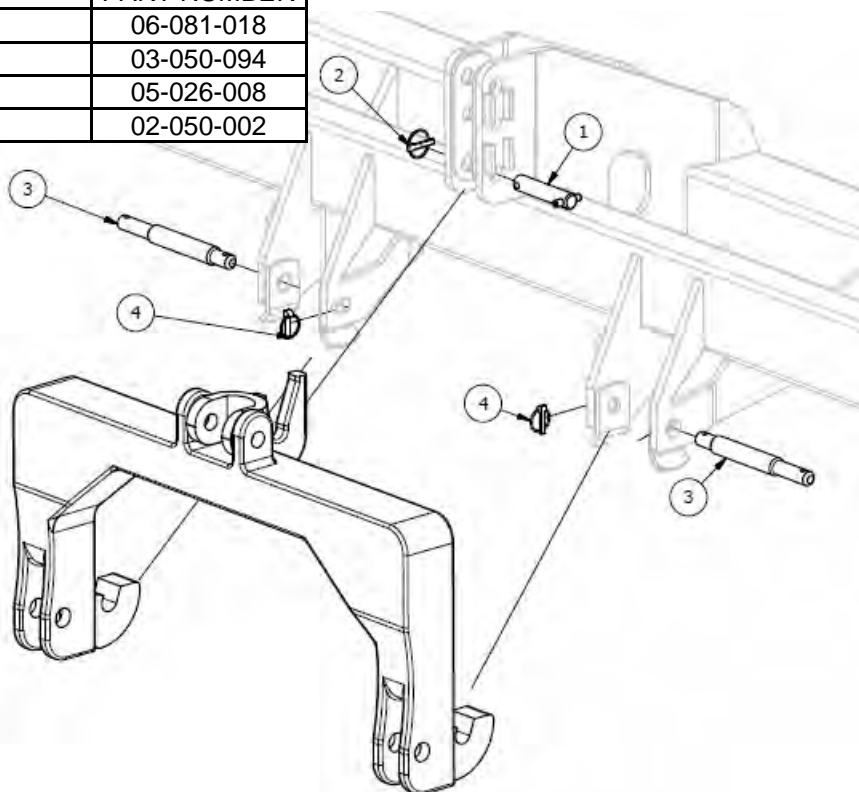
- Top link pin in top mast hole
- Lower links against outside of lower hitch
- Lower hitch pins with long small diameter to outside
- Bushings against inside of lower hitches



ITEM	DESCRIPTION	PART NUMBER
1	PIN, MAST	06-081-018
2	KLIK PIN, 7/16 X 2	03-050-094
3	STEP HITCH PIN, LONG PLT	05-026-008
4	KLIK PIN, 7/16 X 1 3/4	02-050-002

CAT II QUICK COUPLER

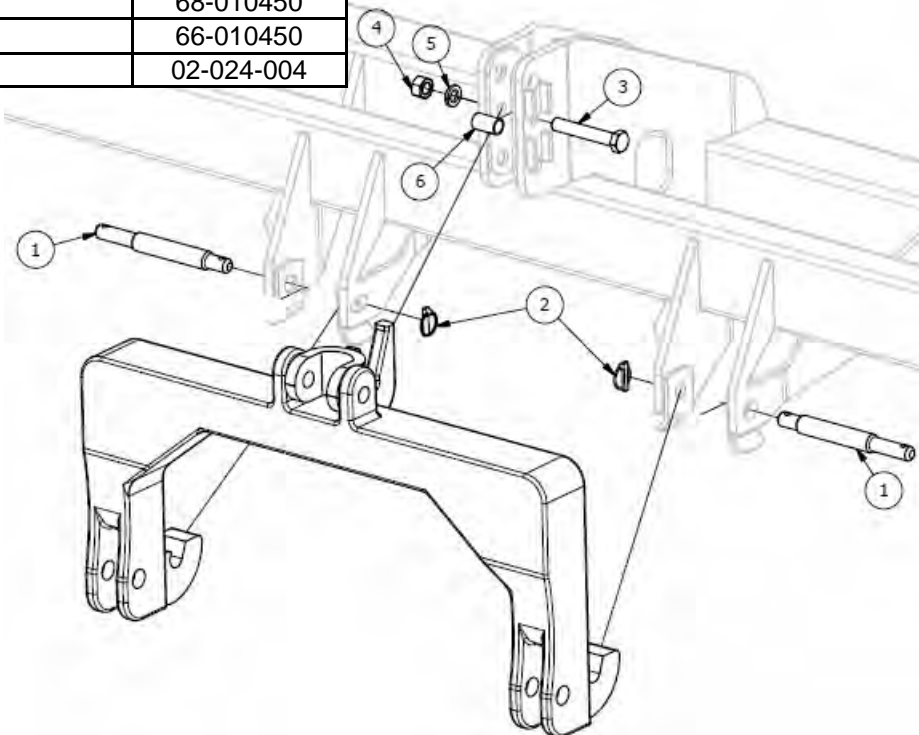
- QC hooks pin in lower mast hole
- QC against inside of lower hitches
- Lower hitch pins with long small diameter to outside



ITEM	DESCRIPTION	PART NUMBER
1	STEP HITCH PIN, LONG PLT	05-026-008
2	KLIK PIN, 7/16 X 1 3/4	02-050-002
3	CAPSCREW, 1 X 6 G8 PLN	48-200450
4	HEXNUT, 1 PLT	68-010450
5	LOCKWASHER, 1 PLT	66-010450
6	8 X 10 SPACER (SHORT)	02-024-004

CAT III / IIIN QUICK COUPLER

- QC hooks bolt with spacer in center mast hole
- QC against outside of lower hitches
- NQC against inside of lower hitches
- Lower hitch pins with long small diameter to outside



DANGER

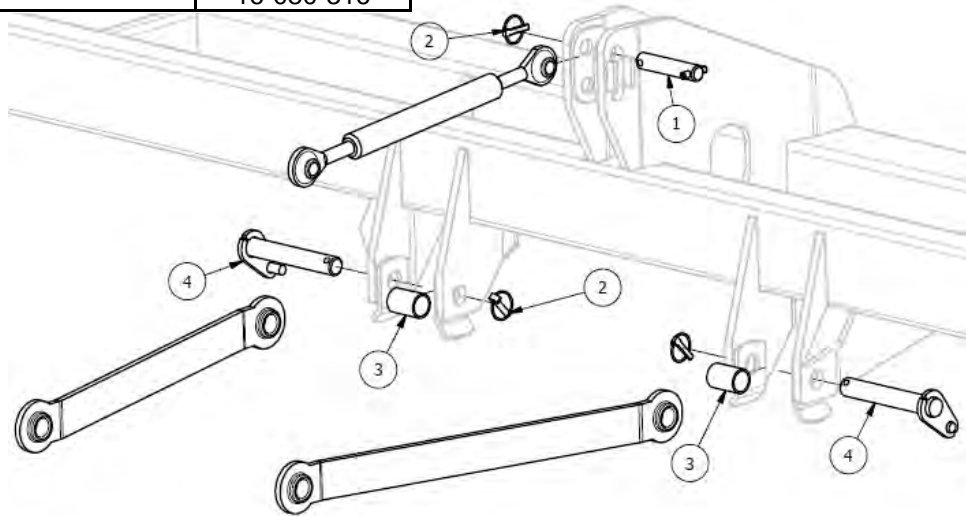
DO NOT STAND BETWEEN TRACTOR AND IMPLEMENT DURING HITCHING.

9-SHANK TOOLBAR

ITEM	DESCRIPTION	PART NUMBER
1	PIN, MAST	06-081-018
2	KLIK PIN, 7/16 X 2	03-050-094
3	SPACER, CAT III	05-024-010
4	PIN, CAT III-IIN HITCH	16-080-316

CAT III 3-POINT HITCH

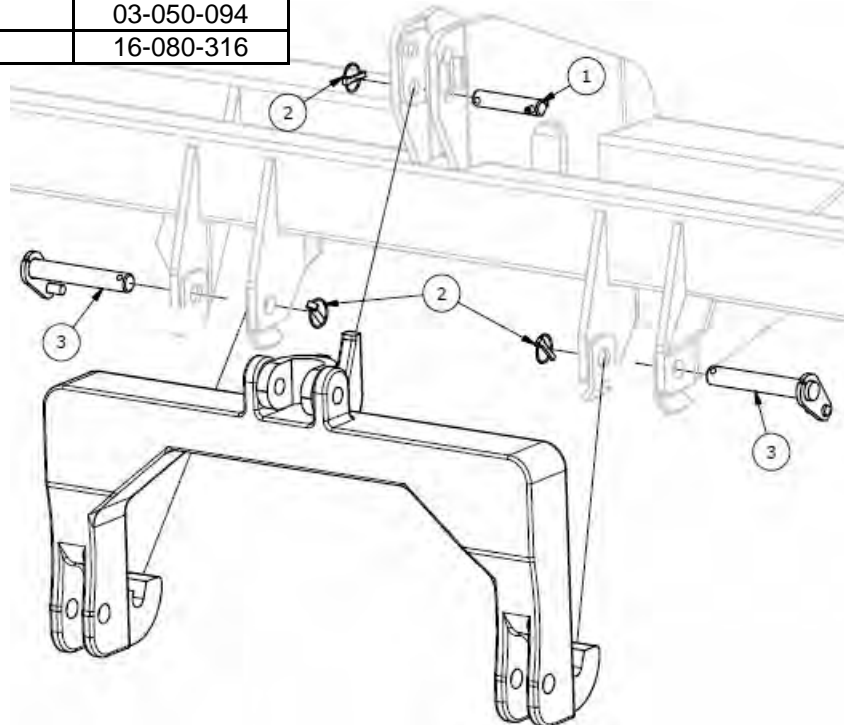
- Top link pin in top mast hole
- Lower links against outside of lower hitch
- Bushings against inside of lower hitches



ITEM	DESCRIPTION	PART NUMBER
1	PIN, MAST	06-081-018
2	KLIK PIN, 7/16 X 2	03-050-094
3	PIN, CAT III-IIN HITCH	16-080-316

CAT III / IIN QUICK COUPLER

- QC hooks pin in bottom mast hole
- QC against outside of lower hitches
- NQC against inside of lower hitches



DANGER

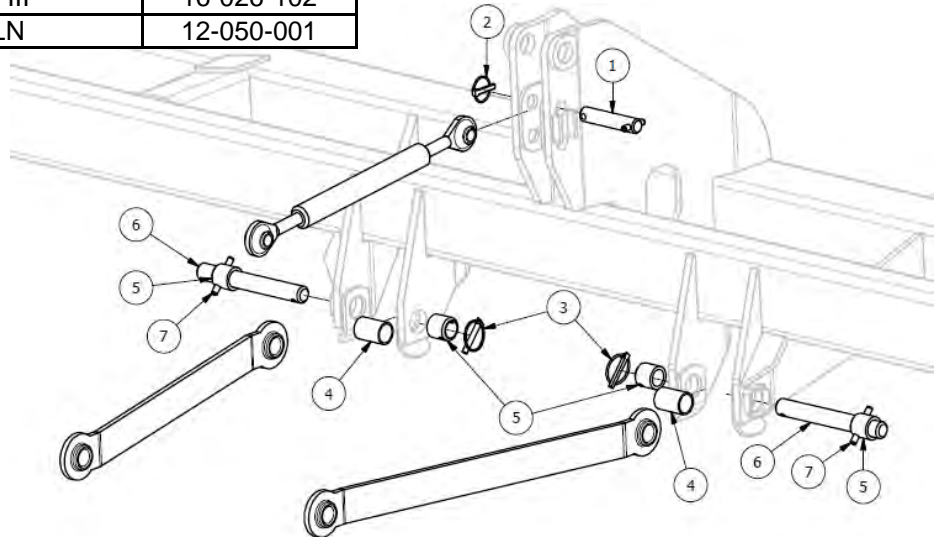
DO NOT STAND BETWEEN TRACTOR AND IMPLEMENT DURING HITCHING.

11-SHANK 13-SHANK TOOLBARS

ITEM	DESCRIPTION	PART NUMBER
1	PIN, MAST	06-081-018
2	KLIK PIN, 7/16 X 2	03-050-094
3	KLIK PIN, 7/16 X 2 3/4	16-050-094
4	SPACER, CAT III	05-024-010
5	BUSHING, CAT III LOWER HITCH	16-024-259
6	PIN, LOWER HITCH CAT III	16-026-102
7	ROLL PIN, 1/2 X 3 1/2 PLN	12-050-001

CAT III 3-POINT HITCH

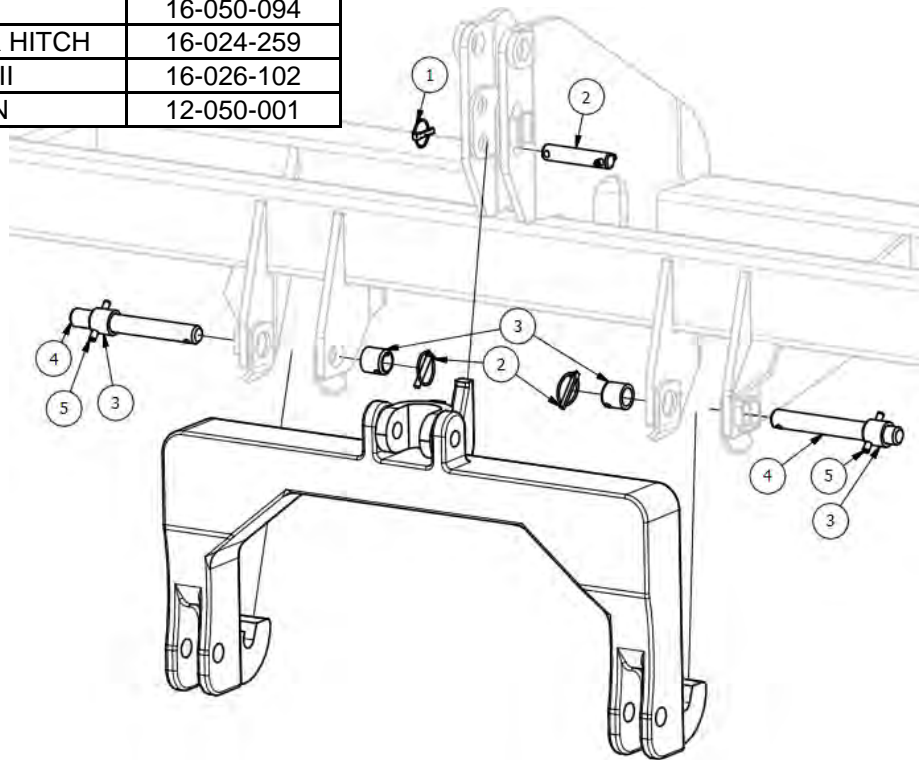
- Top link pin in center mast hole
- Lower links against outside of lower hitch
- Bushings against inside of lower hitches



ITEM	DESCRIPTION	PART NUMBER
1	KLIK PIN, 7/16 X 2	03-050-094
2	KLIK PIN, 7/16 X 2 3/4	16-050-094
3	BUSHING, CAT III LOWER HITCH	16-024-259
4	PIN, LOWER HITCH CAT III	16-026-102
5	ROLL PIN, 1/2 X 3 1/2 PLN	12-050-001

CAT III / IIN QUICK COUPLER

- QC hooks pin in bottom mast hole
- QC against outside of lower hitches
- NQC against inside of lower hitches



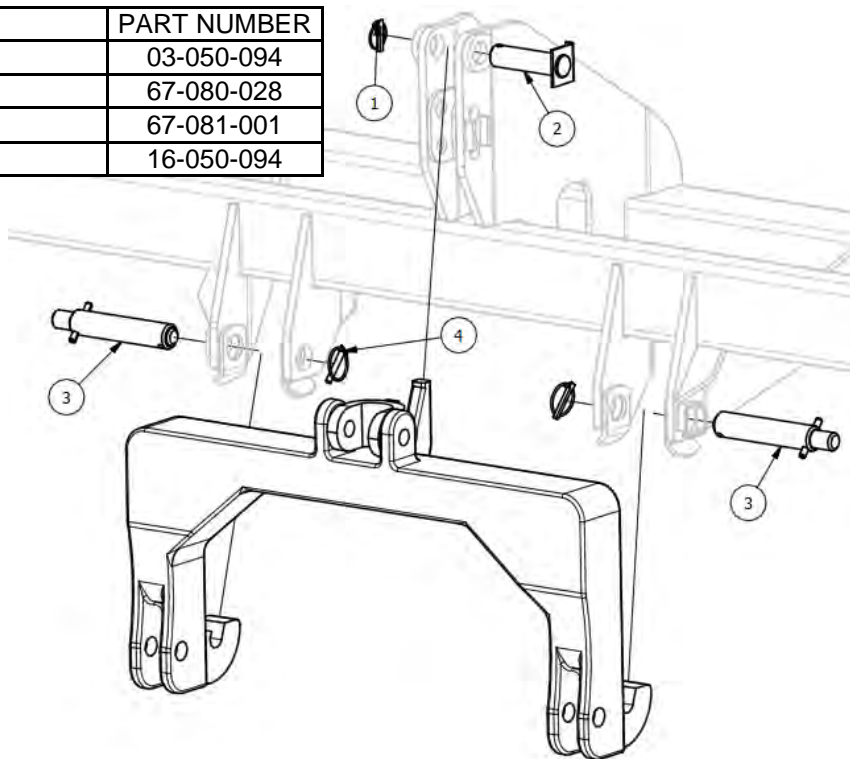
DANGER

DO NOT STAND BETWEEN TRACTOR AND IMPLEMENT DURING HITCHING.

ITEM	DESCRIPTION	PART NUMBER
1	KLIK PIN, 7/16 X 2	03-050-094
2	PIN, CAT IV MAST	67-080-028
3	PIN ASSY, CAT IV HITCH	67-081-001
4	KLIK PIN, 7/16 X 2 3/4	16-050-094

CAT IV NARROW QUICK COUPLER

- QC hooks pin in top mast hole
- QC against outside of lower hitches



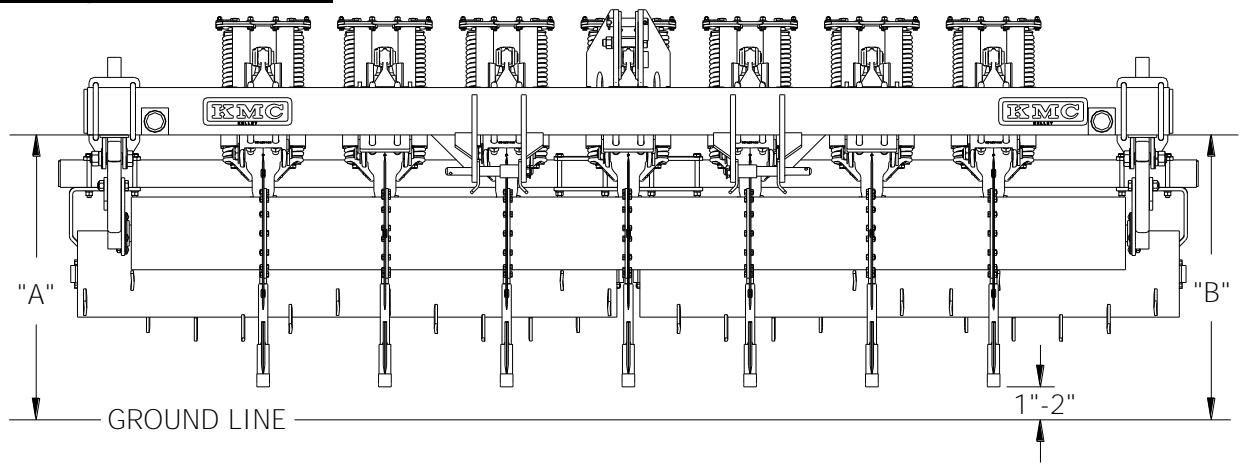
DANGER

DO NOT STAND BETWEEN TRACTOR AND IMPLEMENT DURING HITCHING.

LEVELING IMPLEMENT TOOL BAR

For best results, when leveling the implement, position the tractor with implement on a level floor. Check tractor tire pressure and inflate equally from side to side. See your tractor operator's manual for correct tire inflation pressure.

Leveling Side To Side



With the implement attached to tractor, raise the unit 1 to 2 inches off the floor. Shut-off engine and lock brakes on tractor. Measure to the bottom edge of the rear toolbar tube on each side of the machine. Toolbar will be level when dimension "A" is the same as dimension "B" as shown in drawing above. Level toolbar from side to side by adjusting the lift links on tractor 3-point hitch.

Before adjusting 3-point links see your tractor operator's manual for correct adjustment procedures and safety requirements.

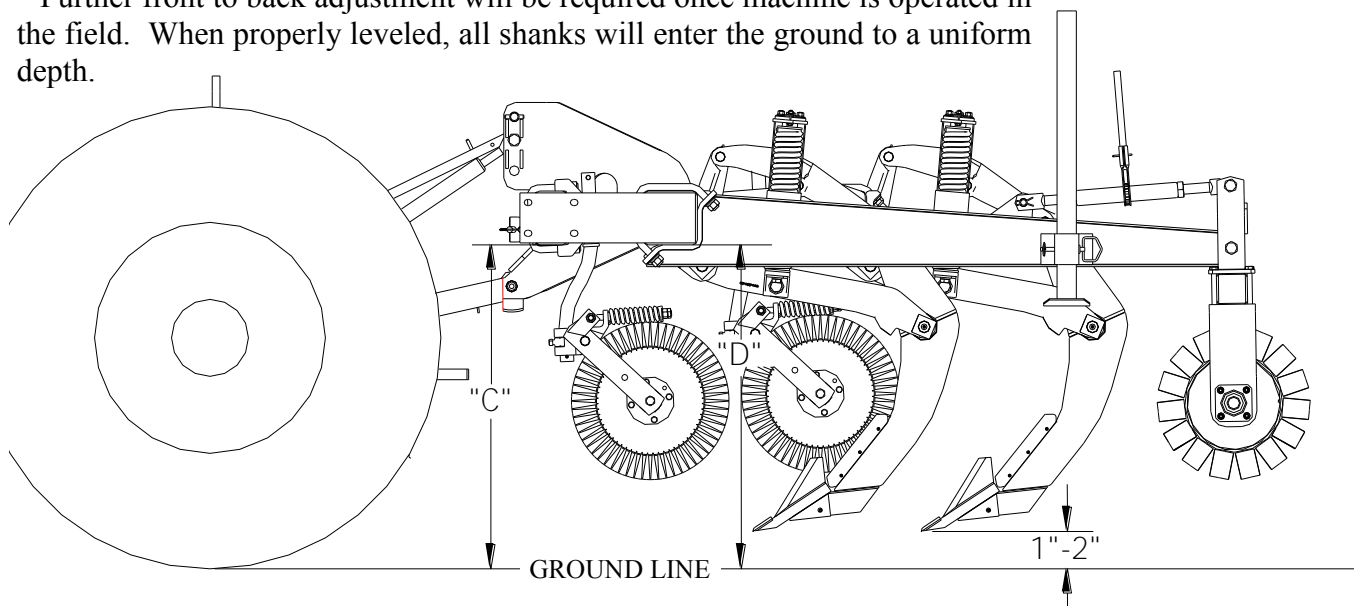
Leveling Front To Rear

Before setting the front coulters or cover crop roller and spiked roller, it is necessary to level the toolbar from the front to the rear.

For initial adjustment keep the machine raised off the ground 1 to 2 inches (being sure bottom of shanks clear floor). Measure to the bottom of the front toolbar tube and the rear toolbar tube.

If toolbar is not level from front to rear with ground line, extend or retract the tractor top link until toolbar is parallel (or level) to the ground line. Toolbar will be level when dimension "C" is the same as dimension "D".

Further front to back adjustment will be required once machine is operated in the field. When properly leveled, all shanks will enter the ground to a uniform depth.

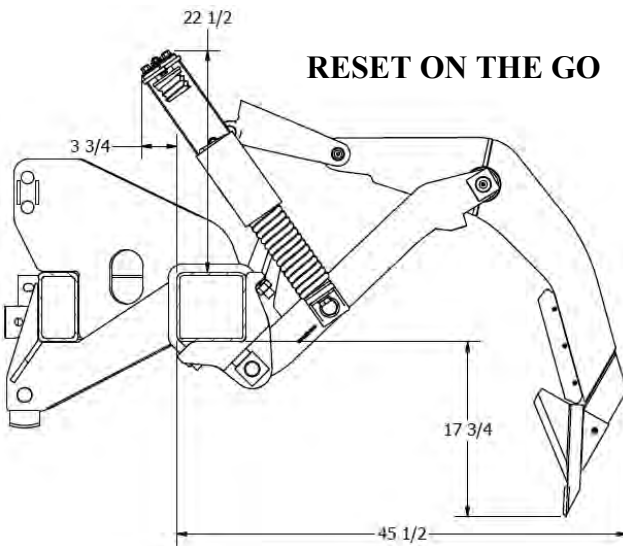


IMPLEMENT PREPARATION

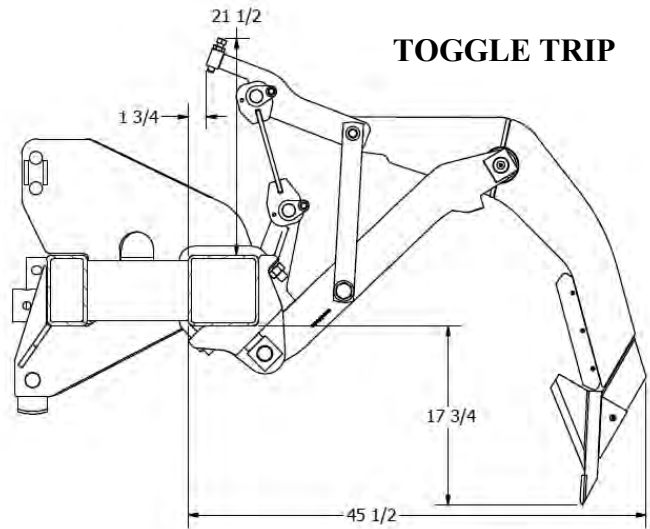
Ripper Shank Tools

Tripped Shank Clearances

It is common practice to mount aftermarket equipment on a KMC toolbar, such as fertilizer tanks or aftermarket row markers. It is critical that all aftermarket equipment is located properly on the toolbar so that it will not interfere with the reset mechanism on the ripper shanks. A tripping shank can be violent and damage anything in its path. Particular care should be taken around Reset on the Go shanks as the spring towers flex when the shank resets itself. Below are computer generated clearance dimensions for each type of shank, however since actual dimensions are hard to determine, additional clearance should be added. Routinely inspect aftermarket equipment and top of ripper shanks for signs of interference during implement use.



RESET ON THE GO



TOGGLE TRIP



CAUTION

USE CAUTION WHEN MOUNTING AFTERMARKET EQUIPMENT OR TANKS ON A 6900 SERIES TOOLBAR. A TRIPPING SHANK CAN BE VIOLENT AND CAN DAMAGE ANYTHING IN ITS PATH.

Reset On The Go Shank

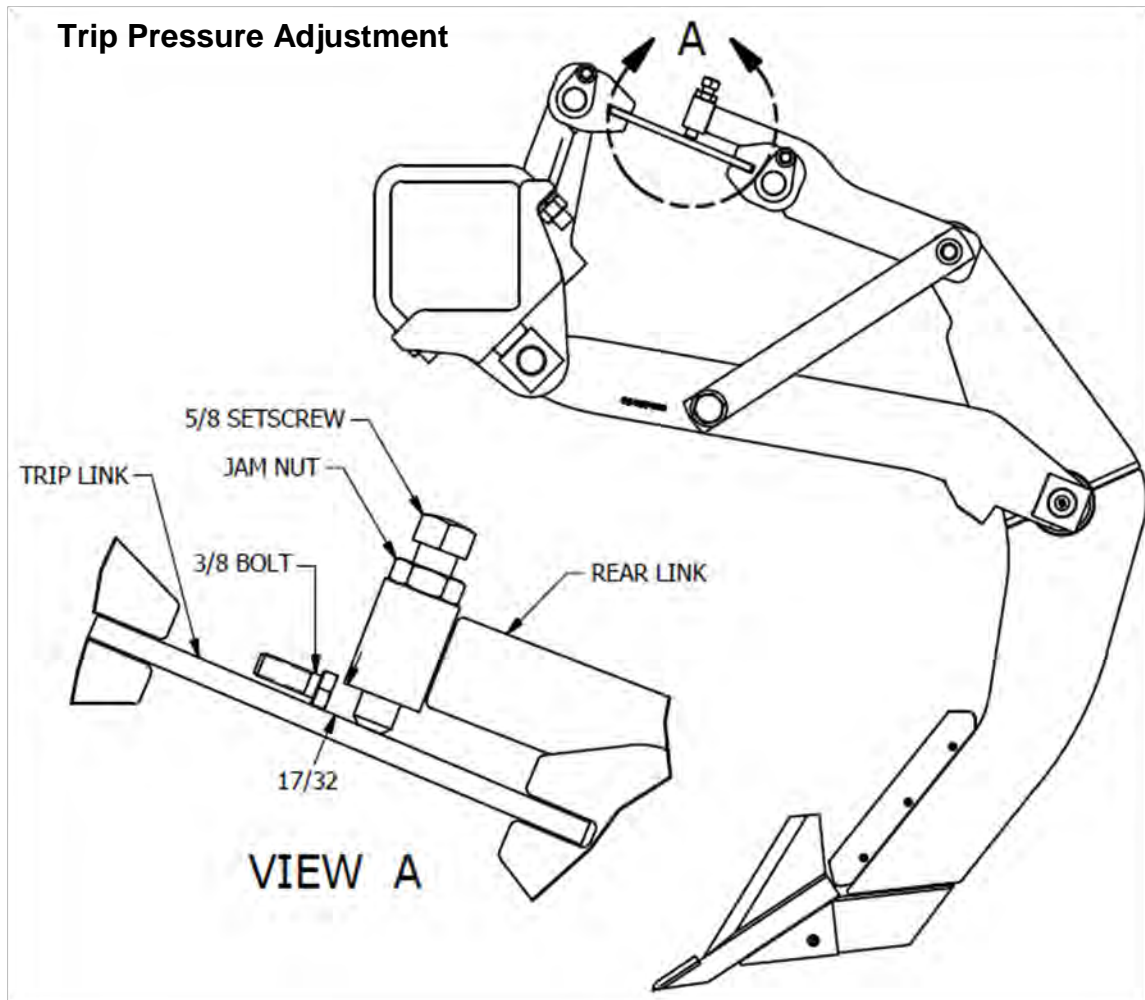
The Reset On The Go ripper shank (RSOG) is designed to trip when the shank encounters an immovable object in the ground such as a stump or large rock. The force of the impact causes the two top linkages to open in the center, allowing the shank to move up and over the obstruction. Once the shank is clear of the ground, the two reset springs pull the two top linkages downward. This kicks the shank point forward to reset and downward to re-penetrate the ground. Because this

shank resets itself as the tractor is moving forward, there is no need to stop if a shank trips. The RSOG shank has been designed to have a fixed trip pressure and requires no adjustment before or during use. However, trip pressures can inadvertently be varied by unwanted friction in the pivot pins. If the pivot pins are not greased as recommended the trip pressure on the point may be increased beyond safe limits. A strict maintenance schedule will keep the RSOG shank operating correctly and safely for the longest period of time. (See the “**Service Schedule**” under the “**Maintenance**” section)



Toggle Trip Shank

The Toggle Trip ripper shank is designed to trip when the shank encounters an immovable obstacle. The trip link will flex causing the center pin to rise and the shank to pivot vertically rearward, up and over the obstacle. To reset the Toggle Trip ripper shank, the toolbar should be lifted until the ripper points on all shanks are above the ground. Once clear, gravity will cause the tripped shank to swing down pulling the trip links back into their initial positions. The toolbar can then be lowered and use can continue as normal.



The trip force of the Toggle Trip ripper shank is set using the 5/8 setscrew. The setscrew rests against the top surface of the trip link and holds the front end of the rear link member. The distance the setscrew is threaded out between the top of the trip link and the bottom of the rear link is set to 17/32" at the factory and should not need further adjusting. However, should the setscrew need adjusting, the proper steps for setting the setscrew distance are:

- 1) Place the head of a 3/8" bolt between the trip link and the bottom of the rear link,
- 2) Adjust setscrew until the end just touches the top of the trip link,
- 3) Remove 3/8" bolt,
- 4) Turn the setscrew 1/4 turn counter-clockwise and lock in place with the jam nut



WARNING

Any distance less than 17/32" can cause severe damage to the trip mechanism and the shank may not trip if it hits an obstacle, causing damage to the entire shank and possibly the toolbar.

Depth of Penetration

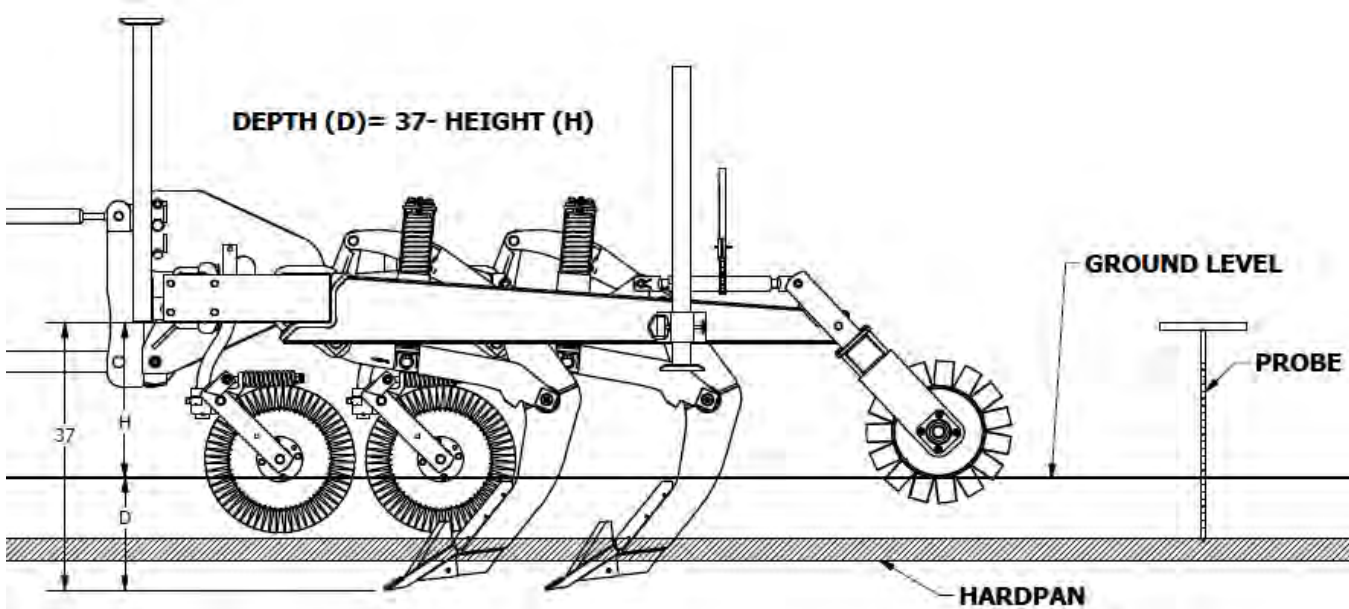
The purpose of a deep tillage tool is to fracture the compacted layer of soil beneath the surface known as the hardpan. The hardpan, usually only a couple inches thick, prevents plant roots from reaching moisture and nutrients below. The deep tillage tool is designed to run 1"-2" below the hardpan, fracturing it and allowing plant roots to reach the moisture and nutrients it needs. A probe, like the one shown here, is used to determine how deep the hardpan is under the surface. To use, insert the tip of the probe into the ground and add down pressure on the handle until the probe gets hard to push. Mark the ground level on the probe, remove it from the ground. The distance from the tip of the probe to the ground level mark is the distance to the hardpan. For accurate results several measurements should be taken and averaged together. Once the depth of the hardpan is determined the machine depth can be set 1 in-2 in below this depth.

***Note: Maximum shank depth below surface is 18in.**

Setting Operating Depth

- 1) Set the machine on a level surface with shank points just touching the ground.
- 2) Measure the distance from the level surface to the bottom surface of the spiked roller. (This will be the approximate operating depth (D))
- 3) Adjust turnbuckles on roller reach arms until the desired depth is set.
- 4) Take the implement to the field and pull the shanks into the ground until the spiked roller is supporting the rear of the machine.
- 5) Measure the distance from the bottom of the toolbar to the ground to get the toolbar height.
- 6) Subtract this number from 37 to determine the actual working depth of the shanks. (It is 37in from the bottom of the toolbar to the point on the shank.)
- 7) Raise implement slightly and adjust spiked roller as needed to set desired working depth.

* **Note:** Machines with Cover Crop Rollers will need to adjust the height of the CCR to match that of the spiked roller. Refer to the section on “**Spiked Roller Adjustments**” and “**Cover Crop Roller Adjustments**” for more information.



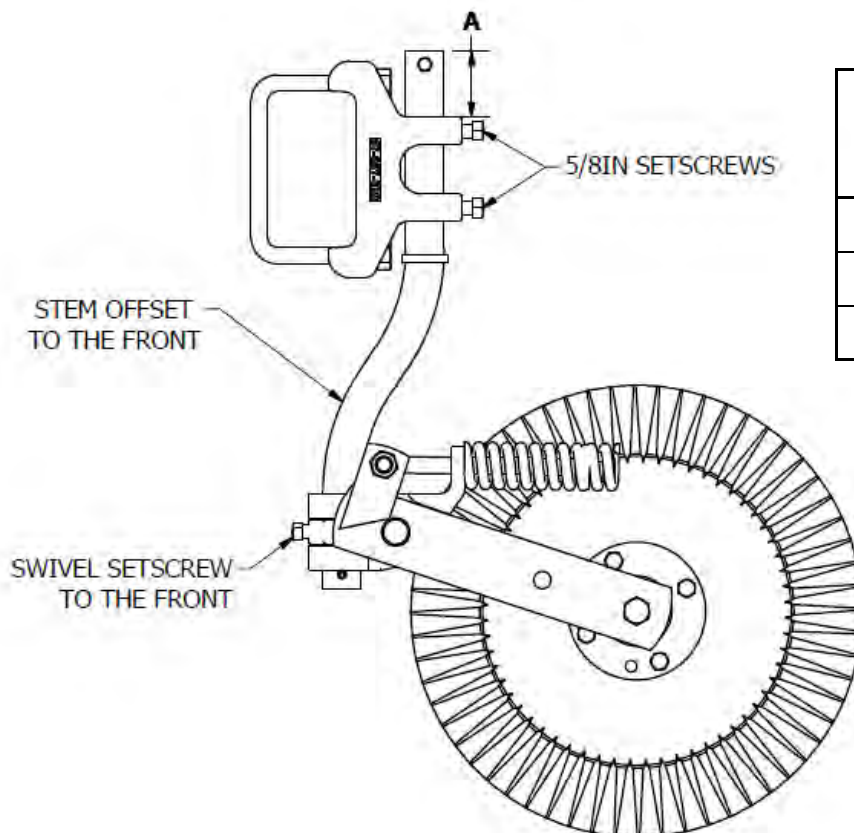
Front Coulter Adjustment

Front coulters are set at the factory to be directly aligned with the ripper shanks. This is important for smooth residue flow around the shank. If the coulter is not properly aligned, loosen the 3/4in hardware on the U-bolt and slide the mount bracket over until the coulter is aligned. Retighten according to the torque specification chart in the “**General**” section of the “**Assembly Setup**” part of the manual.

The coulter swivel stop setscrew should be pointed straight forward to ensure equal amounts of left to right swivel.

The offset of the coulter stem should also be pointed straight forward. When the shanks reset themselves after clearing an obstacle, the point swings forward and could hit the coulter if the offset is not forward.

The vertical position of the front coulters should be adjusted according to the shank working depth. To adjust the height of the coulter, simply loosen the (2) 5/8in setscrews, one at a time, that hold the coulter stem in the mounting bracket as shown below. Caution should be taken when loosening these setscrews as the stem can drop suddenly if it is not being supported. Once the setscrews are loose, pickup/lower the coulter stem to the desired position and retighten the (2) 5/8 setscrews. Proper procedure for tightening setscrews is to tighten to proper torque, loosen, then retighten to proper torque. This allows the setscrew to “set” itself in the coulter stem and provides maximum holding capability. (See Bolt Torque Chart) The chart below shows the stem height values for “A” and the corresponding shank working depth values. Exact coulter position may differ from this initial setting depending on how much coulter down pressure is needed for particular soil and residue conditions. If coulter hub is dragging on residue or pushing dirt, then raise stem higher. If more down pressure is needed to cut residue, then position stem lower. At any height, the coulter arm should not be continuously against the upper limit stop or coulter/stem damage may occur.

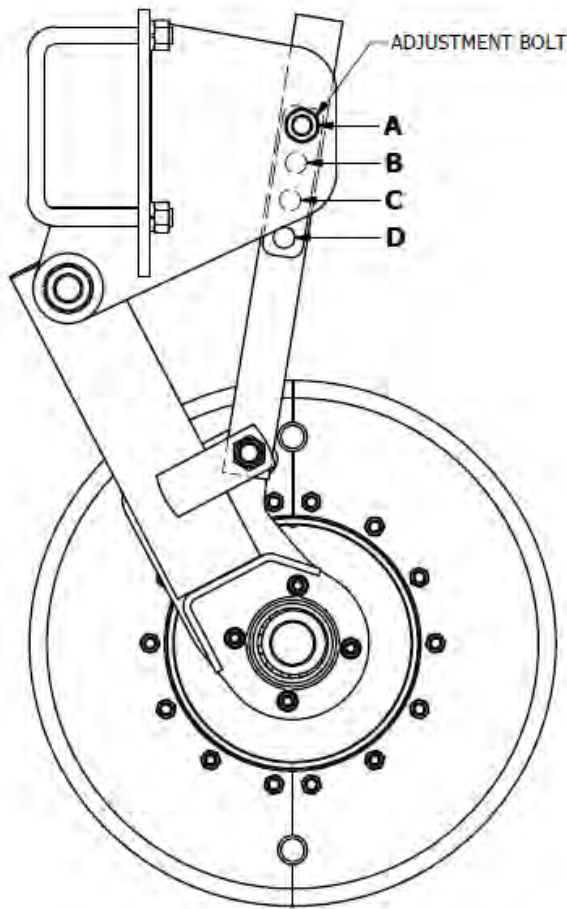


Stem Height “A”	Shank Working Depth
1 in	≤ 12in
2-3/4 in	13in-15in
4-1/2 in	16in-18in



Cover Crop Roller Adjustments

The height of the Cover Crop Roller (CCR) is determined by the position of the 7/8in adjustment bolt. To adjust the height of the CCR, pull the shanks into the soil until the weight of the roller is supported by the ground. Loosen and remove the roller adjustment bolt from its current position. It may be necessary to slightly raise or lower the toolbar to relieve any pressure on the adjustment bolt. Once the bolt is removed, use the 3 point lift to raise or lower the toolbar slowly until the CCR is at the desired height and reinstall the adjustment bolt. Be sure to tighten the bolt to the proper torque specification to reduce the chance of loosening. (See Bolt Torque Chart) Shank Working Depth, as it corresponds to bolt hole location, is shown on the chart below. It should be noted that the bottom hole, “D,” is not used for 6900 series equipment. If the CCR is bolted through hole “D” and ran through the field, the coulters will cause damage to the shanks. Height of Cover Crop Roller should match the height of the Spiked Roller that is set to be the gauge of the Shank Working Depth.



<u>Hole Designation</u>	<u>Shank Working Depth</u>
A	≤ 12in
B	13in-15in
C	16in-18in
D	NOT USED

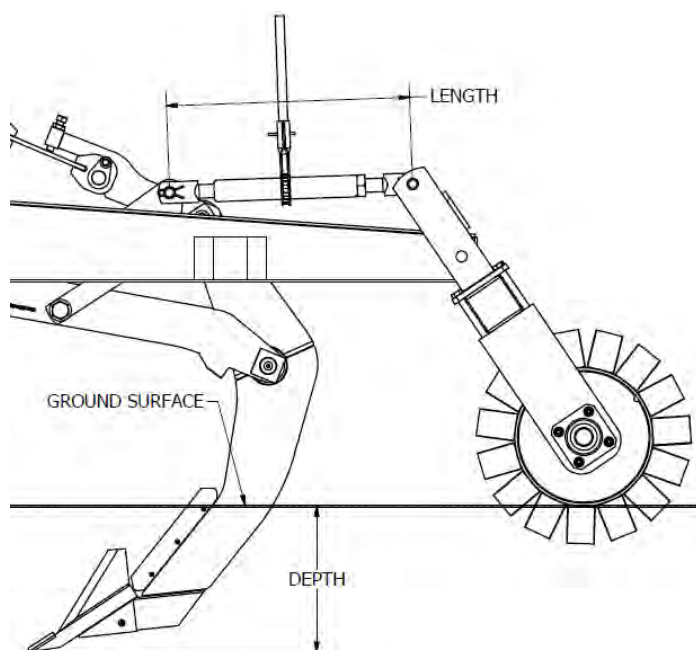


WARNING

STAND CLEAR OF IMPLEMENT WHILE RAISING AND LOWERING LIFT ARMS

Spiked Roller Adjustments

The spiked roller on the back of the Subsoiler Leveler is used to gauge the working depth of the shank. Any adjustments done to the height of the spiked roller will directly affect the depth at which the shank penetrates the ground. Adjusting the height of the roller is done through the ratcheting turnbuckles that hold the top of the roller pivot brackets to the roller reaches. (See assembly set-up instructions for more information.) To adjust the height of the roller simply ratchet the turnbuckles in/out until the desired roller height is reached. Below is a chart showing the length between clevis pins on the ratcheting turnbuckle and the corresponding shank working depth. Since the rollers are held by multiple turnbuckles, it is best to adjust each turnbuckle in small increments until the desired length is reached in order to avoid putting the roller mount tube in a bind.



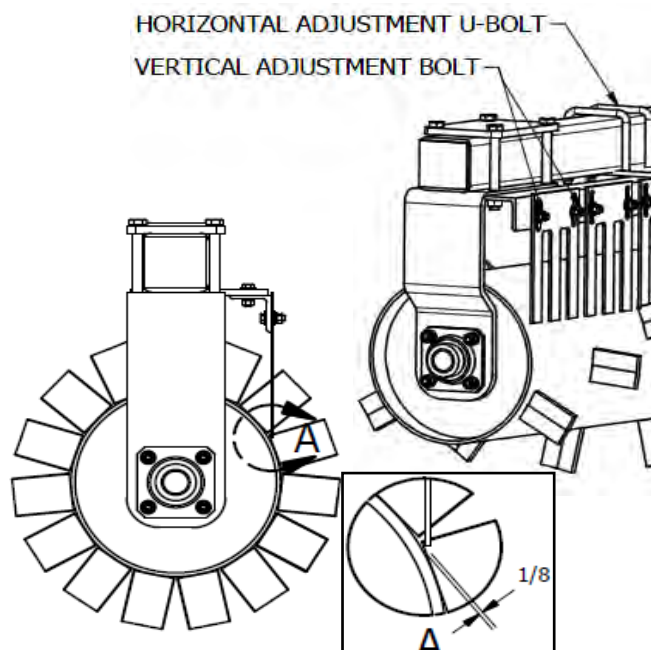
TURNBUCKLE LENGTH	SHANK WORKING DEPTH
20 1/2"	18"
21"	17"
21 1/2"	16"
22"	15"
22 1/2"	14"
23"	13"
23 1/2"	12"
25"	11"
27"	10"

OPTIONAL ATTACHMENTS

Spiked Roller Scraper Adjustments

The scraper attachment on the spiked roller is used to keep soil from building up on the surface of the roller. The scraper is adjusted vertically by loosening the (2) bolts holding the scraper to the support angle and sliding the scraper down. As the scraper wears, and when it is adjusted, it is important to maintain the 1/8in dimension between the edge of the scraper and the roller. This dimension is designed to maximize performance and minimize scraper damage.

The scraper is held in position horizontally by the U-bolts connecting the scraper angle to the roller support tube. The scrapers should be adjusted so the spikes on the roller pass between the scraper fingers with equal amounts of room on each side. After the initial setting, the horizontal spacing should not need further adjusting.



START-UP

Before initial operation of this piece of equipment, review the “**Pre-Operational Checklist**” at the front of this manual. Make sure all fields of the checklist have been performed and make any notes necessary for future operators. Your piece of equipment should now be ready for field operation.

NOTES:

[illegible]

MAINTENANCE

SERVICE SCHEDULE

The 6900 KMC Subsoiler Leveler has been carefully designed and manufactured to provide years of dependable service. To maximize use and reduce downtime and repair costs, regular maintenance should be performed on the Subsoiler Leveler. Below is a guide for minimum recommended services and the time intervals for their completion. However, since these machines are used in many different conditions and applications, the operator should customize the maintenance schedule to best fit their individual needs.

	SERVICE	EVERY 10 HOURS	EVERY 50 HOURS	EVERY 250 HOURS
1	INSPECT RIPPER POINTS (REPLACE AS NEEDED)	X		
2	INSPECT WEAR SHINS (REPLACE AS NEEDED)	X		
3	LUBRICATE ALL GREASE POINTS	X		
4	CHECK TORQUE ON ALL BOLTS (See Bolt Torque Chart in Section on General Assembly Set-up)	X (INITIAL)		X
5	INSPECT HITCH PINS FOR WEAR		X	
6	INSPECT FRONT COULTER DISC (REPLACE AS NEEDED)		X	
7	INSPECT BEARINGS ON COULTERS AND ROLLERS		X	
8	OPTIONAL SCRAPER-ADJUST POSITION AGAINST SPIKED ROLLER		X	
9	INSPECT RIPPER SHANKS AND TRIP MECHANISMS FOR ANY DAMAGE		X	
10	INSPECT TOOLBAR FOR ANY DAMAGE			X

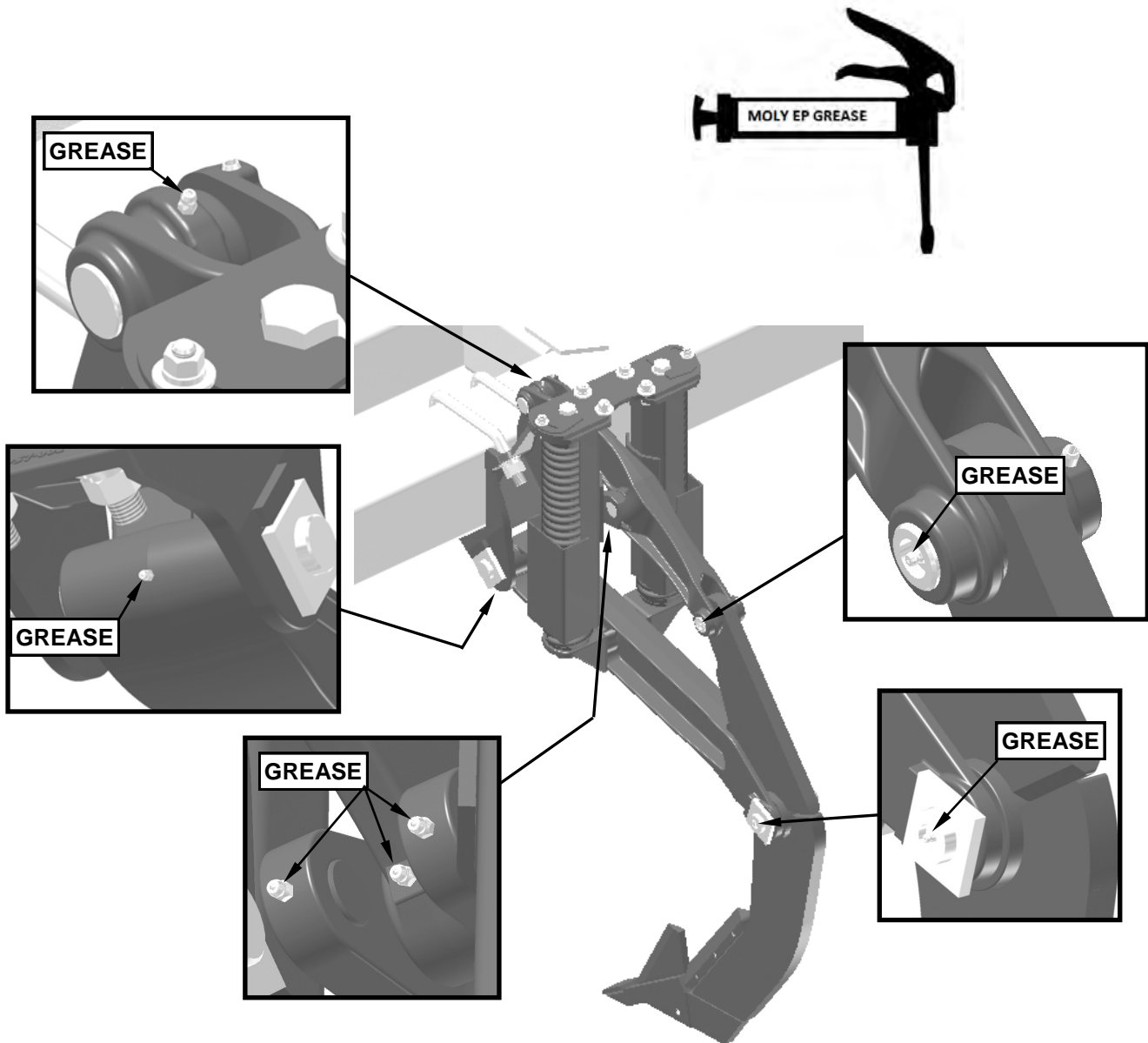
*NOTE: Front Coulter Bearings and Rear Spiked Roller Bearings are non-relub.

LUBRICATION POINTS

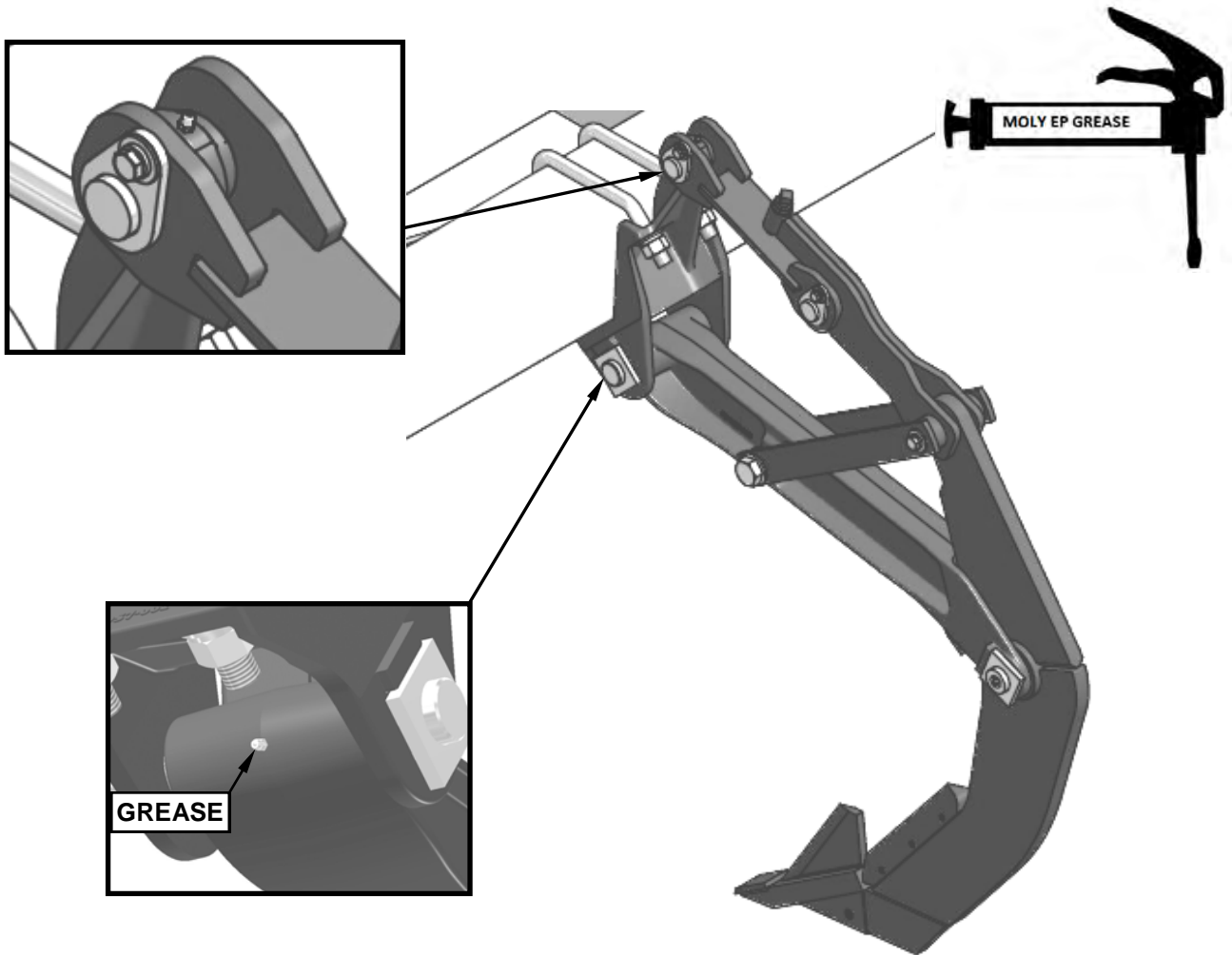
Several machine components require periodic lubrication: See the “**Maintenance Service Schedule**” portion of the manual for those periodic lubrication intervals.

The following illustrations highlight those component areas that are fitted for lubrication. In all these areas it is important to use only a **Moly EP Grease** with a minimum service interval as described in the Maintenance Service Schedule.

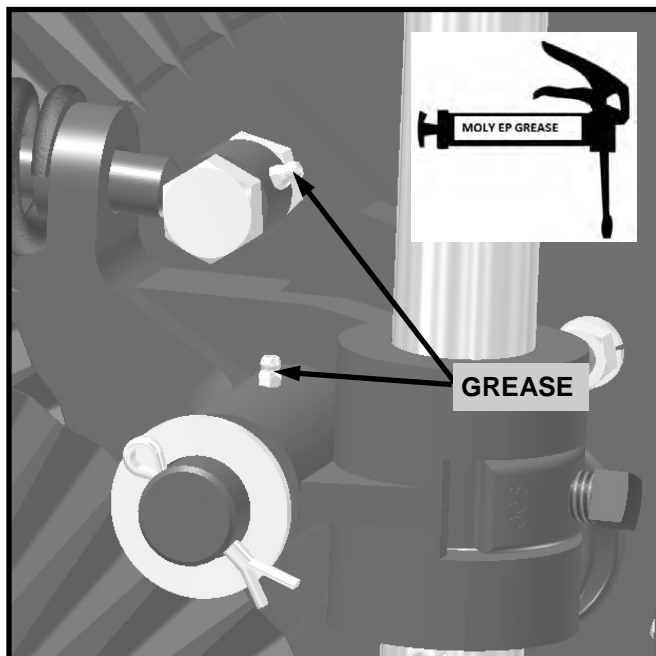
Reset On The Go Lubrication Points (7 Per Row)



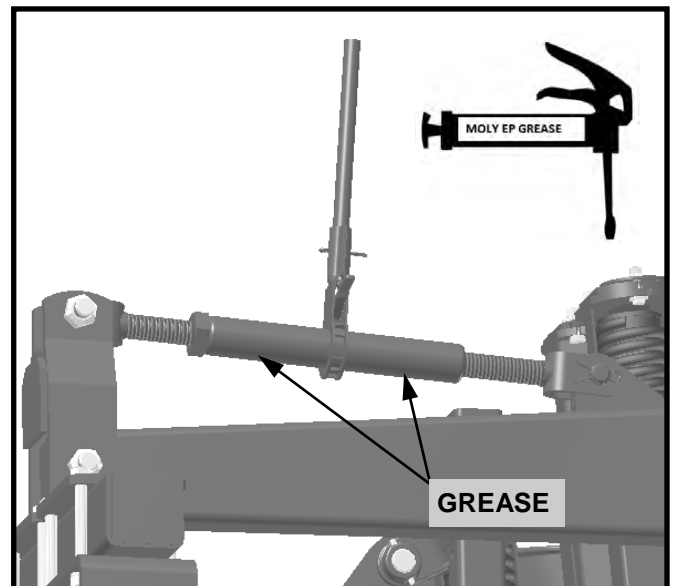
Toggle Trip Lubrication Points (2 Per Row)



Swivel Coupler Lubrication Points (2 Per Row)



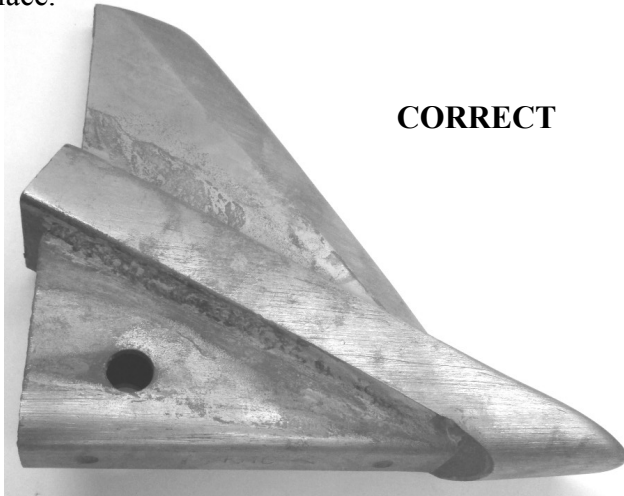
Turnbuckle Lubrication Points (2 Per Row)



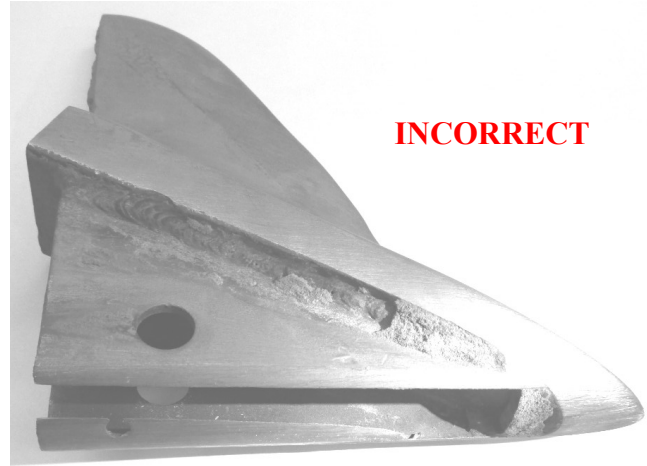
WEAR ITEM REPLACEMENT

Shank Points

Shank points should be checked for wear daily and more frequently in severe conditions. The photo on the left shows a point that is worn and ready to be replaced. If the point is left on the machine past this point the boot, or portion on the point that holds it onto the shank, will wear quickly. Once the bottom of the boot is gone, the foot of the shank will be damaged. Repairing the shank foot is costly and time consuming. The photo on the right shows a point that has been ran too long and the boot has been worn through. The foot of the shank this point was on had to be cut off and a new one welded on in its place.



CORRECT



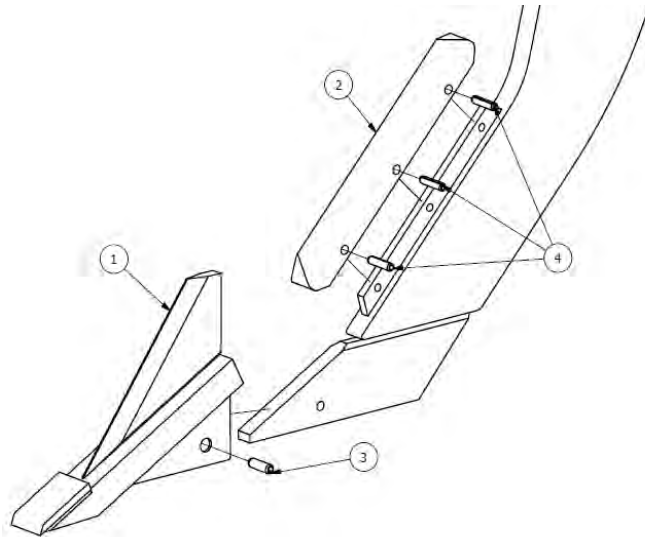
INCORRECT

Replacing Ripper Points

- 1) Remove 3/8 x 1-1/4 roll pin holding the point on the foot of the shank.
- 2) Remove worn point from the shank foot.
(May need a hammer)
- 3) Slide the new point on the shank foot until the holes in the foot and boot align.
- 4) Drive new 3/8 x 1-1/4 roll pin through the hole in the boot and into the hole in the shank foot until it is flush with the side of the boot.

Wear Shins

Wear shins are used to minimize shank wear and should be checked for wear daily and more frequently in severe conditions. The wear shin should be replaced when there is noticeable taper in the area where the roll pins hold the wear shin to the shank. Since wear shins usually wear faster on the end closer to the point, wear shins can be flipped over for extended life.



ITEM	DESCRIPTION	PART NO.	QTY
1	SPLITTER POINT, 1 3/4 RS W/CAP	16-080-282	1
2	WEAR SHIN, 12"	17-057-004	1
3	ROLL PIN, 3/8 X 1 1/4 PLT	16-050-020	1
4	ROLL PIN, 5/16 X 1 3/8	17-050-022	3

Replacing Wear Shins

- 1) Remove (3) 5/16 x 1-3/8 roll pins that hold the wear shin on the shank.
- 2) Remove worn wear shin from front of shank.
- 3) Place new wear shin over the rib on the front of shank and align holes.
- 4) Drive (3) 5/16 x 1-3/8 roll pins through the wear shin until they are flush.

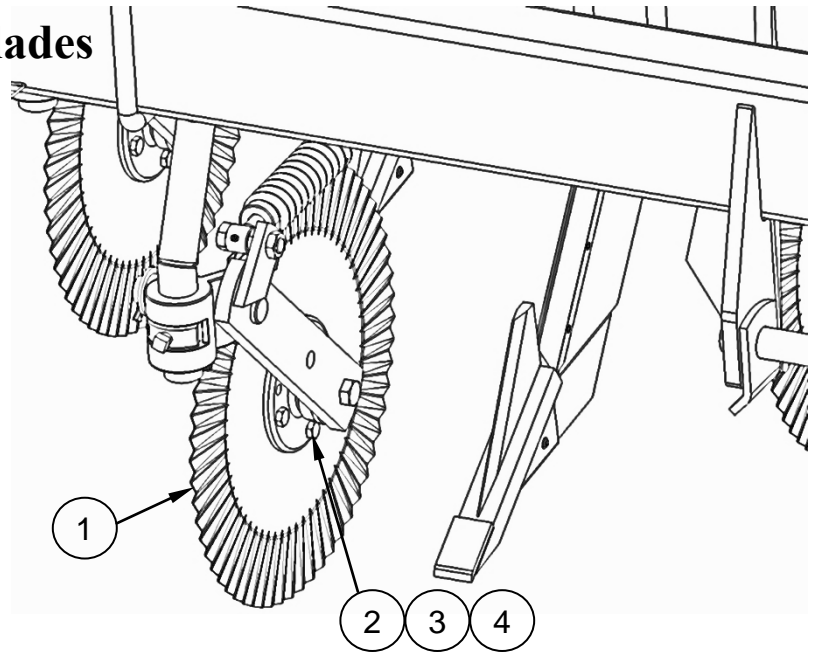
STORAGE

Clean thoroughly and lubricate Subsoiler Leveler before storage. Check for worn-out or damaged parts. Replace any found before next season. If possible, store Subsoiler Leveler where it will be protected from weather.

Replacing Coulter Disc Blades

Front Swivel Coulter Blades

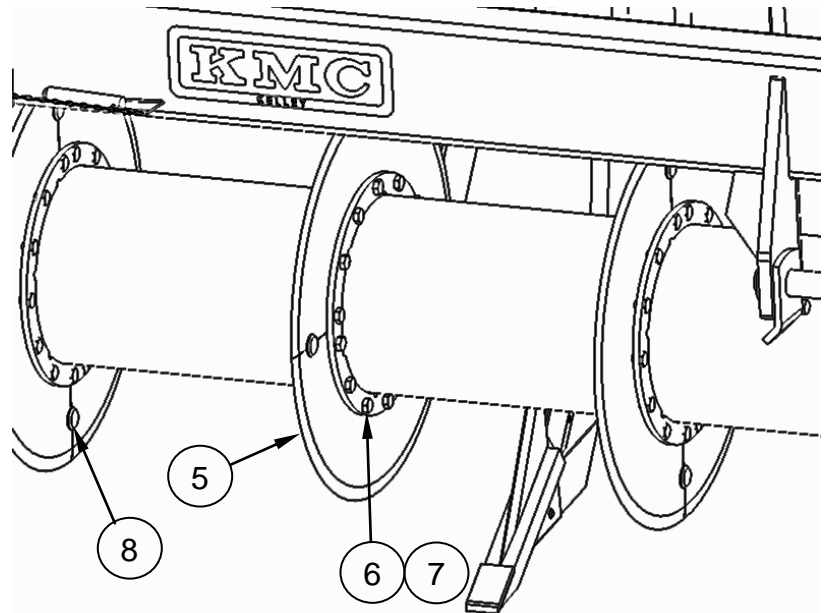
1. Remove 1/2 x 1-1/2 capscrews and the corresponding lockwasher and hexnut.
2. Remove worn disc from the bearing hub. (may need to lightly tap the disc with a hammer to remove)
3. Install new disc by realigning four bolt holes in the bearing hub.
4. Reinstall 1/2 x 1-1/2 capscrews and corresponding lockwasher and hexnut. (may need to install new hardware if existing are in poor condition) See “**Torque Chart**” for proper assembly torque.



ITEM	DESCRIPTION	PART NUMBER
1	COULTER, 20" NO-TILL	16-050-004
2	CAPSCREW, 1/2 X 1 1/2 G5 PLT	48-090595
3	LOCKWASHER, 1/2 REG PLT	66-010250
4	HEXNUT, 1/2 PLT	68-010250
5	DISC PAIR, 22" RR SMOOTH	67-050-018
6	CAPSCREW, 1/2 X 1 G5 PLT	48-090590
7	LOCKNUT, 1/2 JAM G"A" PLT	72-040010
8	SPOOL, CCR DISC CAPTURE	67-026-053

Cover Crop Roller Coulter Blades

1. Remove 1/2 x 1 capscrews and the corresponding jam locknuts.
2. Remove worn two piece disc blades from the roller flanges. (may need to lightly tap with a hammer to remove)
3. Retain CCR disc capture spools for new disc pairs if possible.
4. Install new two piece disc blades to the roller flanges by realigning the bolt hole pattern with the roller flanges. Make sure the CCR disc capture spools are installed between the coulter blade halves before the hardware is installed.
5. Reinstall new 1/2 x 1 capscrews and new corresponding jam locknuts. Torque jam locknuts to 50 ft lbs for proper assembly torque.



6. To ensure a good fit, the blade halves are sold as a matched pair. Flip halves around until KMC marking numbers appear on the same side of the assembly.

STORAGE:

The purchase of your Subsoiler Leveler is a substantial investment to your farming needs. For this reason, your Subsoiler Leveler should be cleaned and stored in a manner that will ensure the life and value of your investment for years to come.

KMC recommends after each season of use to:

- **Pressure wash and clean the machine thoroughly to remove all dirt and moisture retaining materials.**
- **Repaint worn and scratched parts if possible.**
- **Grease all bearings, bushings, and pivot joints that are fitted for relube. Also, fully grease the turnbuckle threads to prevent these areas from rusting and pitting.**
- **Store under a shelter in a location away from all weather elements if possible.**

The following is a list of serial numbers issued to our machines at the beginning of each year. To determine when a unit was made, find the range within which the particular serial number falls. It would have been produced between January 1 to December 31 of that year.

YEAR	SERIAL NUMBERS
2013	85093-86418
2014	86419-



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