

MacDon[®]

R85 Rotary Disc 16-Foot Pull-Type Mower Conditioner Unloading and Assembly Instructions

Published: November, 2013
Original Instruction

INTRODUCTION

This instruction describes the unloading, set-up, and predelivery requirements for the Model R85 16-Foot Pull-Type Rotary Disc Mower Conditioner.

Use the Table of Contents to guide you to specific areas.

CAREFULLY READ ALL THE MATERIAL PROVIDED BEFORE ATTEMPTING TO UNLOAD, ASSEMBLE, OR USE THE MACHINE.



R85 16 FOOT PULL-TYPE ROTARY DISC MOWER CONDITIONER

TABLE OF CONTENTS

Section/Title	Page
INTRODUCTION	2
GENERAL SAFETY	3
RECOMMENDED TORQUES	5
A. GENERAL	5
B. SAE BOLTS	5
C. METRIC BOLTS.....	5
D. FLARE TYPE HYDRAULIC FITTINGS	6
E. O-RING BOSS (ORB) HYDRAULIC FITTINGS	6
F. O-RING FACE SEAL (ORFS) HYDRAULIC FITTINGS	7
CONVERSION CHART	8
DEFINITIONS	9
STEP 1. UNLOAD ARTICULATED POWER TURN (APT) HITCH	10
STEP 2. UNLOAD MOWER CONDITIONER	11
STEP 3. LOWER MOWER CONDITIONER	12
STEP 4. REMOVE SHIPPING CHANNELS AND BLOCKING	13
STEP 5. REMOVE FORMING SHIELD	14
STEP 6. UNPACK ARTICULATED POWER TURN (APT) HITCH	16
STEP 7. ATTACH ARTICULATED POWER TURN (APT) HITCH	18
STEP 8. CONNECT LIFT HOSE	19
STEP 9. CONNECT WIRING HARNESS	19
STEP 10. INSTALL HYDRAULIC MOTOR	20
STEP 11. REMOVE BANDING AT LIFT CYLINDERS	21
STEP 12. INSTALL WHEELS	21
STEP 13. CENTER-LINK SETUP	22
STEP 14. INSTALL FORMING SHIELD	22
A. ATTACH FORMING SHIELD	22
B. INSTALL SUPPORTS.....	23
C. INSTALL REAR DEFLECTOR	24
D. ADJUST SIDE DEFLECTORS.....	24
STEP 15. REMOVE WEDGES	25
STEP 16. INSTALL CENTER-LINK	26
A. MECHANICAL LINK.....	26
B. HYDRAULIC LINK	26
STEP 17. TRACTOR SETUP	26
A. DRAWBAR ADJUSTMENT.....	26
B. DRAWBAR HITCH SETUP.....	27
C. 3-POINT HITCH SETUP	28
STEP 18. MOWER CONDITIONER/ TRACTOR HOOKUP	29
A. DRAWBAR HOOKUP	29
B. 3-POINT HITCH HOOKUP	30
STEP 19. ATTACH HYDRAULICS	31
STEP 20. ATTACH ELECTRICAL CONNECTOR	32
STEP 21. INSTALL STEERING CYLINDER	33
STEP 22. FILL LIFT CYLINDERS	34

TABLE OF CONTENTS

STEP 23. INSTALL FLOAT SPRINGS	35
STEP 24. INSTALL TALL CROP FEED PLATES	36
STEP 25. INSTALL OPTIONS	40
A. TALL CROP DIVIDER KIT	40
B. SKID SHOES	40
STEP 26. LUBRICATE MOWER CONDITIONER	41
A. OPENING/CLOSING DRIVESHIELDS.....	41
B. LUBRICATION PROCEDURE	41
STEP 27. PERFORM PREDELIVERY CHECKS	46
A. DRIVE BELTS	46
B. MOWER CONDITIONER FLOAT.....	47
C. SKID SHOES	47
D. CONDITIONER ROLLS.....	48
E. GEARBOX OIL LEVELS	50
F. LIGHTS	51
G. MANUALS	51
H. RUN-UP THE MOWER CONDITIONER	52
STEP 28. INSTALL TRUCK TRANSPORT HITCH	53

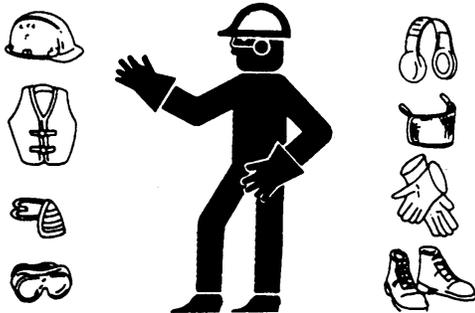
GENERAL SAFETY



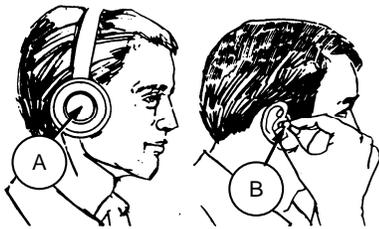
CAUTION

The following are general farm safety precautions that should be part of your operating procedure for all types of machinery.

- Protect yourself.
- When assembling, operating, and servicing machinery, wear all the protective clothing and personal safety devices that **COULD** be necessary for the job at hand. Don't take chances.
- You may need:



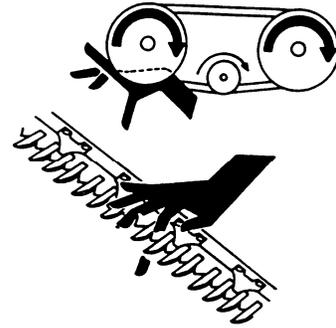
- a hard hat.
- protective shoes with slip resistant soles.
- protective glasses or goggles.
- heavy gloves.
- wet weather gear.
- respirator or filter mask.



- hearing protection. Be aware that prolonged exposure to loud noise can cause impairment or loss of hearing. Wearing a suitable hearing protective device such as ear muffs (A) or ear plugs (B) protects against objectionable or loud noises.



- Provide a first-aid kit for use in case of emergencies.
- Keep a fire extinguisher on the machine. Be sure the extinguisher is properly maintained and be familiar with its proper use.
- Keep young children away from machinery at all times.
- Be aware that accidents often happen when the Operator is tired or in a hurry to get finished. Take the time to consider the safest way. Never ignore warning signs of fatigue.
- Wear close-fitting clothing and cover long hair. Never wear dangling items such as scarves or bracelets.
- Keep hands, feet, clothing, and hair away from moving parts. Never attempt to clear obstructions or objects from a machine while the engine is running.



- Keep all shields in place. Never alter or remove safety equipment. Make sure driveline guards can rotate independently of the shaft and can telescope freely.
- Use only service and repair parts made or approved by the equipment manufacturer. Substituted parts may not meet strength, design, or safety requirements.
- Do **NOT** modify the machine. Unauthorized modifications may impair the function and/or safety and affect machine life.

(continued next page)

SAFETY

- **Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.**



- **Keep the area used for servicing machinery clean and dry. Wet or oily floors are slippery. Wet spots can be dangerous when working with electrical equipment. Be sure all electrical outlets and tools are properly grounded.**
- **Use adequate light for the job at hand.**
- **Keep machinery clean. Do NOT allow oil or grease to accumulate on service platforms, ladders or controls. Clean machines before storage.**
- **Never use gasoline, naphtha, or any volatile material for cleaning purposes. These materials may be toxic and/or flammable.**
- **When storing machinery, cover sharp or extending components to prevent injury from accidental contact.**

GENERAL

RECOMMENDED TORQUES

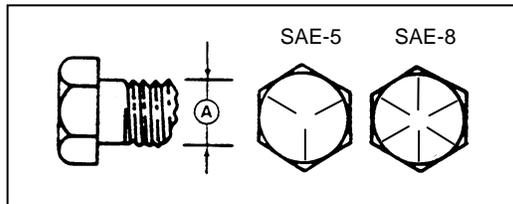
A. GENERAL

- Tighten all bolts to the torques specified in chart unless otherwise noted throughout this manual.
- Check tightness of bolts periodically, using bolt torque chart as a guide.
- Replace hardware with the same strength bolt.
- Torque figures are valid for non-greased or non-oiled threads and heads unless otherwise specified. Do not grease or oil bolts or cap screws unless specified in this manual.
- When using locking elements, increase torque values by 5%.

B. SAE BOLTS

Bolt dia. "A" in.	NC bolt torque*			
	SAE-5		SAE-8	
	lbf-ft	N-m	lbf-ft	N-m
1/4	9	12	11	15
5/16	18	24	25	34
3/8	32	43	41	56
7/16	50	68	70	95
1/2	75	102	105	142
9/16	110	149	149	202
5/8	150	203	200	271
3/4	265	359	365	495
7/8	420	569	600	813
1	640	867	890	1205

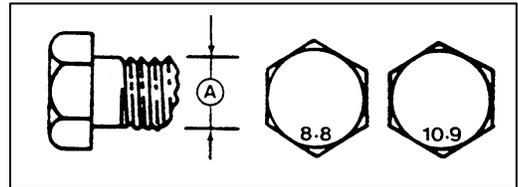
* Torque categories for bolts and cap screws are identified by their head markings.



C. METRIC BOLTS

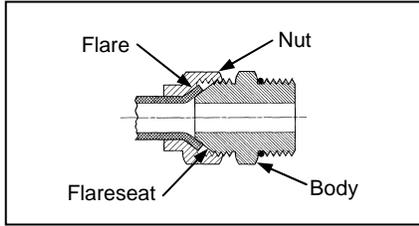
Bolt dia. "A"	Std coarse bolt torque*			
	8.8		10.9	
	lbf-ft	N-m	lbf-ft	N-m
M3	0.4	0.5	1.3	1.8
M4	2.2	3	3.3	4.5
M5	4	6	7	9
M6	7	10	11	15
M8	18	25	26	35
M10	37	50	52	70
M12	66	90	92	125
M14	103	140	148	200
M16	166	225	229	310
M20	321	435	450	610
M24	553	750	774	1050
M30	1103	1495	1550	2100
M36	1917	2600	2710	3675

* Torque categories for bolts and cap screws are identified by their head markings.



GENERAL

D. FLARE TYPE HYDRAULIC FITTINGS

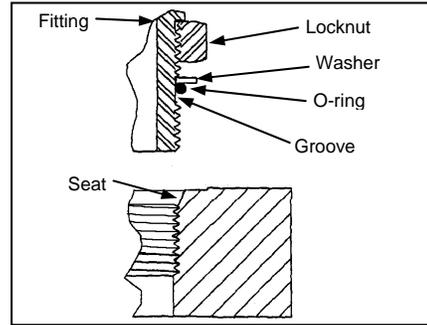


- a. Check flare and flare seat for defects that might cause leakage.
- b. Align tube with fitting before tightening.
- c. Lubricate connection and hand-tighten swivel nut until snug.
- d. To prevent twisting the tube(s), use two wrenches. Place one wrench on the connector body, and with the second, tighten the swivel nut to the torque shown.

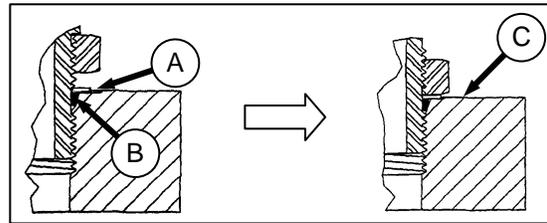
SAE no.	Tube size O.D. (in.)	Thd size (in.)	Nut size across flats (in.)	Torque value*		Recommended turns to tighten (after finger tightening)	
				ft-lbf	N-m	Flats	Turns
3	3/16	3/8	7/16	6	8	1	1/6
4	1/4	7/16	9/16	9	12	1	1/6
5	5/16	1/2	5/8	12	16	1	1/6
6	3/8	9/16	11/16	18	24	1	1/6
8	1/2	3/4	7/8	34	46	1	1/6
10	5/8	7/8	1	46	62	1	1/6
12	3/4	1-1/16	1-1/4	75	102	3/4	1/8
14	7/8	1-3/8	1-3/8	90	122	3/4	1/8
16	1	1-5/16	1-1/2	105	142	3/4	1/8

* The torque values shown are based on lubricated connections as in reassembly.

E. O-RING BOSS (ORB) HYDRAULIC FITTINGS



- a. Inspect O-ring and seat for dirt or obvious defects.



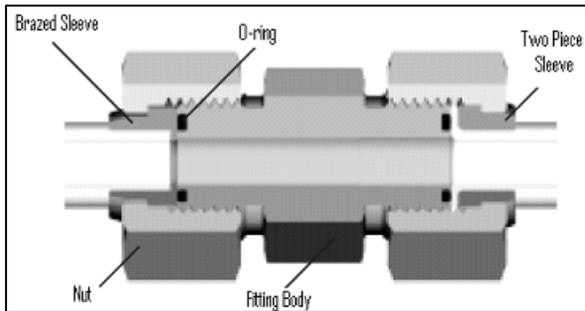
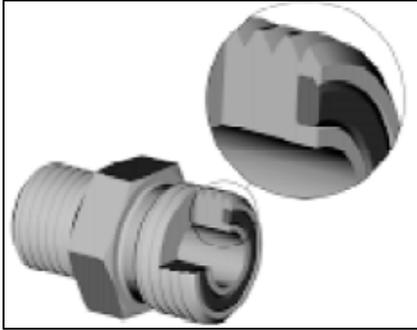
- b. On angle fittings, back off the lock nut until washer (A) bottoms out at top of groove (B) in fitting.
- c. Hand-tighten fitting until back up washer (A) or washer face (if straight fitting) bottoms on part face (C) and O-ring is seated.
- d. Position angle fittings by unscrewing no more than one turn.
- e. Tighten straight fittings to torque shown.
- f. Tighten angle fittings to torque shown in the following table, while holding body of fitting with a wrench.

SAE no.	Thd size (in.)	Nut size across flats (in.)	Torque value*		Recommended turns to tighten (after finger tightening)	
			ft-lbf	N-m	Flats	Turns
3	3/8	1/2	6	8	2	1/3
4	7/16	9/16	9	12	2	1/3
5	1/2	5/8	12	16	2	1/3
6	9/16	11/16	18	24	2	1/3
8	3/4	7/8	34	46	2	1/3
10	7/8	1	46	62	1-1/2	1/4
12	1-1/16	1-1/4	75	102	1	1/6
14	1-3/16	1-3/8	90	122	1	1/6
16	1-5/16	1-1/2	105	142	3/4	1/8
20	1-5/8	1-7/8	140	190	3/4	1/8
24	1-7/8	2-1/8	160	217	1/2	1/12

* The torque values shown are based on lubricated connections as in reassembly.

GENERAL

F. O-RING FACE SEAL (ORFS) HYDRAULIC FITTINGS



- Check components to ensure that the sealing surfaces and fitting threads are free of burrs, nicks, and scratches or any foreign material.
- Apply lubricant (typically Petroleum Jelly) to O-ring and threads. If O-ring is not already installed, install O-ring.
- Align the tube or hose assembly. Ensure that flat face of the mating flange comes in full contact with O-ring.
- Thread tube or hose nut until hand-tight. The nut should turn freely until it is bottomed out. Torque fitting further to the specified number of F.F.T ("Flats From Finger Tight"), or to a given torque value in the table shown in the opposite column.

NOTE

If available, always hold the hex on the fitting body to prevent unwanted rotation of fitting body and hose when tightening the fitting nut.

- When assembling unions or two hoses together, three wrenches will be required.

SAE no.	Thd size (in.)	Tube O.D. (in.)	Torque value*		Recommended turns to tighten (after finger tightening)**	
			ft-lbf	N-m	Tube Nuts	Swivel & Hose
3	***	3/16	---	---	---	---
4	9/16	1/4	11-12	14-16	1/4-1/2	1/2-3/4
5	***	5/16	---	---	---	---
6	11/16	3/8	18-20	24-27	1/4-1/2	1/2-3/4
8	13/16	1/2	32-35	43-47		
10	1	5/8	45-51	60-68		
12	1-3/16	3/4	67-71	90-95		1/3-1/2
14	1-3/16	7/8	67-71	90-95		
16	1-7/16	1	93-100	125-135		
20	1-11/16	1-1/4	126-141	170-190		
24	2	1-1/2	148-167	200-225	---	---
32	2-1/2	2	---	---	---	---

* Torque values and angles shown are based on lubricated connection, as in reassembly.

** Always default to the torque value for evaluation of adequate torque.

*** O-ring face seal type end not defined for this tube size.

GENERAL

CONVERSION CHART

Quantity	Inch-pound units		Factor	SI units (metric)	
	Unit name	Abbr.		Unit name	Abbr.
Area	acres	acres	$\times 0.4047 =$	hectares	ha
Flow	gallons per minute (US) gallons per minute (Imp)	gpm (US) gpm	$\times 3.7854 =$ $\times 4.5460 =$	liters per minute	L/min
Force	pounds force	lbf	$\times 4.4482 =$	Newtons	N
Length	inch	in.	$\times 25.4 =$	millimeters	mm
	foot	ft	$\times 0.305 =$	meters	m
Power	horsepower	hp	$\times 0.7457 =$	kilowatts	kW
Pressure	pounds per square inch	psi	$\times 6.8948 =$	kilopascals	kPa
			$\times .00689 =$	megapascals	MPa
Torque	pound feet or foot pounds	lbf-ft or ft-lbf	$\times 1.3558 =$	newton meters	N·m
	pound inches or inch pounds	lbf-in. or in-lbf	$\times 0.1129 =$		
Temperature	degrees Fahrenheit	°F	$(°F - 32) \times 0.56 =$	Celsius	°C
Velocity	feet per minute	ft/min	$\times 0.3048 =$	meters per minute	m/min
	feet per second	ft/s	$\times 0.3048 =$	meters per second	m/s
	miles per hour	mph	$\times 1.6063 =$	kilometers per hour	km/h
Volume	ounces	oz.	$\times 29.5735 =$	milliliters	ml
	cubic inches	in. ³	$\times 16.3871 =$	cubic centimeters	cm ³ or cc
	quarts (US) quarts (Imperial)	US qt. qt.	$\times 0.96464$ $\times 1.1365$	liters	L
	gallons (US) gallons (Imperial)	US gal. gal.	$\times 3.7854 =$ $\times 4.5460 =$		
Weight	pounds	lb	$\times 0.4536 =$	kilograms	kg

GENERAL

DEFINITIONS

Term	Definition
API	American Petroleum Institute
APT	Articulated Power Turn
ASTM	American Society of Testing and Materials
Center-link	A hydraulic cylinder or turnbuckle type link between the mower conditioner and the carrier frame that tilts the mower conditioner.
Export mower conditioners	Machine configuration typical outside North America.
Header or Rotary Header	The part of the mower conditioner that cuts and conditions the crop.
Mower Conditioner	A machine that cuts and conditions hay, and is pulled by an agricultural tractor.
North American mower conditioners	Machine configuration typical in North America.
PTO	Power Take-Off
rpm	Revolutions per minute
SAE	Society of Automotive Engineers
Sickle or Knife	A cutting device which uses a reciprocating cutter.
Tractor	Agricultural type tractor.
Truck	A four-wheel highway/road vehicle weighing no less than 7500 lb. (3400 kg).

UNLOADING AND ASSEMBLY

STEP 1. UNLOAD ARTICULATED POWER TURN (APT) HITCH



CAUTION

To avoid injury to bystanders from being struck by machinery, do NOT allow persons to stand in unloading area.



CAUTION

Equipment used for unloading must meet or exceed the requirements specified below. Using inadequate equipment may result in chain breakage, vehicle tipping, or machine damage.

Lifting vehicle	
Minimum Capacity	8000 lb. (3630 kg)
Minimum Height	15 ft. (4.5 m)

Chain	
Overhead Lifting Quality (1/2 in.)	5000 lb. (2270 kg) Minimum Working Load

- a. Remove hauler's tie down straps and chains.



- b. Attach chain to two brackets on top of hitch (as shown).
- c. Adjust chain lengths so hitch is lifted evenly.
- d. Raise hitch off deck, back up until unit clears trailer and slowly lower to 6 in. (150 mm) from ground.

IMPORTANT

Take care not to contact the other machine if load is two machines wide.

- e. Take to storage or setup area, and set hitch down securely on level ground.
- f. Repeat for second hitch (if required).
- g. Check for shipping damage and missing parts.

UNLOADING AND ASSEMBLY

STEP 2. UNLOAD MOWER CONDITIONER



CAUTION

To avoid injury to bystanders from being struck by machinery, do NOT allow persons to stand in unloading area.



CAUTION

Equipment used for unloading must meet or exceed the requirements specified below. Using inadequate equipment may result in chain breakage, vehicle tipping, or machine damage.

Lifting vehicle	
Minimum Capacity	8000 lb. (3630 kg)
Minimum Height	15 ft. (4.5 m)

Chain	
Overhead Lifting Quality (1/2 in.)	5000 lb. (2270 kg) Minimum Working Load



WARNING

Be sure forks are secure before moving away from load. Stand clear when lifting.

- a. Remove hauler's tie-down straps and chains.



- b. Approach mower conditioner from either its underside or topside and slide forks in underneath, lifting framework as far as possible.

NOTE

When possible, approach from the underside to minimize potential for scratching the unit.

- c. Raise mower conditioner off deck.

IMPORTANT

Take care not to contact the other machine if load is two machines wide.

- d. Back up until unit clears trailer and slowly lower to 6 in. (150 mm) from ground.
- e. Take to storage or setup area. Set machine down securely on level ground.
- f. Repeat for other mower conditioner (if required).
- g. Check for shipping damage and missing parts.

UNLOADING AND ASSEMBLY

STEP 3. LOWER MOWER CONDITIONER

- a. Attach either a spreader bar or chain to forks.



CAUTION

Ensure spreader bar or chain is secured to the forks so that it cannot slide off the forks or towards the mast as the mower conditioner is lowered to the ground.

Chain Type	Overhead Lifting Quality (1/2 in.)
Minimum Working Load	5000 lb. (2270 kg)

- b. Drive lifting vehicle to approach mower conditioner from its underside.



- c. Attach chain hooks to hooks on either side of mower conditioner.



CAUTION

Stand clear when lowering the mower conditioner.

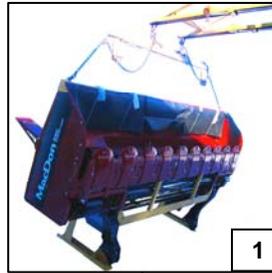
NOTE

Do **NOT** lift at hooks when unloading from trailer. This procedure is only for laying the machine over into working position.

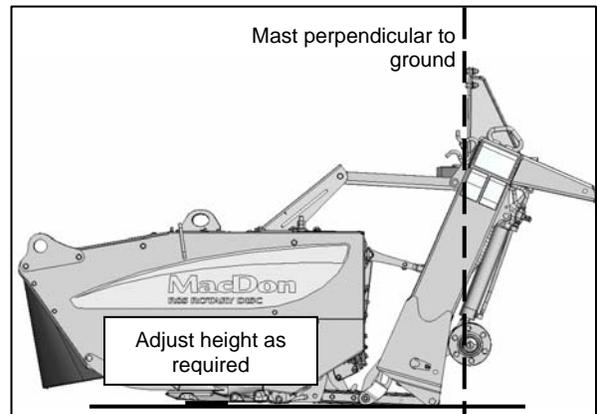
IMPORTANT

Chain length must be sufficient to provide a minimum 4 ft. (1.2 m) vertical chain height.

- d. Raise forks until lift chains are fully tensioned.



- e. Back up **SLOWLY** while simultaneously lowering machine until cutterbar rests on ground.
 f. Remove chain from mower conditioner.

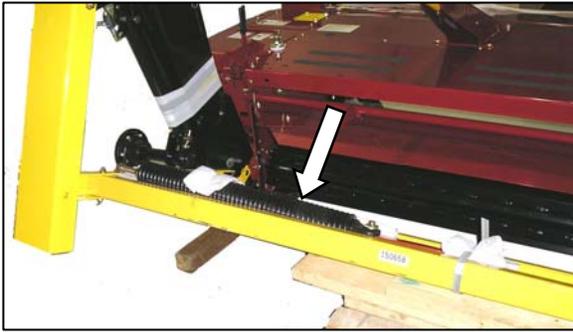


NOTE

The front face of the carrier mast should be approximately vertical for easier assembly of the articulated power turn (APT) hitch.

UNLOADING AND ASSEMBLY

STEP 4. REMOVE SHIPPING CHANNELS AND BLOCKING



- a. Cut the banding on the shipping beam at the rear of carrier frame and remove components from inside the shipping beam.

NOTE

Hardware bag is for STEP 14. INSTALL FORMING SHIELD.

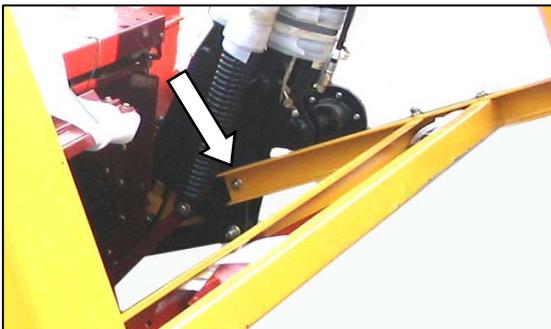
- b. Place LH spring assembly (heavy) near LH side of carrier. Place RH spring assembly (light) near RH side of carrier.

NOTE

The following steps remove the stand as an assembly. These components may also be removed individually.



- c. Place blocks under the shipping beam at the rear of the carrier frame.



- d. Loosen the shipping stand bolt at the lower end of each carrier frame leg.



- e. Remove the bolt that secures shipping stand at each float spring anchor.
f. Remove the support blocks and lower the shipping stand to the ground.



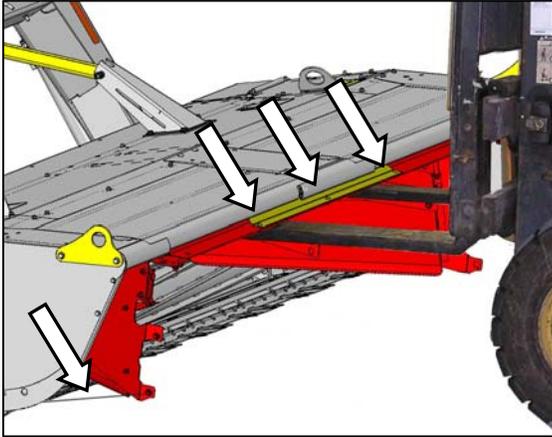
- g. Remove bolts at carrier frame legs and remove shipping stand frame.



- h. Cut banding that secures angles to carrier frame tube and remove angles.

UNLOADING AND ASSEMBLY

STEP 5. REMOVE FORMING SHIELD



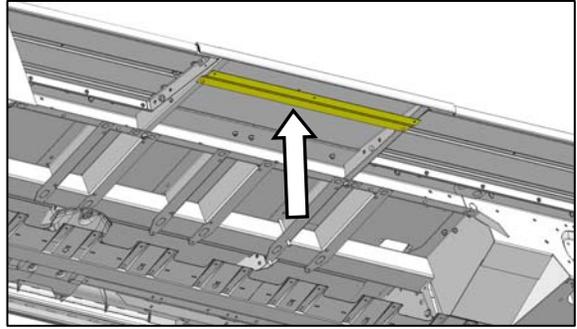
- Position lift forks with extensions under forming shield at front of mower conditioner.
- Cut shipping wire securing forming shield side deflectors to cutterbar.
- Remove three bolts at front edge of forming shield.



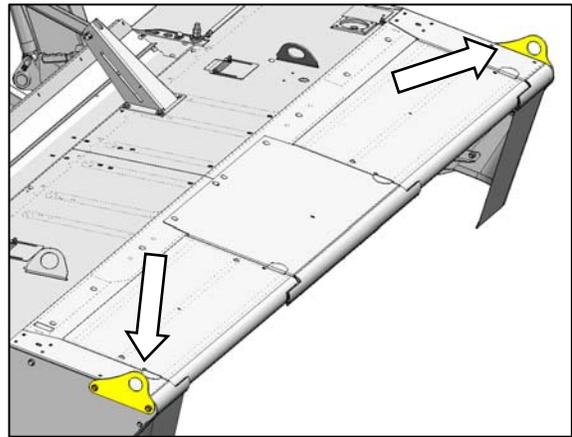
- Cut shipping wire (two places) on aft end of forming shield at rear of mower conditioner.



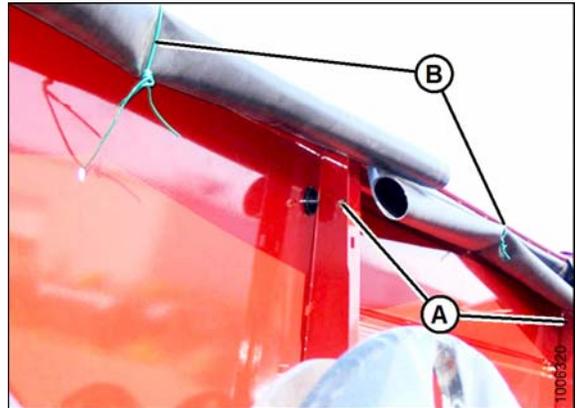
- Manually slide forming shield onto lift forks.



- Remove shipping support from inside cutterbar area by removing two bolts.



- Remove bolts and the two lift hooks. Retain bolts for reinstallation.



- Remove two bolts (A) securing cutterbar doors to frame.
- Remove shipping wire (B) around curtains.

(continued next page)

UNLOADING AND ASSEMBLY



WARNING

Ensure cutterbar is completely clear of foreign objects. These objects can be ejected with considerable force when the machine is started and may result in serious injury or machine damage.

- j. Thoroughly check cutterbar area for wooden blocking, banding, and hardware that may have fallen between discs.



- k. Cut cable ties at end curtains and remove creases in curtains.



- l. Ensure that curtains hang properly and completely enclose cutterbar area. Minor creases in curtains will eventually straighten out.
- m. Fasten latches.

UNLOADING AND ASSEMBLY

STEP 6. UNPACK ARTICULATED POWER TURN (APT) HITCH



- a. Attach chain from lifting vehicle or hoist to hitch hooks and raise it approximately 24 in. (610 mm) off ground.



- b. Cut banding securing hydraulic motor and hoses to underside of hitch.



CAUTION

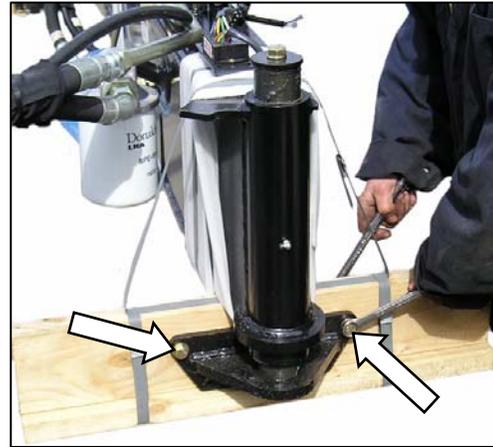
Hold motor to keep it from dropping to the ground when cutting band around motor.



- c. Route motor and hoses to the left side of the hitch.



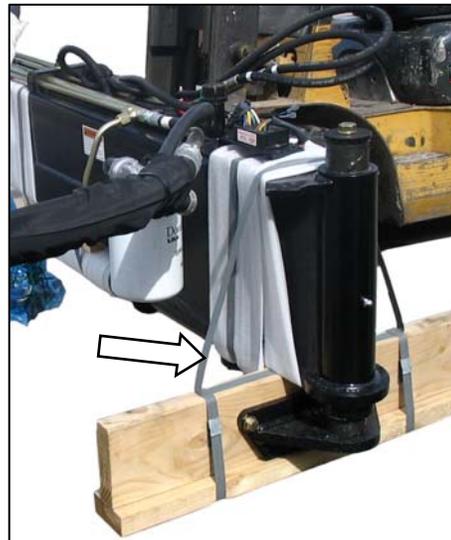
- d. Secure the motor to the steering cylinder with shipping wire.



- e. Remove the two bolts securing wooden stand to APT hitch pin.

NOTE

Bolt and washer at top of pin keeps pin in hitch when bolts are removed.



- f. Cut banding securing wooden stand to hitch and remove wooden stand.

(continued next page)

UNLOADING AND ASSEMBLY



- g. Remove bolt and washer securing pin to hitch.

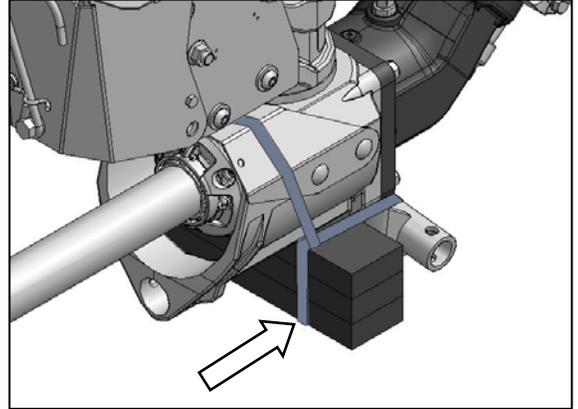


CAUTION

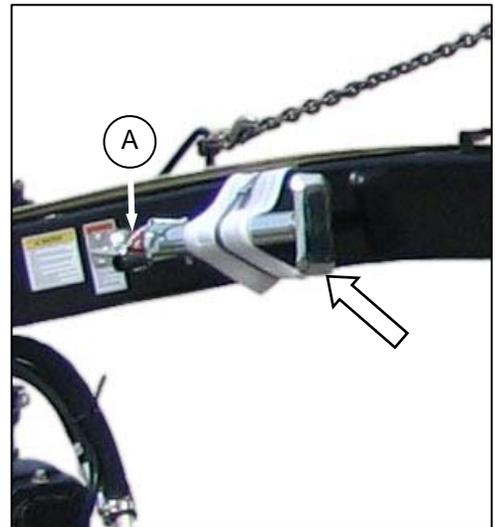
Hold pin from falling to the ground when bolt is removed.



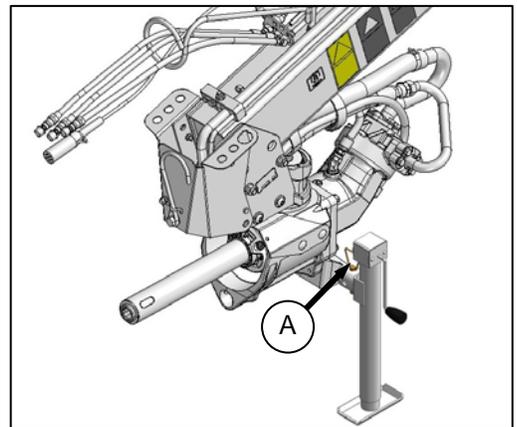
- h. Remove pin and reinsert in hitch from top.



- i. Remove shipping wire or banding securing shipping blocks at front of hitch and remove blocks.
j. Remove banding from jack.



- k. Remove pin (A) securing jack to hitch and remove jack from shipping position.



- l. Install at jack location at front of hitch and secure with pin (A).

UNLOADING AND ASSEMBLY

STEP 7. ATTACH ARTICULATED POWER TURN (APT) HITCH

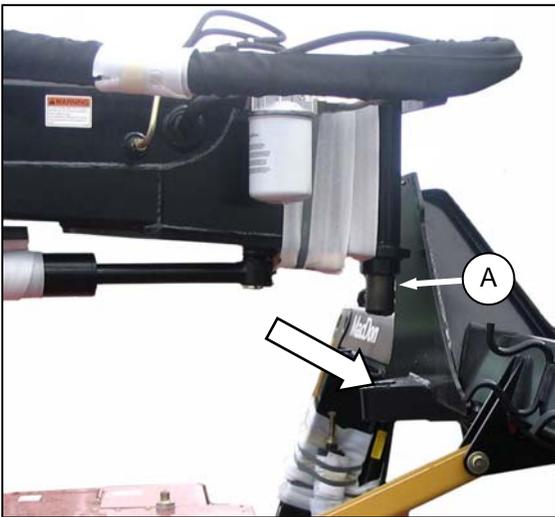


CAUTION

Keep hands clear when lowering APT hitch.



- a. Remove the six bolts and nuts from frame and retain for reinstallation.



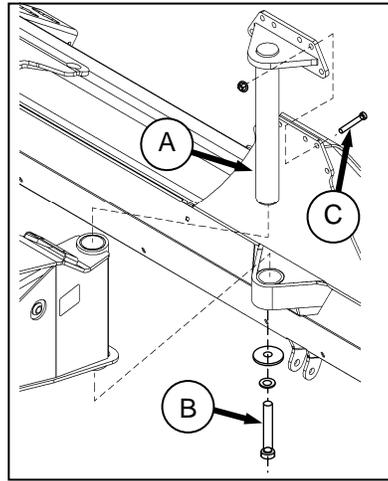
- b. Using a forklift (or equivalent), manoeuvre hitch into position and install pivot pin (A) into mower conditioner frame.

NOTE

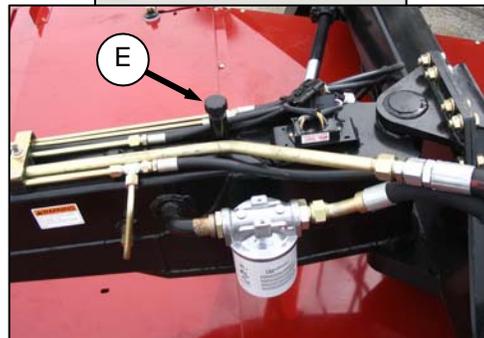
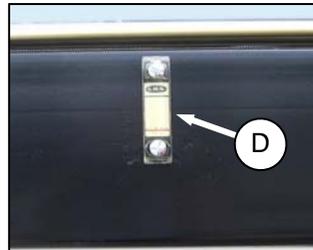
Use the jack to adjust the pitch of the hitch for proper alignment when installing pivot pin.

NOTE

Pin may need to be tapped into final position with a hammer due to the tight clearances.



- c. Secure pivot pin (A) to frame by installing six 5/8 x 1.75 long Gr. 8 bolts (C) with lock nuts removed at step a. Install bolts with heads facing aft.
- d. Torque to 200 ft-lbf (271 N-m).
- e. Install bolt (B), lock washer, and flat washer removed at STEP 6 g. at lower end of pivot pin and tighten bolt.
- f. Position hitch with jack so that rear span of hitch is approximately horizontal. Remove lifting chain from hitch.



- g. Check oil level in site glass (D) on the left side of the hitch, is between ADD and FULL.
- h. If necessary, add single grade trans-hydraulic oil at filler pipe (E).

RECOMMENDED OILS

Petro-Canada Duratran	Chevron 1000 THF
Case IH Hy-Tran Plus [®]	Agco Power Fluid 821XL
New Holland Hydraul	Esso/Exxon Hydraul 56
Shell Donax TD	John Deere Quatro [®] J20C

UNLOADING AND ASSEMBLY

STEP 8. CONNECT LIFT HOSE

IMPORTANT

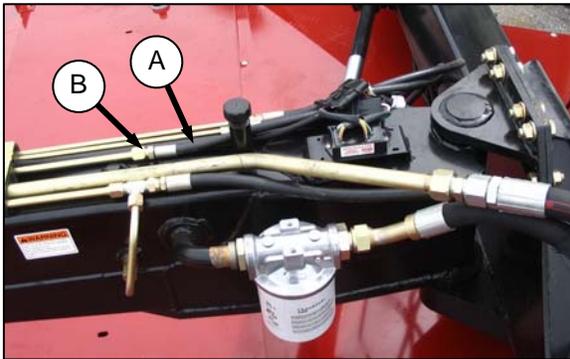
Hoses should be routed so there are no twists or sharp bends and no locations where contact with the frame is likely.

Ensure that there is sufficient length of hose and wiring in span to accommodate full swing of hitch in both directions. Relocate cable ties (if necessary to provide suitable slack in hoses and wiring).

IMPORTANT

To prevent contamination of the hydraulic system, extreme care must be taken to avoid dirt entering at connection points.

To minimize exposure to contamination, remove cap from one hose and its mating connection and connect before removing other caps and plugs.

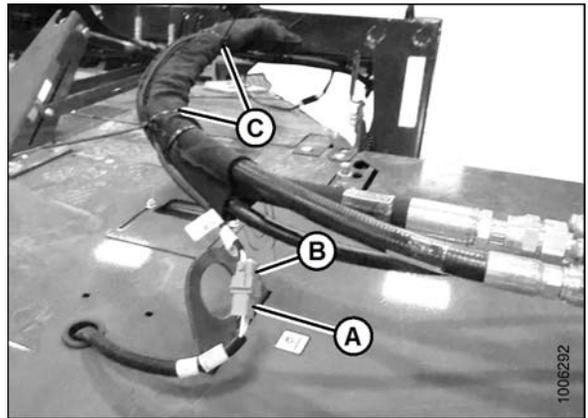


- a. Connect the lift cylinder hose (A) to the fitting (B) on the articulated power turn (APT).

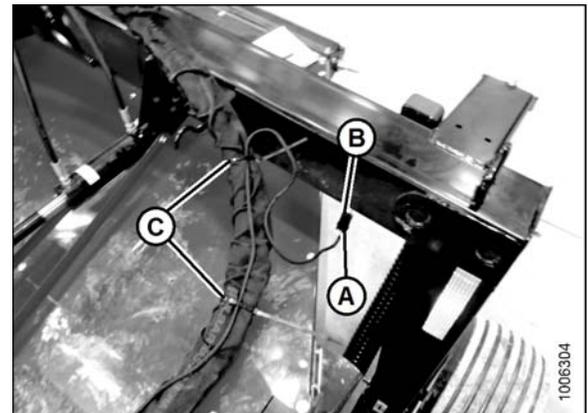
STEP 9. CONNECT WIRING HARNESS



- a. Connect electrical wiring harness (C) at rear of hitch as shown.



- b. Route wiring harness MD #146370 (A) as shown and connect to harness MD #198962 (B). Secure harness to hose bundle using two cable ties (C).



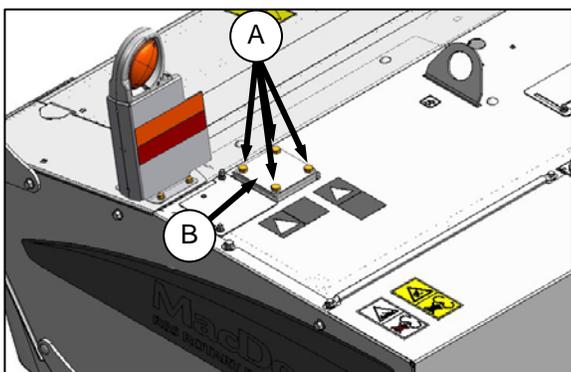
- c. Route the other end of harness MD #198962 (A) going to the LH side of the carrier frame and connect to light connector (B). Secure harness to hose bundle using two cable ties (C).

UNLOADING AND ASSEMBLY

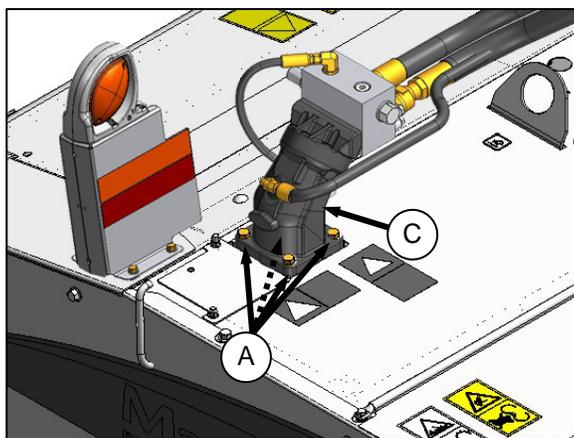
STEP 10. INSTALL HYDRAULIC MOTOR



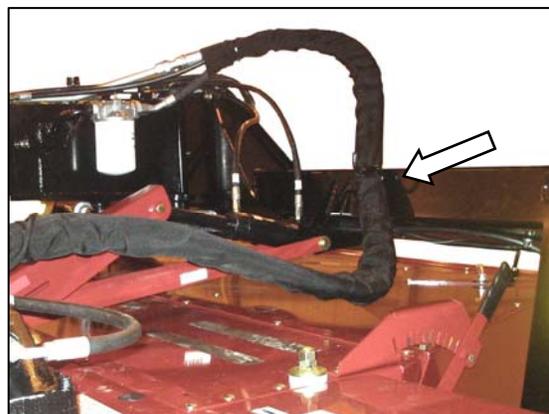
- a. Remove shipping wire that holds motor to steering cylinder.



- b. Remove four bolts (A) securing plate (B) to gearbox and remove plate. Retain bolts.



- c. Position motor (C) on gearbox as shown and reinstall the four bolts (A). Torque to 103 ft·lbf (140 N·m).



- d. Route hoses through hose guides.

NOTE

If required, loosen the hose swivel fittings at the motor ports to remove any twist in the hose routing from the hitch. Do NOT loosen the clamp type fitting.

UNLOADING AND ASSEMBLY

STEP 11. REMOVE BANDING AT LIFT CYLINDERS



- a. Cut the banding that secures the LH and RH lift cylinders to the carrier frame.

STEP 12. INSTALL WHEELS

- a. Remove wheel bolts from wheel hub.

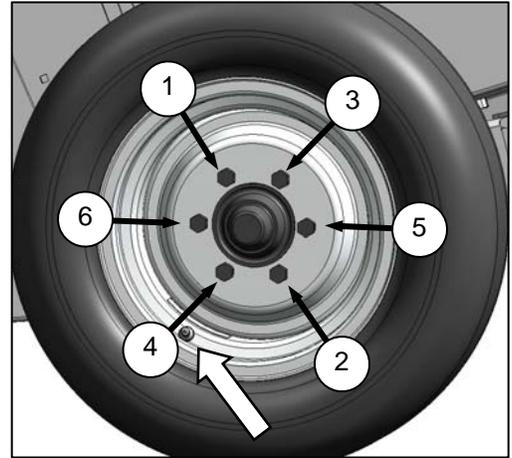


CAUTION

When installing wheel be sure to use the holes that are countersunk to match bolt head profile. The un-countersunk holes do not seat the bolts correctly.

IMPORTANT

Remove excess paint from tapered surface of bolt holes in wheel.



- b. Install wheel with existing bolts. Be sure valve stem points away from wheel support.
- c. Torque bolts to 120 ft·lbf (160 N·m) following tightening sequence shown above.

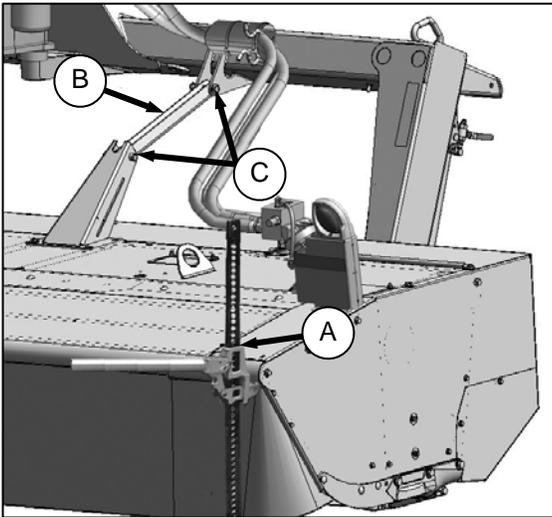
IMPORTANT

Follow proper bolt tightening sequence shown above.

- d. Lower carrier frame and repeat steps a. to c. to install the other wheel.
- e. Check tires are inflated to 30 psi (207 kPa).

UNLOADING AND ASSEMBLY

STEP 13. CENTER-LINK SETUP



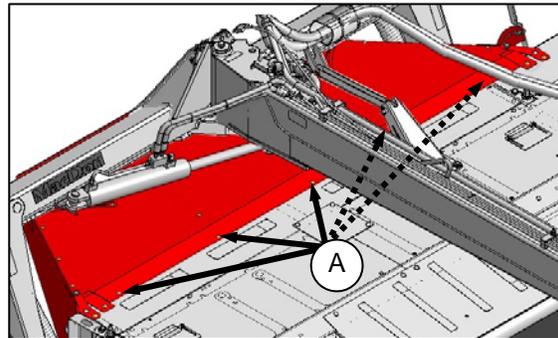
- Lift front corner of mower conditioner using a lift jack (A) until the shipping brace (B) is loose.
- Remove clevis pins (C) securing brace to mower conditioner and carrier frame and remove brace (B). Retain pins for reinstallation.
- Lower mower conditioner to ground.
- Raise front of hitch with the jack to allow installation of the adjustable mechanical center-link or optional hydraulic link.

STEP 14. INSTALL FORMING SHIELD

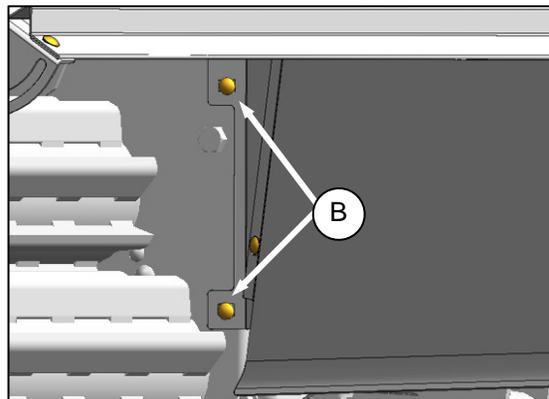
A. ATTACH FORMING SHIELD



- Place forming shield on lift forks and position forming shield up to mower conditioner. Slide forming shield onto mower conditioner.



- Locate shield to align holes in forward row.
- Install five 3/8 in. x 0.75 long carriage bolts and nuts in forward row at locations (A) to hold shield. Nuts on inside. Do not tighten.
- Back forklift away from work area.

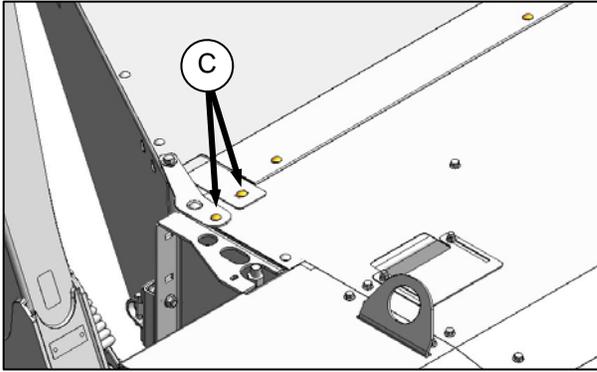


Right shown - Left opposite

- Install four 1/2 in. x 1.0 long bolts (B) and nuts at sides of shield. Do not tighten.

(continued next page)

UNLOADING AND ASSEMBLY

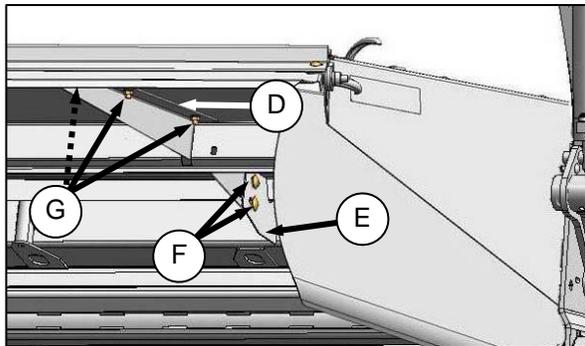


Right shown - Left opposite

- f. Install four 1/2 in. x 1.0 long carriage bolts (C) at forward corners. Do not tighten.

B. INSTALL SUPPORTS

- a. Retrieve supports and hardware bag that were removed from shipping locations in earlier steps.



Right side shown - left side opposite.
(Crop deflector not shown for clarity)

- b. Position support (D) through slot in frame and on inboard (outboard optional) side of mounting plate (E).

NOTE

If necessary, lower crop deflector to allow installation of supports.

- c. Install two 1/2 in. x 1.0 long carriage bolts (F) and nuts through support and mounting plate (E). Do not fully tighten bolts.
- d. Attach support (D) to cover with three 3/8 in. X 0.75 long carriage bolts and nuts (G).
- e. Repeat for other support.

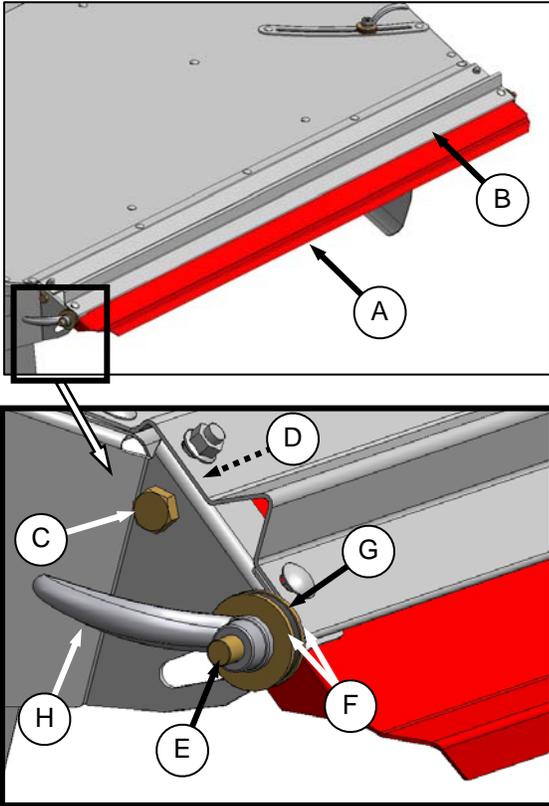


- f. Lift aft end of forming shield so that side deflectors clear float springs and tighten all bolts.

UNLOADING AND ASSEMBLY

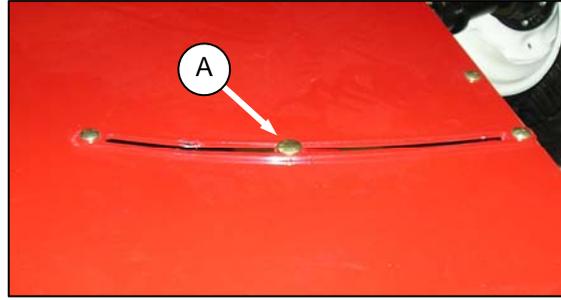
C. INSTALL REAR DEFLECTOR

- a. Retrieve rear deflector and hardware that was removed from shipping locations in earlier steps.

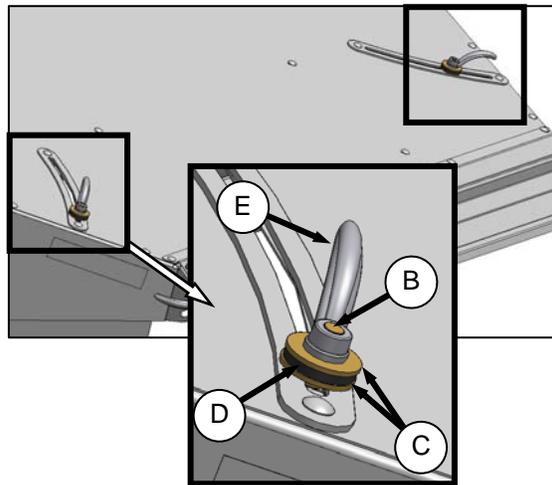


- b. Position deflector (A) on rear of forming shield assembly (B) and install 1/2 in. x 1.0 long hex bolts (C) and deformed thread lock nut (D) at ends of deflector. Do not tighten.
- c. Install two 1/2 in. x 1.75 long carriage bolts (E) through deflector and slots in forming shield.
- d. Secure each bolt with two 1-7/8 in. (47 mm) OD square hole washers (F), one rubber washer (G), and handle (H).
- e. Tighten lock nuts (D) until deflector is snug, but can be moved up or down.
- f. Position deflector at mid-position and tighten handles (H).

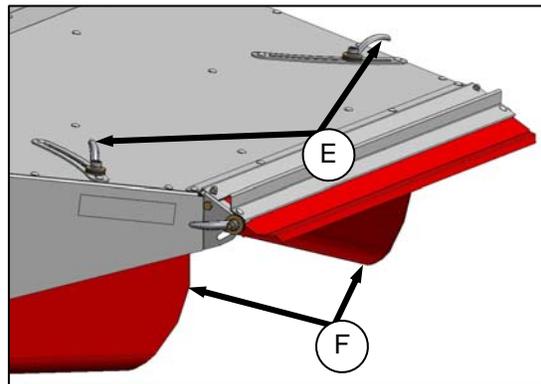
D. ADJUST SIDE DEFLECTORS



- a. Remove bolt and nut (A), and discard. Repeat at opposite side of cover.



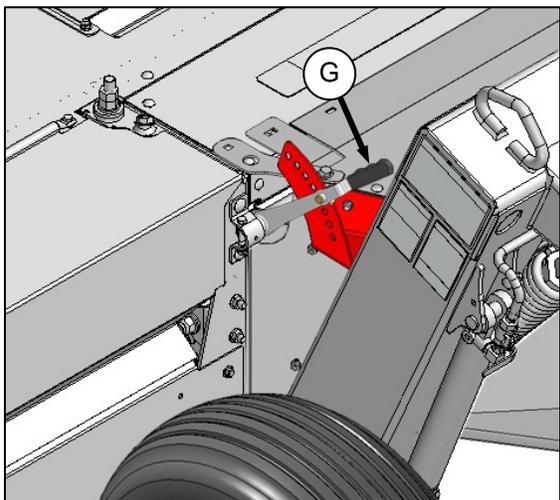
- b. Retrieve hardware and install 1/2 in. x 1.75 long carriage bolt (B) from underneath, washers (C), rubber washer (D), and handle (E) as shown at two places.



- c. Position side deflectors (F) at mid-point and tighten handles (E).

UNLOADING AND ASSEMBLY

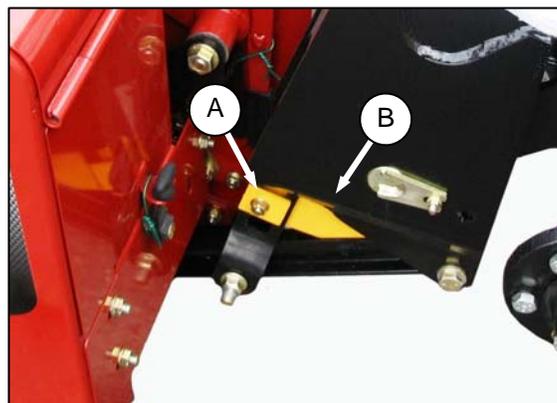
STEP 15. REMOVE WEDGES



- d. Position swath baffle handle (G) at mid-position.



- a. Attach a lifting chain to the hook at one end of the carrier frame and to a forklift (or equivalent).
b. Lift frame so that the cutterbar is slightly off the ground.



- c. Remove bolt (A) securing shipping wedge (B) at the lower lift link and remove wedge.



CAUTION

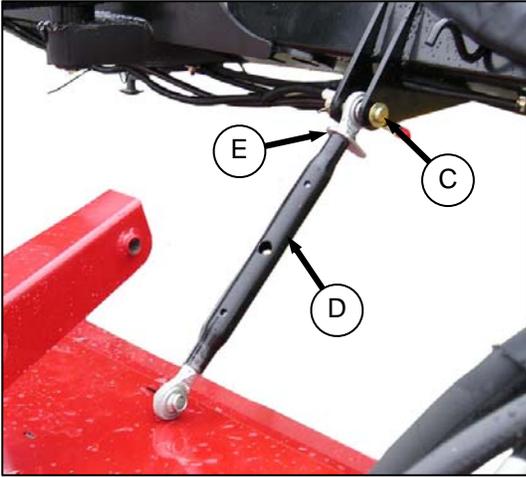
Do NOT drive out this bolt. If carrier frame is lifted high enough, bolt becomes free to remove.

- d. Lift hitch with forklift. Remove bolts and wedges.

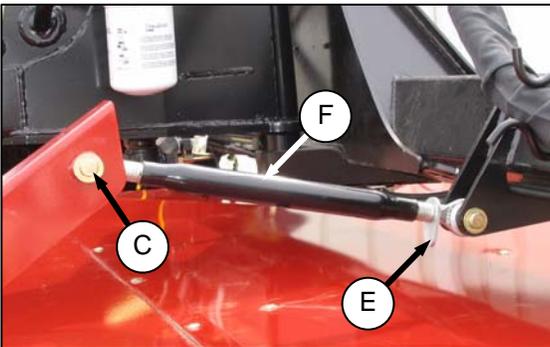
UNLOADING AND ASSEMBLY

STEP 16. INSTALL CENTER-LINK

A. MECHANICAL LINK



- Attach mechanical link (D) to carrier frame with clevis pin (C). Secure with cotter pin.
- Loosen nut (E).



- Rotate the turnbuckle sleeve (F) so that link can be connected to mower conditioner. Insert clevis pin (C) when holes are aligned, and secure with cotter pin.
- Rotate sleeve (F) to approximately mid-position.
- Snug up nut (E), but do NOT over-tighten. A slight tap with a small hammer is sufficient.

B. HYDRAULIC LINK

- Refer to instructions provided with hydraulic link kit for installation procedures.

STEP 17. TRACTOR SETUP

Minimum power	Minimum drawbar capacity	Minimum hydraulics
125 HP (93 kW)	As per ASAE	2000 psi (13,789 kPa)

NOTE

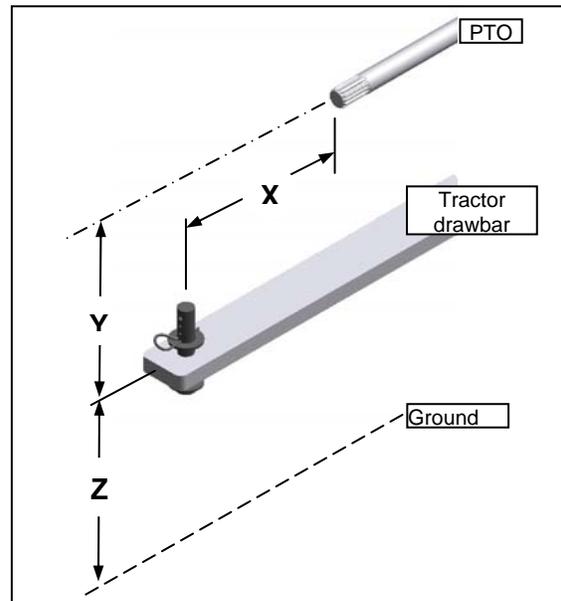
Tractor must be equipped with a seven terminal outlet to supply power to the mower conditioner's hazard lights.

A. DRAWBAR ADJUSTMENT



CAUTION

Shut off tractor, engage parking brake, and remove key before working around hitch.



Adjust tractor drawbar to meet ASAE Standard specifications as listed below.

Dimension	1000 RPM PTO	
	1.37 inch dia.	1.75 inch dia.
X	16 in. (406 mm)	20 in. (508 mm)
Y	6–12 in. (152–305 mm) 8 in. (203 mm) recommended	
Z	13–17 in. (330–432 mm) 16 in. (406 mm) recommended	

UNLOADING AND ASSEMBLY

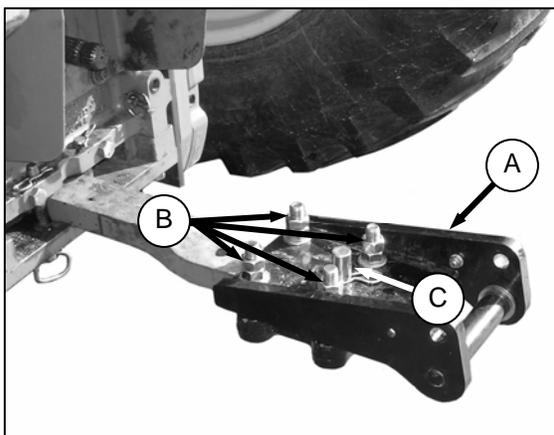
B. DRAWBAR HITCH SETUP



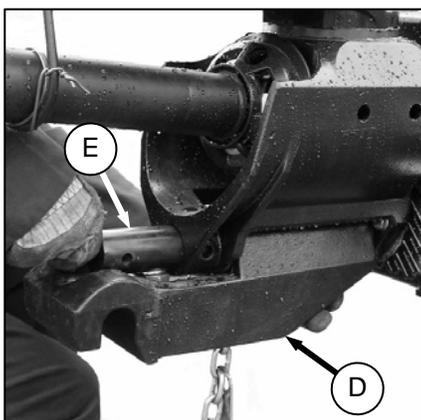
CAUTION

Shut off tractor, engage parking brake, and remove key before working around hitch.

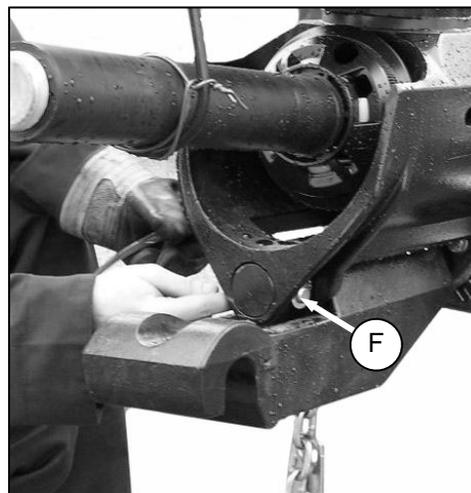
- a. Secure the tractor drawbar so the hitch pin hole is directly below the driveline.



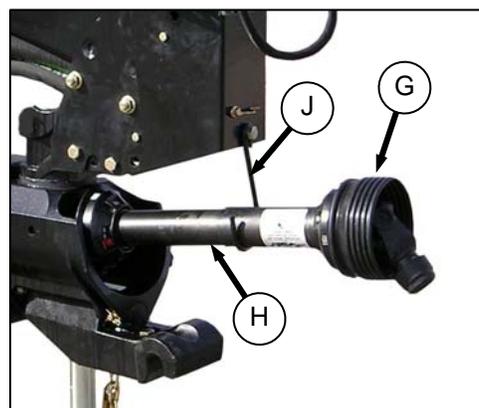
- b. Loosen bolts (B) on extension assembly (A) and slide onto drawbar.
- c. Install pin (C) through drawbar and extension from underside and secure with hairpin.
- d. Gradually tighten the four bolts to 265 ft-lbf (359 N·m).



- e. Attach the swivel hitch member (D) with pin (E) onto the hitch.



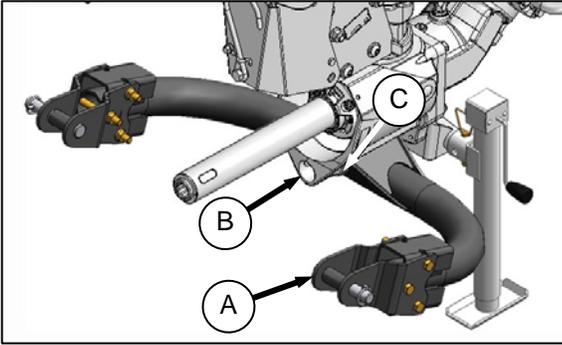
- f. Secure pin with clevis pin (F), washers, and cotter pin.



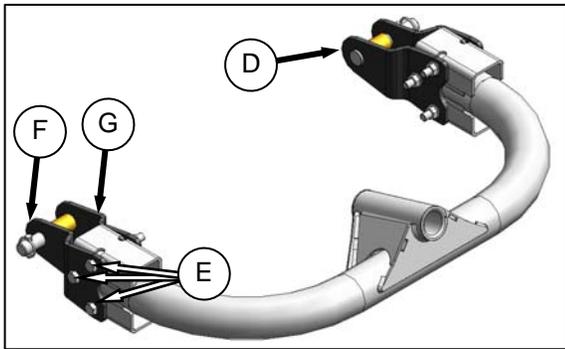
- g. Assemble power take-off (PTO) driveline male half (G) onto PTO shaft (H) on hitch. Push male half so that PTO shaft is at its fully compressed length.
- h. Locate PTO shaft in hook (J).
- i. Proceed to STEP 18. MOWER CONDITIONER / TRACTOR HOOKUP.

UNLOADING AND ASSEMBLY

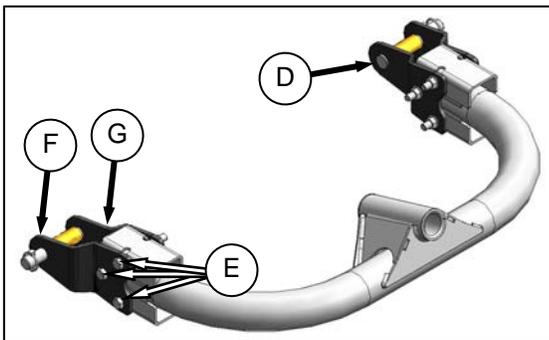
C. 3-POINT HITCH SETUP



- Attach the 3 point hitch adapter (A) to the hitch with pin (B). The installation is similar to that described in the previous section.
- Secure pin (B) with clevis pin (C), washers, and cotter pin.
- The arms on the adapter (A) can be set up to suit Category II and IIIN or Category III tractor hitch arms:



CATEGORY II or IIIN



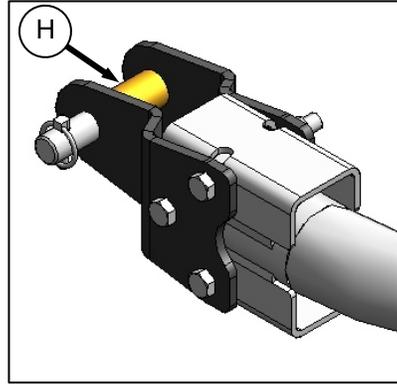
CATEGORY III

- Remove pins (D).
- Remove bolts (E) (3 per side).
- Flip outer plate (F) and inner plate (G) on each arm.

IMPORTANT

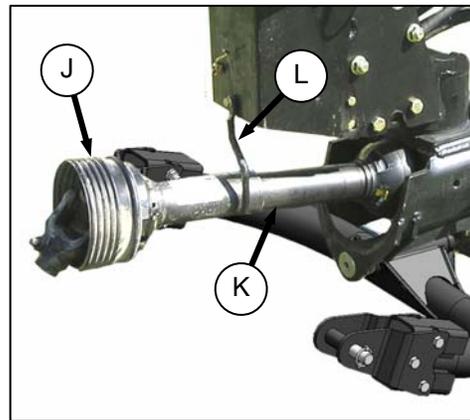
The inner plate (G) has a smaller joggle than the outer plate (F). Always maintain the proper locations.

- Reinstall bolts (E).
- Replace pins (D).



NOTE

Bushings (H) on pins can be removed to suit hole size in tractor hitch arms.



- Assemble power take-off (PTO) driveline male half (J) onto PTO shaft (K) on hitch. Push male half so that PTO shaft is at its fully compressed length.
- Locate PTO shaft in hook (L).

UNLOADING AND ASSEMBLY

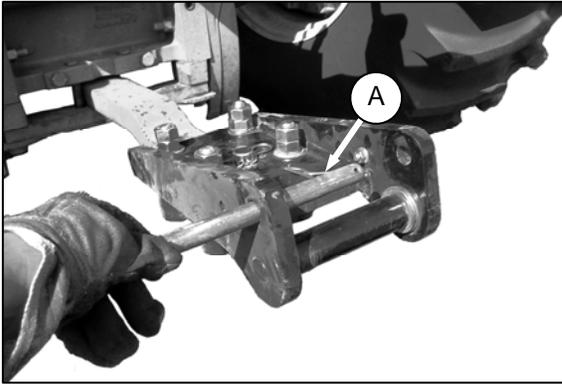
STEP 18. MOWER CONDITIONER/ TRACTOR HOOKUP

A. DRAWBAR HOOKUP

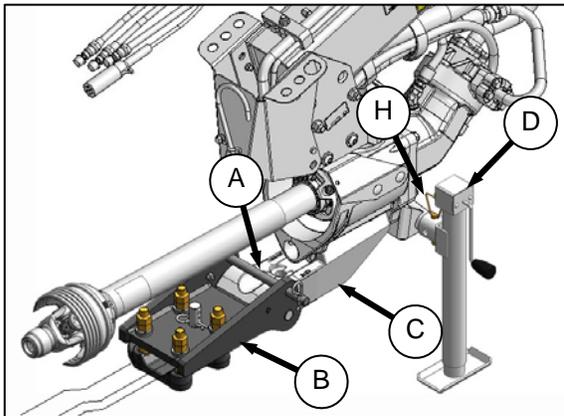


CAUTION

Shut off tractor, engage parking brake, and remove key before working around hitch.



- a. Remove pin (A).

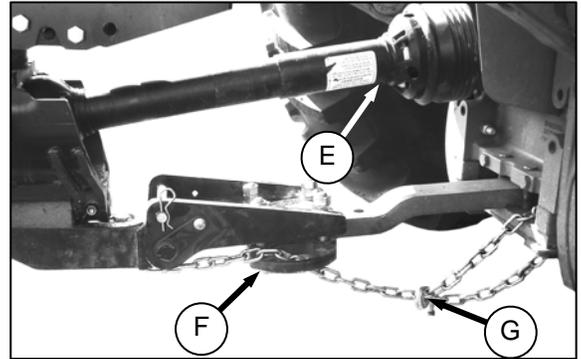


- b. Position tractor to align drawbar extension (B) with arm (C) on mower conditioner.
c. Lower jack (D) to engage arm (C) on drawbar extension (B).
d. Install hitch pin (A) and secure with hairpin.

IMPORTANT

If the tractor has a three-point hitch, lower the lower links as low as possible to prevent damage to articulated power turn (APT) hitch.

- e. Attach driveline (E) to tractor PTO shaft as follows:



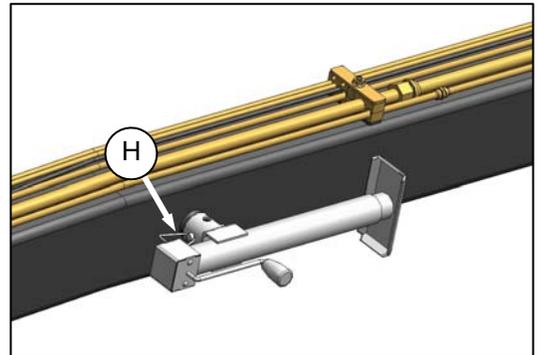
1. Position driveline (E) onto tractor PTO shaft.
2. Pull back collar on driveline and push driveline until it locks. Release collar.

- f. Route safety chain from mower conditioner through chain support (F), around drawbar support, and lock the hook (G) on chain.

IMPORTANT

Adjust chain length to remove all slack except what is needed for turns.

- g. Raise jack (D), pull pin (H), and move jack to storage position on side of hitch.



- h. Secure jack with pin (H).
i. Proceed to Step 19. ATTACH HYDRAULICS.

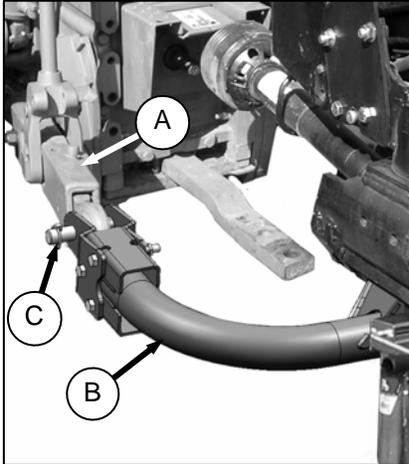
UNLOADING AND ASSEMBLY

B. 3-POINT HITCH HOOKUP



CAUTION

Shut off tractor, engage parking brake, and remove key before working around hitch.

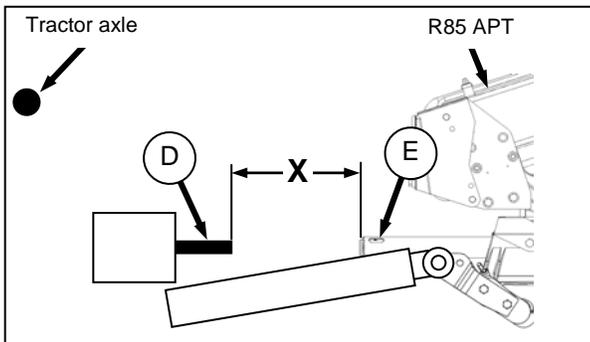


- Position tractor and align tractor hitch arms (A) with hitch adapter (B). Shut off tractor and remove key.
- Remove pins (C) from hitch adapter and use the jack to adjust height of hitch so that pins (C) can be reinstalled.

NOTE

If tractor is equipped with a quick hitch system, pins (C) do **NOT** need to be removed.

- Secure pins (C) with lynch pins.
- Install anti-sway bars on tractor hitch to stabilize lateral movement of hitch arms (A). Refer to your tractor operator's manual.



- Check distance 'X' between tractor power take-off (PTO) shaft (D) and implement input shaft (E) (without the front half of the driveline attached).

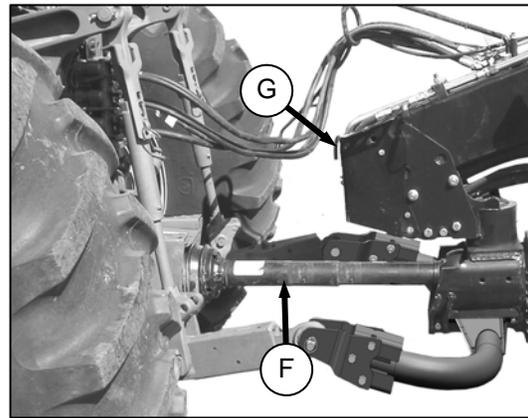
- The measurement must NOT exceed the dimensions listed.

Driveline shaft size	Distance 'X'
1-3/8 in. (34 mm)	27 in. (685 mm)
1-3/4 in. (43 mm)	31 in. (790 mm)

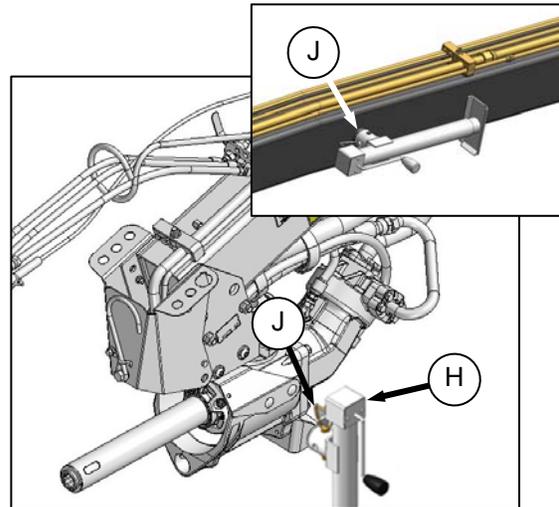
- Position driveline (F) onto tractor PTO shaft. Driveline should be approximately level.

IMPORTANT

Front half of driveline (F) for 3-point hitch is longer than the driveline for draw-bar hitch. Ensure proper length driveline is used.



- Pull back collar on driveline (E) and push driveline until it locks. Release collar.
- Rotate driveline storage hook (G) to upward position.



- Raise jack (H), pull pin (J), and move jack to storage position on side of hitch. Secure jack with pin (J).

UNLOADING AND ASSEMBLY

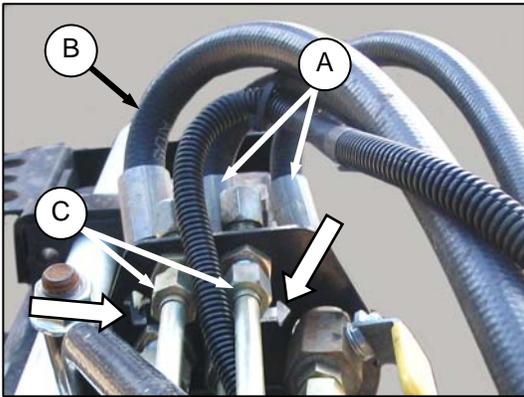
STEP 19. ATTACH HYDRAULICS



WARNING

Do NOT use remote hydraulic system pressures over 3000 psi (20,684 kPa). Check your tractor manual for remote system pressure.

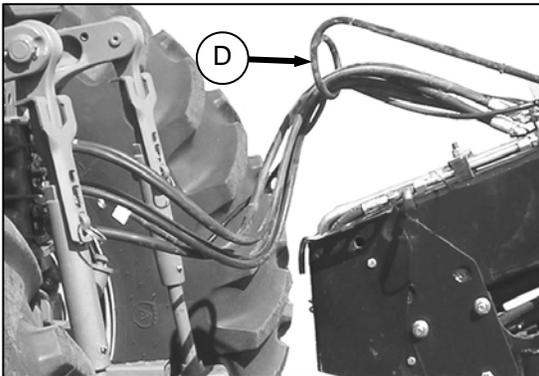
- a. Install quick disconnect couplers onto the five hydraulic hoses at front of hitch. Use #8 ORB (3/4 in. - 16 UNF Thread).



System	Hose	Tractor hydraulics
Steering	A (2 Hoses)	Control 1
Lift	B (1 Hose)	Control 2
Mower conditioner tilt	C (2 Hoses)	Control 3

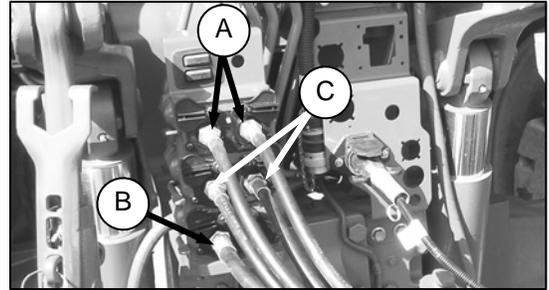
NOTE

Arrows cut into plate indicate system for hoses. LIFT ↑ STEERING ↔



- b. Ensure hoses are routed through guide (D) to provide proper hose arc as shown.

- c. Connect two STEERING cylinder hoses (A) as follows:



Control lever position	Cylinder movement	Mower conditioner direction
Forward	Extend	Right
Backward	Retract	Left

- d. Connect one LIFT cylinder hose (B) as follows:

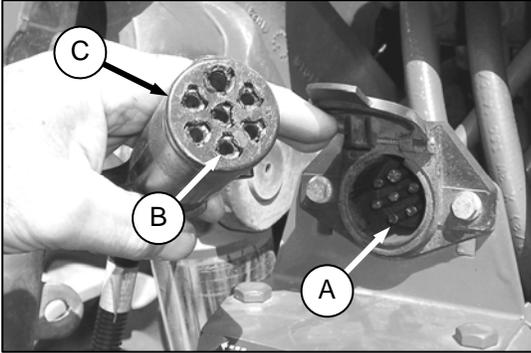
Control lever position	Cylinder movement	Mower conditioner movement
Forward	Retract	Lower
Backward	Extend	Raise

- e. Connect two MOWER CONDITIONER TILT cylinder hoses (C) as follows: (Not required with mechanical center-link).

Control lever position	Cylinder movement	Mower conditioner movement
Forward	Retract	Lower
Backward	Extend	Raise

UNLOADING AND ASSEMBLY

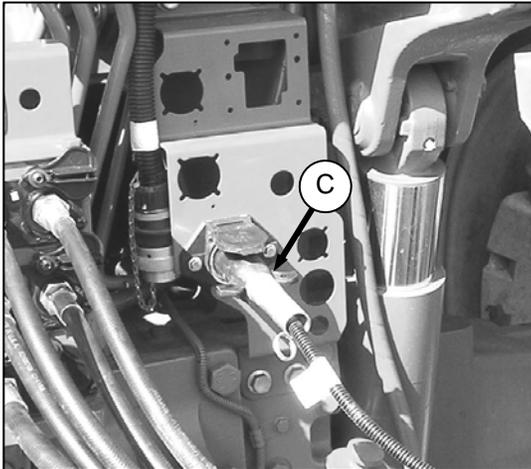
STEP 20. ATTACH ELECTRICAL CONNECTOR



- a. Check that pin #4 (A) in the tractor receptacle is not constantly energized—see your tractor operator's manual and remove the appropriate fuse if required.

IMPORTANT

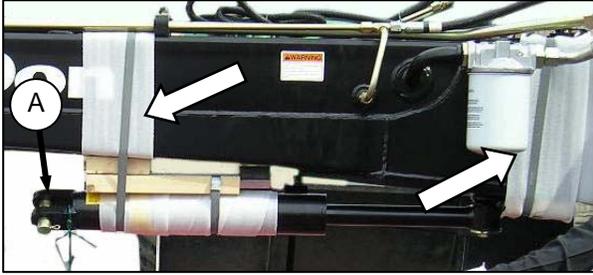
Older model tractors will have pin #4 (A) energized as an accessory circuit. The R85 mower conditioner uses this pin position (B) for brake lights.



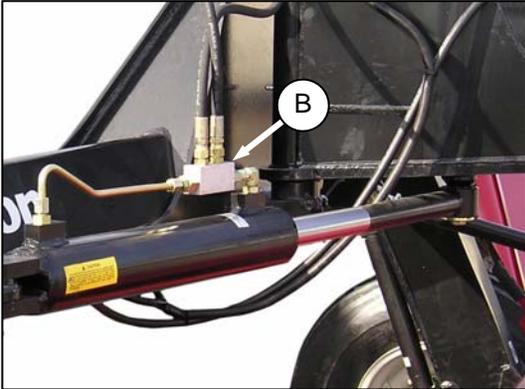
- b. Connect the mower conditioner wiring harness connector (C) to tractor. The connector is designed to fit tractors equipped with a round 7-pin receptacle (SAE J560).

UNLOADING AND ASSEMBLY

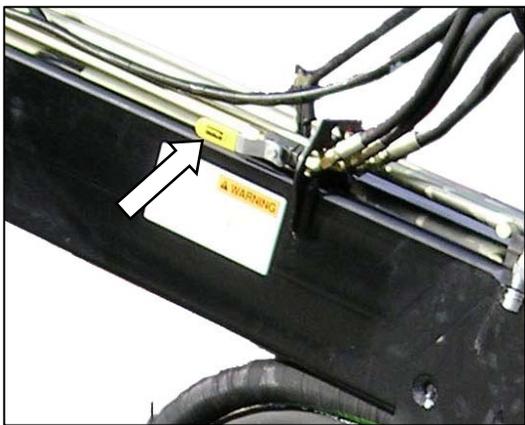
STEP 21. INSTALL STEERING CYLINDER



- Cut the banding that secures the cylinder to the hitch and swing the cylinder out from under the hitch.
- Cut banding around cylinder and remove shipping material from cylinder.
- Remove the pin (A) from barrel end of cylinder and retain for reinstallation.



- Manually rotate the cylinder barrel so that the check valve (B) is positioned directly above cylinder. Do **NOT** attach cylinder to frame at this time.



IMPORTANT

To allow hitch to swing, the valve on the hitch must be in the working or open position (handle in line with hitch).



DANGER

Never start or move the machine until you are sure all bystanders have cleared the area.

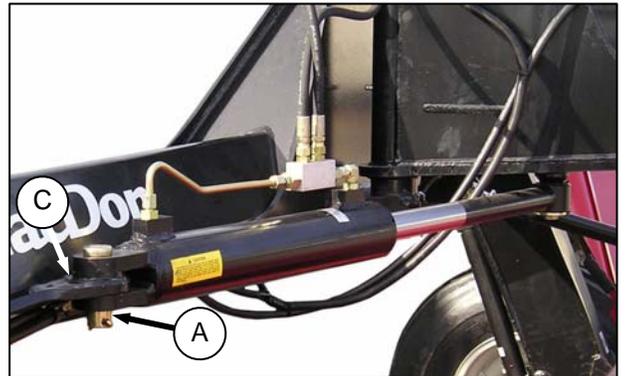
- Start tractor.
- Stroke the cylinder to full extension and retraction five or six times to ensure that cylinder and hydraulic lines are fully charged with oil.
- Stroke the cylinder so that the cylinder can be slipped onto the bracket (C) on the frame.



CAUTION

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

- Stop engine and remove key.



- Slip cylinder onto bracket (C) and install pin (A) if holes are aligned. If holes are not aligned, stroke cylinder or pivot mower conditioner until pin can be installed. Secure pin (A) with cotter pin.

UNLOADING AND ASSEMBLY

STEP 22. FILL LIFT CYLINDERS



- a. Open lift cylinder lock-out valve on both lift cylinders.



DANGER

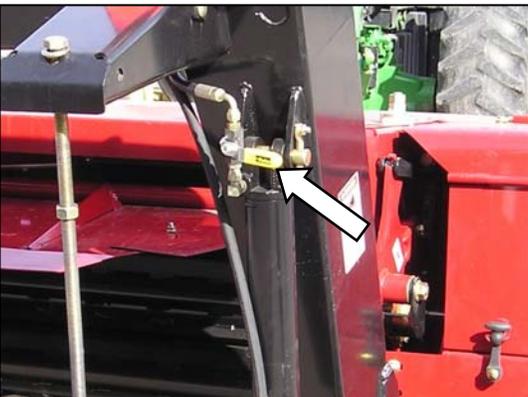
Never start or move the machine until you are sure all bystanders have cleared the area.

- b. Start tractor.
- c. Cycle the mower conditioner lift cylinders five or six times to maximum lift to fully charge the cylinders and hydraulic lines.
- d. Raise mower conditioner to full height.
- e. Stop tractor and remove key.



CAUTION

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.



- f. Close lock-out valve on both lift cylinders.

UNLOADING AND ASSEMBLY

STEP 23. INSTALL FLOAT SPRINGS

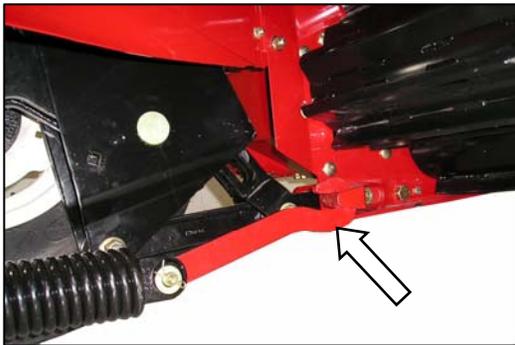
- a. Remove packing material from float spring.



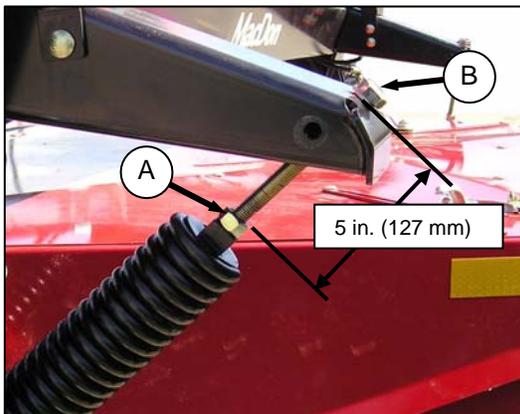
- b. Loosen jam nut (A) and remove drawbolt (B) from spring.

NOTE

The float springs have internal springs.



- c. Insert hook into bracket on mower conditioner frame.
d. Install drawbolt through anchor on carrier frame and reinstall into spring.



- e. Tighten spring drawbolt (B) so that distance between spring anchor to lock nut (A) is approximately 5 in. (127 mm).



CAUTION

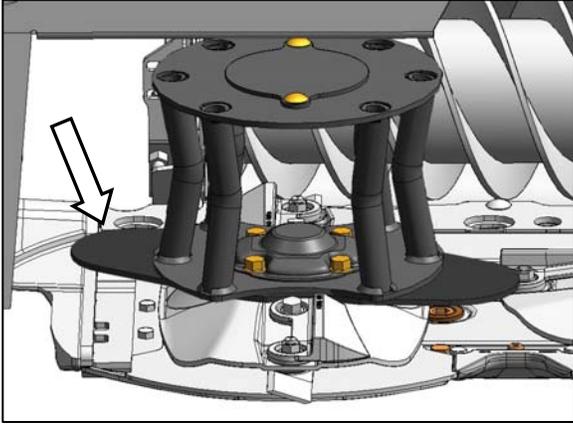
To prevent damage to the float spring system, do **NOT** lower the mower conditioner before tightening jam nuts (A) against the springs.

NOTE

The float will be set during the Predelivery Checks after all components are installed.

UNLOADING AND ASSEMBLY

STEP 24. INSTALL TALL CROP FEED PLATES



The tall crop feed plates assist the feeding of tall crops into the conditioner by encouraging material flow from behind the rotary deflectors.

IMPORTANT

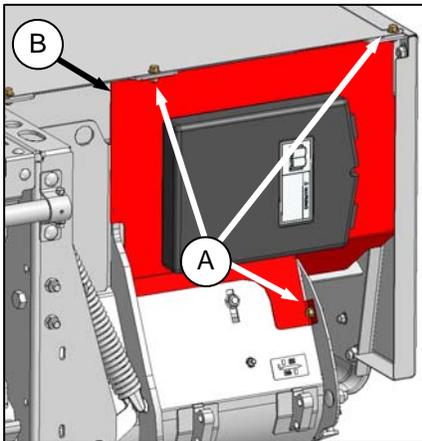
Feed plates will degrade the cutting performance of the cutterbar if they are used in medium to light alfalfa and so should NOT be installed in those types of crops.

NOTE

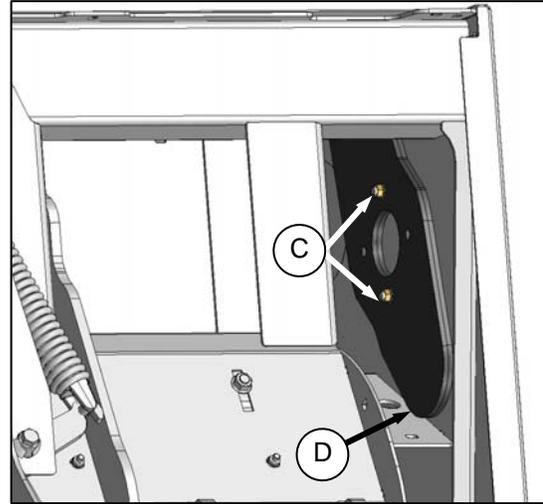
The tall crop feed plates are supplied with your mower conditioner and are stored inside the RH side drive compartment.

The feed plates are designed for installation under the two rotary deflectors.

- Lower mower conditioner to the ground, shut off engine, and remove key from ignition.
- Access the tall crop feed plates:

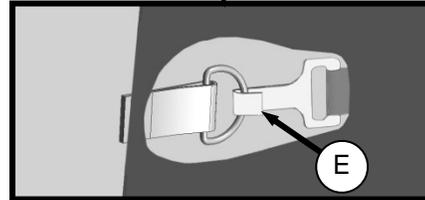
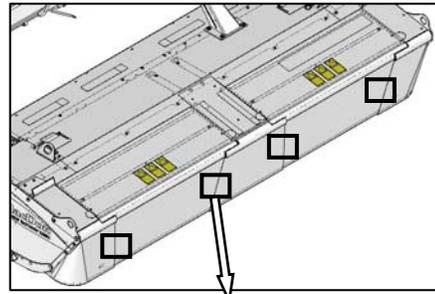


- Remove three bolts (A) and remove RH side compartment cover (B).



- Remove nuts (C) securing feed plates (D) to side of compartment and remove plates. Reinstall nuts (C).
- Reinstall cover (B) with bolts (A).
- Open cutterbar doors. Refer to the appropriate procedure for your mower conditioner:

North American Mower Conditioner



- Unhook curtain latches (E).



- Lift at front of door to open position.

(continued next page)

UNLOADING AND ASSEMBLY

Export Mower Conditioner

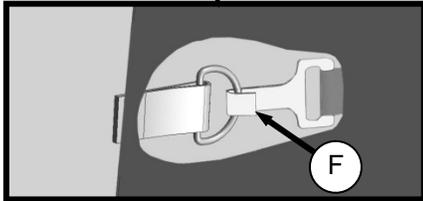
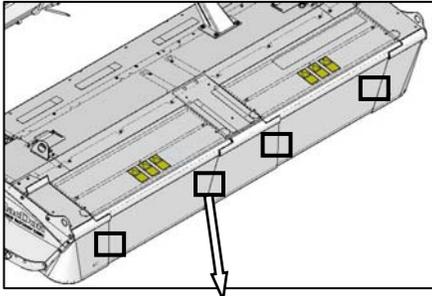


CAUTION

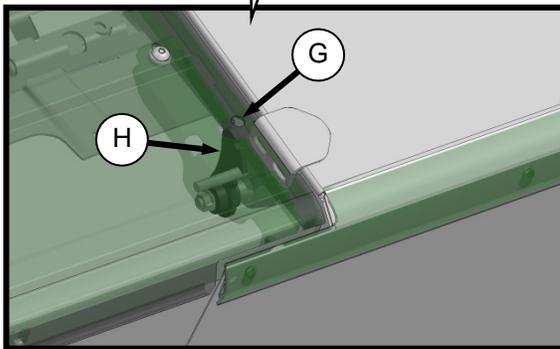
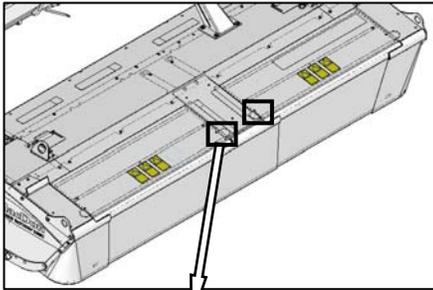
Exercise caution when working around the blades. Blades are sharp and can cause serious injury. Wear gloves when handling blades.

- d. Place a block of wood between discs to prevent deflector from turning.

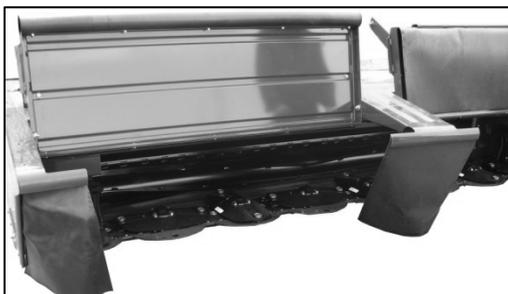
(continued next page)



1. Unhook curtain latches (F).



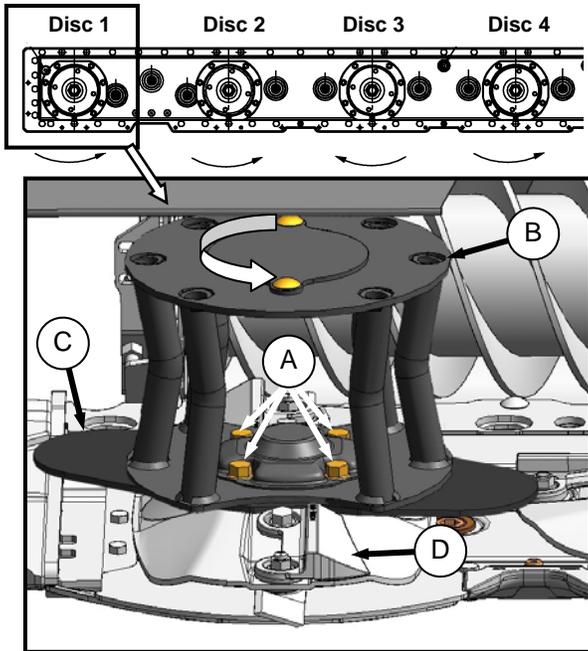
2. Insert a screwdriver (or equivalent) through hole (G) in door into notch in latch (H) and push latch to disengage.



3. Lift at front of door to open position.

UNLOADING AND ASSEMBLY

Driven Deflector - RH End



Counterclockwise rotation
RH driven disc

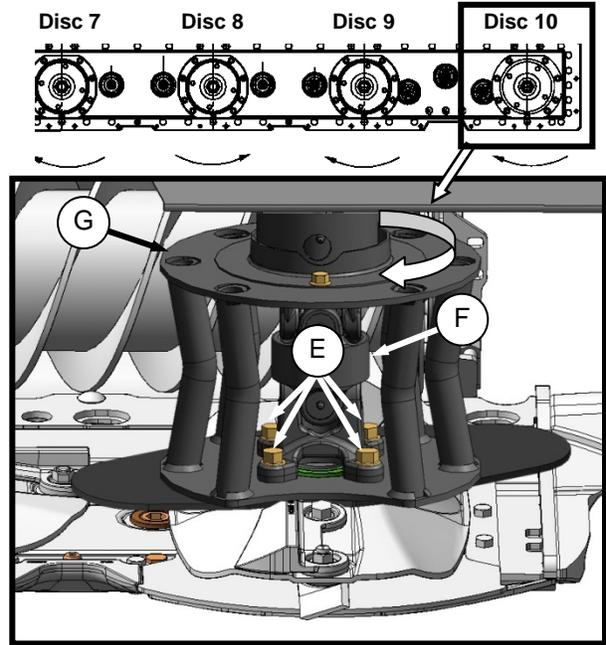
1. Remove four bolts (A) and remove driven cage deflector (B) at RH end of cutterbar.
2. Locate feed plate (C) on the disc, ensuring that hole in feed plate registers on disc. Position plate approximately as shown and align holes.

IMPORTANT

Feed plate should be located so that when holes are aligned, the leading edge of the feed plate (C) is further from the accelerator (D) than the trailing edge.

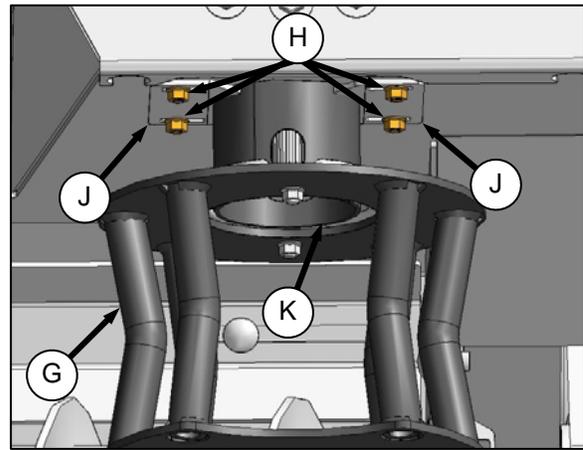
3. Reposition deflector (B) and align holes.
4. Reinstall bolts (A) and tighten to 92 ft·lbf (125 N·m).

Driveline Deflector - LH End



Clockwise rotation
LH driveline disc

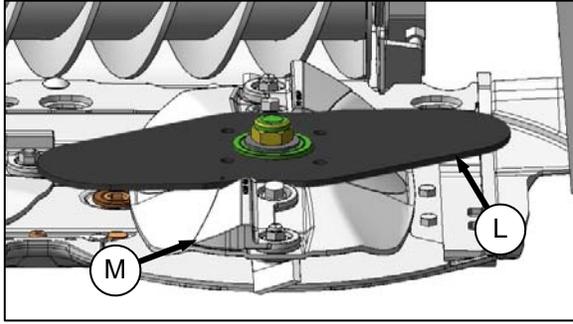
1. Remove the four bolts (E) that secure the driveline (F) and disc to the spindle.
2. Rotate the deflector (G) as required so that large opening in deflector faces you.
3. Remove the driveline (F) through the larger opening in the deflector.



4. Loosen the four bolts (H) in the two plates (J) that hold the upper driveline shield (K) in place.
5. Move the plates (J) so that shield (K) can be lowered into deflector (G).
6. Remove the deflector (G) and upper driveline shield (K).

(continued next page)

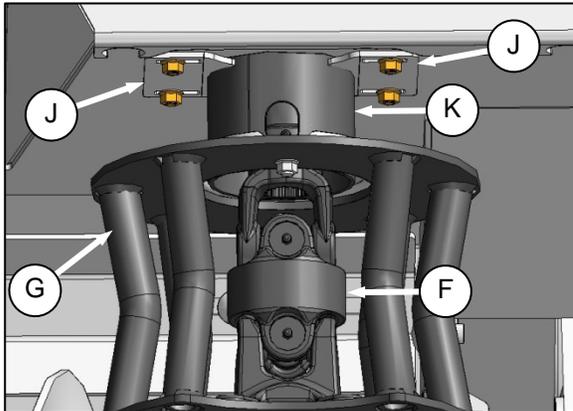
UNLOADING AND ASSEMBLY



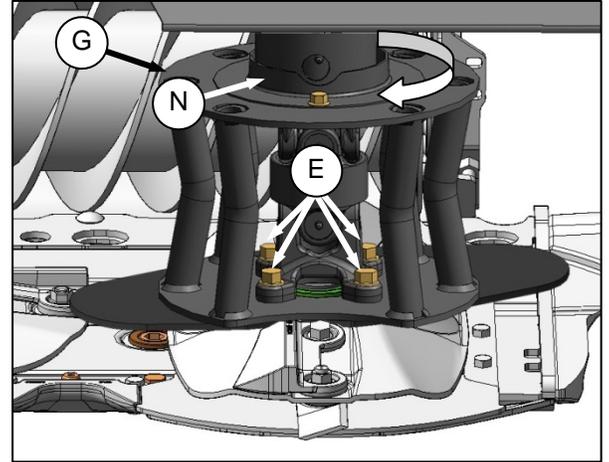
7. Locate feed plate (L) on the disc, ensuring that hole in feed plate registers on disc. Position plate approximately as shown and align holes.

IMPORTANT

Feed plate should be located so that when holes are aligned, the leading edge of the feed plate (L) is further from the accelerator (M) than the trailing edge.



8. Locate deflector (G) and upper driveline shield (K) onto feed plate (L).
9. Raise upper driveline shield (K) into position and move plates (J) into slots in shield. Do not tighten bolts.
10. Insert driveline (F) into deflector (G) and install onto shaft. Ensure that driveline (F) grease zerks will be accessible through large opening in deflector.



Clockwise rotation
LH driveline disc

11. Align mounting holes in deflector (G), spindle, and driveline (F), and reinstall four bolts (E).
 12. Torque bolts to 92 ft-lbf (125 N·m).
 13. Adjust the upper driveline shield (K) to achieve consistent gap around deflector shield (N).
 14. Tighten bolts on shield plates (J).
- e. Remove block of wood (if used).
 - f. Manually rotate discs to check for interference of feed plate and adjacent parts.



WARNING

Ensure cutterbar is completely clear of foreign objects. These objects can be ejected with considerable force when the machine is started and may result in serious injury or machine damage.

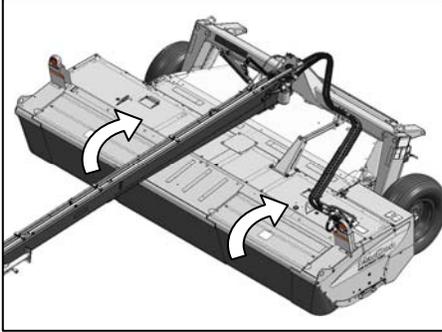
- g. Close cutterbar doors.

UNLOADING AND ASSEMBLY

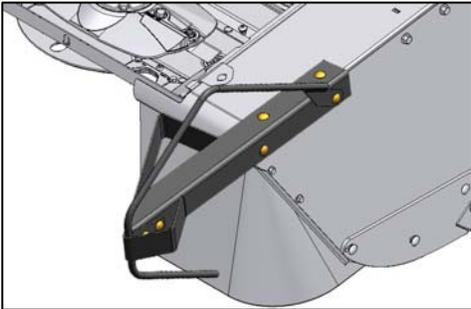
STEP 25. INSTALL OPTIONS

A. TALL CROP DIVIDER KIT

- a. Lower mower conditioner to the ground, shut off engine, and remove key from ignition.



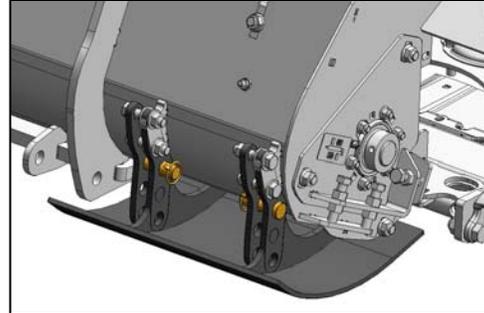
- b. Open cutterbar doors.



- c. Install tall crop dividers in accordance with instructions supplied with the kit.

B. SKID SHOES

- a. Raise mower conditioner fully, engage lift cylinder lock-out valves, and shut off engine. Remove key from ignition.



- b. Install skid shoes in accordance with instructions supplied with the kit.

UNLOADING AND ASSEMBLY

Export Mower Conditioners

STEP 26. LUBRICATE MOWER CONDITIONER



WARNING

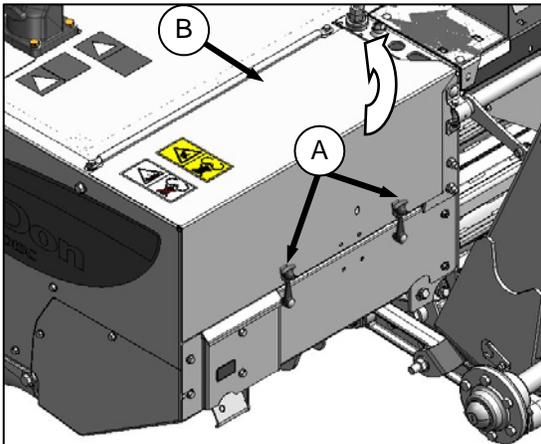
To avoid bodily injury or death from unexpected start-up or fall of raised machine, stop engine, remove key, and engage lift cylinder lock-out valves before going under machine for any reason.

The mower conditioner has been lubricated at the factory. However, it is recommended to lubricate the mower conditioner prior to delivery to offset the effects of weather during outside storage and transport and to familiarize the Dealer with the machine.

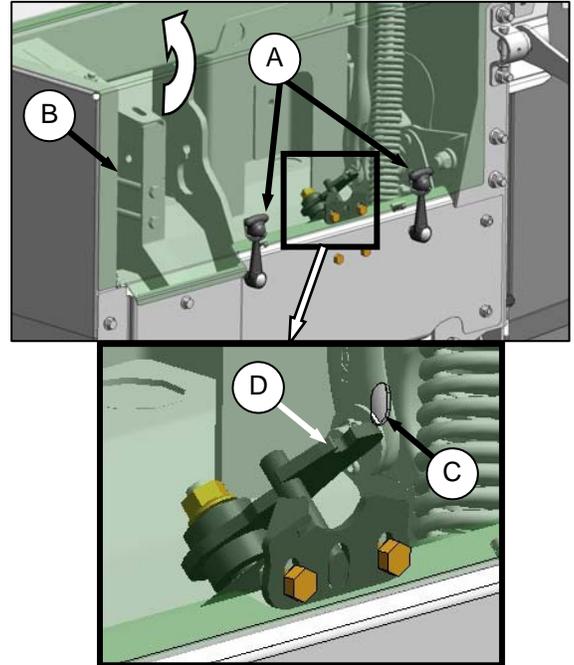
A. OPENING/CLOSING DRIVESHIELDS

Access to the mower conditioner drive systems requires opening the driveshield at the left end of the mower conditioner as follows:

North America Mower Conditioners



- To open driveshield, release rubber latches (A) and lift shield (B).
- To close driveshield, lower shield (B) so that pins at lower end of shield engage holes in lower panel.
- Engage rubber latches (A).



- To open driveshield:
 - Release rubber latches (A).
 - Insert a screwdriver (or equivalent) through hole (C) in shield into notch in latch (D) and disengage latch.
 - Open shield (B).
- To close driveshield:
 - Lower shield (B) so that pins at lower end of shield engage holes in lower panel and latch (D) re-engages shield.
 - Engage rubber latches (A).

B. LUBRICATION PROCEDURE

Refer to the illustrations on the following pages for lubrication points.

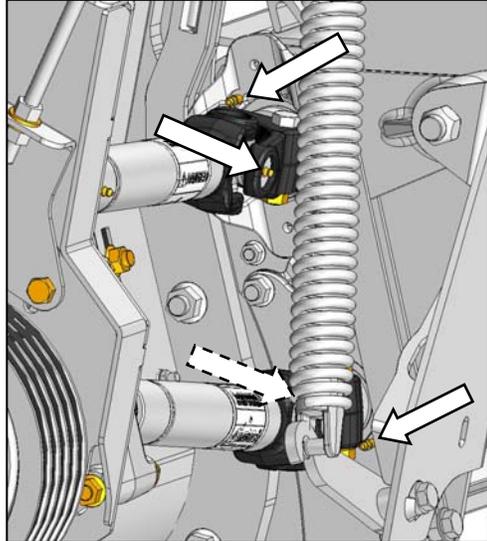
- Wipe grease fitting with a clean cloth before greasing to avoid injecting dirt and grit.
- Inject grease through fitting with grease gun until grease overflows fitting, except where noted.
- Leave excess grease on fitting to keep out dirt.
- Replace any loose or broken fittings immediately.
- If fitting will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.

(continued next page)

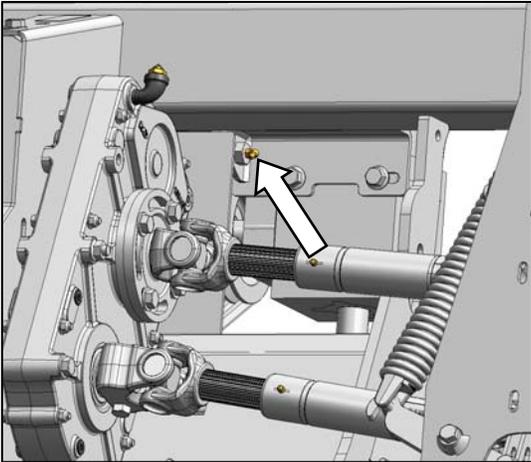
UNLOADING AND ASSEMBLY

Lubrication

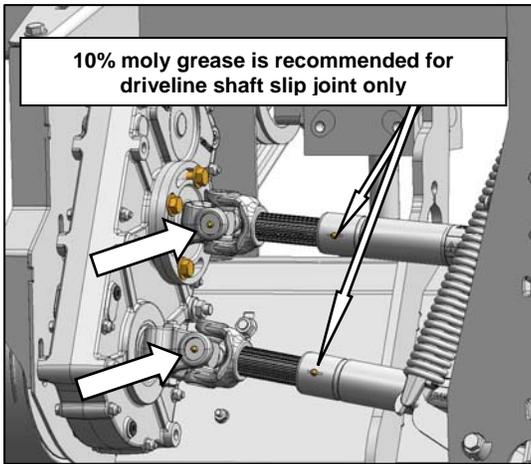
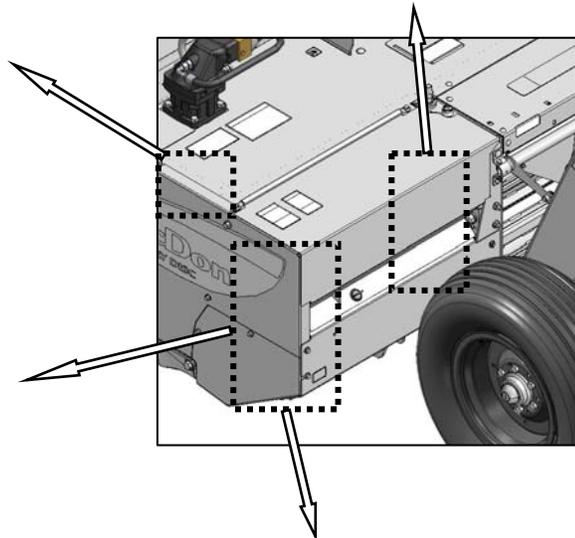
High Temperature Extreme Pressure (EP2) Performance With 1% Max Molybdenum Disulphide (NLGI Grade 2) Lithium Base

Driveline universals (2 places)
Roll shaft bearings (2 places)

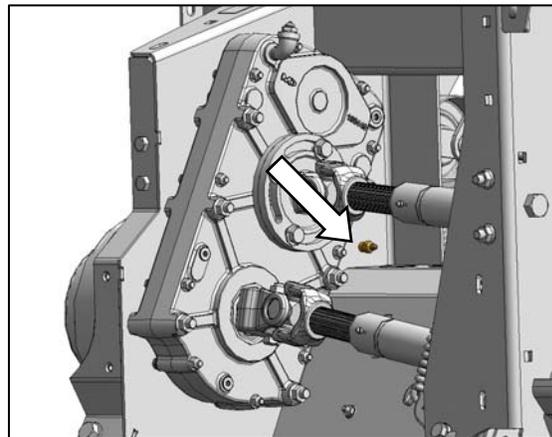


Belt tensioner pivot (1 place)



10% moly grease is recommended for driveline shaft slip joint only

Driveline universals (2 places)
Driveline shaft (2 places)

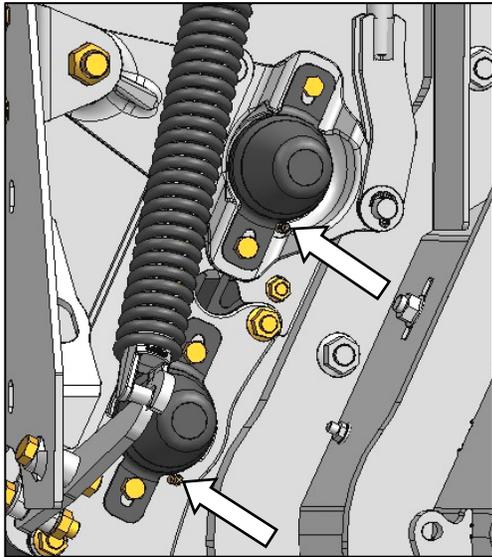


Auger bearing (1 place)

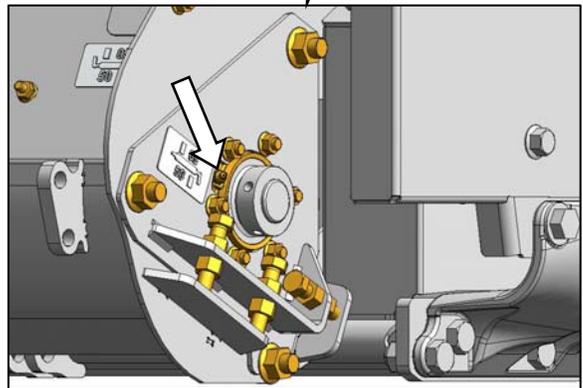
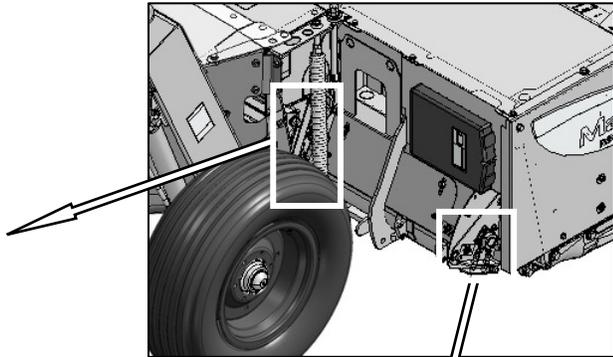
UNLOADING AND ASSEMBLY

Lubrication (cont'd)

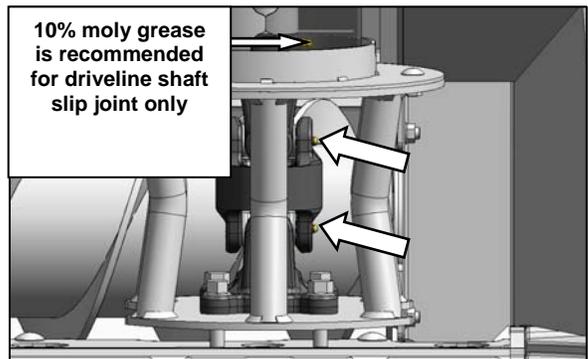
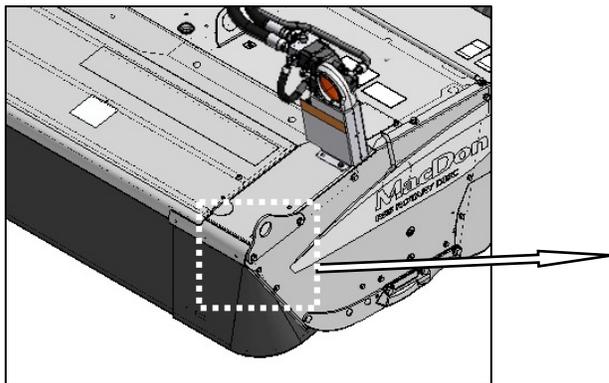
High Temperature Extreme Pressure (EP2) Performance With 1% Max Molybdenum Disulphide (NLGI Grade 2) Lithium Base



Roll shaft bearings (2 places)



Auger bearing (1 place)

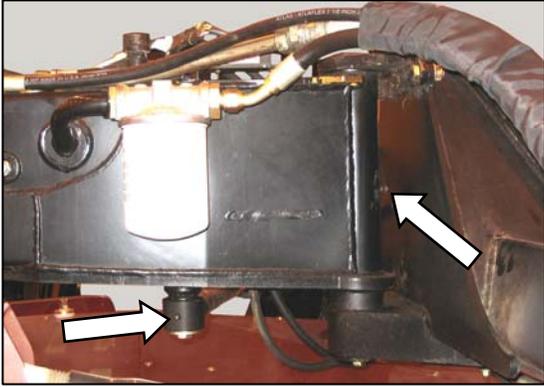


Driveline universals (2 places)
Driveshaft (1 place)

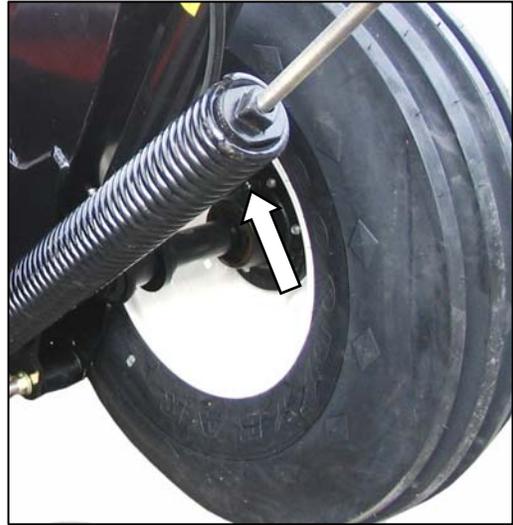
UNLOADING AND ASSEMBLY

Lubrication: Carrier Frame

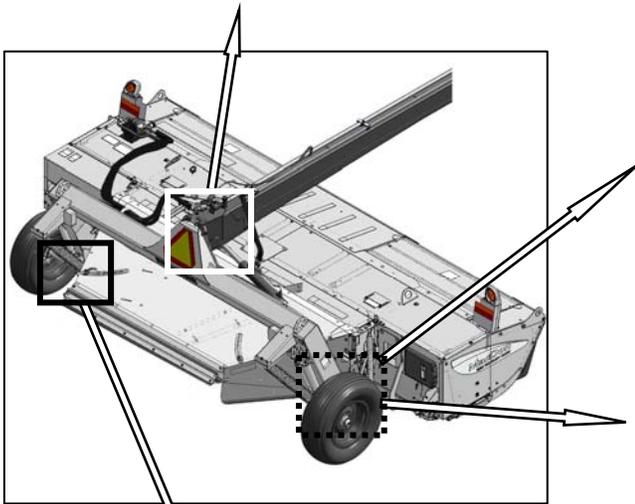
High Temperature Extreme Pressure (EP2) Performance With 1% Max Molybdenum Disulphide (NLGI Grade 2) Lithium Base



APT pivot and steering cylinder (2 places)



Wheel bearing (1 place) - both sides



Lift link (1 place) - both sides

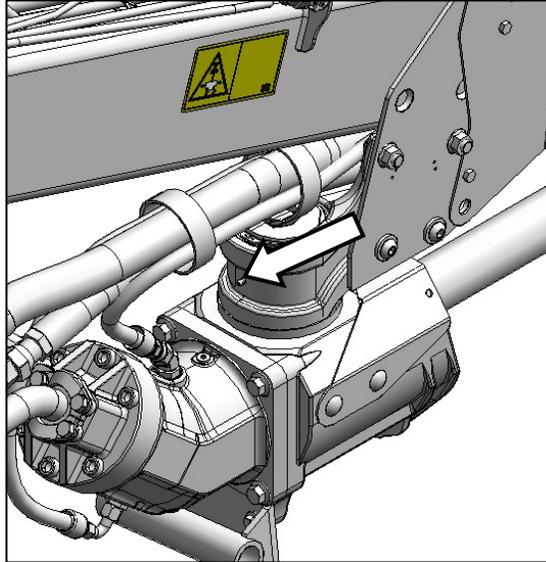


Cylinder pivot (1 place)

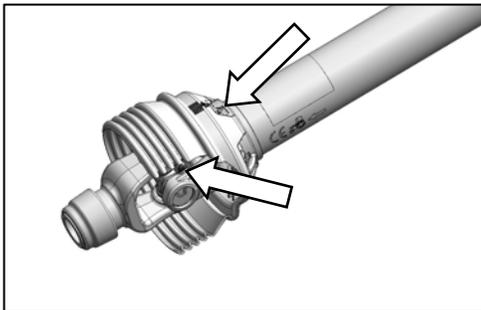
UNLOADING AND ASSEMBLY

Lubrication: APT Hitch

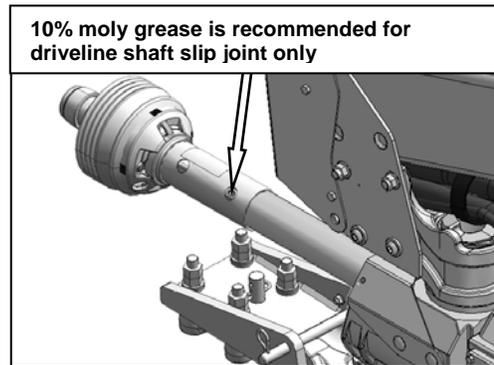
High Temperature Extreme Pressure
(EP2) Performance With 1% Max
Molybdenum Disulphide
(NLGI Grade 2) Lithium Base



APT swivel (1 place)



Driveline - both ends



Driveline shaft

PRE-DELIVERY CHECKS

STEP 27. PERFORM PREDELIVERY CHECKS



WARNING

Stop tractor engine and remove key before making adjustments to machine. A child or even a pet could engage the drive.

IMPORTANT

To avoid machine damage, check that no shipping dunnage has fallen into cutterbar.

- Perform the final checks and adjustments as listed on the Pre-Delivery Checklist (yellow sheet attached to back of this instruction) to ensure the machine is field-ready. Refer to the pages for detailed instructions as indicated on the Checklist.
- The completed Checklist should be retained either by the Operator or the Dealer.

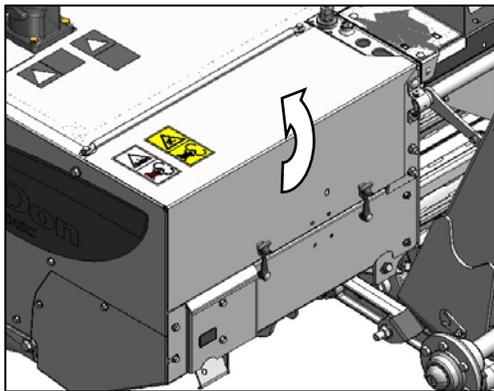
NOTE

The majority of checks and adjustments are performed during the set-up procedures. The following additional inspections should be performed after the set-up is complete.

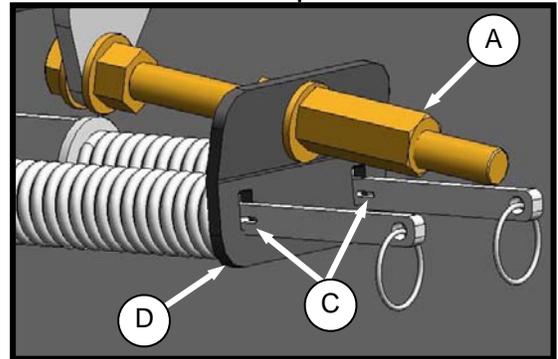
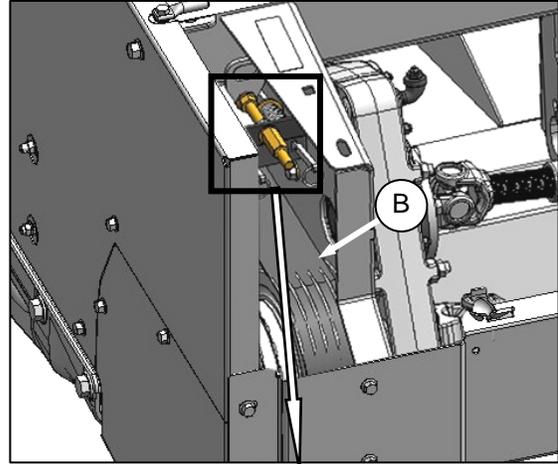
A. DRIVE BELTS

Drive belt tensions have been properly set at the factory and should not require any further adjustment.

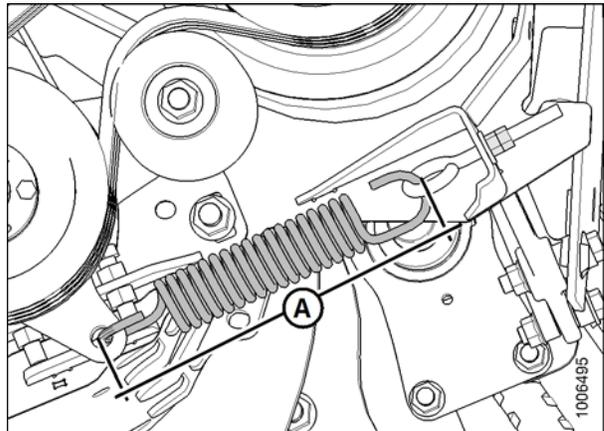
Check as follows:



- Open driveshield.



- Check that adjuster nut (A) is tight and that conditioner drive belt (B) is tensioned.
- Check that end of slots (C) are aligned with plate (D).



- To check auger belt tension, spring length (A) should measure 10.3 in. (262 mm).

PRE-DELIVERY CHECKS

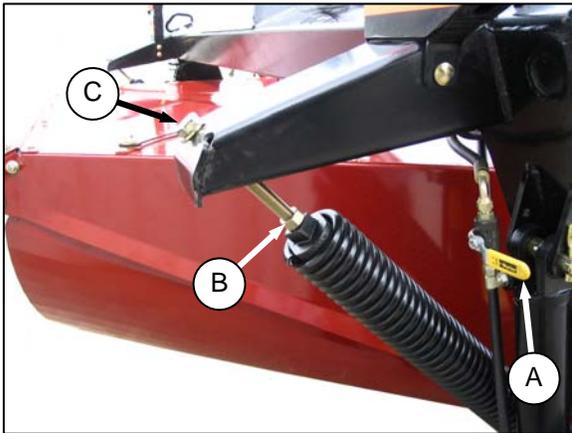
B. MOWER CONDITIONER FLOAT

- a. Check float by grasping the front corner of mower conditioner and lifting. The force to lift should be 95–105 lbf (426–471 N) and should be approximately the same at both ends.
- b. Perform the following steps to adjust the float (if necessary):
 1. Center mower conditioner directly behind the tractor.
 2. Raise mower conditioner fully, shut off engine, and remove key.



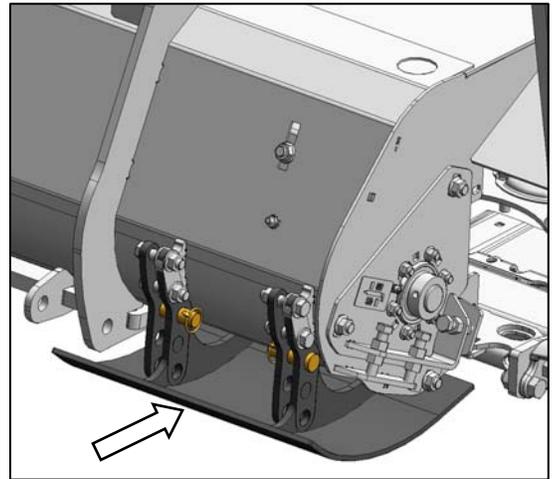
DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.



3. Close lift cylinder lock-out valves (A).
4. Back jam nut (B) away from spring.
5. To INCREASE float, turn adjuster bolt (C) CLOCKWISE (further into spring).
6. To DECREASE float, turn adjuster bolt (C) COUNTERCLOCKWISE (out of spring).
7. Tighten jam nut (B) against spring insert to secure the setting.
8. Open lock-out valves (A).
9. Lower mower conditioner and check mower conditioner float at each end.

C. SKID SHOES

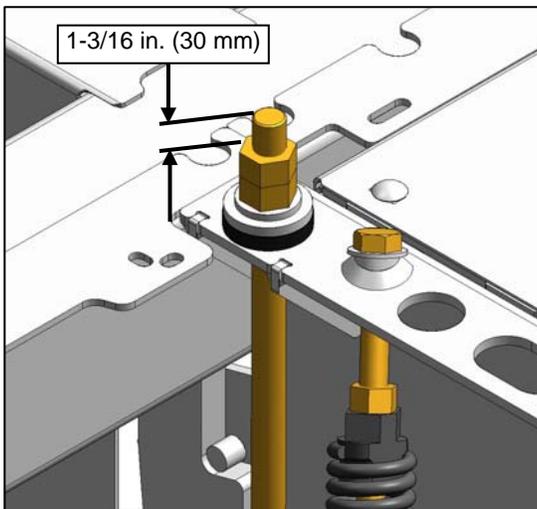
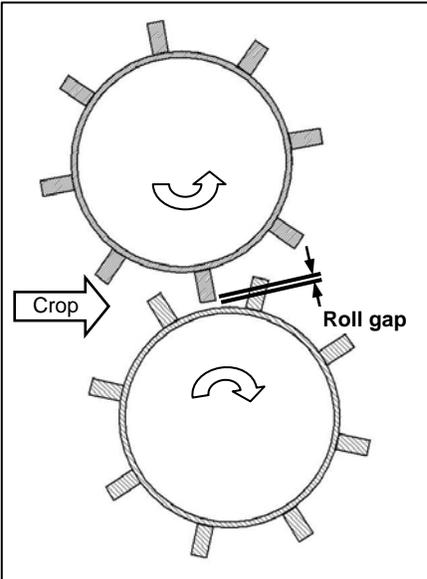


Both skid shoes should be set at the same position.

PRE-DELIVERY CHECKS

D. CONDITIONER ROLLS

I. ROLL GAP



The amount of thread protruding through jam nut should be 1-3/16 in. (30 mm). This equates to 1.0 in. (25 mm) of roll gap.

PRE-DELIVERY CHECKS

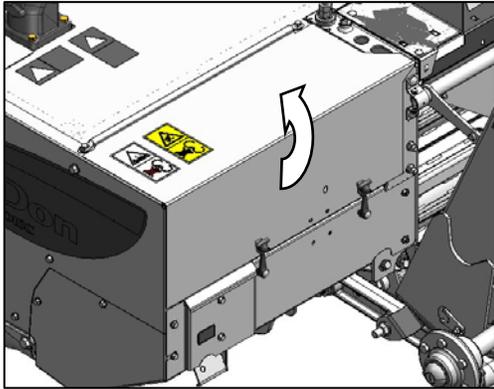
II. ROLL TIMING



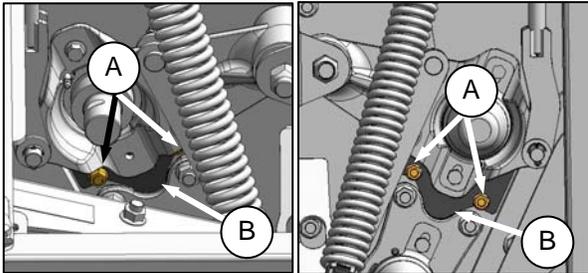
DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

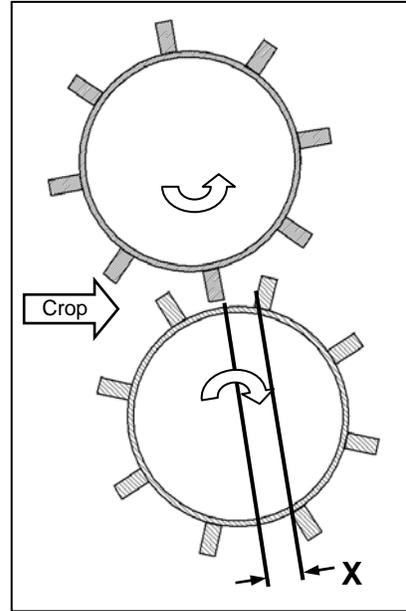
- a. Mower conditioner should be on ground and tractor should be shut down. Ensure key is removed from ignition.



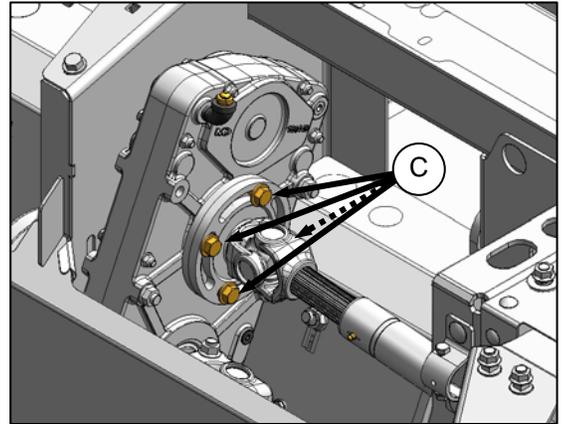
- b. Open driveshield.



- c. At each end of rolls, loosen nuts (A) and slide cover (B) upwards to expose observation hole.



- d. Each steel bar on one roll should be centered between two bars of the other roll so that distance 'X' is approximately equal on both sides of the bar.
- e. Re-position covers (B) and tighten nuts (A).

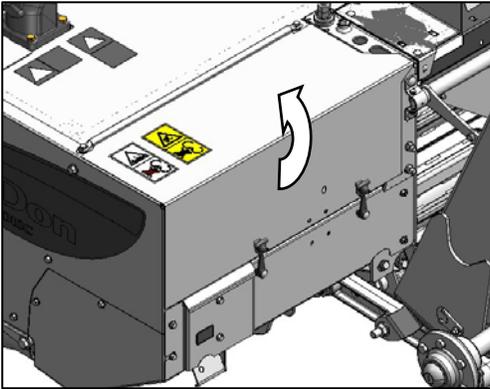


- f. Check timing flange bolts (C) are tight.
- g. Close driveshield.

PRE-DELIVERY CHECKS

E. GEARBOX OIL LEVELS

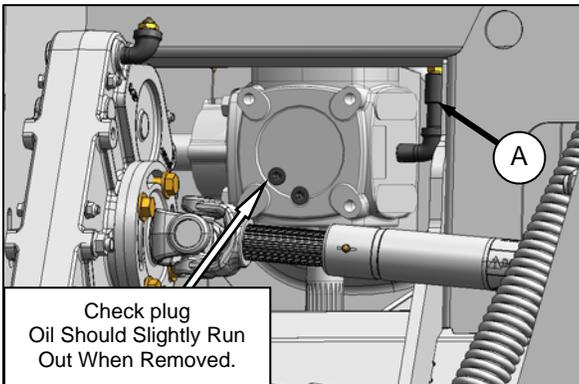
- a. Adjust mower conditioner height so that top of mower conditioner is horizontal.



- b. Open driveshield.

I. BEVEL GEARBOX

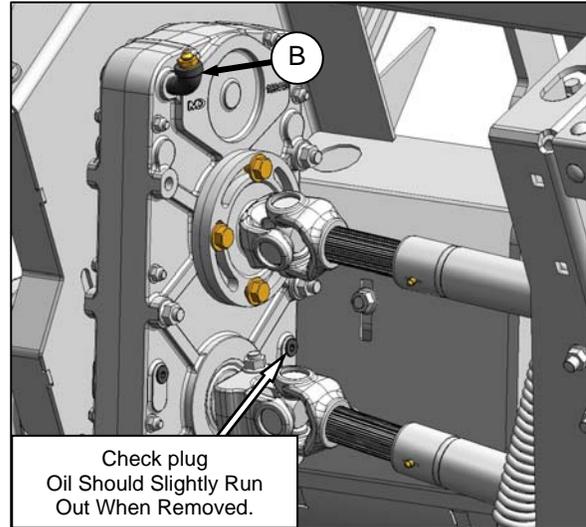
- a. Cut cable tie and remove bag from elbow.



- b. Remove plug from breather pipe (A) and replace with breather cap in bag. Discard bag and plug.
- c. Remove check plug to check oil level.

II. CONDITIONER GEARBOX

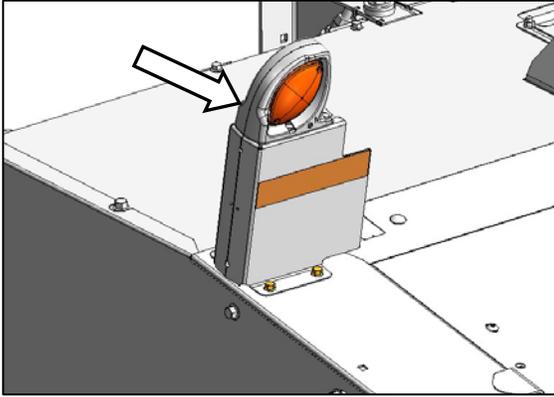
- a. Cut cable tie and remove bag from elbow.



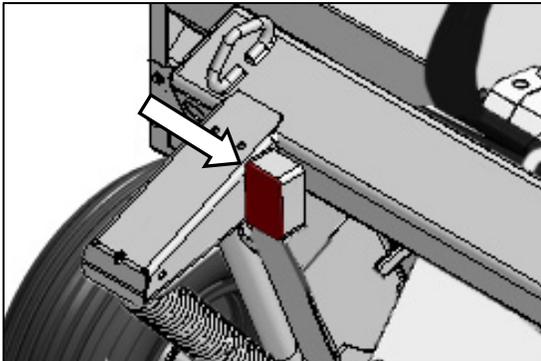
- b. Remove plug from breather pipe (B) and replace with breather cap in bag. Discard bag and plug.
- c. Remove check plug to check oil level.

PRE-DELIVERY CHECKS

F. LIGHTS

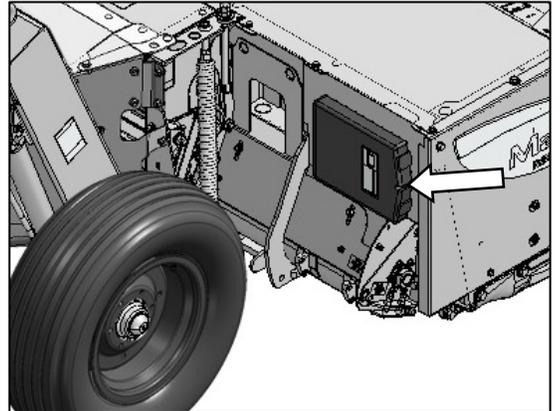


- a. The hazard lights, mounted on both ends of the mower conditioner, are activated by a switch in the tractor cab.
 1. Check for operation during run-up.
 2. Check light mountings for security and check lights for damage.
 3. Check that amber reflector faces toward the front of the machine.
- b. The tail/brake lights, mounted on both ends of the carrier frame, are activated by switches in the tractor cab.



1. Check for operation during run-up.
2. Check light mountings for security and check lights for damage.

G. MANUALS



The following manuals should be stored in the manual storage case at the right end of the mower conditioner:

- R85 16-ft. Rotary Disc Pull-Type Mower Conditioner & SP Windrower Header Parts Catalog – MD #169459.
- R85 Rotary Disc 16-ft. Pull-Type Mower Conditioner Operator's Manual – MD #169456.

PRE-DELIVERY CHECKS

H. RUN-UP THE MOWER CONDITIONER



CAUTION

- Never start or move the machine until you are sure all bystanders have cleared the area.
- Clear the area of other persons, pets, etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.
- Before investigating an unusual sound or attempting to correct a problem, shut off engine, engage parking brake, and remove key.



DANGER

- Keep everyone several hundred feet away from your operation. Ensure bystanders are never in line with the front or rear of the machine. Stones or other foreign objects can be ejected from either end with force.



- Extreme care must be exercised to avoid injury from thrown objects. Do NOT, under any circumstances, operate the mower conditioner when other people are in the vicinity. Stones and other objects can be thrown great distances by the rotating cutting blades.
- The cutterbar curtains are very important to reduce the potential for thrown objects. Always keep these curtains down when operating the mower conditioner. Replace the curtains if they should become worn or damaged.

- a. Start tractor. Set mower conditioner to working position and adjust center-link to mid-position.
- b. Run the mower conditioner slowly for 5 minutes, watching and listening FROM THE TRACTOR for binding, interfering parts, or unusual noises.



CAUTION

Before investigating an unusual sound or attempting to correct a problem, shut off tractor, engage parking brake, and remove key.

- c. Run machine for 15 minutes at operating speed, and perform the run-up check as listed on the Predelivery Checklist (yellow sheet attached to this instruction) to ensure the machine is field-ready.
- d. Retain the Checklist, and if desired, retain this instruction for future reference.

PRE-DELIVERY CHECKS

STEP 28. INSTALL TRUCK TRANSPORT HITCH

NOTE

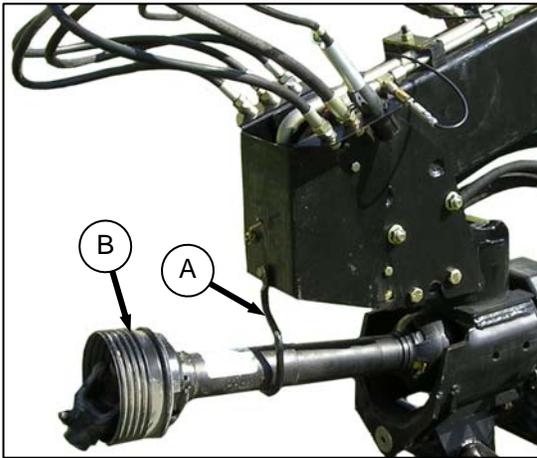
Only install this option if mower conditioner is to be transported with a truck.

- a. Lower mower conditioner to the ground, shut off engine, and remove key from ignition.
- b. Unhook mower conditioner from tractor.

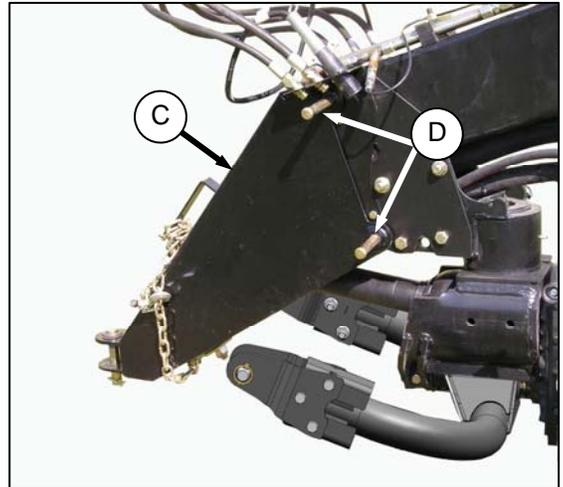


CAUTION

Do NOT tow with a vehicle weighing less than 7500 lb. (3400 kg). Ensure that the capacity of the towing vehicle is sufficient to maintain control. Refer to mower conditioner operator's manual before towing machine.



- c. Store hydraulic hoses on the hitch as shown.
- d. Lower hook (A) and place driveline in hook.
- e. Remove the forward half (B) of driveline and store in truck for transport.



- f. Position towing adapter (C) on hitch and secure with pins (D).

NOTES

NOTES

MacDon®

MacDon Industries Ltd.

680 Moray Street
Winnipeg, Manitoba
Canada R3J 3S3
t. (204) 885-5590
f. (204) 832-7749

MacDon Inc.

10708 N. Pomona Avenue
Kansas City, Missouri
United States 64153-1924
t. (816) 891-7313
f. (816) 891-7323

MacDon Australia Pty. Ltd.

A.C.N. 079 393 721
P.O. Box 243
Suite 3, 143 Main Street
Greensborough, Victoria
Australia 3088
t. 03 9432 9982
f. 03 9432 9972

LLC MacDon Russia Ltd.

123317 Moscow, Russia
10 Presnenskaya nab. Block C,
Floor 5, Office No. 534
Regus Business Centre
t. +7 495 775 6971 direct line
f. +7 495 967 7600

CUSTOMERS

www.macdon.com

DEALERS

www.macdondealers.com

Trademarks of products are the marks of their
respective manufacturers and/or distributors.

Printed in Canada

R85 16-Foot Rotary Disc Pull-Type Mower Conditioner Predelivery Checklist

Perform these checks and adjustments prior to delivery to your customer. See the Unloading and Assembly Instructions for details. The completed checklist should be retained either by the Operator or the Dealer.



CAUTION: Carefully follow the instructions given. Be alert for safety related messages which bring your attention to hazards and unsafe practices.

WARNING: Do not operate the machine with the driveshields open. High speed rotating components may throw debris and could result in death or serious injury.

Header Serial Number: _____ APT Serial Number: _____

✓	ITEM	PAGE
	Check for shipping damage or missing parts. Be sure all shipping dunnage is removed.	---
	Check for loose hardware. Tighten to required torque.	5
	Check main drive belt tension.	46
	Check auger drive belt tension.	46
	Check header angle to middle of adjustment range.	52
	Check header float. 95–105 lbf (426–471 N)	47
	Check tire pressure. 30 psi (207 kPa)	21
	Check wheel bolt torque. 120 ft·lbf (160 N·m)	21
	Check hydraulic oil level at sight glass on side of APT hitch.	18
	Check side forming shields evenly set to desired position.	22
	Check rear deflector about half way down.	24
	Check swath baffle set about half way.	25
	Check skid shoes evenly set.	40
	Check bevel gearbox breather installed.	50
	Check bevel gearbox lube level.	50
	Check conditioner gearbox breather installed.	50
	Check conditioner gearbox lube level.	50
	Grease all bearings and drivelines.	42–45
	Check conditioner roll gap and timing.	48–49
	Check roll intermesh hardware is securely tightened.	49
	Check cutterbar curtains are hanging properly and are latched.	15
	Check hydraulic hose and wiring harness routing.	---
	Check cutterbar area carefully for loose parts and hardware on the cutterbar. WARNING: These objects can be ejected with considerable force when the machine is started, and may result in serious injury or machine damage.	---
RUN-UP PROCEDURE		52
	Check hydraulic hose and wiring harness routing for clearance when raising or lowering header.	---
	Check tail lights and hazard lights are functional.	51
POST RUN-UP CHECKS. STOP ENGINE.		
	Check belt drives for idler alignment and heated bearings.	46
	Check for hydraulic leaks.	---
	Check header manuals in storage case.	51

Checked By: _____

Date: _____