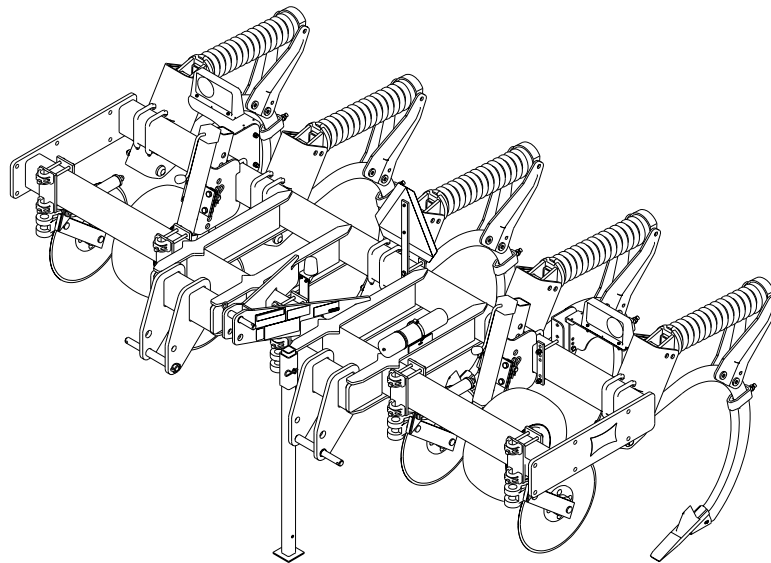




MODEL 1550 SERIES IN-ROW RIPPER OPERATOR'S MANUAL



**1900 NORTH STREET
MARYSVILLE, KANSAS 66508
(785) 562-5381**

WARRANTY

MANUFACTURER'S GUARANTEE POLICY

LANDOLL CORPORATION WARRANTY

LANDOLL warrants each new and unused LANDOLL machine, when properly assembled, adjusted, and operated, to be free of defects in material and workmanship, in normal use and when properly serviced, for a period of twelve (12) months after date of delivery by the Dealer to the original retail purchaser. LANDOLL shall repair or replace, at its option, freight on board (f.o.b.) at its factory or designated DEALER location, any part or parts of such new and unused machine which shall have been reported in writing to LANDOLL within thirty (30) days from date of failure thereof and which LANDOLL inspection shall disclose to have been defective. Defective parts must be returned to the LANDOLL factory, freight prepaid. LANDOLL will not be liable for labor, transportation, or any other charges resulting from replacement of a defective part. This warranty is void if any part not supplied by LANDOLL is used in assembly or repair, or if the machine has been altered, abused, or neglected. LANDOLL repair parts are warranted for ninety (90) days from date of replacement or for the unexpired warranty period of the applicable LANDOLL machine, whichever period is longer. LANDOLL makes no warranty, whatsoever, as to purchased component parts and other trade accessories, except to the extent that such items are warranted by the manufacturer thereof. THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED, IMPLIED, OR STATUTORY (INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PURPOSE), AND LANDOLL SHALL NOT BE LIABLE FOR SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY KIND ON ACCOUNT OF ANY LANDOLL PRODUCT.

NO EMPLOYEE OR REPRESENTATIVE IS AUTHORIZED TO CHANGE THIS WARRANTY, VERBALLY OR IN WRITING, OR GRANT ANY OTHER WARRANTY.

LANDOLL CORPORATION, WHOSE POLICY IS ONE OF CONTINUOUS IMPROVEMENT, RESERVES THE RIGHT TO MAKE CHANGES WITHOUT OBLIGATION TO MODIFY PREVIOUSLY PRODUCED EQUIPMENT.



MODEL 1550 SERIES IN-ROW RIPPER OPERATOR'S MANUAL

PURCHASED FROM: _____ **DATE** ____ / ____ / ____

ADDRESS: _____

PHONE NO.: _____ **SERIAL NO.:** _____

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SAFETY PRECAUTIONS



THIS IS THE SAFETY ALERT SYMBOL. IT IS USED TO ALERT YOU TO POTENTIAL INJURY HAZARDS. OBEY ALL SAFETY MESSAGES THAT FOLLOW THIS SYMBOL TO AVOID POSSIBLE INJURY OR DEATH.

DANGER

DANGER INDICATES AN IMMINENTLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY.

WARNING

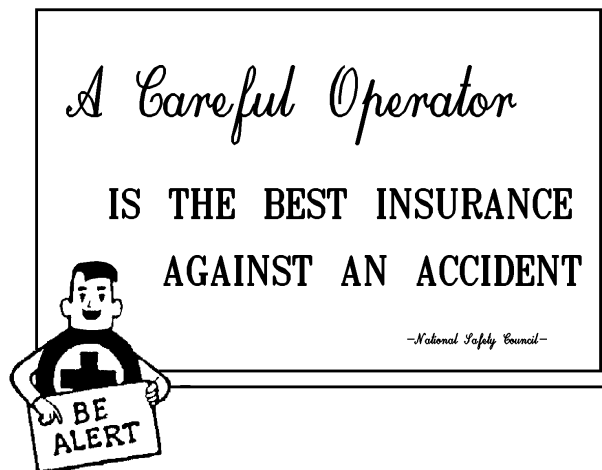
WARNING INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY.

CAUTION

CAUTION INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, MAY RESULT IN MINOR OR MODERATE INJURY.

CAUTION

CAUTION USED WITHOUT THE SAFETY ALERT SYMBOL INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, MAY RESULT IN PROPERTY DAMAGE.



INTRODUCTION

1

The Landoll 1550 Series In-Row Ripper is a quality product designed to give years of trouble free performance. By following each section of this manual, your system will perform as designed for you and your operation.

- SECTION 1** gives basic instructions on the use of this manual.
- SECTION 2** gives product specifications. These specifications supply lengths and measures for your equipment. A Standard Bolt Torque Table is provided to give guidelines for bolt torques to be used when servicing this product.
- SECTION 3** contains assembly instructions for your 1550 Series In-Row Ripper. When these procedures are correctly followed, your equipment should provide you years of trouble-free operation and service.
- SECTION 4** instructs how to operate your equipment before using it, and describes adjustments needed. It also gives practical advice for the care and maintenance of your Landoll equipment. Drawings in this section locate adjustment points on the equipment.

NOTE: IF THE EQUIPMENT IS IMPROPERLY MAINTAINED, THE WARRANTY IS VOID. IF YOU HAVE ANY QUESTIONS CONTACT:

**LANDOLL CORPORATION
1900 NORTH STREET
MARYSVILLE, KANSAS 66508
or phone:
(785) 562-4620 or
(800) 428-5655
or FAX:
(785) 562-3240**

- SECTION 5** is a troubleshooting guide to aid in diagnosing and solving problems with the equipment.

- PARTS LIST** is a separate manual showing the various assemblies, subassemblies, and systems. Refer to that manual when ordering Landoll replacement parts. Order parts from your Landoll dealer or call the Landoll Parts Distribution Center at:

**(785) 562-4650 or
(800) 423-4320 or
FAX: (785) 562-4654**

- WARRANTY** The Warranty Registration form is included with the product documents. Fill it out and mail it within 15 days of purchase. The Warranty is printed inside the front cover.

NOTE: IMPROPER ASSEMBLY, MODIFICATION, OR MAINTENANCE OF YOUR LANDOLL EQUIPMENT CAN VOID YOUR WARRANTY.

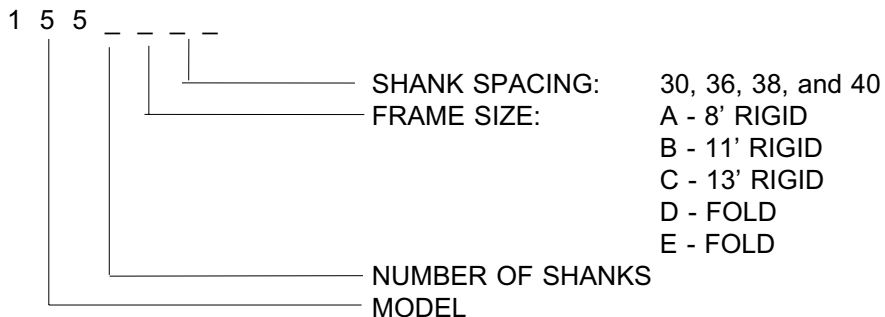
- COMMENTS** Address comments or questions regarding this publication to:

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1900 NORTH STREET
MARYSVILLE, KANSAS 66508
ATTENTION: PUBLISHING -DEPT. 55**

STANDARD SPECIFICATIONS

2

SPECIFICATIONS						
Model Number	No. Shanks	Row Spacing	Shank Swath	Frame Model	Extension/ Wing	Transport Width
1553A30	3	30	90"	A	None	
1553A36	3	36	108"	A	None	8'-3"
1553A38	3	38	114"	A	None	8'-3"
1553A40	3	40	120"	A	None	8'-3"
1554A30	4	30	120"	A	None	8'-3"
1554A36	4	36	144"	A	None	11'-3"
1554A38	4	38	152"	A	17" Bolt On	11'-3"
1554A40	4	40	160"	A	17" Bolt On	11'-3"
1555A30	5	30	150"	A	17" Bolt On	11'-3"
1554B40	4	40	160"	B	None	11'-2"
1555B30	5	30	150"	B	None	11'-2"
1555B36	5	36	180"	B	17" Bolt On	14'-2"
1555B38	5	38	190"	B	17" Bolt On	14'-2"
1555B40	5	40	200"	B	17" Bolt On	14'-2"
1556B30	6	30	180"	B	17" Bolt On	14'-2"
1556B36	6	36	216"	B	28" Bolt On	15'-10"
1557B30	7	30	210"	B	28" Bolt On	15'-10"
1556C30	6	30	180"	C	None	14'-2"
1556C36	6	36	216"	C	17" Bolt On	17'-2"
1556C38	6	38	228"	C	17" Bolt On	17'-2"
1556C40	6	40	240"	C	28" Bolt On	18'-10"
1557C30	7	30	210"	C	17" Bolt On	17'-2"
1557C36	7	36	252"	C	28" Bolt On	18'-10"
1558C30	8	30	240"	C	28" Bolt On	18'-10"
1556D36	6	36	216"	D	33" Hinged	16'-1"
1556D38	6	38	228"	D	33" Hinged	15'-9"
1556D40	6	40	240"	D	46" Hinged	15'-5"
1557D30	7	30	210"	D	33" Hinged	16'-1"
1557D36	7	36	252"	D	46" Hinged	17'-5"
1557D38	7	38	266"	D	60" Hinged	17'-1"
1557D40	7	40	280"	D	60" Hinged	16'-10"
1558D30	8	30	240"	D	46" Hinged	17'-2"
1558E36	8	36	288"	E	46" Hinged	20'-3"
1558E38	8	38	304"	E	60" Hinged	19'-10"
1558E40	8	40	320"	E	60" Hinged	19'-5"
1559E30	9	30	270"	E	46" Hinged	20'-3"



LANDOLL CORPORATION GENERAL TORQUE SPECIFICATIONS (REV. 4/97)

THIS CHART PROVIDES TIGHTENING TORQUES FOR GENERAL PURPOSE APPLICATIONS WHEN SPECIAL TORQUES ARE NOT SPECIFIED ON PROCESS OR DRAWING.

ASSEMBLY TORQUES APPLY TO PLATED NUTS AND CAPSCREWS ASSEMBLED WITHOUT SUPPLEMENTAL LUBRICATION (AS RECEIVED CONDITION). THEY DO NOT APPLY IF SPECIAL GRAPHITE MOLY-DISULFIDE OR OTHER EXTREME PRESSURE LUBRICANTS ARE USED.

WHEN FASTENERS ARE DRY (SOLVENT CLEANED), ADD 33% TO AS RECEIVED CONDITION TORQUE.

BOLT HEAD IDENTIFICATION MARKS INDICATE GRADE AND MAY VARY FROM MANUFACTURER TO MANUFACTURER.

THICK NUTS MUST BE USED ON GRADE 8 CAPSCREWS.

USE VALUE IN [] IF USING PREVAILING TORQUE NUTS.

TORQUE IS SPECIFIED IN FOOT POUNDS

UNC Size	SAE Grade 2	SAE Grade 5	SAE Grade 8	UNF Size	SAE Grade 2	SAE Grade 5	SAE Grade 8
1/4-20	4 [5]	6 [7]	9 [11]	1/4-28	5 [6]	7 [9]	10 [12]
5/16-18	8 [10]	13 [16]	18 [22]	5/16-24	9 [11]	14 [17]	20 [25]
3/8-16	15 [19]	23 [29]	35 [43]	3/8-24	17 [21]	25 [31]	35 [44]
7/16-14	24 [30]	35 [43]	55 [62]	7/16-20	27 [34]	40 [50]	60 [75]
1/2-13	35 [43]	55 [62]	80 [100]	1/2-20	40 [50]	65 [81]	90 [112]
9/16-12	55 [62]	80 [100]	110 [137]	9/16-18	60 [75]	90 [112]	130 [162]
5/8-11	75 [94]	110 [137]	170 [212]	5/8-18	85 [106]	130 [162]	180 [225]
3/4-10	130 [162]	200 [250]	280 [350]	3/4-16	150 [188]	220 [275]	320 [400]
7/8-9	125 [156]	320 [400]	460 [575]	7/8-14	140 [175]	360 [450]	500 [625]
1-8	190 [237]	408 [506]	680 [850]	1-14	210 [263]	540 [675]	760 [950]
1-1/8-7	270 [337]	600 [750]	960 [1200]	1-1/8-12	300 [375]	660 [825]	1080 [1350]
1-1/4-7	380 [475]	840 [1050]	1426 [1782]	1-1/4-12	420 [525]	920 [1150]	1500 [1875]
1-3/8-6	490 [612]	110 [1375]	1780 [2225]	1-3/8-12	560 [700]	1260 [1575]	2010 [2512]
1-1/2-6	650 [812]	1460 [1825]	2360 [2950]	1-1/2-12	730 [912]	1640 [2050]	2660 [3325]

METRIC

COARSE THREAD METRIC CLASS 10.9 FASTENERS AND CLASS 10.0 NUTS AND THROUGH HARDENED FLAT WASHERS, PHOSPHATE COATED, ROCKWELL "C" 38-45.

USE VALUE IN [] IF USING PREVAILING TORQUE NUTS.

Nominal Thread Diameter mm	Standard Torque		Nominal Thread Diameter mm	Standard Torque	
	Newton-Meters	Foot-Pounds		Newton-Meters	Foot-Pounds
6	10 [14]	7 [10]	20	385 [450]	290 [335]
7	16 [22]	12 [16]	24	670 [775]	500 [625]
8	23 [32]	17 [24]	27	980 [1105]	730 [825]
10	46 [60]	34 [47]	30	1330 [1470]	990 [1090]
12	80 [101]	60 [75]	33	1790 [1950]	1340 [1450]
14	125 [155]	90 [115]	36	2325 [2515]	1730 [1870]
16	200 [240]	150 [180]	39	3010 [3210]	2240 [2380]
18	275 [330]	205 [245]			

Table 2-1 General Torque Specifications

**LANDOLL CORPORATION
HYDRAULIC FITTING TORQUE SPECIFICATIONS
37° JIC, ORS, & ORB (REV. 10/97)**

THIS CHART PROVIDES TIGHTENING TORQUES FOR HYDRAULIC FITTING APPLICATIONS WHEN SPECIAL TORQUES ARE NOT SPECIFIED ON PROCESS OR DRAWING.

ASSEMBLY TORQUES APPLY TO PLATED CARBON STEEL AND STAINLESS STEEL FITTINGS ASSEMBLED WITHOUT SUPPLEMENTAL LUBRICATION (AS RECEIVED CONDITION). THEY DO NOT APPLY IF SPECIAL GRAPHITE MOLY-DISULFIDE OR OTHER EXTREME PRESSURE LUBRICANTS ARE USED.

BRASS FITTINGS AND ADAPTERS - 65% OF THE TORQUE VALUE FOR STEEL. STAINLESS STEEL, ALUMINUM AND MONEL - THREADS ARE TO BE LUBRICATED.

TORQUE IS SPECIFIED IN FOOT POUNDS

PARKER BRAND FITTINGS

Dash Size	37 Degree JIC	O-Ring (ORS)	O-Ring Boss (ORB)
-4	11-13	15-17	13-15
-5	14-16	—	21-23
-6	20-22	34-36	25-29
-8	43-47	58-62	40-44
-10	55-65	100-110	57.5-62.5
-12	80-90	134-146	75-85
-16	115-125	202-218	109-121
-20	160-180	248-272	213-237
-24	185-215	303-327	238-262
-32	250-290	—	310-340

**LANDOLL CORPORATION
HYDRAULIC FITTING TORQUE SPECIFICATIONS
37° JIC, ORS & ORB (REV. 10/97)**

THIS CHART PROVIDES TIGHTENING TORQUES FOR HYDRAULIC FITTING APPLICATIONS WHEN SPECIAL TORQUES ARE NOT SPECIFIED ON PROCESS OR DRAWING.

ASSEMBLY TORQUES APPLY TO PLATED CARBON STEEL AND STAINLESS STEEL FITTINGS ASSEMBLED WITHOUT SUPPLEMENTAL LUBRICATION (AS RECEIVED CONDITION). THEY DO NOT APPLY IF SPECIAL GRAPHITE MOLY-DISULFIDE OR OTHER EXTREME PRESSURE LUBRICANTS ARE USED.

BRASS FITTINGS AND ADAPTERS - 65% OF THE TORQUE VALUE FOR STEEL.

TORQUE IS SPECIFIED IN FOOT POUNDS.

AEROQUIP BRAND FITTINGS

Dash Size	37 Degree JIC	O-Ring (ORS)	O-Ring Boss (ORB)
-4	11-12	10-12	14-16
-5	15-16	—	18-20
-6	18-20	18-20	24-26
-8	38-42	32-35	50-60
-10	57-62	46-50	72-80
-12	79-87	65-70	125-135
-14	—	—	160-180
-16	108-113	92-100	200-220
-20	127-133	125-140	210-280
-24	158-167	150-165	270-360
-32	245-258	—	—

Table 2-2 Hydraulic Fitting Torque Specifications

ASSEMBLY PROCEDURES

3

It is very important that your new 1550 Series In-Row Ripper be properly assembled, adjusted, and lubricated before use. Illustrations are provided in this section to show proper assembly procedures. Remove paint from grease fittings and replace any that are damaged or missing. Be sure to return bolts, clips, etc. to their original locations.

To insure assemblies are aligned, **insert all bolts and leave the nuts loose until completion of final assembly.** Use lockwashers or flat washers where called for. Spread all cotter pins.

After completion of final assembly, tighten all nuts **evenly** to prevent misalignment, distortion, or binding. Tighten all bolts and nuts to the recommended torques shown in **Tables 2-1 and 2-2.** Tighten all U-bolt legs evenly.

IMPORTANT

CHECK ALL BOLT LENGTHS, NUT SIZES, ETC., FROM THE PARTS BOOK BEFORE ASSEMBLY. DIFFERENT MODELS OF THE 1550 SERIES IN-ROW RIPPER USE DIFFERENT SIZE BOLTS.

DANGER

COULTER BLADES ARE EXTREMELY SHARP. USE EXTREME CARE WHEN WORKING ON OR NEAR COULTER BLADES. DO NOT ALLOW COULTERS TO ROLL OVER OR FALL ON ANY PART OF BODY. DO NOT ALLOW WRENCHES TO SLIP WHEN WORKING NEAR COULTER BLADES. NEVER PUSH WRENCHES TOWARDS COULTER BLADES. DO NOT CLIMB OVER MACHINE ABOVE COULTER BLADES. FAILURE TO STAY CLEAR OF COULTER BLADE EDGES MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

DANGER

TO PREVENT ACCIDENTAL LOWERING:

1. ALL HYDRAULICALLY ELEVATED EQUIPMENT MUST BE LOCKED OUT USING THE CYLINDER LOCKOUTS:

2. LOWER EQUIPMENT TO THE GROUND WHILE SERVICING OR WHEN IT IS IDLE.

FAILURE TO TAKE MEASURES TO PREVENT ACCIDENTAL LOWERING MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

CAUTION

BE SURE TO BLEED THE HYDRAULIC SYSTEM OF ALL AIR IN LINES AFTER INSTALLATION. FAILURE TO BLEED THE SYSTEM OF ALL AIR MAY CAUSE THE MACHINE TO OPERATE IMPROPERLY.

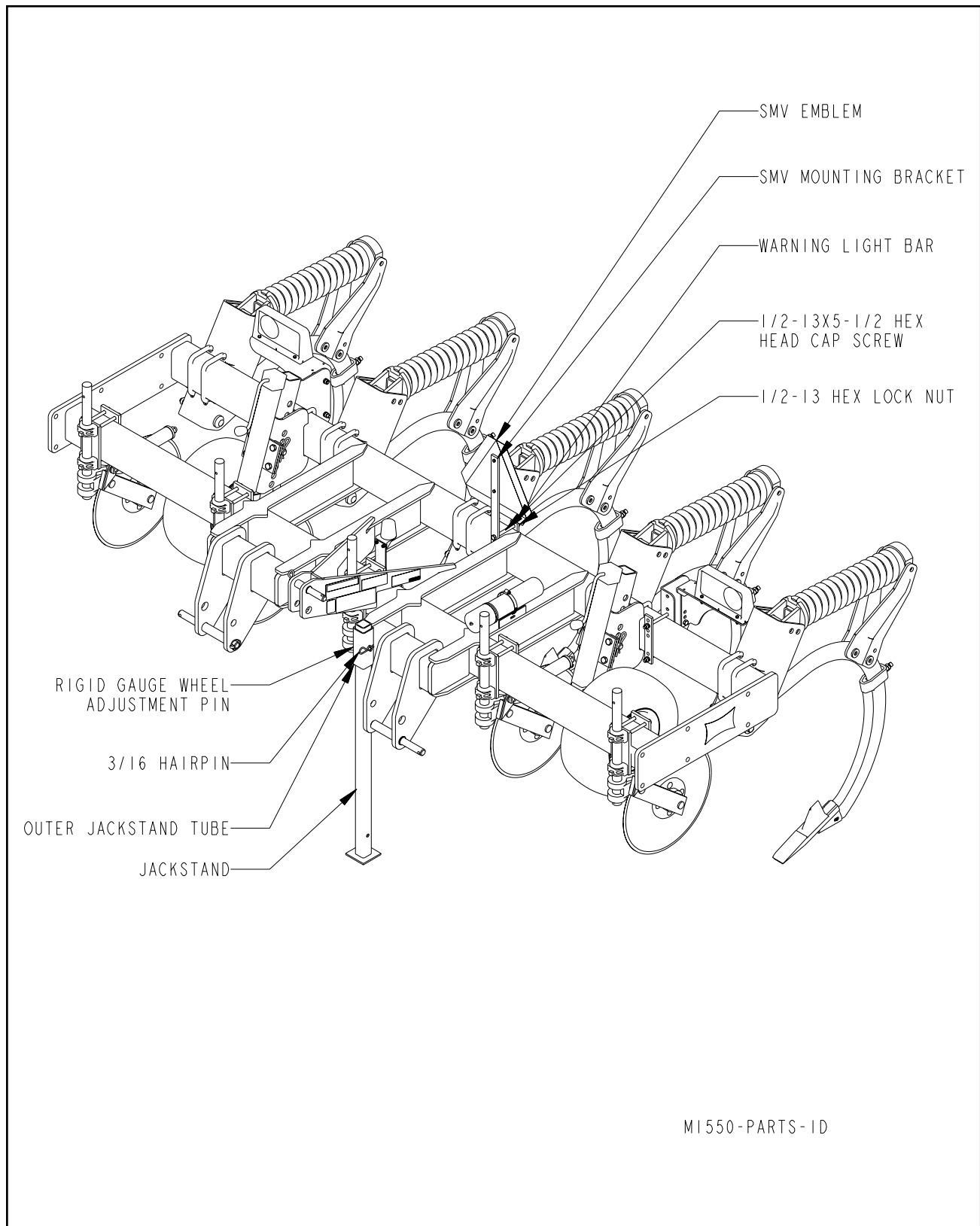


Figure 3-1 1550 Series Parts Identification

3-1 ASSEMBLY PREPARATION

- 3-1.1** Hook up the In-Row Ripper to a tractor using the three-point hitch. Raise the unit about 36" and place stands under the main frame to prevent accidental lowering.

WARNING

DO NOT ATTEMPT TO LIFT HEAVY PARTS (SUCH AS THE FRAME), MANUALLY. USE A HOIST OR A FORK-LIFT TO MOVE THESE PARTS INTO POSITION.

3-2 JACKSTAND INSTALLATION

- 3-2.1** Remove jackstand(s) from frame.
- 3-2.2** Remove rigid gauge adjustment pin and 3/16 hair pin from outer jackstand tube.
- 3-2.3** Insert jackstand through bottom of outer jackstand tube and pin at desired level with rigid gauge adjustment pin and 3/16 hair pin (**See Figure 3-1**).

3-3 SMV BRACKET INSTALLATION

- 3-3.1** Install the SMV mounting bracket and light bar close to the center of machine on rear frame member using 1/2-13 X 5-1/2 hex head cap screws and hex lock nuts (**See Figure 3-1**).
- 3-3.2** Attach plastic SMV emblem to mounting bracket using 1/4-20 X 1 hex head cap screw and hex lock nuts.

3-4 TIRE AND WHEEL ASSEMBLY

- 3-4.1** All hubs and spindles come already assembled from the factory. Mount the tire and wheel assembly onto the hubs.

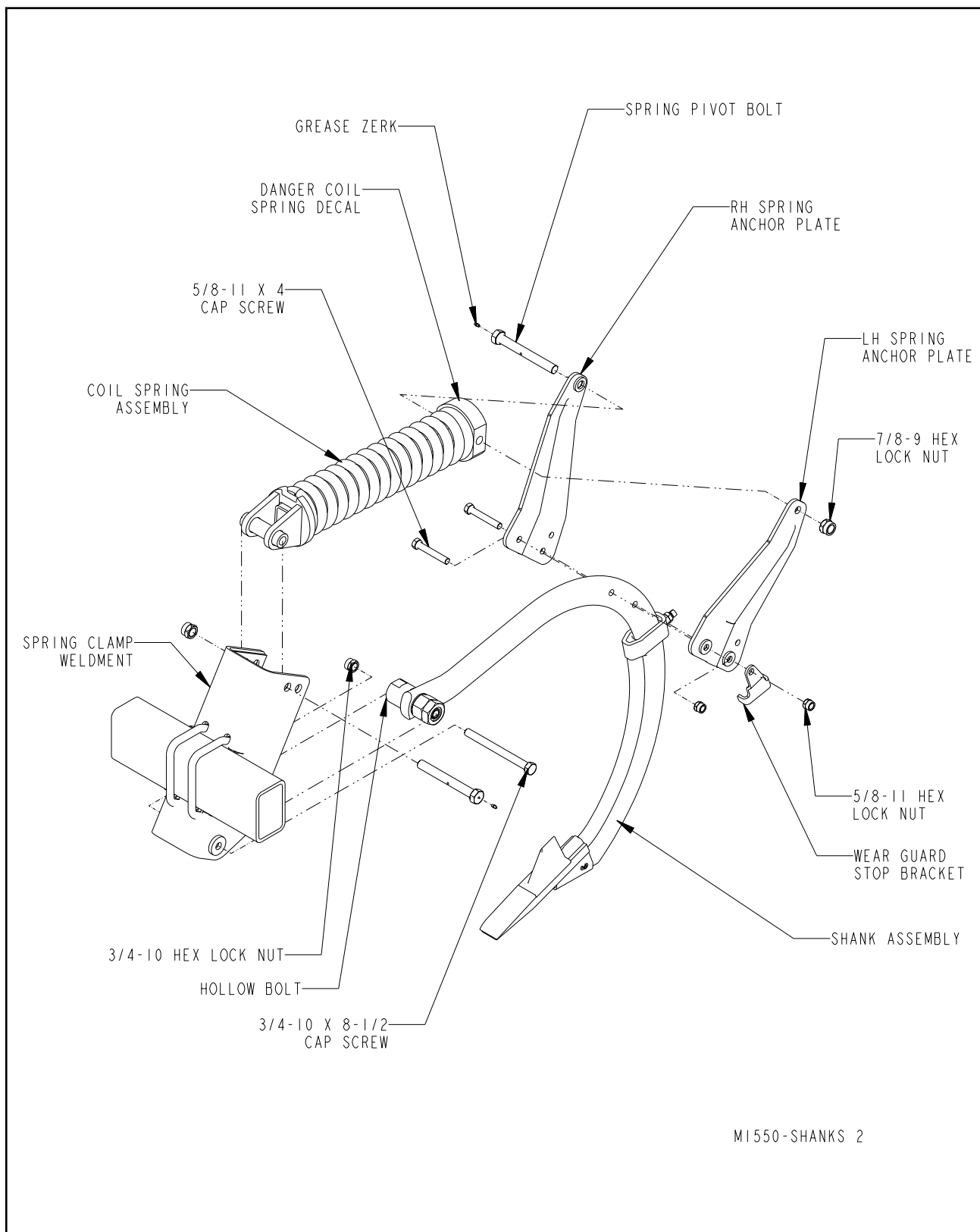


Figure 3-2 Parabolic Shank Assembly

3-5 PARABOLIC SHANK ASSEMBLY

- 3-5.1** The spring clamp weldments are already located on the frame at the proper spacing.
- 3-5.2** Attach shank assembly to lower hole of spring clamp using 3/4-10 x 8-1/2 hex head cap screw and hex lock nut. Tighten the nut on the hex head cap screw to 200 ft.-lbs. Grease hollow bolt (**See Figure 3-2**).
- 3-5.3** Assemble spring anchor plates to shank assembly using 5/8-11 x 4 hex head cap screws and hex lock nuts. The bottom edge of stop bracket should be just above the wear guard clamp. Leave screws loose until springs have been installed.

IMPORTANT

PLATE WITH TAPPED HOLE FOR SPRING PIVOT BOLT SHOULD BE ON LEFT SIDE OF SHANK. IF REVERSED, SHANK WILL BE AT IMPROPER ANGLE!

IMPORTANT

SPRING PIVOT BOLT LOCATED IN SPRING ANCHOR PLATES SHOULD BE INSTALLED IN OPPOSITE DIRECTION TO SPRING PIVOT BOLT IN SPRING CLAMP WELDMENT.

- 3-5.4** Install coil spring assembly between the spring clamp weldment and the rear spring anchor plates. Secure with spring pivot bolts and 7/8-9 hex lock nuts.

IMPORTANT

DO NOT OVERTIGHTEN BOLTS AS THE SPRINGS MUST BE FREE TO PIVOT.

- 3-5.5** Tighten 5/8-11 x 4 hex head cap screws in spring anchor plates to correct torque.
- 3-5.6** Adjustment holes are provided at the top of the spring clamp weldment to compensate for varying ground conditions.

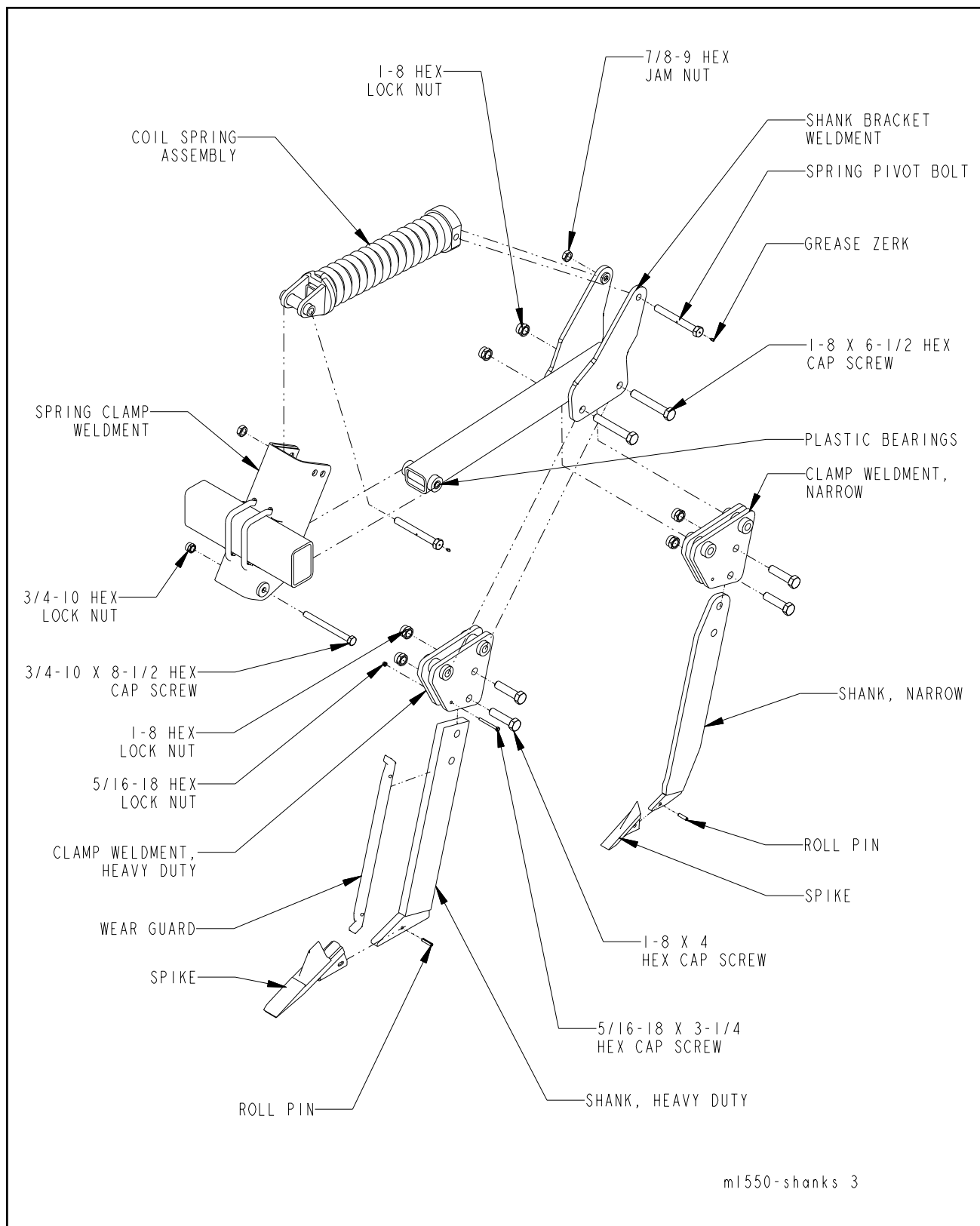


Figure 3-3 Straight Shank Assembly

3-6 STRAIGHT SHANK ASSEMBLY

- 3-6.1** The spring clamp weldments are already located on the frame at the proper spacing.
- 3-6.2** Attach shank bracket weldment to the spring clamp weldment using plastic bearings, 3/4-10 x 8-1/2 hex head cap screw, and 3/4-10 hex lock nut.
- 3-6.3** Install coil spring assembly between top hole of bracket weldment and top hole of spring clamp weldment. Secure with spring pivot bolt and 7/8-9 hex jam nut.
- 3-6.4** Install clamp weldment to bottom holes of bracket weldment using 1-8 x 6-1/2 hex head cap screws and hex lock nuts.
- 3-6.5** Assemble shank to clamp weldment using 1-8 x 4 hex head cap screws and hex lock nuts.
- 3-6.6** If installing wear guards (used on straight heavy duty), install wearguard into clamp weldment and secure in place with 5/16-18 x 3-1/4 hex head cap screw and hex lock nut (**See Figure 3-3**). Install the spikes on the shanks using the roll pin provided.

IMPORTANT

DO NOT OVERTIGHTEN BOLTS AS THE SPRINGS MUST BE FREE TO PIVOT.

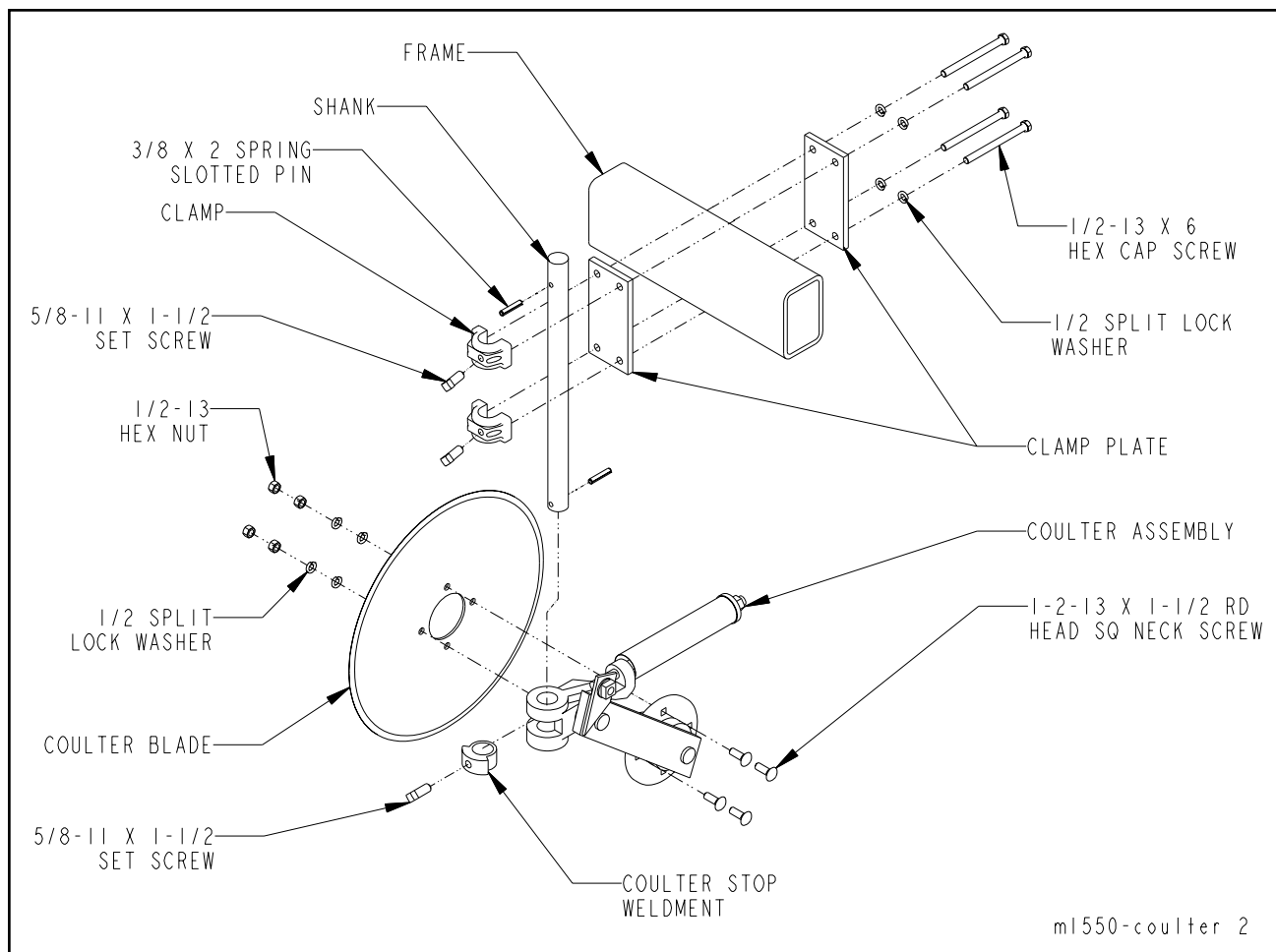


Figure 3-4 Coulter Assembly

3-7 COULTER ASSEMBLY

- 3-7.1** Assemble coulter shank to coulter assembly using coulter stop weldment and 5/8-11 x 1-1/2 square head set screw. Install 3/8 x 2 spring slotted pins in coulter shank.
- 3-7.2** Install the shank and coulter assembly to the frame with the coulter clamps and plates using 1/2-13 x 6 hex head cap screws and hex lock washers (**See Figure 3-4**).

- 3-7.3** Use square head cup point set screws through hole in clamp to hold coulter shank in place.
- 3-7.4** Attach the coulter blade to the coulter assembly using 1/2-13 x 1-1/2 round head square neck screws, hex lock washers, and hex nuts.

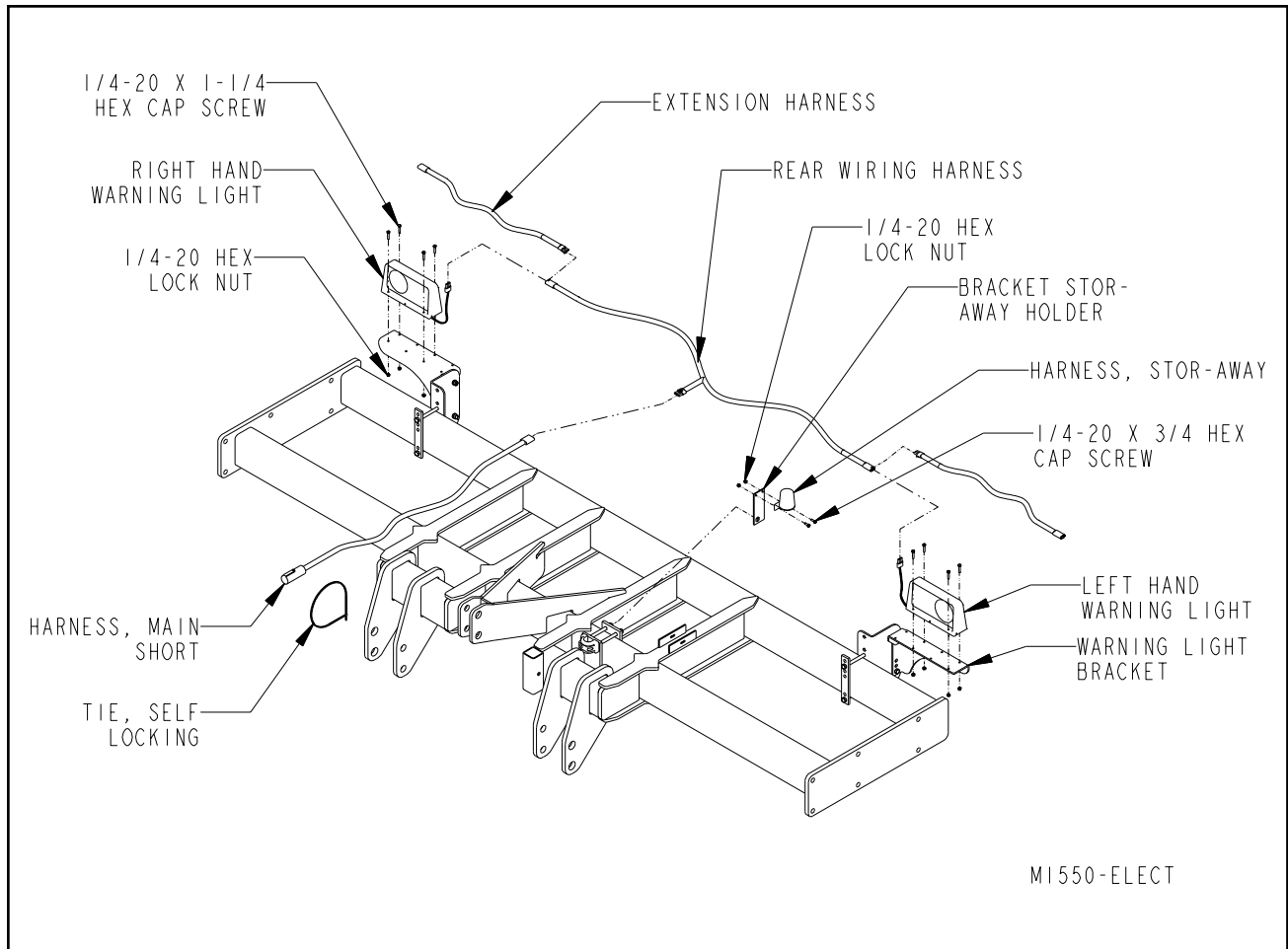


Figure 3-5 Electrical Installation

3-8 ELECTRICAL INSTALLATION

3-8.1 Attach right and left hand warning light assemblies to warning light brackets already attached to the frame using 1/4-20 x 1-1/4 hex head cap screws and hex lock nuts. Insure the wires are in the groove in the base of the light toward the mounting surface on the bracket. Assemble one light for left side and one for right side. The red light should be to the rear with the amber light being the outermost light.

IMPORTANT

MAKE SURE LIGHTS ARE POSITIONED FOR MAXIMUM VISIBILITY FROM THE REAR.

3-8.2 Install the rear wiring harness between the lights using extension harness where necessary.

3-8.3 Install the main short harness and connect to the rear warning harness.

3-8.4 Insure that the harnesses are clear of any moving parts and secure the harnesses with tie wraps provided.

3-8.5 Install the stor-away holder bracket on bolt in coulter clamp plate and assemble harness stor-away to bracket with 1/4-20 x 3/4 hex head cap screws and hex lock nuts.

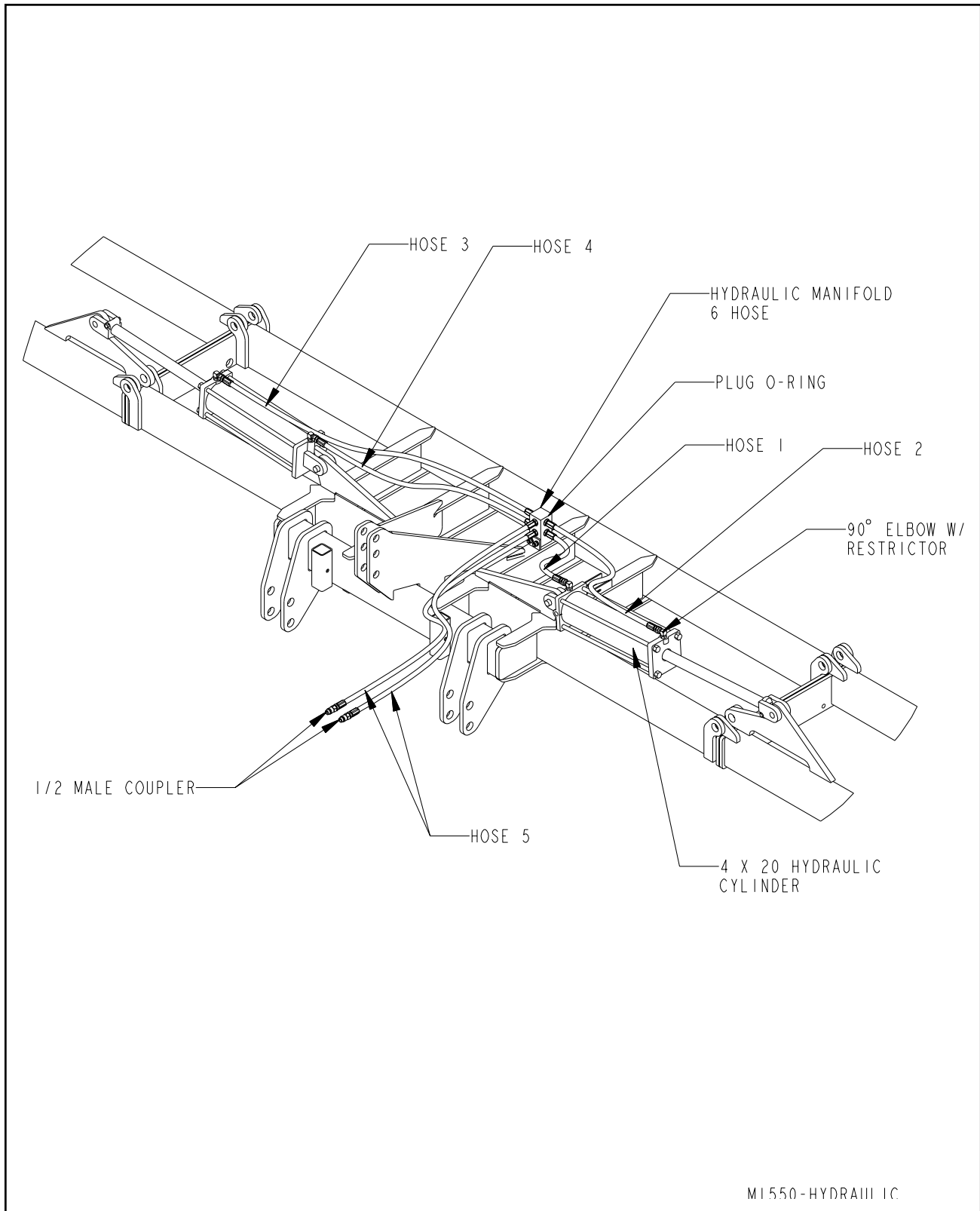


Figure 3-6 Hydraulic Assembly - D and E Models

3-9 HYDRAULIC INSTALLATION (D AND E MODELS ONLY)

- 3-9.1** Pin cylinder rod to wing bracket using clevis pin.
- 3-9.2** Install 90° elbow with restrictor into each port of hydraulic cylinders.
- 3-9.3** Install Hose 1 from hydraulic manifold to the base end of the left hydraulic cylinder.
- 3-9.4** Install Hose 2 from hydraulic manifold to the rod end of the left hydraulic cylinder.
- 3-9.5** Install Hose 3 from hydraulic manifold to the rod end of the right hydraulic cylinder.
- 3-9.6** Install Hose 4 from hydraulic manifold to the base end of the right hydraulic cylinder.
- 3-9.7** Install coupling Hoses 5 from the front of the hydraulic manifold to the 1/2 male couplers. Connect the coupler fittings to the tractor.
- 3-9.8** Install o-ring plug in rear ports of hydraulic manifold.

1550 SERIES HYDRAULIC HOSE			
ITEM	PART NUMBER	DESCRIPTION	USED ON MODEL
1	1-397-010299-14	HOSE ASSEMBLY 24"	D
	1-397-010299-10	HOSE ASSEMBLY 41"	E
2	1-397-010299-16	HOSE ASSEMBLY 44"	D
	1-397-010299-02	HOSE ASSEMBLY 60"	E
3	1-397-010299-02	HOSE ASSEMBLY 60"	D
	1-397-010299-24	HOSE ASSEMBLY 80"	E
4	1-397-010299-10	HOSE ASSEMBLY 41"	D
	1-397-010299-02	HOSE ASSEMBLY 60"	E
5	1-397-010299-02	HOSE ASSEMBLY 60"	D AND E

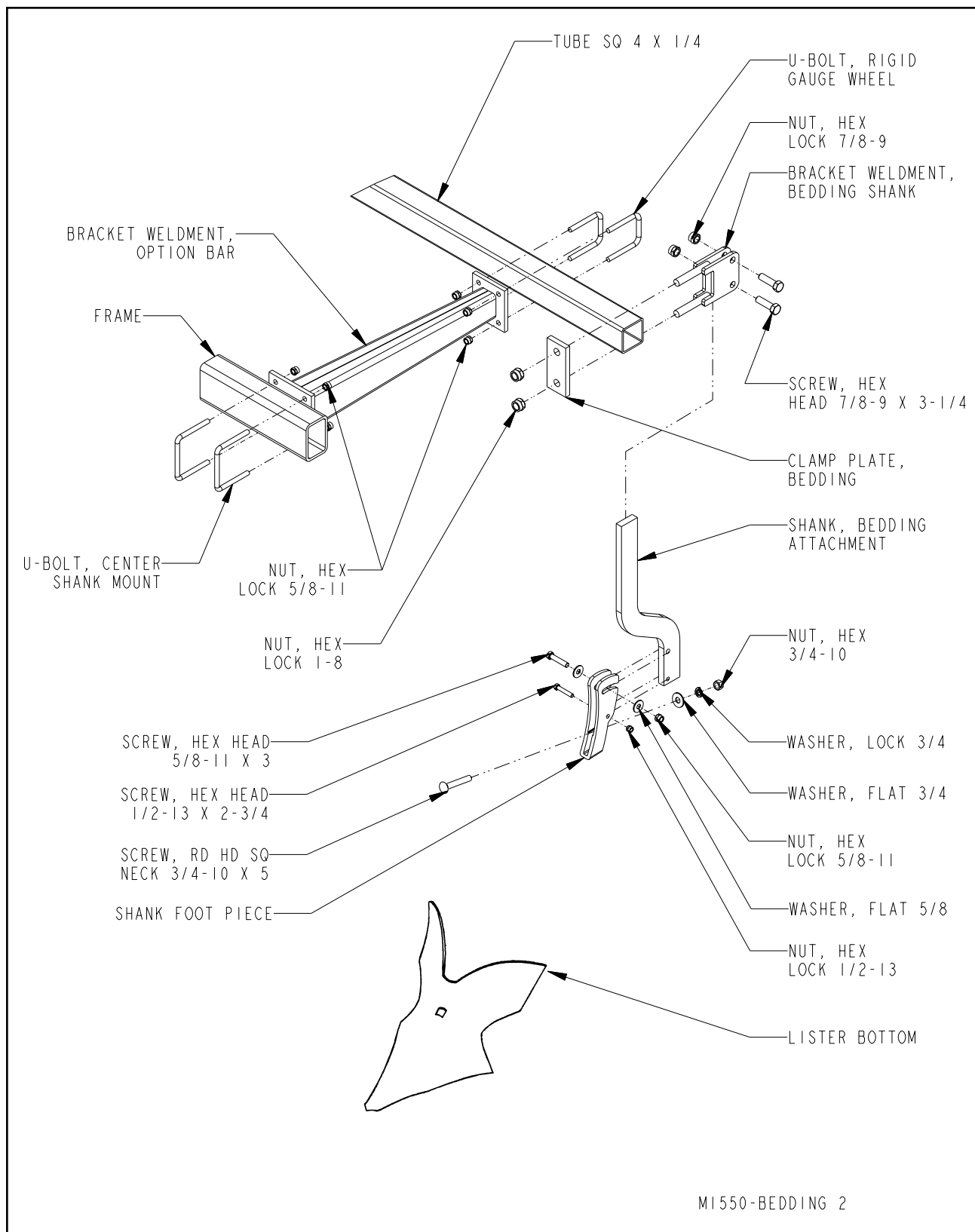


Figure 3-7 Bedding Attachment (Optional)

3-10 BEDDING ATTACHMENT ASSEMBLY (OPTIONAL)

- 3-10.1** Attach bracket weldment, option bar to the frame using center shank mount u-bolts and 5/8-11 hex lock nuts (**See Figures 3-7 and 3-8**).
- 3-10.2** Attach square tube to other end of bracket weldment, option bar using rigid gauge wheel u-bolts and 5/8-11 hex lock nuts.
- 3-10.3** Connect bedding shank bracket weldment to tube centered between shanks using bedding clamp plate and 1-8 hex lock nuts.
- 3-10.4** Slide bedding attachment shank into bedding shank bracket weldment. Hold in place with 7/8-9 x 3-1/4 hex head cap screws and hex lock nuts.
- 3-10.5** Slide shank foot piece onto lower end of bedding attachment shank. Attach through lower holes with 1/2-13 x 2-3/4 hex head cap screw and hex lock nut. Through the top hole of shank and slot of shank foot piece, attach with 5/8-11 x 3 hex head cap screw, flat washers, and hex lock nut and adjust to needed angle.
- 3-10.6** Slide lister bottom over end of shank foot piece and connect with 3/4-10 x 5 round head square neck screw, flat washer, split lock washer, and hex nut.

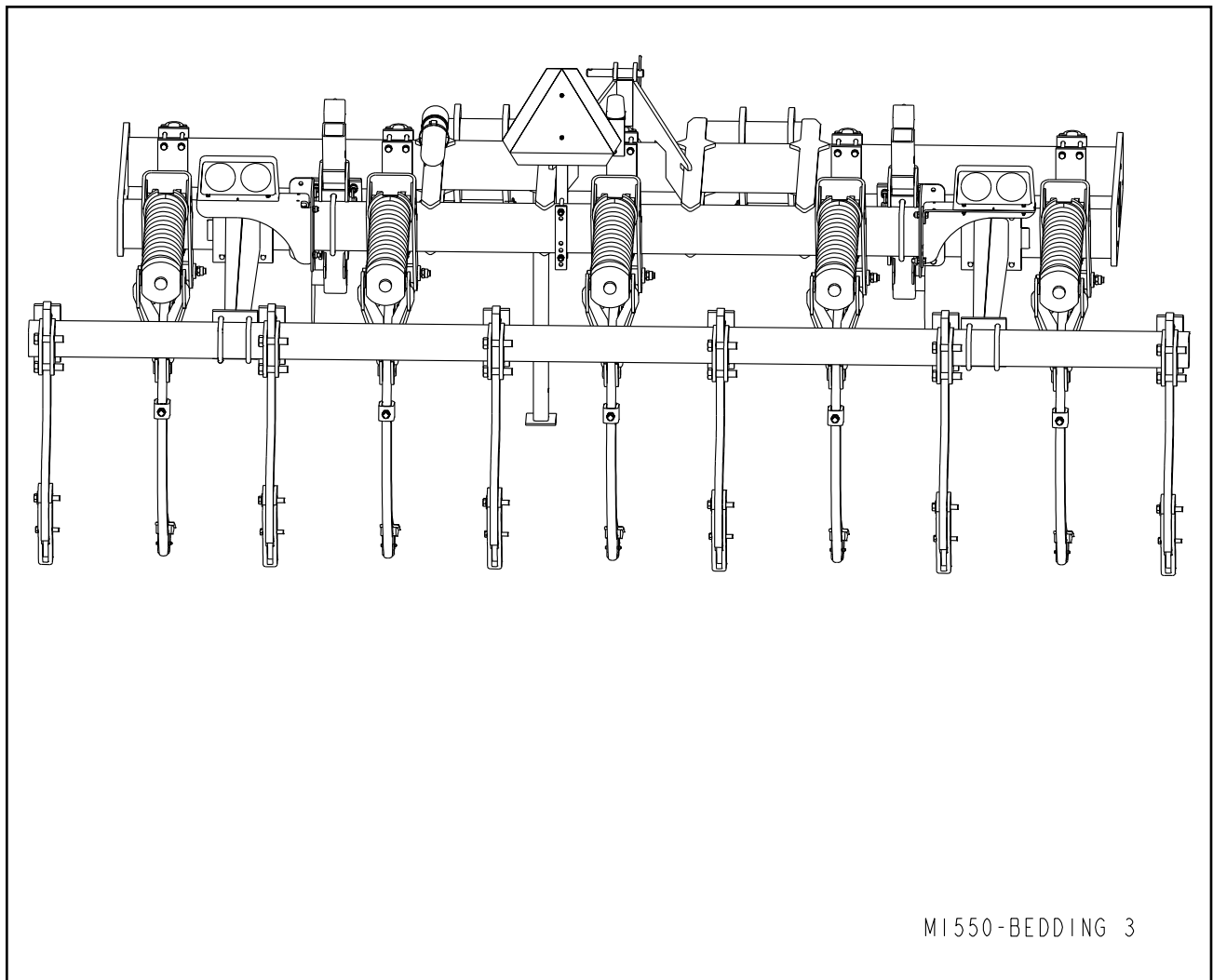


Figure 3-8 Bedding Attachment Assembly

NOTES:

OPERATION AND MAINTENANCE

4

DANGER

COULTER BLADES ARE SHARP. DO NOT ALLOW COULTERS TO ROLL OVER OR FALL ON ANY PART OF THE BODY. DO NOT ALLOW WRENCHES TO SLIP WHEN WORKING NEAR COULTER BLADES. DO NOT CLIMB OVER MACHINE ABOVE COULTER BLADES. FAILURE TO STAY CLEAR OF COULTER BLADE EDGES MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

DANGER

NEVER ALLOW ANYONE TO RIDE ON THE IN-ROW RIPPER AT ANY TIME. ALLOWING A PERSON TO RIDE ON THE IN-ROW RIPPER MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH OF THAT PERSON.

WARNING

ALL HYDRAULICALLY ELEVATED EQUIPMENT MUST BE LOCKED OUT OR LOWERED TO THE GROUND WHEN SERVICING OR WHEN EQUIPMENT IS IDLE, TO PREVENT ACCIDENTAL LOWERING. FAILURE TO TAKE MEASURES TO PREVENT ACCIDENTAL LOWERING MAY RESULT IN SERIOUS PERSONAL INJURY.

CAUTION

WHENEVER TRANSPORTING FARM IMPLEMENTS ON PUBLIC ROADS, IT IS THE RESPONSIBILITY OF THE OPERATOR TO ABIDE BY STATE AND LOCAL LAWS CONCERNING WIDE LOADS, SPEED, SAFETY EMBLEMS, AND SAFETY LIGHTING EQUIPMENT. DRIVE AT SAFE SPEEDS, PARTICULARLY WHEN ROUNDING CORNERS, CROSSING ROUGH GROUND, ON HILLSIDES, TO PREVENT TIPPING.

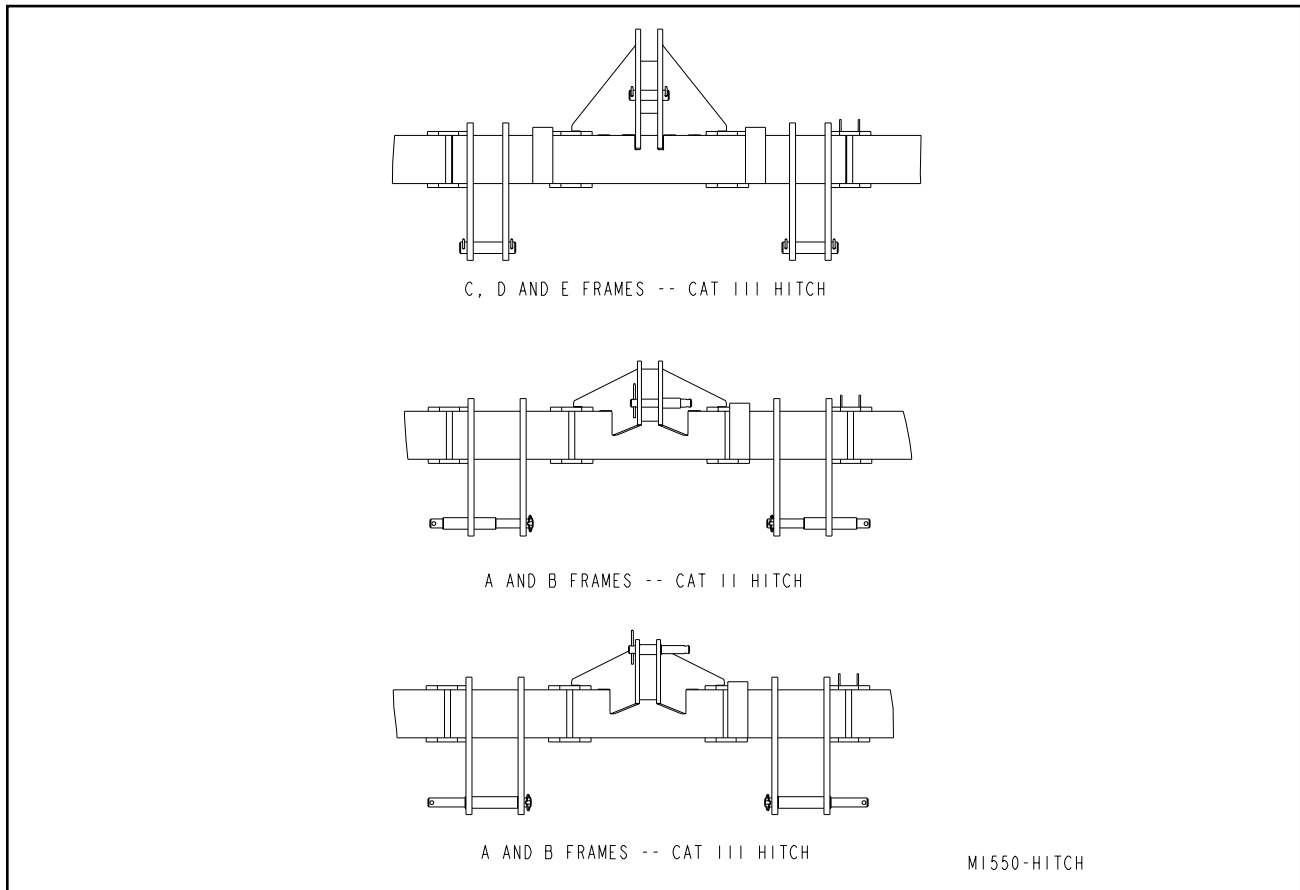


Figure 4-1 3 Point Hitch Setup

4-1 TRACTOR PREPARATION

The 1550 Series of the In-row Ripper may be used on tractors equipped with category II or III three-point hitches. Before attaching the In-row Ripper, prepare the tractor as follows:

4-1.1 The rear tractor tires should be inflated equally and ballast added according to the tractor operator's manual.

4-1.2 For mounted type models, install front end weights as needed on tractor to maintain stability.

4-2 IN-ROW RIPPER OPERATION

- 4-2.1 Before operating the In-row Ripper, inspect it to be sure it is in good operating condition.
- 4-2.2 Replace badly worn or missing parts.
- 4-2.3 While the machine is new, bolt tightness should be checked after a few hours of operation. Tighten any loose nuts or cap screws. Check the gauge wheel lug bolts daily.
- 4-2.4 Check the gauge wheel tire inflation. All tires should be equally inflated to avoid side draft.

4-3 ATTACHING TO THREE-POINT HITCH

- 4-3.1 Carefully back the tractor into place.
- 4-3.2 Attach the In-row Ripper to the tractor,
- 4-3.3 For tractors equipped with Quick Hitches:
 - a. Attach quick hitch to the In-row Ripper and make sure lower pin locks are secured.
 - b. Raise the parking stand and pin in fully up position.
 - c. When disconnecting the In-row Ripper, adjust stands to leave the toolbar tilted slightly forward. This will permit easier disconnecting and reattaching.
- 4-3.4 For tractors not equipped with Quick Hitch:
 - a. Attach lower lift arms of the tractor to the In-row Ripper utilizing appropriate pins. A and B models come with either Category II or III wide hitches. C, D, and E models use only Category III wide hitch (**See Figure 4-1**).
 - b. Attach top link after connecting lower lift arms. Raise parking stands into clamps or remove. When disconnecting, place stand so that the In-row Ripper is stable.

CAUTION

DO NOT MOVE TRACTOR WITHOUT MAKING SURE TOP HITCH IS CONNECTED TO TRACTOR.

- 4-3.5 Reinstall the stabilizer bars or sway blocks before transporting.

4-4 FIELD OPERATION — THREE-POINT HITCH TYPE

- 4-4.1 Lower the In-row Ripper to the ground and pull it a few feet at the approximate desired depth.
- 4-4.2 Check for front-to-rear levelness. Level the frame by adjusting the three-point hitch top arm until the frame is level to the ground.
- 4-4.3 Set the depth by adjusting the gauge wheels. For stability, it is important that the gauge wheels always apply slight pressure against the soil. Adjust the gauge wheels as follows:
 - a. Remove 1/4 hairpin and 1 x 6 pin.
 - b. Crank jack up or down to desired depth.
 - c. Line up holes in spindle and clamp weldments. Replace pin and hair pins into gauge wheel assembly.
- 4-4.4 Always lift the In-row Ripper completely out of the ground before turning or backing to prevent shank or coulter damage or damage to their respective mounting brackets.
- 4-4.5 Reduce speed at field ends, raise the In-row Ripper out of the ground, and assist turning by using the wheel brakes, if necessary.
- 4-4.6 After a few hours of initial operation, check all cap screws for tightness. Tighten any loose cap screws.
- 4-4.7 Coulters should be adjusted to operate only deep enough to be in firm soil and cut the residue. Generally, the harder the soil, the less pressure should be used on the coulters. Adjust the single coulters by loosening the coulter mount bolts, sliding the coulter up or down as needed and retightening.

4-5 WHEEL BEARING MAINTENANCE

- 4-5.1 Check wheel bearings and coulter bearings occasionally for excessive end play. To correctly replace the wheel bearings:
- 4-5.2 Place the frame on blocks or stands sufficient to lift the tire clear of the ground.
- 4-5.3 Remove the hub cap, cotter pin, slotted nut, and washer.
- 4-5.4 Remove the hub. Clean and inspect the bearings and hub cavity. Replace any worn or defective parts.
- 4-5.5 Repack the bearings using a high-quality wheel bearing grease.
- 4-5.6 Replace the hub with a new seal and inner bearing in place.
- 4-5.7 Install the outer bearing cone, washer, and slotted nut.
- 4-5.8 Tighten the slotted nut while rotating the hub until there is a slight resistance to wheel rotation. Back the slotted nut off one notch until the wheel rotates freely without end play.
- 4-5.9 Install a new cotter pin and the hub cap.
- 4-5.10 Wheel bearing maintenance should be performed at the beginning of every season of use.

4-6 COULTER SPRING ADJUSTMENT

- 4-6.1 No spring adjustment is necessary on the coulters. All adjustments were made before shipping at the factory. Initial operating force to move coulter upwards is 540 pounds. The preload has proved to be more than adequate for most conditions.

CAUTION

ANY ATTEMPT TO MAKE COULTER FORCE GREATER THAN FACTORY SETTING MAY CONTRIBUTE TO PREMATURE FAILURE OF PARTS AND WARRANTY SHALL BE NULL AND VOID.

4-7 LUBRICATION

IMPORTANT

ITEMS WITH GREASE ZERKS ARE LISTED IN THE ILLUSTRATED PARTS BOOK.

- 4-7.1 Besides repacking the wheel bearings, described in **Section 4-5**, spring clamp pivot points should be lubricated with a high grade multi-purpose grease twice a day or after every five hours of operation.
- 4-7.2 Lubricate the fittings on the shank pivot hollow bolts daily or after ten hours of use.
- 4-7.3 Grease coulter hub and swivel mount casting after twenty hours of use.

4-8 HYDRAULIC MAINTENANCE

- 4-8.1** If a cylinder leaks, disassemble the part to find the cause of the leak. Any time a cylinder is opened up, or whenever any seal replacement is needed, it is advisable to clean all parts and replace all seals. Seal kits are available from your Landoll dealer.
- 4-8.2** Check all hydraulic hoses weekly. Look for binding or cracking. Replace all worn or defective parts immediately.

4-9 STORAGE

- 4-9.1** The service life of the In-row Ripper will be extended by proper off-season storage practices. Before storing, complete the following procedures:
- 4-9.2** Completely clean the unit.
- 4-9.3** Inspect the machine for worn or defective parts. Replace parts as needed to avoid delays the following season.
- 4-9.4** Repaint all areas where the original paint film is worn off.
- 4-9.5** Grease all exposed metal surfaces of shanks, points, and coulters.
- 4-9.6** Lubricate as suggested in **Section 4-7**.
- 4-9.7** Store the unit in a shed or under a tarpaulin to protect it from the weather. The ground tools and tires should rest on a board or other device to keep them out of the soil.

NOTES:

TROUBLESHOOTING GUIDE

5

The Troubleshooting Guide, shown below, is included to help you quickly locate problems that can happen using your 1550 Series In-row Ripper. Follow all safety precautions stated in the previous when making any adjustments to your machine.

SYMPTOM	PROBLEM: REMEDY
SPIKES DO NOT PENETRATE TO DESIRED DEPTH	COULTERS SET TOO DEEP: Adjust coulters up, to just run in firm soil, to cut residue. SPIKES WORN BACK: Replaces spikes. LOWER HITCH ARMS IN LOWER HOLES OF PULL BRACKET: Move hitch arms to upper hole in pull brackets IMPLEMENT NOT LEVEL: Adjust top 3-point link.
UNIT BOUNCES OR NOT WORKING AT UNIFORM DEPTH	GAUGE WHEELS NOT SET AT CORRECT DEPTH: Adjust gauge wheels to correct depth. NOTE: Gauge wheels, not the 3-point hitch, should carry the load. GAUGE WHEELS NOT SET AT SAME DEPTH: Adjust all gauge wheels to same depth. TIRE PRESSURE NOT EQUAL: Inflate all tires to the same pressure. LOWER HITCH ARMS NOT SET TO SAME HEIGHT: Measure lower hitch arms and adjust to uniform length.
RESIDUE HANGS ON SHANKS	COULTER NOT SET DEEP ENOUGH: Adjust coulter down to run in firm soil, to cut residue. GAUGE WHEEL TOO CLOSE TO SHANK: Position gauge wheel on frame for maximum clearance to shanks. COULTER NOT ALIGNED: Check coulter alignment on front bar. SOIL TOO WET CAUSING HAIRPINNING OF RESIDUE: Let soil dry.

NOTES:
