



MORRIS

Seeding, Tillage and Haying Solutions

Concept 2000 Tillage

OPERATOR'S Manual

C26314-08

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Section 1: Safety

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Safety

SAFETY-ALERT SYMBOL



Watch for this symbol. It identifies potential hazards to health or personal safety. It means:

ATTENTION - BE ALERT.
Your Safety is involved.

Familiarize yourself with the location of all decals. Read them carefully to understand the safe operation of your machine.

Signal Words

The words **DANGER**, **WARNING** or **CAUTION** are used with the safety alert symbol. Learn to recognize the safety alerts, and follow the recommended precautions and safe practices.

Three words are used in conjunction with the safety-alert symbol:



DANGER

Indicates an imminently hazardous situation that, if not avoided, will result in **DEATH OR SERIOUS INJURY**.



WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in **DEATH OR SERIOUS INJURY**.



CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in **MINOR OR MODERATE INJURY**.

Replace any **DANGER**, **WARNING**, **CAUTION** or instructional decal that is not readable or is missing. The location and part number of these decals is identified later in this section of the manual.

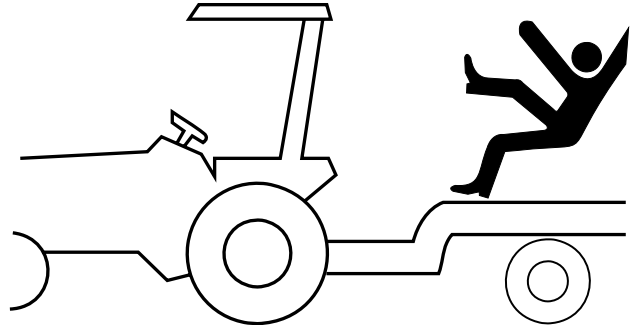
The words **Important** and **Note** are not related to personal safety but are used to give additional information and tips for operating or servicing this equipment.

IMPORTANT: Identifies special instructions or procedures which, if not strictly observed could result in damage to, or destruction of the machine, process or its surroundings.

NOTE: Indicates points of particular interest for more efficient and convenient repair or operation.

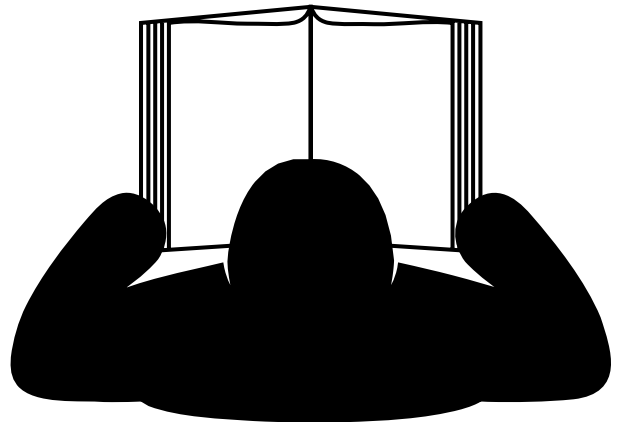
General Operation

- **DO NOT RIDE!!** Do not allow riders on the implement when in motion.
- Do not allow extra riders in the tractor unless an instructor seat and seat belt are available.
- **Check behind** when backing up.
- **Reduce speed** when working in hilly terrain.
- Never allow anyone within the immediate area when operating machinery.
- **Stand clear** when raising or lowering wings.
- **Keep all shields in place**, replace them if removed for service work.



Tractor Operation

- Be aware of the correct tractor operating procedures, when working with implements.
- Review tractor operator's manual.
- Secure hitch pin with a retainer and lock drawbar in centre position.



Safety

Chemicals

- **Use extreme care** when cleaning, filling or making adjustments.
- **Always read** granular chemical or treated seed manufacturer's warning labels carefully and remember them.
- Wear close fitting clothing and appropriate personal protective equipment for the job as specified by the chemical and/or seed manufacturer.
- **Always wear** safety goggles, breathing apparatus and gloves when handling with granular chemical or treated seed.
- **Do not feed** any treated seed to livestock. Treated seed is poisonous and may cause harm to persons or livestock.
- **Wash exposed skin immediately** - do not leave chemicals on your skin.
- **Properly store** chemicals in original containers with labels intact per the manufacturer's instructions.
- Always follow the manufacturer's operating instructions and warning labels when operating an ammonia tank with the equipment.
- **Do Not enter Air Cart tank unless another person is present and the tractor engine has been shut off.**



Danger

Failure to comply may result in death or serious injury.

Read Operator's Manual and decals on **Ammonia** tank before operating Air Cart. Become familiar with all warnings, instructions, and controls.

Always wear gloves and goggles when transferring or handling ammonia.

Always stay clear of hose and valve openings.

Always be sure pressure is relieved before disconnecting hoses or parts.

Always secure connecting parts and safety chains before towing ammonia trailer.

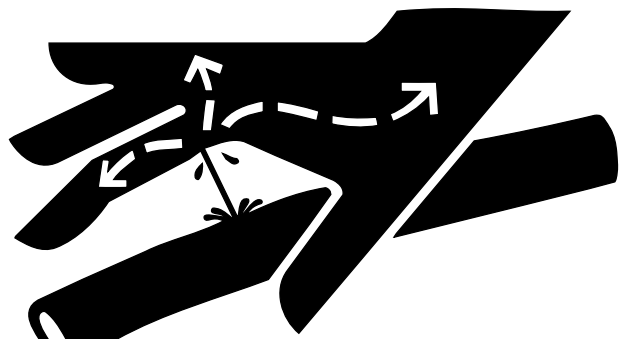
Always have ample water available in case of exposure to ammonia liquid or gases.

Transporting

- **Be aware** of the height, length and width of implement. Make turns carefully and be aware of obstacles and overhead electrical lines.
- Always travel at a safe speed. Do Not Exceed 20 M.P.H. (32 kph).
- Use an agricultural tractor that is large enough with sufficient braking capacity so that the weight of the loaded equipment towed **does not exceed 1.5 times** the weight of the tractor.
- Use flashing amber warning lights, turn signals and SMV emblems when on public roads.
- Do not transport in poor visibility.
- The slow moving vehicle (SMV) emblem and reflectors must be secured and be visible on the machine for transport.
- Avoid soft surfaces, the additional wing weight on the centre wheels could cause the machine to sink.
- Ensure safety chain is attached correctly to the towing vehicle and the hitch of the implement.
- Check that wings are firmly seated in transport wing stops, and lock pins installed.
- Secure transport locks on depth control cylinders.
- Be familiar with and adhere to local laws.

Hydraulics

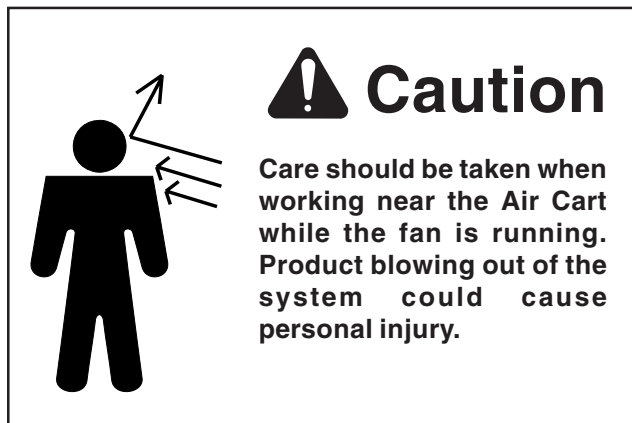
- **Do not** search for high pressure hydraulic leaks without hand and face protection. A tiny, almost invisible leak can penetrate skin, thereby requiring immediate medical attention.
- Use cardboard or wood to detect leaks - never your hands.
- Double check that all is clear before operating hydraulics.
- **Never** remove hydraulic hoses or ends with machine elevated. Relieve hydraulic pressure before disconnecting hydraulic hoses or ends.
- Maintain proper hydraulic fluid levels.
- Keep all connectors clean for positive connections.
- Ensure all fittings and hoses are in good condition.
- Do not stand under wings.



Safety

Maintenance


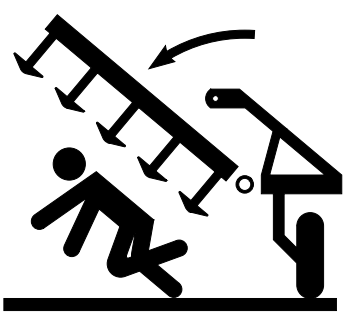
- **Shut tractor engine off** before making any adjustments or lubricating the machine.
- **Block** machine securely to prevent any movement during servicing.
- Wear close fitting clothing and appropriate personal protective equipment for the job.
- **Always wear** safety goggles, breathing apparatus and gloves when working on seeder filled with granular chemical or treated seed per the manufacture's instructions.
- Do not modify the machine.





Storage

- Store implement away from areas of main activity.
- Level implement and block up securely to relieve pressure on jack.
- Do not allow children to play on or around stored implement.

Safety Signs

 <h1>DANGER</h1> <ul style="list-style-type: none">• WINGS MAY FALL RAPIDLY CAUSING BODILY INJURY.• ALWAYS STAY CLEAR OF FOLDING WINGS WHEN BEING RAISED, LOWERED, OR IN ELEVATED STATE.• ALWAYS INSTALL ALL LOCKUP DEVICES PROVIDED WHEN WINGS ARE IN ELEVATED POSITION.• ENSURE CYLINDER IS COMPLETELY FILLED WITH HYDRAULIC FLUID TO AVOID UNEXPECTED MOVEMENT.	 <p>C13704</p>
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 <h1>DANGER</h1> <p>Failure to comply may result in death or serious injury.</p> <p>Read Operator's Manual and decals on Ammonia tank before operating Machine. Become familiar with all warnings, instructions, and controls.</p> <p>Always wear gloves and goggles when transferring or handling ammonia.</p> <p>Always stay clear of hose and valve openings.</p> <p>Always be sure pressure is relieved before disconnecting hoses or parts.</p> <p>Always secure connecting parts and safety chains before towing ammonia trailer.</p> <p>Always have ample water available in case of exposure to ammonia liquid or gases.</p> <p>S29378</p>
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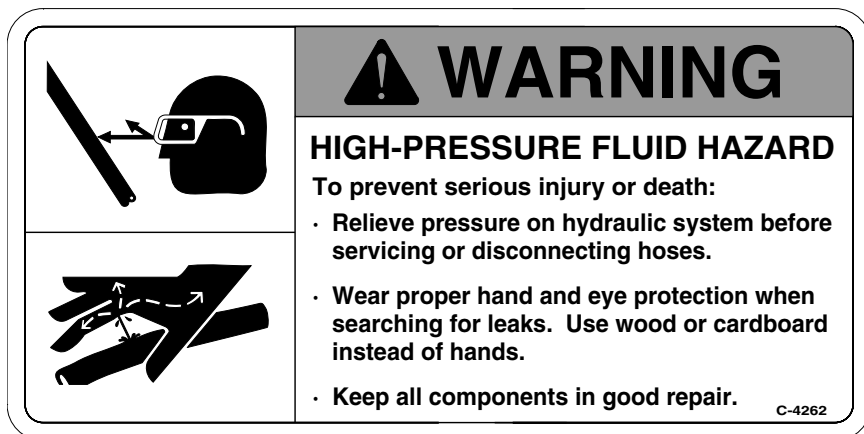
 <h1>WARNING</h1> <p>Personal injury or property damage may result from loss of control.</p> <ul style="list-style-type: none">• Always use large enough tractor with sufficient braking capacity.<ul style="list-style-type: none">➢ Weight of fully loaded implement should not be more than 1.5 times weight of tractor.• Maximum recommended towing speed is 20 mph (32 km/h).• Use flashing amber warning lights and SMV emblem when on public roads, except where prohibited by law.• Refer to tractor and implement Operator's Manuals for weights and further information. <p>N24301</p>



Familiarize yourself with the location of all decals. Read them carefully to understand the safe operation of your machine.

Safety

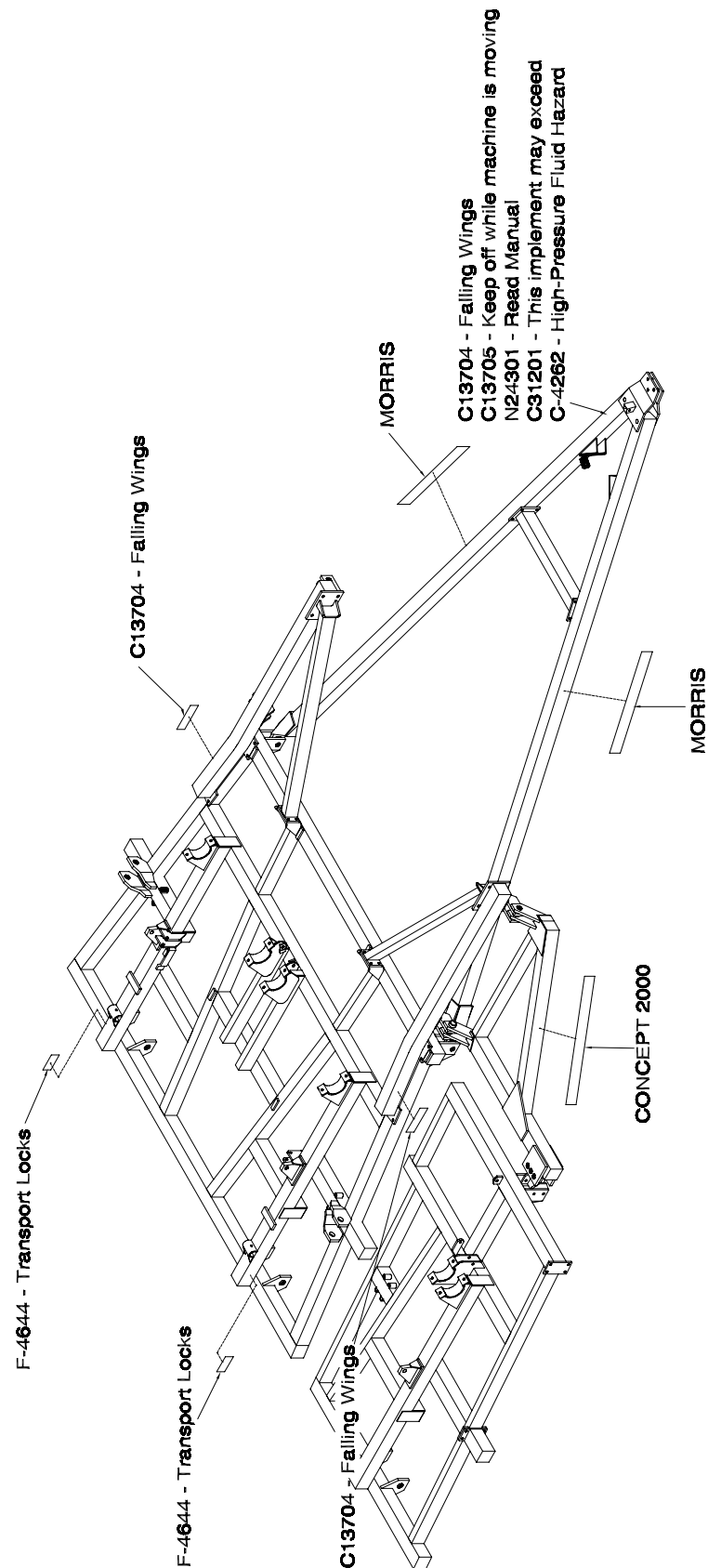
Safety Signs - continued



Familiarize yourself with the location of all decals. Read them carefully to understand the safe operation of your machine.

Safety Signs - continued

Locations



Safety

Lighting and Marking

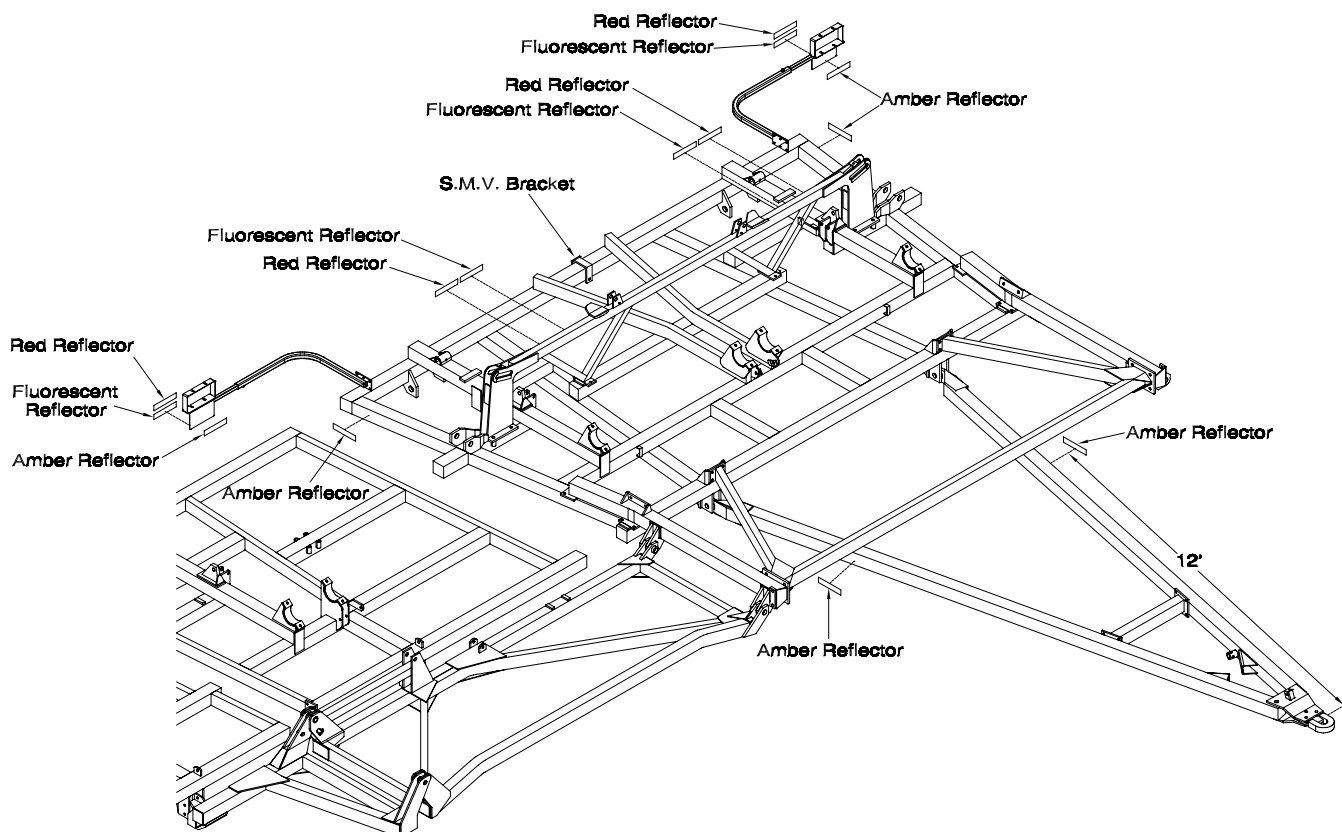
MORRIS recommends the use of correct lighting and marking to meet the ASAE standard for roadway travel. Be familiar with and adhere to local laws.

Amber warning and red tail lights secured on the machine promote correct transportation of this implement.

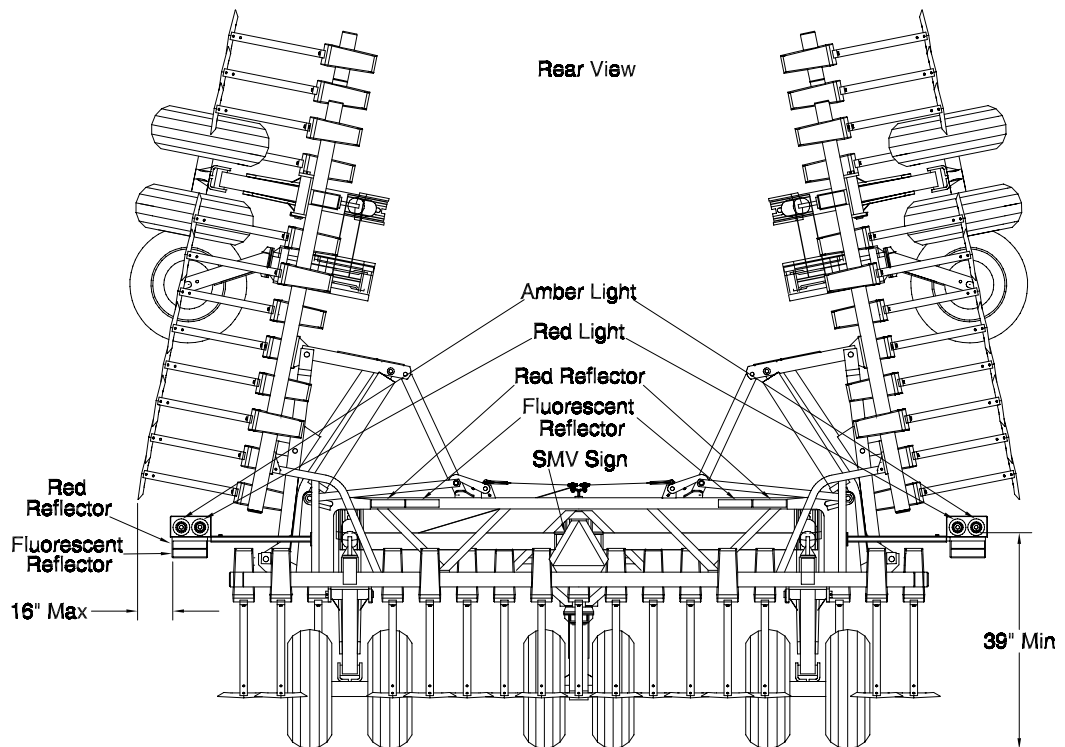
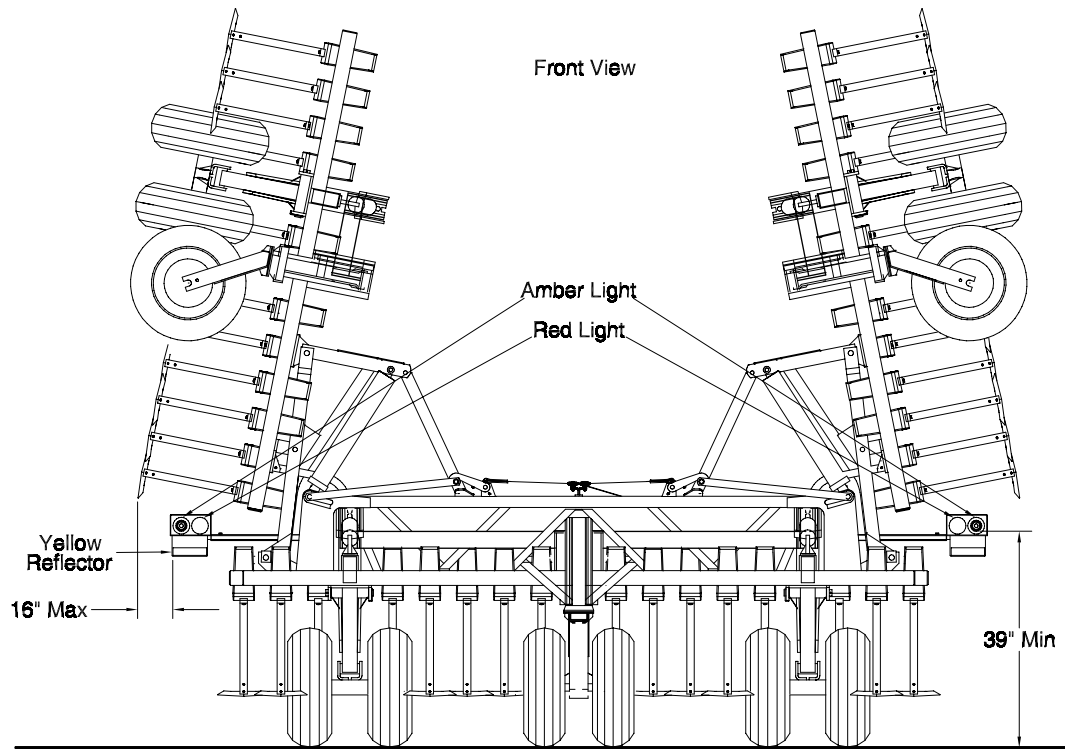
Note: Always replace missing or damaged lights and/or connectors.

Amber warning and red tail lights must be mounted to the rear of the implement and be visible from front and rear. The lights must be within 16 inches (41 cm) of the extremities of the machine and at least 39 inches (99 cm) but not over 10 feet (3 m) above ground level.

Note: Always replace missing or damage front, side, rear reflectors and SMV emblem.



Lighting and Marking - continued



Safety

Notes

Section 2: Specifications

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Specifications

Model Sizes and Options

Base Model	Ext'd Model	Working Width			Number of Shanks			Transport			Weight with 755 LH Trip			
								Width	Height					
		12"	10"	9"	12"	10"	9"		12"	10"	9"	12"	10"	9"
		30.5 cm	25.4 cm	22.9 cm	30.5 cm	25.4 cm	22.9 cm		30.5 cm	25.4 cm	22.9 cm	30.5 cm	25.4 cm	22.9 cm

3 Section: Regular Transport

23'		23'	24'	23.5'	23	29	31	17' 7"	11'	11' 7"	11' 1"	11,575 lb	12,665 lb	12,305 lb
7 m		7.01 m	7.31 m	7.16 m				5.36 m	3.35 m	3.53 m	3.38 m	5,261 kg	5,757 kg	5,593 kg
	25'	25'	26'	25'	25	31	33	17' 7"	12'	12' 5"	11' 10"	12,045 lb	13,190 lb	12,775 lb
	7.62 m	7.62 m	7.92 m	7.62 m				5.36 m	3.66 m	3.78 m	3.61 m	5,475 kg	5,995 kg	5,807 kg
29'		29'	31'	29.5'	29	37	39	17' 6"	14'	14' 8"	14'	13,180 lb	13,945 lb	14,110 lb
8.8 m		8.84 m	9.45 m	8.99 m				5.33 m	4.27 m	4.47 m	4.27 m	5,991 kg	6,339 kg	6,414 kg
	31'	31'	32.5'	31'	31	39	41	17' 6"	14' 10"	15' 6"	14' 10"	13,650 lb	14,470 lb	14,580 lb
	9.45 m	9.45 m	9.91 m	9.45 m				5.33 m	4.52 m	4.72 m	4.52 m	6,205 kg	6,577 kg	6,627 kg
	33'	33'	34'	32.5'	33	41	43	17' 6"	15' 10"	16' 4"	15' 7"	14,230 lb	15,095 lb	15,155 lb
	10.06 m	10.06 m	10.36 m	9.91 m				5.33 m	4.83 m	4.98 m	4.75 m	6,468 kg	6,861 kg	6,889 kg

3 Section: Wide Transport

26'		26'	27.5'	26.5'	26	33	35	20' 7"	11'	11' 7"	11' 1"	12,380 lb	13,080 lb	13,220 lb
7.92 m		7.92 m	8.38 m	8.08 m				6.27 m	3.35 m	3.53 m	3.38 m	5,627 kg	5,945 kg	6,009 kg
	28'	28'	29'	28'	28	35	37	20' 7"	12'	12' 5"	11' 10"	12,850 lb	13,605 lb	13,690 lb
	8.53 m	8.53 m	8.84 m	8.53 m				6.27 m	3.66 m	3.78 m	3.61 m	5,841 kg	6,184 kg	6,223 kg
32'		32'	34'	32.5'	32	41	43	20' 6"	14'	14' 8"	14'	14,060 lb	14,910 lb	15,030 lb
9.75 m		9.75 m	10.36 m	9.91 m				6.25 m	4.27 m	4.47 m	4.27 m	6,391 kg	6,777 kg	6,832 kg
	34'	34'	36'	34'	34	43	45	20' 6"	14' 10"	15' 6"	14' 10"	14,530 lb	15,435 lb	15,500 lb
	10.36 m	10.36 m	10.97 m	10.36 m				6.25 m	4.52 m	4.72 m	4.52 m	6,605 kg	7,016 kg	7,045 kg
	36'	36'	37.5'	35.5'	36	45	47	20' 6"	15' 10"	16' 4"	15' 7"	15,110 lb	16,060 lb	16,075 lb
	10.97 m	10.97 m	11.43 m	10.82 m				6.25 m	4.83 m	4.98 m	4.75 m	6,868 kg	7,300 kg	7,307 kg
38'		38'	41'	38.5'	38	49	51	20' 2"	17'	18' 1"	17'	15,190 lb	16,185 lb	16,335 lb
11.58 m		11.58 m	12.50 m	11.73 m				6.15 m	5.18 m	5.51 m	5.18 m	6,905 kg	7,357 kg	7,425 kg
	40'	40'	42.5'	40'	40	51	53	20' 2"	17' 8"	18' 11"	17' 8"	15,660 lb	16,710 lb	16,805 lb
	12.19 m	12.19 m	12.95 m	12.19 m				6.15 m	5.38 m	5.77 m	5.38 m	7,118 kg	7,595 kg	7,639 kg
	42'	42'	44'	41.5'	42	53	55	20' 2"	18' 8"	19' 9"	18' 5"	16,240 lb	17,335 lb	17,380 lb
	12.80 m	12.80 m	13.41 m	12.65 m				6.15 m	5.69 m	6.02 m	5.61 m	7,382 kg	7,880 kg	7,900 kg

5 Section

44		44'	47.5'	44.5'	44	57	59	22'	16' 2"	16' 8"	16' 2"	21,195 lb	22,550 lb	22,580 lb
13.41 m		13.41 m	14.48 m	13.56 m				6.71 m	4.93 m	5.08 m	4.93 m	9,634 kg	10,250 kg	10,264 kg
	46	46'	49'	46'	46	59	61	22'	16' 2"	16' 8"	16' 2"	21,665 lb	23,075 lb	23,050 lb
	14.02 m	14.02 m	14.94 m	14.02 m				6.71 m	4.93 m	5.08 m	4.93 m	9,848 kg	10,489 kg	10,477 kg
50		50'	54'	50.5'	50	65	67	23' 3"	18' 8"	19' 5"	18' 5"	22,855 lb	24,385 lb	24,435 lb
15.24 m		15.24 m	16.46 m	15.39 m				7.09 m	5.69 m	5.92 m	5.61 m	10,389 kg	11,084 kg	11,107 kg
	52	52'	56'	52'	52	67	69	23' 3"	18' 8"	19' 5"	18' 5"	23,325 lb	24,910 lb	24,905 lb
	15.85 m	15.85 m	17.07 m	15.85 m				7.09 m	5.69 m	5.92 m	5.61 m	10,602 kg	11,323 kg	11,320 kg
56		56'	61'	56.5'	56	73	75	24' 3"	18' 8"	19' 5"	18' 5"	23,425 lb	25,180 lb	25,150 lb
17.07 m		17.07 m	18.59 m	17.22 m				7.39 m	5.69 m	5.92 m	5.61 m	10,648 kg	11,445 kg	11,432 kg
	58	58'	62.5'	58'	58	75	77	24' 3"	18' 8"	19' 5"	18' 5"	23,895 lb	25,705 lb	25,620 lb
	17.68 m	17.68 m	19.05 m	17.68 m				7.39 m	5.69 m	5.92 m	5.61 m	10,861 kg	11,684 kg	11,645 kg
	60	60'	64'	59.5'	60	77	79	24' 3"	18' 8"	19' 5"	18' 5"	24,475 lb	26,330 lb	26,195 lb
	18.29 m	18.29 m	19.51 m	18.14 m				7.39 m	5.69 m	5.92 m	5.61 m	11,125 kg	11,968 kg	11,907 kg

* Working Width based on 12" sweeps. Base model is referenced to 12" spacing.

Note: As of September 1, 2006 the 26' base model and the standard tire option are no longer available.
As of September 1, 2007 the 44' base model is no longer available.

Specifications

Frame and Tire Configurations

Trip Mechanism	400 Spring Cushion	1" (2.54 cm) x 2" (5.1 cm) Shank with 1-3/4" (4.4 cm) Centres fits 47 Degree tillage tools. 27" (68.6 cm) Sweep to Frame Clearance. Trip Force 400 lb (180 kg). Available on 9" (22.9 cm) and 10" (25.4 cm) spacing.
	550 Spring Cushion	1" (2.54 cm) x 2" (5.1 cm) Shank with 1-3/4" (4.4 cm) Centres fits 47 Degree tillage tools. 27" (68.6 cm) Sweep to Frame Clearance. Trip Force 550 lb (248 kg). Available on 9" (22.9 cm), 10" (25.4 cm) and 12" (30.5 cm) spacing.
	755 LH Automatic Trip	1-1/4" (3.18 cm) x 2" (5.1 cm) Shank with 2-1/4" (5.72 cm) Centres fits 50 Degree tillage tools. 30" (76.2 cm) sweep to Frame Clearance. Trip Force 750 lb (340 kg). Available on 9" (22.9 cm), 10" (25.4 cm) and 12" (30.5 cm) spacing.
	Hydraulic Trip	1-1/4" (3.18 cm) x 2" (5.1 cm) Shank with 2-1/4" (5.72 cm) Centres fits 50 Degree tillage tools. 30" (76.2 cm) sweep to Frame Clearance. Trip Force adjustable 150 - 700 lbs (68 kg - 318 kg). Available on 9" (22.9 cm), 10" (25.4 cm) and 12" (30.5 cm) spacing.
Overall Length		26' (7.93 m) on all Models
Frame Depth		102" (2.59 m) on all Models
Rows		4 Rows on all Models
Standard		Safety Lights, Safety Chain
Options		Mud Scrapers, Shank Mounted Ground Rod, Mounted Packers, and Mounted Harrows

FRAME CONFIGURATIONS											
Base Model	Ext'd Model	Main Frame		Inner Wings			Outer Wings			Extensions	Tires
		12'	15'	6'	9'	12'	6'	9'	2	4	See Below
23		3.66 m	4.57 m	1.83 m	2.74 m	3.66 m	1.83 m	2.74 m	Shank	Shank	I
7 m											
	25										I
	7.62 m										
26											I
7.92 m											
	28										I
	8.53 m										
29											II
8.8 m											
	31										II
	9.45 m										
	33										II
	10.06 m										
32											II
9.75 m											
	34										II
	10.36 m										
	36										II
	10.97 m										
38											II
11.58 m											
	40										II
	12.19 m										
	42										II
	12.80 m										
44											III
13.41 m											
	46										III
	14.02 m										
50											IV
15.24 m											
	52										IV
	15.85 m										
56											IV
17.07 m											
	58										IV
	17.68 m										
	60										IV
	18.29 m										

TIRE CONFIGURATIONS - STANDARD		
Tire - I	Main Frame	(4) 9.5L x 15FI Load Range D
	Wing Frame	(2 per frame) 9.5L x 15 (6 ply rating)
	Main Gauge Wheel	(2) 9.5L x 15FI Load Range D
	Wing Gauge Wheel	(1 per frame) 9.5L x 15 (6 ply rating)
Tire - II	Main Frame	(4) 11L x 15FI Load Range D
	Wing Frame	(2 per frame) 9.5L x 15 (6 ply rating)
	Main Gauge Wheel	(2) 11L x 15FI Load Range D
	Wing Gauge Wheel	(1 per frame) 11L x 15SL (6 ply rating)
Tire - III	Main Frame	(4) 11L x 15FI Load Range F
	Wing Frame	(2 per frame) 9.5L x 15 (6 ply rating)
	Main Gauge Wheel	(2) 11L x 15FI Load Range D
	Wing Gauge Wheel	(1 per frame) 11L x 15SL (6 ply rating)
Tire - IV	Main Frame	(4) 11L x 15FI Load Range F
	Wing Frame	(2 per frame) 9.5L x 15 (6 ply rating)
	Main Gauge Wheel	(2) 11L x 15FI Load Range F
	Wing Gauge Wheel	(1 per frame) 11L x 15SL (6 ply rating)

TIRE CONFIGURATIONS - OPTIONAL		
Tire - I	Main Frame	(4) 9.5L x 15FI Load Range D
	Wing Frame	(2 per frame) 9.5L x 15FI Load Range D
	Main Gauge Wheel	(2) 9.5L x 15FI Load Range D
	Wing Gauge Wheel	(1 per frame) 9.5L x 15FI Load Range D
Tire - II	Main Frame	(4) 11L x 15FI Load Range D
	Wing Frame	(2 per frame) 9.5L x 15FI Load Range D
	Main Gauge Wheel	(2) 11L x 15FI Load Range D
	Wing Gauge Wheel	(1 per frame) 11L x 15FI Load Range D
Tire - III	Main Frame	(4) 11L x 15FI Load Range F
	Wing Frame	(2 per frame) 9.5L x 15FI Load Range D
	Main Gauge Wheel	(2) 11L x 15FI Load Range F
	Wing Gauge Wheel	(1 per frame) 11L x 15FI Load Range D

Specifications

Notes

Section 3: Checklist

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Assembly Manual	3-2
Checklist	3-3

SAFETY-ALERT SYMBOL



Watch for this symbol. It identifies potential hazards to health or personal safety. It points out safety precautions. It means:

ATTENTION - BE ALERT.
Your safety is involved.

Manuals

Note: Pre-Delivery Inspection Form must be completed and submitted to Morris Industries within 30 days of delivery date.

Warranty Void if Not Registered

Parts Manual

Order Part Number C26313

Assembly Manual

Order Part Number C26315

Checklist

Please read the Operator's Manual carefully and become a "SAFE" operator.

Adopt a good lubrication and maintenance program.

General

- ☐ Check if assembled correctly.
- ☐ Check hose connections

Lubrication - Grease

- ☐ Pincher Wheels
- ☐ Closing Wheel
- ☐ Disc Hub
- ☐ Wheel Hubs
- ☐ Castor Pivots

Tire Pressure

- ☐ See maintenance, section 6

Transport

- ☐ Tighten wheel bolts.
- ☐ Check hose connections.

OWNER REFERENCE

Model: _____
Serial No: _____
Dealer: _____
Town: _____ State: _____
Phone: _____
OWNER/OPERATOR: _____
Date: _____



TAKE SAFETY SERIOUSLY.

**DO NOT TAKE
NEEDLESS CHANCES!!**

Checklist

Notes

Section 4: Introduction

Section Contents

Introduction	4-2
--------------------	-----

Introduction

Introduction

This Operator's Manual has been carefully prepared to provide the necessary information regarding the operation and adjustments, so that you may obtain maximum service and satisfaction from your new MORRIS CONCEPT 2000 floating hitch cultivator.

To protect your investment, study your manual before starting or operating in the field. Learn how to operate and service your CONCEPT 2000 floating hitch cultivator correctly, failure to do so could result in personal injury or equipment damage.

If you should find that you require information not covered in this manual, contact your local MORRIS Dealer. The Dealer will be glad to answer any questions that may arise regarding the operation of your MORRIS CONCEPT 2000 floating hitch cultivator.

MORRIS Dealers are kept informed on the best methods of servicing and are equipped to provide prompt efficient service if needed.

Occasionally, your CONCEPT 2000 floating hitch cultivator may require replacement parts. Your Dealer will be able to supply you with the necessary replacement parts required. If the Dealer does not have the necessary part, the MORRIS Factory will supply the Dealer with it promptly.

Your MORRIS CONCEPT 2000 floating hitch cultivator is designed to give satisfaction even under difficult conditions. A small amount of time and effort spent in protecting it against rust, wear and replacing worn parts will increase the life and trade-in value.



Keep this book handy for ready reference at all times. It is the policy of Morris Industries Ltd. to improve its products whenever it is possible to do so. The Company reserves the right to make changes or add improvements at any time without incurring any obligation to make such changes on machines sold previously.

Section 5: Operation

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CAUTION



BE ALERT

SAFETY FIRST

**REFER TO SECTION 1 AND REVIEW ALL
SAFETY RECOMMENDATIONS.**

Application

The Morris CONCEPT 2000 has excellent straw handling capacity. The unique design of the trip allows the Morris CONCEPT 2000 to be used in a wide range of applications from primary tillage to seeding.

Tractor

Tires

- Proper ballast and tire pressure are required when pulling heavy implements.
- Consult your tractor operator's manual and follow all recommended procedures.

Hydraulics

- Wipe all hydraulic fittings and couplers with a clean cloth to avoid contaminating the system.
- Check that hydraulic reservoir is filled to the proper level.

Drawbar

- Centre and pin in a fixed position for easier hitching and greater stability.



Warning

Do not permit smoking, sparks or an open flame where combustible fuels are being used. Keep the work area well ventilated.



Warning

Do not search for high pressure hydraulic leaks without hand and face protection. A tiny, almost invisible leak can penetrate skin, that requires immediate medical attention.

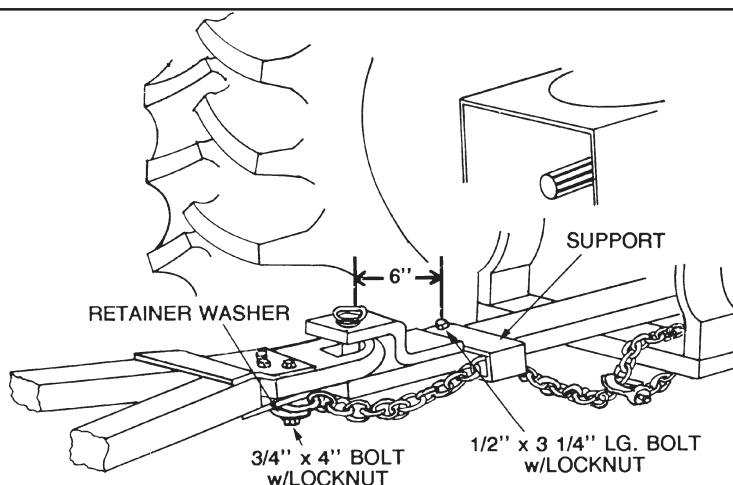
Operation

Hitching



Caution

A safety chain will help control towed machines should it accidentally separate from the drawbar while transporting. A runaway machine could cause severe injury or death. Use a safety chain with a strength rating equal to or greater than the gross weight of the towed machines.



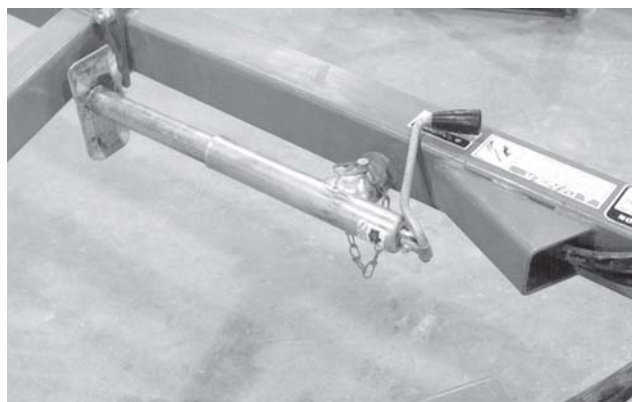
Attach safety chain to the tractor drawbar support or other specified anchor location with the appropriate parts.

Hitching to Tractor

- Ensure swinging drawbar is locked in the centre position.
- Ensure hitch pin is in good condition.
- Level clevis with tractor drawbar using hitch jack.
- Back tractor into position and attach hitch clevis to drawbar, using an adequate hitch pin.
- Lock hitch pin in place with a hairpin or other proper locking device.
- After tractor to implement connection is made, relieve pressure off the hitch jack.
- Place hitch jack in raised position.
- Route Safety Chain through chain support and drawbar support.
- Lock safety hook onto chain.

Note: Provide only enough slack in chain to permit turning.

- Ensure hydraulic hose quick couplers are dirt free.
- Inspect all fittings and hoses for leaks and kinks. Repair as necessary
- Connect the hydraulic hoses to the tractor quick couplers.



Hitch Jack Raised



Caution

Dirt in the hydraulic system could damage O-rings, causing leakage, pressure loss and total system failure.

Unhitching from Tractor

- Pin hitch jack in storage position.
- Lower hitch jack taking the weight off the hitch clevis.
- Ensure all transport locks are properly secured.
- Relieve pressure in the hydraulic hoses by positioning tractor hydraulic lever in “float” position or turn tractor engine off and cycle lever back and forth several times.
- Disconnect the hydraulic hoses.
- Remove the safety chain.
- Remove the drawbar pin.
- Slowly move tractor away from cultivator.



Hitch Jack Lowered

Transport

Observe all applicable safety precautions under transport heading in Safety, Section 1.

- Refer to Specifications, Section 2, for weight, transport height, and width.
- Transport with tractor only!
- Ensure safety chain is attached correctly to the towing vehicle and the hitch of the implement.
- Inspect tires for any serious cuts or abrasions. If such has occurred, tire should be replaced.
- Raise and lower wings on **level ground**.
- Never raise or lower wings when moving.

MORRIS INDUSTRIES LTD. WILL NOT BE RESPONSIBLE FOR ANY DAMAGES OR OPERATOR INJURY RESULTING FROM NON-USE OR IMPROPER USE OF TRANSPORT LOCKS.

Speed

- Always travel at a safe speed. Do Not Exceed 20 mph (32 kph).
- The weight of the implement being towed *must not exceed 1.5 times* the weight of towing vehicle.

Lights

- Ensure proper reflectors are in place, refer to Safety, Section 1.
- Use flashing amber warning lights, turn signals and SMV emblems when on public roads.
- Be familiar with, and adhere to, local laws.



Caution

Raise and lower wings on level ground. Never raise or lower wings when moving.

Operation

Transport - Continued

Transport to Field Position

- Position machine on **level ground**.
- Stop tractor, and engage park brake.
- As a precaution, check surrounding area to be sure it is safe to lower wings.
- Extend main frame depth cylinders.
- Remove two transport lock pins from the main frame axles. Do not walk under the wings when removing the pins.
- Remove castor lock pin from main frame gauge wheel.
- Unlatch wing transport locks. Do not walk under raised wings.

Important

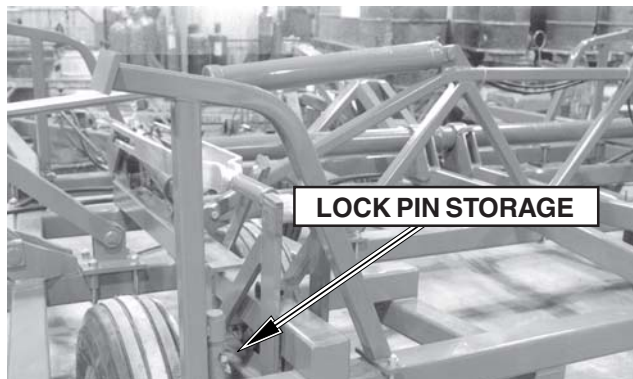
Ensure wing transport locks are completely unlatched, as damage can occur.

- Operate wing lift hydraulics until wings are lowered and the cylinder shafts are completely extended to allow wings to float when working in uneven land.
- Operate depth control hydraulics, lowering machine fully, then raise machine fully holding the hydraulic lever for several seconds to phase the system.



Danger

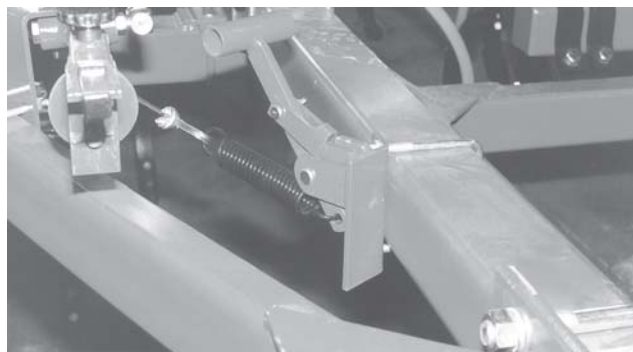
Always stay clear of wings being raised, lowered or in elevated position. Ensure cylinders are completely filled with hydraulic fluid - Wings may fall rapidly causing injury or death.



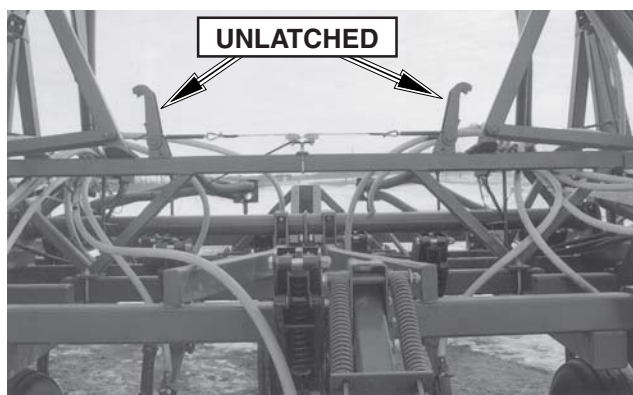
Main Frame Axle



Main Frame Gauge Wheel Castor



Wing Transport Lock Lever



Wing Transport Locks

Transport - Continued

Field to Transport Position

- Position machine on **level ground**.
- Stop tractor, and engage park brake.
- Ensure wing lift cylinders are fully extended.

Note: On five-section models the wing lift cylinders must be fully extended to ensure proper operation of the FCV manifold.

- Operate the depth control hydraulics, to raise the implement fully above ground.
- Operate the wing lift hydraulics, to raise the wings fully into transport position.
- Secure main frame gauge wheel castor lock pin. **It is important to pin the gauge wheel to prevent excessive shimming of wheels.**
- Secure wing transport locks.

Important

Ensure wing transport locks are completely engaged, as damage can occur.

- Secure depth control transport lock pins. Do not walk under the wings when installing the pins.
- Ensure safety chain is properly installed, see page two of Operation Section.



Danger

Always stay clear of wings being raised, lowered or in elevated position. Ensure cylinders are completely filled with hydraulic fluid - Wings may fall rapidly causing injury or death.



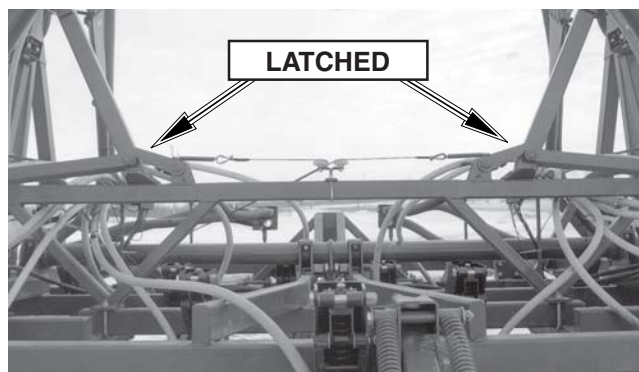
Main Frame Axle



Main Frame Gauge Wheel Castor



Wing Transport Lock Lever



Wing Transport Locks

Operation

Levelling

There are two steps necessary to level the unit:

- 1) An initial levelling where certain measurements must be checked.
- 2) A final levelling procedure that must and can only be done in the field.

Initial Levelling

- Check that tires are properly inflated. See Maintenance Section.
- Adjust the main frame axle control rods to a length (X) see chart below.
- Adjust the main frame gauge wheel control rod to a length (Y) see chart below.
- Adjust the wing frame axle control rods to a length (X) see chart below.
- Adjust the wing frame gauge wheel control rod to a length (Y) see chart below.

Initial Leveling Dimensions			
Trip	Frame	Y	X

Three Section:

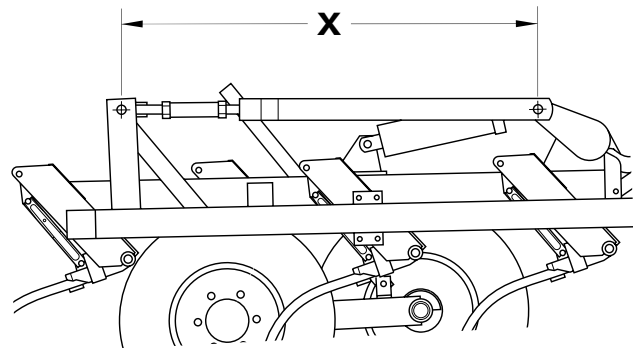
755 lb. Trip & Hydraulic Trip	Main	26 3/16" 665 mm	58 3/4" 1492 mm
	Wing	25 5/8" 651 mm	58 5/8" 1489 mm
400 lb. Trip	Main	26 7/8" 683 mm	59 3/8" 1508 mm
	Wing	26 3/8" 670 mm	59 1/4" 1505 mm

Five Section:

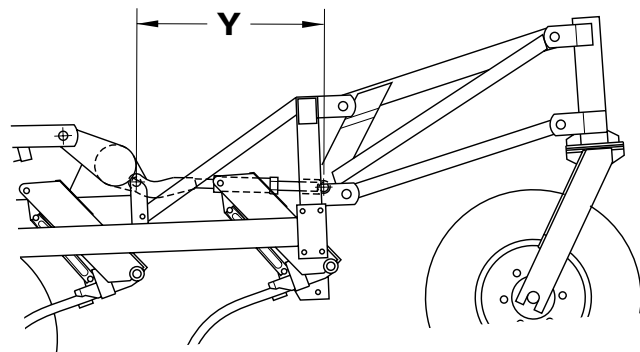
755 lb. Trip & Hydraulic Trip	Main	26" 660mm	58 3/4" 1492 mm
	Inner Wing	25 7/8" 657 mm	58 1/2" 1486 mm
	Outer Wing	26 1/4" 667 mm	58 5/8" 1489 mm
400 lb. Trip	Main	26 3/4" 679 mm	59 3/8" 1508 mm
	Inner Wing	26 5/8" 676 mm	59 1/8" 1502 mm
	Outer Wing	27" 686 mm	59 1/4" 1505 mm

Important

Keep tire air pressure at the listed specifications to achieve and maintain proper level.



Frame Control Rod



Gauge Wheel Control Rod

Levelling - Continued

Final Levelling

In order for any floating hitch cultivator to perform as intended, it must be properly levelled. To properly level a floating hitch cultivator, the **final levelling must be done in the field with ground conditions being firm and unworked.**

If the floating hitch cultivator is levelled in preworked, soft conditions, the front may dip when working in harder conditions. This causes the back row of shanks to work shallower than the front and by using the cultivator in this manner can result in the following:

- 1) The finish of your field can be rough and uneven.
- 2) The back row of shanks can ridge. When used in conjunction with an Air Cart this could result in uneven seed depth and strips may appear.

Note: Each operator is responsible for levelling their floating hitch cultivator. As field conditions vary, fine tuning is left to the operator's discretion.

Final levelling requires the following six basic steps to be followed:

- 1) **Rephase** hydraulic depth system.
- 2) Pull the unit 100 feet (30 m) at the desired depth at **approximately 2 m.p.h. (3.2 kph)**. Stop the unit in the ground.
- 3) Check the depth on the main frame, side to side and front to back. Adjust the main frame cylinder control rods as required to level the main frame.

Note: Only do one adjustment at a time, repeat step 1 and 2 before next adjustment.

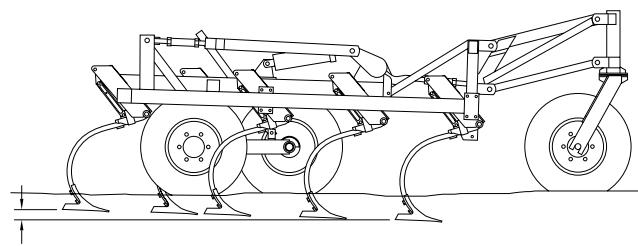
- 4) Once the main frame is level, proceed to each wing (On 5-Section units level the inner wings before proceeding to the wings). Adjust wing axle control rod as required until wing is level side to side with main frame.
- 5) Adjust wing gauge wheels to level wings front to back.
- 6) Pull the unit 100 feet (30 m) at the desired depth travelling at **normal operating speed**. Check machine level and make any adjustments necessary by repeating steps 3 through 5.

Important

Final Levelling is
“**VERY IMPORTANT**”

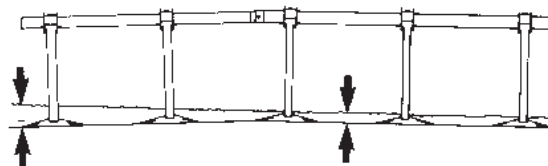
It is suggested that the operator read carefully and carry out the procedures exactly as described.

Note: Only do one adjustment at a time.



Front to Back

Note: Do not use stroke control collars to level machine.



Side to Side

Operation

Depth Stop Adjustment

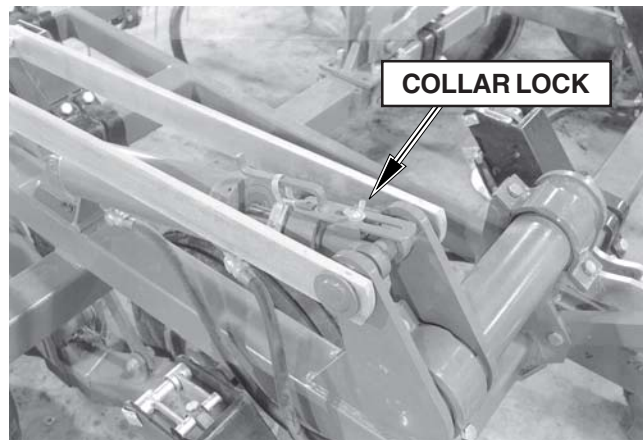
The Morris CONCEPT 2000 floating hitch cultivator is equipped with mechanical depth stops. The mechanical depth stops ensure positive depth of each frame section, unaffected by any leaks in the system. (i.e. leaking couplers, internal cylinder leaks, etc.)

The Morris CONCEPT 2000 floating hitch cultivator is also equipped with depth stop valves. The depth stop valves provide the operator quick easy one point depth adjustment.

Note: Stroke control collars should all be adjusted evenly. The machine should NOT BE leveled with collars.

Mechanical Depth Stop

- Ensure depth stop valve plungers do not close before stroke control collars are fully seated.
- Stroke control collars should all be adjusted evenly.
- To increase or decrease the working depth, adjust all the stroke control collars **evenly** across the whole machine.
 - a) 1 turn on the collar changes the depth approximately 3/16" (5 mm).
 - b) 6 turns on the collar changes the depth approximately 1" (25 mm).
- The optional spacer may be required when seeding shallow. These spacers are available under part number S25999 through the Parts Department.



Stroke Control Collars

Rephasing

- Raise machine fully, holding hydraulic lever for several seconds to phase the system.
- This will maintain equal pressure, cylinder stroke, and synchronize cylinders.
- **It is recommended that the unit be rephased at each turn on the headland.**

Oil Level

The hydraulic system draws its oil supply from the tractor reservoir.

- Check the oil level after the cultivator system has been filled.
- Refer to tractor operators manual for more information.

Depth Stop Adjustment - Continued

Hydraulic Depth Stop

- When using the depth stop valves, consistent machine depth depends on whether the valves are closed or open.

If they are **closed** the operating depth will remain constant.

If the depth stops are **not closed** then cylinder fading will occur. This will give the impression that a cylinder is leaking and will cause the unit to run out of level.

Always ensure the depth stops are closed by holding the hydraulic lever momentarily longer after the cultivator has reached its preset working depth. Do not rely on tractor detente.

- Ensure mechanical depth stops do not contact cylinder collars before depth stop valve plungers close fully.
- To increase or decrease the working depth, move the depth control rod as desired so the depth stop plunger will be depressed when the desired working depth is acquired.
- Do not overtighten rod tightener. The depth valve operates hydraulically and very little pressure is required on the poppet to stop oil flow.

Important

It is essential the valves be engaged while cultivator is moving forward, *NOT WHILE THE MACHINE IS STATIONARY*. This will ensure consistent closing of the valve poppets. The valves should remain engaged at all times while working in the field. If the above is not followed, the cultivator will creep down, which will eventually lead to certain sections going deeper than others.



Depth Stop Valves

Operation

Hydraulic Depth Control System

Three Section Models

The hydraulic depth control system is a series system.

To lift the cultivator, hydraulic fluid is forced into the butt end of cylinders 1 and 1A. This causes the piston rods to extend, pivoting the rocker tube and rotating the main frame wheels down. This causes the main frame to raise.

Simultaneously, hydraulic fluid is forced from the gland end of cylinders 1 and 1A to the butt end of cylinders 2 and 2A, causing them to extend, pivoting the rocker tube and wing frame wheels down. This causes the wings to raise.

Finally the fluid exits the gland end of cylinders 2 and 2A into a common line and then to the tractor.

Mechanical Depth Stop

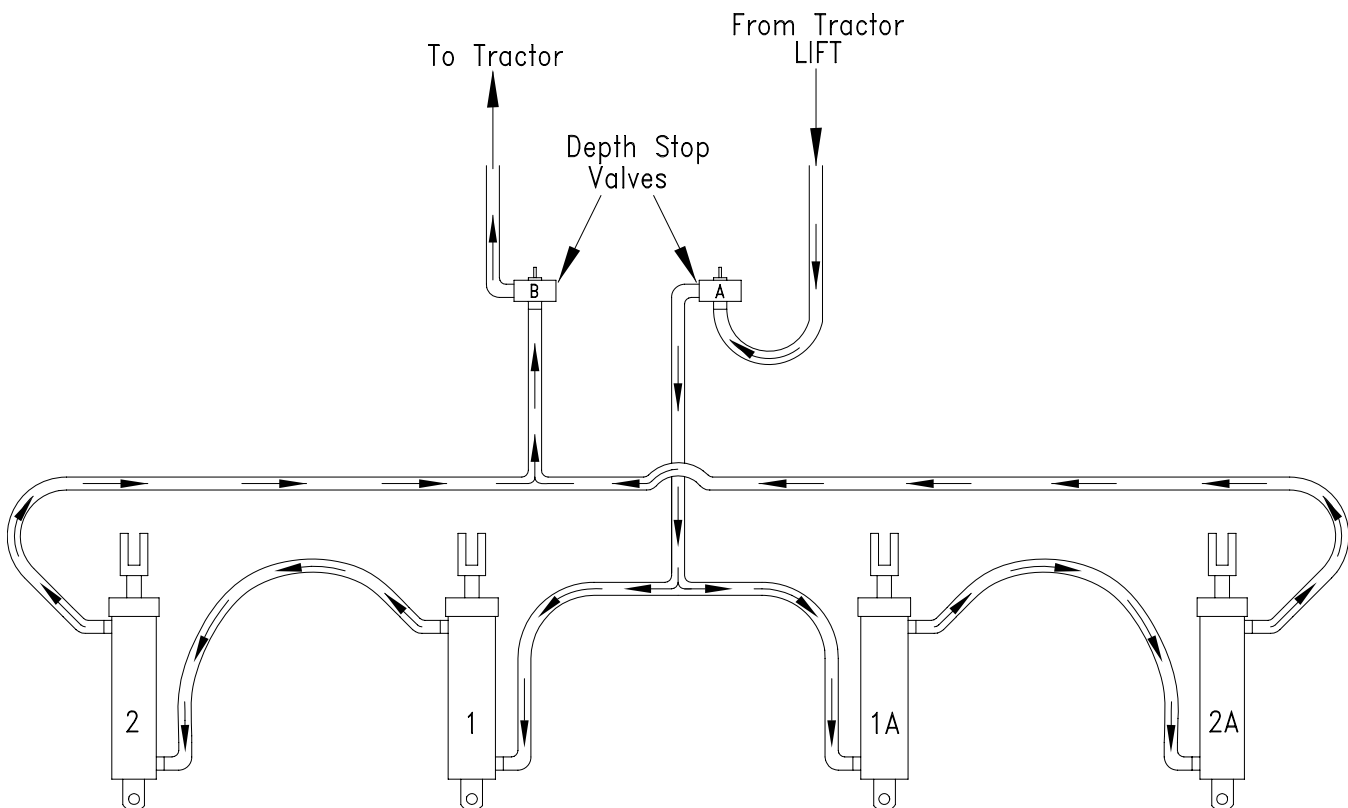
To lower the cultivator, hydraulic fluid flows through the cylinders in the reverse direction to that described above, until the stroke control collars seat firmly on the gland end of the cylinders. This causes the flow of oil from the tractor to stop.

With the stroke control collars firmly seated, the cylinders will hold this working depth until the tractor hydraulic controls are activated to lift the cultivator.

Hydraulic Depth Stop

To lower the cultivator, hydraulic fluid flows through the cylinders in the reverse direction to that described above, until the depth stop plate depresses the plungers on the two depth valves A and B. This causes the poppets to seat and stop the flow of oil from the tractor.

With the poppets seated, the depth stop valves will hold the cylinders this working depth until the tractor hydraulic controls are activated to lift the cultivator.



Hydraulic Depth Control System

Five Section Models

The hydraulic depth control system is a series system.

To lift the cultivator, hydraulic fluid is forced into the butt end of cylinders 1 and 1A. This causes the piston rods to extend, pivoting the rocker tube and rotating the main frame wheels down. This causes the main frame to raise.

Simultaneously, hydraulic fluid is forced from the gland end of cylinders 1 and 1A to the butt end of cylinders 2 and 2A, causing them to extend, pivoting the rocker tube and wing frame wheels down. This causes the inner wings to raise.

Hydraulic fluid is forced from the gland end of cylinders 2 and 2A to the butt end of cylinders 3 and 3A, causing them to extend, pivoting the rocker tube and wing frame wheels down. This causes the outer wings to raise.

Finally the fluid exits the gland end of cylinders 3 and 3A into a common line and then to the tractor.

Mechanical Depth Stop

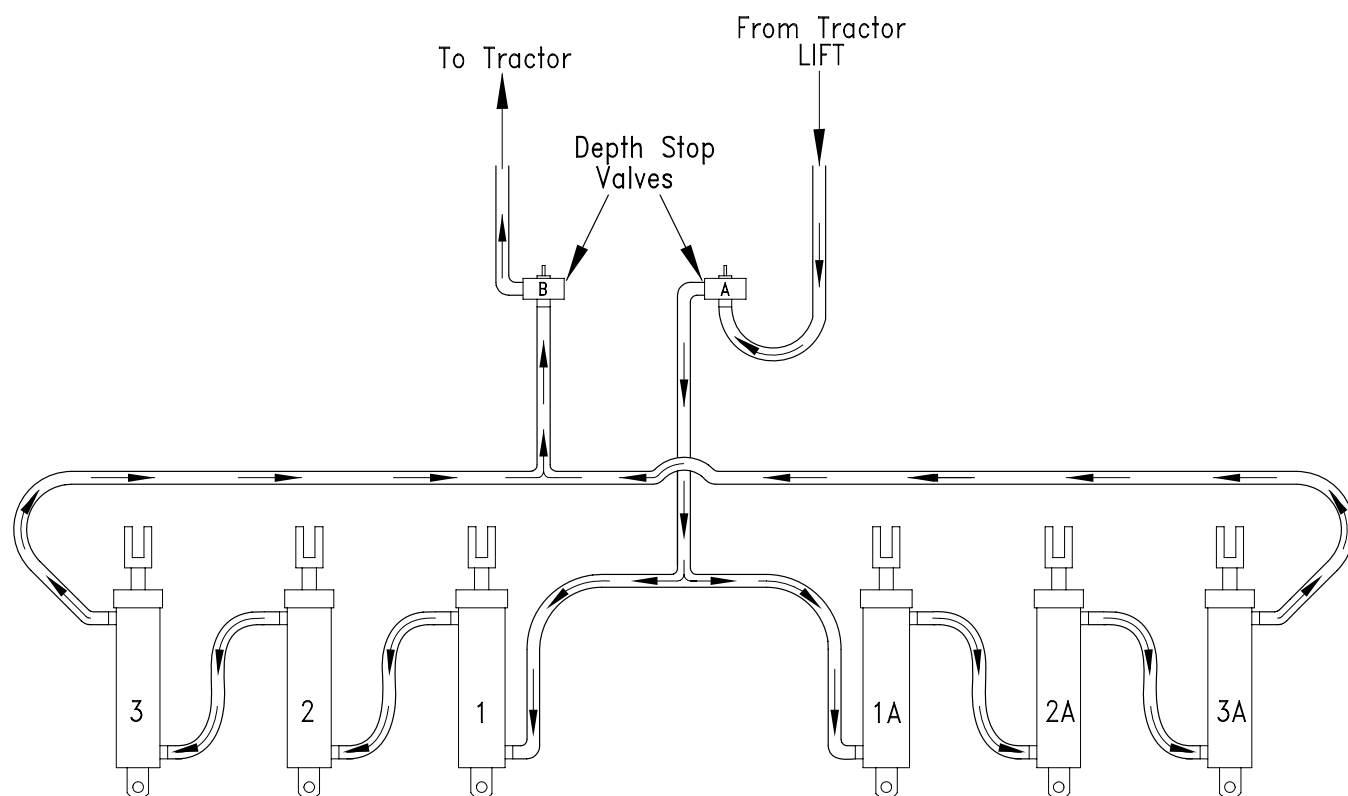
To lower the cultivator, hydraulic fluid flows through the cylinders in the reverse direction to that described above, until the stroke control collars seat firmly on the gland end of the cylinders. This causes the flow of oil from the tractor to stop.

With the stroke control collars firmly seated, the cylinders will hold this working depth until the tractor hydraulic controls are activated to lift the cultivator.

Hydraulic Depth Stop

To lower the cultivator, hydraulic fluid flows through the cylinders in the reverse direction to that described above, until the depth stop plate depresses the plungers on the two depth valves A and B. This causes the poppets to set and stop the flow of oil from the tractor.

With the poppets seated, the depth stop valves will hold the cylinders this working depth until the tractor hydraulic controls are activated to lift the cultivator.



Operation

Hydraulic Wing Lift System

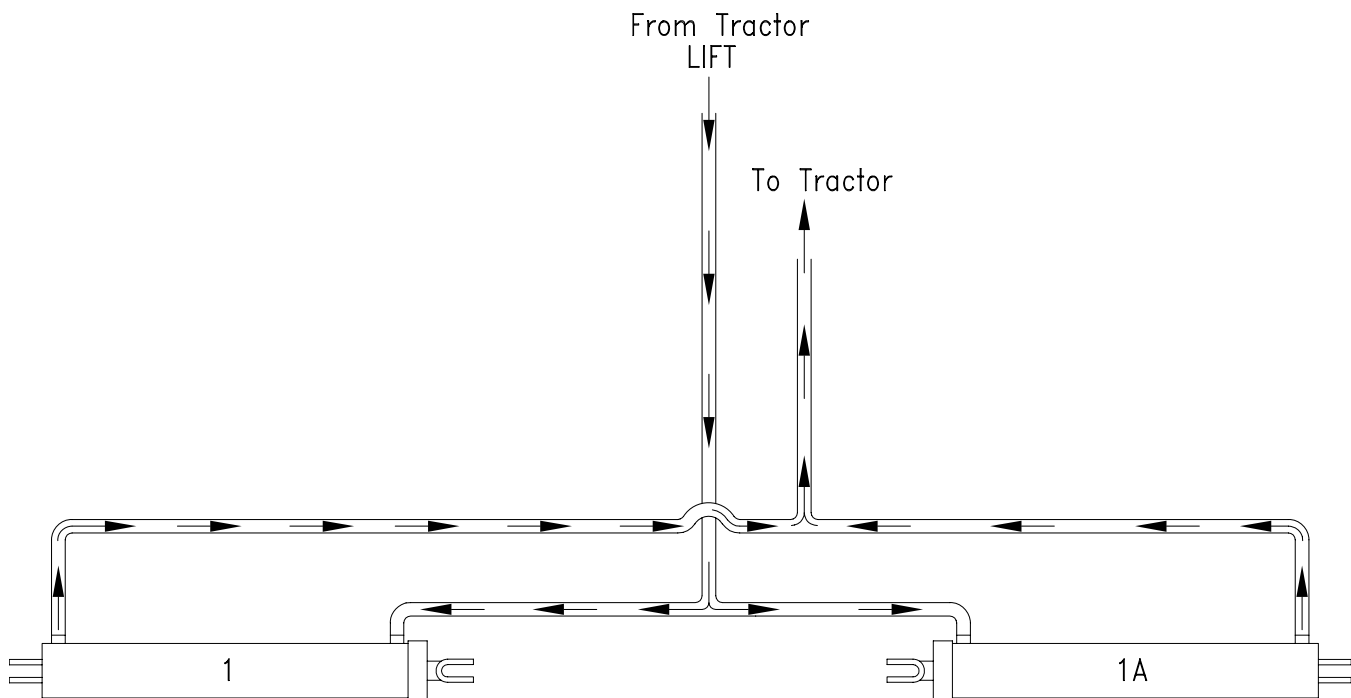
Three Section Models

The hydraulic wing lift system is controlled by a parallel system.

To lift the wings, hydraulic fluid is forced from the tractor through a common line to the gland end of cylinders 1 and 1A, simultaneously forcing both cylinders to retract and lift each wing. The wing frame requiring the least amount of pressure will raise first, followed by the other wing frame.

While the wings are being raised, hydraulic fluid displaced from the butt end of the cylinders return through a common line to the tractor.

To lower the wings, hydraulic fluid is allowed to flow into the butt end of both wing lift cylinders, causing the wings to lower. Hydraulic fluid from the gland ends of the cylinders is forced through a common line back to the tractor.



Hydraulic Wing Lift System

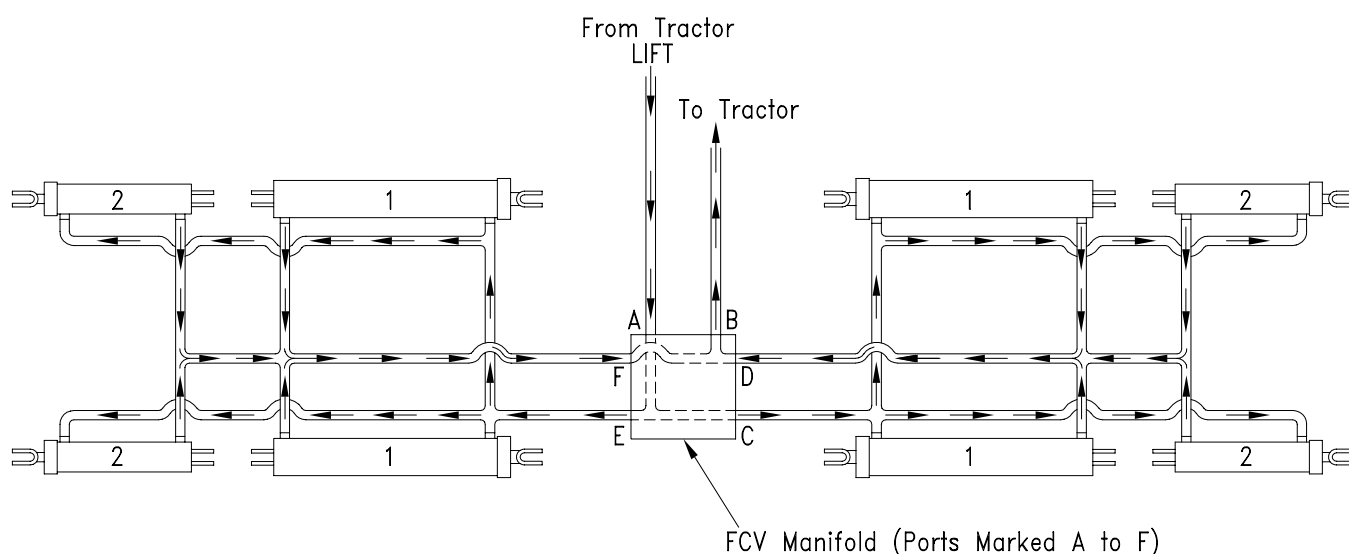
Five Section Models

The hydraulic wing lift system is controlled by a parallel hydraulic system with a pressure compensated flow control valve (FCV) manifold integrated in the circuit to synchronize the raising and lowering of the wings.

To lift the wings, hydraulic fluid is forced from the tractor through a common line to the manifold. The fluid is divided in the manifold and flows to the gland end of each cylinder on both sides of the circuit. The force required to retract the cylinders marked #1 is greater than the force required to retract the cylinders marked #2. Therefore the #2 cylinders retract first raising the outer wings. When the #2 cylinders are fully retracted then the #1 cylinders retract lifting the inner wings.

While the wings are being raised, hydraulic fluid displaced from the butt end of the cylinders is combined in the FCV manifold and returns through a common line to the tractor.

To lower the wings, hydraulic fluid flows opposite to that described for the lifting operation. Fluid is divided in the FCV manifold and flows into the butt end of all eight cylinders simultaneously. The force required to extend the #1 cylinders is less than the force required to extend the #2 cylinders. Therefore, the #1 cylinders extend first to lower the inner wings. When the #1 cylinders are fully extended, the #2 cylinders then extend to lower the outer wings. While the wings are being lowered, hydraulic fluid displaced from the gland end of the cylinders is combined in the manifold and returns through a common line to the tractor.



Operation

Hydraulic Trip

Accumulator System Operation and Pre-Charge Information

- Always relieve hydraulic pressure from the system before performing maintenance or repairs.

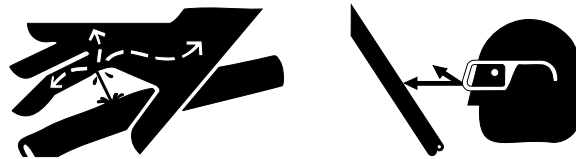
Note: Accumulator stores pressure even when disconnected from tractor.

- The gas bladder in the hydraulic accumulator should be pre-charged with dry nitrogen gas before being mounted on a tillage unit.
- Different accumulator pre-charge pressures will allow for different ranges of trip out force, as shown in the following chart.
- Pre-charge pressure should be set for the most common working conditions.

Accumulator Operating Range 700 lb Trip		
Nitrogen Pre-charge Pressure	System Hydraulic Pressure and Trip Force	
	Minimum	Maximum
200 psi (1378 kPa)	220 psi (1517 kPa) 150 lbs (68 kg)	800 psi (5516 kPa) 400 lbs (180 kg)
300 psi (2067 kPa)	330 psi (2275 kPa) 200 lbs (90 kg)	1200 psi (8274 kPa) 600 lbs (270 kg)
400 psi (2756 kPa)	440 psi (3034 kPa) 275 lbs (124 kg)	1400 psi (9653 kPa) 700 lbs (315 kg)
500 psi (3445 kPa)	550 psi (3792 kPa) 300 lbs (135 kg)	1400 psi (9653 kPa) 700 lbs (315 kg)

* Maximum system hydraulic pressure is 1400 psi(9653 kPa) or 4 times the nitrogen pre-charge pressure, whichever is the lower number.

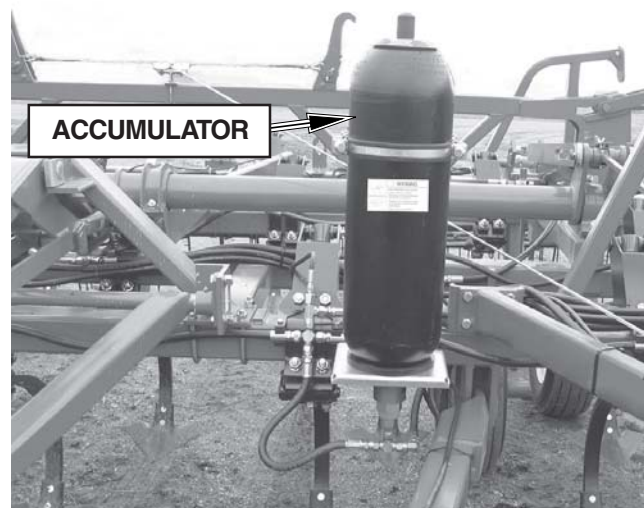
Warning



HIGH-PRESSURE FLUID HAZARD

To prevent serious injury or death:

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



Hydraulic Trip - Continued

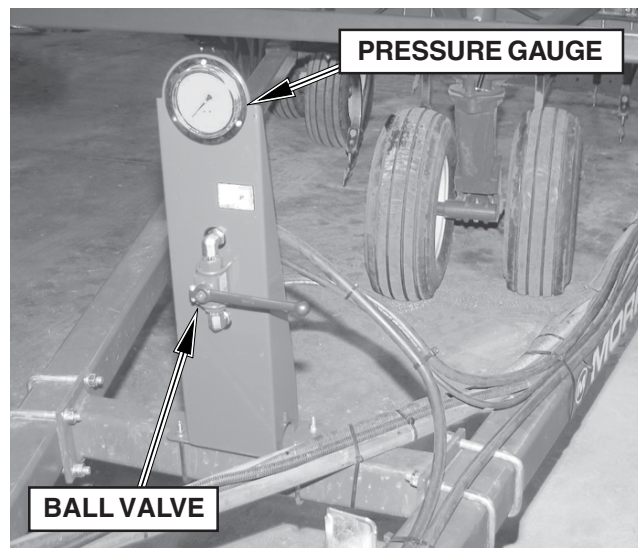
Setting Maximum System Pressure (Trip Out Force)

- To determine approximate trip out force in pounds on each shank, divide the system hydraulic pressure in the accumulator circuit by 2.

For example: A system hydraulic pressure of 1000 psi (6895 kPa) would be approximately 500 lbs (227 kg) trip force at each shank.

Note: Due to the variation of friction effects, this trip force is approximate.

- Maximum operating pressure can be set by dialing the reducing valve in to increase allowable pressure, and dialing it out to decrease allowable pressure. This adjustment is done in order to set a maximum working pressure; pressure can be decreased below the set point and increased back up to the set point on the go from the tractor.
- Begin by dialing the adjustment all the way out on the reducing valve .
 - Dial the reducing valve setting in 1 full turn.
 - Operate the tractor remote to pressurize the accumulator circuit (ensure the ball valve in the circuit is open to allow flow). Once the pressure has stopped climbing check the system pressure on the gauge.
 - If the pressure in the system is high enough to achieve the desired trip out force, setting is complete. If the pressure is too low, repeat steps 2 and 3 until the desired pressure is achieved.
 - If the system pressure is too high, relieve the circuit pressure using the tractor remote, and then dial the reducing valve adjustment out incrementally. Repeat step 3 until the desired system pressure has been reached.
- If on the go trip force adjustment is not desired, the ball valve at the gauge bracket can be closed after setting the accumulator system pressure in order to prevent slow pressure bleed off over time.



Important

Do not exceed 4 times the nitrogen pre-charge pressure or 1400 psi, whichever is the lower number.



Pressure Reducing Valve



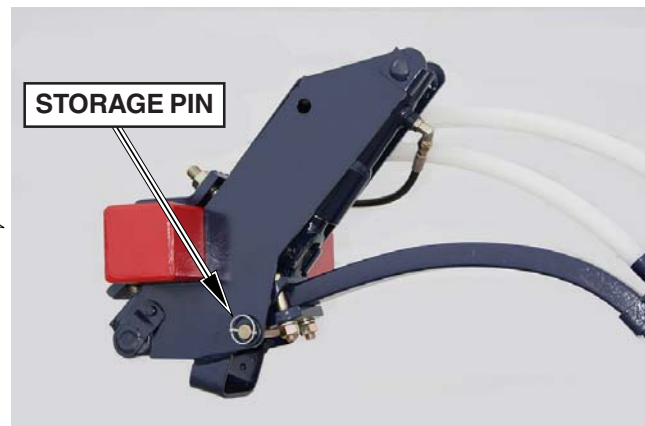
DECAL - S42324

Operation

Hydraulic Trip - Continued

Trip Lock-Up and Storage

- Before storing trips, remove all pressure from the accumulator circuit using the tractor remote.
- Once pressure is off of the trip circuit, storage pins can be removed from their storage position.
- Lift each shank up to its tripped out position and secure the storage pin in the lower storage hole (through the trip body side plates) underneath the shank holder casting.



Opener Adjustments

Double Shoot Openers

Improperly adjusted or worn seed openers can cause poor seed/fertilizer separation and plugging which could result in poor emergence.

It is important that the seed openers be properly adjusted.

Note: Points should be adjusted according to wear and deflectors replaced when worn.

Listed below are guidelines for seed openers S25962, S28158, S29000, and S29140.

Note: When applying Anhydrous Ammonia it is strongly recommended to consult local agricultural extension offices for allowable rates which are dependent on soil moisture and soil type.

Soil Condition	Point Position		
	Top	Middle (Factory Setting)	Bottom
Light Soil	Soil moisture medium	Soil moisture wet NH ³ or liquid application	Soil moisture dry NH ³ or liquid application Worn Point adjustment
Medium Soil	Soil moisture medium	Soil moisture wet NH ³ or liquid application	Soil moisture dry NH ³ or liquid application Worn Point adjustment
Heavy Soil	Soil moisture dry	Soil moisture wet NH ³ or liquid application	Not recommended Worn Point adjustment



DANGER

Failure to comply may result in death or serious injury.

Read Operator's Manual and decals on **Ammonia** tank before operating Machine. Become familiar with all warnings, instructions, and controls.

Always wear gloves and goggles when transferring or handling ammonia.

Always stay clear of hose and valve openings.

Always be sure pressure is relieved before disconnecting hoses or parts.

Always secure connecting parts and safety chains before towing ammonia trailer.

Always have ample water available in case of exposure to ammonia liquid or gases.

S29378

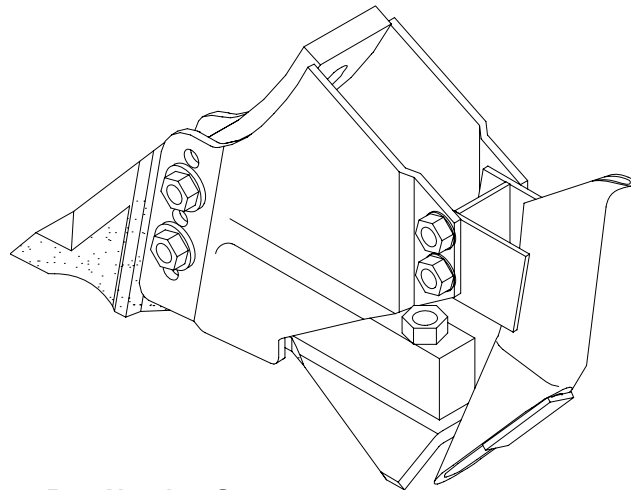
Operation

Opener Adjustments - Continued

Double Shoot Openers - Continued

Component Replacement

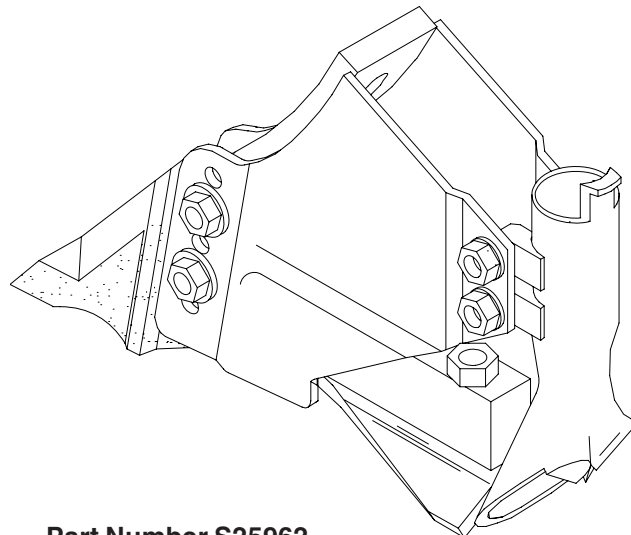
- Tighten all bolts evenly.
- Drift head of bolts with hammer to seat shoulder of bolt head.
- Re-tighten bolts evenly to specified torque.
 - **3/8" bolts torque to 30 ft. lb. (41 N-m)**
 - **7/16" bolts Grade 8 torque to 70 ft. lb. (95 N-m)**



Part Number S29140

Important

**Re-tighten all bolts after initial 10 hours.
Check tightness periodically thereafter.**



Part Number S25962

General Guidelines

The result obtained from the Morris CONCEPT 2000 floating hitch cultivator are directly related to the depth uniformity of the unit. Poor levelling, worn shovels, uneven tire pressures, and bent shanks must be avoided to obtain optimum field results.

- Operating depth should be uniform at all shank locations, when spot checking the implement in the field. See levelling and rephasing procedure.
- Repair or replace bent shanks. Bent shanks cause shovels to work at uneven depths and can cause unnecessary ridging. See Maintenance Section
- Keep tire pressure at the listed specifications to maintain proper level. See Maintenance Section
- Avoid sharp turns. Turns sharp enough to cause the inside shovels of the unit to reverse direction are not recommended. This may cause the seed boots to plug.



TAKE SAFETY SERIOUSLY.
Do Not Take Needless Chances!



Operation

Notes

Section 6: Maintenance

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Maintenance

CAUTION



BE ALERT

SAFETY FIRST

**REFER TO SECTION 1 AND REVIEW ALL
SAFETY RECOMMENDATIONS.**

General

This section deals with two goals, maximum life and dependable operation. Adopt a regular maintenance and lubrication program. Care and sufficient lubrication is the best insurance against delays.

Safety

- Always shut off the tractor and remove key before dismounting.
- Guard against hydraulic high pressure leaks with hand and face protection.
- Never work under the Implement unless it is in the down position or transport lock pins are in place and secured with hair pins. Do not depend on the hydraulic system to support the frame.
- Always wear safety goggles, breathing apparatus and gloves when working on seeder filled with chemical. Follow manufactures recommended safety procedures when working with chemicals or treated seeds.
- Do not feed left over treated seed to livestock, treated seed is poisonous and may cause harm to persons or livestock.



Warning

**Securely support any machine elements that
must be raised for service work.**



Caution





**Keep service area
clean and dry. Wet or
oily floors are slippery.**

Tighten Bolts

- Before operating the machine.
- After the first two hours of operation.
- Check tightness periodically thereafter.
- Use Bolt Torque Chart for correct values on various bolts.
- Note dashes on hex heads to determine correct grade.

Note: DO NOT use the values in the Bolt Torque Chart if a different torque value or tightening procedure is given for a specific application.

- Fasteners should be replaced with the same or higher grade. If higher grade is used, only tighten to the strength of the original.

Bolt Torque Chart				
Grade 5 Bolt Marking 		Bolt Size	Grade 8 Bolt Marking 	
Nm	lb. ft.		lb. ft.	Nm
11	8	1/4	12	16
23	17	5/16	24	33
41	30	3/8	45	61
68	50	7/16	70	95
102	75	1/2	105	142
149	110	9/16	155	210
203	150	5/8	210	285
366	270	3/4	375	508
536	395	7/8	610	827
800	590	1	910	1234
1150	850	1-1/8	1350	1850
1650	1200	1-1/4	1950	2600
2150	1550	1-3/8	2550	3400
2850	2100	1-1/2	3350	4550

Tires

- Inspect tires and wheels daily for tread wear, side wall abrasions, damaged rims or missing lug bolts and nuts. Replace if necessary.
- Tighten wheel bolts - refer to Bolt Torque Chart.
- Check tire pressure daily, when tires are cold.
- Correct tire pressure is important.
- Do not inflate tire above the recommended pressure.



Caution

Tire replacement should be done by trained personnel using the proper equipment.

Tire Specifications		
SIZE	LOAD RANGE	PRESSURE
9.5L x 15SL	6 ply rating	32 P.S.I.
9.5L x 15FI	D	60 P.S.I.
11L x 15SL	6 ply rating	28 P.S.I.
11L x 15FI	D	60 P.S.I.
11L x 15FI	F	90 P.S.I.

Maintenance

Lubrication

Greasing pivot points prevents wear and helps restrict dirt from entering. However, once dirt does enter a bearing, it combines with the lubricant and becomes an abrasive grinding paste, more destructive than grit alone.

- Apply new lubricant frequently during operation to flush out old contaminated lubricant.
- Use a good grade of **lithium based grease**.
- Use a good grade of machine oil.
- Clean grease fittings and lubricator gun before applying lubricant.

Refer to the photos for grease fitting locations.

1. Hubs

- Grease every 500 hours.

2. Gauge Wheel Castor Pivot

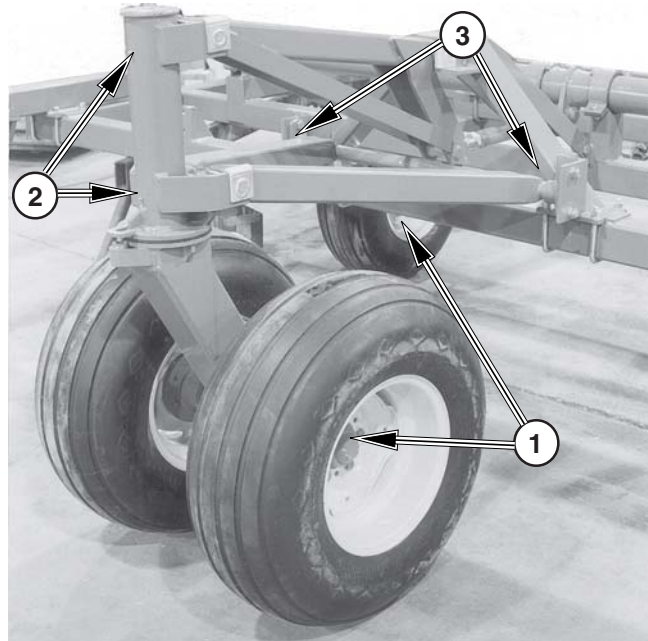
- Grease every 100 hours.

3. Main Gauge Wheel Lower Link Pivot

- Grease every 10 hours.

4. Stroke Control Collars

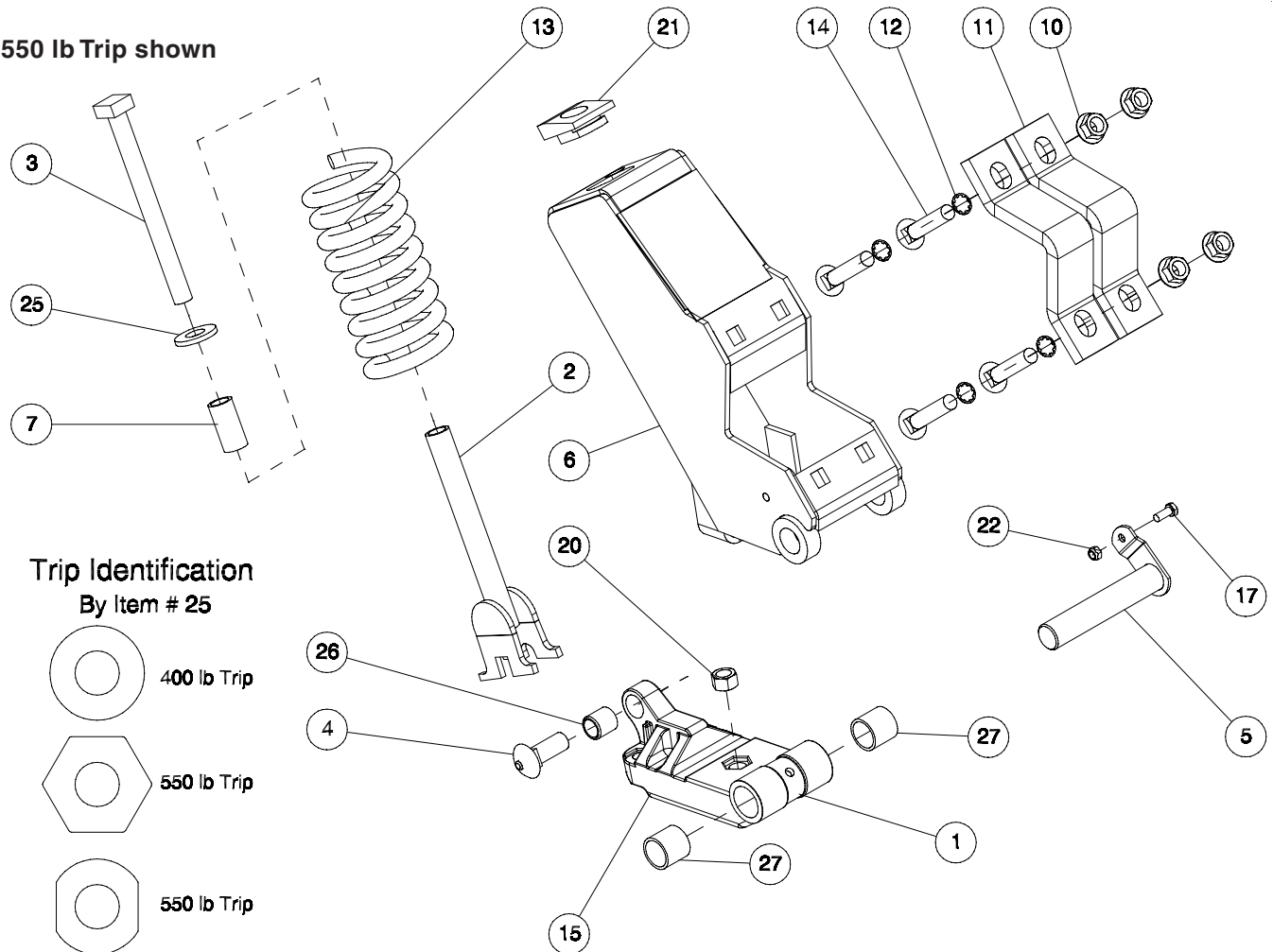
- Clean and Grease threads at end of season.



Trip Maintenance

Spring Cushion Trip Assembly

550 lb Trip shown

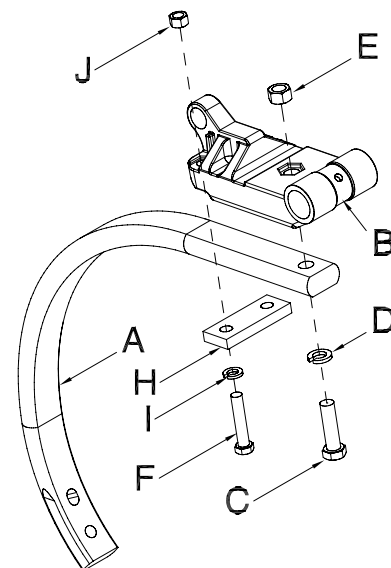


Shank Replacement - 550 lb Trip

In the event a shank needs replacing, use the following procedure.

- Remove retaining bolt (C) from casting.
- Remove Shank Holder Clamp (H) from casting.
- Lift rear of shank up and pull out.
- Reverse above procedure to reassemble.

Note: Retaining strap bolts (F) must be installed as shown to prevent interference with connecting straps.



Maintenance

Trip Maintenance - Continued

Spring Cushion Trips - Continued

Shank Replacement - 400 lb Trip

The dirt shield must be removed to install a new shank. This allows access to the shank bolt nut.

- Loosen the two jam nuts that retain the dirt shield.
- Use a screw driver to remove dirt shield.

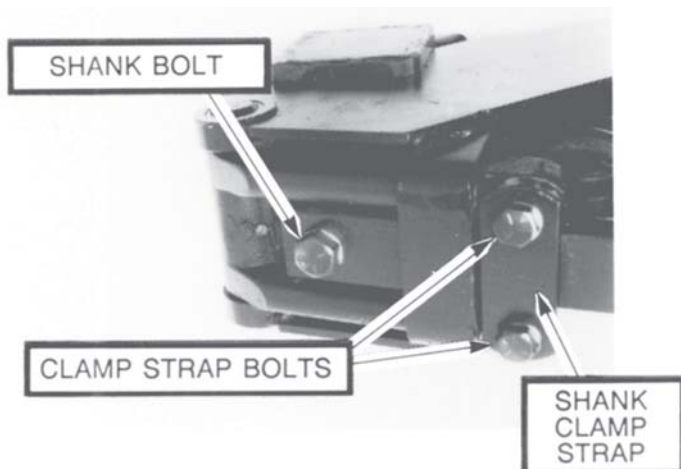
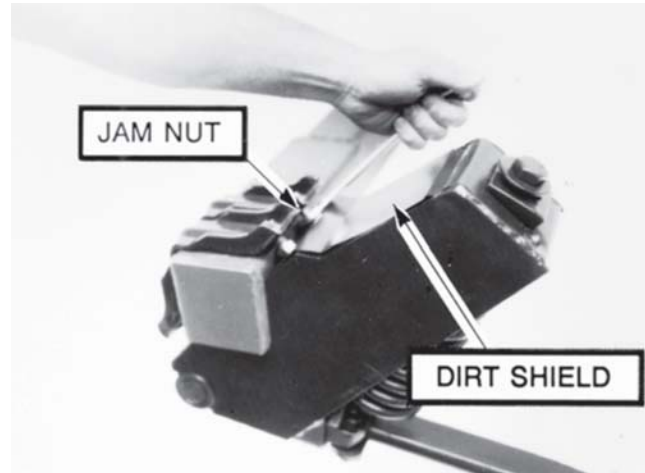
Caution

Use care when removing shield, Personal injury may occur.

- With shank in place, the shank bolt can be installed. Mount the shank clamp with the two clamp strap bolts.
- Install dirt shield.
- Snug the two jam nuts that retain the dirt shield.

Important

Snug jam nuts to the mounting plate.
Do not tighten - torque to 20 ft. lbs. (27 Nm)



Trip Maintenance - Continued

Spring Cushion Trips - Continued

Main Bushing Replacement

In the event the pivot pin nylon bushings need replacing, use the following procedure.

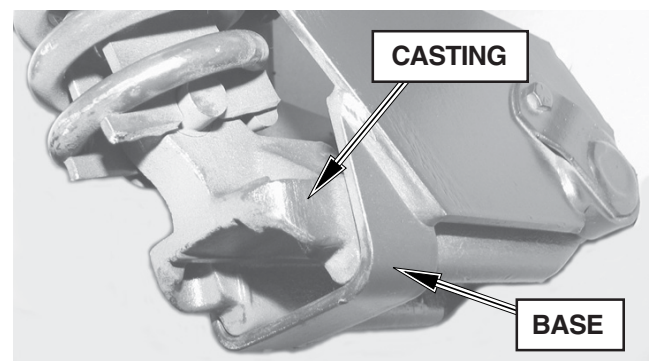
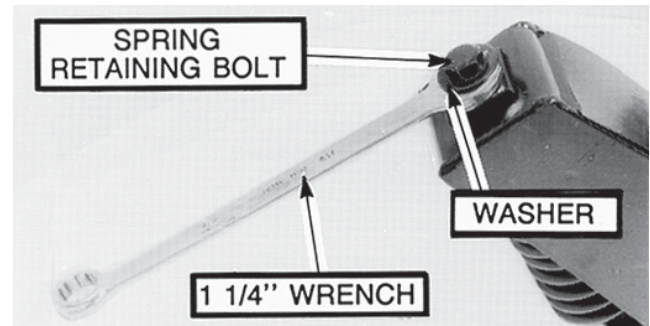
- Loosen spring retaining bolt.
- Slide a 1 1/4" wrench between the trip top and the washer on the bolt.
- Tighten bolt, this will lift the casting off the base taking the pressure off the pivot pin.
- Remove retaining bolt from pivot pin.
- Remove pivot pin from casting. To dismantle the spring, carefully unscrew the spring retaining bolt.

Note: Bolt is 8 1/4" (210 mm) long.

- Push casting down by lifting up on shank or by using a prybar.
- Remove the old bushings by pushing out towards the inside of the trip.
- Install the new bushings.

Reverse the above procedure to reassemble trip.

Note: Torque spring retaining bolt to 75 ft. lbs. (102 N-m) once trip is reassembled.

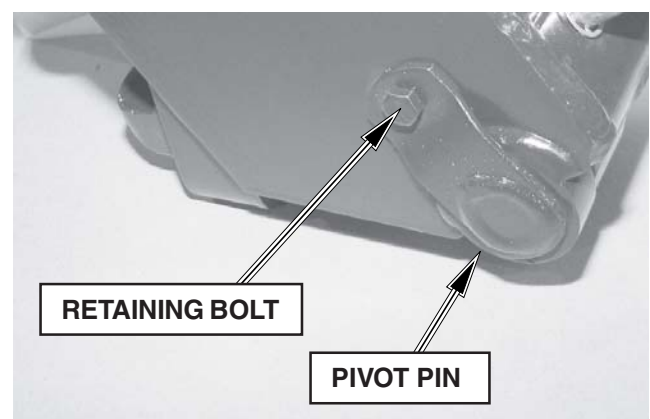


Danger

Care must be taken when replacing any trip components as the spring is under pressure.

Important

Re-torque bolts after initial 50 hours.
Check tightness periodically thereafter.
Torque Bolts as specified in
Bolt Torque Chart.



Maintenance

Trip Maintenance - Continued

Spring Cushion Trips - Continued

Spring Rod Pivot Pin Bushing Replacement

A simple check can be performed to see if the bushings need replacing.

The bushing is visible when looking at the spring rod pivot pin from the right hand side for the trip unit.

In the event the pivot pin nylon bushings need replacing, use the following procedure.

- Loosen spring retaining bolt.
- Slide two wrenches with a combined thickness of at least 1" (25 mm) between the trip top and the washer on the bolt.
- Tighten bolt fully, this will lift the casting off the base.
- Pry the casting away from the spring rod pin. The casting will drop down and the bushings can be easily accessed.
- Replace the bushing.

Reverse the above procedure to reassemble trip.

Note: The head of the spring pin must be orientated correctly with the slot in the spring rod for correct assembly - square shoulder enters the square ended slot.

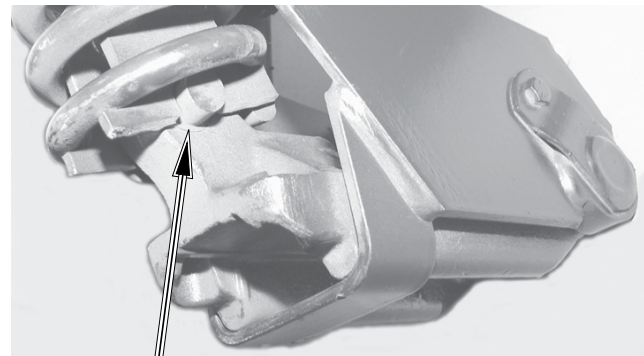
Note: Torque spring retaining bolt to 75 ft. lbs. (102 N-m) once trip is reassembled.

Danger

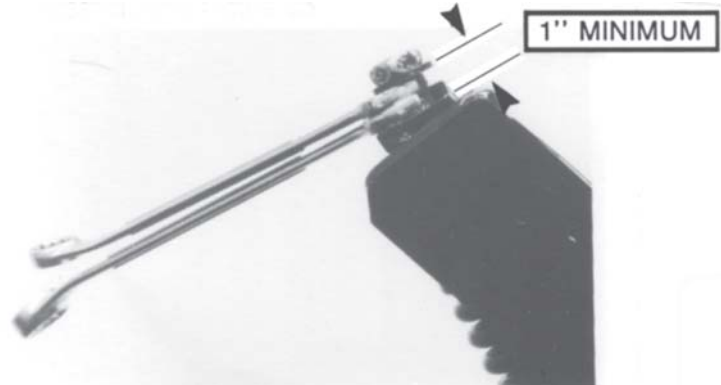
Care must be taken when replacing any trip components as the spring is under pressure.

Important

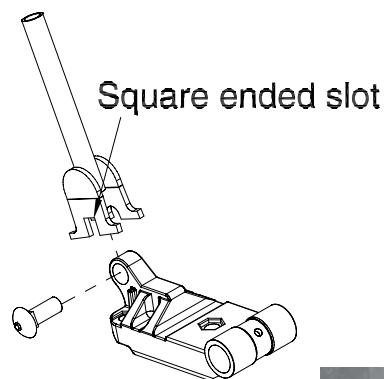
Re-torque bolts after initial 50 hours.
Check tightness periodically thereafter.
Torque Bolts as specified in Bolt Torque Chart.



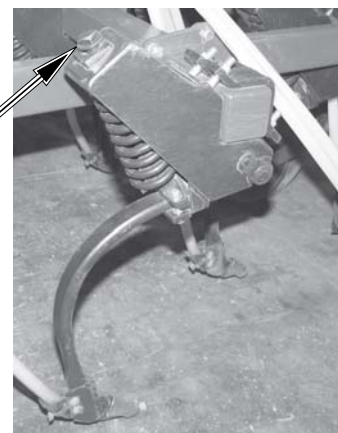
SPRING ROD
BUSHING



1" MINIMUM



Square ended slot



Torque to
75 ft.lb. (102 Nm)

Trip Maintenance - Continued

755 LH Trip

Bushing Replacement

In the event the pivot pin bushings need replacing, use the following procedure.

- Tighten spring retaining bolt (20) enough to take the pressure off spring assembly.
- Remove cotter pin (30) from trip-rocker pivot pin (16) and remove pin.
- Remove spring assembly. The trip-rocker pivot bushings (14) can be replaced at this point.
- The spring assembly may be dismantled at this point if required by unscrewing the spring retaining bolt (20).

Note: Bolt is 12 1/2" long.

- Remove shank from casting (2).
- Remove retaining bolt (18) from trip-casting pivot pin (17).
- Remove pivot pin (17) from casting (2).
- Push front of casting down and slide casting out the front of trip body. The trip-casting pivot bushings can be replaced at this point.

Note: Ensure the spring plug ends are aligned when reassembling the spring assembly.

Reverse the above procedure to reassemble trip. Loosen spring retaining bolt 1/2" to apply pressure on spring assembly.

Compression Straps

In the event the compression straps need replacing, use the following procedure.

- Tighten spring retaining bolt (20) enough to take the pressure off spring assembly.
- Remove retaining bolt (19) from connecting straps.
- Remove compression straps (5) from spring assembly by sliding outward of pins.

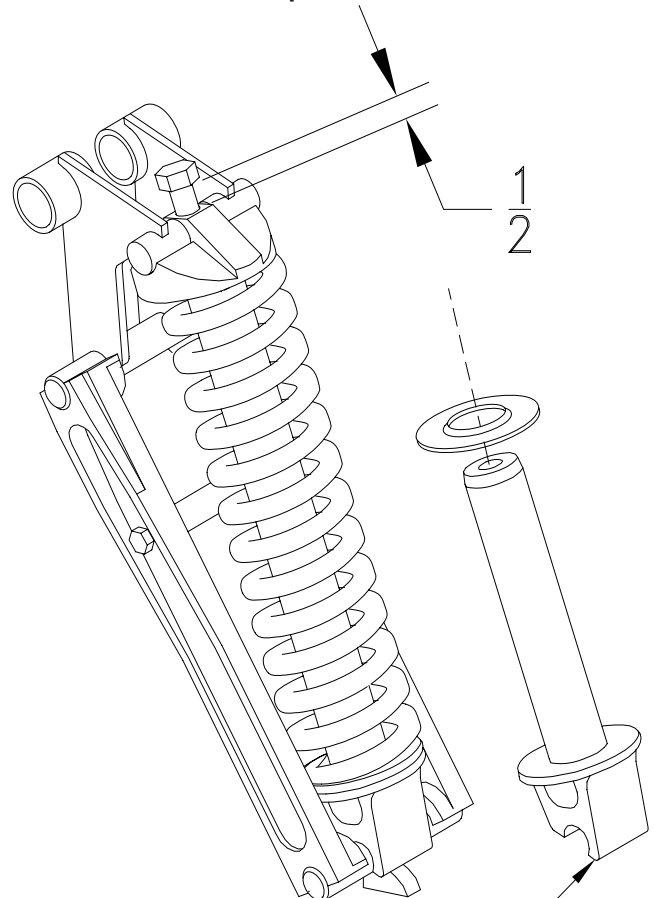
Reverse the above procedure to reassemble trip. Loosen spring retaining bolt 1/2" to apply pressure on spring assembly.

Danger

Care must be taken when replacing any trip components as the spring is under pressure.

Important: Do not remove spring retaining bolt with trip rocker still pined into trip body.

Note: Spring retaining bolt must have a clearance of 1/2" once trip is reassembled.



Note: Mount Longer lip of plug end to the front.

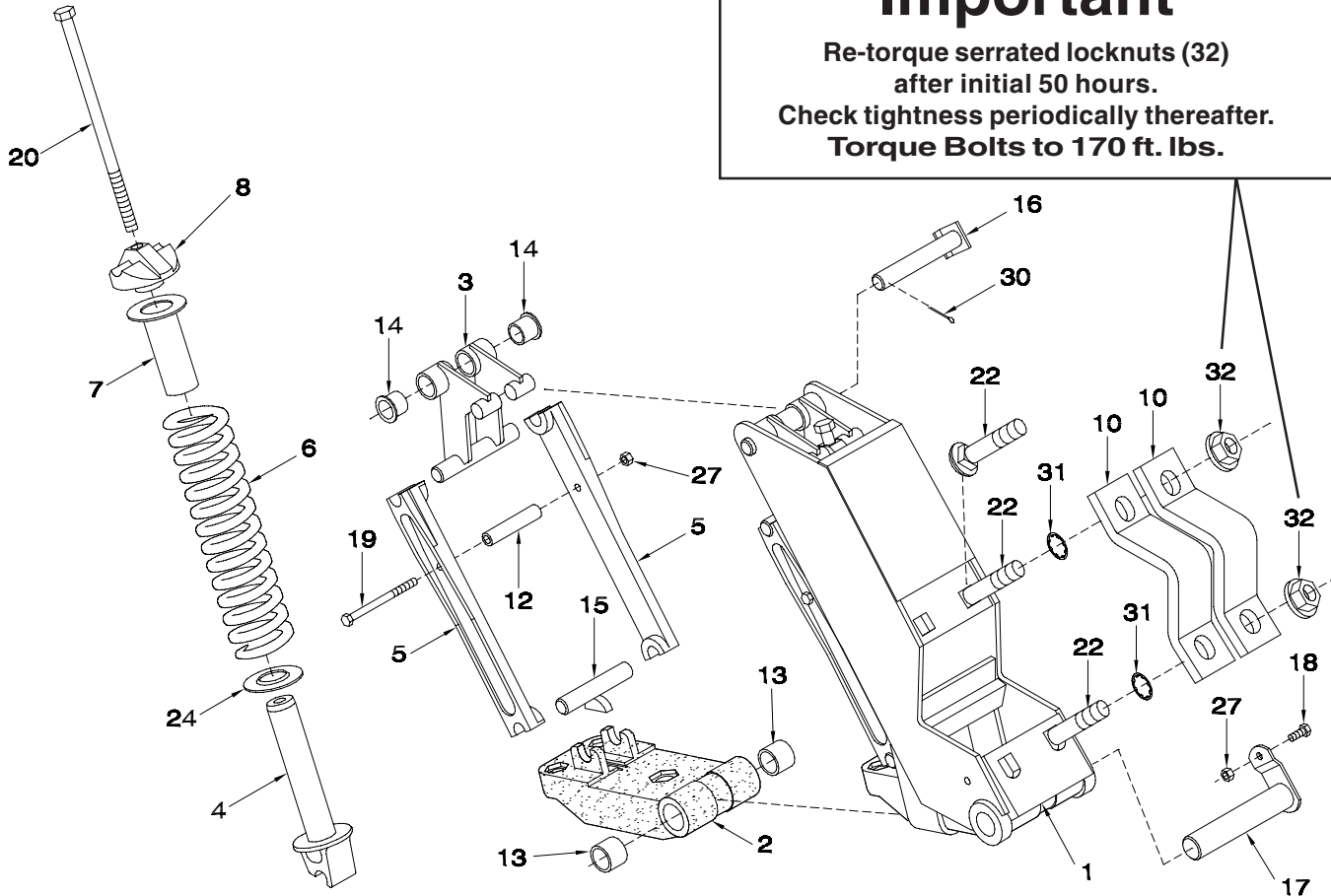
Maintenance

Trip Maintenance - Continued

LH 755 Trip Assembly

Important

Re-torque serrated locknuts (32)
after initial 50 hours.
Check tightness periodically thereafter.
Torque Bolts to 170 ft. lbs.

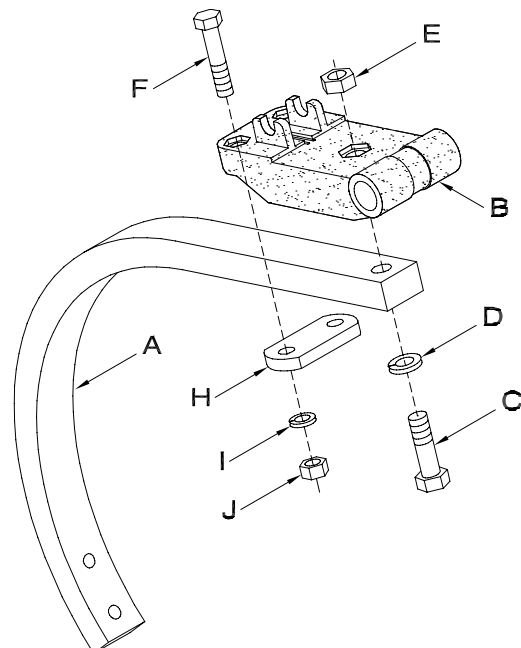


Shank Replacement

In the event a shank needs replacing, use the following procedure.

- Remove retaining bolt (C) from casting.
- Remove Shank Holder Clamp (H) from casting.
- Lift rear of shank up and pull out.
- Reverse above procedure to reassemble.

Note: Retaining strap bolts (F) must be installed as shown to prevent interference with connecting straps.



Trip Maintenance - Continued

Hydraulic Trip Assembly

Bushing Replacement

In the event the pivot pin bushings need replacing, use the following procedure.

- **Remove all pressure** from the accumulator circuit using the tractor remote.
- Shut tractor engine off and ensure park brake is engaged before proceeding.
- Once the pressure is off of the trip circuit, disconnect hydraulic hose from trip cylinder.
- Remove cotter pins (3) from the trip cylinder and remove pins (4 & 5).
- Remove the cylinder. The cylinder pivot bushings (22) can be replaced at this point.
- Remove the shank (6) from casting (1).
- Remove the retaining bolt (14) from trip-casting pivot pin (23).
- Remove the pivot pin (23) from casting (1).
- Remove the casting from the trip body. The trip-casting pivot bushings can be replaced at this point.

Reverse the above procedure to reassemble trip.



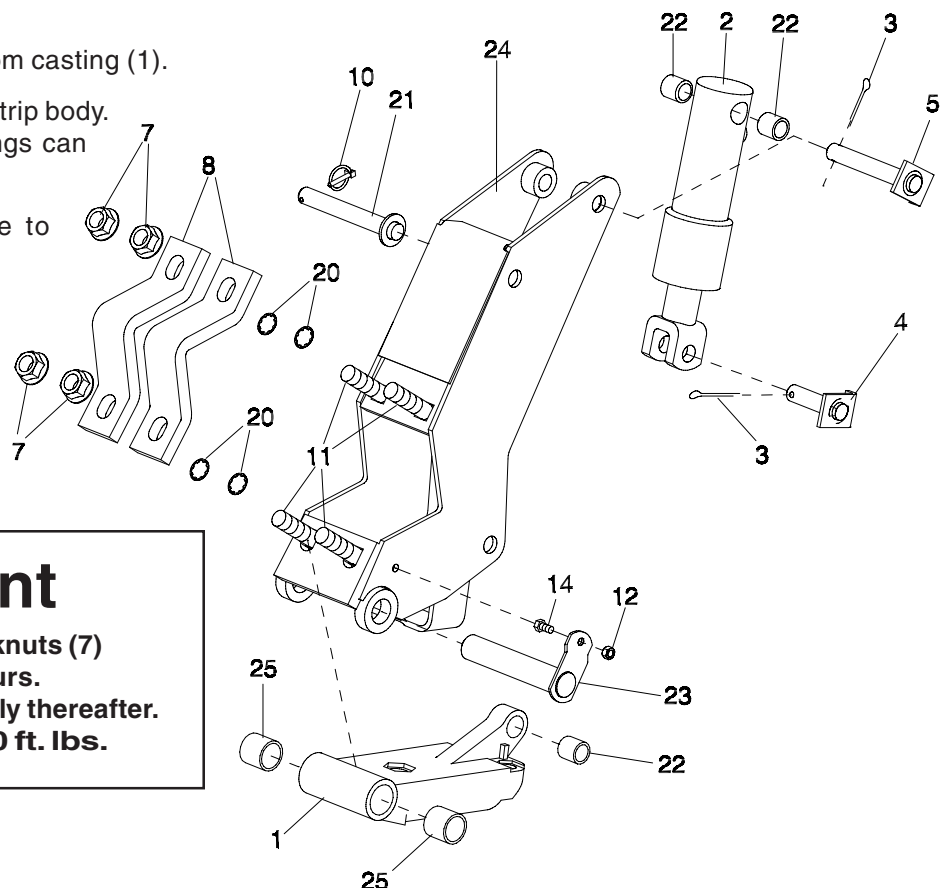
Warning



HIGH-PRESSURE FLUID HAZARD

To prevent serious injury or death:

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



Important

**Re-torque flanged locknuts (7)
after initial 50 hours.
Check tightness periodically thereafter.
Torque Bolts to 170 ft. lbs.**

Maintenance

Trip Maintenance - Continued

Hydraulic Trip Assembly - Continued

Cylinder Replacement

In the event the trip cylinder needs repair or replacing, use the following procedure.

- **Remove all pressure** from the accumulator circuit using the tractor remote.
- Shut tractor engine off and ensure park brake is engaged before proceeding.
- Once the pressure is off of the trip circuit, disconnect hydraulic hose from trip cylinder.
- Remove the cotter pins (3) from the trip cylinder and remove pins (4 & 5). Refer to diagram on previous page.
- Remove the cylinder. Repair or replace cylinder as necessary.

Reverse the above procedure to reassemble trip.

Shank Replacement

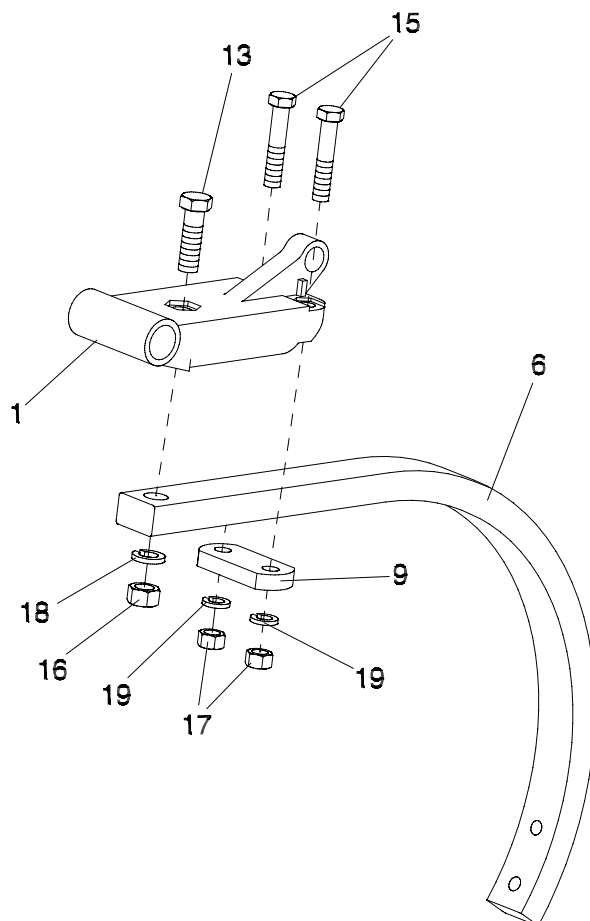
In the event a shank needs replacing, use the following procedure.

- Remove retaining bolt (13) from casting.
- Remove Shank Holder Clamp (9) from casting.
- Lift rear of shank up and pull out.
- Reverse above procedure to reassemble.

Note: Retaining strap bolts (15) must be installed as shown to prevent interference with the trip cylinder.

 Warning

HIGH-PRESSURE FLUID HAZARD To prevent serious injury or death: <ul style="list-style-type: none">• Relieve pressure on hydraulic system before servicing or disconnecting hoses.• Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.• Keep all components in good repair.



Axle Pivot Bushings

Inspect seasonally the axle pivots for wear. Replace bushings if excessive movement is found.

In the event the Axle Pivot Bushings need replacing, use the following procedure.

- Lower machine taking weight off axles.
- Shut tractor off and remove key.
- Block wheel on tractor.
- Remove roll pin (G) from pivot pin (F).
- Remove pivot pin (F).
- Remove seals (D).
- Remove pivot bushings (C).
- Thoroughly clean all parts.
- Inspect pivot pin for abrasions, replace if necessary.

Note: Any abrasions on the pin will severely limit the life of the bushings.

- Carefully press bushings (C) in place, ensuring the inner lining of the bushings are not damaged.
- Install the seals (D) with the **seal lips facing out**.

Note: Seal lips *must* face outward to prevent dust from entering bushings.

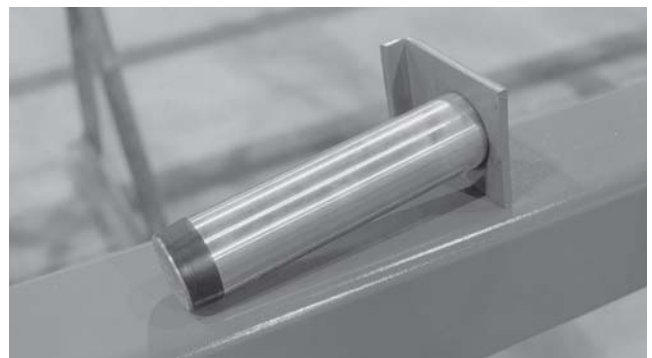
- Apply a thin layer of oil onto seal lips to ease in the installation of pivot pin.
- Place cupped washers (E) over seals.
- Align axle walking beam (B) with axle beam (A).
- Wrap a single layer of electrical tape over hole. This will ensure the edge of the hole will not damage the seal lips.

Note: Do not use grease on any components.

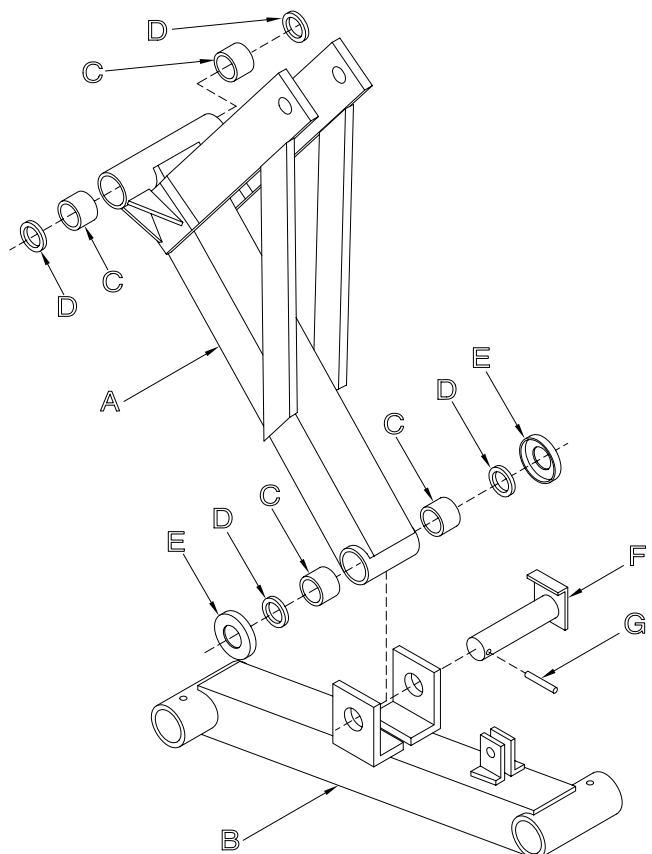
- Carefully install pivot pin, ensuring the seal lips and inner lining of the bushings are not damaged.
Do not force pin through the bushings.



Seal Lips Facing Out



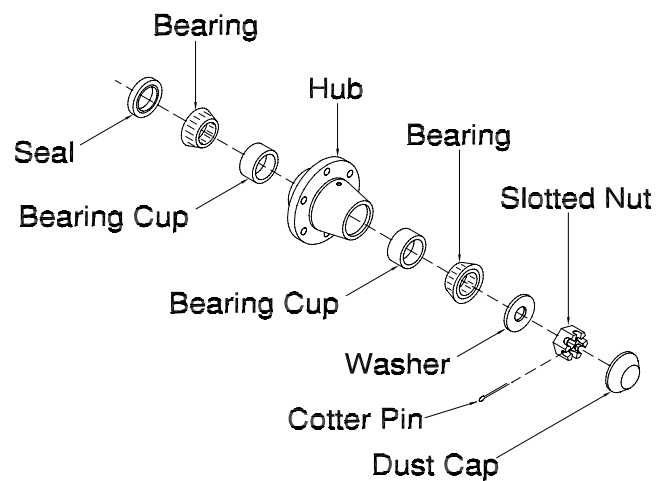
Tape Pivot Pin Hole



Maintenance

Wheel Bearings

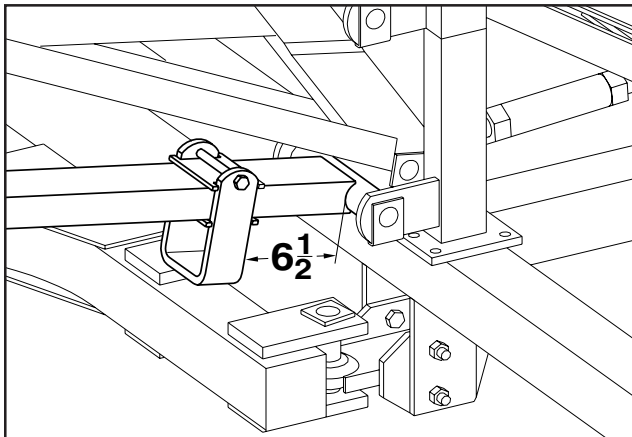
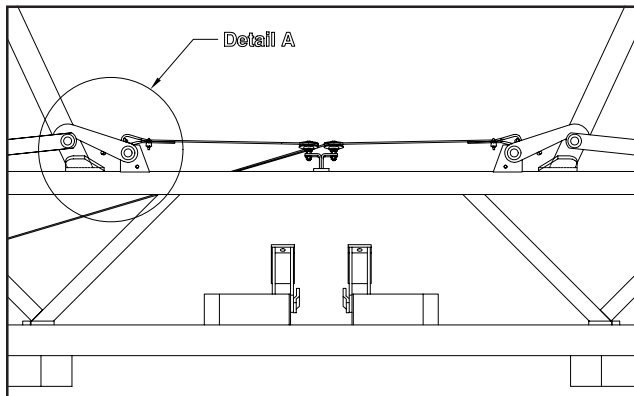
- Lower the cultivator and raise the wheels enough to clear the surface.
- Shut tractor off and remove key.
- Block wheel on tractor.
- Remove wheel from hub.
- Remove the dust cap, cotter pin, and the slotted nut and washer.
- Be careful when pulling the hub off as not to drop the outer bearing.
- Clean spindle and bearing components with solvent.
- Inspect for wear on bearings, spindle and cups, replace parts as required.
- Do not reuse old seals. Use only new seals when assembling.
- Pack inner hub with bearing grease.
- Be sure bearing and cup are dry and clean.
- Work grease into the bearing rollers, until each part of the bearing is completely full of grease.
- Install inner bearing and cup first, then press new seals in place.
- Place hub on spindle.
- Install outer bearing, washer and slotted nut.
- Tighten nut while turning the wheel until a slight drag is felt.
- Back nut off one slot and install a cotter pin. Bend cotter pin up around nut.
- Pack grease inside the dust cap and tap into position.



Wing Lift Adjustments



29, 32 and 38 Base Unit



2. Spacer Block (3-Frame Only)

- Ensure block is in full contact with the wing hitch truss through out the full wing lift cycle.
- If block slips off wing hitch truss adjust block as required.

Note: The shims can be moved top to bottom if required.

There are three adjustments which need to be checked periodically to ensure proper wing lift operation.

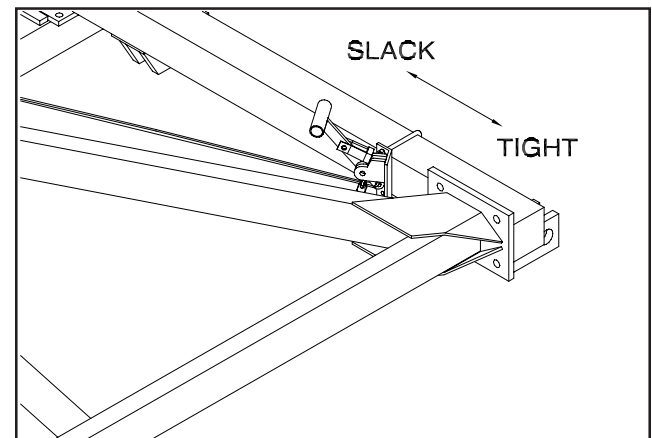
1. Rear Wing Rest

3 Frame:

- Ensure wing support tube is fully seated in saddle on wing lift truss. If tube is not fully seated, the rear wing rest must be moved toward the inside of the mainframe.
- Adjust rear wing rest so that wing contacts both front and rear wing rests when machine is folded in transport. If wing does not contact front rest, rear wing rest must be moved toward outside of mainframe.

5 Frame:

- Ensure wing support tube is fully seated in saddle on wing lift truss (See Detail A). If tube is not fully seated, the front rest on the mainframe must be moved toward the inside of the machine.
- Ensure pad on rear wing rest on mainframe contacts inner wing frame when machine is folded in transport.



3. Transport Lock Lever

- Cable should be snug with wings fully raised and transport locks engaged.
- If cable is slack adjust as required with wings fully raised and transport locks engaged.
- Ensure transport locks fully engage cylinder lock bracket.

Maintenance

Nylon Wear Strips

In the event the Nylon Wear Strips need replacing, use the following procedure.

- Lower the cultivator and raise the wheels enough to clear the surface.
- Shut tractor off and remove key.
- Block wheel on tractor.
- Remove all clamp straps (A) and shims (G) from the torque tube (F).
- Remove nylon wear strips (E).
- Insert the new nylon wear strips (E) around the torque tube (F).

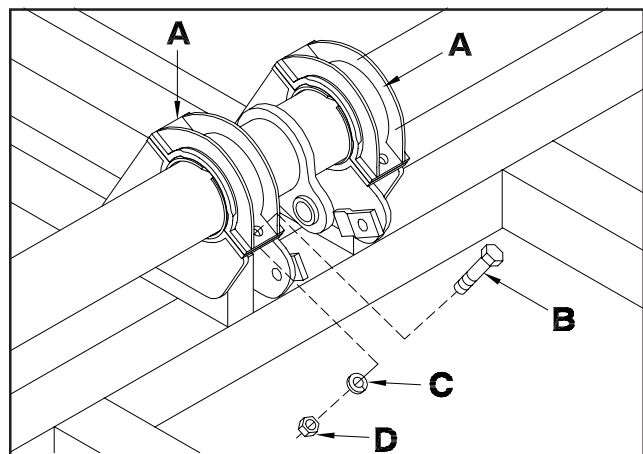
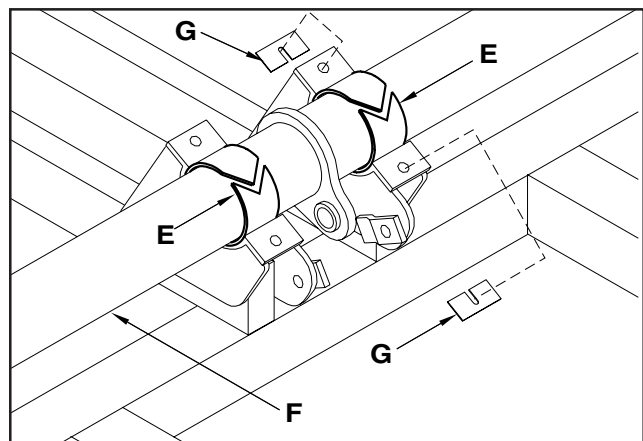
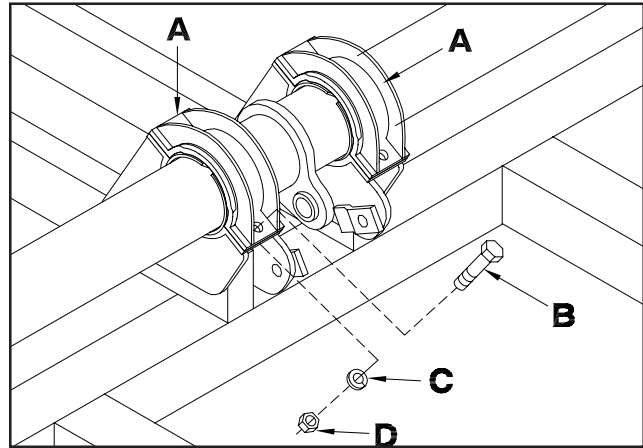
Note: Position nylon wear strip joint at the mid point of clamp strap.

- Secure torque tube in place with clamp straps (A), the 5/8" bolts (B), lockwashers (C), and nuts (D).

Note: The joint of the nylon wear strip should be at the mid point of clamp strap.

- If the torque tube can easily be turned by hand, shims (G) will need to be placed between the clamp straps and the torque tube brackets.

Note: Shims can be added or removed as needed so that the torque tube can be turned by hand.



Hydraulics

Refer to Section 1 regarding hydraulic safety. In addition:

- Inspect hydraulic system for leaks, damaged hoses and loose fittings.
- Damaged Hoses and hydraulic tubing can only be repaired by replacement. **DO NOT ATTEMPT REPAIRS WITH TAPE OR CEMENTS.** High pressure will burst such repairs and cause system failure and possible injury.
- Leaking cylinders - install a new seal kit.
- Fittings - use liquid Teflon on all NPT hydraulic joints. **Do not use liquid Teflon or Teflon tape on JIC or ORB ends.**
- Hydraulic Hose Connections - when connecting the hoses to the cylinders, tubing, etc. always use one wrench to keep the hose from twisting and another wrench to tighten the union. Excessive twisting will shorten hose life.
- Keep fittings and couplers clean.
- Check the Tractor Manual for proper filter replacement schedule.

Refer to the Trouble Shooting Section.

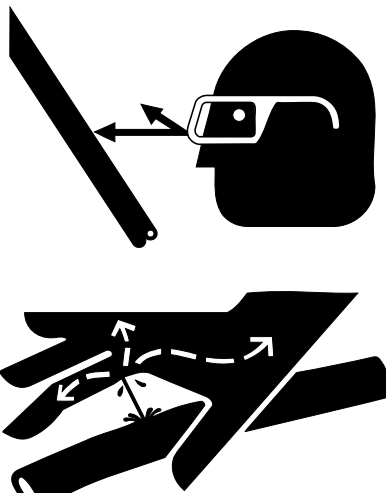


Contact your nearest Dealer for genuine repair parts. Dealers carry ample stocks and are backed by the manufacture and regional associations.

Caution

Dirt in the hydraulic system could damage O-rings, causing leakage, pressure loss and total system failure.

Note: Extreme care must be taken to maintain a clean hydraulic system. Use only new hydraulic fluid when filling reservoir.



Warning

HIGH-PRESSURE FLUID HAZARD

To prevent serious injury or death:

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

Maintenance

Notes

Section 7: Storage

Section Contents

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Storage

Preparing for Storage

- To insure longer life and satisfactory operation, store the implement in a shed.
- If building storage is impossible, store away from areas of main activity on firm, dry ground.
- Clean machine thoroughly.
- Grease all discs.
- Inspect all parts for wear or damage.
- Avoid delays - if parts are required, order at the end of the season.
- Lubricate grease fittings. (Refer to Maintenance Section).
- Tighten all bolts to proper specifications (Refer to Maintenance Section).
- For a safer storage, lower the implement into field position and release the hydraulic pressure.
- If implement must be stored in a raised position, ensure that wings are properly secured with lock pins.
- Level implement using hitch jack and block up.
- Relieve pressure from hydraulic system.
- Raise frames, block up and relieve weight from the tires.
- Cover tires with canvas to protect them from the elements when stored outside.
- Coat exposed cylinder shafts (**Refer to Cylinder Shaft Protection**).
- Paint any surfaces that have become worn.



Warning

**Do not allow children to play
on or around the machine.**

MORRIS PAINT

Spray Cans:

Part Number	Description
W-4647	Red MORRIS Spray Can
W-4648	Blue MORRIS Spray Can
N31087	White MORRIS Spray Can

Litre Cans:

Part Number	Description
Z-10	Red MORRIS Paint/Litre
Z-11	Blue MORRIS Paint/Litre

Cylinder Shaft Protection

The steps summarized below should be followed when protecting chrome plated shafting on equipment:

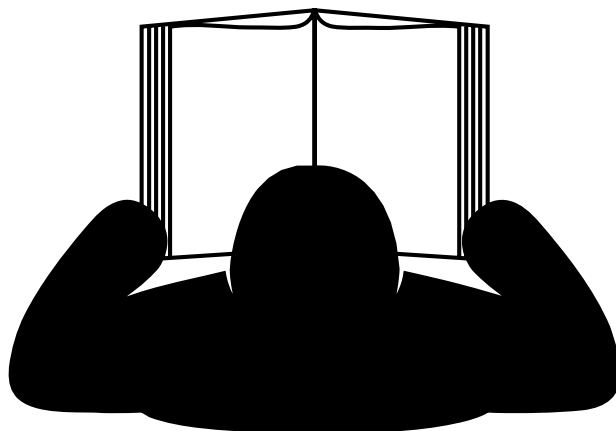
- Position the equipment as it will be stored, and identify all the exposed portions of the chrome plated shafts.
- Clean dirt and dust from the exposed portions of the shafting using a dry cloth or a cloth which has been dampened with an appropriate solvent.
- Prepare a mixture of 60% oil-based rust inhibitor and 40% Kerosene. Apply a thin coating of this mixture to the exposed surfaces of the chrome plated shafting. No. 1 fuel oil may be substituted for Kerosene. A cloth dipped in the mixture can be used to apply the coating.
- Inspect the shaft surfaces after six months and apply additional corrosion preventative mixture.
- If the equipment is to be moved and then stored again for an extended period of time, the steps above should be repeated for all shafts that were stroked during the move.
- **Before retracting the cylinders the protective coating should be removed**, to prevent fine sand and dirt that has accumulated in the coating, from damaging the shaft seal. **Under no circumstances should sandpaper or other abrasive be used to clean the surfaces.** Plastic or copper wool in combination with an appropriate solvent will remove most of the dirt.

Caution

Dirt in the hydraulic system could damage O-rings, causing leakage, pressure loss and total system failure.

Removing From Storage

- Review Operator's Manual.
- Check tire pressure (Refer to Tire Pressure List)
- Clean machine thoroughly. Remove coating from exposed cylinder shafts (**Refer to Cylinder Shaft Protection**).
- Lubricate grease fittings. (Refer to Lubricating Section).
- Tighten all bolts to proper specifications (Refer to Bolt Torque Chart).



Storage

Notes

Section 8: Troubleshooting

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Machine not operating straight.	8-2
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Wings not lining up with transport locks properly.	8-3
Tire damage.	8-3

Troubleshooting

Problem	Cause	Correction
Machine not operating straight.	Not levelled.	Refer to Operation Section on levelling.
		Rephase cylinders.
		Check tire pressure.
Lack of penetration.	Not levelled.	Refer to Operation Section on levelling.
	Sweeps worn.	Replacement necessary.
	Sweep angle.	755 Stem requires 50 degree tools. 400 Stem requires 47 degree tools.
Sweeps wearing unevenly	Not levelled front to rear.	Refer to Operation Section on levelling.
	Tire tracks. Front row always wears more than the others.	Replace worn sweeps.
Wing lifting too slowly.	Tractor hydraulic pressure.	Repair pump. Pressure relief valve needs resetting.
	Hydraulic breakaways.	Foreign material or sticking. Check compatibility.
	Hose restriction.	Cylinder linkage binding.
Wings not lowering.	Transport pins installed.	Remove pins.
Oil accumulation.	Damaged seal.	Replace seals.
	Loose fittings.	Tighten hose and pipe connections.
	Scored cylinder shaft will damage shaft seal.	Replace.
	Normal.	Slight seepage from seal is normal.

Troubleshooting

Problem	Cause	Correction
One wing will lift, other will not.	Assembly.	Hoses reversed at cylinder.
	Restriction in line.	Clean.
	Internal cylinder leak.	Repair cylinder.
Depth control not working.	Cylinders not phased.	Refer to Operation Section on rephasing.
	Leaks.	Use hand and eye protection - Check for external leaks.
	Low oil level.	Fill tractor reservoir.
	Hydraulics clogged.	Replace filter.
	Depth control plungers not fully closed/retracted.	Adjust depth stop to ensure both plungers close.
	Depth control collars not adjusted evenly.	Measure and ensure all collars are adjusted properly.
Wings not lining up with transport locks properly.	Load Sensing Systems create a void in the cylinders	Install C15975 restrictor valve on return line. See Service Bulletin #194.
	Transport rests not adjusted properly.	Refer to “ <i>Wing Lift Adjustments</i> ” in Maintenance Section.
Tire damage.	Sweeps too close to tires.	Check shank spacing.

Troubleshooting

Notes



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