



MODEL 1230 SERIES COULTER CHISEL 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 1230 SERIES COULTER CHISEL OPERATOR'S MANUAL

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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 1230 Series Coulter Chisel 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 1230 Series Coulter Chisel. 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 ASSEMBLED OR MAINTAINED, THE WARRANTY IS VOID. IF YOU HAVE ANY QUESTIONS CONTACT:

**LANDOLL CORPORATION
1900 NORTH STREET
MARYSVILLE, KANSAS 66508
or phone:
(785) 562-5381 or
(800) 428-5655
or FAX:
(785) 562-4893**

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.

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:

**LANDOLL CORPORATION
1900 NORTH STREET
MARYSVILLE, KANSAS 66508
ATTENTION: PUBLICATIONS -DEPT. 55**

STANDARD SPECIFICATIONS

2

MODEL	TYPE OF FOLD	WORKING WIDTH	NO. OF SHANKS TOTAL/REAR	NO. OF CUTTERS	TRANS. WIDTH	TRANS. HEIGHT
12317	Rigid	7'-0"	7/3	6	9'-8"	6'-3"
12337	Rigid	8'-7"	7/3	6	9'-8"	6'-3"
12319	Rigid	9'-0"	9/3	8	9'-8"	6'-3"
12339	Rigid	11'-1"	9/5*	8	10'-9"	6'-3"
123111	Rigid	11'-0"	11/3	10	10'-9"	6'-3"
123311	Rigid	13'-9"	11/6	10	15'-7"	6'-3"
123113	Rigid	13'-0"	13/5*	12	12'-9"	6'-3"
123213	Rigid	13'-0"	13/5	12	15'-7"	6'-3"
123313	Rigid	16'-3"	13/6	12	15'-7"	6'-3"
123215	Rigid	15'-0"	15/5	14	15'-7"	6'-3"
123315	Rigid	18'-6"	15/8*	14	17'-7"	6'-3"
123217	Rigid	17'-0"	17/5	16	16'-10"	6'-3"
123419	Flat Fold	19'-0"	19/7	18	13'-11"	9'-0"
123421	Flat Fold	21'-0"	21/7	20	13'-11"	9'-0"
123423	Flat Fold	23'-0"	23/7	22	13'-11"	9'-0"

* 2 Standard Shanks on Rear Extensions

IMPORTANT! Deep till shanks are for installation on rear frame of rigid models only. do not install on frame extensions.

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

NOTES:

ASSEMBLY INSTRUCTIONS

3

3-1 ASSEMBLY - SAFETY

It is very important that your new 1230 Series Coulter Chisel be properly assembled, adjusted and lubricated before use. Illustrations in this section show proper assembly procedures. Remove paint from grease fittings. Replace any grease fittings that are damaged or missing. Be sure to return screws, clips, etc., to their original locations.

To insure alignment of assemblies, **leave the nuts loose until completion** of final assembly. Use lock washers or flat washers as specified. Spread all cotter pins.

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

CAUTION

1. THE PERSON OR PERSONS WHO ASSEMBLE THIS MACHINE MUST HAVE THE ABILITY TO READ, UNDERSTAND AND FOLLOW THE STEP BY STEP ASSEMBLY PROCEDURES AND SAFETY INSTRUCTION OUTLINED HEREIN.

2. ASSEMBLY AREA SHOULD BE LEVEL, CLEAN AND FREE OF DEBRIS TO PREVENT ASSEMBLY PERSONNEL FROM TRIPPING OR FALLING.

3. INSPECT ALL PARTS FOR SHARP EDGES, GREASE, OIL OR DIRT WHICH MIGHT CAUSE INJURY DURING ASSEMBLY.

⚠ WARNING

1. USE LIFT CRANE, JACK, TACKLE OR FORK LIFT TRUCK TO LIFT HEAVY PARTS AND ASSEMBLIES.
2. KEEP CLEAR OF PARTS WHICH MAY MOVE OR DROP WHEN REMOVING SHIPPING STRAPS OR BRACKETS.
3. IF MACHINE REQUIRES BLOCKING UP, USE BLOCKING MATERIAL OF ADEQUATE STRENGTH AND IN GOOD CONDITION. BLOCKS MUST BE ON A SMOOTH DRY SURFACE.
4. NEVER PLACE ANY PART OF YOUR BODY UNDER BLOCKED-UP ASSEMBLIES.
5. IF WELDING OR FLAME-CUTTING IS REQUIRED, BE SURE NO FLAMMABLE MATERIALS ARE IN THE AREA. ALSO, CLEAR BYSTANDERS FROM AREA.

⚠ WARNING

1. WEAR PERSONAL PROTECTIVE EQUIPMENT (PPE) SUCH AS, BUT NOT LIMITED TO, PROTECTION FOR EYES, LUNGS, EARS, HEAD, HANDS AND FEET WHEN OPERATING, SERVICING OR REPAIRING EQUIPMENT.
2. NEVER USE YOUR HANDS TO LOCATE A HYDRAULIC LEAK. USE A PIECE OF WOOD OR CARDBOARD. HYDRAULIC FLUID ESCAPING UNDER PRESSURE CAN PENETRATE THE SKIN CAUSING SERIOUS INJURY.
3. OPENINGS IN THE SKIN AND MINOR CUTS ARE SUSCEPTIBLE TO INFECTION FROM HYDRAULIC FLUID. IF INJURED BY ESCAPING FLUID, SEE A DOCTOR AT ONCE. WITHOUT IMMEDIATE MEDICAL TREATMENT, SERIOUS INFECTION CAN OCCUR.

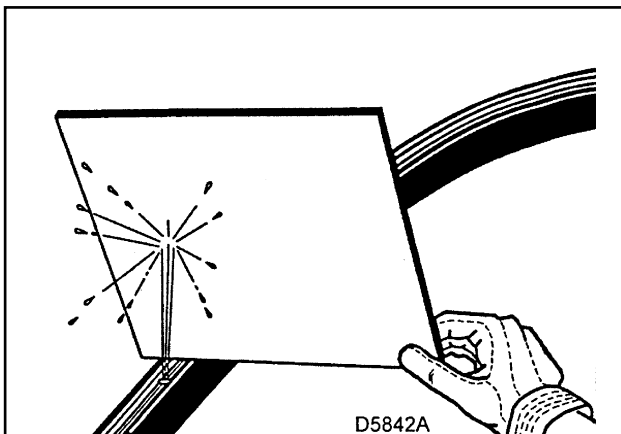


Figure 3-1 Hydraulic Leak Detection

3-2 AFTER ASSEMBLY - SAFETY

WARNING

1. BE SURE ALL NUTS, BOLTS, OTHER FASTENERS AND HYDRAULIC FITTINGS ARE PROPERLY TIGHTENED. REFER TO THE BOLT TORQUE CHART.

2. BE SURE ALL SAFETY GUARDS AND SAFETY LOCKING DEVICES ARE IN PLACE AND FUNCTION PROPERLY.

CAUTION

BEFORE OPERATING THE MACHINE, BE SURE TO READ THE SAFETY AND OPERATION SECTIONS OF THE OPERATOR'S MANUAL.

CAUTION

BEFORE DELIVERING THE MACHINE, REVIEW MACHINE MAINTENANCE, OPERATION AND SAFETY WITH THE CUSTOMER.

3-3 ASSEMBLY INSTRUCTIONS

3-3.1 The terms "right" and "left", "front" and "rear", refer to the machine as viewed by facing in the direction of forward travel.

3-3.2 Open all bundles. Do not mix parts of one bundle with those of another. Place all bundles where they will be easy to access.

3-3.3 Neatly arrange parts and tools within easy reach of work area.

3-3.4 Use the correct grade of bolt in the proper locations as indicated. Refer to the bolt torque chart for descriptive markings on bolt heads.

3-3.5 After completing each assembly step, review next step in procedure before proceeding with that step.

3-4 MAIN FRAME AND HITCH

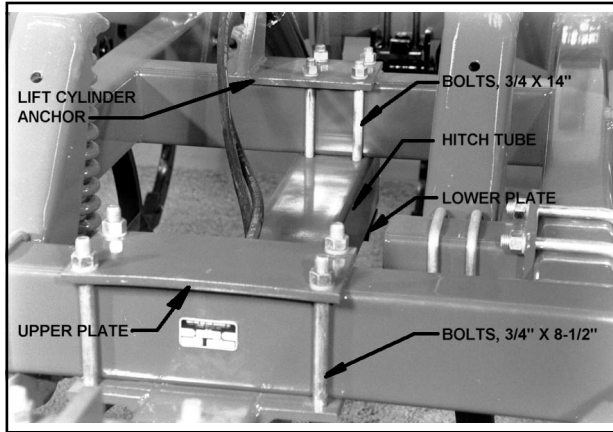


Figure 3-2 - Attaching Hitch to Frame

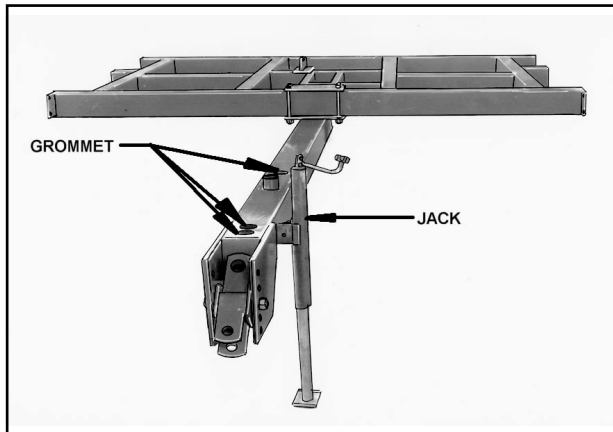


Figure 3-3 - Hitch and Jack

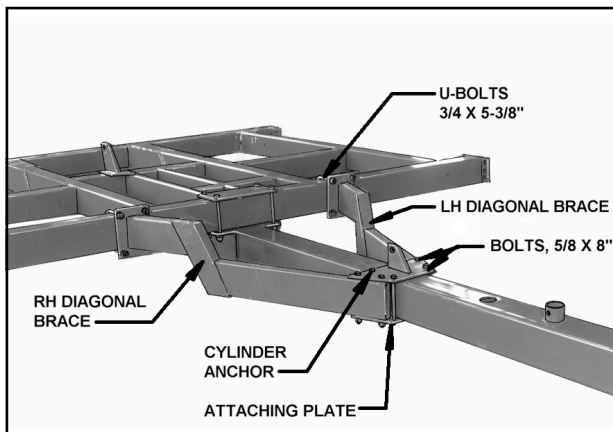


Figure 3-4 - Attaching Diagonal Braces

- 3-4.1** Place main frame on suitable stands at least 30" (76 cm) high.
- 3-4.2** Determine center of main frame and insert hitch tube under frame (**See Figure 3-2**).
- 3-4.3** Attach front of hitch tube to frame with mounting plates and four 3/4" x 8-1/2" cap screws, lock washers, and nuts.
- 3-4.4** Attach rear of tube to lift cylinder anchor with mounting plate and four 3/4" x 14" cap screws, lock washers and nuts.
- 3-4.5** Attach jack to hitch and extend to floor (**See Figure 3-3**).
- 3-4.6** Install right and left diagonal hitch braces to frame with four 3/4" x 5-5/8" U-bolts, lock washers and nuts (**See Figure 3-4**).
- 3-4.7** Install attaching plate and cylinder anchor to hitch and diagonal braces with eight 5/8" x 8" cap screws, lock washers, nuts (**See Figure 3-4**).
- 3-4.8** Install plastic grommet around holes (**See Figure 3-3**) for hydraulic hoses.

Note: See Figures 3-38 - 3-45 for assembly layouts for various machine widths.

3-5 MAIN FRAME ROCKSHAFT

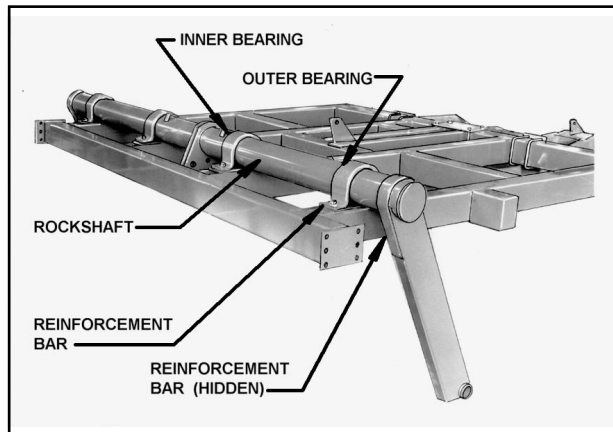


Figure 3-5 Rockshaft Installation

3-5.1 Lay rockshaft (**See Figure 3-5**) on frame with wheel spindle holes in rockshaft lift arm toward front of frame.

3-5.2 Lubricate inside of rockshaft bearings and upper reinforcement bar surfaces.

Notes:

10'-10" frame requires four bearings: Two inner and two outer.

9'-6" frame only requires two inner bearings.

3-5.3 Both Frames: Install rockshaft bearings with a reinforcement bar under frame at each bearing location.

10'-10" Frame: Also install one reinforcement bar between rockshaft and frame at each outer bearing location.

3-5.4 Attach all bearings and bars to frame with 3/4" x 8-1/2" cap screws, lock washers, nuts.

Note: Position grease fittings toward rear.

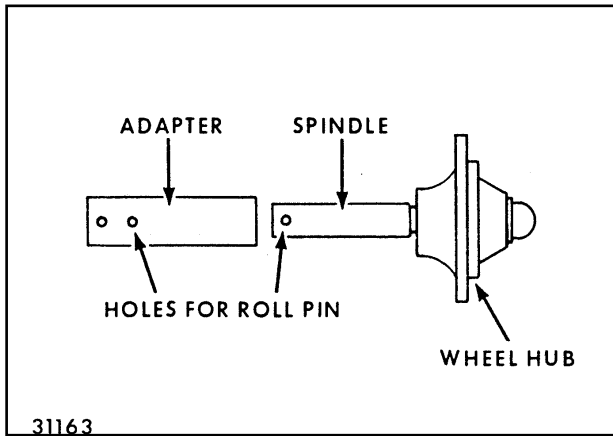


Figure 3-6 - Wheel Spindle and Adapter

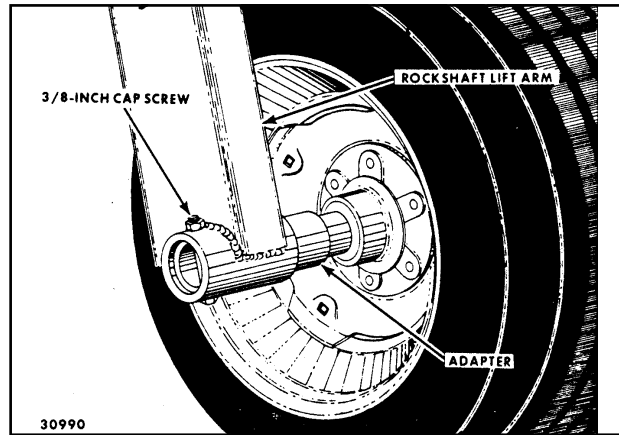


Figure 3-7 - Single Wheel Installation

3-6 SINGLE WHEELS

- 3-6.1** Slide tube adapter (2-1/4" dia. x 7-1/2" long) over hub spindle (**See Figure 3-6**).
- 3-6.2** Align inner hole in adapter with hole in spindle and install 3/8" x 2" roll pin.

3-6.3 Insert spindle and adapter into lift arm, align holes and install 3/8" x 3-1/2" cap screw, locknut (**See Figure 3-7**).

3-6.4 Attach wheels to hubs with wheel bolts shipped in hubs. Tighten to 80 ft-lb (108 N×m).

3-7 WALKING BEAMS

- 3-7.1** Insert wheel spindles into walking beam. Align holes and install 3/8" x 2-1/2" roll pin, one in each wheel spindle (**See Figure 3-8**).

Note: Use hole "A" for normal tire clearance or hole "B" for additional clearance.

3-7.2 Insert walking beam into rockshaft lift arm with beam toward outside of frame. Align holes and install 3/8" x 3-1/2" cap screw, locknut (**See Figure 3-9**).

3-7.3 Attach wheels to hubs with wheel bolts shipped in hubs. Tighten to 80 ft-lb (108 N×m).

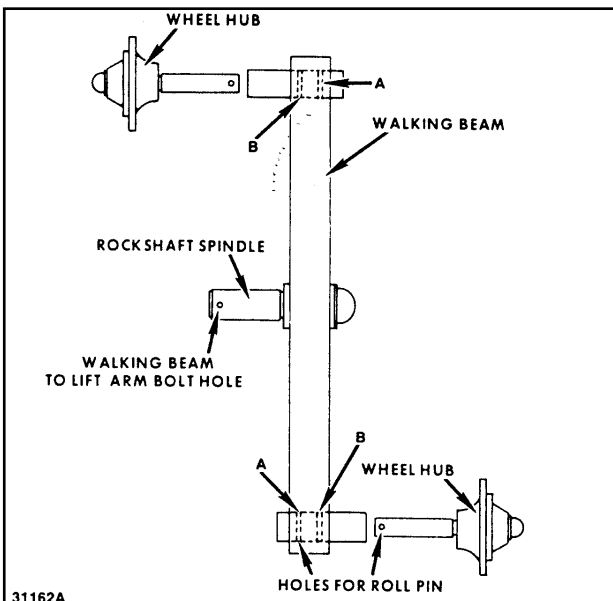


Figure 3-8 - Walking Beam and Hubs

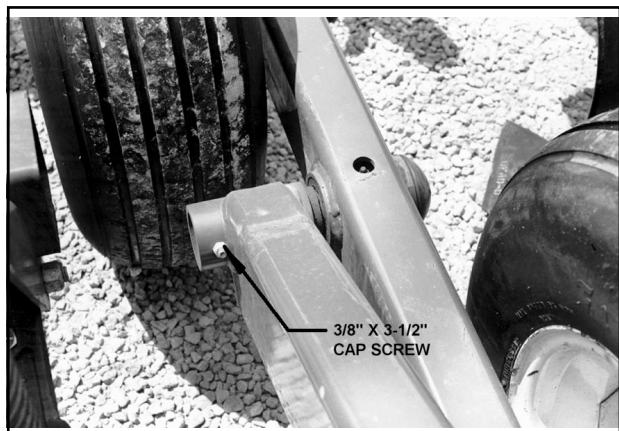


Figure 3-9 - Attaching Walking Beam

3-8 LOCKUP AND LIFT CYLINDER

3-8.1 Install lockup hook with 1" diameter. L-pin and clip pin (**See Figure 3-10**).

3-8.2 Install lift cylinder linkage arm with 3/4" x 3" cap screw and locknut (**See Figure 3-11**).

Note: Holes in arm are offset. Install arm with holes closest to edge toward front of implement.

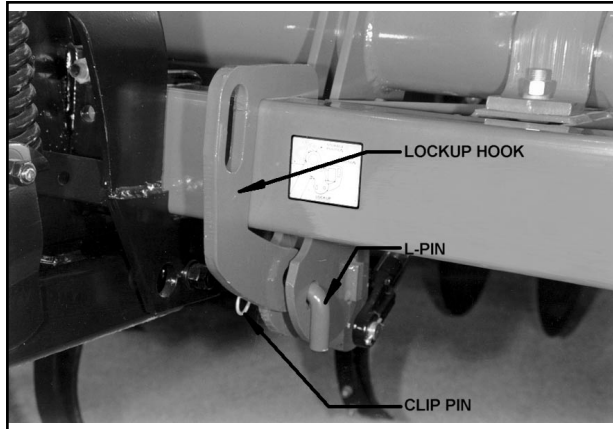


Figure 3-10 - Lockup in Lockup Position

3-8.3 Attach base end of frame lift hydraulic cylinder to frame cylinder anchor.

Lift Cylinder Sizes:

- All Rigid and 19' Folding: 3" x 12"
- 21" and 23' Folding: 4" x 12"

Note: Do not connect cylinder rod until after hydraulic system is purged of air (p. 15).

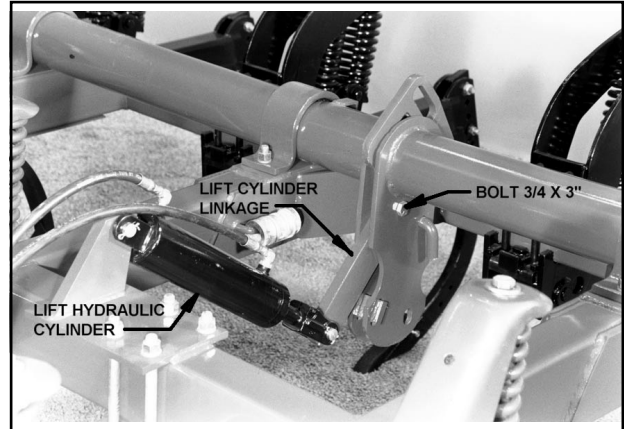


Figure 3-11 - Main Frame Lift Cylinder

3-9 FRAME EXTENSIONS

3-9.1 Two types of frame extensions are used:

- Short (stub) extensions, 8" & 19-1/2" (**See Figure 3-12**).
- Main frame extensions, 24" (**See Figure 3-13**).

3-9.2 The short extensions are attached with U-bolts or bolts, depending upon location.

3-9.3 The main frame extensions are installed on each side of certain 10'-10" frame models. Use eight 5/8" x 2" cap screws, lock washers and nuts to attach each extension.

Note: See Figures 3-38 - 3-45 for assembly layouts to install extensions.

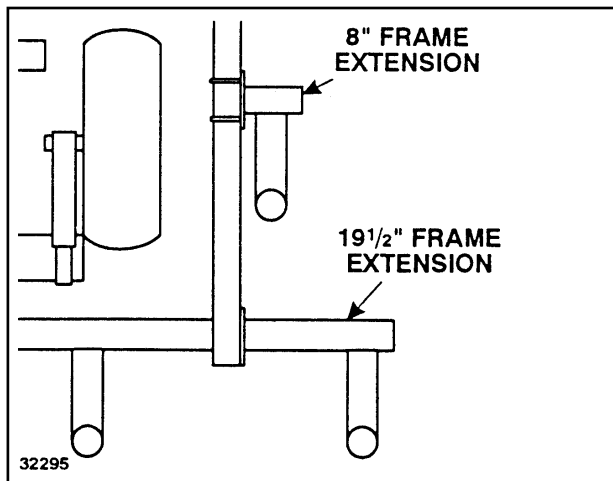


Figure 3-12 - Short Extension

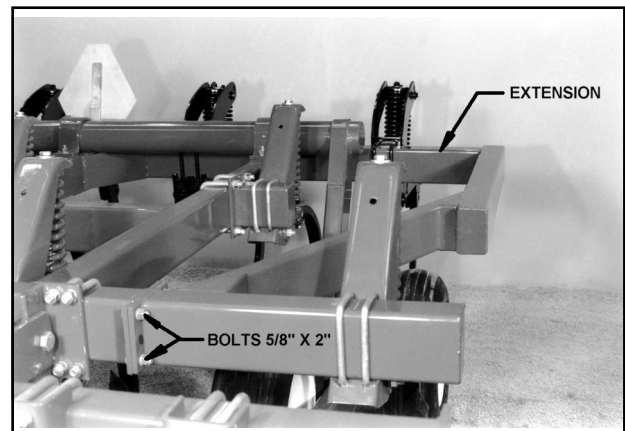


Figure 3-13 - Main Frame Extension

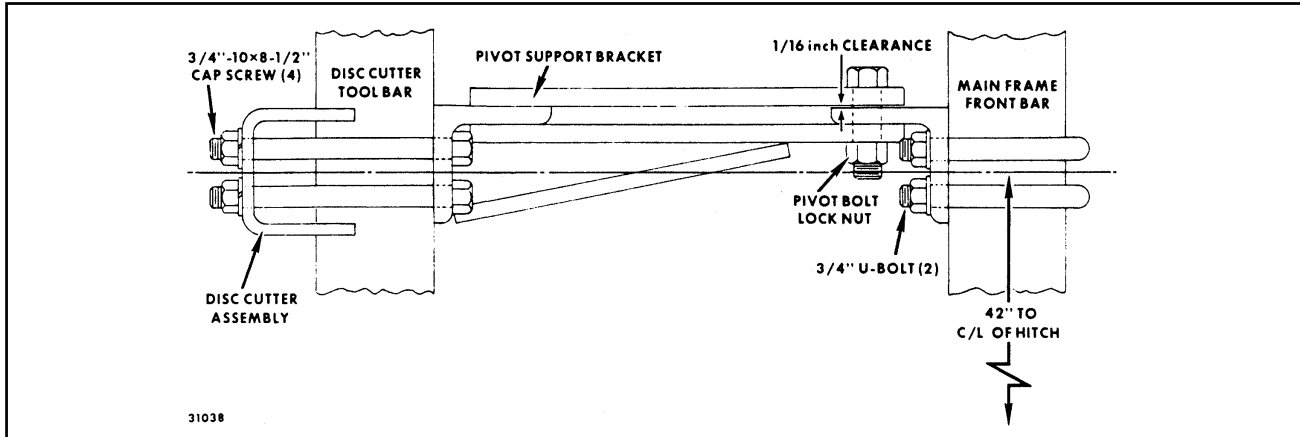


Figure 3-14 Pivoting Support Bracket for Cutter Frame

3-10 CUTTER FRAME AND CUTTERS

3-10.1 Attach pivoting support brackets on main frame front bar with 3/4" x 5-5/8" U-bolts, lock washers and nuts (See Figures 3-14, 3-15, & 3-16) .

Notes:

See Figures 3-38 - 3-45 for assembly layouts. Rigid frame models use two brackets; folding frames use six.

Brackets must pivot freely on pivot bolts. If not, loosen bolts to provide 1/16" clearance.

3-10.2 Attach cutter frame to support brackets with disc cutter support at same location. Use four 3/4" x 8" cap screws, lock washers, nuts (See Figure 3-15).

Note: Install RH cutter supports on right and LH cutter support on left. See next step.

3-10.3 Install disc cutter supports (See Figure 3-16):

- RH cutter supports (hubs toward right side of implement) on RH side.
 - LH cutter supports (hubs toward left side of implement) on LH side.
- Use 3/4" x 7-7/8" U-bolts (5), lock washers, nuts.

CAUTION

TO PREVENT POSSIBLE PERSONAL INJURY, BE CAREFUL WHEN HANDLING DISC BLADES AND COULTERS. BLADES AND ARE SHARP!

3-10.4 Attach disc or coultter blades to hubs with 1/2" x 1-1/2" carriage bolts, lock washers, nuts.

3-10.5 Install cutter frame lift cylinder anchor (See Figure 3-25).

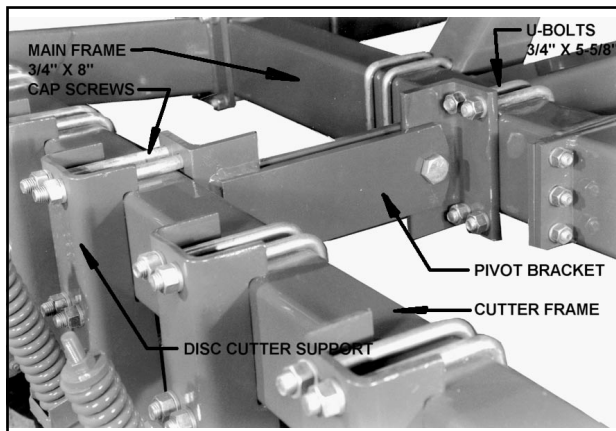


Figure 3-15 Pivot Bracket Installation

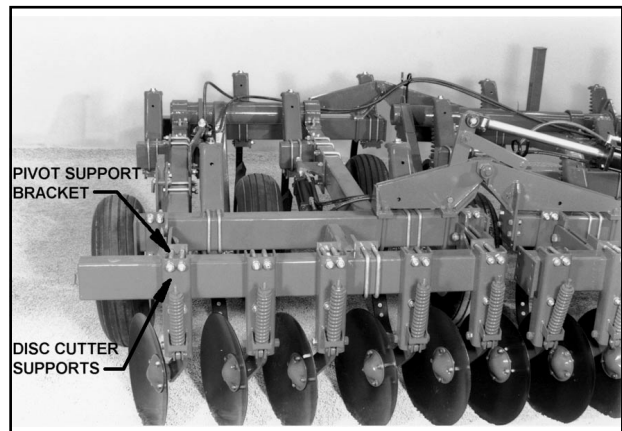


Figure 3-16 RH Wing Cutter Frame

3-11 SHOVELS

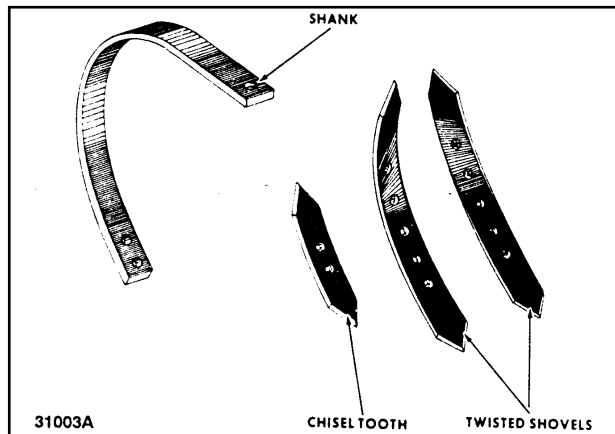


Figure 3-17 - Shanks and Shovels

3-11.1 Install shovels on shanks with two 1/2" plow bolts (**See Figure 3-17**).

- a. If installing 5-hole twisted shovels, use 2nd and 3rd holes with *one hole below end of shank*.
- b. If installing 3-hole shovels, use lower two holes with *no holes below end of shank*.

3-12 SHANK HOLDERS

3-12.1 Mark shank holder locations on frame as indicated by appropriate assembly layout.

3-12.2 If using twisted shovels, install all shanks so shovels throw soil inward except shovels near wheels. Position those shovels to throw outward. See arrows indicating throwing direction on assembly layout.

3-12.3 To ensure the chisel plow pulls evenly, install correct number of RH and LH twisted shovels (**See Figures 3-38 - 3-45** for assembly layouts).

3-12.4 Rigid Shank Holders

- a. Mount shank assembly to frame with two plates, 3/4" x 9-1/2" cap screw and 3/4" x 9-1/2" U-bolts, lock washers, nuts (**See Figure 3-18**).

3-12.5 Spring Cushion Shank Holders

- a. Mount shank assembly to frame with two 5/8" bent bolts and two 5/8" x 3-3/4" Grade 8 bolts, lock nuts and plate (**See Figure 3-19**).

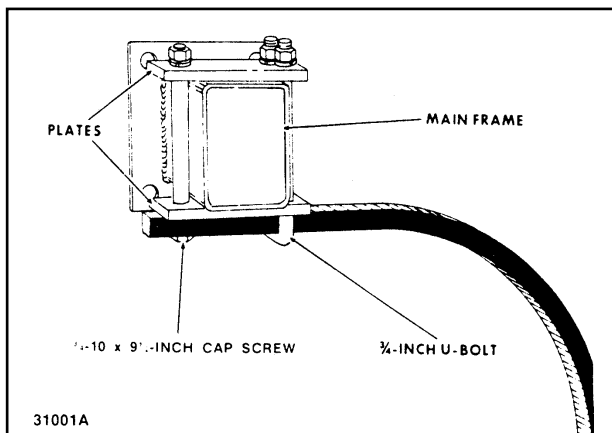


Figure 3-18 - Rigid Shank Holder

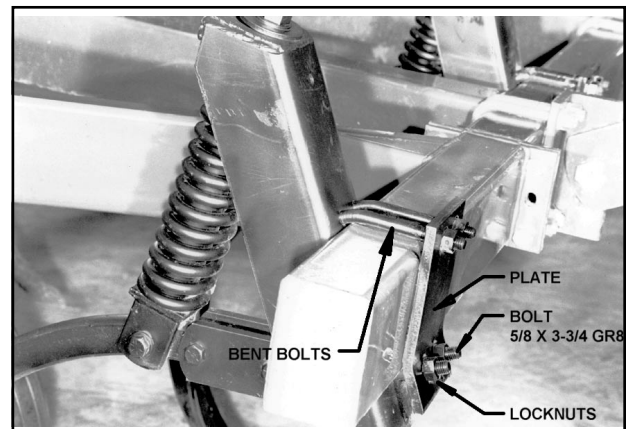


Figure 3-19 - Spring Cushion Shank

3-13 WING HINGES

Install four folding wing hinges on front and rear bars of the main frame, both sides.

3-13.1 Attach each hinge to end of main frame with four 5/8" x 1-3/4" cap screws, lock washers and nuts. Install one U-bolt on main frame (**See Figure 3-20**).

3-13.2 Attach hose support to inside of each hinge with one 5/8" x 2-1/2" cap screw, lock washer, nut (**See Figure 3-21**).

3-13.3 Using assembly stands, place wing frames about 4" (102 mm) from main frame and at same height.

3-13.4 Attach each hinge to main frame and wing frames using two U-bolts for each hinge (**See Figure 3-20**).

3-13.5 Attach cylinder linkage to front hinges:

- Insert 3/4" diameter pin through hinge with spacers.
- Install 1" diameter pin through hinge and link.
- Secure both pins with 1/4" x 1-1/2" roll pins.

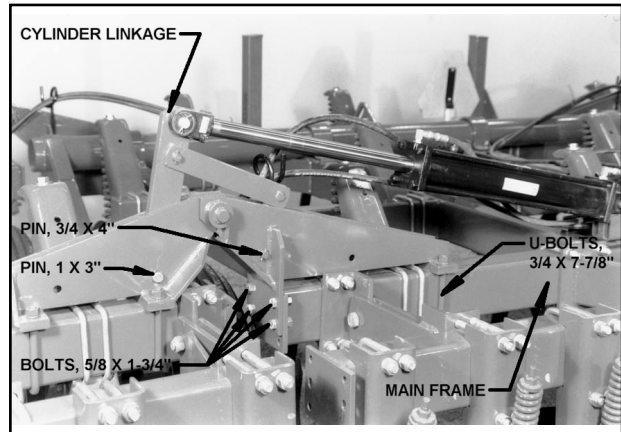


Figure 3-20 - Front Hinge, Right Wing

3-14 WING FRAME CYLINDER ANCHOR

3-14.1 Determine center of machine and attach wing cylinder anchor to front frame bar with two 3/4" x 7-7/8" U-bolts (**See Figure 3-22**).

3-15 CUTTER FRAME CYLINDER ANCHOR

3-15.1 Install cylinder anchor at center of cutter frame with two 3/4" x 7-7/8" U-bolts (2), lock washers, nuts (**See Figure 3-22**).

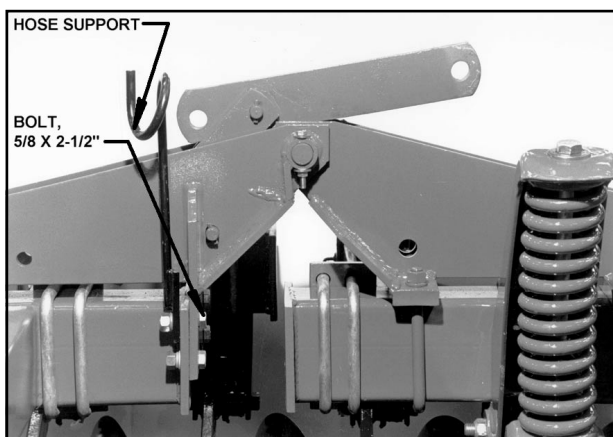


Figure 3-21 - Front Hinge, Right Wing

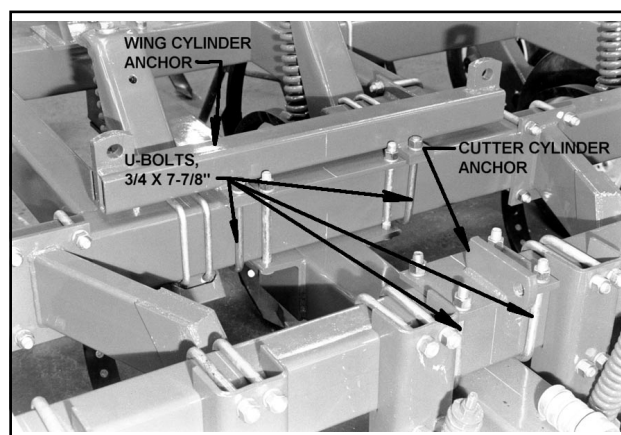


Figure 3-22 - Cylinder Anchors

3-16 WING ROCKSHAFTS - 21' & 23' MODELS

3-16.1 Install wing rockshafts and bearings using same procedure as installing main frame rockshaft (See Section 3-5). Install one reinforcement bar under frame at each bearing location.

Note: Rockshafts are not identical. Install both rockshafts so arms point forward and lift cylinder anchor is toward outside of frame, pointed downward (See Figure 3-23).

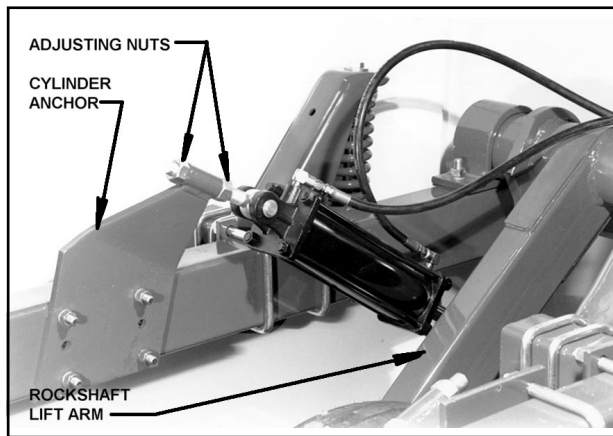


Figure 3-23 - Outer End of RH Wing

3-16.2 Attach wheel to wing rockshaft with 3/8" x 2-1/2" cap screw, but without adapter (See Figure 3-7).

3-16.3 Install wing lift cylinder anchors on wings with four 5/8" x 6" cap screws, lock washers and nuts (See Figure 3-23).

3-16.4 Wing Frame Stands

a. Attach each wing stand on rear bar at frame gusset. Insert U-bolt inside gusset about 38-1/2" from ends of main frame rear bar (See Figure 3-24).

3-16.5 Wing Frame Extensions

a. Attach frame extensions as required. Refer to assembly layouts (See Figures 3-38 - 3-45).

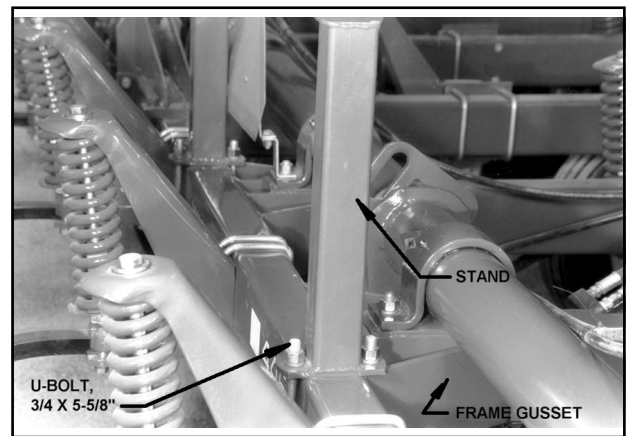


Figure 3-24 - Wing Frame Stand

3-17 CUTTER FRAME

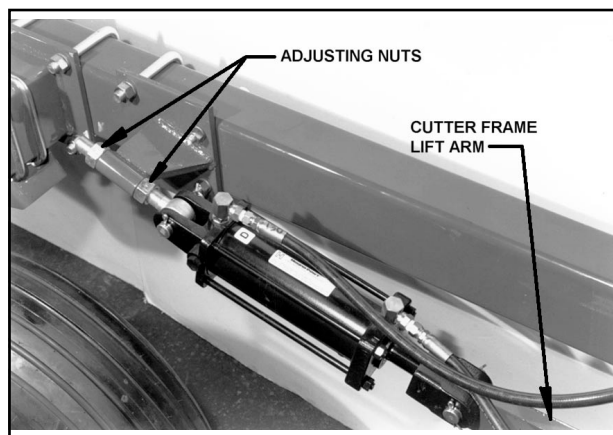


Figure 3-25 - Cutter Frame Lift Cylinder

3-17.1 Attach cylinder anchor to wing frame with two 5/8" x 6" cap screws and one 3/4" x 5-5/8" U-bolt (See Figure 3-25).

3-17.2 See Section 3-10 to assemble wing cutter frames.

3-17.3 Install cutter frame lift arm to cutter frame with cutter mounted at same location. Use four 3/4" x 8-1/2" cap screws, lock washers, nuts, and two U-bolts (See Figure 3-25).

Note: See Figures 3-38 - 3-45 for assembly layout specifications.

IMPORTANT

BE SURE LIFT ARM IS IN LINE WITH CUTTER FRAME CYLINDER ANCHOR.

3-18 GAUGE WHEELS

- 3-18.1** Locate gauge wheels on outer end of cutter wing frames as shown in assembly layout.
- 3-18.2** Attach one long plate and one short plate to wing frame with four 5/8" x 7" cap screws, lock washers, nuts (**See Figure 3-26**).
- 3-18.3** Attach another long plate to assembly using four 5/8" x 3" cap screws with four spacers, lock washers, nuts.

- 3-18.4** Insert wheel support between plates. Use L-pin and clip pin to hold in place.
- 3-18.5** Install wheel on hub. Tighten wheel bolts to 80 ft-lb (108 N·m).
- 3-18.6** Using wheel height adjustment lever, remove L-pin and lower gauge wheel to ground to support wing frame. Replace L-pin and clip pin. Return adjustment lever to storage position (**See Figure 3-27**).

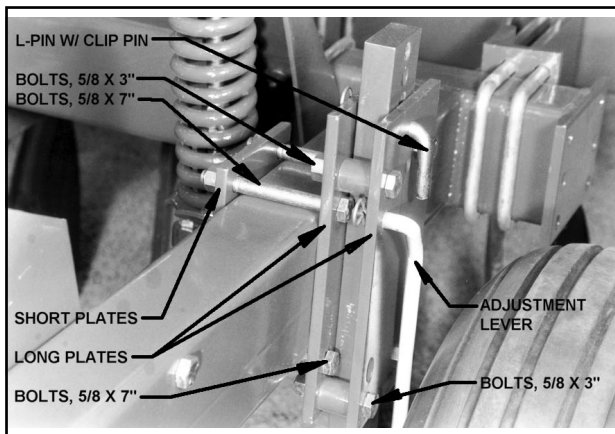


Figure 3-26 - Gauge Wheel Support

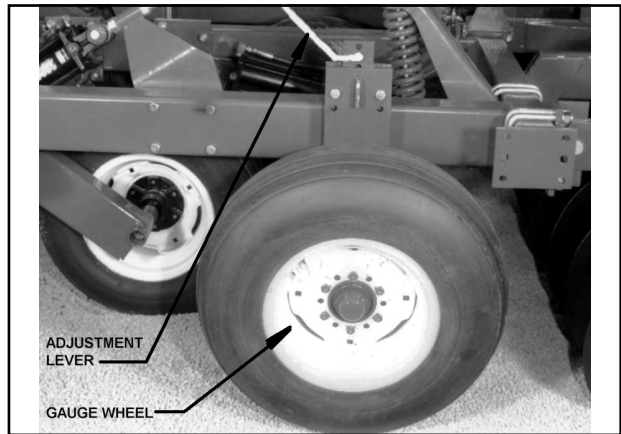


Figure 3-27 - Gauge Wheel on RH Wing

3-19 HYDRAULIC SYSTEM ASSEMBLY

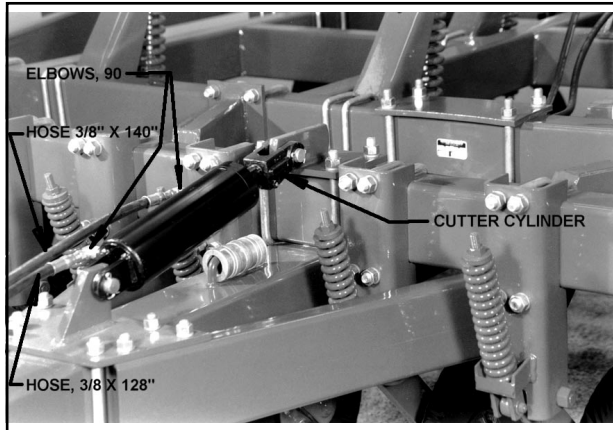


Figure 3-28 - Cutter Frame Lift Cylinder

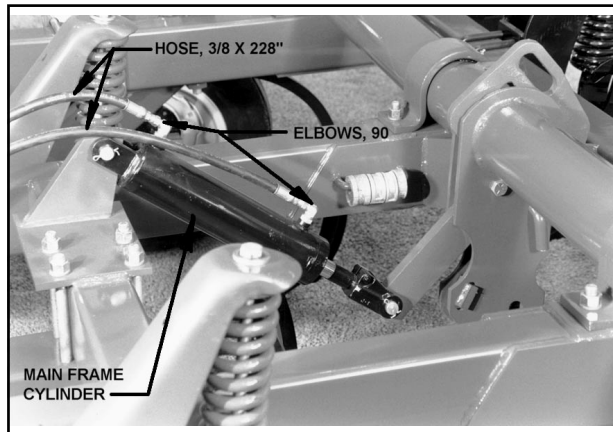


Figure 3-29 - Main Frame Lift Cylinder



Figure 3-30 - Hoses Routed in Hitch

IMPORTANT

REFER TO THE TORQUE CHARTS TABLES 2-1 AND 2-2 FOR IMPORTANT INFORMATION ON THE TIGHTENING OF STRAIGHT-THREAD HYDRAULIC FITTINGS.

DO NOT USE PIPE SEALANT OR TEFLON[®] TAPE ON THREADS.

DO NOT CONNECT ROD ENDS OF HYDRAULIC CYLINDERS UNTIL AFTER THE HYDRAULIC SYSTEM IS PURGED OF AIR (SEE SECTION 3-19.4).

3-19.1 Disc Cutter - Rigid Models

- Mount base end of 3" x 8" disc cutter frame cylinder to cylinder anchor on hitch (**See Figure 3-28**).
- Install 90° elbows in cutter frame cylinder.
- Connect 3/8" x 128" and 3/8" x 140" hoses to cutter frame lift cylinder and route through hitch (**See Figure 3-30**).

3-19.2 Wheel Lift - Rigid & 19' Folding Models

- Install 90° elbows in main frame lift cylinder (**See Figure 3-29**).
- Connect 3/8" x 228" hoses to main frame lift cylinder and route through hitch.

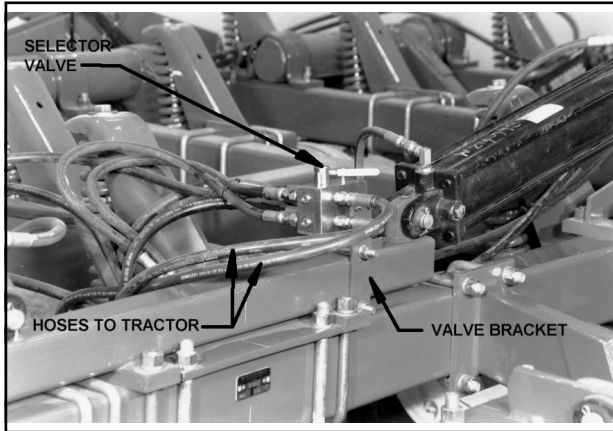


Figure 3-31 - Selector Valve Location

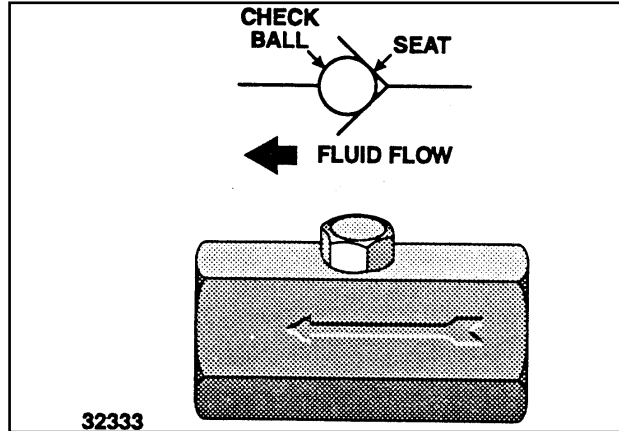


Figure 3-32 - Check Valve Diagram

3-19.3 Folding Models

- a. Attach valve bracket to wing cylinder anchor tube with 1/2" U-bolt (See Figure 3-31).
- b. Attach selector valve to bracket with two 1/4"-28 x 2-1/2" NF cap screws and locknuts.
- c. Install check valves between crosses and tees as shown. Be sure valves are installed to allow fluid flow *toward* valve (See Figure 3-33).

- d. Install all remaining hydraulic cylinders, hoses and fittings shown on next page.

Notes:

Do not connect cylinder rod ends until hydraulic system is purged (Section 3-19.4).

Do not introduce additional air into system by manually extending cylinders before or during installation.

Note: Fluid flow direction is shown on check valve body with an arrow (See Figure 3-32).

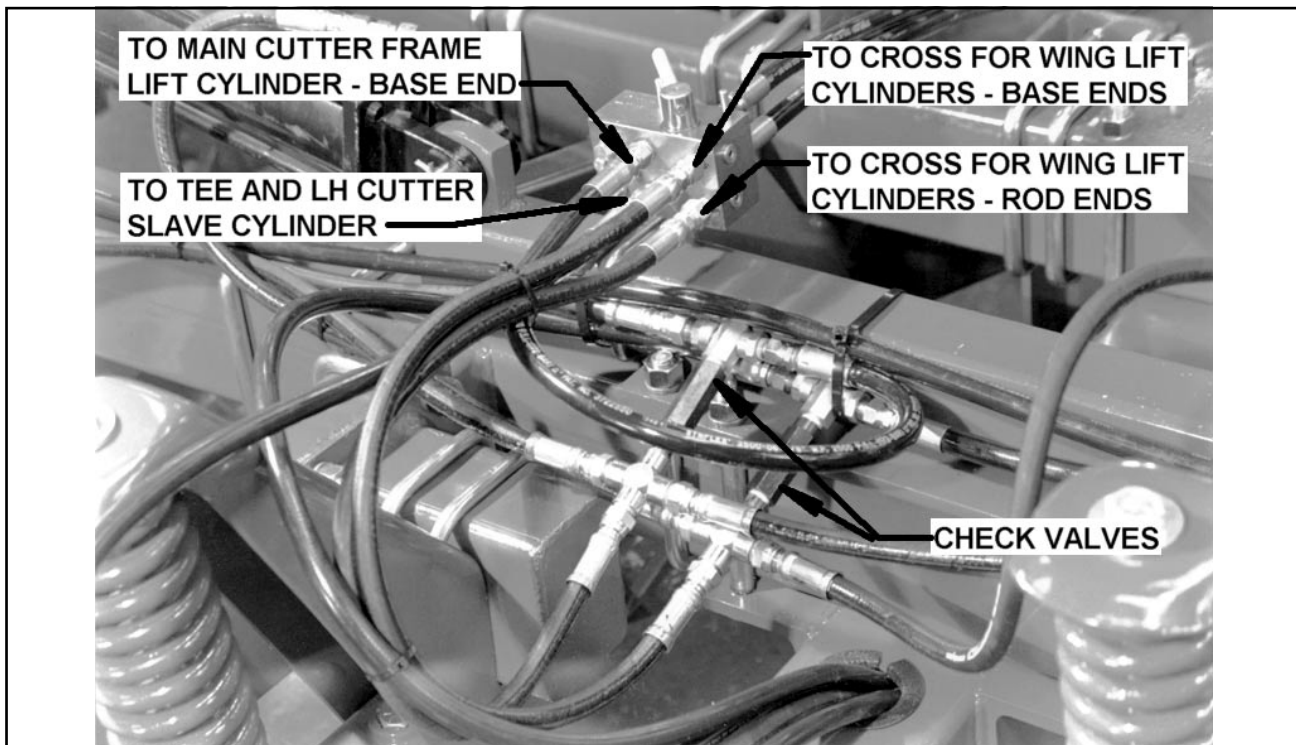


Figure 3-33 Selector Valve Connections

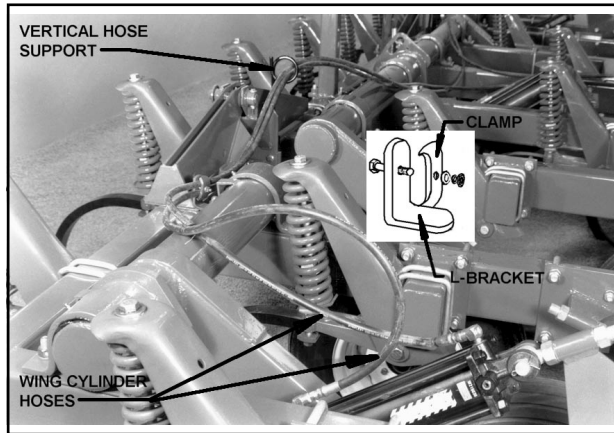


Figure 3-34 - Rear of RH Wing

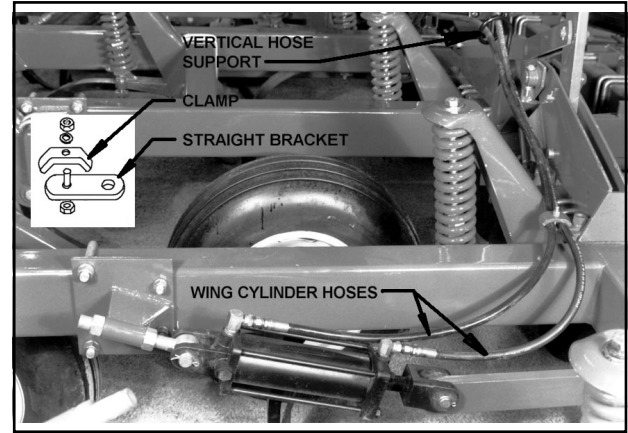


Figure 3-35 - Front of RH Wing

- e. Thread wing lift cylinder hoses and cutter frame lift cylinder hoses through vertical hose supports during assembly (See Figures 3-34 and 3-35).
- f. Attach L-bracket to rear bolt of wing rock-shaft inner bearing. Fasten wing lift cylinder hoses to L-bracket with clamp and 3/8" x 2" cap screw, lock washer and nut (See Figure 3-34).
- g. Attach straight bracket to U-bolt at end of wing hinge. Fasten cutter frame lift cylinder hoses to bracket with clamp and 3/8" x 2" cap screw, lock washer and nut (See Figure 3-35).
- h. Use plastic ties to securely fasten all hoses at various places on frame. Keep hoses away from potential pinch points and sharp edges.
- i. All models: Purge air from hydraulic system.

3-19.4 Purging Air From Hydraulic System - Initial Assembly

IMPORTANT!

CYLINDER OPERATION WILL BE VERY ERRATIC AND UNEVEN UNTIL ALL AIR IS PURGED FROM THE SYSTEM.

After hitching the tractor to the chisel plow and connecting the hydraulic hoses:

- a. Cycle all chisel plow cylinders several times to purge air from system.
- b. Connect cylinder rod ends after purging system.
- c. Operate all lift and wing fold cylinders to check operation.
- d. Check for and correct leaks as required.

WARNING

RECHECK FLUID LEVEL IN TRACTOR RESERVOIR AFTER FILLING AND PURGING AIR FROM IMPLEMENT HYDRAULIC SYSTEM. FAILURE TO DO SO CAN RESULT IN PERSONAL INJURY AND / OR DAMAGE TO IMPLEMENT OR TRACTOR. ADD FLUID AS NECESSARY.

WARNING

TO PREVENT POSSIBLE SERIOUS INJURY OR DEATH, CLEAR BYSTANDERS FROM AREA WHEN FOLDING AND UNFOLD WINGS.

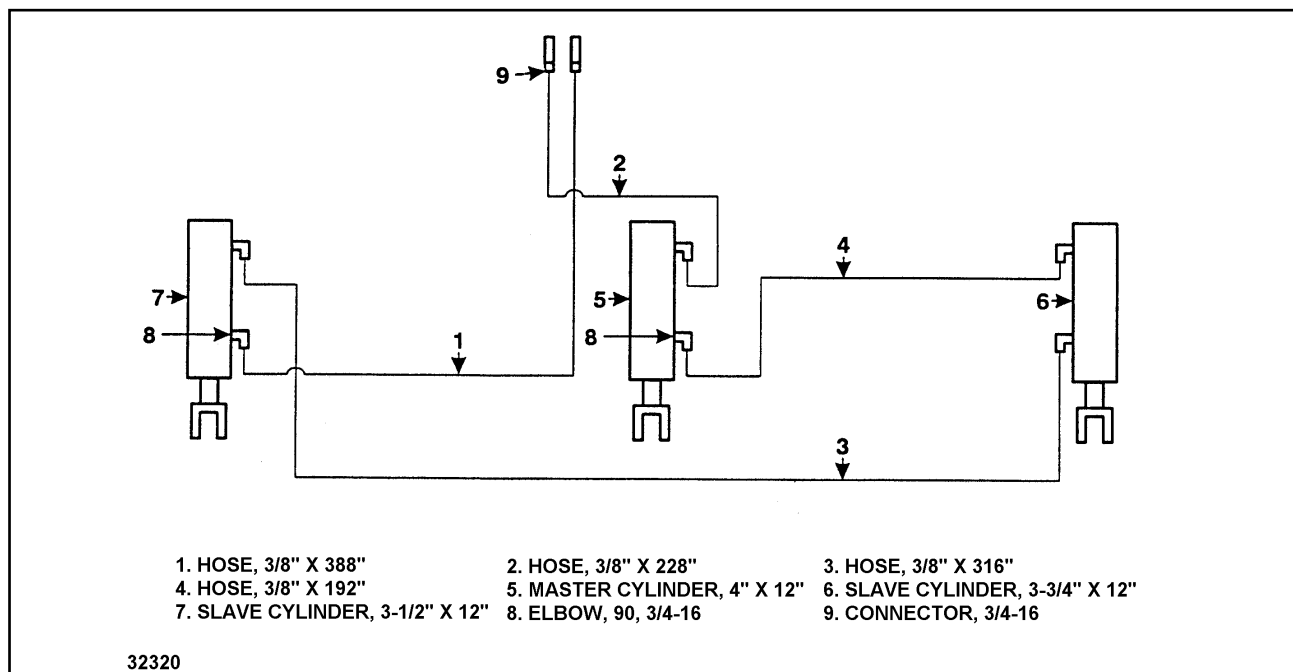


Figure 3-36 Main Frame Hydraulic Lift Circuit - 21' & 23' Folding Models

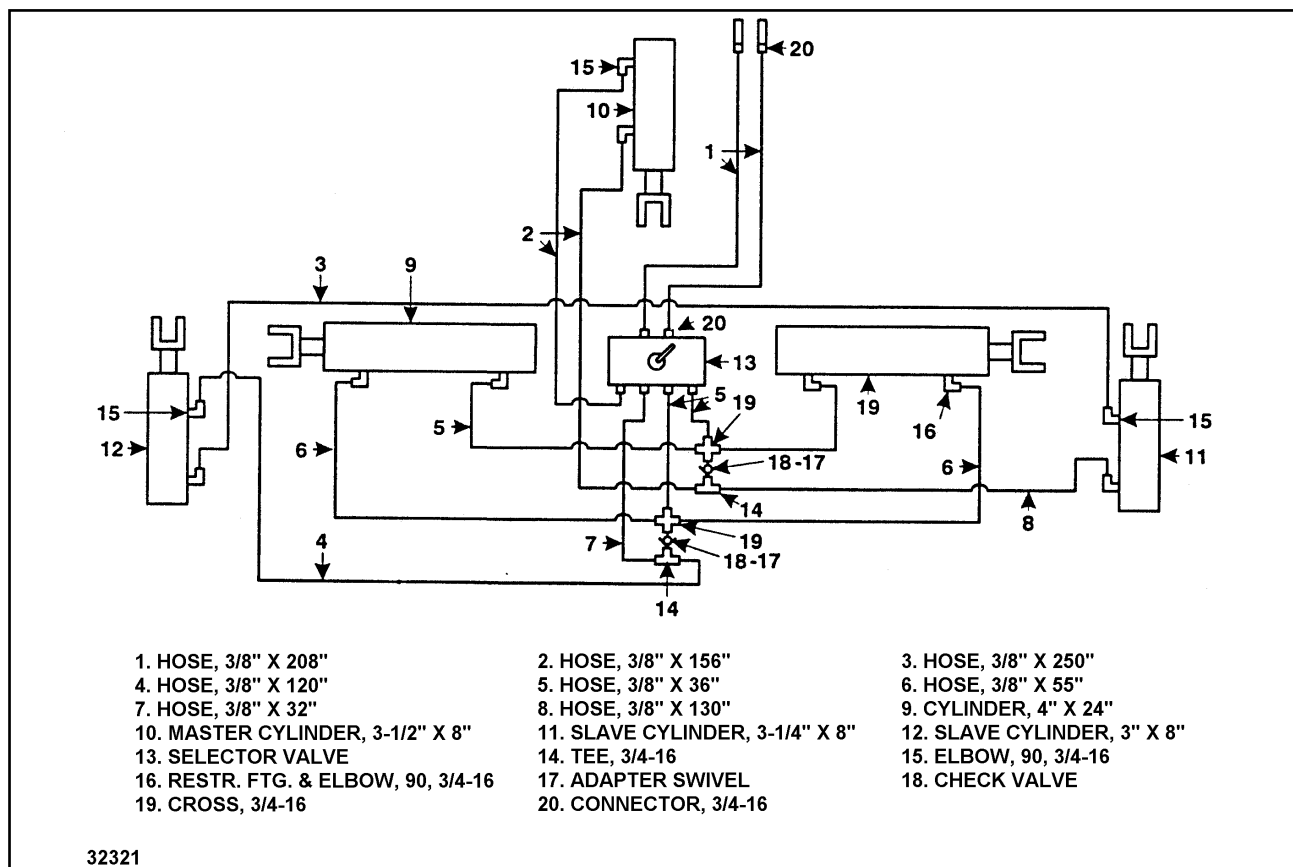


Figure 3-37 Wing and Cutter Frame Hydraulic Lift Circuits - Folding Models

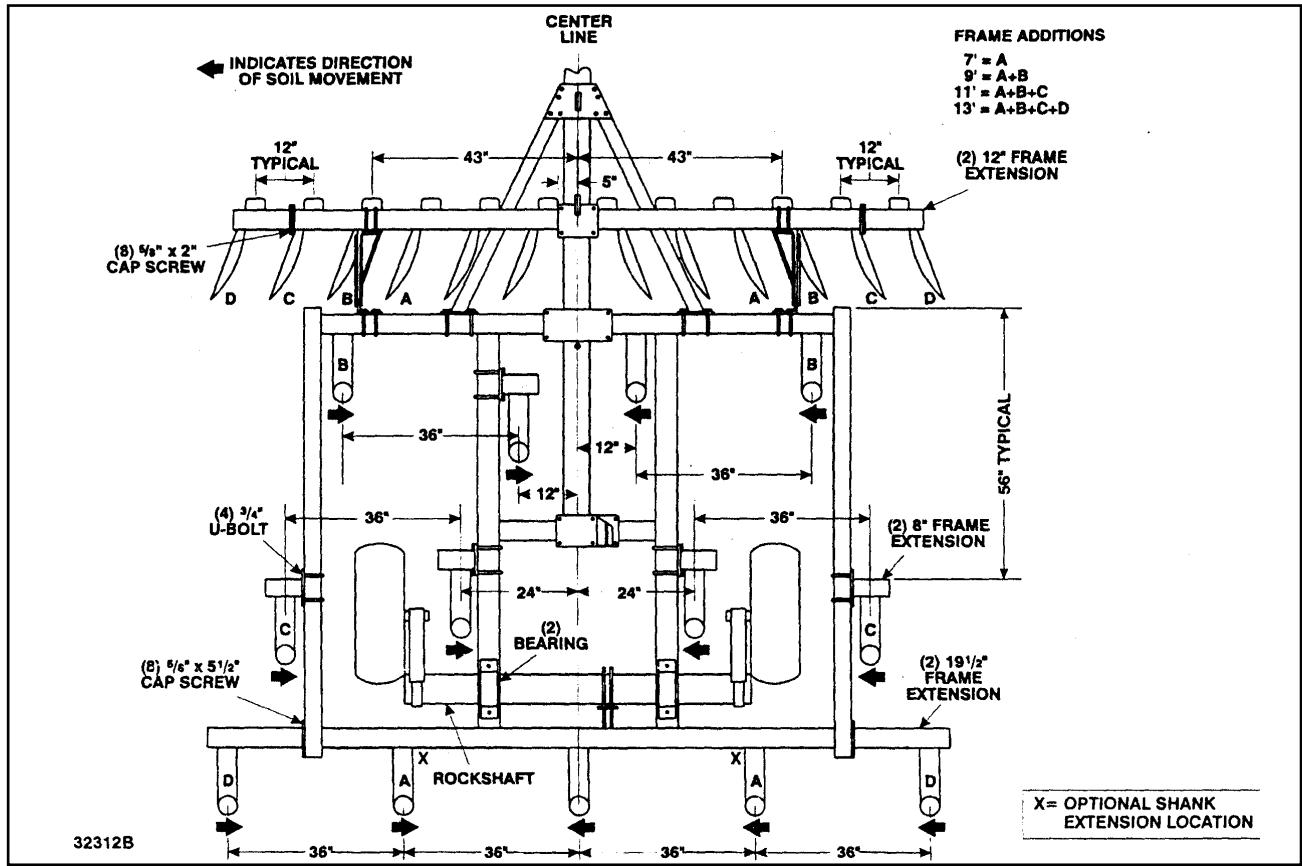


Figure 3-38 9'-6" Main Frame Assembly Layout - Single Axle, 12" Shank Spacing

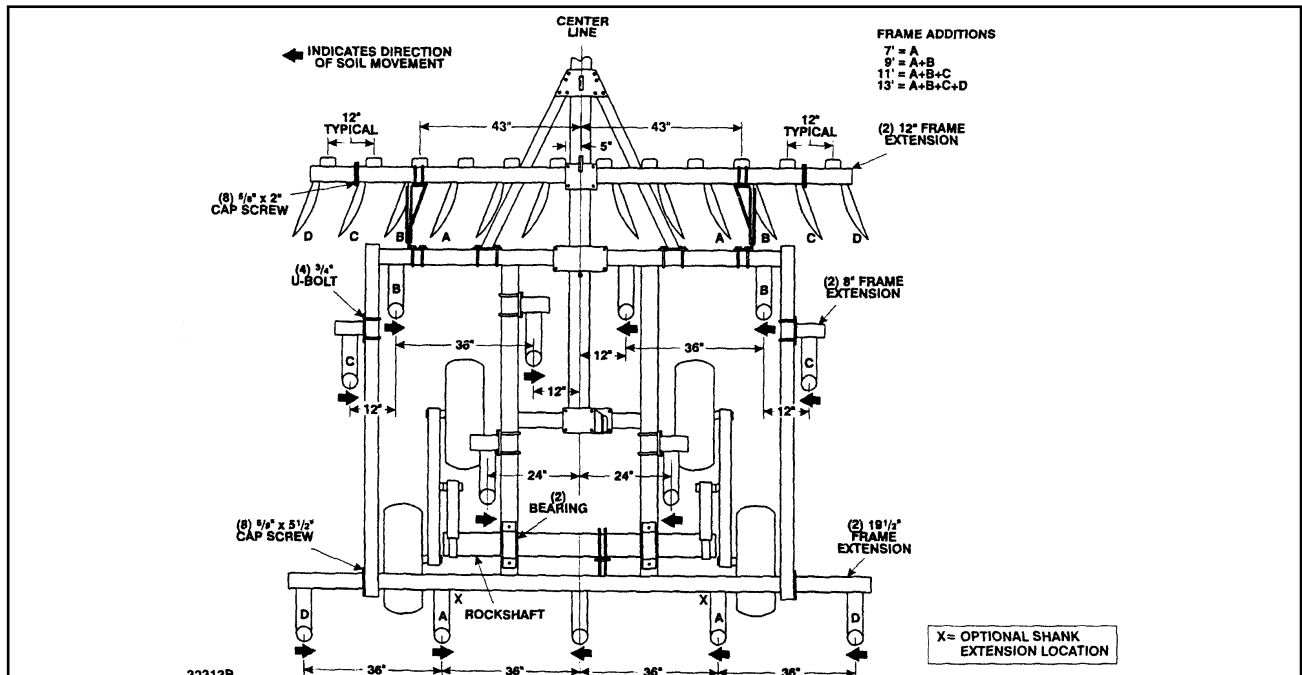


Figure 3-39 9'-6" Main Frame Assembly Layout - Walking Beam Axle, 12" Shank Spacing

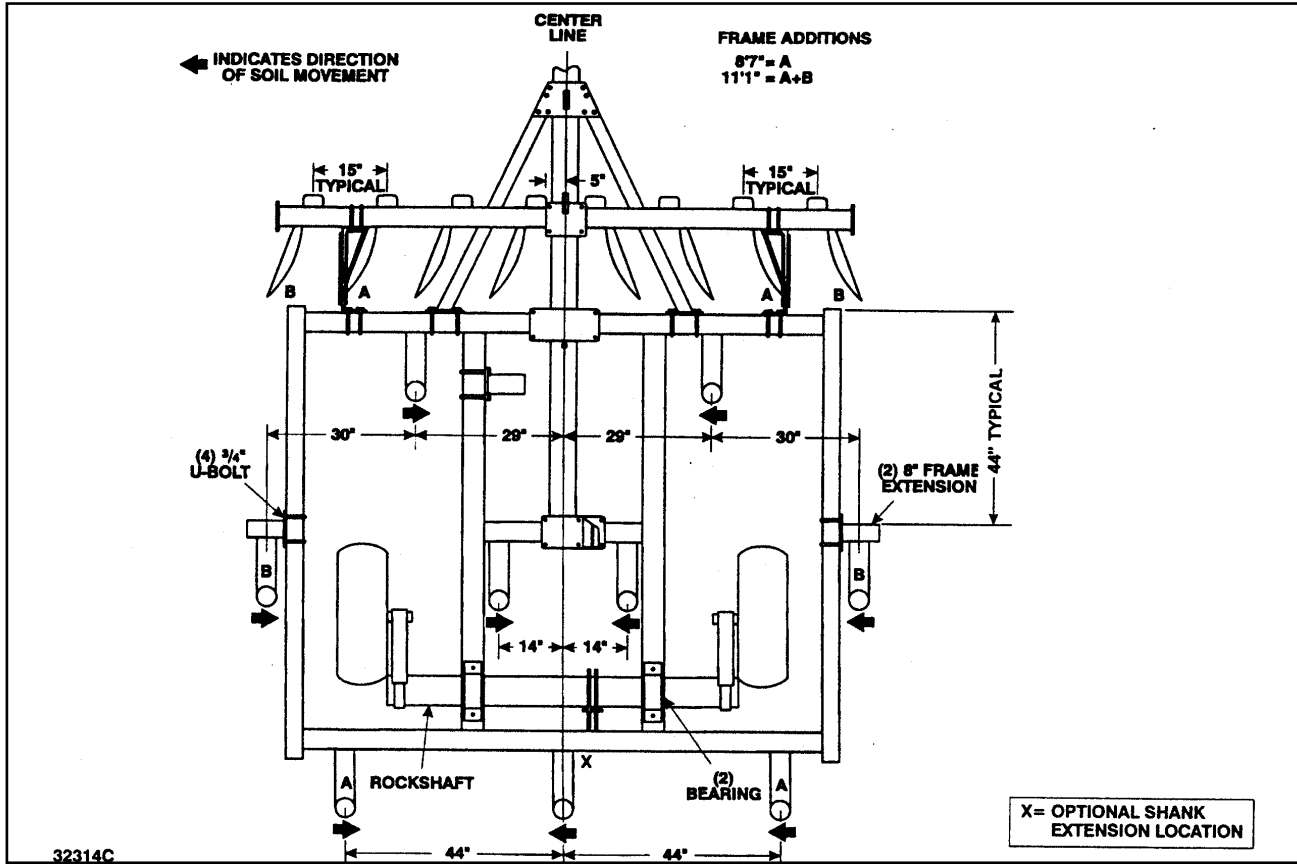


Figure 3-40 9'-6" Main Frame Assembly Layout - Single Axle, 15" Shank Spacing

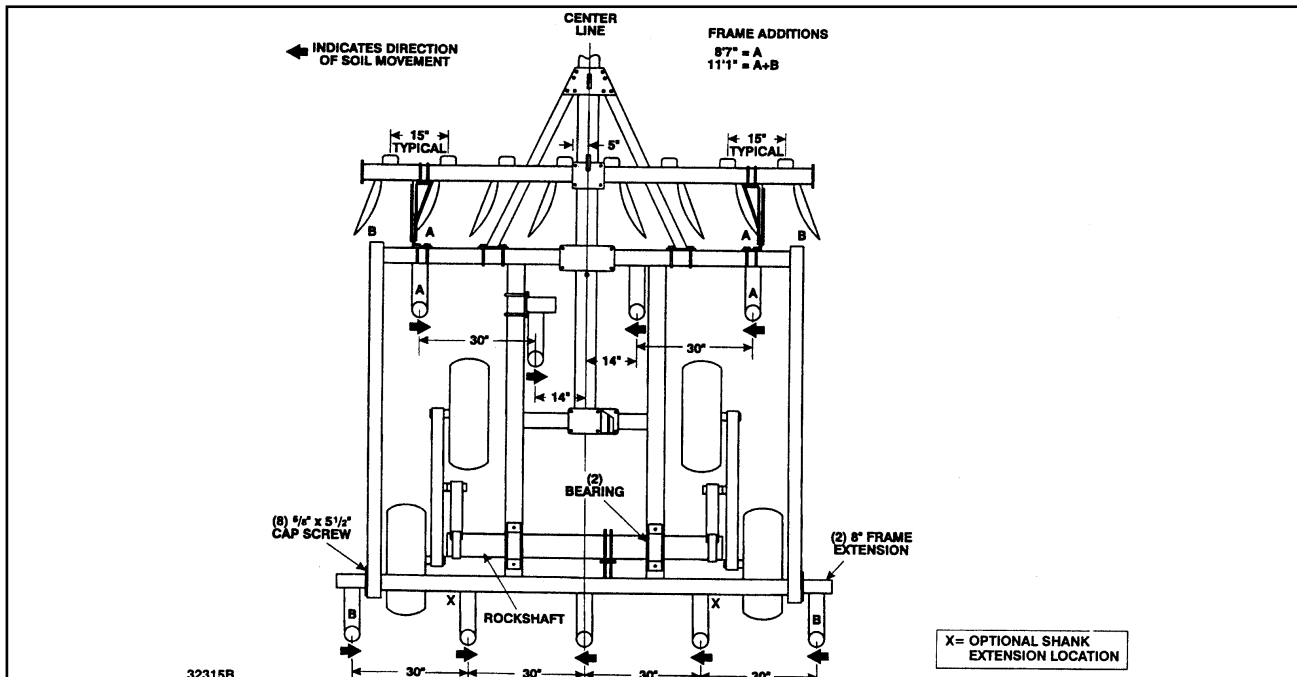
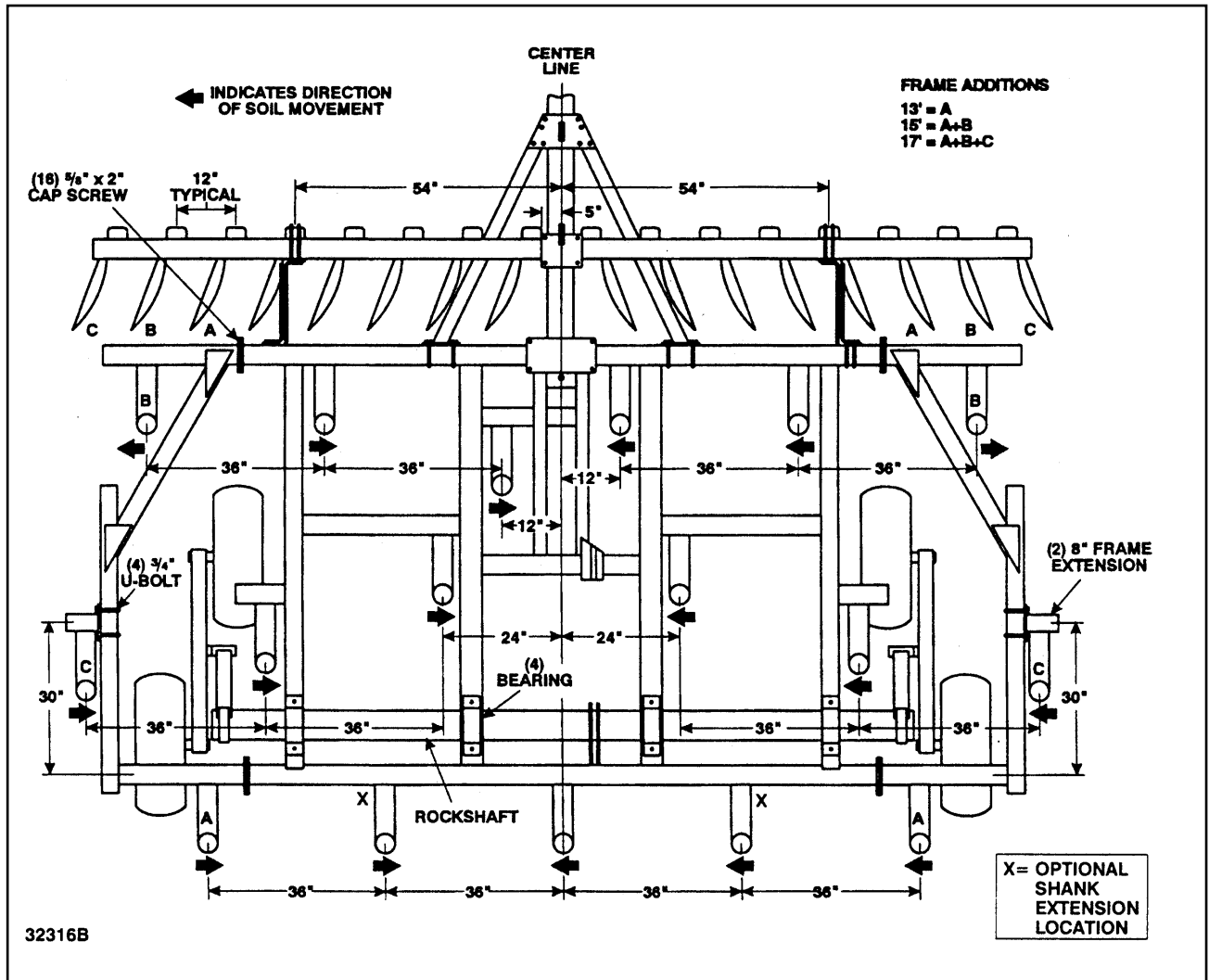


Figure 3-41 9'-6" Main Frame Assembly Layout - Walking Beam Axle, 15" Shank Spacing



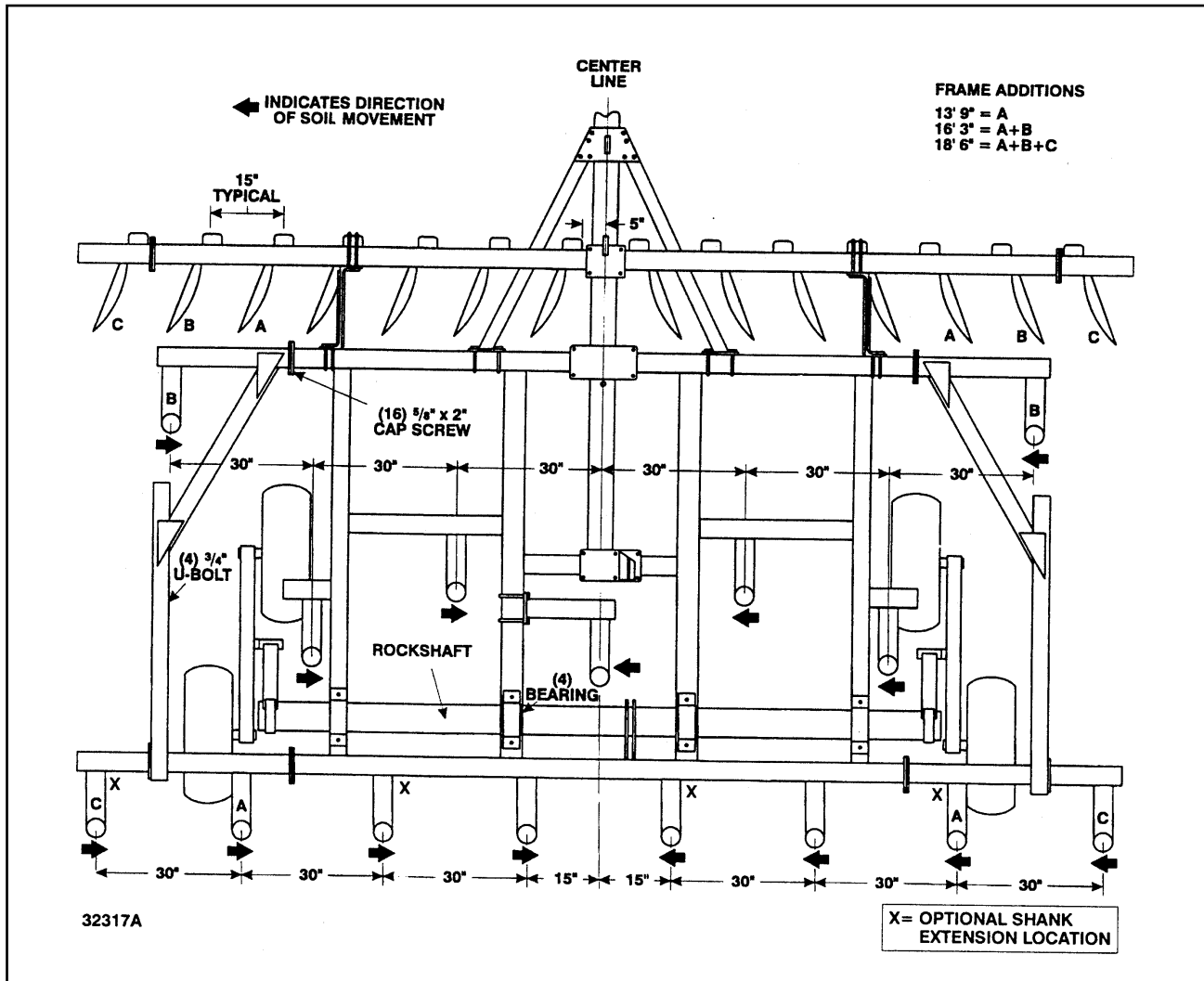
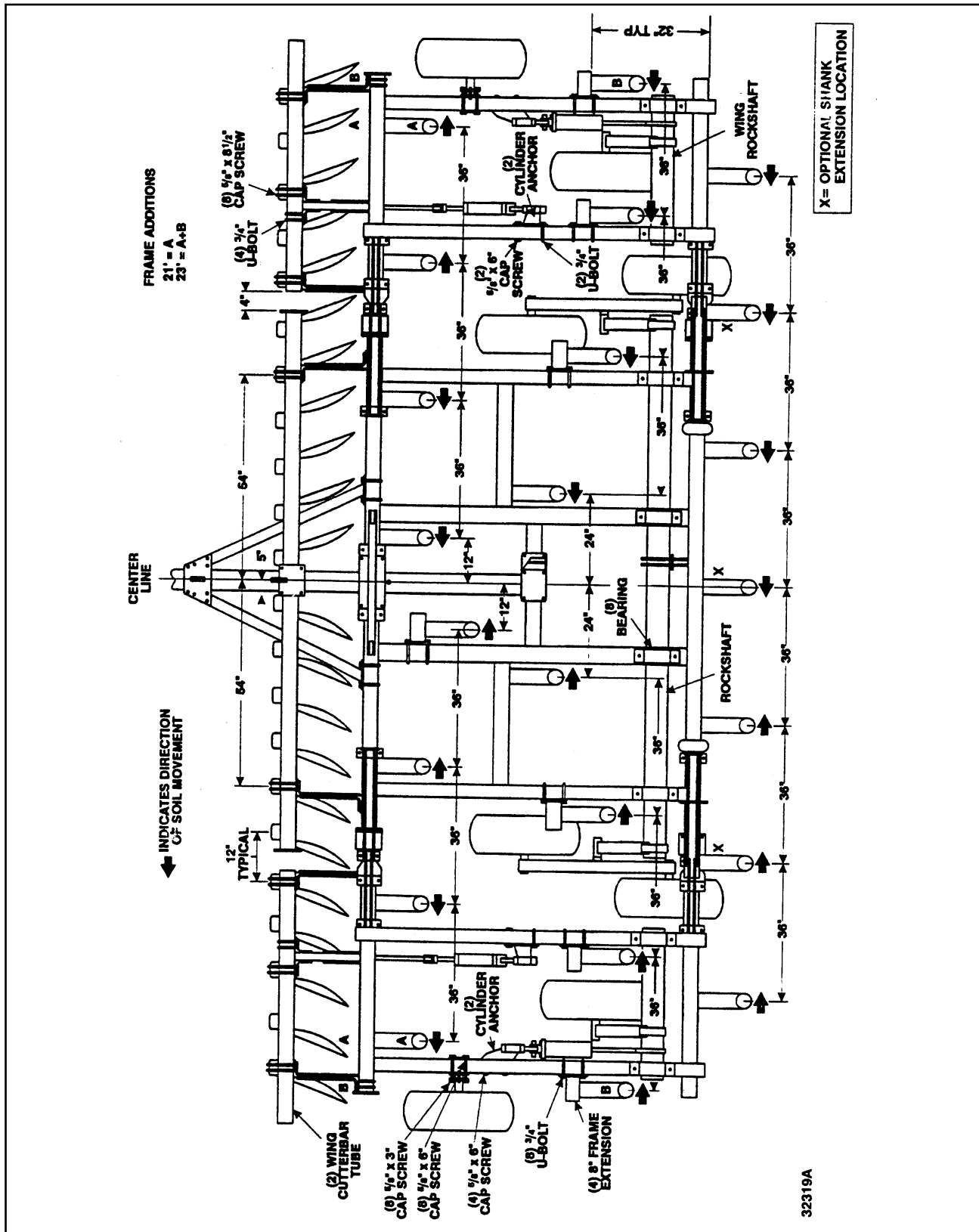


Figure 3-43 10'-10" Main Frame Assembly Layout - Walking Beam Axle, 15" Shank Spacing



3-20 ELECTRICAL INSTALLATION

3-20.1 Assemble right and left hand warning lights to the warning light brackets 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 of 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 outer most light (See Figure 3-46).

3-18.2 Assemble the light and bracket assembly to the angle bracket (side with only two holes) using 1/2-13 x 1-1/2 hex head cap screws and hex lock nuts.

3-20.2 Install the assembled lights on the outside of the frame just forward of the rear hinge using bar and 1/2-13 x 5-1/2 hex head cap screws and hex lock nuts.

IMPORTANT

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

3-20.3 Install the rear wiring harness between the lights.

3-20.4 Install the main harness by starting at the hitch and routing the harness along the frame to the rear harness.

3-20.5 Insure the harnesses are clear of any moving parts and secure the harnesses with tie wraps provided.

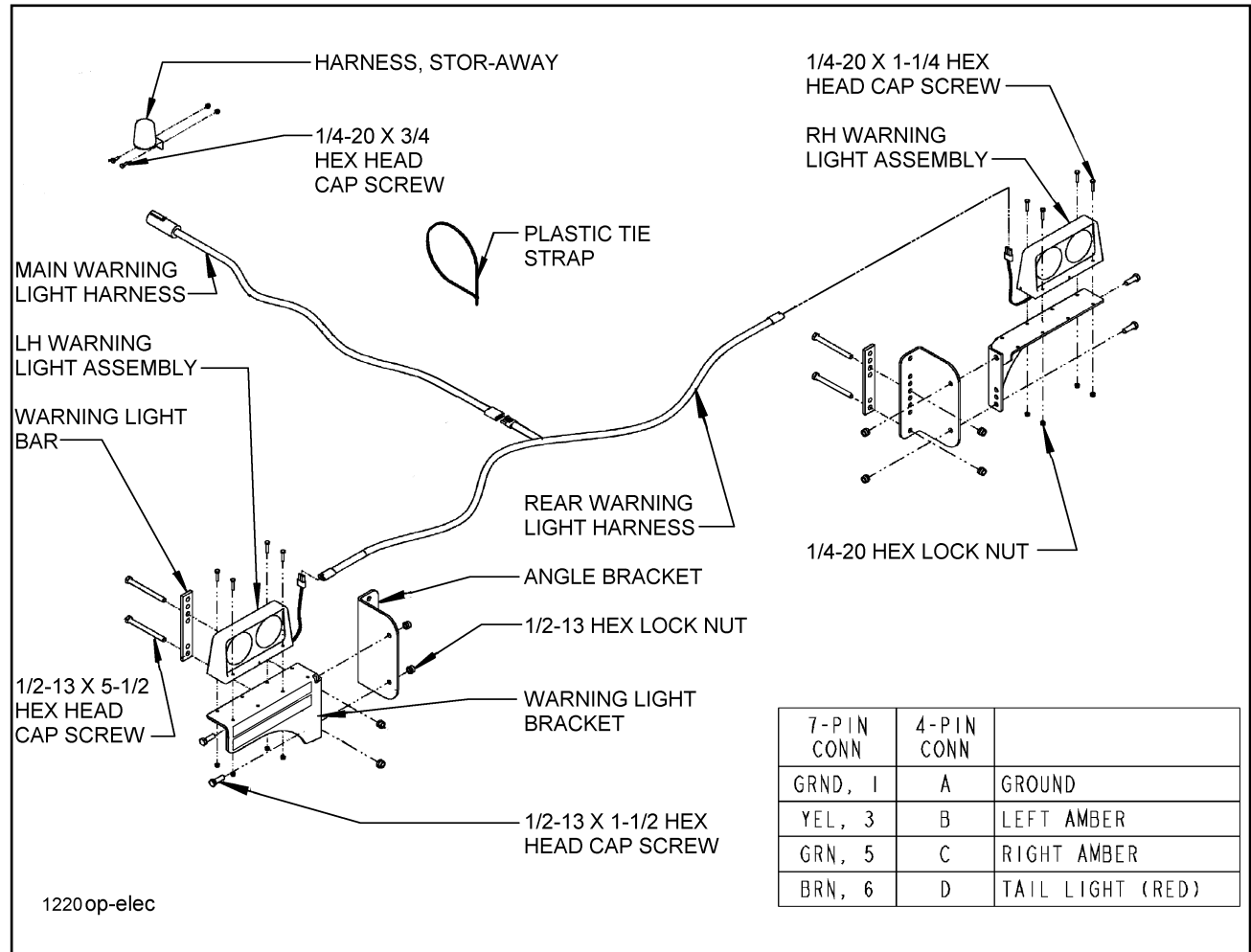


Figure 3-46 Electrical Installation

NOTES:

OPERATION AND MAINTENANCE

4

The Model 1230 Series Coulter Chisel is a highly versatile primary tillage tool, adaptable to spring or fall tillage operations. Rigid-frame models are available in cutting widths from 7' to 18½' with 12" or 15" shank spacing. Folding-frame models include 19,' 21' and 23' cutting widths with 12" shank spacing.

When equipped with concave disc cutters and twisted shovels with 12" shank spacing, the 1230 Series aggressively buries residue. When equipped with rippled disc coulters and straight points with 15" shank spacing, the implement leaves residue on top for conservation tillage.

Options include a leveling bar for follow-up planting and deep-till shanks for breaking up compacted soil.

This manual was prepared from the latest product information available at publication time. The Company reserves the right to make changes at any time without notice.

CAUTION

1. AVOID INJURY OR FATAL ACCIDENTS. READ THESE SAFETY PRECAUTIONS COMPLETELY AND CAREFULLY! UTILIZE THESE INSTRUCTIONS WHEN OPERATING YOUR MACHINE.

2. THE OPERATOR SHOULD BE A RESPONSIBLE ADULT FAMILIAR WITH FARM MACHINERY AND TRAINED IN THIS MACHINE'S OPERATIONS. DO NOT ALLOW PERSONS TO OPERATE THIS MACHINE UNTIL THEY HAVE READ THIS MANUAL AND HAVE DEVELOPED A THOROUGH UNDERSTANDING OF THE SAFETY PRECAUTIONS AND OF HOW THE MACHINE WORKS.

3. TO PREVENT INJURY OR DEATH, USE A TRACTOR EQUIPPED WITH A ROLL-OVER PROTECTION STRUCTURE (ROPS) AND SEAT BELT. DO NOT PAINT OVER, REMOVE OR DEFACE ANY SAFETY DECALS ON YOUR EQUIPMENT. OBSERVE ALL SAFETY DECALS AND FOLLOW THE INSTRUCTIONS ON THEM.

4. REMEMBER! YOUR BEST INSURANCE IS A CAREFUL AND RESPONSIBLE OPERATOR. IF THERE IS ANY PORTION OF THIS MANUAL OR OF THE MACHINE'S OPERATION YOU DO NOT UNDERSTAND, CONTACT YOUR LOCAL AUTHORIZED LANDOLL DEALER, OR LANDOLL CORPORATION.

⚠ WARNING

1. DO NOT CLEAN, ADJUST OR SERVICE WHEN THE MACHINE IS IN MOTION.
2. ALL HYDRAULICALLY OR MECHANICALLY ELEVATED COMPONENTS MUST BE BLOCKED TO PREVENT ACCIDENTAL LOWERING OR MUST BE LOWERED TO THE GROUND WHEN ADJUSTMENTS OR REPAIRS ARE MADE.
3. PROPERLY TIGHTEN ALL MOUNTING HARDWARE. SEE BOLT TORQUE CHART.
4. PERIODICALLY INSPECT ALL MOVING PARTS FOR WEAR AND REPLACE WITH ONLY AUTHORIZED SERVICE PARTS IF ANY EXCESSIVE WEAR IS PRESENT. IF SAFETY DECALS ARE MISSING, ILLEGIBLE, OR DAMAGED, THEY SHOULD BE REPLACED.

⚠ CAUTION

1. WEAR PERSONAL PROTECTIVE EQUIPMENT (PPE) SUCH AS, BUT NOT LIMITED TO, PROTECTION FOR EYES, LUNGS, EARS, HEAD, HANDS AND FEET WHEN OPERATING, SERVICING OR REPAIRING EQUIPMENT. DO NOT WEAR LOOSE CLOTHING OR JEWELRY AS IT MAY ENTANGLE OR CATCH ON MOVING PARTS.
2. NEVER USE YOUR HANDS TO LOCATE A HYDRAULIC LEAK. USE A PIECE OF WOOD OR CARDBOARD. HYDRAULIC FLUID ESCAPING UNDER PRESSURE CAN PENETRATE THE SKIN CAUSING SERIOUS INJURY.
3. OPENINGS IN THE SKIN AND MINOR CUTS ARE SUSCEPTIBLE TO INFECTION FROM HYDRAULIC FLUID. IF INJURED BY ESCAPING FLUID, SEE A DOCTOR AT ONCE. WITHOUT IMMEDIATE MEDICAL TREATMENT, SERIOUS INFECTION CAN OCCUR.

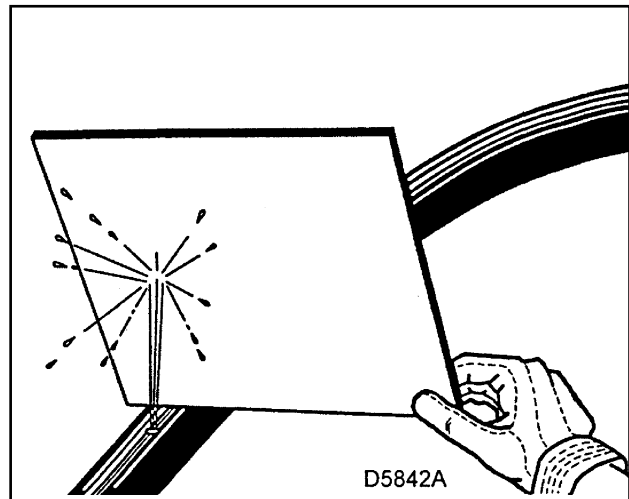


Figure 4-1 Hydraulic Leak Detection

⚠ CAUTION

1. COMPLY WITH YOUR STATE AND LOCAL LAWS GOVERNING HIGHWAY SAFETY, LIGHTING & MARKING, AND THE MOVEMENT OF FARM MACHINERY ON PUBLIC ROADS.
2. ALWAYS DRIVE AT A REASONABLE SPEED TO MAINTAIN CONTROL OF THE EQUIPMENT. DO NOT TOW AT SPEEDS IN EXCESS OF 20 MPH.
3. USE A SMV (SLOW MOVING VEHICLE) EMBLEM AT ALL TIMES.
4. USE APPROVED EXTREMITY LIGHTING AND WARNING DEVICES TO WARN OPERATORS OF OTHER VEHICLES ON THE HIGHWAY DURING TRANSPORT.
5. NEVER TRANSPORT MACHINE UNLESS HYDRAULIC SYSTEMS ARE COMPLETELY CHARGED WITH HYDRAULIC OIL AND THE TRANSPORT SAFETY LOCKS ARE ENGAGED.
6. PLAN YOUR ROUTE TO AVOID HEAVY TRAFFIC.
7. BE A SAFE AND COURTEOUS OPERATOR.
8. THE MINIMUM WEIGHT OF THE TOWING VEHICLE SHOULD BE AT LEAST EQUAL IN WEIGHT OF THE TOWED IMPLEMENT.

⚠ CAUTION

1. UTILIZE TRANSPORT CHAINS. THE TRANSPORT CHAIN SHOULD BE ADJUSTED SO THAT THE TONGUE OF THE TOWED MACHINE WILL NOT TOUCH THE GROUND IN CASE OF LOSS OR BREAKAGE OF THE HITCH ASSEMBLY OR PIN.
2. AVOID SHARP TURNS USING BRAKES. DRIVE SLOWLY OVER ROUGH GROUND, SIDE HILLS AND AROUND CURVES TO AVOID TIPPING.

⚠ CAUTION

1. ALWAYS SHUT OFF TRACTOR, SHIFT TO "PARK" POSITION (OR SHIFT TO NEUTRAL), SET BRAKES AND CYCLE HYDRAULIC LEVERS BEFORE DISMOUNTING TRACTOR OR WORKING AROUND THE MACHINE.
2. REMOVE TRACTOR START KEY WHEN TRACTOR AND IMPLEMENT WILL BE UNATTENDED.
3. NEVER LEAVE UNATTENDED EQUIPMENT IN THE UNLOCKED RAISED POSITION. LOWER THE UNIT TO THE GROUND OR USE TRANSPORT LOCKS.
4. DO NOT LEAVE TRACTOR OR IMPLEMENT UNATTENDED WITH TRACTOR ENGINE RUNNING.

⚠ DANGER

NEVER ALLOW ANYONE TO RIDE ON THIS EQUIPMENT.

WARNING

1. BE CERTAIN THE HYDRAULIC SYSTEM IS FULLY CHARGED WITH OIL BEFORE USE. AIR IN THE HYDRAULIC SYSTEM CAN RESULT IN UNCONTROLLED MOVEMENT OF THE WINGS DURING RAISING AND LOWERING OPERATIONS.

2. LOWER THE MACHINE TO THE GROUND, SHUT OFF HYDRAULIC SUPPLY AND RELIEVE ALL HYDRAULIC PRESSURE BEFORE DISCONNECTING HYDRAULIC LINES.

DANGER

1. CLEAR THE AREA OF BYSTANDERS BEFORE STARTING OPERATION.

2. STAY CLEAR OF THE FOLDING WINGS WHEN THEY ARE BEING RAISED OR LOWERED.

3. RAISED WINGS CAN CONTACT ELECTRIC UTILITY LINES AND OVERHEAD OBSTRUCTIONS. SEVERE SHOCK, INJURY, OR DEATH CAN RESULT. DRIVE CAREFULLY. MEASURE OVERALL TRANSPORT HEIGHT AND WIDTH TO ASSURE CLEARANCE.

4. BE SURE NO ONE IS BETWEEN THE TRACTOR AND THE IMPLEMENT WHILE THE TRACTOR IS BEING POSITIONED DURING THE HITCHING OPERATION.

CAUTION

1. KEEP SAFETY DECALS FREE OF DIRT AND GRIME.

2. MAKE SURE THE LIGHT HARNESS IS PROPERLY CONNECTED AND ALL THE LIGHTS ARE VISIBLE AND WORKING.

3. TURN ON FLASHING WARNING LIGHTS BEFORE DRIVING ON PUBLIC ROADS, EXCEPT WHEN PROHIBITED BY LAW.

4. MAKE SURE REFLECTORS ARE VISIBLE WHEN TRANSPORTING.

4-1 DECALS

4-1.1 The following decals are installed to alert operators to hazards in specific machine areas. The decals are for personal safety...
READ AND UNDERSTAND THE DECALS!

- a. Keep decals clean by wiping off regularly. Use a cleaning solution if necessary.
- b. Replace missing, damaged or painted over decals.

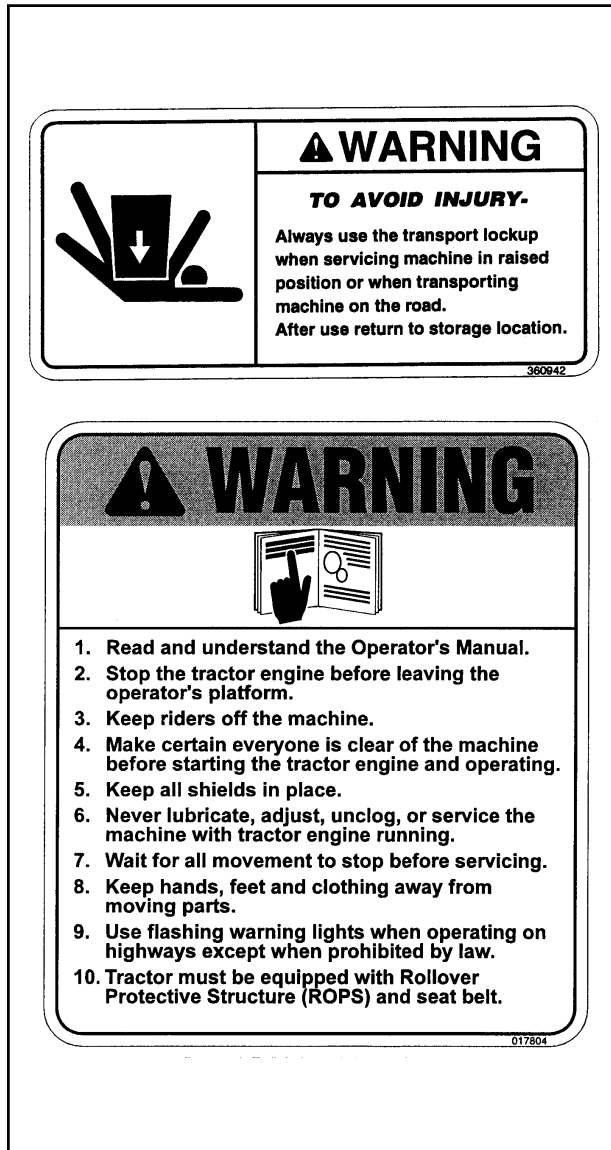


Figure 4-2 Decal P/N's 360942 and 017804

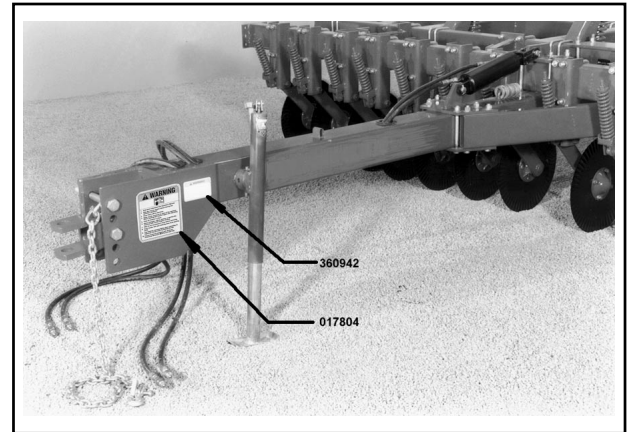


Figure 4-3 Decal Locations

4-2 ROCKSHAFT LOCKUP OPERATION

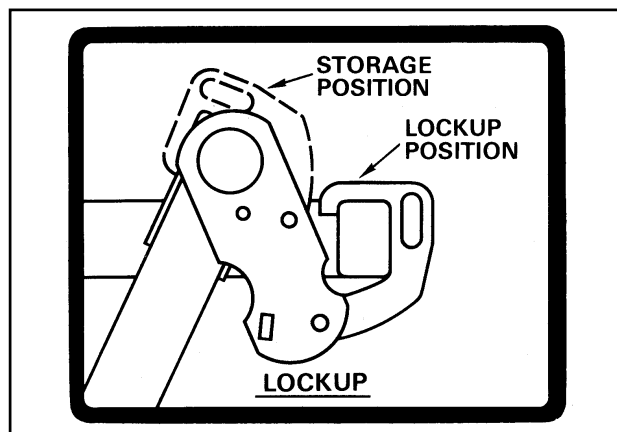


Figure 4-4 Decal P/N 360459

To install lockup:

- Raise implement to full height.
- Remove lockup from storage position and attach lockup to frame (**See Figure 4-5**).
- Insert lockup pin and install clip pin.
- Attach lockup to rockshaft in storage position when not in use (**See Figure 4-6**).

4-2.1 SMV Sign

- The sign is mounted on the rear bar left of the machine centerline (**See Figure 4-7**).

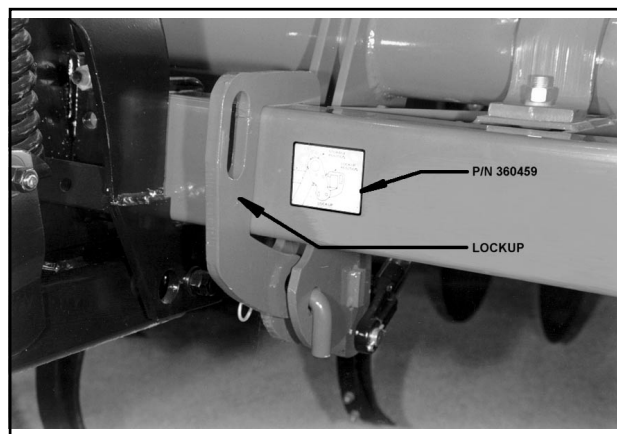


Figure 4-5 Lockup in Lockup Position

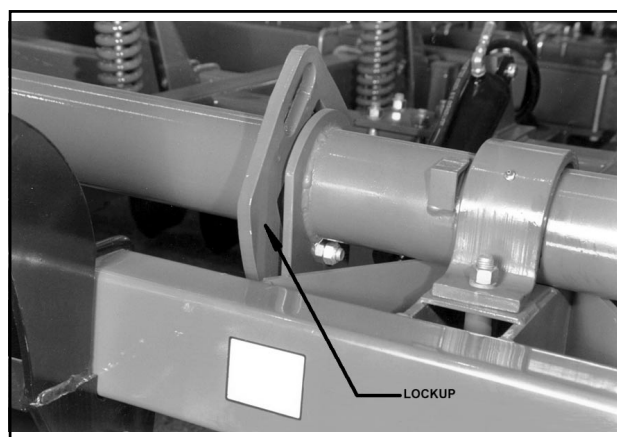


Figure 4-6 Lockup in Storage Position

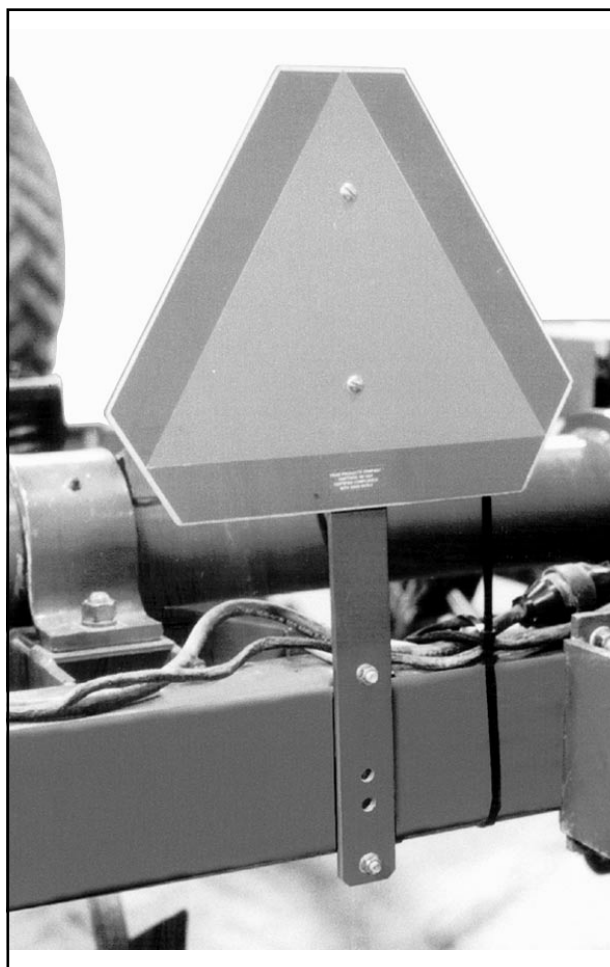


Figure 4-7 SMV Sign Mounting

4-3 TRACTOR PREPARATION

WARNING

DO NOT UNHITCH FROM TRACTOR WHILE IN THE RAISED POSITION. UNHITCHING THE MACHINE IN A RAISED POSITION COULD CAUSE THE FRONT OF THE MACHINE AND THE HITCH TO SPRING UPWARD POSSIBLY INJURING THE OPERATOR AND BYSTANDERS. ALWAYS STORE THE MACHINE IN THE LOWERED POSITION (SHOVELS RESTING ON THE GROUND).

4-3.1 Prior to attaching the implement the tractor should be prepared as follows:

- a. Check fluid level in the tractor hydraulic system reservoir. Additional fluid may be required after charging the chisel plow hydraulic circuits (**See Section 4-38.7**).
- b. Add front frame and wheel weights as needed to maintain stability on hillsides and when transporting the implement.
- c. Tractor tires should be inflated and ballast added according to the tractor operator's manual.
- d. Use a tractor with adequate horsepower. **See Section 2 for specifications.**

4-3.2 Drawbar

- a. If tractor is quipped with a swinging drawbar, lock drawbar in center position.
- b. Adjust tractor drawbar height to approximately 17" (45 cm) above ground, as measured from top of drawbar.

4-4 CHISEL PLOW PREPARATION

4-4.1 Before taking your implement to the field the following procedures should be done.

4-4.2 Check all hardware for proper tightness. When the machine is new the hardware should be checked every few hours of operation.

4-4.3 Replace any points (and wear strips on deep-till shanks) that are severely worn, broken, or damaged.

4-4.4 Check tires for proper inflation. Check the wheel lug bolts. (Torque to 80-95 ft.-lbs.)

4-4.5 Check hoses, fittings and cylinders for any fraying of hoses or leakage. Replace as required.

4-4.6 Lubricate the machine.

4-4.7 Never use your hands to locate a hydraulic leak. Use a piece of wood or cardboard. Hydraulic fluid escaping under pressure can penetrate the skin causing serious injury.

4-4.8 Openings in the skin and minor cuts are susceptible to infection from hydraulic fluid. If injured by escaping fluid, see a doctor at once. Without immediate medical treatment, serious infection can occur.

4-4.9 Hitch

- a. Initially adjust hitch to the approximate correct height before transporting the implement to the field. The implement hitch is adjustable to five different vertical positions to match tractor drawbar height.

Note: Final hitch height adjustment must be made in the field.

4-5 ATTACHING TO TRACTOR

4-5.1 Hitch

The implement is equipped with a combination clevis / tongue swivel hitch. For a tongue-type tractor drawbar, use the clevis hitch end. If the tractor has a clevis-type drawbar, use the tongue hitch end (See Figure 4-8).

WARNING

TO AVOID SERIOUS INJURY OR DEATH, STOP TRACTOR ENGINE, SHIFT TO PARK POSITION OR SHIFT TO NEUTRAL AND SET BRAKES BEFORE LEAVING TRACTOR.

Note: Relieve internal hydraulic system pressure before leaving tractor seat.

- a. Hitch tractor to implement with a 1" (25 mm) pin (*minimum diameter*). Secure pin in place with a clip pin.
- b. Remove jack and pin in storage position on top of hitch tube (See Figure 4-9).
- c. Connect hydraulic hoses for frame and disc cutter circuits to tractor couplers. Connect so when tractor lever is pulled rearward, implement raises.

IMPORTANT

THOROUGHLY CLEAN HOSE COUPLERS AND TRACTOR COUPLINGS BEFORE CONNECTING HOSES.

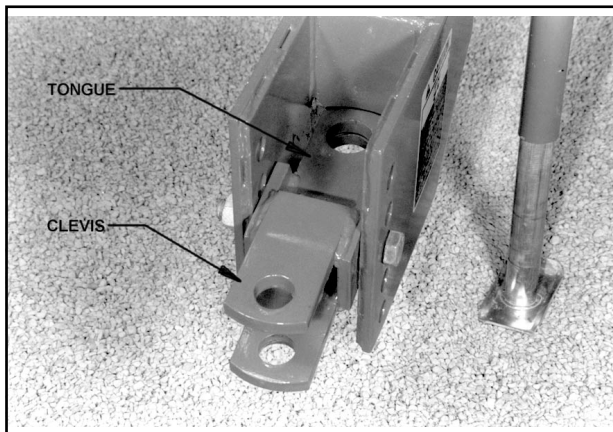


Figure 4-8 Combination Swivel Hitch

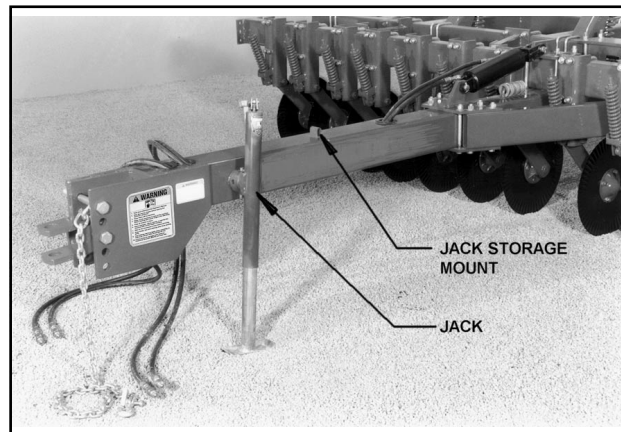


Figure 4-9 Implement Hitch

4-5.2 Transport Safety Chain

- a. Attach transport safety chain to chisel plow hitch with 1" x 8½" bolt furnished with machine bundle. Tighten bolt securely (See Figure 4-10).
- b. Attach chain clevis to tractor drawbar with bolt and locknut furnished in chain bundle.
- c. Thread chain through clevis, then attach chain around tractor drawbar frame. Adjust chain slack to allow chisel plow to turn (See Figure 4-11).

- d. Connect chain hook and secure with latch.

WARNING

ALWAYS USE TRANSPORT SAFETY CHAIN WHEN TRANSPORTING IMPLEMENT. FAILURE TO DO SO COULD CAUSE SERIOUS PERSONAL INJURY AND MACHINE DAMAGE IF IMPLEMENT BECOMES UNHOOKED FROM TOWING VEHICLE.

4-6 PURGING THE HYDRAULIC SYSTEM

Purge the air from the hydraulic system before going to the field:

- a. Hold tractor hydraulic control lever in "open" position a few seconds after implement is fully raised.
- b. Lower implement and hold lever in "closed" position a few seconds after implement is fully lowered.

WARNING

RECHECK FLUID LEVEL IN TRACTOR RESERVOIR AFTER PRIMING HYDRAULIC SYSTEM. FAILURE TO DO SO CAN RESULT IN PERSONAL INJURY AND / OR DAMAGE TO TRACTOR OR IMPLEMENT. ADD FLUID AS REQUIRED.

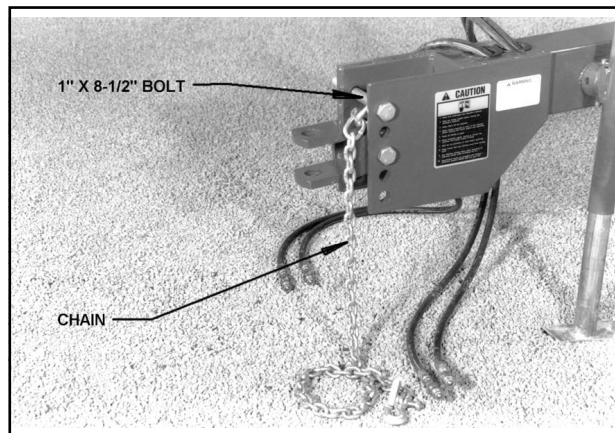


Figure 4-10 Transport Safety Chain

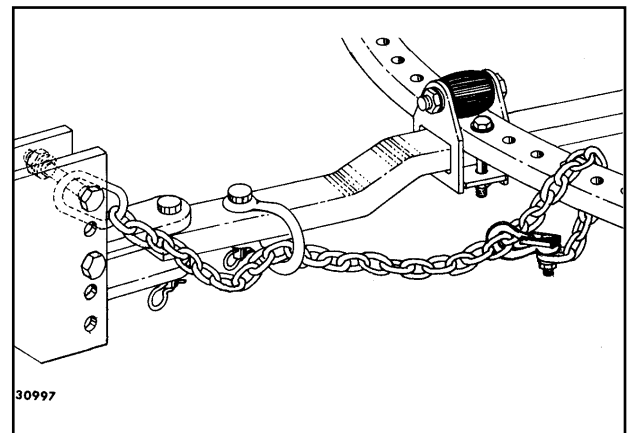


Figure 4-11 Transport Safety Chain Attached

4-7 UNHITCHING FROM TRACTOR

WARNING

TO AVOID SERIOUS INJURY OR DEATH, STOP TRACTOR ENGINE, SHIFT TO PARK POSITION OR SHIFT TO NEUTRAL AND SET BRAKES BEFORE UNHITCHING.

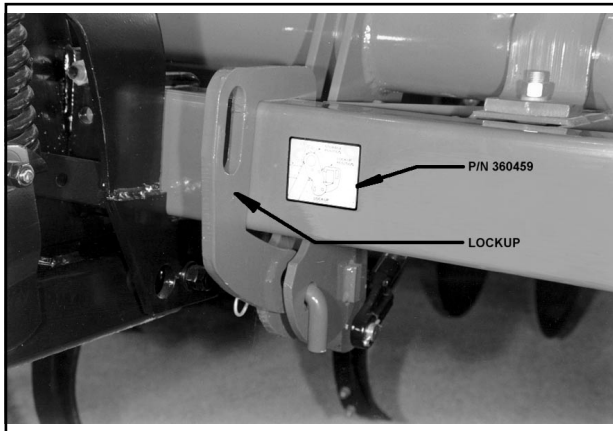


Figure 4-12 Lockup in Lockup Position

4-7.1 Chisel Lowered

IMPORTANT

TO PREVENT CHISEL POINT DAMAGE, DO NOT LOWER CHISEL ON CONCRETE OR ROCKS.

- a. Choose a level area to unhitch. Lower chisel plow to ground.
- b. Using tractor control lever, relieve pressure in hydraulic system.
- c. Disconnect hydraulic hoses and install coupler dust caps.
- d. Install jack. Remove transport safety chain and hitch pin.
- e. Perform "End of Day" service as outlined in the SERVICE Section.

4-7.2 Chisel Raised

- a. Choose a level area to unhitch.
- b. Install lockup on rockshaft and secure with L-pin and cotter pin (**See Figure 4-12**).
- c. Securely block wheels.
- d. Follow **Section 4-7.1., steps b. - e.**

4-8 FOLDING AND UNFOLDING WINGS

- 4-8.1** To fold or unfold the wings on folding models, turn the selector valve to “WING FOLD” position.

WARNING

TO AVOID SERIOUS INJURY OR DEATH, STOP TRACTOR ENGINE, DIS-ENGAGE PTO, SHIFT TO PARK POSITION OR SHIFT TO NEUTRAL AND SET BRAKES BEFORE LEAVING TRACTOR.

- 4-8.2** Start the tractor and operate the valve controlling the disc cutter frame to raise or lower the wings.
- 4-8.3** After wings are folded or unfolded, return the selector valve to the original position, allowing independent control of the disc cutter frame.

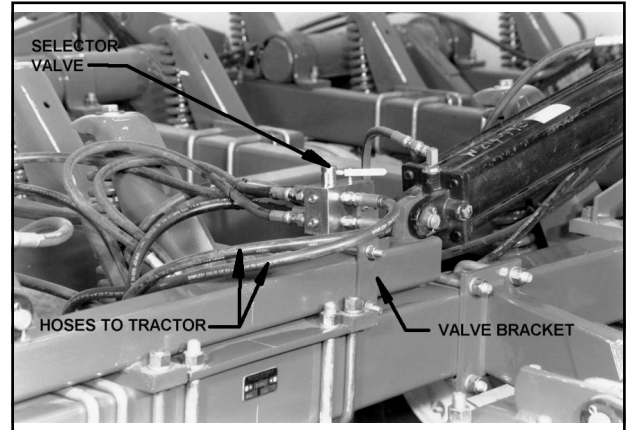


Figure 4-13 Selector Valve

- 4-8.4** Allow the wings to fully rest on wing frame stands when folded.

4-9 DEPTH CONTROL (ALL MODELS - MAIN AND CUTTER FRAMES)

- 4-9.1** When desired depth is attained, add stop collars to the main frame lift cylinder rod so the implement will return to the same depth each time it is lowered. Install the thickest collar nearest the cylinder. Store remaining collars on storage racks.

- 4-9.2** Use the same procedure for regulating cutter frame depth.

Note: Stop collars are not used on main frame or cutter frame *wing cylinders*.

- 4-9.3** An electronic depth control system is available as an option (see OPTIONS Section). An operator's manual is included with the depth control bundle. See your dealer for additional information.

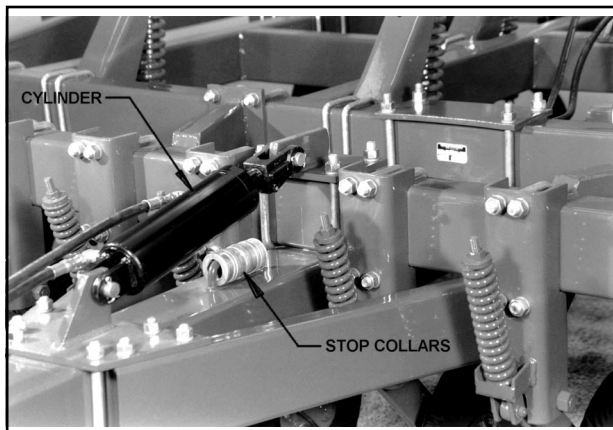


Figure 4-14 Cutter Frame Cylinder

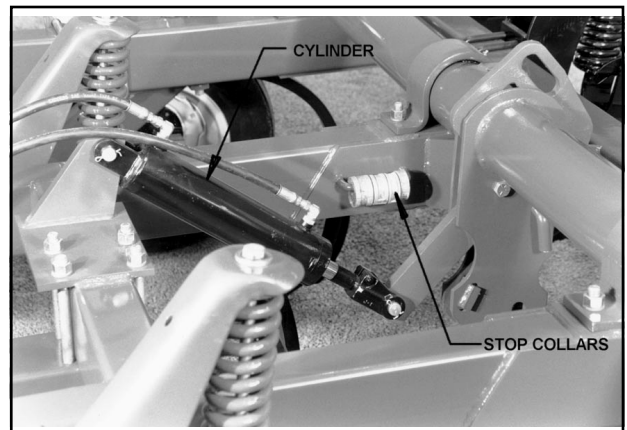


Figure 4-15 Main Frame Lift Cylinder

4-10 LIFT CYLINDER OPERATION (FOLDING MODELS)

- 4-10.1** The master lift cylinder and wing slave cylinders should extend and retract equally to maintain the same depth. To ensure equal stroke length, occasionally hold the tractor depth control lever in raise position for a few seconds after raising the implement.

Note: The procedure can be conveniently performed when the implement is raised while making a turn.

4-11 CHISEL PLOWING

4-11.1 General

- a. The chisel plow loosens the soil to the desired depth, allowing water penetration into the soil. During the winter, the ground will freeze deeper and “weather out” much faster.
- b. Chisel plowing leaves a mulch and residue cover on the surface, preventing soil surface sealing. Water will be absorbed quickly into the soil, reducing runoff, evaporation and soil erosion. The residue cover also reduces wind erosion.

4-11.2 Operating Tips

- a. To retard downhill water movement on slopes, start at the bottom of the slope and work upwards, parallel to the bottom.

- b. Chisel the field at an angle to the rows to break up the ridges.

4-11.3 Operating Speed

- a. The chisel works best when operated at a relatively fast speed; 5 mph or faster. If field conditions are adverse, operate at a slower speed to reduce the possibility of implement damage.
- b. If field conditions are too rough to operate at high speed at the desired depth, make two passes at an angle to each other. Make the first pass shallower than the second pass.

4-11.4 Turning Corners

IMPORTANT

WHEN MAKING SHARP TURNS, ALWAYS RAISE CHISEL SHANKS AND DISC CUTTERS OUT OF GROUND. SHARP TURNS APPLY EXTREME SIDE LOADS ON SHANKS, DISC CUTTERS AND FRAME MEMBERS, AND CAN CAUSE SERIOUS IMPLEMENT DAMAGE.

4-12 DISC CUTTER OPERATION

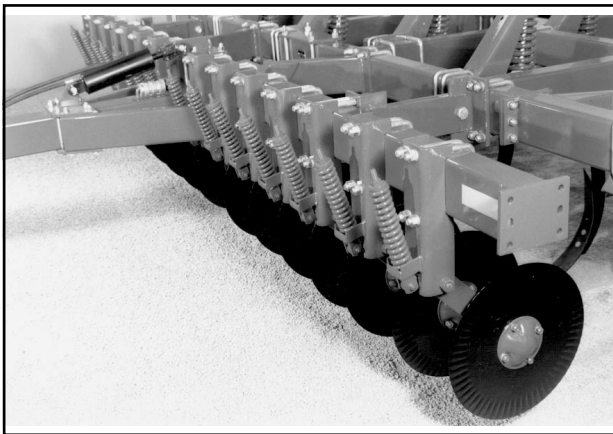


Figure 4-16 Disc Cutters

4-12.1 General

- a. The disc cutters are used for cutting stalks and residue. If stalk and residue cutting is not required, fully raise the disc frame and use the implement solely as a chisel plow.

Note: It is not necessary to raise disc cutter frame when raising main frame to turn corners.

4-13 MEASURING CROP RESIDUE (LINE-TRANSECT METHOD)

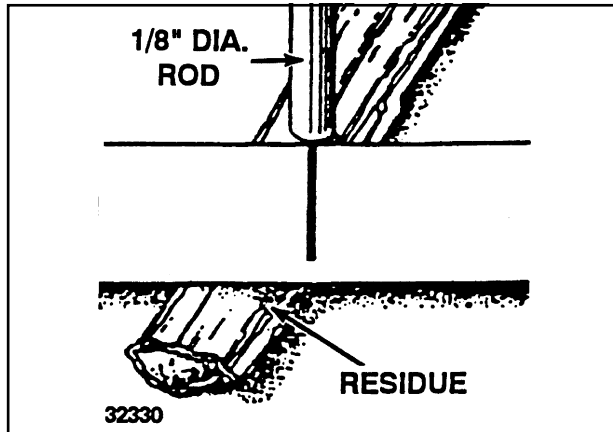


Figure 4-17 Mark On Residue

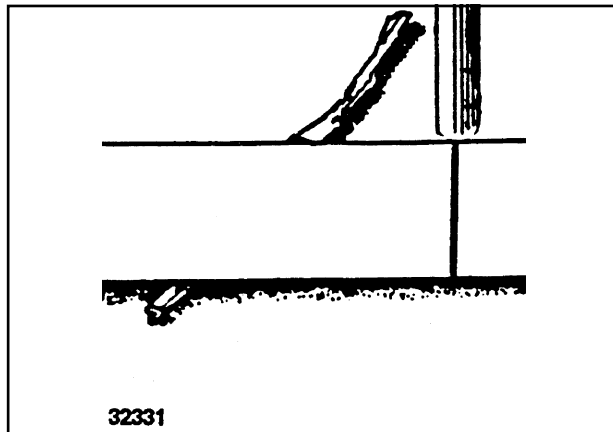


Figure 4-18 Mark Off Residue

Use the following procedure to determine the percentage of residue on the field.

4-13.1 Select a measuring tool:

- 100' tape
- 100' rope or string marked at 1' intervals
- 50' tape
- 50' rope or string marked at 6" intervals

4-13.2 Stretch measuring tool (tape/rope/string) diagonally (30° - 45°) across crop rows, covering two or more implement passes.

4-13.3 Look directly down on same side of measuring tool at each mark without moving tool.

- Count all pieces of residue, $\frac{1}{8}$ " diameter or larger, under each mark (See Figures 4-17 and 4-19).
- Do not count residue pieces smaller than $\frac{1}{8}$ " diameter or pieces not under marks (See Figures 4-18 and 4-19).

Note: To effectively reduce erosion, residue pieces must be large enough ($\frac{1}{8}$ "") to dissipate raindrop energy during an intense storm. Use $\frac{1}{8}$ " diameter welding rod for visual comparison.

4-13.4 Repeat procedure at least two more times and average three figures for final count.

4-13.5 Calculate percentage residue:

4-13.6 100' tape/rope/string: Each 1' mark = 1%

Example: Avg. count of 36 = 36%.

- 50' tape: Each 1' mark = 2%

Example: Avg. count of 15 = 30%

- 50' rope/string: Each 6" mark = 1%

Example: Avg. count of 33 = 33%.

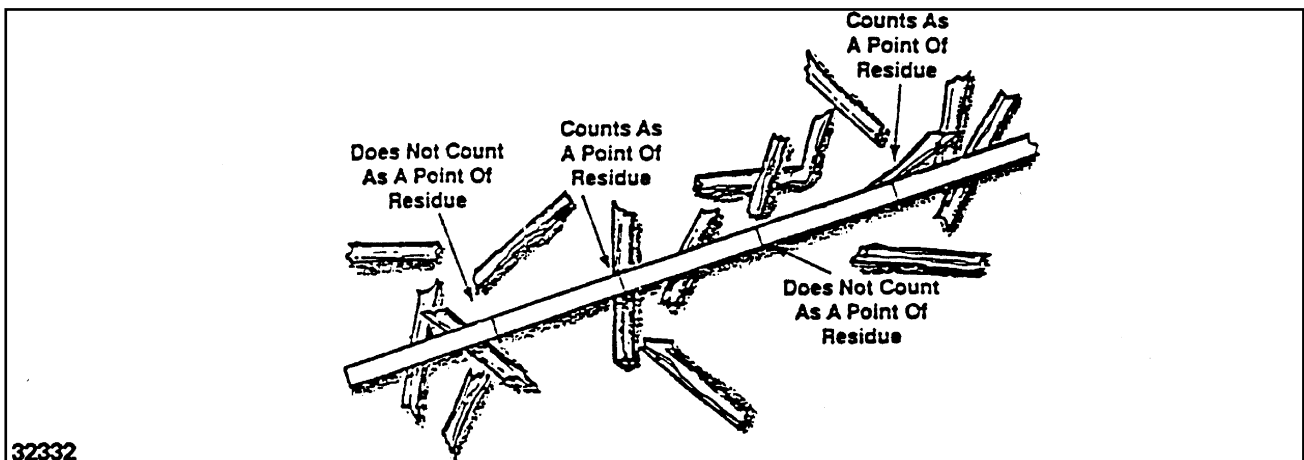


Figure 4-19 Counting Procedure

4-14 LEVELING THE CHISEL PLOW



Figure 4-20 Hitch

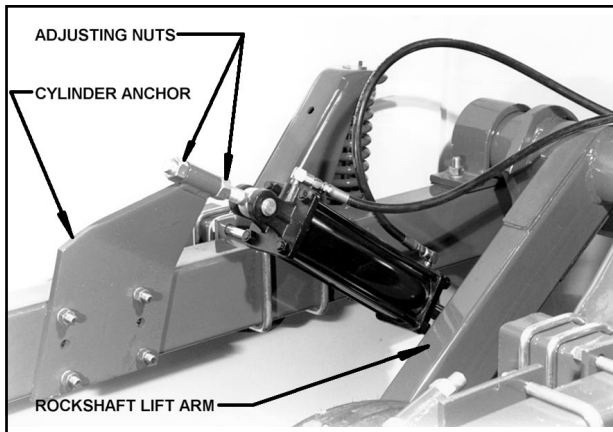


Figure 4-21 Main Frame Wing Leveling Adjustment

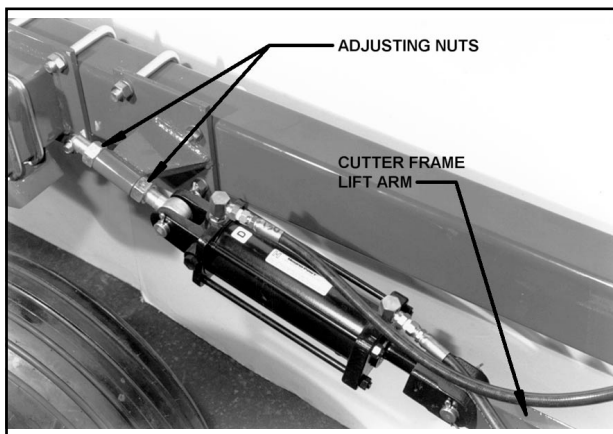


Figure 4-22 Cutter Frame Wing Leveling Adjustment

4-14.1 All Models

- a. With the rockshaft lockup in storage position, drive the tractor forward and lower the implement into the ground. When the chisels are at the approximate desired depth, check that the frame is level and the chisels are at a uniform depth.

WARNING

TO AVOID SERIOUS INJURY OR DEATH, STOP TRACTOR ENGINE, SHIFT TO PARK POSITION OR SHIFT TO NEUTRAL AND SET BRAKES BEFORE MAKING ADJUSTMENTS.

- b. If the frame is not level (front-to-rear), raise the implement out of the ground and raise or lower the hitch. Lower the implement into the ground as before to ensure the frame is level.

4-14.2 Wing Models

- a. If the main frame folding wings are not level, adjust the main frame cylinder anchor eyebolt nuts accordingly (**See Figure 4-21**).
- b. If the cutter frame wings are not level, adjust the cutter frame cylinder anchor eyebolt nuts accordingly (**See Figure 4-22**).

Note: If the implement cannot be leveled, see the troubleshooting guide in the **SERVICE** Section.

4-15 GAUGE WHEELS

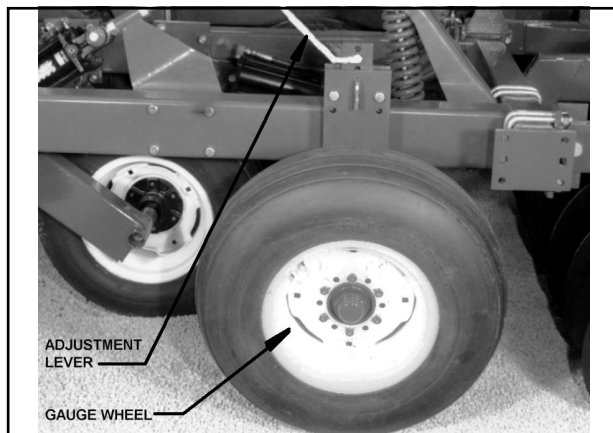


Figure 4-23 Gauge Wheel



Figure 4-24 Adjustment Lever Storage

4-15.1 Folding Models

The gauge wheels provide implement stability for the larger models.

With the implement fully lowered, position the wheels to just touch the ground:

- a. Use gauge wheel adjustment lever (both sides), to raise wheels same distance above ground level as desired chisel working depth (**See Figure 3-27**).

Note: Be sure main frame, wing and cutter frames are level.

- b. Operate implement and watch gauge wheel action. Wheels may continuously contact ground at times and free-wheel at other times.
- c. When not in use, attach lever to gauge wheel bracket and pin in place (**See Figure 4-24**).

4-16 DISC CUTTERS

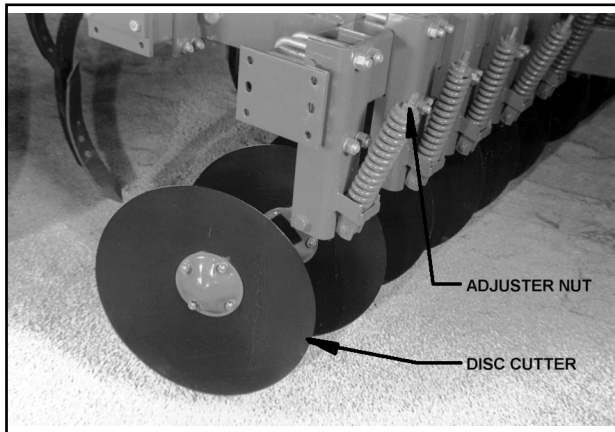


Figure 4-25 Concave Disc Coulter Cutters

4-16.1 For optimum performance, each disc cutter should be in line with one of the shanks, except the center shank. If necessary, adjust the disc cutter spacing on the frame to obtain correct alignment.

4-16.2 Disc cutter spring tension is increased or decreased by turning the adjuster nut at the top of each spring. Correct tension is attained when the discs stay in the ground during operation. Adjust all springs equally (See Figure 4-25).

IMPORTANT

DO NOT FULLY TIGHTEN SPRINGS. COILS MUST HAVE GAP, ALLOWING CUTTERS TO PIVOT.

4-17 SPRING CUSHION CLAMPS (STANDARD SHANKS)

4-17.1 The standard shanks are equipped with spring cushion clamps. Spring tension is set at the factory and is not adjustable. The setting is for optimum shank and frame protection (See Figure 4-26).

Operating Note: Maintain an operating depth so the spring retaining bolt does not continually protrude above the spring support.

4-18 AUTO-RESET CLAMPS (DEEP-TILL SHANKS)

4-18.1 The optional deep-till shanks are equipped with auto-reset clamps. If an object is struck and the shank trips while chiseling, the shank automatically resets without stopping forward movement.

4-18.2 Spring tension is set at the factory providing a trip force of 2800 lb.

- a. Remove one washer from under the adjustment nut to increase the force to 2900 lb (See Figure 4-27).

- b. Remove a second washer to increase the force to a maximum of 3000 lb.

IMPORTANT

DO NOT EXCEED 3000 LB. TRIP FORCE TO PREVENT SHANK DAMAGE.



Figure 4-26 Spring Cushion Clamp (Std Shank)

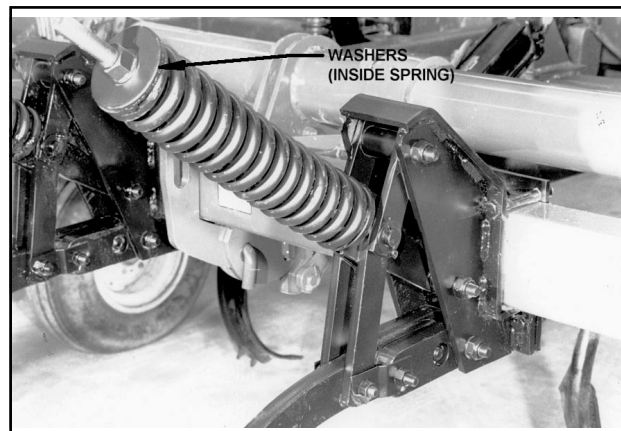


Figure 4-27 Auto-Reset Clamp

4-19 GENERAL MAINTENANCE

4-19.1 Beginning Of Day

- a. Perform daily lubrication.
- b. Check and adjust tire pressure:
9.5 L-15, 6-ply; 36 psi (250 kPa)
- c. Check hydraulic hose routing to be sure hoses are not kinked, twisted or rubbing sharp edges.
- d. Check for and tighten any loose U-bolts holding spring clamps to frame. See Torque Chart at end of SERVICE section.

4-19.2 End of Day

- a. Clean dirt and residue from implement.
- b. Check for and repair any equipment damage.
- c. Check for and correct hydraulic hose and fitting leaks.
- d. If implement will be unused for period of time, coat all cylinder rods and soil-contacting surfaces with a suitable rust preventative.

4-19.3 Beginning of Season

- a. Perform end-of-season lubrication.
- b. Check and adjust tire pressure.
- c. Tighten all loose bolts, U-bolts and L-bolts.
- d. Check torque settings on spring cushion clamps and disc cutters.

4-19.4 End of Season

- a. Clean all dirt and residue from implement.
- b. Repair or replace any damaged parts.
- c. Inspect all hydraulic fittings and hoses for leaks, cracks and abrasions. Repair or replace as required. Use thread sealant on all fittings.
- d. Clean and paint all areas where paint is chipped or worn away.
- e. Replace missing or damaged decals.
- f. Coat all cylinder rods and soil-contacting surfaces with a suitable rust preventative.
- g. Lubricate implement.
- h. Check and adjust tire pressure.
- i. Store implement in a clean, dry area away from livestock.
- j. Lower implement with wooden blocks under chisels and disc cutters to keep off concrete floors or bare ground.
- k. Park implement in level position so all chisels and cutters support weight of implement.
- l. If parked in raised position, engage frame lockup and securely block wheels.

4-20 LUBRICATION

4-20.1 Lubricate the implement according to **Table 4-1**. Be sure to:

- a. Clean paint and dirt from all grease fittings before attaching grease gun.
- b. Replace broken or missing fittings.

Fig.*	Item	Grease Fittings	8 Hours (Daily)	40 Hr. (Weekly)	200 Hr.	Beginning of Season	End of Season
4-28	Rockshaft Bearings	1 ea.					
4-30	Wheels	1 ea.					
4-29	Walking Beams	1 ea.					
4-31	Disc Cutter Pivots	1 ea.					
4-31	Disc Cutter Hubs	1 ea.					



Lubricate with pressure gun using SAE multi-purpose grease.

Table 4-1 Lubrication Chart

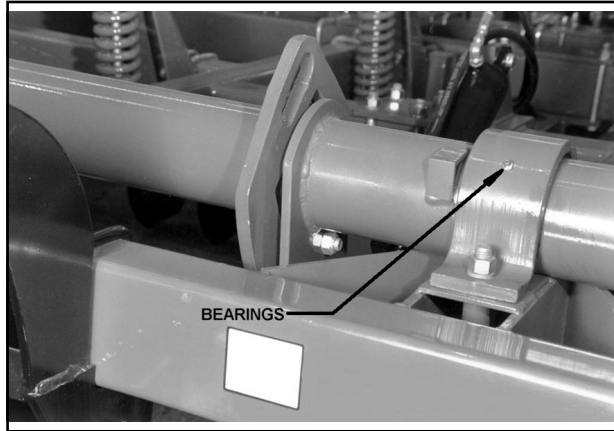


Figure 4-28 Rockshaft

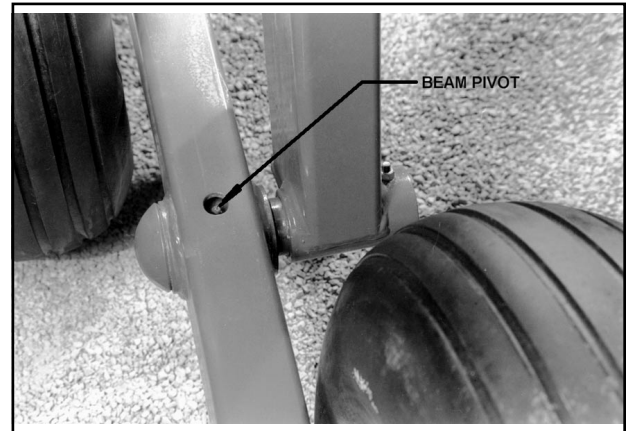


Figure 4-29 Walking Beams

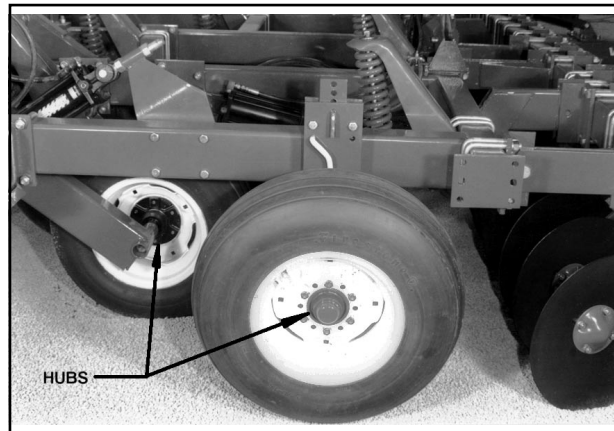


Figure 4-30 Wheels

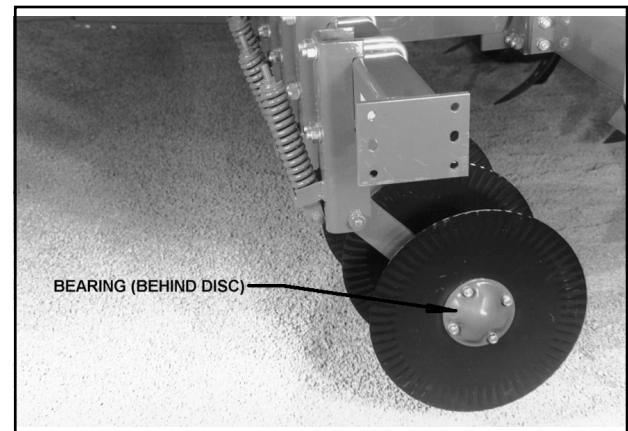


Figure 4-31 Disc Cutters

4-21 BOLT TORQUE CHECKING INTERVALS

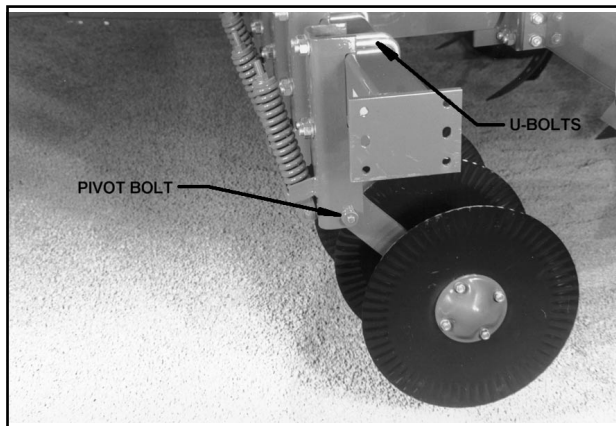


Figure 4-32 Disc Cutter

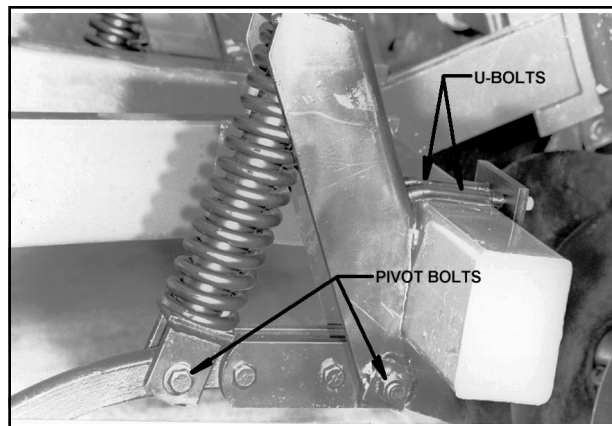


Figure 4-33 Spring Cushion Clamp

DISC CUTTER TORQUE CHECK	First 8 Hr.	First 40 Hr.	First 250 Hr.	Beginning of Season	Periodically
Pivot Bolt Bevel Nut	X	X		X	X
U-Bolts	X		X	X	X

SPRING CUSHION TORQUE CHECK	First 8 Hr.	First 40 Hr.	First 250 Hr.	Beginning of Season	Periodically
Pivot Bolt Locknut	X	X		X	X
U-Bolts	X			X	X

4-22 COULTER CUTTERS

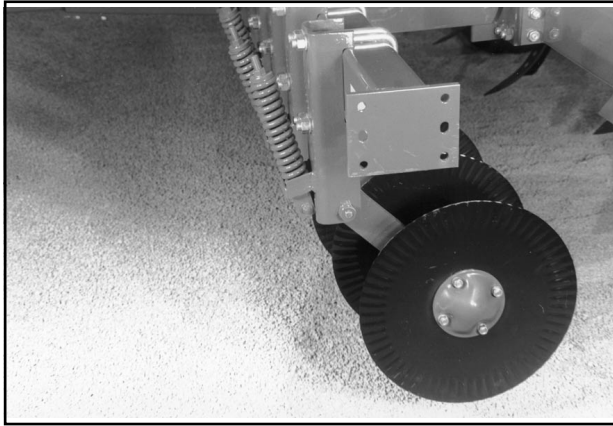


Figure 4-34 Rippled Disc Coulter Cutters

4-22.1 Cutters with 22" diameter concave discs are standard equipment. The discs cut aggressively and mix residue with worked soil.

4-22.2 Rippled disc coulters 20" in diameter are available for loosely working the soil with minimal surface residue loss (See **Figure 4-34**).

4-22.3 Disc coulter down pressure is adjusted by tightening or loosening spring pressure. See the ADJUSTMENTS Section.

4-23 LEVELING BAR

4-23.1 The leveling bar knocks down soil ridges, providing a smoother field finish. Optional straight, spike-type teeth can be added to the bar if desired.

4-23.2 Four holes allow vertical adjustment (See **Figure 4-35**). To change, remove the clip pin and pivot pin, and relocate as desired.

4-23.3 To adjust down pressure, change the chain length between the springs and chain attachment bolt.

4-24 DEEP-TILL SHANKS

4-24.1 Deep-till shanks are available to replace the standard shanks **on the rear bar of rigid frame implements only** (See **Figure 4-36**). The shanks reduce compaction problems by shattering the soil 4" (102 mm) below the standard chisel shanks.

4-24.2 The shanks are equipped with automatic reset clamps, allowing non-stop field operation.

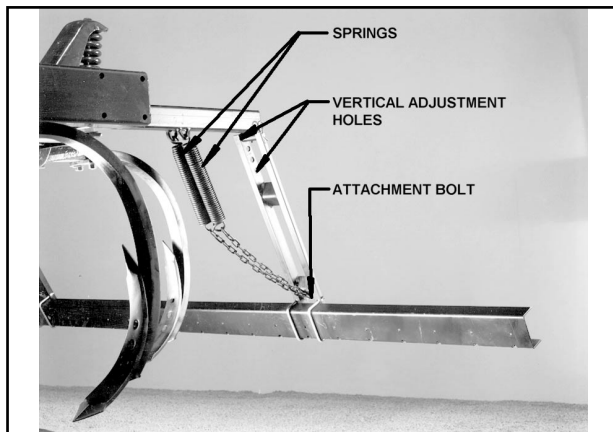


Figure 4-35 Leveling Bar



Figure 4-36 Deep-Till Shank

4-25 DEPTH CONTROL SYSTEM



Figure 4-37 Depth Control System Console

4-25.1 The DCS 3000 Depth Control System allows automatic or manual depth control of towed implements (**See Figure 4-37**). An operator's and installation instruction manual is included with the system bundle.

4-26 POINTS FOR SHANKS

4-26.1 Two types of points are available for the standard shanks (**See Figure 4-38**):

- Straight points for minimum residue disturbance
- Twisted points for incorporating some residue

Note: Install an equal number of right and left twisted points. **See Basic Setup Assembly Instructions, #2PD654399** for point location.

4-26.2 Two points and shank wear strip combinations are available (**See Figure 4-39**):

- Flow points and beveled wear strips for minimum residue disturbance.
- Flat points with flat wear strips for incorporating some residue.

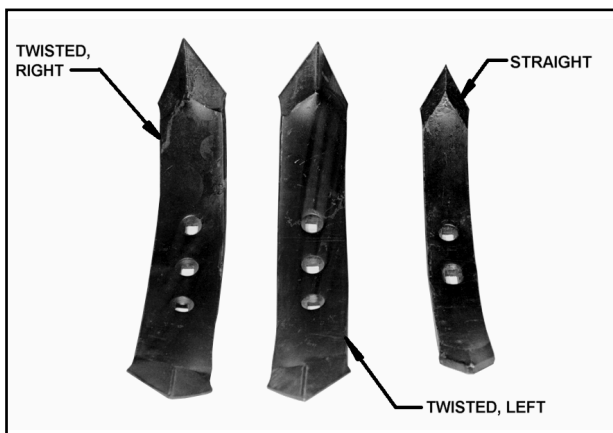


Figure 4-38 Points for Standard Shanks

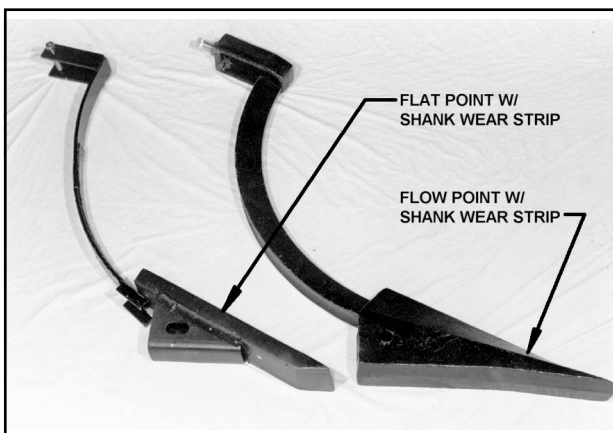


Figure 4-39 Points for Deep-Till Shanks

4-27 REAR BAR SHANK EXTENSIONS

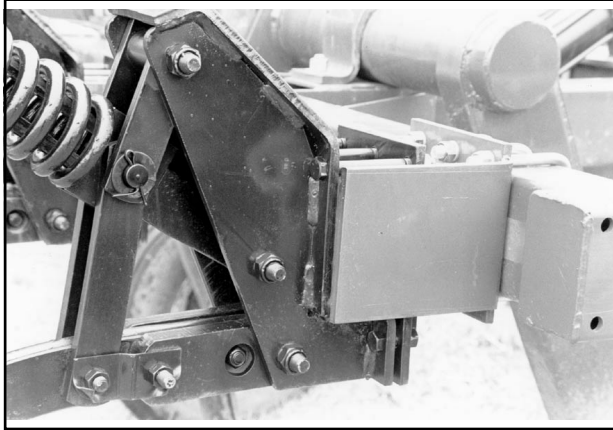


Figure 4-40 Rear Bar Shank Extension

4-27.1 Extensions move standard or deep-till shanks on the rear bar 10" rearward for improving material flow in high-residue conditions (**See Figure 4-40**).

NOTES

TROUBLESHOOTING GUIDE

5

The Troubleshooting Guide, shown below, is included to help you quickly locate problems that can happen using your 1230 Coulter Chisel. Follow all safety precautions stated in the previous when making any adjustments to your machine.

PROBLEM	PROBABLE CAUSE:SOLUTION
1. POOR PENETRATION	A. MAIN FRAME NOT LEVEL: Level frame. B. GROUND TOO HARD: Make multiple passes through field. C. WRONG CHISEL TOOL POINT: Select correct point. D. TIRES INFLATED UNEQUALLY: Inflate to correct pressure. E. MALFUNCTIONING DEPTH CONTROL CYLINDER: Repair cylinder or hydraulic system. F. WORN POINTS: Replace points as necessary
2. TRACTOR WHEELS SLIPPING	A. INSUFFICIENT REAR WHEEL: Add weight as required. B. FIELD TOO WET: Wait until field is dry. C. TRACTOR FRONT END UNSTABLE: Add front end weights as required.
3. CHISEL PLOW RUNNING CROOKED	A. PLOW NOT LEVEL SIDE-TO-SIDE: Inflate tires to equal and correct pressure. B. UNBALANCED TWISTED SHOVEL ARRANGEMENT: Install number of RH and LH twisted shovels. C. POINTS INCORRECTLY SPACED: Space points evenly.
4. TRASH PLUGGING	A. INCORRECT POINT SPACING: Space points evenly. B. POINTS PLUG AT WHEELS: Move stub extensions and points away from wheels.

NOTES:



Intertek

Equipment from Landoll Corporation is built to exacting standards ensured by ISO 9001 registration at all Landoll manufacturing facilities.

Model 1230 Series
Coulter Chisel
Operator's Manual

Re-Order Part Number F-319-0501

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